

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
LUFKIN DIVISION

ANASCAPE, LTD.	§	
	§	Hon. Ron Clark
Plaintiff,	§	
	§	
v.	§	Civil Action No. 9:06-CV-00158-RC
	§	
MICROSOFT CORPORATION, and	§	
NINTENDO OF AMERICA, INC.,	§	
	§	
Defendants.	§	

**DECLARATION OF STEPHEN BRISTOW IN SUPPORT OF  
MICROSOFT CORPORATION’S MOTION FOR PARTIAL SUMMARY  
JUDGMENT – NON-INFRINGEMENT OF “3-D GRAPHICS CONTROLLER” CLAIMS**

I, Stephen Bristow, declare as follows:

1. I have been retained as an expert on behalf of Microsoft Corporation. I submit this Declaration in support of Microsoft’s Motion for Partial Summary Judgment of Non-Infringement of “3-D Graphics Controller Claims.”

**I. SUMMARY**

2. None of the Microsoft controllers has an input member that is capable of movement in all six degrees of freedom. Further, even if the movements of the Microsoft controllers’ input members are combined, they are still incapable of movement in all six degrees of freedom. Thus, the Microsoft controllers are not “3-D graphics controllers” within the meaning of the Court’s *Markman* Order (Docket No. 182).

**II. QUALIFICATIONS**

3. I have over 36 years of engineering experience. The bulk of my experience has been in the area of consumer electronics. I am the named inventor on over 15 patents. One of these patents is for the design of low cost joysticks such as might be used in a home game

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system. I was an engineer for Nutting Associates who brought out the first successful coin-operated video game, “Computer Space” in 1971. I worked for Atari from 1973 to 1984, and was Vice President of Engineering for the coin-operated game group, consumer electronics group, the handheld game group, and the computer engineering group during my tenure at Atari. I have been Vice President of Engineering for Data East, a manufacturer of coin-operated video games and pinball machines. I was Director of R&D for Radica, a leading manufacturer of handheld LCD games and dedicated TV games. I worked on TV game processing chips for Hasbro Electronics and designed handheld electronic games for Machina.

4. Attached as Exhibit A is my curriculum vitae, which outlines in more detail my employment history and prior work as an expert witness.

### **III. MICROSOFT’S CONTROLLERS**

5. For purposes of this declaration, I have reviewed Microsoft’s Xbox controller, Xbox Controller S, and Xbox 360 and Xbox 360 Wireless controllers (collectively “Microsoft’s Controllers”). The Xbox controller and Xbox Controller S are, for purposes of this declaration, the same and I will refer to them simply as the Xbox controllers throughout this Declaration. Similarly, the Xbox 360 and Xbox 360 Wireless controller are referred to simply as Xbox 360 controllers.

6. All of Microsoft’s controllers have two thumbsticks (left and right), a D-Pad, and two triggers (left and right).

7. Each thumbstick is capable of rotation in two degrees of freedom. In particular, each thumbstick can rotate about the left/right axis and about the front/back axis. In addition, each thumbstick can be pressed downward from its neutral position and, upon release, will return to the neutral position. The thumbsticks cannot be moved upward from the neutral position. I

consider the ability to move the thumbsticks down from the neutral position, but not up, to offer one-half a degree of freedom. The thumbsticks also cannot be rotated about the up/down axis, or moved linearly along either the front/back axis or the left right axis. Thus, each thumbstick on the Microsoft controllers is capable of movement in only 2 ½ degrees of freedom.

8. The D-Pad on Microsoft's controllers is capable of movement in two degrees of freedom. In particular, the D-Pad can rotate about the front/back axis and the left/right axis. It cannot rotate about the up/down axis and cannot move linearly along any axis. The D-Pad's 2 degrees of freedom are redundant with the thumbsticks' 2 full degrees of freedom.

9. Each trigger on Microsoft's controllers is capable of movement in a half of a degree of freedom. Each trigger can be pulled towards the user from its neutral position and, upon release, will return to the neutral position. The triggers cannot be rotated away from the user from the neutral position. I consider the ability to rotate the triggers towards the user from the neutral position, but not away from the user, to offer ½ a degree of freedom. The triggers cannot rotate about the front/back axis or up/down axis. The triggers cannot move linearly along any axis. Each trigger's one-half a degree of freedom is along the same axis, and thus redundant with one-half of one of the degrees of freedom of the thumbsticks and the D-Pad.

10. The Table below summarizes the possible movements of each of the input members on Microsoft's controllers. As can be seen, none of the input members is capable of movement in six degrees of freedom. Further, no combination of input members is capable of movement in six degrees of freedom. In particular, no input member is capable of linear movement along the front/back axis, no input member is capable of linear movement along the left/right axis, no input member is capable of upward linear movement along the up/down axis, and no input member is capable of rotation about the up/down axis.

Input Member	Linear Movement			Rotational Movement		
	Front /Back	Left/ Right	Up/ Down	Roll (Front/ Back)	Pitch (Left/ Right)	Yaw (Up/ Down)
Left Thumbstick			1/2	✓	✓	
Right Thumbstick			1/2	✓	✓	
D Pad				✓	✓	
Left Trigger					1/2	
Right Trigger					1/2	

11. In addition to the thumbsticks, D-Pad, and triggers, each of Microsoft's controllers has several buttons. The Xbox controllers have eight buttons on their top surface and the Xbox 360 controllers have six buttons on their top surface and two buttons on their front surface.<sup>1</sup> Each top surface button is capable of movement down from the neutral position and will return to the neutral position when released. None of these buttons is capable of movement up from the neutral position. Thus, each top surface button is capable of movement in the same one-half degree freedom. This one-half degree of freedom is redundant with the one-half degree of freedom offered by each thumbstick. The two front surface buttons on the Xbox 360 controller are each capable of movement back (towards the user) from the neutral position and will return to the neutral position when released. Neither of these buttons is capable of movement forward from the neutral position. Thus, they are each capable of moving in the same one-half degree of freedom along the front/back axis.

12. In the art of video games, movement in six degrees of freedom is different than simple movement in a three dimensional environment. Movement in six degrees of freedom requires the ability to move independently in any of the six degrees of freedom with regard to a

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<sup>1</sup> In addition the top surface of the Xbox 360 controllers includes a power button for turning the controller on and off. However, this button plays no role in controlling movement.

single reference point: 1) linear movement along the front/back axis; 2) linear movement along the left/right axis; 3) linear movement along the up/down axis; 4) rotation about front/back axis (roll); 5) rotation about the left/right axis (pitch); and rotation about the up/down axis (yaw). It is very possible to move through a 3-dimensional environment with far fewer than six degrees of freedom. For example, a train can be driven along its tracks through the three dimensional terrain of the earth. However, it cannot be controlled in six degrees of freedom. Although a train can gain altitude by climbing a hill, it cannot be driven straight up or straight down.<sup>2</sup> Similarly, a train cannot be driven sideways and cannot, of its own accord, rotate about any axis.

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

Executed this 27 day of February, 2008.

  
Stephen Bristow

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<sup>2</sup> Of course a train might theoretically be lifted straight up by a crane or other type of device. Such movement, however, is not controlled by the train. Likewise, a train can theoretically be moved by another device in any of the six degrees of freedom, but it cannot be driven or controlled in six degrees of freedom.

**CERTIFICATE OF SERVICE**

The undersigned certifies that on the 27<sup>th</sup> day of February, 2008, the foregoing pleading was electronically filed with the Court. Pursuant to Local Rule CV-5(a)(3), this constitutes service on the following counsel:

By: /s/ John D. Vandenberg

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