

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INTEL CORPORATION,
Petitioner,

v.

FUZZYSHARP TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2014-00001
Patent 6,618,047 B1

Before JUSTIN T. ARBES, TREVOR M. JEFFERSON, and
DAVID C. MCKONE, *Administrative Patent Judges*.

MCKONE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Intel Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 1, 8, 11–13, 46, 57, 64, 65, and 67 of U.S. Patent No. 6,618,047 B1 (Ex. 1001, “the ’047 patent”). FuzzySharp Technologies, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, in our Decision to Institute (Paper 7, “Dec.”), we instituted this proceeding as to all of the challenged claims of the ’047 patent.

During this trial, Patent Owner filed a Patent Owner Response (Paper 15, “PO Resp.”) and Petitioner filed a Reply to the Patent Owner Response (Paper 19, “Reply”). An oral hearing in this matter and IPR2014-00002 (argued together) was held on October 28, 2014 (Paper 22, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This decision is a final written decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims. Based on the record before us, Petitioner has demonstrated by a preponderance of the evidence that claims 1, 8, 11–13, 46, 57, 64, 65, and 67 are unpatentable.

B. Related Proceedings

According to Petitioner, Patent Owner has asserted the ’047 patent against Petitioner in Case No. 4:12-cv-04413-YGR (N.D. Cal.) (“Intel action”), which is currently on appeal to the U.S. Court of Appeals for the Federal Circuit. Pet. 2; Paper 18.

According to Patent Owner, the only matter pending that may be affected by a decision in this proceeding is *FuzzySharp Technologies, Inc. v. Nvidia Corp.*, Case No. 12-cv-6375-JST (N.D. Cal.). Paper 5, at 2.

Petitioner also filed a petition for *inter partes* review of U.S. Patent No. 6,172,679 B1 (“the ’679 patent”). See *Intel Corp. v. FuzzySharp Technologies, Inc.*, Case IPR2014-00002 (PTAB). The ’047 patent is a continuation of the ’679 patent. See Ex. 1001, at [63]. The ’679 patent also is asserted by Patent Owner in the Intel action. See, e.g., Ex. 1009.

C. References Relied Upon

Petitioner relies upon the following prior art references:

David Salesin & Jorge Stolfi, *The ZZ-Buffer: A Simple and Efficient Rendering Algorithm with Reliable Antialiasing* (1989) (Ex. 1002, “Salesin”);

JAMES D. FOLEY ET AL., *COMPUTER GRAPHICS, PRINCIPLES AND PRACTICE* 340–41, 521–22, 665, 799 (2d ed. 1990) (Ex. 1003, “Foley”).

D. Grounds of Unpatentability

We instituted this proceeding based on the grounds of unpatentability set forth in the table below. Dec. 36–37.

Reference(s)	Basis	Claim(s) Challenged
Salesin	§ 102(b)	1, 8, 12, 13, 46, 57, 64, 65, and 67
Salesin and Foley	§ 103(a)	11

E. The '047 Patent

The '047 patent describes techniques for improving three-dimensional (“3-D”) computer graphics visibility calculations. Ex. 1001, 1:13–16. A point in a 3-D image can be viewed from multiple viewpoints. *Id.* at 4:14–24. This is illustrated in Figures 2 and 3, reproduced below:

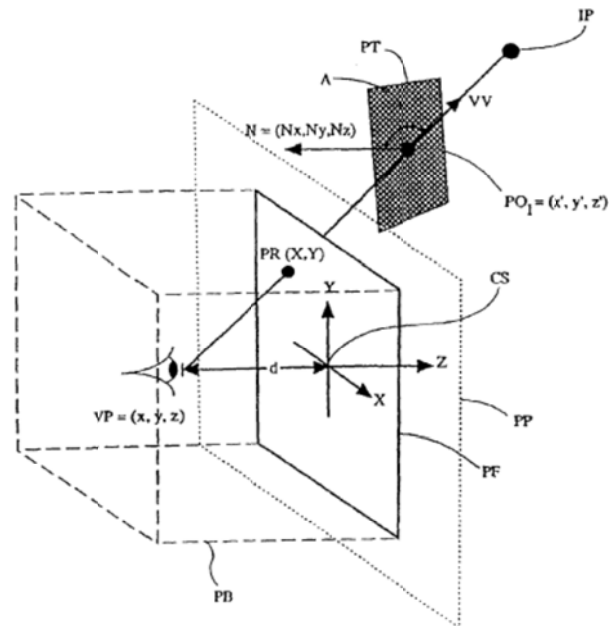


FIG. 2

Figure 2 depicts projections of a point at an arbitrary viewpoint. *Id.* at 3:13.

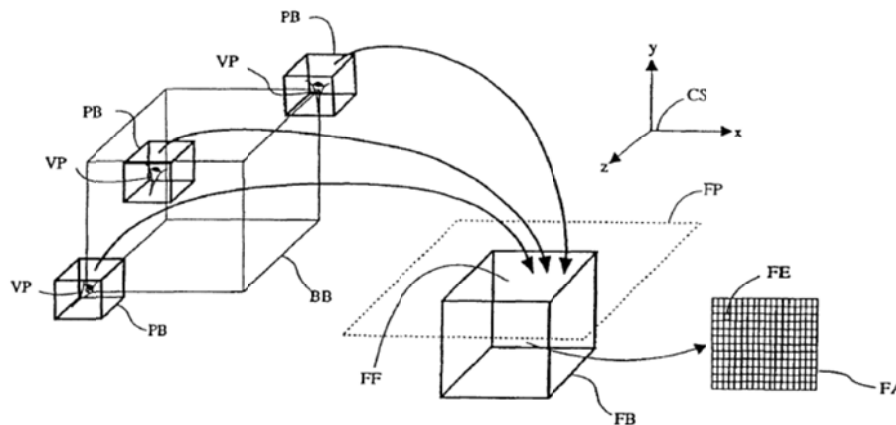


FIG. 3

Figure 3 depicts the relationship between projection boxes and a fuzzy projection box. *Id.* at 3:14–15.

A group of viewpoints (e.g., the three VPs of Figure 3) can be associated with a coordinate system and grouped in a “viewpoint bounding box” (e.g., BB of Figure 3), which the patent describes as the smallest right quadrangular prism enclosing the viewpoints. *Id.* at 4:35–40. The point to be observed can be said to be totally visible from the bounding box if it is always visible from every possible viewpoint in the bounding box and totally invisible if it is hidden from every such viewpoint. *Id.* at 4:46–50. The group of viewpoints may contain only a single viewpoint; in that case, the bounding box degenerates into the viewpoint. *Id.* at 4:58–63.

As shown in Figure 2, the point to be observed (PO) can be represented by the intersection of a projection plane (PP) and a vector (VV) from the point to be observed (PO) to a viewpoint (VP). *Id.* at 5:3–16; Fig. 2. As shown in Figure 3, to facilitate sampling, the projection plane can be divided into rectangular cells or elements (fuzzy array FA). *Id.* at 6:27–

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.