

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,

Petitioner,

v.

ADVANCED CODING TECHNOLOGIES, LLC,

Patent Owner.

Patent No. 8,090,025

Filing Date: April 17, 2007

Issue Date: January 3, 2012

Inventor: Satoru Sakazume

Title: MOVING-PICTURE CODING APPARATUS, METHOD
AND PROGRAM, AND MOVING-PICTURE DECODING
APPARATUS, METHOD AND PROGRAM

PATENT OWNER'S PRELIMINARY SUR-REPLY

Case No. IPR2024-00374

TABLE OF CONTENTS

	<u>Page(s)</u>
I. INTRODUCTION	1
II. THE PETITION FAILS TO DISCLOSE “BORDER MOTION- VECTOR DATA”	1
III. THE PETITION SHOULD BE DENIED UNDER § 325(d).....	3
IV. CONCLUSION.....	4

TABLE OF AUTHORITIES

Page(s)

Cases

Unified Pats. Inc. v. John L. Berman,
IPR2016-01571, Paper 10 (P.T.A.B. Dec. 14, 2016) 4

Statutes

35 U.S.C. § 325(d)..... 1, 4

LIST OF EXHIBITS

Exhibit No.	Description of Document
2001	Fourth Amended Docket Control Order, Dkt. 93, <i>Advanced Coding Techs. LLC v. LG Elecs. Inc.</i> , Case No. 2:22-cv-00501-JRG (E.D. Tex. March 11, 2024)
2002	Defendants' Joint Patent L.R. 3-3 Invalidity Contentions and Subject Matter Ineligibility Contentions, <i>Advanced Coding Techs. LLC v. LG Elecs. Inc.</i> , Case No. 2:22-cv-00501-JRG (E.D. Tex.), served Feb. 21, 2024
2003	Joint Claim Construction and Prehearing Statement, Dkt. 87, <i>Advanced Coding Techs. LLC v. Samsung Elecs. Co.</i> , Case No. 2:22-cv-00499-JRG (E.D. Tex.), filed March 5, 2024
2004	U.S. Patent No. 8,090,025 to Sakazume (the '025 Patent), issued January 3, 2012, with Certificate of Correction, signed and sealed October 4, 2022
2005	"Improvement of DCT-based Compression Algorithms Using Poisson's Equation," Katsu Yamatani and Naoki Saito, Senior Member, IEEE, pp. 1-38, September 12, 2005

I. INTRODUCTION

Petitioner's Reply ("Paper 9" or "Reply") highlights (i) that the Petition fails to disclose the claimed "border motion-vector data" as properly construed; and (ii) that the Petition fails to address whether "substantially the same prior art or arguments previously were presented to the Office" as required by 35 U.S.C. § 325(d). Therefore, the Board should deny institution of the Petition.

II. THE PETITION FAILS TO DISCLOSE "BORDER MOTION-VECTOR DATA"

The Petition relies only on Shirani's "1st-stage 'temporal error concealment' . . . for the claimed 'border motion vector data.'" Reply, 3. Petitioner's Reply confirms that Shirani's 1st stage temporal error concealment theory does not disclose the claimed border motion vector data, properly construed as "data representing the difference in spatial position between a border of the block to be predicted in the picture to be coded and the best-matched border in the reference picture."

First, Shirani is silent regarding a "best matched border in the reference picture." Rather, Shirani describes that matching of subblocks from the current frame to the previous frame is performed "by searching a small area around the point corresponding to the center of each of the subblocks [] in the previous frame." Ex. 1006, 3. In other words, any matching to the reference pictures relates to *the center* of the subblocks instead of the border.

Shirani's "border error" does not indicate the "best matched border in the

reference picture” because Shirani’s “border error” difference is “between the estimated block and its adjacent above and left blocks” rather than between pixels in a reference picture and pixels in the actual picture to be estimated. *Id.* As shown below, the mathematical representation of Shirani’s border errors confirms that the border errors correspond to a difference in adjacent pixel rows/columns, for example, between the pixels in the top row of the estimated block and the bottom line pixels of the subblock to the top of the missing (estimated) block.

Each of the border errors ϵ_T and ϵ_L is defined in terms of pixels by

$$\epsilon_T^2 = \|(\hat{x}_t - p_{Tb})\|^2 \quad \text{and} \quad \epsilon_L^2 = \|(\hat{x}_l - p_{Lx})\|^2$$

where the vector p_{Tb} consists of the bottom line pixels of the block to the top of the missing block, and p_{Lx} consists of the right column pixels of the block to the left of missing block. The vectors $\hat{x}_t$ and $\hat{x}_l$ are those elements of the estimated block $\hat{X}$ that correspond to the pixels in its top row and left column,

Ex. 1006, 3.

Second, Shirani’s “motion vectors” are described only once as an alternative to the border error calculation that Petitioner relies upon. Since the calculation of Shirani’s border errors uses a high computational overhead, an alternative is restricting the search for subblock displacement to a set of candidate motion vectors:

The estimation of motion of the subblocks has a high computational overhead which can possibly introduce unacceptable requirements on decoder. The computational overhead can be reduced if the search for displacement of each of the subblocks is restricted to a set of candidate motion vectors that correspond to each of the neighboring blocks and the missing block.

Ex. 1006, 3. Shirani states that border errors for subblocks to determine an adjacent “missing block” are only calculated “[w]hen the motion vector is not available.”:

When the motion vector is not available, we find an estimate of the missing block such that image continuity inside the block and across its boundaries is preserved.

Ex. 1006, 3 (emphasis added).

Petitioner admits that Shirani’s second stage is inapposite because, according to Petitioner, the edges in Shirani’s second stage only refer to object edges. Reply, 3. Institution should be denied because the Petition fails to show that either Shirani’s 1st stage temporal error concealment or 2nd stage spatial error concealment disclose the claimed border motion vector data.

III. THE PETITION SHOULD BE DENIED UNDER § 325(d)

Petitioner does not deny that Saito-2005 was considered during prosecution of the ’025 Patent and that Saito-2005 is cited in Saito. Reply, 3-4; Ex. 1007, 27, n.44. Petitioner also does not deny that every single time it references Saito with respect to Claim 6’s “generating an estimated video signal . . . that satisfies Poisson’s Equation, thus producing the predictive picture,”¹ Petitioner cites to page 27, where Saito cites to Saito-2005. *See* Pet. at 72-75. Petitioner does not deny that the ’025 Patent itself cites to Saito in connection with “Compression Algorithms Using

¹ “the Poisson’s Equation claim limitation”

Poisson's Equation." '025 Patent, 11:39-42.

The Examiner evidently considered the same disclosure between Saito and Saito-2005 for precisely the Poisson's Equation claim limitation. The Examiner's Reasons for Allowance particularly stated this Poisson's Equation claim limitation was distinguished over Saito-2005, and therefore, would also be distinguished over Saito for the same reasons. *See* Paper 6 ("Prelim. Resp."), 25-27. As such, Petitioner failed to address whether "***substantially the same prior art or arguments*** previously were presented to the Office," as required by § 325(d) (emphasis added).

Petitioner's continual restatement that the particular combination of references, Mualla, Shirani, Stockhammer, and Saito, was not considered by the Patent Office is irrelevant. Reply, 4; *see Unified Pats. Inc. v. John L. Berman*, IPR2016-01571, Paper 10, at 11-12 (P.T.A.B. Dec. 14, 2016) (denying institution where only one of the prior art references of the combination cited in the Petition was considered by the PTO during prosecution). Based on the use of these references in the Petition, had this precise combination been considered by the Patent Office, only Saito would have been relied on for the Poisson's Equation claim limitation, which would be distinguished over the common disclosure of Saito and Saito-2005. Therefore, the Board should deny all Grounds involving Saito and Saito-2005.

IV. CONCLUSION

Patent Owner requests that the Board deny institution of the Petition.

Respectfully submitted,

Dated: June 26, 2024

By: /Peter Lambrianakos /
Peter Lambrianakos (Reg. No. 58,279)
Email: plambrianakos@fabricantllp.com
Lead Counsel for Patent Owner
Vincent J. Rubino, III (Reg. No. 68,594)
Email: vrubino@fabricantllp.com
Back-Up Counsel for Patent Owner
Joseph M. Mercadante (Reg. No. 64,077)
Email: jmercadante@fabricantllp.com
Back-Up Counsel for Patent Owner
FABRICANT LLP
411 Theodore Fremd Avenue
Suite 206 South
Rye, New York 10580
Tel. 212-257-5797
Fax. 212-257-5796

CERTIFICATE OF SERVICE

A copy of the foregoing Patent Owner's Preliminary Sur-Reply has been served on Petitioner's counsel of record as follows:

W. Karl Renner
Email: IPR39843-0168IP1@fr.com
Email: PTABInbound@fr.com
Email: axf-ptab@fr.com
Jeremy J. Monaldo
Email: jjm@fr.com
Won S. Yoon
Email: yoon@fr.com
FISH & RICHARDSON
60 South Sixth Street, Suite 3200
Minneapolis, Minnesota 55402

Attorneys for Samsung Electronics Co., Ltd.

June 26, 2024

By: /Peter Lambrianakos /
Peter Lambrianakos (Reg. No. 58,279)
Lead Counsel for Patent Owner
FABRICANT LLP
411 Theodore Fremd Avenue
Suite 206 South
Rye, New York 10580
Tel. 212-257-5797
Fax. 212-257-5796