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Filed on behalf of Sony Interactive Entertainment LLC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Sony Interactive Entertainment LLC,
Petitioner,

v.

Intellectual Pixels Limited,
Patent Owner

Case IPR2021-00237
U.S. Patent No. 10,681,109

PETITIONER'S OPENING BRIEF PURSUANT TO PAPER NO. 43

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Throughout the IPR proceeding, Patent Owner (“PO”) argued that Wiltshire’s client-server gaming system (Ex. 1004) is limited to casino games and large, commercial casino establishments, and thus would not work with non-casino video games like “Doom.” The Final Written Decision (“FWD”) agreed, finding that Wiltshire’s system could not be implemented with Doom. FWD at 26-27.

In vacating the Board’s FWD, the Federal Circuit expressly reversed this finding, holding “[t]he Board erred when it narrowed the disclosure of Wiltshire to exclude Doom and only focused on the more detailed examples.” Opinion (Paper 41) at *8. The Federal Circuit instructed that “[a] reference must be considered for *everything that it teaches*, not simply the described invention or a preferred embodiment.” *Id.* at *8-9 (quoting *CRFD Rsch., Inc. v. Matal*, 876 F.3d 1330, 1349 (Fed. Cir. 2017)).¹ “Therefore, the Board erred by not crediting Wiltshire’s disclosure of applying its system to video games like Doom[.]” *Id.* at *9.

When Wiltshire’s full disclosure is considered, PO’s remaining arguments fail. Claims 1-12 of U.S. Patent 10,681,109 (“’109 patent”) should be canceled.

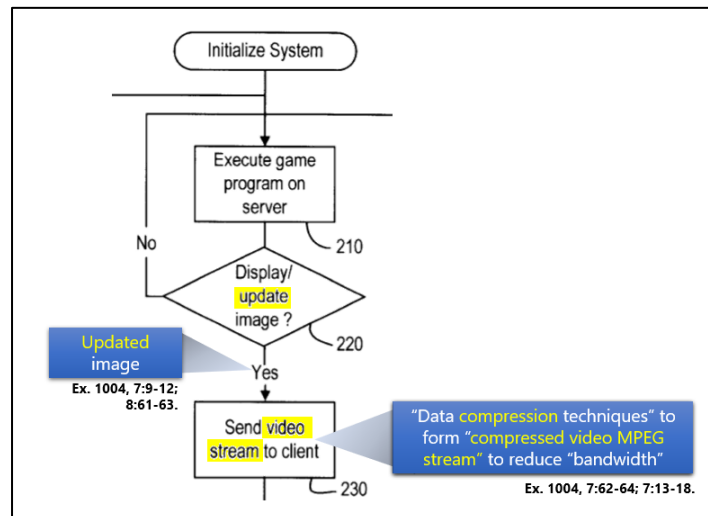
I. ARGUMENT

A. The Federal Circuit’s Opinion Confirms that Wiltshire Discloses the “Compressing” Terms (All Claims)

SIE’s Petition proved that Wiltshire discloses “compressing the at least one

¹ Emphasis appearing in quotations has been added unless otherwise noted.

updated image and transmitting the compressed updated image to the client device,” as recited in claims 1 and 8 of the ’109 patent. Pet. at 27-34. In particular, Wiltshire’s Figure 2 and its accompanying descriptions disclose that when the system decides to “update” an image (step 220 in Figure 2), an “image is generated,”² and the image can be compressed as a “**compressed** video MPEG stream” for transmission to the client computer. Ex. 1004 at Fig. 2, 7:7-22. Wiltshire reiterates that the bandwidth between the server and client “can be further reduced using data **compression**[.]” *Id.* at 7:57-64. These “compressing” disclosures are summarized below:



² The Federal Circuit also rejected PO’s argument and the FWD’s finding that “Display/update image?” in step 220 of Wiltshire’s Figure 2 does not show how the image was modified (POR at 29). *See* Opinion at *5 (finding “if the answer is yes, ‘[t]he image is generated’” by the game program running on the server).

Ex. 1004, Fig. 2 (excerpted, annotated); *see also* Petitioner's Reply at 14-15.

Despite Wiltshire's express teachings of forming "compressed video MPEG" and applying "data compression techniques" to reduce "bandwidth," PO has argued that Wiltshire is limited to pre-existing compressed video files. *See* POR at 28 (arguing that "the server could send a video clip banner (compressed video MPEG stream)" which "need not involve the creation of a new image or compression"); *id.* at 28-29; *id.* at 30-31 (arguing that Wiltshire's disclosure "refer[s] to 'a previously encoded video stream'"); Oral Hearing Tr. (Paper 37) at 50:21-22 (arguing that "we're talking about grabbing something that pre-exists").

Petitioner's Reply explained how PO's argument makes no sense in the context of real-time interactive video games like "Doom"—a game expressly contemplated in Wiltshire as the Federal Circuit emphasized—because Doom generates updated images in real time and thus requires real-time compression when used in Wiltshire's Figure 2. Reply at 16 ("Nor would sending pre-compressed MPEG files be suitable for interactive video games like 'Doom,' which generate updated images in response to user inputs in real time, as discussed above."); *id.* at 13 ("Pre-loaded images would also make no sense for interactive video games like 'Doom,' which generate updated images in response to user inputs in real time."); *see also* Ex. 1033 (Fuchs Reply Decl.) ¶¶ 42-43, 49-50.

PO's Sur-reply did not dispute that running Doom on the server of

Wiltshire's Figure 2 system would require the server to perform real-time compression of the images that Doom generates. Sur-reply at 12-13. Instead, PO argued "Wiltshire never applies 'Doom' to Figure 2." *Id.*

But this, of course, is the very argument the Federal Circuit rejected. *Compare id. with* Opinion at *8-9. Confirming Petitioner's reading of Wiltshire, the Federal Circuit held "Wiltshire **explicitly discloses** that Figure 2 is to be applied to games like Doom." Opinion at *8. Moreover, the Federal Circuit found it indisputable that Doom requires generating new images in real time. *Id.* at *4-5.

Thus, by teaching that Wiltshire's Figure 2 server can compress updated images that a game program like Doom generates in real time—such as into a "compressed video MPEG stream" to reduce transmission "bandwidth"—Wiltshire expressly discloses a server that compresses new, updated image(s) in real time for transmission to Figure 2's client device. Wiltshire is, in other words, **not** limited merely to use of a video pre-loaded or pre-existing on the client, as PO incorrectly argued. Indeed, Wiltshire's disclosure of real-time compression of new, updated images is confirmed by Wiltshire's Figure 2 and 7:15-18, which teach transmitting a "video **stream**" (step 230) that can be a "**compressed** video MPEG **stream**," and Wiltshire's disclosure of a video game such as Doom, which would send such compressed video streams in real time. *See* Ex. 1033 ¶ 46.

The Federal Circuit likewise rejected PO's argument that just because

Wiltshire discloses an embodiment that may use pre-loaded images, Wiltshire's system is limited to pre-loaded images. Opinion at *7 ("The Board similarly erred by focusing on embodiments in Wiltshire where images are pre-loaded. The existence of those examples does not exclude other examples where new images are created."). The same applies to "compressing." Just because certain embodiments in Wiltshire may contemplate using pre-loaded images on the client does not take away from the fact that Wiltshire *also* discloses that its Figure 2 server compresses new, updated images in real-time when running games like Doom, which the Federal Circuit held Wiltshire "explicitly discloses[.]" *Id.* at *8.

Accordingly, the Federal Circuit's opinion confirms that Wiltshire discloses "compressing the at least one updated image and transmitting the compressed updated image to the client device" for the reasons set forth in the Petition.

B. The Federal Circuit's Opinion Confirms that the Combination of Wiltshire and Saha Discloses Transmitting the "Updated Image as a [Compressed] Frame" (All Claims)

The Federal Circuit's finding that Doom applies to Wiltshire's Figure 2 also means that Wiltshire discloses transmitting the updated image as a (compressed) "frame" as recited in claims 1 and 8 of the '109 patent—even under PO's erroneous construction of a "frame" to mean a "single instance of a display."

SIE's Petition demonstrated that the combination of Wiltshire and Saha discloses a compressed "frame." Pet. at 28-34. Indeed, Saha expressly discloses

compressed “frames” as part of its MPEG encoding process. *Id.* at 28-29.

Unable to overcome Saha's express disclosure of “[compressed] frames,” PO argued in its POR for an unsupported construction of “frame” to mean a “single instance of the display,” and then argued (incorrectly) that Wiltshire and Saha do not disclose compressing a “single instance of the display.” POR at 11-18, 36.³

During oral argument, however, PO conceded that if a game generates a “frame” under its construction, and that frame is compressed using MPEG, that would produce a “[compressed] frame” within the meaning of the claims. Oral Hearing Tr. (Paper 37) at 58:24-59:3 (conceding that “[i]f you start with a frame and you compress it using MPEG, yes, it's a compressed frame”).

There is no dispute that this is precisely what Doom does when running on the server, and thus the Federal Circuit's ruling that Doom applies to Wiltshire's Figure 2 means that Wiltshire and Saha disclose a “frame” even under PO's flawed claim construction. In particular, Doom generates “frames” under PO's construction, and those “frames,” when input into Saha's MPEG encoder, result in “[compressed] frames” just as PO conceded. For example, PO's expert, Dr. Hart,

³ PO's claim construction should be rejected and, in any event, Wiltshire and Saha disclose a “frame” even under PO's construction. Petitioner's Reply at 1-7, 18-20.

admitted that Doom displays the contents of a “frame buffer” and has a frame rate. Ex. 1025 (Hart Dep. Tr.) at 52:2-8, 53:22-25. According to PO, a “frame buffer” stores “frames” under PO’s construction. Oral Hearing Tr. (Paper 37) at 61:18-62:5 (“[A] double buffer display has two memory buffers. Each stores a frame. ... What is a frame? *It’s a single instance of the display. There’s a single instance in both of those buffers*”). Petitioner’s expert, Dr. Fuchs, likewise confirmed that Doom generates frames, including by providing example screen displays from Doom in his Reply Declaration—each one a full instance of the display as opposed to just part of the display. Ex. 1033 (Fuchs Reply Decl.) ¶ 42. There is thus no dispute that Doom produces “frames” under PO’s construction. And PO does not dispute that if the input to Saha’s MPEG encoder is a “frame”—such as when Figure 2’s server runs Doom—then the output is a “[compressed] frame” as claimed. Oral Hearing Tr. (Paper 37) at 58:24-59:3.

In sum, because the Federal Circuit held that Doom is a game that runs on the server in Wiltshire’s Figure 2, the combination of Wiltshire and Saha discloses “[compressed] frames” even under PO’s erroneous claim construction.

C. The Federal Circuit’s Opinion Confirms a POSITA’s Motivation to Combine Wiltshire and the iBook from PC Magazine for the “Mobile Device” Limitation (Claims 6, 11, 12)

The Federal Circuit’s finding that Wiltshire is not limited to casino games confirms a POSITA’s motivation to combine Wiltshire with PC Magazine’s iBook

to render obvious the “mobile device” term of claims 6, 11, and 12 of the ’109 patent.

SIE’s Petition demonstrated how an Apple iBook laptop as described in PC Magazine is a “mobile device” as claimed, and why a POSITA would have been motivated to use an iBook as Wiltshire’s client device. Pet. at 66-71. For example, Wiltshire teaches that the client device in Figure 2 can be “any type” of “general purpose computer” such as “a Mac® PowerPC computer,” and thus Wiltshire teaches using PowerPC-based laptops like the iBook described in PC Magazine. *Id.* at 68 (quoting Ex. 1004 (Wiltshire) at 5:14-17).

Despite Wiltshire’s express teaching to use a broad range of client devices, PO argued that there would have been no motivation to use a laptop as a client device because Wiltshire’s preferred embodiments are, PO said, directed to commercial casino establishments, which use “large, bulky gaming stations” that are immobile. POR at 46-52. The Federal Circuit’s opinion again refutes IPL’s argument.

As the Federal Circuit held, Wiltshire “must be considered for everything that it teaches, not simply the described invention or a preferred embodiment.” Opinion at *8-9 (quoting *CFRD*, 876 F.3d at 1349); *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012) (same). PO’s argument improperly ignores Wiltshire’s teachings that (1) Wiltshire’s system can be used for “non-casino”

games like Doom, and (2) “any type” of “general purpose computer” can be used as a client, such as computers with a mouse or keyboard like the iBook. Pet. at 68-71; Reply at 24-25; Ex. 1004 (Wiltshire) at 12:11; 5:14-17; 5:59-65.

D. The Federal Circuit's Opinion Confirms a POSITA's Motivation to Combine Wiltshire and Chen for the “Asymmetric” Bandwidth Limitation (Claim 2)

The Federal Circuit's findings that Doom applies to Wiltshire and that Wiltshire is not limited to casino games also confirm a POSITA's motivation to combine Wiltshire and Chen for the “asymmetric” bandwidth limitation of claim 2 of the '109 patent.

SIE's Petition demonstrated how Chen's “Asymmetric DSL” (“ADSL”) satisfies the limitations recited by claim 2 and why a POSITA would have been motivated to use ADSL for Wiltshire's Internet connectivity. Pet. at 59-65.

Unable to dispute that ADSL teaches the limitations of claim 2, PO argued in its POR that there would be no motivation to combine ADSL with Wiltshire because Wiltshire was supposedly limited to commercial casino establishments and Chen's ADSL was supposedly limited to residential applications. POR at 53-59. PO argued that Chen's ADSL was supposedly not sufficient for a commercial casino operation servicing many customers because the ADSL in Chen can only provide bandwidth for a single MPEG stream at a time. POR at 61-62.

Here again, however, PO's alleged distinction was based upon the illusory

and now rejected premise that Wiltshire's teachings are limited to casino embodiments, as opposed to looking at Wiltshire for "everything that it teaches." Opinion at *8-9. The Federal Circuit's finding that the server of Wiltshire's Figure 2 can run Doom—a non-casino game that was typically played at home—refutes PO's arguments that Wiltshire's teachings are limited to commercial casino establishments. *See* Ex. 1025 (Dr. Hart Dep. Tr.) at 36:4-12 ("I believe I played [Doom] on a desktop and laptop computer in the '90s. Q. And have you ever played Doom in a casino? A. No, I have not. Q. Have you ever played Doom in a commercial gaming establishment? A. No, I have not.").

In sum, the Federal Circuit's opinion confirms that a POSITA would have been motivated to combine Wiltshire and Chen as described in the Petition.

II. CONCLUSION

The Federal Circuit's opinion and Wiltshire's full teachings refute PO's arguments for each of the challenged claims as explained above. When the full disclosure of Wiltshire is considered—including its use of Doom and other video games (and not just Wiltshire's casino embodiments)—challenged claims 1-12 of the '109 patent are unpatentable for the reasons set forth in the Petition.

Respectfully Submitted,

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Table of Exhibits

Exhibit	Description
1001	U.S. Patent No. 10,681,109 (“109 patent”)
1002	Declaration of Dr. Henry Fuchs
1003	Declaration of Dr. Hall-Ellis
1004	U.S. Patent No. 6,409,602 (“Wiltshire”)
1005	U.S. Patent No. 6,404,817 (“Saha”)
1006	Chen, “The Development and Standardization of Asymmetrical Digital Subscriber Line,” IEEE Communications Magazine, May 1999 (“Chen”)
1007	PC Magazine, September 21, 1999 (“PC Magazine”)
1008	Baron et al., “MPEG Overview,” ITU/SMPTE Tutorial on Digital Terrestrial Broadcasting, January 1, 1994 (“Baron”)
1009	ITU-T Recommendation H.262 (“MPEG Standard”)
1010	Stay Order, Intellectual Pixel Ltd. v. Sony Interactive Entm’t LLC, Case No. 8:19-cv-01432-JVS-KES (C.D. Cal.), D.I.126
1011	Stay Stipulation, Intellectual Pixel Ltd. v. Sony Interactive Entm’t LLC, Case No. 8:19-cv-01432-JVS-KES (C.D. Cal.), D.I. 125
1012	<i>SPEX Techs., Inc. v. Kingston Tech. Corp.</i> , No. CV16-07349 JVS(AGRX), 2018 WL 2446801 (C.D. Cal.)
1013	Scheduling Order, Intellectual Pixel Ltd. v. Sony Interactive Entm’t LLC, Case No. 8:20-cv-01422-JVS-KES (C.D. Cal.), D.I. 36
1014	In Re: Coronavirus Public Emergency Order Concerning Reopening of the Southern Division, C.D. Cal. General Order No. 20-12, C.D. Cal. General Order 20-12

Exhibit	Description
1015	Order Regarding Motion to Dismiss, Intellectual Pixel Ltd. v. Sony Interactive Entm't LLC, Case No. 8:20-cv-01422-JVS-KES (C.D. Cal.), D.I. 42.
1016	"Polygon-Assisted JPEG and MPEG Compression of Synthetic Images," by Marc Levoy ("Levoy")
1017	First Amended Complaint, Intellectual Pixel Ltd. v. Sony Interactive Entm't LLC, Case No. 8:20-cv-01432-JVS-KES (C.D. Cal.), D.I. 69
1018	U.S. Patent No. 5,771,238 ("Sutton")
1019	"A G3 PowerPC™ Superscalar Low-Power Microprocessor," IEEE 1997 ("PowerPC")
1020	PC Magazine, April 23, 1996 ("1996 PC Magazine")
1021	U.S. Patent No. 6,434,695 ("Esfahani")
1022	Declaration of James M. Dowd in Support of Motion for Admission Pro Hac Vice
1023	Declaration of S. Dennis Wang in Support of Motion for Admission Pro Hac Vice
1024	Pictures of mobile devices
1025	November 6, 2021 Deposition Transcript of Dr. John C. Hart
1026	Wang and Garlan, Task-Driven Computing, May 2000 ("Wang")
1027	In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With respect to Commercial Mobile Services, FCC Report, August 18, 2000 ("FCC Report")
1028	Encyclopedia of Computer Science, Fourth Edition, 2000 ("Encyclopedia of Computer Science")

Exhibit	Description
1029	Ahamed et al., Digital Subscriber Line (HDSL and ADSL) Capacity of the Outside Loop Plant, IEEE Journal on Selected Areas in Communications, Vol. 13, No. 9, December 1995 ("Ahamed")
1030	Kompatsiaris et al., Using Asymmetric Digital Subscriber Line (ADSL) for Fast Internet and Multimedia Services ("Kompatsiaris")
1031	Complaint, Intellectual Pixel Ltd. v. Sony Interactive Entm't LLC, Case No. 8:20-cv-01422 (C.D. Cal.), D.I. 1 ("Original Complaint")
1032	Amended Complaint, Intellectual Pixel Ltd. v. Sony Interactive Entm't LLC, 8:20-cv-01422 (C.D. Cal.), D.I. 33 ("Amended Complaint")
1033	Reply Declaration of Dr. Henry Fuchs
1034	U.S. Patent No. 8,131,826 ("826 patent")
1035	U.S. Patent No. 10,013,605
1036	U.S. Patent No. 8,194,632
1037	PC Magazine Encyclopedia
1038	U.S. Patent No. 10,013,681

CERTIFICATE OF SERVICE

I hereby certify that on January 18, 2024 I caused a true and correct copy of the following materials:

- Petitioner's Opening Brief Pursuant to Paper No. 43;
- Table of Exhibits

to be served via e-mail on the following attorneys of record for Patent

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