

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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NVIDIA CORPORATION,  
Petitioner,

v.

POLARIS INNOVATIONS LIMITED,  
Patent Owner.

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Case IPR2017-00381  
Patent 7,886,122 B2

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Before SALLY C. MEDLEY, BARBARA A. PARVIS, and  
MONICA S. ULLAGADDI, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. The evidentiary standard is a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). For the reasons that follow, we determine that NVIDIA Corporation (“Petitioner”) has shown by a preponderance of the

evidence that claims 1–23 and 28 of U.S. Patent No. 7,886,122 B2 (Ex. 1001, “the ’122 Patent”) are unpatentable. Petitioner has not shown by a preponderance of the evidence that claims 24–27 of the ’122 Patent are unpatentable.

#### A. *Background*

Petitioner filed a Petition for *inter partes* review of claims 1–28 (“the challenged claims”) of the ’122 Patent. Paper 2 (“Pet.”). Polaris Innovations Limited (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Pursuant to 35 U.S.C. § 314, we instituted trial on all challenged claims, but not on all challenged grounds. *See* Paper 9 (Inst. Dec.), 26–27.<sup>1</sup>

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 18, “PO Resp.”), to which Petitioner filed a Reply (Paper 21, “Pet. Reply”). Patent Owner filed a Motion for Observation, Paper 25 (“PO Mot. Obs.”) and Petitioner filed a Response to the Motion for Observation, Paper 29 (“Pet. Resp.”). A transcript of the hearing held on March 8, 2018 has been entered into the record as Paper 32 (“Tr.”).

Following the hearing, on April 24, 2018, the Supreme Court held that a decision to institute under 35 U.S.C. § 314 may not institute on less than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In light of the *Guidance on the impact of SAS on AIA trial proceedings* posted on April 26, 2018 (at

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<sup>1</sup> Patent Owner filed a Request for Rehearing of the Decision to Institute (Paper 12, “Reh’g Req.”), which we denied (Paper 15, “Dec. on Reh’g Req.”).

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<https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>), we modified our Institution Decision to institute on all the challenged claims and all the grounds presented in the IPR2017-00381 Petition (Paper 2). *See* Paper 35 (“DI Supp.”). We also granted the parties’ joint request for additional briefing. *Id.* On May 18, 2018, Patent Owner filed a supplemental brief pertaining to only the previously non-instituted ground (Paper 36, “PO Supp. Br.”) and on May 25, 2018, Petitioner filed a supplemental brief responsive to Patent Owner’s submission (Paper 37, “Pet. Supp. Br.”).

### B. *Related Matters*

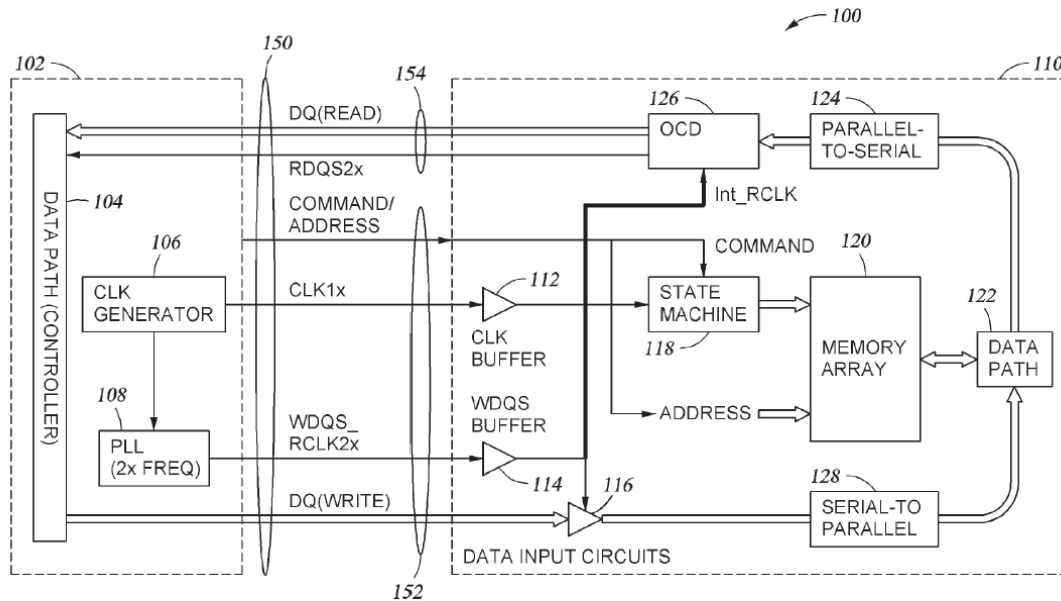
The parties state that the ’122 Patent is the subject of a pending lawsuit that includes assertions against Petitioner. Pet. 100; Paper 4 (“PATENT OWNER’S INITIAL MANDATORY NOTICES”) (hereinafter “PO Init. Mand. Not.”), 2–3; Paper 23 (“PETITIONER’S UPDATED MANDATORY NOTICES”) (hereinafter “Pet. Updated Mand. Not.”), 2. The parties identify a lawsuit pending in the Northern District of California, i.e., *Polaris Innovations Ltd. v. Dell Inc.*, Case No. 4:16–cv-07005 (N.D. Cal.).<sup>2</sup> PO Init. Mand. Not. 2–3; Pet. Updated Mand. Not. 2.

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<sup>2</sup> This lawsuit is referred to herein as the “companion district court lawsuit.” The companion district court lawsuit was transferred from the United States District Court for the Western District of Texas on December 5, 2016. *Id.* That case was *Polaris Innovations Ltd. v. Dell Inc.*, Case No. 5:16–cv-00451 (W.D. Tex). *Id.*

*B. The '122 Patent*

The '122 Patent is directed to clock signals used in memory devices.  
Ex. 1001, 1:8–10. Figure 1 of the '122 Patent is reproduced below.



*Fig. 1*

Figure 1 of the '122 Patent, reproduced above, illustrates a block diagram of system 100 having memory device 110 and control device 102, as well as interface 150 between control device 102 and memory device 110. *Id.* at 3:37–43.

Control device 102 provides first clock signal (CLK1x), second clock signal (WDQS\_RCLK2x), command and address signals (COMMAND/ADDRESS), and write data signal (DQ(WRITE)) to memory device 110. *Id.* at 3:64–4:4. Memory device 110 provides read clock signal (RDQS2x) and read data signal (DQ(READ)) to control device 102. *Id.* at 4:5–6.

*C. Illustrative Claim*

Petitioner challenges claims 1–28 of the ’122 Patent. Pet. 1. Claims 1, 9, 16, 20, 24, and 28 are independent claims. Claims 2–8, 10–15, 17–19, 21–23, and 25–27 depend, directly or indirectly, from claims 1, 9, 16, 20, or 24. Independent claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for transmitting clock signals, the method comprising:

receiving, at a memory device, a first clock signal and a second clock signal, wherein a frequency of the first clock signal is less than a frequency of the second clock signal;

performing two or more data access operations using the second clock signal, wherein at least one of the two or more data access operations includes a read operation and wherein at least one of the two or more data access operations includes a write operation; and

performing a command processing operation using the first clock signal.

*Id.* at 7:55–67.

*D. Instituted Grounds of Unpatentability*

Petitioner asserts the following grounds of unpatentability (Pet. 1–2):

Reference(s)	Basis	Challenged Claim(s)
Lee <sup>3</sup>	§ 102(b)	1, 5, 6, 8, 9, 13, 14, 16, 20, and 24
Lee	§ 103(a)	2–4, 10–12, 17–19, 21–23, and 25–28
Lee and Yoo <sup>4</sup>	§ 103(a)	2–4, 10–12, 17–19, 21–23, and 25–28

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<sup>3</sup> U.S. Patent No. 6,496,445 B2, issued Dec. 17, 2002 (Ex. 1004) (“Lee”).

<sup>4</sup> U.S. Patent No. 6,477,110 B2, issued Nov. 5, 2002 (Ex. 1006) (“Yoo”).

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