UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NVIDIA CORPORATION,
Petitioner,

v.

NEURAL AI, LLC,
Patent Owner.

Case IPR2025-00608
Patent RE49,461

PATENT OWNER'S DISCRETIONARY DENIAL BRIEF

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I. INTRODUCTION

This is a paradigmatic case for discretionary denial. Nearly every consideration outlined in the Director's March 26, 2025 Memorandum ("Memorandum") weighs against institution. The facts here are not just similar to those presented in recent Director denials—they are stronger. They meet and exceed the facts leading to a denial based upon the "settled expectations of the parties." *See iRhythm Techs., Inc. v. Welch Allyn, Inc.*, IPR2025-00363, Paper 10 (June 6, 2025) ("*iRhythm*"). Additionally, the facts here parallel those leading to three separate Director denials under *Fintiv*. *See Motorola Sols., Inc. v. Stellar, LLC*, IPR2024-01205, Paper 19 (Mar. 28, 2025) ("*Motorola*"); *Shenzen Tuozhu Tech. Co., Ltd. v. Stratasys, Inc.*, IPR2025-00354, Paper 11 (June 12, 2025) ("*Shenzen*"); *Advanced Micro Devices, Inc. v. Concurrent Ventures, LLC*, IPR2025-00223, Paper 9 (June 12, 2025) ("*Concurrent*").

Settled Expectations. As the Memorandum explains, the Director may consider "[s]ettled expectations of the parties, such as the length of time the claims have been in force." The '461 patent claims a priority benefit to U.S. Patent No. Application 11/860,254 ("the '254 application"), which was published as U.S. Patent Application Publication No. 2008/0117220 ("the '220 publication"). NVIDIA has been aware of the '254 application (via the '220 publication) since at least August 2013 when it was cited as "pertinent art" in the prosecution of one of

its own patent applications. NVIDIA was similarly made aware of Patent Owner's related '867 patent—likewise claiming the benefit of the '254 application—during prosecution of another NVIDIA patent in August 2014. The original '828 patent issued in 2015 and was later reissued as RE48,438 (the '438 patent) and RE49,461 (the '461 patent). Yet until February 2025, NVIDIA never challenged any of Neurala (the original assignee)'s patents.

Those settled expectations—standing alone—should be decisive. Indeed, the facts here are not merely comparable to *iRhythm*—they are stronger. In *iRhythm*, the Director denied institution of five IPR petitions where the petitioner cited just *one* application in an IDS in 2013, but did not file an IPR until 2024. Here, the underlying '254 application—which led to each of the patents-in-suit—was identified, not just in an IDS, but by the examiner as "pertinent art" in August 2013 during prosecution of NVIDIA's own application. The next year, NVIDIA was made aware of the related '867 patent by the examiner during prosecution of a second NVIDIA patent in August 2014.

And, here, unlike in *iRhythm*, NVIDIA did not merely encounter Neurala's patents in prosecution— Neurala and NVIDIA had extensive interactions, and NVIDIA even considered investing in Neurala. Internal communications in 2017 confirm Neurala's CEO at the time, Dr. Massimiliano Versace, sent a slide deck to NVIDIA's senior leadership concerning Neurala's patent portfolio which he and

other members of Neurala's executive team presented in person to NVIDIA. The presentation provides an overview of Neurala's patent portfolio and specifically identifies and focuses upon both the '828 patent (the precursor to the '461 and '438 reissue patents) and the related '867 patent. *See* Section III.A; Exs. 2003-2005.

Despite this, NVIDIA took no action—no IPR, no reexamination—for over a decade. It waited until 2025, long after multiple reissues, just as the district court case was ramping up. These facts don't just mirror *iRhythm*—they exceed them on every relevant measure.

Fintiv. Additionally, in *iRhythm*, the Director denied institution even though the *Fintiv* factors there weighed against denial because the FWD would issue before the district court trial and the district court case was not far along. *iRhythm*, 2. Unlike in *iRhythm*, the district court action here is already far along and is scheduled to go to trial before any final written decision is due. The District Court Action is not stayed, and there is no indication it will be. By the time the October 15 institution decision deadline arrives, claim construction will be complete and fact discovery well underway. *See* Sections III.B.1–5.

Petitioner's *Sotera* stipulation does nothing to mitigate the duplication. In district court, Petitioner advances the very same theories, relies on the same annotated figures and references (Buck, Wilt, nnet, ANN, GPU Gems), and asserts seven additional allegedly anticipatory prior art systems that it treats

interchangeably with the IPR references. The Director has expressly cautioned the Board against "g[iving] too much weight to [a] *Sotera*[] stipulation," particularly where, as here, the petitioner's invalidity theories are "expansive" and include "unpublished system prior art." *See Motorola*, 2–4 (reversing institution); *Shenzen*, 2–3; *see also* Section III.B.4.

Other Considerations. Each of the first five Fintiv factors independently supports denial. And the surrounding circumstances, identified in the Director's memorandum and addressed in Sections III.A (settled expectations, discussed above) and III.C through III.H, reinforce that conclusion under factor 6 and independently justify denial under 35 U.S.C. §§ 314(a) and/or 325(d). Most notably:

- ***Petitioner relies on substantially similar art and arguments previously presented to the Office—and does not allege material error***. In the Petition, "Buck" is the lead reference in every ground. During reissue prosecution, however, a substantially similar Buck reference ("Buck-085") was the basis for a rejection. Additionally, the secondary IPR reference ANN was listed on an IDS and considered by the Examiner. The two Bucks share substantially similar disclosures and the majority of what Petitioner relies on from Buck in the IPR is set forth in Buck-085. Despite that history, Petitioner does not even allege material error. This

alone supports denial under both 35 U.S.C. §§ 314(a) and/or 325(d). *See* Section III.C.

- ***The merits are weak***. Patent Owner's forthcoming POPR will identify multiple independent reasons why Petitioner has failed to demonstrate a reasonable likelihood of prevailing. *See* Section III.D and forthcoming POPR.
- ***Petitioner takes inconsistent claim construction positions***. It adopts a "no construction … necessary" stance in this IPR while simultaneously advancing a narrowing construction in district court, even though both forums apply the same standard. That inconsistency violates the Office's rules and invites duplicative, fragmented litigation on divergent theories. *See* Section III.E.
- ***The asserted references implicate the same priority dispute in both forums***. Patent Owner asserts a February 25, 2005 conception date, yet Petitioner relies on references that post-date it—ANN (January 2006) and GPU Gems (July 2005). Resolving that dispute will require fact-heavy discovery and testimony in both proceedings—matters the district court is better equipped to handle. *See* Section III.F.
- ***The 36,000-word expert declaration is voluminous and unfocused***. Much of that declaration is an untethered technical tutorial, and the

remainder fills gaps that the Petition itself fails to address. This approach contradicts Office guidance and places an unnecessary burden on the Board. *See* Section III.G; *see also* Memorandum, 2 (raising "[t]he extent of the petition's reliance on expert testimony"); FAQ Response 21.

- ***There is no change in law***. Petitioner does not cite any intervening legal change that would affect patentability since it became aware of the '254 application in August 2013—the application that gave rise to all of the patents-in-suit. *See* Section III.H; *see also* Memorandum, 2 (raising "[w]hether there have been changes in the law or new judicial precedent issued since issuance of the claims that may affect patentability[.]").

This is not a close case. As in *iRhythm*, NVIDIA was aware of the '254 application since 2013, to which the '461 patent claims priority, for over a decade before filing this IPR. Moreover, the same parties are litigating the same issues in a forum that is better positioned to resolve them in a proceeding that is already well underway and is scheduled to conclude before the final written decision. The facts favoring denial here mirror those present in *Motorola*, *Concurrent*, and *Shenzen*. The overlap is complete, the inconsistencies are disqualifying, and the expectations are long settled. Institution should be denied.

II. FACTUAL BACKGROUND

The parties are litigating a related district court action, *Neural AI, LLC v. NVIDIA Corp.*, 7-24-cv-00221 (W.D. Tex.) ("District Court Action"). The case is pending before Judge Alan Albright.

In the District Court Action, Patent Owner alleges infringement by NVIDIA of three related patents: the '867 patent, the '438 patent, and the '461 patent. Petitioner was long aware of the original assignee, Neurala, and its patented technology. Indeed, Petitioner was expressly made aware of the '254 application—which each of the three patents claims the benefit of—by August 2013, when the '254's published application (the '220 application) was identified as "pertinent art" during prosecution of NVIDIA's own patent application. Petitioner was similarly made aware of the '867 patent (also claiming the benefit of the '254 application) by August 2014. *See* Section III.A, *infra*.

Moreover, NVIDIA considered a potential investment in Neurala in the 2016-2017 timeframe. Ex. 2006 [Amended-Complaint] ¶¶ 78, 163. On June 26, 2017, Neurala's then-CEO, Dr. Massimiliano Versace, sent senior NVIDIA executives a slide deck (Exs. 2003–2005) outlining Neurala's patent portfolio. That deck, which Neurala's CEO and CTO then presented in person at NVIDIA, specifically identified and emphasized both the '828 patent (the precursor to the '461 and '438 reissue patents) and the related '867 patent:

Brains For Bots™: patented technology since 2006

neurala

Growing & early IP portfolio

Neurala IP dates back to 2006, where we patened a method for running difference and differential equations on GPUs (US 8,648,867) Since then, Neurala has grown a patent, trade secret, and trademark portfolio ranging from using GPUs for Deep Learning and Neural Networks, sensory (vision, audition, and multimodal) perception, spatial navigation, collision avoidance, and user interfaceand smart tagging to build and deploy brains for intelligent devices.

Patent Portfolio:

- 3 US Utility Patents
- 5 Foreign Design Patents
- 13 Pending Patent Applications:
  - 2 US provisional applications
  - 1 PCT application
  - 1 Canadian patent application
  - 3 European patent applications
  - 1 Korean patent application
  - 5 US utility patent applications.

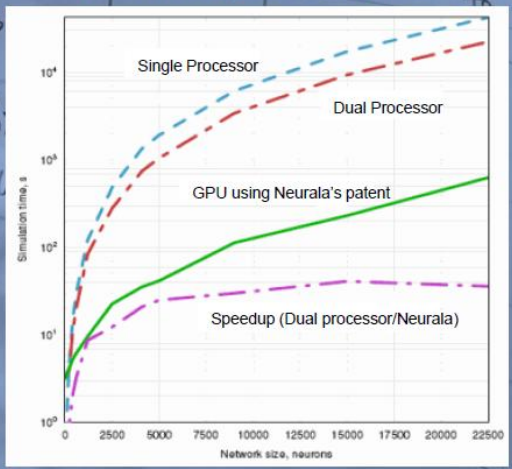
Copyright 2017 Neurala, Inc.

Core premise of entire company: *we could run AI on GPUS*

neurala

- Started programming GPUs in **2 BC** (**BC = B**efore **C**UDA – 1st release on 6/2007)
- Solved a key problem: hardware limitation made AI deployment impractical
- U.S. Patents 8,648,867 and 9,189,828 (2006) while solving this problem

This chart made us believe Neurala could be a business



(link to original blog post)

Ex. 2005, 10, 18.

Over eleven years after being made aware of the underlying ’254 application, and nearly eight years after the in-person meeting where Neurala’s

’867 and ’828 patents were discussed, Petitioner filed four IPR petitions challenging the three patents-at-issue in the District Court Action: one against each of the ’867 and ’461 patents, and two against the ’438 patent. The present petition (IPR2025-00608) was filed on March 6, 2025.

But even when NVIDIA started filing petitions, it did not do so with dispatch. The Petition states:

> Petitioner has initiated the following proceedings as to patents related to the ’461 patent and asserted in the Litigation: IPR2025-00606 (U.S. Patent No. 8,648,867) and IPR2025-00609 and IPR2025-00610 (U.S. Patent No. RE48,438).

Pet., xiii. In the 606 IPR challenging the ’867 patent, filed February 26, Petitioner asserted that it was “***concurrently***” filing its IPRs. But this was not true. Petitioner did not “concurrently” file the Four IPRs[1] on the same day. Petitioner filed them slowly over time, filing the next petition (IPR2025-00608) on March 6, 2025 and the last two (IPR2025-00609 and IPR2025-00610) on April 30, 2025, over two months after Petitioner said they would be filed.

[1] “Four IPRs” refers herein to the four NVIDIA IPR petitions brought to date against Patent Owner’s patents, *i.e.*, IPR2025-00606, IPR2025-00608, IPR2025-00609, and IPR2025-00610.

There was no reason for this delay, especially given that the trailing IPRs rely on the same references used in the first two. The present petition is centered upon the Buck, Wilt, ANN, and GPU Gems references. *See* Pet., 3. IPR2025-00606 raises the Nickolls/GPU Gems and Kirk/GPU Gems grounds. *See* IPR2025-00606, Pet., 2. The trailing IPRs recycle and rely heavily upon these very same references. *See* IPR2025-00609, Pet. 2-3 (grounds centered upon Nickolls, ANN, and GPU Gems); IPR2025-00610, Pet., 2 (grounds centered upon lead reference Kirk, further relying upon GPU Gems).

This delay has consequences, resulting in later institution and final written decision deadlines for the last filed cases, as set forth in the table below:

IPR	Patent	Filing Date	Inst. Decision Deadline	FWD Deadline
IPR2025-00606	’867	2/24/25	10/14/25	10/14/26
IPR2025-00608	’461	3/6/25	10/15/25	10/15/26
IPR2025-00609	’438	4/30/25	11/28/25	11/30/26
IPR2025-00610	’438	4/30/25	11/28/25	11/30/26

Petitioner’s staggered filings not only undermine the representation of concurrency, but they also further delay the IPR timeline. The District Court Action is set for trial on September 8, 2026, *i.e.*, over one month before the first final written decision deadline and nearly three months before the last. Ex. 2008 [Scheduling-Order] 3. The District Court Action is already far along. Infringement and invalidity contentions have been exchanged and claim

construction briefing is underway. *Id.*, 1-2. The *Markman* hearing will be held on July 29, 2025, fact discovery will commence the next day, and final infringement and invalidity contentions will be served on September 23, 2025, all before the institution decisions become due. *Id.* By every measure, the District Court Action will already be at an advanced stage by the time institution is decided.

The two proceedings, moreover, are duplicative. The Petition's grounds are based upon the Buck, Wilt, nnet, ANN, and GPU Gems references. *See* Pet., 3. Each of these references is similarly raised in the District Court Action. Ex. 20011 [Invalidity-Contentions-Cover] 126; Ex. 2012 [Invalidity-Contentions-Buck]; Ex. 2013 [Invalidity-Contentions-Wilt]; Ex. 2015 [Invalidity-Contentions-nnet]; Ex. 2016 [Invalidity-Contentions-ANN]; Ex. 2014 [Invalidity-Contentions-GPU-Gems]. Petitioner additionally relies heavily upon seven different prior art systems, each of which it contends is anticipatory. Indeed, Petitioner treats its IPR art (Buck, Wilt, nnet, ANN, GPU Gems) as interchangeable with this non-IPR-eligible systems art and further argues the two are combinable. *See* Section III.B.4. This confirms that its *Sotera* stipulation will not eliminate duplicative validity litigation across both forums.

The art relied upon in the Petition is not only duplicative of NVIDIA's invalidity contentions in the District Court Action; it has also been previously presented to the Office. As discussed, the '461 patent is a reissue of the '828

patent. During exacting reissue prosecution, conducted by the Central Reexamination Unit, the Examiner, in consultation with another senior patent examiner and a supervisory examiner, specifically considered a substantially similar Buck reference, U.S. Patent No. 7,219,085 ("Buck-085"), and rejected the proposed claims based on Buck-085. The applicant successfully traversed the Buck-085 rejections through an amendment. The applicant also listed the ANN reference on an IDS, and the Examiner initialed the reference as considered.

Beyond its pervasive use of recycled art, Petitioner's choice of reference invites the relitigation of priority issues in both forums. Two of Petitioner's references, ANN and GPU Gems, post-date Patent Owner's asserted conception date of February 25, 2005. Pet., 5-6; Ex. 1009, 9 (identifying a conception date of February 25, 2005 and "continuous diligence and actual reduction to practice of the claimed inventions no later than December 14, 2005"). Thus, Petitioner chose to rely upon ANN and GPU Gems but neglected to mention that ANN's alleged publication date (January 2006) and GPU Gems' alleged publication date (July 2005) are after the February 25, 2005 conception date. If this IPR is instituted, it may require the litigation of a complicated priority date question, particularly given the five named inventors, which may complicate questions of corroboration and diligence. The district court is better equipped to handle that evidentiary burden.

Accordingly, the invalidity defenses in this IPR and the District Court Action rely on the same art, combinations, core disclosures, and priority date disputes. In addition, Petitioner advances irreconcilable claim construction positions in the two forums. *See* Section III.E. The Petition states: "Petitioner submits that no construction of any claim term is necessary for the Board to resolve, and the Challenged Claims would have been obvious under any reasonable construction." Pet., 6. In the District Court Action, however, Petitioner takes the position that one of the claim terms at issue here requires construction. Ex. 2009 [NVIDIA-Preliminary-Claim-Constructions] Ex. A; Ex. 2010 [NVIDIA-Claim-Construction-Brief] 10.

As discussed in the sections below, this factual record should lead to discretionary denial for multiple, independently sufficient reasons.

III. ARGUMENT

A. Institution Would Undermine Settled Expectations Where Petitioner Has Been Aware Of The Underlying '254 Application Since 2013.

The Memorandum expressly directs the Office to weigh "settled expectations of the parties, such as the length of time the claims have been in force," when evaluating whether to institute inter partes review. Memorandum, 2. These "settled expectations" weigh heavily in favor of noninstitution because—just as in *iRhythm*—Petitioner has been aware of the underlying '254 application since

2013, through prosecution of its own patents. But the facts here go well beyond *iRhythm*. In June 2017, Neurala's leadership team—including its CEO and CTO—specifically informed NVIDIA's senior executives of both the '828 patent (the precursor to the '438 and '461 patents) and the '867 patent both by email and during an in-person presentation at NVIDIA. Neurala and NVIDIA continued their relationship thereafter, with NVIDIA even spotlighting Neurala's work on NVIDIA's corporate webpage. And yet, despite all of this direct awareness—dating back over a decade—NVIDIA did not file any validity challenge until February 2025.

Indeed, the facts here are materially identical to the facts that led to the noninstitution of five IPR petitions in *iRhythm*. There, the Director denied institution because the petitioner was aware of one of the patent owner's patent applications "as early as 2013," when it was cited in an IDS in the prosecution of petitioner's own patent application, but "fail[ed] to seek early review of the patents":

> Nevertheless, Patent Owner argues that because one of the patents has been in force since as early as 2012 and ***Petitioner was aware of it as early as 2013***—having cited the then-pending application that issued as the challenged patent in an Information Disclosure Statement Petitioner filed in its own patent application—settled expectations favor denial of institution. DD Req. 30–31. ***Patent***

> ***Owner's argument is persuasive. Petitioner's awareness of Patent Owner's applications and failure to seek early review of the patents favors denial*** and outweighs the above-discussed considerations.

iRhythm, 3.

The fact pattern leading to a denial in *iRhythm* is present here. All three asserted patents—the '867, '438, and '461—claim the benefit of U.S. Patent Application 11/860,254 ("the '254 application"), published as U.S. Patent Application Publication 2008/0117220 ("'220 publication").

NVIDIA, however, has been aware of the '254 application (via the '220 publication) ***since at least August 2013*** when it was cited as "pertinent art" in the prosecution of one of its own patent applications. Again, the published patent application corresponding to the '254 application is the '220 publication, as shown, for example, on the face of the '867 patent, reproduced below:

(12) **United States Patent**
Gorchetchnikov et al.

(10) **Patent No.: US 8,648,867 B2**
(45) **Date of Patent: Feb. 11, 2014**

(54) **GRAPHIC PROCESSOR BASED ACCELERATOR SYSTEM AND METHOD**

(75) Inventors: **Anatoli Gorchetchnikov**, Belmont, MA (US); **Heather Marie Ames**, South Boston, MA (US); **Massimiliano Versace**, South Boston, MA (US); **Fabrizio Santini**, Jamaica Plain, MA (US)

(73) Assignee: **Neurala LLC**, Boston, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1030 days.

(21) Appl. No.: **11/860,254**

(22) Filed: **Sep. 24, 2007**

(65) **Prior Publication Data**
US 2008/0117220 A1 May 22, 2008

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,388,206	A *	2/1995	Poulton et al.	345/505
2005/0166042	A1 *	7/2005	Evans	713/150
2007/0052713	A1 *	3/2007	Chung et al.	345/501
2007/0279429	A1 *	12/2007	Ganzer	345/582

* cited by examiner

Primary Examiner — Maurice L McDowell, Jr.

(57) **ABSTRACT**

An accelerator system is implemented on an expansion card comprising a printed circuit board having (a) one or more graphics processing units (GPU), (b) two or more associated memory banks (logically or physically partitioned), (c) a specialized controller, and (d) a local bus providing signal coupling compatible with the PCI industry standards (this includes but is not limited to PCI-Express, PCI-X, USB 2.0, or functionally similar technologies). The controller handles most of the primitive operations needed to set up and control

Ex. 2029 [’867] cover page. The ’461 patent’s relationship to the ’254 application and the ’867 patent is made clear in, *e.g.*, its discussion of “Related Applications”:

RELATED APPLICATIONS

The present application *is a reissue continuation application of U.S. application Ser. No. 15/808,201, which was filed on Nov. 9, 2017 as a broadening reissue application of U.S. Pat. No. 9,189,828, filed Jan. 3, 2014, which* claims a priority benefit, under 35 U.S.C. §120, as a continuation of U.S. application Ser. No. 11/860,254, now U.S. Pat. No. 8,648,867 B2, filed Sep. 24, 2007, entitled “Graphic Processor Based Accelerator System and Method,” which *in turn* claims the priority benefit, under 35 U.S.C. §119(e), of U.S. Application No. 60/826,892, filed Sep. 25, 2006. *The present application is also a broadening reissue application of U.S. Pat. No. 9,189,828, filed Jan. 3, 2014, which is a continuation of U.S. application Ser. No. 11/860,254, now U.S. Pat. No. 8,648,867 B2, filed Sep. 24, 2007, which in turn claims the priority benefit, under 35 U.S.C. § 119(e), of U.S. Application No. 60/826,892, filed Sep. 25, 2006.* Each of the above-identified applications is incorporated herein by reference in its entirety. *More than one reissue application has been filed for the reissue of U.S. Pat. No. 9,189,828, including this application and U.S. application Ser. No. 15/808,201.*

Ex. 1001 [’461] 1:12-34.

This ’220 publication was one of just a handful of references cited in NVIDIA’s own 8,922,566 patent, which issued on December 30, 2014:

(12) **United States Patent**
Soma

(10) **Patent No.: US 8,922,566 B2**
(45) **Date of Patent: Dec. 30, 2014**

(54) **RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD**

(75) Inventor: **Srinivas Soma**, Hyderabad (IN)

(73) Assignee: **NVIDIA Corporation**, Santa Clara, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 548 days.

(21) Appl. No.: **12/824,423**

(22) Filed: **Jun. 28, 2010**

(65) **Prior Publication Data**

US 2011/0316865 A1 Dec. 29, 2011

(51) **Int. Cl.**
G06F 13/14 (2006.01)
G06T 1/60 (2006.01)
G06F 13/38 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 13/385*** (2013.01)
USPC **345/520**; 345/530

(58) **Field of Classification Search**
USPC 710/2, 8; 345/505, 520, 530
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,949,438	A *	9/1999	Cyman et al.	345/502
6,507,172	B2 *	1/2003	Sherman	320/134
2006/0171689	A1 *	8/2006	Smith	386/125
2008/0117220	A1 *	5/2008	Gorchetchnikov et al.	345/503
2009/0141894	A1 *	6/2009	Sahdra et al.	380/239
2009/0144456	A1 *	6/2009	Gelf et al.	710/8
2010/0091025	A1 *	4/2010	Nugent et al.	345/502

OTHER PUBLICATIONS

Reimer, Coming Soon: An External Video Card Near You?, ARS Technica (http://arstechnica.com/uncategorized/2006/08/7409/) (Aug. 2, 2006).*
White, NVIDIA Announces Quadro Plex, Monster Graphics for Pros, http://gizmodo.com/191187/nvidia-announces-quadro-plex-monster-graphics-for-pros, Gawker Media (Aug. 1, 2006).*
NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_V03, NVIDIA Corporation (2007).*

* cited by examiner

Primary Examiner — James A Thompson
(74) *Attorney, Agent, or Firm* — Zilka-Kotab, PC

(57) **ABSTRACT**

A graphics processing device that is portable, reconfigurable and provides graphics processing for a computer system is provided. The graphics processing device includes a Universal Serial Bus (USB) interface coupled with the graphics processor and configured to be coupled with computer system. The graphics processing device further includes the USB interface configured to transfer a graphics instruction, originated by the computer system, to the graphics processor. The graphics processing device may further include a battery coupled with the graphics processor to partially power the graphics processor. The battery may be rechargeable. The graphics processor may be configured to process graphics instruction on behalf of the computer system. A portable processing system to provide processing for a computer system is also disclosed. The portable processing system may include a processor. The portable processing system may include a USB module coupled with processor and configured to be coupled with computer system.

20 Claims, 6 Drawing Sheets

Ex. 2017 [NVIDIA-’566-patent]. The associated prosecution history for NVIDIA’s ’566 patent confirms ***NVIDIA was aware of the ’220 publication (and therefore the ’254 application) by at least August 8, 2013*** where it was identified

by the examiner as "pertinent" art "relevant to [NVIDIA's] independent claims 1, 7, 15, and 17:

Conclusion

79. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Cyman et al., U.S. Patent No. 5,949,438 (filed Dec. 23, 1997), col.11 ll.42-54, relevant to independent claims 1, 7, 15, and 17;

b. Gorchetchnikov et al., U.S. Patent Publication 2008/0117220 (filed Sep. 24, 1997), ¶¶0023, 0027, relevant to independent claims 1, 7, 15, and 17; and

See Ex. 2018 [NVIDIA-'566-FH] 274; *see also* 277 (listing '220 publication), 247 (identifying August 8, 2013 date).

But that is not all. In prosecution of another NVIDIA application (13/335,850), the '867 patent—which, like the '461, claims the benefit of the '254 application—was cited by the examiner in an August 2014 notice of cited references, issued in connection with a rejection:

Notice of References Cited	Application/Control No. 13/335,850	Applicant(s)/Patent Under Reexamination PELLETIER, SEAN MICHAEL	
	Examiner PAUL R. MYERS	Art Unit 2111	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-8,612,652 B2	12-2013	Tsuei et al.	710/62
*	B	US-8,648,867 B2	02-2014	Gorchetchnikov et al.	345/501
*	C	US-8,687,007 B2	04-2014	Nugent et al.	345/502
*	D	US-8,730,247 B2	05-2014	Hiroi et al.	345/503

Ex. 2019 [13/335,850-FH] 68, *see also id.*, 170, 207 (listing NVIDIA as assignee). Thus, NVIDIA was also made aware of the related ’867 patent no later than August 2014, *i.e.*, eleven years ago.

Consequently, NVIDIA was undeniably aware of the ’254 application ***for 12 years*** and also made aware of the related ’867 patent 11 years ago. In the interim, however, NVIDIA never challenged the validity of ***any*** of Patent Owner’s patents, not the ’461, the ’438, the ’867, or the original ’828 patent (the predecessor to the ’438 and ’461 reissues) until the present set of petitions. These facts mirror *iRhythm*—NVIDIA knew of the underlying application since 2013 and, just as there, waited over a decade to challenge validity.

What differences do exist make the case-at-hand an even ***stronger*** case for denial than *iRhythm*. There, the petitioner was aware of only “one” of patent owner’s pending applications through a single IDS. *iRhythm*, 3. Here, NVIDIA was made aware of both the underlying application and a related patent (the ’867) in 2013/2014. And, where petitioner in *iRhythm* learned of the application in one prosecution, here, NVIDIA was twice informed of the ’254 application, including when it was identified as “pertinent art” by the examiner.

The Director in *iRhythm*, moreover, denied institution of five petitions even though it found that the *Fintiv* analysis did not favor denial because the FWD deadline was August 12, 2026—over seven months before the district court trial

date—and there was "little investment by the parties in the district court proceeding and a high likelihood of a stay if an inter partes review is instituted." *iRhythm*, 2. This lies in stark contrast with the present case where the trial date is prior to the FWD deadline (Section III.B.2), there is substantial investment by the parties and the district court in the proceeding (Section III.B.3), and no likelihood of a stay (Section III.B.1). The Director further found that the petition there was not over-reliant on expert testimony. *iRhythm*, 2. Here, the Petitioner's excessive reliance upon unfocused expert testimony to fill gaps in the prior art is precisely what the Memorandum flagged as a basis for denial (Section III.G).

Further, in *iRhythm*, there was no indication that the petitioner was otherwise aware of the patent owner or its patents. Here, NVIDIA was long aware of and deeply familiar with Neurala, the original assignee, and Neurala's patents. Located in Boston, Neurala has raised over $26 million in funding, has over 30 employees, and has been awarded 19 patents. Ex. 2020 [Neurala-About]. A Neurala team picture is below:

Id.

Founded by three PhDs with deep experience in government-sponsored AI research for NASA, DARPA, and the Air Force, Neurala is widely recognized as a pioneer in edge-based artificial intelligence. *Id.* The company began in 2006 with a vision to bring advanced neural network models to lightweight devices—an idea that led to its patented L-DNN technology. *Id.* After emerging from stealth in 2013 and joining the Techstars accelerator, Neurala gained industry attention by commercializing AI solutions across sectors. *Id*. Its innovations include Brain Builder (2019), a cloud-based platform for rapid vision AI development, and VIA (2020), a visual inspection system adopted by manufacturers during the pandemic. *Id*. Neurala's technology and leadership have earned it recognition from organizations including Draper Ventures, CB Insights, UNESCO, AUVSI, and EY's Entrepreneur of the Year. *Id*.

NVIDIA took a keen interest in Neurala. For instance, in 2017, NVIDIA executives—including Mr. Alvin Lin and Mr. Jeff Herbst—engaged in discussions with Neurala, including inventors of the patents, regarding potential investment in Neurala. *See* Ex. 2006 [Amended-Complaint] ¶ 78. These interactions continued in 2017 and 2019, including with the inventors sharing materials identifying the '867 patent and describing the technology in detail. *See id*., ¶ 79. Indeed, NVIDIA has previously stated that it was interested in the inventors' solutions. *Id*. And in NVIDIA's amended answer, it irrevocably admits that it had discussions with Neurala, including regarding "potential investments in Neurala":

> Defendant admits that, in or around 2016, Defendant had discussions with Neurala, Inc. and that at least Mr. Alvin Lin and/or Mr. Jeff Herbst from Defendant were involved. Defendant also admits that, ***in 2016, Defendant had discussions with at least one of the inventors regarding potential investments in Neurala, Inc***.

Ex. 2007 [Amended-Answer] ¶ 78. These admissions are binding. *Wyatt v. Hunt Plywood Co*., 297 F.3d 405, 412 n.18 (5th Cir. 2002) (defendant "is estopped from claiming" opposite of "unqualified admission of that fact in its answer to [the] complaint."); *Martinez v. Bally's La., Inc.*, 244 F.3d 474, 476 (5th Cir. 2001) ("A judicial admission is a formal concession in the pleadings or stipulations by a party or counsel that is binding on the party making them. Although a judicial admission is not itself evidence, it has the effect of withdrawing a fact from contention").

And Neurala's discussions with NVIDIA specifically and undeniably involved Neurala's patents, including the '828 patent (the precursor to the '461 and '438 reissue patents) and the related '867 patent. On June 26, 2017, Neurala's CEO, Dr. Massimiliano Versace sent NVIDIA executives Murali Gopalakrishna (NVIDIA's Head of Product Management, Intelligent Machines, Ex. 2022), Kashi Anoosheh (VP Sales, Autonomous Machines, Ex. 2023), and Jeff Herbst (Vice President of Business Development and Head of NVIDIA Inception GPU Ventures, Ex. 2024) the following email "attach[ing] a presentation for this week's meeting":

From: Massimiliano Versace[versace@neurala.com]
Sent: Mon 6/26/2017 1:58:15 PM (UTC-04:00)
To: Murali Gopalakrishna[muralig@nvidia.com]; Kashi Anoosheh[kashi@nvidia.com]; Jeff Herbst[JHerbst@nvidia.com]
Cc: Warren Katz[warren@neurala.com]; Anatoli Gorshechnikov[anatoli@neurala.com]; Sachiko Gomez[sgomez@nvidia.com]
Subject: RE: possible Letter of support for a DARPA proposal
Attachment: Neurala_presentation_nVIdia_6_2017.pdf

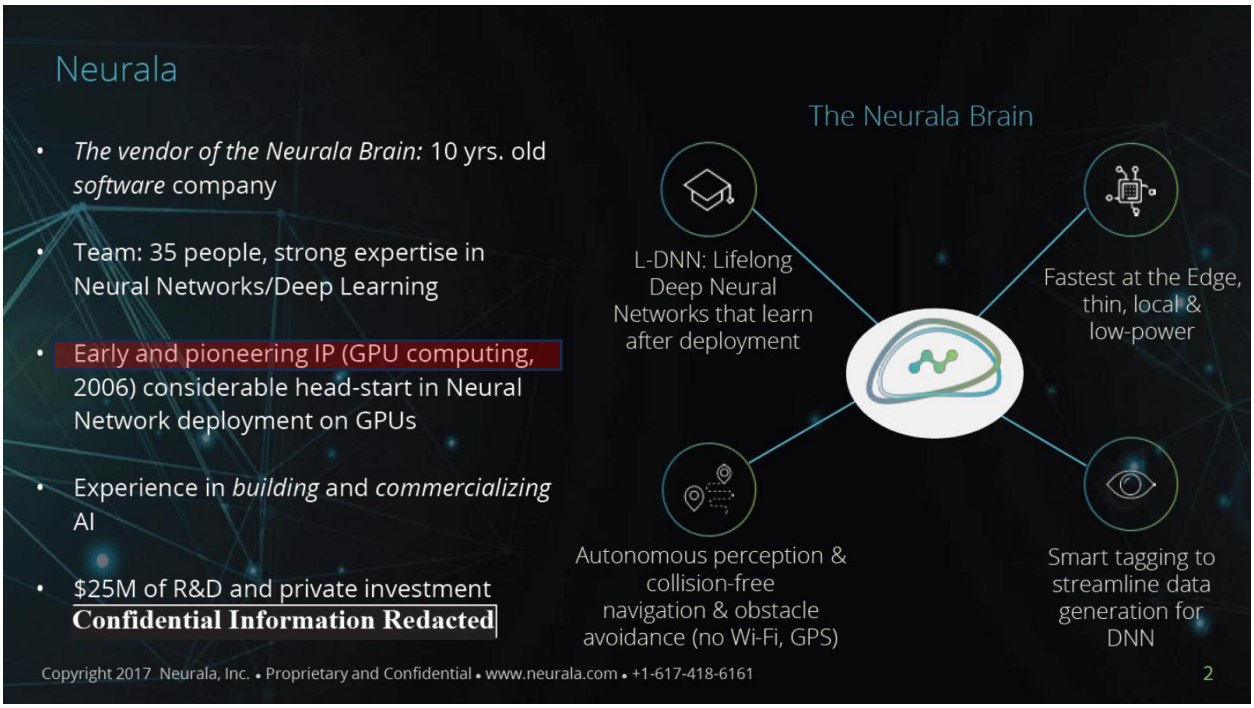
Murali, Kashi, Jeff,

I attach a presentation for this week's meeting - Thursday 1:30PM.
The presentation has also some info specifically for Jeff regarding the fund raise, which in terms of timing may get an acceleration in the next couple of weeks, so good timing.

Jeff, if you want to sidebar this over the phone, happy to.
Thanks
Max

Ex. 2004 [Email-Chain] 1; Ex. 2003 [Versace-Decl.] ¶ 2. And, the presentation was, in fact, given and a photo of Dr. Anatoli Gorchetchnikov, Neurala's co-founder and CTO at NVIDIA that day is below:

The attached presentation begins by referencing Neurala's "Early and pioneering IP":



Ex. 2005 [Neurala-Presentation] 2; Ex. 2003 [Versace-Decl.] ¶ 3. The presentation continues to provide an overview of Neurala's "patent portfolio"—identifying its portfolio of 8 issued patents and 13 pending applications, and further, specifically identifying the '867 patent:

Brains For Bots™: patented technology since 2006

neurala

Growing & early IP portfolio

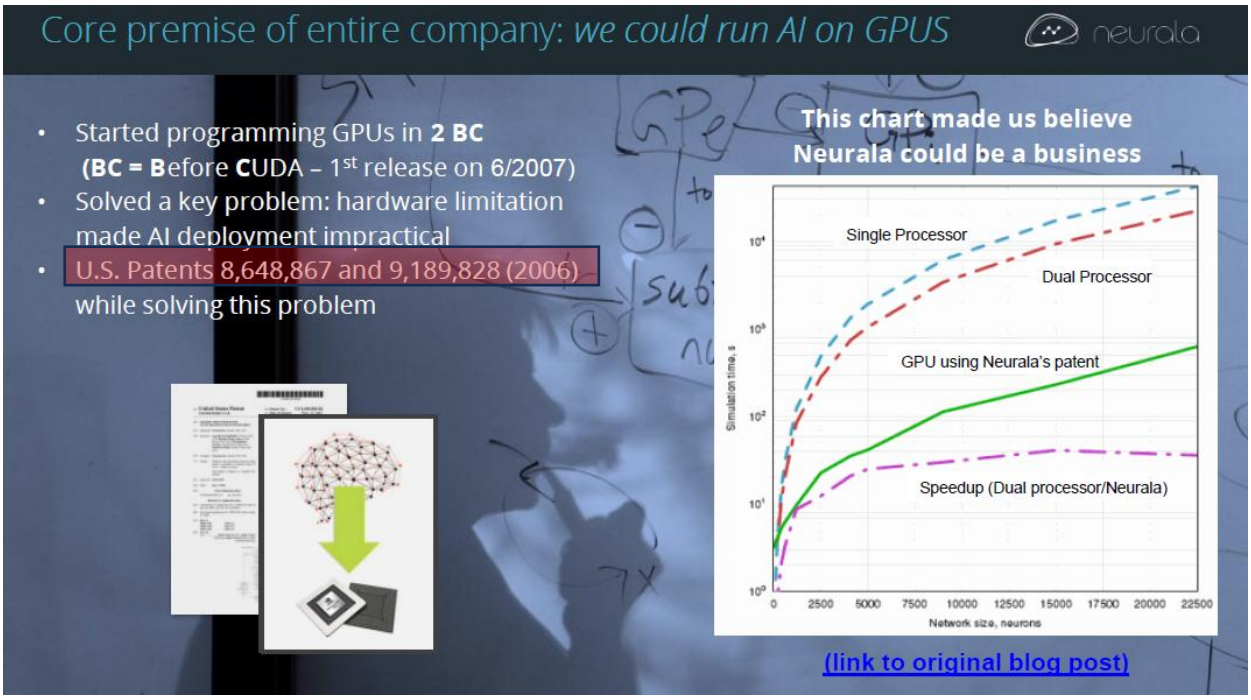
Neurala IP dates back to 2006, where we patened a method for running difference and differential equations on GPUs (US 8,648,867) Since then, Neurala has grown a patent, trade secret, and trademark portfolio ranging from using GPUs for Deep Learning and Neural Networks, sensory (vision, audition, and multimodal) perception, spatial navigation, collision avoidance, and user interfaceand smart tagging to build and deploy brains for intelligent devices.

Patent Portfolio:

- 3 US Utility Patents
- 5 Foreign Design Patents
- 13 Pending Patent Applications:
  - 2 US provisional applications
  - 1 PCT application
  - 1 Canadian patent application
  - 3 European patent applications
  - 1 Korean patent application
  - 5 US utility patent applications.

Copyright 2017 Neurala, Inc.

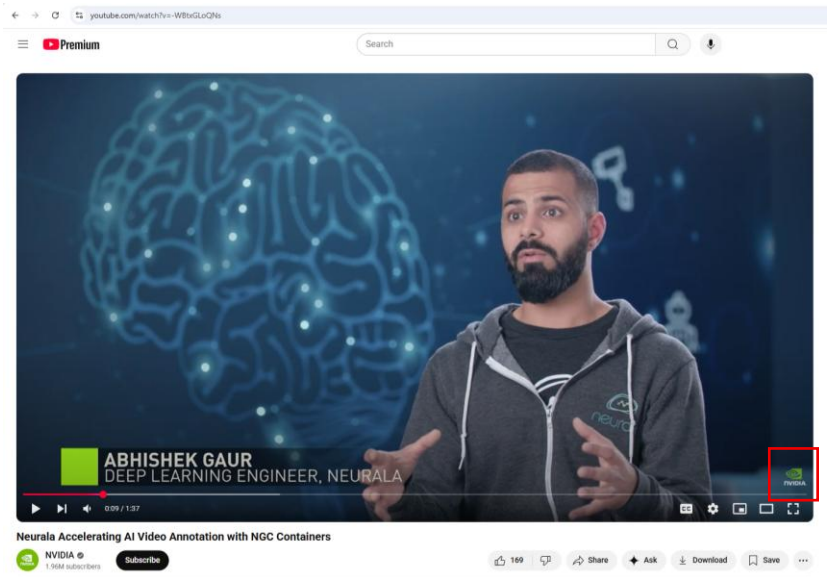
Ex. 2005 [Neurala-Presentation] 10. And, in a section of the presentation titled "Neurala & nVidia," Neurala identifies the "Core premise of [the] entire company: *we could run AI on GPUs*," specifically identifying both the '828 patent (precursor to the '461 and '438 patents) and the '867 patent again:



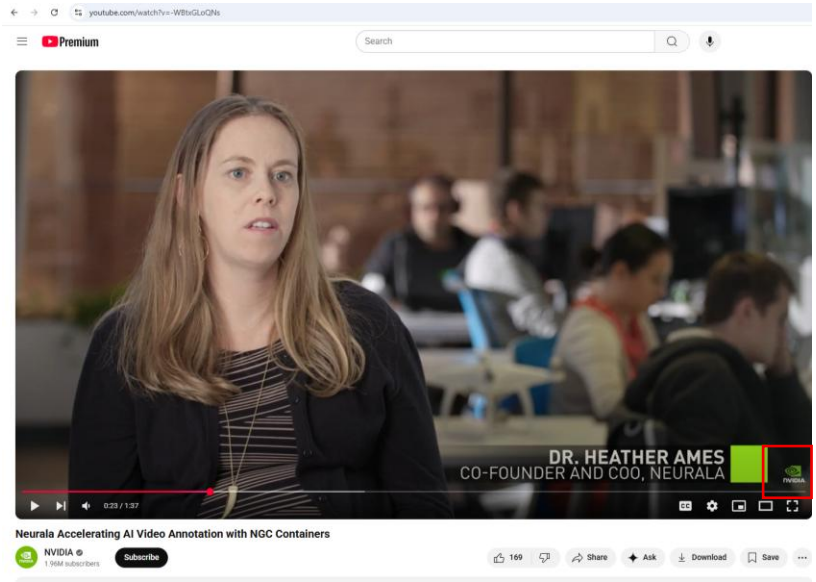
Id., 18; *see also id.*, 17 (beginning of "Neurala & nVidia" section). Thus, NVIDIA did not merely learn of Neurala's patents in prosecution of its patents, ***Neurala's CEO specifically sent and presented information regarding Neurala's patent portfolio, including the '828 and '867 patents to NVIDIA's senior leadership over seven years before NVIDIA challenged any of Neurala's patents***.

NVIDIA's level of knowledge of Neurala's patents greatly exceeds the petitioner's level of knowledge in *iRhythm*. And that knowledge extended far beyond just knowledge of Neurala's patents and that June 2017 meeting. As explained, NVIDIA considered an investment in Neurala and, moreover, featured Neurala's technology on its own 2019 article written by Nefi Alarcon, identified as "a senior executive communications manager on NVIDIA's leadership team" (Ex.

2021 [NVIDIA-Blog-Post]), spotlighting Neurala and further identifying Neurala as a "member of NVIDIA's start-up incubator Inception," further touting Neurala's "Brain Builder, "a cloud platform that provides data scientists and developers that are new to deep learning with the ability to quickly and easily train neural networks." *Id.* The article further explains that, "[i]n the video below, the Neurala team describes how they improved performance in their workflow by using containers from NGC, NVIDIA's hub for GPU-accelerated software." *Id.* That video[2] features interviews with Neurala's leadership and notably includes NVIDIA's logo in the bottom right corner:



[2] https://youtu.be/-WBtxGLoQNs



Accordingly, these settled expectations, including through NVIDIA's longstanding direct awareness—both through prosecution ***and*** through a direct presentation by Neurala's CEO to NVIDIA's leadership—of the '254 application, the '828 and '867 patents, and its deep knowledge and association with Neurala, the original assignee, overwhelmingly favor discretionary denial under § 314(a).

B. *Fintiv*: The Petition Should Be Denied Because It Is Duplicative Of Petitioner's District Court Defenses, It Is Far Along And Is Scheduled To Go To Trial Before Any Of The FWDs Are Due.

Institution should be denied because each of the six factors—discussed in turn below—strongly favors denial. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11, 5-6 (Mar. 20, 2020) (precedential) ("*Fintiv*"). The District Court Action is not stayed, and there is no reason to believe that Judge Albright would grant a stay if one were sought, particularly in view of his past consideration of such stay requests. *See* Section III.B.1. The District Court Action is scheduled to be tried

before the final written decision deadlines in any of the Four IPRs. *See* Section III.B.2. The District Court Action is far along and claim construction will have concluded and discovery will be in full swing by the time the institution decisions are due. *See* Section III.B.3.

There is complete overlap between the IPR defenses and the District Court Action invalidity contentions as Petitioner incorporates its IPR arguments into its invalidity contentions wholesale and, moreover, expressly reiterates the very same grounds raised here. Additionally, while Petitioner has offered a *Sotera* stipulation, it is not worth the paper it is written on as Petitioner asserts seven "Prior Art Products and Systems" references. Ex. 2011 [Invalidity-Contentions] 124. Petitioner treats these prior art systems as interchangeable and combinable with the Buck, Wilt, ANN, nnet, and GPU Gems references it relies upon in the IPR Petition. What is more, both forums involve the same priority date challenge. *See* Section III.B.4. Undeniably, the two proceedings involve the same parties. *See* Section III.B.5.

Finally, the surrounding circumstances, including the settled expectations of the parties, the weak merits, the inconsistent claim construction positions, the overlapping priority date challenge, and the excessive reliance on unfocused expert testimony all further support denial. *See* Section III.B.6; *see also* Sections III.A, C-H.

1. *Fintiv* Factor #1: No Stay Has Been Granted Or Sought.

Factor #1 strongly favors denial because there is no stay and no evidence the district court will grant a stay. Petitioner has not moved for a stay, nor indicated that it would move for one. *See* Pet., 83-84.

And even if a stay were sought, there is no evidence a stay may be granted. Here, the District Court Action is far along. Preliminary infringement and invalidity contentions have been exchanged and claim construction briefing is well underway. Ex. 2008 [Scheduling-Order] 1-2. The institution decisions in the present case and in IPR2025-00606 are due (October 14-15), nearly three months after the *Markman* hearing (scheduled for July 29), final contentions will have been exchanged (September 23), and fact discovery will be well underway. *See id.*, 2. The institution decision in the two IPRs directed towards the '438 patent will be due a month-and-a-half after the institution decision in the present case (November 28, 2025) when the District Court Action will be still further along.

A stay is unlikely in such circumstances. The District Court Action has been assigned to Judge Alan Albright who routinely denies motions to stay pending IPRs, even where IPRs have already been instituted. Judge Albright's record makes clear that stays are rare even after institution. A stay at the pre-institution stage—when litigation is already this advanced—is highly unlikely. *See, e.g.*, *Theta IP, LLC v. Apple Inc.*, No. 6-23-cv-00314, Dkt. 104 (W.D. Tex. Feb. 5,

2025) (Albright J.) ("A stay in this case would unduly prejudice the Plaintiff at a late stage in this proceeding and the balance of simplification does not override these factors."); *Sonrai Memory Ltd. v. Micron Tech., Inc.*, No. 1-23-cv-01407, Dkt. 96 (W.D. Tex. May 29, 2024) (Albright, J.) (denying stay pending IPR where *Markman* hearing already held).

Even if one or more but fewer than all of the Four IPRs are instituted, the Court may still allow the entire case to proceed as to the three related patents because "it is often most efficient to resolve the diverse allegations together in the same action instead of creating numerous distinct cases for every different accused technology, patent, or party." *Polaris PowerLED Techs., LLC v. Samsung Elecs. Am., Inc.*, No. 2:22-cv-00469-JRG, 2024 WL 1149223, at *2-3, 6 (E.D. Tex. Mar. 15, 2024) (Gilstrap, J.) (denying motion to sever and stay allegations as to patent challenged in instituted IPR even though case at an "early stage"). This is particularly true here, in view of the technical overlap between the three patents which have the same disclosure. *Polaris*, 2024 WL 1149223, at *6 (declining to sever where "the parties would have to engage in duplicative damages and technical discovery for the overlapping accused products" and "the Court and the parties would be burdened with the inefficiencies that result from doubling the necessary claim construction, pre-trial, and trial proceedings.").

Where district court litigation has not been stayed and any stay is speculative and unlikely, allowing this IPR to proceed in parallel would be wasteful and inefficient. Factor 1 strongly favors denial.

2. *Fintiv* Factor #2: The Trial Will Conclude Over A Month Before A FWD Issues.

Factor #2—"proximity of the court's trial date to the Board's projected statutory deadline for a final written decision"—strongly favors denial. Here, final written decisions for the Four IPRs would be due, if instituted, on or about October 14, 2026 (present IPR), October 15 (IPR2025-00608), and November 30 (IPR2025-00609, -00610). The District Court Action is set for trial on September 8, 2026,[3] before any of the Four IPR FWD deadlines. *See* Ex. 2008 [Scheduling-Order] 3.

[3] This aligns with Judge Albright's median time to trial of 24 months. *See* Ex. 2026 [Albright-Time-To-Trial]. The District Court Action was filed in September 2024, and the September 2026 trial date matches Judge Albright's median time to trial. To the extent Petitioner here argues that its motion to transfer may delay the schedule, the Director rejected precisely such an argument. *Concurrent*, 3 ("Petitioner's arguments based on the likelihood of the district court granting its motion to transfer are speculative and not sufficiently persuasive to overcome the aforementioned considerations favoring discretionary denial.").

This stands in sharp contrast to *iRhythm*, where the FWD deadline preceded the trial by over seven months. *iRhythm*, 2.

Worse still, it was Petitioner's delay that increased the delta between the district court's trial date and when the IPR process would conclude. Though Petitioner stated in its '606 IPR Petition that it was "concurrently filing" all four petitions, Petitioner delayed filing the two petitions challenging the '438 patent until April 30, *i.e.*, by over two months.[4] *See* Pet., xiii. Because of this self-imposed and unnecessary delay, the final written decisions for the '438 patent would issue nearly three months after the District Court trial.

Quite rightly, the Director has denied institution on account of similar gaps between the final written decision and trial. In *Concurrent*, the Director found that a 16-day delta between the final written decision deadline and the district court trial was sufficient to warrant denial under *Fintiv*:

> In particular, the projected final written decision due date is July 15, 2026. … The district court's scheduled trial date is June 29, 2026.

[4] Beyond its statement that it would file the cases "concurrently," the two IPRs, IPR2025-00609 (Nickolls, ANN, GPU Gems) and IPR2025-00610 (Kirk, GPU Gems), raise references at issue in the present petition and/or IPR2025-00606. Thus, there was no need for this delay.

> … As such, it is unlikely that a final written decision in this proceeding will issue before the district court trial occurs.

Concurrent, 2. In *Shenzen*, the Director found factor two favored denial where there was a 1.5 month gap between the district court trial (June 1, 2026) and the FWD deadline (July 14, 2026):

> In particular, the projected final written decision due date in the Board proceeding is July 14, 2026. DD Req. 8. The district court's scheduled trial date is June 1, 2026, and the time-to-trial statistics suggest trial will begin in July 2026. DD Opp. 8; DD Req. 8. Under the circumstances of this case, it will be inefficient to maintain two parallel proceedings when the district court scheduled trial date and the projected final written decision due date are in close proximity. Exercising discretion to deny the petition in this case reduces the inefficiencies and burdens on the parties to maintain two parallel proceedings.

Shenzen, 2; *see also, e.g.*, *eClinicalWorks, LLC v. Decapolis LLC*, IPR2022-00229, Paper 10, 9 (Apr. 13, 2022) (finding factor 2 weighed in favor of discretionary denial and denying institution where "the beginning of the jury trial in the WDTX Cases is roughly ***one to two months before any final decision*** would have been due had *inter partes* review been instituted.") (emphasis added); *Samsung Elecs. Co., Ltd. v. SiOnyx, LLC*, IPR2025-00065, Paper 16, 10-11 (June 6, 2025) ("*SiOnyx*") (factor 2 somewhat favors denial where there was a two month gap

between the district court trial and the IPR FWD deadline); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15, 13 (May 13, 2020) (informative) ("*Fintiv II*") (finding this factor weighed in favor of discretionary denial and denying institution where the district court trial was scheduled to occur two months before the deadline for the Board to reach a final written decision); *NXP USA, Inc. v. Impinj, Inc.*, PGR2022-00005, Paper 17, 9 (May 2, 2022) ("*NXP*") (same), *reh'g denied*, Paper 20 (Aug. 25, 2022); *Next Caller Inc. v. TrustID, Inc*., IPR2019-00961, Paper 10, 9-15 (Oct. 16, 2019) (three months); *E-One, Inc. v. Oshkosh Corp*., IPR2019-00161, Paper 16, 6-9 (May 15, 2019) (one month).

Petitioner presents no evidence that the trials will not proceed on September 8, 2026. Thus, "based on the evidence of record, there is no evidence to suggest that trial will be delayed." *Nine Energy Serv. Inc. v. NCS Multistage Inc.*, IPR2020-01615, Paper 18, 9 (Mar. 24, 2021); *see also NXP*, 9 ("We generally take courts' trial schedules at face value absent some strong evidence to the contrary.") (quoting *Fintiv II*, 13).

Decisively, however, even if the district court trial were to occur after the FWD, that still would not justify maintaining two parallel proceedings in view of the investment of the parties. As the Director has explained:

> Notably, the parties offer conflicting time-to-trial statistics that suggest trial could begin as early as April 2026 or as late as September 2026.

> ... ***Even though a district court trial date that occurs after a projected final written decision date reduces the possibility of conflicting decisions, that benefit does not outweigh the efficiencies gained by avoiding parallel proceedings in this instance because of the parties' meaningful investment*** in the district court proceeding discussed above.

Concurrent, 2; *see also id.* (finding "meaningful investment" where parties exchanged infringement and invalidity contentions" and a "*Markman* hearing is scheduled to occur before the due date for an institution decision").

3. *Fintiv* Factor #3: There Will Be Enormous "Investment In The Parallel Proceeding By The Court And Parties."

Factor #3—"investment in the parallel proceeding by the court and the parties"—strongly favors denial. The District Court Action has progressed significantly. Preliminary infringement and invalidity contentions were exchanged. Ex. 2008 [Scheduling-Order] 1-2. Claim construction briefing is underway, and the *Markman* hearing is scheduled for July 29, 2025. *Id.* Fact discovery opens July 30, 2025. *Id.* Final contentions are due September 23, 2025. *Id.* All of this will occur well prior to the October 15, 2025 institution decision deadline and long before the November 28 deadline for IPR2025-00609 and IPR2025-00610.

Moreover, "if, at the time of the institution decision, the district court has issued substantive orders related to the patent at issue in the petition," this factor

favors denial. *Fintiv*, 9-10. "Likewise, district court claim construction orders may indicate that the court and parties have invested sufficient time in the parallel proceeding to favor denial." *Id.*, 10. Here, Judge Albright and Magistrate Judge Gilliand (who will be conducting the Markman Hearing) issue preliminary constructions to the parties ahead of the July 29 *Markman* hearing. Ex. 2025 [Standing-Order-Governing-Proceedings] 9. The resulting *Markman* order will likely issue shortly after the hearing, well before the October 14-November 28 institution deadlines in the Four IPRs. That *Markman* decision will plainly qualify as a "substantive order."

Motorola is instructive. There, the Director found that the parties and the district court had "invested" "substantial time and effort" where the parties had "served extensive infringement and invalidity contentions," "filed claim construction briefs," and the district court had "construed the disputed claim terms." *Motorola*, 3. Under these facts, the Director concluded: "[g]iven the substantial time and effort the parties and the district court had invested in the parallel proceeding, factor 3 ***strongly favors discretionary denial***." *Id.*; *see also Concurrent*, 2 (favored denial where *inter alia* "parties have exchanged infringement and invalidity contentions" and "a *Markman* hearing is scheduled to occur before the due date for an institution decision").

Thus, the Court and the parties will have invested significant time and resources in the district court litigation by the institution deadlines. This favors discretionary denial, and Board panels have found this factor to favor denial when claim construction has concluded or discovery has begun. *Fintiv II*, 13-14; *BOE Tech. Grp. Co., Ltd. v. Element Cap. Com. Co. Pte. Ltd*, IPR2023-00808, Paper 9, 23-24 (Nov. 15, 2023); *Roku, Inc. v. IOEngine, LLC*, IPR2022-01551, Paper 11, 12 (May 5, 2023) ; *Samsung Elecs. Co., Ltd. v. Mojo Mobility Inc.*, IPR2023-01094, Paper 11, 9 (Feb. 9, 2024) .

The district court's schedule demonstrates substantial commitment of judicial and party resources to resolving the issues—including invalidity—well before this IPR would conclude.

4. Fintiv Factor #4: There Is Substantial "Overlap."

Factor #4—"overlap between issues raised in the petition and in the parallel proceeding"— strongly favors denial. As explained below, there is a complete overlap between the invalidity theories asserted in this IPR and those advanced in the district court litigation.

At the outset of its preliminary invalidity contentions, Petitioner incorporated by reference the entirety of the IPR record for each of the Four IPRs, "including the petitions, supporting declarations, and exhibits," further intimating

that even more IPR petitions or *ex parte* reexamination requests may be forthcoming:

> [1] NVIDIA also incorporates by reference Patent Trial and Appeal Board Case Nos. IPR2025-00606 and -00608 (already filed) and -00609 and -00610 (yet to be filed), including the petitions, supporting declarations, and exhibits, into these Invalidity Contentions, along with any other IPR petitions or *ex parte* reexamination requests and supporting materials filed with respect to any of the Asserted Patents.

Ex. 2011 [Invalidity-Contentions] 1 n.1. Thus, every aspect of the Four IPRs is incorporated by reference into the District Court Action invalidity contentions.

But the overlap goes beyond this wholesale incorporation. Each of the prior art references deployed in the Petition—Buck, Wilt, nnet[5], ANN[6], and GPU Gems—is not merely cited but ***featured*** in the invalidity contentions. *See, e.g.*, *id.*, 121, 127, 130, 133, 136 (citing or discussing Buck), 121, 127, 142 (citing or discussing Wilt), 122, 127, 144, 145, 146, 148 (citing or discussing nnet), 124, 127, 132, 133 (citing or discussing ANN) 122, 127, 129, 130, 136, 141, 144 (citing or discussing GPU Gems). Petitioner contends that each of Buck, Wilt, nnet, ANN, and GPU Gems is anticipatory. *See id.*, 126-127. Alternatively, Petitioner advances that the asserted claims are obvious based on a combination of these

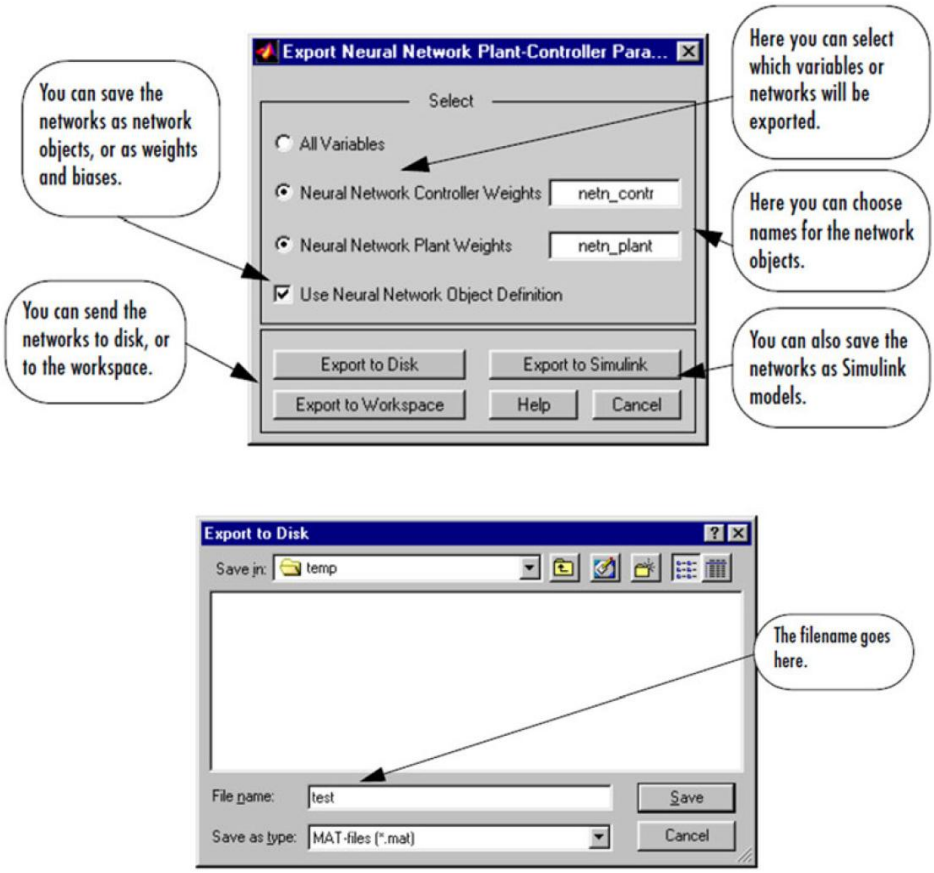
[5] Matlab Neural Network Toolbox User's Guide Version 4, also referenced as *Neural Network Toolbox for Use with MATLAB* by Petitioner

[6] Artificial Neural Network Computation on Graphic Process Unit

references just as it does in the Petition. *See id.*, 127-128. And it is clear that these theories are duplicative of each other. For example, in both the invalidity contentions and Petition, Petitioner contends nnet discloses the "user interaction of claim 21, and that it can be combined with the accelerator system of Buck:

User interfaces, such as GUIs, were widely used before the '461 Patent, including for designing the simulation of artificial neural networks. As an example, nnet describes a "simple and user friendly" user interface through which users can create, edit, train, and simulate artificial neural networks….a POSITA would have been motivated to implement these kinds of user interactivity (including GUIs) for simulating artificial neural networks in the accelerator systems.	User interfaces, such as GUIs, were widely used before the '461 patent, including for designing the simulation of artificial neural networks. nnet describes a "simple and user friendly" user interface through which users can create, edit, train, and simulate artificial neural networks. A POSITA would have been motivated to implement nnet's interactive GUI for simulating artificial neural networks in the Buck/Wilt system.
Ex. 2011 [Invalidity-Contentions] 144-148; *see also id.*, 133 (asserting Buck as one such system).	Pet., 24 (citations omitted)

Petitioner even uses the same figures in each:



Compare Ex. 2011 [Invalidity-Contentions] 147 *with* Pet., 38.

Invoking *Sotera*, Petitioner states that it agrees not to pursue in the district court "any ground raised or that could have reasonably been raised" in this IPR. Ex. 1036. The Director, however, has recently warned against "g[iving] too much weight" to such a stipulation, particularly where, as here, substantial investment has been made by the parties:

> ***The Board*** did not give enough weight to the investment in the parallel proceeding and ***gave too much weight to Petitioner's Sotera[] stipulation*** (*i.e.*, a stipulation that Petitioner will not pursue in district

> court any ground it raised or reasonably could have raised in the *inter partes* review (IPR)) and its potential to reduce overlap with the issues raised in the parallel proceeding.

Motorola, 2 (reversing Board and denying institution).

Significantly, the Director found that an IPR would not be a "true alternative" to a district court action where the district court invalidity theories are "expansive" and include "unpublished system prior art." *Id.*, 3-4. Similarly, in *Shenzen*, the Director declined to institution under *Fintiv* despite the presence of a *Sotera* stipulation where, as here, the invalidity contentions are "expansive and include combinations of the prior art asserted in these proceedings with unpublished system prior art":

> Petitioner has filed a Sotera[] stipulation and argues that its stipulation ensures that this IPR proceeding would be a "true alternative" to the district court proceeding. DD Opp. 14 (quoting Sotera, Paper 12 at 18–19). Petitioner's invalidity arguments in the district court, however, ***are more expansive and include combinations of the prior art asserted in these proceedings with unpublished system prior art***, which Petitioner's stipulation is not likely to moot. *See* Ex. 2007, 117–18; *Motorola Sols. v. Stellar, LLC*, IPR2024-01205, Paper 19 at 3–4 (PTAB Mar. 28, 2025). As such Petitioner's stipulation reduces, but does not eliminate, the inefficiencies discussed above. *See Motorola*, Paper 19 at 3–4.

Shenzen, 2-3. Likewise, in *SAP Am., Inc. v. Cyandia, Inc.*, IPR2024-01495, Paper 13 (Apr. 7, 2025), the Board found that even though petitioner had offered a *Sotera* stipulation, petitioner's reliance on system prior art meant the stipulation had "limited practical effect." *Id.*, 8-9; *see also SiOnyx*, 12-15 (finding factor 4 weighed strongly in favor of denial despite *Sotera* stipulation where petitioner relied upon systems art, including in combination with IPR references). Because the same or similar theories were being advanced in court, the Board concluded that the stipulation did not render the IPR a true alternative to litigation and weighed in favor of discretionary denial. *SAP Am.*, IPR2024-01495, Paper 13, 8-9.

This case resembles *Motorola* in all material respects: identical grounds, overlapping parties, system art, and extensive procedural investment. Here, the District Court Action is certainly not a "true alternative" due to Petitioner's "expansive" reliance upon "unpublished system prior art." Indeed, Petitioner's invalidity contentions rely heavily upon seven separate "Prior Art Products and Systems":

c. Prior Art Products and Systems

Product / System
NVIDIA – NV40 (*e.g.*, GeForce 6800)
NVIDIA – G70 (*e.g.*, GeForce 7900)
NVIDIA – NV50/G80
BrookGPU-Merrimac ("Brook")
NVIDIA – Cg
The Imagine Stream Processor
SANNDRA / KInNeSS

Ex. 2011 [Invalidity-Contentions] 124. Notably, Petitioner contends that each of these prior art systems is anticipatory thereby treating the system art and the IPR art (Buck '977, Wilt, nnet, ANN, and GPU Gems) interchangeably:

Exhibit	Reference
C1	NV40
C2	G70
C3	NV50/G80
C4	Cg
C5	Brook
C6	Imagine Stream Processor
C7	SANNDRA / KInNeSS
C8	U.S. Patent No. 7,747,070 (Puri)
C9	U.S. Patent Publ. No. 2003/0140179 (Wilt)
C10	U.S. Patent No. 7,219,085 (Buck '085)
C11	GPU Gems 2: Programming Techniques for High-Performance Graphics and General-Purpose Computation
C12	U.S. Patent Publ. No. 2005/0197977A1 (Buck '977)
C13	Matlab Neural Network Toolbox User's Guide Version 4 by Howard Demuth and Mark Beale (nnet)
C14	Artificial Neural Network Computation on Graphic Process Unit (ANN)
C15	Using GPUs for Machine Learning Algorithms (GPUs for MLA)

System prior art

IPR2025-00608 prior art

Id., 126-127. Indeed, Petitioner time and again refers to Exhibits C1-C15 interchangeably. *See, e.g.*, *id.*, 131 ("Here, the claimed elements of the '461 Patent are disclosed in the prior art, as established above in Exhibits C1–C15 and Appendix C."). Notably, Petitioner makes clear that all 13 of these references—including the IPR art and the non-IPR systems art—may be combined in any number of fashions.[7] *Id.*, 132 ("To the extent that any of the primary references

[7] This amounts to over six billion possible combinations offered by NVIDIA (13! = 6,227,020,800).

do not expressly disclose these or any related limitations, a POSITA would have been motivated to modify any such references based on any of the references in Exhibits C1–C15 and Appendix C disclosing those limitations."). This specifically includes combining IPR reference GPU Gems with the non-IPR systems art. *Id.*, 148 (arguing "[a] POSITA would have been motivated to apply these principles to any of the primary references in Exhibits C1–C15.").

This undermines any claim that the *Sotera* stipulation will meaningfully limit duplication. With seven allegedly ***anticipatory*** prior art systems to substitute for or combine with Buck, Wilt, nnet, ANN, and GPU Gems, or any other patent or printed publication, Petitioner's court case remains as expansive as ever.

Beyond the prior art references/systems themselves, Petitioner's invalidity contentions also include a lengthy discussion of the state of the art that is nearly identical to the discussion present in Rosing Declaration. This is evident just by a comparison of the table of contents of the corresponding sections. As can be seen below, the two are essentially identical. Though there are not subheadings under the "Known Memory Management Techniques" section in the Rosing Declaration table, these same subheadings do indeed appear in the actual text. The identical nature of the section structure—both in headings and content—further confirms that the technical narrative across proceedings is duplicated:

Rosing Decl. (Ex. 1003)	Invalidity Contentions (Ex. 2011)
IV. BACKGROUND TECHNOLOGY 12	II. STATE OF THE ART PRIOR TO THE ASSERTED PATENTS 8
A. GPUs for General Purpose Computing 13	A. GPUs for General Purpose Computing 8
1. History of Graphics Processing Units 14	1. History of Graphics Processing Units 9
2. Development of GPUs for General Purpose Computing 16	2. Development of GPUs for General Purpose Computing 11
B. Known Features of GPUs Prior to the '461 Patent 17	B. Known Features of GPUs Prior to the Asserted Patents 14
1. Prior Art Parallel Computing and "Controllers" 17	1. Prior Art Parallel Computing and "Controllers" 14
2. The Stream Programming Model of GPUs 20	2. The Stream Programming Model of GPUs 18
3. APIs and Programming GPUs 21	3. APIs and Programming GPUs 19
4. Known Memory Management Techniques 25	4. Known Memory Management Techniques 22
5. Artificial Neural Networks and Other Applications of GPGPU 31	a. Using Pointers for Memory Management 22
6. Real-Time Data Input 34	b. Using Outputs as Inputs and Pointer Swapping 23
7. Task and Resource Management on a GPU 35	c. Transferring Data Between System Memories 26
	5. Artificial Neural Networks and Other Applications of GPGPU 27
	6. Real-Time Data Input 30
	7. Task and Resource Management on a GPU 31

***

In sum, the grounds asserted in this IPR are identical to those in the District Court Action, Petitioner relies on the same annotated references, treats non-IPR-eligible system art interchangeably with the IPR references, and both forums may need to resolve the same priority dispute. The overlap is complete, and Petitioner's *Sotera* stipulation does nothing to simplify the litigation.

5. *Fintiv* Factor #5: NVIDIA Is Both The Petitioner And The Defendant In The Parallel Proceeding.

Factor #5—"whether the petitioner and the defendant in the parallel proceeding are the same party"—strongly favors denial. *Fintiv*, 13-14. Petitioner NVIDIA is the defendant in the District Court Action. "Because the petitioner and the defendant in the parallel proceeding are the same party, this factor weighs in favor of discretionary denial." *Fintiv II*, 15.

6. *Fintiv* Factor #6: "Other Circumstances That Impact The Board's Exercise Of Discretion" Favor Non-Institution.

Factor #6—"other circumstances that impact the Board's exercise of discretion, including the merits"—strongly favors denial. Here, the surrounding circumstances do more than reinforce the first five *Fintiv* factors—they make institution inappropriate in their own right.

As detailed in Section III.A, the settled expectations of the parties independently favors denial. This IPR was filed more than eleven years after Petitioner was made aware of the '254 application (the underlying application for each of the patents-in-suit) and the related '867 patent (in 2014) in prosecution of its own patents. After that, in June 2017, Neurala's leadership team presented the '867 and '828 patents to NVIDIA and the two held a close working relationship. *See* Section III.A. And yet, for over a decade, it chose not to pursue reexamination or early IPR. Only now, a year before trial, does it attempt to invoke the PTAB as a parallel forum. That kind of late-stage disruption of settled expectations is exactly what the Director's March 2025 guidance was meant to deter and precisely what led to noninstitution of five IPR petitions in *iRhythm*. Indeed, as explained in Sections III.A and III.B.2, the only differences between this case and *iRhythm* make this an even ***stronger*** candidate for denial.

If more were needed, and as discussed in Sections III.C-H, the Petition relies heavily upon a reference that is substantially similar to one extensively considered during prosecution, presents weak grounds, advances inconsistent claim construction positions between forums, instigates adjudication of an identical priority date dispute in two forums, and leans heavily on a voluminous and unfocused expert declaration. These flaws, individually and collectively, weigh strongly in favor of discretionary denial under 35 U.S.C. §§ 314(a) and/or 325(d), even separate and apart from the *Fintiv* doctrine. *See* FAQ 12; Memorandum.

Factor 6 overwhelmingly favors denial.

C. The Petition Should Be Rejected Under § 325(d) Because Substantially The Same Art And Arguments Were Previously Presented And Overcome In Prosecution.

The Petition should also be denied institution because "the same or substantially the same prior art or arguments previously were presented to the Office." 35 U.S.C. § 325(d).

Each of Petitioner's grounds is founded upon Buck, the lead reference in every ground. *See* Pet., 3. But a substantially similar Buck reference (U.S. Patent No. 7,219,085 ("Buck-085")) was the lead reference in a § 103 rejection in reissue prosecution. Ex. 1002 ['461-FH] 73, 215-222. The two Buck references are referred to jointly herein as the "Bucks." The applicant traversed the Buck-085 rejections by amending the proposed claims and submitting remarks, leading to the

claims being allowed. *Id.*, 289-298 (amendment and remarks), 318-312 (final office action noting allowable subject matter), 359-367 (notice of allowance).

Petitioner's grounds 3 and 5 also rely upon the "Artificial Neural Network Computation on Graphic Process Unit" ("ANN") reference. Pet., 3. ANN, however, was identified in an IDS initialed by the Examiner and listed in the '461 patent. Ex. 1001 ['461] p. 3; Ex. 1002 ['461-FH] 257 (ANN reference entry initialed by primary Examiner).

Significantly, though Petitioner recognizes that Buck-085 was overcome in prosecution (*see* Pet., 85 n.3) and though the Bucks share substantially similar disclosures, Petitioner has elected not to allege, let alone show, any error on the Examiner's part, much less a "material" one as required by *Advanced Bionics*. While Petitioner attempts to argue that "Buck … contains disclosure not in Buck '085 that is relied on in this Petition," Petitioner does not explain what this "disclosure" teaches beyond Buck-085 or what Petitioner relies upon it for, and the great majority of what Petitioner does rely upon is set forth nearly verbatim in Buck-085. *Id.* Consequently, the Board should reject the Petition because each of its grounds presents the same or substantially the same art and arguments that previously were presented to the Office and overcome in prosecution and Petitioner fails to demonstrate any material error on the Examiner's part.

The two-part *Advanced Bionics* test is clearly met here. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8-10 (Feb. 13, 2020) (precedential). As discussed below, as to the first *Advanced Bionics* prong, substantially similar art (Buck-085) was previously presented to the Office during prosecution and was the basis for a rejection that the applicant overcame by amendment and response. *See* Section III.C.1. Petitioner does not even allege any material error by the Office. *See* Section III.C.2.

1. First *Advanced Bionics*' Prong: The Petition Presents Substantially The Same Art Previously Considered And Rejected By The Office.

The first *Advanced Bionics* prong considers "whether the same or substantially the same art previously was presented to the Office." *Advanced Bionics*, 8. That prong is undeniably met here by both Buck and ANN. Both Buck-085 and ANN were both "previously … presented to the Office" during prosecution. Indeed, Buck-085 was the subject of a rejection and both are listed in the patent. Ex. 1002 ['461-FH] 215-222; Pet., 85 n.3. ANN was listed on an IDS which the Examiner initialed as having been considered. Ex. 1002 ['461-FH] 257. And they are "substantially similar" (in the case of Buck and Buck-085) or the same (in the case of ANN). *Ecto World, LLC v. RAI Strategic Holdings, Inc.*, IPR2024-01280, Paper 13, 2, 4 (May 19, 2025) (precedential) ("*Ecto World*") (finding that identifying art on a 1,000+ reference IDS was "sufficient to satisfy the

first part of the *Advanced Bionics* framework."). The statutory threshold as to the first prong is, thus, plainly satisfied, as further explained below.

The '461 patent originally issued as U.S. Patent No. 9,189,828 on November 17, 2015. Ex. 1002 ['461-FH] 2. The applicant subsequently filed a reissue application in order to "correct [the] Applicant's error in failing to claim the 'user interaction stream' that appears in the embodiment of FIG. 3." *Id.*, 53.

During reissue prosecution, the Examiner explicitly carefully considered U.S. Patent No. 7,219,085 ("Buck-085") and rejected the proposed claims over Buck-085 as the lead reference in various combinations with Johnson, Diard, and/or Edelman. Ex. 1002 ['461-FH] 215-222. In response to the Examiner's rejection, the applicant substantially amended the claims. *Id.*, 289-298, 215-217 (examined claims), 335-341. In view of the amendment, the Examiner then found that newly amended claims were "allowable" as the "cited prior art does not teach or fairly suggest" the amended claims. Ex. 1002 ['461-FH] 320-321, 365-366.[8] Thus, Buck-085 was already presented to the Office and overcome.

[8] The claims were rejected because the reissue oath/declaration was "defective" (Ex. 1002 ['461-FH] 320) but were allowed when new declarations were filed. *Id.*, 359-367.

Buck-085 is clearly substantially similar to Buck reference. Indeed, it is difficult to see how Petitioner could argue otherwise given that it contends in the District Court Action that ***both*** Buck and Buck-085 are anticipatory:

Exhibit	Reference
C6	Imagine Stream Processor
C7	SANNDRA / KInNeSS
C8	U.S. Patent No. 7,747,070 (Puri)
C9	U.S. Patent Publ. No. 2003/0140179 (Wilt)
C10	U.S. Patent No. 7,219,085 (Buck '085)
C11	GPU Gems 2: Programming Techniques for High-Performance Graphics and General-Purpose Computation
C12	U.S. Patent Publ. No. 2005/0197977A1 (Buck '977)
C13	Matlab Neural Network Toolbox User's Guide Version 4 by Howard Demuth and Mark Beale (nnet)
C14	Artificial Neural Network Computation on Graphic Process Unit (ANN)
C15	Using GPUs for Machine Learning Algorithms (GPUs for MLA)

Ex. 2011 [Invalidity-Contentions-Cover] 127.

And these two allegedly anticipatory references share the same first-named inventor and assignee. The Bucks claim priority to provisional applications filed on the same day. Both relate to "optimizing" performance or processing of a GPU.

The Similarities Between Buck And Buck-085		
	Buck	**Buck-085**
First Named Inventor	Ian Andrew Buck	Ian Andrew Buck
Assignee	Microsoft Corporation	Microsoft Corporation
Provisional Application Filed	December 9, 2003	December 9, 2003
Title	***Optimizing Performance Of A Graphics Processing Unit*** For Efficient Execution Of General Matrix Operations	System And Method For Accelerating And ***Optimizing The Processing*** Of Machine Learning Techniques Using ***A Graphics Processing Unit***

Ex. 1004 [Buck] Cover; Ex. 2027 [Buck-085] Cover.

But the similarities are not merely skin deep. Indeed, 11 of Buck's figures appear in Buck-085. *Compare* Ex. 1004 [Buck] *with* Ex. 2027 [Buck-085]. Petitioner attempts to gloss over these manifest similarities arguing that certain paragraphs and figures are present in Buck but not in Buck-085.

> During prosecution, the Examiner considered Buck '085, which claims priority to a provisional application filed on the same day as the provisional application to which Buck claims priority. Buck, however, contains disclosure not in Buck '085 that is relied on in this Petition. Ex1004, [0058]–[0060], [0088]–[0103], [0106]–[0158], Figs. 3, 8, 9, 10A, 10B.

Pet., 85 n.3. Tellingly, however, Petitioner does not specify how it relies upon these "disclosure[s] not in Buck '085." And for good reason. Throughout its

Petition, Petitioner does not focus on these portions of Buck and often cites them in long, unexplained string citations, which also include Buck-085 material. For example, here Petitioner provides a string citation to 59 paragraphs, three figures, and three claims of Buck, of which Petitioner contends six paragraphs contain material not present in Buck-085:

> Buck discloses "systems and methods" for "processing and execution of general matrix operations" such as "neural network[s]." Ex1004 Abstract, [0029]–[0031], [0055], [0076]–[0083], ***[0129]–[0132]***, ***[0157]–[0158]***, [0210]–[0250], Figs. 14–16, cls. 22, 26, 28.

Pet., 31; *compare with* Pet., 85 n.3 (identifying ¶¶ 129-132 and 157-158 as not being disclosed in Buck-085). Clearly, these six paragraphs have no material impact on the underlying proposition.

And this is not cherry-picking. Analyzing the Petition limitation-by-limitation, the great majority of what Petitioner relies upon ***in every single limitation***, is in Buck-085. Indeed, the paragraphs Petitioner contends are not in Buck-085 are a fraction of what it relies upon in its Petition, as shown in the table below.

Limitation	Buck Paragraphs/Figures Relied Upon In Petition	Buck Paragraphs/Figures Allegedly Not In Buck-085
21[pre]	*83 paragraphs, 6 figures* Abstract, ¶¶ 29-31, 37-57, 70, 76-83, 122-124, 129-132, 157-158, 210-250 Figs. 1, 2, 9, 14–16, cls. 22, 26, 28.	*9 paragraphs, 1 figure* ¶¶ 122-124, 129-132, 157-158 Fig. 9
21[a]	*201 paragraphs, 3 figures* ¶¶ 8, 10-12, 46, 49-50, 55, 58-68, 69-210, 211-250 Figs. 9, 15, 16;	*72 paragraphs and 1 figure* ¶¶ 58-60, 88-103, 106-158 Fig. 9
21[b]	*68 paragraphs* ¶¶ 8, 35, 55, 106-120, 211-250	*15 paragraphs* ¶¶ 106–120
21[c]	*49 paragraphs* ¶¶ 49–50, 69–75, 211–250	None
21[d]	*40 paragraphs* ¶¶ 211–250	None
21[e]	*2 paragraphs* ¶¶ 49–50	None
21[f]	*41 paragraphs* ¶¶ 35, 211–250	None

Pet., 31-48. Thus, by every measure, the two Bucks are substantially similar.

And, if more were needed, the same ANN reference relied upon in the Petition was also presented to the Office. The applicant disclosed ANN on an IDS. Ex. 1002 [’461-FH] 90. The Examiner then initialed the IDS, certifying that he had considered ANN:

/WHW/	31	LUO et al., "Artificial neural network computation on graphic process unit." Neural Networks, 2005. IJCNN'05. Proceedings. 2005 IEEE International Joint Conference on. Vol. 1. IEEE, 2005. Pages 622-626.

Id., 257. This plainly satisfies the first prong of *Advanced Bionics*. As the Director has explained, "[c]hallenging the claims using the same prior art that was previously presented on an IDS is sufficient to satisfy the first part of the *Advanced Bionics* framework." *Ecto World*, 4; *see id.*, 2, 4 (finding prong one satisfied even if references were listed in IDS with over 1,000 references).

The first prong of *Advanced Bionics* is thus, clearly satisfied through both Buck and ANN: the same or substantially the same prior art was presented to the Office.

2. Second *Advanced Bionics* Prong: Petitioner Fails To Show Any Material Error By The Office In Evaluating The Previously Considered Art And Arguments.

Petitioner does not attempt to demonstrate that any material error occurred in prosecution. As just explained, the Examiner's review of Buck-085 was thorough and extensive, as it was the lead reference in § 103 obviousness rejections that were overcome via amendment. Moreover, ANN was listed on an IDS and was initialed as considered by the Examiner. Despite this extensive history, Petitioner does not argue that the Examiner materially erred in his analysis. *See* Pet., 85. Petitioner's silence in this regard direct conflicts with the Director's decision in *Ecto World*. *Ecto World*, 5-7. The Director clarified that when challenging claims using prior art previously considered, even if only on an IDS, a petitioner must

"explain, with reference to *Becton Dickinson* factors (c), (e), and (f), how the Examiner erred in overlooking the prior art." *Id.*, 5.

Here, *Becton Dickinson* factors (c), (e), and (f) each weigh in favor of denying institution. For Factor (c)—"the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection"—Buck-085 was extensively evaluated and was the primary reference upon which the Examiner's rejections were based. Ex. 1002 ['461-FH] 215-222; *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17 (Dec. 15, 2017) (precedential).

Moreover, Buck-085 was subject to heightened scrutiny during reissue prosecution. Consistent with current Office practice, the reissue application was considered by the Central Reexamination Unit ("CRU"). Ex. 2028 [CRU]; *see* Ex. 1002 ['461-FH] 168. The examiners at the CRU are all senior patent examiners or supervisory patent examiners and thus more experienced than the typical examiner. Ex. 2028 [CRU] ("The CRU is staffed with senior primary patent examiners and supervisory patent examiners having a wide range of technical expertise and advanced patent legal knowledge."). Further, for each Office Action and Examiner Interview, the Examiner conferred with another senior patent examiner as well as a supervisory patent examiner:

/William H. Wood/
Primary Examiner, CRU 3992

Conferees:

/RSD/

/ALEXANDER J KOSOWSKI/
Supervisory Patent Examiner, Art Unit 3992

Applicant-Initiated Interview Summary	**Application No.** 17/136,343	**Applicant(s)** Gorchetchnikov et al.		
	Examiner WILLIAM H WOOD	**Art Unit** 3992	**AIA (First Inventor to File) Status** No	**Page** 1 of 2

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
WILLIAM H WOOD	Primary Examiner	Telephonic
Max Colice	Attorney of Record	
Anatoli Gorchetchnikov	Inventor	
Alexander Kosowski	SPE	
Rachna Desai	Primary Examiner	

Date of Interview: 24 May 2022

Ex. 1002 ['461-FH] 223, 285, 322, 367. Consequently, Buck-085 was considered as thoroughly as a reference can be during prosecution.

For factor (e)—"whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art"—Petitioner makes no attempt to address how the Examiner erred, much less materially erred, in considering Buck-085, ANN, or any other reference during prosecution of the '461 patent. The Petition fails to identify any specific teachings in Buck/Buck '085 or ANN that the Examiner overlooked or explain why no reasonable examiner could have found the claims patentable over these references. *Becton, Dickinson*, 18.

For factor (f)— "the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments"—no additional facts or evidence presented in the petition warrant reconsideration of the prior art. *Id.* Indeed, just as the Examiner's rejections were centered on Buck-085, each of Petitioner's grounds is centered on the substantially similar Buck.

Furthermore, Petitioner's generalized obviousness contentions regarding Buck and ANN fall far short of the material error analysis required under *Ecto World*. The Director specifically rejected the notion that petitioners can "simply rely on [their] unpatentability contentions to imply that an error occurred," requiring instead that petitioners provide a specific analysis identifying the Office's alleged error and explaining why that error is material to patentability. *Ecto World*, 5-6. Petitioner's failure to provide such analysis for Buck and ANN constitutes a fundamental deficiency that warrants discretionary denial under § 325(d). As the Board has explained, there is no material error where Petitioner fails to address why the claims were allowed over the relevant reference(s):

> Most tellingly, Petitioner made no effort to address the Examiner's statements in addressing why the challenged claims were allowed over Fitz, Ken, and other references considered such as Simon. … Instead of directly addressing the extensive application of Fitz in the prosecution history, Petitioner offers its own independent analysis of Fitz's teachings with no reference to or discussion of the Examiner's

> prior reliance upon Fitz (or Ken) to reject prior versions of the challenged claims or Patent Owner's responsive amendments and explanations that overcame those rejections.

Balt USA, LLC v. MicroVention, Inc., IPR2020-01259, Paper 10, 20 (Jan. 21, 2021); *see also Edge Endo, LLC v. Scianamblo*, IPR2018-01322, Paper 15, 15-16 (Jan. 14, 2019) (no material error where "'the Petition does not address the Examiner's factual findings'"); *Unified Patents Inc. v. Berman*, IPR2016-01571, Paper 10, 12 (Dec. 14, 2016) ("Nevertheless, Petitioner fails to present any argument distinguishing the Examiner's prior consideration of Russell or to provide a compelling reason why we should readjudicate substantially the same prior art and arguments as those presented during prosecution and considered by the Examiner. This would not be an efficient use of Board resources in this matter.").

Petitioner argues that "testimony similar to that provided here by Dr. Rosing" was not "presented to the Examiner." Pet., 85. The Petition's inclusion of an expert declaration does not favor institution. Most, if not all, petitions include expert declarations that were not considered during the original prosecution, yet the Board routinely denies institution based on § 325(d). The Board does not routinely grant institution merely because Petitioner submits an expert declaration. *See, e.g.*, *Edge Endo LLC v. Scianamblo*, IPR2018-01321, Paper 15, 19 (Jan. 14,

2019) ("we do not find that inclusion of a declaration reflecting an opinion that the Examiner 'overlooked' something in [a reference applied or considered multiple times during examination] ... warrants a reconsideration of the ... challenges as raised by Petitioner."); *Juniper Networks v. Mobile Telecommuns. Techs., LLC*, IPR2017-00642, Paper 31, 18-19 (Mar. 14, 2018) ("[T]he Examiner evaluated Jasinski's teachings for the entirety of the [] limitation .... Petitioner has submitted Jasinski for the same limitation .... Adding [a new reference] and expert testimony to the ground concerning claim 10 does not overcome these facts.") (denying institution under § 325(d)); *Dorco Co., Ltd. v. The Gillette Co., LLC*, IPR2017-00500, Paper 7, 18 (June 21, 2017) ("Petitioner relies on the Watts Declaration (Ex. 1007), which was not presented to the Office during prosecution of the '513 patent. We agree with Patent Owner, however, that Dr. Watts' testimony does not add facts or analysis substantially beyond what was considered by the Office during prosecution."). This is doubly true here as Petitioner's expert declaration does not provide any additional analysis of why the Examiner might have made a mistake. *See* Ex. 1003 [Rosing-Decl.] ¶¶ 100-108.

And to the extent that Petitioner argues that the Examiner erred by failing to consider Wilt, nnet, and/or GPU Gems, that argument too should fail. That the Examiner did not consider three references in the vast realm of prior art is not an error or flaw in his analysis. Examiners are not omniscient, and it would be

unreasonable to find that not considering a specific reference to be "material error" warrants a duplicative reconsideration of extensive prosecution. This particularly so here where the rejection was based not merely upon Buck-085, but also upon three other references (Johnson, Diard, and/or Edelman).

Given the Examiner's thorough consideration of the pending claims, there is no reason to think—and Petitioner presents no reason to believe—that the Examiner committed material error in allowing the claims over the Buck-085 combinations. Accordingly, under *Advanced Bionics* prong 2, Petitioner has failed to demonstrate that the Office materially erred in evaluating the art and arguments that the Petition raises. The Board should deny institution under § 325(d).

D. The Unpatentability Arguments Are Weak.

The March 26 Memorandum from the Director permits the parties to address "[t]he strength of the unpatentability challenge[.]" Memorandum, 2. In response to FAQ 12, the Office has indicated that

> the Director will consider the merits in the merits briefing if the parties ask the Director to do so. Parties should not repeat their merits arguments verbatim but should briefly explain why the merits are relevant.

Response to FAQ 12.[9] In accordance with this guidance, Patent Owner respectfully requests that the Director consider the merits briefing filed in Patent Owner's POPR. The present Petition raises grounds based on Buck/Wilt. Petitioner fails to show that several limitations are disclosed by the combinations or that a POSITA would be motivated to make the combinations. Consequently, the weakness of the Petition's grounds further reinforces the bases for discretionary denial detailed in the remainder of this brief.

E. The Director Should Not Institute IPRs Where, As Here, Petitioner Adopts Inconsistent And Irreconcilable Claim Constructions Between Forums.

Institution should also be denied because Petitioner adopts inconsistent claim construction positions between this IPR and the parallel District Court Action. There, Petitioner construed "partition" to mean "a separated subdivision of memory designed to hold specified data." *See* Ex. 2009 [NVIDIA-Preliminary-Claim-Constructions] Ex. A; *see also* Ex. 2010 [NVIDIA-Claim-Construction-Brief] 10. Yet in this IPR, Petitioner adopts a blanket "no construction … necessary" position (Pet., 6) and fails even to acknowledge, much less apply, its district court construction. *Id.*, 31-38, 74-78. This concealment strategy violates

[9] Available at https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management.

the USPTO's rules and undermines the Office's move toward uniformity in claim interpretation.

Petitioner offers no explanation for why it omits and fails to apply this construction in this IPR. This omission violates the Office's rules, which require a petitioner to set forth "how the challenged claim is to be construed" and "how the construed claim is unpatentable." 37 C.F.R. §§ 42.104(b)(3)-(4). As at least one panel has found, the failure of a petitioner to disclose its differing district court claim constructions is improper:

> Perhaps even more troubling, Petitioner chose not to inform us in its Petitions that it simultaneously was arguing a different treatment of the terms of claim 19 before the district court. … it did not inform the panel that Petitioner had taken a very different claim construction position before the district court, it did not inform the panel that the different position was then under consideration by the district court, nor did it explain the reason for Petitioner's change of heart … Instead, Petitioner left it to Patent Owner to advise us of Petitioner's differing claim construction arguments to the district court … At the very least, Petitioner's failure to inform us of its differing claim construction arguments before the district court raises the specter of lack of candor.

Facebook, Inc. v. Sound View Innovations, LLC, IPR2017-00998, Paper 13, 17-18 (Sept. 5, 2017).

In accord, other panels have found that a petitioner should provide the constructions it believes "[are] the correct construction[s] under applicable law" and "take ownership" of those constructions. *Toyota Motor Corp. v. Blitzsafe Tex., LLC*, IPR2016-00422, Paper 12, 26 (July 6, 2016) ("[t]he 'construction' referred to by 37 C.F.R. §42.104(b)(3) is the construction proposed by the Petitioner, ***one that Petitioner believes is the correct construction under applicable law*** and should apply in the involved proceeding."); *see also CareFusion Corp. v. Baxter Int'l, Inc*., IPR2016-01456, Paper 9, 7 (Feb. 6, 2017) ("Petitioner states that it relies on constructions advanced by Patent Owner in the related litigation; ***remarkably, however, Petitioner also states that it does not agree that those constructions are in fact correct***."); *Hologic, Inc., v. Enzo Life Sciences, Inc*., IPR2018-00019, Paper 17, 9 (Apr. 18, 2018) ("… ***Petitioner was free to advocate unpatentability under a claim construction it considered to be correct. It did not do so***. … petitioners should bring petitions for inter partes review asserting unpatentability based on constructions that their petitions seek."); *see also Apple Inc. v. One-E-Way, Inc*., IPR2021-00284, Paper 7, 14 (June 11, 2021); *Snap Inc. v. BlackBerry Ltd*., IPR2019-00830, Paper 7, 17-18 (Oct. 1, 2019); *Juniper Networks, Inc. v. Finjan, Inc*., IPR2019-00073, Paper 7, 16 (May 1, 2019) ; *TCT Mobile (US) Inc. v. Semiconductor Energy Lab. Co., Ltd.*, IPR2022-00440, Paper 13, 14-15 (Aug. 3, 2022).

This approach, moreover, is consistent with the statute and the Office's rules. The petitioner bears the ultimate burden of proof and is further obligated to set forth how the claims are to be construed and demonstrate that the prior art renders the claims invalid under that construction. It is difficult to imagine how a petitioner can satisfy its burden of proof where it advocates for no construction in the IPR whilst simultaneously advocating for a different, narrower construction in the district court. Which is it? There is no reason to institute an IPR where the petitioner talks out of both sides of its mouth, and the Director should not countenance such opportunistic inconsistency. Nor should the Board stick its head in the sand and ignore situations where a petitioner says a claim requires no construction in IPR while advocating for a very specific construction in the district court. Rather, petitioners should present a consistent case across forums.[10]

Such inconsistencies are particularly untenable now that the Board applies the same *Phillips* standard as the district courts. *See* 37 C.F.R. § 42.100(b);

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[10] None of this is to say Petitioners cannot argue in the alternative under, *e.g.*, its own construction and the district court's construction or patent owner's construction. At the very least, however, a petitioner should generally disclose its district court constructions and address why its grounds satisfy its own constructions.

Consolidated Trial Practice Guide, 46-47; 83 Fed. Reg. 51340, 51354 (Oct. 11, 2018) . The Office adopted this uniform standard specifically to prevent parties from "tak[ing] inconsistent positions between PTAB proceedings for patentability and litigation for infringement." *Id*., 51350; *see also id*. ("'With a uniform application of the *Phillips* standard, patent challengers … will instead be required to choose a single claim construction that best captures the true meaning of the patent claim").

Allowing institution here would sanction a strategic evasion of the rules and endorse a practice where a party proffers narrow constructions to avoid infringement in district court while casting them aside to argue invalidity in IPR. Such Janus-faced gamesmanship undermines the integrity of both proceedings.

Petitioner's failure to apply its own construction for the core terms "partition" independently supports discretionary denial under 35 U.S.C. § 314(a). The Director should require petitioners to commit to a single, coherent claim construction theory—not shift positions depending on forum and tactical need.

F. Petitioner Knew That This IPR Would Involve Redundantly Litigating A Complicated Priority Date Dispute That Invites Conflicting Outcomes Across Forums.

Institution should also be denied because Petitioner knowingly selected grounds that trigger a complicated priority date dispute. This is not incidental overlap—it implicates four out of the Petition's six grounds. For Grounds 3 and 5,

Petitioner relies upon the ANN reference,[11] which was allegedly publicly available by January 2006, nearly eleven months after the asserted February 2005 conception date. Pet., 5. For Grounds 4 and 6, Petitioner relies upon GPU Gems which was allegedly publicly available by July 2005, nearly five months after the asserted conception date. *Id.*, 6; *Samsung Elecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1368, 1370 (Fed. Cir. 2019).

Four of Petitioner's asserted grounds (Buck/Wilt/ANN, Buck/Wilt/GPU Gems, Buck/Wilt/ANN/nnet, and Buck/Wilt/GPU Gems/nnet) therefore depend, at a minimum, on whether ANN and/or GPU Gems qualify as prior art. That question is already being litigated in the District Court Action, where the court will evaluate evidence of conception, diligence, and reduction to practice. Petitioner's

[11] As discussed in Section III.C.1, ANN was identified by the applicant on an IDS form. That overinclusive identification, however, is not deemed an admission that ANN is prior art. *See* 37 C.F.R. § 1.97(h) ("The filing of an information disclosure statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in § 1.56(b)."); *see also Riverwood Int'l Corp. v. R. A. Jones & Co.*, 324 F.3d 1346, 1355 (Fed. Cir. 2003) (identifying reference on IDS "would not amount to an admission that [it] is prior art.").

invalidity contentions confirm its intent to press that dispute aggressively: it expressly reserves the right to challenge priority and relies on ANN and GPU Gems as anticipatory or combinable art, and argues that "Plaintiff's documents do not disclose several limitations" and that Plaintiff "has not demonstrated support for all claim limitations in the '892 provisional." Ex. 2011 [Invalidity-Contentions] 150.

As a result, both forums may require expert and inventor testimony, documentary evidence, and cross-examination on the same fact-intensive issue. The risk of conflicting outcomes is not hypothetical. Even subtle differences in the evidentiary record or framing could cause the Board and district court to reach divergent conclusions about whether ANN or GPU Gems qualify as prior art. That would not serve the goals of the IPR system—it undermines them.

Moreover, disputes of this kind are poorly suited to resolution by the Board. Unlike the district court, the Board lacks subpoena power and compulsory third-party discovery—tools that may be necessary to resolve questions of conception, diligence, and corroboration. This is particularly salient here given the five named inventors and the likely complexity of the evidentiary record.

Petitioner knew all of this. It relied on ANN and GPU Gems despite being fully aware of the asserted conception date and the corresponding risk of duplicative litigation. Indeed, Petitioner flagged this issue itself in an earlier-filed

petition challenging the ’867 patent. IPR2025-00606, Paper 2, 3 n.3 (“In the Litigation, Patent Owner argues that conception occurred by February 25, 2005.”). Petitioner thus chose to invite duplicative litigation and conflicting results—conduct squarely at odds with the policy goals set forth in the Director’s Memorandum.

That choice supports discretionary denial under § 314(a). The Office should not be burdened with disputes already pending before an Article III court—especially when they turn on fact-intensive questions that the district court is better equipped to resolve. This is further reason to deny institution.

G. Petitioner’s Overreliance On Expert Testimony Further Supports Discretionary Denial.

Petitioner’s excessive reliance on Dr. Rosing’s voluminous and unfocused expert declaration further strengthens the case for denial. As the Office has made clear, “extensive reliance on expert testimony” may indicate that the issues are “better resolved in an Article III court,” as IPR proceedings must be based on patents and printed publications—not expert opinion. *See* FAQ, 21. The role of an expert is to provide focused support (*e.g.*, explaining terms of art or relevant context), not to substitute for the petitioner’s obviousness rationale. *Id*.

This case exemplifies overreliance on precisely the sort of unfocused expert opinion the Office has cautioned against. Petitioner submits a 186-page, 407-

paragraph declaration (Ex. 1003), totaling approximately 36,600 words—more than two and a half times the 14,000-word limit available for petitions. That disparity alone reflects an evasion of the Petition's word limits and the Office's bar on incorporation by reference.

Much of the declaration reads more like a treatise than a focused expert submission. Nearly 5,500 words—spanning some 55 paragraphs—are devoted to a generic background tutorial on GPU history, including sections on the "History of Graphics Processing Units," the "Development of GPUs for General Purpose Computing," "Prior Art Parallel Computing and 'Controllers,'" "APIs and Programming GPUs," and "Known Memory Management Techniques." *See* Ex. 1003 [Rosing-Decl.] ¶¶ 31-85. None of this is tied to any specific claim limitation. It is cumulative background, not focused testimony, and it bloats the record without assisting the Board's task. Such voluminous "background" discussions are, however, not benign; they invite improper use in reply and burden the Board with material untethered to any asserted limitation.

The manner of expert testimony further supports discretionary denial. As the Office has rightly noted, "the statute and our reviewing court require that petitions be based on prior art patents and printed publications." FAQ, 21. Dr. Rosing invokes what "a POSITA would have understood" 18 times in connection with the asserted grounds—excluding dozens of additional assertions about what a

POSITA would have been "motivated" to do. This is large-scale gap-filling by expert assertion, not application of prior art to claim limitations.

Moreover, Dr. Rosing's testimony is unfocused, weighing against institution. FAQ, 21 ("The failure to provide focused expert testimony may weigh against institution."). Dr. Rosing makes crucial factual assertions, supported by unexplained citations to dozens, if not hundreds, of paragraphs from the references. For example, in paragraph 171 of her declaration, Dr. Rosing alleges how Buck's system works while citing to over 200 paragraphs from Buck without any explanation of how these disclosures support her assertion:

> In a GPU-accelerated system, such as Buck's, the CPU processes data received from user interactions (or through input devices connected to the user input interface) for use in operations performed by the GPU and prepares that data as graphics data (e.g. a texture map). Ex1004, [0010]–[0012], [0055], [0058]–[0068], [0069]–[0210], [0211]–[0250]; Figs. 9, 15, 16.

Ex. 1003 [Rosing-Decl.] ¶ 171.

Significantly, Petitioner relies upon Dr. Rosing's testimony to fill in the gaps for the references. For example, citing only to Dr. Rosing's testimony, Petitioner asserts that "A POSITA would have understood that Buck's interactive system for simulating artificial neural networks would receive a variety of inputs to the artificial neural network, including commands and information, specifying how the

artificial neural network should process information and what information to process." Pet., 35 (citing Ex. 1003, ¶¶169-70). Dr. Rosing's testimony, however, does not cite to Buck at all and contains only conjecture of what Buck's system "[o]f course" "would" include:

> As I have explained above, GUIs for interacting with models and simulations were well-known and widely used prior to the '461 patent. Section IV.B.2. Such user interfaces allowed users to control and interact with applications at a high level through simple visual representations and elements that perform more complex actions and analysis without requiring the user to understand the implementation of those actions and analysis.
>
> Buck's system is designed to be used by a user for simulating artificial neural networks, and requires input from a user to set-up and run networks. ***Of course, the inputs to Buck's CPU would include*** instructions defining, setting, or editing functions (such as activation, learning, and training functions of the artificial neural network), parameters, or variables of an artificial neural network. ***The information would also include***, for example, the memory locations from which data should be loaded, user-defined arrays of data, or live streams of audio, video, or text data. Thus, these "commands and information" provided through Buck's user input interface ***would include inputs*** to the artificial neural network that specify how the artificial neural network should process information, and what information to process.

Ex. 1003 [Rosing-Decl.] ¶¶ 169-170.

This pattern continues throughout the discussion of the asserted grounds. Dr. Rosing devotes over 19,600 words to addressing them—12,000 words over the word count the Petition itself allocates to analyzing the prior art and the claims. This is precisely what FAQ 21 warns against: a petition that gestures toward a theory but relies on expert testimony to supply the details. Unlike in *iRhythm*, where the Director found no such overreliance, the Petition here defers extensively to expert narrative in place of record analysis. *iRhythm*, 2.

In short, the Petition is not based "on prior art patents and printed publications," as the statute and regulations require. It is founded upon a sprawling, nearly 36,600-word expert narrative. The Board and its judges are fully capable of understanding the GPU-related prior art at issue without an expert re-narrating decades of technical context or restating the Petition's burden in declarant voice. Given the burden this approach places on the Board and Patent Owner—and the mismatch between the Petition's structure and its obligations under 37 C.F.R. § 42.104(b)(4)—the Director should exercise discretion and deny institution.

H. No New Authority Has Issued That Would Affect The Patentability Of The Claims.

The Memorandum encourages the Office to weigh "[w]hether there have been changes in the law or new judicial precedent issued since issuance of the claims that may affect patentability." Memorandum, 2. As discussed in Section III.A, Petitioner has been aware of the '254 application—the application that gave rise to each of the patents-in-suit—since August 2013. Patent Owner is not aware of any change in the law that would affect the patentability of the claims. The legal standards governing patentability and claim construction have remained largely unchanged.

Nor does the Petition identify any new legal authority—whether statutory, precedential, or otherwise—that would undermine the Office's original analysis. This further supports discretionary denial under § 314(a).

IV. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that institution be denied under 35 U.S.C. § 314(a).

Respectfully submitted,

/ Kenneth J. Weatherwax /

Kenneth J. Weatherwax (Reg. No. 54,528)
Nathan Lowenstein, *pro hac vice* pending
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Date: June 16, 2025

CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITS

This Discretionary Denial Brief consists of 13,834 words, excluding table of contents, table of authorities, certificate of service, this certificate, or table of exhibits. The Discretionary Denial Brief complies with the type-volume limitation of 14,000 words as mandated in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare the paper (Microsoft Word).

Respectfully submitted,

/ Colette Woo /

Date: June 16, 2025

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the following documents were served by electronic service, by agreement between the parties, on the date below:

PATENT OWNER DISCRETIONARY DENIAL BRIEF

EXHIBITS 2003-2029

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