

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NINTENDO CO., LTD., and
NINTENDO OF AMERICA INC.,
Petitioners,

v.

AMERICAN GNC CORPORATION,
Patent Owner

IPR2024-00667
U.S. Patent No. 6,508,122 B1

**PATENT OWNER AMERICAN GNC'S RESPONSE
UNDER 37 C.F.R. §42.107**

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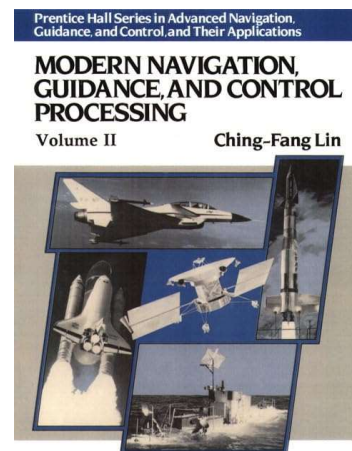
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EX2001	Declaration of Corey Johanningmeier in Support of Motion for <i>Pro Hac Vice</i> Admission
EX2002	Brochure, American GNC Corporation
EX2003	Webpage, AGNC Founder, <i>available at</i> https://www.americangnc.com/ceo/Founder.htm (accessed June 6, 2024)
EX2004	Excerpts from Ching-Fang Lin, "Modern Navigation, Guidance, and Control Processing," Prentice Hall, 1991
EX2005	Excerpts from Inventor Notebook of Hiram McCall, Feb. 6, 1999 to Dec. 14, 1999
EX2006	United States Provisional Patent Application No. 60/154,700
EX2007	Complaint in <i>American GNC Corp. v. Nintendo Co., Ltd., et al.</i> , No. 2:23-cv-00302-TL, D.I. 1 (W.D. Wash. Mar. 3, 2023)
EX2008	Declaration of Professor Lawrence Larson, Ph.D. under 37 C.F.R. § 1.68 in support of Patent Owner's Preliminary Responses in IPR2024-00667 & -00668.
EX2009	<i>Curriculum Vitae</i> of Professor Larson
EX2010	Marco Cassis, "Intelligent Sensing: Enabling the Next 'Automation Age,'" ISSCC 2022, Feb. 21, 2022
EX2011	Excerpts from <i>Nintendo Co., Ltd., et. al. v. Polaris PowerLED Techs, LLC</i> , IPR2023-00778, EX1002 (Declaration of R. Jacob Baker, Ph.D., P.E.).
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EX2015	[Reserved]
EX2016	Joint Claim Chart and Prehearing Statement in <i>American GNC Corp. v. Nintendo Co., Ltd., et al.</i> , No. 2:23-cv-00302-TL, D.I. 41 (W.D. Wash. Mar. 22, 2024)
EX2017	[Reserved]
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EX2019 (new)	Declaration of Professor Lawrence Larson, Ph.D. in support of Patent Owner's Response in IPR2023-00697 and -00698
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EX2022 (new)	Exhibit 7 from Deposition of Dr. Darrin Young – Image of Laser Ring Gyroscope
EX2023 (new)	Declaration of Hiram McCall in support of Patent Owner's Response in IPR2023-00697 and -00698
EX2024 (new)	Excerpts from Weekly Status Reports of Hiram McCall
EX2025 (new)	Image of MEMS gyroscope in ST Microelectronics IMU chip from disassembled Nintendo Switch product

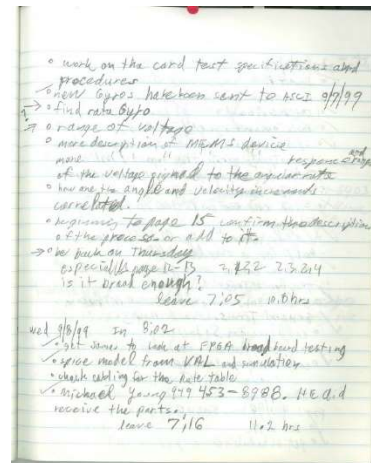
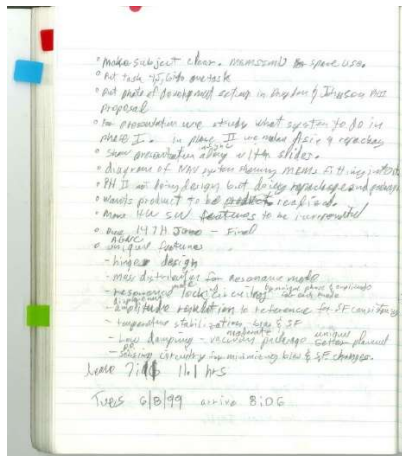
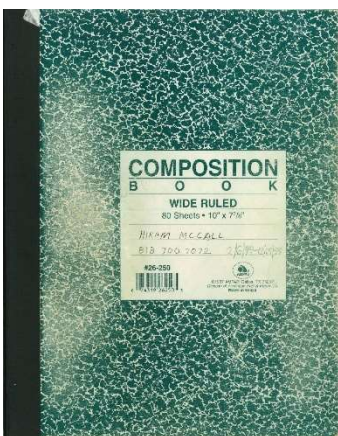
Patent Owner American GNC Corp. (“American GNC”) respectfully submits this Preliminary Response to Nintendo Co., Ltd.’s and Nintendo of America Inc.’s (“Nintendo” or “Petitioner”) above-captioned Petition for *Inter Partes* Review of United States Patent No. 6,508,122 (“the ’122 Patent”).

I. Introduction

Twenty-five years ago, American GNC, and its Founder and Co-inventors, were at the forefront of integrating microelectromechanical systems (MEMS) sensor technology into working, commercially and technically viable guidance and navigation products. EX2002. Founder and Co-inventor Dr. Ching-Fang Lin was an acknowledged expert in the field, who taught at the Universities of Michigan and Wisconsin, published hundreds of technical papers, invented and filed over one hundred patent applications, and wrote highly regarded books about guidance, navigation, and control systems. EX2003; EX2004:



In 1999, Engineer and Co-inventor Hiram McCall was working at American GNC as a specialist in embedded control systems electronics. His inventor notebooks from the time reflect the development of specialized electronic control circuitry for MEMS inertial sensors, and what would become the world's first MEMS rate-integrating gyroscope product. EX2005:



This foundational work by American GNC in the electronic control of MEMS sensors solved the problem of poor performance of such sensors due to circuit limitations—for example, the angular rate output signal had been unstable and would drift beyond what is tolerable for most applications. Major research institutions and corporations—such as NASA Jet Propulsion Laboratories, Draper Laboratory, Hughes, Boeing, Lockheed Martin, Honeywell, and others—were working on aspects of this problem. *See, e.g.*, EX2023, ¶¶21-23. But American

GNC's expertise helped it to discover and patent solutions others had not yet found or disclosed. *Id.*, ¶¶5-14.

American GNC worked diligently to patent its innovative techniques, thereby disclosing them to the public, and to develop and commercialize products based on the inventions. *Id.*, ¶¶15-20. American GNC filed its first patent applications for its gyroscope and Inertial Measurement Unit (IMU) inventions beginning in the late summer and early fall of 1999. *See, e.g.*, EX2006.

The application that became the '122 Patent was among the first, foundational patents in the field. Since it was filed, the '122 Patent has been cited by Examiners and inventors over fifty times—across the industry in the patent applications of STMicroelectronics, Analog Devices, Honeywell, TDK/Invensense, Epson, Lawrence Livermore National Labs, and others. *See* <https://patents.google.com/patent/US6508122B1/en?q=6508122#citedBy>.¹

Commercialization of MEMS Inertial Measurement Unit technology continued from American GNC's early technological successes. Decades later, the technology is commonly found in consumer electronics such as watches, fitness monitors, guidance and navigation devices, drones, smartphones and tablets—as well as in video game consoles and controllers such as Nintendo's, where it enables

¹ American GNC has 79 patents that together are cited over 1600 times. EX2002.

motion sensing capability critical to customer experience of those systems and of many of Nintendo's most popular game titles. EX2007, ¶¶16-38.

The '122 Patent—along with the '648 Patent also asserted against Nintendo and subject to co-pending Petition numbered IPR2024-00668—has been successfully licensed to numerous companies and industry associations, both with and without litigation to demonstrate its validity and infringement. The '122 Patent has been asserted in litigation against GoPro, Bosch, LG, ZTE Corp., OnePlus, and STMicroelectronics. *See, e.g.*, Petition, 1. None of those companies, nor any other potential licensee, ever filed an IPR or other Patent Office challenge to the '122 Patent.

American GNC first put Nintendo on notice of its infringement in early 2017. *See* EX2007, ¶¶39-44. Nintendo continued to use American GNC's inventions claimed in the '122 Patent, without royalty or license, until the patent expired. *Id.*; *see also id.*, ¶¶45-83 (demonstrating evidence of infringement). After American GNC brought its lawsuit seeking a royalty for that use, Nintendo waited as long as possible under the statute, and then filed the present Petition.

Nintendo's Petition completely ignores the twenty-five years of evidence of inventiveness and non-obviousness of the presumptively valid '122 Patent summarized above and in American GNC's Complaint. *See* EX2007, ¶¶16-38; EX2023, ¶¶19-23. Nintendo now asks the Board to go back twenty-five years and

invalidate the long-expired patent—alleging hindsight-infected obviousness, with a Frankenstein collection of parts from five different prior art references, and improperly relying on the patent itself as a roadmap. Petition, 4.

As explained below in Sections III and IV, Nintendo’s obviousness analysis is fundamentally flawed in multiple ways. Nintendo assembles pieces of references into a mosaic modeled after the claims, but fails to demonstrate the required motivations to combine those disparate components. Nintendo’s expert declaration is, in nearly all relevant portions, verbatim copied from the Petition, providing no additional support beyond the endorsement of Professor Young’s signature—which like the attorney argument copied, is not evidence. And the arguments in the Petition / Declaration are, in critical portions, entirely conclusory and unsupported.

Multiple elements, including the key digital signal processing elements of the challenged claims, are completely missing from the base *Fujiyoshi* or *Mitamura* references of each Ground. And Nintendo completely fails to identify any motivation in those analog references to seek out additional solutions via digital signal processing. The *Townsend* reference that Nintendo relies on for “digital” processing does not disclose the claimed “analyzing” of “digital low frequency inertial element displacement signals”—in no small part because ***no reference*** including *Townsend* teaches or suggests “digital low frequency inertial element displacement signals.”

For example, Nintendo’s primary references *Fujiyoshi* and *Mitamura* use entirely analog control systems—with no teaching, suggestion, identification of any problem that would lead someone to have looked toward the “digital low frequency inertial element displacement signals” or the digital signal processing that the ’122 Patent teaches and claims as a solution. EX2019, ¶¶62-66, 69-73. *Townsend*, the only reference Nintendo relies on that discusses digital signal processing, teaches its use for a different purpose—and would have seemed a needless complication over the analog solutions in *Fujiyoshi* and *Mitamura*. EX2019, ¶¶67, 74. Without the benefit of hindsight—or the flash of inspiration that led to the development of the claimed inventions of the ’122 Patent, a POSITA would never have thought to add digital signal processing to the dither drive loop of a MEMS angular rate sensor. EX2019, ¶¶49-50, 68, 75, 81-84; EX2023, ¶¶6-14.

Neither hindsight, nor recasting the results of the inventive process as a motivation to combine, can operate to invalidate patent claims. “[T]he inventor’s own path itself never leads to a conclusion of obviousness; that is hindsight.” *Univ. of Strathclyde v. Clear-Vu Lighting LLC*, 17 F.4th 155, 165 (Fed. Cir. 2021). The Petition attempts exactly this, relying on the ’122 Patent to explain why Nintendo’s pieced-together mosaic of bits of references would be a successful combination. This is improper hindsight, not cured by vague references to the “knowledge of one

of skill in the art.”² *See, e.g., Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1362-63 (Fed. Cir. 2016).

Finally, as explained below in Section VI, the Petition should not have been instituted, and should now be dismissed, including because this Petition is time barred due to Nintendo’s failure to name real parties in interest who would be so barred under §315(b).

Each of Nintendo’s grounds fail to meet Petitioners’ evidentiary burden to show teaching or suggestion of every claimed element in the references—as well as a motivation to combine them *that does not arise from the hindsight knowledge that the combination was successful*. Nintendo has the burden of proof here. 35

² The Institution Decision cites to *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971)—a decision that has been cited by the Federal Circuit for the quoted language only once in this century, and by the Board more than 800 times. *McLaughlin* does not provide an excuse to apply hindsight or background knowledge to combine references—specific motivation from the references themselves is always required. *See, e.g., Virtek Vision International ULC v. Assembly Guidance Systems, Inc.*, 97 F. 4th 882, 887-88 (Fed. Cir. 2024); *NuVasive, Inc. v. Hirshfeld*, 2021 WL 3661208 at *5 (Fed. Cir. Aug. 18, 2021) (quoting *McLaughlin* but further finding specific motivation in references).

U.S.C. § 316(e):

In an inter partes review . . . , the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.

Harmonic Inc. v. Avid Tech., Inc., 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable”) (*citing* 35 U.S.C. §312(a)(3) (2012) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). If Nintendo fails its burden to provide evidence that proves invalidity, it loses the instituted trial, even if American GNC were to offer no response beyond identifying that failure. *Apple Inc. v. Zipit Wireless, Inc.*, IPR2021-01124 *et al.*, 2022 WL 18108215, Paper 14, Decision on Director Review, (PTAB Dec. 21, 2022) (designated precedential: Jan. 4, 2023). Here, American GNC offers both fact and expert testimony contrary to Petitioner’s conclusory assertions.

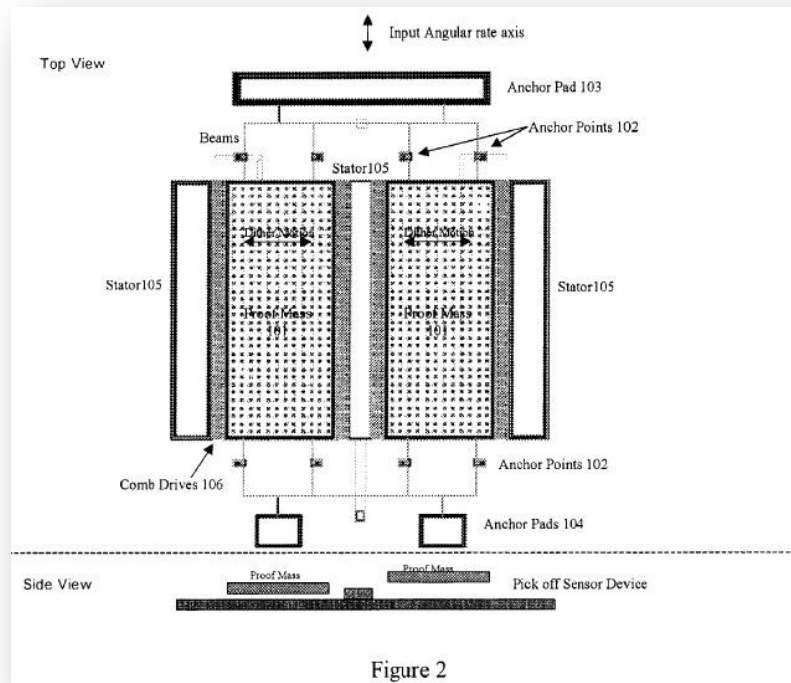
As shown below, Nintendo’s Grounds each fail to show any disclosure or suggestion of key elements of the challenged claims. Nintendo failed its burden of proof here, as explained in more detail in the arguments herein and in the testimony attached. The challenged claims are valid and should be upheld.

II. Overview, History, and Construction of the '122 Patent.

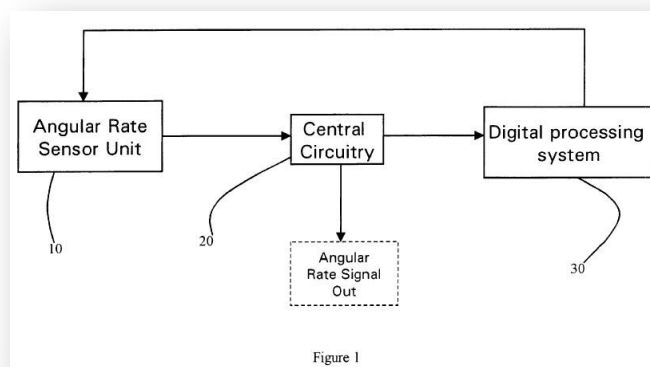
A. The '122 Patent

The '122 Patent describes and claims a “microelectromechanical system (MEMS) for measuring angular rate of a carrier” that includes: “an angular rate sensor unit, microelectronic circuitry, and *signal processing to obtain highly accurate, sensitive, stable angular rate measurements of the carrier under dynamic environments.*” '122 Patent at Abstract, 1:14-21, 2:7-14. The systems disclosed and claimed in the '122 Patent provide significant advantages, including high performance and low cost and power dissipation, as well as improved reliability, as compared to prior solutions for measuring angular rate. *See, e.g., id.* at 2:31-42 (“Dramatic Improvement in Reliability (microelectromechanical systems—MEMS)”).

An example configuration of the invented MEMS sensor device, as shown in Figure 2 of the '122 Patent below, contains proof masses (numbered 101), oscillated under control of stators (105), for sensing Coriolis force. *See, e.g., id.* at 5:47-6:3. The oscillating MEMS sensor in this embodiment is capable of measuring changed capacitive signals produced when an angular rate is applied on the depicted input axis. *Id.* Multiple instances of this or similar structures in a system can provide three-axis measurement:



'122 Patent at Figure 2, 4:1-2. Challenged claim 1 of the '122 Patent contains elements of an “angular rate sensor unit” as in the above example, along with “central circuitry” to interface with the signals to and from that unit, and a “digital signal processing” component for processing and feeding back signals to the sensor unit. *See, e.g., id.* at 9:39-54 (claim 1), Figure 1:



An example configuration of the central control circuitry, as shown in Figure 6 of the '122 Patent below, contains two feedback loops of components—one for control of the dither motion of the sensor (dither motion control circuitry 21), and another for extraction of the angle rate signals (angle signal loop circuitry 22). *See, e.g., id.* at 7:61-63. According to challenged claim 1, this circuitry receives angle rate signals and dither motion signals from the sensor, outputs angular rate signals, and converts dither motion signals to digital signals in order to output “digital low frequency inertial element displacement signals.” *Id.*, 9:39-54. The signals are digitized, for example by an A/D converter, for subsequent analysis and use by the digital signal processing system of the claim:

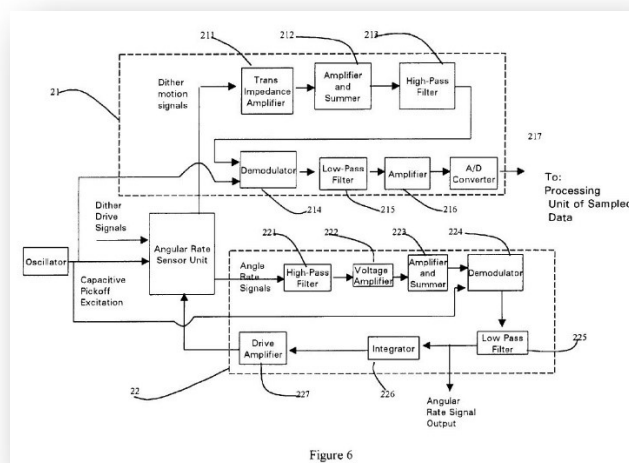
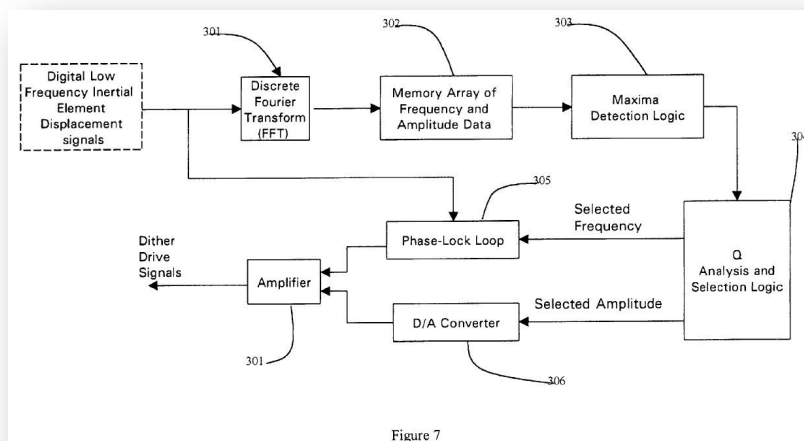


Figure 6

See, e.g., id. at Figure 6 (“A/D Converter” and output “To Processing Unit”), 4:10, 7:61-63.

The use of a digital signal processing system to analyze and feed back the

dither driver signals represented an important and non-obvious advance over existing capacitive MEMS gyroscope control loops—contributing accuracy and stability to the operation of the device. *Id.* at Abstract, 1:14-21; EX2023, ¶¶6-14 (“digital signal processing to integrate the analog measurements of angular rate would be effective to reduce the signal-to-noise ratio and improve accuracy”). An example configuration of the digital signal processing system, as shown in Figure 7 of the '122 Patent below, performs various functions on the digital low frequency inertial element displacement signals, including for example using them to control a phase locked loop:



'122 Patent at Figure 7, 4:9, 7:61-63. The digital signal processing system ultimately feeds back dither driver signals to control the operation of the sensor. *Id.*, 9:39-54, Figs. 7 & 6 (“Dither Drive Signals”).

The inventions of the '122 Patent presented an important advance from

existing conventional angular rate sensors in Inertial Measurement Unit systems at the time, which were not made using MEMS technology and suffered from prohibitive cost, size, and power requirements. *See* '122 Patent at 1:33-36. And the inventions of the '122 Patent also presented an important advance from existing MEMS angular rate sensors, which were rudimentary and lacked the “high accuracy, keen sensitivity, wide dynamic range, and high stability” of the inventive solution. *Id.* at 1:57-2:4; EX2023, ¶¶7-8, 10-12. The challenges of designing reliable active angular rate sensors described in the patent were addressed by the configurations of claimed elements. *See, e.g.,* '122 Patent at 7:21-42; EX2023, ¶¶10-14. In particular, the combination of structural elements and circuit elements—for control and for receiving and processing signals—enabled the necessary sensitivity to make the inventive system function reliably and solved the technical problems many were attempting to address. *See, e.g.,* '122 Patent at 5:21-47. EX2023, ¶¶13-14, 19-23.

The '122 Patent describes and claims groundbreaking advances in the field of MEMS inertial sensors. By solving these problems in 1999, Dr. Lin, Hiram McCall, and American GNC improved sensor stability and control, and enabled Inertial Measurement Units based on MEMS technology to become commercially and technically viable. *See, e.g.,* EX2023, ¶¶19-20.

The inventions of the '122 Patent allowed continued development and

commercialization—appearing in American GNC’s own coremicro® IMU products and in the products of others—until today small and inexpensive IMU devices are ubiquitous. Today IMUs using American GNC’s inventions are in nearly everyone’s vehicle or personal navigation systems, in their smartphones and tablets, and in their Nintendo video game consoles and controllers.

In a recent presentation, Marco Cassis, President of ST Microelectronics’ Analog, MEMS and Sensors Group, identified the year 2000 as “a paradigm shift” in “Motion MEMS Sensors.” *See, e.g.,* EX2010 at 2, Figure 1.2.7 (“Continuous performance improvement” and “Data processing capability increase”):

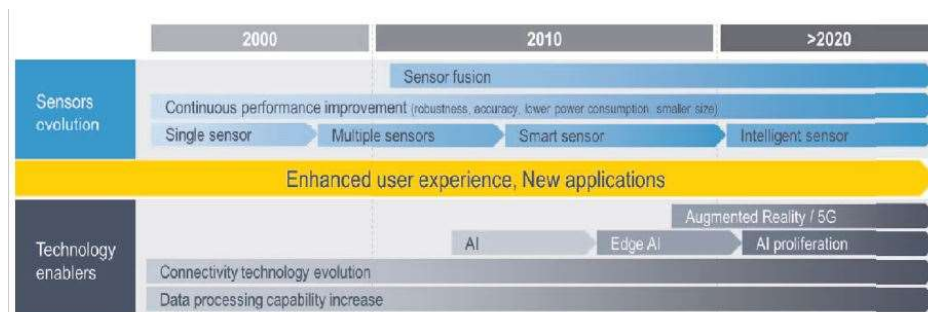


Figure 1.2.7: Key MEMS sensor development milestones.

American GNC’s 1999 incorporation of digital signal processing technology into the dither control loops of MEMS rate sensors was not only non-obvious at the time, it turned out to be an enabling innovation and a leap forward for practical

applications of MEMS sensor technology. *Id.*; *see also* Introduction above (highlighting recognition, citation, use and licensing by others of the '122 Patent). American GNC was the first to patent this combined solution, and Nintendo's weak and improper mosaic of alleged obviousness references is nothing more than hindsight being employed in an attempt to avoid licensing American GNC's inventions as others have.

B. The '122 Patent Challenged Claims

American GNC asserted, and Nintendo challenged, independent claim 1 and its dependent claim 3. '122 Patent, 9:39-54 (claim 1), 10:14-16 (claim 3). Challenged claim 1 recites (emphases added):

1. A microelectromechanical system (MEMS) for measuring angular rate of a carrier, comprising:

an angular rate sensor unit receiving dither driver signals, *capacitive pickoff excitation signals* and a displacement restoring signal and outputting angle rate signals in response to motion of said carrier and dither motion signals;

a central circuitry receiving said angle rate signals in response to said motion of said carrier and said dither motion signals and outputting angular rate signals and *digital low frequency inertial element displacement signals*; and

a *digital signal processing system analyzing said digital low frequency inertial element displacement signals* and feeding back said dither driver signals to said angular rate sensor unit.

Claim 3 depends from claim 1, adding the requirement that control circuitry include “dither motion control circuitry” and “angle rate signal loop circuitry.” *Id.* at 10:14-16 (claim 3).

3. The microelectromechanical system, as recited in claim 1, wherein said central circuitry comprises a dither motion control circuitry and an angle rate signal loop circuitry.

The emphasized elements above are among those for which Nintendo relies on complex combinations of references. For example, because *Fujiyoshi* admittedly does not specify what kind of capacitive sensing it uses, it does not disclose “*capacitive pickoff excitation signals*” as claimed. Petition 19, 25. In attempting to show this would be obvious, Nintendo points to: the disclosures of the ’122 Patent (*id.*, 18, 23); a “background” reference *Slater* (*id.*, 18, 21); another “background” reference *Ristic* (*id.*, 21-22); the *Fujiyoshi* reference (*id.*, 19-20); and the *Kumar* reference (*id.*, 23-25). The first three of these aren’t appropriate sources for obviousness, and the *Kumar* reference only mentions what Nintendo takes to be

oscillation driven pickoffs as a possible alternative buried at the end of its written description. *See* Petition, 24 (*citing* EX1005, 6:29-34).

The “*digital low frequency inertial element displacement signals*” element of the claims is not mentioned or suggested in any cited reference. In attempting to show this would be obvious, Nintendo points to: the disclosures of the ’122 Patent (Petition, 32); a “background” reference *Irwin* (*id.*, 34); the *Townsend* reference (re: low-frequency, see *id.*, 32-34); the *Cox* reference (*id.*, 33-34); the *Fujiyoshi* reference (*id.*, 35-36, 38); and the *Townsend* reference again (re: digital, see *id.*, 36-39). Nintendo’s alleged motivation to make this multi-reference combination is entirely hindsight (would have resulted in) and description of what each reference “describes.” *Id.*, 24-25, 39-41. Nintendo completely fails to identify any teaching or problem disclosed in one reference that would point to another.

The “*digital signal processing system analyzing* said digital low frequency inertial element displacement signals” element of the claims is also not mentioned or suggested in any cited reference. As further detailed herein, Nintendo’s suggestion that a POSITA would be motivated to replace a literal wire—from node “c” at the top to node “c” at the bottom of *Fujiyoshi*’s Figure 9—with an analog-to-digital converter, a digital signal processor, and a digital-to-analog converter, is completely void of supporting evidence. *See* Petition, 38-40; EX1002, ¶¶180-181.

C. Claim Construction and Person of Ordinary Skill in the Art

For purposes of *inter partes* review disputed claim terms are construed to give them “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *See* 83 Fed. Reg. 51341 (Oct. 11, 2018) (adopting the standard of *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005)). The proper construction is considered in the context of, and must be consistent with, the specification—and the claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *See, e.g., Phillips*, 415 F.3d at 1313.

A person of ordinary skill in the art with respect to the ’122 Patent would have at least a “Master’s Degree in Electrical or Electronics Engineering, and approximately five years of relevant experience in the development of control systems for inertial navigation, MEMS semiconductor processing, and analog circuit design.” EX2019, ¶57.

Nintendo asserts that construction of claim terms is not necessary to the resolution of any issues presented in the Petition—and thus the Board needn’t weigh in on them. Petition at 6. *See, e.g., Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”).

D. Effective priority date

Nintendo does not dispute that the '122 Patent is entitled to at least the effective priority date of U.S. Provisional Application No. 60/154,700, filed September 16, 1999. Petition, 5-6; EX1002, ¶12.

III. Nintendo failed to prove that the challenged claims are obvious over *Fujiyoshi* in combination with *Kumar*, *Townsend*, *Cox*, etc.

Fujiyoshi, the base reference for Ground 1, admittedly fails to disclose multiple elements of the claims—including any mention or suggestion of digital processing in the MEMS sensor control loops.

Nintendo suggests that a person of ordinary skill would employ *three separate obviousness combinations* in allegedly finding claim 1 obvious. But as disclosed in the subsections below, these combinations each fail to render obvious the elements for which they are invoked. For example, *Fujiyoshi* is not properly combined with *Kumar* with respect to “capacitive pickoff excitation signals” (combination I), is not properly combined with *Townsend* and *Cox* with respect to “digital low frequency inertial element displacement signals” (combination II), and is not properly combined with *Townsend* with respect to “a digital signal processing system for analyzing” (combination III).

In sum, Petitioner’s *Fujiyoshi* arguments are facially deficient, and fail to prove that *Fujiyoshi* in combination could render obvious the challenged claims. There is simply no teaching or suggestion in *Fujiyoshi* of the claimed digital signal

processing for analyzing signals in a MEMS gyroscope control loop—and there is no motivation to substitute DSP technology in the control loops disclosed. Petitioner’s Ground 1, which relies on *Fujiyoshi* and the missing motivation to combine it with *Kumar*, *Townsend* and *Cox*, and again *Townsend*, must fail. *See, e.g., In re Smith Int’l, Inc.*, 871 F.3d 1375, 1381 (Fed. Cir. 2017) (all claim elements must be shown).

A. Petitioner failed to show that the *Fujiyoshi* combination I discloses or renders obvious “capacitive pickoff excitation signals” according to the challenged claims

Nintendo failed to show that the *Fujiyoshi* combination I discloses or suggests the “capacitive pickoff excitation signals” elements as disclosed and claimed. *See, e.g., ’122 Patent*, 9:41-45 (claim 1).

Nintendo admits that “*Fujiyoshi* does not explicitly use the term ‘capacitive pickoff excitation signals,’” and does not identify any disclosure of *Fujiyoshi* disclosing or suggesting the “high frequency signal” that it takes to be representative of such excitation signals. *Petition*, 19-20; *EX1002*, ¶137 (verbatim).

Nintendo then goes on to make reference, improper to an obviousness analysis, to a textbook (*Slater*), another textbook (*Ristic*), and “the disclosures of the ’122 Patent.” *Petition*, 21-23. To the extent that Nintendo meant to rely on those textbooks as part of its combination, it has failed to provide any analysis of a

motivation to combine. Nintendo cannot find elements that go “to the heart of an invention,” in the background—based on attorney argument or the conclusory say-so of a paid expert. *See, e.g., Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363 (Fed. Cir. 2016).

Nintendo does not include *Slater* or *Ristic* in its invalidity ground, and offers no opinion or analysis of whether *Slater* or *Ristic* would be within the “background knowledge” of a person of ordinary skill in the art—failing Nintendo’s burden of proof. The Board’s institution decision—noting that these are textbooks and are old, see Paper 10 at 36—cannot substitute for a lack of ***record testimony*** about the actual knowledge of a POSITA. *Arendi S.A.R.L.*, 832 F.3d at 1363 (“it must still be supported by [record] evidence and a reasoned explanation”).

And Nintendo cannot support its obviousness analysis “[b]ased on the disclosures of the ’122 patent.” Petition 23. The Board should disregard this, and other attempts by Nintendo to roadmap its obviousness analysis off of American GNC’s own disclosures to the public in its patent.

Nintendo then cites to the preferred embodiment of *Kumar*, which discloses only a DC bias voltage on the capacitive elements in question. Petition 23 (*citing* EX1005, Fig. 2a (“D.C. Voltage”)); *see also* EX1005, 3:65-4:2. To the extent that Nintendo is pointing to “high frequency signal” as an excitation signal, the embodiment of *Kumar* that it cites teaches the exact opposite. EX1005, 3:65-4:2

(a constant “DC bias voltage”). Nintendo’s other citation to Kumar mentions other types of sensors. *See* Paper 10 at 36 (citing EX1005, 6:29-34). But it does so without any explanation suggesting “capacitive pickoff excitation signals”—other than through improper hindsight or unsupported reference to background knowledge.

Nintendo’s “Rationale and Motivation to Combine” boilerplate argument here is only several conclusory sentences, without citation to any disclosure that would motivate a person of ordinary skill to combine the references. Petition, 24-25; EX1002, ¶145 (verbatim). References being analogous and reasonably pertinent—even if a supported assertion, which here it is not—may be necessary to a combination, but is not a sufficient *motivation to make* the combination.

Incredibly, Nintendo points to *Fujiyoshi*’s lack of detail as an alleged reason to look at *Kumar* for detail. Petition, 25. If that were enough, no claim of any patent could ever survive section 103 analysis before the Board, as each reference’s lack of teaching would justify pulling up yet another. It is not enough. *Pers. Web Techs.*, 848 F.3d at 993-94 (“[T]hat reasoning seems to say no more than that a skilled artisan, once presented with the two references, would have understood that they could be combined. And that is not enough: it does not imply a motivation to pick out those two references and combine them to arrive at the claimed

invention.”); *Virtek*, 97 F. 4th at 887-88 (“It does not suffice to simply be known. A reason for combining must exist”).

Nintendo bears the evidentiary burden here, and the Board should not supplement with its own expertise the record Nintendo failed to develop in its Petition. *Arendi S.A.R.L.*, 832 F.3d at 1363-64 (cautioning against accepting “a conclusory assertion” ... “about general knowledge in the art *without evidence on the record*, particularly where it is an important [] limitation that is *not evidently and indisputably* within the common knowledge of those skilled in the art”) (emphases in original).

In sum, Nintendo’s conclusory arguments are facially deficient, are supported only by improper hindsight reasoning, and do not show a reasonable likelihood that *Fujiyoshi* and *Kumar* could render obvious any challenged claim. There is simply no teaching or suggestion in the *Fujiyoshi* combination of the claimed “capacitive pickoff excitation signals” as Nintendo describes them and Nintendo’s improper arguments based on the ’122 patent are too conclusory and selective to be credited. The challenged claims should be upheld.

B. Petitioner failed to show that the *Fujiyoshi* combination II discloses or renders obvious “digital low frequency inertial element displacement signals” according to the challenged claims

Nintendo failed to show that the *Fujiyoshi* combination II discloses or suggests the “digital low frequency inertial element displacement signals” elements as disclosed and claimed. *See, e.g.*, ’122 Patent, 9:46-54 (claim 1).

Nintendo does not point to any disclosures of *Fujiyoshi* that teach or suggest doing *anything* with or to the signals Nintendo identifies as the “dither motion signals” of the claims. Petition, 32-33. In *Fujiyoshi*, the signals in question are fed back via a simple connection—namely, a wire or node “c.” EX2020, 46:11-22.

Instead of providing a reason to do so, Nintendo just asserts that *Townsend*’s “sample and hold devices” would obviously be inserted as part of a complicated chain of digital blocks. *Id.*; Petition, 32. As its *only support* beyond bare say-so of its expert, Nintendo cites again to “the disclosures of the ’122 specification”—improperly road-mapping its analysis from American GNC’s own invention disclosures. *Id.*

Nintendo doesn’t explain what the sample-and-hold devices of *Townsend* do, or what they are for, other than that they purportedly accomplish “noise rejection.” *Id.* (citing *Townsend*, 18). But this generalized reference to noise obscures the fact that *Townsend*’s sample and hold devices are added to reduce sampling noise caused by the addition of *Townsend*’s particular analog-to-digital converter—not

to address or alleviate noise in the underlying analog circuit. *See, e.g.*, EX1004 at 18. Indeed, *Townsend* discusses another A/D converter embodiment where sample and hold devices are not required. *Id.* *Townsend's* need to remove, and the presence of a block for removing, sample noise caused by *Townsend's* conversion to digital—is not a motivation to convert *Fujiyoshi's* analog signals to digital.

Fujiyoshi does not mention “noise rejection” via circuitry. Its cursory discussion of noise mentions a completely difference source, and solution—eliminating cross-talk by analog lowering of “exciting voltage.” EX1003, 6:50-53. There are many potential sources of noise in any sensor system. EX2020, 55:17-56:4. Mention of one does not teach or motivate a person of ordinary skill concerning the existence or solution of another.

On cross-examination, Nintendo’s expert Dr. Young agreed that noise is a perennial problem in all electronic circuits and that sole use of “noise” as a motivation to combine would be “overbroad.” EX2020, 56:6-58:7 (“I mean, all electrical systems, just to be fair, right, you always have noise like you said”), 61:21-64:23 (“If I only focus on noise, maybe it’s overbroad; right?”). But noise is the only rationale offered for this combination. Petition, 34. Overbroad and generalized concern over unspecified “noise” is not a proper reason to combine. *See, e.g., In re Beasley*, 117 Fed. Appx. 739, 744 (Fed. Cir. 2004) (“conclusory statements of generalized advantages” are not enough reason to combine).

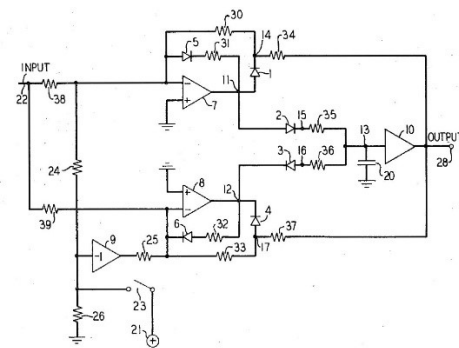
Townsend's off-hand mention of “noise reduction” in digital samples is only meaningful if one had already decided to digitize—a decision for which no teaching or motivation is supplied, unless one has read the '122 patent and is looking for that with hindsight. Petition, 32 (*citing* “the '122 specification”). The Board should not indulge Nintendo’s improper invitation to hindsight invalidation based on “the disclosures of the '122 specification” here. *See, e.g., W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1552-53 (Fed. Cir. 1983) (“fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.”).

Even Nintendo seemingly acknowledges that *Townsend's* “sample-and-hold devices” are not present for the purpose of providing low-frequency signals, and goes on to add a paragraph suggesting also looking at *Cox*. Petition, 33. Again, Nintendo relies only on a citation to the '122 Patent’s disclosures to suggest why low-pass filtering would be looked for here. *Id.* (“*See* '122”). Neither *Fujiyoshi* nor *Townsend* are asserted to contain any suggestion of low-pass filtering. *Id.* Dr. Young’s entire corresponding paragraph on the *Cox* reference is just copied argument from the Petition. *Id.*; EX1002, ¶167 (verbatim). The paragraph fails to point out that the cited portions of *Cox*, and indeed the rest of the reference as well, never mentions “noise” reduction. *See* EX1006.

Nintendo’s brief suggestion that a person of ordinary skill would

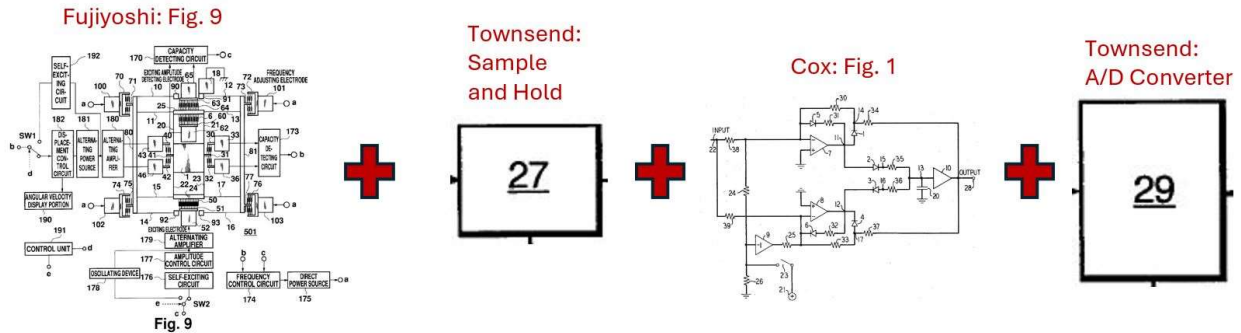
spontaneously combine *Townsend* and *Cox*—in order to add “low frequency” to the analog feedback wire of *Fujiyoshi*—is completely without support other than impermissible hindsight derived from “the disclosures of the ’122 specification.” Petition, 32-33. As with *Townsend*, Nintendo relies on “noise” as its sole motivator, and ignores the fact that its rationale for combining with *Cox* is circular—citing the need for sampling/filtering that is motivated by an assumed decision to go from analog to digital. *Id.*, 34 (“to avoid ‘distortions’ in the digitized signal”).

Here Nintendo provides only an assertion (further rebutted below) that “an analog-to-digital converter” would be added in the combination. Petition, 35. But that assertion cannot be squared with *Cox*, because *Cox* discloses a completely analog filter circuit, with an analog input and output—and contains nothing to suggest a need to digitize that input. *See* EX1006, Fig. 1:



And Nintendo’s unsupported suggestion to just add “an analog-to-digital converter” comes immediately after Nintendo’s opposite suggestion that one would be “motivated to use *Cox*’s design to minimize the number of components in the

system.” *Id.*, 34. The pieces of *Fujiyoshi* combination II simply do not fit together, and Nintendo’s cursory argument fails to show otherwise.



In sum, Nintendo’s arguments are facially deficient, supported only by improper hindsight reasoning, and improperly generic invocations of the concept of “noise,” and do not show that *Fujiyoshi* and *Townsend* and *Cox* could render obvious any challenged claim. There is simply no teaching or suggestion in the *Fujiyoshi* combination II of the claimed “digital low frequency inertial element displacement signals.” Nintendo has failed its burden to show this element to be obvious in the claimed combinations, and the claims should be upheld.

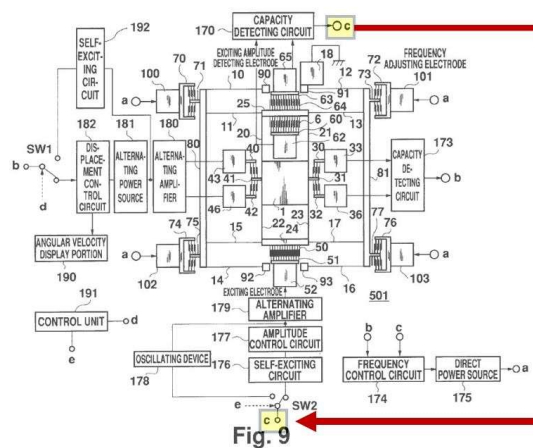
C. Petitioner failed to show that the *Fujiyoshi* combination III discloses or renders obvious “a digital signal processing system analyzing” according to the challenged claims

Nintendo failed to show that the *Fujiyoshi* combination III discloses or suggests the “digital signal processing system analyzing” elements as disclosed and claimed. *See, e.g.*, ’122 Patent, 9:46-54 (claim 1). Nintendo never actually says what aspect of any signal is analyzed, never describes any analysis, and fails to even

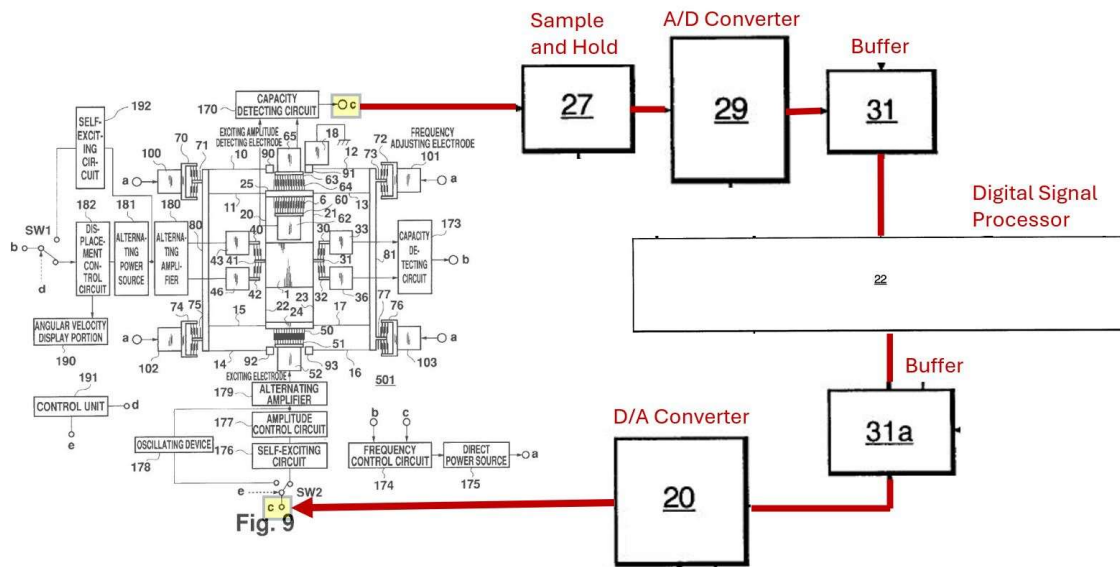
use the word analyzing except in the section header quoting the claim element. Petition, 35-42; *see also* EX1002, ¶¶176-186. In attempting to graft a digital signal processing system meeting the claim elements onto an analog system that does not need it, Nintendo has failed to show disclosure or suggestion of the claimed use for such a DSP.

And without discussion of what the “digital signal processing system” is “analyzing,” Nintendo has also failed to show any motivation for the complicated combination and substitution of technology it proposes. An ordinary artisan would not have found such a purposeless redesign endeavor to be obvious, particularly given its complexity. *See, e.g.*, EX2019, ¶¶63-68 (“The *Townsend* reference does not disclose any specific benefit that would have been deemed applicable to the complete analog feedback loop taught in *Fujiyoshi*.”), ¶¶81-84.

As Nintendo does not dispute, *Fujiyoshi* discloses an ***analog*** feedback loop with ***analog*** circuit components. EX2019, ¶¶63-64 (“that feeds back the output of a ‘capacity detecting circuit’ 170, via connection ‘c,’ to a ‘self-exciting circuit’ 176, an ‘amplitude control circuit’ 177, and AC amplifier 179, which then drives the vibrating mass 1”). According to Nintendo, “dither motion signals” are fed back through the connection “c,” by nothing more than a simple wire. *Id.*, ¶63; Petition, 35; EX1003, Fig. 9 (annotated below):



In *Fujiyoshi* Combination II discussed above, Nintendo has already proposed that a person of ordinary skill would add a sample and hold circuit, Cox's low-pass filter, and an analog-to-digital converter, presumably somewhere along the red wire annotated above. Now, in *Fujiyoshi* Combination III, Nintendo proposes that a person of ordinary skill would **also** add "a sample-and-hold device, analog-to-digital converter, buffer," a "digital processing unit," and "a buffer and digital-to-analog converter" in place of the analog feedback wire annotated above. Petition, 38-39; EX1002, ¶¶180-181 (verbatim); EX2019, ¶65; EX2020, 45:20-46:22 ("In order to form that -- that feedback path and using digital signal processing"). The resulting mosaic of pieces might look something like this:



This complicated mosaic of references and individual circuit elements self-evidently makes a massive change to the feedback wire disclosed in *Fujiyoshi*. Nintendo offers no citation or explanation of disclosures in *Fujiyoshi* to support it—instead simply asserting that it would be obvious. Petition, 37-39; EX1002, ¶¶180-181 (verbatim). This fails to meet Nintendo’s burden to demonstrate obviousness. “Attorney argument is not evidence.” *Icon Health*, 849 F.3d at 1043. And to the extent this argument copied into his declaration is attributed to Professor Young, it is still entirely too conclusory and unsupported to be credited by the Board. *See, e.g., Rohm and Haas*, 127 F.3d at 1092 (the Board needn’t “credit the unsupported assertions of an expert witness”); 37 C.F.R. §42.65(a).

Fujiyoshi. *Id.* A person of ordinary skill would not undertake such a complicated redesign of *Fujiyoshi* to switch the loop to digital signal processing. *Id.*, ¶66. They certainly would not do so without any identified purpose for what the digital signal processing would be “analyzing” in the claim.

As Professor Larson points out, *Fujiyoshi* taught persons of ordinary skill that its solution worked fine, and solved known problems in the art. *Id.*, ¶67. The statement of alleged problems with analog circuits that Nintendo cites from *Townsend* (Petition, 36-37) is not applicable to the complete solution disclosed in *Fujiyoshi*. *Id.* The large and complicated modification to *Fujiyoshi* that Nintendo proposes would have **added** specification and design difficulties, as well as size and cost. *Fujiyoshi*’s teachings disclose no issues with “calibration and compensation,” or need to change the control loops to achieve a “digital format” output. *See* Petition, 36-37.

Testimony of ’122 Patent co-inventor Hiram McCall—concerning his experience and knowledge of digital signal processing, unusual among engineers working in MEMS sensors at the time, and his inventive insights enabling use of such processing in crucial aspects of controlling a MEMS gyroscope of the time—further supports non-obviousness of this claim element. EX2023, ¶¶5-14 (“Very early in the invention and design process, I determined that accurate and reliable electronic control of the dither drive loop would require, and should utilize, digital

signal processing.”); *see also* EX2019, ¶¶81-84 (“In my understanding, confirmed by Mr. McCall, ordinary engineers at the time did not have his experience both with MEMS inertial sensors, and with digital signal processing techniques.”). Mr. McCall’s unique knowledge and experience, beyond that of ordinary artisans, enabled American GNC to understand solutions and quickly meet the challenge posed by the poor-performing MEMS angular rate sensors of the time. EX2023, ¶¶11-14, 16-17 (“early tests of the gyro control provided excellent results, with initial drift of ‘less than .1 deg.hr.’”). At the time, application of digital signal processing techniques to MEMS sensors was rare and was beyond the knowledge and motivation of ordinary artisans. *Id.*, ¶¶6, 8, 10, 12-14; EX2019, ¶¶81-84.

And non-obviousness is further supported by American GNC’s successful implementation (where others had not succeeded) of, and commercial success with, the MEMS rate-integrating gyroscope described in the preferred embodiment of the ’122 Patent—and the IMU product it was integrated into. *See, e.g.*, EX2007, ¶¶16-38; EX2023, ¶¶17, 19-23; *see also* Introduction above. American GNC’s designs attracted interest, including from agencies like NASA, the Air Force, and the Army (see, *e.g.*, EX2023, ¶¶19-23), surpassed efforts by major research institutions like NASA JPL and Draper Labs (see, *e.g., id.*, ¶¶21-22), and were cited and copied by others (see, *e.g., id.*, ¶23). All of this reflected widespread recognition of valuable and innovative inventive work—work that was not obvious to ordinary artisans

twenty-five years ago. EX2023, ¶3; EX2019, ¶¶47-50, 81-84 (“A person of merely ordinary skill would not have been motivated to undertake the complicated application of digital signal processing in, for example, a MEMS angular rate sensor control loop of the time.”).

Against this factual and testimonial record of non-obviousness, Nintendo merely quotes generalized advantage statements from *Townsend*, without any meaningful analysis of whether they would be seen to apply to *Fujiyoshi*’s complete and reportedly advantageous-on-its-own system. *Id.* They would not apply. EX2019, ¶67. And more to the point, the statements do not relate to “analyzing said digital low frequency inertial element displacement signals” with the alleged “digital signal processing” system of *Townsend*. ’122 Patent at 9:51-54 (claim 1). The claims do not merely require a digital signal processing system, they require it to perform analysis of specific signals—found by American GNC’s inventors to be crucial to the success of their invention, see EX2023, ¶10—which the alleged combination does not teach or suggest.

Townsend’s generalized advantage statements—on which Nintendo, and the Board’s institution decision, see Paper 10 at 42, rely—discuss only unrelated calibration or unrelated output of sensor readouts. EX1004, 5. By failing to even discuss what relevant analyzing is done by the alleged *Townsend* digital signal

processor—in the reference or in the alleged combination—Nintendo failed to show specific teaching or suggestion of the claim element.

In sum, Petitioner’s arguments are facially deficient, and do not show that *Fujiyoshi* and *Townsend* could render obvious any challenged claim. There is simply no teaching or suggestion in the *Fujiyoshi* combination of the claimed “digital signal processing system analyzing.” Nintendo has failed to show this element to be obvious in the claimed combinations, and the challenged claims should be upheld.

D. Petitioner failed to show that *Fujiyoshi* would be combined with *Kumar*, with *Townsend* and *Cox*, or with *Townsend*

None of the three distinct combinations that Nintendo relies on to allege obviousness in Ground 1 contain the required showing of a motivation to combine the references involved. *See, e.g., Virtek*, 97 F.4th at 888 (“It does not suffice to simply be known. A reason for combining must exist.”). *See also* Section V.A below.

***Fujiyoshi* Combination I:**

Subsection A above details how Nintendo failed to make the required showing that a person of ordinary skill would have been motivated to combine *Fujiyoshi* with *Kumar*. Nintendo presents only the bare disclosures of the references—with an unsupported assertion that they could be helpfully pieced

together. This is exactly what the Federal Circuit cautioned against in *W.L. Gore* and many cases since. *See* Section III.A above.

Fujiyoshi Combination II:

For the separate combination II of *Fujiyoshi*, *Townsend*, and *Cox* that Nintendo directs at the “digital low frequency inertial element displacement signals” element, Nintendo’s cursory “Rationale and Motivation to Combine” argument fails to provide the required motivation for a person of ordinary skill to make the combination.

For example, the *Cox* reference is not “in the same field as the ’122 patent” or the other references. Petition, 33; EX1002, ¶169 (verbatim). *Cox* does not relate to or discuss motion, sensors, or MEMS. EX1006. Nintendo points at discussion of “AC signals,” “capacitors and feedback loops,” which suggests nothing here, as it could equally apply to phones, radios, or many other electronic devices. EX1006 (“Assignee: Bell Telephone Laboratories”); Petition, 33.

As discussed above, *Cox* doesn’t mention the “noise” reduction that Nintendo points at it for. Petition, 34. And Nintendo’s invocation of a textbook (*Irvin*) again comes with no opinion or analysis of whether that text would be within the “background knowledge” of a person of ordinary skill in the art. *Id.* Finally, as mentioned above, Nintendo’s mention of reducing “the number of components”

in the system with *Cox* (*id.*) runs against its other suggestion of adding an analog-to-digital converter at *Cox*'s output.

Nintendo doesn't bother to explain whether *Cox* would actually reduce components—because in fact it would add them. Nintendo instead merely quotes generalized advantage statements from references without any meaningful analysis. *Id.* Nintendo also never explains whether and how the “sample and hold devices” of *Townsend*, analog low-pass filter circuit of *Cox*, or analog-to-digital converter of *Townsend* would operate together in the specific circuit disclosed in *Fujiyoshi*.

Nintendo's combination analysis here does nothing more than assemble “individual, naked parts of separate prior art references,” that are “employed as a mosaic to recreate a facsimile of the claimed invention.” *W.L. Gore*, 721 F.2d at 1552-53. No actual motivation for a person of ordinary skill to combine all of these parts is given, other than the improper hindsight roadmap of the '122 Patent itself.

Nintendo failed its burden to show a motivation for an ordinary artisan to make this complex combination—on top of the other two that Nintendo asserts. The claims should be upheld, for this additional reason as well as others.

Fujiyoshi Combination III:

For the separate combination III of *Fujiyoshi* and *Townsend* that Nintendo directs at the “digital signal processing system analyzing” element, Nintendo's cursory “Rationale and Motivation to Combine” argument fails to provide the

required motivation for a person of ordinary skill to make the combination. Most of Nintendo's discussion of motivation to combine here consists of describing what the references disclose. *See, e.g.*, Petition, 40-41. But it is not enough to simply say what is known from the references. *Virtek*, 97 F.4th at 888 ("It does not suffice to simply be known. A reason for combining must exist.").

As discussed in Subsection C above, Nintendo's citation of *Townsend*'s general disparagement of analog systems (Petition, 41) is not shown to be, and is not, applicable to the solution provided by *Fujiyoshi*. EX2019, ¶¶67. This passage of *Townsend* fails to teach or suggest the specific signals being analyzed as required by the claims, nor does *Fujiyoshi* provide any rationale to replace wire "c" with six different digital logic blocks for any unspecified and unnecessary purpose. *Id.*, ¶¶63-66.

Fujiyoshi teaches a person of ordinary skill that its existing ***analog*** loop structure leads to improvements in sensitivity and reliability. *Id.*; EX1003, 6:35-52 ("sensor resolution can be improved"), 8:23-48 ("linearity, sensibility, frequency characteristic, temperature characteristic, and the like of the resonance type angular velocity sensor can be improved."). These passages fail to motivate looking for drastic alternative solutions—such as importing sample and hold devices, buffers, A/D and D/A converters, and digital signal processing.

As discussed above in Subsection A, Nintendo's suggestion that a concern for "noise rejection" would motivate the proposed redesign of *Fujiyoshi* mischaracterizes the disclosures that it relies on. See Petition, 42; EX1002, ¶186 (verbatim). Nintendo omits that *Fujiyoshi* discloses "[r]estricting the exciting voltage to a low level" as a solution for the "noise (cross-talk)" that it identifies as a possibility. EX1003, 6:35-62; see also *id.*, 12:60-64 (using a differential structure to avoid "noise influence").

The fact that *Fujiyoshi* already provides solutions, for the only instances of "noise" it identifies, fails to suggest or motivate redesigning the entire loop based on a non-specific mention of concern for sampling "noise rejection" in the different loop disclosed by *Townsend*. See EX2019, ¶66-68. Nintendo has failed to explain how incorporation of all of the components from *Townsend* would be seen to benefit a person of ordinary skill with knowledge of the complete solution of *Fujiyoshi*. These components may be "necessary for converting" to digital (Petition, 42). But the only thing motivating Nintendo's desire to convert *Fujiyoshi* to digital is the complete lack of any teaching or suggestion in *Fujiyoshi* of the "digital signal processing system analyzing" element of the claims.

Nintendo cannot use its desire for invalidation as a motivation to combine. It has failed to show any proper motivation for *Fujiyoshi* Combination III here, and for this additional reason has failed its burden to show obviousness.

Neither *Fujiyoshi* nor any other reference here is alleged to render any challenged claim obvious on its own. For these additional reasons—including because the Ground depends entirely on each of the alleged combinations of *Fujiyoshi* with *Kumar*, *Fujiyoshi* with *Townsend* and *Cox*, and *Fujiyoshi* with *Townsend* again, and those references would not be combined—Nintendo has failed to demonstrate obviousness for any challenged claim, and the claims should be upheld.

IV. Nintendo failed to prove that the challenged claims are obvious over *Mitamura* in combination with *Townsend*.

Mitamura, the base reference for Ground 2, fails to disclose at least the “digital low frequency inertial element displacement signals” and the “digital signal processing system analyzing” elements of the challenged claims. Nintendo’s proposed combinations each fail to render obvious these elements, for reasons similar to those discussed above, and as further detailed below.

Further, *Mitamura* is not properly combined with *Townsend*.

In sum, Petitioner’s *Mitamura* arguments are facially deficient, and fail to prove that *Mitamura* in combination could render obvious the challenged claims. There is simply no teaching or suggestion in *Mitamura* of the claimed digital signal processing for analyzing specific signals in a MEMS gyroscope control loop—and there is no motivation to substitute digital signal processing technology in the

control loops disclosed. Petitioner’s Ground 2, which relies on *Mitamura* and the missing motivation to combine it with *Townsend*, must fail.

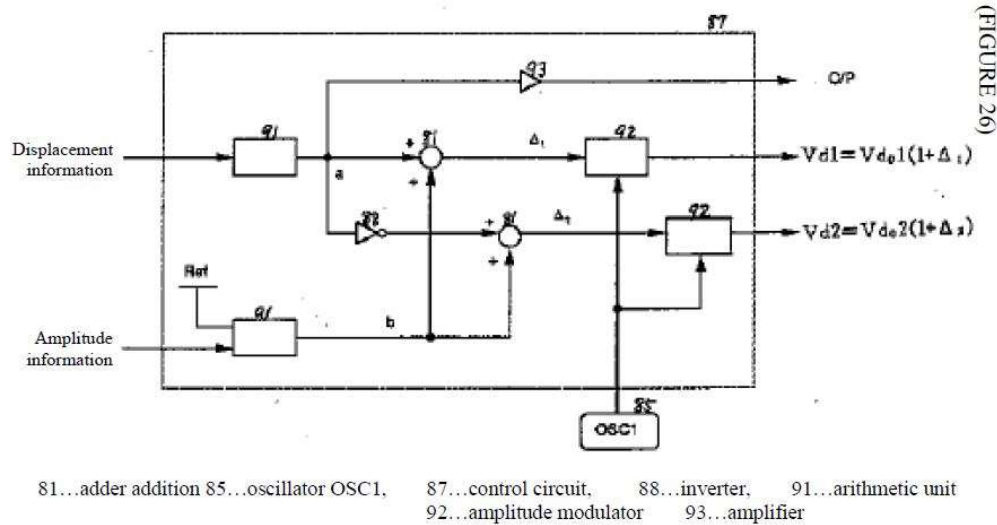
A. Petitioner failed to show that the *Mitamura* combination discloses or renders obvious “digital low frequency inertial element displacement signals” according to the challenged claims

Nintendo failed to show that the *Mitamura* combination discloses or suggests the “digital low frequency inertial element displacement signals” elements as disclosed and claimed. *See, e.g.*, ’122 Patent, 9:46-54 (claim 1).

Nintendo’s discussion of this element begins with a two-page walk-through of the disclosures of the ’122 patent. Petition, 64-66; *see also id.*, 67 (comparing with “what the ’122 patent discloses”). When the “digital” portion of the element is reached (*id.*, 68), the comparison pauses, because *Mitamura*, like *Fujiyoshi*, is an entirely analog circuit design. EX2019, ¶¶70-71. Nintendo does not dispute this.

Instead, Nintendo simply asserts that a person of skill would find it obvious to make analog arithmetic unit 91 into a digital signal processing system. Petition, 68-69; EX1002, ¶232 (verbatim). Arithmetic unit 91 in *Mitamura* is ***not a digital circuit***, but merely an analog circuit that “computes a modulation amount ‘based on a deviation from a set reference level’ Ref.” EX2019, ¶¶71 (*quoting* EX1009, [0046]); EX1009, Fig. 26:

[FIGURE 26]



As with the prior Ground, here Nintendo points to nothing in *Mitamura* that might possibly suggest converting its arithmetic unit circuit to a digital implementation—and then adding an A/D converter to convert the input to that unit to digital, “if it is implemented digitally.” Petition, 68-69. Instead, as with the prior Ground, Nintendo cites as its only support, the “’122 Patent” disclosures. *Id.*, 69. This is improper hindsight, and the Board must not credit it. *See, e.g., Univ. of Strathclyde*, 17 F.4th at 165 (“[T]he inventor’s own path itself never leads to a conclusion of obviousness; that is hindsight.”); *see also* EX2023, ¶¶5-6, 10-14; EX2019, ¶¶81-84 (describing ’122 Patent co-inventor’s unique knowledge and experience with digital signal processing, and his inventive insight to use it as claimed).

In tacit acknowledgement of the weakness of its argument, Nintendo provides an alternative based on the alleged combination of *Mitamura* with *Townsend*—and asserts without support that it would have been obvious to insert an analog-to-digital converter to make the inputs to the digital signal processing system digital. Petition, 70. But *Mitamura*’s arithmetic unit 91 as disclosed is analog. EX2019, ¶71. It performs a simple reference level calculation requiring a basic analog circuit. *Id.* *Mitamura* does not teach, suggest, or motivate redesigning the system to include an analog-to-digital-converter, in order to replace this simple analog comparison with a complicated digital signal processor. *Id.*, ¶¶69-73.

Nintendo argues that *Mitamura*’s signals would be converted to digital, because it needs them to be digital to invalidate the claims. Petition, 70. Nintendo cites nothing from *Mitamura* in support. *Id.* Making this conversion would add complexity and design complication—and would not be an obvious course for an ordinary artisan. EX2019, ¶¶72-73.

As in section III.B above, and for the same reasons, Nintendo’s arguments are facially deficient, supported only by improper hindsight reasoning, and do not show that the *Mitamura* combination could render obvious any challenged claim. There is simply no teaching or suggestion in the *Mitamura* combination of the claimed “digital low frequency inertial element displacement signals.” Nintendo has failed to show this element to be obvious in the claimed combinations, and the

claims should be upheld.

B. Petitioner failed to show that the *Mitamura* combination discloses or renders obvious “a digital signal processing system analyzing” according to the challenged claims

Nintendo failed to show that the *Mitamura* combination discloses or suggests the “digital signal processing system analyzing” elements as disclosed and claimed. *See, e.g.*, ’122 Patent, 9:46-54 (claim 1).

As Nintendo does not dispute, *Mitamura* discloses an **analog** feedback loop with **analog** circuit components. EX2019, ¶¶70-71; Petition, 73 (the other circuitry of *Mitamura*, which is implemented in analog circuitry). *Mitamura*’s “arithmetic unit 91,” performs a simple analog function of calculating a modulation amount by comparing to a reference voltage. EX2019, ¶¶71; EX1009, [0046]. A calculation of an analog reference voltage comparison is not an “explicit suggestion” to add an entire digital processing block. Paper 10 at 53. If anything, the basic nature of the calculation being performed suggests the simplicity of an analog subtractor circuit. EX2019, ¶71.

Nintendo asserts, with no support beyond its own say-so, that *Mitamura* alone somehow supports the obviousness of a wholesale redesign of its analog arithmetic unit 91—to include an analog-to-digital converter for its input, a digital signal processor, and a digital-to-analog converter to get back to analog for the rest of the circuit. Petition, 72-73; EX1002, ¶¶237-238 (verbatim).

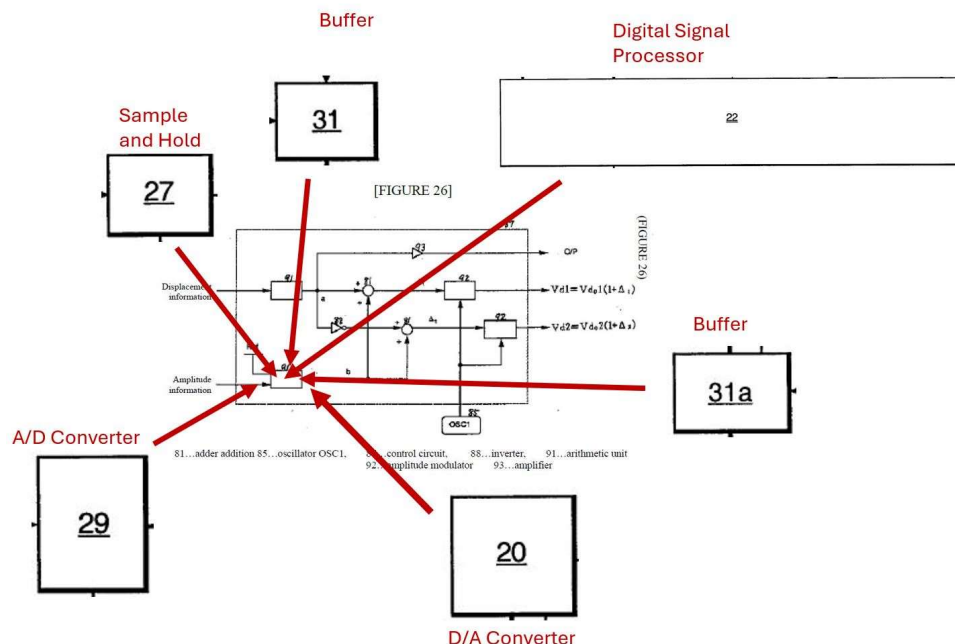
Stripped of bare pronouncements, this argument relies on the word “calculated,” and the phrase “set reference level.” *Id.*; EX1009, [0046]. It completely ignores the simple nature of the described function, or the context that what is calculated” is an analog voltage deviation: “modulation amounts of the drive voltage, based on a deviation from ... a set reference level.” *Id.* Doing this function digitally would be **more** complicated, not less. EX2019, ¶¶71-73.

Nintendo provides no disclosures, evidence, or explanation to support the conclusions it reaches—which are nonsensical and contradictory, adding conversions **to** digital and then conversions **back from** digital, just to avoid the fact that *Mitamura* is “implemented in analog circuitry” but the claims require digital signal analysis. Petition, 73; EX1002, ¶238 (verbatim).

For example, even if it were desired to have a “simple [digital] reference level setting interface,” it would be simpler to just convert from that interface to an analog reference level—rather than redesign the whole system to be digital. Petition, 72; EX2019, ¶73. Further, the very existence of an adjustable analog reference level in *Mitamura* disproves the Petition’s alleged need to “redesign” the analog circuit just to make adjustments. Petition, 72; EX1009, Fig. 26 (“Ref”). There is, quite simply, no reason to convert the analog “arithmetic unit 91” of *Mitamura* to digital—unless one is an accused infringer like Nintendo, trying to manufacture the suggestion of an absent digital signal processing system in order

to invalidate a patent claim.

In its alleged combination of *Mitamura* with *Townsend*, Nintendo proposes that a person of ordinary skill would add “sample-and-hold devices, buffers, analog-to-digital converters, digital-to-analog converters,” and a “digital processing unit,” in place of or near “arithmetic unit 91.” Petition, 73-74; EX1002, ¶¶238-240 (verbatim); EX2019, ¶72. Nintendo does not specify exactly where, and indeed provides alternate suggestions as to how, all of these pieces would be arranged. But Nintendo’s argument requires adding significant complex functionality just to replace the simple circuit (e.g., an analog subtractor, see EX2019, ¶71) taught in *Mitamura*. See, EX1009, Fig. 26 (annotated below):



As with the *Fujiyoshi* Combination III discussed above, Nintendo provides no citation or explanation of disclosures in *Mitamura* to support this combination—

instead simply asserting that it would be obvious. Petition, 73-74; EX1002, ¶240 (verbatim). This conclusory and unsupported argument fails to meet Nintendo’s burden to demonstrate even a reasonable likelihood of success at showing obviousness. “Attorney argument is not evidence.” *Icon Health*, 849 F.3d at 1043. And to the extent the arguments copied into his declaration are attributed by the Board to Professor Young, they are still entirely too conclusory and unsupported to be *credited* by the Board. *See, e.g., Rohm and Haas*, 127 F.3d at 1092 (the Board needn’t “credit the unsupported assertions of an expert witness”); 37 C.F.R. §42.65(a).

Professor Larson disagrees with Nintendo’s conclusion that this combination would be obvious. EX2019, ¶¶72-75. As with *Fujiyoshi*, the complexity of the proposed combination contrasts with the simple analog loop (and analog “arithmetic unit”) of *Mitamura*. *Id.* A person of ordinary skill would not undertake such a complicated redesign of *Mitamura* to switch the loop to digital signal processing. *Id.*, ¶73.

Further, as with *Fujiyoshi*, for the reasons discussed in Section III.C above, there is significant evidence to support the non-obviousness of the ’122 Patent’s solution.

Further, as discussed above regarding *Fujiyoshi*, the disclosures of *Mitamura* taught persons of ordinary skill that its solution worked fine, and solved known

problems in the art. EX2019, ¶74. The statement of alleged problems with analog circuits that Nintendo cites from *Townsend* (Petition, 76) is not applicable to the complete solution disclosed in *Mitamura*. *Id.* The large and complicated modification to *Mitamura* that Nintendo proposes would have **added** specification and design difficulties, as well as size and cost. *Mitamura*'s teachings disclose no issues with "calibration and compensation," or need to change the control loops to achieve a "digital format" output. *See* Petition, 76. Again here, Nintendo is merely quoting generalized advantage statements from *Townsend*, without any meaningful analysis of whether they would be seen to apply to *Mitamura*'s complete and allegedly advantageous system. *Id.* They would not apply. EX2019, ¶74.

In sum, Petitioner's arguments are facially deficient, and do not show that *Mitamura* and *Townsend* could render obvious any challenged claim. There is simply no teaching or suggestion in the *Mitamura* combination of the claimed "digital signal processing system analyzing" digital signals element. Nintendo has failed to show this element to be obvious in the claimed combinations, and the claims should be upheld.

C. Petitioner failed to show that *Mitamura* would be combined with *Townsend*

As with its proposed combination of *Fujiyoshi* and *Townsend*, Nintendo's cursory "Rationale and Motivation to Combine" argument fails to provide the

required motivation for a person of ordinary skill to combine *Mitamura* and *Townsend*. As with the alleged *Fujiyoshi* combinations, much of Nintendo's discussion of motivation to combine here consists of describing what the references disclose. *See, e.g.*, Petition, 74-76 ("because *Mitamura* describes ..." and "because *Townsend* describes ..."). But "[i]t does not suffice to simply be known. A reason for combining must exist." *Virtek*, 97 F.4th at 888. Nintendo fails to provide any such reason.

As discussed in Subsection B above, Nintendo's citation of *Townsend*'s general disparagement of analog systems (Petition, 76), or its mention of a concern for "noise rejection" (*id.*, 77), is not shown to be, and is not, applicable to the solution provided by *Mitamura*. EX2019, ¶74. And as discussed above, *Townsend*'s comments on analog systems are not related to the claimed analysis of specific digital signals.

Mitamura teaches a person of ordinary skill that its existing structure rejects noise, and leads to improvements in sensitivity and reliability. *Id.*; EX1003, Abstract ("not susceptible to the effects of noise acceleration and other types of noise and achieves high sensitivity and high precision"). *Mitamura* also teaches analog approaches for the elimination of amplitude variation in its feedback loop. EX1003, [0034] ("This effect can be eliminated by monitoring the vibration amplitude and using the configurations shown in Figures 11, 12, and 13 to make it

constant.”). By providing solutions in the analog circuit context, these passages fail to provide any motivation to an ordinary artisan to look for complex alternative digital solutions—such as importing sample and hold devices, buffers, A/D and D/A converters, and digital signal processing.

Nintendo has failed to explain how incorporation of all of the components from *Townsend* would be seen to benefit a person of ordinary skill with knowledge of the complete solution of *Mitamura*. These components may be “necessary for converting” to digital (Petition, 76). But the only thing motivating Nintendo’s desire to convert *Mitamura* to digital is the complete lack of any teaching or suggestion of the “digital signal processing system analyzing” element of the claims in *Mitamura*. There is no motivation to combine in the reference itself.

Again, Nintendo cannot use its desire for invalidation as a motivation to combine. It has failed to show any proper motivation for combining *Mitamura* with *Townsend* here, and for this additional reason has failed its burden to establish a reasonable likelihood of success for any challenged claim, and institution should be denied.

V. The Petition should not have been instituted and should be dismissed.

As discussed in American GNC’s Preliminary Response and above, each of the grounds are improperly based on hindsight and on attorney argument disguised as conclusory expert testimony. The reasons that this analysis is improper and

unfair to patent owners like American GNC are further summarized below. In addition, the Petition is time-barred, for failing to name a real party in interest that would be barred under §315(b) from bringing the Petition.

A. The Petition is entirely founded on impermissible hindsight.

In the Petition, Nintendo relies heavily on the disclosures of the '122 Patent to explain its allegations of obviousness, improperly using American GNC's own patent disclosure against its allowed claims. *See, e.g.*, Petition, 23 ("Based on the disclosures of the '122 patent"), 29, 32-33, 69 ("similar to how the '122 patent discusses"). At one point, the Petition even mislabels citations to the '122 Patent as citations to *Fujiyoshi*. *Id.*, 26-27. This reliance on the disclosures of American GNC's inventors to explain Nintendo's Grounds is improper. *Univ. of Strathclyde*, 17 F.4th at 165 ("[T]he inventor's own path itself never leads to a conclusion of obviousness; that is hindsight.").

As discussed further above, Nintendo's various statements about alleged "**Rationale and Motivation to Combine**" are almost exclusively limited to descriptions of what the references disclose. *See, e.g.*, Petition, 24-25 ("Kumar provides further detail..."), 40-41 ("because *Fujiyoshi* describes..." and "because *Townsend* describes..."). This fails to provide the required motivation to make the combination—because it is not enough to simply say what is known from the references. *Virtek*, 97 F.4th at 888 ("It does not suffice to simply be known. A

reason for combining must exist.”). “[C]onclusory statements of generalized advantages” are also not enough. *In re Beasley*, 117 Fed. Appx. at 744.

Both of these tactics of Nintendo in the Petition run afoul of the prohibition against using hindsight to invalidate claims. This is something that courts have long, and often, warned against. And this case shows precisely why it is no answer merely to say that a concept, like a MEMS gyroscope, is “known”—as in Nintendo’s Petition or the Board’s institution decision (Paper 10 at 34). It could also be, and here was, known that MEMS gyroscopes of the time had performance problems, making them difficult and unsuitable for the claimed use—without the further inventive elements of the claim. *See, e.g.*, EX2019, ¶¶53-54; EX2023, ¶¶7-8, 10-11. An ordinary engineer is not motivated to substitute and combine technologies known to be difficult or unsuitable to integrate. Focusing only on knowledge that a technology *exists* improperly ignores and devalues innovation required to *make that technology work* in a new, valuable application. *See, e.g.*, EX2020, 31:24-36:2 (“I worked on it for about ten years”).

The claimed invention is not to be “used as a frame” on which “individual, naked parts of separate prior art references were employed as a mosaic to recreate a facsimile of the claimed invention.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1552-53 (Fed. Cir. 1983) (“To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or

references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.”).

The main guardrail against hindsight in obviousness analysis is the requirement of showing a motivation, discussed or taught in the prior art references, to combine what is known from them. “Given the ‘subtle but powerful attraction of a hindsight-based obviousness analysis,’ [the Federal Circuit] require[s] a ‘rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.’” *In re Beasley*, 117 Fed. Appx. at 743.

Because “claimed discoveries almost necessarily will be combinations of what, in some sense, is already known,” finding obviousness based on a combination of references requires “a reason that would have prompted a person of ordinary skill in the art to combine the elements.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention.”).

As shown above, Nintendo’s obviousness analysis, and assertions concerning motivations to make the combinations in question, run afoul of all of

these precedents—inviting the Board to engage in hindsight analysis from a perspective twenty-five years after the proper one.

But considering the available guidance from courts and prior decisions about the necessity to guard against such hindsight—and the ways to avoid it—the Board should conclude that there is no merit in the Petition. *See, e.g., Apple Inc. v. Contentguard Holdings, Inc.*, IPR2015-00442, Paper 9 at 11-12, 17 (P.T.A.B. July 13, 2015) (“analysis infected with impermissible hindsight cannot form the basis of an obviousness finding”); *see also, e.g., Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966); *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993-94 (Fed. Cir. 2017) (“[T]hat reasoning seems to say no more than that a skilled artisan, once presented with the two references, would have understood that they could be combined. And that is not enough: it does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention.”).

For all of these reasons, in addition to the lack of merit in the obviousness arguments themselves, the Board should give no weight to the Petition’s alleged motivations to combine. Nintendo’s arguments are solely based in hindsight, using the ’122 Patent as a roadmap and failing to specify any particular reason arising from the references themselves to assemble the piecemeal mosaic of elements that Nintendo suggests. Again, “[a] reason for combining must exist,” and “conclusory

statements of generalized advantages” like size are not enough. *Virtek*, 97 F.4th at 888; *In re Beasley*, 117 Fed. Appx. at 744.

B. The Petition and Declaration present no more than attorney argument

Nintendo’s Petition provides nothing but conclusory say-so and attorney argument on the central questions of what would be obvious to a POSITA and whether they would be motivated to seek combinations. What a POSITA would or wouldn’t have found obvious—i.e., their knowledge and skill level—is a *fact question* to be determined based on *evidence*. See, e.g., *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); see also *Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015) (fact question whether art is analogous). “Attorney argument is not evidence.” *Icon Health and Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (reversing Board for relying on argument); MPEP §2145 (“arguments of counsel cannot take the place of factually supported objective evidence”).

Here Nintendo alleges only obviousness, and does so via complicated prior art combinations. Petition, 4. Accordingly, Nintendo must prove, *inter alia*: the level of ordinary skill in the art; that a person of ordinary skill in the art would be motivated to and would combine those references; and that the references disclose or render obvious to a person of ordinary skill in the art each and every element.

Each of Nintendo's core arguments that it must prove depends on what a person of ordinary skill—according to Nintendo someone with at least a Bachelor of Science degree in Electrical Engineering and two or three years of experience working in motion sensor systems, see Petition, 5—would understand or find obvious in 1999. On each of Nintendo's core obviousness arguments, Nintendo offers only the Declaration of Dr. Darrin Young as “evidence.” *See, e.g.*, Petition at 37-39 (what would be obvious to POSITA), 39-42 (POSITA reasons to combine). Dr. Young relies only on his (or Nintendo counsel's) say-so. EX1002, ¶¶178-181, 182-185.

The Declaration of Dr. Young is not properly evidence here, because the crucial opinions of Dr. Young are merely attorney argument from the Petition affixed with the signature and CV of Dr. Young. *See, e.g.*, Petition, 37-39, 39-42; EX1002, ¶¶178-181, 182-185: (reproduced in part below, **verbatim material highlighted**):

Petition, pg. 38-39	Declaration of Dr. Darrin Young ¶¶180-181
A POSITA would have been motivated to connect the dither motion control circuitry in Fujiyoshi's second and seventh embodiments to a digital signal processing system like Townsend teaches. The annotated version of Fujiyoshi's Figure 9 below shows the circuitry for controlling dither motion in Fujiyoshi's second and seventh embodiments: ... (Fujiyoshi, Fig. 9 (highlighting and	180. A POSITA would have been motivated to connect the dither motion control circuitry in Fujiyoshi's second and seventh embodiments to a digital signal processing system like Townsend teaches. The annotated version of Fujiyoshi's Figure 9 below shows the circuitry for controlling dither motion in Fujiyoshi's second and seventh embodiments: ... (Fujiyoshi, Fig. 9 (highlighting and annotations

annotations added); Young, ¶180.) It would have been obvious to connect the highlighted dither motion control circuitry in the above annotated version of Fujiyoshi's Figure 9 to a digital signal processing system like that disclosed by Townsend. (Young, ¶180.) For example, a POSITA would have also been motivated to connect node "c" at the top of Fujiyoshi's Figure 9 system in the circuitry for controlling dither motion to a sample-and-hold device, analog-to-digital converter, buffer, and digital processing unit as disclosed by Townsend. (Young, ¶181.) Further, the digital processing unit would, in one example, have been connected to node "c" at the bottom of Fujiyoshi's Figure 9 circuit through a buffer and digital-to-analog converter as disclosed by Townsend. (<i>Id.</i>) Alternatively, it would have been obvious that amplitude control circuit 177 disclosed in Fujiyoshi's Figure 9 circuit would have contained some or all of the digital signal processing system like that disclosed by Townsend. (<i>Id.</i>)	added).) It would have been obvious to connect the highlighted dither motion control circuitry in the above annotated version of Fujiyoshi's Figure 9 to a digital signal processing system like that disclosed by Townsend. 181. For example, a POSITA would have also been motivated to connect node "c" at the top of Fujiyoshi's Figure 9 system in the circuitry for controlling dither motion to a sample-and-hold device, analog-to-digital converter, buffer, and digital processing unit as disclosed by Townsend. Further, the digital processing unit would, in one example, have been connected to node "c" at the bottom of Fujiyoshi's Figure 9 circuit through a buffer and digital-to-analog converter as disclosed by Townsend. Alternatively, a POSITA would have found it obvious that amplitude control circuit 177 disclosed in Fujiyoshi's Figure 9 circuit would have contained some or all of the digital signal processing system like that disclosed by Townsend.
Petition, pg. 39	Declaration of Dr. Darrin Young ¶182
<u>Rationale and Motivation to Combine (Fujiyoshi with Townsend):</u> A POSITA would have been motivated to combine Fujiyoshi with Townsend, in the manner described above. (Young, ¶¶182-86.) The combination would have predictably resulted in Fujiyoshi's circuitry for controlling dither motion incorporating a digital processor and circuitry (e.g., sample-and-hold devices, analog-to-digital converters, and digital-to-analog converters) for converting between analog signals used in Fujiyoshi's circuits and digital signals input to or output from digital processor. (<i>Id.</i>, ¶182.).	182. <u>Rationale and Motivation to Combine (Fujiyoshi with Townsend):</u> A POSITA would have been motivated to combine Fujiyoshi with Townsend, in the manner described above. The combination would have predictably resulted in Fujiyoshi's circuitry for controlling dither motion incorporating a digital processor and circuitry (e.g., sample-and-hold devices, analog-to-digital converters, and digital-to-analog converters) for converting between analog signals used in Fujiyoshi's circuits and digital signals input to or output from digital processor.

This is far from the only example of verbatim copying. Indeed most of the Petition's analysis is copied word for word for Dr. Young's signature—including

essentially *all* of the various sections discussing obviousness combinations of references. *See, e.g.*, Petition, 24-25, EX1002, ¶¶143-144; Petition, 33-34, EX1002, ¶¶168-172; Petition, 41-42, EX1002, ¶185 ; Petition, 68-70, EX1002, ¶¶232-233; Petition, 71-73, EX1002, ¶¶237-238; Petition, 73-74, EX1002, ¶240 ; Petition, 74-77, EX1002, ¶¶241-245.

And these arguments appear drafted by counsel, using a template, as can be seen by comparing Dr. Young’s “Declaration” to one attributed instead to Dr. Baker in another Petition filed by Nintendo with the same counsel. EX1002, ¶¶182-184 (Ground 1), ¶¶241-243 (Ground 2); EX2011, *Nintendo Co., Ltd., et. al. v. Polaris PowerLED Techs, LLC*, IPR2023-00778, EX1002 (Declaration of R. Jacob Baker, Ph.D., P.E.), ¶¶148-150:

Dr. Darrin Young ¶¶182-184	Dr. Darrin Young ¶¶241-243	Dr. R. Jacob Baker, ¶¶148-150
182. <u><i>Rationale and Motivation to Combine ([] with [])</i></u> : A POSITA would have been motivated to combine [] with [], in the manner described above. The combination would have predictably resulted in [].	241. <u><i>Rationale and Motivation to Combine ([] with [])</i></u> : A POSITA would have been motivated to combine [] with [], in the manner described above. The combination would have predictably resulted in [].	148. <u><i>Rationale and Motivation to Combine ([] with [])</i></u> : A POSITA would have been motivated to combine [] with [], in the manner described above. The combination would have predictably resulted in [].
183. [] and [] are analogous references. Both are in the same field as the ‘[]’ patent. Like [], [] relates to []. (E.g., []). ...	242. [] and [] are analogous references. Both are in the same field as the ‘[]’ patent. Like [], [] relates to []. (E.g., []). ...	149. [] and [] are analogous references. Both are in the same field as the ‘[]’ patent. Just like [], [] relates to []. (E.g., []).
184. A POSITA would have been motivated to combine []	243. A POSITA would have been motivated to combine []	150. A POSITA would have been motivated to combine []

with [] because [] describes ...	with [] because [] describes ...	with [] because [] discloses ...
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IPR expert declarations are meant to be independent *testimony*—see 37 C.F.R. §42.53—not unsupported argument and conclusion drafted “Mad Libs” style. Here, in place of independent and supported testimony, Nintendo has only offered reusable attorney argument, copied in large part verbatim from the Petition.

Attorney argument is not evidence, even if copied into a declaration. *See, e.g., Kinetic Technologies, Inc. v. Skyworks Solutions, Inc.*, IPR2014-00529, 2014 WL 4787238, Paper 8 at 15 (PTAB Sept. 23, 2014) (“***merely repeating an argument from the Petition in the declaration of a proposed expert does not give that argument enhanced probative value***”) (emphasis added); *Infobionic, Inc. v. Braemer Manufacturing, LLC.*, IPR2015-01704, 2016 WL 1081571, Paper 11 at 6 (PTAB Feb. 16, 2016). Dr. Young’s signature—endorsing attorney argument—is not evidence, and declarations like his are frequently and properly ignored. *See, e.g., Samsung Electronics Co., Ltd. v. Rightquestion, LLC*, IPR2022-00251, Paper 17 at 25 (P.T.A.B. June 9, 2022) (declining to credit testimony where “declarant makes these same statements verbatim, without more, and with no additional citations to evidence”).

As noted in American GNC’s Preliminary Response, The Board should give such conclusory, unsupported assertions by experts little or no weight. *Id.*; *see also*

In re Am. Acad. of Sci. Tech Ctr., 367 F.3d 1359, 1368 (Fed. Cir. 2004); *Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997) (noting that a fact finder is not required to “credit the unsupported assertions of an expert witness”); 37 C.F.R. §42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”). The Board should reject this manufactured “testimony” and not credit the obviousness and level of skill opinions in the declaration. *See, e.g., Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321 (Fed. Cir. 2020) (upholding finding that copied testimony “did not ‘add materially to Petitioner's unpersuasive attorney argument’”).

As explained herein, Nintendo’s Petition arguments concerning *Townsend*—the only reference discussing *any* digital signal processing—lack merit, and Nintendo shows no reasonable likelihood of success here. Nintendo and Dr. Young offer nothing but conclusory pronouncements and improper roadmap citation to the inventors’ own journey. These highly cited and oft licensed patents cannot be invalidated by the bare statement that the key inventive step of using digital signal processing in the dither motion control loop would have been obvious. Petition, 37-38. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*,

441 F.3d 977, 988 (Fed. Cir. 2006). That explanation cannot be “the inventors own path” of invention. *Univ. of Strathclyde*, 17 F.4th at 165. And Experts cannot properly offer opinions based solely on their say-so, as Dr. Young repeatedly does here. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) (courts not required to “admit opinion evidence that is connected to existing data only by the ipse dixit of the expert.”).

For all of these reasons, in addition to the lack of merit in the arguments themselves, the Board should give no weight to Dr. Young’s obviousness opinions and unsupported statements about the knowledge of a person of ordinary skill in the art. Because Dr. Young’s say-so is the only evidence offered in support of Nintendo’s obviousness arguments and combinations with *Townsend*—and his say-so is contradicted by the testimony of Professor Larson and declarant Hiram McCall—the Petition has no merit and the challenged claims should be upheld.

C. The Petition is time barred

The Petition is time barred under §315(b) because of an infringement complaint (EX2012) served on a real party in interest more than a year earlier. *See, e.g., Ventex Co., Ltd. v. Columbia Sportswear North America, Inc.*, 2019 WL 764130, *2-6 (P.T.A.B. Jan. 24, 2019) (*designated precedential*, April 16, 2019) (noting that the “burden [is] on IPR petitioners to demonstrate that its petitions are not time-barred”); 35 U.S.C. §315(b).

Nintendo failed to name at least STMicroelectronics N.V. and STMicroelectronics S.r.l. (“STMicro”) as a real party in interest. *See* Petition, 1. If an STMicro entity is a real party in interest here, then this Petition is time-barred. Entities STMicroelectronics N.V. and STMicroelectronics S.r.l. were sued in 2020 and served with a Complaint alleging infringement of patents including the ’122 Patent. *See, e.g.*, EX2012, ¶¶164-202; EX2013.³

That Complaint provided STMicro with notice sufficient to trigger application of the time bar statute—because it was “a complaint alleging infringement” of the ’122 Patent against STMicro’s co-defendant and customer. 35 U.S.C. § 315(b); *see also, GoPro, Inc. v. 360Heros, Inc.*, IPR2018-01754, 2019 WL 3992792, *6, Paper 38 (P.T.A.B. Aug. 23, 2019) (precedential) (noting time bar triggered by notice, even of a defective complaint); *Facebook, Inc. v. Windy City Innovations, LLC*, 953 F.3d 1313, 1326-28 (Fed. Cir. 2020) (finding bar even as to particular claims for which party was not specifically accused).

³ STMicroelectronics N.V. initially contested domestic and mail service. STMicroelectronics S.r.l. did not contest service. Both parties were subsequently served under the Hague Convention. *American GNC Corporation v. OnePlus Technology (Shenzhen) Co., Ltd. et al.*, No. 6:20-cv-00171-ADA, D.I. 33 at 7, 2 fn. 2 (W.D. Tex. Aug. 17, 2020).

STMicro well understood that it had been accused of infringement in the 2020 litigation, and could be again. Indeed, in American GNC’s litigation against Nintendo, STMicro (via U.S. entity STMicroelectronics, Inc.) objected to a subpoena by invoking the accusations of the prior 2020 litigation and suggesting that American GNC was seeking to accuse STMicro “yet again.” EX2014, 1 (“At issue in the 2020 Lawsuit were four U.S. Patents, allegedly owned by American GNC, including U.S. Patent Nos. 6,508,122 and 6,671,648 (‘Asserted Patents’)”), 2 (“leaving the door open for American GNC to attempt to bring improper claims against ST or a foreign entity yet again”). While STMicro is not a party in American GNC’s litigation against Nintendo, its Complaint implicates STMicro products in Nintendo’s infringement, and discovery is being sought from STMicro’s U.S. and foreign parent and subsidiaries. EX2007, ¶¶46-56, 63-74.

Whether STMicro is a real party in interest here is a fact-specific question. For example, in *Ventex*, the Board noted the central importance of “determining whether the non-party is a clear beneficiary that has a preexisting, established relationship with the petitioner,” and relied on a supplier agreement including indemnification obligations that made the non-party “a clear beneficiary of *Ventex*’s efforts in this *inter partes* review.” 2019 WL 764130, *3. The Board also noted the length of time the parties had done business together. *Id.* Based on the contractual supplier relationship between the parties there, as here, the Board was

able to “conclude that [STMicro] will benefit from [Nintendo’s] actions and [Nintendo] represents [STMicro’s] interests in this action.”

Also here, STMicro has expressed its belief that it may be faced with additional infringement actions under the “Asserted Patents.” EX2014, 1-2. It is clear, even on this preliminary record, that STMicro would be a “beneficiary of [Nintendo’s] efforts in this *inter partes* review, and that Nintendo is representing those interests here because its supplier STMicro cannot under §315(b).

Here, the parties also have a long relationship that includes supplier obligations relevant to the precedential *Ventex* analysis. There is no dispute that STMicro supplies components to Nintendo, found in products accused of infringement in district court. *See* EX2007, EX2025. Nor is there a dispute that a supplier agreement exists or that Nintendo and STMicro have discussed indemnification. *See, e.g.,* EX2018, 9:24-13:15 (discussing production of agreement in district court, and Nintendo counsel stating that “STMicro has not agreed to indemnify us” and denying coordination). American GNC has requested authorization from the Board to file a Motion for Discovery seeking the agreement and related communications, *see* EX2018—but has not yet had a response from the Board, and renews its request for authorization here.

The Petition should be dismissed for failure to identify real parties in interest. *See, e.g., Ventex*, 2019 WL 764130, *4-5, 7.

VI. Conclusion

For all of the reasons detailed above, the challenged claims should be upheld.

Dated: January 7, 2025

Respectfully submitted,

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37 C.F.R. §42.24(d) CERTIFICATION

The undersigned hereby certifies that this submission, excluding the tables of contents, certificate of word count, exhibit list, and certificate of service, contains 13,496 words, as determined using the standard word counting feature of the Microsoft Word program.

Dated: January 7, 2025

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CERTIFICATE OF SERVICE

Petitioner has consented to e-mail service in this proceeding. Pursuant to 37 C.F.R. §42.6, the undersigned certifies that on January 7, 2025, a copy of the foregoing document was served by email upon the following counsel at the below email addresses:

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