

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ADVA OPTICAL NETWORKING, INC.,
Petitioner,

v.

RAD DATA COMMUNICATIONS LTD.,
Patent Owner.

Case IPR2016-01848
Patent 9,276,689 B2

Before NEIL T. POWELL, FRANCES L. IPPOLITO, and
JAMES A. WORTH, *Administrative Patent Judges*.

WORTH, *Administrative Patent Judge*.

DECISION
Decision Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

On September 19, 2016, Petitioner ADVA Optical Networking, Inc. (“ADVA”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–4, 6–11, and 13–21 of U.S. Patent No. 9,276,689 B2 (the ‘689 patent, Ex. 1001). On December 27, 2016, Patent Owner RAD Data Communications Ltd. (“RAD Data”) filed a Preliminary Response. Paper 5 (“Prelim. Resp.”).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see also* 37 C.F.R. § 42.108. For the reasons set forth below, we do not institute an *inter partes* review for the challenged claims.

A. Related Matters

The parties state that they are unaware of any related judicial or administrative proceedings. Pet. 63; Paper 4, 2.

B. The ‘689 Patent (Ex. 1001)

The ‘689 patent is titled “Pluggable Packet Master Clock,” and relates to timing distribution in packet switched networks (PSNs). Ex. 1001, 1:5–6, 1:27–28. In particular, the invention relates to providing a packet master clock housed in a housing that may be plugged into a conventional small form factor (SFP) compliant cage located in, by way of example, a PSN switch, router, or end device, that enables connecting the packet master clock to the PSN. *Id.* at 3:7–12.

According to the '689 patent, the prior art was typified by a single packet master clock connected to the physical layer of a network at a central location in the network due to the expense of a Primary Reference Time Clock (PRTC) and a packet master clock. *See id.* at 2:33–37. The '689 patent describes problems in the prior art resulting from propagation delays between nodes in a network, and more specifically, from propagation delay variation and delay asymmetry, which degrade the quality of timing recovered by a slave clock from a master clock. *Id.* at 2:38–65.

The '689 patent discloses a packet master clock housed in a pluggable housing that enables connecting the packet master clock to the PSN. *Id.* at 3:6–40. The '689 patent further discloses a GNSS receiver that generates a ToD and reference frequency, both of which it provides to a packet master clock. *Id.* In one embodiment, each of a plurality of network elements of a communication network is provided with its own PPMC (pluggable packet master clock), such that a plurality of packet master clocks maintain synchronization with other packet master clocks in the network without recourse to a timing distribution protocol. *Id.* at 3:44–50, 4:6–16.

Figures 1A and 1B of the '689 patent are depicted below:

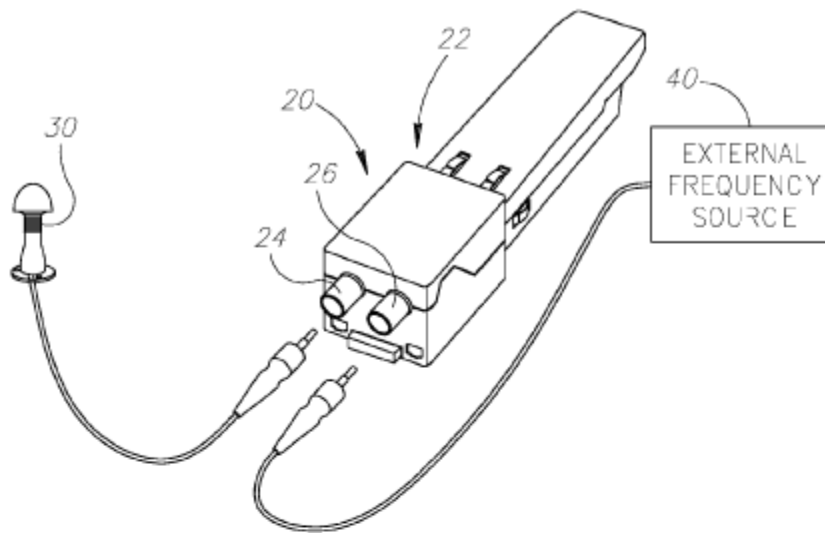


FIG. 1A

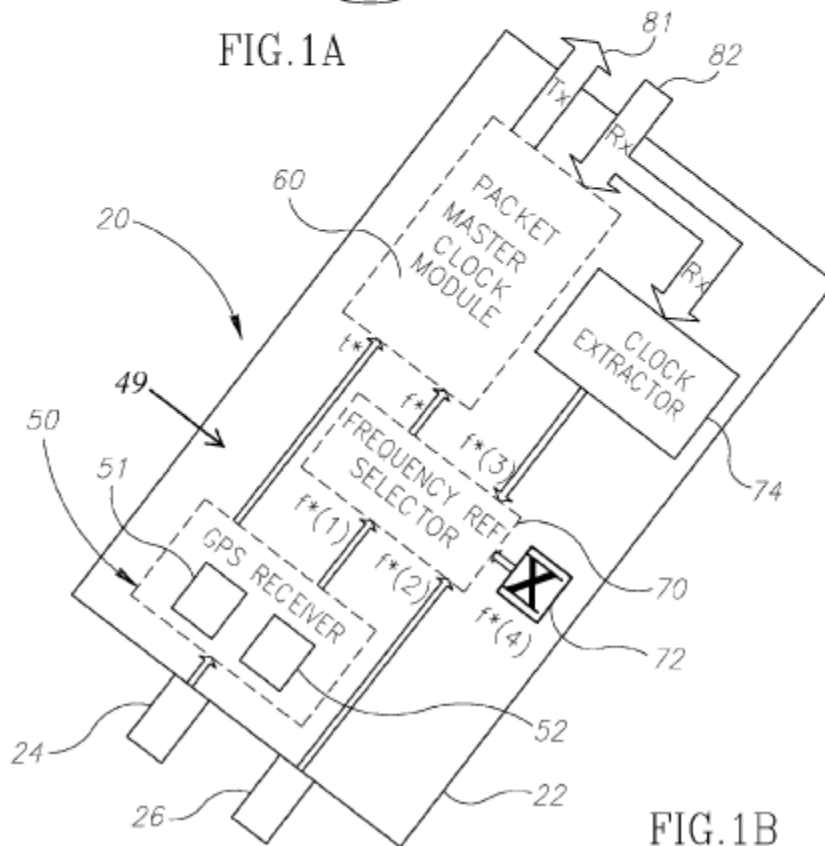


FIG. 1B

Figure 1A illustrates a packet master clock in a pluggable housing. *See id.* at 4:43–44, 4:58–60. Figure 1B schematically illustrates components in the packet master clock of Figure 1A. *See id.* at 4:45–47.

C. Illustrative Claim

The Petition challenges claims 1–4, 6–11, and 13–21 of the '689 patent. Independent claims 1, 19, and 21 are independent claims. Independent claims 1 and 19, reproduced below, are illustrative of the subject matter:

1. Apparatus for providing timing information, the apparatus comprising:
 - a primary reference time clock (PRTC) that is operable to provide a reference time of day (ToD) and a reference frequency;
 - a packet master clock that receives the ToD and reference frequency and is configured to distribute timing to a slave clock in accordance with a timing over packet procedure responsive to the ToD and the reference frequency; and
 - a housing that houses the PRTC and the packet master clock, the housing being suitable for plugging into a conventional small form factor (SFP) compliant cage to connect the packet master clock to a packet switched network (PSN).

Ex. 1001, 7:47–62.

19. A packet switched network (PSN) comprising a plurality of apparatuses for providing timing information, each apparatus comprising:
 - a primary reference time clock (PRTC) that is operable to provide a reference time of day (ToD) and a reference frequency;
 - a packet master clock that receives the ToD and reference frequency and is configured to distribute timing information to a slave clock in accordance with a timing over packet procedure responsive to the ToD and the reference frequency; and
 - a housing that houses the PRTC and the packet master clock, the housing being suitable for plugging into a conventional small form factor (SFP) compliant cage to connect the packet master clock to a packet switched network (PSN).

Ex. 1001, 9:11–26.

D. Original Prosecution

As noted by both Petitioner (Pet. 1–2) and Patent Owner (Prelim. Resp. 56–61), some of the prior art asserted in the Petition was previously before the Office during the original prosecution of the application which gave rise to the '689 patent, i.e., U.S. Application No. 13/625,876 (“the '876 Application”). In particular, the Examiner relied upon Admitted Prior Art¹ from the Background Section of the '689 patent as a statement of the art at the time of the invention and Rivaud².

1. AAPA (Applicant Admitted Prior Art)

The Background of the '689 patent explains that a network device may receive timing information (a) directly from a Global Navigation Satellite System (GNSS), such as the U.S. Global Positioning System (GPS), or (b) over the network through a timing distribution system in a “timing over packet” procedure, whereby a “packet slave clock” is synchronized to a “packet master clock.” Ex. 1001, 1:44–52. The Background states that in a “timing over packet” procedure, timing is generally provided by a single reference clock, referred to as a “grandmaster clock,” which synchronizes time with at least one packet slave clock. *Id.* at 1:53–56. The grandmaster clock receives a frequency reference and time of day reference from a Primary Reference Time Clock (PRTC). *Id.* at 1:56–58. The PRTC may

¹ Although the Examiner used the abbreviation “APA” for Admitted Prior Art, we use the abbreviation “AAPA” herein (i.e., Applicant Admitted Prior Art).

² Rivaud, US Patent Application Pub. No. 2011/0200051 A1, pub. Aug. 18, 2011 (Ex. 1002).

comprise an atomic clock or a GNSS radio receiver to receive accurate time of day information from GNSS satellite transmissions. *Id.* at 2:1–5.

Timing distribution involves a packet master clock and packet slave clock exchanging a sequence of timing packets configured in accordance with communication protocols of the network, such as Network Time Protocol (NTP) and Precision Time Protocol (PTP), as codified in the IEEE 1588 standards. *Id.* at 2:13–20. The timing packets comprise timing information, such as “timestamps,” which the packet slave clock records, and which define times at which the timing packets egress and/or ingress the master clock and/or the slave clock. *Id.* at 2:20–24.

2. *Rivaud (Ex. 1002)*

Rivaud relates to Ethernet network synchronization systems and methods utilizing Synchronous Ethernet (“Sync-E”) and various IEEE 1588 Precision Time Protocol (PTP) standards in a combined fashion along with a set of rules on node placement. Ex. 1002 ¶ 1. Rivaud is directed to the problem of distributing timing over an Ethernet network, in which certain nodes are not Sync-E compliant or certain nodes are not compliant with IEEE 1588 PTP. *See id.* ¶¶ 2–5. Rivaud describes an exemplary embodiment in which an Ethernet network includes one or more clock nodes without synchronous Sync-E or IEEE 1588 capability, an end node to provide an Ethernet connection including a reference clock through one or more non-clock nodes, and a clock regeneration node disposed after the non-clocked nodes receiving the Ethernet connection to regenerate the reference clock. *Id.* ¶ 5. The clock regeneration node is configured to operate according to both Sync-E and IEEE 1588 protocols. *Id.*

In one embodiment, Rivaud describes a pluggable optical transceiver with a Small Form Factor Pluggable, where there is a housing to protect the components in the transceiver. *Id.* ¶ 39. The transceiver may include 1588 Transparent Clock (TC) timestamping in order to add 1588 compliance to a network, and may also include a Boundary Clock (BC) embedded in the pluggable device. *Id.* ¶ 40.

Rivaud explains that an advantage of placing Boundary Clock nodes in a network is that they allow the network to scale larger because the processing demands on a Grandmaster clock are lowered. *Id.* ¶ 30. The Grandmaster clock need only process the Boundary Clock messages and does not need to process messages from the slave nodes. *Id.* The Boundary Clocks takes responsibility for processing messages from the slave nodes. *Id.* See also Fig. 5 (diagram of an existing network that may be upgraded to support synchronization by adding a Boundary Clock (BC) regenerating node).

3. Non-Final Rejection

On June 8, 2015, the Examiner rejected claims 1–20 of the '876 Application under 35 U.S.C. § 103 as being unpatentable over Applicant Admitted Prior Art and Rivaud. Ex. 1007, 1–4. As to the AAPA, the Examiner relied on the Background of the Specification of the subject application and found that it was known to use a packet master clock which receives a time of day and reference frequency and distributes it to a slave clock. *Id.* at 4. The Examiner found that Rivaud discloses housing 1112 which houses the primary reference time clock and packet master clock, which may be plugged into a conventional small form factor compliant cage to connect the packet master clock to a packet switched network. *Id.* The

Examiner further found that it would have been obvious to modify the admitted prior art by providing the housing of Rivaud in order to provide protection for the system. *Id.*

4. Applicant-Initiated Interviews, Response to Office Action, and Submission of Declaration

Subsequent to the non-final rejection, the Examiner conducted an interview with the applicant on August 19, 2015. On August 26, 2015, the Examiner issued an Applicant-Initiated Interview Summary (Form 413), as follows:

Applicant presented arguments against obviousness based on commercial success and unexpected results. With regard to commercial success, the parties discussed a link (<http://www.advaoptical.com/en/newsroom/press-releases-english/20150803-oscilloquartz-acquires-time4-systems-to-seize-new-synchronization-business-opportunities>) to a press release from the purchaser of the original technology company. The examiner pointed out that a press release was put together by biased parties while applicant argued that the fact of the purchase was enough. The parties agreed to disagree. With regard to unexpected results, Applicant argued that the examples from pages 7-8 of the last response which provided a plurality of network elements with the claimed apparatus constituted unexpected results. The examiner pointed out that the claim was for a single apparatus which was not linked to another apparatus. The examiner suggested claiming a system (like claims 18, 19) or claiming a single apparatus functionally able to operate with a plurality of such apparatuses. Applicant agreed to consider. All of the above is, as always, subject to further search and considerations.

Ex. 1008.

The Examiner conducted a second interview with the applicant on August 26, 2015, and issued a Summary on September 2, 2015, as follows:

This is a follow[-]up to a prior interview on 19 August 2015. Applicant's counsel advised that Applicant indicated that the proposed changes to the claim were not acceptable. The examiner indicated that claim 1 was not allowable as presently written as the APA/Rivaud combination discloses all the elements. Applicant indicated it would not be obvious to combine based on the indications of commercial success and copying by others. The examiner disagreed but indicated that a Rule 131 affidavit with the press release attached would be given consideration.

Ex. 1009.

On November 9, 2015, the applicant submitted a response to the non-final rejection along with an amendment and a declaration submitted pursuant to Rule 132. Ex. 1010. The amendment amended claim 18 to make it an independent claim with the limitations of claim 1 and added a new independent claim 21. Both claim 18 and claim 21 were directed to a "plurality of apparatuses." Ex. 1010.

The declaration, by Yaacov Stein (Ex. 1011) (hereinafter, "the Stein Declaration"), averred that (a) a recent strategy to obviate difficulties with the use of a single grandmaster clock has been to deploy multiple PRTCs and multiple grandmaster clocks, with each "distributed grand master" (DGM) responsible for a particular subnetwork and relying on GNSS to ensure synchronicity of the PRTC (*id.* at ¶¶ 5–6); (b) the practicality of this DGM approach had been limited due to problems with expense, physical space, and electric power and heat dissipation requirements of conventional PRTCs and grandmaster clocks (*id.*); (c) the PPMC disclosed and claimed in the '876 application provides a PRTC and packet grand master clock combined in an SFP format that is small in size, has low power needs, generates little heat, is easily installed, and is sufficiently inexpensive that

even small network providers can afford to deploy many of them (*id.* ¶ 7); (d) [then-assignee and now Patent Owner] RAD has recently begun marketing a commercial embodiment of the PPMC, called “MiCLK SFP-based IEEE 1588 Grandmaster and GNSS receiver” or “MiCLK” which has received purchase offers and has “garnered praise from academic leaders and visionaries in the field of communications, and has been selected as one of five finalists for the 2015 IET Communications Innovation Award” (*id.* ¶¶ 8–9); and (e) ADVA Optical Networking (“ADVA”) has copied the invention through its August 2015 acquisition of Time4Systems (“T4S”), a Finnish startup that was formerly co-developing the MiCLK with RAD (*id.* ¶¶ 10–11).

The Response argued that “there exists objective evidence for secondary considerations of nonobviousness of the PPMC, such as unexpected results, industry praise, copying and commercial success” (Ex. 1010, 7). With respect to unexpected results, the Response stated:

[T]he PPMC may provide a PSN to which it is connected with unexpectedly improved properties including, for example: reduced packet delay, delay variability and delay asymmetry for timing packets; and improved robustness in maintaining timing quality. Furthermore, in comparison to conventional equipment, the PPMC is inexpensive, small in size, has low power consumption and heat dissipation, and is easy to install in a communication network by simply plugging it into a standard SFP cage with which most relevant network elements are equipped. Furthermore, the PPMC simplifies deployment of new communication networks (which impose more stringent timing constraints than legacy networks) leading to substantially lower operation costs as compared to conventional equipment.

Id. at 7–8 (citing ’876 Application ¶¶ 14, 16, 33, 37; Ex. 1011 (Stein Decl.) ¶¶ 5–7, 9).

With respect to industry praise, the Response relied on industry praise both of the Applicant's device and of its competitor. *Id.* at 8–11. The Response asserted that

Applicant notes that the MiCLK is described in the online announcement as being ‘the first solution that truly allows placing a large number of distributed PTP Grandmasters across a wide area mobile network. . . ’, thus providing a nexus for the industry praise and the limitations recited in claim 1, as well as with the advantages provided by the PPMC as described in sections 7 and 9 of the Stein Declaration.

Id. at 8. The Response also argued that ADVA had copied the claimed PPMC, citing a press release and slideshow from ADVA, and asserted that the ADVA press release “includes praise for the innovativeness of the PPMC copy.” *Id.* at 8–11.

With respect to commercial success, the Response argued both that the patentee had received initial purchase orders based on a large number of proof of concept demonstrations, and that the acquisition of its competitor ADVA by T4S “is an example of commercial success of an embodiment” of the claimed invention. *Id.* at 11.

5. Claims Allowed over Applicant Admitted Prior Art and Rivaud

On December 9, 2015, the Office issued a Notice of Allowability (Ex. 1012), and on January 22, 2016 issued a Corrected Notice of Allowability, indicating the allowance of claims 1–21. Ex. 1013.

E. The Alleged Grounds of Unpatentability

In the Petition, Petitioner sets forth its contentions that claims 1–4, 6–11, and 13–21 are unpatentable on the following grounds (Pet. 13–57):

References	Basis	Claims challenged
AAPA and Rivaud	§ 103	1–4, 6–11, and 13–21
Bedrosian ³ and Rotenstein ⁴	§ 103	1–4, 6, 7, and 16–21
Bedrosian, Rotenstein, and Rivaud	§ 103	8–11 and 13–15

II. ANALYSIS

A. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); see *In re Cuozzo Speed Techs., LLC*, 136 S. Ct. 2131, 2142–46 (2016). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. See *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. See *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner and Patent Owner each request construction of several terms. Pet. 9–12; Prelim. Resp. 7–9. Upon review of the Petition and Preliminary Response, and based on the record before us, we do not provide an express construction of any terms for purposes of this Decision Denying

³ Bedrosian, U.S. Patent No. 8,446,896 B2, iss. May 21, 2013 (Ex. 1003).

⁴ Rotenstein, U.S. Patent Application Publication No. 2012/0275501 A1, pub. Nov. 1, 2012 (Ex. 1004).

Institution. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (claim terms require construction only as relevant and only to the extent necessary to resolve the issues in dispute).

B. Obviousness over AAPA and Rivaud (Ex. 1002)

Petitioner contends that claims 1–4, 6–11, and 13–21 are unpatentable as obvious over AAPA and Rivaud. Pet. 13–40. Patent Owner disagrees. Prelim. Resp. 18–26.

As to the preamble and the limitation “a primary reference time clock (PRTC) that is operable to provide a reference time of day (ToD) and a reference frequency” as recited by claim 1, Petitioner relies, as AAPA, on the disclosure in the Specification of the '689 patent of a “packet master clock” that provides timing information to “slave clocks,” and of a PRTC that receives timing information from a GNSS satellite. Pet. 13–14 (citing Ex. 1001, 1:33–41, 1:44–48, 1:53–2:12).

As to the limitation “a packet master clock that receives the ToD and reference frequency and is configured to distribute timing to a slave clock in accordance with a timing over packet procedure responsive to the ToD and the reference frequency” as recited by claim 1, Petitioner relies, as AAPA, on the disclosure in the Specification of the '689 patent of a packet master clock which receives a frequency reference and a time of day (ToD) reference from a highly accurate reference clock, such as a PRTC. Pet. 14–15 (citing Ex. 1001, 1:48–52, 1:56–2:12).

As to the limitation “a housing that houses the PRTC and the Packet master clock, the housing being suitable for plugging into a conventional small form factor (SFP) compliant cage to connect the packet master clock to a packet switched network (PSN)” as recited by claim 1, Petitioner relies

on the disclosure in Rivaud of Ethernet network synchronization systems and methods utilizing various IEEE 1588 PTP standards, and of a pluggable optical transceiver 1100 that is enclosed within a Small Form Factor Pluggable (SFP) housing. Pet. 15–16 (citing Ex. 1002 ¶¶ 4, 39).

Petitioner contends that a person of ordinary skill in the art would have been motivated to combine the AAPA and Rivaud because they address the same problem and provide a common solution and because Rivaud discloses the benefits of combining the SFP housing with the master clock and PRTC. Pet. 18–20. Petitioner asserts that these are the same problems, solution, and benefits disclosed by the '689 patent. *Id.* Petitioner states that Rivaud expressly teaches the benefits of having an SFP module with timestamping functionality built in and teaches SFP modules with built in NTP or PTP timing over packet functionality. *Id.* at 19. Petitioner contends that there is nothing surprising or transformative about the invention. *Id.* at 20.

Petitioner also notes that Dr. Stein is listed as an inventor of the '689 patent and the Chief Technology Officer of Patent Owner, and argues that the assertions made in the Stein Declaration are unsupported and false. *Id.* at 2.

Petitioner argues that Patent Owner's secondary considerations assertions are incorrect (*id.* at 57); that Petitioner did not copy the invention (*id.*); that the invention disclosed was first conceived of and reduced to practice by Petitioner as opposed to by Patent Owner (*id.* at 58); that the commercial success and industry praise of Petitioner's product is not due to the invention (*id.*); that the success of Petitioner's T4S product is due to its own development and independent of that product (*id.*); that the

synchronization functionality of that product is admitted prior art (*id.*); that the press release is related to the admitted prior art (*id.*); and that prior art benefits are not indicative of commercial success, industry praise, or nonobviousness. *Id.* at 59. Petitioner also asserts that the commercial success and industry praise of Patent Owner's product is not due to the invention (*id.* at 59–60); that the synchronization features of the MiCLK are admitted prior art features (*id.* at 59); that the invention does not provide any unexpected or surprising results (*id.* at 60); that Patent Owner's secondary considerations assertions cannot overcome the obviousness of claims 1–4, 6–11, and 13–21 (*id.* at 61–62); that Patent Owner's secondary considerations assertions and evidence are weak (*id.* at 62); and that the invention is merely the predictable use of prior art elements according to their established functions. *Id.* at 63 (citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007)).

In support of its contentions, Petitioner submits the declarations of Ali Ghiasi and Kenneth Hann. Dr. Ghiasi avers, *inter alia*, that prior art networks commonly included a plurality of timing synchronization devices; that it is a common practice to provide a plurality of timing synchronization devices for Best Master Clock Selection (BMCA) algorithms and PTP protection switching; and that the use of multiple SFP timing devices is expressly disclosed in both of the Rivaud and Rotenstein references. Ex. 1005 ¶ 94. Dr. Ghiasi opines that the ability to employ a plurality of timing devices utilizing SFP enclosures is unsurprising. *Id.* ¶¶ 94, 156. Dr. Ghiasi avers that the pluggable module of Rivaud would not take on any new functions when adding the PRTC and master clock of the AAPA. *See id.* ¶ 92; *see also* ¶ 156.

Dr. Hann, the founder of Time4 Systems, discusses draft agreements between Time4 Systems and RAD (Ex. 1006 ¶¶ 3–16), discusses ADVA’s acquisition of Time4 Systems (*id.* ¶¶ 17–20), avers that Time4 Systems was the first company to develop an SFP-pluggable time synchronization device (the T4S SFP Device) (*id.* ¶ 26), and avers that RAD’s MiClk SFP Device was not “the first solution that truly allows placing a large number of distributed PTP Grandmasters across a wide area mobile network,” as RAD asserted. *Id.* ¶ 25.

Patent Owner argues that the Board should not institute an *inter partes* review because Petitioner’s arguments are cumulative and redundant of arguments fully considered during the prosecution of the ’689 patent. Prelim. Resp. 55 (citing 35 U.S.C. § 325(d)). Patent Owner states that “Petitioner’s Ground 1 relies on the exact same art that was previously considered during prosecution.” *Id.* at 56. Patent Owner asserts that the Examiner cited APA as disclosing “a primary reference time clock that provides a reference time of day and a reference frequency,” and that the Examiner relied upon Rivaud to “show a housing 1112 which houses the primary reference time clock and packet master clock.” *Id.* (citing Ex. 1007, 4). Patent Owner argues that the Declarations of Ghiasi (Ex. 1005) and Hann (Ex. 1006) submitted by Petitioner do not provide new material. *See id.* at 57–60.

As to secondary considerations, Patent Owner asserts that ADVA copied the PPMC (*id.* at 47–48); that ADVA acquired T4S and began marketing its product after the publication of the ’876 Application (*id.*); that the nexus between the challenged claims and commercial success and industry praise of RAD’s PPMC products is clear (*id.* at 48–49); that

Petitioner's acquisition of T4S demonstrates commercial success of a PPMC embodiment (*id.* at 49); that ADVA's press release praises the claimed PPMC (*id.* at 49–50); that the Communications Innovation Award and website indicates praise for the device claimed in the '689 patent (*id.* at 50–51); and that there are myriad unexpected results and benefits from the claimed PPMC including physically reduced timing packet propagation delay, delay variation and asymmetry, lowered bandwidth allocation for timing packet distribution, and enhanced robustness of timing distribution. *Id.* at 51–52. Patent Owner also states that there are unexpected and substantial savings, enhanced synchronization, and the feature of distributed timing (as opposed to a centralized, hierarchical timing system). *Id.* at 52–54. In a heading labeled “Secondary Considerations Are Dispositive,” Patent Owner states that there exist objective evidence for secondary considerations of nonobviousness of the PPMC “as acknowledged by the Examiner during prosecution of the '689 Patent.” *Id.* at 54–55.

Patent Owner also argues that Petitioner fails to make a *prima facie* case of obviousness because the claimed invention caused a paradigm shift, i.e., because there was no reason or motivation to combine Petitioner's references to try distributed timing in any way. Prelim. Resp. 12. Patent Owner asserts that Petitioner's references explicitly adopt hierarchical timing, that conventional hierarchical timing systems were the established gold standard, that Petitioner's references operate on principles different from those claimed in the '689 patent, and that combining prior art would obviate the functioning of at least one reference. Prelim. Resp. 12–24.

Patent Owner thus submits that both the prior art relied on by Petitioner and the subject matter of the secondary considerations discussed

in the Petition are redundant over material considered during the original prosecution.

Analysis and Conclusion

Our discretion as to whether to institute an *inter partes* review under 35 U.S.C. § 314(a) is guided, in part, by the further language of 35 U.S.C. § 325(d), which provides: “In determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d); *see generally Integrated Global Concepts, Inc. v. Advanced Messaging Tech., Inc.*, Case IPR2014-01027, slip op. 7–8 (Paper 16) (PTAB Dec. 22, 2014) (declining to institute proceeding on claim where same prior art and substantially the same arguments were presented to the Office previously in reexamination).

We agree with Patent Owner that the same prior art (i.e., AAPA and Rivaud) and substantially the same arguments were presented in the original prosecution of the '689 patent. Petitioner's asserted ground is identical to a rejection that was applied by the Examiner in the course of prosecution. The Examiner cited Admitted Prior Art as disclosing “a primary reference time clock that provides a reference time of day and a reference frequency,” and the Examiner relied upon Rivaud to “show a housing 1112 which houses the primary reference time clock and packet master clock.” Ex. 1007, 4. On this record, we find that the prior art submitted in the Petition is indeed the same as prior art submitted to the Office.

As to the secondary considerations, Petitioner's argument is essentially that the information submitted to the Examiner in the Stein

Declaration during prosecution is false, and Petitioner has submitted new declarations to demonstrate, *inter alia*, that Petitioner's product is not copied from the claimed invention and/or relates to material in the prior art. However, even as to secondary considerations, we determine that the arguments submitted in the Petition and Preliminary Response are substantially the same as arguments that were considered by the Examiner. During prosecution, the Examiner expressed skepticism at the patentee's reliance on Petitioner's announcement of Petitioner's products as evidence of secondary considerations. *See* Ex. 1008. The patentee then, relying in part on the Stein Declaration, further argued the existence of unexpected results of the claimed invention, industry praise of both the patentee's product and Petitioner's product, and commercial success both of the patentee's product and of Petitioner's product. Ex. 1010, 7–8 (citing Ex. 1011 (Stein Decl.) ¶ 9). Allegations of copying were one element of the patentee's arguments during prosecution. *See id.*

Thus, the art and arguments are the same or are substantially similar to that which was previously before the Office in prosecution. Indeed, the prior art relied on in this ground, i.e., the "patents and printed publications" submitted to the Board under 35 U.S.C. § 311, is identical to prior art relied on by the Examiner during prosecution. Petitioner essentially asks the Board to reweigh the evidence regarding secondary considerations with respect thereto (*see* Pet. 7), and in particular to adjudicate whether a particular allegation in the Stein Declaration, i.e., that Petitioner copied Patent Owner, is false, based on declaratory evidence. *See* Pet. 57. We exercise our discretion not to institute and decline to accept this invitation. Rather, we conclude that the subject matter of the Petition (and Preliminary

Response) falls within the scope of 35 U.S.C. § 325(d) as being substantially similar to arguments previously before the Office.

We have carefully reviewed the materials presented in the Petition and associated exhibits, and we exercise our discretion under 35 U.S.C. § 314(a) not to institute an *inter partes* review for independent claim 1 over AAPA and Rivaud. 35 U.S.C. § 325(d). For similar reasons, we do not institute an *inter partes* review for claims 2–4, 6–11, and 13–21 over AAPA and Rivaud. 35 U.S.C. § 325(d).

C. Obviousness Over Bedrosian (Ex. 1003) and Rotenstein (Ex. 1004)

Petitioner contends that claims 1–4, 6, 7, and 16–21 are unpatentable as obvious over Bedrosian and Rotenstein. Pet. 34–54. Patent Owner disagrees. Prelim. Resp. 40–44.

1. Overview of Bedrosian

Bedrosian, is titled “Time Synchronization Using Packet-Layer And Physical-Layer Protocols,” and relates to time synchronization across packet networks. Ex. 1003, at [54], 1:16–18. Bedrosian describes a timing system in which a master node transmits timestamped sync messages via a synchronous packet-switched network to a slave node, and where the slave node uses both the IEEE 1588 PTP synchronization protocol and a syntonization protocol. *Id.* at 4:14–26, Fig. 1. The timing of the master node is based on received GPS information. *Id.* at 4:19–20. A syntonized reference generates a syntonized reference frequency, and the master clock generates a master clock time, based on the syntonized reference frequency, to generate timestamps, which are inserted into sync messages sent to a slave. *Id.* at 4:30–46.

2. Overview of Rotenstein

Rotenstein is titled, “Pluggable Synchronization Clocks, Networks, Systems and Methods Related Thereto,” and relates to system synchronization clocks embodied in a pluggable form factor and networks, systems and methods related thereto. Ex. 1004, at [54], ¶ 2. Rotenstein disclosed a pluggable hardware device as a means to address existing problems in the art, i.e., packet protocols for clock distribution lose considerable accuracy when implemented exclusively in software, certain protocols require hardware assistance to assure precise accuracies, and certain Carrier Ethernet switches had no intrinsic capability to implement clock distribution protocols. *See id.* ¶¶ 4–5.

Rotenstein discloses a means of adding system clock synchronization capabilities to a Ethernet system (e.g., switch, router, bridge, hub) equipped with an available pluggable transceiver network interface (e.g., Fast Ethernet, or Gigabit Ethernet or 10G Ethernet), in order to dynamically add a synchronization clock at any time. *Id.* ¶ 29. In particular, Rotenstein discloses a hot pluggable transceiver (HPT) that complies with the standard set forth in the SFP Multi-Source Agreement. *Id.* ¶ 46.

According to Rotenstein, an exemplary protocol (e.g., PTP) selects a single grandmaster clock from the available devices attempting to synchronize their clocks and then designates the remainder of the devices as slave clocks. *Id.* ¶ 56. In one embodiment, the master and slave clocks synchronize by exchanging timestamped messages to measure the propagation delay between nodes, and then use a clock offset correction to correct for the propagation delay. *Id.* ¶¶ 66–70. In other embodiments, an external clock signal may be used to synchronize other clocks. *Id.* ¶ 83.

3. Analysis

As to the preamble and the limitation “a primary reference time clock (PRTC) that is operable to provide a reference time of day (ToD) and a reference frequency” as recited by claim 1, Petitioner relies on the disclosure in Bedrosian that of a master clock sending timestamped messages and of a synchronized reference that generates a reference frequency. Pet. 34–35 (citing Ex. 1003, 4:14–29, 4:33–35). Petitioner relies, *inter alia*, on the same portions of Bedrosian for the limitation “a packet master clock that receives the ToD and reference frequency and is configured to distribute timing to a slave clock in accordance with a timing over packet procedure responsive to the ToD and the reference frequency” as recited by claim 1. See Pet. 36–37.

As to the limitation “a housing that houses the PRTC and the packet master clock, the housing being suitable for plugging into a conventional small form factor (SFP) compliant cage to connect the packet master clock to a packet switched network (PSN)” as recited by claim 1, Petitioner relies on the disclosure in Rotenstein of a synchronization clock in a hot pluggable device. Pet. 38 (citing Ex. 1004 ¶¶ 28, 46).

Petitioner further contends that a person of ordinary skill in the art would have been motivated to enclose the clock of Bedrosian in the housing of Rotenstein to obtain the benefits of a pluggable housing, as taught by Rotenstein. See Pet. 41.

Patent Owner argues, for similar reasons as for the ground based on AAPA and Rivaud, that Bedrosian fails to disclose a PRTC outside a master clock, as recited in independent claim 1. Prelim. Resp. 41. Patent Owner argues that a person of ordinary skill in the art would not have been

motivated to combine Bedrosian and Rotenstein to arrive at the claimed invention, that the claimed invention represents a paradigm shift from a hierarchical timing system to a distributed timing system, and that secondary considerations exist. *Id.* at 41–45.

Patent Owner argues that Petitioner’s asserted ground based on Bedrosian and Rotenstein is cumulative with the asserted ground based on AAPA and Rivaud (Prelim. Resp. 40), and that “neither proposed Ground is distinguishable from material already presented during the prosecution of the ‘689 Patent.” *Id.* at 62. Patent Owner states that Petitioner has simply substituted elements from Bedrosian and Rotenstein for the ones from AAPA and Rivaud without providing any additional motivation for such combinations. *Id.* at 62.

We agree with Patent Owner that Petitioner’s reasoning for its assertion of obviousness over Bedrosian and Rotenstein is similar to that set forth above for the proposed ground of obviousness over AAPA and Rivaud. Indeed, Petitioner relies on Bedrosian interchangeably with AAPA for the disclosure of a grandmaster clock, and relies on Rotenstein interchangeably with Rivaud for its disclosure of a pluggable clock. *See id.* The same secondary considerations arguments apply to both grounds. In sum, we determine that the arguments presented in these grounds are substantially similar to arguments that have already been presented to the Office. We decline to institute an *inter partes* review of claims 1–4, 6, 7, and 16–21 over Bedrosian and Rotenstein for the same reasons as for the asserted ground over AAPA and Rivaud. *See* 35 U.S.C. §§ 314(a), 325(d).

D. Obviousness Over Bedrosian, Rotenstein, and Rivaud

Petitioner contends that claims 8–11 and 13–15 are unpatentable as obvious over Bedrosian, Rotenstein, and Rivaud. Pet. 54–56. Patent Owner disagrees. Prelim. Resp. 24–40. We decline to institute an *inter partes* review of claims 8–11 and 13–15 over Bedrosian, Rotenstein, and Rivaud for the same reasons as for the asserted ground over Bedrosian and Rotenstein. See 35 U.S.C. §§ 314(a), 325(d).

III. CONCLUSION

Petitioner’s arguments are substantially similar to arguments that have previously been presented to the Office. We exercise our discretion under 35 U.S.C. § 314(a) and do not institute an *inter partes* review on any of the asserted grounds. See 35 U.S.C. § 325(d).

IV. ORDER

In view of the foregoing, it is hereby ORDERED that the Petition is DENIED and an *inter partes* review is NOT INSTITUTED.

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