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Paper 41
Entered: December 22, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELL INC.,
Petitioner,

v.

ACCELERON, LLC,
Patent Owner.

Case IPR2013-00440
Patent 6,948,021 B2

Before THOMAS L. GIANNETTI, TRENTON A. WARD, and JEREMY M. PLENZLER, *Administrative Patent Judges*.

PLENZLER, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Dell Inc. ("Petitioner") filed a Petition to institute an *inter partes* review of claims 1–4, 6–20, 22–24, 30, and 34–36 of U.S. Patent No. 6,948,021 B2 (Ex. 1001, "the '021 patent"). Paper 7 ("Pet."). The Petition was accompanied by an expert declaration from Robert Horst, Ph.D. Ex. 1018 ("the Horst Declaration"). Acceleron, LLC ("Patent Owner") did not file a Preliminary Response. We granted the Petition and instituted trial on the following grounds: (1) anticipation of claims 1–4, 6–9, and 13–20 by Hipp[1]; and (2) obviousness of claims 10–12, 30, and 34–36 over Hipp and Gasparik.[2] Paper 10 ("Dec. on Inst."). Trial was not instituted for claims 22–24. Dec. on Inst. 3, 11–13, 17.

During trial, Patent Owner filed a Patent Owner Response (Paper 23, "PO Resp."), which was accompanied by an expert declaration from William Putnam (Ex. 2001, "the Putnam Declaration"). Petitioner filed a Reply to the Patent Owner Response. Paper 28 ("Pet. Reply"). Patent Owner and Petitioner each filed a Motion to Exclude Evidence. Papers 29, 32. An oral hearing was held on September 4, 2014. A transcript of the hearing has been entered into the record. Paper 40 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a).

We determine that Petitioner has shown by a preponderance of the evidence that claims 1–4, 6–13, 18–20, and 30 of the '021 patent are unpatentable. We further determine that Petitioner has not shown, by a

[1] U.S. Patent No. 6,757,748 B1, issued June 29, 2004 (Ex. 1004, "Hipp").
[2] U.S. Patent No. 6,157,974, issued Dec. 5, 2000 (Ex. 1007, "Gasparik").

preponderance of the evidence, that claims 14–17 and 34–36 are unpatentable.

B. Related Proceedings

The ’021 patent is involved in district court litigation: *Acceleron, LLC v. Hitachi Data Systems Corp.*, Case No. 1:12-cv-02996 (N.D. Ga.); and *Acceleron, LLC v. Dell, Inc.*, Case No. 1:12-cv-04123 (N.D. Ga.). Pet. 2.

C. The ’021 Patent

The ’021 patent is titled “Cluster Component Network Appliance System and Method for Enhancing Fault Tolerance and Hot-Swapping,” and generally relates to a computer network appliance including CPU modules, a power module, and an Ethernet switch module having hot-swappable connectors corresponding to mating hot swap connectors on a backplane board. Ex. 1001, 3:18–23. The ’021 patent describes a computer network appliance that allows replacement of the various modules via hot swap connectors in order to reduce the mean time to repair the computer network appliance. *Id*. at 5:53–59.

Figure 1 of the ’021 patent, reproduced below, illustrates computer network appliance 100.

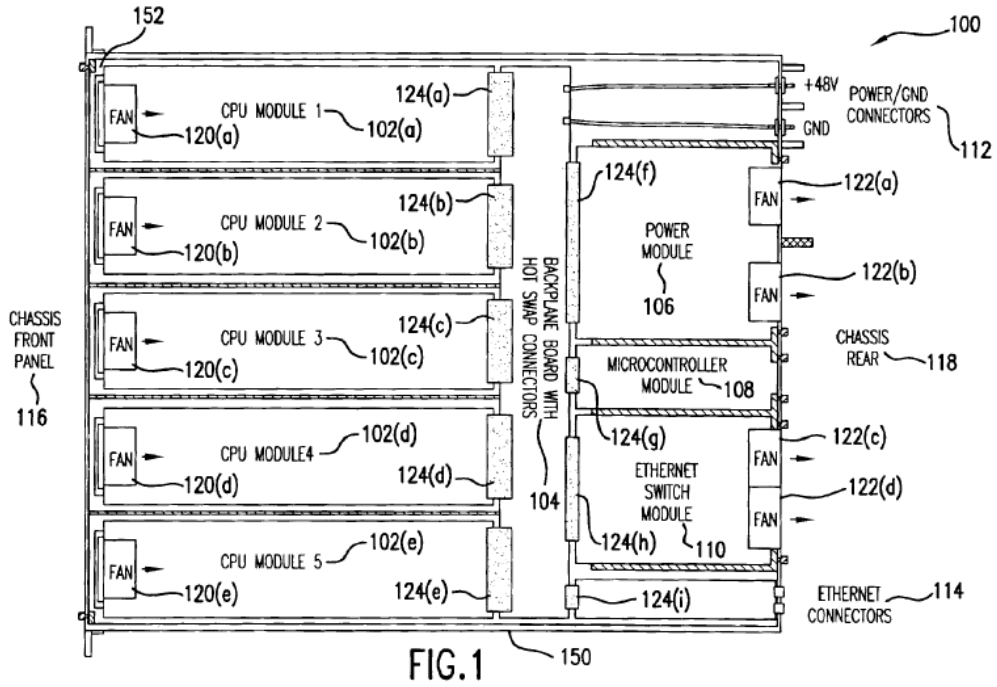

FIG.1

Figure 1 is a schematic illustration of a computer network appliance.

As shown above in Figure 1 of the ’021 patent, computer network appliance 100 includes CPU modules 102(a)–(e), power module 106, microcontroller module 108, and Ethernet switch module 110 connected to the backplane 104 via hot swap connectors. *Id*. at 3:18–23, 32–37.

The ’021 patent describes the CPU modules as each functioning as a stand-alone computer. *Id*. at 4:34–35. Each CPU module in the ’021 patent includes “a microprocessor 202, memory module 204, bus management chipset including a Northbridge chip 206(a) and a Southbridge chip 206(b), an ethernet interface chip 208, hardware BIOS 210 and a hot swap connector 212 mounted on a PCB.” *Id*. at 4:29–33. Hardware BIOS 210 for each CPU module provides remote boot capability, enabling the CPU modules to run different types of operating systems. *Id*. at 4:36–44. Different CPU

modules operating in the same chassis may be booted with different operating systems and different applications. *Id*. at 4:54–56.

The "health" of each CPU module can be monitored by a microcontroller, so that the CPU modules can be reset remotely in the event of an operating system instability or crash. *Id*. at 4:64–5:6.

D. Illustrative Claims

Of challenged claims 1–4, 6–20, 30, and 34–36, claims 1, 20, and 30 are independent. Claims 2–4 and 6–19 depend from claim 1, and claims 34–36 depend from claim 30. Claims 1 and 20 illustrate the claimed subject matter, and are reproduced below:

> 1. A computer network appliance, comprising:
>
> a plurality of hot-swappable CPU modules, wherein each CPU module is a stand-alone independently-functioning computer;
>
> a hot-swappable power module;
>
> a hot-swappable ethernet switch module; and
>
> a backplane board having a plurality of hot swap mating connectors, wherein the at least one backplane board interconnects each of the CPU modules with the at least one power module and the at least one ethernet switch module, such that the at least one power module and the at least one ethernet switch module can be used as a shared resource by the plurality of CPU modules.

Id. at 9:2–15.

> 20. A computer network appliance comprising:
>
> a hot-swappable CPU module;
>
> a hot-swappable power module;
>
> a hot-swappable ethernet switch module; and

> a backplane board having a plurality of hot swap mating connectors; and
>
> a microcontroller module and a dedicated ethernet path, wherein the dedicated ethernet path is separate from a switched fast ethernet connection and provides the microcontroller module with a connection to remotely poll the CPU module, the power module and the ethernet switch module;
>
> wherein each of the CPU module, the power module and the ethernet switch module includes a hot swap connector for connecting with a specific hot swap mating connector of the backplane board.

Id. at 10:18–33.

II. ANALYSIS

For the challenged claims, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). We begin with a claim construction analysis, and then follow with specific analysis of the prior art.

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable interpretation in light of the specification in which they appear and the understanding of others skilled in the relevant art. 37 C.F.R. § 42.100(b). Applying that standard, we interpret the claim terms of the ’021 patent according to their ordinary and customary meaning in the context of the patent’s written description. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

After considering the various claim constructions proposed by both Petitioner and Patent Owner, we conclude that no term requires an express

construction in order to conduct properly our analysis of the prior art. For example, Patent Owner only offers express constructions for the terms "caddies" and "bays" (PO Resp. 12–15), and Petitioner accepts these constructions (Pet. Reply 3-5; Tr. 17:16–18:6, 23:24–24:18), which we adopt for this decision. Petitioner's proposed constructions (Pet. 6–11) of terms other than "caddies" or "bays" are not material to our decision. Only those terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

B. Anticipation by Hipp

We have reviewed the Petition, the Patent Owner Response, and Petitioner's Reply, as well as the relevant evidence discussed in those papers. We are persuaded, by a preponderance of the evidence, that claims 1–4, 6–9, 13, and 18–20 are anticipated by Hipp under 35 U.SC. § 102, but are not persuaded that claims 14–17 are anticipated by Hipp.

1. Claim 1

Claim 1 is directed to a computer network appliance including "hot-swappable CPU modules," "a hot-swappable power module," and "a hot-swappable ethernet switch module," with a "backplane board interconnect[ing] each of the CPU modules with the at least one power module and the at least one ethernet switch module." Petitioner contends that Hipp discloses each element of claim 1. Pet. 14–16. We have reviewed and are persuaded by Petitioner's contentions regarding the disclosure of Hipp. For example, Hipp describes web server processing cards 32, network interface card 48, and power supply 280 (Ex. 1004, 2:56–58, 3:54–64, 6:48–53, 8:6–10, 12:37–50, 16:62–64 , 18:48–51), which Petitioner contends

correspond to the hot-swappable CPU modules, hot-swappable power module, and hot-swappable Ethernet switch module, respectively, recited in claim 1 (Pet. 14–15). Hipp additionally describes midplane 34 as "includ[ing] a plurality of web server processing card connectors 276 which facilitate the installation of up to twenty-four web server processing cards 32" (Ex. 1004, 15:34–37), "distribut[ing] data and/or communications signals between web server processing cards 32 and network interface cards 40, 48 and 68" (*id.* at 15:54–57), and "distribut[ing] power to components of web server processing cards 32 and network interface cards 40, 48 and 68" (*id.* at 15:52–54), which Petitioner contends corresponds to the backplane board recited in claim 1 (Pet. 15–16).

Patent Owner does not dispute Petitioner's contentions regarding Hipp's disclosure of the individual modules or the backplane board recited in claim 1. Patent Owner, instead, contends that Hipp fails to disclose the claimed interconnectivity between the Ethernet switch module and the CPU modules provided by the backplane board. *See* PO Resp. 15–23. Specifically, Patent Owner contends that "*Hipp* fails to disclose, either explicitly or inherently, that the passive midplane 34 interconnects ***each*** web server processing card 32 to a single network interface card 48 such that the same network interface card 48 can be used as a shared resource for all web server processing cards 32." PO Resp. 17. Petitioner responds that the "plurality of hot-swappable CPU modules" recited in the claim only requires two or more CPU modules, and that "the CPU modules" recited later in the claim refers back to the "plurality of hot-swappable CPU modules" (i.e., the two or more CPU modules). Pet. Reply 1-2. For the reasons that follow, we agree with Petitioner.

Patent Owner acknowledged at oral hearing that "plurality" means two or more. Tr. 66:2–4. Yet, Patent Owner argues that Hipp fails to disclose the "backplane board interconnect[ing] each of the CPU modules with the at least one power module and the at least one ethernet switch module" recited in claim 1 because "the passive midplane 34 disclosed by Hipp interconnects ***only a limited subset*** of the web server processing cards 32 to a particular network interface card 48, while the passive midplane 34 interconnects the remainder of the web server processing cards 32 to a different network interface card 48." PO Resp. 17.

The "at least one backplane board interconnect[ing] each of the CPU modules with the at least one power module and the at least one ethernet switch module" recited in claim 1 only requires a backplane board interconnecting two or more hot-swappable CPU modules (i.e., the plurality of CPU modules) with the power and Ethernet switch modules. Patent Owner acknowledges that Hipp meets this construction of claim 1. For example, Patent Owner notes that in Hipp, "each network interface card 48 is connected through the passive midplane 34 to only ***twelve*** web server processing cards 32 each." PO Resp. 18–19. The twelve web server processing cards in Hipp are the plurality (i.e., at least two) of hot-swappable CPU modules recited in claim 1. Therefore, the interconnection between the twelve web server processing cards (i.e., each of the plurality) and the network interface card via the passive midplane in Hipp also meets the "backplane board interconnect[ing] each of the CPU modules with the at least one power module and the at least one ethernet switch module" recitation in claim 1.

For the reasons set forth above, Petitioner has established, by a preponderance of the evidence, that claim 1 is anticipated by Hipp.

2. Claims 2, 6, 8, 9, 13, 18, and 19

Claims 2, 6, 8, 9, 13, 18, and 19 depend from claim 1. Petitioner identifies portions of Hipp teaching each of the limitations of these claims. Pet. 16, 18–21, 23–25. For example, Petitioner contends that Hipp's server chassis 38 corresponds to the "chassis providing physical support for a CPU module, the power module, the ethernet switch module and the backplane board" recited in claim 2. Pet. 16–17 (citing (Ex. 1004, 7:64–67). Petitioner further contends that Hipp's power supplies 280 including power connectors, shown in Figure 12, and standard RJ-45 connectors correspond to the power connector and data input/output connector, respectively, recited in claim 6. Pet. 18 (citing Ex. 1004, 12:37–45, 16:64–66, 18:39–42; Ex. 1018 ¶¶ 52, 56. Patent Owner does not dispute Petitioner's contentions regarding these claims. Tr. 86:9–12. We have reviewed the cited portions of Hipp and are persuaded by Petitioner's contentions.

Accordingly, we determine that Petitioner has established, based on a preponderance of the evidence, that claims 2, 6, 8, 9, 13, 18, and 19 are anticipated by Hipp.

3. Claim 3

Claim 3 ultimately depends from claim 1 and recites that "the chassis comprises caddies providing air flow from the front to the rear of the chassis." Patent Owner contends that a caddy is a "carrier for a module" (PO Resp. 14), and Petitioner agrees with this definition (Pet. Reply 3–5; Tr. 17:16–18:6). Hipp describes mounting mechanisms 278 (Ex. 1004, 16:62–64), which Petitioner contends correspond to the caddies recited in

claim 3 (Pet. Reply 5). Specifically, Hipp explains that "[s]erver chassis 38 includes two power supply mounting mechanisms 278, which facilitate the installation of two load-balance, hot-swappable power supplies 280." Ex. 1004, 16:62–64.

Patent Owner contends that "*Hipp* fails to disclose any structure that is a carrier for a module." PO Resp. 24. Although Patent Owner did not address mounting mechanisms 278 specifically in its Response, it did address them during the oral hearing. *See* Tr. 75:16–76:15. Patent Owner contends that Hipp's power supply mechanisms 278 are not caddies because "[t]hey are the connectors, where the power supply module plugs into on the midplane board." *Id.* at 76:9–10. We are not persuaded by Patent Owner's contentions.

Based on our review of Hipp, we are persuaded by Petitioner's contention that Figure 12 of Hipp illustrates slides that allow the power supply modules to be inserted and removed, and also provide spacing between power supplies 280 and the bottom of chassis 38 to allow air flow along power supplies 280. Tr. 22:3–19; Ex. 1004, Fig. 12. Hipp's slides provide carriers for power supply modules, as required by Patent Owner's construction of caddy, and "provid[e] air flow from the front to the rear of the chassis," as recited by claim 3. Patent Owner's argument that we should not consider this characterization of Hipp because it was raised for the first time at oral hearing is unpersuasive. Petitioner clearly pointed to this structure in the Petitioner's Reply (*see* Pet. Reply 5, identifying Hipp's structure in Figure 12 facilitating installation of hot-swappable power supplies 280 including power supply mounting mechanisms 278 as corresponding to the claimed caddies).

For the reasons set forth above, Petitioner has established, based on a preponderance of the evidence, that claim 3 is anticipated by Hipp.

4. Claim 4

Claim 4 ultimately depends from claim 1 and recites that "the chassis comprises bays and slot guides to facilitate mounting and removal of the modules and to ensure proper alignment between hot swap connectors of the modules and the hot swap mating connectors of the backplane board." Patent Owner contends that a bay is "a structure defining a space that receives a module" (PO Resp. 14), and Petitioner agrees with this definition (Tr. 23:24–24:18). Petitioner contends that Hipp discloses the limitations of claim 4. We have reviewed, and are persuaded by, Petitioner's contentions. For example, Petitioner asserts that the bays recited in claim 4 are met in Hipp by the structure defining a space at the front of chassis 38 that receives web server processing cards 32, and the structure defining a space at the back of chassis 38 receiving power supplies 280 and network interface cards 48 shown in Figures 10–12 of Hipp. Pet. 18; Pet. Reply 7.

Patent Owner contends that "it is unreasonable to consider arbitrary areas within the chassis 38 of *Hipp* to be 'bays'" (PO Resp. 31), but does not dispute Petitioner's contentions regarding the "slot guides" recited in claim 4 (*see id.* at 28-31). We are not persuaded by Patent Owner's argument. As noted above, Patent Owner's construction of "bays" simply requires "a structure defining a space that receives a module." The structure in Hipp identified by Petitioner, and discussed above, defines a space that receives a module (power supplies and network interface cards) as required by Patent Owner's construction. Patent Owner offers no persuasive explanation as to why Hipp's chassis 38 fails to provide this structure.

Accordingly, we conclude that Petitioner has established, based on a preponderance of the evidence, that claim 4 is anticipated by Hipp.

5. Claim 7

Claim 7 ultimately depends from claim 1 and recites that "the data input/output connector is a standard ethernet connector allowing heterogeneous CPU modules of differing CPU architectures mounted on a same chassis to communicate with each other." Petitioner contends that Hipp discloses the limitations of claim 7. Pet. 19; Pet. Reply 8–9. We have reviewed, and are persuaded by, Petitioner's contentions. For example, Hipp explains that "[s]witch chip 145 monitors and distributes traffic from a respective web server processing card 32 to a corresponding RJ-45 Ethernet connector 144 through an Ethernet communication link 143" (Ex. 1004, 12:47–50), which Petitioner contends discloses the "standard ethernet connector" recited in claim 7 (Pet. 19).

Patent Owner does not dispute that Hipp discloses a "standard ethernet connector," but contends that Hipp does not anticipate claim 7 because it does not disclose heterogeneous CPU modules mounted at the same time. PO Resp. 32–33. We are not persuaded by Patent Owner's argument because it is not commensurate with the scope of claim 7. We agree with Petitioner that claim 7 does not require heterogeneous CPU modules mounted to the same chassis at the same time. *See* Pet. Reply 8. Rather, claim 7 requires "a standard ethernet connector *allowing* heterogeneous CPU modules of differing CPU architectures mounted on a same chassis to communicate with each other" (emphasis added). Patent Owner does not identify, and we do not find, anything in the specification of the '021 patent imposing a requirement that heterogeneous CPU modules of

differing CPU architectures must be mounted on the same chassis at the same time.

The '021 patent explains that "[a] byproduct of using a standard fast ethernet . . . is that heterogenous CPU modules . . . may be mounted in the same chassis without affecting the operation of any other CPU module." Ex. 1001, 5:60–64. Hipp explains that "many central processing units with comparable processing power to a 500 MHz, Pentium III . . . may be used within the teachings of the present invention," such as "the Crusoe TM 3200 with speeds in the range of 300-400 MHz, or TM 5400 with speeds in the range of 500-700 MHz." Ex. 1004, 8:16–22. Patent Owner offers no persuasive explanation as to why Hipp's Ethernet connector would not allow "heterogeneous CPU modules of differing CPU architectures mounted on a same chassis to communicate with each other."

Accordingly, Petitioner has established, based on a preponderance of the evidence, that Hipp discloses the limitations of claim 7.

6. Claim 14

Claim 14 depends from claim 1 and recites that "a CPU module comprises hardware BIOS for configuring the CPU module and instructing a network attached storage (NAS) to locate an operating system (OS) from which to boot." Patent Owner responds that "*Hipp* fails to disclose, either explicitly or inherently, at least the claim element 'instructing a network attached storage (NAS) to locate an operating system (OS) from which to boot,' as recited in claim 14." PO Resp. 34.

Petitioner contends that Hipp discloses this limitation because Hipp's "hardware BIOS [is] *capable of* booting from a NAS" and Hipp's "NAS *could store* the operating system from which the CPU module boots." Pet.

Reply 10 (emphases added) (citing *In re Schreiber*, 128 F.3d 1473, 1479 (Fed. Cir. 1997)). Petitioner's argument implies that even without instructions for "a network attached storage (NAS) to locate an operating system (OS) from which to boot," Hipp's hardware BIOS meets this limitation because the hardware BIOS *could* be programmed with such instructions. This argument is not persuasive. The functional language recited in claim 14 requires a hardware BIOS that can "instruct[] a network attached storage (NAS) to locate an operating system (OS) from which to boot." In order to meet this limitation for purposes of anticipation, the prior art structure must be capable of performing the function without further programming. *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011) (discussing *Microprocessor Enhancement Corp. v. Texas Instruments, Inc.*, 520 F.3d 1367 (Fed. Cir.2008)). When functional language is associated with programming or some other structure required to perform the function, that programming or structure must be present in order to meet the claim limitation in an anticipation analysis. *Id.* Thus, Hipp cannot meet the "hardware BIOS . . . instructing a network attached storage (NAS) to locate an operating system (OS) from which to boot" limitation recited in claim 14 by simply having a hardware BIOS that *could* be programmed with such instructions.

Petitioner further contends that "*Hipp* discloses that a BIOS instructs a NAS to locate an operating system from which to boot." Pet. 22 (citing Ex. 1018 ¶ 59). In support of this contention, Petitioner notes that "*Hipp* discloses a hardware BIOS on web server processing card 32 that 'contains the appropriate instructions for sending information from a program to the appropriate hardware device within network 30.'" *Id.* at 21 (quoting Ex.

1004, 10:47–51). Petitioner further contends that Hipp discloses the claimed hardware BIOS because storage server 54 provides network attached storage (NAS), web server processing card 32 includes boot-from-LAN capability, and at least two operating systems are used in Hipp. Pet. 21–22 (citing Ex. 1004, 5:35–38, 8:26–30, 9:61–62). Petitioner later indicates that this limitation is inherent in Hipp. Tr. 40:4–8. We are not persuaded that the cited portions of Hipp expressly or inherently disclose the claimed BIOS programmed to instruct a NAS to locate an operating system from which to boot for the reasons discussed below.

Hipp describes the BIOS generally as "contain[ing] the appropriate instructions for sending information from a program to the appropriate hardware device within network 30." Ex. 1004, 10:48–51. The portions of Hipp cited by Petitioner explain, generally, that "[s]torage server 54 provides network attached storage (NAS)" (*id.* at 5:35–36) and, separately, that web server processing card 32 includes boot from LAN capability (*id.* at 9:57–62). Patent Owner contends that in Hipp, "the mere mention of these two concepts alone cannot lead to the conclusion that booting from a NAS is explicitly or inherently disclosed." PO Resp. 34. We agree. Hipp does not discuss specifically any instructions in BIOS directed to storage server 54 locating an OS from which to boot. Thus, we are not persuaded that Hipp expressly discloses the BIOS recited in claim 14.

We also are not persuaded that Hipp inherently discloses the BIOS recited in claim 14. As Patent Owner notes (PO Resp. 35), Petitioner's expert, Dr. Horst, explains that a boot image is required to initiate an operating system (Ex. 2002, 199:12–14). Patent Owner contends that the boot image is not required to be located in NAS and, instead, a variety of

other memory locations could be used to store the boot image. PO Resp. 36 (citing Ex. 2002, 203:7–204:13). In the cited portion of the deposition transcript, Dr. Horst acknowledges that these other memory locations could be used to store a boot image. Ex. 2002, 203:7–204:13. Petitioner does not provide a persuasive explanation as to why the boot image must be located in Hipp's storage server 54. Thus, we are not persuaded that Hipp's storage server 54 necessarily stores the boot image. Hipp's BIOS, therefore, does not necessarily include instructions to boot from storage server 54 and, instead, could include instructions to boot from another location where a boot image may be stored. *See In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999) ("Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient."). For these reasons, we are not persuaded that Hipp's BIOS inherently includes instructions directing a NAS to locate an operating system from which to boot.

Petitioner also contends that "a person of skill in the art would understand Hipp's disclosure to teach booting from NAS." Pet. Reply 11 (citing Ex. 1018 ¶¶ 52, 59). Petitioner's citation to the Horst Declaration does not cure the deficiencies noted above. Paragraph 52 of the Horst Declaration is a claim chart. Paragraph 59 of the Horst Declaration indicates that "[t]he primary purpose of a BIOS is to boot software, including the operating system, on start-up" and that "booting remotely over a network was well-known and was even the subject of standardization," concluding that one skilled in the art would, therefore, recognize that Hipp discloses the limitations of claim 14. Although the primary purpose of a BIOS may be to boot software on start-up, and while booting over a network may have been

well-known, this does not explain why one skilled in the art would recognize that the arrangement in Hipp *includes* a BIOS programmed to instruct NAS to locate an operating system from which to boot. Instead, as explained above, Hipp's BIOS could have included instructions to boot from a location other than NAS.

Accordingly, we are not persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 14 is anticipated by Hipp.

7. Claims 15–17

Claim 15 depends from claim 1 and recites "a CPU module is configured to boot remotely from an OS located in an NAS, and wherein the computer network appliance is free of a local hard disk drive (HDD)." Similar to claim 14, claim 15 requires a CPU module having instructions "to boot remotely from an OS located in an NAS." Petitioner's contentions regarding claim 15 are similar to those discussed above regarding claim 14, and are not persuasive for the same reasons set forth above regarding claim 14. *See* Pet. 22–23; Pet. Reply 11. Claims 16 and 17 depend from claim 15, and Petitioner's contentions with respect to these claims suffer from the same deficiencies discussed above relative to the challenge to claim 15. *See* Pet. 23–24; Pet. Reply 11.

Accordingly, for the reasons discussed above relative to claim 14, we are we are not persuaded, based on a preponderance of the evidence, that claims 15–17 are anticipated by Hipp.

8. Claim 20

Claim 20 is directed to a computer network appliance including a variety of "hot-swappable" components and "a backplane board having a plurality of hot swap mating connectors," similar to claim 1. Petitioner cites

portions of Hipp, similar to those discussed above relative to claim 1, as disclosing these limitations. Pet. 25. We find those contentions persuasive for the same reasons set forth above regarding claim 1.

Claim 20 additionally recites "a microcontroller module and a dedicated ethernet path, wherein the dedicated ethernet path is separate from a switched fast ethernet connection and provides the microcontroller module with a connection to remotely poll the CPU module, the power module and the ethernet switch module." Petitioner contends that single board computer 160 on management network interface 49 in Hipp corresponds to the microcontroller module recited in claim 20, and communication link 71 and ethernet connector 186 correspond to the dedicated Ethernet path recited in claim 20. Pet. 26. Petitioner further explains that Hipp's I2C bus provides a connection for single board computer 160 that may be used to perform remote polling. Pet. Reply 13–14 (citing Ex. 2001 ¶ 73). We have reviewed Petitioner's contentions, and are persuaded that Hipp discloses the microcontroller module and the dedicated Ethernet path recited in claim 20 based on Hipp's disclosure of single board computer 160 on management network interface 49 and communication link 71 with ethernet connector 186, discussed further below. *See* Pet. 26–27.

Patent Owner responds that "*Hipp* fails to disclose that the communication link 71 provides the single board computer 160 'with a connection to remotely poll the CPU module, the power module and the ethernet switch module,' as recited in claim 20." PO Resp. 42. Patent Owner contends that Hipp's "communication link 71 does not provide the single board computer 160 on the management network interface card 68 with a connection to even one of the web server processing cards 32, the hot-

swappable power supplies 280, or the network interface cards 48." *Id.* at 43. Patent Owner further contends that Hipp's I2C bus is not capable of polling. Tr. 73:4–6, 11–12.

Hipp explains that "[c]ommunication link 188 may include an I2C bus coupled with the serial port associated with high density connector 164" and "[a]nother I2C bus may also be provided between single board computer 160 and the serial port associated with high density connector 162." Ex. 1004, 15:9–14. In the portion of the Putnam Declaration cited by Petitioner, noted above, Patent Owner's expert, Mr. Putnam, acknowledges that the I2C bus described in Hipp "may be used to communicate with the web server cards, public and private network interface cards, and power supplies, for control and monitoring purposes." Ex. 2001 ¶ 73. Mr. Putnam testifies, however, that the I2C bus "is not an Ethernet connection." *Id.* This characterization is unpersuasive. Petitioner agrees that, generally, an I2C bus is not considered an Ethernet connector, but contends that this is not consistent with the '021 patent. Tr. 29:4–8. We agree. The '021 patent explains that "[t]he microcontroller module uses a dedicated ethernet path separate from the network data I/O to remotely poll the health of the power module 106, the ethernet switch module 108 and the CPU modules 102(a)-102(e)" and "communicates with other modules using an I2C bus." Ex. 1001, 7:62–67. Claim 21 specifically recites that "the *dedicated ethernet path is an I2C bus*" (emphasis added). Thus, consistent with the '021 patent, the "dedicated ethernet path" recited in claim 20 at least encompasses an I2C bus. We are persuaded, therefore, that Hipp's I2C bus discloses the claimed "dedicated ethernet path."

Patent Owner further contends that Hipp fails to disclose remotely polling a CPU module, power module, and Ethernet switch module (PO Resp. 42, 44–46). This argument is unpersuasive because claim 20 does not require "polling." The claim simply requires "a microcontroller module and a dedicated ethernet path, wherein the dedicated ethernet path . . . provides the microcontroller module with a connection to remotely poll." Unlike the "CPU module" recited in claims 14 and 15, discussed above, the "dedicated ethernet path" recited in claim 20 does not require programming to "provide[] the microcontroller module with a connection to remotely poll." Further, there is no requirement in claim 20 that the microcontroller module is programmed to poll, just that the "dedicated ethernet path" would allow polling if such programming were present.

We are persuaded that Hipp's I2C bus could be used for polling. For example, as noted above, Patent Owner's expert, Mr. Putnam, testifies that Hipp's I2C bus can be used "to communicate with the web server cards, public and private network interface cards, and power supplies, for control and monitoring purposes." Ex. 2001 ¶ 73. This communication capability would permit polling.

Accordingly, Petitioner has established, by a preponderance of the evidence, that claim 20 is anticipated by Hipp.

C. Obviousness over Hipp and Gasparik

We have reviewed the Petition, the Patent Owner Response, and Petitioner's Reply, as well as the relevant evidence discussed in those papers. For the reasons that follow, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 10–12 and 30 would have been obvious over Hipp and Gasparik under 35 U.SC. § 103. We are

not persuaded that claims 34–36 would have been obvious over Hipp and Gasparik.

1. Claims 10–12

Claims 10–12 ultimately depend from claim 1, and further define the hot swap connectors of the modules recited in claim 1. For example, claim 10 recites the connection order of the "pre-charge power pins" and "ground pins" of the hot swap connectors of the modules. Petitioner identifies portions of Hipp and Gasparik teaching each of the limitations of these claims, and reasons that one skilled in the art would have combined these teachings of Hipp with those of Gasparik. Pet. 31–34. Patent Owner does not dispute Petitioner's contentions regarding these claims specifically and, instead, relies on the arguments presented with respect to claim 1 for the patentability of claims 10–12, which we find unpersuasive for the reasons explained above. *See* PO Resp. 49. We have reviewed, and are persuaded by, Petitioner's contentions regarding claims 10–12.

Accordingly, Petitioner has established, based on a preponderance of the evidence, that claims 10–12 would have been obvious over the combined teachings of Hipp and Gasparik.

2. Claim 30

Claim 30 is directed to "[a] method of mounting a plurality of hot-swappable CPU modules in a computer network appliance . . . each CPU module comprising a hot swap connector including ground pins, power pins and signal pins, the computer network appliance including a backplane board having hot swap mating connectors," and recites that "a backplane board interconnects each of the CPU modules with the ground elements, power elements, and signal elements, such that the power module and the

ethernet switch module can be used as a shared resource by the plurality of CPU modules." Petitioner cites Hipp as teaching these limitations. Pet. 34–36. In response, Patent Owner relies on the arguments discussed above relative to the anticipation challenge to claim 1 based on Hipp. PO Resp. 47–49. We are not persuaded by Patent Owner's arguments for similar reasons as discussed above relative to claim 1.

Petitioner cites Gasparik as teaching the remaining limitations of claim 30, which are directed to the connections between the various hot swap connector pins of the CPU modules and the hot swap connectors of the backplane board, and reasons that it would have been obvious to combine the teachings of Gasparik and Hipp. Pet. 31, 35–36. Patent Owner does not dispute Petitioner's contentions regarding these limitations of claim 30.

We have reviewed Petitioner's contentions and Patent Owner's response, and are persuaded that claim 30 would have been obvious over the combined teachings of Hipp and Gasparik.

3. Claims 34–36

Claim 34 depends from claim 30 and further recites "remotely booting a CPU module in a computer network appliance, comprising: locating an OS in an NAS to boot the CPU module; and remotely booting the CPU module using the located OS; wherein the computer network appliance is free of a local HDD in remotely booting the CPU module." Petitioner's contentions regarding claim 34 are essentially the same as those discussed above regarding claims 14 and 15. *See* Pet. 36–37. We are not persuaded by these contentions for the reasons explained above with respect to claims 14 and 15. Claims 35 and 36 depend from claim 34, and Petitioner's contentions

with respect to those claims suffer from the same deficiencies as discussed relative to the challenge to claim 34. *See* Pet. 37.

Accordingly, for the reasons discussed above relative to claims 14 and 15, we are not persuaded, based on a preponderance of the evidence, that claims 34–36 would have been obvious over the combined teachings of Hipp and Gasparik.

D. Motions to Exclude

1. Petitioner

Petitioner filed a Motion to Exclude Evidence seeking to exclude Exhibits 2004 and 2005, the testimony of Mr. Putnam found in the Putnam Declaration, and certain portions of deposition testimony from Dr. Horst. Paper 32, 1–14. The majority of the evidence that Petitioner seeks to exclude, including portions of the Putnam Declaration, Exhibits 2004 and 2005, as well as the portions of deposition testimony from Dr. Horst, is directed to claims 1, 3, and 4 of the '021 patent. *See* Paper 32, 2–6, 10–14. However, even without excluding this evidence, we have determined that Petitioner has established, based on a preponderance of the evidence, the unpatentability of claims 1, 3, and 4 of the '021 patent. Further, Petitioner's arguments on these items go to the weight to be accorded to the evidence. The Board is capable of determining and assigning the appropriate weight to the evidence.

The remaining objections (*id.* at 6–10) are directed to excluding paragraphs 46–49, 51–53, 55, 56, 58, 60–62, 64, 65, 67–69, 71, and 73–75 of the Putnam Declaration "as being unreliable under FRE 702 because Mr. Putnam relied on an incorrect legal standard in formulating his opinions with respect to anticipation under 35 U.S.C. § 102" (*id.* at 6–7), and excluding the

entire Putnam Declaration because "Mr. Putnam's testimony is based on incorrect legal standards for claim construction, anticipation, and obviousness, has no basis in underlying data or facts, and relies on pure speculation" (*id.* at 9–10). These arguments directed to Mr. Putnam's testimony also go to the weight to be accorded to the evidence. As noted above, the Board is capable of determining and assigning the appropriate weight to the evidence.

For these reasons, we *deny* Petitioner's motion.

2. Patent Owner

Patent Owner filed a Motion to Exclude Evidence (Paper 29) seeking to exclude certain deposition testimony from Patent Owner's expert, Mr. Putnam. Specifically, Patent Owner seeks to exclude testimony from Mr. Putnam found at page 230, lines 6–11, of Exhibit 1037. Paper 29, 2. As noted by Patent Owner, however, the portion of Mr. Putnam's testimony which Patent Owner seeks to exclude "is used to challenge claim 4 under obviousness in spite of the fact that this proceeding is limited to anticipation with respect to claim 4." *Id.* at 5 n. 1. Patent Owner's arguments go to the weight to be accorded to the evidence. The Board is capable of determining and assigning the appropriate weight to the evidence.

Accordingly, we *deny* Patent Owner's motion.

III. SUMMARY

Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–4, 6–9, 13, and 18–20 of the '021 patent are anticipated by Hipp and claims 10–12 and 30 would have been obvious over the combination of Hipp and Gasparik, and that these claims are, therefore, unpatentable.

Petitioner has failed to demonstrate, by a preponderance of the evidence, that claims 14–17 and 34–36 would have been obvious over the combination of Hipp and Gasparik. This is a final written decision of the Board under 35 U.S.C. § 318(a).

IV. ORDER

For the reasons given, it is

ORDERED that:

A. Claims 1–4, 6–9, 13, and 18–20 are unpatentable as anticipated by Hipp;

B. Claims 10–12 and 30 are unpatentable as obvious over the combination of Hipp and Gasparik;

C. Petitioner's Motion to Exclude Evidence is denied; and

D. Patent Owner's Motion to Exclude Evidence is denied.

FURTHER ORDERED that parties to the proceeding seeking judicial review of this final written decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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