

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMERICAN MEGATRENDS, INC., MICRO-
STAR INTERNATIONAL CO., LTD, MSI COMPUTER CORP.,
GIGA-BYTE TECHNOLOGY CO., LTD., and G.B.T., INC.,
Petitioners,

v.

KINGLITE HOLDINGS INC.,
Patent Owner.

Case IPR2015-01140
Patent 6,519,659 B1

Before TREVOR M. JEFFERSON, BRIAN J. McNAMARA, and
J. JOHN LEE, *Administrative Patent Judges*.

JEFFERSON, *Administrative Patent Judge*.

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

I. INTRODUCTION

On November 13, 2015, we instituted *inter partes* review of claims 1–24 of U.S. Patent No. 6,519,659 B1 (Ex. 1001, “the ’659 patent”). Paper 13 (“Dec.”). Patent Owner, Kinglite Holdings Inc., filed a Patent Owner Response (Paper 19, “PO Resp.”) to the Petition (Paper 6, “Pet.”) filed by American Megatrends, Inc., Micro-Star International Co., Ltd, MSI Computer Corp., Giga-Byte Technology Co., Ltd., and G.B.T., Inc. (collectively “Petitioner”). Petitioner filed a Reply. Paper 25 (“Pet. Reply”). Petitioner also filed a Motion to Exclude. Paper 27 (“Pet. Mot. Exclude”). Patent Owner filed an Opposition to Petitioner’s Motion to Exclude (Paper 29), and Petitioner filed a reply, (Paper 31, “Pet. Mot. Reply”). A transcript of an oral hearing held on August 9, 2016 (Paper 33, “Tr.”) has been entered into the record.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). We base our decision on the preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

Having reviewed the full record, we conclude that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable for the reasons set forth below. For the reasons discussed below, we also deny Petitioner’s Motion to Exclude.

A. Related Proceedings

The parties state that the ’659 patent has been asserted in *Kinglite Holdings Inc. v. Giga-Byte Technology Co.*, No. 2:14-cv-04989 (C.D. Cal.), and *Kinglite Holdings Inc. v. Micro-Star International Co.*, No. 2:14-cv-03009 (C.D. Cal.). Pet. 5–6; Paper 7, 1. The Petition also relates to IPR2015-01133 (U.S. Patent No. 5,732,268). Pet. 6; Paper 7, 1.

B. The '659 Patent

The '659 patent discloses a “method and system for accessing at least one storage element in a processor-based system.” Ex. 1001, Abstract. The system and method disclosed in the '659 patent

comprises a memory for storing instruction sequences by which the processor-based system is processed. The memory has at least one storage element. A processor is coupled to the memory, and a storage device is coupled to the processor. Prior to booting an operating system on the processor-based system, the stored instruction sequences cause the processor to write the contents of the at least one storage element to the storage device.

Id. Figure 3, depicted below, “illustrates a diagram of one embodiment of the computer system . . . in which the apparatus and method of invention is used.” *Id.* at 2:36–38.

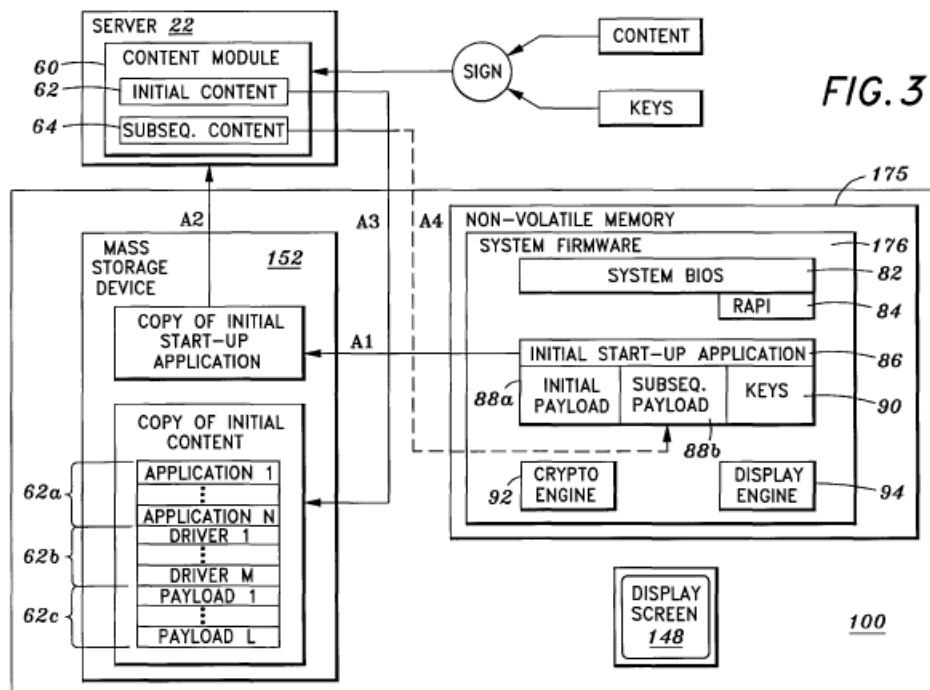


Figure 3 illustrates a logical diagram of computer system 100. *Id.* at 9:20–21. System firmware 176 includes system BIOS module 82 having system

BIOS handlers, hardware routines, ROM application program interface (RAPI) module 84, initial start-up application (ISUA) module 86, and initial payload 88a. *Id.* at 9:21–29. After power is initially turned on to a new computer system 100, the system commences with POST (power-on self-test) procedures. During the initial POST, ISUA 86 is transferred to mass storage device 152, as shown by line A1. *Id.* at 9:54–57.

C. Illustrative Claims

Independent claims 1 and 22 are illustrative and reproduced below (Ex. 1001, 15:38–53, 18:7–22):

1. A system for accessing at least one storage element in a processor-based system, comprising:
 - a memory for storing instruction sequences by which the processor-based system is processed, the memory having at least one storage element;
 - a processor coupled to said memory, the processor executes the stored instruction sequences; and
 - a storage device coupled to the processor, where said storage device is local to the processor and the memory;wherein prior to booting an operating system, the stored instruction sequences cause the processor to write the contents of the at least one storage element to the storage device, said act of writing being performed independent of a post-boot application program.
22. In a computer system having a user computer in communication with a remote service computer having access to a database identifying information available to the service computer, a computer implemented method for transferring information to the user computer, comprising:
 - (a) writing the contents of at least one storage element of the user computer to a storage device on the user computer prior to booting an operating system on the

user computer, said writing being performed independent of a post-boot application program;

(b) establishing a communications link between the user computer and the service computer; and

(c) presenting at the user computer, information available to the user computer.

D. Grounds of Unpatentability Instituted

We instituted *inter partes* review on the following grounds of unpatentability (Dec. 23–24):

Reference(s)	Basis	Claims Challenged
Madden ¹	35 U.S.C. § 102(e)	1–22
Noll ²	35 U.S.C. § 102(e)	1–5, 8–12, and 15–19
Christeson ³	35 U.S.C. § 102(a)	1–5, 8–12, and 15–19
Madden and Bizzarri ⁴	35 U.S.C. § 103(a)	23 and 24
Noll and Moran ⁵	35 U.S.C. § 103(a)	6 and 13

II. ANALYSIS

A. Claim Interpretation

In the Decision to Institute, we applied the following claim constructions, which the parties did not dispute during trial. Accordingly,

¹ U.S. Patent No. 6,178,503 B1 to Madden et al., filed Sept. 11, 1998, and issued Jan. 23, 2001 (Ex. 1005, “Madden”).

² U.S. Patent No. 6,185,696 B1 to Noll, filed May 27, 1998, and issued Feb. 6, 2001 (Ex. 1003, “Noll”).

³ U.S. Patent No. 5,822,581 to Christeson, filed Sept. 29, 1995, and issued Oct. 13, 1998 (Ex. 1004, “Christeson”).

⁴ U.S. Patent No. 5,732,268 to Bizzarri, filed Feb. 26, 1996, and issued Mar. 24, 1998 (Ex. 1006, “Bizzarri”).

⁵ U.S. Patent No. 5,519,843 to Moran et al., filed Mar. 15, 1993, and issued May 21, 1996 (Ex. 1007, “Moran”).

we adopt them in this Decision for the reasons given in the Decision to Institute. Dec. 6–10.

1. “*memory*”

We determined that the claim term “memory” does not require further construction, but is not limited to non-volatile memory as proposed by Patent Owner. *Id.* at 6–7.

2. “*storage device*”

We determined that the broadest reasonable interpretation of “storage device” is “a device that persistently maintains information, including instructions or data, accessible through the processor.” *Id.* at 7–8.

3. “*instruction sequences*”

We determined that “instruction sequence” includes “one or more segments of computer code that can be executed by the processor to perform a task.” *Id.* at 8–9.

4. “*a post-boot application program*”

We determined that the claim term “a post-boot application program” is “software that executes after the operating system is loaded.” *Id.* at 9.

5. “*a file system*”

We determined that “a file system” is “a system for organizing information on a storage device, based on directories and files, which defines how to access storage elements.” *Id.* at 10.

6. “*storage element*”

We determined that “storage element” is “a physical memory structure or information contained within memory,” and did not limit the term to non-volatile memory or the type of data stored in the element as a file or payload. *Id.* at 10.

B. Anticipation by Madden (Ex. 1005)

1. Madden (Ex. 1005)

Madden is a U.S. patent that addresses the management of multiple operating systems on a single computer and other boot-time problems using a boot management program with a graphical user interface. Ex. 1005, Abstract. Figure 1 is reproduced below.

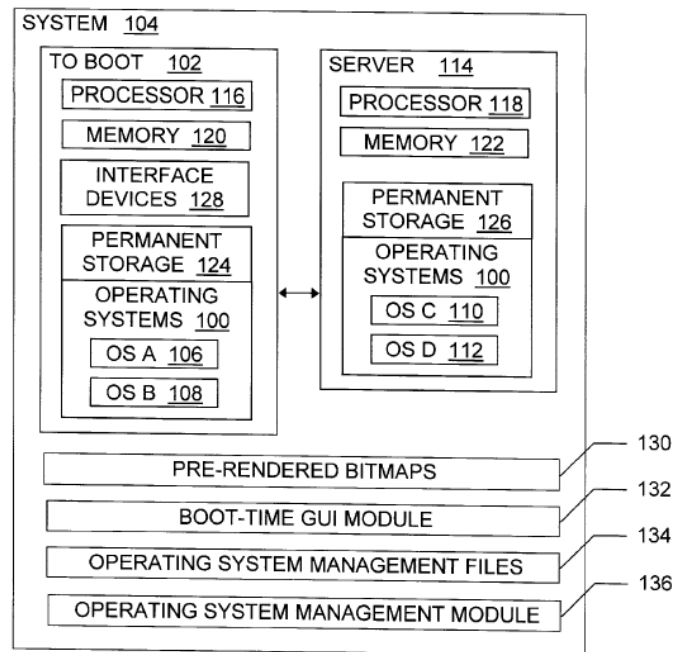


FIG. 1

Figure 1 illustrates a system which implements the Madden invention. Ex. 1005, 4:48–49. Figure 1 depicts a system for managing multiple operating systems 100 on computer to be booted 102, such as in system 104. *Id.* at 5:47–55. Figure 1 depicts four operating systems 106, 108, 110, and 112, and one computer to be booted 102. *Id.* Computers 102, 114 have processors 116, 118 for executing instructions, and memories 120, 122 (such as random access memory) for storing instructions, respectively. *Id.* at 5:56–59. Computers 102, 114 have permanent storage devices 124, 126. *Id.*

at 5:59–60. Madden discloses that suitable storage devices 124, 126 include one or more non-volatile storage devices. *Id.* at 5:61–66.

Madden states that

computers 102, 114 may also be capable of using floppy drives, tape drives, optical drives or other means to read a removable storage medium such as floppy disks, removable hard disks, tape, CD-ROMs, PROMs, memory modules, and other computer system storage devices. Each memory 120, 122 and storage device or medium can be written and read by execution of appropriate instructions using the respective processor 116, 118.

Id. at 6:3–10. In addition, Madden describes the bootstrap process as follows:

The ROM bootstrap routine is usually stored in ROM, but may also be stored in flash memory or another device. The starting address for the ROM bootstrap routine is hard-coded in the machine, so the processor always begins execution with the first instruction stored at that address. The ROM bootstrap routine reads a disk bootstrap program from the first sector of the disk, loads it into RAM, and passes control to it. The disk bootstrap program in turn either directly or indirectly reads an operating system off the disk into memory and gives it control.

Id. at 5:26–35.

2. Analysis

Petitioner contends that Madden anticipates claims 1–22. Pet. 14–33. Petitioner provides claim charts and citations to the Declaration of Stefano Righi (Ex. 1008) to support its contention that Madden discloses the limitations of the challenged claims. *Id.* (citing Ex. 1008 ¶¶ 30–50).

Petitioner contends that Madden discloses memory 120 that includes at least one storage element that can be written and read by execution of instructions by the processor. *Id.* at 15 (citing Ex. 1005, 6:7–10). Petitioner cites Madden’s boot management program as disclosing the “instruction

sequences” of claim 1. *Id.* at 16. Petitioner avers that a person of ordinary skill in the art would understand that storage device 124 is local to processor 116 and memory 120 in Madden as they are contained inside the same computer. *Id.* (citing Ex. 1008 ¶ 40; Ex. 1005, Fig. 1).

Petitioner also argues that, in Madden, “the boot management program first copies the selected OS files into [the] root directory and then pass[es] control to the selected operating system.” *Id.* at 17–18. Thus, Madden discloses “wherein prior to booting an operating system, the stored instruction sequences cause the processor to write the contents of the at least one storage element to the storage device.” *Id.* at 16. Petitioner asserts that the bootstrap routine by the boot management program in Madden performs the writing of the contents required in the claims. *Id.* at 17–18.

Petitioner argues that the claim 1 limitation of “act of writing being performed independent of a post-boot application program” is disclosed in Madden, which runs application programs after boot time when control is passed to the operating system. *Id.* at 18. Petitioner relies on the testimony of Mr. Righi to support its contention that Madden “demonstrates that the contents are moved (e.g., written) independently of a post-boot application program.” *Id.* (citing Ex. 1008 ¶ 34). Petitioner provides sufficient support for its contention that Madden discloses the claim 1 limitation of “act of writing being performed independent of a post-boot application program” and the related limitations in claims 15 and 22. With respect to dependent claims 2–14 and 16–21, Petitioner provides claim charts and citations to the testimony of Mr. Righi to support that Madden discloses the limitations of the challenged claims. *Id.* at 23–31. We find Mr. Righi’s testimony to be credible, and we are persuaded by Petitioner’s analysis as discussed above.

Patent Owner contends that Madden does not anticipate claims 1–22 because it fails to disclose writing at least one storage element to a storage device with said writing being performed “independent of a post-boot application program.” PO Resp. 1 (citing Ex. 1001, 15:49–53). Patent Owner challenges that the “selected OS files” of Madden disclose the claimed “at least one storage element” because they constitute operating system files and, thus, are not “independent of a post-boot application program.” *Id.* at 3 (citing Ex. 2008 ¶¶ 16–17). Patent Owner’s position stems from reading the plain language of the claims to require that the object being written in the “act of writing” limitation cannot be OS files. Tr. 25:1–26:16 (relying on the claim language and noting the absence of any example using OS files as content in ’659 specification).

We disagree with Patent Owner. First, Patent Owner provides no intrinsic evidence that a person of ordinary skill in the art would understand that the “act of writing being performed independent of a post-boot application program” limits “the contents of the at least one storage element to the storage device” recited in claim 1 (and related limitations in claims 15 and 22). Indeed, we are not convinced that the language of the claims themselves *exclude* OS files from being considered the “contents of the at least one storage element.” To the contrary, the claims require that the “act of writing” or the “writing” be “independent of a post-boot application program” and do not otherwise limit the content that is written. We are not persuaded by the testimony of Patent Owner’s declarant (Ex. 2008 ¶¶ 11, 18, 20), and instead find more credible the testimony of Petitioner’s declarant, who testifies that a person of ordinary skill would have understood Madden to disclose moving files before any operating system or

file system is booted (Ex. 1008 ¶¶ 34, 43). *See* Ex. 1005, 17:23–24.

Accordingly, we find that Petitioner has presented persuasive evidence that Madden discloses writing “the contents of the at least one storage element to the storage device” where the “act of writing being performed [is] independent of a post-boot application program.”

We are also not persuaded by Patent Owner’s arguments and evidence that the boot manager program in Madden is executed *after* loading the operating system. PO Resp. 5–6 (citing Ex. 2008 ¶¶ 18–20). Patent Owner’s declarant, Dr. Nazarian, relies on the initial loading of the operating system and placement of the bootstrap loader on a storage device to support the conclusion that Madden discloses no actions that occur prior to the booting of the OS. *Id.*; Ex. 2008 ¶¶ 7, 11, 18–20. Patent Owner’s and Dr. Nazarian’s interpretation incorrectly treats the bootstrap loader in Madden as equivalent to the OS. Ex. 1011, 100:10–101:6; Pet. Reply 5–6. We are not persuaded by the testimony of Dr. Nazarian that the teachings of Madden are restricted to placing an operating system bootstrap loader on a storage device from a CD-ROM while in a post-boot operating system. Ex. 2008 ¶ 21; Ex. 1011, 112:24–113:19. This conclusion is not supported by Madden. Madden discloses actions *by the bootstrap loader* that occur *before* booting into the OS. Ex. 1005, 17:15–25. In sum, Patent Owner’s arguments are not commensurate with the scope of the claims and fail to address the full scope of Madden’s disclosure.

On the full record, after consideration of the parties’ argument and evidence, we find that Petitioner has demonstrated by a preponderance of the evidence that Madden discloses the limitations of claim 1. We are also persuaded Petitioner has shown by a preponderance of the evidence that

Madden also discloses the limitations of claims 2–22 as set forth in the Petition. Pet. 14–33. Accordingly, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–22 would have been unpatentable under 35 U.S.C. § 102(e) as anticipated by Madden.

C. Anticipation by Noll (Ex. 1003)

1. Noll (Ex. 1003)

Noll is a U.S. patent titled “System for a primary BIOS ROM recovery in a dual BIOS ROM computer system.” Ex. 1003, at [54]. Noll discloses a computer system that includes a dual basic input-output system (BIOS) and read-only memory (ROM) system to initialize the computer. *Id.* at Abstract. Figure 1, reproduced below, depicts an embodiment of the Noll invention.

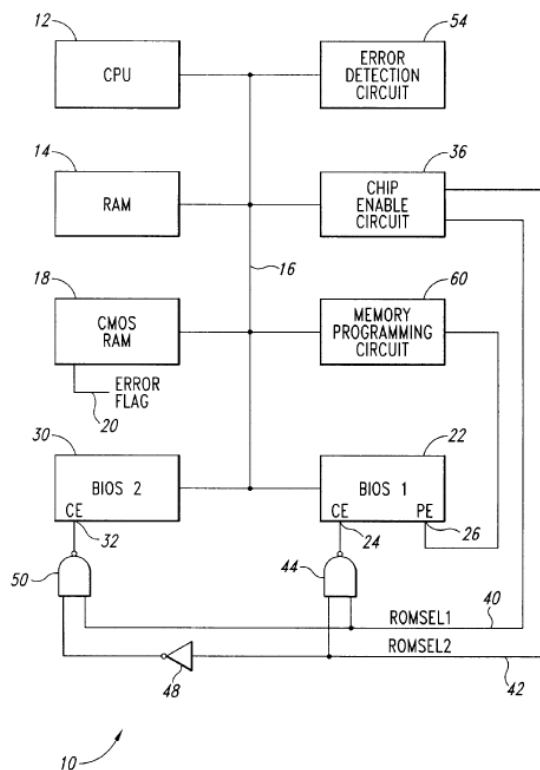


Fig. 1

Figure 1, reproduced above, shows computer 10, with CPU 12. *Id.* at 2:49–52. Computer 10 shows RAM 14 and low power RAM 18 (CMOS RAM) used to store configuration data. *Id.* at 2:52–62.

The system disclosed in Noll includes a first BIOS memory that contains a series of computer instructions to initialize the computer, and a second BIOS memory also containing the series of computer instructions to initialize the computer. *Id.* at 1:49–67. The first BIOS memory has a chip enable input that is initially enabled. An error detection circuit is provided to detect and note errors in the first BIOS memory. *Id.* An enabling circuit is included to disable the first BIOS memory chip enable input, and to enable the second BIOS memory chip enable input in response to the error signal. *Id.* Thus, the computer in Noll can switch to the second BIOS memory in case of error in the first BIOS memory. *Id.* The second BIOS memory also contains instructions that will reprogram the first BIOS memory. *Id.* at 5:64–66. Finally, Noll discloses that the primary BIOS ROM can be reprogrammed with the contents of the secondary BIOS ROM using the copy in random access memory or from the secondary BIOS ROM itself. *Id.* at Abstract, Fig. 1, 5:64-66.

2. Analysis

Petitioner contends that Noll anticipates claims 1–5, 8–12, and 15–19, providing claim charts and citations to the Declaration of Righi in support of the contentions. Pet. 34–41 (citing Ex. 1008 ¶¶ 54–61). Petitioner contends that Noll, which describes reprogramming the BIOS during the POST boot period based on instructions stored in the BIOS, discloses the limitations of claim 1. *Id.* at 34–35. Petitioner’s contentions and analysis are persuasive. Petitioner provides evidence that Noll discloses copying the contents of the

secondary BIOS into the primary BIOS before boot. Ex. 1003, Abstract, 15:49–51. Petitioner demonstrates that Noll teaches reprogramming occurs if an error is detected such that information from the secondary BIOS memory passes to the first BIOS memory, or the information is copied indirectly via the RAM. *Id.* at Abstract, 6:23–40. Petitioner maps the first and second BIOS memories containing computer instructions to the “memory” and “storage element” limitations of the challenged claims. Pet. 35. Petitioner also shows that the secondary BIOS ROM contains instructions that can reprogram the primary BIOS ROM prior to booting. Pet. 37 (citing Ex. 1003 5:64–65; 6:23–30). Thus, Petitioner contends that Noll discloses the “act of writing being performed independent of a post-boot application program” as recited in claims 1. *Id.* Petitioner has also mapped the further limitations of claims 1–5, 8–12, and 15–19 to the teachings in Noll. Pet. 35–41 (claim chart). Based on the evidence and argument presented, we find that Petitioner has shown by a preponderance of the evidence that Noll discloses the limitations of the challenged claims as set forth in the Petition.

Patent Owner contends that Noll fails to disclose “a memory for storing instruction sequences” with “the memory having at least one storage element” where the “stored instruction sequences cause the processor to write the contents of the at least one storage element to the storage device” as recited in claim 1 (Ex. 1001, 15:38–51). Patent Owner argues that the Board’s Decision on Institution does not indicate what BIOS memory in Noll satisfies the “memory” limitation of the ’659 patent. PO Resp. 7. Patent Owner further argues that the Board’s Decision does not identify the storage element or instruction sequences as claimed. *Id.* at 7–8. Patent

Owner argues that “[g]iven that there is no device that stores instruction sequences causing the processor to write a storage element to a storage device [in Noll], there is no memory containing such instruction sequences. *Id.* at 9 (citing Ex. 2008 ¶¶ 24–25).

Patent Owner’s arguments addressed to the citations in the Decision to Institute are misplaced and fail to address the evidence and argument cited in the Petition, which form the basis for the patentability challenges to the claims. In the Petition, Petitioner has shown that Noll discloses copying the contents of a secondary BIOS memory into a primary BIOS memory prior to boot operations. Ex. 1003, Abstract, 2:1–17; Pet. 34. Petitioner has also shown that the BIOS memories in Noll may be FLASH memories that store instructions for initializing the computer. Pet. 34 (citing Ex. 1003, 1:49–67, 2:14–17). The secondary BIOS memory also contains instructions that will reprogram the primary BIOS memory. *Id.* We agree with Petitioner that Noll discloses a “memory having at least one storage element” in either the secondary BIOS memory or RAM. Pet. Reply 8–9. Thus, Patent Owner’s assertion that the “memory” in Noll fails to disclose a “storage element” is not consistent with Noll, which teaches reading from and writing to the various memories as evidence of storage elements. *See* Ex. 1003, 1:49–67, 2:14–17; Pet. 34 –41. Based on the full record, Petitioner has shown by a preponderance of the evidence that the BIOS memory disclosed in Noll meets the construction of “memory” discussed above. *See* Pet. 34–41.

We also are not persuaded by Patent Owner’s argument that Petitioner does not identify what in Noll corresponds to “instruction sequences.” PO Resp. 8. Noll discloses that “secondary BIOS ROM 30 contains additional instructions that will reprogram the primary BIOS ROM 22.” Ex. 1003,

5:64–66; Pet. Reply 9–10; Pet. 36. In addition, we agree with Petitioner that Noll discloses that instructions are copied from BIOS ROM to RAM.

Ex. 1011, 59:13–17, 61:22–62:23.

We are also not persuaded by Patent Owner’s contention that the writing function in Noll is not performed as part of Power-On Self Test (POST) as part of pre-boot operations. PO Resp. 8. Petitioner provides citations to Noll teaching that, during POST, writing from the primary to secondary BIOS ROMs takes place. Ex. 1003, Fig. 2B (Steps 220, 222); Pet. Reply 10. We also find that Patent Owner relies on insufficient and conclusory evidence to support its responsive contention that a person of ordinary skill in the art would find Noll’s error detection in BIOS ROM “a complicated process.” PO Resp. 9; Ex. 2008 ¶ 23. The testimony of Dr. Nazarian proffered by Patent Owner is not commensurate with the scope of the reference, because he considers Noll to be limited to error correction and asserts that Noll does not teach a storage device. *See, e.g.*, Ex. 1011, 65:10–23; *id.* at 57:20–59:6. Petitioner has provided sufficient evidence that Noll discloses BIOS memories that store instructions for initializing the computer, and a secondary BIOS memory that contains the instructions that will reprogram the primary BIOS memory during the writing process. Ex. 1003, 1:49–67 5:64–66; Pet. 34–37. We find that Noll teaches a storage device that stores instructions and that its teachings are not limited to error correction. *Id.* Accordingly, we are not persuaded by the testimony of Dr. Nazarian.

Based on the parties’ argument and evidence, Petitioner has demonstrated by a preponderance of the evidence that claims 1–5, 8–12, and

15–19 would have been unpatentable under 35 U.S.C. § 102(e) as anticipated by Noll.

D. Anticipation by Christeson (Ex. 1004)

1. Christeson (Ex. 1004)

Christeson is a U.S. patent titled “Method for CMOS Configuration Information Storage and Retrieval in Flash.” Ex. 1004, at [54]. Christeson discloses “[a] computer system . . . for storing CMOS configuration information in FLASH and for retrieving a copy of the CMOS configuration information stored in FLASH into a CMOS RAM memory.” *Id.* at Abstract. Christeson further discloses “a computer system wherein the CMOS RAM configuration information is backed up in a non-volatile memory device [and] a processor coupled to a computer readable CMOS RAM memory device.” *Id.* at 2:9–14.

2. Analysis

Petitioner asserts that Christeson (Ex. 1004) anticipates claims 1–5, 8–12, and 15–19, providing claim charts, citations to the Righi Declaration, and argument to support its contention. Pet. 42–50 (citing Ex. 1008 ¶¶ 63–65, 67, 69–73). Petitioner has provided evidence that Christeson discloses a processor (item 101) a memory with a storage element (item 103), and examples of storage devices, such as a CMOS RAM Device (item 107), which are all coupled together. *Id.* at 42–43; Ex. 1004, Fig. 1; Ex. 1008 ¶ 63. Petitioner identifies memory including a storage element (BIOS ROM or FLASH memory) and a storage device (CMOS RAM) that stores instruction sequences that are BIOS routines run at set up. Pet. 42–43. Petitioner shows that the memory in Christeson stores configuration information and writes the configuration information from FLASH memory

to CMOS RAM. Pet. 43. If the configuration information in Christeson is corrupted during the boot period, the configuration information from the FLASH can be written to the CMOS RAM. *Id.* at 43–44. Thus, Petitioner argues that Christeson discloses the “act of writing being performed independent of a post-boot application program” as recited in the challenged claims. Based on the full record and the persuasive analysis provided in the Petition, Petitioner has shown by preponderance of the evidence that Christeson anticipates claims 1–5, 8–12, and 15–19 as set forth in the Petition.

Patent Owner asserts that Christeson does not anticipate the claims because “neither CMOS-RAM nor BIOS ROM or FLASH in Christeson is a storage device or contains a storage element per the ‘659 specification and claims.” PO Resp. 11 (citing Ex. 2008 ¶ 34). We disagree with Patent Owner’s contention. Based on the complete record, Petitioner has provided persuasive evidence and argument that Christeson includes a storage element containing a copy of the CMOS data. Pet 43 (citing Ex. 1008 ¶ 69); Pet. Reply 12. In particular, Petitioner identifies that Christeson teaches, “the firmware stored in the ROM can be a basic input-output system (BIOS) software program,” and that BIOS is stored in a non-volatile memory such as FLASH, which contains a copy of the CMOS data (e.g. configuration information). Ex. 1004, 1:26–27; 1:40–41; Pet. 43–45; Ex. 1008 ¶¶ 24–27. Thus, Petitioner has shown that Christeson teaches a storage device and a storage element as recited in the claims. Ex. 1008 ¶¶ 26–27.

Petitioner has also shown that instruction sequences in Christeson can write the contents of the memory to a storage device, the CMOS memory. Pet. 43 (citing Ex. 1008 ¶¶ 64, 69; Ex. 1004, 6:65–7:3, Fig. 1 (item 107));

Pet. Reply 12. Indeed, Christeson states that “if the BIOS during its execution of POST, finds the contents of the CMOS memory to be invalid, it will check to see if the nonvolatile memory device (FLASH) contains a backup of the CMOS image [and] [i]f so, the BIOS will automatically copy its contents into the CMOS memory and continue to boot the system.” Ex. 1004, 6:50–59. In addition, Petitioner has provided an element by element analysis demonstrating that Christeson discloses the further limitations of claims 1–5, 8–12, and 15–19 of the ’659 patent. Pet. 44–50.

Based on the full record, we find that Petitioner has demonstrated by a preponderance of the evidence that claims 1–5, 8–12, and 15–19 are anticipated by Christeson.

E. Obviousness Based on Madden (Ex. 1005) and Bizzarri (Ex. 1006)

Petitioner asserts that Madden in combination with Bizzarri renders dependent claims 23 and 24 obvious under 35 U.S.C. § 103. Pet. 51–55. Bizzarri discloses that during a boot failure, the BIOS establishes a communication link between the user computer and a remote diagnostics and repair computer. Ex. 1006, Abstract. The remote diagnostics and repair computer can download a slave kernel to the user computer such that an automatic software kernel or an operator can perform diagnostics and repair on the user computer. *Id.*; Ex. 1008 ¶ 80. Remote diagnostics saves the expense of having to send a repair person to the user computer. Ex. 1006, 3:22–30.

Petitioner relies on Madden to teach the limitations of independent claim 22. Pet. 51–55. Petitioner provides argument, claim charts, and citations to the Righi Declaration in support of its contentions that Madden and Bizzarri teach the limitations regarding the application program and

collection of system data by the service computer recited in claims 23 and 24. *Id.* (citing Ex. 1008 ¶¶ 78–83). Petitioner also provides sufficient articulated reasoning with a rational underpinning to support the combination of Bizzarri and Madden, specifically testimony that a person of ordinary skill in the art would be compelled to combine the diagnostic methods of Bizzarri to address the “boot-time problems” disclosed in Madden. *Id.* at 52 (citing Ex. 1008 ¶¶ 81–82).

Patent Owner argues that the combination of Madden and Bizzarri fails to teach the actions that occur prior to the loading of the operating system for the same reasons discussed above with respect to anticipation of claims 1–22 based on Madden. PO Resp. 11 (citing Ex. 2008 ¶ 35). For the reasons discussed above in Section II.B.2, we do not agree with Patent Owner that the actions described in Madden cannot occur prior to the booting of an operating system.” *Id.* Based on the evidence and analysis presented by Petitioner, we find that Petitioner has demonstrated by a preponderance of the evidence that claims 23 and 24 are unpatentable as obvious over Madden and Bizzarri.

F. Obviousness Based on Noll (Ex. 1003) and Moran (Ex. 1007)

Petitioner contends that claims 6 and 13 are unpatentable as obvious over Noll and Moran. Pet. 55–57. Claims 6 and 13 are directed to a storage element being a file that is written to a file system in the storage device. Ex. 1001, 16:3–8. Moran discloses a “flash memory system having a controller and a flash memory device for providing BIOS, operating system and user storage capabilities.” Ex. 1007, Abstract. Such systems can be constructed as integrated circuit packages that provide on one chip the different elements

(i.e., BIOS, O/S, hard disk) that previously only had been found in separate components. *Id.* at Abstract, 2:8–12.

Petitioner provides analysis, claim charts and citations to the Righi Declaration in support of its contentions. Pet. 55–57 (citing Ex. 1008 ¶¶ 86–88). Petitioner also provides evidence that Moran teaches “how to store in the ROM chip a combination of software components organized as a ‘file system’” using a flash memory device. Ex. 1008 ¶ 87. Thus, Petitioner relies on Moran to disclose the file system limitations of claims 6 and 13. Pet. 56. Petitioner provides adequate reasoning with a rational underpinning for the combination of the method disclosed in Noll for the recovery of damaged BIOS with the storage element in Moran, namely to improve the reliability of the system. *Id.* at 55–56 (citing Ex. 1008 ¶ 86). Based on the full record, we find that Petitioner has provided convincing evidence and analysis that the combination of Noll and Moran teach the limitations of dependent claims 6 and 13.

Patent Owner contends that the “solid state memory device . . . capable of containing a file system as described in Moran” that Petitioner claims “could be substituted for the dual BIOS ROM devices of Noll” requires “the error circuit device of Noll to initiate any writing activity.” PO Resp. 12–13 (citing Ex. 2008 ¶ 36). We are unconvinced by Patent Owner’s argument, which does not explain the significance of using the error circuitry of Noll with the solid state device of Moran, or why such use negates the combination of the references. We are also unpersuaded by Patent Owner arguments that Moran and Noll would not teach “at least one storage element” as recited in the claims for the same reasons discussed with respect to anticipation of the challenged claims by Noll. *See supra* Section

II.C.2.

Based on our review of Petitioner's and Patent Owner's evidence and arguments on the full record, we find that Petitioner's analysis demonstrates by a preponderance of the evidence that claims 6 and 13 are obvious in view of Noll and Moran.

III. PETITIONER MOTION TO EXCLUDE

Petitioner moves to exclude the deposition testimony of Stefano Righi (Ex. 2009) on the basis that Patent Owner's counsel, George Summerfield, had not been admitted *pro hac vice* before cross examining Mr. Righi. Pet. Mot. Exclude 2; Pet. Mot. Reply 1 n.1. Petitioner filed motions to exclude the cross-examination deposition testimony taken by Patent Owner's counsel, Mr. Summerfield, in related cases before the Board based on this issue. *See, e.g., American Megatrends, Inc. v. Kinglite Holdings, LLC*, Case IPR2015-01079, slip op. at 25 (PTAB Oct. 27, 2016) (Paper 49). Although the deponents and exhibits differ in each proceeding, the facts and circumstances are largely the same and not disputed by the parties. Accordingly, for the same reasons discussed in IPR2015-01079, we deny Petitioner's motion to exclude the deposition testimony of Mr. Righi (Ex. 2009), determining that the parties' conduct in this case does not warrant such an exclusion. *See id.*

IV. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that:

(1) claims 1–22 are unpatentable under 35 U.S.C. § 102 as anticipated by Madden,

(2) claims 1–5, 8–12, and 15–19 are unpatentable under 35 U.S.C. § 102 as anticipated by Noll;

(3) claims 1–5, 8–12, and 15–19 are unpatentable under 35 U.S.C. § 102 as anticipated by Christeson;

(4) claims 23 and 24 are unpatentable as obvious under 35 U.S.C. § 103 over Madden and Bizzarri; and

(5) claims 6 and 13 are unpatentable as obvious under 35 U.S.C. § 103 over Noll and Moran.

We also deny Petitioner’s motion to exclude.

V. ORDER

Accordingly, it is

ORDERED that:

Claims 1–22 of the ’659 patent are unpatentable under 35 U.S.C. § 102(e) as anticipated by Madden;

Claims 1–5, 8–12, and 15–19 of the ’659 patent are unpatentable under 35 U.S.C. § 102(e) as anticipated by Noll;

Claims 1–5, 8–12, and 15–19 of the ’659 patent are unpatentable under 35 U.S.C. § 102(a) as anticipated by Christeson;

Claims 23 and 24 of the ’659 patent are unpatentable under 35 U.S.C. § 103(a) as rendered obvious by Madden and Bizzarri; and

Claims 6 and 13 of the ’659 patent are unpatentable under 35 U.S.C. § 103(a) as rendered obvious by Noll and Moran;

FURTHER ORDERED, that Petitioner’s Motion to Exclude is *denied*; and

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

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