

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 IPR2015-01133
Patent 5,732,268

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 17, 2015, we instituted inter partes review of claims 1–7, 9–11, and 13–20 of U.S. Patent No. 5,732,268 (Ex. 1001, “the ’268 patent”). Paper 13 (“Dec.”). Patent Owner, Kinglite Holdings Inc., filed a Patent Owner Response (Paper 20, “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 26 (“Pet. Reply”). Petitioner also filed a Motion to Exclude. Paper 28 (“Pet. Mot. To Exclude”). Patent Owner filed an Opposition to Petitioner’s Motion to Exclude (Paper 33, “Opp. Mot. Exclude”), and Petitioner filed a reply (Paper 34, “Pet. Mot. Reply”). A transcript of an oral hearing held on August 18, 2016 (Paper 36, “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.

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A. Related Proceedings

The parties state that the ’268 patent has been asserted in *Kinglite Holdings Inc. v. Giga-Byte Technology Co. Ltd.*, Case No. 1:14-cv-04989

(C.D. Cal.), and *Kinglite Holdings Inc. v. Micro-Star International Co Ltd.*, Case No. 1:14-cv-03009 (C.D. Cal.). Pet. 5–6; Paper 7, 1.

B. The '268 Patent

The '268 patent is titled “Extended BIOS adapted to establish remote communication for diagnostics and repair.” Ex. 1001, at [54]. The '268 specification states that:

a basic input output system (BIOS) is provided comprising a non-volatile memory; a first code portion recorded in the non-volatile memory and adapted for execution by a CPU to perform startup functions for a computer, including initiating boot operations; and a second code portion recorded in the non-volatile memory and adapted for execution by the CPU to establish communication with a remote computer. Code execution by the CPU is directed from the first portion to the second portion upon failure to complete the boot operations. Communication with the remote computer may be established over a telephone link by operating a telephone modem to dial a telephone number, using either an analog or digital line, and in some embodiments plural numbers may be dialed in a priority sequence until a connection is established. Communication may be established as well over any network connection to remote computers.

Id. at 3:44–60. Figure 1, depicted below, illustrates an embodiment of the '268 invention.

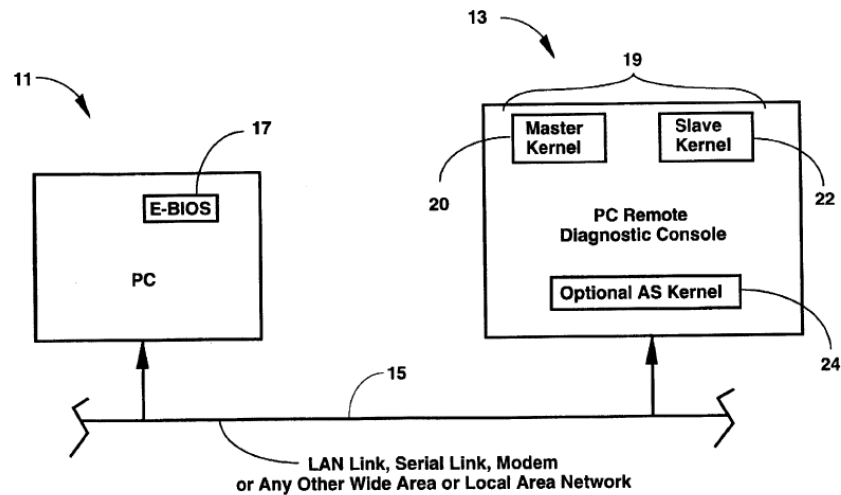


Fig. 1

Figure 1 depicts “a block diagram of an E-BIOS PC, an E-BIOS diagnostic center, and interconnection.” *Id.* at 4:65–66. The block diagram of Figure 1 shows local E-BIOS PC 11 connected to remote E-BIOS diagnostic and repair facility 13 by communication link 15. *Id.* at 5:9–13. Link 15 for communication can be any of several well-known types. *Id.* “PC 11 has unique E-BIOS 17 . . . and facility 13 is equipped with code for cooperating with E-BIOS PC 11 over connection 15. This E-BIOS code in FIG. 1 is designated E-BIOS Host 19, and comprises a master kernel 20 and a slave kernel 22.” *Id.* at 5:15–20.

Figures 2 and 3 below show flow diagrams of E-BIOS PC boot up operation (Figure 2) and diagnosis and repair after an E-BIOS PC and diagnostic center are connected (Figure 3). *Id.* at 5:1–5.

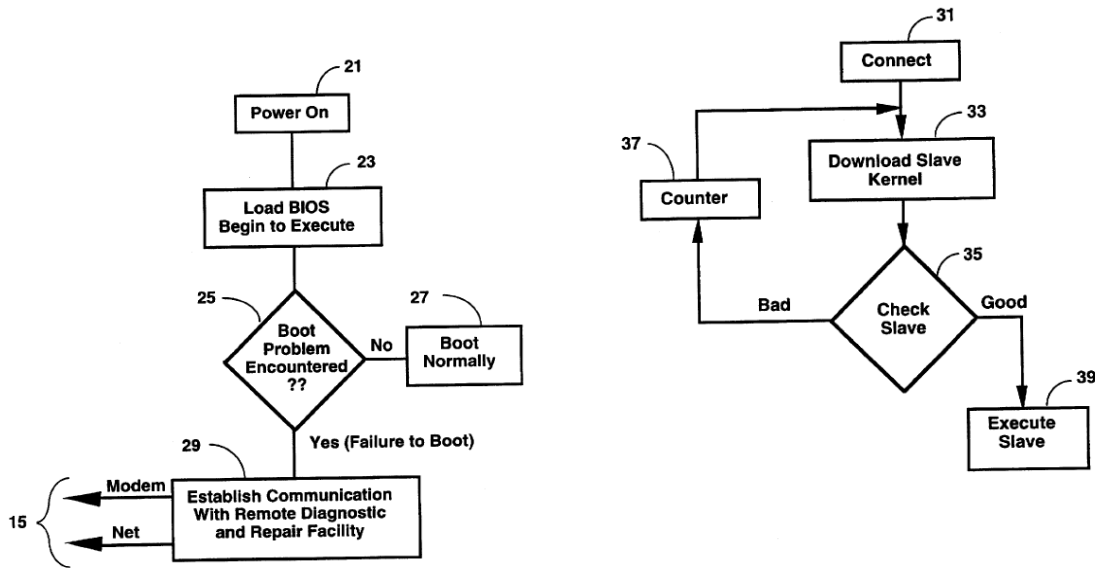


Fig. 2

Fig. 3

Figure 2 shows operation of an E-BIOS PC at boot up. *Id.* at 5:65–67. At step 21 power on is initiated. *Id.* At step 23 the E-BIOS is loaded into RAM and execution begins, and at step 25 E-BIOS continues performing power on self test (POST) and other BIOS startup functions, while monitoring for faults in the boot process. *Id.* at 6:5–9. If a fault is detected at step 27 that prevents normal operation, step 29 communicates with a remote E-BIOS diagnostic and repair unit (element 13 in Figure 1). *Id.* at 6:20–26.

Figure 3 is a logic diagram of interaction between a failed E-BIOS PC 11 and remote diagnostic PC 13 shown in Figure 1. *Id.* at 7:3–5. At step 31 communication is established, and at step 33 slave kernel 22 is downloaded automatically or manually by a user from diagnostic and repair PC 13 over link 15 to failed E-BIOS PC 11. *Id.* at 7:8–12. At step 35 slave kernel 22 is

executed in RAM space of failed PC 11. *Id.* at 7:14–15. If the slave kernel fails, control returns to step 33, or, if the slave is operable, control proceeds to step 39, and the slave is used to diagnose and repair failed PC 11. *Id.* at 7:15–25.

C. Illustrative Claims

Independent claims 1, 6, 10, 16 and 18 are illustrative and reproduced below (Ex. 1001, 8:12–20, 8:35–49, 38–53, 8:62–9:15, 10:1–14, 10:17–27):

1. A basic input output system (BIOS) comprising:
 - a first code portion adapted for execution by a CPU to perform power on self test (POST) routine and to initiate boot operations; and
 - a second code portion adapted for execution by the CPU to establish communication with a remote computer; wherein code execution by the CPU is directed from the first portion to the second portion upon failure to complete said boot operations.
6. A computer comprising:
 - a CPU;
 - a mass storage device coupled to the CPU and having a boot code sector and operating system code recorded thereon; and
 - a basic input output system (BIOS) coupled to the CPU, the BIOS having a first code portion adapted for execution by the CPU to perform power on self test (POST) routine and to initiate boot operations, and a second code portion adapted for execution by the CPU to establish communication with a remote computer; wherein code execution by the CPU is directed from the first code portion to the second code portion upon failure to complete said boot operations.

10. A system for modifying code and data in a first computer having a first CPU upon failure of the first computer to boot, comprising:

a second computer having a second CPU, the second computer connected to the first computer by a communication link;

a master code kernel and a slave code kernel stored on a memory device at the second computer; and

an extended basic input output system (E-BIOS) in the first computer;

wherein, upon sensing failure of the first computer to boot, the E-BIOS establishes communication with the second computer over the communication link, and the second CPU in response causes a copy of the slave kernel to be copied to the RAM of the first computer and to be made available to the first CPU for execution, and wherein, with a copy of the slave kernel in the first computer and the master kernel active in the second computer, a user at the second computer may diagnose and modify code and data in the first computer from the second computer.

16. A method for diagnosing and modifying code and data in read/write memory devices and mass storage devices of a first computer, comprising steps of:

(a) establishing communication with the first computer over a communication link from a diagnostic and repair computer;

(b) loading and executing a master kernel at the diagnostic and repair computer;

(c) downloading a slave operating system kernel to the first computer from the second computer; and

(d) accessing and modifying code and data on read/write memory devices and mass storage devices in the first computer through activity at the second computer.

18. A method for establishing contact with a remote repair center computer upon failure of a local computer to boot, comprising steps of:

(a) sensing failure of the local computer to boot through action of a first portion of code in an extended basic input output system (E-BIOS) installed and operable in the first computer; and

(b) activating a communication link to the remote repair center computer through action of a second portion of code in the E-BIOS, the second portion of code executed in response to the failure of the first computer to boot.

D. Grounds of Unpatentability Instituted

We instituted inter partes review on following grounds of unpatentability (Dec. 22–23):

References	Basis	Claim(s) Challenged
Chang ¹ and APA ²	35 U.S.C. § 103(a)	1–4, 6, 7, 9, and 18–20 ³
Chang and Flaherty ⁴	35 U.S.C. § 103(a)	10, 11, and 13–17
Sakai ⁵ and Chang	35 U.S.C. § 103(a)	5

¹ U.S. Patent No. 5,444,850 to Chang, filed Aug. 4, 1993, and issued Aug. 22, 1995 (Ex. 1005, “Chang”).

² Petitioner identifies three admissions in the Background section of the ’268 patent as Admitted Prior Art (“APA”). Pet. 20 (citing Ex. 1001, 1:20–25, 1:51–55, 2:59–64).

³ Although the Petition lists different claims as being challenged as unpatentable based on Chang and APA (compare Pet. 16 with Pet. 35), we determined that the Petition challenged claims 1–4, 6, 7, 9, and 18–20 on this ground. Dec. 9 n.4.

⁴ U.S. Patent No. 5,146,568 to Flaherty et al., filed Sep. 6, 1988, and issued Sep. 8, 1992 (Ex. 1004, “Flaherty”).

⁵ U.S. Patent No. 5,473,775 to Sakai et al., filed Oct. 8, 1992, and issued Dec. 5, 1995 (Ex. 1007, “Sakai”).

II. ANALYSIS

A. Claim Interpretation

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under this standard, we interpret claim terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

In the Decision to Institute, we applied the following claim constructions. We determined that “network communication adapter” is properly construed as “an interface device that allows a computer to be connected over a network.” Dec. 11–12. We also determined that “kernel” is “a software module that encapsulates an elementary function or functions of a system.” *Id.* at 12. We further determined that “remote repair center computer” is “a computer used to address a failure of another computer.” *Id.* at 14. The parties did not dispute these constructions during trial, and we adopt them in this Decision for the reasons given in the Decision to Institute. *Id.* at 10–14. Based on the Patent Owner Response, Petitioner offered a construction of for “establish communication” as recited in the challenged claims. Pet. Reply 2–7. We address this term in the substantive analysis below.

B. Level of Skill in the Art

Petitioner contends that a person of ordinary skill in the art for the '268 patent would be “a person holding a Bachelor of Science degree (or equivalent) in electrical engineering or a related technical field such as computer engineering, having at least one year of experience in a relevant field such as computer networking.” Pet. 8 (citing Ex. 1020 ¶ 12). Patent Owner did not dispute Petitioner’s proposed level of skill in the art. We agree with Petitioner.

C. Obviousness Based on Chang (Ex. 1005) and APA

1. Chang (Ex. 1005)

Chang discloses a method and apparatus for a preboot file, and information transfer between workstations and servers or other workstations on a local area network. Ex. 1005, Abstract. At start up, prior to loading the operating system during the boot sequence, a program in the memory uses the BIOS of the workstation to enable the workstation to communicate with the server, and make workstation resources available to the server management application running on the server. *Id.* Figures 3a and 3b, depicted below, show the processes performed at system startup. *Id.* at 6:46–48.

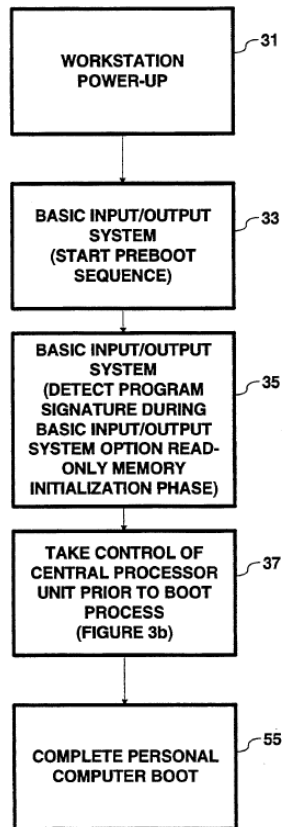


FIGURE 3a

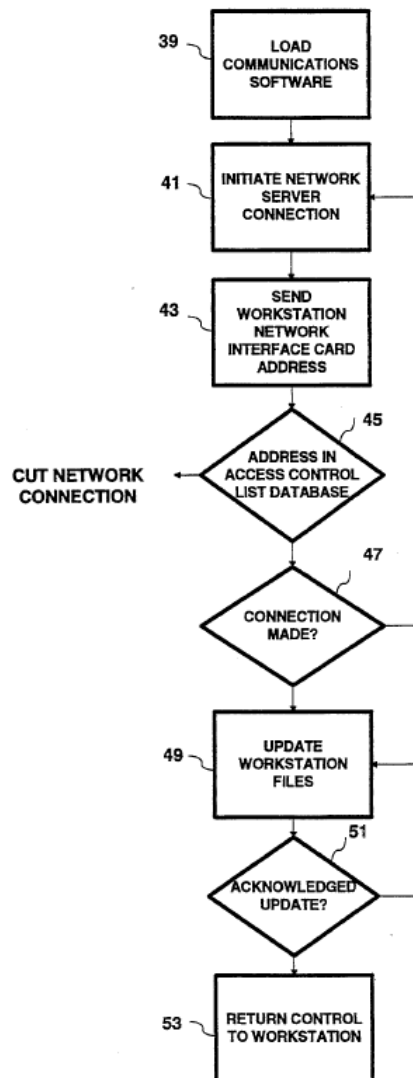


FIGURE 3b

Figures 3a and 3b are flow charts of the preboot sequence described in Chang. *Id.* at 3:59–60. In normal operation, the invention interrupts the boot process after the BIOS is executed, but before the operating system executes. *Id.* at 3:49–52. The flowchart in Figure 3a shows that upon workstation power-up (step) 31, the system BIOS is executed (step 33) and detects the existence of a program in a ROM socket on a network interface

card (step 35), then passing control to this program (step 37). *Id.* at 6:53–57. Figure 3b shows that upon control being passed to the program in the PROM, network communications software is loaded from the workstation storage (step 39) using its internal mini-operating system and network communication protocols, to initiate communication with the server system management application (SMA) (step 41). *Id.* at 6:57–64.

2. APA Statements

Petitioner contends that the '268 patent explains what was typical in the prior art. Ex. 1001, 1:20–25, 1:51–55; 2:59–64; Ex. 1020 ¶ 62–66. Specifically, Petitioner states that the '268 patent admits the following.

(1) “Typically this beginning code [standard set of beginning instructions for the computer to follow] is called a basic input output system (BIOS), which includes a power-on self-test (POST) procedure.” Ex. 1001, 1:20–25.

(2) “PCs at the time of the present invention, however are typically provided with some form of communication link to other computers. Most PCs at a minimum have a telephone modem connection, and may communicate with another computer over a telephone line in either an analog or a digital protocol.” *Id.* at 2:59–64.

(3) “A floppy disk with DOS and a boot sector was called a Boot disk, and the name is still used, although operating systems and boot sectors are typically now recorded on hard disk drives.” *Id.* at 1:51–55.

3. Analysis

Petitioner contends that Chang in combination with the APA renders claims 1–4, 6, 7, 9, and 18–20 obvious. Pet. 35–45. Petitioner provides claim charts citing Chang and APA, and citations to the Declaration of Dr. Hugh Smith to support its contentions. *Id.* (citing Ex. 1020 ¶¶ 77–79, 129–130, 132, 135–139, 141, 144–146, 150–155, 169). Petitioner argues that Chang describes ““preboot functions” that take place at a “workstation” where the “workstation which has experienced a conflict resulting in a failure could be rebooted remotely and, during the reboot cycle, boot files changed to clear possible conflicts.”” Pet. 35 (citing Ex. 1005, 2:52–63).

Petitioner argues that Chang and the APA disclose a BIOS with a first code portion to perform POST, as recited in claim 1, because the APA admits that POST is included in BIOS, which is included in the startup cycle of Chang to ensure proper computer functions. Pet. 37 (citing Ex. 1001, 1:20–25; Ex. 1005, 1:59). Petitioner contends Chang discloses “a second code portion adapted for execution by the CPU to establish communication with a remote computer” in the connection of the local workstation to the remote workstation before the local computer boots up. Pet. 38 (citing Ex. 1005, 5:45–50). Petitioner further asserts that Chang teaches communication between the local and remote workstations and creates a network connection at boot time if the drive is damaged or the user does not log in. Pet. 38–39 (citing Ex. 1005, 1:38–48, 1:56–58, 3:19–20). Petitioner argues that Chang explains that preboot control of the workstation is desirable to respond to workstation failures to boot, or a potential virus in the boot sector prior to completing the boot process. Pet. 39–40 (citing Ex.

1005, 2:60–64, 4:67–5:4; Ex. 1020 ¶¶ 152–153). Petitioner asserts that a computer upon failure to boot establishes connection with the remote repair center computer in Chang and discloses the limitations of claim 18. Pet. 44–45. With respect to dependent claim 6, which depends from claim 1, Petitioner contends that Chang and the APA disclose the added “mass storage device” with boot sectors limitation. Pet. 40, 43–44. Petitioner provides evidence and citations that Chang discloses establishing a connection to a remote computer via telephone modem (claims 2, 3, 7, and 19), or network communication adaptor (claims 4, 9, and 20). Pet. 42–45.

Petitioner also articulates sufficient reasoning with a rational underpinning to support the combination of Chang and the APA, identifying evidence to show, for example, that Chang’s “workstation power-up” step was well known and matches the conventional POST process described in the APA. Pet. 36–37 (citing Ex. 1020 ¶ 130). Petitioner argues that a person of ordinary skill in the art “would recognize that the teachings of the APA relating to POST could and likely would relate to Chang’s discussion of a power-up step because the POST of the prior art would exemplify the power-up step of Chang.” Pet. 36 (citing Ex. 1020 ¶¶ 129–130). In addition, Petitioner asserts a person of ordinary skill in the art would understand the conventional booting practices disclosed in the APA are the foundation building blocks of the invention described in Chang. Pet. 36–37 (citing Ex. 1020 ¶ 130). Petitioner provides sufficient support for the rationale to modify Chang to be responsive to a POST failure by reference to the teachings of Chang establishing communication with a remote computer after a conflict resulting in failure is detected. Pet. 39 (citing Ex. 1020,

¶¶ 151–154; Ex. 1005, 1:65–2:2, 2:60–64). In addition, Petitioner cites Schieve⁶ as further evidence of a motivation to modify Chang, asserting that Schieve indicates ordinary artisans understood the need to diagnose POST failures. Pet. 40 (citing Ex. 1001, 63:16–19; Ex. 1020 ¶ 155).

Based on the complete record, Petitioner provides persuasive argument supported by a preponderance of the evidence that the firmware and BIOS disclosed in Chang, in combination with the APA, teaches the limitations of claims 1–4, 6, 7, 9, and 18–20 as set forth in the Petition.

Patent Owner contends that Chang does not teach connecting to the server at boot failure, but instead consistently teaches connecting to the server at startup, independent of boot failure. PO Resp. 7. Patent Owner disputes that Chang could be modified to be responsive to a POST failure, arguing that Chang discloses “a connection to a remote repair facility occurs automatically upon start-up.” *Id.* Patent Owner also contends that the diagnostic system described in Schieve is “invoked prior to booting” and is a manual selection for a remote connection that requires the entry of telephone number. *Id.* (citing Ex. 1016, Figs. 4–6; Ex. 2013, 46:1–47:12). Patent Owner asserts that Petitioner uses hindsight to reconstruct the general system for a wide range of problems as described in Chang into a system responding to a subset of those problems, or to use Schieve to modify the teachings of Chang. *Id.* at 7 (citing *In re Fine*, 837 F.2d 1071, 1075 (Fed. Circ. 1988)), 8 (citing Ex. 2012 ¶ 10).

⁶ U S. Patent No. 5,455,933 to Schieve, et al., filed Jul. 14, 1993, issued Oct. 3, 1995 (Ex.1016, “Schieve”).

As Petitioner points out (Pet. Reply 7–8; Pet. 35–40), however, Chang “establishes communication with a server when errors are found in the boot process.” Ex. 1005, 8:3–5 (“If errors are found during the preboot process, the PROM programming could provide the appropriate updates from the server files.”). Moreover, as Petitioner notes, Chang describes using SNMP to communicate with the server to resolve boot failures. *Id.* at 6:1–4. For example, Chang teaches that a detected virus can cause the system to remove the virus and restore the boot sector by using the remote server. *Id.* at 5:1–3. Petitioner argues that Chang teaches connecting to the server for different purposes, such as obtaining a new boot sector or “[r]emote software installation, distribution, metering and diagnostics.” *Id.* at 3:32–33, 5:1–3. Petitioner also argues that claim 6 includes the limitations in claim 1 and adds the limitation for “a mass storage device coupled to the CPU and having a boot code sector and operating system code recorded thereon.” Ex. 1001, 8:36–39; Pet 40. Petitioner argues that the APA discloses that this feature was well known in the prior art (Ex. 1001, 1:51–55), and that Chang discloses mass storage devices (Ex. 1005, 3:2–5). Pet. 40 (citing Ex. 1020 ¶ 169).

Patent Owner argues that Chang and Schieve do not teach establishing communication upon boot failure because they teach connecting to a server at startup, i.e., before any boot failure. PO Resp. 6. Patent Owner’s argument requires that establishing communication upon failure to complete boot operations, as required in the challenged claims, be construed as establishing only an *initial* communication connection, and prohibits the use of a prior communication link between the CPU and remote computer that is

established before the failure to boot. PO Resp. 6; Tr. 22:18–24:2 (Patent Owner’s counsel arguing that communication cannot be established if a communication link has previously been set up). Patent Owner, therefore, contends that because the communication link already exists in Chang and Schieve and is initiated before the failure, using that link to communicate with the server upon failure does not constitute “establishing communication.”

To support this narrow reading of the claim requirement, Patent Owner points to the plain language of the claims as requiring establishing communication only after booting has started and some failure to boot occurs. PO Resp. 3 (citing Ex. 1001, 8:16–21 (claim1); Ex. 2012 ¶ 4). Patent Owner also argues that Figure 2 of the ’268 patent clearly shows a communication established upon boot failure. PO Resp. 2 (citing figure); Tr. 28:8–14 (citing figure as not showing a preexisting communication).⁷ Patent Owner, however, has not provided sufficient evidence or argument to establish that a person of ordinary skill in the art would understand the claims or Figure 2 of the ’268 patent to *exclude* use of an existing

⁷ Patent Owner also argues that the file history of the ’268 patent distinguishes prior art because it does not establish communication “upon failure” to boot. Tr. 28:15–29:2 (citing Ex. 1003, 53). Patent Owner fails to cite or discuss this prosecution history-based argument in the Patent Owner Response. However, even if properly raised, we are not persuaded. The evidence cited by Patent Owner distinguished the pending claims over the prior art that established a connection with a remote computer automatically after POST, and never in response to a boot failure. Ex. 1003, 53. In addition, Patent Owner’s arguments made during prosecution of the ’268 patent do not preclude that communication is established at startup before boot failure and reestablished upon boot failure.

communication link to “establish communication” “upon failure” as recited in the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (noting that we must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment.) We are not persuaded that the ’268 patent specification or intrinsic evidence supports such a narrow interpretation.

We further agree with Petitioner that the ’268 specification does not support Patent Owner’s limited interpretation of “establish communication.” *See* Pet. Reply 2–4. The ’268 patent does not define or describe establishing communication as limited to the initial network connection, but instead discusses establishing a network connection as an initial step and establishing communications over that existing network connection. *Id.* at 4. For example, the ’268 specification states that:

If, in the processes at step 27, a fault is encountered that would prevent normal operation, control is diverted to step 29, and specific code in the E-BIOS queries for a modem or a LAN connection, and finding one or the other, establishes communication with a remote EBIOS diagnostic and repair unit (element 13 in FIG. 1).

Ex. 1001, 6:20–25. We agree with Petitioner that the references to the LAN in the preferred embodiment of the ’268 patent informs a person of ordinary skill in the art that such connections may be initialized and available for use for various purposes. Pet. Reply 4 (citing Ex. 1023, 20:11–19; Ex. 1001, 6:20–25).

With respect to Chang, we also find persuasive the testimony of Dr. Levy, Patent Owner’s declarant, who testified that Chang teaches establishing communication for other purposes after verifying the initial

connection as shown in Figure 3b of Chang. Ex. 1023, 77:6–17; 84:1–14. In addition, Patent Owner’s argument that Schieve does not provide a motivation to modify Chang to establish communication in response to boot failure is unavailing. PO Resp. 8. Schieve describes an exemplary process for responding to boot failures. Pet. 40 (citing Ex. 1020 ¶ 155). To diagnose a boot fault in Schieve, the PC confirms proper operation of a modem, receives selected diagnostic routines from a server, and performs those routines locally to address the failure. Ex. 1016, 3:35–53. Thus, we agree with Petitioner that Schieve indicates a person of ordinary skill would have been motivated to modify Chang to include making a connection in response to a POST failure. Pet. Reply 11 (citing Ex. 1020 ¶ 155; Ex. 1016, 2:11–13, 3:43–52, 3:35–38). Patent Owner’s arguments regarding the manual process in Schieve disregards Schieve’s express teachings that are nearly identical to the process of the challenged claims, except for the manual establishment of the communication with the remote server described in Schieve. Ex. 1016, 2:11–13, 3:35–38, 3:43–52, 4:41–45; Pet. Reply 11–12. Accordingly, we do not agree that Petitioner uses hindsight to apply the teachings of Schieve to modify the teachings of Chang regarding establishing communications to resolve preboot faults and failures. See Ex. 1020 ¶¶ 148–153; Ex. 1005, 8:2–5.

Claim 3 recites that the second code portion “directs the CPU to access a priority record of telephone numbers and to dial the telephone numbers in order of priority until a call is answered and a pre-programmed signal is returned.” Ex. 1001, 8:25–29. Patent Owner contends that Petitioner’s evidence, relying on Dr. Smith’s testimony regarding the general

knowledge of a person of ordinary skill in the art (e.g., Ex. 1020 ¶ 106), is conclusory. PO Resp. 9–10. Patent Owner does not refute this testimonial evidence, but merely relies on the allegation that it is conclusory. *Id.* We disagree and find credible the testimony of Dr. Smith, who testifies that priority dialing behavior falls within the general knowledge of a person of ordinary skill in the art, who would have had experience in computer networking and a relevant technical degree. Ex. 1020 ¶¶ 100, 163.

Claim 4 states “A BIOS as in claim 1 wherein the second portion directs the CPU to establish communication with a remote computer through a network communication adapter.” Patent Owner contends that Petitioner fails to mention an adapter. PO Resp. 10. Thus, Patent Owner argues that Chang and APA do not disclose claim 4, or claims 19 and 20, each of which recite this limitation. *Id.*

Petitioner contends that the claim chart refers to Figure 1 of Chang that describes a local area network, and describes the Network Interface Card (NIC) in Chang as a type of network communication adapter. Pet. Reply 13–14 (citing Pet. 43; Ex. 1005, Fig. 1, 4:57–59, 6:55–57; Ex. 1020 ¶ 165). We determine Petitioner has provided persuasive evidence and argument with respect to the network adapter of Chang teaching the limitations of claim 4. We also find that Petitioner has provided sufficient evidence that Chang and the APA teach the communication link of claims 19 and 20. Pet. Reply 14 (citing Pet. 42; Ex. 1001, 2:59–64; Ex. 1005, Fig.1; Ex. 1020 ¶¶ 159, 182).

Based on the foregoing, and upon consideration of the full record, we determine that Petitioner has shown by a preponderance of the evidence that

claims 1–4, 6, 7, 9, and 18–20 are unpatentable as obvious under 35 U.S.C § 103(a) over Chang and APA.

D. Obviousness Based on Chang (Ex. 1005) and Flaherty (Ex. 1004)

1. Flaherty (Ex. 1004)

Flaherty discloses a “system and method of downloading operating system or other executable programs to a computer on a network without a boot device and without requiring a modification of the loadable image.” Ex. 1004, 4:5–9. Upon power up, the network device requests a boot, and a minimum-boot program is transferred over the network into the requesting computer’s memory. *Id.* at 4:10–15. This minimum-boot program contains the functionality necessary to establish a network connection to a disk server on the network. *Id.* at 4:6–15. Figures 1 and 2, provided below, show a host system and a node to be booted (Fig. 1) and the minimum boot program structure (Fig. 2). *Id.* at 4:30–34.

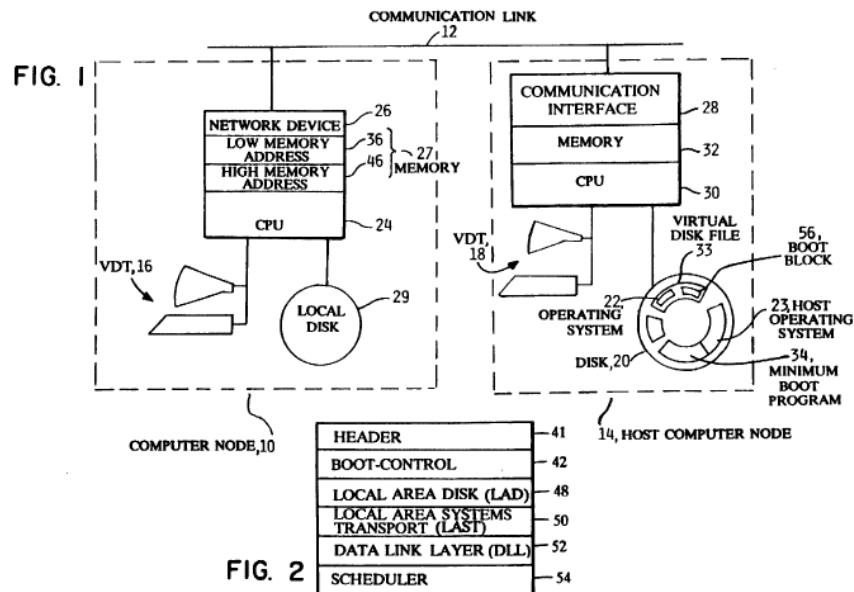


Figure 1 illustrates a network with computer node 10, which does not have a local boot device, and computer host node 14, with disk 20 containing the operating system of node 10. *Id.* at 4:40–48. Communication link 12 is shown connecting computer node 10 and computer host node 14, which has communication interface 28. *Id.* Disk 20 on host 14 not only contains operating system 23 but also minimum-boot program 34 needed to load node 10, and virtual disk file 33 containing operating system 22 for node 10. *Id.* at 4:56–60. Figure 2 shows a minimum-boot program consisting of header 41, which identifies it as a network program to the host’s operating system; boot-control program 42, which prepares node 10 for the downline load; and Local Area Disk (LAD) program 48, which allows a file on a network disk to be treated as a virtual local disk by node 10. *Id.* at 5:24–31.

2. Analysis

Petitioner argues that Chang and Flaherty teach the limitations of claims 10, 11, and 13–17. Pet. 45–58. Petitioner provides citations to the cited references, the testimony of Dr. Smith, and argument in support of its contentions. *Id.* (citing Ex. 1020 ¶¶ 79–80, 204–205, 216, 219–221). Petitioner also articulates a persuasive rationale for combining Chang and Flaherty, which both “describe systems that achieve the same purpose of allowing a computer to remotely communicate with another device before booting operations are complete and the operation is active.” Ex. 1020 ¶ 183; Pet. 45; Ex. 1020 ¶¶ 183–184; Pet. Reply 12. Petitioner provides claim charts showing the limitations of claims 10, 11, and 13–17 and the corresponding disclosures in Chang and Flaherty. Pet. 53–58.

Petitioner argues that claim 10, which recites a “system for modifying code and data in a first computer having a first CPU upon failure of the first computer to boot,” is disclosed by the configuration management and workstation crash recovery disclosed in Chang. Pet. 46 (Ex. 1005, 3:12–31). Petitioner argues that Chang discloses the “second computer” and “master code kernel and a slave code kernel stored on a memory device at the second computer” recited in claim 10. Pet. 46–47. Petitioner contends that the master code kernel (SMA) and slave code kernel (workstation files for recovery) are stored in memory on the second computer (workstation server) of Chang. *Id.* at 47 (citing Ex. 1005, Fig 1; Ex. 1020 ¶¶ 207–208). Petitioner supports its contention that a person of ordinary skill in the art would understand Chang to suggest that the slave code kernel is stored in the Workstation Server, by noting that the Workstation Server contains all the files necessary to repair, rescue or update a User Workstation. *Id.* (citing Ex. 1005, 4:46–50; Ex. 1020 ¶ 208). Petitioner also provides sufficient evidence that Chang and Flaherty disclose extended BIOS on the first computer that upon sensing failure to boot, establishes communication with a second computer to copy the slave kernel to the RAM of the first computer. Pet. 50–51 (citing Ex. 1020 ¶¶ 217l; Ex. 1004, 4:37–40). Petitioner provides citations to supporting evidence demonstrating that it would be an obvious variation of Chang’s local area network with client workstations to use ISDN as recited in claim 11. Pet. 51–52 (citing Ex. 1005, 3:65–67; Ex. 1020 ¶¶ 224–225). Finally, Petitioner argues that Chang discloses the limitations of claim 15, teaching the corrupted boot sector (removing virus and restoring

boot sector) (Ex. 1005, 4:67–5:4) and modifying file allocation tables at the first computer limitation (file system) (Ex. 1020 ¶ 229).

Based on the record before us, Petitioner has provided sufficient argument and evidence that Chang and Flaherty teach the limitations of the challenged claims as set forth in the Petition. Pet. 45–58.

Patent Owner contends that one of ordinary skill in the art would understand that Flaherty, like Chang, does not disclose creating communications upon detecting failure to complete the boot process. PO Resp. 10–11 (citing Ex. 2012 ¶ 11). Thus, Patent Owner argues that the combination of Chang and Flaherty does not teach the limitation “establish communication with a remote computer . . . upon failure to complete said boot operations,” as recited in the limitations of claims 1–15 and 18–20. *Id.*

For the reasons discussed above with respect to the combination of Chang with the APA, we disagree with Patent Owner’s contention that Chang does not teach establishing communication upon boot failure because it teaches establishing communicating over an existing connection. We also agree with Petitioner’s analysis showing that Flaherty teaches allowing the network device to request a boot over the network when a boot device is not found. Pet. Reply 12 (citing Ex. 1004, 3:22–25; Ex. 1020 ¶ 91).

We disagree with Patent Owner’s contention that Chang and Flaherty fail to teach the limitations of claim 16, which recites a “mass storage device of a first computer.” PO Resp. 11–13. Patent Owner’s arguments misread Figure 1 of Chang, which identifies item 13 as “workstation user,” not “workstation administrator.” PO Resp. 12. In addition, we agree with Petitioner that Chang shows a mass storage device in workstation user 13

that is identified as “a work station disk drive.” Pet. Reply 15 (citing Ex. 1005, Fig. 1, 3:8, 3:17–23).

Based on the full record, Petitioner has demonstrated by a preponderance of the evidence that claims 10, 11, and 13–17 are unpatentable under 35 U.S.C. § 103(a) as obvious in view of Chang and Flaherty.

E. Sakai (Ex. 1007) and Chang (Ex. 1005)

Petitioner contends that dependent claim 5, which depends from claim 1, is rendered obvious by Sakai in combination with Chang. Pet. 58–59. Claim 5 requires a non-volatile memory to be “an integrated circuit read-only memory (ROM) including Flash memory.” Petitioner cites Sakai as teaching the use of flash memory as the BIOS-ROM, and articulates a sufficient reason to combine Sakai with the teachings of Chang to use Flash memory as the BIOS-ROM for convenience. Pet. 59 (citing Ex. 1020 ¶¶ 239–240; Ex. 1007, 1:24–27). Petitioner’s analysis is persuasive.

Patent Owner contends that Chang and Sakai fail to disclose the limitations of claim 1, from which claim 5 depends, for the same reasons presented with respect to claim 1 and Chang above. For the same reasons discussed above with respect to those arguments, we conclude that Patent Owner’s position unpersuasive. Based on the full record, we determine that Petitioner has shown by a preponderance of the evidence that Sakai in combination with Chang discloses the limitations of claim 5.

III. PETITIONER MOTION TO EXCLUDE

Petitioner moves to exclude the deposition testimony of Dr. Smith (Ex. 2013) on the basis that Patent Owner's counsel, George Summerfield, had not been admitted *pro hac vice* before cross examining Dr. Smith. Pet. Mot. To Exclude 2. 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., et al. v. Kinglite Holdings, LLC*, IPR2015-01079, slip op. at 25 (PTAB Oct. 27, 2016). 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 Dr. Smith (Ex. 2012), determining that the parties' conduct in this case does not warrant excluding Dr. Smith's deposition transcript from evidence.

IV. CONCLUSION

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

claims 1–4, 6, 7, 9, and 18–20 are unpatentable as obvious under 35 U.S.C. § 103(a) over Chang and APA,

claims 10, 11, and 13–17 are unpatentable as obvious under 35 U.S.C. § 103(a) over Chang and Flaherty; and

claim 5 is unpatentable as obvious under 35 U.S.C. § 103(a) over Sakai and Chang.

We also deny Petitioner's motion to exclude.

V. ORDER

Accordingly, it is

ORDERED that:

Claims 1–4, 6, 7, 9, and 18–20 of the '268 patent are unpatentable under 35 U.S.C. § 103(a) as rendered obvious by Chang and APA;

Claims 10, 11, and 13–17 of the '268 patent are unpatentable under 35 U.S.C. § 103(a) as rendered obvious by Chang and Flaherty;

Claim 5 of the '268 patent is unpatentable under 35 U.S.C. § 103(a) as rendered obvious by Sakai and Chang.

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

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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