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Paper 51
Entered: January 29, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC., QUANTUM CORPORATION, ORACLE CORPORATION, and DOT HILL SYSTEMS CORPORATION,
Petitioners,

v.

CROSSROADS SYSTEMS, INC.,
Patent Owner.

Case IPR2014-01226[1]
Patent 6,425,035 B2

Before NEIL T. POWELL, KRISTINA M. KALAN, J. JOHN LEE, and KEVIN W. CHERRY, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

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

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we determine that

[1] Case IPR2015-00825 has been joined with this proceeding.

Petitioners have shown by a preponderance of the evidence that claims 1–14 of U.S. Patent No. 6,425,035 B2 (Ex. 1001, "the '035 patent") are *unpatentable*.

A. Procedural History

Cisco Systems, Inc. and Quantum Corporation filed a Petition (Paper 3, "Pet.") requesting institution of an *inter partes* review of claims 1–14 of the '035 patent. Patent Owner Crossroads Systems, Inc. ("Patent Owner") filed a Preliminary Response (Paper 8, "Prelim. Resp."). In a Decision to Institute (Paper 9, "Dec. Inst.") issued January 30, 2015, we instituted an *inter partes* review of claims 1–14 on the following grounds of unpatentability:

1. Claims 1–5 and 7–14 under 35 U.S.C. § 103(a) for obviousness over CRD-5500 Manual[2] and HP Journal[3]; and
2. Claim 6 under 35 U.S.C. § 103(a) for obviousness over CRD-5500 Manual, HP Journal, and QLogic Data Sheet[4].

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 22, "PO Resp.") and Petitioners filed a Reply (Paper 36, "Pet. Reply"). On September 17, 2015, we granted Oracle Corporation's and Dot Hill Systems Corporation's motion for joinder and joined IPR2015-00825 to

[2] CMD Technology, Inc., CRD-5500 SCSI RAID Controller User's Manual (1996) (Ex. 1004).
[3] Petitioners cite the following articles in Exhibit 1006 as one reference: Meryem Primmer, *An Introduction to Fibre Channel*, 47 HEWLETT-PACKARD J. 94–98 (1996) and Judith A. Smith & Meryem Primmer, *Tachyon: A Gigabit Fibre Channel Protocol Chip*, 47 HEWLETT-PACKARD J. 99–112 (Oct. 1996) (Ex. 1006).
[4] QLogic Corp., FAS216/216U/236/236U Fast Architecture SCSI Processor (1996) (Ex. 1007).

this proceeding. Case IPR2015-00825, Paper 20. Oral hearing was held on October 30, 2015.[5]

Petitioners submitted the Declaration of Andrew Hospodor, Ph.D., dated July 31, 2014 (Ex. 1003, "Hospodor Declaration"), in support of their Petition.

Patent Owner submitted the Declaration of Dr. John Levy, Ph.D., dated April 20, 2015 (Ex. 2027, "Levy Declaration"). Patent Owner also submitted other declarations in support of its contentions of secondary considerations of non-obviousness. *See* Ex. 2039; Ex. 2043.

Patent Owner filed a Motion to Exclude (Paper 40) and Reply in support of their Motion to Exclude (Paper 45). Petitioners filed an opposition to Patent Owner's Motion to Exclude (Paper 43).

B. Related Proceedings

The '035 patent is the subject of multiple district court proceedings. Pet. 2–3; Exs. 1026, 1034–1036; Paper 10, 2.

The '035 patent is also involved in IPR2014-01197 and IPR2015-00822. The '035 patent belongs to a family of patents that are the subject of multiple *inter partes* review petitions including IPR2014-01207, IPR2014-01209, IPR2014-01463, IPR2014-01544, IPR2015-00852, and IPR2015-00854.

[5] A transcript of the oral hearing ("Tr.") is included in the record as Paper 50.

II. DISCUSSION

A. The ’035 Patent

The ’035 patent relates to a storage router and method for providing virtual local storage on remote Small Computer System Interface (“SCSI”) storage devices to Fiber Channel (“FC”) devices. Ex. 1001, 1:16–19. SCSI is a storage transport medium that provides for a “relatively small number of devices to be attached over relatively short distances.” *Id.* at 1:23–26. FC is a high speed serial interconnect that provides “capability to attach a large number of high speed devices to a common storage transport medium over large distances.” *Id.* at 1:29–32. Computing devices can access local storage through native low level, block protocols and can access storage on a remote network server through network interconnects. *Id.* at 1:37–49. To access the storage on the remote network server, the computing device must translate its file system protocols into network protocols, and the remote network server must translate network protocols to low level requests. *Id.* at 1:51–60. A storage router can interconnect the SCSI storage transport medium and the FC high speed serial interconnect to provide devices on either medium access to devices on the other medium so that no network server is involved. *Id.* at 3:30–40.

Figure 4 of the ’035 patent is reproduced below:

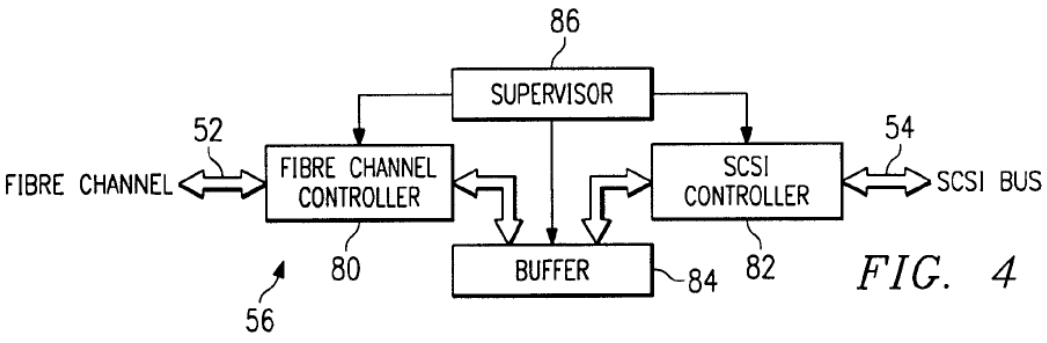


FIG. 4

Figure 4 is a block diagram of an embodiment of a storage router. *Id.* at 2:59–60, 5:6–7. Storage router 56 can comprise FC controller 80 that interfaces with FC 52 and SCSI controller 82 that interfaces with SCSI bus 54. Buffer 84 connects to FC controller 80 and SCSI controller 82, and provides memory work space. *Id.* at 5:7–9. Supervisor unit 86 connects to FC controller 80, SCSI controller 82, and buffer 84. *Id.* at 5:10–12. Supervisor unit 86 controls operation of storage router 56 and handles mapping and security access for requests between FC 52 and SCSI bus 54. *Id.* at 5:12–17.

Claims 1, 7, and 11 are the independent claims at issue in this trial, and claim 1 is reproduced below:

> 1. A storage router for providing virtual local storage on remote storage devices to devices, comprising:
>
> a buffer providing memory work space for the storage router;
>
> a first controller operable to connect to and interface with a first transport medium;
>
> a second controller operable to connect to and interface with a second transport medium; and
>
> a supervisor unit coupled to the first controller, the second controller and the buffer, the supervisor unit operable to map between devices connected to the first transport medium and the storage devices, to implement access controls for storage space on the storage devices and to process data in the buffer to interface between the first controller and the second controller to allow access from devices connected to the first transport medium to the storage devices using native low level, block protocols.

Id. at 9:13–31.

B. Claim Construction

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. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Tech., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Only those terms which are in controversy need 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).

In our Decision to Institute, we construed the "map" limitations of the independent claims (i.e., "to map between devices connected to the first transport medium and the storage devices," as recited by claim 1; "to map between the workstations and the storage devices," as recited by claim 7; and "mapping between devices connected to the first transport medium and the storage devices," as recited by claim 11) (Dec. Inst. 5–6); "native low-level block protocol" (*Id.* at 6–7); and "remote" (*Id.* at 7).

Patent Owner proposes a new construction for the "map" limitations and a construction for the "access control" limitations (i.e., "a supervisor unit . . . operable . . . to implement access controls for storage space on the storage devices . . ." (Claim 1); "[a] storage router operable to . . . implement access controls for storage space on the storage devices" (Claim 7); and

"implementing access controls for storage space on the storage devices" (Claim 11). PO Resp. 5–13.

Neither party contests our construction for "native low-level block protocol" (Dec. Inst. 6–7) and "remote" (*Id.* at 7). We adopt our previous constructions and analysis for those terms. *See id.* at 6–7. Thus, we construe "native low-level block protocol" as "a protocol in which storage space is accessed at the block level, such as the SCSI protocol." *Id.* at 6–7. We also construe "remote" as "indirectly connected through a storage router to enable connections to storage devices at a distance greater than allowed by a conventional parallel network interconnect." *Id.* at 7.

"map" limitations

In our Decision to Institute, we found the broadest reasonable construction of the various "map" limitations to be "to allocate storage on the storage device on the first transport medium to facilitate routing and access controls." *Id.* at 6. Patent Owner submits that the parties agree that this construction requires "identification of the particular hosts within the map." PO Resp. 6. Patent Owner argues that this understanding is consistent with the prior district court construction, the testimony of Petitioners' expert, and the intrinsic evidence. *Id.* at 6–8. Patent Owner asserts that "'allocate storage on storage devices to devices on the first transport medium to facilitate routing and access controls' means the 'map' must identify within the map the **precise** host to which storage has been allocated within the map." *Id.* at 8 (citing Ex. 2027 ¶¶ 37–38). In other words, Patent Owner contends that the proper construction requires "that the map specifically identify the host and storage so that the storage router can allocate storage to particular hosts." *Id.* at 11. According to Patent Owner,

it is not enough to map between a storage device and an intermediate identifier associated with a particular device because the identifier is not directly and immutably associated with the device itself—in other words, mapping to an identifier is insufficient unless the identifier is associated with a particular device and *cannot* be associated with any other device. *See id.* at 18–23 (arguing that mapping to a channel identifier does not suffice, even if the channel is connected to only one host device, because the channel identifier *could* be associated with another device if another device were connected to that channel).

Petitioners object that, for two reasons, Patent Owner's proposed construction is not the broadest reasonable construction. First, Petitioners argue that the specification of the '035 patent simply teaches associating hosts and storage. Pet. Reply 3. Petitioners argue that the specification contains no implementation details and is silent as to the specific manner in which such associations are created. *Id.* Thus, Petitioners contend that Patent Owner's requirement of a particular map with specific characteristics cannot be the broadest reasonable construction. *Id*. at 3–4. Second, Petitioners assert that Patent Owner seeks a construction that not only must the mapping include precise identifiers, but that these identifiers must be intrinsically tied to a host. *Id.* at 4.

Upon reviewing a full record, we revisit our construction of the "map" limitations. We conclude that, given the evidence and arguments presented, our original construction requires some additional clarification. With a full record, we find that Petitioners do not explain sufficiently what it means to "facilitate" routing and access controls. Thus, we determine that our original construction is too vague. We also conclude that the construction proposed

by Patent Owner is overly narrow. Although Patent Owner emphasizes that the map must identify specific host devices, it does not explain persuasively why the claim language should be construed to exclude doing so via intermediate identifiers. *See* PO Resp. 5–11. Patent Owner does not identify any disclosure in the '035 patent's specification that clearly disavows mapping to a device indirectly, or mapping to a device via an intermediate identifier that could identify a different host if the system were configured differently. *See Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1374 (Fed. Cir. 2005) (holding that "words of manifest exclusion or explicit disclaimers in the specification are necessary to disavow claim scope" (internal quotations omitted)). Patent Owner's discussion of Figure 3, for example, is insufficient to compel a narrow construction of the term because Patent Owner analyzes only a preferred embodiment of the invention. *See* PO Resp. 8–10; *see, e.g.*, *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004) (holding that limitations should not be imported from preferred embodiments into the claims absent a clear disclaimer of claim scope in the specification).

Moreover, the '035 patent specifically discusses mapping with identifiers that are not immutable. For example, the specification discusses addressing devices on an FC loop using an AL_PA (arbitrated loop physical address) identifier, and the possibility of "FC devices changing their AL-PA due to device insertion or other loop initialization." Ex. 1001, 8:29–34; *see* Tr. 54:5–55:15 (counsel for Patent Owner acknowledging an AL_PA is a "temporarily assigned ID" that can point to different devices); Pet. Reply 5–8 (discussing evidence supporting the use of intermediate identifiers, including testimony by Patent Owner's proffered expert).

For the reasons above, we are not persuaded that the broadest reasonable interpretation of the "map" limitations mandates mapping directly or immutably to a host device itself, or excludes mapping to devices using intermediate identifiers.

The parties note that a district court in a related case construed the "map" limitations as follows:

> To create a path from a device on one side of the storage router to a device on the other side of the router. A "map" contains a representation of devices on each side of the storage router, so that when a device on one side of the storage router wants to communicate with a device on the other side of the storage router, the storage router can connect the devices.

Ex. 1009, 12. Although we are not bound by the construction or reasoning of the district court, we do not disregard the analysis and conclusions of a court construing the same claim term in a concurrent proceeding concerning the same patent. *See Power Integrations, Inc. v. Lee*, 797 F.3d 1318, 1326–27 (Fed. Cir. 2015). After considering the construction of the district court, we determine this construction corresponds to the broadest reasonable interpretation and adopt it for purposes of this Decision.

"access control" limitations

Patent Owner also seeks to have us construe the various "access control" limitations. PO Resp. 11–13. Patent Owner contends that the access controls of the '035 Patent refer to controls that limit a device's access to a specific subset of storage devices or sections of a single storage device according to a map. *Id.* at 11. In other words, Patent Owner asserts that "the access controls are device specific in that they limit a particular device's access to specified storage according to the map." *Id.* at 12 (citing Ex. 2027 ¶ 43). Patent Owner argues that, as described in the specification

of the ’035 patent, the storage router implements access controls according to the map so that the allocated storage can only be accessed by the host(s) associated with that storage in the map. *Id.*

Petitioners disagree with Patent Owner’s understanding of the meaning of these limitations. Pet. Reply 8–10. In particular, Petitioners argue that Patent Owner seeks to impermissibly narrow the “access control” limitations by arguing that to meet these limitations the prior art must additionally provide different storage access to different hosts. *Id.* at 8. Petitioner also submits that “Patent Owner seeks to read into the ‘access control’ limitation a requirement that access to storage by particular hosts must be maintained between physical reconfigurations of the hosts.” *Id.* at 9. Thus, Petitioners argue that the “access control” limitations “should be at least as broad as the District Court’s construction of ‘controls which limit a [device]’s access to a specific subset of storage devices or sections of a single storage device according to a map.” *Id.* at 10.

We agree with Petitioners that the “access controls” limitations are not as limited as Patent Owner contends. Beginning with the language of the claims, we note that dependent claims 2, 8, and 12 already recite that subsets of storage are allocated to associated devices and that the subsets are accessible only by the associated devices. Patent Owner provides no explanation why we should adopt a construction for “access controls” that would render these dependent claims superfluous. *See InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1324–25 (Fed. Cir. 2012). This counsels against reading this limitation into the independent claims. As for the specification, Patent Owner fails to point us to any express or implicit disclaimer that would limit the “access controls” to only

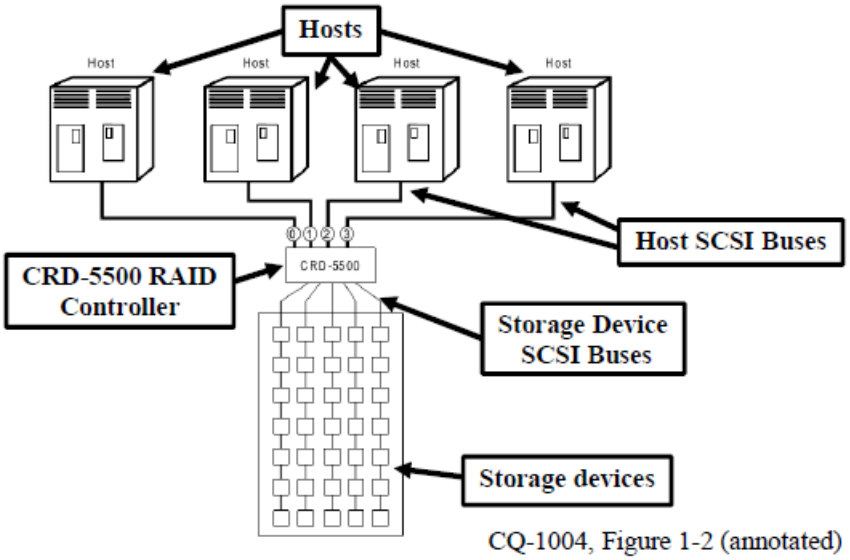
device-specific access controls that can only limit a particular device's access to specified storage. For example, the discussion of Figure 3 of the '035 patent is insufficient to compel a narrow construction of the term because it analyzes only a preferred embodiment of the invention. *See Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1366–67 (Fed. Cir. 2012) ("To constitute disclaimer, there must be a clear and unmistakable disclaimer . . . It is likewise not enough that the only embodiments, or all of the embodiments, contain a particular limitation.").

Thus, we agree with Petitioners that the broadest reasonable interpretation of the term "access controls" is "controls which limit a device's access to a specific subset of storage devices or sections of a single storage device according to the map." Ex. 1026, 40; Ex. 2027 ¶ 34.

C. Obviousness of Claims 1–5, and 7–14 over CRD-5500 Manual and HP Journal

CRD-5500 Manual (Ex. 1004)

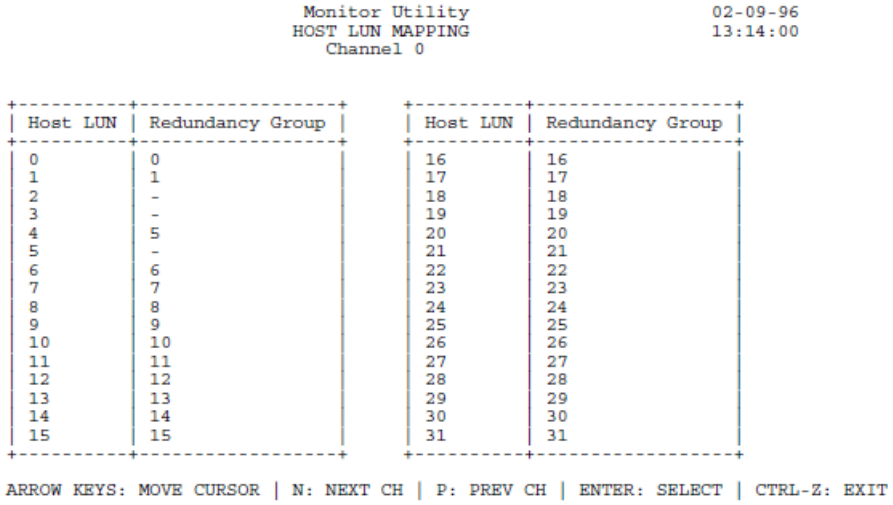
The CRD-5500 Manual describes the features and operation of the CRD-5500 SCSI RAID Controller. Ex. 1004, 9. In general, the CRD-5500 RAID controller routes commands and data between hosts (i.e., initiators) and storage devices (i.e., targets) coupled to the controller. *Id.* at 9, 12. Figure 1-2, as annotated by Petitioners, illustrates the architecture of the storage network in which the CRD-5500 RAID controller operates:



CQ-1004, Figure 1-2 (annotated)

Figure 1-2 shows the architecture of a network using the CRD-5500 with hosts attached to SCSI buses on one side of the controller and storage devices also attached to SCSI buses on the other side. *Id.* at 10–13.

The CRD-5500 Manual describes that a Host LUN (Logical Unit Number) Mapping feature that allows a user to assign redundancy groups to a particular host. *Id.* at 10. The logical unit number is the number that the host uses to address the drive. *Id.* at 18. A redundancy group is defined as each RAID (Redundant Array of Independent Disks) set or partition of a RAID set (i.e., storage space). *Id.* at 19. The CRD-5500 Manual describes that the Host LUN Mapping feature is part of the Monitor Utility included in the firmware of the controller. *Id.* at 40, 44. The CRD-5500 Manual includes a screen shot of the Monitor Utility's Host LUN Mapping feature:



Monitor Utility 02-09-96
HOST LUN MAPPING 13:14:00
Channel 0

Host LUN	Redundancy Group	Host LUN	Redundancy Group
0	0	16	16
1	1	17	17
2	-	18	18
3	-	19	19
4	5	20	20
5	-	21	21
6	6	22	22
7	7	23	23
8	8	24	24
9	9	25	25
10	10	26	26
11	11	27	27
12	12	28	28
13	13	29	29
14	14	30	30
15	15	31	31

ARROW KEYS: MOVE CURSOR | N: NEXT CH | P: PREV CH | ENTER: SELECT | CTRL-Z: EXIT

Id. at 44. This screen shot shows a table matching the various Host LUNs to different redundancy groups for the host on Channel 0 of a CRD-5500. *Id.* Each "host channel" corresponds to an I/O module that provides an external interface port for the CRD-5500. *Id.* at 21; Ex. 2027 ¶ 68.

HP Journal

Volume 47, issue 5 of the Hewlett-Packard Journal includes a number of articles that address the growing problem in 1997 of "I/O channels becom[ing] bottlenecks to system performance." Ex. 1006, 5. Specifically, one article in the issue provides an introduction to the Fibre Channel I/O interface and describes it as "a flexible, scalable, high-speed data transfer interface that can operate over a variety of both copper wire and optical fiber at data rates up to 250 times faster than existing communications interfaces." *Id.* at 94. The article additionally provides many reasons a Fibre Channel communication link is superior to a SCSI bus (e.g., longer distances and higher bandwidth, smaller connectors). *Id.* It further notes that SCSI commands may be "encapsulated and transported within Fibre Channel frames" to support existing storage hardware. *Id.* at 94–95.

The HP Journal describes a Fibre Channel protocol chip made by HP called "Tachyon." *Id.* at 99–112. The article states that the Tachyon chip implements the Fibre Channel standard and "enables low-cost gigabit host adapters on industry-standard buses." *Id.* at 101.

Analysis

1. Reason to Combine the CRD Manual and the HP Journal

Applicable to all of the challenged claims, the Petition provides a detailed analysis of why a person of ordinary skill in the art would have been motivated to combine the CRD Manual and the HP Journal[6] in the manner asserted by Petitioners. Pet. 22–26 (citing Ex. 1003 ¶¶ 54–62). Specifically, Petitioners contend: (1) the CRD Manual explains that the disclosed CRD-5500 controller has a modular design capable of accepting various I/O modules; (2) the HP Journal describes the benefits of FC technology over SCSI technology; (3) the HP Journal discloses the replacement of SCSI with FC, including the use of SCSI commands with FC frames. *Id.* For example, the HP Journal discusses various advantages of FC over SCSI as a transport medium technology, including advantages in bandwidth and addressability, and explains how some FC controllers are compatible with SCSI devices. *Id.*; *see, e.g.*, Ex. 1006, 94–95, 99–101. Patent Owner does not dispute in its

[6] These portions of the *HP Journal* relied on by Petitioners share a common author (Meryem Primmer), and similar subject matter (FC technology and its implementation), as well as the same apparent publication date in the same issue of the journal. Patent Owner did not dispute that one of ordinary skill would have combined the teachings of the different articles in the *HP Journal*. Based on the full record after trial, we agree and consider them collectively, as the parties have done throughout the proceeding, for simplicity and to avoid confusion.

Patent Owner Response that a person of ordinary skill[7] would have had reason to combine the teachings of these references.

Based on the full record after trial, Petitioners have articulated a sufficient reason to combine the CRD Manual and the HP Journal with rational underpinnings supported by the evidence. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

2. Claims 1–5 and 7–14

a. Claim 1

Petitioners contend the CRD Manual teaches a storage router, the CRD-5500 controller, which routes data between host computers ("a device") and SCSI disk drives ("remote storage devices"). Pet. 26–27; Ex. 1004, 9–11. According to Petitioners, the CRD Manual teaches the buffer limitation of claim 1 through its disclosure of an "onboard cache" that temporarily stores data from the hosts before eventually writing that data to the storage devices. Pet. 27–28; Ex. 1004, 12.

With respect to the first controller operable to connect to and interface with a first transport medium, Petitioners rely on teachings from the combination of the CRD Manual and the HP Journal, as follows. Pet. 28–29. First, the CRD Manual discloses multiple "I/O modules," which interface with SCSI buses that connect to the hosts and the disk drives. Ex. 1004, 9, 21, 24, 32. Second, the HP Journal discusses the Tachyon FC controller chip, which enables interfacing with a high-speed FC connection. Ex. 1006, 101, 111. The HP Journal further discloses that the Tachyon

[7] The level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Boudreau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

controller is designed to be compatible with SCSI commands as well. *Id.* at 101. Based on these disclosures and the testimony of their proffered expert, Dr. Andrew Hospodor, Petitioners argue a person of ordinary skill would have been taught to replace the SCSI technology of the CRD Manual I/O modules with the FC controller chip and FC interconnects of the HP Journal to arrive at the first controller operable to connect to and interface with a first transport medium of claim 1. Pet. 27–29 (citing Ex. 1003, 43–48).[8] As for the second controller operable to connect to and interface with a second transport medium, Petitioners rely on the CRD Manual's disclosure of multiple "I/O modules," which interface with SCSI buses that connect to the hosts and the disk drives. Pet. 30–31 (citing Ex. 1004, 9, 21, 24, 32).

Next, the Petition identifies the central processor, system circuitry, and firmware disclosed in the CRD Manual as teaching the recited "supervisor unit." Pet. 31 (citing Ex. 1004, 9, 11, 40, 53; Ex. 1003, 53–54). As to the requirement that the supervisor unit be operable to "map between the devices connected to the first transport medium and the storage devices," Petitioners rely on the CRD Manual's discussion of the Host LUN Mapping feature. *Id.* at 31. Specifically, the CRD Manual describes a feature of its Monitor Utility used to "map LUNs on each host channel to a particular redundancy group." Ex. 1004, 44. A host channel corresponds to an I/O

[8] Patent Owner argues that Dr. Hospodor's testimony should be accorded "diminished" weight due to his alleged bias and certain deposition testimony that Patent Owner believes undermines his credibility. PO Resp. 55–59. All of these considerations were taken into account, and Dr. Hospodor's testimony was accorded the weight appropriate in light of the full record. Further, we determine that Dr. Hospodor was a credible witness overall, despite the issues identified by Patent Owner, because his testimony generally was supported by the record as explained in this Decision.

module, which is assigned to a host. *Id.* Each host channel has multiple LUNs, each of which can be mapped to a specific redundancy group. *Id.* Redundancy groups may be one or more disk drives, or partitions thereof. *Id.* at 19. Thus, Petitioners assert the CRD Manual teaches that the Monitor Utility maintains Host LUN Mapping settings that map a host on a host channel (the recited "device") and redundancy groups (the recited "remote storage devices"). Pet. 31 (citing Ex. 1003, 51–54).

Petitioners contend the CRD Manual teaches the "access controls" limitation as well. *Id.* at 31–32. Specifically, Petitioners identify the CRD Manual's discussion of using host LUN mapping settings to make certain redundancy groups available to certain host channels while blocking access to other host channels. *Id.* (citing Ex. 1004, 44).

Finally, according to Petitioners, the combination of the CRD Manual and the HP Journal teaches "process[ing] data in the buffer to interface between the first controller and the second controller to allow access from devices connected to the first transport medium to the storage devices using native low level, block protocols," as recited in claim 1. Pet. 32–33 (citing Ex. 1003, 55–57). Specifically, Petitioners note that the CRD Manual discloses host computers (initiator devices) writing data to disk drives (remote storage devices) via an onboard cache (buffer) using a SCSI interface. *Id.*; Ex. 1004, 9, 12, 24–25. As the '035 patent discloses, SCSI is an example of a "native low level, block protocol" within the meaning of the claims. *See* Ex. 1001, 5:6–17, 5:34–38. In addition, Petitioners rely on the HP Journal's discussion of using encapsulated SCSI commands over an FC link through the Tachyon FC controller (Ex. 1006, 101), arguing these disclosures would have taught a person of ordinary skill to process data from

host computers via an onboard cache to access (e.g., write data to) storage drives using encapsulated SCSI commands over an FC network. Pet. 32–33.

Based on the full record after trial, we find that the combination of the CRD Manual and the HP Journal, as described above with Petitioners' citations and arguments that we adopt, teach or suggest each limitation of claim 1 of the '035 patent. Patent Owner's counterarguments are unpersuasive.

First, Patent Owner argues the asserted combination does not teach the "map" limitation of claim 1. PO Resp. 25–33; *see also id.* at 13–23 (arguing the CRD Manual fails to teach mapping). According to Patent Owner, the CRD Manual fails to teach the recited mapping because the Host LUN Mapping feature only maps storage devices to host channels, not to the specific hosts themselves. *Id.* at 13–15, 25–28 (citing Ex. 2027 ¶¶ 51–54, 61– 66, 73, 81, 82). This argument, however, relies on the overly narrow claim construction rejected above, and is unpersuasive as a result. For example, Patent Owner addresses Figure 1-2 of the CRD Manual, which is reproduced below:

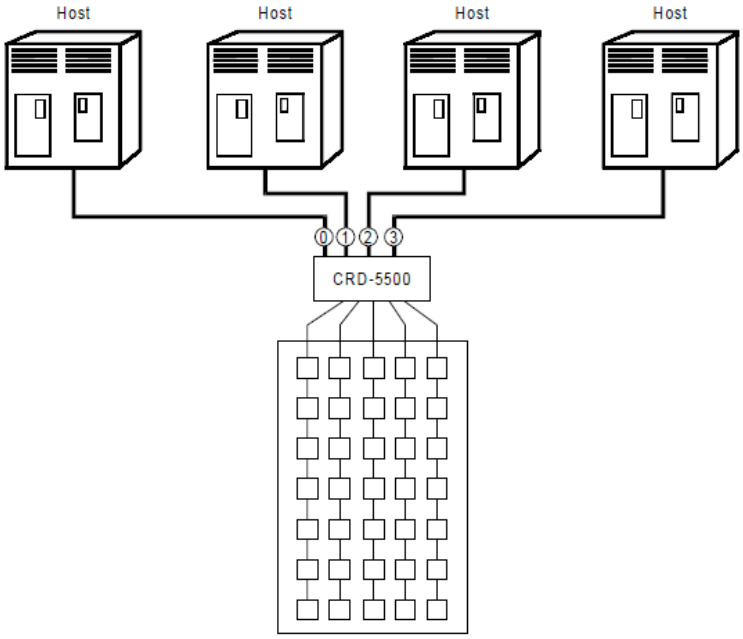


Figure 1-2 of the CRD Manual depicts a configuration of the CRD-5500 controller where each of four different hosts is assigned to a different channel, i.e., channel 0 through channel 3. Ex. 1004, 10. These hosts may then access redundancy groups via the CRD-5500 controller. *Id.*

The specific configuration depicted in Figure 1-2 meets the mapping limitation because each host channel is dedicated to a single host—thus, in effect, mapping to a host channel is tantamount to mapping to a particular host. *See* Pet. Reply 12–13. In recognition of this fact, the CRD Manual explicitly refers to mapping to hosts and host channels interchangeably, which Patent Owner acknowledges at least with respect to Figure 1-2. *See* Ex. 1004, 9; PO Resp. 30–31; Pet. Reply 11. The analysis presented by Patent Owner regarding other configurations different from that in Figure 1-2—i.e., configurations where two hosts are connected to the same host channel (PO Resp. 20–22, 31)—does not cancel or negate the configuration disclosed by Figure 1-2. Similarly, whether the Figure 1-2 configuration would teach the mapping limitation if it were hypothetically altered by

switching cables is irrelevant. *See* PO Resp. 19–20. As discussed above, the broadest reasonable interpretation of the mapping limitation is not limited only to mapping directly and immutably to a specific host device, and does not exclude categorically the use of intermediate identifiers. Consequently, Patent Owner has not shown persuasively why the configuration disclosed in the CRD Manual falls outside the scope of the claim language.

Patent Owner additionally contends that the CRD Manual fails to teach the access controls limitation of claim 1. *Id.* at 33–38. Making arguments similar to its arguments relating to the mapping limitation, Patent Owner purports to show how the redundancy group access controls of the CRD Manual can be defeated by changing the disclosed configuration in Figure 1-2, i.e., by rewiring the hosts such that multiple hosts are connected to the same host channel. *Id.* at 37–38. Patent Owner has not persuasively demonstrated, however, that the purported inadequacy of the access control method disclosed for the Figure 1-2 configuration, when directly applied to a different configuration, shows that the CRD Manual fails to teach implementing access controls at least for the configuration of Figure 1-2.

Although Patent Owner argues that Petitioners rely on such a configuration because they propose combining the CRD Manual with the HP Journal, Patent Owner inaccurately characterizes Petitioners' contentions as bodily incorporating only one aspect of the HP Journal's teachings—placing all hosts on a single FC arbitrated loop—while ignoring the HP Journal's other teachings regarding implementing such FC loops. *See* PO Resp. 34–38; *see also In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that

the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art."). As noted in the Petition (Pet. 20–21), the HP Journal provides detailed disclosures on the implementation of FC arbitrated loops, including configurations with multiple host devices. *See* Pet. Reply 13–20; Ex. 1006, 100–111. The record as a whole supports Petitioners' contention that a person of ordinary skill would have been able to combine the teachings of the CRD Manual and the HP Journal to arrive at a system utilizing FC loops, which maps redundancy groups to particular hosts and implements access controls as taught by the CRD Manual, but applying FC addressing capabilities taught by the HP Journal in lieu of the host channel-based implementation of the CRD Manual. *See* Pet. Reply 13–20; Ex. 1003 ¶¶ 56–61.

Lastly, Patent Owner argues the asserted prior art fails to teach that the data in the CRD Manual's onboard cache is processed "to allow access from Fibre Channel initiator devices to the remote storage devices," as recited in claim 1, because the host already has access when that data is processed. PO Resp. 39–40. Thus, Patent Owner appears to argue that the data in the cache must be processed as part of determining whether access can be granted. Patent Owner does not, however, explain why the claim should be construed in that manner. Based on Petitioners' evidence and not disputed by Patent Owner, once the data in the CRD Manual's onboard cache is processed, it is written to the target storage device. *See* Pet. 32–33. As discussed above, Petitioners' contention that writing to a storage device teaches allowing access to those devices is persuasive based on the record

evidence, and we are not persuaded that Patent Owner's position is commensurate with the full scope of the claim language.

In sum, based on the full record after trial, we find that a preponderance of the evidence supports Petitioners' contention that the combination of the CRD Manual and the HP Journal teaches or suggests each limitation of claim 1 of the '035 patent.

b. Claims 2–5

Claims 2–5 depend, directly or indirectly, from claim 1. Petitioners presented evidence and argument to support their contention that the combination of the CRD Manual and the HP Journal teaches each limitation of these dependent claims. Pet. 34–38. We agree that the cited evidence teaches or suggests the limitations of these claims. For example, Petitioners rely on the redundancy groups of the CRD Manual as teaching the "subsets of storage space" recited in claim 2, and identify the Host LUN Mapping and access control features in the CRD Manual as teaching allocating those subsets to associated devices such that each subset is only accessible by the associated device. *Id.* at 34–35. The Petition identifies portions of both the CRD Manual and the HP Journal that describe workstations, including workstations in an FC loop, as teaching devices comprising workstations, as recited in claim 3. *Id.* at 35–36; Pet. Reply 13–17 (discussing use of AL_PA in the combination). As discussed above, we find this explanation of the combination using AL_PA in mapping persuasive to show that the combination teaches the limitations of claim 2. With respect to claim 4, Petitioners rely on the CRD Manual as disclosing hard disk drives as storage devices. *Id.* at 36. Further, Petitioners rely on the HP Journal's discussion of an FC frame manager, FIFO queues, and inbound/outbound block

movers, as teaching the FC protocol unit, first-in-first-out queue, and DMA interface limitations of claim 5. *Id.* at 36–38. We find Petitioners' contentions persuasive and supported by the record.

Patent Owner argues that the asserted prior art does not teach the limitations of claim 2 because it contends, as it did for claim 1, that the CRD Manual teaches associating storage devices (or subsets thereof) with host channels and not host devices directly. *See* PO Resp. 40–42. Patent Owner did not present other arguments specifically directed to claims 2–5. *See id.* For the same reasons as discussed above for claim 1, this argument is unpersuasive.

Based on the full record after trial, a preponderance of the evidence supports Petitioners' contention that the combination of the CRD Manual and the HP Journal teaches or suggests each limitation of claims 2–5 of the '035 patent.

c. Claims 7–10

The limitations recited in independent claim 7 are similar to those of claims 1 and 2, and both parties rely on essentially the same arguments with respect to those limitations as for claims 1 and 2.[9] *See* Pet. 38–48; PO Resp. 42–45. Claim 7 requires explicitly that the storage router map

[9] Patent Owner also argues in a footnote that it "strenuously disagrees that the [CRD Manual] discloses a storage network." PO Resp. 42 n.8. This contention is not explained, nor is any evidentiary support cited except three paragraphs of Dr. Levy's Declaration. *Id*. This conclusory statement is insufficient and, to the extent it seeks to incorporate by reference the explanations provided in the Levy Declaration, is contrary to 37 C.F.R. § 42.6(a)(3). Thus, the argument was not considered. Further, even were it considered, it is unpersuasive, and we find Dr. Hospodor's contrary testimony better explained and supported, and thus, more credible on this issue. *See* Ex. 1003, 70–71.

between a "plurality of workstations" and a "plurality of storage devices." As discussed above for claims 1 and 2, Petitioners established sufficiently that the combination of the CRD Manual and the HP Journal teach multiple workstations and multiple storage devices (e.g., multiple disk drives), as well as mapping between them, and Petitioners advance the same arguments and evidence for claim 7 (Pet. 38–44; Pet. Reply 13–20). For reasons similar to those discussed above with respect to claims 1 and 2, we find the full record after trial supports Petitioners' contention that the asserted prior art teaches each limitation of claim 7.

Claims 8–10 depend, directly or indirectly, from claim 7. Claim 8 recites "wherein the access controls include an allocation of subsets of storage space to associated workstations, wherein each subset is only accessible by the associated workstation," Ex. 1001, 10:12–16, which is similar to dependent claim 2, *id.* at 9:32–36. Claim 9 recites limitations similar to dependent claim 4, by requiring that the storage devices be hard disk drives. *Id.* at 10:17–18. Claim 10 recites limitations similar to certain limitations relating to the buffer and the data written to the buffer found in claim 1. *Id.* at 10:19–40. Both parties rely on essentially the same arguments as those discussed above for the previous claims. *See* Pet. 44–48; PO Resp. 45–48. For reasons similar to those discussed above for the previous claims, we find the full record after trial supports Petitioners' contention that the asserted prior art teaches each limitation of claims 8–10.

d. Claims 11–14

The limitations recited in independent method claim 11 are similar to those of claim 1, and both parties rely on essentially the same arguments with respect to those limitations as for claim 1. *See* Pet. 48–54; PO

Resp. 48. Claim 11 is a method claim that recites the steps of interfacing with a first and second transport medium, "mapping between devices connected to the first transport medium and the storage devices and that implements access controls for storage space on the storage devices," and "allowing access from devices connected to the first transport medium to the storage devices using native low level, block protocols." Ex. 1001, 10:41–53. As discussed above for claim 1, Petitioners established sufficiently that the combination of the CRD Manual and the HP Journal teaches interfacing with a first and second transport medium, as well as mapping between them and allowing access using native low-level block protocols, and Petitioners advance the same arguments and evidence for claim 11 (Pet. 48–52). For reasons similar to those discussed above with respect to claim 1, we find the full record after trial supports Petitioners' contention that the asserted prior art teaches each limitation of claim 11.

Claims 12–14 depend, directly or indirectly, from claim 11 and recite limitations similar to those recited in claim 1 and its dependent claims 2–4. Both parties rely on essentially the same arguments as those discussed above for the previous claims. *See* Pet. 38–41; PO Resp. 48. For reasons similar to those discussed above for the previous claims, we find the full record after trial supports Petitioners' contention that the asserted prior art teaches each limitation of claims 12–14.

D. Obviousness Claim 6 over CRD-5500 Manual, HP Journal, and Q Logic Datasheet

Q Logic Data Sheet

The QLogic Data Sheet describes the features and operation of a family of Fast Architecture SCSI Processors manufactured by QLogic

Corporation (the "QLogic SCSI Processors"). Ex. 1007, 1–2, 8. The QLogic SCSI Processors are designed to facilitate SCSI-2 and SCSI-3 data transfers, and are used in SCSI I/O adapter cards. *Id.* at 2.

Analysis

1. Reasons for Combining

As explained by Petitioners' Declarant, Dr. Hospodor, the CRD-5500 RAID controller includes at least one SCSI I/O module that interfaces with a SCSI bus, and the CRD-5500 RAID controller used a QLogic Fast Architecture SCSI Processor in its I/O modules. Ex. 1003 ¶¶ 65–68.

Patent Owner argues that Dr. Hospodor's testimony that the QLogic processors were used in the CRD-5500 RAID controller is not appropriate support for an obviousness challenge in an *inter partes* review. PO Resp. 49. Patent Owner concludes that, absent this knowledge, there is no reason a person of ordinary skill would be motivated to combine these references. *Id.* Patent Owner also asserts that "regardless of when the QLogic Data Sheet was allegedly available, Petitioners did not present evidence that one of ordinary skill in the art would have had any reason to 'look[] to the documentation made available by QLogic Corporation . . . to learn more about the components and functionality of the CRD-5500 RAID controller's SCSI I/O' until after the QLogic processors were actually used in the CRD-5500," and that this happened prior to the priority date of the '035 patent. *Id.*

We agree with Petitioners that one of ordinary skill in the art would have looked to the documentation made available by QLogic Corporation describing the QLogic SCSI Processors to learn more about the components and functionality of the CRD-5500 RAID controller's SCSI I/O modules.

Id. ¶ 68. We disagree with Patent Owner that we may not consider the testimony of Dr. Hospodor regarding his inspection of the product as a basis for the motivation to combine. Indeed, the obviousness inquiry must be "expansive and flexible" and "not only permits, but *requires*, consideration of common knowledge and common sense." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (emphasis in original). As for Patent Owner's argument regarding the timing of the use of the QLogic processors in the CRD-5500, Dr. Hospodor also testified that the CRD-5500 Manual describes that the controller uses at least one SCSI I/O module and that it was well-known that QLogic processors were used in such modules at the time of the invention. *Id.* ¶ 68. Thus, Patent Owner is not correct that, absent Dr. Hospodor's inspection, Petitioners have not provided any rationale for combining the references. Based on the full record after trial, Petitioners have articulated a sufficient reason to combine the CRD Manual, the HP Journal, and the QLogic Datasheet with rational underpinnings supported by the evidence. See *KSR*, 550 U.S. at 418.

2. Claim 6

Claim 6 depends from claim 1 and recites that the second controller comprises "a second protocol unit operable to connect to the second transport medium," "an internal buffer coupled to the transport medium," and "a direct memory access (DMA) interface coupled to the internal buffer and to the buffer of the storage router." Ex. 1001, 9:51–57. Petitioners rely on the evidence and argument we discussed above with respect to independent claim 1 for those limitations of claim 6, and on the QLogic Datasheet for the remaining limitations of claim 6 recited above. *See* Pet. 56–57; Ex. 1003 ¶ 69. Besides the arguments directed to independent

claim 1, Patent Owner does not dispute this disclosure. For the reasons discussed above, we have found that Petitioners have shown by a preponderance of the evidence that the combination discloses the subject matter of claim 1. We also have reviewed Petitioners' citations and the testimony of Dr. Hospodor regarding the separate limitations of claim 6, and we are persuaded that Petitioners have shown by a preponderance of the evidence that the combination teaches those elements as well, as set forth in the Petition's analysis. *See* Pet. 56–57.

E. Objective Indicia of Non-Obviousness

Factual inquiries for an obviousness determination include secondary considerations based on objective evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984).

Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17; *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007).

To be relevant, evidence of non-obviousness must be commensurate in scope with the claimed invention. *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (citing *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)); *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998). In that regard, in order

to be accorded substantial weight, there must be a nexus between the merits of the claimed invention and the evidence of secondary considerations. *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). "Nexus" is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining non-obviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). The burden of producing evidence showing a nexus lies with the patent owner. *Id.*; *Prometheus Labs, Inc. v. Roxane Labs, Inc.*, 805 F.3d 1092, 1101–02 (Fed. Cir. 2015).

1. Long-Felt Need

Patent Owner presents arguments regarding long-felt need in its Response. PO Resp. 48. Patent Owner's evidence of long-felt need includes selected quotes from an article by an expert used by Petitioners in a co-pending lawsuit and citations to testimony by the same expert to the effect that "before [Patent Owner's] invention, there was no such thing as a storage router and that the term 'storage router' did not exist." *Id.* (citing Ex. 2038, 14; Ex. 2029, 103:18–24, 104:15–105:1, 136:6–14).

"Establishing long-felt need requires objective evidence that an art-recognized problem existed in the art for a long period of time without solution." *Ex parte Jellá*, 90 USPQ2d 1009, 1019 (BPAI 2008) (precedential).

We have reviewed the cited testimony (Ex. 2029, 103:18–24, 104:15–105:1, 136:6–14), and find it insufficient to establish a long-felt need. The testimony is directed to whether the term "storage router" was used in the art in the late 1990s. *See, e.g.*, *id.* at 104:24–105:1. It does not address what the

needs or problems of the art were at that time. Thus, we do not find it supports Patent Owner's contention.

The article cited by Patent Owner (Ex. 2038), which suggests that a problem might have existed in file system performance generally, nevertheless also does not establish that there was long-felt need for the claimed invention. Patent Owner presented no evidence as to how long this problem had been recognized, the extent of the problem, whether it remained unresolved at the time of the invention, or whether the invention resolved this need. *See Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1332–33 (Fed. Cir. 2009). As such, we find that Patent Owner has not shown adequately that there was any long-felt need for the claimed invention.

2. Commercial Success

Patent Owner submits evidence of the number of products it has sold, revenue from those sales, and the relative sales of its various products as allegedly demonstrating the commercial success of the claimed invention. PO Resp. 48–52 (citing Ex. 2043, Ex. A; Ex. 2044). Petitioner argues that Patent Owner's attempt to establish a nexus between the alleged secondary considerations and the claimed invention falls short. Reply 9–10.

Evidence of commercial success "is only significant if there is a nexus between the claimed invention and the commercial success." *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006). To establish a proper nexus between a claimed invention and the commercial success of a product, a patent owner must offer "proof that the sales [of the allegedly successful product] were a direct result of the unique characteristics of the claimed invention—as opposed to other economic and commercial factors

unrelated to the quality of the patented subject matter." *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996).

As a threshold matter, Patent Owner has not established a sufficient nexus between its commercial product and the features of its claimed invention. Patent Owner has not shown that the items listed in Exhibit 2044 embody the claimed invention, or that sales of the listed products resulted from novel, non-obvious features of the claimed invention rather than other features. *See Ormco Corp.*, 463 F.3d at 1312–13 (evidence did not show that commercial success was due to claimed and novel features).

Even if Patent Owner had established a nexus between its marketed technology and the invention claimed in the patent, its commercial success argument would not be persuasive. Patent Owner's declarant's statements that certain products include "mapping" or "access controls" (Ex. 2043 ¶¶ 5–6) are insufficient to show commercial success of the claimed invention. An important component of the commercial success inquiry is determining market share associated with the alleged success, relative to all competing products. *In re Applied Materials, Inc.*, 692 F.3d 1289, 1300 (Fed. Cir. 2012). Even sales volume, if provided without market share information, is only weak evidence, if any, of commercial success. *Id.* at 1299. Here, the fact that Patent Owner sold a certain number of these devices and that they made up a certain share of its own sales is insufficient to establish commercial success without some context about the larger market. *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991).

3. Licensing

Patent Owner argues that "[a]s shown in Exhibit 2040, a large number of licensees have taken licenses directed specifically to Crossroads' '972

patent family." PO Resp. 54 (citing Ex. 2040). Patent Owner submits that "[t]he total license payments through FY2014 are over $60 million" and that "[p]rominent members of the industry have paid millions of dollars to Crossroads in exchange for a license." *Id.* Patent Owner concludes that because these companies were willing to pay millions of dollars to license the invention claimed in the '972 patent family, the claims are not obvious. *Id.*

"While licenses can sometimes tilt in favor of validity in close cases, they cannot by themselves overcome a convincing case of invalidity without showing a clear nexus to the claimed invention." *ABT Sys., LLC v. Emerson Elec. Co.*, 797 F.3d 1350, 1361–62 (Fed. Cir. 2015); *see also Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1324 (Fed. Cir. 2004) ("Our cases specifically require affirmative evidence of nexus where the evidence of commercial success presented is a license, because it is often 'cheaper to take licenses than to defend infringement suits.'"); *SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1358 (Fed. Cir. 2000) ("[T]he mere existence of these licenses is insufficient to overcome the conclusion of obviousness, as based on the express teachings in the prior art that would have motivated one of ordinary skill to modify [other prior art].").

Indeed, the mere existence of several licenses, without more specific information about the circumstances surrounding the licensing, is often not a good indicator of nonobviousness. In *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907–08 (Fed. Cir. 1985), the Court of Appeals for the Federal Circuit stated that such licensing programs "are not infallible guides to patentability. They sometimes succeed because they are mutually beneficial to the licensed group or because of business judgments that it is

cheaper to take licenses than to defend infringement suits, or for other reasons unrelated to the unobviousness of the licensed subject matter."

Here, we lack sufficient information about the circumstances surrounding these licenses to be able to assess whether they truly weigh in favor of non-obviousness. Patent Owner directs us to no testimony from any licensee regarding why the licensee took a license from Patent Owner. It is unknown how much of the decision to take a license stems from a business cost-benefit analysis with regard to defending an infringement suit or from another business reason, rather than from acknowledged merits of the claimed invention. Patent Owner does not provide any information about how many entities refused to take a license, or why they refused.

In addition, as Patent Owner admits, these licenses are directed to an entire family of patents. Without more evidence, we are unable to determine whether the claimed subject matter of the '035 patent was the motivator for taking the license. Given these circumstances, we determine that Patent Owner has failed to establish an adequate nexus between the claimed invention of the '035 patent and the licenses. Thus, we find Patent Owner's evidence of licensing does not weigh in favor of non-obviousness.

F. Conclusion as to Asserted Grounds of Unpatentability

Having considered all of the evidence and contentions of the parties regarding the obviousness of claims 1–14, including secondary evidence and indicia of non-obviousness presented by Patent Owner, we determine that Petitioner has established by a preponderance of evidence that claims 1–14 are unpatentable under the asserted grounds. The relatively weak secondary evidence of non-obviousness, diminished further by Patent Owner's failure to show an adequate nexus to the claimed invention, is insufficient to

overcome the relatively strong evidence of obviousness presented by Petitioner. *See Ohio Willow Wood Co. v. Alps South, LLC*, 735 F.3d 1333, 1344 (Fed. Cir. 2013) (requisite nexus between secondary indicia and invention must be shown for evidence to be accorded substantial weight, and where a claimed invention represents no more than the predictable use of prior art elements according to established functions, evidence of secondary indicia is often inadequate to establish non-obviousness).

III. PATENT OWNER'S MOTION TO EXCLUDE

We have reviewed Patent Owner's Motion to Exclude ("PO Mot. to Exclude," Paper 40), Petitioners' Opposition to the Motion (Paper 45), and Patent Owner's Reply in Support of the Motion (Paper 70). We *deny* the motion to exclude.

Patent Owner seeks to exclude certain cross examination testimony of Dr. Levy because "it was obtained pursuant to objectionable questioning and/or mischaracterizes his testimony." PO Mot. to Exclude 1. In the alternative, Patent Owner requests that we consider additional portions of Dr. Levy's testimony pursuant to the Rule of Completeness (Fed. R. Evid. 106). Petitioners respond that these objections were not preserved, that the Rule of Completeness is inapplicable to these proceedings because the entirety of the transcript of Dr. Levy's deposition is part of the record, that these objections go to the weight that should be given the evidence not its admissibility, and that Patent Owner's allegations of mischaracterizations are baseless. Pet. Opp. Mot. to Exclude 1. We agree with Petitioners that Patent Owner's objections go to the weight that should be given the evidence, not its admissibility. Moreover, as the entirety of Dr. Levy's

deposition is in the record of this proceeding, we have considered the additional passages of Dr. Levy's testimony that Patent Owner identifies as well as the rest of his testimony. Accordingly, Patent Owner's Motion to Exclude is *denied*.

IV. PATENT OWNER'S MOTION TO SEAL

Patent Owner filed several exhibits (Exhibits 2040, 2042, 2044, and 2045) under seal, along with a Motion to Seal (Paper 28) and a protective order (Paper 20). We previously granted Patent Owner's Motion for Entry of the Default Protective Order. Paper 41. Petitioners oppose Patent Owner's Motion to Seal. Paper 26. Patent Owner filed a reply. Paper 27. For the reasons discussed below, Patent Owner's Motion to Seal is *granted*.

Petitioners argue that there is a strong public interest in unsealing these exhibits because they are a critical part of the substantive basis of Patent Owner's patentability analysis. Pet. Opp. Mot. Exclude 4. However, we did not see any need to rely on any of these exhibits in this Decision. We have reviewed the exhibits at issue and agree with Patent Owner that they contain confidential sales and licensing information. Given the sensitive nature of this information and the fact that we did not rely on it in rendering our Decision, we agree with Patent Owner that good cause has been shown to seal the information.

However, we note that confidential information subject to a protective order ordinarily becomes public 45 days after final judgment in a trial, unless a motion to expunge is granted. 37 C.F.R. § 42.56; Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,761 (Aug. 14, 2012). In view of the foregoing, the confidential documents filed in the instant proceeding

will remain under seal, at least until the time period for filing a notice of appeal has expired or, if an appeal is taken, the appeal process has concluded. The record for the instant proceeding will be preserved in its entirety, and the confidential documents will not be expunged or made public, pending appeal. Notwithstanding 37 C.F.R. § 42.56 and the Office Patent Trial Practice Guide, neither a motion to expunge confidential documents nor a motion to maintain these documents under seal is necessary or authorized at this time. *See* 37 C.F.R. § 42.5(b).

V. CONCLUSION

For the reasons expressed above, we determine that Petitioners have shown by a preponderance of the evidence that:

(1) CRD-5500 Manual and HP Journal renders claims 1–5 and 7–14 of the ’035 patent unpatentable as obvious; and

(2) CRD-5500 Manual, HP Journal, and QLogic Data Sheet renders claim 6 of the ’035 patent unpatentable as obvious.

VI. ORDER

For the reasons given, it is:

ORDERED that claims 1–14 of the ’035 patent have been shown to be *unpatentable*;

FURTHER ORDERED that Patent Owner’s Motion to Exclude is *denied*;

FURTHER ORDERED that Patent Owner’s Motion to Seal is *granted*;

FURTHER ORDERED that the information sealed during this *inter partes* review remain under seal, and the record preserved, until the time period for filing a notice of appeal of this Decision has expired or, if an appeal is taken, the appeal process has concluded; 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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