United States Court of Appeals for the Federal Circuit

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PAPST LICENSING GMBH & CO. KG,
Appellant

v.

**SAMSUNG ELECTRONICS AMERICA, INC.,
SAMSUNG ELECTRONICS CO., LTD.,**
Appellees

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2018-1777

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Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2016-01733.

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Decided: May 23, 2019

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GREGORY S. DONAHUE, DiNovo Price LLP, Austin, TX, argued for appellant. Also represented by NICOLE E. GLAUSER, CHRISTOPHER V. GOODPASTOR.

PATRICK J. KELLEHER, Drinker Biddle & Reath LLP, Chicago, IL, argued for appellees. Also represented by CARRIE ANNE BEYER; NIKOLA COLIC, Washington, DC.

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Before DYK, TARANTO, and CHEN, *Circuit Judges.*

TARANTO, *Circuit Judge*.

Papst Licensing GMBH & Co. KG owns U.S. Patent No. 9,189,437. Samsung Electronics America, Inc. and Samsung Electronics Co., Ltd. (collectively, Samsung) successfully petitioned the Patent Trial and Appeal Board of the U.S. Patent and Trademark Office to institute an inter partes review (IPR) of all claims of the '437 patent. In its final written decision, the Board determined that claims 1–38 and 43–45 are unpatentable for obviousness based on a combination of U.S. Patent No. 5,758,081 (Aytac), a publication setting forth standards for the Small Computer System Interface-2 (SCSI), and "admitted prior art" (what the '437 patent specification describes as prior art). *Samsung Electronics Co., Ltd. v. Papst Licensing GmbH & Co. KG*, No. IPR2016-01733, 2018 WL 813014 (P.T.A.B. Feb. 2, 2018) (*'437 Patent Decision*). Papst appeals. We affirm, relying in the alternative on issue preclusion and our review of the merits of Papst's challenges.

I

A

The '437 patent is entitled "Analog Data Generating and Processing Device Having a Multi-Use Automatic Processor" and names Michael Tasler as the sole inventor. Issued in 2015, it claims priority to a 1999 application through continuations of applications that issued as U.S. Patent Nos. 6,470,399 and 6,895,449, which are owned by Papst and were before this court in *Papst Licensing GmBH & Co. v. Fujifilm Corp.*, 778 F.3d 1255 (Fed. Cir. 2015). Of significance here, that same specification also gave rise to Papst's U.S. Patent Nos. 8,966,144 and 8,504,746.

The specification describes an interface device for communication between a data device (on one side of the interface) and a host computer (on the other). The interface device achieves high data transfer rates, without the need

for a user-installed driver specific to the interface device, by using fast drivers that are already standard on the host computer for data transfer, such as a hard-drive driver. '437 patent, col. 2, lines 4–29; *id.*, col. 3, lines 10–40. The interface device signals to the host device that the interface device is an input/output device for which the host already has such a driver. *Id.*, Abstract.

Claim 1 is illustrative for present purposes. It recites:

1. An analog data generating and processing device (ADGPD), comprising:

an input/output (i/o) port;

a program memory;

a data storage memory;

a processor operatively interfaced with the i/o port, the program memory and the data storage memory;

wherein the processor is adapted to implement a data generation process by which analog data is acquired from each respective analog acquisition channel of a plurality of independent analog acquisition channels, the analog data from each respective channel is digitized, coupled into the processor, and is processed by the processor, and the processed and digitized analog data is stored in the data storage memory as at least one file of digitized analog data;

wherein the processor also is adapted to be involved in an ***automatic recognition process*** of a host computer in which, when the i/o port is operatively interfaced with a multi-purpose interface of the host computer, the processor executes at least one instruction set stored in the program memory and thereby causes at least one parameter identifying the analog data generating and processing

device, independent of analog data source, as a digital storage device instead of an analog data generating and processing device to be automatically sent through the i/o port and to the multi-purpose interface of the computer (a) ***without requiring any end user to load any software onto the computer at any time*** and (b) without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time, wherein the at least one parameter is consistent with the ADGPD being responsive to commands issued from a customary device driver;

wherein the at least one parameter provides information to the computer about file transfer characteristics of the ADGPD; and

wherein the processor is further adapted to be involved in an ***automatic file transfer process*** in which, when the i/o port is operatively interfaced with the multi-purpose interface of the computer, and after the at least one parameter has been sent from the i/o port to the multi-purpose interface of the computer, the processor executes at least one other instruction set stored in the program memory to thereby cause the at least one file of digitized analog data acquired from at least one of the plurality of analog acquisition channels to be transferred to the computer using the customary device driver for the digital storage device while causing the analog data generating and processing device to appear to the computer as if it were the digital storage device ***without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer at any time***.

Id., col. 11, line 56 through col. 12, line 42 (emphases added).

B

After Papst sued several companies for infringement of various patents in the Tasler family, including the '437 patent, various combinations of companies filed numerous petitions for IPRs to review many claims of the patents. Samsung requested the present IPR, which the Board instituted on February 8, 2017.

The key piece of prior art of relevance is the Aytac patent. Aytac describes connecting a personal computer to an interface device that would in turn connect to (and switch between) various other devices, such as a scanner, fax machine, or telephone. The interface device includes the "CaTbox," which is "connected to a PC via SCSI cable, and to a telecommunications switch." Aytac, Abstract. CaTbox "runs an operating system, CaTOS, and contains a hard disk" accessible "as a SCSI disk" known as "CaTdisc." *Id.*; *id.*, col. 8, line 63 through col. 9, line 4; Figure 1. While the main PC is off, CaTbox, which uses less energy, "receives faxes, voicemail, email and stores them on CaTdisc." *Id.*, Abstract. Aytac points to SCSI as performing some of the functions involving the CaTdisc in the overall CaTbox system. *See, e.g.*, *id.*; *id.*, col. 8, lines 1−14, col. 10, lines 8−12, 36−37, 52−58; Figure 1. Papst explains in this court that "[t]he '437 Patent indicates that SCSI interfaces and SCSI drivers were known in the art at the time of the invention. SCSI interfaces were present on most host devices or laptops, and SCSI drivers were 'normally included by the manufacturer of the multi-purpose interface.'" Papst Br. at 13 (citations omitted).

In its determination of obviousness, the Board adopted a claim construction that is central to Papst's appeal. Claim 1 requires an automatic recognition process to occur "without requiring any end user to load any software onto the computer at any time" and an automatic file transfer process to occur "without requiring any user-loaded file transfer enabling software to be loaded on or installed in

the computer at any time." *See also* '437 patent, col. 17, lines 9–10 ("without requiring the user to load the device driver"). The Board interpreted the "without requiring" limitations to mean "without requiring *the end user* to install or load specific drivers or software for the ADGPD beyond that included in the operating system, BIOS, *or drivers for a multi-purpose interface or SCSI interface.*" *'437 Patent Decision* at *6. In adopting that construction, the Board made clear that SCSI interface drivers are among those that can be required to be installed for the processes to occur, relying on the specification and claims as making clear that the invention contemplates use of SCSI drivers to carry out the processes. *See id.* at *5−*6. The Board also rejected Papst's contention that "the 'without requiring' limitations *prohibit* an end user from installing or loading other drivers." *Id.* at *6. Relying on *Celsis In Vitro, Inc. v. CellzDirect, Inc.*, 664 F.3d 922, 926−27 (Fed. Cir. 2012), the Board concluded that "[t]he claim language, under a plain reading, means that the end user is 'not required' to load or install the recited software for transferring a file or recognizing a device," but the language "*does not prohibit* the end user" from doing so. *Id.* "[I]f the software is not required [for the claimed function], then it does not matter whether the end user loaded or installed the software." *Id.*[1]

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[1]   Papst mentions one other claim-construction issue in this court—whether "end user" encompasses a system administrator. The Board, having addressed the issue in instituting the IPR, declined to resolve it in its final written decision, explaining that the patentability issue "turns on the question of whether software need be installed at all, not on whether the installation is done by an end user or not." *'437 Patent Decision* at *6−*7. Papst has identified no way in which the dispute over the "end user" construction affects the unpatentability ruling of the Board, but it

Regarding the application of the construed claim language to the prior art, there is no material issue before us about the motivation to combine the three prior-art sources—Aytac, SCSI, and admitted prior art. As already noted, Aytac expressly refers to SCSI. The sole issue on which this appeal turns concerns what Aytac teaches about the host computer's ability to use the SCSI driver, even without additional CaTbox software, to accomplish an automatic file transfer.

The Board found that Aytac does teach that the automatic file transfer can take place using only the PC-resident SCSI drivers. *Id.* at *13–*16. The Board noted that Papst's argument relied on the presence of CATSYNC software in the CaTbox system together with the contention that the claim language prohibits user loading of any other software. *Id.* at *14. The Board, having already rejected the "prohibits" claim construction, found that, although CATSYNC is used for some purposes (such as synchronizing different demands for access to the CaTdisc), Aytac teaches that an automatic file transfer can indeed occur using only the SCSI drivers, without use of CATSYNC. The Board recited supporting material from Aytac as well as supporting testimony, from Samsung's expert and from Papst's own expert. *Id.* at *13–*15.

The Board also agreed with Samsung's showing that Aytac teaches a process of automatic recognition that could occur using only the SCSI drivers, without additional user-installed CaTbox software. *Id.* at *13–*14. The Board's discussion of that issue is abbreviated; specifically, there is no counterpart for the recognition-process issue to the Board's extended discussion of the arguments Papst made

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asks this court to rule on the proper construction anyway. Papst Br. at 30. We decline to do so, seeing no impact on the correctness of the Board's unpatentability determination.

regarding the file transfer process. *Id.* at *14–*16. Papst made few arguments to the Board concerning the recognition process. Of particular importance, Papst did not make the argument that it makes to this court on that issue.

For those reasons, the Board found that Aytac in fact teaches the claim elements in dispute. Upon completion of additional claim and prior-art analysis not at issue in this appeal, the Board ultimately determined that claims 1–38 and 43–45 (but not 39–42) of the '437 patent are unpatentable for obviousness in view of Aytac, SCSI, and the admitted prior art. *Id.* at *22. Papst appealed.

C

Several other inter partes reviews and corresponding appeals are relevant to this proceeding. In particular, six weeks before the Board rendered its *'437 Patent Decision*, the Board rendered final written decisions in two other IPRs (requested by Samsung among other petitioners) involving two other Papst-owned patents mentioned above, *i.e.*, the '144 patent and the '746 patent, which share a specification with the '437 patent and contain claim terms related to those involved in the disputes before us. In the two Board decisions of importance regarding those patents, as in the *'437 Patent Decision* here on appeal, the Board found unpatentability based on Aytac, SCSI, and the admitted prior art. *Canon Inc. v. Papst Licensing GmbH & Co. KG*, No. IPR2016-01199, 2017 WL 6345414 (P.T.A.B. Dec. 11, 1017) (*'144 Patent Aytac Decision*); *Canon Inc. v. Papst Licensing GmbH & Co. KG*, No. IPR2016-01200, 2017 WL 6343591 (P.T.A.B. Dec. 11, 2017) (*'746 Patent Aytac Decision*).

Papst appealed those decisions, along with the *'437 Patent Decision*, and those appeals (together with still others) were fully briefed and set to be orally argued before this panel on the same day. Shortly before the argument, Papst voluntarily dismissed its appeals from the *'144 Patent*

Aytac Decision and the *'746 Patent Aytac Decision*. Those decisions therefore became final. *See Martin v. Dep't of Justice*, 488 F.3d 446, 451–52, 454–55 (D.C. Cir. 2007) (voluntary dismissal of appeal creates preclusion based on the predicate opinion); 18A Charles A. Wright., et al., Federal Practice and Procedure § 4433 (2d ed. 2002).

II

Papst makes three arguments on appeal. *See also supra* note 1 (noting the "end user" claim-construction argument we do not address). First, it challenges the Board's construction of the "without requiring" claim limitations as meaning that the claimed processes can take place with only SCSI software (or other multi-purpose interface software or software included in the operating system or BIOS), without other user-added software. Second, Papst challenges, as not supported by substantial evidence, the Board's finding that Aytac teaches an automatic file transfer that can take place with only the SCSI drivers, without the assistance of the user-added CATSYNC software. Third, Papst challenges the Board's finding that Aytac likewise teaches an automatic recognition process that uses only SCSI rather than requiring additional software.

As an initial matter, we hold that the third challenge has not been preserved. The argument Papst now makes on this point is that SCSI itself does not allow the CaTbox to send a signal that it is a hard disk because, under the SCSI standard, the CaTbox would send an "unknown" ("1Fh") identifier rather than a hard drive ("00h") identifier in response to an INQUIRY signal. But this factual contention did not appear until the appeal, and such a contention is forfeited if not fairly presented to the Board. *See In re NuVasive, Inc.*, 842 F.3d 1376, 1380 (Fed. Cir. 2016).

Papst has not shown where it presented this contention to the Board. It cites a portion of the SCSI specification, *see* Papst Reply Br. at 16 (citing J.A. 532–36), but it does not cite any place in its Board filings or arguments where

it mentioned a 1Fh signal or made its current point about the cited SCSI specification passage.   In the portion of the Patent Owner Response addressing the "automatic recognition process" limitation, Papst focused on its "end user" argument, *see* J.A. 2234–35, which is a different point (and not material to the outcome here, *see supra* note 1).   Neither the petitioners nor the Board had fair notice of a contention that SCSI would not permit the CaTbox to identify itself as a hard drive.   Accordingly, Papst failed to preserve this argument for appeal.   *See NuVasive*, 842 F.3d at 1380–81.

We therefore have before us only two arguments for upsetting the *'437 Patent Decision*.   We reject those arguments for two reasons: they are barred by issue preclusion, and they fail on their merits.

A

The Supreme Court has made clear that, under specified conditions, a tribunal's resolution of an issue that is only one part of an ultimate legal claim can preclude the loser on that issue from later contesting, or continuing to contest, the same issue in a separate case.   Thus:

> subject to certain well-known exceptions, the general rule is that "[w]hen an issue of fact or law is actually litigated and determined by a valid and final judgment, and the determination is essential to the judgment, the determination is conclusive in a subsequent action between the parties, whether on the same or a different claim."

B & B Hardware, Inc. v. Hargis Indus., Inc., 135 S. Ct. 1293, 1303 (2015) (quoting Restatement (Second) of Judgments § 27, then referring to exceptions stated in § 28); *see, e.g., Ohio Willow Wood Co. v. Alps S., LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2013); *Levi Strauss & Co. v. Abercrombie & Fitch Trading Co.*, 719 F.3d 1367, 1371 (Fed. Cir. 2013);

Stephen Slesinger, Inc. v. Disney Enters., Inc., 702 F.3d 640, 644 (Fed. Cir. 2012).

The Supreme Court also has made clear that issue-preclusion principles apply in a court case even when the first "action" was before an agency if the agency proceeding meets certain standards. *B & B Hardware*, 135 S. Ct. at 1303. Following the Supreme Court's conclusion in *B & B Hardware* that those standards are met by certain adversary proceedings before the Trademark Trial and Appeal Board, we have held that the same is true of an IPR proceeding before the Patent Trial and Appeal Board, so that the issue preclusion doctrine can apply in this court to the Patent Trial and Appeal Board's decision in an IPR once it becomes final. *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1376 (Fed. Cir. 2018); *see XY, LLC v. Trans Ova Genetics*, 890 F.3d 1282, 1294 (Fed. Cir. 2018); *Nestle USA, Inc. v. Steuben Foods, Inc.*, 884 F.3d 1350, 1351 (Fed. Cir. 2018).[2]

We first indicate why Papst has not justified denying issue preclusion in this case if the above-quoted standards are met. We then find those standards met here, so issue preclusion applies.

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[2]   The Supreme Court and this court have approved "non-mutual" issue preclusion—the label assigned when the loser in the first case is precluded from relitigating an issue even in a later action that does not involve its first-case adversary. *See Blonder-Tongue Labs., Inc. v. University of Illinois Foundation*, 402 U.S. 313, 349–50 (1971); *XY*, 890 F.3d at 1295. The present case involves "mutual" issue preclusion because Samsung and Papst were adverse not only in this case but in the IPRs decided in the *'144 Patent Aytac Decision* and the *'746 Patent Aytac Decision*.

1

Papst has advanced no persuasive reason for an exception to applying the above-quoted conditions for issue preclusion in this case. Papst cites *Worlds Inc. v. Bungie, Inc.*, 903 F.3d 1237 (Fed. Cir. 2018), but all we did there was remand on issue preclusion because the record before the court was too scant for the panel to decide if issue preclusion existed. *Id.* at 1247. Here, as we will discuss, we can decide that issue preclusion exists. Papst also cites *In re Cygnus Telecommunications Technology, LLC, Patent Litigation*, 536 F.3d 1343 (Fed. Cir. 2008), but there we held only that an accepted rule—that issue preclusion does not apply within the confines of the single case formed when multiple cases are formally consolidated—also applies in the context of cases formally consolidated for pre-trial purposes through the multi-district-litigation process. *See id.* at 1349–50. Here, there was no comparable consolidation; these were distinct "cases" separately resolved.

The Supreme Court in *B & B Hardware* noted as a general matter that the Restatement standards allow for some exceptions to issue preclusion even when the above-quoted conditions are met. 135 S. Ct. at 1303, 1309−10. The Court specifically recognized that "[i]ssue preclusion may be inapt if 'the amount in controversy in the first action [was] so small in relation to the amount in controversy in the second that preclusion would be plainly unfair." *Id.* at 1309 (quoting Restatement (Second) of Judgments § 28, cmt. *j*). The Court added: "After all, '[f]ew . . . litigants would spend $50,000 to defend a $5,000 claim." *Id.* (quoting Wright & Miller § 4423, at 612); *see Kroeger v. U.S. Postal Service*, 865 F.2d 235, 239−40 (Fed. Cir. 1988); *Marciel v. Comm'r*, 489 F.3d 1018, 1023 (9th Cir. 2007); *United States v. Berman*, 884 F.2d 916, 922 (6th Cir. 1989); *Ferrell v. Pierce*, 785 F.2d 1372, 1385 (7th Cir. 1986).

But Papst has not justified denying issue preclusion here if the basic conditions set out in the above block quote

from *B & B Hardware* are met. Papst has not asserted in-
adequate representation or an impaired opportunity to lit-
igate in the IPRs involving the '144 patent and the '746
patent. *See Soverain Software LLC v. Victoria's Secret Di-
rect Brand Mgt., LLC*, 778 F.3d 1311, 1315−16 (Fed. Cir.
2015) (discussing such grounds for denying preclusive ef-
fect). Nor has Papst presented, let alone supported, any
allegation of a legally significant disparity in incentives be-
tween the present IPR and the two other Aytac-based IPRs
at issue. Papst is in no position now to say that the litiga-
tion costs in those other two IPRs were not worth incurring.
After all, Papst litigated all the way through to final writ-
ten decisions—rather than, for example, disclaim the chal-
lenged patent claims in the '144 patent and the '746 patent
IPRs before the Board reached final written decisions.
Papst then litigated all the way up to the eve of oral argu-
ment in this court. Such pursuit through nearly all of the
available process undermines any assertion of relevantly
low incentives in the IPRs involving Aytac and the '144 pa-
tent and '746 patent.

More generally, given the heavy burdens that Papst
placed on its adversaries, the Board, and this court by wait-
ing so long to abandon defense of the '144 patent and '746
patent claims, Papst's course of action leaves it without a
meaningful basis to argue for systemic efficiencies as a pos-
sible reason for an exception to issue preclusion. Papst also
has no basis to argue that it tried unsuccessfully to secure
an agreement, from Samsung or other petitioners (in this
IPR or others), for efficiency-enhancing multi-case-man-
agement steps: it did not even ask its adversaries to waive
reliance on preclusion. In noting these circumstances, we
do not address what if any ultimate legal relevance differ-
ent circumstances might have in justifying an exception to
the important policy of issue preclusion.

2

We now apply to this case the basic conditions for issue preclusion quoted above. To avoid redundancy, we discuss only the *'144 Patent Aytac Decision*. We readily conclude that the conditions for issue preclusion are met. The *'144 Patent Aytac Decision* resolved against Papst the claim-construction and Aytac-teaching issues now before us, and those resolutions were essential to the Board's decision.

The '437 patent claims at issue recite a processor adapted for an "automatic file transfer process . . . without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer." '437 patent, col. 12, lines 28–42. The core claim-construction issue is whether the "without requiring" language prohibits end-user-loaded software from ever playing a role in the process or whether it simply means that no such software is *needed* for the process to occur, so that it *can* occur without such software. A secondary claim-construction issue is whether SCSI software was properly included in the list of software (along with operating system, BIOS, and other multi-purpose interface software) whose use can be required. The prior-art issue is whether Aytac teaches that performance of the process is possible without the CaTbox software, through SCSI software (or other software already on the computer) alone.

The '144 patent recites a materially identical "without requiring" limitation. '144 patent, col. 12, lines 25–35 ("an automatic file transfer process . . . without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer at any time"). The Board in the *'144 Patent Aytac Decision* resolved the same claim-construction issue in the same way as the Board in the present IPR. It characterized "the issue in dispute" as "center[ing] on whether the 'without requiring' limitations *prohibit* an end user from installing or loading other drivers." *'144 Patent Aytac Decision* at *7. "The claim language," the Board

held, "*does not prohibit* the end user from ever installing or loading the recited software." *Id.* (emphasis in original). The Board also ruled that use of SCSI software does *not* violate the "without requiring" limitations, because the patent clearly shows that such software may be used. *See id.* at *6–*7. That ruling was not just materially identical to the Board's claim-construction ruling in this case; it also was essential to the Board's ultimate determination, which depended on finding that the installation of CATSYNC, as disclosed in Aytac, was not prohibited by the '144 patent's "without requiring" limitation and that Aytac taught that the transfer process could be performed with SCSI software. *See id.* at *16–*18.

The Board in the *'144 Patent Aytac Decision* also made the same finding about Aytac's teaching that the Board made in the present matter. It found that, in Aytac, "the ASPI drivers are the only file transfer enabling software *needed* for transferring a file to the host computer." *Id.* at *17 (emphasis added). The other elements of the CaTbox software, such as CATSYNC, "merely provide additional functionalities," which Papst's expert "confirms in his cross-examination testimony that the claims at issue do not require." *Id.* at *16. On that basis the Board found that Aytac, in combination with the SCSI Specification and admitted prior art, "teaches or suggests transferring a file from the storage memory of the interface device to the computer without requiring any user-loaded file transfer enabling software." *Id.* at *18. This finding was essential to the Board's decision.

Issue preclusion therefore applies to the only two issues properly preserved for and presented on appeal. The Board's decision is affirmed on that basis.

B

We think that the conclusion of issue preclusion here is clear, based on application of general doctrinal principles

to the facts. We also confirm that Papst's challenges fail on the merits, even apart from issue preclusion.

We review the Board's factual findings in an inter partes review for substantial evidence and its legal conclusions de novo. *See Arendi S.A.R.L. v. Apple, Inc.*, 832 F.3d 1355, 1360 (Fed. Cir. 2016). Substantial evidence means "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *In re Mouttet*, 686 F.3d 1322, 1331 (Fed. Cir. 2012). As to claim construction, the Board saw no difference relevant to the issues here between identifying the best construction and identifying the broadest reasonable construction, and the parties have identified no difference either. *See* 37 C.F.R. § 42.100(b).

The Board's conclusion regarding the construction of the "without requiring" limitations of the '437 patent claims is correct. To state that a process can take place "without requiring" a particular action or component is, by the words' ordinary meaning as confirmed in *Celsis In Vitro*, to state simply that the process can occur even though the action or component is not present; it is not to forbid the presence of the particular action or component. 664 F.3d at 926–27 ("'without requiring' means simply that the claim does not require the [recited] step"; "performance of that step does not preclude a finding of infringement"). We therefore agree with the Board on the claim-construction issue the Board identified as the key one.

We also agree with the Board's inclusion of SCSI interface software in the claim construction as a form of permitted software. The specification is decisive. Reflecting the recognition that SCSI interfaces were "present on most host devices or laptops" at the time, '437 patent, col. 8, lines 45–46—which the experts agreed was so, *see* J.A. 281, 2675, 2402—the specification explains that the invention contemplates use of SCSI software, *see* '437 patent, col. 3, lines 53–55, 59–64 (Summary of the Invention notes that SCSI interface is one implementation of a multi-purpose

interface and states: "Communication between the host device and the devices attached to the multi-purpose interface then essentially takes place by means of the specific driver software for the multi-purpose interface and no longer primarily by means of BIOS routines of the host device."); *id.*, col. 10, lines 23−29 ("As described above, communications between the host device and the multi-purpose interface can take place . . . via specific interface drivers which, in the case of SCSI interfaces, are known as multi-purpose interface ASPI (advanced SCSI programming interface) drivers."); *see id.*, col. 11, lines 14−37. And claim 21, depending on claim 1, requires a SCSI driver to issue a SCSI INQUIRY command. *Id.*, col. 13, lines 64−67.

Finally, we see no reversible error in the Board's resolution of the crucial factual issue of what Aytac teaches. In particular, we conclude that substantial evidence supports the Board's finding that a relevant skilled artisan would understand that Aytac's CaTbox can perform an automatic file transfer using SCSI without the CATSYNC software that Papst says is required.

Aytac teaches that CaTbox is seen by the linked computer as "a SCSI disk, a print server, a remote modem . . . and a remote fax device." Aytac, col. 10, lines 27−32. CaTbox provides "a SCSI hard disk (CaTdisc)," along with other functions, to the host PC. *Id.* col. 10, lines 36−40. Aytac describes CaTbox's operation using ASPI (advanced SCSI programming interface) software as follows:

> On the PC **101** side, Windows 95 **520** provides the operating system. An ASPI driver such as ASPI2DOS.SYS **521** from Adaptec corporation provides the SCSI interface layer to all LUNs [logical unit numbers] on CaTbox **102** SCSI node, as well as other SCSI nodes. Another driver from Adaptec Corporation, such as ASPIDISK.SYS **522** provides the disk driver. This driver utilizes the logical connection **550**. In tandem with this driver, a virtual

device driver called CATSYNC.VXD **523** imple-
ments the synchronization between the operating
system of PC **101** and that of CaTbox **102** that ac-
cess the same CaTdisc **301**. The virtual device
driver   utilizes   logical   connection   **554**.
CATSYNC.VXD **523** hooks the File I/O calls from
the PC operating system (in this case Windows 95
520) and replaces the original call with the follow-
ing:

> if File I/O for CaTdisc
>
> notify CaTdisc of beginning of File I/O re-
> ceive acknowledgement
>
> flush File I/O caches for CaTdisc
>
> make the intended File I/O call (LUN=0)
>
> notify CaTdisc of end of File I/O

Id. col. 10, line 53 through col. 11, line 5.

The Board had substantial evidence on which to find
that Aytac's description would be understood by a skilled
artisan to teach that CATSYNC and its call-hooking func-
tionality are not necessary to a file transfer process. Sam-
sung's expert Dr. Reynolds testified that only the SCSI
protocol and the ASPI drivers are needed to transfer a file
in Aytac, similar to the function of the '437 patent. *'437
Patent Decision* at *15. Dr. Reynolds also testified that
CATSYNC is "'intended only to provide synchronization
and coordination among multiple on-going activities be-
tween the host computer and the CaTbox/CaTdisk,' and
this driver is *not required for reading data files from the
CaTdisc* because, if it were not installed, the host com-
puter's requests to READ files would default to LUN 0, the
logical unit number for the CaTdisc." *Id.* (emphasis in orig-
inal); *see* J.A. 2406−10. And Mr. Gafford, Papst's expert,
wrote that "'CaTbox would reliably transfer good data'
when acting as 'a remote hard disc for the PC.'" *'437 Patent*

Decision at *14 (quoting J.A. 2283–84). On this record, we cannot find a lack of substantial-evidence support for the Board's finding that Aytac teaches the claim limitations at issue.

<div align="center">IV</div>

The final written decision of the Board is affirmed.

<div align="center">**AFFIRMED**</div>