NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

NETLIST, INC.,
Appellant

v.

DIABLO TECHNOLOGIES, INC.,
Appellee

2016-1742, 2016-1743, 2016-1744

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2014-00882, IPR2014-00883, IPR2014-01011.

Decided: July 25, 2017

SETH W. LLOYD, Morrison & Foerster LLP, Washington, DC, argued for appellant. Also represented by BRIAN ROBERT MATSUI; MEHRAN ARJOMAND, Los Angeles, CA.

FABIO E. MARINO, McDermott, Will & Emery LLP, Menlo Park, CA, argued for appellee. Also represented by BARRINGTON EARL DYER; NATALIE A. BENNETT, Washington, DC.

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

HUGHES, *Circuit Judge*.

Netlist, Inc. appeals from the final written decisions of the Patent Trial and Appeal Board finding that claims 15-17, 22, 24, 26, and 31-33 of U.S. Patent No. 7,881,150 and claims 1, 16, 17, 24, and 30-31 of U.S. Patent No. 8,081,536 are unpatentable. Because the Board erroneously construed the terms "selectively electrically coupling" and "selectively isolating/isolate," we vacate the Board's decisions and remand for further proceedings.

I

U.S. Patent Nos. 7,881,150 and 8,081,536 cover designs for a memory module in a computer system. A memory module is a computer board that holds random-access memory ("RAM") devices and associated circuitry. Computer systems use RAM devices for short-term data storage to run active programs, such as the operating system or an Internet browser. Within each memory module, individual memory devices are organized into ranks. Each memory rank is in turn connected to a circuit that interfaces with the rest of the computer.

The total capacity of the memory module can be expanded by increasing the number of memory devices on the module. At the time of invention, however, many computers only supported one or two rank modules, thus limiting the total capacity of the module. Adding more memory devices also increases the electrical load on the computer system, which can degrade overall performance.

The '150 and '536 patents claim to solve this problem by providing a circuit that only activates memory devices the computer is accessing, while electrically isolating memory devices that are not being accessed. This allows higher capacity memory modules (i.e. those with more ranks) to interact with computer systems that would otherwise only support modules with fewer ranks. More-

over, isolating inactive ranks of memory also reduces electrical load, which allows the computer system to "run faster and with improved signal integrity."

The '150 and '536 patents share the same specification and overlapping claim terms. Claim 15 of the '150 patent recites, in relevant part,

> A *circuit configured to be mounted on a memory module* so as to be electrically coupled to a first double-data-rate (DDR) memory device having a first data signal line and a first data strobe line, to a second DDR memory device having a second data signal line and a second data strobe line, and to a common data signal line . . .
>
> wherein the circuit is configurable to be responsive to the set of input signals by *selectively electrically coupling* the first data signal line to the common data signal line and *selectively electrically coupling* the second data signal line to the common data signal line . . . .

Claim 22 of the '150 patent recites, in relevant part,

> A circuit *configured to be mounted on a memory module* . . .
>
> wherein the circuit is configurable to be responsive to the set of input signals by *selectively isolating* one or more loads of the DDR memory devices from the computer system . . . .

Claim 1 of the '536 patent recites, in relevant part,

> A circuit *configured to be mounted on a memory module* . . . the circuit including at least one configuration in which the circuit is configured to . . .
>
> selectively isolate a load of the DDR memory circuits of at least one rank of the first number of ranks . . . .

Diablo filed two petitions against the '150 patent and a third petition against the '536 patent. The Board instituted review on all three IPRs. The Board construed various terms, including "circuit configured to be mounted on a memory module," "selectively isolating/isolate," and "selectively electrically coupling."

Based on its constructions, the Board found that claims 15-17, 22, 24, 26, and 31-33 of the '150 patent and claims 1, 16, 17, 24, and 30-31 of the '536 patent were unpatentable over the prior art. Netlist timely appealed, and we have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

II

On appeal, Netlist argues the Board incorrectly construed "selectively electrically coupling," "selectively isolating/isolate," and "circuit configured to be mounted on a memory module."

"We review the Board's ultimate claim constructions de novo and its underlying factual determinations involving extrinsic evidence for substantial evidence." *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1297 (Fed. Cir. 2015). In an IPR for an unexpired patent, the Board must construe terms according to their broadest reasonable construction. *Cuozzo Speed Techs., LLC v. Lee,* 136 S. Ct. 2131, 2144 (2016).

A

We start with the term "circuit configured to be mounted on a memory module," which appears in both the '150 and '536 patents. The Board construed this term as "circuitry configured to be mounted on at least a portion of a memory module," which encompasses "at least a portion of circuitry configured to be mounted on at least a portion of a memory module." J.A. 13, 66, 108.

Netlist argues that a "circuit configured to be mounted on a memory module" means the *entire circuit* must be

on a single memory module. Netlist also contends that allowing any portion of the circuit to be mounted elsewhere would undermine the ability to easily swap out memory modules in the computer system.

We disagree. Nothing in the claim language or specification requires the "entire circuit" to be mounted on the memory module. As the Board correctly noted, the patents broadly define circuit as a term that includes "a configuration of electrical components or devices." And although Netlist argues the claim term "mounted" indicates the entire circuit must be mounted on a single memory module, Netlist fails to show why "mounted" must refer to the entire circuit, rather than a portion of the circuitry. Similarly, although Netlist asserts the ability to swap out memory modules is one advantage of the claimed invention, Netlist does not provide any compelling reason why the claim is limited to embodiments with that feature. Accordingly, we agree with the Board's construction of "circuit configured to be mounted on a memory module."

B

Next, we turn to "selectively electrically coupling," which appears in the '150 patent. The Board construed "selectively electrically coupling" as "making a selection between at least two components so as to transfer power or signal information from one selected component to at least the other selected component."

Netlist contends the construction should be "coupling in response to a selection." According to Netlist, the Board's construction is incorrect because it would be satisfied if the circuit selected among multiple components without electrically coupling or decoupling the identified data signal lines. Netlist also contends that "selectively electrically coupling" cannot occur in circuits where the first/second signal data lines share a hardwired connection with the common data signal line.

We agree that "selectively electrically coupling" refers to coupling or decoupling specific data lines, and not the overall process of selecting components. Accordingly, we adopt Netlist's construction of this term as "coupling in response to a selection." Notably, "the context in which a term is used in the asserted claim can be highly instructive" for claim construction. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc). Here, the context of "selectively electrically coupling" makes clear that the term refers to the connection between the first/second data signal line and the common data signal line. Claim 15, for example, recites a circuit that responds to input signals by "*selectively electrically coupling* the *first data signal line* to the *common data signal line*." (emphasis added). Because the claims call out exactly which two data lines must be coupled, the term "selectively electrically coupling" cannot be reasonably interpreted as "making a selection between at least two components." Stated otherwise, the "selection" is to couple or uncouple the first/second data signal line to the common signal line, not to select among multiple components.

Diablo contends the Board's construction is correct because the circuit necessarily selects between memory devices. At a high level, we agree the circuit activates some memory devices and not others. But the claim term is directed to *how* the circuit performs that function, which is by coupling or decoupling specific data signal lines. In that context, the term "selectively electrically coupling" refers to the connection between the specific data signal lines, not the overall selection process.

To be clear, we do not limit "selectively electrically coupling" to a switch or other specific component. Nor do we hold that "selectively electrically coupling" necessarily precludes a hard-wired connection. Indeed, the parties below raised factual disputes about whether prior art circuits perform selective electrical coupling, even under Netlist's construction. *See*, *e.g.*, J.A. 1273. But because

the Board based its conclusions of obviousness and anticipation on an erroneous construction, the Board must assess these factual issues on remand.

C

Finally, we turn to "selectively isolating/isolate," which appears in both the '150 and '536 patents. Although the same term is used in both patents, the Board construed them differently. For the '150 patent, the Board construed "selectively isolating" as "making a selection between at least two components and not transferring power or signal information from one selected component to the other selected component." But for the '536 patent, the Board construed "selectively isolate" as "electrical separation of a selected component from another component"[1] Netlist contends the term should be construed as "isolate/isolating in response to a selection."

Netlist argues the Board's constructions are wrong because its analysis is based on a flawed interpretation of "selectively electrically coupling." We agree. The specification uses the terms "coupling" and "isolating" in a similar fashion. With respect to the '150 patent, the Board's construction of "selectively isolating" seems to be based on its erroneous construction of "selectively electrically coupling." The Board simply changed "making a selection . . . to transfer power" into "making a selection . . . and not transferring power." Because we find the Board's analysis of "selectively electrically coupling" was flawed, we also conclude the Board's construction of "selectively isolating/isolate" was erroneous.

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[1] There appears to be a typographical error in the Board's final written decision for the '536 patent. This construction is taken from the Board's institution decision, which the Board stated that it intended to adopt for its final written decision.

Although the Board adopted a different construction for the '536 patent, it is unclear if the Board intended to give this term a different meaning. Indeed, the Board applied both constructions in a similar fashion to the prior art. Because the record is unclear as to how the Board actually interpreted and applied "selectively isolating/isolate," we also vacate the Board's invalidity findings with respect to the '536 Patent. On remand, the Board must construe "selectively isolating/isolate" in view of the correct construction for "selectively electrically coupling," as discussed in the previous section.

D

Because we find the Board's claim constructions were erroneous, we vacate the Board's opinions with respect to the '150 and '536 patents. We remand for further proceedings consistent with this opinion.

VACATED AND REMANDED

Costs to Appellant.