

NOTE: This disposition is nonprecedential.

**United States Court of Appeals  
for the Federal Circuit**

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**CREATIVE INTEGRATED SYSTEMS, INC.,**  
*Plaintiff-Appellant,*

v.

**NINTENDO OF AMERICA, INC., NINTENDO CO.,  
LTD., MACRONIX AMERICA, INC., AND MACRONIX  
INTERNATIONAL CO., LTD.,**  
*Defendants-Cross Appellants.*

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2012-1579, -1626

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Appeals from the United States District Court for the  
Central District of California in No. 10-CV-2735, Judge A.  
Howard Matz.

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Decided: June 3, 2013

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TODD G. VARE, Barnes & Thornburg, LLP, of Indian-  
apolis, Indiana, argued for plaintiff-appellant. With him  
on the brief was JEFFREY M. BARRON.

DANIEL J. O'CONNOR, Baker & McKenzie, LLP, of Chi-  
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With him on the brief were EDWARD K. RUNYAN, DANIEL A. TALLITSCH and OMAR D. GALARIA.

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Before LOURIE, CLEVINGER, and REYNA, *Circuit Judges*.

REYNA, *Circuit Judge*.

Creative Integrated Systems, Inc. (“Creative”) owns U.S. Patent No. 5,241,497 (the ’497 patent), which covers certain improvements to read only memory (“ROM”). Creative sued Nintendo of America, Inc., Nintendo Co., Ltd., Macronix America, Inc., and Macronix International Co., Ltd. (collectively, “Nintendo”) for infringement, alleging that ROM chips used in Nintendo gaming systems infringed claims 5-7 and claim 12 of the ’497 patent. After a *Markman* hearing, the parties agreed to a stipulated judgment of non-infringement. Creative appealed the construction of a term known as “term one,” and Nintendo cross-appealed, arguing that the district court erred in finding the “first means” and “second means” terms in claims 5 and 12 not to be indefinite. For the reasons that follow, we reverse the district court’s construction of term one and affirm its ruling that the first and second means are not indefinite. The judgment of non-infringement is therefore vacated.

#### BACKGROUND

The ’497 patent “relates to a read only memory (ROM), and in particular to improvements in the circuitry and methodology of the subcircuits included within a very large scale integrated (VLSI) ROM.” ’497 patent col. 1 ll. 12-15. According to the patent, a typical ROM is comprised of thirteen logical components:

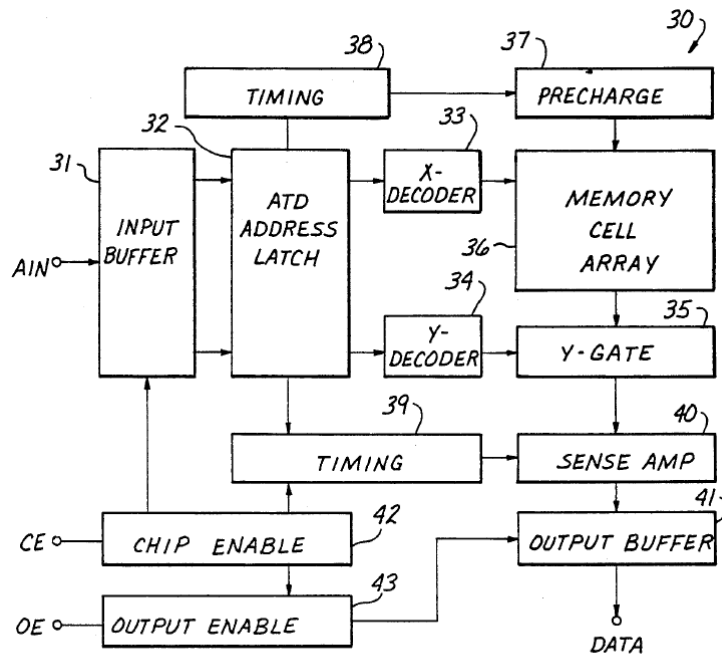
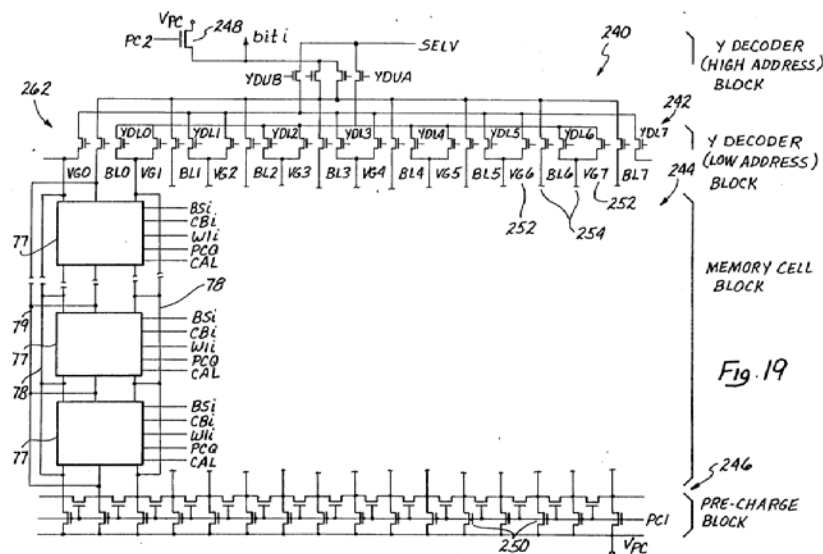


Fig. 1

*Id.* fig. 1. Although the specification of the '497 patent describes improvements to several of these components, it claims improvements to only one of them: the “memory cell array.”

The memory cell array, which contains all of the data stored in the ROM, is a grid of memory cell blocks that, for our purposes, can be thought of as being organized into columns. Each memory cell block contains a certain number of bits of data. To read data from the ROM, the memory cell array must select a single block from this grid, and the block must select a single bit of data. Figure 19 shows the memory cell array with all but one column hidden.



'497 patent fig. 19. In the discussion that follows, we shall refer to the column depicted in figure 19 as "Column 1."

Column 1 is comprised of three memory cell blocks (77).<sup>1</sup> Three lines connect these blocks to one another: two virtual ground lines (VG0 and VG1) and one main bit line (BL0).<sup>2</sup> Ordinarily, none of these blocks are electrically connected to the main bit line. To read an individual bit from Column 1, it is necessary to connect one of the blocks to the main bit line by enabling the block select line (BSi) corresponding to the block that contains the

<sup>1</sup> Of course, columns can contain more than three blocks in actual implementations.

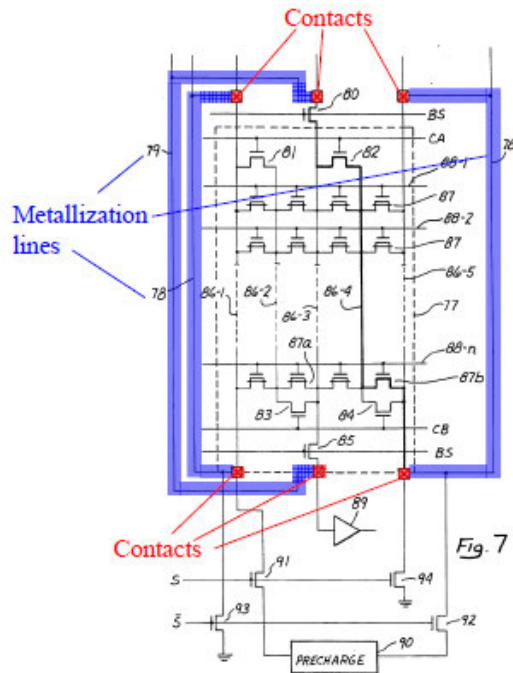
<sup>2</sup> Similarly, the blocks within other columns, not shown in figure 19, are each connected to two virtual ground lines and one main bit line. For example, column two, if it were shown, would be connected along lines VG1, BL1, and VG2, column three to VG2, BL2, and VG3, and so on.

desired bit. An individual bit within a block is then designated by selectively enabling the word lines (Wli) in that block. This creates a path from one of the virtual ground lines through the block to the main bit line, where the bit can ultimately be read.

Although all of the lines can be thought of as physical wires, they come in two different varieties: diffusion lines and metallization lines. Diffusion lines are made by introducing impurities into the ROM chip's silicon base material; metallization lines are made of metal. Each type of line has different properties and uses. Diffusion lines and metallization lines are located on different layers of the ROM chip and are separated by a layer of insulation. When a connection between a metallization line and a diffusion line is necessary, it must be made via a "contact point," a metal post that travels vertically through the insulation layer. The virtual ground lines and main bit lines discussed above are metallization lines, while the lines within individual blocks are diffusion lines.

With this background in mind, we proceed to the claims. The '497 patent claims improvements to the memory cell blocks that make up the grid in the memory cell array depicted in figure 19 and described above. The specification describes two embodiments for implementing the blocks in the memory cell array. For convenience, we refer to each of these embodiments by the number of the figure depicting it in the written description. See '497 patent col. 8 l. 46 to col. 9 l. 27 (describing the figure 7 embodiment); *id.* at col. 9 l. 28 to col. 10 l. 3 (describing the figure 9 embodiment).

In the figure 7 embodiment, the block is connected to the virtual ground lines and the main bit line by three pairs of contacts:

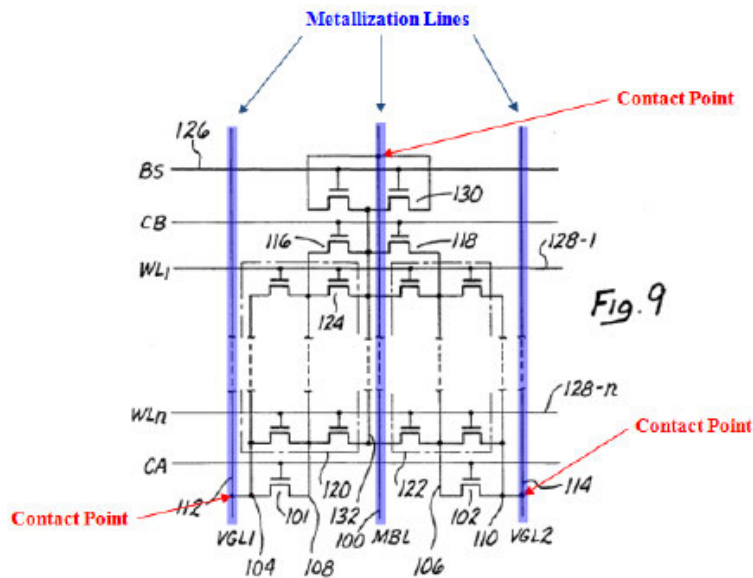


The metallization lines for the two virtual ground lines (78, connected to the leftmost and rightmost pairs of contacts) and the main bit line (79, connected to the middle pair of contacts) are shown shaded in gray. These lines are connected to both the top and the bottom of the block via the six contacts. The remaining lines are diffusion lines.

The block can be selected for reading by enabling block select line BS, which connects the block to the main bit line by means of block select transistors 80 and 85. The block contains four columns of memory cells, with each memory cell storing one bit of data. By selectively coupling one of the virtual ground lines to ground and the other to the precharge, either the left or the right two columns are selected for reading. The CA and CB lines control four column select transistors (81, 82, 83, and 84) to narrow this down to a single column. Finally, address data enters the block on lines 88-1 to -N to designate

which memory cell within the selected column will be read.

The figure 7 and figure 9 blocks perform identical functions—allowing the ROM to read the bit of data at a particular address—and certain features are common to both embodiments. The main difference between the two embodiments is the layout of the contacts. Instead of employing six contacts, the figure 9 embodiment requires only three: one in the middle for the main bit line, and two on the sides for the virtual ground lines:



As in the figure 7 embodiment, lines CA and CB control the four column select transistors (101, 102, 116, 118), permitting the selection of one of the four columns, and the configuration of the two virtual ground lines determines whether the left two or right two columns of memory cells are read. Because there is only one contact to the main bit line, the two block select transistors (130) are both located on the same end of the block.

The figure 9 embodiment is designed to be arranged in alternation with its mirror image to form a column in

the memory cell array. When arranged in this manner, it requires only half the number of contacts as the figure 7 embodiment. A further advantage of this arrangement is that regardless of which memory cell is addressed, the path between the virtual ground and the main bit line is always approximately equal to the length of the addressed block. *See* '497 patent col. 39 ll. 22-24 and col. 41, ll. 17-19.

As originally drafted, the claims did not include the metallization lines. The patentee submitted an amendment adding the lines, explaining that

[e]ach of the claims have directly or indirectly been amended to include an appropriate reference to the metal[l]ization lines connecting the ends of the main bit lines or virtual ground lines within each block in an end-to-end fashion. The metal[l]ization lines allow[] access to each block from either end of the block according to the method and structure of the invention described and claimed above.

J.A. 1469. The amended application eventually issued as the '497 patent.

In 2010, Creative initiated this suit against Nintendo. The district court conducted a *Markman* hearing, construing language in claims 5 and 12 describing the metallization lines to require that the virtual ground lines and main bit line be connected to each end of each block. The court recognized that this construction excluded the figure 9 embodiment from the asserted claims. In addition, the court examined the “first means” and “second means” terms from claims 5 and 12, concluding that the figure 7 embodiment disclosed sufficient structure to support these means plus function terms. Based on the *Markman* order, the parties stipulated to a judgment of non-infringement, and this appeal followed. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).



## DISCUSSION

Creative argues that the district court erred in construing language in claims 5 and 12 to require metallization lines to connect to contacts at each end of each block, and that this error led the court to erroneously conclude that the figure 9 embodiment was not covered by any of the asserted claims. In the cross-appeal, Nintendo disputes the district court's construction of the "first means" and "second means" terms in claims 5 and 12, arguing that the patent is invalid because it discloses no structure for these terms. These are questions of claim construction that this court reviews de novo. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

## I

We begin with Creative's appeal. The district court construed claims 5 and 12 to require that each metallization line be connected to a contact at each end of each block. Creative argues that the plain language of claim 12 is contrary to this result and that in claim 5 the metallization lines connect one block to another, not both ends of an individual block to each other. Creative contends that the district court's construction improperly imports a limitation from the written description into the claims, and that the prosecution history does not clearly disavow the broader reading that the metallization lines need only connect one block to the next.

## A. CLAIM 12

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). The words of a claim are generally given their ordinary and customary meaning, which is the meaning a term would have to a person

of ordinary skill in the art after reviewing the intrinsic record at the time of the invention. *Id.* at 1312-13. The intrinsic record includes the claims, the specification, and the prosecution history. *E.g.*, *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

The district court began its analysis of claim 12 by looking at the claim language. Claim 12 states that the “plurality of blocks [are] coupled together at their ends by metallization lines.” ’497 patent col. 39, ll. 6-9. The court observed that “[t]he plain language of claim [12] appears to strongly support [Creative]’s position. In claim [12], the ‘blocks are coupled together by metal[]ization lines.’ There is no mention of the lines connecting to both ends of each block, or to any end at all.”

The district court’s analysis of the claim language is correct. The language of claim 12 requires only that the plurality of blocks be coupled together by the metallization lines; it does not require that each end of a single block be coupled to the other. By contrast, in unasserted claim 1, the virtual ground lines and main bit lines are connected “at each of said ends of each of said blocks.” This shows that the patentee was able to formulate claims requiring each end of each block to be connected to the metallization lines. The patentee chose not to do so in claim 12, and the district court’s understanding was in accordance with that choice.

The district court could have ended its analysis with the plain language. Instead, it continued, observing that “[t]he specification contradicts the apparent clarity of claim [12]’s language.” The court identified two statements it believed supported a reading contrary to the plain language. First, the specification at one point describes the “invention” as having a plurality of contacts “connected to the virtual ground lines and main bit line at each the [sic] end of each block.” ’497 patent col. 8 ll. 55-57. Second, the specification also describes the virtual

ground lines and main bit line as having “a contact connected therewith at opposing ends of each block of memory cells.” *Id.* col. 9 ll. 14-16. Citing *C.R. Bard, Inc. v. United States Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004), the court reasoned that these statements were entitled to significant weight because they “describe[d] the entire invention and not any specific embodiment.”

In *C.R. Bard*, this court explained that “[s]tatements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term.” 388 F.3d at 864. This is especially true where “other statements and illustrations in the patent are consistent with the limiting description.” *Am. Piledriving Equip., Inc. v. Geoquip, Inc.*, 637 F.3d 1324, 1334 (Fed. Cir. 2011). But this principle has no application where, as here, the other statements and illustrations make it clear that the limitations do *not* describe the invention as a whole.

The problem with the district court’s analysis is that the statements it relies on do not describe the entire invention—they describe only the figure 7 embodiment. The specification and drawings in this case describe over a dozen improvements to various components of ROM circuitry. These improvements include, among other things, oscillators, triggers, sense amplifiers, output inverter stages, and the two different block architectures described by the figure 7 and figure 9 embodiments. Each of the separate sections describing these unrelated improvements refers to the particular improvement it is describing as “the invention.” *See, e.g.*, ’497 patent col. 8 ll. 3-45 (“The invention is an improvement in a memory circuit including an address transition detection circuit . . . .”); *id.* at col 11. ll. 11-27 (“The invention is . . . an address decoder . . . .”); *id.* at col 11 l. 28 to col. 12 l. 2 (“The invention is an improvement in a sense amplifier . . . .”); *id.* at col. 12 ll. 3 to col 13 l. 18 (“The invention is an

improvement in a . . . trigger circuit . . .”); *id.* at col 14, ll. 24-59 (“The invention is an improvement in a . . . bias circuit . . .”). But each of these “inventions” embodies a different improvement; indeed, most are improvements to different components of the ROM.

The district court singled out the portion of the specification describing the figure 7 embodiment, ascribing it extra weight under *C.R. Bard*. But the invention is no more limited to the figure 7 embodiment than it is limited to any other embodiment described as “the invention” in the specification. By affording the two statements describing figure 7 greater weight than they are entitled under the plain language of the claims, the district court improperly limited the claims to the figure 7 embodiment. *See, e.g., Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 904 (Fed. Cir. 2004) (“[I]t is improper to read a limitation from the specification into the claims.”).

In addition to the two sentences from the specification, the district court relied on the patentee’s statement in the prosecution history that “[t]he metallization lines allow[] access to each block from either end of the block” to support its departure from the plain language of claim 12. In the court’s view, this language “confirm[ed] that the metal lines are connected to both ends of each block.”

Statements made during prosecution may affect the scope of the claims. *See Phillips*, 415 F.3d at 1317. Specifically, “a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution.” *Purdue Pharma L.P. v. Endo Pharms. Inc.*, 438 F.3d 1123, 1136 (Fed. Cir. 2006). But an alleged disavowal of claim scope will not limit the scope of a claim if the disavowal is ambiguous. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003).

In this case, the context of the single sentence of the prosecution history relied upon by the district court

supports the plain language construction of the claim. The sentence comes from an amendment submitted after the examiner “suggested that the role of the metallization lines connecting together each block within the memory array be expressly claimed.” The amendment added language describing the metallization lines to each of the independent claims. In some claims, the added language clearly expresses that each end of an individual block is connected to the other, while in other claims the amended language lacks such a limitation, requiring only that the metallization lines connect one block to the next. In explaining these changes, the patentee stated that “the overlying metallization lines . . . connect each block of memory cells to the next block through the end contacts,” that “the metallization lines connect[] the memory blocks end to end through their contacts,” and that “the metallization lines . . . are used to connect one block to another.” These statements reflect the fact that the claims cover multiple embodiments, some of which allow the block to be accessed from contacts on either side, and some of which do not.

The district court singled out one of these statements as “provid[ing] evidence that the applicant intended to claim an invention in which the blocks could be accessed ‘from either end.’” While a court may rely on a single statement as evidence of disavowal, *see Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1377 (Fed. Cir. 2008), that statement must nevertheless be clear and unambiguous.

In this case, there was no such clear and unambiguous disavowal. The single sentence relied on by the district court states that “[t]he metallization lines allow[] access to each block from either end of the block.” This statement disavows nothing. Instead, it describes the figure 7 embodiment, which is claimed by independent claim 1 and which was also amended to include metallization lines in this office action. The discussion of the figure

7 embodiment is not a clear and unambiguous disavowal of the other embodiments, especially given the presence in this office action of numerous amendments and explanations which are not similarly limited in scope.

#### B. CLAIM 5

The corresponding language in claim 5 is slightly different from that of claim 12. In claim 5, the “plurality of blocks [are] coupled together at their ends by metallization lines.” ‘497 patent col. 39, ll. 6-9. As the district court recognized, this language is ambiguous, and could easily support either Nintendo’s or Creative’s desired construction.

Notwithstanding the slightly different language, the district court did not analyze claim 5 separately from claim 12. But the fact that we have rejected the court’s construction of the similar language in claim 12 does not necessarily require us to do the same here, because the plain language of claim 12 presented a formidable obstacle to the district court’s construction that is not present in claim 5.

Nevertheless, we conclude that the district court’s construction of claim 5 was also in error. As discussed above, the court’s application of *C.R. Bard* and its reliance on the prosecution history were improper. The district court employed the same reasoning to claim 5 as it did to claim 12. For the reasons discussed in our analysis of claim 12, construing this term to be limited to figure 7 impermissibly reads a limitation from the specification into the claim. *Intervet Am., Inc. v. Kee-Vet Labs., Inc.*, 887 F.2d 1050, 1053 (Fed. Cir. 1989) (“[L]imitations appearing in the specification will not be read into claims, and . . . interpreting what is meant by a word in a claim is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.” (internal quotation marks omitted)). For these reasons we

reject the district court's construction limiting claim 5 to any particular embodiment.

In addition, we find that the specification contains ample evidence that claim 5 is not limited to the figure 7 embodiment. "Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." *See Phillips*, 415 F.3d at 1314 (citing *Vitronics*, 90 F.3d at 1582). In this case, unasserted claim 1 concisely and unambiguously describes a block that contains contacts on each end which are connected to each other by metallization lines—in other words, a block limited to the figure 7 embodiment. The blocks of claim 1 contain "contact means connected to said virtual ground lines and main bit line at each of said ends of said block," '497 patent col. 38 ll. 21-23, and the metallization lines are connected to the contact means "at each of said ends of each of said blocks." In contrast, claim 5 requires only that the "plurality of blocks [are] coupled together at their ends by metallization lines." To read this language as restricted to figure 7, as the district court did in this case, is to render superfluous the exacting language chosen by the patentee in claim 1. Absent some compelling support limiting claim 5 to the figure 7 embodiment, we decline to do so. *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) ("[C]laim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous[.]").

\* \* \*

The district court correctly determined that the plain language of claim 12 did not require the metallization lines to connect to each end of each block. Its reliance on isolated statements in the specification and prosecution history to support a contrary conclusion was error, and its

construction of this term in claims 5 and 12 is therefore reversed.

## II

In the cross-appeal, Nintendo argues that the “first means” and “second means” terms in claims 5 and 12 lack structure and are therefore indefinite. It contends that the district court improperly relied on expert testimony to overcome the lack of description of the underlying structure for these means-plus-function terms. Creative responds that the district court properly credited expert testimony as to how one of skill in the art would have understood the claims and that sufficient structure is disclosed in both the figure 7 and figure 9 embodiments.

The parties agree that both of these terms are means-plus-function terms. To determine whether a means-plus-function limitation is definite, a court applies a two-step analysis. First, the court must identify the particular claimed function. *See HTC Corp. v. IPCom GmbH & Co., KG*, 667 F.3d 1270, 1278 (Fed. Cir. 2012). Second, the court must look to the specification and identify the corresponding structure, material, or acts that perform that function. *Id.* “[A] challenge to a claim containing a means-plus-function limitation as lacking structural support requires a finding, by clear and convincing evidence, that the specification lacks disclosure of structure sufficient to be understood by one skilled in the art as being adequate to perform the recited function.” *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1376-77 (Fed. Cir. 2001).

## A

The first means and second means are worded differently, and the court supplied a slightly different function and analysis to each. We begin with the first means. The parties agree that the function for the first means is to “selectively couple a diffusion bit line to a virtual ground



line.” The district court used this definition of the function, and we see no reason to disturb it.

The district court identified “transistor 81 and line CA” in figure 7 as the structure for the “first means.” Observing that this structure selectively coupled line 86-1 to line 86-2, the court reasoned that since there was no dispute that line 86-2 was a diffusion bit line, “the only question [wa]s whether [l]ine 86-1 is a diffusion virtual ground line.” The court observed that line 86-1 is a diffusion line and is connected to the virtual ground line. Crediting expert testimony from both sides that a diffusion line connected to a virtual ground line “would reach the same voltage as the metal virtual ground line and would perform the function of a diffusion virtual ground line,” the court concluded that “a person having ordinary skill in the art would know that [l]ine 86-1 is a diffusion virtual ground line.”

The district court did not err in taking the expert testimony into account. “Whether or not the specification adequately sets forth structure corresponding to the claimed function necessitates consideration of that disclosure from the viewpoint of one skilled in the art.” *Budde*, 250 F.3d at 1376. Here, there is no dispute that the structure identified by the district court was disclosed. The parties merely dispute how line 86-1 should be labeled. The district court properly relied on the testimony of both experts to conclude that a person having ordinary skill in the art would understand line 86-1 to be a diffusion virtual ground line. *See Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1212 (Fed. Cir. 2003) (“It is important to determine whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing that structure.”). Nintendo has not shown that this finding was in clear error. Nor has Nintendo provided clear and convincing evidence to show that the specification “lacks disclosure of

structure sufficient to be understood by one skilled in the art as being adequate to perform the recited function.” *Budde*, 250 F.3d at 1376-77. Accordingly, Nintendo has not proven that the patent is invalid on this basis.

## B

The court identified the function for the “second means” as “selectively coupl[ing] a diffusion bit line to a diffusion main bit line.” The difference between this and the first means is that while the first means couples a diffusion bit line to a virtual ground line, the second means couples a diffusion bit line to the main bit line.

Notwithstanding this difference, the district court’s analysis of this term was nearly identical to its analysis of the first means. First, the court again concluded that it could not take figure 9 into account in looking for the structure. The court then identified transistor 83<sup>3</sup> and line CB as the structure corresponding to the second means. As with the first means, the only question was whether line 86-3 could be characterized as a diffusion main bit line. The court concluded that for the same reasons it had discussed in its analysis of the “first means,” the “second means” was supported by sufficient disclosure. We agree that the question is essentially the same and that the analysis of the first means controls.

Nintendo offers two reasons to treat the second means differently from the first. First, Nintendo disputes the district court’s statement that “[l]ine 86-3 is a diffusion main bit line because it is connected to metal main bit line 100,” noting that figure 7 has no reference numbered 100. We agree with Creative that this is a typographical

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<sup>3</sup> The district court identified transistor 85 and line CB as the structure fir the “second means.” The parties are in agreement that this was a typographical error and that the correct transistor is transistor 83.

error. Figures 7 and 9 both contain a main bit line; in figure 9, this line is labeled 100. These lines are both main bit lines and, as figure 19 indicates, both perform the same functions when a block is placed within its context in the memory cell array.

Second, Nintendo contends that unlike line 86-1 and the virtual ground lines in the structure for the first means, line 86-3 is not connected to the main bit line because the connection is made by means of a pair of transistors. It concedes, however, that the two are connected when the block is selected. The fact that the block may be selected or not is not clear and convincing evidence that a person having ordinary skill in the art would not understand that line CB and transistor 83 provide the structure for the second means.

### C

Finally, we note that the district court refused to consider whether figure 9 disclosed structure for the first and second means since under its construction of term 1, figure 9 could not be an embodiment of claims 5 and 12. Under our construction of term 1, however, this is no longer true. As the district court noted, “[t]he [f]igure 7 embodiment contains a structure nearly identical to the structure from [f]igure 9 that [Creative] proposed” as structure for the first means. The same holds true for the second means. We see no meaningful difference, and conclude that figure 9 also discloses structure for the first and second means.

### CONCLUSION

The district court’s construction requiring metallization lines to connect to contacts at each end of each block was error, and is reversed. Its conclusion that a person having ordinary skill in the art would understand the patent to disclose sufficient structure for the first and second means terms is affirmed. Accordingly, the judg-

ment of non-infringement is vacated and the case is remanded to the district court for further proceedings not inconsistent with this opinion.

**AFFIRMED-IN-PART AND REVERSED-IN-PART**

**COSTS**

Each party shall bear its own costs.