United States District Court,
E.D. Texas, Texarkana Division.

LG ELECTRONICS, INC,
Plaintiff.
v.
HITACHI, LTD., et al,
Defendants.

Civil Action No. 5:07-CV-90 (DF)

June 4, 2009.

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SUPPLEMENTAL CLAIM CONSTRUCTION ORDER REGARDING CLAIM 21 OF U.S. PATENT NO. 5,790,096

DAVID FOLSOM**, District Judge.**

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I. INTRODUCTION

This is a patent infringement lawsuit involving four patents, U.S. Patent Nos. 6,404,418; 7,158,456; 6,721,709; and 5,790,096. *See* Dkt. No. 1. The Court previously issued claim-construction orders relating to all four patents but made only a tentative construction of one of the limitations in claim 21 of the '096 Patent. *See* Dkt. Nos. 90-93. After subsequent briefing regarding this limitation, the Court herein supplements its previous construction. The subsequent briefing considered in this Order includes: Hitachi's Supplemental Claim Construction Brief for Claim 21 of the ' 096 Patent (Dkt. No. 115); LG's Combined Opposition to Hitachi's Supplemental Claim Construction Brief and Motion for Partial Summary Judgment of Invalidity Under 35 U.S.C. s. 112 of Asserted Claim 21 of the '096 Patent (Dkt. No. 129); and Hitachi's Reply to LG's Opposition (Dkt. No. 142). FN1

This Order contains the construction for the single limitation for which the Court previously reached only a tentative construction-whether the specification of the '096 Patent discloses "corresponding structure" for the for the "image size/position control means" limitation, and whether the specification discloses "corresponding structure" that performs the function of "generating * * * a pixel clock signal" within the context of claim 21. Please refer to the Court's previous Order for a more complete context and for the applicable legal claim-construction principles. *See* Dkt. No. 93, at 5-8 (background); *id*. at 60-62 (legal principles).

The pertinent claim 21 limitations for purposes of the Court's supplemental claim construction are:

[B] image size/position control means in electrical communication with said timing control means and responsive to said column start, row start, column replicate, and row replicate control signals and said first control signals for generating [1] output column address control signals, [2] output row address control signals for said memory system, and [3] a pixel clock signal; and

[C] frame buffer output control means in electrical communication with said timing control means, said memory system, said image size/position control means, and said flat panel display, and [1] responsive to said pixel clock signal [2] for reading said video image from said memory system.

'096 Patent at 32:7-20 (brackets added).

II. DISCUSSION

The Court initially finds that there is no reasonable question that pixel clock generator 28 is disclosed in the '096 Patent as performing the function of generating a pixel clock signal. The open and more difficult question is whether the "frame buffer output control means" (frame buffer output control 42, as illustrated in Fig. 17, and FIFO (356), as illustrated in Figure 14) is disclosed as being "responsive to said pixel clock signal" generated by pixel clock generator 28. The explanation LG advanced prior to the Court's Order of December 8, 2008 (Dkt. No. 93) left unanswered questions for the reasons outlined in that Order.

A. LG's Current Contention

LG now advances a further explanation and has offered a declaration by Dr. Timothy Drabik (Dkt. No. 129,

Ex. 2) in support. LG has also submitted another annotated drawing said to show why "pixel clock generator" 28 should be deemed part of the "corresponding structure" for the "image size/position control means" limitation.

LG contends that "the pixel clock generator 28 * * * does in fact generate a 'pixel clock signal' that meets the limitations of claim 21," and that "[i]t is also clear that the 'frame buffer output control means' is 'responsive' to the pixel clock signal generated by the pixel clock generator 28." Dkt. No. 129, at 6.

1. Specification Discloses Sufficient Structure

First, the Federal Circuit noted in Biomedino, LLC v. Waters Techs. Corp., 490 F.3d 946, 950-53 (Fed.Cir.2007), that a box labeled "control" in a drawing did not disclose sufficient "structure" to support a "control means" limitation. Here, LG notes that the '096 Patent discloses off-the-shelf chips that may be used, *inter alia,* for pixel clock generator 28:

TABLE IX

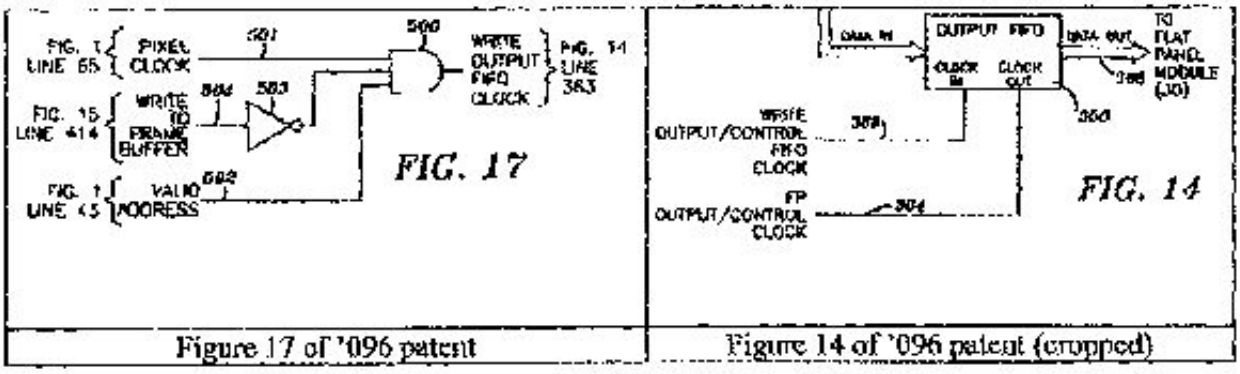
Name/ Reference Number	Manufacturer	Part Number	Manufacturer's Address
Microprocessor 36	Philips Semiconductors	P80CL580HFD	811 East Argus Ave. Sunnyvale, California 94088
Sync Detector 13 & Sync Separator 14	Brooktree Corporation	BT251	9950 Barnes Canyon Road San Diego, California 92121
Composite Video To RGB Converter 11	Brooktree Corporation	BT254	9950 Barnes Canyon Road San Diego, California 92121
Pixel Clock Generator 28	Integrated Circuit Systems, Inc.	ICS1522 or AV9173	2435 Boulevard Of The Generals PO Box 968 Valley Forge, Pennsylvania 19482
A/D Converters 19, 22, 23	Signal Processing Technologies, Inc.	SPT117SBCS	4755 Forge Road Colorado Springs, Colorado 80907
Non-Volatile RAM memory 66	Xicor Inc.	X24C44	851 Buckeye Court Milpitas, California 95035

'096 Patent at 13:31-59; Dkt. No. 129, at 6-7. Dr. Drabik says that one of skill in the art would understand that the chips associated with pixel clock generator 28 "are suitable for creating/synthesizing a pixel clock signal for clocking the sampling and/or digitizing analog video data input for a wide range of line resolutions (*i.e.*, pixels per line)." Dkt. No. 129, Ex. 2, para. 9. Hitachi does not contend otherwise.

2. Pixel Clock Generator 28 Meets the "responsive to" Language

Second, with respect to the "responsive to" issue, LG contends that a signal pathway through several drawings shows that the "frame buffer output control means" is "responsive to" the pixel clock signal generated by the pixel clock generator 28.

LG first notes that the Court construed the "corresponding structure" of the "frame buffer output control means" to be the frame buffer output control unit (42), as illustrated in Fig. 17-a logic schematic diagram of frame buffer output control unit 42 shown in Fig. 1-and FIFO (356), as illustrated in Figure 14. *Id,* at 8. The following illustration is taken from LG's brief.

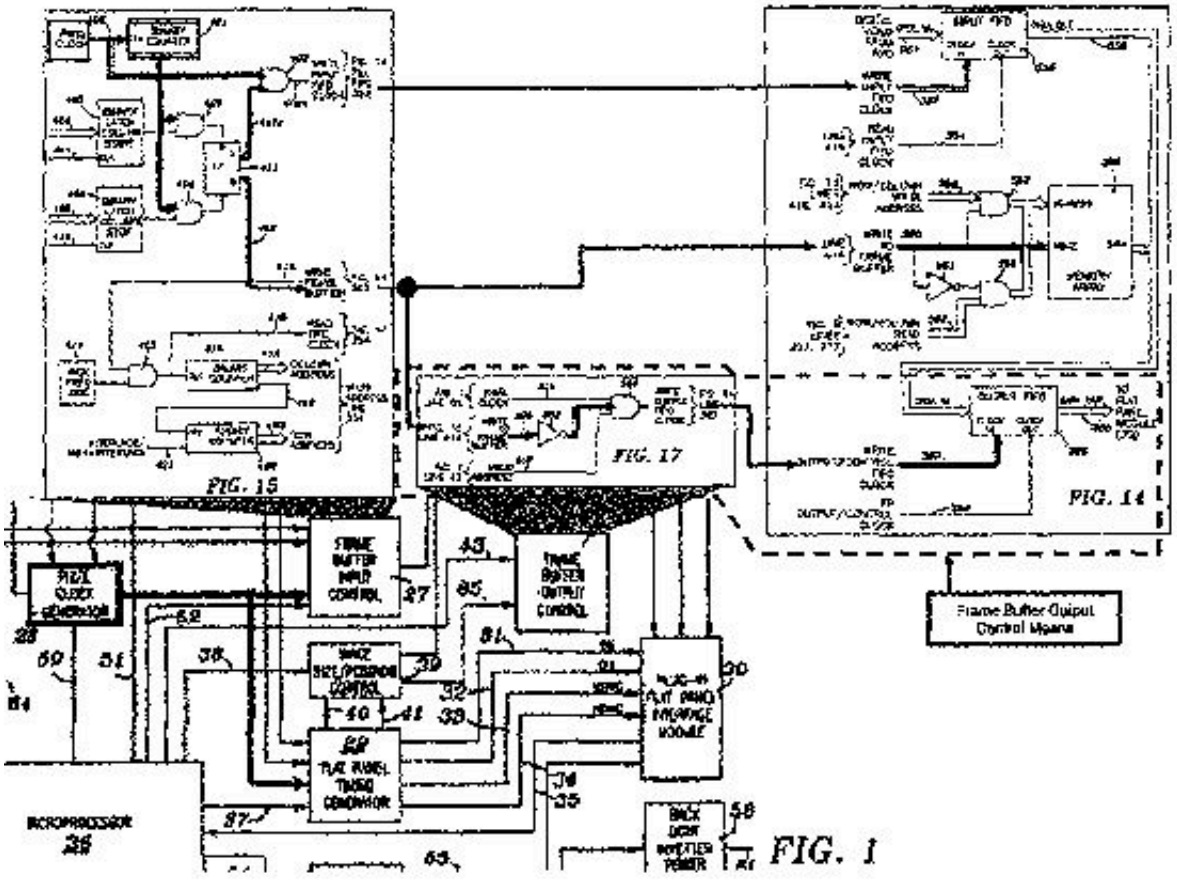


Dkt. No. 129, at 9. LG contends Fig. 17 shows that "frame buffer output control" 42 receives at least three signals, *i.e.,* (1) a signal labeled "Pixel Clock," (2) a signal labeled "Write to Frame Buffer," and (3) a signal labeled "Valid Address." *Id.*

Although one might expect LG to point to the "pixel clock" signal on line 501, LG does not. LG likewise does not rely on the signal labeled "Valid Address" on line 502, which LG notes "originates in the microprocessor 36." Dkt. No. 129, at 8. Instead, LG says that the "pixel clock" signal "originates in the programmable oscillator 180 of the flat panel timing generator (of Figure 7),"-box 29 in Fig. 1. *Id.* LG relies on the signal labeled "Write to Frame Buffer" on line 504. That, LG says, is a "timing signal," that "originates in the pixel clock generator 28 ." Dkt. No. 129 at 8.

LG explains that the "Pixel Clock," "Write to Frame Buffer," and "Valid Address" signals are used by frame buffer output control unit 42 to produce a signal labeled "Write Output FIFO Clock" that is supplied to line 363 in Fig. 14. According to LG, FIFO 356, in response to the "Write Output FIFO Clock" signal on line 363, "determines when FIFO will read the video data stored in the memory array 355." Dkt. No. 129, at 9. LG thus says "it is clear that [a] pixel clock signal generated by the pixel clock generator 28 meets both the 'generate' limitation and the 'responsive' limitation of claim 21." *Id.*

To support its argument, LG provides the following annotated, composite diagram and corresponding explanation:



Dkt. No. 129, Ex. 1. As shown in this composite, the output from pixel clock generator 28 in Fig. 1 is supplied to frame buffer input control 27 and flat panel timing generator 29. Fig. 15 is a logic schematic diagram of frame buffer input control unit 27. LG explains that the pixel clock signal is input to frame buffer input control unit 27 on line 400, and is used to generate a signal on line 402a labeled "Write Input FIFO Clock," and a signal on line 414 labeled "Write Frame Buffer." Dkt. No. 129, at 10.

LG further explains that the "Write Input FIFO Clock" signal on line 402a is provided to (1) Input FIFO 350 on line 552, and is used to determine the rate at which Input FIFO 350 receives digital video data; (2) Memory Array 355 on line 360, which determines the time when video data can be read out of or written into the memory array; and (3) Frame Buffer Output Control Unit 42, which is used to create the "Write Output FIFO Clock" signal on line 363 mentioned above. That signal, according to LG, is then supplied to Output FIFO 356 to determine the time during which Output FIFO 356 can read video data from the memory array. LG further explains that "[t]he timing signal 414 that arrives on line 504 is slaved to pixel clock 400 generated by pixel clock generator 28 as the timing signal 414 is active only when valid video image data is not present on the incoming video line (*i.e.,* when data is outside the column start/column stop window). * * * Without the presence of the pixel clock signal generated by the pixel clock generator 28, neither the 'write input FIFO clock' timing signal 352 nor the 'write to frame buffer' timing signal 414 could be created." Dkt. No. 128, at 10-11.

LG urges that "frame buffer output control unit 42 is responsive to the 'write to frame buffer' timing signal generated from the pixel clock signal from the pixel clock generator 28." *Id.* at 11. LG explains that "frame buffer output control unit 42 uses a timing signal, which is the inverse of the 'write to frame buffer' timing

signal, to determine the time when the output FIFO 356 can read the video data from the memory array," and the "inverse of the 'write to frame buffer' timing signal indicates the time when no video data is present to be written into the memory array from the output FIFO." *Id*. LG further argues that "although the 'frame buffer output control means' may not directly receive the pixel clock signal generated by the pixel clock generator 28, the 'frame buffer output control means' is clearly 'responsive' to the pixel clock signal generated by the generator 28." *Id*. at 12.

B. Hitachi's Response

Hitachi does not dispute the factual and technical accuracy of LG's current explanation of the various signals and the signal flow. Hitachi *does,* however, make three arguments: (1) given LG's articulation of four different "theories" to-date, the specification and drawings of the '096 Patent cannot be said to "clearly link" disclosed structure to the disputed provisions; (2) LG's interpretation of "responsive to" must be wrong because under that interpretation every component would be "responsive to" virtually any signal; and (3) not all "timing signals" are "clock signals." Dkt. No. 142, at 4-6.

C. Analysis

The Court concludes that the specification of the '096 Patent "clearly links" pixel clock generator 28 to the function of "generating * * * a pixel clock signal" within the context of claim 21. Accordingly, the Court concludes that pixel clock generator 28, along with image size/position control unit (39), constitutes "corresponding structure" for the "image size/position control means" limitation. The Court further concludes that the "pixel clock signal" generated by pixel clock generator 28 satisfies the "responsive to" language. The Court is not persuaded by Hitachi's counter-arguments.

1. "clearly link"

Hitachi urges that "[s]tructure disclosed in the specification * * * is only 'corresponding' structure to the claimed means under s. 112, para. 6 if the structure is clearly linked by the specification or the prosecution history to the function recited in the claim." Dkt. No. 142, at 3-4, quoting Unidynamics Corp. v. Automatic Prods. Int'l, Ltd., 157 F.3d 1311, 1319 (Fed.Cir.1998); also citing Medtronic, Inc. v. Adv. Cardio. Sys., Inc., 248 F.3d 1303, 1313 (Fed.Cir.2001). Hitachi urges that LG has now articulated four "theories" and "LGE's inability in four tries over a year of briefing to identify such a [corresponding] structure implicitly but essentially concedes as much." Dkt. No. 142, at 4.

In short, Hitachi's first argument goes to the "quality" of disclosure-or stated differently, a specification that "linked" pixel clock generator 28 to the function of "generating * * * a pixel clock signal" within the context of claim 21 may not be sufficient if the specification does not " *clearly* link" the asserted structure to the recited function. That is, a specification that discloses how a "pixel clock signal" generated by pixel clock generator 28 satisfies the provisions of the "frame buffer output control means" limitation may nevertheless be inadequate if it does not "clearly" do so.

The "clearly linked" language comes from B. Braun Med., Inc. v. Abbott Labs., 124 F.3d 1419 (Fed.Cir.1997). In *Braun,* the patent-in-suit was drawn to a valve that attached to an intravenous line that permitted injection or aspiration of fluids by means of a needleless syringe. One of the claim limitations called for "means * * * for holding said disc firmly against said first means in such a manner that said disc is restrained from sideways movement," which the court construed as a means-plus-function limitation governed by s. 112(6). As to "corresponding structure," the Federal Circuit noted that "we must search [the

specification and drawings] for the structure that holds the flexible disc 50 firmly against the triangular member 40 in a manner that restrains sideways movement." The court found a "traverse cross bar 15" was disclosed as performing the recited function.

The jury, however, had found that the accused products did not infringe because such products lacked a "transverse cross bar" or an equivalent thereof. As a result, Braun argued on appeal that the written description disclosed an alternative structure for performing the recited function, namely a valve seat. The Federal Circuit disagreed, noting:

Although Fig. 3 of the patent shows a valve seat, neither the specification nor the prosecution history contains any indication that the valve seat structure corresponds to the recited function, i .e., that it holds the flexible disc against the triangular member so as to restrain sideways movement. This lack of association between the valve seat and the recited function is especially striking given the explicitly clear association provided between the traverse cross bar and the recited function. Because Braun's specification does not adequately disclose the valve seat as structure that holds the disc firmly in place, Braun has failed to particularly point out and distinctly claim that particular means. * * * In sum, Braun's specification does not describe the valve seat as a structure that holds the disc firmly in place in such manner that it is restrained from sideways movement.

124 F.3d at 1424-25. Consequently, the Federal Circuit found that there was substantial evidence supporting the jury's verdict of non-infringement.

In reaching that conclusion and rejecting Braun's argument, the Federal Circuit wrote: "We hold that, pursuant to this provision [s. 112(6)], structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history *clearly links or associates* that structure to the function recited in the claim. This duty to link or associate structure to function is the *quid pro quo* for the convenience of employing s. 112, para. 6." Id. at 1424 (emphasis added). That language has been subsequently quoted or paraphrased in numerous cases-and the "clearly links or associates" phrase has often been shortened to "clearly links." The Federal Circuit has also repeated that "[t]his duty to link or associate structure to function is the *quid pro quo* for the convenience of employing s. 112, para. 6." Default Proof Credit Card System, Inc. v. Home Depot U.S.A., Inc., 412 F.3d 1291, 1298 (Fed.Cir.2005). The "clearly links" language frequently becomes a focus when one party or the other asserts that a particular component should or should not be deemed part of the "corresponding structure." That, of course, was the situation in *Braun,* and was also the situation in *Default Proof* (discussed in more detail, *infra*).

The same situation occurred in *Medtronic,* which Hitachi cites. That case involved intravascular coronary stents. The asserted claims called for "means for connecting adjacent wire elements together" or "means for connecting adjacent elements together." The parties agreed those were means-plus-function limitations governed by s. 112(6). The patent-in-suit had resulted from a chain of applications and resulting patents. The ultimate parent disclosed a helically-wound continuous-wire stent in Fig. 3, and that same figure appeared in the patent-in-suit. An intermediary continuation-in-part (CIP) application added disclosure for what the court referred to as "straight wires, hooks, and sutures." The district court concluded that the disclosed "corresponding structure" for the means-plus-function limitations were the helical windings, and did not include the "straight wires, hooks, and sutures." Medtronic conceded that there could be no infringement under that construction.

On appeal, the Federal Circuit affirmed. The court noted that "[t]he [CIP application], as with the [ultimate

parent] and the [patent-in-suit], describes the stent only as a helically wound continuous-wire stent," and "[o]ne skilled in the art, after reading the specification, is left with the conviction that nothing more than a helically wound continuous-wire stent is disclosed, even if each of the turns of the helically wound wire is referred to as a separate element." 248 F.3d at 1312. The court further concluded:

Thus, the specification characterizes and describes the straight wire, wire hooks, and suture ties of the overstretch prevention structures as being applied to the formed and already interconnected "coils of the helix" or "helical wire formed coil." While it is unquestionably true that the structures are connected to the coils of the helically wound stent, their function, as made clear in the specification, is not to connect adjacent elements of the helix together, but to prevent overstretch of the formed coil. Indeed, there is no disclosed embodiment or described application of the overstretch prevention structures to a helix in which adjacent coils or elements are not already connected independently of the overstretch prevention structures. *Thus, one skilled in the art would not perceive any clear link or association between these structures and the function of connecting adjacent elements together .*

Id. at 1313 (emphasis added). FN2

Hitachi's argument here, however, is somewhat different. Hitachi argues that the '096 Patent does not disclose "corresponding structure" that performs the "generating * * * a pixel clock signal" function of the "image size/position control means" because, in Hitachi's view, the specification does not "clearly" disclose how pixel clock generator 28 can "generat[e] * * * a pixel clock signal" for purposes of the "image size/position control means" limitation and yet meet the "responsive to said pixel clock signal" language of the "frame buffer output control means" limitation. As a result, Hitachi contends that claim 21 is invalid under s. 112(2) for failure to "particularly point out and distinctly claim" the invention. Accordingly, Hitachi's argument implicates the statutory presumption of validity under s. 282.

Hitachi's argument in essence interprets the "clearly linked" holding in *Braun* as imposing an additional requirement to those imposed by s. 112(2)(in conjunction with s. 112(6)). That is, Hitachi contends that although a disclosure may "link or associate" disclosed structure to a recited function, if the disclosure does not "clearly" do so, then a claim containing a means-plus-function limitation may be held invalid as a result. The Court disagrees that *Braun* imposes requirements in addition to those imposed by the statute. The facts in *Braun* did not involve an assertion that the specification and drawings lacked *any* structure corresponding to the recited function. Rather, the patentee in *Braun* was asserting that the specification disclosed additional or alternative structure in an effort to avoid a finding of non-infringement.

The source for the court's use of "clearly" in *Braun* is uncertain. The seminal case on the current understanding of s. 112(6) is the Federal Circuit's *en banc* opinion in In re Donaldson Co., 16 F.3d 1189, 1195 (Fed.Cir.1994) (*en banc*), in which the court wrote:

If one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.

Thus, in *Donaldson,* the Federal Circuit referred to "an adequate disclosure," not a disclosure that "clearly links or associates" a structure to the function recited in the claim.

In In re Dossel, 115 F.3d 942, 946 (Fed.Cir.1997), the follow-on case to *Donaldson,* the Federal Circuit explained the relationship between s. 112(2) and s. 112(6) at length:

Failure to describe adequately the necessary structure, material, or acts in the written description means that the drafter has failed to comply with the mandate of s. 112 para. 2 * * * the mandate that all claims must particularly point out and distinctly claim the subject matter which the applicant regards as his invention. Paragraph 6 of s. 112, which permits a claim in means-plus-function form and specifies "such claim shall be construed to cover the corresponding structure, material, or acts described in the specification," does not itself implicate the requirements of s. 112 para. 1. Paragraph 1 provides the requirements for what must be contained in the written description regardless of whether claims are written in means-plus-function form or not.

Judge Rich, writing for the *in banc* court in *In re Donaldson Co.,* * * * made precisely this point when he said,

although paragraph six statutorily provides that one may use means-plus-function language in a claim, one is still subject to the requirement that a claim "particularly point out and distinctly claim" the invention. Therefore, if one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.

* * *

Thus the question in the case before us is not whether there has been compliance with some aspect of s. 112 para. 1, but whether, in utilizing the authority of s. 112 para. 6 to claim in means-plus-function form, the drafter has adequately described structure, material, or acts which satisfy the claiming requirement of s. 112 para. 2. It is to that question we turn.

Thus, in *Donaldson* and *Dossel,* the issue of disclosure was phrased in terms of an "adequate disclosure" to comply with s. 112(2) (which itself does not deal with adequacy of disclosure, except in conjunction with s. 112(6) per *Donaldson* and *Dossel*). Neither *Donaldson* nor *Dossel* refer to any requirement that the disclosure " *clearly* link or associate" a structure to the function recited.

Perhaps the court in *Braun* was inferring "clearly links or associates" from the language of s. 112(2), which states:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Of course, that portion of the statute sets out the requirement for *claims*-not the specification or disclosure. Nevertheless, the court in *Donaldson* explained that when one chooses to draft claims in means-plus-function format "one is still subject to the requirement that a claim 'particularly point out and distinctly claim' the invention. Therefore, if one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language." 16 F.3d at 1195. Hence it is possible that the court in *Braun* was inferring "clearly links or associates" from "particularly pointing

out and distinctly claiming" in s. 112(2). However, it is well settled that compliance with s. 112(2) is viewed through the eyes or "lens" of one of ordinary skill in the art. Additionally, because of the statutory presumption of validity under s. 282, it is also well-settled that claims are not deemed invalid for failure to meet the "particularly point[ ] out and distinctly claim[ ]" requirement of s. 112(2) unless efforts to interpret the claim fail because the claim is "insolubly ambiguous."

The Federal Circuit has explained that "[t]he definiteness analysis [under s. 112(2)] requires a determination of 'whether one skilled in the art would understand the bounds of the claim when read in light of the specification.' " Kinetic Concepts, Inc. v. Blue Sky Med. Group, Inc., 554 F.3d 1010, 1022 (Fed.Cir.2009), quoting Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 705 (Fed.Cir.1998). "If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds." *Id*. quoting Exxon Res. & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed.Cir.2001). The *Exxon* Court additionally held that a claim is indefinite if it is insolubly ambiguous and no narrowing construction can be adopted. 265 F.3d at 1375. Subsequently, the Federal Circuit has consistently used the "insolubly ambiguous" analysis in assessing indefiniteness in the context of validity. *See e.g.,* Star Sci., Inc. v. R.J. Reynolds Tobacco Co., 537 F.3d 1357, 1371 (Fed.Cir.2008); Marley Mouldings, Ltd. v. Mikron Industries, 417 F.3d 1356, 1361 (Fed.Cir.2005); Bancorp Servs., L.L.C. v. Hartford Life Ins. Co., 359 F.3d 1367, 1372 (Fed.Cir.2004).

In Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1378 (Fed.Cir.1999), the Federal Circuit held that whether the specification adequately discloses corresponding structure for a means-plus-function limitation should be based on the understanding of one skilled in the art:

We agree with Atmel that the district court erred in its analysis under s. 112, para. 2 and should have determined whether sufficient structure was disclosed in the specification based on the understanding of one skilled in the art. * * * As it is well-established that claims are to be construed in view of the understanding of one skilled in the art, * * * the closely related issue concerning whether sufficient structure has in fact been disclosed to support a means-plus-function limitation should be analyzed under the same standard.

198 F.3d at 1378-79. The court further explained that:

In *In re Dossel* we implied that the "one skilled in the art" mode of analysis applies with equal force when determining whether a s. 112, para. 6 means-plus-function limitation is sufficiently definite under s. 112, para. 2. In *Dossel,* the parties disputed whether adequate structure (in that case, a computer) was disclosed to support the "reconstructing means" limitation in the claims at issue. * * * In concluding that the claim limitation was sufficiently definite under s. 112, para. 2, the understanding of one skilled in the art was an integral part of our analysis * * *.

Id. at 1379.

The Federal Circuit concluded in *Atmel* that "[t]hus, in order for a claim to meet the particularity requirement of para. 2, the corresponding structure(s) of a means-plus-function limitation must be disclosed in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation. Otherwise, one does not know what the claim means." *Id*. at 1382.

The court in *Atmel* also agreed with ISD that "consideration of the understanding of one skilled in the art in no way relieves the patentee of adequately disclosing sufficient structure in the specification," but added "[h]owever, interpretation of what is disclosed must be made in light of the knowledge of one skilled in the art." 198 F.3d 1380. In *Atmel,* the specification disclosed that "known Circuit techniques are used to implement high-voltage circuit 34. *See* On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique, IEEE Journal of Solid State Circuits. * * *." The unrebutted testimony by Atmel's expert was that the "title alone was sufficient to indicate to one skilled in the art the precise structure of the means recited in the specification." *Id*. at 1382.

The court in subsequent cases has clarified what disclosure is required to comply with s. 112(2)as it relates to s. 112(6). In Budde v. Harley-Davidson, Inc., 250 F.3d 1369 (Fed.Cir.2001), for example, the claims of one of the patents-in-suit called for "an electronic sensing means for determining when the ignition system of the engine delivers an electronic pulse to fire each spark plug of the cylinders and producing an electronic signal in response thereto." The district court had held that the specification did not disclose any "corresponding structure." On appeal, the Federal Circuit reversed, explaining, *inter alia,* that "[t]he specification must be read as a whole to determine the structure capable of performing the claimed function. * * * *In construing terms used in patent claims, it is necessary to consider the specification as a whole, and to read all portions of the written description, if possible, in a manner that renders the patent internally consistent. In addition, it is important to construe claim language through the 'viewing glass' of a person skilled in the art*." Id. at 1379-80 (emphasis added). The court found that the specification disclosed four sensors, and the detailed description disclosed how signals from those sensors were fed as an input to a control unit which, in turn, analyzed low voltage timing pulses to determine electronically when each cylinder needed a fuel charge. The court further noted that the four sensor types were "listed under the heading of 'Electronic Sensing' in the description of the preferred embodiment, thus directly linking the disclosed structure to the 'electronic sensing means' limitation in the claims." Id. at 1380. The court found that each of the sensors constituted "corresponding structure."

In Intel Corp. v. VIA Technologies, Inc., 319 F.3d 1357 (Fed.Cir.2003), the district court found that structure corresponding to a means-plus-function limitation consisted of core logic of a computer, along with an accompanying protocol, adapted to perform an operation known as "Fast Write." VIA argued that the claim was "unbounded" because there was no disclosure of the circuitry. The Federal Circuit disagreed: "Here, the specification of the [patent-in-suit] includes three diagrams, 35 signal charts and a detailed written description explaining the invention. A generic description of the core logic, as adapted to practice Fast Write pursuant to the specification, is not inadequate solely because no circuitry is disclosed on how to modify the core logic." Id. at 1366.

In S3, Inc. v. NVIDIA Corp., 259 F.3d 1364, 1370-71 (Fed.Cir.2001), the claim called for "digital-to-analog converter means * * * for selectively receiving either the video information data stream or the video display information data stream [and] converting the received data to analog video signals." The district court found that there was no "corresponding structure" disclosed. On appeal, the Federal Circuit reversed. The parties agreed that a "selector" referenced in the specification and shown in the drawings as an integrated circuit, element 24, performed the recited function of the "means * * * for selectively receiving" limitation. However, the specification did not disclose the electronic structure of the selector or the details of its operation. The Federal Circuit concluded that the selector was a well known electronic component and performed a common electronic function, and accordingly there was an adequate disclosure.

In Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 296 F.3d 1106 (Fed.Cir.2002), on the other hand, the

claim called for "third monitoring means for monitoring the ECG signal produced by said detecting means for activating said charging means in the presence of abnormal cardiac rhythm in need of correction * * *." The Federal Circuit concluded that "it is clear that neither embodiment of the invention contains structure corresponding to the third monitoring means, with its dual functions. Indeed, there is only one entity referenced in the specification that could possibly both monitor the ECG signal and activate the charging means in the presence of abnormal cardiac rhythm: the physician. Cardiac Pacemakers concedes that the physician is plainly not structure corresponding to the claimed cardioverting device. * * * [B]because the specification fails to disclose a corresponding structure that performs both claimed functions other than the physician, the claim fails for indefiniteness." Id. at 1116.

In *Default Proof Credit Card,* the claim called for "means for dispensing at least one debit card for each transaction." The district court found that the claimed function pertained to "distributing or dealing out debit cards to debit card purchasers." Default Proof did not appeal that ruling. The Federal Circuit noted that the patent-in-suit consisted of two figures and three columns of text, and concluded that the only disclosed structure associated with the function of distributing debit cards was a "dispenser" shown in the drawings. The specification described the "dispenser" as "loaded with three or more stacks of debit cards with a digital storage number * * * wherein a unique identifying serial number has been recorded, and identifies [sic] 48." However, Default Proof did not argue that the "dispenser" constituted the "corresponding structure." Rather, Default Proof asserted that "certain specific parts" of a point-of-sale (POS) terminal corresponded to the distributing function. The Federal Circuit concluded that argument failed for two reasons: "First, the specification fails to clearly link the POS terminal, or any part thereof, to the distributing function. Second, the specification fails to describe any parts of the POS terminal capable of dispensing debit cards." 412 F.3d at 1299.

In *Biomedino,* the claims called for "control means for automatically operating valves." The only references in the specification to "control means" were a box labeled "Control" in one of the drawing figures, and a statement that the process "may be controlled automatically by known differential pressure, valving and control equipment." 490 F.3d at 949. The Federal Circuit, in sustaining the district court's finding of invalidity, explained that "[w]hile the specification must contain structure linked to claimed means, this is not a high bar: '[a]ll one needs to do in order to obtain the benefit of [s. 112, para. 6] is to recite some structure corresponding to the means in the specification, as the statute states, so that one can readily ascertain what the claim means and comply with the particularity requirement of [s. 112,] para. 2.' " Id. at 950.

Biomedino argued that the disclosure of the box labeled "Control" and the statement that the process "may be controlled automatically by known differential pressure, valving and control equipment," was sufficient. The Federal Circuit disagreed, noting that "[e]ssentially this case asks the following question: for purposes of s. 112, para. 6, is sufficient corresponding structure disclosed when the specification simply recites that a claimed function can be performed by known methods or using known equipment where prior art of record and the testimony of experts suggest that known methods and equipment exist?" Id. at 951. The Federal Circuit answered No, explaining that "[i]n the present case, there is nothing to suggest a structure for the claimed control means. As we have previously explained, s. 112, para. 6 requires some disclosure of structure in the specification corresponding to the claimed means ." Id. at 952.

In *Tech.* Licensing Corp. v. Videotek, Inc., 545 F.3d 1316, 1338 (Fed.Cir.2008), on the other hand, the Federal Circuit concluded that disclosure of a "video standard detector 103" in a "black box" drawing figure, *i.e.,* without anything more in the drawing figures or text, constituted sufficient disclosure of

structure corresponding to a claim limitation calling for "circuitry to provide a format signal changeable in response to the format of said video type signal." The defendants argued that at the time the application maturing into the patent-in-suit was filed there was no then-existing hardware for performing the function. However, the only evidence the defendants presented was their expert's testimony that he was not personally aware of such hardware. TLC, on the other hand, presented expert testimony that technology had been available to perform the claimed function, and would have been known to one of ordinary skill in the art. The Federal Circuit concluded that defendants had failed to show that the patent-in-suit lacked "corresponding structure."

Atmel and its progeny leave no doubt that the inquiry and analysis of means-plus-function limitations under s. 112(2) as to whether structure for performing a claimed function has been disclosed is governed by and based on the understanding of one of ordinary skill in the art. Second, "in order for a claim to meet the particularity requirement of para. 2, the corresponding structure(s) of a means-plus-function limitation must be disclosed in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation." Atmel, 198 F.3d at 1382. Third, there is no doubt that "[t]he specification must be read as a whole to determine the structure capable of performing the claimed function." Budde, 250 F.3d at 1379.

Also, there is no question that claims drafted in means-plus-function format governed by s. 112(6) are entitled to the presumption of validity under s. 282, and therefore one challenging validity bears satisfying the burden of persuasion by clear and convincing evidence: "For a court to hold that a claim containing a means-plus-function limitation lacks a disclosure of structure in the patent specification that performs the claimed function, necessarily means that the court finds the claim in question indefinite, and thus invalid. Because the claims of a patent are afforded a statutory presumption of validity, overcoming the presumption of validity requires that any facts supporting a holding of invalidity must be proved by clear and convincing evidence." Budde, 250 F.3d at 1376.

Based on the previous analysis, the Court concludes that when the Federal Circuit in *Braun* wrote: "We hold that, pursuant to this provision [s. 112(6)], structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history *clearly links or associates* that structure to the function recited in the claim," 124 F.3d at 1424 (emphasis added), the Federal Circuit was not intending to, and did not, impose additional requirements to the statutory requirements of s. 112(2). The Federal Circuit in *Braun* further was not intending to, and did not, alter the Federal Circuit's consistent analysis of "particularly pointing out and distinctly claiming" in s. 112(2) as requiring that a claim may be held invalid for lack of definiteness only if the claim is "insolubly ambiguous" thereby giving respect to the statutory presumption of validity. Although the "clearly links" language may be useful in deciding whether one particular component or another should or should not be deemed part of the "corresponding structure," *i.e.,* the actual issue in *Braun,* that analysis is not warranted or required when the issue is whether the specification fails to disclose *any* "corresponding structure" for a recited function.

The Court accordingly declines to accept Hitachi's argument that the Court may conclude that the '096 Patent fails to disclose "corresponding structure" for claim 21 because disclosed structure and function are not "clearly linked" as evidenced in part by the fact that LG has articulated, over the course of pre-*Markman* hearing briefing and post- *Markman* hearing briefing, four "theories" why pixel clock generator 28 (along with image size/position control unit (39)) constitutes "corresponding structure" for the "image size/position control means" limitation.

2. The Specification of the '096 Patent "**clearly links" Pixel Clock Generator 28 to the Function of "generating * * * a pixel clock signal" in the "image size/position control means" Limitation**

Furthermore, even if Hitachi is correct that *Braun* added an additional requirement to the statute, s. 112(2), namely that "particularly point out and distinctly claim" requires that disclosed structure be "clearly linked" to recited function, the Court concludes that the specification of the '096 Patent does "clearly link" pixel clock generator 28 to the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation.

In Fig. 1, box 28 is clearly labeled "Pixel Clock Generator." When searching for structure that performs the function of "generating * * * a pixel clock signal," the label alone immediately suggests that relationship. Although that "black box" alone may or may not constitute "sufficient" structure, that is not an issue here. Table IX in the '096 Patent discloses off-the-shelf chips that LG contends may be used, *inter alia,* for pixel clock generator 28. Hitachi does not contend otherwise. In short, Hitachi does not dispute that the '096 Patent discloses sufficient structure for pixel clock generator 28 to perform the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation.

Furthermore, the specification clearly discloses that pixel clock generator 28 "synchronizes all pixel operations for processing video data," *i.e.,* the Court's construction of "pixel clock signal." Indeed, during the pre- *Markman* hearing briefing, LG contended that "pixel clock signal" should be construed as "a clock signal used to synchronize pixel operations for driving the flat panel display." Dkt. No. 93 at 55. Hitachi, on the other hand, contended that "pixel clock signal" should be construed as "a clock signal used to synchronize all pixel operations for processing video data." *Id*. The Court, relying on disclosures in the specification that pixel clock generator 28 "synchronizes all pixel operations for processing video data," and "[i]n response to control information received from the microprocessor 36, the pixel clock generator 28 is line locked to each horizontal line of incoming video, and synchronizes all pixel operations for processing video data," and "[t]he pixel clock is used to synchronize all input timing to the electronic control systems of Fig. 1," agreed with Hitachi's proposed construction. Accordingly, the Court construed "pixel clock signal" to mean "a clock signal used to synchronize all pixel operations for processing video data." Dkt. No. 93, at 56. LG now asserts that "the pixel clock signal generated by the pixel clock generator 28 meets the Court's construction of "pixel clock signal"-viz., "a clock signal used to synchronize all pixel operations for processing video data." Dkt. No. 129, at 12. Hitachi has not disputed that assertion.

The drawings and specification of the '096 Patent "clearly link" pixel clock generator 28 to the function of "generating * * * a pixel clock signal" which is one of the three recited functions of the "image size/position control means" limitation, *i.e.,* "image size/position control means * * * for generating [1] output column address control signals, [2] output row address control signals for said memory system, and [3] a pixel clock signal." Once again, there is little or no dispute that "Image Size/Position Control" 39 performs functions [1] and [2], and there can be little, if any, genuine dispute that pixel clock generator 28 is disclosed as performing function [3]. Thus, there is little or no question that the '096 Patent "clearly links" pixel clock generator 28 to the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation.

3. Core Dispute

The core dispute, though, is (1) when pixel clock generator 28 is deemed the "corresponding structure" for performing the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation, whether (2) the disclosure is "clear" that the additional limitation "frame buffer output control

means * * * responsive to said pixel clock signal" is satisfied.

In the briefing leading up to the *Markman* hearing, the parties essentially agreed that the "corresponding structure" disclosed in the specification for the "frame buffer output control means" limitation was "frame buffer output control unit 42" and "Output FIFO 356." Dkt. No. 93, at 85-90. Accordingly, the Court construed the "corresponding structure" for the "frame buffer output control means" limitation as "frame buffer output control unit (42), as illustrated in Fig. 17, and FIFO (356), as illustrated in Figure 14." Dkt. Nos. 93 and 90.

In the "frame buffer output control means" limitation, the recited function is "reading said video image from said memory system" and *not* "responsive to said pixel clock signal." The "responsive to" provision sets an additional requirement of the "frame buffer output control means" limitation, but is *not* part of the recited function. Accordingly, the "clearly links" analysis of *Braun,* does not apply when analyzing the "frame buffer output control means" limitation.

Nevertheless, assume, arguendo, that Hitachi is correct-that the patentee had an obligation under s. 112(2) and s. 112(6) to provide a "clear" disclosure how the "frame buffer output control means * * * responsive to said pixel clock signal" limitation is satisfied when pixel clock generator 28 is deemed to be the disclosed structure for performing the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation. Even if Hitachi is correct, the Court concludes that the '096 Patent provides such a disclosure when viewed from the perspective of one of ordinary skill in the art, as required by *Atmel*.

The '096 Patent discloses complex technology and has more than eighteen figures (some with subparts) spread across eighteen pages of drawings and almost 28 columns of text, excluding the claims. Fig. 1 is said to illustrate "a functional block diagram of an electronic control system in accordance with the present invention." '096 Patent at 3:35-37. Other figures, for example Fig. 7, provide further disclosure, *e.g..,* "FIG. 7 is a logic schematic diagram of the flat panel timing generator 29 of FIG. 1." '096 Patent at 3:54-55. Thus, the "functional block diagram" of Fig. 1, in essence, is broken into a number of smaller portions for further more detailed drawings and accompanying explanation.

The flow of signals between and among components thus can span several drawing pages. In the case of the various "logic schematic diagrams" in the eighteen pages of drawings, outputs and inputs among the drawing figures, however, are indicated on the drawings themselves, and are also discussed in the specification. It thus may be time consuming to match "inputs" and "outputs." But it is not exceptionally difficult to trace the progression of signals through the various components and circuits, as LG has done in its current brief. Especially given that the parties essentially agreed that the "corresponding structure" for the "frame buffer output control means" limitation was "frame buffer output control unit 42" and "Output FIFO 356," and the '096 Patent "clearly links" pixel clock generator 28 to the function of "generating * * * a pixel clock signal." That is, the beginning and end points are clear.

The '096 Patent clearly leads one along the signal paths among the several drawing figures, identifies specific drawing figures in relation to the overall illustration of Fig. 1, and provides a written description of how the various components operate and co-operate. One wishing to trace the signal paths between "frame buffer output control unit 42" and "Output FIFO 356," at one end, and pixel clock generator 28, at the other end, to determine whether the pixel clock signal generated by pixel clock generator 28 meets the "responsive to" language finds the necessarily disclosure in the specification and drawings of the '096 patent to do so. Furthermore, LG has presented a detailed explanation, supported by an expert declaration, explaining the

link between pixel clock generator 28 as the "corresponding structure" to the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation, in view the additional limitation "frame buffer output control means * * * responsive to said pixel clock signal." Hitachi has presented neither attorney argument nor an expert declaration that LG's explanation is technically or factually incorrect. It is true that Hitachi says LG's "theory has to be wrong," but Hitachi bases that argument on the claim language "responsive to," and does not dispute the factual accuracy of LG's technical explanation. Dkt. No. 142 at 5.

Hitachi also uses "theory" as a pejorative word presumably to disparage LG's explanation of how the '096 Patent links pixel clock generator 28 as the "corresponding structure" to performing the function of "generating * * * a pixel clock signal" in the "image size/position control means" limitation, in view of the additional limitation "frame buffer output control means * * * responsive to said pixel clock signal." Dkt. No. 142, at 3. As already noted, "theory" or not, Hitachi does not question the technical accuracy of LG's current explanation.

With respect to Hitachi's argument that this represent's LG's "fourth theory," as the Federal Circuit pointed out in *Exxon,* "cases frequently present close questions of claim construction on which expert witnesses, trial courts, and even the judges of this court may disagree. Under a broad concept of indefiniteness, all but the clearest claim construction issues could be regarded as giving rise to invalidating indefiniteness in the claims at issue. But we have not adopted that approach to the law of indefiniteness." 265 F.3d at 1375. In this case, the parties were only able to agree on a construction for one claim term, and presented some fourteen terms to the Court for resolution of disputed meanings-in addition to the three means-plus-function limitations. One could argue that a claim fails to "particularly point out and distinctly claim" an invention, simply because there is a genuine dispute about the meaning of terms and phrases, or because a claim permits reasonable alternative interpretations. But, as the *Exxon* Court noted, "[w]e have not insisted that claims be plain on their face in order to avoid condemnation for indefiniteness; rather, what we have asked is that the claims be amenable to construction, however difficult that task may be." *Id* .

That the specification and drawings-like the terms of a claim-may support more than one interpretation does not mean the specification and drawings fail to provide the requisite disclosure under s. 112(2) and (6). Nor does presenting more than one explanation mean that the disclosure is fatally defective or that claims are invalid as a result. Especially when, as here, the specification and drawings of the '096 Patent, even though lengthy and complex, "clearly link" pixel clock generator 28 to the function of "generating * * * a pixel clock signal" and the perceived difficulty comes from reconciling that conclusion with language in a different limitation.

4. "responsive to"

Hitachi also argues that LG's interpretation of "responsive to" is wrong. Hitachi argues that "[i]f all that is required for the frame buffer output control means to be 'responsive to' a signal from pixel clock generator 28 is that it receives a signal from a structure that received a different signal from a different structure that received a different signal from pixel clock generator 28, then nearly everything in the '096 Patent is 'responsive to' everything else and there is nothing in the '096 Patent to 'clearly link' corresponding structure to the claimed functions." Hitachi notes that "[a]fter all, virtually every component in the '096 specification would function differently if virtually any signal were changed. Thus under LGE's definition, these components would all be 'responsive to' each of these signals. This would leave at least a dozen possibilities for the 'pixel clock' signal of claim 21, none of which would be 'clearly linked' to the claimed function as

required." Dkt. No. 142, at 5 (emphasis deleted).

Hitachi's arguments are simply not persuasive. First, there is no dispute that, with respect to the image/size position control means, image size/position control unit (39) is clearly linked to two of the recited functions, namely, "generating output column address control signals, output row address control signals for said memory system." That leaves the third function, *i.e.,* "generating * * * a pixel clock signal." As discussed above, the specification and drawings of the '096 Patent "clearly link" pixel clock generator 28 to the function of "generating * * * a pixel clock signal."

As for the frame buffer output control means, both parties' agreed that the recited function was "reading said video image from said memory system." Dkt. No. 93, at 85. The question under *Braun* is what "structure" is disclosed in the specification and drawings that is "clearly linked" to the recited function, *i .e.,* "reading said video image from said memory system." As discussed above, the parties essentially agreed by the time pre-*Markman* briefing was concluded that the specification and drawings of the '096 Patent "clearly linked" "frame buffer output control unit (42), as illustrated in Fig. 17, and FIFO (356), as illustrated in Figure 14" to the recited function of "reading said video image from said memory system," and the Court likewise so concluded. Dkt. No. 93, at 90.

There are further requirements in the frame buffer output control means limitation that are not part of the recited function, namely: " * * * in electrical communication with said timing control means, said memory system, said image size/position control means, and said flat panel display," and " * * * responsive to said pixel clock signal * * *." The latter provision is not part of the recited function for the "frame buffer output control means," and neither party ever suggested that it was. That is simply another requirement that the "frame buffer output control means" must satisfy. The "clearly linked" question under *Braun* and its progeny simply does not apply here.

Second, LG is correct that the "frame buffer output control means" limitation is " *responsive to* said pixel clock signal," *not* that the "frame buffer output control means" *receives* the pixel clock signal. There is no requirement for the "frame buffer output control means" to *receive* the pixel clock signal generated by pixel clock generator 28. Hitachi's argument is that, under LG's theory, virtually all components could be said, in one form or another, to be "responsive to" other signals from other components because changing one signal would change other signals as well. Although that argument is a bit exaggerated, even if Hitachi is correct, LG has shown that the "frame buffer output control means * * * [is] *responsive to* said pixel clock signal," namely the pixel clock signal generated by pixel clock generator 28. The "frame buffer output control means" may be "responsive to" other signals as well, but Hitachi has not shown-or even attempted to show-that LG's explanation *vis-a-vis* the pixel clock signal generated by pixel clock generator 28 is factually or technically wrong. Besides, claim 21 uses the open-ended transition phrase "comprising," and therefore does not preclude the "frame buffer output control means" from being "responsive to" other signals. *See e.g..,* CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d 1356, 1360 (Fed.Cir.2007) ("In the patent claim context the term 'comprising' is well understood to mean 'including but not limited to'.").

5. Not all "timing signals" are "clock signals"

Hitachi also argues that not all "timing signals" are "clock signals." According to Hitachi, LG apparently argues that the signal actually received by the "frame buffer output control means" qualifies as a "pixel clock signal." Hitachi notes LG's comment that the "write to frame buffer signal 414 received by frame buffer output control unit 42 is a 'timing signal' because it 'determines the time during which video data can

be read out of or written into the memory array" and urges that "[t]his cannot be right." Dkt. No. 142, at 6. Hitachi contends that the signal on line 414 "lacks any periodic behavior, and so cannot be a clock signal even if it is tangentially involved in some kind of timing. * * * While a clock signal may be referred to as a timing signal, this does not mean that all timing signals are clock signals." *Id.*

Hitachi is correct that not all "timing signals" are "clock signals." However, once again, the claim limitation states that the "frame buffer output control means * * * [is] *responsive to* said pixel clock signal," *not* that the "frame buffer output control means" *receives* the pixel clock signal. That is, signals received by the "frame buffer output control means" are not by the plain claim language required to be "clock signals." The only requirement is that the "frame buffer output control means * * * [is] *responsive to* said pixel clock signal." Whether the signal on line 414 "lacks any periodic behavior, and so cannot be a clock signal" is beside the point.

LG explains, *inter alia,* that "[t]he timing signal 414 that arrives on line 504 is slaved to pixel clock 400 generated by pixel clock generator 28 as the timing signal 414 is active only when valid video image data is not present on the incoming video line (*i.e.,* when data is outside the column start/column stop window). * * * Without the presence of the pixel clock signal generated by the pixel clock generator 28, neither the 'write input FIFO clock' timing signal 352 nor the 'write to frame buffer' timing signal 414 could be created." Dkt. No. 128, at 10-11. Hitachi, once again, has not shown-or attempted to show-that LG's explanation is factually wrong.

III. CONCLUSION

In view of the foregoing, the Court concludes that "**image size/position control means in electrical communication with said timing control means and responsive to said column start, row start, column replicate, and row replicate control signals and said first control signals for generating output column address control signals, output row address control signals for said memory system, and a pixel clock signal**" should be construed as a **means-plus-function** limitation under s. 112(6). The recited function is "**generating output column address control signals, output row address control signals for said memory system, and a pixel clock signal." The "corresponding structure" disclosed in the specification for performing that function is image size/position control unit (39), as illustrated in Fig. 8, and pixel clock generator (28).** Under the terms of s. 112(6), the limitation should therefore be construed to cover that corresponding structure and any equivalent structures.

IT IS SO ORDERED.

FN1. Intertwined with the supplemental claim construction briefing is a motion for summary judgment. The Court herein addresses only the claim construction issues. The motion for summary judgment will be addressed by separate order.

FN2. In *Unidynamics,* which Hitachi also cites, the district court had concluded that "spring means tending to keep the door closed" was not in means-plus-function format and that the claim limitation required a spring that had "the effect of both keeping the door closed and closing the door, in order for the word 'tending' to have meaning within the context of the patent as a whole." The alleged infringing machine in one version used a magnet to keep a door closed, and in another version used a padded bracket to keep a door closed. The district court granted summary judgment of non-infringement. On appeal, the Federal

Circuit held that the district court had erred in concluding that the limitation was not a means-plus-function limitation, but that such error was harmless. The Federal Circuit concluded that accused machine did not perform the claimed function of "tending to keep the door closed." 157 F.3d at 1322.

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