United States District Court,
N.D. California, San Jose Division.

Avago Technologies General IP PTE Ltd., et al,
Plaintiffs.
v.
ELAN MICROELECTRONICS CORP., et al,
Defendants.

No. C 04-05385 JW

April 17, 2008.

David Craig McPhie, Newport Beach, CA, Morgan Chu, Richard Elgar Lyon, III, Samuel Kai Lu, Alan J. Heinrich, Irell & Manella LLP, Los Angeles, CA, for Plaintiffs.

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THIRD CLAIM CONSTRUCTION ORDER

JAMES WARE**, District Judge.**

I. INTRODUCTION

Plaintiffs Avago Technologies General IP PTE Ltd. and Avago Technologies ECBU IP PTE Ltd. (collectively, "Avago") allege infringement by Defendants Elan Microelectronics Corp. and Elan Information Technology Group (collectively, "Elan") of U.S. Patent Nos. 5,786,804 (the '804 Patent) and 6,433,780 (the '780 Patent). On August 18, 2006, the Court issued an Order construing the meaning of words and phrases contained in claims of the '804 and '780 Patents. (hereafter, "First Markman," Docket Item No. 103.) On June 13, 2007, the Court issued a Second Claim Construction Order. (hereafter, "Second Markman," Docket Item No. 290.)

Subsequently, in the course of considering a motion by Elan for summary judgment of non-infringement, the Court determined that further construction of Claim 4 of the '780 Patent was required. The parties submitted their respective briefs and the matter was submitted for decision. Upon reconsideration, the Court finds good cause to vacate its previous constructions of Claim 4. This Third Claim Construction Order sets forth the Court's construction of the disputed words and phrases of Claim 4 of the ' 780 Patent.

II. DISCUSSION

Claim 4 provides: FN1

A hand held pointing device for a computer system, the pointing device comprising:

a housing having a bottom surface that moves against a work surface;

the housing also having a top surface shaped to receive the human hand;

the housing also having a skirt connecting a perimeter of the bottom surface with the top surface;

the housing also having a first axis extending generally in the direction from where the heel of the hand rests on the top surface to where the middle finger rests on the top surface, and a second axis perpendicular to the first, both axes parallel to the bottom surface;

an aperture in the bottom surface;

a source of illumination mounted within the interior of the housing, proximate the aperture, that illuminates a portion of the work surface opposite the aperture and having surface height irregularities forming a micro texture with feature sizes in the range of about five to five hundred microns, the illumination producing a pattern of highlights upon surface height irregularities that extend out of the desktop surface and that intercept the illumination and of shadows upon surface height irregularities that extend into the desktop surface and whose illumination is blocked by adjacent surface height irregularities that are illuminated;

an optical motion detection circuit mounted within the interior of the housing and optically coupled to the pattern of highlights and shadows from the surface height irregularities of the illuminated portion of the work surface, the optical motion detection circuit producing motion signals indicative of motion in the directions along the first and second axes and relative to the surface height irregularities of the illuminated portion of the work surface;

wherein the optical motion detection circuit comprises a plurality of photo detectors each having an output, a memory containing a reference frame of digitized photo detector output values and a sample frame of digitized photo detector output values obtained subsequent to the reference frame, and further wherein a plurality of comparison frames, each being a shifted version of one of the reference frame or the sample frame, is correlated with the other of the reference frame or the sample frame to produce a corresponding plurality of correlation values and ascertain motion in the directions along the first and second axes;

and an arithmetic comparison mechanism coupled to the plurality of correlation values, and wherein the motion signals are not output to the computer system whenever a correlation surface described by the plurality of correlation values fails to exhibit a selected curvature.

The parties dispute the construction of the phrase: "plurality of photo detectors each having an output, a memory containing a reference frame of digitized photo detector output values." The Court will discuss the constituent parts of the disputed phrase. The Court applies the standards for claim construction previously articulated.

A. "a plurality of photo detectors"

The '780 Patent claims as an invention a "Seeing Eye Mouse for a Computer System." In the "Summary of the Invention" the inventors disclose that the invention is an "optical" mouse, which "detects motion by directly imaging as an array of pixels the various particular spatial features of a work surface below the mouse." ('780 Patent, Col. 3:1-3.) A skilled artisan would understand that "photo detectors" are electronic devices which, produce variations in electrical signals in response to variations in light radiating from a surface. *See* INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERING (IEEE) DICTIONARY OF STANDARDS TERMS, 821 (7th ed.2000). In the written description, "photo detectors" are described for an embodiment of the invention as follows:

The photo detectors may comprise a square array of say, 12 to 24 detectors on a side, each detector being a photo transistor whose photo sensitive region is 45 by 45 microns and of 60 microns center to center spacing.

('780 Patent, Col. 8:48-52.)

A photo detector is an analog device, in that, the properties of the electrical signal which it outputs at any given point in time can vary to any point within a range. *See* INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERING (IEEE) DICTIONARY OF STANDARDS TERMS,,,,,,, 34 (7th ed.2000). The inventors acknowledge the variable or analog output of the photo detectors in the Background section of the specification:

Some of the detectors will receive only a partial image, which is to say, some detectors will perform an **analog** addition of both light and dark.

('780 Patent, Col. 6:66-7:2.)

B. "each having an output"

The plain meaning of the phrase, "each having an output," to one of ordinary skill in the relevant art is that each photo detector device has an "output." The word "output" discloses a function which each photo detector must perform.FN2

C. "a memory"

The plain meaning of the phrase, "a memory," to one of ordinary skill in the relevant art is a component of a circuit which is capable of storing electronic data for later use.

D. "containing ..."

The Court has determined that the word "containing" introduces a series of functional limitations of the circuit or of disclosed components of the circuit. If read non-functionally, the word "containing" would mean that the enumerated limitations must be present before the circuit begins to perform its intended function. If, as interpreted by the Court, the word "containing" is introductory to functional limitations, it means, "capable of functioning to" perform the enumerated functions.

E. "a reference frame"

In the written description, the inventors discuss storage of data as a frame:

The responses of the individual photo detectors are digitized ... and stored as a **frame**

('780 Patent, Col. 3:30-33.) One of ordinary skill in the relevant art would understand that "frame" is a phrase coined by the inventors to describe a collection of data. From the plain language of Claim 4, a skilled artisan would understand that by the phrase "reference frame," the inventors mean a "frame" which the circuit is capable of obtaining at a point in time in relationship to a subsequently acquired "sample frame." ('780 Patent, Col. 14:37-39.)

F. "digitized photo detector output values"

The phrase "digitized photo detector output values" is a limitation on a function which the circuit must be capable of performing (digitize); it is also a limitation as to the thing on which the function must be performed (photo detector output values). As discussed above, a skilled artisan would understand that each photo detector's output is analog. A skilled artisan would understand that to perform the function of "digitizing" a photo detector's output value, the circuit must have the capability to convert the analog "output value" of "each" photo detector to a digit or number.FN3

Claim 4 of the '780 Patent requires as a limitation that the "digitized" value must be "contained" or as construed by the Court, "containable" in "memory." A description of a preferred embodiment discusses the digitized value in "bits," FN4 which is commonly understood to mean binary digits. However, although Claim 4 requires that what is storable are "digitized photo detector output values," Claim 4 *does not* recite as a limitation that there be one-to-one (or any) "correspondence" between a storage location in an array of the "frame" and the digitized output values of the photo detectors. In contrast, Claim 1 does recite a "corresponding location" limitation:

and wherein the optical motion detection circuit comprises an array of photo detectors each having an output, a memory containing a reference frame of digitized photo detector output values that is **stored in a reference array of memory locations corresponding to the array of photo detectors** and a sample frame of digitized photo detector output values obtained subsequent to the reference frame and that is **stored in a sample array of memory locations corresponding to the array of photo detectors,** and further wherein a plurality of comparison frames, each being a shifted version of one of the reference frame or the sample frame, is correlated with the other of the reference frame or the sample frame to ascertain motion in the directions along the first and second axes, the correlation being upon the values in all memory array locations that correspond to overlap between the comparison frame and the other of the reference frame or the sample frame.

('780 Patent, Col. 13:46-53.)

An embodiment which contains a one-to-one correspondence would meet the limitations of both Claims 1 and 4. However, Claim 4 is broader than Claim 1 in this regard and does not require a corresponding location. The lack of a "corresponding location" limitation in Claim 4 means that some but not necessarily all of the photo detector output values must be stored; and the value being stored must be the digitized values of the photo detector output.

Accordingly, the Court construes the phrase, "**wherein the optical motion detection circuit comprises a plurality of photo detectors each having an output, a memory containing a reference frame of**

digitized photo detector output values" as it is used in Claim 4 of the '780 Patent to mean: **a circuit which comprises a plurality of photo detectors and a memory device, the circuit being capable of converting the output from the plurality of photo detectors from an analog value to a computer storable digital value, and capable of storing some or all of the digitized output values in the memory device of the circuit as a reference frame.**

III. CONCLUSION

The Court has previously set a Case Management Conference **May 2, 2008.** In addition to other matters, to the extent a party believes that further claim construction of Claim 4 is necessary, that party is direct to submit a request to that effect in the Case Management Conference Statement.

FN1. Unless otherwise indicated, all bold typeface is added by the Court for emphasis.

FN2. In the written description, the inventors describe "output" in functional terms (what it does) as opposed to structural terms (what it is). For example, "We could say that we initially take a reference frame by storing the digitized values of the photo detector **outputs** as they appear at some time t.sub.0." * * * "The shifting is accomplished by addressing offsets to memories that can output an entire row or column of an array at one time."

FN3. A "digit" is any whole unit in a numbering system. *See* MICROSOFT COMPUTER DICTIONARY, 157 (5th ed.2002).

FN4. (*See e.g.,* '780 Patent, Col.3:30-34.)

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