

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3
4 MACRONIX INTERNATIONAL CO.,)
5 MACRONIX ASIA)
6 LIMITED, MACRONIX)
7 (HONG KONG) CO., LTD.,) Attorney Docket No.
8 and MACRONIX AMERICA, INC.) 110900-0004-656
9 Petitioner,)
10 -vs-) Case IPR2014-00898
11 SPANSION LLC,) Patent 7,151,027 B1
12 Patent Owner.)
13 _____)

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16 VIDEO DEPOSITION OF DHAVAL J. BRAHMBHATT
17 SEPTEMBER 24, 2014
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23 Reported by:

24 ANNE M. TORREANO, RPR, CCRR, CLR, CSR No. 10520

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3 WEDNESDAY, SEPTEMBER 24, 2014
4 10:35 A.M.
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7 Video deposition of DHAVAL J. BRAHMBHATT, held
8 at 3300 Hillview Avenue, Palo Alto, California,
9 before Anne M. Torreano, a Certified Shorthand
10 Reporter, Registered Professional Reporter,
11 California Certified Realtime Reporter and a
12 Certified LiveNote Reporter.
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22 THE VIDEOGRAPHER:
23 PETER MATTESON
24
25

1 WEDNESDAY, SEPTEMBER 24, 2014
2 PROCEEDINGS

3 THE VIDEOGRAPHER: This is the start of
4 tape labeled No. 1 of the videotaped deposition of
5 Dhaval J. Brahmhatt in the matter of Macronix
6 International, Limited, et al., versus Spansion LLC,
7 before the Patent Trial and Appeal Board, Attorney
8 Docket No. 110900-0004-656.

9 This deposition is being held at 3300
10 Hillview Avenue, Palo Alto, California on September
11 24th, 2014 at approximately 10:35 a.m.

12 My name is Peter Matteson from TSG
13 Reporting, Inc., and I'm the legal video specialist.

14 The court reporter is Anne Torreano, in
15 association with TSG Reporting.

16 Will counsel please introduce yourselves?

17 MR. BAUGHMAN: Steve Baughman from Ropes &
18 Gray, and with me is Janice Jabido from Ropes &
19 Gray, for patent owner Spansion.

20 MR. SOMMER: Andrew Sommer of Winston &
21 Strawn, LLP on behalf of the petitioners.

22 THE VIDEOGRAPHER: Thank you.

23 Will the court reporter please swear in the
24 witness?
25 //

1 DHAVAL J. BRAHMBHATT,
2 having been duly sworn to tell the truth,
3 testified as follows:

4 THE VIDEOGRAPHER: Please proceed.
5 EXAMINATION

6 BY MR. BAUGHMAN:

7 Q. Mr. Brahmhatt, good morning.

8 A. Good morning.

9 Q. Is there any reason, medical or otherwise,
10 that you are not able to fully answer questions
11 truthfully today?

12 A. No.

13 Q. You understand you're testifying today in a
14 proceeding that concerns U.S. Patent No. 7,151,027?

15 A. Yes.

16 Q. I'm going to show you what's previously
17 been marked as Exhibit 1001 in this proceeding.

18 Is that the patent I just referred to?

19 A. Yes, sir.

20 Q. And for ease of reference today, I may
21 refer to Exhibit 1001 as the '027 patent.

22 Do you understand?

23 A. Yes.

24 Q. Mr. Brahmhatt, you've submitted a
25 declaration in another IPR matter, IPR2014-00108,

1 that involved the same '027 patent; is that correct?

2 A. Yes.

3 Q. And you've been deposed before in that IPR
4 matter about this same patent; right?

5 A. Yes.

6 Q. And you've also been deposed before that
7 regarding the '027 patent; is that true?

8 A. Yes.

9 Q. And you've provided opinions and testimony,
10 including a witness statement, in the ITC about the
11 '027 patent under oath; right?

12 A. Yes.

13 MR. SOMMER: Object to form.

14 BY MR. BAUGHMAN:

15 Q. Well, did you provide opinions and
16 testimony including a witness statement in the ITC
17 about the '027 patent?

18 A. Yes.

19 Q. And was -- were those submissions made
20 under oath?

21 MR. SOMMER: Object to form.

22 THE WITNESS: Yes.

23 BY MR. BAUGHMAN:

24 Q. And you submitted a declaration in this IPR
25 proceeding as well; is that right?

1 A. Yes.

2 Q. I'll put before you what's been marked as
3 Exhibit 1002 in this IPR. If you can take a look
4 and see if that's the declaration you provided here.

5 A. Yes.

6 Q. So Exhibit 1002 is your testimony in this
7 IPR; correct?

8 A. Yes.

9 Q. Mr. Brahmbhatt, do you understand that
10 while this cross-examination today is pending,
11 you're not to consult with or confer with counsel
12 about the substance of your testimony?

13 A. Yes.

14 Q. I'd like to ask you a few questions about
15 your background and experience.

16 Mr. Brahmbhatt, do you have any personal
17 experience choosing the parameters for forming
18 polysilicon structures between a memory array and a
19 periphery array in a chip?

20 MR. SOMMER: Object to form.

21 THE WITNESS: Can you ask that question
22 again, please?

23 BY MR. BAUGHMAN:

24 Q. Sure.

25 Mr. Brahmbhatt, you've had experience

1 working with chips; is that correct?

2 A. Yes, sir.

3 Q. Have you had any personal experience
4 designing the structures between a memory array and
5 a periphery array in a chip?

6 MR. SOMMER: Object to form.

7 THE WITNESS: So I have designed a lot of
8 memory chips, and that is how my career started.
9 And specific to any structures, I cannot recall
10 because they involved many structures.

11 BY MR. BAUGHMAN:

12 Q. So do you recall designing any structures
13 at an interface between a memory array and a
14 periphery array?

15 MR. SOMMER: Object to form.

16 THE WITNESS: Once again, I'll say what I
17 said before, that I've designed many chips. Those
18 chips involve many structures, and, specific to all
19 those, I do not recall.

20 BY MR. BAUGHMAN:

21 Q. Do you understand the term "memory array"
22 in terms of a chip?

23 A. Yes, sir.

24 Q. And do you understand the term "periphery
25 area" in terms of a chip?

1 A. Yes, sir.

2 Q. And do you understand how those terms are
3 used in the context of the '027 patent?

4 A. Yes, sir.

5 Q. So sitting here today, do you have a
6 recollection of any personal experience in designing
7 structures between a memory array and a periphery
8 array in a chip?

9 MR. SOMMER: Object to form.

10 Steve, just a quick question. Are you
11 saying "periphery array" or "area"?

12 MR. BAUGHMAN: I think I said "periphery
13 area."

14 MR. SOMMER: Oh, okay. I'm hearing it as
15 "array."

16 MR. BAUGHMAN: I appreciate it. Let me --
17 I haven't had enough coffee this morning. I'm
18 seeing it as "array" as well, so let me just start
19 that over again. And I appreciate the question.
20 BY MR. BAUGHMAN:

21 Q. All right. Mr. Brahmbhatt, I apologize if
22 I was being unclear before. I meant to be saying
23 "periphery area." Let me start that again.

24 Do you have any personal experience in
25 designing structures between a memory array and a

1 periphery area in a chip?

2 A. Sir, a person who designs a chip designs
3 the whole chip; so there are memory arrays, there
4 are periphery areas that are scribe lines, and there
5 are structures in between. So a memory chip would
6 necessarily include whatever there is on the memory
7 chip.

8 Q. And so is that an answer "yes" to my
9 question?

10 A. Well, it was included as part of memory
11 design, all the structures that are included on a
12 memory chip. That's all I can tell you.

13 Q. So, Mr. Brahmhatt, have you personally
14 designed structures at the point of a chip between
15 the memory array and the periphery area?

16 A. I will go back to my response earlier,
17 sir. I have designed quite a few memory chips. A
18 memory chip would include memory arrays, would
19 include periphery, would include bonding pads,
20 scribe lines, and areas in between these sections.

21 So, I mean, that's all I can tell you. I
22 have designed memory chips, and memory chips include
23 many structures.

24 Q. Have you personally selected parameters for
25 the portion of the chip between the memory array and

1 the periphery area?

2 MR. SOMMER: Object to form.

3 THE WITNESS: A design engineer designs
4 chips based on parameters called design rules,
5 called process files, called -- different aspects
6 are involved in designing a chip. A design
7 engineer, when he designs or she designs a chip,
8 that whole design involves a collaborative effort.
9 So a design engineer may be provided process
10 parameters.

11 Design engineers sometimes would take part
12 in some of those parameter definitions. A design
13 engineer would be focused on certain aspects that
14 require his specific expertise, such as how the
15 circuits are hooked up to each other and how --
16 what -- at the same time, it's a team effort, so the
17 whole team sits together and comes up with all these
18 subcomponents that are involved.

19 Now, you're asking me specifically as to
20 what I have done ten, fifteen years ago. That's the
21 best I could tell you.

22 BY MR. BAUGHMAN:

23 Q. So did you act as the design engineer for
24 aspects of memory chips between the memory array and
25 the periphery area?

1 A. Sir, I have worked as a design engineer in
2 the industry. My background shows I have quite a
3 few patents, and I have designed whole chips, not --
4 well, I started doing small portions of the chip
5 when I got out of the college, but quickly I was
6 promoted and given responsibilities to do the whole
7 chip design.

8 So I have done complete chip designs.

9 Q. Do you recall any instances in which your
10 design of the whole chip involved applying your
11 expertise or your decisions to the inclusion or
12 selection of structures for the area between the
13 memory array and the periphery area?

14 A. I have provided a lot of inputs in the
15 total composition of a product that is then being --
16 that were later sold in the marketplace. I do not
17 recall to every little contribution. All I can
18 point you to is my patents that show some aspects of
19 my contributions, but I do not specifically recall
20 how to respond to you.

21 Q. So, sitting here today, you don't have a
22 specific example to provide; is that right?

23 A. Well, sitting here today, all I can tell
24 you is I have done full chip designs, and I have
25 done -- I have made contributions to areas of

1 technologies that are well beyond a design engineer
2 domain. So there are many contributions that I have
3 made over my career.

4 Q. Mr. Brahmhatt, are you familiar with the
5 expression "interface region"?

6 A. Yes, sir.

7 Q. Is that -- can you describe what that is?

8 A. I would focus on the '027 patent, and I
9 would use that definition. The '027 patent -- and
10 I'll just go back to the definition of "interface
11 region" per the patent itself.

12 Okay. Right here.

13 So the patent defines the interface area as
14 is shown here on figure 2, pointed out as 230, as
15 that located between the memory array 220 and the
16 periphery components 210.

17 Q. And using that definition, Mr. Brahmhatt,
18 have you, in your work experience, made any
19 contributions to the design of an interface region
20 or interface area, as you just testified?

21 A. As I've said before, I've designed chips,
22 whole chips, and chips include various areas, and I
23 have made contributions to various areas over my
24 career. I have designed several chips specific to
25 this technology.

1 Q. Well, sitting here today, can you identify
2 any of the contributions you've made to the design
3 of an interface region or area?

4 A. Well, the patents that I have -- I have
5 eleven patents to my name -- I do know that none of
6 them specifically address the interface area. But
7 they address the design and development of
8 nonvolatile memory chips, and it is understood that
9 the nonvolatile memory chip would have different
10 areas on it. So ...

11 Q. Is there any other experience -- you stated
12 that the patents don't specifically address the
13 interface area.

14 Are there any other aspects of your work
15 experience that did involve specifically the
16 interface area?

17 A. I'll go back to my previous response, sir.

18 I have designed quite a few chips, and
19 they're whole chips. Well, I started out doing
20 portions of the chips as I graduated, and then I
21 have done whole chips, and they involve so many
22 different areas. So I do not recall all different
23 areas that I may have contributed, but I have a
24 career of 30 years, so I'm quite confident about my
25 ability to handle this subject. That's all I can

1 tell you.

2 Q. But you don't have a specific example of a
3 contribution to an interface area; correct?

4 A. I just gave my response, sir, to the best
5 of my ability.

6 Q. And that's true as of June 2004?

7 MR. SOMMER: Object to form.

8 THE WITNESS: That's going back quite a few
9 years. Can you ask that question again? I'm sorry.
10 BY MR. BAUGHMAN:

11 Q. Your testimony in Exhibit 1002 regards your
12 understanding of the level of skill of a person in
13 the art as of June 2004; is that correct?

14 A. That is correct.

15 Q. You testified that you don't, sitting here
16 today, have a specific example where you had work
17 experience involving the design of an interface
18 area; correct?

19 A. Yes, sir.

20 Q. And that's true as of June 2004 as well as
21 of today; is that right?

22 A. Yes.

23 MR. SOMMER: Object to form.

24 THE WITNESS: Yes, sir, but I also
25 testified that I have a long career of 30 years, and

1 I've done quite a few nonvolatile memory chips.
2 BY MR. BAUGHMAN:

3 Q. Mr. Brahmhatt, do you have personal
4 experience in determining the process for particular
5 etching steps in chip fabrication?

6 A. I was a product line director in one of my
7 career positions, and a product line director would
8 be involved as a member of the team when such
9 decisions are made. And it was very routine for me
10 to participate in meetings where many, not just
11 this, process issues were brought out, discussed.
12 People contributed, including myself, and decisions
13 were made.

14 A product line director has an umbrella
15 responsibility. So that involved this and other
16 responsibilities.

17 Q. Well, so as a product line director, did
18 you have a supervisory role over all the decisions
19 going into the chip that you were supervising?

20 A. Well, a product line director meant that
21 the responsibility of the product line was under
22 that one individual, but that doesn't mean that, you
23 know, it is a CEO position. What it really meant
24 was in many of these -- it was a team effort, and
25 many of these issues would come out and would be

1 discussed. And the product line director would be
2 necessarily present because it's his job to make
3 sure things are going right for his product line.

4 In addition to that, I went to a graduate
5 school that was heavy, heavy process focused. So I
6 have done -- with my own hands carried wafers and
7 done processing of wafers. So I was probably quite
8 fortunate to be part of that graduate program.

9 Q. And you were part of that graduate program
10 as a student; is that correct?

11 A. As a graduate student.

12 Q. Mr. Brahmhatt, have you ever personally
13 selected an etchant for an etching process of a
14 chip?

15 A. Like I said, these decisions very often
16 would be discussed in a team environment, and a lot
17 of these decisions would be discussed, but then a
18 process engineer would ultimately carry the
19 responsibility. So these would be discussed, but
20 ultimately somebody has to take the responsibility.

21 Q. And you're not a process engineer; is that
22 correct?

23 A. My background is more design and product
24 development and device physics.

25 Q. So you're not a process engineer as you

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