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FEDERAL TRADE COMMISSION  
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UNITED STATES OF AMERICA  
FEDERAL TRADE COMMISSION

In the Matter of: )  
Rambus, Inc. ) Docket No. 9302  
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Tuesday, May 13, 2003  
11:00 a.m.

TRIAL VOLUME 9  
PART 1  
PUBLIC RECORD

BEFORE THE HONORABLE STEPHEN J. McGUIRE  
Chief Administrative Law Judge  
Federal Trade Commission  
600 Pennsylvania Avenue, N.W.  
Washington, D.C.

Reported by: Susanne Bergling, RMR

For The Record, Inc.  
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## P R O C E E D I N G S

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JUDGE McGUIRE: This hearing is now in order.

Counsel, before we get started, are there any housekeeping chores we need to take up first?

Mr. Perry?

MR. PERRY: Your Honor, I wasn't in the courtroom yesterday afternoon when there was some discussion of what we were going to do with video transcripts this afternoon.

JUDGE McGUIRE: Right.

MR. PERRY: So, we do have some objections to a big chunk of the Brown transcript, and we've prepared a very short memorandum --

JUDGE McGUIRE: Yeah, I saw that. I just got that in my office about a half hour ago.

MR. PERRY: I don't know how Your Honor would like to handle that.

JUDGE McGUIRE: Well, I am going to take this up myself, not only with that, but also with the proposed testimony of ^ Dr. Oh, and perhaps it's time that we set some rules regarding any proposed deposition-type testimony, because I've got some concerns across the board, but Mr. Perry, if you want to go ahead and just say what you want to say, and then

1 I'll interact after that.

2 MR. PERRY: Well, Your Honor, I wasn't  
3 intending to argue it now, because these folks haven't  
4 really had a chance to look at it.

5 JUDGE McGUIRE: Right, right.

6 MR. PERRY: Although they have known of our  
7 objections for a long time.

8 JUDGE McGUIRE: Well, let me just say what I  
9 want to say and then we'll go into it.

10 I've reviewed the pleadings from both sides on  
11 the proposed testimony of Dr. Oh, and at this point I  
12 have got a lot of questions about this that I don't  
13 think are answered in the parties' briefs.

14 First of all, I assume that his testimony is  
15 being offered as a non-expert in that regard, and if  
16 that's the case, then his testimony is going to be  
17 handled like any other lay witness under the Rule 701  
18 of evidence. He will only be allowed to testify  
19 regarding his perceptions, his overall general  
20 knowledge and his own observations.

21 Also, I assume that by offering his taped  
22 testimony that his appearance at this trial is  
23 impractical under Rule 3.33(g)(1)(iii)(b). If that is  
24 the case, is there any opposition to that offer by  
25 respondent?

1           MR. PERRY: Well, the position we've taken on  
2 that score is that Dr. Oh was willing to come to this  
3 country for a deposition back in January simply because  
4 of a request from complaint counsel that he do so, and  
5 in the absence of a showing that they've made that  
6 request and it's been refused, we think it's a prima  
7 facie showing of availability. Now, he is out of the  
8 country, so a subpoena wouldn't work.

9           JUDGE McGUIRE: Right.

10          MR. PERRY: But what we don't know is would he  
11 come if he was asked.

12          JUDGE McGUIRE: And that's what I don't know,  
13 so that question needs to be answered by complaint  
14 counsel at this point.

15          MR. PERRY: In addition, Your Honor, if I  
16 could, we did apply to Judge Timony for a subpoena in  
17 advance of his deposition, and that was never ruled  
18 upon unfortunately, so we could not subpoena him  
19 ourselves.

20          JUDGE McGUIRE: Okay, okay. Well, I think  
21 that's --

22          MR. PERRY: That's water under the bridge.

23          JUDGE McGUIRE: -- water over the dam at this  
24 point. So, that's an inquiry I think the Court has for  
25 the complaint counsel in that regard.

1           In the interim, what I want the parties to do  
2           is to confer and determine what portions of his  
3           testimony are not in dispute. I have gone through the  
4           brief of respondent on that regard, and they seem to be  
5           taking a shotgun approach to exclude all of his  
6           testimony, and I don't think that's proper here. I  
7           want the respondent to indicate to me exactly what  
8           questions and what answers in the transcript of that  
9           taped testimony do they have opposition to and state it  
10          by page and line number.

11                 How much time will you all have to have in  
12          order to go through that?

13                 MR. DETRE: Well, Your Honor, we've already  
14          indicated in the transcript what our objections are to  
15          each specific question, and that's already been done,  
16          and --

17                 JUDGE McGUIRE: So, that's in the transcript  
18          already, right?

19                 MR. DETRE: That's in the transcript that we  
20          have designated and counter-designated. Since there  
21          was a couple of blanket objections really which applied  
22          to most of the testimony, not all of it but most of it,  
23          we thought it might be helpful to bring those couple of  
24          objections to your attention, because if you agreed  
25          with us on those objections, then that would exclude,

1 you know, the bulk of Dr. Oh's testimony.

2 JUDGE McGUIRE: Now, those are the items that  
3 you've already stated in your current pleading or ones  
4 that you would supplement?

5 MR. DETRE: No, those are the items that we've  
6 mentioned in our current pleading.

7 JUDGE McGUIRE: Well, then, there appears to be  
8 some argument here between the parties as to the extent  
9 that that opposition would apply to all of the  
10 testimony or the great portion of the testimony. So,  
11 again, I'm going to ask the two of you to confer, the  
12 two sides to confer to see what's in dispute and what  
13 is not in dispute, and then if you're telling me -- I  
14 didn't think that the pleadings by either side were  
15 adequate at this point for me to determine how to  
16 approach this.

17 I think at this point, this whole issue is a  
18 mess to me. I don't think it's at this point ripe for  
19 my order. So, I'm asking the parties to augment what  
20 they've already filed with me so it's very clear as to  
21 what -- again, what questions and answers you're -- you  
22 have opposition to.

23 MR. DETRE: Well, what we can certainly do is  
24 to give you a list, Your Honor, of which specific  
25 questions and answers we thought were covered by these

1 sort of blanket objections. Then we would still have  
2 our other objections.

3 JUDGE McGUIRE: Okay, I just saw -- to be  
4 honest with you, I haven't had a chance to go through  
5 the actual transcript. So, if they're included in  
6 that -- but on the other hand, I don't want to have to  
7 read 300 pages of transcript. That's not my job;  
8 that's your job. So, I want you to put that on paper  
9 to me in writing, and I'll give you adequate time to do  
10 it, and then I'll give the other side adequate time to  
11 file its responses to each of those items.

12 Then after I've ruled on those objections, then  
13 I'm going to ask, to the extent that I rule and I guess  
14 depending on the outcome of that ruling, then complaint  
15 counsel is going to have to edit both the tape and/or  
16 the transcript before we're going to go into that at  
17 the hearing, and then to whatever portions are excluded  
18 from evidence, complaint counsel will be given the  
19 opportunity to make an offer of proof for purposes of  
20 appeal if it should come to that.

21 Now, did you have anything else you wanted to  
22 add on that, Mr. Detre?

23 MR. DETRE: No, Your Honor, we can certainly  
24 get to you that augmentation.

25 JUDGE McGUIRE: Yes, and I am going to apply

1 the same standard as well -- I know the opposition came  
2 in today on the proposed testimony of J. Reese Brown.  
3 Again, the parties need to confer as to that, and let's  
4 go through the same exercise with that so we don't have  
5 to go through this again.

6 I will hear comments from the other side if you  
7 have any at this point, Mr. Royall or Mr. Swindell?

8 MR. ROYALL: Your Honor, I think you have made  
9 your wishes very clear. We will confer on both of  
10 these, and if they then present in writing further  
11 clarification to their objections, we'll respond and  
12 try to resolve it as you suggested.

13 JUDGE McGUIRE: How much time do you need to do  
14 what I've just asked? I asked that earlier and you  
15 said it's already in the transcript, but I don't want  
16 to have to go through the transcript and then itemize  
17 each and every objection.

18 MR. DETRE: We can get our additional list done  
19 by tomorrow, Your Honor.

20 JUDGE McGUIRE: Okay.

21 Then how much time would you need to file your  
22 responses to those objections, Mr. Royall?

23 MR. ROYALL: I don't think it will be long. I  
24 would think a couple of days at the most.

25 JUDGE McGUIRE: Okay, all right. Are we all

1 clear on that one, then?

2 MR. PERRY: One more thing, Your Honor. There  
3 is a stipulation between the parties on Mr. Brown's  
4 unavailability because of his medical condition.  
5 That's not in dispute.

6 JUDGE McGUIRE: Okay, okay.

7 MR. ROYALL: And on that issue, Your Honor, you  
8 mentioned that you have a question on unavailability.  
9 I don't have an answer to that. Mr. Oliver is --

10 JUDGE McGUIRE: Okay.

11 MR. ROYALL: -- more involved in it, and  
12 perhaps this afternoon, if he's in court, he can answer  
13 your questions; if not, tomorrow.

14 JUDGE McGUIRE: Okay, that's fine.

15 Then at this point, what do we intend to have  
16 in terms of testimony for this afternoon's session?

17 MR. SWINDELL: Your Honor, Jerome Swindell for  
18 complaint counsel. We have Mr. Tom Landgraf, formerly  
19 of Hewlett Packard.

20 JUDGE McGUIRE: Okay, at this time you may call  
21 your next witness.

22 MR. SWINDELL: At this time, Your Honor,  
23 complaint counsel calls Mr. Thomas Landgraf.

24 JUDGE McGUIRE: Sir, would you approach the  
25 bench and be sworn by the court reporter.

1 Whereupon--

2 TOM LANDGRAF

3 a witness, called for examination, having been first  
4 duly sworn, was examined and testified as follows:

5 THE WITNESS: Your Honor, do you mind if I  
6 remove my coat?

7 JUDGE McGUIRE: No, go ahead. Today it's kind  
8 of warm. It was cool yesterday. I don't know what's  
9 going on.

10 DIRECT EXAMINATION

11 BY MR. SWINDELL:

12 Q. Good morning, Mr. Landgraf.

13 A. Good morning.

14 Q. Could you state your full name for the record,  
15 please?

16 A. Thomas Carl Landgraf.

17 Q. And where are you currently employed?

18 A. CISCO Systems in San Jose, California.

19 Q. And could you give us a brief description of  
20 your duties at CISCO?

21 A. Yes, presently I'm a commodity manager for  
22 memories at CISCO. The responsibilities I have involve  
23 memory strategies and deployment of the strategy  
24 throughout several of CISCO's business units.

25 Q. What do you mean by "memory strategy"?

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1           A. Memory strategy is a marketing document or  
2 policy that we use to decide which memory suppliers to  
3 use and which technologies to emphasize in our systems  
4 so that -- to essentially reduce the number of choices,  
5 try to streamline the choices, get maximum leverage,  
6 procurement leverage, satisfy any other requirements  
7 for manufacturing and so forth.

8           Q. And are you personally involved in developing  
9 those strategies?

10          A. Yes, I am influencing memory strategy for DRAM  
11 technology, and I am taking over actually the strategy  
12 going forward at CISCO.

13          Q. When you say you're taking over strategy going  
14 forward, what do you mean?

15          A. Prior to my working at CISCO, it was developed  
16 by another group of people, and going forward, I'll be  
17 the one who actually pulls together the entire strategy  
18 and deploys it to business units and other commodity  
19 managers.

20          Q. Has that change already occurred?

21          A. It started -- yeah, it occurred a couple months  
22 ago.

23          Q. And are there specific -- you mentioned DRAMs.  
24 Are there specific types of DRAMs that you have  
25 personal involvement with?

1           A. At CISCO we use the entire gamut of DRAMs,  
2 everything from legacy technologies, such as EDO,  
3 extended data out, all the way up to Synchronous DRAMs,  
4 double data rate. We have some Rambus we're using.  
5 So, CISCO uses the entire breadth of DRAM technology  
6 that's currently in production right now.

7           Q. And how long have you been at CISCO?

8           A. I joined back in mid-October last year.

9           Q. And where were you before CISCO?

10          A. I was working at Hewlett Packard for -- from  
11 September 1979 until last year, so about 23 years.

12          Q. Okay. Let's start back in 1979, and we'll just  
13 try to go through the time line briefly.

14                 What was your position when you first came to  
15 Hewlett Packard in '79?

16          A. I had started as a hardware development  
17 engineer at HP. I was working on the development of a  
18 microprocessor board for a color graphics terminal. I  
19 did that for about two and a half years or so,  
20 basically design, development, testing and bringing it  
21 to manufacturing.

22          Q. So, that would be about to 1982 or so?

23          A. '81-'82 is about that -- right.

24          Q. And what was your next position at Hewlett  
25 Packard?

1           A. From that point I transitioned from hardware  
2 development in the R&D group into manufacturing. I  
3 became a product engineer and went with that product  
4 into manufacturing, helped debug some of the early  
5 startup production problems, and solved some of the  
6 sustaining engineering problems. I did that for a  
7 couple of years. I can't be specific with the exact  
8 date, but it was until about '83, '83-'84 time frame.

9           Then from that point I continued in  
10 manufacturing, but instead of doing production  
11 engineering, I worked on a smaller development project  
12 to look at surface-mount manufacturing technologies at  
13 HP in the lab and production area I was in, and I did  
14 that for a few years.

15          Q. What is surface-mount manufacturing  
16 capabilities -- is that --

17          A. Technology. Surface-mount technology is a  
18 popular method now for mounting electronic components  
19 on a printed circuit board. Prior to that, the  
20 board -- the components had leads, and they went  
21 through drilled holes on the printed circuit boards,  
22 and in the eighties, there was a transition made to  
23 surface-mount technology. So, HP was looking at it for  
24 various improvements in density and performance. So,  
25 we were looking at manufacturing solutions for that.

1 Q. And you said that was until about 1983?

2 A. '83-'84 time frame.

3 Q. And what did you do next at Hewlett Packard?

4 A. About that time frame, I left that  
5 organization, which was a low-end personal computer  
6 group, and I went to a group that was working on the  
7 development of a RISC-based work station/low-end  
8 server, and so I went into -- I left manufacturing,  
9 went into product development and did some hardware  
10 development tool design, hardware designs, hardware  
11 simulators and emulators. I did that roughly from the  
12 '84 to '86 time frame and did a couple of hardware  
13 designs, tested those. They were not going to  
14 production; they were just for development activities.

15 About -- sort of beginning in '85-'86, I took a  
16 position as a project manager in new product  
17 introduction. So, I went back into manufacturing and  
18 supported these products that they were working on and  
19 the new product introduction activities, so --

20 Q. Well, let me ask, when you say supported  
21 products that they were working on, what do you mean?  
22 What were your sort of daily functions in terms of  
23 supporting them?

24 A. Okay, as a project manager, I managed a team of  
25 about five or six people, which included some materials

1 engineers, some technicians and a couple of -- I think  
2 they were buyers at the time. So, our job was to do  
3 the prototype hardware development -- not development,  
4 prototype hardware production for the R&D group we were  
5 working with, to take those copies, build a number of  
6 copies of them, debug them and give them to lab  
7 engineers for broader testing on that.

8 So, in new product introduction, the idea is  
9 you're taking a concept of one and expanding that to  
10 another 10, 20, 30 systems and giving them to people  
11 for test development.

12 Q. And how long were you a project manager or what  
13 year did you switch positions?

14 A. That was around -- that was about '86-'87 up  
15 until about '89 was when that position ended. The  
16 product we were developing, the low-end server, was  
17 transitioned to manufacturing, and then the -- we had a  
18 reorganization, and the development organization was  
19 absorbed into other parts of HP.

20 I went into the personal computer group in late  
21 '89 as a project manager to develop a couple of  
22 personal computers. So, from '89 to '91, I was  
23 managing hardware engineers.

24 Q. And what did managing the hardware engineers  
25 involve?

1           A. It was working with a team of about seven  
2 engineers to develop personal computer motherboards;  
3 essentially figure out which features to put on them,  
4 manage a schedule, manage the budget, manage the team  
5 for the hardware development and eventual transition  
6 into manufacturing for two PCs. Everything associated  
7 with hardware development.

8           Q. And how long did you stay as the project  
9 manager?

10          A. That was about two years, until about 1991,  
11 late '91, and then went through another reorganization,  
12 and I then moved to HP's corporate procurement offices  
13 in Palo Alto and took a job as a Memory Technology  
14 Center manager managing about -- I believe it was three  
15 engineers at the time. We were -- this position was --  
16 my position was managing the engineers who were testing  
17 and qualifying a number of memory components for  
18 general use in HP.

19          Q. What's the Memory Technology Center?

20          A. The MTC, as we called it, is a centralized test  
21 and qualification center that HP had to qualify a  
22 number of memories that HP was using, memory families,  
23 by different suppliers, and this was working with the  
24 business side, so we would -- they would select which  
25 suppliers to use, and we would be using -- we would

1       qualify certain suppliers, and then business units  
2       would use these qualified memories in their products  
3       and would go into production with that.

4           Q.   And what sort of memories were you testing and  
5       qualifying?

6           A.   At that time, I was involved with static RAMs,  
7       SRAMs, and nonvolatile memories, which was a category  
8       where we would include flash memory and we include mass  
9       ROMs and electrically erasable programmable memories.  
10       HP used these devices in a wide number of products,  
11       everything from servers and cache memories for the  
12       SRAMs; we used the mass ROMs for storing printer code;  
13       and flash memory would be used in PCs for storing the  
14       BIOS code.

15          Q.   And how long were you in the Memory Technology  
16       Center?

17          A.   I was in that organization until about 1997-'98  
18       time frame -- the '98 time frame.  So, I was a project  
19       manager for a while, and then I took -- when we had  
20       another reorganization, I took a position as an  
21       individual contributor in MTC, and I continued doing  
22       engineering until I would say about the 1998 time  
23       frame.

24          Q.   And what did you do then?

25          A.   I took a lateral transfer into the -- as a --

1 into a position called a procurement engineer for  
2 DRAMs, and that was a less technical job. It was not  
3 doing qualifications, but it was supporting the  
4 commodity managers in developing and modifying the  
5 memory strategy. So, again, working with suppliers,  
6 which technology is going forward, working with  
7 materials engineers and the business units that HP had  
8 to make sure that they chose the right technologies and  
9 the right suppliers, that sort of thing.

10 Q. And was that the -- was that the last job you  
11 had at CISCO -- at Hewlett Packard?

12 A. Yes, I continued in procurement engineering  
13 until about -- until last year, October of last year.

14 Q. Now, did -- you mentioned that at least in some  
15 of your jobs you were involved in developing Hewlett  
16 Packard's memory strategy.

17 A. Yes.

18 Q. Did -- I just want to get a little bit more  
19 detail about what that involved. Did you meet with the  
20 suppliers?

21 A. Yes, the memory strategy is a documented set of  
22 guidelines or policies that we want to use to select  
23 the technologies that met the HP requirements from a  
24 technical point of view, and along with suppliers to  
25 use, that we had good business relationships with, we

1 had good procurement agreements, contracts with them,  
2 they had the capabilities to develop next generation  
3 products.

4 So, we had a chance to meet those suppliers on  
5 a regular basis, both to understand their product road  
6 maps, the product offerings that they had, both for  
7 sale immediately as well as products going forward.

8 And we also gave feedback to suppliers in terms  
9 of how their performance was relative to meeting HP's  
10 needs in areas of quality and technology and delivery  
11 responsiveness, things of that nature.

12 Q. If you could briefly just describe your  
13 educational background, where did you go to college?

14 A. I graduated from the University of California  
15 at Davis in 1976 with a Bachelor's in electrical  
16 engineering, and I went part-time to the University of  
17 Santa Clara, also in California, to earn a Master's in  
18 electrical engineering/computer science. I believe  
19 that was 198 -- '81 was when I got that degree. And  
20 then I started a business administration degree and  
21 earned that also from the University of Santa Clara in  
22 about 1984.

23 Q. Okay. Are you familiar with an organization  
24 called JEDEC?

25 A. Yes. That's the Joint Electronic Device

1       Engineering Council. I was a member of JEDEC for five  
2       years.

3           Q. Let me ask you, what did you understand JEDEC  
4       to be?

5           A. JEDEC is a standardization body that is a --  
6       brings together memory -- or electronic component  
7       manufacturers as well as customers using those devices  
8       to formulate common standards that can be used by  
9       manufacturers and be understood by the users.

10          Q. How did you come to learn about JEDEC?

11          A. I learned about JEDEC -- I heard the name as an  
12       engineer, but I didn't really have much information  
13       about the organization. Lots of suppliers' data sheets  
14       had "JEDEC-approved" or "JEDEC-compliant" or  
15       "JEDEC-standardized," but in around the '91 time frame  
16       when I joined the Memory Technology Center, we had --  
17       my manager -- or one of my colleague managers was a  
18       member of JEDEC, and then one of my -- who later became  
19       one of my peers was a member of JEDEC.

20                 Then we went through a reorganization, and this  
21       manager, Francoise Lemouel, returned back to HP in  
22       Grenoble, and I was chosen as a manager representing  
23       HP, so that was around the '93 time frame or '94 time  
24       frame.

25          Q. Let me back up a little bit. The manager that

1 you're talking about was -- what's the name of the  
2 manager?

3 A. Francoise Lemouel.

4 Q. Could you spell that, please?

5 A. Yes, F-R-A-N-C-O-I-S-E, last name is  
6 L-E-M-O-U-E-L.

7 Q. And you mentioned another colleague, who was  
8 that?

9 A. The other colleague was Hans Wiggers, H A N S,  
10 Wiggers, W I G G E R S.

11 Q. And what is Grenoble?

12 A. Grenoble is a -- used to be an R&D and  
13 manufacturing and marketing center for HP in France,  
14 Grenoble, France, and they were -- they have done a  
15 number of products over the years, including personal  
16 computers and terminals and things like that.

17 Q. And was Francoise from Grenoble or in the  
18 Memory Technology Center?

19 A. Francoise was a manager of the Memory  
20 Technology Center for the DRAM side of MTC. She had  
21 been doing that prior to my joining the MTC. So, I  
22 think her tenure at MTC in Palo Alto was four or five  
23 years. She's a French citizen, was offered a chance to  
24 work in Palo Alto and took that opportunity for a  
25 number of years.

1 Q. Did you ever attend JEDEC meetings?

2 A. Yes, I did.

3 Q. When did you start?

4 A. The best I can recall was in early 1994 I  
5 believe it was. The record will -- the JEDEC records  
6 and minutes would show it. I believe the first meeting  
7 was in Orlando that I went to like in March of '94.

8 Q. Are you familiar with how JEDEC is organized?

9 A. Yes.

10 Q. Could you explain?

11 A. JEDEC is a -- the Engineering Council or the  
12 JEDEC Council is comprised of a number of senior  
13 experienced members of both suppliers and  
14 manufacturers, and the council is the one that actually  
15 sets the policies and adopts or approves the standards.

16 Below the council are a series of committees  
17 which they approve to exist, and the committees  
18 include -- are much more specialized. There's one  
19 committee for interface and voltage standards; another  
20 one is for random access memories; another one is for  
21 memory modules; there's a committee on quality; and  
22 just a large number of committees, mechanical  
23 standards, things like that.

24 Q. Were there any committees that you personally  
25 attended on a regular basis?

1           A. Yes. I was a member of the JC-42.2  
2 committee -- I'm sorry, 42.3 committee, which was the  
3 random access memories. I was also a member of the  
4 JC-42.5 on memory modules. And I was a member of the  
5 JC-16 committee on I/O interfaces and voltages.

6           Q. You mentioned the council. Were you ever a  
7 member of the JEDEC Council?

8           A. Yes, near the end of my term with JEDEC, I was  
9 a council member for I believe 18 months to 24 months.

10          Q. And what approximate years would that be?

11          A. I think it would have been like '98 to '99 time  
12 frame.

13          Q. Now, you mentioned that the 42.3 committee was  
14 concerned with random access memories?

15          A. Yes.

16          Q. Would that include DRAMs?

17          A. Yes, it would include DRAMs and static  
18 memories.

19          Q. Did your company have an official  
20 representative to the 42 committee?

21          A. Yes, during the time I was a member of JEDEC, I  
22 was the HP member, officially designated member, and  
23 Mr. Wiggers was the alternate, and we may have had  
24 another alternate periodically from time to time, but  
25 Hans and myself were the two primary members/alternates

1 for JEDEC for HP.

2 Q. Are you still attending JEDEC meetings today?

3 A. No, I stopped at HP, and when I have been at  
4 CISCO, I have not gone to any JEDEC meetings.

5 Q. Did someone else at Hewlett Packard take over  
6 your role?

7 A. Yes, when I completed my term, Ilan Krashinsky  
8 from HP became the JEDEC member.

9 JUDGE McGUIRE: What was that term so I'll know  
10 for the record when you stopped going to the JEDEC  
11 meetings?

12 THE WITNESS: I believe it was in 1999.

13 BY MR. SWINDELL:

14 Q. Were you ever a chairman of any JEDEC  
15 committees?

16 A. I was never a -- elected by the committees to  
17 be a chairman. I had put my name on the ballot every  
18 couple years, but always other people had been  
19 nominated, so no.

20 Q. During your time at JEDEC, did you have an  
21 understanding as to why Hewlett Packard was  
22 participating in JEDEC?

23 A. Yes, HP belonged to JEDEC for a number of  
24 reasons, primarily among them -- the first reason we  
25 had was to try to influence the direction of memory

1 standards. HP is a large user of memories and an  
2 important customer to many of the suppliers, and we  
3 felt that it was important that we belong to the -- to  
4 JEDEC to try to influence the direction standards were  
5 going so that they would meet our future requirements.

6 The second reason we wanted to participate in  
7 JEDEC was to try to understand -- okay, in addition to  
8 driving the standards, to help under -- to see where  
9 they're going as an observer. Some of the standards or  
10 some of the committee work was -- we didn't need to  
11 influence, but we wanted to make sure that they were  
12 going on track.

13 And the third -- the third advantage is to be  
14 able to participate with suppliers and some customers  
15 to see where they were going at one point in time. As  
16 I said earlier, HP met with suppliers periodically when  
17 they would come into our offices or we would go to  
18 visit their plants, but in the JEDEC meetings, you also  
19 had some of their marketing and/or technical people,  
20 and you would have them all in one venue for a week,  
21 and you'd be able to see where they might be going in  
22 terms of particular issues or particular standards.  
23 So, gaining industry knowledge was another advantage of  
24 JEDEC, another purpose of it.

25 Q. Did HP -- did Hewlett Packard make DRAM?

1           A.  HP -- to my knowledge, HP never made DRAM.  HP  
2           does have a -- or at the time I was there, they did  
3           have a semiconductor development and production  
4           capability, but it was primarily focused on proprietary  
5           devices that HP would use in computers or instruments,  
6           but to my knowledge, they never made DRAMs.

7           Q.  You mentioned that one of the reasons that HP  
8           was a member of JEDEC was to try to influence the  
9           direction the standards were going.

10          A.  Yes.

11          Q.  During your time at JEDEC, did you get a sense  
12          that HP was actually able to influence the direction of  
13          the JEDEC standards?

14          A.  Yes, the primary way that you influence JEDEC  
15          standards is by presenting proposed directions or  
16          standards you'd like to see adopted and/or actively  
17          participating in the review and evaluation and  
18          development of standards, and in my opinion, HP was  
19          influential because of our technical credibility that  
20          we had with the membership from HP that was  
21          participating.

22                        We took an active role in shaping the  
23          standards, giving feedback on features that we wanted  
24          to see or features we felt that were not useful for our  
25          requirements.

1           Q. Now, did you get a sense of how the supplier  
2 participants at JEDEC responded to HP's concerns?

3           A. In my opinion, I think the suppliers were  
4 fairly supportive of our positions, and I think they  
5 gave a lot of respect to the positions we had. They  
6 took them with all seriousness, all consideration, and  
7 I think as a result of our participation as well as  
8 other companies, we had some have good standards  
9 emerging from the organization.

10          Q. How were the JEDEC standards that related to  
11 memory technologies useful in H -- in Hewlett Packard's  
12 business?

13          A. The standards -- the utility of a standard, of  
14 a memory standard or other component standard, is that  
15 from HP's perspective, we were a large user of  
16 memories, and we wanted to use the most competitive and  
17 most effective devices available, and we wanted them  
18 available from a number of suppliers. So, having a  
19 standard product allows us to choose standard commodity  
20 type of products for wide use in computers, in servers,  
21 in instruments, in printers.

22                 So, we have a wide supply. We also have a  
23 competitive supply that -- the more suppliers you have,  
24 the better your selection is for -- and more  
25 competitive supply base you have.

1           We also had assurance of supply going forward.  
2       HP -- many of HP's products are supported for a five to  
3       seven, maybe ten-year product life cycle, and in some  
4       cases that exceeds the manufacturing cycle for some  
5       suppliers, and so we -- by having a standard, we would  
6       have a greater chance of having continuity of supply  
7       for any time in production or even in support life.

8           Q.   And when you first began going to JEDEC  
9       meetings, I think you said in 1994, did you come to  
10      understand that JEDEC had a policy relating to the  
11      disclosure of patent-related information?

12           A.   Yes.

13           Q.   And what did you understand that policy to be?

14           A.   The policy, as I understood it, was that if you  
15      as a member of JEDEC knew of a patent or application  
16      for a patent that would potentially be impacting the  
17      standard or proposed standard, you were to disclose it  
18      to the committee for -- for consideration so the  
19      committee could decide to either modify the standard  
20      proposal and take that -- so that it did not infringe  
21      with the application or the patent, or the committee  
22      would then ask -- alternatively ask permission from the  
23      owner of the patent -- excuse me, whether they would  
24      comply with the JEDEC policy, which had to do with  
25      granting licenses either freely to all applicant

1 requesters or offer the patent on reasonable terms and  
2 conditions. In a nutshell, that was the policy.

3 Q. At that time during your time at JEDEC, did you  
4 have an understanding of what the purpose of the policy  
5 was?

6 A. Fairly quickly, it became pretty obvious the  
7 purpose of the patent policy is that if you're  
8 developing a set of standards that can be used by any  
9 member of JEDEC or even a non-member of JEDEC, that --  
10 the purpose of the patent policy is to disclose and  
11 make sure that standards do not have any conflicts down  
12 the road with their potential use.

13 The worst thing to have is a standard and  
14 products made according to that standard and then later  
15 you find an infringement, and you've stopped -- you  
16 can't produce a system because you've got an infringing  
17 component in there, and that was the purpose of the  
18 policy, is to make visible any potential infringement  
19 areas as soon as possible in the standardization  
20 process.

21 Q. How did you learn about the policy?

22 A. Every single meeting that I attended, the  
23 patent policy was -- we called flashed, it was  
24 presented at the beginning of the meeting. We had  
25 overhead projectors, and the leadership -- the chairman

1 of the committee would -- before we got any business  
2 started would show the patent policy and make sure it  
3 was read and understood by all of the members. That  
4 was a regular basis of operation for every single  
5 meeting.

6 Q. One of the things you said earlier was that if  
7 the patent might possibly impact the standard. What  
8 did you mean by a "patent might possibly impact"?

9 A. If there was a patented idea that someone owned  
10 or applied for a patent and it was a feature that we  
11 would like to include in the standard, if the way the  
12 standard was written you had to make use of that idea,  
13 that's -- that's how it infringed, you know, you're  
14 using -- the standard required someone else's idea to  
15 be used in it -- in order for it to operate.

16 Q. And I think you also said that information  
17 would have to be disclosed as soon as possible. What  
18 did -- what did you mean by "as soon as possible"?

19 A. As soon as a member knew that they had --  
20 either they had a patent of their own or applications  
21 or even a third party's patent or application, if you  
22 knew that and it was touching on some element of the  
23 standard or proposed standard, you were supposed to  
24 disclose that to the committee so that the committee  
25 has the earliest possible time to make changes or to

1 have patent policy compliance.

2 JEDEC met four to six times a year, our  
3 committees met four to six times a year. So, there was  
4 a lot of impetus to start a standard and get -- the  
5 standards process takes a long time to develop, and the  
6 earlier you know about it, about a potential problem,  
7 the sooner you can take steps to work around it or to  
8 get compliance with the owner of the patent.

9 Q. Now, you also mentioned that the policy was  
10 displayed at meetings.

11 A. Yes.

12 Q. Who made those -- who did the displaying?

13 A. For the most part, it was Jim Townsend, who was  
14 the JC-42. -- JC-42.2 overall chairman for the  
15 committee, and so he was a senior member of JEDEC  
16 working for Toshiba for a long time and was elected the  
17 chairman. So, as leadership, that was -- as leader, he  
18 was obligated to display that.

19 MR. SWINDELL: Your Honor, may I approach?

20 JUDGE McGUIRE: Yes.

21 MR. SWINDELL: This will be on the screen,  
22 so --

23 JUDGE McGUIRE: If it's on the ELMO, I will be  
24 able to see it.

25 BY MR. SWINDELL:

1 Q. Mr. Landgraf, I've handed you what has been  
2 marked as JX-20. Do you recognize these documents --  
3 this document?

4 A. Yes, these are minutes of a JEDEC meeting in  
5 New York City, I believe it was May of 1994, and I  
6 attended this meeting.

7 Q. And if you look at page 2, sort of towards the  
8 middle of the page, do you see your name listed under  
9 Others Present?

10 A. Yes.

11 Q. And I think you said you recall attending this  
12 meeting?

13 A. Yes.

14 Q. Now, if you would turn to page 4, if you can  
15 find paragraph 3, and let me know when you've found it.

16 A. Yes.

17 Q. And I'll read that to you.

18 "The patent policies were shown (See Attachment  
19 A). It was noted that the WANG patent case is coming  
20 up for trial on June 14th."

21 Do you see that reference?

22 A. Yes.

23 Q. Do you recall any discussions at JEDEC about  
24 the WANG case?

25 A. Yes.

1 Q. And what do you recall about those discussions?

2 A. This was a point of note for the committee.

3 There was discussion that WANG Corporation had a patent  
4 on a particular memory module, I believe it was a --  
5 what we called a SIMM, single inline memory module, I  
6 think it was a 36-pin device, and the particular issue  
7 in the standard preceded my involvement with JEDEC, but  
8 the point of discussion was that this is a situation  
9 where a committee -- a former committee member of WANG  
10 Corporation participated in the standardization and  
11 definition of the 36-pin SIMM, and at some point in  
12 time they left JEDEC, but after the standard was  
13 adopted by JEDEC and manufacturers were producing this  
14 particular device or module according to that standard,  
15 WANG Corporation decided to sue many companies for  
16 patent infringement.

17 That was the gist of the discussion, is that a  
18 former member had participated in standardization and  
19 development and then down the road decided to ask for  
20 royalties from manufacturers.

21 Q. Now, did the discussions of the WANG case  
22 influence your understanding of the JEDEC patent policy  
23 one way or the other?

24 A. I think it served to reinforce the seriousness  
25 of the policy. At this point, it became crystal clear

1 to me and I think other people that when you're  
2 developing standards, the idea is to expand the number  
3 of suppliers and the number of potential users for it,  
4 and if you are going to participate in an open standard  
5 formulation body, you need to disclose everything that  
6 is applicable or potentially impacting the standards  
7 that you're going to adopt.

8 So, at that point, you know, it was -- it  
9 evolved from just a presentation that you see at the  
10 beginning of a meeting to something that really hits  
11 home, and you know, you -- the expectation was that  
12 members would disclose anything they're working on that  
13 they potentially wanted to protect with patents down  
14 the road.

15 MR. SWINDELL: Your Honor, I believe that this  
16 exhibit has not yet been admitted, so at this time I  
17 would move JX-20 into evidence.

18 MR. STONE: No objection.

19 JUDGE McGUIRE: So entered.

20 (JX Exhibit Number 20 was admitted into  
21 evidence.)

22 BY MR. SWINDELL:

23 Q. Did you understand during your time at JEDEC  
24 that companies that made presentations at JEDEC had  
25 obligations that were any different from companies that

1 were not making presentations with respect to the  
2 patent policy?

3 A. I -- in my mind, I don't think there was any  
4 distinction, whether you were a member presenting ideas  
5 for standardization or you're a member just observing  
6 the direction the committee is going, because it's --  
7 it's -- the committee is the collective intelligence of  
8 its membership, and you know, the -- the robustness of  
9 a standard is benefitted by as much participation as  
10 you can, because we're talking about -- these are very  
11 complex technical standards and technical performance,  
12 and so engineering ideas from a number of people helps  
13 make a more robust standard.

14 So, the obligation is not only on the person  
15 making a presentation but also on the membership to  
16 point out improvements that can be done or issues with  
17 the direction that the committee is going. And so the  
18 dialogue and feedback is important, and that includes  
19 the idea of disclosures of patents and applications.

20 MR. SWINDELL: May I approach, Your Honor?

21 JUDGE McGUIRE: Go ahead.

22 BY MR. SWINDELL:

23 Q. Mr. Landgraf, I've handed you what's been  
24 marked as CX-97. Do you recognize this document?

25 A. Yes, this is minutes of the JEDEC meeting in

1 December of '95 in Dallas, and I remember attending  
2 that meeting.

3 Q. If you could, please turn to page 3 of CX-97.

4 A. Okay.

5 Q. And if you go to paragraph 3 sort of in the  
6 middle of the page, do you see paragraph 3?

7 A. Yes.

8 Q. And it says, "JEP-21I, Manual of Organization  
9 and Procedures," and underneath that it says, "This  
10 document describes the rules of the Committee."

11 Do you see that?

12 A. Yes.

13 Q. Now, was it your understanding as of December  
14 '95 that the 21-I manual described the rules of the  
15 committee?

16 A. Yes.

17 Q. Now, included in that -- well, was it your  
18 understanding that included in those rules was the  
19 JEDEC rule relating to the disclosure of patent  
20 information?

21 A. Yes, if I --

22 MR. STONE: Your Honor, I am going to object.  
23 I think leading beyond sort of the introduction to the  
24 topic is inappropriate, and the last two questions have  
25 been leading.

1 JUDGE McGUIRE: Sustained.

2 BY MR. SWINDELL:

3 Q. Was there a manual that you understood that  
4 contained the JEDEC patent policy?

5 A. Yes, there was.

6 Q. And which manual was that?

7 A. Manual 21-J or -- the alphabetical letter  
8 designated a revision, and when I first joined JEDEC,  
9 it was at Revision I, and subsequent it was revised to  
10 Revision J, but Manual 21-I is the standards and  
11 policies.

12 MR. SWINDELL: May I?

13 JUDGE McGUIRE: Go ahead.

14 MR. SWINDELL: Before I move on, Your Honor,  
15 I'd move CX-97 into evidence at this time.

16 MR. STONE: No objection.

17 JUDGE McGUIRE: So entered.

18 (CX Exhibit Number 97 was admitted into  
19 evidence.)

20 BY MR. SWINDELL:

21 Q. Now, Mr. Landgraf, I've handed you what's been  
22 marked as CX-208. Do you recognize this document?

23 A. Yes. This is a JEDEC Manual of Organization  
24 and Procedure, JEP21-I.

25 Q. Did you receive this manual while you were a

1 member of JEDEC?

2 A. Yes, I did.

3 Q. And at the time you received it, were you the  
4 chair of any committee?

5 A. No, I was a member of the 42.2 committee and...

6 Q. Do you recall anyone referring to the 21-I  
7 manual as the chairman's manual?

8 A. No, it was the -- it's a committee manual or  
9 the -- you know, it's a JEDEC Manual for Organization.  
10 It wasn't a leadership meeting -- a leadership manual  
11 or anything like that. It was the way that -- all  
12 committees are supposed to operate according to the  
13 JEDEC Council's policies and recommendations, policies  
14 and guidelines. So, this applies not just to the  
15 memory committee, but also applies to the I/O  
16 committee, the technical standards committee, the  
17 memory committee. This is the way each committee is  
18 supposed to operate.

19 Q. Do you -- well, do you remember where you got  
20 the manual from?

21 A. I'm not sure if I received this at my first  
22 meeting or second or third meeting, but it was given  
23 out by Mr. Townsend to all new members from companies.  
24 So, every time a company either joined JEDEC or they  
25 changed members, they would get a new copy of this,

1 this document.

2 Q. Do you recall reading it?

3 A. Yes, I do.

4 Q. I'm done with that.

5 Now, we talked a little bit about the WANG  
6 litigation. Were there any other instances in which  
7 you became aware of there being undisclosed patents  
8 affecting the JEDEC standards?

9 A. Let's see, there was one instance where I wrote  
10 a document, I can't remember which year it was, but it  
11 was a response to a proposed standard, and it had to do  
12 with a modification to a memory module, and I believe I  
13 made a comment to the committee to alert them of a  
14 possible infringement area -- area of infringement with  
15 respect to a software algorithm that Intel was --  
16 reportedly had developed for it. So, that was one  
17 instance.

18 MR. SWINDELL: Your Honor, may I approach?

19 JUDGE McGUIRE: Go ahead.

20 BY MR. SWINDELL:

21 Q. Mr. Landgraf, I've given you what's been marked  
22 as JX-26, and I'll ask you if you recognize this  
23 document.

24 A. Yes, this is the minutes for the meeting that  
25 occurred in New Orleans, and it was the spring meeting

1 in '95, May.

2 Q. Were you present at this meeting?

3 A. Yes, I was.

4 Q. Now, if you could turn to page 28 in JX-26, and  
5 I'll ask you if you recognize the letter on page 28.

6 A. Yes, that's my document which I sent to the  
7 committee.

8 Q. Do you recall how you learned about this  
9 potential patent issue?

10 A. I can't remember all the specific details, and  
11 I think it may have been at a previous meeting, someone  
12 from one of the committees had made a comment that  
13 Intel had a software algorithm that was able to  
14 differentiate EDO memory devices from fast page mode  
15 memory devices, and my concern was base -- based on the  
16 WANG case was it was important to notify the committee  
17 that there was this potential patent issue that the  
18 committee needed to make a decision on as to the  
19 appropriateness of making a modification to the memory  
20 module standard, and if it -- if the modification  
21 assumed Intel's algorithm was required, then the  
22 committee needed to know about that and decide whether  
23 they want to adopt the standard or not.

24 Q. Now, I'd like to read the last sentence, and if  
25 we could bring up, Emily, this last paragraph, and it's

1 a little hard to read, so we will try to blow it up as  
2 much as we can.

3 "Unless this supplier chooses to follow the  
4 EIA/JEDEC patent policies, the above assumption," which  
5 we'll come back to, "becomes invalid and  
6 standardization of a 5-volt second generation 72-pin  
7 SIMM with hardware EDO presence detect (part 2 of  
8 ballot 94-76B) once again becomes necessary."

9 A. Yes.

10 Q. Now, what was it that you were suggesting to  
11 the committee with respect to the patent?

12 A. I apologize for my convoluted writing. It was  
13 a lot of negative -- double negatives in there.

14 The essence of the idea was that, as I stated  
15 before, the 72-pin SIMM had been a memory module that  
16 was optimized for page mode and fast page mode memory,  
17 and there's a number of control inputs, what we call  
18 hardware presence detect, that lets the system  
19 determine the density and the speed of the memory  
20 device.

21 At the time of this modification, there was an  
22 existing standard. The idea was to see if we could  
23 extend the standard to include extended data out type  
24 of memories, which are an enhancement and improvement  
25 of the fast page mode memory.

1           This particular standard had gone back and  
2           forth, and at one point in time people thought we  
3           needed to have a hardware presence detect to indicate  
4           -- to actually release some of the bits that were  
5           previously assigned and say, okay, one of them will be  
6           used for detecting the difference between fast page  
7           mode and EDO, and then the standard was modified to  
8           say, no, we don't need to change the hardware presence  
9           detect bits. We can -- there's a -- you can do that  
10          from software.

11           And that's the point when I wrote this memo  
12           saying there's a potential patent issue by Intel that  
13           has to do with the software detection mechanism. So,  
14           Intel had been in there testing a way to operate the  
15           memory module, determine is it fast page mode or EDO.  
16           Well, since they had a patent or an application for  
17           that algorithm, I didn't think it was correct to rely  
18           on that algorithm as part of this standard.

19           So, I wrote this memo saying we have to go back  
20           and once again re-evaluate and probably put back the  
21           hardware presence detect mechanism between fast page  
22           mode and EDO.

23           Q. So, would that involve actually going back to  
24           amend the standard?

25           A. Yeah -- well, this was -- this was in

1 transition. It was an existing standard for fast page  
2 mode, and we were considering to move it forward with a  
3 modification to add EDO, and the change would have been  
4 adding EDO and deciding whether or not we would have  
5 presence detect in hardware or we would have to use the  
6 algorithm. So, this was an existing standard, was for  
7 fast page mode, and the proposal was to modify to  
8 include EDO capabilities. And my memo is we need to  
9 take a look at this before we adopt it as a standard --  
10 as a modified standard.

11 Q. Now, were you participating in JEDEC at the  
12 time JEDEC was considering the technologies that became  
13 included in the DDR standard?

14 A. I -- it was near the end of my term in JEDEC,  
15 in the '98-'99 time frame, when DDR -- I don't think it  
16 was called that at the time frame. It was future SDRAM  
17 or next generation SDRAM were the kind of names we  
18 applied to it.

19 Q. As the HP representative, was it your  
20 understanding that Hewlett Packard was in favor of  
21 including on-chip PLL/DLL in the DDR standard?

22 A. Yes, between Hans Wiggers and myself, that was  
23 an area that we were discussing over a period of time.  
24 One of the limitations of synchronous memory is that in  
25 larger systems with a lot of memory modules or memory

1 modules themselves that have a lot of devices on them,  
2 the timing signals become more critical in a bigger  
3 system, and PLL is a technique that has been used to  
4 help manage and improve the precision of the timing  
5 signals.

6           One way to implement PLL is to put it on a --  
7 on the system, on the motherboard or on the memory  
8 module, and what we were suggesting, what we were in  
9 favor of doing was any time you can take a function  
10 which is on the motherboard that is common to a memory  
11 system, if you can incorporate that in the memory  
12 system itself, it reduces the overall cost of the  
13 system and also improves the performance of the system.  
14 So, we were in favor of that.

15           Q. Now, was Hewlett Packard also in favor of  
16 including dual edge clock technology in the DDR  
17 standard?

18           A. Again, this would have been an area to help  
19 control costs in a system. In DDR, double data rate  
20 memory, you need -- you're essentially transitioning  
21 data twice as fast as at a single data rate, and since  
22 memory systems tend to be very cost-competitive, one of  
23 our goals was to minimize the number of new pins we had  
24 to add to the next generation of memory. So, by using  
25 the double edged clock to transfer data, we were using

1 the package and the pins more efficiently. So, we  
2 would be in favor of that.

3 Q. Now, you mentioned a number of factors in your  
4 response that HP was considering. Did Hewlett Packard  
5 consider whether or not there were patents or patent  
6 applications on dual edge clock when it was considering  
7 the DDR standard?

8 A. If we knew about them, we would have -- we  
9 would have raised it as a consideration.

10 Q. And for on-chip PLL/DLL, did Hewlett Packard in  
11 its consideration of adopting the DDR standard, did it  
12 consider that patents or patent applications might be  
13 applicable to that technology?

14 A. To the extent that we knew about it, yes.

15 Q. Well, at the time that you were participating  
16 in JEDEC, thinking about the DDR -- proposed DDR  
17 standards, did you know about any patents or patent  
18 applications on dual edge clock?

19 A. I don't believe that neither myself nor Hans  
20 Wiggers knew about --

21 MR. STONE: Your Honor, I object to this  
22 witness testifying to the knowledge or supposed  
23 knowledge of Mr. Wiggers. He can't know what Mr.  
24 Wiggers knew. That would be hearsay if it's based on  
25 what Mr. Wiggers told him, and it's speculation if he's

1 just telling us what he thinks Mr. Wiggers knew or  
2 didn't know. I think it should be limited to his  
3 understanding and perception.

4 JUDGE McGUIRE: Go ahead, Mr. Swindell.

5 MR. SWINDELL: That's fine, the question was as  
6 to his understanding.

7 JUDGE McGUIRE: Sustain the objection. Just  
8 answer the question based on your own knowledge.

9 THE WITNESS: I did not know of patents or  
10 patent applications with regard to dual edge clock or  
11 PLL on chip.

12 BY MR. SWINDELL:

13 Q. Do you ever recall a time during your  
14 experience at JEDEC in which Hewlett Packard voted in  
15 favor of adopting a standard where Hewlett Packard knew  
16 that an owner of a patent that applied to the standard  
17 was unwilling to comply with the JEDEC patent policy?

18 A. No, I don't.

19 Q. Thinking about DDR, did Hewlett Packard have an  
20 expectation that there were no undisclosed patents on  
21 DDR at the time it was considering DDR?

22 MR. STONE: Again, object to anything other  
23 than this witness' knowledge and understanding. I  
24 don't know that he can testify to what everyone else at  
25 HP knew or didn't know.

1 MR. SWINDELL: Your Honor, on this point Mr.  
2 Landgraf has testified that he was the Hewlett Packard  
3 representative, and he represents Hewlett Packard's  
4 voice at JEDEC.

5 JUDGE McGUIRE: Well, then, I think you should  
6 ask him as the agent for Hewlett Packard. When you say  
7 did Hewlett Packard have any expectation, that's a  
8 little broad-based, I think. So, why don't you --

9 MR. SWINDELL: I can rephrase it.

10 JUDGE McGUIRE: -- restate the question as to  
11 his understanding of what they expected.

12 BY MR. SWINDELL:

13 Q. As Hewlett Packard's representative at JEDEC,  
14 did you have an expectation that the DDR standards that  
15 you were voting on on behalf of Hewlett Packard would  
16 be free of undisclosed patents?

17 A. Yes.

18 Q. Now, at this time that you were voting on DDR  
19 standards on behalf of Hewlett Packard, if Rambus had  
20 disclosed the existence of patent applications, would  
21 that have affected your vote as Hewlett Packard's  
22 representative?

23 MR. STONE: Objection, Your Honor, it calls for  
24 speculation, there is no foundation, and it's  
25 inconsistent with testimony developed already in this

1 case.

2 MR. SWINDELL: Your Honor, I'd like to be heard  
3 on this one.

4 JUDGE McGUIRE: Go ahead.

5 MR. SWINDELL: Okay, there -- I think there are  
6 a couple of issues in this -- with this line of  
7 questioning, and it's come up in prior -- with prior  
8 witnesses, in particular Mr. Sussman and Mr. Rhoden.

9 Now, the first point I want to make is that  
10 Rambus has argued in their trial brief that complaint  
11 counsel bears the burden of proving what's termed the  
12 "but for world," what would have happened at JEDEC had  
13 Rambus disclosed, and if you look at page 67 of their  
14 trial brief, it's laid out very clearly -- and you  
15 know, we don't want to argue whether or not we actually  
16 have this burden right now, but just for the purposes  
17 of argument here, they're trying -- Rambus is  
18 essentially trying to have their cake and eat it, too.

19 They want to say complaint counsel must prove  
20 what would have happened at JEDEC, but at the same  
21 time, they object to any testimony on what actually  
22 would have happened.

23 JUDGE McGUIRE: All right, I'll entertain the  
24 question. Overruled, Mr. Stone.

25 MR. SWINDELL: Could you read back the

1 question, please?

2 (The record was read as follows:)

3 "QUESTION: Now, at this time that you were  
4 voting on DDR standards on behalf of Hewlett Packard,  
5 if Rambus had disclosed the existence of patent  
6 applications, would that have affected your vote as  
7 Hewlett Packard's representative?"

8 THE WITNESS: It would have affected our vote  
9 depending on the owner of the patented technology,  
10 their willingness to comply with the JEDEC policy. If  
11 we knew in advance that they were not going to comply  
12 with the JEDEC patent policy, we would have voted  
13 against it. If we didn't know that, knew it, you know,  
14 later on, we would have voted for it. So, it depends  
15 on how much the owner was willing to tell the committee  
16 at the time and when they told us.

17 MR. SWINDELL: May I approach?

18 JUDGE McGUIRE: Go ahead.

19 BY MR. SWINDELL:

20 Q. Mr. Landgraf, I have handed you what's been  
21 marked as JX-28. Do you recognize this document?

22 A. Yes, this is the minutes of the meeting of the  
23 committee on RAM memories, JC-42.3, in Dallas, December  
24 '95, our winter meeting.

25 Q. Were you present at this meeting?

1 A. Yes.

2 Q. Now, if you could turn to page 6, paragraph  
3 8.8, do you see that?

4 A. Yes.

5 Q. Do you recall a survey ballot on SDRAM features  
6 around the time of December '95?

7 A. Yes, I do.

8 Q. I want to direct your attention to page 36 or  
9 what begins at page 36, and this is Attachment G. Do  
10 you see down at line 9 --

11 A. Yes.

12 Q. -- that HP responded to this survey ballot?

13 A. Yes.

14 Q. Okay. Now, I want to direct your attention  
15 particularly to page 45. Do you see 3.93, Clock Survey  
16 Results?

17 A. Yes.

18 Q. Now, I want to read the first question for you,  
19 and it's very small, so we'll try to blow that up as  
20 much as we can, and the first question is --

21 JUDGE McGUIRE: Do you want to borrow these?

22 BY MR. SWINDELL:

23 Q. -- "Does your company believe that an on-chip  
24 PLL or DLL is important to reduce the access time from  
25 the clock for future generations of SDRAMs?"

1           Do you see that?

2           A. Yes.

3           Q. Do you see Hewlett Packard's response?

4           A. Yes, I do.

5           Q. And what was Hewlett Packard's response?

6           A. We were affirmative on that response, put an X  
7 in the "Yes" column.

8           Q. And that was for the reasons you described  
9 earlier?

10          A. Yes.

11          Q. And the -- well, let me ask you this: Based on  
12 your understanding of the JEDEC patent policy, was this  
13 survey ballot official JEDEC work?

14          A. Yes, in a JEDEC committee, there's a lot of  
15 official work that is documented, and survey ballots  
16 are considered to be official work. They often times  
17 precede a standard -- standard development. In fact,  
18 it's quite often the case where a survey ballot is  
19 reviewed at a meeting and then elements of it are  
20 adopted or approved to go -- be written as a standard,  
21 and then the committee goes through its normal  
22 standardization process. So, survey ballots are very  
23 important parts of the committee business.

24          Q. So, thinking about the first question that we  
25 read relating to PLL/DLL, based on your understanding

1 of the patent policy and where survey ballots fit into  
2 JEDEC work, was it your understanding that a member who  
3 had patents or patent applications on -- relating to  
4 on-chip PLL would have been required to disclose at  
5 this time?

6 A. Yes.

7 Q. I want to go to the fourth question, which also  
8 is very hard to read, and -- do we have it? It says,  
9 "Does your company believe that future generations of  
10 SDRAMs could benefit from using BOTH edges of the clock  
11 for sampling inputs?" And the word "BOTH" is in all  
12 caps.

13 Do you see that?

14 A. Yes.

15 Q. And what did HP vote as to this clock issue?

16 A. We voted affirmative on that question as well.

17 Q. And for the reasons you previously discussed?

18 A. Yes.

19 Q. Now, again, based on your understanding of the  
20 patent policy and your understanding of the place in  
21 JEDEC work that survey ballots hold, would a member who  
22 had patents or patent applications relating to dual  
23 edge clock be required to disclose that information at  
24 this time?

25 A. Yes.

1 MR. SWINDELL: May I approach, Your Honor?

2 JUDGE McGUIRE: Go ahead.

3 BY MR. SWINDELL:

4 Q. Mr. Landgraf, I've handed you what's been  
5 marked as JX-31. Do you recognize this document?

6 A. Yes, it's the minutes of a JEDEC committee  
7 meeting, the RAM committee meeting in San Diego in the  
8 spring of '96.

9 Q. And were you present at this meeting?

10 A. Yes, I was.

11 Q. Now, I want you to turn to page 9, and down at  
12 the -- towards the bottom, there's a 13.2, Samsung  
13 Future SDRAM Concepts.

14 Do you see that?

15 A. Yes.

16 Q. Now, it also says, "Item 766."

17 Are you familiar with the item numbers?

18 A. Yes.

19 Q. What's their significance?

20 A. Everything that was presented as official  
21 business within JEDEC was tracked by the committee  
22 secretary and given an item number. So, when it is  
23 first shown and the owner wants to -- actually, when  
24 it's first shown, it's given an item number for  
25 tracking so we can keep track of whether it's a first

1 presentation, a second presentation, is a request for  
2 ballot, is it balloted, approved, et cetera. So, it's  
3 a way to keep track of all the documents that are shown  
4 at JEDEC.

5 Q. If I could ask you to turn to page 68, and do  
6 you see on that page it has item 766?

7 A. Yes.

8 Q. And the particular page I want to talk about is  
9 page 71, if you could turn there, Future SDRAM -  
10 Proposal, Proposed Clocking Scheme.

11 Do you see that?

12 A. Yes.

13 Q. Now, the fourth bullet down, and I'll read it,  
14 "Data in sampled at both edge of Clock into memory."

15 A. Yes.

16 Q. What is that in your understanding? What does  
17 that mean?

18 A. What Samsung is doing is they are proposing a  
19 clocking scheme for next generation SDRAM, and one of  
20 the salient points is that the data into or data out of  
21 the memory device is to be sampled on both edges of  
22 the -- of the clock. As I mentioned before, using a  
23 single clock, they refer to a single clock here, and so  
24 you would sample data in on one edge and another piece  
25 of data on the second edge, et cetera, so...

1 Q. In your understanding, does that describe dual  
2 edge clock?

3 A. Yes, this is a definition of a dual edge clock.

4 Q. Now, did you consider the Samsung proposal,  
5 item 766, to be official JEDEC work?

6 A. Yes.

7 Q. Based on your understanding of the JEDEC patent  
8 policy, would a member who held patents or patent  
9 applications on dual edge clock have been required to  
10 disclose that information at this time?

11 A. Yes, the committee had been discussing for a  
12 number of meetings what the next generation of  
13 Synchronous DRAM should be looking like and what kind  
14 of features, and a result of MOSAID's survey ballot as  
15 well as other discussions and meetings, the committee  
16 was driving towards a set of features for next  
17 generation SDRAM for higher performance, and all of  
18 these were in the direction of a proposed standard.  
19 So, all these presentations were bits and pieces that  
20 ended up into the double data rate standard.

21 Q. You can put that one away.

22 Mr. Landgraf, at any time during your tenure at  
23 JEDEC from 1994 to 1999, did you ever review a Rambus  
24 issued patent?

25 A. I cannot recall the exact date. I did have the

1 opportunity to look at Rambus information regarding  
2 their patents on the internet, and I am not certain --  
3 I believe it may have been through the IBM website  
4 which was logging produced patents or it may have been  
5 through the Patent & Trademark Office website. I can't  
6 pinpoint a particular date as to when I looked at it,  
7 but I do recall looking at some of the information that  
8 Rambus had patented.

9 Q. Well, can you give us an approximate date? Was  
10 it in -- was it before 2000, after 2000?

11 A. It was most likely before 2000, preceding 2000.

12 Q. Do you --

13 A. The reason I would say that is that was about  
14 the time when HP was developing products in the  
15 Grenoble factory, developing personal computers that  
16 would be using Rambus technology. So, I had more than  
17 a passing interest to understand, you know, what some  
18 of their patent issues would have been, what their  
19 disclosures had been.

20 Q. Now, have you ever reviewed a Rambus patent  
21 application?

22 A. No, I have never seen a Rambus patent  
23 application. That would not be something I normally  
24 would have seen.

25 Q. Now, before the year 2000 and including this

1 review you did for the Grenoble project, were you ever  
2 aware that Rambus claimed intellectual property rights  
3 on programmable CAS latency?

4 A. I -- what was the time frame?

5 Q. Oh, the time frame was your time starting at  
6 JEDEC in 1994 up to the year 2000, which I would assume  
7 would include your review of this patent on the  
8 internet.

9 A. I'm not sure exactly how I learned the  
10 information, but I do recall that Rambus had patents on  
11 programmable CAS latency.

12 Q. But do you remember the time frame?

13 A. It was before 2000, and I can't remember the  
14 month or year.

15 Q. Do you recall when you first started hearing  
16 about litigation involving Rambus?

17 A. In terms of an actual suit being filed or just  
18 mention about -- I would say probably in -- possibly  
19 second half of '97. I'd say '98-'99 is probably more  
20 likely the time frame I would have heard about the  
21 Rambus litigation.

22 One other thing. In fact, there was a time  
23 when -- I don't have the notes, and I think I was  
24 sending emails internally to HP about the status of  
25 Rambus -- various Rambus legal issues that were

1 appearing in the news, and that had to be in the '98  
2 time frame. I don't have -- I mean, when I left HP, I  
3 don't know what happened to my email, but I do remember  
4 a number of messages I was supposed to talk about and  
5 respond, because we had a number of people asking  
6 questions about what's going on with Rambus, should we  
7 be using Rambus in our products, what should we be  
8 considering, and there was a lot of legal issues, and  
9 that would be consistent with the 1998 time frame.

10 Q. Okay. So, I'm just trying to get a clear sense  
11 of your understanding, how you learned about or the  
12 context in which you learned about Rambus patent  
13 applications, and are you saying that you learned --

14 JUDGE McGUIRE: Wait a minute, that's not what  
15 you asked him while ago. You asked him how did you  
16 first become aware of litigation involving Rambus. Now  
17 you're asking about patent applications. I'm a little  
18 confused as to what you're referring to.

19 MR. SWINDELL: I'll try to clarify that.

20 BY MR. SWINDELL:

21 Q. Let me ask, when was it -- or did you ever  
22 become aware that Rambus had patents or claimed to have  
23 patents on JEDEC-compliant DRAMs?

24 A. I believe there were bits and pieces going  
25 around in some of the JEDEC meetings that Rambus had

1 patents that would apply to the SDRAM, the programmable  
2 CAS latency and some other programmable features, and  
3 so people were being concerned about it in the JEDEC  
4 meetings, what are -- you know, what does this mean to  
5 our, you know, future direction? But I can't give you  
6 a time frame on this, because it's probably hallway  
7 conversations.

8 Q. And do you know whether or not these hallway  
9 conversations were a discussion in the context of the  
10 Rambus-related litigation?

11 A. I don't remember.

12 MR. SWINDELL: No further questions, Your  
13 Honor. Pass the witness.

14 JUDGE McGUIRE: All right, thank you.

15 Mr. Stone, do you want to take a ten-minute  
16 break or how do the parties want to proceed at this  
17 point since we got off to such a late start this  
18 morning?

19 MR. STONE: I have probably about an hour or a  
20 bit more. I wondered if it might be convenient to take  
21 a lunch break at this point and then complete the  
22 witness.

23 JUDGE McGUIRE: Yes, that's fine. Then we'll  
24 break and reconvene at, what, 1:30?

25 MR. STONE: 1:30 is fine, Your Honor.

1 JUDGE McGUIRE: All right, very good.  
2 (Whereupon, at 12:30 p.m., a lunch recess was  
3 taken.)  
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## 1 AFTERNOON SESSION

2 (1:30 p.m.)

3 JUDGE McGUIRE: This hearing is now in order,  
4 and at this time the Court will entertain the cross  
5 examination of the witness.

6 Mr. Stone?

7 MR. STONE: Thank you, Your Honor. I want to  
8 apologize for any inconvenience, but after taking a  
9 lunch break and looking over my notes, I have no  
10 questions for Mr. Landgraf.

11 JUDGE McGUIRE: All right, thank you.

12 Then sir, you're excused from this proceeding,  
13 and I thank you for your testimony in this case.

14 THE WITNESS: Thank you for the opportunity.

15 JUDGE McGUIRE: Does complaint counsel intend  
16 to call anyone else this afternoon? I know that wasn't  
17 on the schedule, but --

18 MR. SWINDELL: No, Your Honor, given your  
19 earlier discussions about the -- our earlier  
20 discussions about the transcripts, there's nothing  
21 further for today.

22 JUDGE McGUIRE: Okay, very good. Then we'll I  
23 guess convene in the morning at our time of 9:30 as  
24 usual.

25 MR. SWINDELL: Yes.

1 JUDGE McGUIRE: Anything else?

2 MR. SWINDELL: No. I assume you're aware that  
3 it's John Kelly tomorrow, Your Honor?

4 JUDGE McGUIRE: Yes, John Kelly tomorrow.

5 Okay, very good, thank you very much. Hearing  
6 adjourned.

7 (Whereupon, at 1:32 p.m., the hearing as  
8 adjourned.)

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1 C E R T I F I C A T I O N O F R E P O R T E R

2 DOCKET NUMBER: 9302

3 CASE TITLE: RAMBUS, INC.

4 DATE: MAY 13, 2003

5

6 I HEREBY CERTIFY that the transcript contained  
7 herein is a full and accurate transcript of the notes  
8 taken by me at the hearing on the above cause before  
9 the FEDERAL TRADE COMMISSION to the best of my  
10 knowledge and belief.

11

12 DATED: 5/14/03

13

14

15

16 SUSANNE BERGLING, RMR

17

18 C E R T I F I C A T I O N O F P R O O F R E A D E R

19

20 I HEREBY CERTIFY that I proofread the  
21 transcript for accuracy in spelling, hyphenation,  
22 punctuation and format.

23

24

25 DIANE QUADE

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