FEDERAL TRADE COMMISSION

I N D E X (PUBLIC RECORD)

UNITED STATES OF AMERICA

FEDERAL TRADE COMMISSION

In the Matter of:)

Rambus, Inc.) Docket No. 9302

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Friday, June 6, 2003

9:32 a.m.

TRIAL VOLUME 24

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.

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JUDGE McGUIRE: Counsel, good morning.

MR. STONE: Good morning, Your Honor.

JUDGE McGUIRE: This hearing is now in order.

Any items that we have to take up this morning before we proceed?

MR. OLIVER: No, Your Honor.

JUDGE McGUIRE: Then at this time complaint counsel may call its next witness.

MR. OLIVER: Complaint counsel calls Dr. Martin Peisl.

JUDGE McGUIRE: Sir, would you please approach and the court reporter will swear you in.

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Whereupon --

MARTIN G. PEISL

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

JUDGE McGUIRE: Mr. Oliver, you may proceed.

Q. How are you today?
A. Good. Thanks. Fine.
Q. Would you please state your full name for the record.
A. Martin Gerhard Peisl.
Q. Are you currently employed?
A. Yes.
Q. What is your current position?
A. My current position is director for marketing for special memories for North America for Infineon Technologies.
Q. Where are you based?
A. San Jose, California.
Q. How long have you been with Infineon?
A. I've been with Siemens, which Infineon was a spin-off from Siemens, 1980.
Q. Can you give us a brief overview of your educational background, please?
A. My education, I received a diploma in electrical engineering from the technical university in Munich, Germany and a Ph.D. in electrical engineering from the same university.
Q. When did you receive your Ph.D. in?
A. 1984. The diploma was in 1981.
Q. Now, can you please give a brief summary of the

positions that you've held since you obtained your Ph.D. in 1984?

A. Excuse me?

Q. Could you please give a brief summary of the positions that you have held since you obtained your Ph.D. in 1984.

A. I was with Siemens back then in the research labs, starting in the research labs. Then I was in development for 1-megabit memories through 16-megabit memories from the time frame of 1984 to 1991.

In 1991 I was transferred -- early in 1992, I was transferred to Burlington, Vermont, to be the transfer manager for the 16-megabit product from IBM to Siemens. In 1993, I was manufacturing transfer manager for the same product in Essonnes in France.

In 1994, summer of 1994, I returned to the United States in Burlington, Vermont -- to Burlington, Vermont again and was design manager for several product developments that encompassed 64-megabit DRAMs to 256-megabit DRAMs and one gigabit -- one-gigabit DRAM.

In August 1999, I was transferred to San Jose, California or, rather, Cupertino, California and moved to San Jose to be the director for technical marketing for standard or commodity memories, synchronous and DDR

memories.

In September 2000 I assumed the position of director for marketing for embedded memories, ASIC memories essentially, and specialty memories. And that's a position for the specialty memories that I still have today.

Q. So your current position today is director of marketing and sales for embedded, specialty and graphics memories; is that correct?

A. The embedded portion fell away because Infineon has abandoned those activities, meaning that we only do specialty memories right now.

Q. So what is your current position today?

A. My full-time position is director for marketing for specialty memories for North America for Infineon.

Q. Can you please explain what your responsibilities in that position are?

A. My responsibilities are marketing efforts to promote four product families. This is for reduced latency DRAM, graphics DRAM, low-power DRAMs like mobile RAM and cellular RAM.

Marketing means that we visit customers who enable the chips, that we send samples to the customers and to the enablers in order to make sure that our

samples to the customers. We find out new customers and make sure that our chips work in the customers' applications.

The result of a successful validation is usually that we come on the bill of materials on the Web site of the corresponding customers or enablers. It's making sure that a part is working fully with all electrical specifications in the application.

Q. Now, is that the same as testing?

A. Testing is a part of the validation. Testing is usually referred to as a term for testing the DRAM only. Testing within an application is another facet.

You have to be sure that your DRAM works according to its specification and you have to make sure that the DRAM works in the application together with the chip the DRAM is interfacing to, which is a controller chip or a microprocessor.

Q. Now, are you familiar with the term "qualification"?

A. Yes.

Q. What is qualification?

A. Qualification is a set of tests at a customer which encompasses validation, what I just explained right now, and other -- some other tests like reliability tests, radiation tests, and other tests

that make sure -- lifetime tests that are in order to make sure that when you buy a computer, for instance, that the DRAMs in there last over the lifetime of the computer.

Q. Now, does your current position also involve qualification?

A. Yes.

Q. Are there other people at Infineon who report to you?

A. Yes. Four people.

Q. And what functions do those people have?

A. Three of them are marketing managers for the corresponding product lines which I mentioned before, and one is an administrative assistant.

Q. And I believe you testified that your current job involves specialty memory. Are those JEDEC-compliant products?

A. Of the four products that I mentioned, one is -- has been standardized at JEDEC, which is mobile RAM. The other three are not. They are referred to in our language as customized DRAMs because they fit a certain portion of the application spectrum of our customers.

Q. And I believe that you testified that your position used to include embedded memories?

JEDEC-compatible.

Q. Now, what were your responsibilities as the director of technical marketing for standard memories at Infineon?

A. The validation and qualification of our standard synchronous SDR and DDR products at our customer base, at our enabler base.

Q. And who were some of the major customers that you worked with during that time?

A. Dell, HP, IBM, Compaq -- HP and Compaq were still a separate company -- Gateway, Sony and -- excuse me. And on the enabler side was Intel, AMD, and VIA.

Q. Now, before your position as director of technical marketing for standard memories, I believe you said that you were a design manager; is that right?

A. Correct.

Q. And what years were you a design manager?

A. I was heading several design groups in Burlington, Vermont from August 1994 through August 1999. I was a member of the DDA, which is an acronym for the DRAM Development Alliance, which had been established between IBM and Siemens in order to pool resources to develop chips together, 64-megabit

chips to 256-megabit chips and one-gigabit chips. In some of the projects, which totaled around ten projects, some of the projects Toshiba took part as well.

Q. Now, the products that you were working on as design manager between 1994 and 1999, were those products JEDEC-compliant?

A. Yes.

Q. And just to be certain that the record is clear, of the products that you identified, which of those were synchronous DRAMs?

A. The major products that my groups -- I was a second line manager, so the departments reporting to me -- the major chips, chip generations, that we had developed were the 64-megabit EDO chip, a 256-megabit SDR chip, a 256-megabit -- and a 256-bit DDR chip.

Q. Let's start with the 256-megabit SDRAM product if we could, and could you please explain what your responsibilities were as design manager for that product.

A. I had three design departments for the various chips that we did and one CAD department. I had to make sure that the design departments received all the information that was necessary to design a successful chip that worked in the applications, so my task was

providing resources, providing all the information they needed, providing application information, for instance, in order for them -- providing specifications for them to be able to design the chip.

Q. When did you begin work on the 256-megabit SDRAM product?

A. This must have been, to my recollection, second half of 1996 somewhere, late 1996.

Q. And when was that product completed?

A. It was completed with an internal qualification, meaning that the chip complied with all the specifications, was built in a reliable technology and worked in the applications, by the end of 1998.

Q. So in other words, two years or a little over two years?

A. For this particular chip we took a little longer. Usually it's two years; this was two and a half years.

Q. Now, did that project involve any redesigns?

A. Yes.

Q. First of all, can you explain what you mean by a redesign?

A. The designers start with a specification, usually the JEDEC specification for a JEDEC-compliant part, and design all the circuits in order to comply

with the specification and to make sure that to all of the timing parameters and voltage and AC and DC parameters in the specification the chip has as much margin as possible to be a robust design.

Typically the designs takes a -- then we write masks in order to produce the silicon. Once the silicon has been obtained, the design people and the characterization people will test the chip excruciatingly in order to find out whether the design assumptions have been correct and in order to maximize the margin of the chip and make -- and eliminate any failures or any chip mistakes that might have -- design mistakes that might have happened.

From the point of first silicon through the final qualification, meaning that the chip can be ramped to production, takes usually nine months to a year.

Q. But can you explain in a little more detail what you mean by the redesign itself?

In other words, once you have first silicon, what is involved, if anything, in a redesign?

A. A redesign means that you measure the chip, you measure all the timing characteristics and the AC and DC characteristics of the chip and compare them with the simulations that are run in each place which you

had done before and there are mostly or usually discrepancies. You detect that the silicon is slower or faster than the simulation had predicted. You detect that not all the simulation of all circuits behave equally, there are some effects coming in from parasitic capacitance or others which might have been overlooked in the simulation.

So essentially what you do is you test reality to your simulation, adapt your simulation accordingly, and redesign circuits in order to make the chip fully compliant with the JEDEC specification.

Q. So in other words, after testing, you'd redesign circuits in order to ensure that the actual chip behaves in the manner that your predictions had anticipated?

A. Right. Correct.

Q. Now, with respect to the 256-megabit SDRAM product for which you were the design manager, do you recall when you obtained first silicon?

A. It must have been in the second half, fall time frame, of 1997.

Q. And do you recall what, if anything, required you to do redesign work on that product?

A. Yes. We had some substantial redesign work to do. Most of it was we had a mistake on the chip which

made a portion of the chip nonfunctional, nonaddressable, and we had -- as in the DRAM Development Alliance we were not only developing products but the corresponding technologies at the same time, the technology wasn't fully developed either, so there were changes in development -- in technology -- excuse me -- which led to changes in design, which is adoption of timing parameters, transistor parameters,

Then you produce -- need three months for producing the new silicon, and after that, you have to go through the whole testing and characterization and application testing again, meaning that altogether you end up with a year or somewhere around that.

Q. Now, I believe you mentioned you were also a design manager for a 256-megabit DDR SDRAM product; is that right?

A. This is correct.

Q. And what were your responsibilities as design manager on that project?

A. The same responsibilities I had for the first chip. I headed a design team. The design manager of this team that designed the 256M DDR was reporting to me. The tasks were more or less the same, staffing, getting all the information for the designers to enable them to do the specification, get the specification for DDR, which was in a very early stage back then.

And in this particular chip, Toshiba participated as well, and so we had as -- our staffing manager had a lot to do so that the Japanese team and the American team and the German team worked well together.

Q. When did you begin work on the 256-megabit DDR

SDRAM part?

A. In early 1998.

Q. When was that project completed?

A. End of 1999.

Q. Now, was the JEDEC DDR SDRAM standard finalized when you began work on the 256-megabit DDR SDRAM product?

A. No.

Q. How were you able to start work on that product if the JEDEC standard was not yet final?

A. The JEDEC standard for DDR had been discussed for some time at the JEDEC level. There had been some consensus items and they are usually very important to start the design, like the command structure, like speeds and other items, which enable -- it's -- from all of the parameters base or the specification contents that you need to know, it's about 70 or 80 percent.

The reason for that was because JEDEC wanted to do an evolutionary step going from SDR to DDR, evolutionary in order to keep the costs down in the industry because it affected much more than the DRAM design, so we knew pretty much about the DDR design right from the beginning because we knew that JEDEC would take many of the features over, and some features

were not yet defined at that point in time and we scheduled the design accordingly to start with all the features that we knew and put on those that are still in discussion on the JEDEC level towards the end of the design. Or made them -- if they are, for instance, two values which people had not agreed upon, put all two of them in the design and try to decide later which one to take.

Q. You mentioned that Infineon was interested in an evolutionary design in order to keep costs down.

Can you please explain how an evolutionary design keeps costs down?

A. Evolutionary design, if you look at a specification, it means -- it essentially comprises several parts, three or four parts. One is the timing characteristics and the timing parameters which determine the speed of the chip. One is the command structure, meaning what commands do you give to the DRAM in order to perform what function. Some are the DC values, like current values, power values, et cetera.

Those are more or less the three most important functions. The command structure was, for instance, something which was taken over from the core of the -- as a core from the synchronous DRAM specification.

Some commands were of course added for the -- in order to provide more functionality, but the core SDRAM functionality was taken away into the DDR functionality.

And this core command structure, this determines approximately 70 to 80 percent of all the logic circuitry that has to be done on the chip, which is usually the most complicated to design. And that's the reason why we could start early.

Q. Now, did you have to do any redesign work on this 256-megabit DDR SDRAM product?

A. Yes.

Q. And how long did that redesign work take?

A. Approximately the same time, one year, around.

Q. And do you recall why you had to do redesign work on that product?

A. For the same reasons, eliminating mixtures -- mistakes or failures on the chip, eliminating weaknesses on the chip like timing parameters being marginal or power being too high.

One of the issues we did on that particular chip, for instance, is to speed it up, make it faster than the specification runs, in order to be able to have a faster chip.

Q. By the way, when you were involved in design

work at Infineon, did you ever use a program known as Spice?

A. Yes. My designers did.

Q. What is Spice?

A. Spice is a program that enables a designer to simulate electrical circuits, to simulate the electrical behavior, in a way in order to mimic what is actually happening on the silicon.

Q. To sum up your experience at Infineon, would it be fair to say that you've worked in both the marketing and the design sides of Infineon's synchronous DRAM products?

A. Yes.

Q. Dr. Peisl, are you familiar with an organization called JEDEC?

A. Yes.

Q. What is JEDEC?

A. JEDEC is a standardization committee for electrical devices. A subcommittee of JEDEC is the one we usually deal with, I believe the number is 42.3, which standardizes the DRAM interfaces and the packages of DRAM generations.

As a design manager, it's very important to know what's going on in JEDEC --

JUDGE McGUIRE: ,nitr6 -now what's going on in slle

sir. You're going too far there. Just hold up and try and answer his question.

Mr. Oliver?

MR. OLIVER: Thank you, Your Honor.

BY MR. OLIVER:

Q. You mentioned standardization work by JEDEC with respect to memories.

Based on your understanding, what is the purpose of having standards with respect to memories?

A. Standards are I would say of utmost importance because they enable several features. One of them is that you make sure that all the parts you have in an electrical system, for instance, on a motherboard or on a PC or on a server work together towards the agreed-upon interface -- towards an agreed-upon specification.

So it's not only for us as a DRAM designer on one side, but it's very important, it's very important for the chip designers at Intel, AMD and other companies who design the chips that communicate with our DRAMs as well, and it enables essentially the whole industry to develop products that work together in more or less a predefined manner.

Q. Have you ever attended a JEDEC meeting?

A. Yes. I have attended five JEDEC meetings.

A. JEDEC's standards were the only source for our own specifications, meaning that Infineon -- Siemens or Infineon chip specifications were entirely directed towards the -- 100 percent compatibility towards the JEDEC specifications.

The reason for that is very simple, because we knew that all the other industry, all the other DRAM vendors and the controller people were working towards the same specification.

Q. By the way, if I calculated it correctly, you attended five meetings at JEDEC over about an eight or nine-year time period.

Were you the regular Siemens representative at JEDEC at that time?

A. No. Actually I was not and I was filling in sometimes.

Q. Who was the regular Siemens representative at JEDEC during those years?

A. Willi Meyer.

Q. Now, Dr. Peisl, when did Infineon first begin selling its first SDRAM memory product?

A. Infineon has sold 64-megabit synchronous parts and have been selling -- started selling that I believe somewhere in the mid-'90s and they had a 64-bit synchronous product as well. I wasn't part of those

256-megabit SDRAM product as well as your other design work at Infineon and your other experience at Infineon, did you have an understanding as to why Infineon designed its SDRAM products to meet the JEDEC standards?

A. It is a very simple fact. Because all of the industry, all other DRAM producers and all the controller producers were working towards the same specification. We had to do the same thing. JEDEC was our -- JEDEC specification was our guidance.

The reason behind that is very simple. If we would -- let me answer it negatively.

If we wouldn't have produced a chip that would not comply to the JEDEC specification, it would have not been able to work at the PC, at the server, at the laptop platforms at HP, IBM and all our other customers because of noncompliance issues, nontechnical issues, and we essentially would not have been able to sell anything.

Q. Now, when did Infineon first begin selling a DDR SDRAM product?

A. I believe it was in the 2000 or maybe 2001 time frame. Definitely in 2001. In 2000 I'm not entirely sure, but I think we sold them at that time.

Q. And what was the first DDR SDRAM product that

Infineon sold?

A. The 256-megabit DDR that was the second chip I mentioned before.

Q. In other words, that was one of the chips in which you were the design manager?

A. Which I was the design manager. It was modified slightly by other design teams when they took it over from our team, but it essentially was the same chip.

Q. Now, did the 256-megabit DDR SDRAM product comply with the JEDEC standard?

A. Yes.

Q. Which one?

A. The DDR standard.

Q. And focusing on DDR SDRAM products, has Infineon introduced any DDR SDRAM products since the 256-megabit product?

A. Yes. We have introduced 128-meg DDR and 128-megabit DDR product and 512-megabit DDR product.

Q. And are those products also JEDEC-compliant?

A. Yes.

Q. Now, is Infineon currently working on any additional products?

A. Any additional on the DDR side you mean?

Q. Yes.

A. On the SDR side?

Yes, we are working on one-gigabit DDR and DDR-II chips and we are working on 512-megabit DDR and DDR-II chips and 256-megabit DDR and DDR-II chips.

MR. OLIVER: May I approach, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. OLIVER:

Q. Dr. Peisl, I've handed you four documents. If I could ask you to locate first, please, CX-2404.

A. Yes.

Q. And do you recognize that document?

A. Yes.

Q. What is that document?

A. It's a specification or a data sheet, which is almost the same term, of a 128-megabit synchronous DRAM.

Q. And is that produced by Infineon?

A. Yes.

Q. Could you please explain what a specification or a data sheet is.

A. A data sheet is describing all the AC and DC parameters of a DRAM, of a chip. It gives the designers timing diagrams in order to get an idea of how the chip works under the circuit conditions and under the circuit parameters. It shows the command

structure, meaning what commands do you have to apply to the DRAM in order to perform the circuit function, and it shows maximum ratings as well like maximum temperature, et cetera.

So it's a complete set of instructions of how to use our DRAM.

Q. And could I ask you to locate CX-2403, please.

A. Yes.

Q. Do you recognize that document?

A. Yes.

Q. And what is that document?

A. It's a data sheet for the 512-megabit synchronous DRAM.

Q. And if I could ask you to locate CX-2410, please.

A. Yes.

Q. Do you recognize that document?

A. Yes.

Q. What is that document?

A. That's a data sheet for the 512-megabit DDR SDRAM.

Q. And if I could ask you to locate CX-2408, please.

A. Yes.

Q. Do you recognize that document?

A. Yes.

Q. And what is that?

A. It's a data sheet for the 256-megabit double data rate SDRAM.

Q. Now, is CX-2408 the data sheet for one of the products in which you were the design manager?

A. This is the first 256 DDR SDRAM that we brought into the market, which was a design that was performed under my supervision, yes.

Q. Within CX-2408, if I could ask you to turn, please, to page 5.

A. Yes.

Q. There's a caption at the top that reads "Block Diagram." Do you see that?

A. Yes.

Q. Could you please explain your understanding of what is illustrated on page 5 of CX-2408.

A. It's a basic sketch, basic functional building blocks of a DRAM that explains to somebody who is using the DRAM what the essential functional blocks for DRAM are.

On the left side it's mostly memory array and how the address is applied to the memory arrangement to get data out. On the right side it's the output circuitry, how well the data will be conveyed from the

internal array to the external bits.

Q. Now, does the block diagram on page 5 of CX-2408 show a delay lock loop or a DLL?

A. Yes.

Q. Is that DLL located on the chip?

A. Yes.

MR. OLIVER: May I approach, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. OLIVER:

Q. Dr. Peisl, if I could ask you to please keep CX-2408 open to page 5.

A. Yes.

Q. In the meantime I've handed you a document marked JX-57. Do you recognize that document?

A. Yes.

Q. And what is that document?

A. It's the JEDEC standard specification of double data rate SDRAM dated June 2000. It's from the JEDEC Web site.

Q. And I'd like to ask you to turn now within that JX-57 to page 8, please.

A. Yes.

Q. And if you could place that page side by side with page 5 of CX-2408.

A. Yes.

Q. Actually looking at first on JX-57, page 8, does that functional block diagram contain a delayed lock loop or a DLL?

A. Yes.

Q. Is that DLL on chip?

A. Yes. It's part of the standard.

Q. And if you could compare, please, page 8 of JX-57 to page 5 of CX-2408, what, if any, are the differences between those two pages?

A. There are very few differences and there's no difference in the functional description of the building blocks of the memory. There's a little difference on the JEDEC side because there's a generator depicted as well. It's a driver, but that has nothing to do with the functional description.

Q. And with respect to the identification of a DLL or delay lock loop on the two block diagrams, is there any significant difference between the two diagrams?

A. No.

Q. If I could ask you to turn, please, in CX-2408 to page 9.

A. Yes.

Q. And can you please explain what is depicted on page 9 of CX-2408?

A. Page 9 describes the bits in the mode register operation, meaning the bits on the address lines that have to be set in order to perform -- to make the chip perform a certain function.

Q. Now, are you familiar with the technology known as programmable CAS latency?

A. Yes.

Q. And on page 9 of CX-2408, is there a depiction of programmable CAS latency?

A. Yes. It's the bits of the addresses A6 through A4 which have to be set in a certain manner in order to program a certain CAS latency.

Q. Now, are you familiar with the technology known as programmable burst length?

A. Yes.

Q. And is programmable burst length depicted on page 9 of CX-2408?

A. Yes.

Q. Where is that depicted on page 9 of CX-2408?

A. Burst length are the lowest addresses, meaning A0 to A2. There are three bits, meaning eight possibilities for the various burst lengths that can be set, and the specified burst length of the double data rates were 2, 4 and 8 and it specifies which bits have to be set in which manner in order to achieve the 2, 4

or 8 burst length.

Q. If I could ask you to turn, please, in JX-57 to page 13.

A. Yes.

Q. And on page 13, I'd like to direct your attention to the diagram appearing in the lower left-hand part of that page, above the caption Figure 1: Mode Register Definition.

Do you see that diagram?

A. Yes.

Q. Can you please explain your understanding of what's depicted in that diagram?

A. It's the same mode register definition as in the Infineon specification. It specifies which address bits have to be set in the mode register mode in order to determine the burst length, the CAS latency and other operation modes.

Q. If you could again place page 13 in JX-57 next to page 9 of CX-2408.

A. Yes.

Q. And with respect to the mode register diagram, in particular the depiction of programmable CAS latency, what, if any, are the significant differences between the depiction of programmable CAS latency in JX-57 and the depiction of programmable CAS latency in

CX-2408?

A. The only difference I see is that there are more optional CAS latencies in the JEDEC specification because JEDEC is usually providing a broader specification. But the -- there is essentially no difference between the two tables.

Q. And with respect to programmable burst length, what, if any, are the significant differences between the depiction of programmable burst length in JX-57 and the depiction of programmable burst length in CX-2408?

A. There's no difference at all.

Q. If I could ask you to turn, please, in CX-2408 to page 21.

A. Yes.

Q. At the page being captioned toward the top reading: Consecutive Read Bursts CAS Latencies Burst Length Equals 4 or 8. Do you see that?

A. Yes.

Q. Could you please explain your understanding of what is depicted on page 21 of CX-2408.

A. It's an essential description, essential timing diagram of the depiction of how CAS latencies are being defined, meaning that a CAS latency defines the time period or number of periods between when an

address and a command -- read command has been set and to the point where the data are coming out of the memory.

Q. Now, with respect to the data coming out of the memory, is the data coming out of the memory on just the single rising edge of the clock, the falling edge of the clock, or on both?

A. In the double data rate it's on the rising and falling edge of the clock.

Q. Is that the same as a dual-edge clock?

A. Correct.

Q. And is that depicted in the diagram on page 21 of CX-2408?

A. Yes.

Q. If I could ask you to turn, please, in JX-57 to page 23.

A. Yes.

Q. And there are -- the diagrams here are both captioned at the bottom of the page Consecutive Read Bursts Required CAS Latencies.

Do you see that?

A. Yes.

Q. Can you please explain your understanding of what is depicted on page 23 of JX-57?

A. It's the very same picture that has just been

discussed. It's a very generic description of the definition of CAS latency, read command and address, how many blocks do we have to await for the data.

Q. With respect to the transmission of the data, on page 23 of JX-57, is that data being transmitted on just the rising edge of the clock or both the rising and falling edge of the clock?

A. Both, the rising and falling edge of the clock. That's the essential of the DDR standard.

Q. Now, comparing the timing diagrams on page 23 of JX-57 with the timing diagrams on page 21 of CX-2408, and I'm not particularly interested in the transmission of data on the rising and falling edge of the clock, but with respect to that feature, are there any significant differences between the timing diagrams in JX-57 and the timing diagrams in CX-2408?

A. No. They are identical.

Q. And by the way, if I could turn briefly back to CX-2404 -- do you still have that in front of you?

A. Yes.

Q. Is that product JEDEC-compliant?

A. Yes.

Q. If we were to do a similar analysis comparing that to the JEDEC standard, the analysis would be similar?

A. There would be no differences between them.
Q. If I could ask you to turn, please, to CX-2403.
A. Yes.
Q. Is that product also JEDEC-compliant?
A. Fully, 100 percent.
Q. And if we were to do a similar comparison between that data sheet and the JEDEC standard, would that analysis be similar?
A. It would be the same analysis, no differences.
Q. And if I could ask you to locate CX-2410 in front of you, please.
Is that product JEDEC-compliant?
A. Yes.
Q. And if we were to do a similar analysis between that data sheet and the JEDEC standard, would that analysis be similar?
A. Yes.
Q. Dr. Peisl, I'd like to come back to your role as director of technical marketing of standard memories, if we could. And again, I believe you said you held that position from August of 1999 until September of 2000; is that right?
A. Correct.
Q. Now, in your position as director of technical

marketing of standard memories, did you have a staff who reported to you?

A. Did I have -- excuse me?

Q. Did you have a staff that reported to you?

A. Yes.

Q. And what was the size of your staff?

A. Around eight people.

Q. What functions did they represent?

A. They were mostly field application engineers, technical people who were located usually at the customer's organization or customer's location.

Q. What was the role of these field engineers?

A. Their job was to validate and to qualify the Infineon DRAMs at the customer location on the customer platforms. PC, laptop and server platforms.

Q. And you mentioned that they were located at the customer.

Can you give some examples of customers at which your staff members were located?

A. The field application engineer for Dell was located in Austin, Texas.

The field application engineer for Compaq was or is still located in Houston in Texas.

The field application engineer for IBM is located in Raleigh, North Carolina.

Q. How did you supervise your staff if they were located in various areas around the country?

A. By flying a lot and by teleconferences and video conferences.

Q. Now, in your job as director of technical marketing of standard memories, did you personally interface directly with customers in that job?

A. Yes.

Q. What customers did you have direct contact with?

A. HP, Dell, IBM, Compaq, Sony, to name a few.

Q. And how frequently did you meet directly with customers?

A. Approximately every two months to quarterly.

Q. Could you please explain in a little more detail why customers needed the support of you and your technical marketing group.

A. Customers have different platforms. IBM or HP or Dell typically produce several laptops, several servers, several PC desktop platforms a year, and they want to -- we want to sell our memory to them, so my job was to make -- to ensure that our parts were fully technically -- technically fully compatible with the requirements on the motherboards of our customers, so I provided kind of technical support, provided

specifications, answered questions about specifications, provided presentation material.

Q. Now, were you doing this support work with respect to products that Infineon was already selling in the marketplace or products that were anticipated to be introduced in the future or both?

A. Mostly products that had been new, meaning that we wanted to introduce them into new platforms. Products that had been in the marketplace we usually qualified on new boards. That was a portion of the business as well. So it's essentially both.

Q. And I believe you had also referred earlier to providing samples. Do you recall that?

A. I'll give you an example. HP wants to qualify a new laptop platform. They were asking for samples typically in the quantities of hundreds. They would build them -- would build up approximately five pilots or systems, would run extensive software tests which would emulate all the possible software the end user is using on that laptop and would watch whether there

mentioned were PCs, laptops and servers; is that right?

A. Correct.

Q. If we could start with PCs, when you were the director of marketing for standard memories, did you personally work with customers to assist them in using the Infineon DRAM products in personal computers?

A. Yes.

Q. And focusing particularly on personal computers for the moment, why did customers need assistance from you in putting that into their personal computers?

A. Usually when we send new parts to a customer, because of the JEDEC specification and the interface definition, in most of the cases the parts didn't exhibit any failure. You just put them in, either in direct form or in PCs it's usually in module form, onto the motherboard in the memory and start performing your tests, and if all the tests are passing, then the part is qualified and I would say these people will start selling to this particular platform end customer.

If there are failures for whatever reasons, noise related, temperature related, anything which usually happens as a marginality outside of the

specification, then we were there to assist them to alleviate that failure or provide a work-around.

Q. Would it be fair to say that memory would have to interface with a number of other components that were in a personal computer?

A. Yes. Memory is interfacing with a number of components on the motherboard.

One is of course the direct interface is the

Q. Now, with respect to the role of you and your group, what role, if any, did you have with respect to ensuring the memory interface with each of those components?

A. Yes. It was our job to make sure that we had tested our DRAM with all the possible configurations, with all the controller chips that were available, all the major motherboard configurations. This essentially determines our know-how to let me know where we might have a weakness or not.

Q. I guess what I'm trying to focus on is whether your group and you personally were focused on memory interface with any particular component or whether you were focused on memory interface with all the components you listed.

A. We were focusing of course on the memory interface to all the components because we couldn't predict where a weakness would occur, so we had to know all the different influences.

Q. Now, let's turn for a moment to laptops.

Did you also assist customers in working with Infineon memory products in laptops?

A. Yes.

Q. And what, if any, differences were there in operability issues with laptops as compared with

personal computers?

A. There were obviously some differences because a laptop is usually of a smaller form factor and one major difference is as well that on laptops different modules are used, being used. It's a smaller form factor for the modules called SODIMM or a small-outline DIMM.

Those were the major differences, but there were no basic functional differences between the PCs and the laptops.

Q. The differences you just mentioned, did they have any impact on the work that you were doing in terms of enabling customers?

A. Potentially yes, hopefully not.

Q. If we could turn next to servers and when you were Infineon's director of technical marketing for standard memories, did you personally work with customers to assist them in using Infineon memory in server applications?

A. Yes.

Q. Now, what customers did you work with with respect to server applications?

A. The major server companies, HP, Sun, IBM and I started a little bit working with Dell. Dell was not quite a server family back then.

Q. Again, compared with the work that you were doing to enable customers with respect to personal computers, what, if any, were the differences with respect to work you were doing on servers?

A. There were some differences. Servers -- some server vendors do not use modules. They solder the DRAMs directly into the motherboard. Typically the server boards are bigger. Servers are simply bigger devices. They have wider buses typically as well which requires more memory. Servers typically have much more memory than a desktop has. And server people -- server development engineers usually take more time. Their platforms have a very long lifetime, five to eight years, compared to desktop, which is usually only two to four years.

So they -- it took them a longer time designing a new generation of DRAMs or brand of DRAMs, so their whole qualification process was longer.

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mentioned before.

Q. Now, you also referred to the long life of servers. What, if any, implications would that have on the way in which servers use memory?

A. One of the implications, for instance, is that a server design engineer would typically not design an interface that is going to be replaced in the near future over the next one or two years.

As an example, today a server platform could not be designed with synchronous DRAMs, although the synchronous DRAM is still available, but it will be replaced by the double data rate SDRAMs, so typically they will use double data rate SDRAMs or even in designing now double data rate II SDRAMs.

marketing of standard memories, did you have occasion to discuss JEDEC standards with customers?

A. Yes.

Q. With how many customers did you have such discussions?

A. With all of them.

Q. Based on those discussions, did you come to have an understanding of whether Infineon's customers attached any importance to JEDEC's standards?

A. Yes. It was of utmost importance to them. And -- and the reason for that is the customers --

MR. STONE: Your Honor, I object. This would go into hearsay. I think all that is relevant at this point, if it's relevant at all, is this witness' understanding, which he just testified to. His going into an answer that says "And the reason for that is the customers" I think is going to --

JUDGE McGUIRE: I'll strike that portion of the answer.

MR. STONE: Thank you, Your Honor.

BY MR. OLIVER9,/ 20lD1didTing

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multiple sources?

A. JEDEC essentially ensured that it had multiple sources because everybody in the industry, every major DRAM company or every DRAM company and every controller company designed towards the agreed-upon JEDEC standard. It is -- okay.

Q. And you also referred to interoperability. Can you explain briefly what you meant by that?

A. Interoperability between that the DRAM works flawlessly together with all the components in the system. It's not only one chip that the DRAM is interfacing with but all the other components on the motherboard, the position on the motherboard, the particular layout on the motherboard, other components on the modules, for instance, like registers.

You have to make sure that your part is fully compliant with all the specifications of the other chips. This is why everybody is working towards the JEDEC specification. That's the common denominator.

Q. Now, when you held the position of director of technical marketing for standard memories, did you come to have an understanding of the Intel PC100 or PC133 specification?

A. Yes.

Q. Now, what was your understanding of the Intel

PC100 or PC133 specification?

A. Intel's PC100 and PC133 specification essentially described some additives or addendums to the synchronous DRAM spec and it was JEDEC specification and it was later on added into the JEDEC specifications.

Typically, Intel is doing very extended tests of a new system, for instance, containing the synchronous DRAM interface and it just happens that they -- some things come up which have been overseen before and they will be added to the spec, and that is what Intel did.

Q. Were you aware of any inconsistency between the JEDEC standards and the Intel specification?

A. No.

Q. And by the way, when you were the director of technical marketing for standard memories, did you ever have any discussions with customers concerning the Intel PC100 or PC133 specifications?

A. I cannot remember if this was still an issue back when I assumed that position in 1999. I think back then most of the issues had been already clearedhe i61he

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into the JEDEC common specification as well.

Q. Well, at the time, for example, you had discussions with customers concerning the JEDEC standards, did you also have discussions concerning the Intel PC100 or PC133 specifications?

A. I believe so, yes.

Q. Did you have an understanding of whether your customers were focused on the JEDEC standards or on the Intel specifications or on both?

A. They were -- wanted essentially to know what the differences are, and my job was to explain that they aren't really differences, but the Intel spec was an addendum to the -- it included some of the parameters which had to be specified, so it was not exclusive. It was an addendum.

Q. You've testified with respect to standardized memory, but today in your current job you sell specialty parts that are not JEDEC-compliant; is that right?

A. This is correct.

Q. Now, do you sell any of these specialty parts for the same uses as JEDEC-compliant standard memory?

A. Partially yes, but mostly no.

Q. Can you explain some of the uses of the specialized memory?

A. Examples are the reduced latency DRAM. This will be sold to customers like -- customers like Cisco or others in that area.

My graphics DRAMs are being sold to graphics companies. Examples are NVidia and ATI.

And cellular DRAM will be sold to phone companies. Examples are Motorola and Kyocera.

This is what I mean, the traditional PC companies are a little different than the customers I typically sell to. But as an example, the mobile RAM, for instance, I sell to HP, Dell and IBM as well, so it's a mixture.

Q. Now, I believe you testified that Infineon does sell a small volume of specialty parts for use -- specialized parts for uses similar to those of standardized parts?

A. Yes.

Q. And can you explain what some of those uses are?

A. It's used in cellular phones, in PDAs, switches and routers, graphics cards, those kinds of applications, not directly related to PC, laptops or servers.

Q. Now, how does the price of specialty DRAMs compare to the price of standardized DRAMs?

A. It's higher compared with the same density.

Q. Now, why would a customer purchase a specialized part for a use similar to a use of a standardized part if the price is higher?

MR. STONE: Objection, Your Honor. I don't know that this witness can testify to why different customers make the decisions they make in terms of choosing what products to purchase. I think he can only testify to what as someone trying to sell them the product thinks are the reasons that might influence them or what he understands may influence --

JUDGE McGUIRE: Mr. Oliver, response?

MR. OLIVER: I'll rephrase it, restate it.

BY MR. OLIVER:

Q. What is your understanding with respect to why a customer would purchase a specialty part for a particular use that may be similar to use of a standardized part?

A. I'll give you an example. Customers need specialized parts for specialized applications where they can't use the JEDEC-compliant parts.

A very simple example, for instance, a cell phone. When you use a standard part, the battery lifetime is in the order of one day. If you use the mobile RAM, which has much lower power of the same

interface, but battery life can be extended to over three to four days, so that's why they use this specialized part and pay more for this part in this particular application.

Typically what customers pay for is either very low power or high speed, higher speed or lower power than the JEDEC-compliant parts.

Q. Now, in your position as director of technical marketing for standard memories, were you also responsible for Rambus RDRAM?

A. Yes.

Q. And what were your responsibilities with respect to RDRAM?

A. Rambus was, besides synchronous and double data rate, my third product family that I had to validate the product. What I validated in particular was the 144-megabit Rambus DRAM from Infineon.

Q. So in other words, this is an Infineon-produced product?

A. Correct.

Q. An Infineon-produced RDRAM memory device?

A. Correct.

Q. And what do you do to support customers with respect to the 144-megabit RDRAM product?

A. I validated the Rambus DRAM with the -- to make

sure that the Rambus DRAM works together with the controller, which came from Intel. It's a validation process that had been set up by two companies essentially, which was Rambus and Intel.

My job was to make sure that the 144-megabit worked flawlessly in the Rambus applications.

Q. As part of your responsibilities, did you ever explain to customers the benefits of the 144-megabit RDRAM product?

A. Yes.

Q. And what benefits did you explain to customers?

A. The Rambus product was obviously much higher in speed and it had a narrower, a smaller pin count, which saves some costs on the system level.

Q. And as part of your responsibilities, did you ever explain to customers any of the disadvantages of RDRAM?

A. Yes.

Q. And what disadvantages of RDRAM did you explain to customers?

A. That RDRAM had a higher cost, which was -- and a higher price which was based on the higher cost structure because the chip was bigger than the standard DRAM and there were increased test costs because of the

speed, as an example.

It was a new package as well and some other items that added to the cost of the product.

Q. Did you ever express any preference to customers toward either SDRAM or RDRAM?

A. No. And essentially it's the customer's decision which controller is being designed into a particular motherboard and that dictates the usage of the memory.

Q. Well, with respect to any particular uses, did you ever recommend to customers that they use either SDRAMs or RDRAMs for any particular uses?

A. No. The customers usually know -- have done the system evolution before and their system -- their system evolution in order to determine what memory works best for them. They usually have a very clear opinion what they want, and me, as a supplier company, we have a very clear view that we supply every chip that we can produce that a customer wants. We are not giving recommendations.

Q. So you just support what the customer chose?

A. Correct.

Q. Did you ever hear any feedback from customers concerning Infineon's RDRAM design?

MR. STONE: Objection, Your Honor. This is hearsay and it has no purpose unless it's being offered for the truth and so I object on the grounds it's hearsay.

JUDGE McGUIRE: Response?

MR. OLIVER: Your Honor, it does go to the issue of this witness' understanding but also goes to the company's understanding.

They have made allegations that there was some type of a conspiracy, that Infineon and other companies were conspiring to keep RDRAM off the market, and I think this witness is testifying very much the opposite, and I believe that this testimony will indicate that not only were they trying to support their customers, but their customers were responding favorably.

JUDGE McGUIRE: Overruled. I will hear the answer to the extent it goes to his personal knowledge and understanding.

BY MR. OLIVER:

Q. Dr. Peisl, do you recall the question?

A. You were asking me about the customer feedback from Rambus?

Q. Yes.

A. For Rambus products?

Typically, we had relatively only a small number of problems during the validation of the Rambus parts. The feedback was usually rather positive.

MR. OLIVER: May I approach, Your Honor?

JUDGE McGUIRE: Yes.

THE WITNESS: Yes.

BY MR. OLIVER:

Q. Dr. Peisl, I've handed you a document marked CX-2428. Do you recognize this document?

A. I recognize some portions of it, pages.

Q. How is it that you recognize certain pages or certain portions of this document?

A. What we typically do at Infineon is that several groups have presentations where they aggregate information and other groups like me or the techsilike meike

Could. OLskHow itoalooke tyn portions of in of it, pages.

identify valignize Q. How is it that WITNESS: Yes. 10

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one of the pages you had seen before?

A. Yes.

Q. And I'd like to focus on your understanding in the 1999 to 2000 time frame.

What was your understanding of what was being depicted on this page at that time?

A. My understanding was that it showed the timeline for the engineering samples, qualification samples and mass production. This is important information for the customer so that they know when they can obtain the parts from -- those parts from Infineon.

Q. Now, is this information that you actually presented to customers?

A. Yes.

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Q. Now, if I could direct your attention to the next to last line: Intel validation is scheduled for early 9-99. Do you see that?

A. Yes.

Q. What was your understanding of what that referred to?

A. The Intel validation ensured -- this was exactly my job, what I did -- the Intel validation ensured that the part was fully compliant with the Intel controller Rambus specification and that our part was working flawlessly in the chip -- in a system where the controller chip was an Intel Rambus chip.

Q. Now, the Intel validation, was that, in your mind, was that important?

A. What's that?

Q. The Intel validation that's referred to in the next to last line, in your mind, was that important?

A. That was important to the customers who used the Rambus DRAM, yes.

Q. Now, was it important for Infineon to obtain that validation?

A. Of course.

Q. And why is that?

A. Because our -- we are supplying DRAMs to the industry and the -- our customers were expecting us to

provide the chips when they needed to ramp the platforms and fulfill our promises.

Q. Now, did Infineon in fact obtain Intel validation of its 144-megabit RDRAM part?

A. Yes. We passed the validation.

Q. Do you recall when you passed that validation?

A. Not exactly, but it was in late 1999. It was around that time frame.

Q. So more or less the time frame that was anticipated by this document?

A. Yes.

Q. If I could ask you to turn, please, to page 9 of CX-2428.

A. Yes.

Q. Now, is this also one of the pages that you recall having seen in 1999 or 2000 time frame?

A. Yes. I presented this page to customers.

Q. Now, again, based on your understanding in that time period, what did you understand this page to be depicting?

A. This page describes the relative, expressed in percentage points, cost adder of Rambus DRAM in reference to a x16M synchronous DRAM in a TSOP package and it describes the different components of the cost adder.

Q. Now, with respect to the term "cost adder," what was your understanding of what that meant?

A. Cost adder means that it was for us, Infineon, as a DRAM supplier, more costly to produce this part in reference to a standard SDRAM part. This of course finds some expression in the price. And customers were very interested in the portions of the cost adder in order for them to understand what the cost adders were, how would they come down over time. It's a very important assessment of the customers to determine to choose one technology over another.

Q. Now, with respect to the cost adders coming down over time, what did you explain to customers?

A. I did explain that, what is depicted on the foil. Once we go in the density of generations, 64M, 128M, 256M, which is in parallel on the timeline, time scale as well, the cost adders would go down from around 55 percent to 20 percent.

Q. Now, if I could direct your attention to the box on the right-hand side of the page, what was your understanding of what was depicted in that box?

A. It was the different components that constituted the cost adder, which is mostly all of the components that we -- cost components that we have in producing DRAM chips.

Q. If I could direct your attention first to die size, what was your understanding of what was meant by "die size"?

A. Die size is the chip area with which a certain density can be produced.

Q. And based on your understanding, why was die size a cost adder for the RDRAM?

A. Die size is a cost adder -- Infineon, as every other DRAM company, is a wafer company. We produce wafers. And the more chips we can sell off a wafer, the more revenue we make, so our tendency is to make a chip smaller in order to get more chips off the wafer, so increasing a die size or a chip size means that we increase our costs.

Q. Now, with respect to the next item, process, what was your understanding of what that term referred to?

A. My understanding was that process, the Rambus process, because of the high speed requirements, had some adders in the standard DRAM process, some better control and higher-performing transistors which added in additional process steps, adding to the cost.

Q. Now, the next item, yield loss, what was your understanding of what that term referred to?

A. Yield loss is the same thing. Typically we

have a yield, meaning that all -- all of the chips on the wafer perform the specification. Obviously some fall out, for instance, because they're too slow, for example. Because of the high performance requirements of Rambus chips, the yield loss was higher as compared to the standard synchronous SDRAM.

Q. The next item is assembly. Can you please explain your understanding of what that item referred to?

A. Rambus chips had to be assembled in a BGA, ball grid array package, which at that time '99 and 2000 were more costly than the standard TSOP plastic package, so producing the Rambus product added some assembly cost or packaging cost.

Q. The next item is test. Can you please explain your understanding of what that term referred to?

A. The Rambus chips were running at higher frequencies, meaning that the standard testers that we used for synchronous parts could not be used for testing Rambus products. We had to invest in new testers, high-speed testers, in order to be able to test the Rambus parts. That's resulting in added cost as well.

Q. The next item is RIMM, R-I-M-M. What was your understanding of what that referred to?

A. RIMMs are the modules where the Rambus chips are assembled on, and RIMM development was new as well, was a separate product line, a new package which could not be used for anything else, so that was another additive cost factor.

Q. And the final item, other RDRAM specific costs, what was your understanding of what that referred to?

A. The Rambus product line was simply a very separated line. Other costs that are hard to figure -- to factor in are, for instance, that you can't use the Rambus tester for something else or the RIMM module line for something else, it can be used only for this part, so we had some overhead in the manufacturing facilities producing Rambus.

This is not pertaining to the synchronous parts because they became a dynamic issue between chip generations, for instance.

Q. And I believe that you testified that you explained to customers that these various cost adders would come down 55 percent to 20 percent as densities increased.

Did you explain to customers any time frame or time scale over which you expected that, those cost adders to come down?

A. Yes. I described essentially the time frame which is depicted here, which means back in 1999, in two or three years they would come down 50 to 20 percent, and this gives the customer an indication of the tendency how the price will develop.

MR. OLIVER: May I approach, Your Honor?

JUDGE McGUIRE: Yes.

THE WITNESS: Yes.

BY MR. OLIVER:

Q. Dr. Peisl, I've handed you a document marked as CX-2451. Do you recognize this document?

A. Yes. The most portion of it I've used in my presentations. I have not used --

JUDGE McGUIRE: He's not asked you, sir, if you employed it. He just wants to know if you've seen it, so you've answered that.

THE WITNESS: If I've seen it? Yes.

BY MR. OLIVER:

Q. Okay. If I could ask you to turn, please, to page 6, the page with the caption DDR DRAM. It has a magnifying glass in the right-hand side. Do you see that page?

A. Yes.

Q. Now, the caption there reads "DDR/PC266 does require" and then the first bullet point "its own

chipset." Do you see that?

A. Yes.

Q. Can you please explain your understanding in the 1999 time frame as to what was meant by that phrase?

A. Chipset or, as a synonymous word for that, controller, chip DRAM controller chip, are the chips that are produced by companies like Intel and AMD over the years and they are the main chip interface to the DRAM.

What this sentence means here, that you cannot use the chipsets or the controller chips, you cannot use the same existing chips for both SDR and DDR interfaces, you need a new chip in order to be able to interface to a DDR memory.

Q. Then the next bullet point underneath that reads "a new motherboard." Do you see that?

A. Yes.

Q. And can you please explain again your understanding of, in the 1999 time frame, what was meant by that bullet point?

A. The understanding was that a new DRAM interface like DDR needs a different layout of motherboards, needs different components of the motherboard, needs a different design of the motherboard, needs different

modules on the motherboard for the interfaces where the DRAM is interfacing, needs, for instance, a new BIOS as well, so it's a new development.

Q. If I could direct your attention then to the last line of the page, it says, "But customers are saying that DDR is easier to implement than direct Rambus." Do you see that?

A. Yes.

Q. And again, did you have an understanding in the 1999 time frame of what was meant by that sentence?

A. DDR was an evolutionary concept in regards to SDR on JEDEC level. Several features of SDR had been taken over into DDR, so it was more or less a logical step for the industry committee to go from SDR to DDR and this is meant by the engineering word "easier."

Several of the components of the controller design of the BIOS, all the previous elements that I mentioned before, had to be changed in the transition from SDR to DDR, but the changes were evolutionary or incremental and not revolutionary. That led the customer -- led them to the opinion that it was simply less costly and easier to implement a DDR solution in contrast to a direct Rambus solution.

Q. If I could ask you to turn next, please, to

page 9 of CX-2451.

A. Yes.

Q. Could you please explain your understanding in 1999 time frame of what was being depicted on this page.

A. This page describes the differences between Rambus and double data rate based on our understanding back then in 1999. It describes the different features where we thought -- or where the customers thought and we thought as well as Infineon that double data rate was superior to Rambus.

Q. If I could direct your attention to the first bullet point in each of the columns, under Rambus it reads "proprietary standard of Rambus/Intel" followed by arrow "payment of royalties"?

A. Yes.

Q. On the double data rate side it reads "open standard," arrow, "no royalties."

Do you see that?

A. Yes.

Q. Again focusing on the 1999 time frame, what was your understanding of what was meant by those bullet points?

A. Based on the experience of all the standards that had been standardized at JEDEC, all of the

standards had been open, meaning they were free, could be used by everyone without any royalty payments. And JEDEC meetings and the procedures of the JEDEC meetings ensured that standards are open.

Q. With respect to the left-hand column, the bullet there reading "proprietary standard of Rambus/Intel payment of royalties," do you see that?

A. Yes.

Q. What was your understanding of what was meant by that bullet point?

A. My understanding was that Rambus was charging royalties for every company who were producing their parts, the direct Rambus interface.

Q. And did you have an understanding of what parts were subject to Rambus royalties?

A. Were subject to royalties?

Q. To Rambus royalties?

A. Yes.

Q. And what is this document?

A. This document is a summary of product marketing about chipset driver road maps and the influence on the customer side.

Q. And CX-2457 was created by Intel representatives; is that correct?

A. No. It's created by Infineon representatives and summarizes our view of the road map.

Q. Thank you. I misspoke.

Can you explain why Infineon was following chipset driver road maps at this time?

A. The job of product marketing at Infineon is to find out what Intel and other chipset vendors intend to produce in a controller or chipset, chipsets, in the future with which interface.

It has two major effects on our company. The one is of course which products we should develop in order to interface with those controllers and which products should we develop when -- in order to be ready when the, for instance, Intel chipsets or VIA or AMD chipsets come out. That was one portion of it.

The other portion is our customers, HP, Dell, et cetera, are looking do they have the same information and trying to ramp their own platforms

accordingly. It was a very important issue for us in order to determine approximately which DRAMs we should produce and develop in the near future.

Q. I'd like to follow up on a couple of points on this page just to be certain that the record is clear.

You said one function of following the chipsets is so that Infineon would know which products to produce; is that right?

A. Which DRAM products to produce.

Q. Okay. Can you explain that in a little more detail, please?

A. I'll give you an example. On the -- on page 4, on the left side is an Intel P6/P3 bullet there and it says that this particular chipset will be produced with two RIMMs per channel. This is a signal for us that we have to have RIMM development ready or RIMM validation by then and that our customers most probably want to have RIMMs or Rambus chips interfacing with this process at that time.

Q. And the reference to RIMM that you just made, that's a reference to the Rambus module; is that right?

A. That was just one reference, yes. And it pertains to the SDRAM and DDR interfaces as well. It was just an example.

Q. Now, going back to your earlier answer, I believe that you also said something to the effect that Infineon was following this so it would know which chipset models would follow its DRAMs. Did I understand you correctly?

A. What we do when we see a chipset road map and we have seen, for instance, back at that time Intel had two chipset road maps. One was going the Rambus direction. One was going to the SDR Rambus. It is an important information for us to know what they have to produce both kinds of DRAMs, the Rambus parts and the SDRAM parts, so that information for the development which chips to produce.

In the interim, it's very good information for the salespeople as well because they know, for instance, that this chipset from Intel or whatever other company is ready and most probably IBM or HP or whatever will use that and the use will need to have those memories.

We are working -- our salespeople are usually working on an allocation basis, meaning they try to match -- get as much chips they can in order to satisfy their customer, so this is an essential part of the information.

MR. OLIVER: May I approach?

JUDGE McGUIRE: Yes.

THE WITNESS: Yes.

BY MR. OLIVER:

Q. Dr. Peisl, I've handed you a document marked as CX-2455. Do you recognize that document?

A. Yes.

Q. And what is that document?

A. It's a description of the Infineon product road maps in the second half of 1999 time frame issued at that time and it depicts the product road map for the next two years.

Q. Now, if I could ask you to turn, please, to page 5 in CX-2455.

A. Yes.

Q. And again focusing on your understanding in the 1999 and 2000 time frame, what was your understanding of what was depicted on page 5 of CX-2455?

A. It described the engineering samples, qualification samples and ramp of mass production of the Rambus DRAMs that we produced.

And as a side comment, there's a mistake on that foil. The right half should read 2001, not 2000.

Q. If I could direct your attention to the left-hand side, there's a number that reads 144M. Do you see that?

A. Yes.

Q. Is that the 144-megabit RDRAM part that you've testified about earlier today?

A. Exactly. Yes.

Q. And can you please explain what the black bar to the right of that means?

A. What it should be the kind of symbolism in our road map is that we ramp the product starting beginning second quarter of 2000 and for each full production level that we want to achieve by the end of the second quarter of 2000 this is the ramp. Then we intend to produce the product through the first quarter of 2001 and then we ramp down in towards the second quarter of 2001.

Q. And if I could direct your attention below that, there's a line that reads 288M. Do you see that?

A. Yes.

Q. And what did that refer to?

A. That is the same description for the 288-megabit Rambus DRAM.

Q. In other words, the follow-on product?

A. The production would start in the first quarter of 2001. There is a triangle and a circle in there. The triangle depicts first engineering samples, which

means first working silicon, of a 288-megabit Rambus DRAM which was delivered or could be ordered by customers in the second quarter of 2000.

And qualification samples meaning samples of better quality, samples that can be used in order to qualify a platform, which were available at the beginning of 2001. Usually shortly after the qualification samples we start mass production.

Q. Now, did Infineon intend the 288-megabit RDRAM product to replace the 144-megabit RDRAM product?

A. That was the idea. Yes.

Q. Now, the explanation you've given me this morning, is that similar to the explanation that you gave to customers at the time?

A. I did it the very same way, yes.

Q. Excuse me?

A. I did it the very same way.

Q. If I could ask you to turn, please, to page 7 of CX-2455.

A. Yes.

Q. And again focusing on the 1999 to 2000 time frame, can you please explain your understanding of what was being depicted on page 7 of CX-2455?

A. That described our DDR DRAM road map route, 128-megabit, 256-megabit and 512 megabit. We have been

starting with the 256-megabit DRAM followed by the 128-megabit and then followed by the 512-megabit DDR DRAM.

Q. Again, is this a slide that you used in your customer presentations?

A. Yes.

Q. The 256-megabit part that is depicted on the page, is that the part for which you were the design manager?

A. Yes.

Q. Now, next to the 256-megabit part over the bar indicating the ramp-up it reads "limited volume availability." Do you see that?

A. Yes.

Q. Can you please explain your understanding in 1999 to 2000 time frame what was indicated by that?

A. We had unintentionally or what -- we had not planned enough volume capability for the first DDR part, meaning that we had only a limited amount of test lists and minimum amount of wafer starts in order to produce this product.

Usually when we add this little sentence to a product road map it should signify to the customer that we don't have unlimited supply, which we usually have with all of the other products.

Q. Did Infineon want to limit the volume of that product?

A. We wanted the opposite, but we didn't have all

know now yet, we don't have all the resources yet.

Q. Was that an indication that volume of that part might also be limited?

A. I wouldn't think so. The limitation of volume would usually come either because we didn't have enough resources, we had only one fab back then, one fabrication site, all the products competed in there, and we did build several fab -- subsequent fabrication sites in order to release -- reduce the demand or customer demand. That's the only thing we could do it.

Q. I also see in the various bars it reads "JEDEC COMP." Do you see that?

A. JEDEC compatible, yes.

Q. What did that refer to?

A. It referred to the fact that all the DDR parts that we produced were complying with the JEDEC specification.

Q. By the way, focusing again on the 256-megabit part, if I recall your earlier testimony, this is the part in which the design work started in early 1998; is that correct?

A. This is correct.

Q. And this page here indicates that ramp-up and mass production is expected in the second quarter of

2000; is that right?

A. This is correct.

Q. With full volume production occurring first in the third quarter of 2000; is that right?

A. Yes.

Q. And do you recall whether the actual production of the 256-megabit part followed the projections in this document?

A. I believe so, yes.

Q. Now, Dr. Peisl, at some point did you learn that Rambus was asserting patent rights against companies that manufactured or used SDRAMs?

A. It was public news more or less in somewhere in the first half of -- I forget the exact date -- in the 2000 year time frame. There was an Internet news, as we call it, what we get on the e-mail, that there was a dispute between Rambus and Hitachi.

MR. OLIVER: May I approach?

JUDGE McGUIRE: Yes.

THE WITNESS: Yes.

BY MR. OLIVER:

Q. Dr. Peisl, I've handed you a document marked CX-2459. This is an e-mail from Willi Meyer and the -- some of the caption is in German, but the date there is March 13, 2000; is that right?

A. This is correct, March 13, 2000. At 6 o'clock in the evening.

Q. And if you look at the cc line, you're one of the recipients of this e-mail; is that right?

A. Yeah. I'm down there in the third to last line, Martin -- Peisl, Martin, Infineon Technologies Corporation.

Q. If I could direct your attention to the second to last paragraph of this e-mail.

A. Yes.

Q. Actually, before I do that, let me direct your attention toward the top. It reads there "JEDEC highlights 6 to 9 March 2000." Do you see that?

A. Yes.

Q. Was this an e-mail from Willi Meyer concerning the JEDEC meeting in March of 2000?

A. Yes. That was his summary report.

Q. And if I can direct your attention to the next to last paragraph, it reads, "Rambus versus Hitachi case is considered a serious threat to the whole industry."

Do you see that?

A. Yes.

Q. Do you recall whether you learned of the Rambus suit against Hitachi in this e-mail or whether you

already knew of that at the time you received this e-mail?

A. I don't recall specifically if I have learned it from off that e-mail. I would suspect that I saw it on the Internet before.

Q. But in any event, would it be fair to say --

A. Or around that time frame.

Q. But in any event, would it be fair to say that around March of 2000 or so is when you learned --

A. Yes.

Q. -- of the Rambus lawsuit against Hitachi?

Now, at the time that you learned of the Rambus lawsuit against Hitachi, you were still in your position of director of technical marketing for standard memories; is that right?

A. This is correct.

Q. Now, if you look at the next to last paragraph, starting the second line, it reads, "AMI-2 president Desi Rhoden was asked by Hitachi to present work-around at JEDEC, which he did; Micron also presented frequency selection in lieu of latency programming."

Do you see that?

A. Yes.

Q. Now, at the time that you learned about the

Rambus lawsuit against Hitachi, did you recommend that Infineon go back to JEDEC and seek a revised SDRAM or DDR SDRAM standard to work around the Rambus patents?

A. No, I did not recommend that.

Q. Why not?

A. In 2000, the advancements of the SDR and DDR specifications had already reached a degree that the complete industry, the DRAM industry, motherboard industry, the components industry, the module industry and the controller industry, has reached -- had reached a level of implementation of the JEDEC-related standards that it would have been very hard and very costly and I would say near impossible to go back and to implement any substantial changes back in the 2000 time frame.

Changes typically in specifications can be implemented only in the very early phase of discussion but not in a very late phase where it would be very painful, and this is a sentiment for costly to change everything, and I'm again not talking alone for us as a DRAM supplier, I'm talking for the whole industry and the customers as well.

Q. Based on your understanding in the March 2000 time frame, why did you understand it would be costly for the industry to try to change standards

at that time?

MR. STONE: Your Honor, there's no reasonable basis for his understanding to be relevant to this case. He's expressed his understanding. This is a disguised way to get opinion testimony in from someone who has not been qualified to give an opinion. We let him testify that in his understanding it would be costly, but now to go into the basis is really an effort to get him to testify as an expert, which he's not.

JUDGE McGUIRE: Response?

MR. OLIVER: Your Honor, I'm asking the understanding and the foundation why it is that he did not recommend to Infineon that Infineon go to JEDEC to try to have the standards changed.

MR. STONE: My response to that, Your Honor, is there's simply no relevance to that. He's expressed it in conclusory terms. We understand his view. But the details that influenced his thinking are not relevant to this case unless they're coming in in an effort to prove that that is in fact the case, and if it is trying to prove that that's in fact the case, this witness has not been qualified as an expert.

And I didn't mean to say he's not an expert in his field, and I apologize, Dr. Peisl, if I suggested

that, but he's not an expert with respect to --

JUDGE McGUIRE: Sustained.

BY MR. OLIVER:

Q. Dr. Peisl, in the year 2000 time frame, in your position of director of technical marketing for standard memories within Infineon, you've described quite a bit about what you've done with respect to customers, interfacing customers.

Did your position carry any particular responsibilities within Infineon?

A. Yes. Within Infineon I was a critical member of the chain bringing a product onto the market. My task was to ensure the technical validity of our chip and the technical -- 100 percent technical functionality of all our chips in all the platforms.

Q. Would it be fair to say that you learned a fair amount about customers' needs through your job?

A. Absolutely. I'm -- I am daily together now and back then as well for the standard products, most of my e-mails come from customers.

Q. Now, within Infineon, what, if anything, did you do with the information that you were learning from customers?

A. The usual how we treat customer requests is try to answer them ourselves. That's our role as the

North American dependency of Infineon. When we need help, usually containing more data or data that we don't have, we redirect the customer requests to our -- to the experts in our Munich headquarter.

Q. With respect to your interaction with customers, did you ever learn anything with respect to future customer plans or future customer needs?

A. Yes. Part of my responsibilities encompassed presenting the road maps and getting the feedback from the customers to our road maps, so what we have been frequently discussing with customers is, as you saw before, we are introducing synchronous product at that time, a DDR product, a Rambus part, does that comply with your road maps or is there any recommendation you can give to us as a supplier in order to meet your needs.

Q. Now, within Infineon, what, if anything, did you do with information of that sort you learned from customers?

A. I forwarded it to the corresponding people that needed to work with this information and collected that information on a worldwide basis. I was collecting the customer and the enabler feedback from North America. There was customer feedback from Asia as well. They all came together at our headquarters and then all this

information then resulted into the positions, which product would be made when and which production plans are being pursued and how many wafers are being, et cetera.

So it's essentially the production planning.

Other issues that we talked with our customers as well of course all the technical issues regarding the JEDEC standards and the technical parameters in conjunction with that.

Q. So would it be fair to say then that you were one source of information from customers back to headquarters of Infineon?

A. I would say I was the main technical source of information for all technical problems back to the headquarter in Germany, correct.

Q. Now, with respect to the time period around March 2000 when you did not recommend that Infineon go to JEDEC and seek to have the JEDEC standards changed, what, if any, role in your thinking did your understanding of the customer cost structure have?

A. We had been making presentations as has been demonstrated before about cost structures of our chips to the customers. The customers essentially -- any impact of changes usually are very painful in the industry and the customers try to minimize changes, so

one of the interests and one of their -- one of my tasks as a technical manager was to ensure that the amount of technical changes were kept to a minimum and the customers were satisfied with the standards that they got.

It would be very painful -- Infineon couldn't do anything on their own in changing parameters or changing anything on the standards side because we were -- we wouldn't -- we are only a part of the industry, and back then we weren't a big player in the industry, and so any discussions with customers -- customers usually want to have a lot of things. They want to have the fastest chip at the lowest cost, and my job was to explain to them why that wouldn't work and why any changes in the specifications, for instance, regarding speed or power would require JEDEC consensus before, which could not be driven by Infineon alone but would have to be driven by the whole industry.

understanding is. When he tries to get into the basis, he's really trying to offer for the truth his opinions, and he has not been designated as an expert. So it's essentially the same objection to what is essentially the same question.

JUDGE McGUIRE: Mr. Stone, I'm going to overrule that and I'm going to hear the answer to that question.

MR. OLIVER: Thank you, Your Honor.

THE WITNESS: The impact on the customers on changing of standards are huge. One reason for that is -- I mean, there are essentially three huge impacts, and one is on the customer side, one is on Infineon or on any other supplier's side, and one is on the JEDEC side as well.

On the customer side, as I mentioned before, the server design engineers and the server system architects design in a system for several years, meaning that they have to rely upon the fact that standards are being changed and in particular that not something is being deducted from an existing standard because that could make the whole server architecture inoperable or working on less performance. And this depends on every individual architecture. There could be, theoretically, a case where some architectures are

disadvantages -- disadvantaged and some are not, like, for instance, HP versus Sun or something like that.

So the customers' main concern was of course that standards are not being changed and they're not deducted any features going out of the standard. One could add standards, and that was the frequent discussion that we had with our customers, if they want to have other features, but again it was -- Infineon couldn't do that alone. We would sometimes propose something at JEDEC and try to get the industry consensus on that.

Any change, particularly any deduction of standard, if you -- it's very hard to change the rules in the middle of the game. When you have offered certain options, certain features set to the customers, we have no control which customer is using which feature.

We had discussed the mode register set before. There are numerous combinations of possibilities out there. We do not know what our customers use. They -- for sure they use many of these combinations and we have no control over that because it's optional.

So to go back from that is very hard and would require redesign of systems, of platforms, at the customer base on the server platforms, et cetera, which

is a huge amount of cost.

BY MR. OLIVER:

Q. With respect to your testimony concerning removal of features, can you give an example? Can you give any examples of what you have in mind?

A. Removing of features, for instance, as the flexibility of choosing the burst length. As we know, that, for instance, AMD and Intel-based controllers are using different burst length, so removing one would disadvantage one of the companies, which would be -- create a noncompetitive situation.

Q. Was it your understanding that that would be more difficult to do in 2000 than in the early 1990s?

A. In 2000, it would, for the reasons I just explained, would have been nearly impossible because there's a huge disparity first and a huge impact to do that.

Back in the year 1992 or whatever, early '90s, when the SDRAM standard was designed, it would have been relatively easy to implement that, because once you have your predicaments ready in order to -- you give the designers a certain amount of options, they usually live with that.

So back then, yes, it was relatively easy to implement; eight years later to change an existing

didn't recommend that, anything.

Q. Focusing still on the March 2000 time period when you did not recommend Infineon go back to JEDEC to seek to get the standard changed, you were talking about some of the work the companies had already done. Now, obviously the SDRAM standard had been around quite a bit longer than the DDR SDRAM standard.

A. Yes.

Q. Why didn't you recommend that Infineon go back to JEDEC and seek to have the DDR SDRAM standard revised?

MR. STONE: Your Honor, this question has already been asked and answered.

MR. OLIVER: Your Honor, I'm simply trying to clarify as to whether the answers he had given previously would apply equally to the DDR standard as well as to the SDRAM standard.

JUDGE McGUIRE: I'll hear the question.

MR. STONE: Thank you, Your Honor.

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Changing an existing standard just in general and even an emerging standard like DDR and even a lot of people have thought about DDR-II back then, like server people, which I explained before that they are using much longer designing cycles, is very painful and it's not competitive because it would advantage some companies who incidentally are designing in that direction of the change already and it would disadvantage other companies who are not designing in that direction.

So the JEDEC committee is very hesitant to go back and deduct something from existing standards. Adding to standards is always okay because the standard is compatible, but not deducting. And at that time, 2000, a lot of the DDR stuff was already finalized and we had been ramping our first DDR product then.

Q. You've referred to the work that Infineon had done on DDR.

Again, based on your understanding as director of technical marketing in the 1999 and 2000 time frame, had Infineon customers done work on products incorporating DDR SDRAM memory?

MR. STONE: Your Honor, he's not qualified to testify to what customers have done.

MR. OLIVER: Your Honor, that was his job function.

MR. STONE: It's based on hearsay. It's based on what they told him. And that's -- we don't have a chance to cross-examine the ultimate source, so it's hearsay and it denies us the right to cross-examine customers as to what they've actually done.

MR. OLIVER: Your Honor, it's based on his work, what did customers do to standardize the memory.

JUDGE McGUIRE: Let's be very careful as exactly where we're going here on this line of questioning, Mr. Oliver.

I mean, I'm not going to let it -- I'm not going to let in just broad hearsay, but this is part of his job, so I'm going to entertain his answer, but let's try to stay as far away as we can from anything other than his personal knowledge in this area.

MR. OLIVER: Yes. Thank you, Your Honor.

THE WITNESS: Based on my experience with the customers, the customers had progressed in their designing of platforms and have SDR and DDR quite a bit already. There were DDR chipsets available. SDR chipsets were numerous by all suppliers. And all of them had built in the components that I mentioned before, modules, motherboards, BIOS, that comprise a

wonderful computer platforms comprising. And it would have been very painful for the customers to change that.

It would not have affected only us as a DRAM supplier; it would have affected all the other suppliers as well. Motherboards would have to be redesigned, controller would have to be reissued and BIOS would have to be rewritten. It's all a very costly issue.

MR. OLIVER: Thank you. I pass the witness, Your Honor.

MR. STONE: Can I ask a few questions before we break for lunch?

JUDGE McGUIRE: Okay. Go ahead.

CROSS-EXAMINATION

BY MR. STONE:

Q. Hello, Dr. Peisl. How are you?

A. Good.

Q. If you're responsible for the good weather, if you brought it from California, we all thank you.

JUDGE McGUIRE: That's only good I think for today and tomorrow it's more like Cleveland.

THE WITNsHE WITNsHE WITNsHE WIiop

Dr. Peisl's travel schedule back.

Dr. Peisl, in March of 2000, you got this e-mail from Mr. Meyer about the Hitac0w 4458

being manufactured by Infineon infringed Rambus patents, didn't you?

A. No, I did not know that.

Q. You knew that you manufactured the same products that Hitachi manufactured, didn't you?

A. This is correct.

Q. If the Hitachi products infringed, yours infringed; correct?

A. If the Hitachi product had infringed, yes, then yes.

Q. Okay. So then did you make a recommendation to investigate whether the products infringed?

A. No. That was not my job.

Q. Okay. Did you recommend anything?

A. No.

Q. Didn't you in September of 2000 convene a meeting in Munich, Germany of your competitors to discuss, among other things, Rambus' patents?

A. In September 2000 I was in Munich, this is correct. I did not discuss with my competitors about Rambus patents.

Q. There was a meeting that lasted, which you told us in your deposition, you attended for several hours where one of the discussions was Rambus' patents. Is your testimony -- have you changed that

testimony now?

A. No, I don't change that.

Q. Okay. There was a meeting; right?

A. It was privileged. Privileged.

Q. No, no. I'm not asking you about what was said yet. We're going to get into whether it's privileged.

A. Yeah.

Q. But I just want to establish, you had a meeting; correct?

A. We had a meeting.

Q. Yes.

And people were there from Hynix?

A. This is correct.

Q. And people were there from Micron?

A. Yes.

Q. And people were there from Infineon?

A. Yes.

Q. And what other companies had people there?

A. Intel and Samsung.

Q. Okay. And some of them brought their own lawyers; correct?

A. Yes.

Q. And the group of people who were there was a consortium, wasn't it, that had a name?

A. It was the ADT consortium.
Q. And the ADT consortium is not a corporation?
A. I don't know.
Q. As far as you know, it's not; right?
A. I think it is not, yes.
Q. Yes.
And you were the person in charge of technical issues for ADT; am I right?
A. This is correct.
Q. And you wanted to talk about whether there were ways to design products that would not infringe on the Rambus patents, didn't you?
A. No.
Q. And at this meeting one of the purposes was to talk about the Rambus patents; correct?
A. I don't recall that specifically.
Q. Well, what was the purpose --
A. Outside -- I want to be specific. Outside privileged conversation.
Q. It's not for you, Dr. Peisl, it's not for you to decide what is privileged and what is not. We will undoubtedly argue that issue here today. Your lawyer is here; right?
This is Infineon's lawyer who's here; correct (indicating)?

A. Yes.

Q. Okay. So if we get to a question where he thinks that I'm asking you for privileged information, you can be assured that he will jump to his feet and we'll argue the issue before Judge McGuire and he'll decide.

So I don't want you to leave things out of your answer that you think are privileged.

A. I want to be very specific in my explanation. We had technical meetings with the ADT meetings, partially with attorneys and partially without attorneys. Without attorneys they were technical meetings only where we never discussed any circumvention of Rambus patents. With attorneys I considered as privileged information.

Q. But with attorneys -- I'm only asking for the general subject matter -- while the attorneys were present, one of the topics discussed, one of the topics -- I don't want to know what was said; I just want to know topics -- was designing products that would not infringe on the Rambus patents; correct?

MR. KOVNER: Your Honor, my name is Mark Kovner with Kirkland & Ellis, representing Infineon, and I am going to object to this question as getting into privileged information.

JUDGE McGUIRE: Mr. Stone?

MR. STONE: Your Honor, the subject matter of a conversation, the general subject matter, is not privileged, and to the extent that there's an assertion that it is privileged, I think prior answers in the deposition have largely revealed at least as much as I'm now asking since my questions are based upon testimony that this witness gave at a deposition on March 13, 2001.

JUDGE McGUIRE: Do you want to proffer that at this time?

MR. STONE: I'd rather just get the testimony here today. I don't think the general subject matter is privileged. I'm trying not to have to pull out the transcript and impeach the witness, but if need be, I guess that's what we can do.

I think the issue of the general subject being discussed is not --

JUDGE McGUIRE: To this point I agree. That's overruled on the issue of privilege on this question.

MR. KOVNER: Thank you, Your Honor.

BY MR. STONE:

Q. Do you have the question in mind, Dr. Peisl?

A. Can you please repeat it?

MR. STONE: I'm going to ask the reporter to

Q. At the time of the meeting, was that lawsuit going on?

A. That, I don't know. I wasn't --

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JUDGE McGUIRE: That one, Mr. Stone, I'm going to sustain.

BY MR. STONE:

Q. Let me rephrase.

Did you have an understanding at the time you had this meeting that the discussions would not be subject to discovery?

A. The discussions would not?

Q. Did you have an understanding prior to the meeting that when you all went into the meeting that no one would ever be able to learn what was discussed?

MR. KOVNER: Your Honor, I'm going to make the same objection. That understanding could only come from an attorney.

JUDGE McGUIRE: We're walking a very fine line here, Mr. Stone.

MR. STONE: My point, Your Honor --

JUDGE McGUIRE: And to the extent that I am going to be asked to rule, I'm going to err here on the side of caution.

MR. STONE: My point, Your Honor, is this one, and let me just make my point and maybe we all -- I just wanted to get this out so we could all think about it over the lunch hour, if I could.

This was a meeting attended by companies who do

not have a basis for asserting a joint defense privilege. There's no signed agreement. We've asked in discovery for documents which would have revealed it. It has never been produced. The witness has confirmed today that he doesn't know of any joint defense agreement.

When competitors get together in that context and have a meeting, there's no joint privilege that attaches. They can't assert work product because the litigation was not pending then against many of the companies, it's not pending today against some of them, and there's no joint interest that allows them to assert a joint attorney-client privilege.

So to that extent there is no basis for his assertion, or really his lawyer's assertion -- I don't mean, Dr. Peisl, to put you on the spot -- for the assertion of a privilege that would attach here. If there is additional foundation that would support a joint defense privilege, it has been withheld from us in discovery and this witness at least has not provided it in response to the questions I made.

That's the issue we'd like to pursue. I don't know whether it's appropriate to try to argue it today, whether it's appropriate to try to brief it. My preference is to resolve it as quickly as we can. But

I don't think there's any basis for the assertion of the privilege with respect to this --

JUDGE McGUIRE: Do you have anything in response to that, counselor?

MR. KOVNER: Yes, Your Honor. A couple points.

First, my understanding is that Infineon and others have asserted privilege with respect to this meeting for a very long time and this is the first time I'm hearing these particular arguments.

Number two, being an antitrust lawyer for a long time, I know that case law does not require a joint defense agreement to be in writing and the absence of a written joint defense agreement doesn't somehow erase any possible privilege that could attach to a meeting at which, it has become clear through discovery that has been allowed, legal advice was sought collectively by the folks who attended that meeting. And the seeking of that legal advice from a lawyer is in fact privileged. Whether done collectively or individually.

MR. STONE: I don't contend that a joint defense agreement necessarily needs to be in writing, Your Honor, but I asked the witness if he had an understanding of what was said at the meeting was

something that could not be recovered or could not be discovered, and counsel objected that that was privileged.

Well, if there was an oral joint defense agreement, the witness' understanding would have been because an agreement was made among the companies present and he'd be able to tell me that there was an agreement made.

Counsel's invocation of the attorney-client privilege for that foundational question proves my point. There was no oral or written joint defense agreement. These were competitors who got together and talked about a strategy, and there's no privilege that attaches and you don't create a privilege just by bringing your lawyers to the meeting.

JUDGE McGUIRE: All right. One last crack at it, counsel. Do you want to speak to those last comments?

MR. KOVNER: Yes. I believe that, quite frankly, mischaracterizes the meeting, at least as I understand it. This was not -- this was a meeting at which a lawyer was asked to come and brief a group of folks with respect to certain issues and to provide some advice with respect to those issues. The seeking of that advice and the providing of that advice both

are attorney-client privileged regardless of whether there was some written --

JUDGE McGUIRE: Who's the client here in that circumstance? Who's the client?

MR. KOVNER: The clients are the companies that sought the advice. There is no single client.

JUDGE McGUIRE: Mr. Stone, I'm going to rule that these conversations were privileged and I'm not going to let you go into it.

MR. STONE: Okay. Thank you, Your Honor.

Can I just have a few more questions on the last memo, and then we can take a lunch break?

JUDGE McGUIRE: Sure.

BY MR. STONE:

Q. In March of 2000, when you learned about the Hitachi lawsuit, did you make any recommendations about taking a license from Rambus?

A. No.

Q. You knew a license had been obtained by others in the industry; correct?

A. No. What license are you referring to? Rambus direct license?

Q. No. A license to use Rambus patents in connection with the manufacture of noncompatible DRAM, that is, DRAM that was not RDRAM.

A. I'm not sure that I was aware of that in 2000.

Q. You became aware of that at some later point in time or not?

A. No. I don't know.

Q. Could we bring up RX-1613.

This is a better copy -- you can highlight the second to the last paragraph -- this is just a somewhat cleaner copy of the e-mail that Mr. Oliver showed you, and I want to direct your attention to the second to the last paragraph on the first page of RX-1613, which talks about Rambus versus Hitachi.

This is the e-mail that you received at about the time you learned about the lawsuit; correct?

A. This is correct.

Q. Did you, in your role as the director of technical marketing, make any inquiries to determine whether or not the products that Infineon was selling to its customers might infringe on the Rambus patents?

A. No.

Q. You were using marketing materials that said the Infineon products wouldn't result in the payment of any royalties, weren't you?

A. I did not.

Q. You did not use that?

A. I did not, any specific foils that, to my

recollection, that stated IT infringements of our products.

Q. Well, let's look at CX-2451 at page 9.

Do you have that page in front of you on the screen?

A. Yes.

Q. Do you see on the right-hand side it says "double data rate open standard no royalties"?

A. Yes.

Q. Wasn't this a document you told us when Mr. Oliver asked you questions that you used with customers?

A. Yes.

Q. And didn't you mean, when you said "no royalties," no royalties?

A. I meant no royalties.

Q. No royalties had been paid on DDR?

A. That's my understanding of the JEDEC standard.

Q. And after March of 2000 when you understood that Rambus had asserted infringement, you asserted that royalties might have to be paid on DDR; correct?

A. Royalties might have to be paid? Yeah, I'm -- I'm not in a position to judge that or to tell that to my customers because I, first of all, didn't know the

compliance with JEDEC standards often have royalties paid on them, don't they?

A. I don't know that.

Q. Do you know that they don't?

A. No, I don't know that either.

Q. In the time that you were the director of technical marketing, late '99 through late 2000, did you make any inquiry to determine whether the Infineon DRAM products, SDRAM and DDR, do or do not infringe any Rambus patents?

A. No, I did not make any inquiry.

Q. And do you have any view on that one way or the other?

A. A view?

Q. A view? An opinion?

A. Based on the experience --

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BY MR. STONE:

Q. Let me see if I can rephrase it.

Do you have an understanding today --

MR. OLIVER: Objection, Your Honor. It still calls for an opinion. It stills calls for a legal conclusion.

JUDGE McGUIRE: Well, he hasn't asked the question yet. He just said, "Do you have an understanding today."

MR. OLIVER: I'm sorry. I thought he was repeating the question.

BY MR. STONE:

Q. Do you have an understanding today, Dr. Peisl, as to whether or not Infineon's DDR SDRAM and SDRAM products could potentially require the payment of royalties because they infringe Rambus patents?

MR. OLIVER: Objection, Your Honor. Calls for a legal conclusion.

JUDGE McGUIRE: Sustained.

BY MR. STONE:

Q. Okay. Dr. Peisl, what is the basis for your opinion as set forth in this document that we have on the screen in front of you that no royalties are due on DDR SDRAM?

MR. OLIVER: Objection.

Could we have a time frame on this, please.

BY MR. STONE:

Q. We didn't have -- it's the same time frame you gave Mr. Oliver when you answered questions about this document, whatever it was. Same time frame, Dr. Peisl.

What's the basis for your opinion?

A. My opinion, based on the experience and based on the history of DRAM interfaces at JEDEC, is that all the interfaces that had been standardized at JEDEC with the long history before, starting fast page mode, EDO, et cetera, synchronous DRAM and double data rate DRAM did not require Infineon or any other DRAM vendor to pay royalties to somebody.

Q. What royalties were paid by Siemens to Texas Instruments in connection with those DRAM products?

A. I don't know that.

Q. What royalties are paid by Siemens to Intel with respect to those products?

A. I don't know.

Q. Have you made any effort to determine what royalties are actually paid on DRAM products manufactured by Infineon to various companies throughout the world?

A. No.

MR. STONE: Now would be convenient, Your Honor, if you'd like a lunch break.

JUDGE McGUIRE: It's about ten minutes after. We'll convene until 1:30, and this hearing is in recess.

(Whereupon, at 12:08 p.m., a lunch recess was taken.)

Q. Do you know who prepared it?
A. It's a group that we call product marketing.
Q. And do you know about when this document was prepared?
A. It's prepared on a continuous basis. When this particular one prepared -- was prepared I don't know. Typically the lifetime of those sheets are two months, in that order, plus or minus one month.
Q. Can you give us an estimate in terms of what quarter of what year this document was prepared by looking at it in any fashion?
A. I would estimate it was prepared in the first or second quarter of 1999.
Q. Turn if you would to page 9.
A. Yes.
Q. You were asked some questions about the "cost adder" page, which is page 9 of this exhibit, earlier; correct?
A. Correct.
Q. Who prepared this cost analysis that is shown here?
A. I don't know the name of the persons. I know that some groups within Infineon have looked at all the various cost scenarios for all the different chips. Cost is a very important factor for us.

Q. Now, if this was prepared in the first part of 1999, the numbers shown on this chart, page 9 of Exhibit 2428, aren't actual costs actually incurred, are they?

A. Would have incurred already in 1999, that's what you're saying?

Q. Yes, that's what I'm saying.

A. Yes. Possible.

Q. I mean, aren't these projected costs, what someone expects will happen in the future?

A. This is correct.

Q. Okay. And do you know whether the actual costs that were incurred by Infineon are the same as what was projected on page 9 of Exhibit 2428?

A. I do not know that.

Q. Thank you.

Let me ask you now if you'd look at Exhibit 2455, which is the Infineon product road map SDRAM.

A. Yes.

Q. And can you estimate for us a date when this document was prepared?

A. My estimate would be second or third quarter in 1999.

Q. Okay. And turn if you would to page 5 of this

document.

A. Yes.

Q. In the first or second quarter of 1999, did you expect that there would be any limitations on the quantity of RDRAM that could be produced because of difficulties in obtaining testers?

A. No. I was not involved in the production planning, and the quantity planning, I don't know that.

Q. Mr. Oliver pointed out to you that if you look

quarters of 1999, only a single fab; is that right?

A. In the first quarter of '99, we had Dresden and I think -- I'm not entirely sure in which state -- Richmond and Promise (phonetic), which are our other two fabs. I think we had essentially only one major facility up and running.

Q. And the production capacity of that facility would be changed from one product to another product depending on how the company wanted to utilize that capacity; is that correct?

A. Our production volume or capabilities are usually changed or aligned to our customers' needs, meaning that our customers -- we work on prediction of how many SDR, how many DDR parts, how many Rambus parts they want to buy, and therefore we plan production accordingly or try to plan it.

Q. Well, do you know what it was in the first or second quarter of 1999 that limited the production capacity of DDR, if in fact it was limited, but didn't limit the production capacity of RDRAM?

A. I don't know that specifically. I was not in production at that time.

Q. And the testers you talked about earlier that are used for RDRAM that were expensive because they needed to test at higher speeds, are those testers in

use today by Infineon?

A. I believe so, but that's speculation. I don't know that.

Q. Do you know whether or not those same testers are used to test DDR parts?

A. I don't know that.

Q. Could you test the DDR 256-meg part that you worked on with the testers which were then being used for single data rate SDRAMs?

A. I cannot answer that question. I'm not technically set -- competent enough to answer that question. It's not an easy question. It depends on many factors.

Q. Let me ask you then if you would look at Exhibit 2451.

Was this a document that you would use with customers?

A. Yes.

Q. And were the other two exhibits we've just looked at ones that you also would use with customers?

A. Yes.

Q. In your presentations of DDR, was it a part of your presentation to tell your customers that the DDR part that Infineon was marketing was JEDEC-standardized or JEDEC-compliant?

A. Yes.
Q. Does it say that anywhere in this document, Exhibit 2451, that the product is JEDEC-compliant?
A. Yes.
Q. Where is that?
A. That's on page 13. And on page 14.
Q. And on page 13, if we could bring that page up, where does it say it's JEDEC-compliant?
A. It says that with the smiling face under the DDR column in the open industry standard row.
Q. And weren't PC133 and PC266 considered to be open industry standards?
A. Yes.
Q. And those were Intel standards?
A. As I said before, the Intel standard was not necessarily seen as a -- and it was not an Intel standard. It was an Intel proposal for a specification which was brought onto the JEDEC committee then afterwards and being standardized. It was not seen as a contradiction. It was seen as something -- some additional boundary conditions that the chips had to comply to.
Q. The original JEDEC standard was not adopted until after Intel had created PC133, was it?
A. That, I don't know.

Q. The original JEDEC standard didn't have sufficient criteria to enable products manufactured in compliance with that standard to ensure interoperability, did it?

A. No. I cannot answer that with yes or no, that question.

Q. Okay. So when it says here "open industry standard," that's what you think in these materials is a reference to JEDEC?

A. On page 13 and on page 14 it's stated explicitly.

Q. Correct. There it says JEDEC standard; correct?

A. Correct.

Q. Now, does it on page, for example, page 2 refer to PC100?

A. Yes.

Q. And then does it on page 5 talk about PC133 and PC266?

A. This is correct.

Q. And is it your testimony that the Intel criteria that were added were added to an existing JEDEC standard?

A. That would be my understanding.

Q. And the Intel criteria -- do you know whether

they were necessary in order to ensure interoperability?

A. No. That, I don't know.

Q. Was this particular document that we're looking at now, 2451, used in an effort to persuade customers that what they should purchase were SDRAMs and DDRs rather than RDRAM?

A. No.

Q. Was it an effort to show that the DDR product had favorable attributes and the Rambus product had some unfavorable attributes?

MR. OLIVER: Could I simply ask for clarification. Is it this witness' understanding or this --

MR. STONE: Yes.

JUDGE McGUIRE: Restate, Mr. Stone.

BY MR. STONE:

Q. Dr. Peisl, when you used this document, did you use this document to portray positives of DDR and negatives of Rambus or RDRAM?

A. I would not use it in that way. I produce -- I presented this chart to customers as a summary of facts that we had known, technical facts, other facts, in order to present the status, in order not in order of persuading them in one direction or the other.

Q. One of the things you told us about was the packaging you used for RDRAMs. Do you recall that?

A. It's BGA. It's different than the standard used at that time.

Q. And look at page 9, if you would. And we can bring that up.

A. Yes.

Q. On the left-hand side it has CSP. Is that the same --

A. It's the same as BGA.

Q. Okay. And then by comparison, the DDR product used the TSOP packaging; correct?

A. This is correct.

Q. Now, DDR-II -- which operates at a faster speed than DDR, doesn't it?

A. This is correct.

Q. -- what packaging will it use?

A. BGA.

Q. It will use the BGA?

A. Yes.

Q. And I asked you about this earlier and I just want to be clear. I asked you about the "no royalties" portion of the DDR, but let me ask you for just a moment about open standard.

Is it your understanding that the JEDEC

standards, that is, the written standards, are available to anybody who wants them?

A. To anybody who is part of the JEDEC community, which is essentially the whole industry, yes.

Q. So if you join JEDEC, you can have a copy of the standards?

A. This is correct.

Q. And you don't have to pay anything extra on beyond your membership fee to get those standards?

A. Besides the membership, correct, yeah.

Q. And then once you start to manufacture a JEDEC-compliant part, you may or may not need to pay royalties to someone in order to manufacture it?

A. I'm not aware of that.

Q. Okay. Do you know whether or not there's a JEDEC patent policy that talks about reasonable and nondiscriminatory licenses?

A. Yes, there is a JEDEC patent policy.

Q. And do you know when it uses "reasonable" in that context, do you know that "reasonable" includes things other than just free?

A. I'm not on the business side or I wasn't on the business side with those chips, so I don't know -- I cannot define "reasonable."

Q. Okay. Thank you.

Let me ask you to look at -- I've put a document in front of you. I just had it up there earlier. There's two documents. Let me hand a copy to Mr. Oliver of both of them.

Which ones -- the smaller one is on top? Let's look at that one first. That's 2463, CX-2463, if we could bring that up.

A. Yes.

Q. And do you recognize this document?

A. Portions of it. I have seen some of the foils.

Q. And at the outset, let me just ask you, who is Peter Eckelmann, whose name is listed on the front page?

A. Peter Eckelmann was, in the late '90s and early 2000, a strategic product marketing manager based in Munich.

Q. And if we see a date on the left-hand side of the first page, do you see where it says 00-08-22? Would that indicate to you that the date was meant to be August 22 of 2000?

A. This correct.

Q. And that was at the time you were the technical product manager -- the director of technical marketing?

A. Yeah, that's correct. It was just about my transition phase, but I was still in that job.

Q. Look if you would at page 2 of this document.

A. Yes.

Q. Is this one of the foils you've seen before?

A. Yes.

Q. And was this meant to indicate that at a prior point in time the DRAM memory road map was a straight line?

A. Correct.

Q. And you went from page mode to fast page mode to extended data output -- is that what EDO stands for?

A. Correct.

Q. -- and then to SDRAM?

A. Correct.

Q. Now, was the change from extended data output to SDRAM one that involved huge costs? You used the words "huge costs" earlier today.

A. No.

Q. And why weren't there huge costs associated with that change?

A. It essentially comprised only a change in the electrical characteristics how DRAM was driven. It did not encompass any changes that were costly, costly things that you would have to have changed the

architecture of the DRAM or the test landscape because you are testing at higher frequencies. Those are changes that require lots of costly changes -- costly repurchasing of tools and equipment and learning.

Q. Now, you did go with -- from EDO to SDRAM, you went from asynchronous to synchronous; correct?

A. This is correct.

Q. And when you went from EDO to SDRAM, you did increase the speed, didn't you, the frequency?

A. In relative terms, a little bit, yes, correct.

Q. Okay. And did the number of pins change?

A. I don't recall that, but my assumption would be yes.

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A. This is correct.

Q. And it shows here the first step to the right of PC100 is a branch up to the top which is labeled "SLDRAM"?

A. This is correct.

Q. Is that intended to reflect or refer to the product being designed by a group at some points in time called SyncLink?

A. This is correct.

Q. And you were involved with SyncLink, weren't you?

A. No, I was not.

Q. Didn't you supervise some of the people who attended SyncLink?

A. This is correct.

Q. And who did you supervise who attended SyncLink?

A. The person I can remember was Josef Schnell.

Q. Were you asked by your boss to attend a couple of JEDEC meetings to touch on or learn about the status of SyncLink?

A. Yes.

Q. Did SyncLink ever result in the production of a product?

A. Not to my knowledge.

Q. So so far as you know, the reason there's a stop sign there by SLDRAM is the product never came to fruition?

A. This is correct.

Q. Now, were there -- did you understand there to be huge costs associated in going from PC100 to SLDRAM?

A. I was not in -- into this SLDRAM in that topic in detail in order to be able to answer that question.

Q. Were there huge costs associated in going from PC100 to the first RDRAM product that you see on this chart which is labeled "CRDRAM"? That's concurrent RDRAM; correct?

chip architecture works and how in -- as well in regards to the testing capabilities, frequency.

The second one I would identify as a huge cost difference is direct RDRAM or Rambus.

Q. Any others?

A. In the very same way. It's a different architecture and it's higher speed, meaning it's more costly to produce.

Q. And are there any others on this sheet that you would describe as having huge costs?

A. EDRAM -- and I'm not entirely sure what that means -- is that enhanced DRAM? I don't know. I cannot comment on EDRAM at all.

Q. Okay.

A. DDRs are -- usually are not -- are solutions that are not much higher in cost than PC100 or PC133.

Q. Okay. And Infineon did invest the money into producing direct RDRAM, did they not?

A. This is correct.

Q. When was the decision made at Infineon, if you know, to begin work on DDR-II?

A. I don't know.

Q. Any estimate for us that you feel comfortable with?

A. The estimate would be 2001.

MR. OLIVER: Objection, Your Honor. He testified he doesn't know.

JUDGE McGUIRE: Sustained.

BY MR. STONE:

Q. Look if you would at page 5 of this particular road map.

And is this document that we're now looking at as Exhibit 2463 a document that was used with customers?

A. No. I don't think so.

Q. This was a document that was used internally at Infineon, wasn't it?

A. Yes.

Q. Okay. Look if you would at page 5 of Exhibit 2463.

A. Yes.

Q. Is this a foil you've seen before?

A. No.

Q. Look if you would at pages 10 and 11 and tell me if you've seen those pages before.

A. I did not see page 10 or 11 before.

Q. You have not seen those before?

A. No.

Q. Okay. Look if you would at the next exhibit that I have up there, which is 2427.

JUDGE McGUIRE: CX-2427?

MR. STONE: CX. I'm sorry, Your Honor.

THE WITNESS: Yes.

BY MR. STONE:

Q. Have you seen some or all of the foils that make up this document before?

A. I don't believe I have seen any of the foils before.

Q. Okay. Let me not ask you that then.

Earlier, Mr. Oliver showed you four product specifications, Exhibits CX-2404, CX-2403, CX-2410 and CX-2408. Do you recall those?

A. Yes.

Q. And these are the product specifications provided to customers?

A. This is correct.

Q. And sometimes called data sheets?

A. Correct.

Q. And in these four documents, do you know whether in these four documents there's any reference as to whether any of the products meet any particular JEDEC standard?

A. Yes.

Q. And which one is that?

A. In document 2410.

of the DDR SDRAM specifications set out in Exhibit JX-57?

A. Yes.

Q. Where is that?

A. You mean for the SSTL 2 interface?

Q. No. I mean for the rest of the product itself.

A. Oh, the rest of the product? Yeah, I would have to go through that page by page. We did that this morning on a few pages. But it essentially tells you that there's no major difference between this document and the JEDEC document.

Q. And just so I understand, what we did this morning is we looked at a particular page in the data sheet for the product and compared it to a particular page in the specification and saw that they were more or less the same; correct?

A. Correct.

Q. But nowhere in this document, CX-2410, did we see this morning a specific reference to the entire product meeting any JEDEC standard, did we?

A. You're asking me now to look --

Q. No, Dr. Peisl, I'm not asking you to look through it. I'm sorry.

This morning when we looked through it no one

pointed out anyplace in the document where it says here it says in the document this product meets a particular JEDEC standard?

A. You mean an explicit sentence?

Q. Yes.

A. I don't know that. It's not on the first page.

Q. And let me ask you this question.

Infineon manufactures 128-megabit SDRAM as described on CX-2404, doesn't it?

A. We manufacture this product, correct.

Q. And do you manufacture it in compliance with the data sheet?

A. Yes.

Q. And as to each of the four sets of -- as to each of the four data sheets we looked at, CX-2404, CX-2403, CX-2410 and CX-2408, Infineon manufactures a product that's in compliance with each of those data sheets; correct?

A. This is correct.

Q. Okay. Earlier today you were asked some questions about the 256-megabit SDRAM that you worked on the design of.

A. Yes.

Q. And you also worked on a 256-megabit DDR SDRAM; correct?

A. Correct.

Q. When you ultimately went into production, did you manufacture both parts on the same die?

A. No.

Q. Did you manufacture both on the same wafer?

A. No.

Q. Okay. Was there any way in which the manufacturing of the two parts was done together?

A. I believe that we have a 512M SDR and DDR chip that both interfaces on one chip.

Q. So can you explain what that means?

A. It means that the 512M chip is designed in a way that can operate as well as a synchronous DRAM as well as a double data rate SDRAM.

Q. So the same product can be operated one way or another; it's an option?

A. That's correct.

Q. Were there what you would describe as huge costs in creating the ability to operate it as either a double data rate or a single data rate?

A. No. The reason for that is because synchronous DRAMs and double data rate SDRAMs, because of their similarity in architecture, usually take or require the same basic chip architecture and some different I/O circuits so -- which can be done optionally very easily

without any die penalty costs.

Q. When you were working on the 256-megabit SDRAM, before you went into production, were there two complete mask changes, as you recall it?

A. I believe so.

Q. And were there several minor mask changes as well?

A. I believe so, too, yes.

Q. And could you explain to us what a minor mask change is as compared to a complete mask change.

A. A minor mask change is -- does usually contain changing of the upper levels of the silicon. Upper levels are usually metal, aluminum layers, which contain the wiring, so what you want to do with a minor change is either disconnect some circuits or connect some circuits or try to alleviate tiny differences between circuits. That's what you typically do.

Q. In the memory array itself, for example, is that something that you generally think of as being in a lower layer?

A. That's correct.

Q. Do you have any understanding as to why when the original JEDEC standard for SDRAM was adopted it included programmable CAS latency?

A. Why? No, I don't know that.
Q. And were you ever asked your opinions on whether it should or shouldn't include it at the time?
A. No.
Q. And would your answers be the same with respect to variable burst length?
A. Correct. I don't know that.
Q. When did you first hear about the idea of using dual-edged clocking or double data rate on an SDRAM?
A. It must have been in the late '90s, in the second half of the '90s, when we started to look at the first DDR implementation on one of our chips, which was the first 256M SDR you were referring to. Because that had both SDR and DDR on one chip as well, but DDR did not make it into production.
Q. Does JEDEC certification by itself ensure that the parts will be sold at low cost?
A. Yes.
Q. And wasn't burst EDO standardized at JEDEC?
A. Yes.
Q. And were burst EDO parts ever commercially available at low cost?
A. I do not believe so.
Q. Isn't the cost driven by the number of

producers and the supply and demand for the product?

A. I'm not a complete expert in that field, but I would say yes, in that direction.

Q. And isn't one of the key purposes of standards to ensure interoperability that I can, if I'm a computer manufacture, I could buy a part made by Infineon or buy a part made by Micron or Hynix or Samsung and any of those parts would work equally well in my product?

A. That's the idea, correct.

Q. The designers at Infineon, like you did for a while, often start with a set of specifications or a standard when they start designing, don't they?

A. They start with a set of specifications that are not yet final or --

Q. No. They just start with a set of specifications.

A. Yes.

Q. And oftentimes don't they start with a set of specifications that haven't quite been made final yet by JEDEC?

A. This is correct.

Q. In your experience, don't they like to start about a year ahead of the standard becoming final?

A. That's approximately right.

Q. Okay. You mentioned in your current position one of the products that you're involved with is a product that's a reduced latency DRAM?

A. This is correct.

Q. Is that known as RLDRAM?

A. This is correct.

Q. Are there specifications for that product?

A. Yes.

Q. Who developed those?

A. Infineon started to develop the specification. We worked together with all of our customers to refine the specification and we pulled in Micron as a second source in order to work on the specification.

Q. So after -- is it correct that after Infineon had done a lot of the work on the product in order to ensure the availability of a second source, they entered into an arrangement with Micron where they shared that specification with Micron so it could also produce the same part?

A. Correct.

Q. And was the purpose of that, as you understood it, to ensure that there would be at least two sources of supply so that customers would know they could count on at least two different places to get the product?

A. This is correct.

Q. Okay. And in your experience in selling the RLDRAM or in marketing the RLDRAM product, do you have an understanding as to whether two sources of supply brings the price down as much as if you had three or four sources of supply?

A. I cannot answer that question.

Q. I'm going to switch time periods with you now if I can. Let me go back to the early '90s.

You first learned about Rambus sometime in the early '90s, didn't you?

A. I believe so. Yes.

Q. And you understood at that time that at least the Rambus business model that was then being talked about was a model in which Rambus would not produce product but it would license technology?

A. That, I understood, yes.

Q. And you expected, didn't you, that when you learned about the Rambus business model that Rambus would be getting patents to cover its technology if it could get patents?

A. Yes. I believe so.

Q. You yourself have invented some things that have gotten patents, haven't you?

A. If I have patents?

Q. Yes.
A. Yes, I have patents.
Q. And what's important to you in the patents you've gotten is the description of the invention rather than the claims?
A. I cannot answer that. How the patent process works at Infineon is that somebody as an engineer has an idea --
Q. I'm going to interrupt you, Dr. Peisl. I don't mean to be impolite.
A. I cannot answer that question.
Q. Let me just ask my next question because I'm trying to stay out of privileged areas.
A. All right.
Q. In the process of you obtaining patents as an inventor, wasn't it your practice to read the description of the invention when it was presented to you but not to read the claims that were drawn up by the lawyers?
A. Was it practice.
Q. Wasn't that what you did?
A. No. I read the whole invention once I got it.
Q. Including the claims?
A. Everything.
Q. Okay. I'm going to -- let me just show you

your deposition and see if we can understand something. Give me one second.

May I approach, Your Honor?

JUDGE McGUIRE: You may.

BY MR. STONE:

Q. Dr. Peisl, I've handed you a copy of your deposition transcript from a deposition taken on January 5, 2001 in the litigation between Rambus and Infineon, and I want to direct your attention if I can to pages 53 and 54 of this deposition, and I want you just -- I'm going to just -- go ahead and take the rubbeo tobd taoff

recall in detail what my patent lawyer had sent back to me once I had filed for a patent. I don't know if there were description and claims or only description. I don't recall that.

MR. STONE: Your Honor, may I read from page 53, line 20 through to page 54, line 1?

JUDGE McGUIRE: Yes. Proceed.

BY MR. STONE:

Q. All right.

"QUESTION: Before the patent first issued, did you know what the claims were?

"ANSWER: No.

"QUESTION: It was the written description of the invention that was important to you; is that right?

"ANSWER: Yes."

That's all I had on that document for the moment, Dr. Peisl. If you want to drop it on the floor, it's okay with me. I'll figure out a way to pick it up.

Did the group that you were working in in the time period 1989 through 1992 from time to time receive European patent applications to review?

A. Yes. I believe so.

Q. And those applications came to you from a

Mr. Norbert Kempfle?

A. "Kempfle."

Q. "Kempfle"?

A. Yes.

Q. And he was an attorney at Infineon, or Siemens at the time; correct?

A. That was my understanding.

Q. And you assume, don't you, that one of the applications that you would have been given to review in that time period would have been the European application that Rambus filed?

A. That's an assumption, yeah, I would assume that.

Q. Let's bring up if we can PO-1, which is a page from the Infineon privilege log.

And I want to draw your attention just to the last two entries, Dr. Peisl, entries number 73 and 74. And maybe we can just highlight -- do you see the date is August of '94 on both of them?

A. Yes.

Q. I have a hard copy, if I may approach?

A. I can read it. It's fine.

Q. You can read it okay?

A. Yes.

Q. And the Mr. Kempfle that is listed there under

Recipient, that's the person you would receive applications from?

A. This is correct.

Q. And then the author who's listed there, Willibald Meyer, is a person often referred to as Willi Meyer?

A. Correct.

Q. And he was a JEDEC representative?

A. I believe so at that time, yes.

Q. And I don't want you to go into the substance of anything. I just want to ask you whether you have ever seen either the draft memorandum or the memorandum that is under -- that is described in the description column for entries 73 and 74.

A. No, I have not seen those documents.

Q. And those descriptions, for the record, describe -- at the last sentence of each one says, "The only issued or pending Rambus patent mentioned is U.S. Patent Number 5,243,703," don't they?

A. Yes.

Q. Okay. Let me show you if I might a document that's previously been admitted I believe, which is RX-285-A.

May I approach, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. STONE: :

Q. Directing your attention, Dr. Peisl, to RX-285-A, you're one of the addressees of this document, aren't you?

A. This is correct.

Q. And the people who wrote it, Willi Meyer is W. Meyer, is one of the authors; correct?

A. Yes.

Q. And who is N. Wirth -- or what was the position N. Wirth held at the time?

A. I don't know what his exact position was. He was either in the design or in the test area, in the development.

Q. And do you know the positions of the other persons or some of the other persons listed as the addressees?

A. Dr. Beinvogl, who I reported to back then, was I think heading the 16 megabit project. I'm not entirely sure, but I think so. P stands for project management.

Mr. Eichrodt I do not remember. I think he was the leader of the development group.

Mr. Fink was in sales.

Dr. Horninger was in the development group as well. He was heading the design groups.

JUDGE McGUIRE: Does he have to go through all these things, Mr. Stone?

MR. STONE: No, Your Honor. I want to draw his attention again.

BY MR. STONE:

Q. Can you tell us who Dr. Schumacher -- the position he held at the time? That's the third man from the bottom.

A. He was the head of the marketing group.

Q. And then was he promoted later?

A. Yes.

Q. To what position?

A. To CEO now.

Q. CEO of the company today?

A. That's correct.

Q. And at the time that -- you'll see this document was written in 1992 and on the first page under Summary, the second sentence says, "In order to eliminate this data transmission rate bottleneck" -- do you see that phrase?

A. Yes.

Q. In 1992, were you aware of something in this field that was referred to as a data transmission rate bottleneck?

A. I cannot remember that.

Q. Okay. Look if you would at the second page of this document.

A. Yes.

Q. At the bottom of the first paragraph, you'll see where it says, "IBM is experimenting with a 100-megahertz toggle mode, Mitsubishi developed a ten-nanosecond cached DRAM and Rambus invented an integrated memory storage concept with a potential of 500 megahertz."

Do you see that reference?

A. Yes.

Q. At the time, was it your understanding that the toggle mode experimented with by IBM and the Rambus concept were two different things?

A. I cannot remember that. There were many different technical concepts flying around.

Q. Turn if you would to the third page, and you'll see this is a -- let me ask you this.

What was LUNA, L-U-N-A, all in caps? What was that meant to refer to?

A. Excuse me?

Q. If you go back to the first page -- I'm sorry to move you around.

A. Yeah.

Q. The very last word on the first page is LUNA.

A. We have code names for our chips and the 16 DRAM was called LUNA.

Q. And that was the 16-bit SDRAM, if you know?

A. No. It was the 16-megabit SDO -- excuse me -- EDO.

Q. Okay. And now, look if you would at page 3. And I apologize for jumping around.

Under the heading Bank Interleaving, it says, "Similar to the Rambus, the plan is to divide the memory chip into at least two separately addressable and time-staggered banks to be operated."

Do you see that reference?

A. Yes.

Q. Do you recall at the time that the Rambus proposal as you understood it in 1992 was for two banks to be interleaved?

A. I don't recall that.

Q. And then finally if you would look at page 5?

A. Yes.

Q. At the bottom of the page you'll see the last sentence says, "For these reasons, the overall additional costs pertaining to DRAM are estimated as follows," and then it lists five companies and five different numbers. Do you see that?

A. I see that.

Q. Was it ever your understanding that competitors of Infineon or Siemens would compare their relative cost data so that you could put a chart like this together?

A. I don't know where those numbers come from.

Q. Up above in the paragraph under Architecture --

A. Yes.

Q. And you've seen this document, haven't you, before?

A. I cannot remember -- I might have seen it, but I have forgotten it. It's ten years ago, eleven years ago.

Q. Okay. Look if you would at -- it says, the second sentence right at the top: "The original idea behind the SDRAM is based on the principle of a simple pulse input IBM toggle pin and the complex Rambus structure. From it, NEC (Rambus licensee) was the first to suggest a streamlined public domain version."

Do you see those two sentences?

A. Yes.

Q. Do you recall any discussions about the subject of those two sentences in the 1992 time frame?

A. No.

Q. Do you have any recollection of that issue other than what's written here on the document itself?

A. No, I don't have any recollection. From my

Q. And it refers, does it not, to a telephone conference that was held between Gordon Kelley of IBM, yourself and Mr. Meyer?

A. This is correct.

Q. And if you would turn to the second page where it says Rambus?

A. Yes.

Q. And after the Rambus and colon, it says: "Visited key in-house IBM users. IBM is still keeping its eye on Rambus. Rambus has announced a claim against Samsung for U.S. dollars 10 million due to the similarity of the SDRAM with the Rambus storage device architecture. For that reason, IBM is seriously considering to preemptively obtain a license as soon as possible (at an introductory price)."

Do you see that paragraph?

A. Yes.

Q. Do you have a recollection of discussing this with either Mr. Kelley or Mr. Meyer in 1992?

A. Not in particular.

Q. Do you have a recollection -- I'm sorry?

A. This seems to be information coming from IBM or Gordon Kelley.

Q. And do you recaopwar.

it.

Do you recall doing anything to find out what the basis would be for a claim against Samsung by Rambus?

A. No.

Q. In the ordinary course of events, you would have received a copy of this e-mail, wouldn't you?

A. Yes, I would.

Q. And so would the other people who are listed as being briefed?

A. Correct.

Q. And let me just then bring up on the screen in front of you RX-289.

Let me just ask you, do you recall seeing this chart at a presentation given by Mr. Meyer?

JUDGE McGUIRE: All right. What's the date?

MR. STONE: May 6, 1992, Your Honor.

THE WITNESS: No, I do not recall that chart.

BY MR. STONE:

Q. Then I will not spend any time with it. Thank you.

One of the JEDEC meetings you attended was the meeting on July 21, 1992; isn't that right?

A. July -- I'm not sure about July. I think I attended a meeting in 1992. Was it the Dallas

meeting?

Q. This was the Denver, Colorado meeting.

A. The Denver meeting.

Q. And you recall attending a meeting in Denver?

A. I recall having been in Denver and Dallas. I'm not so sure about the dates anymore.

Q. Okay. Let me show you a copy of JX-13.

May I approach, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. STONE:

Q. Denver, Dallas, they all look alike.

A. I should show you my travel schedule.

Q. I would not want to see it. I appreciate that.

Take a look at the first page of JX-13 if you would, and about three-quarters of the way down the list of attendees you'll see your name and Siemens, as best we can see this bad copy.

A. Yes. Correct.

Q. Okay. And you don't have any reason to think that you weren't at this meeting if you're shown on the attendees?

A. I was at the meeting.

Q. You were at the meeting. Okay.

And then look if you would at the fourth page

of the document.

A. Yes.

Q. Item number 4 under Patent Issues, it says, "Chairman Townsend showed the patent policy and the tracking list (see attachment A)."

A. Yes.

Q. And at least at some of the meetings you attended, was it the case that Mr. Townsend would show on an overhead copies of documents which were the patent policy as he talked about it?

A. Yes. Mr. Townsend or in the later meetings Mr. Kelley.

Q. And if you would, look at pages 14, 15 and 16 of this document.

A. Yes.

Q. Are those three pages what you understood to be the patent policy as it was presented at this meeting?

A. This is an example for me of page 14.

Q. And then look if you would at pages 15 and 16.

A. Yes.

Q. Still in the 1992 time period, Dr. Peisl, I want to show you another document, RX-321.

May I, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. STONE:

Q. The date on this document I believe is September of '92. You'll see that in the lower right corner just above where it says "W. Meyer"?

A. Yes.

Q. And in 1992, was there a corporate reporting relationship between you and Mr. Meyer?

A. No.

Q. Were you -- what were your two respective positions at this point in time?

A. Willi Meyer was heading the group that took care of the JEDEC affairs for Siemens and I was heading a group -- I was by myself. I was at that time in Burlington in Vermont. I was responsible for the transfer of the IBM 16-megabit product back to Siemens.

So we had occasional contact with each other.

Q. And why were you involved in the discussions with the conference call we looked at earlier with Mr. Gordon Kelley? Because he was part of the team that you were working with at IBM to transfer their technology to Siemens?

A. Part of the discussions that we had back then for the 16-megabit level was of course to watch where the industry, meaning the JEDEC-driven industry, is

going in regards to future interfaces, so part of my interest was of course to see where the discussions with any new interface would be going to. This is the reason I suspect why I wasn't in that telephone conference at all because it didn't have to do anything directly with my job.

Q. And were one of the companies you were interested in watching Rambus?

A. Not of the companies but the interface.

Q. Was one of the interfaces you were interested in watching the Rambus-developed interface?

A. Yes.

Q. Do you recall having seen this particular document, Exhibit RX-321, before?

A. No, I do not recall having seen that before.

Q. Turn if you would -- I just want to see if I can refresh your recollection at all. I'm not going to belabor this point.

Turn if you would to the second page. And the third from the bottom bullet point says, under the heading Rambus Pros and Cons, it says "deadly menace to the established computer industry."

Do you see that reference?

A. Yes.

Q. Is that something you -- is that type of

description something that you heard Mr. Meyer or Mr. Kelley or others apply to Rambus in the 1992 time frame?

A. No.

Q. In the document that we were looking at earlier this morning, right before the lunch break -- and if we can just bring it up again if we could, RX-1613. You may not have a copy.

A. Okay. I remember this document, yes.

Q. And if you would just look at the second to last paragraph. You'll remember we looked at this before. This is a document dated March of 2000 and you'll see here the "Rambus versus Hitachi case is considered a serious threat to the whole industry."

You see that that's written there; correct? And you got a -- that's correct?

JUDGE McGUIRE: You have to answer that, sir. You can't just shake your head.

THE WITNESS: Yes.

BY MR. STONE:

Q. Thank you, Dr. Peisl.

And in March of 2000, had you heard a reference to Rambus or its litigation as being a serious threat to the whole industry other than in this memo?

A. No.

Q. Do you know -- let me phrase it this way.

I've now shown you two documents that refer to in one case the Rambus case being a threat to the industry, in another case to Rambus being a deadly menace to the industry. That idea, that Rambus was a threat to the industry, have you seen other documents as well as these that describe Rambus that way?

A. No.

Q. Did you ever, after you received Exhibit RX-1613, the March 2000 e-mail from Mr. Meyer, did you ever write back to him and in any way object to his description of the Rambus-Hitachi case as a serious threat to the whole industry?

A. No.

Q. Look if you would at the third page of the exhibit -- I did give you a hard copy -- of RX-321, under the heading Alternatives.

A. Yes.

Q. In the 1992 or 1993 time frame, did you ever discuss with Mr. Meyer or Mr. Kelley what alternatives there were for the computer industry, other than the Rambus interface?

A. No.

Q. And did you ever talk with anybody at IBM or at

Infineon about making the Rambus technology in the public domain?

A. No.

Q. Let me ask you to take a look at RX-488-A.

May I, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. STONE:

Q. Directing your attention to 488-A, again, this is an English translation of the original in German.

Where it's under to -- under the "to" line where it says Mr. Penzel, do you know Mr. Penzel's position at the time, which is March of 1994?

A. I do not know what Mr. Penzel's position was in March of 1994, no.

Q. And have you seen this document before?

A. No, I have not seen this document.

Q. If you look at the last paragraph -- and let me just see if it jogs your recollection at all -- in the March 1994 time frame you were still in Burlington, Vermont; correct?

A. March of 1994? I was actually in Paris, Essonnes in Paris.

Q. Oh, working on the production side?

A. Working on ramping up the 16-megabit in production, at the production site.

Q. Okay. So your communications then with Mr. Meyer, were they less after you went to Paris?

A. I had very little communication with him back then in that time frame because my tasks were different.

Q. Did you ever hear him express to you anything

the company?

A. In my understanding, it was a department that looked at a certain portion of designs with particular interfaces, derivative interfaces.

Q. Thank you.

I think you mentioned earlier when I asked you that one of the reasons you went to JEDEC was to find out more about SyncLink; correct?

A. Correct.

Q. Did Gil Russell have a role on behalf of Infineon and SyncLink, if you know?

A. I believe so, yes.

Q. And did Alexander Benedix have a role?

A. I believe so, too, yes.

Q. At the time either of them had a role in SyncLink, did either of them report to you?

A. Mr. Gil Russell reported to me, but I'm not entirely sure whether that was in the time frame -- within the time frame of SyncLink or not.

Q. And did you have any reporting relationship with Mr. Benedix?

A. No.

Q. And that's B-E-N-D-I-X; right?

A. B-E-N-E-D-I-X. "Benedix."

Q. After -- is it correct that SyncLink had

started up and was an ongoing organization before Siemens or Infineon became involved?

A. I don't recall that.

Q. Okay. Did you ever look at any of the minutes from any of the SyncLink meetings?

A. I do not recall that either.

Q. Did you ever see any presentations that were made at any SyncLink meetings?

A. I do not recall any specific ones.

Q. Were you assigned some level of responsibility with respect to SyncLink on behalf of Siemens or Infineon?

A. No.

Q. Why were you asked, if you know, to go to some JEDEC meetings to see what you could learn about what was going on at SyncLink?

A. Why I was asked?

Q. Yeah. Why were you the person asked?

A. I had an interest in their -- as -- the SyncLink -- the SyncLink could have had the potential as many other ideas as well to be potential future chip interface. My job for -- as an ongoing chip designer and looking to next chip generation encompassed that I was at least informed about what was going on, and that was more for my personal information.

Q. And did anybody at Siemens ever tell you that Mr. Crisp from Rambus had suggested that the SLDRAM product might infringe on Rambus intellectual property rights?

A. No.

Q. Do you recall attending a JEDEC meeting in Fort Lauderdale?

A. Yes.

Q. And do you recall attending one in about March of '97?

A. 1997, correct.

Q. Yes.

Let me show you -- if I may approach, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. STONE:

Q. -- JX-36.

And directing your attention to the bottom of JX-36, you'll see two names that we've just talked about, Willi Meyer and Gilbert Russell, Willi Meyer listed from Siemens AG and Gilbert Russell from Siemens Corporation?

A. Correct.

Q. And then if you turn all the way to the third page of this document, the third name down you'll see

is Martin Peise. I think it's misspelled.

Do you see the third name on the third page from the top? P-E-I-S-E?

A. Oh, yeah. Misspelled as usual.

Q. Okay. One of the many misspellings I'm sure.

And that would be a reference to you, wouldn't it, given the reference to Siemens and the phone numbers?

A. I was on that meeting, yes.

Q. Then look if you would at page 6 of this document at the very top. And the clip may be in the way. I hope it's not.

At the very top where it says: "Mr. Kelley was not present. Mr. Rhoden chaired the meeting in his

A. Yes.

Q. If you would take a moment and just read that paragraph there under 6.6 to yourself.

(Pause in the proceedings.)

A. Yes.

Q. Do you recall a discussion at this meeting about Rambus patents?

A. No.

Q. Do you recall anything you did after the meeting to go back and talk to anybody at Siemens or Infineon about Rambus patents?

A. I'm pretty sure that I did not do anything at that time.

Q. Have you at any time when Rambus patents have come up in the course of any conversations or meetings you've attended, have you ever gone back and recommended that any action be taken?

A. It is not my job to recommend any.

Q. Was it the general practice that at a meeting like a JEDEC meeting someone in the group of Siemens representatives would write a trip report?

A. Usually, yes. Correct.

Q. Let me show you a document marked as RX-893 -- may I, Your Honor?

JUDGE McGUIRE: Yes.

BY MR. STONE:

Q. -- and ask you if you can identify this document as the trip report for the March '97 JEDEC meeting that we just looked at the minutes from.

A. Yes.

Q. Can you tell from looking at this document who prepared it?

A. Who?

Q. Yes. Who prepared it?

A. No.

Q. If you'd look at the first page, alongside where it says "attending Willi Meyer, Gil Russell, Martin Peisl," if you see across from that it says "W. Meyer" and then an Internet address and a telephone number?

A. Correct.

Q. Does that suggest that Mr. Meyer prepared this or not?

A. I do not know who prepared that document.

Q. Okay. Do you know whether you did or not?

A. I cannot remember.

Q. In the ordinary course, would you have received a copy of this trip report if someone else had prepared it since you attended the meeting?

A. Customarily I received those trip reports,

yes.

Q. If you look still on the first page, you'll notice the first sentence down there under Summary says, "The battle between Rambus, SyncLink and DDR (double clock DRAM) is still undecided."

Was it still your understanding in 1997 that there was still an ongoing battle between Rambus, SyncLink and DDR?

A. My understanding was that there were several competing interfaces on the DRAM market, competing in the sense of competing for attentions at the DRAM producers and the end customers of course and the controller producers in order to be produced, and those had been the three, Rambus, SyncLink and DDR. Apparently there had been discussions, and I do not recall them specifically, but there have been discussions about the three interfaces on that meeting.

Q. Okay.

A. The reason why I went to that meeting was I went to find out the status of SyncLink. That's all.

Q. Right.

And if you would look further down in that paragraph, it says, "Nobody is happy with the prospects of a fabless company controlling the world's computer

business."

Do you see that reference?

A. Yes.

Q. Is it your understanding, based on your attendance at the meeting and your knowledge of the industry in 1997, that the fabless company being referred to there is Rambus?

A. In the context, it seems to be, yes.

Q. In the next sentence where it says, "MOSAID declared the SLDRAM mainly as a commercial defense against Rambus," do you see that sentence?

A. Yes.

Q. MOSAID is a company, is it?

A. MOSAID is a company.

Q. And it had been hired by SyncLink to help design the SLDRAM?

A. I don't know that.

Q. Did you understand from anything that was said at the meeting or from any other source that the main purpose of SLDRAM was simply to be a commercial defense against Rambus?

A. I do not recall those discussions.

Q. Then look if you would at the sixth page of this trip report, Exhibit RX-893, if you would.

And down at the bottom where it says "NEC" --

I'm sorry. It's page 5. My mistake.

A. Page 5?

Q. Yes. Page 6 is blank.

Look at the discussion across from NEC.

And I think this refers to what we looked at in the minutes a few moments ago at JX-36, paragraph 6.6, but it may not. I'm just trying to see if I can jog at all what you recall.

So read if you would what it says there alongside NEC.

(Pause in the proceedings.)

A. I do not recall any specific details of that discussion.

Q. Now, this doesn't help jog your recollection as to whether there was a discussion about whether something might breach or infringe a Rambus patent?

A. No.

Q. Finally, Dr. Peisl, to your knowledge, has JEDEC -- I'm sorry -- to your knowledge, has Infineon ever done anything to try to design around any Rambus patents?

A. To my knowledge, no.

MR. STONE: Okay. Thank you. No further questions.

JUDGE McGUIRE: Thank you, Mr. Stone.

THE WITNESS: Thank you.

JUDGE McGUIRE: Mr. Oliver?

MR. OLIVER: I also would like to move in a few exhibits if I could, please, Your Honor.

JUDGE McGUIRE: Okay.

MR. OLIVER: I have the four data sheets, CX-2404, CX-2403, CX-2410 and CX-2408.

MR. STONE: No objection.

JUDGE McGUIRE: So entered.

(CX Exhibit Numbers 2403, 2404, 2408 and 2410 were admitted into evidence.)

JUDGE McGUIRE: Mr. Oliver, how did you intend --

MR. OLIVER: I'm sorry. I have a few more.

JUDGE McGUIRE: I'm sorry. I thought that was it.

MR. OLIVER: CX-2428, RDRAM road map.

MR. STONE: No objection.

JUDGE McGUIRE: Entered.

(CX Exhibit Number 2428 was admitted into evidence.)

MR. OLIVER: CX-2457, chipset driver road map.

MR. STONE: No objection.

JUDGE McGUIRE: Entered.

(CX Exhibit Number 2457 was marked for

MR. OLIVER: We could do either, Your Honor.

MR. STONE: I'm comfortable either doing some -- I know -- can I confer one moment?

JUDGE McGUIRE: Yes. Sure.

MR. STONE: Your Honor, Mr. Weber tells me that they have a logical breakpoint in the Karp deposition after about an hour, so could we maybe do an hour of that deposition and then break?

JUDGE McGUIRE: Sure. Is any of that going to pertain to any of the outstanding motions on Karp?

MR. STONE: No.

JUDGE McGUIRE: All right. That will be fine.

MR. OLIVER: If we could have just a moment to get organized, Your Honor.

JUDGE McGUIRE: Sure. Go ahead, Mr. Oliver.

(Pause in the proceedings.)

MR. WEBER: Your Honor, while we're getting set up, Your Honor, let me, while we're setting up, maybe a little background of Mr. Karp, if you'd like?

JUDGE McGUIRE: Mr. Weber, what was that you wanted to say?

MR. WEBER: While we're getting set up, I'll do a couple minutes of background of Mr. Karp. Will that be all right?

JUDGE McGUIRE: Mr. Stone, do you have any

objection to that?

MR. STONE: No. As long as he gets it right, I have no objection. If he doesn't --

JUDGE McGUIRE: I'm sure we'll hear from you otherwise.

MR. WEBER: Mr. Karp is an individual that's been acting as an individual in the semiconductor industry from his early days. As I understand it, he started in the late 1960s.

He was employed starting as a design engineer at Intel Corporation and was involved in developing a number of Intel's sort of early products in the '60s and '70s.

As far as this matter is concerned, we are really interested in Mr. Karp's employment at two specific points in his career, obviously more recently in his career.

From 1990 through 1997, Mr. Karp held positions with Samsung, which is the leading DRAM manufacturer -- you've heard that name during the course of the trial -- and primarily his job titles were in the strategic planning and strategic marketing area.

And the clips you'll be seeing and hearing from his testimony relate primarily to two aspects of his

job at Samsung, one his involvement in negotiating an RDRAM license with Rambus, which I think occurred in 1994, and second his involvement as a participant in JEDEC and going to JEDEC meetings throughout the 1991 to 1996 time period.

I don't think he went to every meeting in that time period, but he was involved actively as a participant at JEDEC on behalf of Samsung and that, of course, time period coincides with the time period that Rambus was a member of JEDEC.

Mr. Karp left Samsung in 1997 and after a few months --

JUDGE McGUIRE: Are you going to make it, Mr. Weber?

MR. WEBER: I hope so. I've got a lot of ammunition here to try to get through this here this afternoon, but we'd like to get through a little bit of the clips of Mr. Karp.

He left Samsung in 1997, after a brief stint as a consultant joined Rambus in the fall of '97. And you will recall with Mr. Vincent we had the demonstrative. This is the Rambus organizational chart 1999 through 1998. I believe this was DX-26, if I've got the right number. And you will see Mr. Karp, his position was vice president of intellectual

property and he reported directly to Jeff Tate, the CEO (indicating).

And in that position Mr. Karp, by the way, was not a lawyer. He's not a patent attorney, but he was involved, had job responsibilities relating to the Rambus portfolio and patent prosecution, and he was also involved in putting together a strategic patent portfolio or so-called noncompatible licensing program.

MR. STONE: I think Mr. Weber is now getting into an area in which the testimony might be somewhat in conflict. I think what he's said so far I agree

the pretrial motions relating to the document retention program.

JUDGE McGUIRE: Right.

MR. WEBER: To the best of my understanding, Mr. Karp left full-time employment at Rambus in mid-2000, but according to our most recent information, he's still on the Rambus payroll as a part-time consultant.

And we will start with Mr. Karp's Infineon deposition, which is a video marked as CX- -- do you have something to say, Greg?

MR. STONE: I do. But go ahead and finish. I just want to respond to the last comment.

MR. WEBER: Why don't you respond to the last comment.

MR. STONE: Your Honor, I think what the record will make clear when we get through all of the Karp deposition testimony is that at the present time Mr. Karp is reimbursed for time he spends on Rambus matters.

So it would be inaccurate to say he's on the payroll; he simply as a consultant is paid on an hourly basis for the time he spends. That's his current status.

JUDGE McGUIRE: Okay.

MR. WEBER: The video clips we're going to start with today, Your Honor, are from the Infineon deposition of Mr. Karp which was taken in San Jose, California, Monday, January 8, 2001.

And assisting me again will be Hiram Andrews, our paralegal, in terms of pulling up the video clips.

And we will start -- the first clip is page 8, line 8 through page 9, line 9.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next clip will be page 11 starting at line 6, running through page 13 at line 9.

(Whereupon, the videotape was played for the record in open court.)

JUDGE McGUIRE: Can we stop the tape right there just a moment?

I'm a little confused here, Mr. Stone. He's saying he's getting a check of a certain amount a month, and you're telling me he's getting paid by the hour.

MR. STONE: That was at the time that the deposition was taken. As you'll hear, by the time we get through the fifth volume of the transcript, that relationship terminated and he just got to where he was paid on an hourly basis.

JUDGE McGUIRE: Very good. I just wanted to clarify it.

All right. Proceed.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: Your Honor, I'm going to try to combine two clips at once to move this along more quickly.

We will be reading from page 17, line 5 through page 20, line 4, and then immediately after that the next clip will be page 20, line 17 through page 21, line 11.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next series of clips starts at the top of page 22. It will be page 22, line 1 through 23, line 1 and continuing on to page 23, lines 13 through 21. And also page 25, lines 10 through 19; page 25, line 25 through 26, line 3; and continuing, page 26, line 13 through page 27, line 20.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next two clips we'll play will be page 29, line 22 through page 30, line 22, and we will also play a short clip at page 31, line 21 through

line 24.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next clip is a several-page clip. It starts at page 32, line 18 and continues to page 36, line 12.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next clip is a counter-designation by respondent, but we will include it in our presentation. It starts at page 37, line 25 and continues to page 39, line 17.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: Again, next we're going to combine some clips in the next presentation. We're going to do page 42, lines 7 through line 23, and we're going to skip to page 45, line 25, and although there's a series of clips there, they're contiguous except for a few objections, and so that continues on through page 48, line 15, Your Honor.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: Next we have a short clip which is page 49, line 14 through page 50, line 9.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: Your Honor, we have our first need to have a discussion over an objection.

JUDGE McGUIRE: All right. Go ahead.

MR. WEBER: Basically we're going to start reading -- the next clip starts at page 51, line 15, and he's going to start talking about some of these papers he found in his garage basically, and one of the papers he's going to talk to gets into a hearsay issue, and basically he's talking about what a person who's actually on Rambus' witness list, a woman named Betty Prince, said. It's the testimony -- the first mention of her name I think is coming up in the next --

JUDGE McGUIRE: Well, her name has already been mentioned. It was just mentioned in the last clip.

MR. WEBER: Right. But he's going to mention specifically what Betty Prince told him, which we think is hearsay, and that would be at page 53, the answer starting at line 9 through 19, so we would object to that answer as hearsay.

MR. STONE: And it's not, Your Honor, being offered for the truth of the matter of what she said,

rather to show the state of mind of the person at Samsung -- that was Mr. Karp's role at the time -- his state of mind regarding the attitude of companies in the industry towards Rambus at the time.

So it simply goes to show his state of mind.

JUDGE McGUIRE: Mr. Weber, if it's not being offered for the truth of the matter --

MR. WEBER: Your Honor, we'll certainly be happy to read it in and Your Honor can give it whatever weight you feel is appropriate. We don't think it's entitled to any weight simply because Mr. Karp is recalling what Ms. Prince said and Ms. Prince is on their witness list and they can call Ms. Prince.

JUDGE McGUIRE: Well, it sounds like hearsay to me and I'll just rule on it now.

MR. STONE: But I'm not offering it for the truth.

JUDGE McGUIRE: Okay. Go ahead.

MR. WEBER: Should we go ahead and play the clip, Your Honor?

JUDGE McGUIRE: You're not offering it for the truth of the matter and your --

MR. STONE: No.

JUDGE McGUIRE: -- objection at this point is?

MR. WEBER: Hearsay and they have the person on

their list who can testify to this.

JUDGE McGUIRE: But if he's not offering it for the truth of the matter, how is it a hearsay objection?

MR. WEBER: Well, if he's not offering it for the truth of the matter, I'm not sure what it actually proves, if anything.

JUDGE McGUIRE: But what's your objection? If it's not on hearsay now, which it cannot be because it's not being offered for an out-of-court statement, then what's the foundation for your objection?

MR. WEBER: My objection then would be it's irrelevant and its prejudice outweighs the probative value.

JUDGE McGUIRE: Mr. Stone, how is it relevant?

MR. STONE: Well, as with the statements we heard earlier today from Dr. Peisl, what people were saying in the industry is important to understand the state of mind of people who were actors in the industry.

JUDGE McGUIRE: But I understand the question. But if it asks the question what did she tell you, then that's one thing.

MR. STONE: What -- it's important to -- I almost have to tell you what was said in order to give

you a sense of the issue.

But what the issue was, Mr. Karp was told something about Texas Instruments' views towards Rambus. He was at that time a player at Samsung and had to decide whether or not to take a license from Rambus or not. His state of mind about Rambus and how to approach Rambus, it was influenced by what he heard from her, as I think Dr. Peisl's conduct today was influenced by what he heard from customers about good things and bad things about products, which again wasn't offered for the truth, just to --

JUDGE McGUIRE: I'll hear it on that basis.

Overruled.

MR. WEBER: Okay. Well, we'll start then at page 51, line 15, continuing through to page 53, line 19. And again, for the record, our objection was the answer starting at line 9, page 53.

JUDGE McGUIRE: Noted.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next passage has a similar question and answer which we will get into a similar objection. We're on page 57 now. We have no objection to reading in lines 1 through 8, but then when we get to lines 16 through actually at 25 on that page,

there's a question and answer again which we think called for hearsay about this conversation with Ms. Prince.

MR. STONE: I'll withdraw that, Your Honor.

JUDGE McGUIRE: Thank you.

MR. WEBER: Okay. But we have no objection to playing 57, line 1 through 8, so we'll play that clip and then go on to something else.

Well, we're going to cut out the one after that, so let's do 57, line 1 through 8.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: Next I think we have a series of three clips which we can combine. It will start with page 59, line 4 through page 60, line 4, and then the clip immediately after that would be page 61, line 6 through page 64, line 17 and then finally a short clip page 64, line 22 through page 65, line 6.

So if we can play those three clips.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: Next we have a long clip that goes from page 65, line 11 through page 72, line 21.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: My next two short excerpts are excerpts that respondent wanted and we have objections. Basically it's the same objection on both of them, that it's really irrelevant and beyond the scope of our designations. I'd like to see if I can talk Mr. Stone into withdrawing them.

JUDGE McGUIRE: What page?

MR. WEBER: This would be starting at page 74, line 7 through 75, line 8 and then the same objection at page 76, line 15 through page 77, line 8.

JUDGE McGUIRE: Mr. Stone, did you want to --

MR. STONE: These simply fill out the picture of what he did at Samsung, which complaint counsel have brought out at some length. This simply filled out the picture of what he did when he got back to the U.S.

JUDGE McGUIRE: How do these prior litigations have any pertinence to these issues?

MR. STONE: The actual litigations so far as I know don't have any pertinence to these. Although one of the litigations is the one that was the subject of the ITC dispute that is the subject of the brief. But I don't --

JUDGE McGUIRE: Then I sustain the objection.

MR. WEBER: Next, Your Honor, we have a short

clip, and then I think we're getting into where they're objecting to ours, so let's do the one short clip. It's actually a series of short clips. It's page 87, lines 2 through 5 and then page 87, line 17 through page 88, line 5. I don't think there's any objection to that, but the next one there is.

(Whereupon, the videotape was played for the record in open court.)

MR. WEBER: The next excerpt, Your Honor, is at page 90, line 3 through line 21 and they have an objection.

MR. STONE: Your Honor, and I don't know if you want a chance to rule on the papers to the extent this is an effort to use the brief that was filed in the ITC case -- that's where we pick up now -- to use the brief in the ITC case, which the witness had never seen before, so there's no foundation that he's ever seen it, but in addition, we think the use of the brief or the use of the declaration for that proceeding is inappropriate since that is hearsay. If it is being offered for the truth, he didn't work for Rambus at the time. He worked for Samsung.

JUDGE McGUIRE: Now, this goes as well to your pending motion, does it not?

MR. STONE: It does. And I wondered, given

it's four o'clock, if now is a good time to break.

JUDGE McGUIRE: I think it is because obviously I don't want to get into something on that now before I decide the pending motion. And I think whatever I do there may have impact on what we ultimately hear here, so it would be premature for me at this time to rule.

MR. WEBER: Your Honor, may I just respond to Mr. Stone briefly?

JUDGE McGUIRE: Sure.

MR. WEBER: This whole deposition has been ruled already on April 28 by Your Honor as a party admission, so Mr. Karp is in the position of a party opponent and basically he's being asked whether he agrees with this statement in the brief, so he could have been asked the question without the brief and been perfectly appropriate.

JUDGE McGUIRE: Well, that's your argument and that's in your current brief as well I believe. Is it not?

MR. WEBER: I think our position in the footnote as far as the brief, we're not offering the brief as evidence, Your Honor. All we're saying is we can take up these objections one by one, so this is an example of that.

JUDGE McGUIRE: Well, again, I think it's premature for me to rule until I issue an order on the outstanding motion which incorporates your response obviously, and then after I issue that order, then we can take these up as we need to, but obviously that order will have perhaps some impact on these current objections.

MR. STONE: I think it will, Your Honor.

MR. WEBER: Okay. Thank you, Your Honor.

JUDGE McGUIRE: So is that it for today?

MR. STONE: That will be it.

JUDGE McGUIRE: Very good.

And I want to say, complaint counsel, I'm pleased you were able to take some time this afternoon and put this together, and I think that's the kind of progress that we need to make when we have these off hours. So thank you very much.

MR. WEBER: We're doing the best we can.

MR. STONE: We appreciate that as well, Your Honor.

JUDGE McGUIRE: And while we're on this, so we're going to be off on Tuesday and Wednesday. Are there any other off days in the next two or three weeks that anyone has contemplated?

MR. STONE: The only possible day that we

talked about the other day was that Friday, June 20. And Mr. Oliver and I have been talking about whether or not we can fill it, and we have some proposals back and forth, and if you could give us a day or so to work that out.

JUDGE McGUIRE: Yes. No, there's no rush. I just wonder, if we feel like we're getting beyond our schedule, then, you know, I only offered that early on in this proceeding with the anticipation we'd be going to trial four days a week, five days a week, then on occasion maybe the parties would want to take an off Friday, but I'm certainly, you know, free to stay in hearing in an effort to try to keep the hearing on track and under schedule.

Does it still appear like we're going to get this thing done by the end of July? Is that still the time frame we're looking at to have this hearing completed, or is this going to run into August?

MR. STON wonl wo.GrG 9xG And Mr. Olive,lt7o. Olru 12Yd0 eRt0nly, yorp ti And or jduleng tpUt Yf crisTdu try to

It looks like our case would start right after the Fourth of July weekend. So what I'm going to do, once we make sure it makes sense, is just ask you, okay, let's have a date certain so we can start scheduling witnesses right after that holiday and maybe start on that Tuesday, is what we're currently thinking.

JUDGE McGUIRE: And you anticipated that your case in chief would take?

MR. STONE: Three weeks.

JUDGE McGUIRE: Three weeks. And then we'll come back with complaint counsel's rebuttal no doubt; right?

MR. STONE: So if we're at three weeks, that's going to take us --

JUDGE McGUIRE: That's the end of August.

MR. STONE: We will end by the end of July, but if they have a rebuttal case they want to put on, it will put us into August.

And then while we're on the issue of scheduling, without asking for any commitment, we probably should fairly soon talk about what you want us to do when the evidence closes, should we argue orally at the end in a relatively short period of time after the end, and then we'll probably have briefing.

JUDGE McGUIRE: You know what I've always done since I've been ALJ, I think what's important to me are your opening statements, so I can get a feel as of that point in time. You know, when the pleadings come out, during the course of the complaint and answer, parties tend to change their arguments somewhat, so I want to know at the day I open the hearing what your opening arguments are.

As far as closing arguments, to me, that's optional with the parties and I would prefer that you put the essence of your closing argument in your post-hearing brief because that's where it's really -- that's where you're going to be able to tie up all the evidence.

If the parties choose to sort of close this up a little bit at the end of the hearing and make a short closing statement, then that's fine with me. But I don't anticipate or I'm not going to obligate you to make some long closing comment that's going to tie up all the evidence that's preceded in this hearing because ultimately, as we all know, we're going to have to spend some time in going back through this entire record, and so I would, you know, prefer it to be in your post-hearing briefs.

And I guess while we're on that topic we ought

to take that up a little bit. I think I o 'o'o'o'o'o'o

both sides in other cases regarding the accuracy of some of these briefs. You know, there will be a citation to the transcript or to evidence and that's not what it is and it's not the proposition that it's been cited for.

So -- and that may well be because parties are under, you know, such a crush of time to put something forward that they really don't have or take the time to do the sort of proofing that they ought to be doing.

So I want to try to keep that, to the extent possible, down during this case, and so that's why I'm going to have the parties maybe confer with each other and then advise me at some point how much time do you need, not to say you're going to get it, but I want you to be -- to have that in mind.

Because ultimately, as everyone knows, all the time you've spent on this case, all the hours, it's going to come down to those briefs and how you're able to organize the evidence and the facts to your argument, so that's where I really -- and that's what I'm going to count on to ultimately determine the outcome of this case.

So you should be thinking about that already, and when you get a chance and you want to talk about

it, I'll be happy to do so.

MR. STONE: Well, I think that's a great suggestion, Your Honor. We will talk about it. We will consult with complaint counsel and sometime in the next one to two weeks it serves all of our interests to at least put a sort of tentative plan in place if we can.

JUDGE McGUIRE: And again, I don't have to tell you all because you've done this for a long time, one of the most important things, you know, that as advocates that you can offer the court is really tight, concise, accurate proposed findings of fact. And if they are quality proposed findings, I might well incorporate them to some extent or to a great extent into my decision, so it behooves each side to be as accurate as they can.

But I know in the past that's been a problem, and I'm trying to work through the agency to get some of these time frames extended, but I know that's a tough task. It's going to take two years to change any of these current rules. But -- so we're going to do what we have to do, but I want the parties to offer me, you know, their highest-quality post-hearing briefs.

So that's all I should say about that at this

point.

MR. STONE: I appreciate that, Your Honor. Thank you.

JUDGE McGUIRE: Does complaint counsel want to say anything while we're on this topic?

MR. OLIVER: Simply other than to reiterate as Mr. Stone did that I think it is a very good idea to try to set a schedule fairly early to allow us to know --

JUDGE McGUIRE: And also what I intend to do is to issue an order on briefing that will put down maybe eight or ten different points that I want to make clear to the parties and hopefully offer them some guidance on what I hope to see in these post-hearing briefs. Okay?

MR. STONE: Thank you.

JUDGE McGUIRE: If not, this hearing is adjourned and we'll convene again on Monday morning. Everyone have a good weekend.

MR. STONE: Thank you.

(Time noted: 4:15 p.m.)

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

DOCKET NUMBER: 9302

CASE TITLE: RAMBUS, INC.

DATE: June 6, 2003

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

DATED: June 7, 2003

JOSETT F. HALL, RMR-CRR

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

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

DIANE QUADE