

1 UNITED STATES PATENT AND TRADEMARK OFFICE  
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD  
3

4 -----  
5 MERCEDES-BENZ USA, LLC

6 Petitioner,

7 v.

8 DAEDALUS PRIME LLC,

9 Patent Owner.  
10 -----

11 Case No.: IPR2023-01333

12 U.S. Patent No. 10,049,080  
13 -----

14  
15 DEPOSITION OF ROBERT W. HORST, PhD

16 CONDUCTED VIRTUALLY

17 Wednesday, May 1, 2024  
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22 Stenographically Reported by:

23 LORI STOKES

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25 Pages 1-38

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The deposition of ROBERT W. HORST, PhD, was taken virtually on behalf of DAEDALUS PRIME LLC, beginning at 8:55 a.m., Pacific Time, on May 1, 2024, before LORI STOKES, RPR, Certified Shorthand Reporter No. 12732.

1 APPEARANCES VIA VIDEOCONFERENCE:

2  
3 FOR PETITIONER

4 HOGAN LOVELLS US LLP

5 BY: JIAXING (KYLE) XU

6 DAMON LEWIS (DC)

7 SCOTT HUGHES (DC)

8 Attorneys at Law

9 4 Embarcadero Center

10 Suite 3500

11 San Francisco, California 94111

12 415.374.2300

13  
14 FOR PATENT OWNER

15 ASCENDA LAW GROUP, PC

16 BY: TAREK FAHMI

17 Attorney at Law

18 2150 North First Street

19 Suite 420

20 San Jose, California 95131

21 408.799.0612

22  
23 REMOTE TECHNICIAN: Ken Languico

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WITNESS

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EXHIBITS

| EXHIBIT      | DESCRIPTION                                                                                                       | PAGE |
|--------------|-------------------------------------------------------------------------------------------------------------------|------|
| EXHIBIT 1005 | United States Patent<br>Application Publication US<br>2011/0213950 A1                                             | 29   |
| EXHIBIT 1007 | United States Patent<br>Application Publication US<br>2008/0288748 A1                                             | 17   |
| EXHIBIT 1034 | Declaration of Robert Horst<br>in Support of Petition for<br>Inter Partes Review of U.S.<br>Patent No. 10,049,080 | 9    |

1 May 1, 2024 | 8:55 a.m.

2

3 ROBERT W. HORST, PhD,  
4 having been administered an oath, was examined and  
5 testified as follows:

6

7 EXAMINATION

8 BY MR. FAHMI:

9 Q Good morning, Dr. Horst. Can you hear me  
10 okay?

11 A Yes, I can.

12 Q Great.

13 My name is Tarek Fahmi. I'm here today  
14 representing the patent owner, Daedalus Prime, and we're  
15 here today for your deposition in connection with a  
16 matter that's pending before the United States Patent  
17 and Trademark Office.

18 It's Inter Partes Review Number 2023-01333,  
19 and that concerns U.S. Patent 10,049,080.

20 Do you understand that?

21 A Yes.

22 Q You've provided testimony in other depositions  
23 before; is that right?

24 A Yes, I have.

25 Q I'd just like to go over a couple of ground

1 rules. And first, thanks, you know, for participating  
2 in today's deposition. I appreciate your time.

3 And since this is being done over a remote  
4 video, it's important that we not speak over each other.  
5 As the technician mentioned at the outset, it's hard  
6 enough for the reporter when we're all in the same room  
7 to try to track everybody who is speaking, but it's even  
8 more difficult over a video link.

9 So if you'd be so kind as to wait until I  
10 finish asking a question before you begin your answer,  
11 I'll try and make sure I do the same and let you finish  
12 your answer before I ask another question. And that  
13 way, the court reporter is only having to take down what  
14 one person is saying at a time.

15 Is that okay?

16 A Yes.

17 Q And again, since it's over a video link,  
18 sometimes the audio gets garbled or, you know, the  
19 connection drops out momentarily.

20 If that happens, and you don't hear a question  
21 or, you know, maybe didn't understand it, just let me  
22 know. I'll be happy to repeat the question. If you  
23 didn't understand the question, let me know, and I'll  
24 try and clarify what I'm asking.

25 But if I ask a question, and you provide an

1 answer, I'm going to assume you heard the question and  
2 you're answering the question that I asked.

3 Is that fair?

4 A Yes.

5 Q Do you have any materials in the room with you  
6 this morning, Dr. Horst?

7 A I have a copy of the exhibits and a separate  
8 copy of my expert report.

9 Q Are there any markings on any of those  
10 materials other than, you know, the text on the page?

11 A No, they aren't marked.

12 Q If you want to refer to those materials during  
13 our conversation this morning, you know, feel free to do  
14 so. I would just ask that, if you are referring to  
15 something specific when you give me an answer, please  
16 let us know what it is you're referring to, okay?

17 A Yes.

18 Q Is there anyone present in the room with you  
19 this morning?

20 A Yes. Present here are Mr. Lewis and Mr. Xu.

21 Q All right. It's important in this proceeding  
22 that, now that we've started the cross-examination  
23 portion, as it's called, that you not have any  
24 communications with anyone about the substance of your  
25 testimony until that cross-examination is finished. And

1       that applies even during a break.

2               Do you understand that, sir?

3           A     Yes, I understand.

4           Q     If you need to take a break at any time, just  
5       let us know. I'll be happy to do so. I would just ask  
6       that we not take a break while there's a question  
7       pending. And so if you need to pause, and there's a  
8       question pending, I'd ask that you answer that question,  
9       and then we can pause.

10               Is that okay?

11          A     Yes.

12          Q     Is there any reason why you can't give your  
13       full and honest and complete testimony in this  
14       proceeding this morning?

15          A     No.

16          Q     You're not taking any medications that might  
17       impair your ability to testify in this proceeding this  
18       morning; is that right?

19          A     That's right.

20          Q     Okay.

21               MR. FAHMI: Let's begin with your declaration.  
22       This is Exhibit Number 1034.

23               (Deposition Exhibit 1034 was  
24       marked for identification.)

25               MR. FAHMI: And if we can have a copy on the

1 screen, please, as well.

2 THE REMOTE TECHNICIAN: Okay. One second.

3 BY MR. FAHMI:

4 Q So Dr. Horst, on the screen is a copy of  
5 what's been previously marked as Exhibit 1034. And I  
6 understand you may have a copy of this in the room with  
7 you as well.

8 Do you recognize this exhibit?

9 A Yes. This is my expert report in this matter.

10 Q When is the last time you had a chance to  
11 review this report?

12 A I was reviewing this report yesterday.

13 Q Okay. How long did you spend doing your  
14 review?

15 A I spent between eight and ten hours yesterday  
16 reviewing this report.

17 Q So I imagine you were reviewing other things  
18 during that time as well; is that right?

19 A It was primarily working on the review,  
20 refreshing my memory about the report.

21 Q Prior to that, when is the last time you had a  
22 chance to review your report?

23 A For the few days prior to that, I was also  
24 doing some review of the report and some of the other  
25 materials referred to in the report, for a few hours a

1 day.

2 Q Let's turn, please, to paragraph 33 in your  
3 report. It begins towards the bottom of page 13 and  
4 then carries over to page 14.

5 A Yes, I'm there.

6 Q So in paragraph 33, and then also in 34 and  
7 35, you're commenting on claim construction.

8 Do you see that?

9 A Yes.

10 Q And if I read this correctly, you're setting  
11 forth your understanding of how the process of claim  
12 construction works; is that right?

13 A Yes, that's what's described in these  
14 paragraphs.

15 Q I didn't see anywhere here where you're  
16 actually offering any construction of the claims of the  
17 '080 patent.

18 Did I miss anything?

19 A No. I'm not offering specific construction,  
20 just using plain meaning for the terms in this case.

21 Q So when you say "plain meaning," what do you  
22 mean?

23 MR XU: Objection. Calls for a legal  
24 conclusion.

25 THE WITNESS: Yeah. In paragraph 35, it says

1 [reading]:

2 Other evidence may be considered to  
3 ascertain the meaning of the claim  
4 terms, including textbooks,  
5 encyclopedias, articles, and  
6 dictionaries.

7 But in general, I am just using the meaning of  
8 the terms as those terms would be understood by one of  
9 ordinary skill in the art.

10 BY MR. FAHMI:

11 Q So you mentioned one of ordinary skill in the  
12 art. And on page 13 in your report, paragraph 31, I  
13 think you offer a definition of who that person of  
14 ordinary skill in the art would be.

15 Is that right?

16 A That's right.

17 Q How did you -- sorry.

18 How did you conclude that that's who the  
19 person of ordinary skill in the art would be?

20 (Telephonic interruption.)

21 MR. FAHMI: Sorry. That's my phone. Go  
22 ahead, I'm sorry about that.

23 THE WITNESS: This particular definition was  
24 first offered by Dr. Mudge, and I adopted this  
25 definition as he proposed it.

1 I may have worded it differently myself, but  
2 in general, I agree with the level that [reading]:

3 A person of ordinary skill in the  
4 art would have had a bachelor's  
5 degree in electrical engineering,  
6 computer science, computer  
7 engineering, material science,  
8 physics, applied physics, or a  
9 related field.

10 And at least two years of  
11 experience in research, design,  
12 development, or testing of  
13 electronic circuits or components  
14 or software for controlling  
15 electronic circuits or components,  
16 or the equivalent, with additional  
17 education substituting for  
18 experience and vice versa.

19 BY MR. FAHMI:

20 Q You mentioned Dr. Mudge. Who is Dr. Mudge?

21 A Dr. Mudge was an expert for a previous IPR for  
22 the '080 patent, and my expert declaration started with  
23 Dr. Mudge's expert report, as requested by the attorneys  
24 in this case.

25 Q Did you meet with Dr. Mudge to discuss your

1 report?

2 A No, I did not.

3 MR XU: I'm going to caution the witness not  
4 to disclose any communication with the attorneys.

5 BY MR. FAHMI:

6 Q Why did you adopt Dr. Mudge's report?

7 A I was requested to start with that for  
8 procedural reasons, and then I modified the report and  
9 added any additional information that I thought should  
10 be added to the material that Dr. Mudge had already  
11 presented.

12 Q Considering the definition here in  
13 paragraph 31 of the person of ordinary skill in the art,  
14 what type of work experience would that individual have?

15 MR XU: Objection. Form.

16 (Reporter clarification.)

17 THE WITNESS: As it says in this paragraph,  
18 the person would have had at least two years' experience  
19 in the research, design, development or testing of  
20 electronic circuits or components or software  
21 controlling electronic circuits or components or the  
22 equivalent.

23 BY MR. FAHMI:

24 Q So what's involved in the research of  
25 electronic circuits or components?

1           A     In designing electronics, the engineer needs  
2     to study particular components and particular structures  
3     and architectures to understand how to create and  
4     analyze existing computer structures, for instance.

5                     (Reporter clarification.)

6     BY MR. FAHMI:

7           Q     What's involved in the design of electronic  
8     circuits or components?

9           A     The design involves selecting components, and  
10    then connecting those components either through a design  
11    language or through a schematic diagram, and then  
12    analyzing to make sure that the design meets the  
13    requirements for the product.

14          Q     What's involved in the development of  
15    electronic circuits or components?

16          A     Development is kind of a broad term related to  
17    all of the steps of going from an idea into a product.  
18    So it involves the design, the testing, and often  
19    developing software and testing the software.

20          Q     And in this context, what do you mean by  
21    "testing"?

22                     MR XU:   Objection.   Vague.

23                     THE WITNESS:  I'm speaking of verifying that  
24    the design meets the requirements.

25                     So that usually involves writing some code and

1     executing that code, and verifying that it produces the  
2     correct results.

3     BY MR. FAHMI:

4             Q     Are there any particular skills an individual  
5     would have to have in order to be considered a person of  
6     ordinary skill in the art?

7             MR XU:   Objection.   Asked and answered.

8             THE WITNESS:   The definition specifies  
9     particular skills, like electrical engineering or  
10    computer science, and mentions several other fields that  
11    the person of ordinary skill should be familiar with.

12    BY MR. FAHMI:

13            Q     So I read that in your report as indicating a  
14    level of education, for example, a bachelor's degree.

15                    Are you saying that there are particular  
16    skills involved in those fields as well?

17            A     The definition also says that additional  
18    education can substitute for experience and vice versa.

19                    So if there's not formal education, there  
20    could be practical experience in designing those  
21    circuits, for instance.

22            Q     So if I understand you, an individual could be  
23    a person of ordinary skill without an actual bachelor's  
24    degree; is that right?

25            A     That's right.   It wouldn't require a degree if

1       there was commensurate experience that the individual  
2       had in the areas related to the -- to this patent.

3               MR. FAHMI: Let's turn to Exhibit 1007,  
4       please.

5               (Deposition Exhibit 1007 was  
6       marked for identification.)

7               THE WITNESS: I'll have to look that up in  
8       the -- okay.

9               Okay. I have it here.

10       BY MR. FAHMI:

11              Q       So this is what's been referred to in your  
12       report, I believe, as Sutardja '748.

13              Is that right?

14              A       That's right.

15              Q       And you recognize this exhibit, correct?

16              A       Yes, I do.

17              Q       And in your declaration, you offer testimony  
18       concerning Sutardja '748, correct?

19              A       Yes, I do.

20              I also combine this with the other Sutardja  
21       reference and call the two of them together just  
22       Sutardja in some cases.

23              Q       Why did you do that?

24              A       The Sutardja '748 includes another Sutardja  
25       patent, by reference. So it is effectively a single

1 reference.

2 Q When is the last time you had a chance to  
3 review this Sutardja '748 reference?

4 A I've been reviewing this over the last few  
5 days.

6 Q If you look at the abstract on page 1, it  
7 references a core switching system that includes a mode  
8 switching module, et cetera.

9 Do you see that?

10 A Yes.

11 Q Is it fair to say, then, that Sutardja '748  
12 discusses dynamically switching cores in a multi-core  
13 processing system?

14 MR XU: Also, please feel free to review the  
15 reference before.

16 THE WITNESS: Sutardja discusses a multi-core  
17 architecture, and there's quite a bit in Sutardja, so  
18 I'm not sure if your summary included everything that is  
19 in Sutardja.

20 BY MR. FAHMI:

21 Q Let's take a look at figure 5.

22 A Yes, I'm there.

23 Q So in figure 5, what are we looking at here,  
24 Dr. Horst?

25 A This is a block diagram that shows a

1 low-performance core and a high-performance core and  
2 some logic for switching between these cores.

3 Q Because there's two cores, is that why it's  
4 considered multi-core?

5 A This diagram shows two cores, although the  
6 text of Sutardja also says there could be multiple  
7 high-performance cores, so that's why it's a multi-core  
8 architecture.

9 Q On the lower left there, we see a core  
10 switching module labeled 212.

11 Do you see that?

12 A Yes.

13 Q Is that what's responsible for switching  
14 between one core and another core?

15 A That's part of the logic that's responsible  
16 for switching between the cores. That plus the  
17 hypervisor, which is the software which helps determine  
18 when to do the switch.

19 Q The hypervisor you're referring to is labeled  
20 213 in figure 5; is that right?

21 A Yes, it's labeled 213.

22 Q What is a hypervisor?

23 A That -- the hypervisor is described in my  
24 expert report. I can go to that section.

25 Sutardja talks about hypervisor, but another

1 description of hypervisor is from the Shen reference,  
2 which is on page 66 of my expert report, and it says  
3 [reading]:

4 A hosted hypervisor is a hypervisor  
5 that runs inside the operating  
6 system. It is installed and runs  
7 as an application on top of an  
8 operating system.

9 The bare-metal hypervisor runs  
10 directly on the hardware.

11 So a hypervisor is a way of determining and  
12 migrating where processes run in a machine.

13 Q Let's take a look at paragraph 254 of the  
14 Sutardja reference.

15 A Okay. I'm there.

16 Q In paragraph 254, it says [reading]:

17 The term hypervisor generally  
18 refers to a virtualization platform  
19 that allows multiple operating  
20 systems to run at the same time on  
21 a host computer.

22 Do you see that?

23 A Yes, I see that.

24 Q Do you know what's meant by a "virtualization  
25 platform" in that context?

1 MR XU: Objection. Speculation.

2 THE WITNESS: A virtualization platform is  
3 generally a software that allows multiple different  
4 operating systems or multiple copies of the same  
5 operating system to run on a machine, and to be able to  
6 switch between which version of those is running on a  
7 machine.

8 BY MR. FAHMI:

9 Q Is a hypervisor something that a person of  
10 ordinary skill in the art in the field of the '080  
11 patent would understand?

12 A Virtual machines have been used in the  
13 industry for many years, so I would believe that someone  
14 of ordinary skill would understand how that works.

15 Q Later on, in paragraph 254 in Sutardja, it  
16 says [reading]:

17 The hypervisor typically operates  
18 above the kernel. Alternatively,  
19 the hypervisor may operate below  
20 the kernel.

21 Do you see that?

22 A Yes.

23 Q I think that's consistent with something that  
24 you pointed out earlier, right?

25 A Yes. It's talking about whether it could run

1 either above or below the kernel, bare bones or as an  
2 application above the kernel.

3 Q So when it says "the hypervisor typically  
4 operates above the kernel," what would the person of  
5 ordinary skill in the art understand that means?

6 A The author is pointing out that it --  
7 hypervisors often run above the kernel. But it doesn't  
8 say that it exclusively runs above the kernel. So they  
9 may run above or below the kernel.

10 Q Right. That's what it says. I'm trying to  
11 understand what it means.

12 What does it mean to operate above the kernel  
13 versus below the kernel?

14 MR XU: Objection. Asked and answered.

15 THE WITNESS: Operating above the kernel means  
16 that the hypervisor can evoke and dispatch different  
17 kernels underneath it. Where, if it's bare bones, that  
18 the software of the hypervisor is actually written to  
19 run directly on the machine, not -- not above a kernel  
20 of the machine.

21 BY MR. FAHMI:

22 Q When you say it runs "directly on the  
23 machine," do you mean the hypervisor is actually  
24 controlling the hardware in that instance?

25 A A hypervisor that's running bare bones is

1 running code directly on the machine.

2 So you would boot the hypervisor, as opposed  
3 to first booting an operating system and then running a  
4 hypervisor on top of it.

5 Q So in the case of the hypervisor operating  
6 below the kernel, the hypervisor is what is  
7 communicating directly with the hardware.

8 Am I understanding you correctly?

9 MR XU: Objection. Incomplete hypothetical.

10 THE WITNESS: The hypervisor would be running  
11 directly on the hardware, so it would be executing on  
12 the hardware itself.

13 BY MR. FAHMI:

14 Q What does it mean to execute on the hardware?

15 A There would be routines, for instance, drivers  
16 that would communicate directly with the hardware, as  
17 opposed to communicating, say, with those peripherals  
18 through an operating system mechanism.

19 Q In the next paragraph in Sutardja,  
20 paragraph 255, it indicates that [reading]:

21 The hypervisor manages transfers  
22 between the processors and suspends  
23 operation of one asymmetric  
24 processor while the other  
25 asymmetric processor operates.

1 Do you see that?

2 A Yes, I see that.

3 Q Is that an example of a hypervisor running  
4 directly on the hardware?

5 A It's not clear to me that that requires it to  
6 run directly on the hardware, but certainly it could  
7 perform that function if it runs directly on the  
8 hardware.

9 Q A little bit earlier in the same column, in  
10 paragraph 253, Sutardja is discussing what happens  
11 [reading]:

12 When the LP core reaches its  
13 highest operating speed and  
14 additional system loading occurs.

15 Do you see that?

16 A I see that.

17 Q There's an indication that, in such a  
18 circumstance, the core switching module triggers a  
19 transition.

20 Do you see that?

21 A It says [reading]:

22 And generate a system call to a  
23 hypervisor module 213 or a core  
24 switching module 212 to trigger a  
25 transition.

1           Q     Right.  So is Sutardja saying that the PMS  
2     module and/or the kernel module generates a system call  
3     to either the hypervisor or the core switching module to  
4     trigger a transition?

5           MR XU:  Objection.  Mischaracterizes witness'  
6     testimony.

7           THE WITNESS:  It says [reading]:  
8                 Generate a system call to a  
9                 hypervisor module or a core  
10                switching module to trigger a  
11                transition.

12          Yes.

13     BY MR. FAHMI:

14          Q     What does "generate a system call" mean?

15          A     A system call is generally a call to an  
16     operating system routine.

17                Normally an operation that's low-level to the  
18     hardware requires permissions from the operating system  
19     to perform that kind of operation.

20          Q     So in this case, it's the kernel that's  
21     generating the call; is that right?

22          MR XU:  Objection to the extent it  
23     mischaracterizes the document.

24          THE WITNESS:  It says the PMS module and/or  
25     kernel module.  So it could be the kernel module or the

1 PMS module that does that.

2 BY MR. FAHMI:

3 Q The PMS module and the kernel module are both  
4 part of the operating system; is that right?

5 MR XU: Objection. Vague as to "operating  
6 system."

7 THE WITNESS: I'd have to see if it's  
8 specifically calling out the PMS module as part of the  
9 operating system or as a separate module.

10 BY MR. FAHMI:

11 Q Let's take a look at paragraph 123 of your  
12 expert report.

13 A Okay.

14 Q At the end of the paragraph, you say  
15 [reading]:

16 Sutardja discloses an operating  
17 system that includes a kernel  
18 module and a PMS module.

19 Do you see that?

20 A Yes, I see that.

21 Q Does that refresh your recollection as to  
22 whether both the kernel module and the PMS module are  
23 part of the operating system?

24 A Yes. That says that both are part of the  
25 operating system.

1           Q     So looking back at paragraph 253 of Sutardja,  
2     the passage we were just discussing, it's the operating  
3     system, the PMS module and/or the kernel module that  
4     generates the system call to the hypervisor module or  
5     the core switching module.

6                     Is that right?

7           A     That's right.

8                     MR XU:  Objection.  Mischaracterizes the  
9     document.

10    BY MR. FAHMI:

11           Q     Did I mischaracterize the document, Dr. Horst?

12           A     You read from a portion of the document but  
13     didn't include the complete context, so I think that's  
14     what the attorney was referring to.

15           Q     What context did I miss?

16           A     The rest of paragraph 253.

17           Q     Well, let's look at the rest of paragraph 253.

18                     Paragraph 253 says that in the case [reading]:

19                     When the LP core 200 reaches its  
20                     highest operating speed and  
21                     additional system loading occurs,  
22                     the core profile module 240, the  
23                     PMS module 242, and/or the  
24                     kernel module 220 disable  
25                     interrupts and generate a system

1 call to a hypervisor module 213 or  
2 a core switching module 212 to  
3 trigger a transition.  
4 You with me so far?

5 A Yes.

6 Q The paragraph goes on and says [reading]:  
7 Core switching module 212 may be  
8 standalone or may be integrated  
9 with the hypervisor module 213.  
10 Correct?

11 A Yes, that's the next sentence.

12 Q Paragraph goes on and says [reading]:  
13 The core switching module 212 may  
14 transition (switch) the operation  
15 from the LP core 200 to the  
16 HP core 204 in response to the  
17 system call and return control to  
18 the kernel module 220 after the  
19 transition (switching) is complete.  
20 Correct?

21 A Yes. That's the complete paragraph.

22 Q So a person of ordinary skill in the art  
23 reading paragraph 253, would that person understand that  
24 the operating system, that is, the PMS module and/or the  
25 kernel module, disables interrupts, generates the system

1 call to the hypervisor module or the core switching  
2 module, and then the core switching module, whether it's  
3 standalone or integrated, makes the transition from the  
4 LP core to the HP core?

5 A That's what the paragraph says.

6 MR. FAHMI: Let's turn to Exhibit 1005,  
7 please. This is the Mathieson reference.

8 (Deposition Exhibit 1005 was  
9 marked for identification.)

10 THE WITNESS: Okay. I'm there.

11 BY MR. FAHMI:

12 Q So this is Exhibit 1005, US pre-grant  
13 Publication Number 2011/0213950 to Mathieson, et al.,  
14 and this is one of the references you offered testimony  
15 about in your declaration; is that right?

16 A That's right.

17 Q Is this one of the materials you've had a  
18 chance to review in the last few days?

19 A Yes.

20 Q If we look at the abstract, it indicates that  
21 what's described is a technique for reducing power  
22 consumption required to execute processing operations;  
23 is that right?

24 A The first sentence is [reading]:

25 A technique for reducing the power

1                   consumption required to execute  
2                   processing operations.

3                   And then it goes on from there.

4           Q     And as I understand it, that's in the context  
5 of a multi-core processor; is that right?

6           A     Yes. It's talking about multi-core  
7 processors.

8           Q     If you can turn to paragraph 43, please.

9           A     Okay.

10          Q     In this paragraph, Mathieson is discussing  
11 execution of the processing operation switching from one  
12 set of cores to another set of cores.

13                   Is that right?

14          A     Yes.

15          Q     Perhaps if you want to take a moment and just  
16 read through that paragraph to refresh your memory and  
17 let me know when you're ready.

18          A     Yes, I've read it.

19          Q     At the end of the paragraph, it says  
20 [reading]:

21                   The transition from the first mode  
22                   to the second mode, and vice versa,  
23                   can be done transparently to  
24                   high-level software, such as the  
25                   operating system.

1 Do you see that?

2 A Yes.

3 Q Do you know what Mathieson means by  
4 "high-level software" there?

5 MR XU: Objection. Calls for speculation.

6 THE WITNESS: I believe it's talking about the  
7 application that's running, which is normally described  
8 as high-level software.

9 BY MR. FAHMI:

10 Q It's also referring to the operating system as  
11 an example of high-level software; is that right?

12 A Yes. It says "high-level software, such as  
13 the operating system."

14 So it's using operating system as one example  
15 of high-level software.

16 Q Does that indicate that whatever is doing the  
17 transition is running below the operating system?

18 A In the case where it's transparent, it would  
19 be running below the operating system, but it doesn't  
20 say that it exclusively runs that way. So there could  
21 be a version that runs above the operating system also.

22 Q If it was running above the operating system,  
23 would it be transparent to the operating system?

24 A If it was above the operating system, it would  
25 not be transparent because it would be using operating

1 system resources.

2 Q We're using this term "operating system."

3 What would the person of ordinary skill in the  
4 art understand an operating system is?

5 A An operating system is the software that  
6 controls the dispatching of tasks and gives the  
7 interfaces between the applications and the peripherals,  
8 such as the disk drives.

9 Q The '080 patent also uses that term "operating  
10 system"; is that right?

11 A Operating system is discussed in the '080,  
12 yes.

13 Q The definition that you just gave me, is that  
14 how you interpreted the term "operating system" in the  
15 '080 patent?

16 A The term "operating system" appears in  
17 dependent claim 16 and 24 in the patent -- in the '080.

18 And so I have specifically interpreted  
19 "operating system" as it applies to the context of those  
20 claims.

21 Q And what are you referring to?

22 A Dependent claims 16 and 24 of the '080 patent,  
23 where the word "operating system" is part of the claim.

24 Q It's also in claim 1, right?

25 A Yes, it's in claim 1[b][ii].

1           Q     Did you interpret "operating system" in  
2     claim 1 any differently than "operating system" in  
3     claim 16?

4           A     No, I didn't.

5           Q     And how is it that -- excuse me. Let me try  
6     that again.

7                     How did you interpret "operating system" in  
8     connection with the claims of the '080 patent?

9           MR XU:  Objection. Asked and answered.

10          THE WITNESS:  The operating system must at  
11     least include the software that monitors demand. So  
12     that's the part of the operating system that's key to  
13     the -- to these claims.

14     BY MR. FAHMI:

15          Q     That's a requirement that's specified in  
16     claim 16, right?

17          A     It's in both claim 16 and in claim 1. And  
18     claim 24.

19          Q     Right. In claim 1, in particular, it says  
20     [reading]:

21                     The operating system to execute on  
22                     the multi-core processor is to  
23                     monitor a demand for the multi-core  
24                     processor and control the power  
25                     management hardware based on the

1 demand.

2 Correct?

3 A That's right. That's that element of claim 1.

4 Q So that's one of the requirements of the  
5 operating system, correct?

6 MR XU: Objection. Vague.

7 THE WITNESS: Yes, the operating system needs  
8 to be able to perform that function at least.

9 BY MR. FAHMI:

10 Q The term "operating system," though, did you  
11 give it any special meaning, other than it has to  
12 monitor the demand, as it's indicated here?

13 A No, I'm using "operating system" as it would  
14 have been understood by one of ordinary skill.

15 Q That's consistent with the understanding that  
16 you gave me a few minutes ago when we were discussing  
17 Mathieson; is that right?

18 A Yes. I gave you a very short description of  
19 some of the things an operating system normally does.

20 MR. FAHMI: Okay. Thanks, Dr. Horst. I don't  
21 have any other questions for you at this time.

22 THE WITNESS: Okay.

23 MR. LEWIS: Want to take a five-minute break?

24 MR XU: Sure.

25 MR. FAHMI: Yeah. Okay.

1 THE STENOGRAPHER: Okay. We're off the  
2 record.

3 (Recess taken from 9:49 a.m. to  
4 9:56 a.m.)

5 MR XU: No further questions from our end.

6 MR. FAHMI: Okay. Well, thank you again,  
7 Dr. Horst. I appreciate your time this morning. And  
8 that concludes today's deposition.

9 THE WITNESS: Thank you.

10 THE STENOGRAPHER: Just to clarify, I will be  
11 sending a rough to you, Mr. Fahmi.

12 And would you like a rough also, Mr. Xu?

13 MR XU: Yes.

14 THE STENOGRAPHER: And would you like an  
15 expedite?

16 MR. LEWIS: If we can get the rough today and  
17 the final on regular delivery.

18 THE STENOGRAPHER: Yes, that will be today,  
19 sure.

20 And Mr. Fahmi, you're getting this in two  
21 days, correct?

22 MR. FAHMI: Yes, please. We have a filing  
23 deadline.

24 THE STENOGRAPHER: Okay. Thank you very much.

25 MR. FAHMI: Thank you, Lori. I appreciate it.

1 Ken, thank you as well.

2 THE REMOTE TECHNICIAN: No problem.

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CERTIFICATE OF CERTIFIED SHORTHAND REPORTER

I, Lori Stokes, Certified Shorthand Reporter in and for the State of California, do hereby certify:

That ROBERT W. HORST, PhD, the witness whose deposition is hereinbefore set forth, was duly sworn by me before the commencement of such deposition, and that such deposition was taken before me and is a true record of the testimony given by such witness.

I further certify that the adverse party, Mercedes-Benz, was represented by counsel at the deposition.

I further certify that the deposition of ROBERT W. HORST, PhD, occurred virtually on Wednesday, May 1, 2024, commencing at 8:55 to 9:57 a.m. PT.

I further certify the inspection, reading and signing of said deposition was waived on the record by agreement of all parties.

I further certify that I am not related to any of the parties to this action by blood or marriage, I am not employed by or an attorney to any of the parties to this action, and that I am in no way interested, financially or otherwise, in the outcome of this matter.

1           IN WITNESS WHEREOF, I have hereunto set my hand  
2           this 1st day of May, 2024.

3           My license expires on October 1, 2024.

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*Lori Stokes*

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