

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

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INTEL CORPORATION,)

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Petitioner,)

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v.)

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PACT XPP SCHWEIZ AG,)

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Patent Owner.)
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HIGHLY CONFIDENTIAL ATTORNEYS' EYES ONLY
REMOTE VIDEOTAPED DEPOSITION OF
CARL SECHEN, Ph.D.
Richardson, Texas
Wednesday, November 18, 2020
Volume I

Reported by:
CHRIS TE SELLE
CSR No. 10836
Job No. 4319054

PAGES 1 - 81

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HIGHLY CONFIDENTIAL ATTORNEYS' EYES ONLY
Videorecorded Deposition of CARL SECHEN, Ph.D.,
Volume I, Richardson, Texas, taken remotely via
videoconference, beginning at 11:42 a.m. CST and
ending at 2:40 p.m. CST, on Wednesday, November 18,
2020, before Chris Te Selle, Certified Shorthand
Reporter No. 10836, present via videoconference.

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Richardson, Texas, Wednesday, November 18, 2020

11:42 a.m. CST

THE VIDEOGRAPHER: We are on the record. It's
11:42 a.m. Central Time on November 18, 2020. This
is the deposition of Dr. Carl Sechen. We're here in
the matter of PACT XPP versus Intel Corporation.
I'm John MacDonell, the videographer, with Veritext.
Before the reporter swears the witness, would
counsel please identify themselves, beginning with
Mr. Tung, please.

MR. TUNG: Mark Tung, from Quinn Emanuel, for
PACT XPP.

MS. MIKOSZ: Sarah Mikosz, with Kirkland &
Ellis, on behalf of Intel Corporation and the
witness, and I'm joined by my colleague Brandon
Brown.

CARL SECHEN, Ph.D.,
having stated to tell the truth under penalty of
perjury, was examined and testified as follows:

EXAMINATION

BY MR. TUNG:

Q. So, good morning.

1 phone, or text message, or any other chat 11:44:24
2 functionality?
3 A. I do not.
4 Q. Do you have any other windows open on the
5 screen, other than the deposition itself? 11:44:33
6 A. No.
7 Q. And do you have any papers or books or any
8 other materials in front of you?
9 A. Well, on this table, there's just copies
10 of my respective declarations for the '047 and '605 11:44:46
11 case, including the exhibits. They're unmarked.
12 They are completely unmarked, pristine as printed
13 out.
14 Q. So, aside from the declarations and
15 exhibits for the '605 and '047 patents, do you have 11:45:08
16 any other materials in front of you or in the room?
17 A. No.
18 Q. Have you been deposed before?
19 A. Yes, I have.
20 Q. How many times? 11:45:22
21 A. Something more than 30.
22 Q. So, I guess, let me just give you a few,
23 brief overview of the ground rules.
24 Have you been deposed remotely before?
25 A. Yes. 11:45:38

Page 7

1 Q. How many times? 11:45:39
2 A. Around five times.
3 Q. So, I think the key thing is to keep in
4 mind, I think the court reporter has already
5 mentioned, it's important for a clean record that we 11:45:52
6 wait for each other to finish our question and
7 answer, respectively, before we begin the next
8 question and answer.
9 Is that fair?
10 A. Yes. 11:46:07
11 Q. If at any time my question's unclear, feel
12 free to ask me to clarify, but, if you answer the
13 question, I'll assume you understood it.
14 Is that fair?
15 A. Okay. 11:46:19
16 Q. If you could answer my question yes or no,
17 please.
18 A. Yes.
19 Q. And if at any time you need a break, feel
20 free to ask for one, but, if there's a question 11:46:29
21 pending, if you could answer the question before we
22 take a break, is that fair?
23 A. Yes.
24 Q. Is there any reason that you can't give
25 full and complete and truthful testimony today? 11:46:41

Page 8

1 A. No. 11:46:43

2 Q. Are you on any medications or anything
3 that might affect your memory?

4 A. No.

5 Q. And we're here, as you mentioned, for the 11:46:52
6 declarations that you submitted in the inter partes
7 reviews for the '047 and the '605 patents; is that
8 right?

9 A. Yes.

10 (Exhibit 1 was marked for identification 11:47:06
11 by counsel.)

12 BY MR. TUNG:

13 Q. So, let me introduce the first exhibit. I
14 think it should be in the folder now. It's marked
15 as Exhibit 1. 11:48:03

16 A. Okay, let's see. Got to figure out how to
17 work this. Can I see this from the same screen, or
18 I have to --

19 Q. So, you should have a link to a folder. I
20 think it's called Exhibit Share. And the 11:48:18
21 depositions will, the exhibits will appear in that
22 folder after I introduce them, but you may have to
23 refresh the folder.

24 THE VIDEOGRAPHER: Pardon me one second,
25 doctor. You can resize your windows to put the 11:48:38

1 Exhibit Share on half your screen and Webex on the 11:48:42
2 other half, if you'd like to.

3 One last thing, Mr. Tung, would you move the
4 boom mike down just a hair. Thank you.

5 BY MR. TUNG: 11:49:15

6 Q. Let me know when it's appeared and you
7 have it up.

8 A. Okay, I have it there.

9 Q. So, this Exhibit 1 is Exhibit 1008 to the
10 '047 IPR. 11:49:43

11 Have you seen this before?

12 A. Yes.

13 Q. And I understand you have a paper copy in
14 front of you, so, feel free to refer to that, if
15 that's -- 11:49:56

16 A. Yeah.

17 Q. -- easier.

18 A. Might be easier. Let's see. Yeah.

19 Q. I have this as Exhibit 1008 to the '047
20 IPR, or Exhibit 1009 to the '605 patent. 11:50:20

21 A. Yeah, okay, I see a cross-reference
22 between exhibits and the tab numbers here. So, I
23 will pull that up so I can refer to it. Okay, yes.

24 Q. So this is U.S. Patent 6,141,762, and the
25 lead inventor is Christopher Nicol, do you see that? 11:50:54

1 block diagram of a multi-processor chip, right? 11:52:24

2 A. Generally, yes, again, with certain,

3 certain details, yes.

4 Q. So, let me focus first on figure 2.

5 A. Okay. 11:52:42

6 Q. If you turn to column 3 of Nicol --

7 A. All right.

8 Q. -- and do you see starting at line 10, it

9 talks about in the figure 10, or figure 2

10 arrangement? 11:52:59

11 A. Yes.

12 Q. And then if you see the rest of column 3,

13 going, can you enter column 4. This is a

14 description of the figure 2 arrangement, right?

15 A. Yes, it seems to be the case. 11:53:22

16 Q. In particular, I want to draw your

17 attention to a passage at the bottom of column 3.

18 This says at the very bottom, column 3, around line

19 66, it says, hence, the operating system of PE 100,

20 needs to ascertain the required completion time, 11:53:45

21 divide the collection of tasks as evenly as possible

22 in terms of needed processing time, consider the PE

23 with the tasks that require the most time to carry

24 out, and adjust the clock frequency to ensure that

25 the most heavily loaded PE carries out its assigned 11:54:03

1 tasks within the required completion time. 11:54:06
2 Do you see what I just read?
3 A. I do, yeah.
4 Q. And this is something that you cite and
5 quote in your declaration, right? 11:54:14
6 A. That's quite probably true.
7 Q. So, right now, you don't remember?
8 A. It probably is, but, if you show me a
9 specific place, I could certainly confirm it, or I
10 could search for a place where it is. 11:54:37
11 Q. Okay. So, do you have an understanding of
12 what that describes?
13 A. I believe so, yes.
14 Q. So, when it says, divide the collection of
15 tasks as evenly as possible in terms of needed 11:55:02
16 processing time, why is it important to divide the
17 tasks as evenly as possible?
18 A. Well, you would like to have the PEs to
19 complete their set of, their task or tasks at the
20 same time so that they can most efficiently pass 11:55:23
21 their data in a, to the subsequent processor,
22 insofar as one of the targets here is sequential
23 data processing.
24 Q. So, are the PEs operating at the same
25 frequency? 11:55:45

1 A. That's essentially true, yes. 11:57:37

2 Q. And so this is the lowest frequency that
3 the task would be complete in this embodiment,
4 right?

5 A. Yeah. The implication is that you would 11:57:49
6 fail to meet the required computation time if you
7 used a frequency any lower.

8 Q. Okay. So, if you look at column 3, and
9 you look at lines 33 to 37, and I'm going to read
10 the sentence I want to direct your attention to. 11:58:30
11 When the application is divided into two concurrent
12 tasks and assigned to two PEs that are designed to
13 operate at 140 megahertz from a 2.7-volt supply,
14 then the PEs can be operated at 70 megahertz and a
15 supply voltage of 1.8 volts. 11:58:53

16 Do you see where I'm reading?

17 A. Yes.

18 Q. This is an example describing two PEs,
19 right?

20 A. Well, it, two are going to be used. 11:59:07

21 Q. So, two are going to be used to handle
22 this particular task, right?

23 A. Yeah, these concurrent, two concurrent
24 tasks, yeah.

25 Q. And is the idea to take one, a task that 11:59:25

A. Yeah. It's basically an example of applying parallelism, since you're, two PEs are both, compute, each compute a result, and, and, say, half the results, and, therefore, since they only have to compute half the results, there will be, say, they'll require half the time, hence the frequency can be half. And, since the frequency can be that low, you can reduce the supply voltage, as well, and save quadratic power for that reason.

16	A. Yes.
----	---------

A. It wouldn't be as power efficient to do
that.

12:00:45

1 expect that the frequency and voltage would be 12:01:16
2 lower.

3 Q. So, if you can have two PEs running at
4 70 megahertz, you would do that rather than running
5 the two PEs at 140 megahertz, right? 12:01:24

6 A. Assuming the task can be parallelized,
7 i.e., run concurrently, then, yeah, you would like
8 to run it at a lower frequency and voltage, but, if
9 it, if they cannot be, even if you have two PEs, and
10 the task cannot be run concurrently, then you would 12:01:46
11 not be able to reduce the frequency and voltage.

12 Q. I wanted to turn to claim 1. This is in
13 column 7 of Exhibit 1. So, claim 1 starts around
14 line 24 and continues to about line 36. I wanted to
15 focus specifically on a particular limitation which 12:02:24
16 runs around the lines 30 through 32.

17 And the particular limitation is
18 determining a lowest frequency at which or above
19 which the subcircuit must operate in order to
20 complete execution of the assigned task within the 12:02:42
21 allotted time.

22 Do you see that?

23 A. Yes.

24 Q. And what is the lowest frequency being
25 described there? Is that the same frequency that we 12:02:54

1 discussed earlier about setting the frequency based 12:02:57
2 on the most heavily loaded PE?

3 MS. MIKOSZ: Objection. Form.

4 THE WITNESS: There, there is some relationship
5 there, but it, let's see, but claim 1 does not seem 12:03:14
6 to address multiple processors tied together with
7 the same voltage and frequency circuits, so I, it's
8 just really just saying that you want to run the
9 subcircuit at the lowest frequency that will
10 complete execution of the tasks within the allotted 12:03:56
11 time, or which is the required computation time from
12 before, I believe.

13 BY MR. TUNG:

14 Q. Okay. And so if you need to complete the
15 tasks within the required computation time, you 12:04:11
16 can't run it at a frequency below that, right?

17 A. Yeah. If you have accurately determined
18 the lowest frequency at which it can complete the
19 assigned tasks within the required time, then, yeah,
20 running it below that is a problem. 12:04:30

21 Q. And so this describes how to determine the
22 lowest operating frequency?

23 A. For a subcircuit, yes.

24 Q. And a subcircuit could include a single
25 PE? 12:04:56

1 of column 5 refers really to the figure 4 12:06:15
2 embodiment, right?

3 A. Yeah, it does say that.

4 Q. So, in this case, the lowest operating
5 frequency would be the frequency at which a task 12:06:27
6 could be completed within the allotted time, right?

7 A. Presumably so. It certainly gives you
8 that capability.

9 (Exhibit 2 was marked for identification
10 by counsel.) 12:08:12

11 BY MR. TUNG:

12 Q. So, I wanted to, let me just introduce the
13 exhibit, just so you can start looking at the paper
14 exhibit. I want to introduce your, well, the '047
15 declaration, but, let me introduce the exhibit. 12:07:14

16 I believe this is now in the folder,
17 Exhibit 2.

18 A. Yes. Let's see. Well, I think 1 for the
19 '047, or Exhibit 1001, yeah.

20 Q. Sorry. Let me clear my notation. 12:08:25
21 Exhibit 2 to this deposition is Exhibit 1001, your
22 declaration for the '047 patent; is that right?

23 A. Okay, yes, I see what you're saying.

24 Q. And if you could open Exhibit 2 to this
25 deposition and just confirm that that's correct. 12:08:45

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1 A. Yes. 12:08:53

2 Q. If you could turn to paragraph 100, this
3 is on page 36 of exhibit, of your declaration, which
4 is Exhibit 2.

5 A. Okay. 12:09:05

6 Q. And to be clear, I'm referring to the
7 pagination on the page, not the PDF. So, if you'd
8 just look at the numbers that are written at the
9 bottom of the pages.

10 A. Yes. 12:09:17

11 Q. And paragraph 100 is a annotated version
12 of figure 3.

13 Do you see that?

14 A. Yes.

15 Q. And the annotations you added are the 12:09:28
16 labeling of the voltages and the frequencies,
17 correct?

18 A. Right. It's labeled in accordance with
19 the language in the specification of Nicol.

20 Q. And so you labeled the 70 megahertz and 12:09:48
21 the 440 megahertz based on what's described in the
22 specification of Nicol?

23 A. Yes.

24 Q. And these are the same frequencies that we
25 just discussed in the context of the example with 12:10:01

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1 figure 2; is that right? 12:10:04

2 A. I believe that's for that, yeah, that is

3 for that embodiment.

4 Q. Okay, so, just to be clear, you're saying

5 that for that embodiment, meaning the figure 2 12:10:27

6 embodiment?

7 A. Yes.

8 Q. And in figure 3, the, is the horizontal

9 axis time?

10 A. Essentially, yes. 12:10:48

11 Q. And so what it's showing for the frequency

12 is how the frequency changes over time; is that

13 right?

14 A. Yeah, but with a, yeah, with a emphasis on

15 when tasks were created, started, or ended. 12:11:02

16 Q. And there's only one frequency shown in

17 figure 3, right?

18 A. Well, I would say a lot more than that.

19 Q. Let me rephrase the question.

20 There's, there's only one, the frequency 12:11:21

21 shown in figure 3 is the frequency of all the PEs in

22 figure 2.

23 A. Well, yeah, I think figure 3 is highly

24 applicable to other embodiments, but it, as, you

25 know, certainly, figure 2, as well. 12:11:48

Page 22

1 Q. In other words, it shows that there's a 12:11:53
2 single line, solid line depicting how the frequency
3 changes with time, right?

4 A. Yes.

5 Q. It doesn't show different frequencies for 12:12:03
6 each individual PE, right?

7 A. But it's clear that other embodiments
8 would have this type of trajectory for frequency and
9 voltage for individual or groups of processors.

10 Q. In that case, you would have multiple 12:12:23
11 lines on the plot, right?

12 A. Certainly, yeah, different lines for
13 different processors, or groups of processors, yes.

14 Q. And that's not depicted on figure 3,
15 right? 12:12:37

16 A. Right. Not all embodiments are, have
17 graphics in this patent.

18 Q. Right. So, figure 3 is depicting the
19 embodiment in figure 2, right?

20 A. I don't believe it's, a POSITA would not 12:12:53
21 think that it applies only to figure 2.

22 Q. But that's, it depicts the embodiment in
23 figure 2, right?

24 A. Among others.

25 Q. Let me turn to column 2, line 50. 12:13:16

1 So, this is the beginning -- I'm sorry. 12:13:30
2 This is, I'm going back to Exhibit 1, which is
3 Nicol.
4 A. Yes.
5 Q. And looking at column 2, line 50. This is 12:13:36
6 the beginning of the detailed description.
7 A. Yes.
8 Q. This is the sentence that starts, figure 2
9 depicts a block diagram of a multi-processor chip
10 that contains processing elements, PEs, 100, 101, 12:13:50
11 102, 103, dot, dot, dot, 104, and each PE contains a
12 central processing unit, CPU, and a local cache
13 memory, not shown.
14 Do you see that?
15 A. I do. 12:14:08
16 Q. This is a description of the PEs in figure
17 2, right?
18 A. Yes.
19 Q. And the PEs are described as having a CPU
20 and a local cache memory, right? 12:14:21
21 A. Yes.
22 Q. And that's the only structure depicted,
23 described for the PEs, right?
24 A. The only structure described. I'd have
25 to -- so, do you mean is that the only structure 12:14:49

1 described in the specification, the text of the 12:15:22
2 specification? Because, certainly, the figure has
3 other structure.

4 Q. So, I'm talking about the structure for
5 the PE, right, the processing element. And I'm not 12:15:33
6 talking about the structure for the entire --

7 A. Okay.

8 Q. -- entire system.

9 A. Okay, all right, yeah. A PE, among other
10 things, contains a CPU and a local cache, that's 12:15:47
11 correct.

12 Q. What other things are described in the
13 specification about what the PE contains?

14 A. You know, certainly, a POSITA would have
15 ideas about things that are, would be included, 12:16:08
16 whether it's bus connections, or additional
17 registers, or other memories, and so forth.

18 Q. So, which bus connections are you talking
19 about?

20 A. Well, normally, there has to be a means by 12:16:30
21 which a CPU can communicate with local memory and,
22 for that matter, with off chip memory, and there
23 needs to be some means for that, and that means
24 would be some type of bus.

25 Q. So, you expect there would be a bus 12:16:48

1 structure within the PE? 12:16:50

2 A. Between the PEs, you would expect, and

3 between the PEs and other elements of the

4 multi-processor chip.

5 Q. Yeah, but I'm talking specifically about 12:17:04

6 the PE, the box that's depicted in figure 2.

7 Are you expecting additional structure

8 within the box?

9 A. There may well be, yes.

10 Q. And what structure are you expecting? 12:17:18

11 A. Well, I said there may be bus connections,

12 there could be additional registers or other forms

13 of memory. All those are possibilities.

14 Q. And those would all be within the PE box?

15 A. Yes, it's certainly possible. 12:17:39

16 Q. So, you expect buses and registers and

17 perhaps other memory elements.

18 Anything else?

19 A. Well, I said bus connections, to be clear,

20 but that's what comes to mind right now. I might, 12:17:53

21 you know, I could give a more complete answer if I

22 go and research typical PEs in more detail.

23 Q. But those bus connections are not

24 described in this specification of Nicol, right?

25 A. Well, there's, the diagram by no means 12:18:16

1 includes all, all structure needed for a 12:18:20
2 multi-processor chip. And, you know, there is some,
3 let's see, for example, there's, the means by which
4 the PE 100 receives the clock is not depicted, and
5 of course it's not functional without a clock, so, 12:18:56
6 obviously, that is there, it's just not depicted.

7 Q. So, in other words, you think there's also
8 within the PE box a mechanism to receive a clock
9 signal?

10 A. Yes. 12:19:18

11 Q. Is there anything else?

12 A. Nothing comes to mind right now, but there
13 may well be.

14 Q. Okay. Can you also look at figure 4 and
15 see if anything else comes to mind. 12:19:41

16 A. What was the question, again?

17 Q. So the question is, so, Nicol describes
18 the PE in column 2, lines 50 to 53, as containing a
19 CPU and a local cache memory.

20 And then you describe that it would, 12:20:09
21 additionally, a PE would have bus connections,
22 registers, and perhaps other memory elements, as
23 well as a mechanism to receive a clock.

24 I wanted to ask if there's anything else
25 you think a PE would, PE box would include, and 12:20:26

1 directed your attention to figure 4. 12:20:33

2 A. Well, first of all, I listed those as
3 possibilities. I think when you, what you just
4 said, said that those were all included, and that's
5 not what I said. They, all of those things could 12:20:45
6 possibly be included, as a POSITA would be aware.

7 But, also, this language that I'm looking
8 at in column 2, line 50, and going from there, does
9 not describe 54, figure 4, and so it's, let's see,
10 so, well, if we make the assumption that the PEs in 12:21:17
11 figure 4 also have a central processing unit, at
12 least, and a local cache memory, if we make that
13 assumption, you know, there you would see that
14 indeed there are bus connections, and things like
15 level converter connections, which may be related to 12:21:41
16 bus connections, but, in any event, there's those
17 elements that are there that would be part of the
18 PE.

19 Q. So, I'm sorry, which connections to a bus
20 in figure 4 are you pointing to? 12:22:03

21 A. There's the arrow emanating from the left
22 of each of the three PEs in a row, and those go --
23 hold on. Oh, wait a minute. Yeah, that's right.
24 That's correct. Those go to the bus and are a part
25 of the bus structure. 12:22:32

1 Q. Sorry, which, which line or box are you 12:22:37
2 calling a bus?

3 A. 160, in particular, and then there's
4 vertical lines emanating up from it which are
5 necessarily bus connections, as well, bus-type 12:22:53
6 connections, insofar as a bus is a parallel set of
7 wires.

8 Q. So, I want to focus on the structure
9 within the PE box. These are other structures
10 depicted in figure 4, right, that are not in the PE 12:23:10
11 box?

12 A. The bus connections are a part of the PE,
13 you know, the ability to connect to the bus, there
14 will be IOs of a certain width that are part of the
15 PE. 12:23:26

16 Q. But those aren't described in the
17 specification of Nicol, right?

18 A. They're in figure 4.

19 Q. The bus connections inside the PE box?

20 A. Yeah, they're implicitly there, without a 12:23:44
21 doubt.

22 Q. They're not explicitly there, right?

23 A. Well, they're there, so, whatever that
24 means.

25 Q. Well, they're not explicitly shown, are 12:23:59

1 they? 12:24:01

2 A. Well, I would disagree, actually. I would
3 say that they're, the arrows going in there mean
4 that there's a bus connection there, so, it's, it's
5 shown. 12:24:12

6 Q. So, you're saying there is described
7 explicitly in Nicol a bus structure inside the PE
8 box.

9 MS. MIKOSZ: Objection. Form.

10 THE WITNESS: Bus connectivity is shown as part 12:24:26
11 of the PEs in figure 4.

12 BY MR. TUNG:

13 Q. That's not what I asked. I said, is a
14 structure inside the PE box shown with bus
15 connections in figure 4. 12:24:40

16 A. I'm going to stick with my answer that the
17 bus connections are shown as part of the PE in
18 figure 4, including connections through the PLL.
19 That's part of the PE, as well, and connections to
20 the voltage supply. 12:25:02

21 Q. So, you think that the PEs depicted in
22 figure 4 are different than the PEs depicted in
23 figure 2.

24 MS. MIKOSZ: Objection. Form.

25 THE WITNESS: The bus structure is not shown in 12:25:25

1 figure 2. The actual bus is not shown in figure 2, 12:25:34
2 and so, so, to that extent, you know, it's, you
3 can't visually see the bus connectivity as part of
4 the PEs, although it's implicitly there, because,
5 like I said, I don't see how figure 2 could be used 12:25:54
6 without a bus.

7 And, but they, the PEs in figure 2 have
8 structure to receive the PLL output, as well as the
9 voltage output, and that interface would be part of
10 the PE. 12:26:20

11 BY MR. TUNG:

12 Q. So, you think that the PEs in figure 2 are
13 the same as the PEs in figure 4?

14 A. In a general sense, yes.

15 Q. So, let me go back to the specification. 12:26:50
16 I'm still on Exhibit 1. So, starting at the bottom
17 of column 5, I think I'd already read the sentence
18 that started right at the very bottom that starts
19 with, a separate power supply for each PE in a chip,
20 do you see where I'm pointing to? 12:27:11

21 A. Yes.

22 Q. And this continues into column 6. This
23 passage describes the figure 4 embodiment in Nicol,
24 right?

25 A. It's certainly relevant to figure 4, yes. 12:27:33

1 Q. And in the figure 4 embodiment, where -- 12:27:38
2 let me start over.

3 The figure 4 embodiment is not intended to
4 cover the case of concurrent evenly loaded threads,
5 right? 12:27:58

6 MS. MIKOSZ: Objection. Form.

7 THE WITNESS: No, I would not agree with that.

8 BY MR. TUNG:

9 Q. If you look at column 5, do you see the
10 sentence starting around line 55, it says, the 12:28:13
11 benefit, it should start with 53, actually, the
12 notion of adjusting operating frequency to load and
13 adjusting supply voltage to track the operating
14 frequency can be extended to allow each PE to have
15 its own supply voltage. The benefit of this 12:28:34
16 approach from some applications becomes apparent
17 when it is realized that the chip-wise voltage
18 scaling is most effective when the load of the
19 computation can be evenly distributed across all the
20 PEs. 12:28:48

21 In some applications, however, one may
22 encounter tasks that cannot be partitioned into
23 concurrent, evenly loaded threads, and therefore
24 some PE within the multi-processor would require a
25 higher operating frequency and a higher operating 12:29:00

1 voltage. 12:29:03
2 Do you see that?
3 A. Yes.
4 Q. And so figure 4 deals with the case when
5 you cannot partition the tasks into concurrent 12:29:07
6 evenly loaded threads, right?
7 A. Yes.
8 Q. That's what Nicol discloses, right?
9 A. It's talking about that possibility, but,
10 in general, there's a, various numbers of tasks, and 12:29:28
11 some can be partitioned evenly, or into even, into
12 equal parts, and some cannot.
13 Q. And figure 4 allows you to handle the
14 cases when it cannot, right?
15 A. That's, that's basically right, when they 12:29:56
16 cannot be, yes.
17 Q. I wanted to turn in your Exhibit 2, which
18 is your '047 declaration, paragraph 274.
19 A. 270?
20 Q. Sorry. 274. 12:30:15
21 A. 274. Uh-huh, yes.
22 Q. Sorry, paragraph 274.
23 A. Yes.
24 Q. So, just let me know when you have it.
25 A. I am there. 12:30:27

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1 Q. So, in this paragraph, you have a citation 12:30:33
2 to Nicol, which is column 5, lines 43 to 45.

3 A. Yes.

4 Q. The citation, and I'm reading the quote
5 from your paragraph 24, says, the operating system 12:30:50
6 employs gated clocking techniques to shut down PEs
7 that are not needed.

8 Do you see where I just read?

9 A. Yes.

10 Q. And that's, that's a quote from the Nicol 12:31:07
11 Exhibit 1 reference, right?

12 A. Yes.

13 Q. And when you, you highlight, you bold and
14 italicize the word, shutdown, there.

15 When you, what is your understanding of 12:31:28
16 shutdown, in terms of power consumption?

17 A. Well, it means shutdown means to set the
18 clock frequency to zero, and so that will, means
19 that the power consumption will also go to zero.
20 Sub, that, dynamic power consumption. Of course, 12:31:51
21 there's leakage power, there's static power, means
22 that are not eliminated unless you also turn off the
23 voltage supply.

24 Q. So, when you say dynamic power consumption
25 goes to zero, you mean that the clock frequency is 12:32:07

1 set to zero? 12:32:10

2 A. Well, the quote here, I believe, is saying
3 it employs gated clocking techniques, yes, gated
4 clocking techniques, and so you're passing the clock
5 through, for example, an AND gate, and you have an 12:32:29
6 enable single, and, if enable is zero, the output of
7 the AND is zero, so the clock frequency becomes
8 zero, and dynamic power is $CVDD^2 F$, F is
9 zero, so, dynamic power is zero.

10 Q. And that's because the frequency is zero? 12:32:51

11 A. Yes.

12 Q. For a system such as Nicol, is the dynamic
13 power, in general, larger than the leakage power
14 that you've described?

15 A. Back at the priority date of these patents 12:33:21
16 at issue today, the dynamic power was likely
17 dominant. Today, and today's technology, that's a
18 little bit less clear.

19 Q. But you performed your analysis as of the
20 time of Nicol, right? 12:33:47

21 A. Yes.

22 Q. You didn't consider today's standards when
23 you reviewed and interpreted Nicol, right?

24 A. In general, that was my approach, yes.

25 Q. Was there an exception to that? 12:34:12

1 POSITA is well aware of the temperature limits for 12:37:14
2 the chips they're designing.

3 Q. But, you don't have any other disclosure
4 in Nicol that you can point to about a temperature
5 threshold? 12:37:28

6 A. Other than what would be obvious to a
7 POSITA, I don't think there's anything else.

8 (Exhibit 3 was marked for identification
9 by counsel.)

10 BY MR. TUNG:

11 Q. So, I introduced Exhibit 3, and let me
12 just describe Exhibit 3. Exhibit 3 is labeled
13 Exhibit 1001, and it's your declaration to the '605
14 patent. Take a look at Exhibit 3 and confirm that.

15 A. Okay. Okay, I am there. 12:38:10

16 Q. Okay. So, is Exhibit 3 your declaration
17 for the '605 patent?

18 A. Yes.

19 Q. If you could turn to paragraph 127.

20 A. Yes. 12:38:58

21 Q. The first sentence says, further, Nicol is
22 focused on minimizing power consumption without
23 discussing overtemperature protection.

24 Do you stand by that statement?

25 A. I said a POSITA would be well aware of the 12:39:16

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1 need and how to implement overtemperature 12:39:19
2 protection, so, you know, my statement is fine. All
3 my statements are fine.

4 Q. So, is the answer, yes, you stand by the
5 statement in paragraph 127? 12:39:38

6 A. Yeah. Nicol does not, outside of making
7 it clear that a POSITA would be aware of it, it does
8 not otherwise discuss it.

9 Q. So, you stand by your statement in
10 paragraph 127? 12:40:04

11 A. I do.

12 Q. So, let me turn to Exhibit 1, column 6.

13 A. So are we -- Exhibit 1?

14 Q. So sorry. That's the Nicol reference.

15 If I don't say otherwise, the exhibit 12:40:36
16 numbers are the exhibit numbers for the deposition.

17 A. Yeah.

18 Q. I understand it's confusing.

19 A. But are we going to stick to the '047 for
20 awhile, or go back to it, or, either way? 12:40:48

21 Q. So, right now, I'm going back to the Nicol
22 reference, so it's not specific to one or, one,
23 either one of your declarations.

24 A. Okay.

25 Q. I understand this deposition covers both 12:41:05

1 of them, and, since both discuss the same reference, 12:41:07
2 I thought it was more efficient to ask you questions
3 about the reference directly.

4 So you have Exhibit 1, Nicol, in front of
5 you? 12:41:18

6 A. I do, yeah.

7 Q. So, if you could turn to column 6.

8 A. Yes.

9 Q. If you look at line 17 and 18, there's one
10 particular phrase that I want to focus on. It says, 12:41:47
11 there is an issue of synchronization that must be
12 addressed.

13 Do you see that?

14 A. Yes.

15 Q. It's probably lines 17 and 18 of column 6. 12:42:00

16 A. Okay.

17 Q. And then the next paragraph, starting
18 around line 29, it says, to effect such
19 synchronization, each PE within the figure 4
20 arrangement is connection to an arrangement 12:42:22
21 comprising elements 150 and 160. Level converter
22 150 converts the variable voltage swings of the PEs
23 to a fixed level swing in network 160 resolved the
24 issue of different clock domains.

25 Do you see where I'm reading? 12:42:39

1 A. Yes. 12:42:40

2 Q. And so Nicol describes the use of a level
3 converter 150 in a network 160 to address the issue
4 of synchronization, right?

5 A. Yeah, it uses those two things to aid in 12:42:59
6 synchronization, yeah.

7 Q. And the, the asynchronous communication
8 network 160 is depicted in figure 4, right?

9 A. It is in figure 4.

10 Q. And it is not depicted in figure 2, right? 12:43:19

11 A. The bus structure for figure 2 is not
12 shown or described, so, it could be the same, but
13 it's not clear.

14 Q. So, it doesn't depict the asynchronous
15 communication network 160 in figure 2. 12:43:42

16 A. Yeah. I mean, it wouldn't need the level
17 converter, most likely, because the PEs are at the
18 same voltage and same frequency, so, if, if the, if
19 the bus is running at a, the same frequency as the
20 PEs, you could avoid the need for an asynchronous 12:44:10
21 style bus.

22 Q. So, I want to come back to your '047
23 declaration. This would be the Exhibit 2.

24 A. Yes.

25 Q. And I wanted to turn to page 46. 12:44:47

1 Q. And then in 135, you describe the 12:46:38
2 asynchronous communication networks, right?

3 A. Yes.

4 Q. Okay, I think this is a good time to take
5 a short break. 12:46:59

6 A. Okay.

7 THE VIDEOGRAPHER: We're off the record. It's
8 12:47 p.m. Central Time.

9 (Recess: 12:47 p.m. to 12:58 p.m. CST)

10 THE VIDEOGRAPHER: We're back on the record. 12:48:42
11 It's 12:58 p.m. Central Time.

12 BY MR. TUNG:

13 Q. Welcome back.

14 A. Yes, thank you.

15 Q. So, if you could turn to Exhibit 3, which 12:58:44
16 is your '605 declaration, '605 patent declaration.

17 A. Okay.

18 Q. And if you could go to page 17, there's a
19 section that's entitled sequential data processing.

20 A. Yes, I see it. 12:59:08

21 Q. And you see in paragraph 55, you describe
22 two types of processors with particular importance
23 and relevance to the '605 patent are general purpose
24 processors and sequential data processors.

25 Do you see that? 12:59:26

1 certainly happen, so, so it just means that in 01:00:53
2 parallel processing, not all the processors are
3 behaving as sequential data processors. Some are
4 just doing things in parallel.

5 Q. But your purpose is to contrast two 01:01:10
6 different modes of operation, right, the parallel
7 processing and the sequential data processing?

8 A. But I'm, but there are, I would say there
9 are sequential data processors that also do employ
10 some parallelism, but, certainly, but, if you, if 01:01:30
11 you consider that all the processors, you know, the
12 whole set are operating in parallel, that would not
13 be an example of sequential data processing.

14 Q. If you could turn to, in the same
15 declaration, in the same declaration, but, paragraph 01:01:55
16 159.

17 A. Okay.

18 Q. So, 159 is a paragraph that describes a
19 figure that's shown below in paragraph 160.

20 A. Yes. 01:02:26

21 Q. And it describes Kung's figure 1, and also
22 it refers to Hayes textbook, do you see that?

23 A. Yes.

24 Q. In the first sentence, you say that Kung's
25 figure 1, below, illustrates PEs are arranged in a 01:02:51

1 systolic array, and pass data from one PE to the 01:02:54
2 next, with each PE performing a separate, separate
3 operation on the received data.

4 Do you see that?

5 A. Yeah. 01:03:02

6 Q. And then if you go to paragraph 160,
7 focusing on the bottom half of that figure, you see
8 several boxes of PEs, right?

9 A. Yes.

10 Q. And in those PEs, the data is passed from 01:03:17
11 one PE to the next, right?

12 A. Yeah, that's true.

13 Q. And then in going back to paragraph 159,
14 in Hayes textbook, you say that data words flow
15 synchronously from cell to cell, with each cell 01:03:36
16 performing a small step in the overall operation,
17 right? That's also describing the same process?

18 A. Yeah, essentially true, yeah.

19 Q. If you go to paragraph 154 and 155.

20 A. Okay. 01:04:08

21 Q. So, in 154, there's a figure, do you see
22 that?

23 A. Yeah.

24 Q. And then 155 also describes DSP
25 applications typically involve complex operations 01:04:27

1 performed in a pipeline fashion, and which results 01:04:30
2 from one PE passed to another PE of the pipeline for
3 further processing.

4 That's a description of the same process,
5 right? 01:04:40

6 A. Yeah, I mean, I guess both, I mean, you
7 could argue that a systolic array is similar to a
8 pipeline.

9 Q. So I wanted to direct your attention also
10 to the figure in paragraph 153. 01:05:08

11 A. Okay.

12 Q. And do you see in a box that's labeled CPU
13 in that figure, there are two boxes within it?

14 A. Yes.

15 Q. One labeled microprocessor and another 01:05:23
16 labeled floating point coprocessor?

17 A. Yes.

18 Q. Those arrows between those two boxes
19 indicate communication between the microprocessor
20 and the floating point coprocessor, right? 01:05:39

21 A. Well, there's various means of
22 communication. There's also a bus between those
23 units, and the coprocessor can communicate with main
24 memory, as well, also with the IO interfaces, so,
25 there's various means of communications shown there. 01:05:58

1 Q. But those two arrows indicate 01:06:01
2 communication between the microprocessor and the
3 floating point coprocessor, right?

4 MS. MIKOSZ: Objection. Form.

5 THE WITNESS: Not, not -- it's only a part of 01:06:09
6 the communication means.

7 (Exhibit 4 was marked for identification
8 by counsel.)

9 BY MR. TUNG:

10 Q. Okay. So, I'm going to upload the next 01:06:23
11 exhibit, so, this should be Exhibit 4. It should be
12 in the folder now. It's U.S. Patent 6,535,798, and
13 the lead inventor is Rakesh Bahtia. Just let me
14 know when you've had a chance to view it.

15 A. Yeah, I do see it here. 01:07:18

16 Q. And it's also Exhibit 1011 to the '047,
17 and it's, sorry, 1009 to the '047. Sorry, I had the
18 wrong number.

19 A. Yes.

20 Q. And this is, Exhibit 4 is one of the 01:07:40
21 references you reviewed to prepare your
22 declarations, right?

23 A. Yes.

24 Q. And if I refer to Exhibit 4 as Bhatia,
25 will you understand what I'm referring to? 01:07:52

1 Q. And so if you look, it cites to column 4, 01:11:23
2 16 to 21.

3 Do you see that?

4 A. Yeah.

5 Q. And so this is a reference to the stop 01:11:34
6 grant state in the, or the C2 state in the ACPI
7 specification; is that right?

8 A. 16. Let me make sure, but I believe
9 that's right. Yeah, that's right.

10 Q. And then here you also in the same 01:12:12
11 paragraph, in the '047 declaration, you also say
12 that Bhatia also teaches placing an inactive
13 processor into a low activity state, such as the C3
14 state defined under the ACPI specification, whereby
15 the external clock BCLK to the processor is disabled 01:12:30
16 so that no activity is performed by the processor
17 except maintenance of the stored data in the
18 processor's internal cache.

19 Do you see that?

20 A. Yeah. 01:12:43

21 Q. So, this is now a reference to the C3
22 state, right?

23 A. It is.

24 Q. And here the citation is to Bhatia, column
25 12, 58 to 64. 01:12:53

1 A. Yeah, that's correct. 01:13:08

2 Q. If you look at column 12, 58 to 64 of
3 Bhatia, which I introduced as Exhibit 4, this says
4 that next the power management module places at 126
5 the processor 12 into a low activity state, e.g., 01:13:26
6 deep sleep, stop grant, C1, C2, or C3 state.

7 A. Okay.

8 Q. Do you see that?

9 A. Yes.

10 Q. And so I want to clarify what you mean 01:13:41
11 here when you refer to both the C2 and the C3 state.

12 Are you referring to both the deep sleep
13 and the stop grant states?

14 A. My recollection was that the C2 state is
15 also referred to as the stop grant, but I can, I 01:14:12
16 should have the, well, let's see. I don't know if I
17 have the ACPI document with me or not. I possibly
18 don't, unless it's, let's see.

19 Q. If I could help you out, I think in
20 Bhatia, that same column, 12, in the same paragraph, 01:14:36
21 starting at line 60, it says, in the deep sleep
22 state, which may be the C3 state defined under the
23 ACPI specification, the external clock BCLK to the
24 processor is disabled so that no activity is
25 performed by the processor except maintenance of the 01:14:56

1 stored data in the processor's internal cache. 01:14:59

2 In the stop grant or C2 state, the
3 processor performs minimal activity, such as
4 snooping for an internal cache line hit to maintain
5 cache coherency. 01:15:11

6 A. Right, yeah, that's in accordance with my
7 recollection, so, yeah.

8 Q. And so your recollection is the C3 state
9 is the deep sleep state, and the C2 state is the
10 stop grant state? 01:15:22

11 A. Yes.

12 Q. And you refer to both of those in your
13 '047 declaration in paragraph 279?

14 A. I refer to both of those.

15 Q. Okay. And this is in a section for 01:15:33
16 dependent claim 14, right?

17 A. It is, yeah.

18 Q. And dependent claim 14 talks about while
19 plurality of other data processing units are
20 deactivated, right? 01:15:52

21 A. Yes.

22 Q. So, are you identifying both C2 and C3
23 states as examples where data processing units are
24 deactivated?

25 A. Yeah. I would say if the clock is not 01:16:43

1 running for a processor that would be terming it 01:16:45
2 deactivated makes good sense, yes.

3 Q. Okay. And in paragraph 274, you also
4 refer to Nicol. You say, Nicol discloses that its
5 operating system employs gated clocking techniques 01:17:06
6 to shut down PEs that are not needed.

7 Is this another example you're identifying
8 as where data processing units are deactivated?

9 A. It is.

10 Q. And is it due to the same criteria, are 01:17:19
11 you saying, because the clock is stopped?

12 A. Yeah. Gated clock means that if you, that
13 the, if the clock is not enabled, say, by means of
14 an AND gate, its frequency is zero, so, yes.

15 Q. And when you say, clock is stopped, is 01:17:36
16 that the same as saying the clock frequency is zero?

17 A. Yes.

18 Q. So, I wanted to go back to Exhibit 3,
19 which is your '605 declaration.

20 A. Okay. 01:18:09

21 Q. Actually, before I do that, I just wanted
22 to confirm, so, in both the C2 and the C3 states,
23 you're saying that the clock frequency goes to zero;
24 is that right?

25 MS. MIKOSZ: Objection. Form. 01:18:33

1 THE WITNESS: Well, I mean, the C2 state is, it 01:18:37
2 says that the clock of the processor is stopped, so
3 I would define that as frequency equals zero. And
4 then, and then for the C3 state, it says the
5 external clock, B clock, is disabled. 01:18:55

6 So, you know, a disabled clock has zero
7 frequency, so, yeah, I would therefore conclude that
8 the two, the C3 and C2 state both have a clock
9 frequency of zero.

10 BY MR. TUNG: 01:19:15

11 Q. And so something like a clock running at
12 70 megahertz would not qualify as a deactivated data
13 processing unit, right?

14 MS. MIKOSZ: Objection. Form.

15 THE WITNESS: Yeah, I mean, it's certainly a 01:19:35
16 frequency that's defined, like, 70 megahertz is not
17 zero, so it's, yeah, probably not, and, most likely,
18 I mean, it depends on where you're referring to, but
19 I probably wouldn't refer to that as deactivated.

20 BY MR. TUNG: 01:19:57

21 Q. Okay. So, I wanted to go to Exhibit 3,
22 which is your '605 declaration, and if you could
23 turn to page 35, and this is a section called
24 background on DeHon.

25 A. Yes. 01:20:31

1 Q. So, if you look at the next page, page 36, 01:20:36
2 there's paragraphs 110 and 111.

3 A. Yes.

4 Q. And so 110 is a figure. That's a figure
5 from DeHon, right? 01:20:53

6 A. Yes, it is.

7 Q. And in this figure, you've actually
8 colored it, colored portions of it, right?

9 A. Yes.

10 Q. One portion of it you colored blue, and 01:21:04
11 you called it, in 111, you described it as a
12 programmable gate array.

13 Do you see that?

14 A. Yeah.

15 Q. And then on the, next page, on page 37, 01:21:17
16 paragraph 113, you say that, for example, the
17 operating system application specialized a
18 configurable array to serve as a coprocessor for
19 compute intensive functions.

20 Do you see that? 01:21:42

21 A. Yes.

22 Q. And when you refer to the configurable
23 array to serve as a coprocessor, that is the, the
24 section in blue, right, the programmable gate array?

25 A. That's right. 01:21:59

1 Q. If you could turn to paragraph 235 in your 01:22:05
2 '605 declaration.

3 A. All right.

4 Q. Okay. This section talks about combining
5 Nicol with DeHon. 01:22:34

6 Do you see that?

7 A. Yeah.

8 Q. And, specifically, when you get to
9 paragraph 237, you propose that a POSITA would have
10 known that Nicol's PEs could be reconfigurable. It 01:22:49
11 would have thus been obvious to a POSITA to replace
12 each of Nicol's PEs with DeHon's reconfigurable
13 microprocessor chip.

14 Do you see that?

15 A. Yes. 01:23:02

16 Q. So, in this proposal, you are proposing
17 where Nicol is not on a single chip, right?

18 A. Yeah, that's, that's the basic proposal.
19 I mean, it, one could also integrate the whole
20 thing, but, yeah. 01:23:25

21 Q. And in this proposal, you propose
22 replacing each of the PEs in Nicol with, with the
23 chip in DeHon, right?

24 A. Yes.

25 Q. And so you're proposing a multiple chip 01:23:41

1 system, right? 01:23:45

2 MS. MIKOSZ: Objection. Form.

3 THE WITNESS: That's this embodiment, but a

4 POSITA would understand that you can clearly

5 integrate the whole thing on one chip, too. 01:23:54

6 BY MR. TUNG:

7 Q. And you are arguing that a POSITA in the

8 2001 time frame could do, would know that?

9 A. Yes.

10 Q. You agree that a multi-chip system is 01:24:09

11 bigger than a single chip system?

12 A. So, you mean in terms of some measure of

13 area?

14 Q. That's right. Physical size.

15 A. Yeah. 01:24:31

16 Q. If you could turn to paragraph 253, in the

17 same declaration, so, this is a section also

18 describing DeHon.

19 A. Yes.

20 Q. So, this says, in my opinion, a POSITA 01:24:54

21 would have known that the DeHon reconfigurable PEs

22 can be configured to sequentially process data in a

23 manner similar to the well-known systolic

24 architecture.

25 Do you see where I'm reading? 01:25:10

1 A. Well, a systolic architecture forms, in 01:27:17
2 effect, from processing elements passing data from
3 one to the next to the next and so forth, and Nicol
4 is configured to do that.

5 And, Nicol's PEs replaced with DeHon's 01:27:32
6 processors can also, is also configured to
7 sequentially process data in the manner of a
8 systolic array.

9 (Exhibit 5 was marked for identification
10 by counsel.) 01:29:09

11 BY MR. TUNG:

12 Q. Okay, let me introduce the next exhibit.
13 It's still loading. This is Exhibit 5. It is U.S.
14 Patent Number 6,367,023, and the lead inventor is
15 Ralph M. Kling. Let me know when you've -- 01:28:56

16 A. Okay.

17 Q. -- gotten Exhibit 5. This should be in
18 the '605 patent --

19 A. Yeah.

20 Q. -- Exhibit 1010. 01:30:08

21 A. Here we go. Well, I guess it's not in my
22 binder. Oh, no, it is. Tab 7, that's it. Sorry,
23 my bad. Okay, I have it.

24 Q. Okay. So, can you confirm Exhibit 5 is
25 the Kling reference which you also refer to in your 01:30:40

1 '605 declaration? 01:30:44

2 A. Yes.

3 Q. And the Kling reference relates to

4 computer systems and limiting the power consumed in

5 a computer system by throttling the power, right? 01:30:57

6 A. Yeah. I mean, you could say that once the

7 power exceeds the power available, or a power limit,

8 that it then throttles down to a lower level of

9 performance until the temperature, basically, or I

10 should say the power and/or temperature, depending, 01:31:38

11 basically, the power gets, achieves a lower limit

12 that's set by a user, and then it allows operation

13 to go back to the normal mode, if you will.

14 Q. So, if you turn to your '605 declaration,

15 this is Exhibit 3, paragraph 107. 01:32:03

16 A. Yes, sir.

17 Q. This is a paragraph describing Kling, and

18 next page, 108, has a figure, figure 5.

19 A. Yes.

20 Q. And figure 5 is a flow diagram, right, 01:32:52

21 that describes the operation of Kling?

22 A. Yes.

23 Q. And in this flow diagram, it describes

24 operating it at a high frequency first, do you see

25 that? 01:33:06

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1 Q. And it says in the quote in paragraph 202, 01:35:02
2 the upper limit is a constant value associated with
3 an approximately maximum power that can be readily
4 consumed by the computer system, do you see that?

5 A. Reliably. Yeah, uh-huh. 01:35:17

6 Q. Sorry. I left out a word.

7 Is this upper limit, when it says,
8 constant, does it mean constant during operation,
9 or, what does that mean?

10 A. Well, it would be, for example, it could 01:35:36
11 be, relate to the power available for a computer
12 system before a circuit breaker might be tripped, or
13 a fuse might burn, or it could relate to how that
14 level of power is sustained, what sort of
15 temperature it could cause, and whether that could 01:36:01
16 melt wires on the chip and cause a failure.

17 So there's, you know, all those things
18 I've identified, those three things have a certain
19 specific value that don't change over time.

20 Q. Okay. So, Kling is, is not about 01:36:20
21 temperature measurement, but about power management,
22 right?

23 A. Well, it definitely talks about
24 temperature management, as well, and it points out
25 that, you know, power management has the advantage 01:36:44

1 that you, you can detect a high power state a little 01:36:52
2 quicker than you can a temperature, because there's
3 a certain heat flow, or whatever, it takes time for
4 the, a chip to heat up, even if you're at a very
5 high power, so the claim is you can get an upper 01:37:09
6 hand on a potential temperature problem before it
7 actually happens.

8 Q. And --

9 A. But he discusses using both, you know,
10 that certainly says that the prior art used 01:37:21
11 temperature, and that can be used in conjunction
12 with power limits.

13 Q. That Kling proposes using power limits
14 directly, right?

15 A. Let me take a look, because I -- I think 01:37:40
16 the way a POSITA is going to clearly see this is
17 that the prior art used monitoring of the
18 temperature, and they are saying, okay, that's fine,
19 but here's is a technique that's even, that has
20 certain advantages, and, and a POSITA would realize 01:38:58
21 that you certainly can use this with both.

22 You could certainly have the same figure
23 2A, where those are temperatures, because it may be
24 in some areas on a chip where you care more about
25 the temperature, rather than the power, so -- 01:39:18

1 Q. In Kling -- 01:39:27

2 A. -- because it might be difficult to
3 monitor the power in this region, and so you could
4 have a temperature sensor there, and I think that's
5 how a POSITA would, what that POSITA would learn 01:39:35
6 from reading Kling.

7 Q. But, in Kling itself, it refers to
8 directly monitoring power consumption, right?

9 A. I, I think, again, I have to qualify that,
10 because the teaching is clear that the objective is 01:40:43
11 to keep the temperature in check. That's clearly
12 one of the objectives, and this is a means to do
13 that. And, and other prior art, which it cites,
14 monitored temperature directly, so it's, I don't
15 think a POSITA reading Kling could avoid realizing 01:41:09
16 that temperature control is also something you would
17 learn from it.

18 Q. So, I'm, I'm actually asking you a much
19 more direct question, not what a POSITA would infer,
20 but I'm asking what does Kling actually disclose. 01:41:29

21 It discloses directly monitoring power
22 consumption, right?

23 A. I don't necessarily agree with that. It
24 focuses a lot of its energy on that, but I'm unable
25 to see past the fact that it talks about temperature 01:42:00

1 measurement, as well. 01:42:05

2 Q. So, if you look at Kling, column 2, line
3 55, it states, by directly monitoring power
4 consumption, do you see that?

5 A. Yes. 01:42:23

6 Q. So, Kling discloses directly monitoring
7 power consumption; is that right?

8 A. Well, it says, by directly monitoring
9 power consumption, which means a little different
10 thing there. 01:42:40

11 Q. Do you have anything more to add to your
12 answer?

13 A. Just a minute here. I don't have anything
14 else to add.

15 Q. So, I wanted to go back to your '047 01:45:19
16 declaration, Exhibit 2.

17 A. Okay.

18 Q. So, around page 7, on page 7, paragraph 21
19 is in a section called Understanding of Patent Law.

20 A. Yes. 01:45:53

21 Q. This is a section that spans from
22 paragraph 21 through paragraph 27.

23 A. Okay.

24 Q. And this section lays out your
25 understanding of the law that you applied; is that 01:46:07

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1 right? 01:46:10
2 A. Yeah, generally, yeah.
3 Q. Do you consider yourself an expert on the
4 law?
5 A. No. 01:46:20
6 Q. And so you don't provide any opinions on
7 the law?
8 A. I do not.
9 Q. Did you do any further research on the law
10 here? 01:46:28
11 A. No.
12 Q. Did you read any cases?
13 A. I don't know what you mean by that.
14 Q. So, you don't know what I mean by a legal
15 case? 01:46:43
16 A. Well, I assume that this is one, but, I
17 can surmise that perhaps it means the aggregate of
18 all the writings that pertain to a particular legal
19 dispute, but that's just surmising and speculating.
20 Q. Yeah. Have you read any opinions from 01:47:07
21 judges on the law?
22 A. On the outcomes of the cases, but that's
23 about all, I think.
24 Q. And you did that in preparation of the
25 declaration? 01:47:22

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1 A. I don't think so. 01:47:31

2 Q. So, for the preparation for your '047 and
3 '605 declarations, you didn't do any additional
4 legal research, right?

5 A. I don't think so, no. 01:47:41

6 Q. And did you do anything else to further
7 develop your understanding of the law, other than
8 what is laid out in your declaration?

9 A. No, I don't think so.

10 Q. So, you took what is laid out here and 01:47:53
11 applied it; is that right?

12 A. That's right.

13 Q. And you don't provide any opinions on
14 anticipation by any prior art, right?

15 A. No. 01:48:06

16 Q. When were you first retained for the '047
17 and '605 matters?

18 A. About a year ago, roughly.

19 Q. Okay, and so that would be around
20 November 2019? 01:48:26

21 A. Yeah, I think that's true. Let's see.
22 I'd have to look at my records, but I'm thinking it
23 was about a year ago. It could have been, it could,
24 well, somewhere between last summer and last fall.

25 Q. So, say, sometime between June and 01:48:47

1 November of 2019? 01:48:49

2 A. Yeah.

3 Q. When was the first time you heard of PACT

4 XPP?

5 A. Probably when I got, when I was hired to, 01:49:01

6 for this case.

7 Q. Had you heard of PACT XPP before you were

8 hired for this case?

9 A. I don't think so.

10 Q. Had you read the '605 patent from PACT 01:49:20

11 before you were retained for this case?

12 A. I don't believe so. No, I'm quite sure

13 not.

14 Q. And had you read the '047 patent from PACT

15 before you were retained for this case? 01:49:38

16 A. No.

17 Q. And so when was the first time you read

18 the claims of the '605 patent?

19 A. Well, it would have been right at the

20 beginning of when I was retained, so, yeah, I, quite 01:49:48

21 likely, quite likely, last fall.

22 Q. And when was the first time you read the

23 claims of the '047 patent?

24 A. Yeah, also about that, around a year ago.

25 Q. So, if you go to your '047 declaration, in 01:50:25

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1 paragraph 10, this is now on page 2 and 3, and 01:50:38
2 continues onto page 4 --

3 A. Yes.

4 Q. -- you list various references, do you see
5 that? 01:50:50

6 A. Yeah, I do.

7 Q. So, if you look at the first reference
8 listed other than the '047 patent and its file
9 history, Kikinis, U.S. Patent 5,502,838, when was
10 the first time that you read Kikinis? 01:51:07

11 A. Yeah, again, at some point during, after
12 being retained.

13 Q. When was the first time you read Nicol?

14 A. That would be similar.

15 Q. When was the first time you read Bhatia? 01:51:32

16 A. Also similar, at some point after being
17 retained.

18 Q. And when was the first time you read
19 DeHon?

20 A. That one, I was much more familiar with 01:51:47
21 many years ago. So, I had read a, you know,
22 published articles on the same thing, you know, say,
23 at the similar time that it was patented, so I was
24 very familiar with that.

25 Q. And going to the next page, when was the 01:52:09

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1 first time you read the Cline reference, the U.S. 01:52:12
2 Patent 6,704,877?

3 A. Yeah, during, while being retained, yes.

4 Q. And when was the first time you read
5 Williams U.S. Patent 6,397,343? 01:52:28

6 A. Well, at some point after being retained.

7 Q. So, for the references I just mentioned,
8 Kikinis, Nicol, Bhatia, DeHon, Cline, and Williams,
9 had you seen any of these by 2001?

10 A. DeHon, yes. 01:53:02

11 Q. You had seen DeHon by 2001?

12 A. I had seen a description of, closely
13 matched the specification before 2001.

14 Q. But, aside from DeHon, you had not seen
15 the other references before 2001? 01:53:18

16 A. That is correct.

17 Q. How many hours did you spend preparing
18 your declarations for the '605 and the '047?

19 A. Oh, in the, approximately, 65.

20 Q. You spent about 65 hours to prepare both 01:53:40
21 of the declarations?

22 A. Let's see. Hold on. Oh, that encompasses
23 the 301, so I, yeah, including the 301, so --

24 Q. So the 65 hours includes preparation of
25 three declarations, is that what you're saying? 01:54:04

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1 A. Yes. 01:54:06

2 Q. How much of that was spent reviewing or
3 analyzing the references?

4 A. A significant portion. I don't know how
5 to, how to partition that, but, at least half. 01:54:19

6 *DI Q. How much of it was spent actually writing
7 the declarations?

8 MS. MIKOSZ: I'm going to object to the
9 question on the grounds that that calls for
10 information under the work product privilege, and if 01:54:39
11 you want to frame that in a more narrow way, that's
12 fine, but, otherwise, Carl, I'm going to instruct
13 you not to answer.

14 BY MR. TUNG:

15 Q. So, I'm not asking for any communications. 01:54:51
16 I'm just asking for how much time you spent.

17 A. Boy, I don't know if I have that. Again,
18 it's probably something over 60.

19 Q. Something over 60 hours?

20 A. Yeah. 01:55:55

21 Q. So, you think you spent over 60 hours
22 writing the declarations?

23 A. Yes.

24 Q. And is that on top of the 65 hours for the
25 analysis? 01:56:07

1 A. The analysis, well, okay. You asked me 01:56:12
2 the time spent in preparing for the deposition is
3 what I thought you asked.

4 Q. So, let me clarify my questions then. I
5 first asked you how much time you had spent 01:56:25
6 preparing your declarations, and then you said 65
7 hours to prepare three declarations.

8 Do you recall that?

9 A. I'm sorry, I thought you said depositions,
10 and so that was the answer for depositions. 01:56:40

11 Q. Okay, so, sorry, let me start over,
12 because then the questions perhaps weren't
13 understood.

14 So, I want to focus on your preparation of
15 the declaration from when you were retained to when 01:56:56
16 you submitted your declaration. And so my question
17 is, how much time did you spend preparing your
18 declaration from when you were retained to when you
19 submitted your declarations.

20 A. All right, that's something over 60 hours. 01:57:13

21 Q. So when you say over 60 hours, you mean
22 between 60 and 70 hours?

23 A. Yes, I believe so, yeah. It's over 60,
24 but probably under 70, if my quick --

25 Q. Okay. 01:57:34

1 during the preparation of your declarations? 02:00:37

2 A. No.

3 Q. So, I think we're now at the 12 noon time
4 we agreed on, so I'm going to stop, and we'll take a
5 lunch break. 02:00:55

6 A. Okay.

7 THE VIDEOGRAPHER: We're off the record. It's
8 2:01 p.m. Central Time.

9 (Luncheon recess: 2:01 p.m. CST)

10

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HIGHLY CONFIDENTIAL ATTORNEYS' EYES ONLY
CARL SECHEN, Ph.D. - November 18, 2020

1 A F T E R N O O N S E S S I O N 02:01:09
2 (2:36 p.m.)
3
4 THE VIDEOGRAPHER: We're back on the record.
5 It's 2:36 p.m. Central Time. 02:36:43
6
7 CARL SECHEN, Ph.D.,
8 having previously stated to tell the truth under
9 penalty of perjury, was examined and testified
10 further as follows: 02:36:45
11
12 EXAMINATION (Cont'd)
13 BY MR. TUNG:
14 Q. Welcome back, Dr. Sechen.
15 A. Thank you. 02:36:48
16 Q. During the preparation of your
17 declarations, did you consult with anyone who was
18 not an attorney?
19 A. No.
20 Q. So, you didn't have any conversations with 02:37:03
21 colleagues or other people about the state of the
22 art?
23 A. No.
24 Q. What did you do to prepare for today's
25 deposition? 02:37:19

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1 A. I basically met with attorneys for a few 02:37:25
2 days, and then also prepared on my own.

3 Q. When did you meet with your attorneys to
4 prepare for today's deposition?

5 A. Thursday, and Monday, and Tuesday. 02:37:42

6 Q. Thursday of last week?

7 A. Yes.

8 Q. And Monday and Tuesday of this week?

9 A. Yes.

10 Q. Approximately, how much total time did you 02:37:54
11 spend preparing for today's deposition?

12 A. Well, I think it was about, I think I said
13 65 hours, including the 301, so I'm saying maybe
14 about at least two-thirds of that time was spent
15 preparing for this one, so, 45 hours, maybe. 02:38:20

16 Q. How much time did you spend meeting with
17 your attorneys?

18 A. About 20 hours.

19 Q. So, you spent maybe 20, 25 hours outside
20 the meetings with your attorneys preparing for the 02:38:42
21 deposition?

22 A. Yeah, that's about right.

23 Q. And so what did you do, outside the
24 meetings with your attorneys, to prepare for
25 deposition? 02:38:54

02:40:18

THE VIDEOGRAPHER: We're off the record. It's

02:40:32

(Time noted: 2:40 p.m. CST)

1 I, CARL SECHEN, Ph.D., do hereby declare under
2 penalty of perjury that I have read the foregoing
3 transcript, volume I; that I have made any
4 corrections as appear noted, in ink, initialed by
5 me; that my testimony as contained herein, as
6 corrected, is true and correct.

7 EXECUTED this _____ day of _____,
8 202____, at _____, _____.
(City) (State)

9
10
11
12 _____
CARL SECHEN, Ph.D.

VOLUME I

1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:

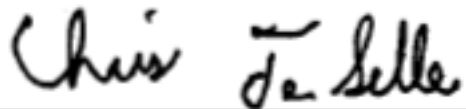
4 That the foregoing proceedings were taken
5 before me, via videoconference, at the time and
6 place herein set forth; that any witnesses in the
7 foregoing proceedings, prior to testifying, were
8 duly sworn; that a record of the proceedings was
9 made by me using machine shorthand which was
10 thereafter transcribed under my direction; that the
11 foregoing transcript is a true record of the
12 testimony given.

13 Further, that if the foregoing pertains to the
14 original transcript of a deposition in a Federal
15 Case, before completion of the proceedings, review
16 of the transcript [] was [] was not requested.

17 I further certify I am neither financially
18 interested in the action nor a relative or employee
19 of any attorney or party to this action.

20 IN WITNESS WHEREOF, I have this date subscribed
21 my name.

22 Dated: this 23rd day of November, 2020.

23 
24 _____

CHRIS TE SELLE

25 CSR No. 10836

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California Code of Civil Procedure

Article 5. Transcript or Recording

Section 2025.520

(a) If the deposition testimony is stenographically recorded, the deposition officer shall send written notice to the deponent and to all parties attending the deposition when the Original transcript of the testimony for each session of the deposition is available for reading, correcting, and signing, unless the deponent and the attending parties agree on the record that the reading, correcting, and signing of the transcript of the testimony will be waived or that the reading, correcting, and signing of a transcript of the testimony will take place after the entire deposition has been concluded or at some other specific time.

(b) For 30 days following each notice under subdivision (a), unless the attending parties and the deponent agree on the record or otherwise in writing to a longer or shorter time period, the deponent may change the form or the substance of the answer to a question, and may either approve the transcript of the deposition by signing it, or

refuse to approve the transcript by not signing it.

(c) Alternatively, within this same period, the deponent may change the form or the substance of the answer to any question and may approve or refuse to approve the transcript by means of a letter to the deposition officer signed by the deponent which is mailed by certified or registered mail with return receipt requested. A copy of that letter shall be sent by first-class mail to all parties attending the deposition.

(d) For good cause shown, the court may shorten the 30-day period for making changes, approving, or refusing to approve the transcript.

(e) The deposition officer shall indicate on the original of the transcript, if the deponent has not already done so at the office of the deposition officer, any action taken by the deponent and indicate on the original of the transcript, the deponent's approval of, or failure or refusal to approve, the transcript. The deposition officer shall also notify in writing the parties attending the deposition of any changes which the deponent timely made in person.

(f) If the deponent fails or refuses to approve the transcript within the allotted period, the

deposition shall be given the same effect as though it had been approved, subject to any changes timely made by the deponent.

(g) Notwithstanding subdivision (f), on a seasonable motion to suppress the deposition, accompanied by a meet and confer declaration under Section 2016.040, the court may determine that the reasons given for the failure or refusal to approve the transcript require rejection of the deposition in whole or in part.

(h) The court shall impose a monetary sanction under Chapter 7 (commencing with Section 2023.010) against any party, person, or attorney who unsuccessfully makes or opposes a motion to suppress a deposition under this section, unless the court finds that the one subject to the sanction acted with substantial justification or that other circumstances make the imposition of the sanction unjust.

DISCLAIMER: THE FOREGOING CIVIL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE STATE RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

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COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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