

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

3
4 _____
5 APPLE, INC., HTC CORPORATION,
6 HTC AMERICA, INC., et al.,
7 Petitioners,

8 v.

9 MEMORY INTEGRITY, LLC,
10 Patent Owner.
11 _____

12
13
14 CONTINUED VIDEOTAPED DEPOSITION OF

15 VOJIN G. OKLOBDZIJA, PH.D.

16 VOLUME II

17 Redwood City, California

18 Tuesday, November 24, 2015
19

20
21 Reported by:

22 Kelli Combs, CSR No. 7705

23 Job No. 2188241
24

25 PAGES 156 - 225

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Veritext Legal Solutions

<p>1 2 3 4 5 6 7 8 Continued Videotaped Deposition of VOJIN G. 9 OKLOBDZIJA, PH.D., Volume II, taken on behalf of 10 Petitioners, at FISH & RICHARDSON, 500 Arguello Road, 11 Suite 500, Redwood City, California, commencing at 12 9:23 a.m., Tuesday, November 24, 2015, before Kelli 13 Combs, CSR No. 7705. 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">Page 157</p>	<p>1 APPEARANCES OF COUNSEL CONTINUED: 2 3 For the Patent Owner, Memory Integrity, LLC: 4 FARNEY DANIELS PC 5 BY: MICHAEL D. SAUNDERS, ESQ. 6 411 Borel Avenue, Suite 350 7 San Mateo, California 94402 8 (650) 833-2442 9 msaunders@farneydaniels.com 10 11 ALSO PRESENT: 12 Ramon Peraza, Videographer 13 Robert Horst, Ph.D., Expert for Petitioners 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">Page 159</p>
<p>1 APPEARANCE OF COUNSEL: 2 3 For Petitioners Apple, Inc., HTC Corporation, HTC 4 America, Inc., Samsung Electronics Company, Ltd., 5 Samsung Electronics America, Inc., Samsung 6 Telecommunications America, LLC and Amazon.com, Inc.: 7 FISH & RICHARDSON 8 BY: MICHAEL REUCKHEIM, ESQ. 9 1221 McKinney Street, Suite 2800 10 Houston, Texas 77010 11 713-654-5300 12 rueckheim@fr.com 13 14 For the Petitioners Sony Corporation, Sony Electronics, 15 Inc., Sony Mobile Communications AB and Sony Mobile 16 Communications USA, Inc.: 17 KENYON & KENYON 18 BY: ZAED M. BILLAH, ESQ. 19 One Broadway 20 New York, NY 10004-1007 21 212.425.7200 22 zbillah@kenyon.com 23 24 25</p> <p style="text-align: right;">Page 158</p>	<p>1 I N D E X 2 3 EXAMINATION PAGE 4 VOJIN G. OKLOBDZIJA, PH.D. 5 6 (BY MR. BILLAH) 162 7 (BY MR. SAUNDERS) 187 8 (BY MR. RUECKHEIM) 222 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">Page 160</p>

1	EXHIBITS			1			
2	NUMBER	DESCRIPTION	PAGE	2			
3				3			
4	Exhibit 12	Curriculum vitae of	163	4	We broke yesterday at about 4:30 in the	9:23:32AM	
5		Dr. Oklobdzija		5	afternoon and resuming this morning.		
6	Exhibit 13	Document titled "A Primer	178	6	In that time period between when we broke		
7		on Memory Consistency and		7	yesterday and right now, did you speak to anybody		
8		Cache Coherence"		8	about the substance of your deposition?	9:23:42AM	
9	Exhibit 14	Declaration of Dr. Robert	187	9	A No.		
10		Horst in Case Numbers		10	Q You didn't speak to counsel?		
11		IPR2015-00159,		11	A No. About the substance of the		
12		IPR2015-00161,		12	deposition.		
13		IPR2015-00163 and		13	Q You spoke to counsel about something other	9:23:50AM	
14		IPR2015-00172		14	than the deposition?		
15	Exhibit 15	Document titled "Memory	192	15	A Yeah. Perhaps, you know, about how long		
16		Integrity, LLC's Patent		16	it will take to get there, et cetera, but not -- not		
17		Owner Response Pursuant to		17	about the deposition.		
18		37 CFR Section 42.120 in		18	Q Okay.	9:23:59AM	
19		IPR2015-00159"		19	MR. BILLAH: What's the next exhibit, 12?		
20				20	THE VIDEOGRAPHER: Yes.		
21				21	(Deposition Exhibit 12 marked		
22				22	for identification.)		
23				23	MR. BILLAH: Mark this as 12, please.	9:24:12AM	
24				24	BY MR. BILLAH:		
25				25	Q Please take a look at what's been marked		
					as Exhibit 12.		
					Do you recognize this document?		
					A Yes.	9:24:37AM	
			Page 161				Page 163
1	Tuesday, November 24, 2015; Redwood City, California			1	Q What is this document?	9:24:39AM	
2	9:23 a.m.			2	A It's my curriculum vitae.		
3	---o0o---			3	Q And looking at this document right now,		
4				4	Exhibit 12, are you aware of anything that is		
5	THE VIDEOGRAPHER: Good morning. Here	9:22:59AM		5	inaccurate about the document? Take your time.	9:24:51AM	
6	begins Volume II of the videotaped deposition of			6	A No, but there may be no updates or there		
7	Dr. Vojin Oklobdzija in the matter of Apple, Inc.,			7	may be some misses in terms of updating it, so...		
8	et al. versus Memory Integrity, et al. Today's date			8	Q And in the bottom left of the first page,		
9	is November 24th, 2015. We are on the record at			9	you see it says modified January 24, 2013?		
10	9:23 a.m.	9:23:15AM		10	A That is correct, but I think that is	9:25:19AM	
11	VOJIN G. OKLOBDZIJA, PH.D.,			11	inaccurate too because I think there were further		
12	having been previously duly sworn, testified as follows:			12	modifications from 2013.		
13	---o0o---			13	Q Okay.		
14				14	Do you know the approximate date that this		
15	EXAMINATION	9:23:15AM		15	document was updated?	9:25:28AM	
16	BY MR. BILLAH:			16	Let me rephrase that --		
17	Q Good morning, Dr. Oklobdzija.			17	A I think it may have been -- it must have		
18	A Good morning.			18	been updated 2014, maybe early 2015 when I submitted		
19	Q My name is Zaed Billah. I represent the			19	it.		
20	Sony Petitioners in the three cases. I'll be	9:23:23AM		20	Q Okay.	9:25:47AM	
21	continuing your deposition this morning.			21	So this document is up to date as of early		
22	Do you understand you're still under oath			22	2015, late 2014, best of your estimate?		
23	from yesterday?			23	A That's my belief.		
24	A I do.			24	Q Okay.		
25	Q Okay.	9:23:31AM		25	Is there anything -- anything significant	9:25:58AM	
			Page 162				Page 164

<p>1 from that time that you would want to tell us about? 9:26:01AM</p> <p>2 MR. SAUNDERS: Objection; form.</p> <p>3 THE WITNESS: No.</p> <p>4 BY MR. BILLAH:</p> <p>5 Q Okay. 9:26:23AM</p> <p>6 The bottom of page 1 there, Exhibit 12, it</p> <p>7 says "Employment History."</p> <p>8 Do you see that?</p> <p>9 A Yes, I do.</p> <p>10 Q And then your employment history seems to 9:26:28AM</p> <p>11 go up until the middle of page 4; is that right?</p> <p>12 A That is correct.</p> <p>13 Q Do any of these positions that you list</p> <p>14 here have to do with research and development?</p> <p>15 A Yes. Several. 9:26:48AM</p> <p>16 Q Which ones?</p> <p>17 A Okay. So they start from the beginning.</p> <p>18 Q Yes.</p> <p>19 A So 1971 and '73, I was employed as a</p> <p>20 physicist in the Institute of Physics, which is a 9:26:58AM</p> <p>21 research institution.</p> <p>22 '73 to '74, the Institute for Automation</p> <p>23 and Telecommunications, also a research institution.</p> <p>24 University of Belgrade is a university research</p> <p>25 institution, '74 to '76. 9:27:22AM</p> <p style="text-align: right;">Page 165</p>	<p>1 THE WITNESS: Yes, as part of my teaching, 9:29:23AM</p> <p>2 I was teaching cache and architecture and</p> <p>3 multiprocessors, supercomputing, et cetera.</p> <p>4 BY MR. BILLAH:</p> <p>5 Q Well, apart from teaching, I'm talking 9:29:33AM</p> <p>6 about research. Did you do research in cache</p> <p>7 coherent technology?</p> <p>8 A Not particular in cache coherence.</p> <p>9 Q Please turn to page 12 of your</p> <p>10 declaration -- sorry, your CV. 9:29:47AM</p> <p>11 A But I did -- I must qualify. I did work</p> <p>12 in industry with cache coherence.</p> <p>13 Q On page 12 it says -- it starts at the</p> <p>14 top, "U.S. Patents."</p> <p>15 Do you see that? 9:30:05AM</p> <p>16 A Yes, I do.</p> <p>17 Q And then continues to the bottom, it says</p> <p>18 "European Patents."</p> <p>19 Do you see that?</p> <p>20 A Yes, I do. 9:30:11AM</p> <p>21 Q And the next page, page 13, it says</p> <p>22 "Japanese Patents."</p> <p>23 A Yes, I do.</p> <p>24 Q And then it seems that the patent section</p> <p>25 of your CV ends on page 14. 9:30:19AM</p> <p style="text-align: right;">Page 167</p>
<p>1 UCLA as a university was -- is also 9:27:25AM</p> <p>2 research institution, '77 to '82. IBM, Watson</p> <p>3 Research Center is a research institutions and still</p> <p>4 is. University of California Berkeley is a research</p> <p>5 institution. 9:27:50AM</p> <p>6 The time I spent in Korea was at the</p> <p>7 University. Also I consulted for Samsung, and I did</p> <p>8 research in Korea. Ecole Polytechnique in</p> <p>9 Switzerland, 2004, is a research -- it's university</p> <p>10 and the research institution, and I did research 9:28:12AM</p> <p>11 there too. I did research, performed research or</p> <p>12 was engaged in research.</p> <p>13 Sidney University is a research</p> <p>14 university, so is University of Texas at Dallas,</p> <p>15 University of California Davis. 9:28:42AM</p> <p>16 Now, the research I maintained from the</p> <p>17 University of California at Davis, and I continue as</p> <p>18 Emeritus Professor. It's a research group called</p> <p>19 Axel. And I think that ends it.</p> <p>20 Q Thank you. 9:29:11AM</p> <p>21 And in these positions that you have that</p> <p>22 have to do with research and/or development, did you</p> <p>23 ever do any research specifically in cache coherent</p> <p>24 technology?</p> <p>25 MR. SAUNDERS: Objection; form. 9:29:21AM</p> <p style="text-align: right;">Page 166</p>	<p>1 Do you see that? 9:30:22AM</p> <p>2 A That's correct.</p> <p>3 Q Do any of these patents -- strike that.</p> <p>4 Are any of these patents in the field of</p> <p>5 cache coherent technology? 9:30:30AM</p> <p>6 A They're not directly related to cache</p> <p>7 coherence.</p> <p>8 Q Please turn to page 15 of your CV.</p> <p>9 Below "Education," there's a bolded entry</p> <p>10 for "Publications." 9:30:45AM</p> <p>11 Do you see that?</p> <p>12 A I do.</p> <p>13 Q And the publications appear to go through</p> <p>14 books, book chapters, journal papers, and it ends at</p> <p>15 the bottom of page 20; is that correct? 9:30:58AM</p> <p>16 A That's correct.</p> <p>17 Q Do any of these publications deal</p> <p>18 specifically with cache coherence technology?</p> <p>19 A Okay. So let's say Reference Number 2,</p> <p>20 "Computer Engineering," I think it has sections, I 9:31:17AM</p> <p>21 believe, on cache. Reference 5, "Digital Systems</p> <p>22 and Applications," I believe has reference on cache.</p> <p>23 "Arithmetic..."</p> <p>24 Okay. I have written computer</p> <p>25 organization architecture. I don't believe there's 9:31:51AM</p> <p style="text-align: right;">Page 168</p>

<p>1 cache in there. 9:31:53AM</p> <p>2 Q Sorry, which one?</p> <p>3 A That Number 2 on page 16. Okay. There's</p> <p>4 a publication 27 on page 23; it does deal with</p> <p>5 cache. It's not particularly on coherency, but it's 9:33:20AM</p> <p>6 cache related. I think that is about it.</p> <p>7 Q Okay.</p> <p>8 So let me see if I can summarize the</p> <p>9 answer. I'm not sure I got it.</p> <p>10 We're talking about the publications, so 9:34:25AM</p> <p>11 the section of your CV that's from page 15 to the</p> <p>12 bottom of page 20, of all of these publications,</p> <p>13 there are two publications that you're aware of that</p> <p>14 discuss cache coherency technology specifically; is</p> <p>15 that correct? 9:34:48AM</p> <p>16 A If -- if I mention two, then that's</p> <p>17 correct. I didn't count how many I mentioned.</p> <p>18 Q Okay.</p> <p>19 I think those two, if you look at page 15,</p> <p>20 were item numbers 2 and 5 listed under the "Books" 9:34:58AM</p> <p>21 section of your CV; is that correct?</p> <p>22 A Okay. 2 and 5 in the "Book," right.</p> <p>23 Q Yes.</p> <p>24 A And then further in "Publications," I</p> <p>25 think I mentioned one or two. 9:35:13AM</p> <p style="text-align: right;">Page 169</p>	<p>1 Q Okay. 9:36:27AM</p> <p>2 Let's flip to page 20 of your CV.</p> <p>3 A Okay.</p> <p>4 Q So there's a heading at the bottom; it's</p> <p>5 titled "Conference Proceedings." 9:36:42AM</p> <p>6 Do you see that?</p> <p>7 A Yeah.</p> <p>8 Q And those conference proceedings are</p> <p>9 listed and they seem to go to page 32; is that</p> <p>10 correct? 9:36:57AM</p> <p>11 A That is correct.</p> <p>12 Q Did any of these conferences -- take that</p> <p>13 back.</p> <p>14 Do I understand it correctly that at all</p> <p>15 of these conference proceedings you actually spoke 9:37:10AM</p> <p>16 at these conferences?</p> <p>17 A I cannot say 100 percent, but most of them</p> <p>18 I did.</p> <p>19 Q And if you didn't speak at one of the</p> <p>20 conferences, why did you list them here in your CV? 9:37:28AM</p> <p>21 A Because this is how the conference</p> <p>22 publications are listed. I'm an author of -- those</p> <p>23 are not presentations. Those are papers that were</p> <p>24 published.</p> <p>25 Q I understand. Okay. 9:37:44AM</p> <p style="text-align: right;">Page 171</p>
<p>1 Q On that point on the further publications, 9:35:16AM</p> <p>2 did any of the publications have to do with cache</p> <p>3 coherency technology as opposed to just cache?</p> <p>4 A Well, you cannot separate the two, but</p> <p>5 I -- I don't have publications that I would 9:35:28AM</p> <p>6 specifically target cache coherence. That's --</p> <p>7 that's correct.</p> <p>8 Q Okay.</p> <p>9 So let's talk about this book, Number 2,</p> <p>10 titled "Computer Engineering" that's listed on 9:35:40AM</p> <p>11 page 15 of your CV.</p> <p>12 A Okay.</p> <p>13 Q Do you have a recollection as to whether</p> <p>14 there's a chapter on cache coherency or any kind of</p> <p>15 delineation on cache coherency technology versus 9:36:03AM</p> <p>16 other technology?</p> <p>17 MR. SAUNDERS: Objection; form.</p> <p>18 THE WITNESS: Yeah. I don't at this</p> <p>19 point. It's 2001, so...</p> <p>20 BY MR. BILLAH: 9:36:14AM</p> <p>21 Q Okay.</p> <p>22 What about for the Book Number 5, "Digital</p> <p>23 Systems and Applications"; was there a chapter on</p> <p>24 cache coherence technology?</p> <p>25 A Again, I can't say with certainty. 9:36:24AM</p> <p style="text-align: right;">Page 170</p>	<p>1 A Those are -- they're papers published in 9:37:46AM</p> <p>2 journals and papers published in the conference</p> <p>3 proceedings, books.</p> <p>4 Q Okay.</p> <p>5 So actually where you said "Conference 9:37:55AM</p> <p>6 Proceedings," these are actually all under the</p> <p>7 "Publication" sections?</p> <p>8 A They're all publications, right.</p> <p>9 Q Okay.</p> <p>10 A In academia, they tend to separate those 9:38:04AM</p> <p>11 two publications because journalists are considered</p> <p>12 archival, even though today everything is archived</p> <p>13 on I Triple Explorer, so there's no difference.</p> <p>14 Yeah.</p> <p>15 Q Okay. Thank you. 9:38:21AM</p> <p>16 A Traditionally in the past, journalists --</p> <p>17 journalists were published and printed and sent to</p> <p>18 much wider audience. By conference proceedings are</p> <p>19 published and printed and targeted to a smaller,</p> <p>20 specialized groups on the subject of the conference, 9:38:36AM</p> <p>21 so that's what make distinction.</p> <p>22 Q Okay. Thank you.</p> <p>23 Can you flip to page 33 of your CV.</p> <p>24 A Yes.</p> <p>25 Q There's a title at the top that says 9:38:57AM</p> <p style="text-align: right;">Page 172</p>

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