

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

ZENTIAN LIMITED,
Patent Owner.

IPR2023-00037
Patent 10,971,140 B2

Record of Oral Hearing
Held: March 11, 2024

Before KEVIN F. TURNER, JEFFREY S. SMITH, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

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P-R-O-C-E-E-D-I-N-G-S

2:44 p.m.

COURT REPORTER: On the record.

JUDGE OGDEN: Good afternoon. Welcome to the Patent Trial and Appeal Board. This is the hearing for IPR2023-00037, between Petitioner Apple Inc., Amazon Web Services, Inc., and Amazon.com Services LLC, and Patent Owner Zentian Limited, challenging claims in Patent 10,839,798 B2.

And I'm Judge Ogden, and with me today on the panel are Judges Turner and Smith. Judge Smith is joining us remotely.

So I'd like to go through counsel introductions as we did with the prior case this morning. So who is here on behalf of Petitioner Apple?

MS. BAILEY: Thank you, Your Honor. I'm Jennifer Bailey. I'm from the law firm of Erise IP. I have with me my co-counsel, Christina Canino, and in-house counsel for Apple, Jenny Liu.

JUDGE OGDEN: Thank you. And on behalf of Patent Owner?

MR. NOROOZI: Yes, Your Honor. Your Honor, Kayvan Noroozi from Noroozi PC for Patent Owner, and with me are Peter Knops and Jessica Bernhardt.

JUDGE OGDEN: And on behalf of the Amazon Petitioners?

MR. CHURNET: Hello, Your Honor. Dargaye Churnet from Fenwick & West on behalf of Amazon.

JUDGE OGDEN: Thank you. So today, each side will have a total of 45 minutes to present their arguments, and as usual, parties will have the opportunity to reserve rebuttal or surrebuttal time.

1 So we'll begin with Petitioner. Ms. Bailey, would you like to
2 reserve rebuttal time?

3 MS. BAILEY: Yes, Your Honor. I'd like to reserve 15 minutes
4 for rebuttal.

5 JUDGE OGDEN: Okay. We'll put 30 minutes on the clock,
6 and you can begin when you're ready.

7 MS. BAILEY: May it please the board. Thank you, Your
8 Honors.

9 Let's turn first to Petitioner's Demonstrative DX-2, and let's
10 quickly go through the claim. Claim 1 recites a basic distance calculation
11 and search steps using a clustered processor architecture. The basic tree
12 search steps are limitations, 1(d) and 1(e). And I note for limitations 1(d)
13 and 1(e), it says the speech recognition circuit is configured to generate both
14 the initial and final scores. The claim does not require any particular
15 processor to generate the scores, but we'll get into that in a little bit.

16 The claim ends with the tree search score generation. I know
17 that in Claim 1, word recognition is not claimed, what happens to the scores
18 after generation is not claimed, how the final scores are compiled, how the
19 pruning is instructed, and how the word is selected are all not claimed.

20 Turning to DX-3, let's go briefly through the combination.
21 Jiang teaches a tree search algorithm that includes distance calculations and
22 tree search scoring. Jiang's tree search algorithm is per the Petition's
23 mapping, replicated across all of the processors of the clusters of Chen's
24 clustered processor architecture. And I'm happy to provide citations as I go
25 if that would be helpful. So each processor in each cluster is performing the
26 lexical tree search recited in Claims 1(d) and 1(e). In other words, the initial
27 and final score generation.

1 And then the petition describes that the acoustic model is
2 divided up among the memories of the claims. This means that a portion of
3 the acoustic model data is stored in each memory's clusters. A portion is.
4 So for example, Cluster 1 would perform tree search on phonemes A
5 through F, Cluster 2 would be G through J. And he was questioned about it
6 during his deposition, Mr. Schmandt, at Exhibit 2017, Pages 93 through 96,
7 and 99 through 100. But also how the acoustic model is divided among each
8 cluster's memory is also not claimed.

9 So turning to DX-4. As mentioned, Claims 1(d) through 1(e)
10 recite the initial and final score generation, and the mapping relies on Jiang
11 for teaching the initial, final, and score generation. Zentian does not dispute
12 that Jiang teaches the initial and final score generation. Instead, Zentian
13 argues that no one processor in any of the Chen clusters can access all of the
14 data stored across all of the clusters' memories. That's the quotation we have
15 at the top of DX-4.

16 And just so that we all have a clear understanding of Chen,
17 Chen has an example of four clusters, and in Chen, each of the processors
18 can access the memories of three other clusters. So technically, Zentian is
19 correct in their statement, but the problem comes in is that is not required in
20 the combination, and it's not required in the claims. There is nothing in the
21 proposed combination that requires one processor from one cluster to be able
22 to access all of the memories of the other clusters.

23 Zentian argues all four memories contain necessary information
24 for the score determination. And again, this is incorrect. Each processor is
25 performing the score determination using the acoustic model data stored in
26 that cluster's memory. And I really want to emphasize that because Zentian
27 has completely revised and fabricated what the petition's mapping is.

1 Jiang's tree search algorithm is replicated across all the
2 processors so that each processor is performing the distance calculation, the
3 probability, and the initial and final score determination. And we're going to
4 get to it, but what happens to those scores is not claimed, is not recited in the
5 claim.

6 Jiang's tree search algorithm replicated on each processor does
7 not require memory access between clusters. Zentian is bodily incorporating
8 components from Chen into the combination that are neither required by the
9 claims or required in the combination.

10 Turning to DX-5. Zentian's sur-reply states that one processor
11 and one cluster would be used to generate the initial score. Zentian
12 concludes from that that one processor would have to access all of the
13 memories of all of the clusters. And again, this sur-reply argument is a
14 complete fabrication and is not what the petition mapped. The sur-reply
15 arguments at Pages 3 to 4 are particularly incorrect.

16 Turning to DX-6, Zentian's sole basis for this argument is a
17 question posed to Mr. Schmandt and his answer. And the question that they
18 rely on is the text on the right. I would invite the board to read kind of the
19 lead up to this questioning to understand why Counsel asked a poor
20 question, and what Mr. Schmandt was answering is not what Counsel has
21 turned that answer into.

22 And I refer to Exhibit 2017, Page 99, Line 8 through Page 103,
23 Line 9. Looking at the left-hand side of the text on DX-6, Zentian's Counsel
24 asked about the results of the tree search. That's the first highlight of
25 section. And Mr. Schmandt said, well, we have to know the scores that we
26 get on each of the trees. So remember, lexical tree search is performed, and
27 initial and a final score are determined. Those scores are then used to apply

1 the pruning threshold to prune the trees, but the pruning and how the scores
2 are used is not claimed.

3 Mr. Schmandt said that once the parallel operations were
4 complete, in other words, once all the processors had completed their tree
5 search and attained the results or the scores, then the system returns to serial
6 operation. Because once we know the final score across all the trees, then
7 the pruning can be performed. What will happen is one tree, oh, not highly
8 likely prune. Another tree, it'll be likely it won't be pruned. But again, that's
9 not claimed.

10 The portion on the left shows that when Mr. Schmandt was
11 asked about the results by Counsel, Mr. Schmandt was understanding the
12 results to be the scores on the tree. Again, that's the second highlighted
13 section on the left-hand side.

14 And then Counsel asked, just so I'm clear, and I'm looking at
15 the right-hand now, your testimony is that the result would be compiling or
16 scored in one processor, for instance.

17 Mr. Schmandt said, sure, you can take all the results and put
18 them into one processor.

19 But Mr. Schmandt was answering the question of what happens
20 to all of the scores across all of the trees once the initial and final score
21 determination is done. That's not claimed. So Mr. Schmandt was simply
22 saying there's a way that you could do it. You could put all the scores, send
23 them all to one processor, and then you could have one processor say prune,
24 don't prune, prune, don't prune. But none of that is claimed in Claim 1.
25 There's also probably other ways that it could be done.

26 How the scores are compiled or aggregated from all the
27 processors is not claimed. Mr. Schmandt was merely agreeing that one

1 method of compiling the scores could be to send to one processor. But this
2 is after all the parallel operations are done. In other words, after Jiang's tree
3 search algorithm is done. So Zentian is here arguing unclaimed features and
4 features that are not part of the claim combination.

5 If there are no questions on this, I'm going to turn to the
6 motivations to combine, DX-7. Zentian argues that there is a lack of
7 reasonable expectations of success in the combination because there would
8 be tasks to be performed that the skilled person would not know how to do.

9 Zentian does not respond to the petition's arguable primary
10 motivation that more processors in the combination allow a relaxed pruning
11 threshold at the same financial cost. The motivation was that using Chen's
12 commercially available processors in a clustered processor memory
13 architecture then allows for a computing platform that's more powerful, has
14 a more relaxed pruning threshold, which increases the speech recognition
15 accuracy, and all of this is done at the same financial cause because you're
16 using Chen's commercially available processors.

17 Other motivations combined were discussed, including
18 increasing the processing power while keeping the financial costs low for
19 some of the same reasons I just discussed, the flexibility and scalability of
20 using multiple clusters, which we know from home, and that clustered
21 processors were a known technique. And I note to the board that a known
22 technique alone is sufficient for a motivation to combine. That's the Intel v.
23 Pact cited in our briefing. A motivation to combine is not needed for
24 obviousness.

25 I also want to address the surreplies briefing about Mathew.
26 Zentian argues that Mathew shows that adding more processors actually
27 slows down the system. The citation to Mathew is a single sentence from

1 Mathew that multiple processors were added to the HMM stage, and that
2 multiple processors created synchronization issues.

3 But again, this is a single sentence from Mathew. We have no
4 indication in Mathew of what the architecture was when it added those
5 additional processors. We have no indication that it was a clustered
6 processor architecture. We have no discussion of what the division of the
7 acoustic model was done. Mathew's single sentence teaching does not
8 provide any context that's relevant to the motivation to combine inquiry
9 here.

10 Turning next to DX-8. And I want to pause. Are there any
11 questions so far, Your Honors? No?

12 JUDGE SMITH: I want to ask you about the claim.

13 MS. BAILEY: Okay.

14 JUDGE SMITH: The claim, what you're calling Claim 1(a),
15 one or more clusters of processors, each of the one or more clusters of
16 processors comprising a plurality of processors. And then nobody really
17 construed that term, but the literal language of this term seems to say that
18 one cluster of processors, which is a plurality of two processors, would be
19 enough to meet this claim in 1(b), one model memory. So you could have
20 one cluster of processors comprising two processors hooked up to one
21 memory.

22 Would you say that's accurate?

23 MS. BAILEY: I'm actually smiling here, Your Honor, because
24 I had the same debate when we were first putting together the petition. The
25 one or more is properly interpreted as one cluster. And a cluster has to have
26 a plurality of processors. A plurality would be understood to be two or

1 more. So you could actually have a situation or simply two processors
2 accessing a memory would satisfy the claim.

3 Now it happens to be that Chen has multiple clusters of
4 processors with a plurality of processors in it, so we did not feel the need to
5 have that discussion in the petition, because Chen teaches numerous clusters.
6 But your question is well taken.

7 JUDGE SMITH: Well, I'm bringing that out because I guess I
8 want to know a couple of things.

9 MS. BAILEY: Okay.

10 JUDGE SMITH: I guess the first thing is did the petition make
11 that argument that one cluster with two processors would be enough? So
12 that's my first question.

13 MS. BAILEY: The petition did not --

14 JUDGE SMITH: Did the petition make that argument?

15 MS. BAILEY: So sorry. I did not mean to talk over you, Your
16 Honor.

17 The petition did not make that argument because Chen already
18 teaches multiple clusters of processors with a plurality of processors within
19 each cluster.

20 JUDGE SMITH: Chen already teaches it. I see.

21 MS. BAILEY: Yeah.

22 JUDGE SMITH: Yeah, I bring that up because on Page 14 of
23 the petition, it looks like it's citation to the declaration Paragraph 72, where
24 your expert cites to it looks like six different references that talk about this
25 cluster processing with one cluster.

26 Even Jiang by itself, if you look at, for example, Column six of
27 Jiang talks about -- this is around Line 41. The CPU may include one or

1 more processors. And then along with the testimony of your expert from
2 Paragraph 72, seems to make it explicit what's already implicit, that the
3 cluster of two processors is already if not explicitly disclosed, at least taught
4 by Jiang in a knowledge of a person of ordinary skill.

5 And so it wouldn't be necessary to reach all of the arguments
6 against the combination, including Chen raised by Petitioner. But it sounds
7 like you're saying that it's not possible for us to support a decision based on
8 Jiang in view of the knowledge of --

9 MS. BAILEY: So --

10 JUDGE SMITH: -- a person of ordinary skill.

11 MS. BAILEY: Again, I apologize for speaking over. I thought
12 you were done.

13 We do note that Jiang teaches a multiprocessor situation -- or
14 architecture in our petition. We also realize that Chen has the clusters of
15 processors, and so we mapped to Chen. But we also did map that Jiang
16 teaches a multiprocessor architecture, as you well pointed out as discussed in
17 the declaration.

18 JUDGE SMITH: But I guess to my question, to the extent that
19 your primary reference by itself either anticipates or in combination with the
20 knowledge of a person of ordinary skill renders this obvious, can we use that
21 as a basis for our decision, or do we have to reach the combination of Jiang
22 and Chen?

23 MS. BAILEY: The petition does talk about how -- and I'm
24 looking at Page 17 through 18, referring again to Jiang's multiprocessor
25 system. And it cites the portions that you've noted in addition to a couple of
26 additional citations to Jiang and discusses that Jiang alone does teach the
27 multiprocessor situation.

1 JUDGE SMITH: Yeah, but I guess I'm asking you is that
2 within the scope of the ground presented in a petition, or would it be beyond
3 the ground that you presented for?

4 MS. BAILEY: The ground presents the combination of Jiang
5 and Chen.

6 JUDGE SMITH: Okay. Thank you.

7 MS. BAILEY: I think that answers your question, Your Honor.

8 JUDGE SMITH: Yes. Thank you.

9 MS. BAILEY: Okay.

10 JUDGE TURNER: Before you go on, this is Judge Turner.
11 Just a quick question. I think if I understand the Petitioner's position, Jiang
12 does the pruning basically when it gets done with the tree search engine
13 functionality, right?

14 MS. BAILEY: Yes.

15 JUDGE TURNER: But the claim requires, and it's not a
16 method claim, but the claim requires that the overall speech recognition
17 system circuit is what actually provides the initial score, right?

18 MS. BAILEY: Correct. But I want to make sure that I am
19 answering your particular --

20 JUDGE TURNER: I don't think I've asked a question yet.

21 MS. BAILEY: Okay.

22 JUDGE TURNER: So I'm laying out a predicate here, so
23 maybe I'm perhaps missing something.

24 But what you're relying on for 1(e) is the pruning, so that to
25 continue processing, if you're doing that individually in all these different
26 portions in Chen, as you sort of diagrammed out, do you actually get an
27 initial score, or do you have just sort of an interim score, then you do the

1 pruning, and then you come back with an initial score, and then you
2 understand my question, whether what you've asserted in terms of the
3 combination, does it meet the claim?

4 MS. BAILEY: I do, and it does. And I want to make sure that
5 you understand --

6 JUDGE TURNER: Sure.

7 MS. BAILEY: -- Jiang and then relative to the claim. So
8 Jiang, at Column 8, then also talks a bit in at the top of Column 11, the tree
9 search algorithm, when you're doing a tree search, the initial score is
10 generated for that particular phoneme probability, and the final score is
11 generated on the tree. And the final score is that initial score in combination
12 with all the scores previous because this is part of the word recognition.

13 After the scores are generated, then Jiang teaches the pruning is
14 done. You prune after you have a final score determination for that
15 particular phoneme in Jiang and in any tree search algorithm. So the initial
16 score is determined, then the final score is determined. And then based on
17 whether that final score is above or below the pruning threshold, the
18 remainder of the branch will be pruned or not.

19 In the petition's mapping, that tree search algorithms replicated
20 across all the processors. The claim ends with the final score determination.

21 The claim doesn't say that pruning is then done. In other words, pruning is
22 not a part a limitation on this claim.

23 So what happens in Jiang after the final score determination, the
24 pruning, because it's not claimed, it's not discussed for purposes of the
25 combination. Again, the claim ends with that final score determination that's
26 taught at Jiang at Column 8, the lower half. What happens after that is not

1 claimed. Now Jiang does go on and describe what happens after that, the
2 pruning that's performed.

3 Does that answer your question, Your Honor?

4 JUDGE TURNER: I think it does, but that does lead to a
5 second question. So does the overall claim, the speech recognition circuit,
6 does it actually determine, quote, unquote, an initial score, or is it
7 determining multiple initial scores and multiple final scores? I guess that's
8 my question.

9 MS. BAILEY: So in speech recognition, there's going to be
10 thousands of trees --

11 JUDGE TURNER: Sure.

12 MS. BAILEY: -- being run, and each of those trees will have
13 an initial and final score determined for the utterance that just came through.
14 So 10-millisecond frame is going to do initial and final score. At that point,
15 the trees are constantly changing as the utterances come in.

16 So after the final score is calculated, then the tree search
17 algorithm will prune, if pruning is performed. Pruning doesn't always get
18 performed. It will then prune, and then the next utterances come in and it
19 will look at the next node on the tree. This claim ends with that initial and
20 final score being determined. The claim doesn't actually talk about how you
21 determine the word. It doesn't recite that.

22 JUDGE TURNER: Okay.

23 MS. BAILEY: Am I answering your question, Your Honor?

24 JUDGE TURNER: No, I think you are. Yes.

25 MS. BAILEY: Okay. Moving back to DX-8, I want to quickly
26 address some of Zentian's arguments on memory access.

1 Zentian argues that the memory access would require extensive
2 communication. Now Zentian doesn't describe what it means by extensive
3 communication, but a takeaway that I want to make sure that the board
4 understands is that there does not need to be communication of a cluster's
5 processors to another cluster's processors in order to do the initial and final
6 score determination.

7 Each processor actually operates independently of itself
8 because it's performing the entire tree search algorithm to determine the
9 initial and final score. So the processors don't all have to communicate with
10 each other, and nothing in Chen actually precludes the processors from
11 communicating with each other. It's just simply not required in the claim.

12 JUDGE SMITH: So let me just follow up on that point. So
13 that claim, the initial score is used to determine whether to continue
14 processing?

15 MS. BAILEY: Yes.

16 JUDGE SMITH: You're saying that the circuit doesn't have to
17 do that? There's just something somewhere that uses the initial score?

18 MS. BAILEY: No. The speech recognition --

19 JUDGE SMITH: It --

20 MS. BAILEY: Oh, I'm so sorry again. The speech recognition
21 score does determine the initial and final score determination. What I'm
22 saying is that each processor running Jiang's tree search algorithm also
23 determines the initial and final score.

24 JUDGE SMITH: Okay. I see what you're saying. So the fact
25 that it says it's used to determine -- it's implicit in there that it is -- by the
26 speech recognition circuit is implicit in that Claim 1(e)?

1 MS. BAILEY: The initial score is used to determine the final
2 score. Recall where I just discussed in Jiang, and let's take it back to Jiang.
3 Jiang discusses determining a score of the phoneme that is most likely, and
4 that's based on just the utterance that it's hearing, but then it determines a
5 final score by looking at the initial score along with all of the scores that are
6 further up on the branch, because now it's doing word recognition.

7 And so it's saying, okay, what is the lexicon? What is a likely
8 word, based on the three phonemes that we just recognized? Is this a likely
9 phoneme based on the initial score? So Jiang already teaches the initial and
10 final score determination.

11 JUDGE SMITH: Okay.

12 MS. BAILEY: Okay. With respect to Zentian's task, let's move
13 to DX-9. Zentian has a series of tasks that would have to be performed in
14 the combination. I note that task-sharing, resolving bottlenecks, and
15 messaging strategy were just identified but not otherwise discussed by
16 Zentian.

17 And then I also note that a POSITA would know how to
18 address these issues due to, again, the overwhelming prior art of record
19 showing that POSITAs at the time were doing speech recognition with
20 parallel processing.

21 JUDGE SMITH: It seems like a lot of the arguments on this
22 point are the same as the arguments in the previous case; is that right?

23 MS. BAILEY: You are correct, Your Honor. They are very
24 similar arguments and I do feel like I may be repetitive. Actually, I will
25 reserve my remaining time for rebuttal if there are no further questions.
26 Thank you.

27 JUDGE TURNER: Thank you.

1 JUDGE OGDEN: Yes. Thank you, Counsel.

2 We'll move now to Patent Owner. Mr. Noroozi, would you like
3 to reserve surrebuttal time?

4 MR. NOROOZI: Yes, Your Honor. 15 minutes, please?

5 JUDGE OGDEN: Okay. There's 30 minutes on the timer and
6 you can begin when you're ready.

7 MR. NOROOZI: Thank you, Your Honors, and may it please
8 the board.

9 The board has, I think, struck on the key issues with respect to
10 the arguments on Limitations 1(d) and 1(e). However, I think there's a
11 significant misunderstanding on the correct claim language interpretation
12 that has arisen from Petitioner's arguments, and I want to clarify that. And I
13 think, once we see what the claims require, then everything comes together.

14 So I'd like to start with the language of the claims themselves.
15 And Judge Turner, you touched on this question, and I know that it's one
16 that's understood by all the judges in terms of its relevance. The Claim 1(d)
17 and then 1(e), which follows it, is directed to performance by the speech
18 recognition circuit and is not directed to what is done on any individual
19 processor within the clusters. And this is really important to understand,
20 because what happens in the claim and in the teachings of the patent with
21 respect to the initial score determination happens at two levels.

22 There is activity at the level of the individual processors, where
23 aspects of what becomes the initial score are calculated, and then that --
24 those calculations from the individual processors are aggregated in the
25 results memory and used by the search controller to actually calculate what
26 becomes the initial score across all of the processors at the search controller
27 with respect to Limitation 1(d).

1 And I know I'm making assurances, but I'm going to show them
2 to you in the patent. And that's also where, with respect to Limitation 1(e),
3 the determination whether to continue processing or not is also made. So, if
4 we look at Column 10 of the 140 Patent --

5 Yes, that would be helpful, if we could publish that.

6 Column 10 of the 140 Patent talks about the operation of the
7 search controller with respect to the flow diagram of Figure 6 of the patent.
8 And what Column 10 explains is that the search controller assigns out the
9 relevant portions of the tree to each individual processor. Each individual
10 processor comes up with its own temporary lexical tree score. These
11 temporary lexical tree scores are then fed from each individual processor not
12 to the cluster memories but to one different common memory, which is the
13 results memory.

14 From this results memory, the search controller obtains the
15 different temporary lexical tree scores that came from each individual
16 processor, and it uses that to form the overall initial score or the overall
17 temporary lexical tree score for that entire level of recognition that was
18 being performed within that instance. And we can see this in the difference
19 between Figures 4 and Figure 6. Let me go to Figure 2 for a minute just so
20 we can see it at a very high level.

21 So if we could rotate Figure 2. If you right click, I think it'll
22 give you a rotate option. No. But I think the board has Figure 2 available to
23 it.

24 You'll see that there's a Search Controller 27.

25 And we can just keep it as it is.

26 There's a Search Controller 27, and it shows, with this up and
27 down arrow, that the search controller is in communication with the

1 processors. The instructions are sent to each processor of what to score, then
2 the scores out of the processors back up to the results memory, which I think
3 is number 25. And then you can see an arrow going back from the results
4 memory to the search controller.

5 That's the high level of the process I was describing, and it's at
6 that point that the initial score of Limitation 1(d) occurs and the
7 determination whether to proceed to either prune or to continue scoring.
8 That's what Limitation 1(e) is talking about. That step of Limitation 1(e)
9 also happens at the Search Controller 27. Consistent with the claim, which
10 says that it's the speech recognition circuit that does Steps 1(d) and 1(e) and
11 not each one individual processor itself.

12 Now if we could go to Figure 4.

13 JUDGE OGDEN: Counsel, doesn't the speech recognition
14 circuit include all of the parts, including the other processors?

15 MR. NOROOZI: That's right, Your Honor. And that's why I
16 think it's important to look at Figure 4 and 6, because I think what you're
17 touching on is, well, it says speech recognition circuit. That could be
18 something more than any one individual processor, but it could also just
19 comprise the work of one individual processor, so how do we know it has to
20 be one or the other, or could it be both? Am I understanding the gist of your
21 question, Your Honor?

22 JUDGE OGDEN: Yeah. Go ahead.

23 MR. NOROOZI: Yes. So let's take a look at Figure 4. Figure
24 4 shows the flow diagram of the temporary score determination in one
25 processor. And if we look at the flow in Figure 4, we see that, at the end of
26 it, there is no pruning determination or not. So it doesn't have the step of
27 Limitation 1(e), which requires that, based on an initial score, it determined

1 whether it to continue towards a final score or not. And that's strong
2 evidence that Figure 4, which is what happens on one processor, is not the
3 step of Limitations 1(d) and 1(e).

4 Now if we go to Figure 4 is relevant to 1(d) and 1(e) because
5 it's part of the process, but it doesn't satisfy the requirements is the point of
6 this part of my argument. And so, if you go to Figure 6, Figure 6 tells you
7 what happens with respect to all of the scores done on each processor as
8 shown in Figure 4. Now we're at the search controller level. Figure 6 is
9 what the search controller is doing, and Figure 6 says that you get these
10 results from the different processors, right? Like at S43, temporary lexical
11 tree scores return to results memory. That's coming from the individual
12 processors.

13 And then we go all the way down and we see that, at S50,
14 there's a determination whether to prune the lexical trees and the results
15 memory on the basis of the temporary lexical tree scores. That's what the
16 search controller is doing. And we also see that again at S44. So we have
17 this sort of iterative loop at the search controller level. And it's the search
18 controller that's performing 1(d) and 1(e), and it's doing that by aggregating
19 the information from the different processors.

20 And so that's what's required in the combination as well, is to
21 have some overall totality of the scores performed by the different
22 processors in Chen that they're relying on to then get to the final -- well, I
23 won't call it final because that'll get confusing. To get to the overall initial
24 score, the initial score of the claim limitations.

25 And I'd like to point out that Mr. Schmandt, in his testimony,
26 actually acknowledge that in his conversation with me, so I'd like to direct

1 the board to that aspect. It starts at Page 101 of Exhibit 2017. Before I go
2 there, though, are there any questions on this aspect that I --

3 JUDGE SMITH: I do have questions about this. So normally,
4 if the claims by themselves are clear, we go with the meaning given by the
5 claims. I mean, we turn to the spec if there's either some limiting definition
6 provided by the specification or some clear expression in the specification
7 that the applicant intended the claims to be, limited to the disclosed
8 embodiment.

9 I'm just looking at Column 4 of the patent, and it says, Figure 4
10 illustrates an embodiment of the invention. Figure 6 illustrates an
11 embodiment of the invention. I don't see in the spec and anywhere in the
12 spec that there's either a limiting definition to these limitations, D and E in
13 the spec or some type of expression in the spec that the applicant intended
14 the claims to be limited to Figures 4 and 6.

15 MR. NOROOZI: Yes, Your Honor. And in fact, there is such a
16 disclosure by the applicant. It is in the prosecution history. It's at Exhibit
17 1002, and it's at Pages 104 onward. And this is where the applicant had the
18 claim at Claim 1, on this issue of initial and final score, rejected by the
19 prosecutor, and the applicant explained that the claim limitations correspond
20 to the teachings of Figure 4 and 6, just as I've described.

21 JUDGE SMITH: Where is it? What --

22 MR. NOROOZI: It is at --

23 JUDGE SMITH: It's on Page 102, you said?

24 MR. NOROOZI: 104, Your Honor.

25 JUDGE SMITH: 104?

26 MR. NOROOZI: It starts there. Yes, Your Honor.

27 JUDGE SMITH: Okay.

1 MR. NOROOZI: And in fact, the petition itself also relies on
2 this passage from the prosecution history in setting forth its understanding of
3 Limitations 1(d) and 1(e).

4 JUDGE SMITH: But if I understand this correctly, this is in
5 response to a 112 rejection. The applicant here is saying that there is written
6 description support for the claim limitations. I don't see anything here
7 saying that the claims are limited to the embodiments in the spec.

8 Am I missing something?

9 MR. NOROOZI: Your Honor, it may be true that the applicant
10 did not say that the claims are limited to the teachings of those two figures,
11 but are no other teachings in the patent, aside from Figure 4 and 6, that relate
12 to what is claimed in 1(d) and 1(e), and so they are the only pertinent
13 teaching and they define the scope of those limitations.

14 And again, to be clear, Figure 4 describes the first part of what
15 becomes the initial score, which is the scoring that happens at the
16 processors, and then Figure 6 actually shows us how the initial score is done,
17 ultimately, in a way that meets Limitation 1(d), which is to take those
18 processor scores and aggregate them and then make a pruning determination
19 or not.

20 JUDGE SMITH: Okay. Thank you.

21 JUDGE TURNER: Let me follow up on Judge Smith. So is
22 Patent Owner's position that there actually is disavowal of claim scope,
23 because I think that's what he maybe was hinting at in saying that, really, if
24 this is being done just to sort of say, okay, this is what's supported? You still
25 have perhaps broader claims, but are you asserting disavowal of scope?

26 MR. NOROOZI: We are saying that Claim 1(d) and 1(e) are
27 not met per the patent by what happens on just one processor in the cluster,

1 because the patent's teaching as to how Limitations 1(d) and 1(e) are
2 performed is directed to them what ultimately happens at the search
3 controller and using the results memory.

4 Now we're not saying that you have to have a search controller
5 and a results memory by those terms in your system, whether in the prior art
6 or for infringement purposes, but we are saying that you have to take those
7 results from the individual processors and aggregate them somehow,
8 somewhere in order to get to that initial score, that the fractions of the initial
9 score that happen in any one given processor are not adequate to meet 1(d)
10 and 1(e).

11 JUDGE TURNER: So if I understand correctly, no disavowal
12 but this is an understanding?

13 MR. NOROOZI: This is the scope of the claim in light of the
14 teachings of the specification. We're not under broadest reasonable
15 interpretation, and so this is the scope that is consistent with the specification
16 teachings and what the person of ordinary skill would understand in view of
17 the specification.

18 JUDGE TURNER: Okay. I understand that. And just to ask
19 another question before I let you get back, I'm not going to take up too much
20 time, but the initial score and the final score, aren't these just sort of titles?
21 Isn't a rose by any other name smell as sweet? I mean, so we have
22 Petitioner, who says, okay, I'm doing this and I'm getting a result out.
23 Eventually, we're going to get an initial score. And eventually, we're going
24 to have recognition or not, so we're going to come up with a final score some
25 point.

26 So isn't this just nomenclature?

1 MR. NOROOZI: Oh, I think that's a great question, Your
2 Honor, and I think it really highlights what the problem is.

3 The issue here is: If we look at Jiang alone, then the answer to
4 your question at some level might be yes because Jiang is a speech
5 recognition system, but if we're looking at the combination of Jiang and
6 Chen, that's where the problem arises, because they have not explained how
7 the combination of Jiang and Chen would operate as a combination to get to
8 what you just said, which is, get an initial score, get a final score, get to
9 speech recognition, right? And they've ignored all those aspects because
10 they say, well, they're not in the claims, but they are in the claims. They're
11 in 1(d) and 1(e) with respect to the initial and final score.

12 And what happened, in our view, is that they looked at the
13 literal claim language and they said, the claims require a few processors in a
14 cluster and a memory and some speech recognition, so here we've got Jiang
15 and we've got Chen and that's enough and that meets everything, but they
16 overlook. The fact that the claim limitation says it's the speech recognition
17 circuit that has to do 1(d) and 1(e), and that the teachings of the patent show
18 you, for example, that you do that with a results memory and a controller.

19 And they left all of those things out of their combination
20 because they didn't appreciate what the claim truly requires, and they weren't
21 coming up with a system that actually works. They were really just trying to
22 strike at the minimum they thought they needed to meet the claim language,
23 and they fell short.

24 And so they don't have a theory of how their combination gets
25 to 1(d) and 1(e) as a whole. They revert back to what Jiang teaches, but
26 they're not applying what Jiang teaches literally in the combination, because
27 what they have to do is they have to take Jiang's tree search processor and its

1 lexical data, and they have to break it apart across these clusters. And so
2 whatever happens on any one processor, or even within one cluster out of
3 the four in Chen, is only a part of the overall speech recognition tree
4 recognition that was going on in Jiang plus Chen at that moment. And that
5 part, on its own, whether it's in one processor or one cluster, would not be
6 enough to meet 1(d) and 1(e).

7 And so the question we raised to their expert repeatedly is:
8 Well, then how do you propose to get there? How do you go from the
9 individual scores you got in your Jiang-plus-Chen clusters to the initial score
10 that you need for the claims, as well as the determination in 1(e) of whether
11 to continue toward a final score or not?

12 And that's where their expert said, well I didn't really say it, but
13 one way you could do it is to do it all in one processor and one cluster in
14 Chen. And he said, at this point, we're done with our parallel operations, so
15 we can move to the serial operation and just use one processor.

16 Well, Petitioner conceded today that Chen says that not all of
17 the cluster memories are directly and adjacently accessible to all the
18 different processors. And so you have a problem because you have
19 information you need for this initial score spread across Chen's clusters, but
20 you can't access all of it by any one cluster.

21 Then in the reply, Petitioner says, no, no, forget what Mr.
22 Schmandt said. He just made up that theory at his deposition, so we don't
23 even need to pay attention to it. Our real theory is that each individual
24 processor in the combination of Jiang and Chen would perform to meet the
25 initial and final scores.

26 And our response to that is, well, if you mean that what is done
27 on one processor, as part of the scoring, is adequate, that's incorrect because

1 it doesn't meet the claim language. The claim requires the totality. If you
2 mean that every single processor is going to get all the data it needs from the
3 scoring that was done by every other processor, that wouldn't work because
4 Chen doesn't allow for that, and also, that would be incredibly redundant and
5 wasteful and there's no motivation to have every single processor run an
6 aggregate score at the same time and get to the same place.

7 Does that address your questions?

8 JUDGE TURNER: I understand your position. Thank you for
9 the response of my question. Thank you.

10 MR. NOROOZI: Thank you, Your Honor.

11 JUDGE SMITH: Before you move on, just real quickly, did
12 either party propose a claim construction about these limitations?

13 MR. NOROOZI: No party formally proposed a construction.
14 We believe it's the plain and ordinary meaning on the face of the plain
15 language.

16 JUDGE SMITH: Okay. So let's say we disagree with you
17 about the plain and ordinary meaning. Let's say that we looked at the spec.
18 We just see embodiments that provide written description and enablement
19 support, but there's no clear language in the spec limiting the claim to these
20 embodiments.

21 We looked at the prosecution history. We don't see clear,
22 express language for a clear disavowal of claim scope, and we just looked at
23 the claim language and we say that the claim language by itself is clear, the
24 embodiments in the spec are not limiting, the arguments in the prosecution
25 history are not a clear disavowal of claim scope, so we're going to go with,
26 although it's not a formal claim construction, how Petitioner is construing
27 these claims.

1 If we do that, do you lose this case or is there still an argument
2 you can make to support a reason why the petition fails?

3 MR. NOROOZI: Your Honor, no, we would not lose this case
4 by any means, because this 1(d) and 1(e) argument is just one of our
5 arguments. We have a very powerful demonstration of a lack of reasonable
6 expectation of success as well as a refutation of the motivation to combine.

7 JUDGE SMITH: Okay.

8 MR. NOROOZI: I'd like to move on to --

9 JUDGE SMITH: Yeah, maybe you could turn to those.

10 MR. NOROOZI: Yes, Your Honor. So with respect to
11 reasonable expectation of success, if we could go to Slide 13. So we start
12 with an admission from Petitioner's expert that Jiang does not enable the
13 combination and Chen does not enable the combination. And so, per the
14 Raytheon decision from the Federal Circuit, when you have a prior
15 combination that's not enabled by either of the references it relies upon, you
16 need to get that enablement for reasonable expectation of success from
17 somewhere, and they don't have that from anywhere, and we have a lot of
18 evidence to the contrary.

19 So, first of all, Mr. Schmandt admitted that his declaration did
20 not provide the underlying details to support his conclusion of the POSA's
21 capability, he's never supervised anyone in putting something together like
22 the combination. He, himself, has never built the processor to memory
23 architecture. And this is on Slide 14, if I could. With respect to any of the
24 systems identified in his background, and he did not explain how the POSA
25 could have achieved his combination.

26 If we go to Slide 15, Dr. Anderson explains in detail that Jiang
27 has a Viterbi algorithm, and the Viterbi algorithm of Jiang requires

1 significant communication among the different processing and memory
2 components. It's established now, undisputed, that Chen prevents
3 communication between certain clusters with other clusters in terms of
4 memory and processors.

5 That's one key premise of Dr. Anderson's opinion against a
6 reasonable expectation of success. This blockage of communication
7 would've hampered and effectively precluded the effective operation of
8 Jiang's Viterbi algorithm on Chen. Notably, there's no such blockage of
9 communication in the system taught in the 140 Patent, so that's a problem
10 that arises out of the combination, not the claims or the patent.

11 Dr. Anderson also refutes Mr. Schmandt's conclusory and
12 generic assertions of the POSA's capabilities with his own personal
13 experience as one of extraordinary skill, elucidating, we hope for the board,
14 the actual complexity involved and the level of skill required to achieve the
15 combination, and the POSA's inability to do so as defined according to the
16 petition's criteria.

17 Judge Turner, was there a question that I could address? Thank
18 you, Your Honor.

19 Dr. Anderson, on Slide 16, goes into some detail about the
20 POSA's background qualifications and capabilities, as well as the specific
21 problems that would've been faced in attempting to put together this
22 combination. And Petitioner's rebuttals effectively assume that the POSA
23 would have the requisite knowledge but never attempt to show through
24 actual evidence that the POSA would have the requisite knowledge.

25 First, Petitioner relies on the level of ordinary skill in the art
26 under the case law and attempts to tie the patent's disclosures or silence to
27 the problems with the petition's theory, which we addressed in some detail,

1 and we explained that there is no confluence here. This is unlike the cases
2 that are cited because our claims and our specification are not directed to the
3 combination that the Petitioner has come up with and our claims in our
4 Patent don't give rise to the problems that Petitioner's combination has
5 created or would've created for the POSA.

6 And therefore, whether we teach solutions or we're silent on
7 solutions in the patent is entirely unhelpful to Petitioner's failure of proof.
8 Petitioner relies on general knowledge of parallel processing architectures in
9 the art. We explained in some detail that, that general knowledge is not
10 adequate to provide a reasonable expectation of success for this combination
11 because this combination raises a level of problems that Dr. Anderson
12 explains would be beyond the capabilities of that person of skill that the
13 petition has defined. We also --

14 JUDGE SMITH: Counsel, let me just ask you. I think, if I
15 remember correctly, one of the arguments that Petitioner is making is that,
16 while Petitioner's expert says a skilled artisan can do it, your expert says an
17 ordinarily skilled artisan couldn't do it or would have significant problems in
18 doing it.

19 And we have two experts saying the exact opposite, but
20 Petitioner seems to take the position that, well maybe the problem is not
21 with the level of ordinary skill. Maybe just your expert is not as credible or
22 persuasive as Petitioner's expert.

23 What do you say to that?

24 MR. NOROOZI: Well, I think they say it in a slightly different
25 way. They don't raise a credibility issue. Primarily, they say it impugns his
26 credibility because it shows he's not sort of capable or qualified or very good
27 at his work and his field of art. And our response to that is, no, he is

1 undoubtedly one of extraordinary skill, so his qualifications cannot and have
2 not been impeached.

3 In fact, he was not cross-examined on this testimony. He was
4 not asked any questions that impugned the credibility of what he put forth.
5 They didn't even ask him to explain, how come it is that you, an eminent
6 professor at Georgia Tech, with decades of experience and a PhD, who
7 teaches this stuff day in, day out, couldn't put together that simple system in
8 your declaration within a several-month period, along with the help of
9 multiple engineers? They didn't ask him that.

10 And Mr. Schmandt, who is admittedly less-qualified in
11 numerous instances, just based on his CV, admitted he's never done anything
12 like what the combination requires. So we have one expert, our expert, who
13 has tried to do something comparable and is familiar firsthand with the
14 challenges involved. We have another expert who has never tried to do it,
15 has never supervised anyone who tried to do it, and who said he didn't sit
16 down and think through what it would require before he reached the
17 conclusion of reasonable expectation of success.

18 And so I agree with you, Judge Smith, that we have a
19 credibility battle here, but I think the credibility battle, respectfully, from our
20 standpoint, is resolved in favor of Dr. Anderson because his qualifications
21 are unimpeached and his testimony is based on his firsthand experience
22 through thorough consideration, unlike Mr. Schmandt's.

23 JUDGE SMITH: Okay. Thank you.

24 MR. NOROOZI: There was an assertion about a motivation to
25 combine. Obviously, we go into a lot of detail in refuting the motivations to
26 combine. Mathew I teaches that having more processors in a parallel
27 processing system is not necessarily better. Of course, they could not rely

1 on Jiang alone, as Judge Smith raised, because as Petitioner conceded, they
2 don't have a ground based on Jiang alone, and there was no theory presented
3 based on Jiang alone.

4 And so all of our efforts for the past many months and many,
5 many hours of work have been directed to showing the problems with a
6 combination of Jiang and Chen. And if there were a ground based on Jiang
7 alone, then we would've shown the problems with that and addressed it. But
8 of course, we haven't had that opportunity and it's not at issue.

9 The assertion on the motivation that a known technique is
10 enough is inconsistent here with the evidence, as well as with the case law.
11 So the statement was made, I believe, that a motivation to combine is not
12 needed for obviousness. Well, I think it's blackletter Federal Circuit law to
13 the contrary in many, many cases. And that would be a completely incorrect
14 statement of law.

15 But to the extent that position relies on some reading of KSR,
16 which I have seen at some instances Petitioners attempt to make, KSR itself
17 says it's important to have a reason why a person of skill would've been
18 motivated to make the combination or would've brought the combination
19 together. So I think both at the Supreme Court and Federal Circuit level, it's
20 clear that you need a motivation.

21 And in terms of known technique, there is no known technique
22 here. Chen is not in the field of speech recognition. There is no general
23 knowledge in the field of speech recognition that having a parallel
24 processing architecture with more processors gets you a better outcome.
25 Mathew I teaches against any such generic assertions and knowledge. It
26 tells you the opposite.

1 The contention was made that Mathew I only has one sentence.
2 Well, that one sentence is -- it's actually a paragraph, and it's talking about
3 the results of real-life experiments that they ran and what they determined at
4 the end of those experiments. There's no evidence to the contrary of that
5 weight.

6 JUDGE SMITH: Both with Mathew I, let me just ask you real
7 quick on Mathew I. From what I understand, Mathew I, the use of two
8 processors does give a speed increase over one processor, but the use of five
9 processors doesn't give a speed increase over two processors. So Mathew I,
10 to the extent that the claim does say one cluster of processors, or a plurality
11 of processors, Mathew I itself, the evidence that you're giving to us, Mathew
12 I gives us one cluster of two processors that has a speed improvement.

13 Why isn't that enough?

14 MR. NOROOZI: Yes, Your Honor. So I think that's a really
15 important point. So I actually think, based on exactly what you said, we see
16 that Mathew I defeats the motivation, because as you pointed out, Jiang
17 itself already contemplates having a CPU with at least two processors. Now
18 in their combination, they get to eight processors at least because they have
19 Figure 4 of Chen. As they said, they're relying on that embodiment, not any
20 modification to that embodiment.

21 And in that embodiment, there are four clusters, and each
22 cluster has at least two processors. So we're going from Jiang that says
23 potentially I've got a two-processor CPU, to Chen that now has an eight-
24 processor clustered CPU. And Mathew I says, when you make that kind of
25 move, you actually can end up with slower results because of the
26 synchronization overhead involved. They don't address that problem in the
27 petition or anywhere in their evidence and argument. They don't tell you

1 how a POSA would've overcome that synchronization overhead cost to
2 actually achieve a benefit.

3 JUDGE SMITH: But to the extent that you are rebutting the
4 argument that the prior art doesn't teach Limitation 1(a), one cluster of two
5 processors, I mean, the evidence that you're citing teaches exactly that.

6 MR. NOROOZI: Oh, we have not argued against Limitation
7 1(a) in particular, in the sense of whether the prior taught using one more
8 processor. Now let me be clear. In Mathew I, however, it's not a cluster.
9 There's no teaching of a cluster. And 1(a) does talk about a cluster.

10 JUDGE SMITH: Okay. Thank you.

11 MR. NOROOZI: And that is a very significant distinction.
12 Clustered processing architectures are a very specific species within the
13 general realm of parallel processing, and they come with a very large
14 number of complications that Dr. Anderson has talked about. So again, we
15 cannot equate the clustered processor architecture of Chen with just any
16 multiprocessor architecture.

17 Your Honors, I'm happy to address as many questions as you
18 have now, but otherwise I will save my time for rebuttal.

19 JUDGE OGDEN: Okay. Thank you, Mr. Noroozi.

20 MR. NOROOZI: Thank you.

21 JUDGE OGDEN: Ms. Bailey, you have 18 minutes in your
22 rebuttal time. You can begin when you're ready.

23 MS. BAILEY: Thank you, Your Honor.

24 Counsel spent the first 10 minutes of his opening pointing you
25 to multiple disclosures in the 140 patent and inviting the board to read those
26 disclosures into the claims. The claim simply recites, performing probability
27 determination, initial and final score generation on a clustered processor

1 architecture. The specifics of the architecture that are described in the 140
2 patent are simply not claimed. And as we all know, the limitations of the
3 claims --

4 JUDGE SMITH: Ms. Bailey, before you get too much into it,
5 let me just ask you: I take it neither party has done a claim construction; is
6 that correct?

7 MS. BAILEY: That's correct, Your Honor. But may I ask what
8 particular claim you are asking about on the claim construction?

9 JUDGE SMITH: For 1(d) and 1(e). I'm asking about this just
10 because the arguments that both parties are making today seem to suggest
11 that we need to do some kind of claim construction to resolve the dispute in
12 this case. But to the extent that neither party has made a claim construction
13 I'm just wondering about the mechanics of that.

14 Do the parties need to address claim construction, or is it
15 enough on the record for us to make a final decision now with the arguments
16 already on the record?

17 MS. BAILEY: Parties do not need to address claim
18 construction. You have enough on the record.

19 I want to emphasize again, as I mentioned in my opening, that
20 Jiang already teaches the initial and final score determination, and Patent
21 Owner does not argue against that teaching. How that is done on the
22 clustered processor architecture and where the scores that are generated go,
23 how they're aggregated, how they're compiled, as I had previously
24 mentioned, that is not claimed. Again, Patent Owner is -- sorry, go ahead.

25 JUDGE SMITH: What about to Patent Owner's point that
26 there's only one embodiment in the spec and that's it? What one of ordinary

1 skill would read this and realize, oh, the spec only has one embodiment, and
2 that's what the claims mean. What about that point?

3 MS. BAILEY: I would say that if the board took that position,
4 that it had to import those limitations into the claim, that would be legally
5 incorrect and grounds for reversal.

6 JUDGE SMITH: And what would be the basis for --

7 MS. BAILEY: Because --

8 JUDGE SMITH: -- not taking Patent Owner's position on this?

9 MS. BAILEY: Sure. Because even if a single embodiment is
10 disclosed, all of the particularities of that single embodiment do not get
11 imported into the claim.

12 JUDGE SMITH: Okay. Thank you.

13 MS. BAILEY: Patent Owner is significantly distorting the
14 petition's mapping, and I can't emphasize that enough. I know I discussed it
15 at length in our opening, but the tree search algorithm performed in Jiang
16 already teaches determining the initial and final scores, and the mapping is
17 that each processor would determine the initial and final scores for the set of
18 the acoustic model data that it is particularly processing. That's all that's
19 recited in the claim. It's actually a quite a simple combination.

20 There was a discussion about the prosecution history. We
21 actually discuss this at the Petition Page 37. But I think it would be
22 interesting and helpful for you to read what the applicant said during
23 prosecution history and match it up to what Jiang discloses. They read very
24 similarly. Zentian also, in arguing against the motivation to combine and
25 saying there is a lack of reasonable expectation of success, says that
26 information is needed across all the clusters.

1 But again, that is a distortion of the petition's mapping.
2 Information that's recited in the claims, in other words, the initial and final
3 score determination is not needed across all clusters because each processor
4 of each cluster performs its own initial and final score generation. That
5 information is already done by the single processor. The processors of each
6 cluster do not need to communicate with other processors in order to
7 perform the initial and final score generation.

8 Also, there was an accusation from Patent Owner that Mr.
9 Schmandt changed the petition's mapping during his deposition transcript.
10 Again, that is also a fabrication and a distortion. Mr. Schmandt did not
11 change the patentability theory.

12 Regarding the reasonable expectation of success, Patent Owner
13 keeps on framing the motivation with respect to whether Reference A is
14 enabling to Reference B or whether Reference A is going to teach how to
15 perform functions or limitations of Reference B. That's never going to be
16 the case. That's why it's an obviousness inquiry instead of an anticipation
17 inquiry.

18 Second, I want to again remind the board of the case of Intel v.
19 Pact that's cited in our briefing. This is 61 F.4th 1373. I'd like to read to you
20 two quotations out of it because Patent Owner disputes those, and I'm
21 quoting from the case. This is a recent Federal Circuit case. The board
22 refers in discussing known technique, this is the so-called -- I'm sorry, the
23 Federal Circuit.

24 This is the so-called known technique rationale. And if there's
25 a known technique to address a known problem using prior elements,
26 according to their established functions, then there is a motivation to
27 combine. The Federal Circuit also said, contrary to the board's suggestion,

1 Intel never had to show that replacing essentially the references cash with an
2 improvement in a categorical sense. In other words, an improvement is not
3 required. It's simply enough to show that it is a suitable option.

4 Next, Counsel had talked about that --

5 JUDGE SMITH: Well, I think the point Patent Owner was
6 making with that is that there is no known technique. You're providing
7 known technique as a rationale for the combination, but that Patent Owner is
8 saying there is no known technique.

9 MS. BAILEY: So I disagree with that, Your Honor. We have
10 the known technique of Jiang and its tree search algorithm and initial and
11 final score generation, which by the way is also talked about in Ravi
12 Shankar and other references because tree search and initial and final score
13 generation was very well known at the time. Clustered processing was also
14 very well-known at the time.

15 So applying the clustered processing architecture of Chen is a
16 known technique to Jiang's tree search algorithm, and it results in the
17 predictable result that each processor would be performing Jiang's tree
18 search algorithm as we've mapped.

19 Turning back to Patent Owner's discussion regarding the
20 Mathew reference, I just want to reiterate again that Mathew has a single
21 sentence for which we don't know anything about what it was doing, other
22 than it added more processors to a particular stage.

23 We don't know the architecture. We don't know the memory
24 allocation. We can't take away from Mathew that simply having an
25 additional processor would blow up a system. That's certainly not the case,
26 simply because we have so many references that disclose parallel processing
27 with multiple processors for speech recognition.

1 Also, one of Your Honors had asked a question regarding Dr.
2 Anderson's opinions seem to be contrary or opposite of Mr. Schmandt's
3 opinions. The board doesn't need to get into a weighing of the expert's
4 opinions on whether a POSITA would be able to address the simple tasks
5 that Patent Owner identified, because again, we have cited multiple
6 references that discuss parallel processing with speech recognition,
7 indicating that a person in the area of speech recognition would know how to
8 address simple ordinary tasks associated with parallel processing.

9 JUDGE SMITH: Yeah, but I guess to that point, that's where
10 we need the expert testimony to resolve this dispute, because the dispute is,
11 according to Patent Owner, a person of ordinary skill in the field of speech
12 recognition wouldn't have a thorough, detailed understanding of parallel
13 processing enough to make the combination. Whereas your expert says that
14 person of ordinary skill would have enough of an understanding.

15 So to that extent the issue that we're looking at is what skills
16 does a person of ordinary skill in the field of speech recognition have? And
17 we're looking to your experts to provide us with that answer.

18 MS. BAILEY: And I had prior deposition testimony citations
19 from our expert where he discussed, but I would also remind the board that a
20 battle of the experts doesn't need to be teed up here because you do have the
21 references of speech recognition skilled persons performing parallel
22 processing.

23 So we're talking about a simple task, and Patent Owner says,
24 well, the skilled person would not know how to do that task and speech
25 recognition. Well, then how do you obviate all of the multiple references
26 where purely speech recognition researchers were working in this field?
27 You would have to, the panel would have to ignore all of those references

1 and say, oh, I think memory contention would be an issue based on Dr.
2 Anderson's very conclusory, without lack of factual basis, opinion.

3 And if I can just read into the record with respect to Mr.
4 Schmandt's deposition testimony and additional evidence on the skill level, I
5 refer to his deposition as Exhibit 2017.

6 Sorry, I need my glasses.

7 Exhibit 2017, Page 87, Lines 18 through 23; Page 64, Line 15
8 through Page 65, Line 2; Page 99, Line 17 through Page 101, Line 3. And
9 Exhibit 1003, Pages 60 through 71 that discuss additional speech recognition
10 systems with parallel processing.

11 Does the panel have any other questions for me? Okay. Thank
12 you.

13 JUDGE OGDEN: Thank you, Ms. Bailey.

14 Mr. Noroozi, you have 11 minutes.

15 MR. NOROOZI: Yes, Your Honors. Thank you.

16 With respect to the claim construction question, Your Honors, I
17 direct the board to the decision in XR Communications v. Cisco in the
18 Federal Circuit. This is a case that I handled at the PTAB level, and then I
19 also handled on appeal before the Federal Circuit. So it's familiar to me.

20 In that instance, there was a debate as to whether the correct
21 construction of the claim terms should be limited to the only embodiment
22 disclosed in the patent specification. The board agreed with Patent Owner,
23 whom I represented, that the claim should be so construed that the scope of
24 the claim was consistent with the embodiment, the only embodiment
25 disclosed.

26 And Cisco vigorously challenged that interpretation before the
27 Federal Circuit, and the Federal Circuit affirmed that the board's claim

1 construction was correct and consistent with all of the principles of claim
2 construction under the plain and ordinary meaning standard.

3 So I think that's one example. There are many, many examples.
4 And in fact, to the contrary, I think that it would be a clear error of law,
5 respectfully, if the scope of the claims was construed to go beyond the scope
6 of anything taught in the patent specification.

7 It wouldn't be the way that a person of ordinary skill would
8 interpret the claims because they're trying to understand what the invention
9 is, not just what the words could mean in the English language as a whole.
10 And when they want to understand what the inventor had in mind, they're
11 going to have to frame their understanding with respect to the specification
12 as Phillips and XR v. Cisco and many other cases tell us.

13 I'd like to direct the board to Mr. Schmandt's testimony at
14 Exhibit 2017, Page 101, and I hope this is elucidating.

15 JUDGE SMITH: Well, before you do that, let me just real
16 quick, with respect to the claim construction, I asked Petitioner this question.
17 I'm going to ask you. Neither party proposed a claim construction.

18 Is there enough information on the record for us to resolve this
19 dispute? Or do the parties need to address claim construction, or can we
20 resolve it without further briefing from the parties?

21 MR. NOROOZI: Your Honor, from Patent Owner's standpoint,
22 if the board would like briefing on the claim construction issue that could
23 elucidate the issue, we are happy to provide it. However, we have several
24 arguments against the petition and its adequacy of demonstrating
25 obviousness, and our case is not rise and fall on the claim construction issue.
26 So we're happy to have the board's decision on the full weight of our
27 arguments.

1 JUDGE SMITH: So no further briefing is necessary for either
2 party on claim construction?

3 MR. NOROOZI: I think that, from our standpoint, if the board
4 does not require further briefing, that for purposes of the record, we've
5 established our points, our main points that the teaching of the patent is
6 consistent only with an understanding of 1(d) and 1(e), such that 1(d) and
7 1(e) require the sum of the scoring activity across the different processors, or
8 let's say an initial score that is based on knowledge of all of the activity that
9 happened across the different processors, and that 1(d) and 1(e) are not
10 satisfied by what happens with respect to one processor alone when they're
11 all running together and calculating scores.

12 And then from a legal standpoint, we cited to XR and Cisco and
13 Phillips and those things. So we're satisfied with that record, Your Honor.
14 If you would like further briefing, we're happy to provide it.

15 JUDGE SMITH: Okay. Thank you.

16 MR. NOROOZI: Exhibit 2017 at Page 101, Mr. Schmandt was
17 asked, so do you have an explanation in your declaration of what happens
18 next in Chen's processors after they've split up the tasks so that each
19 processor is doing a part of the A through Z sort of analysis?

20 And he says, I don't explicitly say that the results are then
21 merged, but if we're going to be doing pruning based on thresholds, which is
22 what 1(e) is about. It's about whether you go to a final score or not in light
23 of the initial score. He continues to say, then we have to know the scores
24 that we got on each of the trees. So I think that's a safe assumption that
25 that's in there.

26 So when each of the processors has performed its task on its set
27 of trees, it can produce a set of numbers. And looking at the numbers across

1 all of the processors, across all of the results, we can choose a pruning
2 threshold, just like Jiang chooses a pruning threshold after it performs all
3 these operations in serial as opposed to parallel.

4 Now this doesn't go to the claim construction issue, right? This
5 goes to what would be necessary in terms of their showing for the
6 combination to meet our view of Limitations 1(d) and 1(e), just so that we're
7 clear.

8 And then he was asked, in your declaration, where do you say
9 the pruning threshold determination would occur in your theory? Where
10 would it happen in terms of hardware based on your declaration?

11 And he says, well, it's described as happening in Jiang's
12 processor, and Jiang's processor has been replaced by multiple Chen
13 processors running in parallel. But at that point in the operation, we no
14 longer need the acoustic memory because we're done. So it could be any of
15 those processors, let's say Processor 1. And that's where he comes up with
16 his one processor and one cluster theory.

17 And then he's asked, you don't explain that in your declaration,
18 right?

19 And he said, no. I don't think it's necessary.

20 Now going to the issue of Chen being a known technique,
21 Judge Smith, I think you identified our argument correctly that Chen is not a
22 known technique in the field of speech recognition. Counsel's response for
23 Petitioner was that, well, there are other parallel processing art in the field of
24 speech recognition.

25 And our response to that is yes, but they're not adequate to get
26 you to the claims or to support reasonable success for your combination,
27 because the claims require a clustered processor architecture with these

1 clustered memories in a particular way. And only Chen teaches that. There
2 is no other prior art that teaches that.

3 And so they cannot rely on general knowledge of parallel
4 processing in the art to arrive at an adequacy of the POSITA skill with
5 respect to the combination of Jiang and Chen. And that's something that we
6 explain in detail through Dr. Anderson's testimony.

7 There was an assertion made that clustered processing
8 architectures were well known at the time. There's no evidence of that. In
9 the field of speech recognition, if that's the assertion, there's no evidence.
10 There's only evidence of general parallel processing here and there, but
11 nothing about clustered parallel processing architectures used for speech
12 recognition.

13 It's our patent that came up with that. They haven't found
14 anything in the prior art that comes up with that, and that's where we have
15 the fundamental problem. They don't have prior art that teaches the
16 architecture of our patent in the field of speech recognition.

17 JUDGE SMITH: But as far as I understand it, the cluster is two
18 processors connected to one memory. I mean, the prior art has two
19 processors connected to one memory.

20 MR. NOROOZI: Your Honor, it's understood in the field that
21 simply having two processors connected to a memory is not a clustered
22 processing architecture. So the claim resides in one or more clusters of
23 processors, not one or more processors.

24 JUDGE SMITH: Well, where is that understanding in the
25 record?

26 MR. NOROOZI: It comes from the use of the word clusters,
27 Your Honor. Clusters of processors has a meaning in the field of art, and the

1 claim requires one or more clusters of processors, and then each of the one
2 or more clusters has a plurality of processors.

3 JUDGE SMITH: But do you know where that meaning is in
4 the record or no? If you don't, that's fine. I don't want to take up too much
5 time.

6 MR. NOROOZI: Nobody in this proceeding has ever argued.
7 There's never been an argument made. And so there's never been a need for
8 us to for provide refuting evidence that simply having two processors
9 connected to a memory would meet these claims.

10 JUDGE SMITH: That's what your claim literally says though.

11 MR. NOROOZI: Well, I think then you would have to read out
12 the word clusters. And so, again, I understand that if we look at the claim
13 without an understanding of what clustered processing architectures are, if
14 we don't give weight to that term, then we could say maybe just two
15 processors to a memory is enough. But that's not what these claims are
16 directed to. They're directed to an architecture like the one in Figure 2.

17 Now in Figure 2, you can see this clustered processing
18 architecture, and there are two clusters shown. And it's true that the claims
19 say one or more, so you could have maybe one cluster, but it would still be a
20 clustered processing architecture. Whereas there's nothing in the prior art
21 that teaches that in the field of speech recognition. Jiang doesn't have that.
22 Jiang doesn't.

23 Just to be very clear, Jiang is basically sort of unconcerned with
24 the hardware. It's entirely focused on the software, and it doesn't have any
25 interest or focus on using an architecture like Chen's. And the fact that Jiang
26 says it can run on something as simple as a handheld device back at the time
27 of the invention tells you that Jiang is entirely directed to being optimized

1 for low processing power. It doesn't have any interest in being run on a
2 supercomputer architecture like Chen's, and even if there were some interest
3 in that, hypothetically, we've shown that there wouldn't be a reasonable
4 expectation of success or a motivation to combine.

5 JUDGE OGDEN: So Counsel, your time is up. If you'd like to
6 very, very briefly sum up, we'll give you a few more seconds if you'd like.

7 MR. NOROOZI: Yes, Your Honor. So with respect to the
8 reasonable expectation of success and motivation to combine, I just also
9 want to highlight the evidence that the combination is not as simple as just
10 combined Jiang and Chen. It requires breaking up Jiang's tree search
11 algorithm and putting it in the right ways in the right places across the
12 different clusters and processors in Chen. The combination requires four
13 clusters at least, and Dr. Anderson has shown in detail the complexities and
14 problems that would arise and why that would exceed the POSITA skill as
15 defined in the petition.

16 JUDGE OGDEN: Okay. Thank you, Mr. Noroozi.

17 MR. NOROOZI: Thank you, Your Honor.

18 JUDGE OGDEN: And thank you, both parties. This will
19 conclude the hearing for this case. And we'll get you a final decision in due
20 course, and we are adjourned. And let's go off the record.

21 And before we end, I'd like to give the court reporter an
22 opportunity to ask any questions from the parties.

23 COURT REPORTER: Thank you, Your Honor. I have no questions.

24 (Whereupon, the above-entitled matter went off the record at 4:28 p.m.)

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