

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLIED MATERIALS, INC.,

Petitioner

v.

OCEAN SEMICONDUCTOR LLC,

Patent Owner.

IPR2021-01342 (Patent 6,968,248)

IPR2021-01344 (Patent 6,907,305)

Record of Oral Hearing
Held: November 15, 2022

Before MIRIAM L. QUINN, JOHN D. HAMANN, and DAVID D. COTTA,
Administrative Patent Judges.

IPR 2021-01342 (Patent 6,968,248)

IPR 2021-01344 (Patent 6,907,305)

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The above-entitled matter came on for hearing Tuesday, November 15, 2022, commencing at 11:21 a.m. CST at the USPTO Texas Regional Office, 207 South Houston Street, Suite 159, Dallas, Texas.

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

11:21 a.m.

1
2
3 JUDGE QUINN: We are convening this afternoon for the session
4 concerning IPRs 2021-1342 and IPR 2021-1344. We already did an
5 introduction this morning and gave the instructions this morning. Those are
6 still relevant for this session. So to the extent again, if you have objections,
7 we don't do speaking objections, you reserve them for your argument time.

8 And with that, Petitioner, you are first, and you have a total of 30
9 minutes, and how much time do you want to reserve?

10 MR. KRAUSE: I'd like to reserve 15 minutes, Your Honor.

11 JUDGE QUINN: All right, you may proceed.

12 MR. KRAUSE: May it please the honorable panel, I'm Eric Krause
13 for petitioner of Applied Materials. You can jump to slide 3. On slide
14 3 we have Claim 1 from each of the two patents at issue in this
15 combined proceeding. On the left, Claim 1 of the 305 patent, and on
16 the right, Claim 1 of the 248 patent, with the differences between the
17 claims underlined in red. As patent owner's expert testified, the minor
18 differences between the two claims do not impact the obviousness
19 determination.

20 We can jump back to slide 2. The two patents at issue in this
21 proceeding are related to each other by a continuation application, and
22 share the same specification dating to April of 2002. Now in 2002,
23 the motivation in the semi-conductor industry was increasingly to
24 integrate and automate. Houses were developing more advanced
25 technologies to increase efficiency and to deal with increasing and

1 growing complexity in products as the semiconductor industry
2 progressed to smaller and smaller geometries.

3 Fabrication facilities would use a manufacturing execution
4 system, or MES, to control tools, but the MES has to be updated and
5 personnel were used to provide those updates, introducing potential
6 errors and delay into the system. And so as the overall drive in the
7 industry was to increase profitability, that was driving an increased
8 desire to automate and integrate.

9 We jump to slide 8. These motivations would drive a POSA to
10 the Schulze reference, assigned to petitioner-Applied Materials.
11 Schulze discloses adding an automated monitoring and assessment
12 system 107, circled here and color-filled in in blue, separate from the
13 MES 102. Schulze discloses integrating that automated monitoring
14 and assessment system be of the bus105, which also connects both of
15 those components to the various equipment 115 or tools in the fab.

16 Messages sent from the tools would be received by the
17 monitoring and assessment system, which would maintain a state for
18 the overall fab at all times. This would be a resource for the MES to
19 query the monitoring and assessment system to see the state of the fab
20 to help determine what to do next and how to control the tools. Some
21 of the messages sent by the tools to the automated monitoring and
22 assessment system would trigger certain events.

23 For example, if a tool gave a message that it was going offline
24 suddenly, then the status could be updated for that tool by the
25 automated monitoring system, so know that that tool is now

1 experiencing unscheduled down time. This would help the MES not
2 send lots to that tool for processing because that tool is offline.

3 JUDGE QUINN: And did you say that in Schulze the MES
4 also controlled whether to send a new lot or not to a machine that has
5 been detected as down?

6 MR. KRAUSE: I think it would depend on the particular
7 design of the fab and organization of the fab, but certainly the MES is,
8 generally speaking, the MES is used to control the ongoing in the
9 fab. And so the MES would be making a recommendation or a
10 determination of what to do next.

11 JUDGE QUINN: But Schulze does not control the conveyor
12 system or anything like that. I didn't see any of that in Schulze.

13 MR. KRAUSE: No, Schulze doesn't get as specific into
14 specific machinery being controlled. In fact, Schulze is assessment
15 and monitoring. So Schulze is receiving messages and status, and it's
16 maintaining a status. So the Schulze system will track whether the
17 lots have arrived at a tool and are being loaded, whether they're
18 finished in the tool and need to be unloaded, not necessarily where
19 they need to go next, not a decision, but more like a status, right?
20 This lot is here. So Schulze would track that.

21 JUDGE QUINN: Got it.

22 MR. KRAUSE: And with that realtime tracking info, a POSA
23 would be motivated to further use that information to make things like
24 scheduling decisions or decisions about what to do next, and that
25 would bring the POSA to Gupta, which discloses a realtime event-

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