

Advantest Corporation
IR Technical Briefing
Q&A Summary

June 26, 2020

Q: I would like to ask about the size of the SLT (system level test) market. Your FY19 sales and those of your tester peers suggest that the market is already worth around 100 billion yen. What is your view? Also, I expect that it could quickly reach double that size, but am I being overly optimistic?

A: Given that our greatest competition in this market comes from the testing environments that the semiconductor manufacturers have created in-house, we unfortunately do not have accurate figures on the market's size, but we are currently doing research on it. However, because semiconductor manufacturers struggle with issues such as test escape, we expect events like the launch of new technologies and new customer products to spur greater demand for SLT going forward.

Q: What can you tell us about your competition?

A: Tester and handling equipment manufacturers in Taiwan, the US, and Singapore are offering SLT solutions, but those firms' solutions have issues in terms of their scalability, thermal control performance, and throughput, for example. We believe that we are capable of offering a different sort of added value.

Q: Is there the potential for cannibalization between traditional chip testers (ATE) and SLT solutions?

A: Our customers may become more insistent about reducing test costs given that SLT solutions will represent an additional purchase. However, that is all the more reason we expect to see our business opportunities grow. By analyzing the test data that is produced at each stage of testing, we will be able to propose what a truly optimal testing flow should look like, which is a new type of value we can offer. Moreover, we believe that proposing these synergies between ATE and SLT solutions for a wide range of applications will enable us to differentiate ourselves.

Q: Would it be possible to apply a subscription model to SLT?

A: More so than a subscription model, we are envisioning an expansion in recurring sales. We estimate that with SLT, the recurring portion of our business will be quite substantial,

including in terms of consumables such as Essai's sockets. Our estimates suggest that in aggregate, sockets and other recurring sales will account for over 50% of total SLT sales over a period of 10 to 15 years.

Q: Is your US peer the only company involved in SLT that is a tester manufacturer rather than a handler manufacturer?

A: Our US peer has SLT solutions similar to ours. However, we do not think that that firm possesses the mechanical solutions to enable high throughput or thermal control technology capable of keeping pace with the latest technological trends.

Q: Under your mid -to long term management policy, the Grand Design, what sort of solutions are you exploring for the design and evaluation processes?

A: We want our offering to enable customers to perform efficient validations in their design and evaluation processes. In addition, we want to see if we can establish an efficient validation methodology in the supply chain by performing analytics on data pooled from our design and evaluation solutions, our ATE solutions, and our SLT solutions.

Q: You say that the four application domains you expect to drive SLT are mobile, automotive, computing, and memory & storage. Do you expect some of those to take off more robustly than others in the next three years?

A: Data itself has become the key driver of semiconductor demand, and there are now greater needs for reliability assurance. The stronger those needs in a given domain, the sooner we expect that domain to drive expansion in the SLT market. In other words, we look for computing to be the first driver, followed by memory & storage, then mobile, and then automotive. In the case of automotive, we expect that data volumes involved to grow sharply as the environment for autonomous driving develops.

Q: You booked substantial orders in 4Q FY19. What drove that order growth? Also, if that were to happen again, what might the driver be?

A: Technological advancements and the launch of promising new end products act as accelerants for the SLT business. When node shrinkage results in more complex or more sophisticated semiconductors or generational changes in end products require updates to testing scenarios, we expect to see new demand momentum for SLTs.

Q: You say that the ability to quickly supply customized products in large volumes is one of Essai's strengths. Why is it able to do that?

A: Sockets and thermal control units are Essai's primary product offerings. It has one of the most automated manufacturing floors in the industry, and it has established very efficient operations. That has enabled its short lead time from design to product shipment.

Q: Between third-party SLT sales and customers fulfilling their own SLT needs in-house, which is the larger market, and which has the greater growth potential? Also, what motivates customers to switch from their own in-house solutions to those of a third-party vendor?

A: We believe in-house solutions represent the larger market. We expect the SLT market that we serve to grow as we encourage our customers to migrate away from their in-house solutions. We offer solutions that help with the problems common to in-house solutions, like low productivity and efficiency, as well as limitations in the evaluation environment. Switching to a new testing environment is not easy for customers as it involves a variety of migration tasks, but it seems to us that many semiconductor manufacturers are feeling that their existing in-house SLT solutions are reaching their limits.

Q: With people talking about the difficulties of Moore's Law, I think that advanced packaging is going to be more important going forward, but is there any connection between SLT demand and SiP uptake?

A: Greater use of advanced packaging such as 2.5D and 3D is among the drivers of increased SLT demand. An SiP, which represents one type of advanced packaging, is made up of multiple chips that have passed ATE testing, but the functionality of the modules created from those chips must be validated. Going forward we expect to see the creation of testing flows for validating an SiP's performance in the final application, which should increase SiP-related SLT demand.

Q: Implementing SLT will require additional costs of your customers, but it will also benefit them in the form of lower defect rates. What do you think the balance between those two sides of the equation will look like going forward?

A: Our customers are also having internal discussions about how the benefits of adopting SLT balance out versus the higher test costs associated with it, and some of them tell us that they are concerned about the test costs. However, it is also a fact that the smartphone brands, for example, are pressuring the chip manufacturers to take steps to help them reduce product return rates. We feel that the industry as a whole is moving in the direction of being able to justify the adoption of SLT because it will produce net benefits in terms of costs.

Q: What kind of interplay or differentiation do you have in mind as regards SLT and W2BI?

A: We provide our customers with W2BI as a 5G emulation tool. Meanwhile, SLT involves running programs based on end user use cases to validate actual operations. We will carefully consider what kind of value we might be able to offer via interplay between the two.

Q: Could you discuss your roadmap for growth in SSD testers and changes in interfaces?

A: We are beginning to see demand for evaluating PCIe Gen 5, and we look for mass production to get underway in the second half of 2020 or in 2021. We expect to see even faster system requirements with PCIe Gen 6 in the latter half of 2021. Going forward we will offer MPT3000 solutions that keep pace with these interface changes.

Q: Page 13 of your presentation deck is entitled “Customer Challenges Lead to System Level Test.” Of the items listed there, which do you expect to drive the SLT business the most going forward? Also, you say that you anticipate 20-30% annual growth from the SLT business over the next two to three years, but do you expect that to be driven by high-end products, such as the CPUs and GPUs used in data centers?

A: It is difficult to rank them, but we believe that the greater an item’s relevance to data, the more likely it is to drive demand. Node shrinkage is a powerful driver of SLT demand. In addition, lowering power consumption results in changes in performance due to the power and thermal variations involved in the semiconductor manufacturing process. This also requires solid validation using SLT. In the HPC space, companies are working on device integrations using cutting-edge technologies such as SiP and chiplets. For these reasons, we initially expect growth in the HPC space, but we will strive to expand our SLT business by increasing our application and customer coverage going forward.

Q: In what part of the SLT business do you see strong risk of competition if you consider the constituent technologies of your peers?

A: We possess all of the constituent technologies required to enable the sort of SLT that our customers will demand, and we are capable of providing solutions that are several ranks superior to those of our peers. However, we might see competition if multiple peers were to engage in business tie-ups in order to fill in gaps in their portfolios.

Note

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