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Semiconductor packaging industry update

EQUITY: JAPAN ELECTRONIC PARTS

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We revise assumptions for accelerator roadmaps

We assume ongoing 2-die GPU configuration, look to earlier EMIB-T shipments for 4-die custom ASIC configurations

Apr–Jun industry developments: Start of shipments for Rubin processors

We think shipments of packages for Nvidia's Rubin GPUs got under way in 27/3 Q1. We expect full-scale mass production in Q2. Using macroeconomic statistics, we estimate monthly shipment value of ¥24.7bn in Jan–Mar and ¥25.8bn in Apr–May (¥28.1bn in May). The price per m² increased from ¥1.18mn in Jan–Mar to ¥12.9bn in Apr–May (¥13.6bn in May; Figure 1).

We revise accelerator roadmap assumptions: 2-die configuration for GPUs, earlier shipments of EMIB-T

There is a growing view in the packaging industry that the structure of the Rubin Ultra will be changed from four dies, which was announced at GTC in March, to two (see our 30 June 2026 Quick Note *SemiAnalysis report on Rubin Ultra*), and some observers are starting to take the view that the Feynman will have a two-module structure with two dies in a 3D stacking configuration. It may have become technically difficult to combine interposers larger than the 5.5x reticle size with HBM4, which has a lot of wiring. We have revised our forecasts for Ibiden [4062] (Buy), with a downward revision for our 28/3 forecast for GPU package prices on the assumption that Rubin Ultra will use a 2-die configuration, contrasted with our new view that shipments of packages for EMIB-T will begin in 28/3, one year earlier than we previously thought. We only fine-tuned our profit forecasts as these positives and negatives more or less cancel each other out.

EMIB-T is designed to embed silicon bridges without using interposers, making it easier to produce larger packaging substrates. We think this has resulted in strong demand for large package substrates that integrate more AI accelerator dies, HBM, and I/O, and we surmise that a growing number of custom ASIC manufacturers are considering using EMIB-T. The use of large packages can increase compute density within racks, increase memory and storage capacity, and increase signaling bandwidth, thereby enabling large-scale batch processing, reducing energy consumption per token, and reducing latency for agent models. At present, we think EMIB-T shipment volumes are being crimped by a lack of production capacity, but increasing capacity in a timely fashion could well offer earnings upside for 29/3 onwards.

Advances in packaging technologies in view of update of agent models

In agent-based coding models, performance (tokens per Watt per hour) is restricted by memory capacity and bandwidth between memory and GPU. The current design approach for accelerators is to increase the number of GPUs and amount of HBM per module by increasing package size, and we think this kind of design approach will become even more advantageous with growth in agent-based workloads. For example, using large packages to increase the amount of HBM per GPU will increase the proportion of weights and key-value cache that be stored in HBM, thereby reducing data transfer with host memory or SSDs. Moreover, including more GPUs in one module can increase bandwidth between the GPUs, both reducing the energy needed for signaling and increasing GPU utilization.

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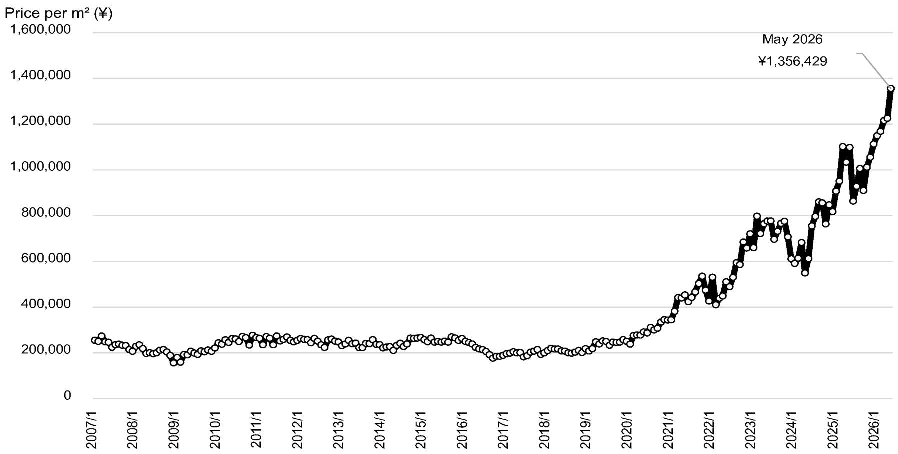
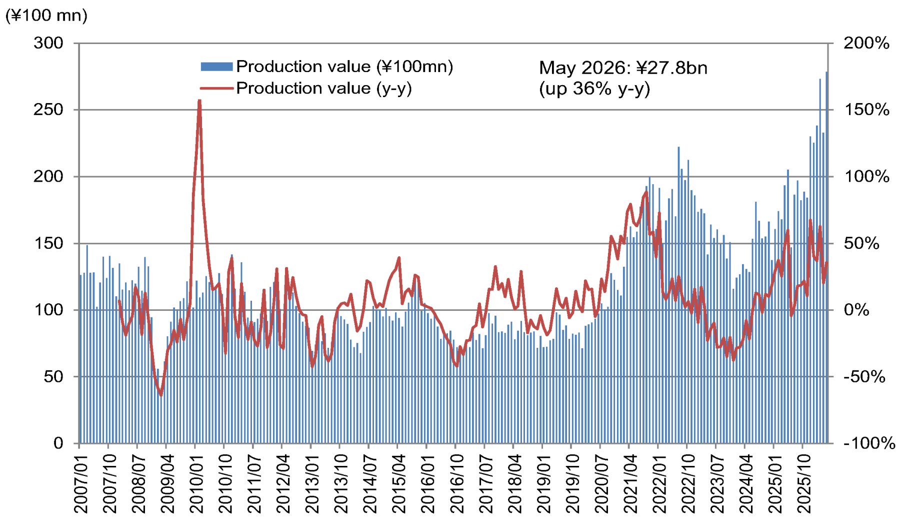
Reference figures

Fig. 1: Price per m² for rigid module boards



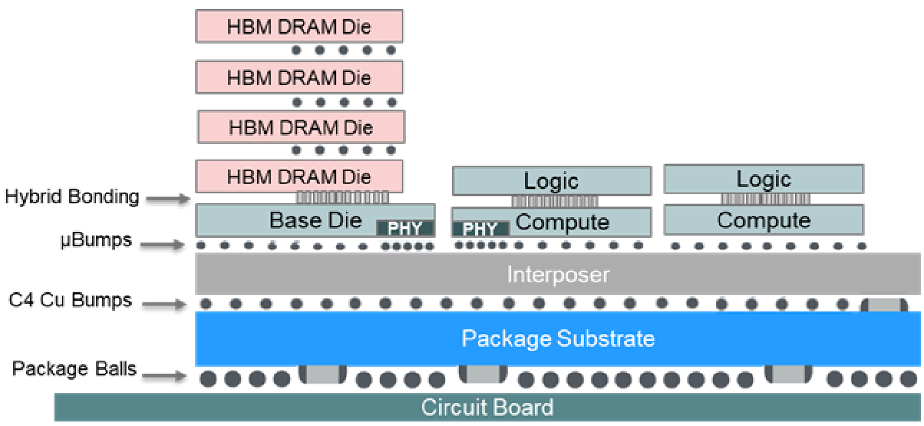
Note: Module boards have components mounted on the board surface.
Source: Nomura, based on Ministry of Economy, Trade & Industry's Current Survey of Production

Fig. 2: Rigid PCB production value



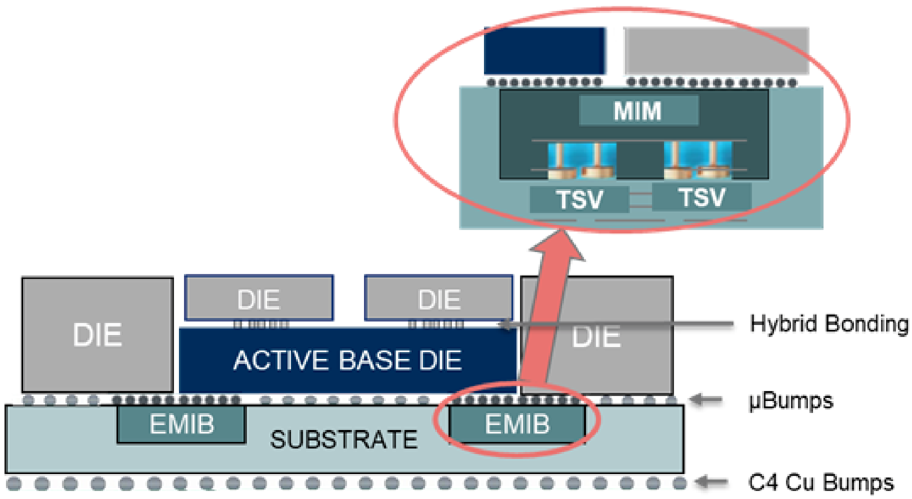
Source: Nomura, based on Ministry of Economy, Trade & Industry's Current Survey of Production

Fig. 3: PLP interposer-based 3.5D packaging



Source: Nomura

Fig. 4: EMIB-based 3.5D packaging



Source: Nomura

Appendix A-1

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