NAND Flash Industry Analysis－4Q19

- A brief comment on the NAND Flash market in the fourth quarter: Despite the relatively stagnant growth in demand, the rise in contract prices of various products has reflected the impact of the Yokkaichi power outage. On the other hand, the module makers' inventory restocking has weakened and the prices from the channel market have already risen during the July to September period, the contract prices for the fourth quarter could start to fall.

- From the perspective of the supply side, the total wafer start production volume (12-inch wafer equivalent) of NAND Flash memory chips in the fourth quarter of 2019 and the first quarter of 2020 rose 14.5% and is expected to fall 0.1% respectively. The main reason for the significant growth in the fourth quarter was the recovery of the production following the power outage incident in Yokkaichi. As for the bit growth rate, it rose 13.6% in the fourth quarter and will fall 3.1% in the first quarter of 2020, respectively. With regards to the production process, the 64/72 layer production weight fell to below 60% in the fourth quarter, and the 96 layer ratio exceeded 30%. The fourth quarter marked the debut of the 128 layer products. In terms of product architecture, QLC use has yet to become mainstream and is found in very few end products. Thus, TLC architecture still has an 85% and above production weight in 2019, compared to that of QLC, which is under 5%.

- From the demand side, after the adjustment of OEM inventory levels in the first half of the year and Kioxia's power outage, product demand in the third quarter rose significantly. With regards to the fourth quarter, bit demand is expected to rise slightly given the needs of OEM manufacturers and the early restocking preparations for the Lunar New Year holiday in January 2020. In the fourth quarter, smartphone shipments fell 1-2% on a quarterly basis, while PC shipments fell 3-4% and tablet shipments rose 14-15%. The first quarter of 2020 will mark the beginning of the traditional slow season, when demand growth is expected to decline further.

- Observing the full-year market situation in 2019, TrendForce has adjusted the NAND Flash memory output and demand growth rates to 31.5% and 35.2% respectively. The output growth rate rose due to Western Digital's revised view of production loss, but the overall demand performance benefited from the spike in third quarter SSD shipments. The substantial growth in shipments has caused SSD supply to shrink and pushed up contract prices, inhibiting suppliers' willingness to reduce prices in the first quarter of 2020. Thus, in the slow season contract prices are likely to rise slightly or remain flat.

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