

Limitless Quest – Exploring true prosperity of human beings through semiconductor technology and manufacturing innovation

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We have entered an era where the amount of computing power we possess determines not only the competitiveness of our businesses but also the security of our nations, gradually conquering the difficulty of prediction once believed to be unsolvable. Evidently semiconductor technology plays a key role there, and above all cutting-edge logic semiconductors are getting more critical for such computation than ever. The biggest challenge is that we must make it compatible with the global environment by reducing energy consumption while increasing computing power.

One of the aspects of fundamental changes in recent computing is brought by the proliferation of AI applications. While it is a debatable subject that how much regulation may be needed for the social implementation of AI, it is no doubt that AI will be the major driver of semiconductor market growth for the next decade along with the recent data explosion.

Needless to say, the semiconductor industry has explored ways to keep up with strong requirements for both cost reduction and scaling for higher performance along with technology migration in a short period of time. Though this trend continues until now even at the most advanced technology nodes, it is getting harder to implement both design and manufacturing of such nodes, coupled with the shift from general purpose to specialized chips fueled by the increase of variations of AI chips. It is now an imperative for semiconductor industry to introduce innovative ideas not only for solving technical difficulties in design and manufacturing but also for creating a new business model suited for the age of AI.

In this presentation, we will review the history of, then boldly foresee the future of semiconductor manufacturing and business model focusing on cycle time of both design and manufacturing. At the same time, we will discuss the impact of technology and such manufacturing innovations on the future and prosperity of human beings.