Dataquest
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Dataquest Perspective

CAD/CAM/CAE

Electronic Design Automation

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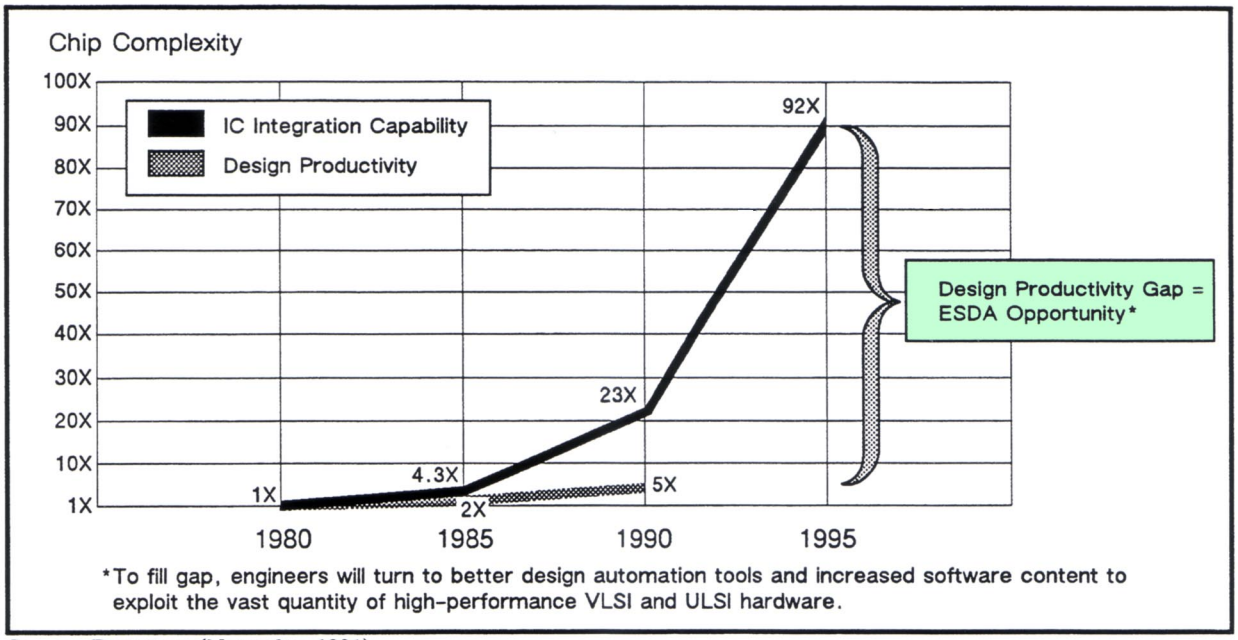
The following is an excerpt from the Dataquest report:

"Next Generation EDA: Electronics Systems Design Automation"

by Ron Collett

"Dataquest believes that the shift favoring an increase in allocation of resources for software development throughout the decade will be driven by the fact that semiconductor manufacturing processes will outstrip hardware engineering design productivity. Advancements in semiconductor fabrication processes will enable designers to put five times more transistors than is currently possible on a single chip by 1995. Figure 3 shows the potential gap that will exist between improvements made in design productivity and device integration. The magnitude of design and manufacturing advancements are compared with what was feasible in 1980. Comparing 1980 with 1990, the EDA tools have enabled only a 5-fold increase in design productivity, whereas chip manufacturing has improved 23-fold. Thus, in the same amount of time, engineers are now able to design circuits that have five times more transistors. Currently, leading-edge design teams can implement approximately 4,000 gates per month per design engineer. Figure 3 also illustrates that in 1995, chip manufacturers will be able to integrate approximately 92 transistors in the same amount of area required for a single transistor in 1980. Dataquest believes that the widening gap between what can be manufactured versus what can be designed will be filled to a large extent by expanding the design's software content as well as by advancements in hardware design automation tools and increasing the reuse of existing designs."

Figure 3
Design Productivity Gap



Source: Dataquest (November 1991)