The 80386 design project was one of the largest VLSI microprocessor design projects to date. The 80386 provides a very high level of performance while retaining strict code-level compatibility with prior 86 family components.

The early completion of such an effort is a suitable testimony of the advanced design tools, methodology, and design for testability used. The extensive use of CAD tools, some of which were new and innovative, played an important role in the early completion. Advanced design tools will play an increasingly important role in future products as complexity grows and shorter design times are desired.

The design methodology required us to standardize several areas, where freedom was granted before. What standardization we did was beneficial, but we could have done more. This is certain to be a focus in future designs.

Finally, the test features of the 80386 represent a significant accomplishment in commercial microprocessors. They provide significant coverage of the component at a small area penalty. These features were very beneficial but are only a first step in complex VLSI testability, since they test less than half the component. In future designs, BIST and test books will cover a significantly larger portion of the die.

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References

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