

Preface

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Editor

Intel Technology Journal

This Q3'98 issue of the *Intel Technology Journal (ITJ)* marks our first anniversary of publishing the *ITJ* on the Internet. From your questions and feedback so far, we know that the *ITJ* is being read all over the globe. Thank you for all your feedback and questions. Please keep them coming.

This Q3'98 issue describes one of Intel's most important technologies: our semiconductor process technology, the prize of Intel's technology jewels. The magic of silicon is basically that in every generation the dimension gets smaller, and processors get smaller, faster, and cheaper to build. This issue of the *ITJ* describes the challenges inherent in making this silicon magic happen.

The first two papers describe our 0.25 micron process technology used to manufacture the Intel® Celeron™ and Pentium® II processors. The 0.25 micron refers to the line-width dimensions etched into the silicon wafers. To illustrate how small 0.25 microns actually is, think about the fact that a typical pollen microspore measures between 10 and 100 microns. Using the 0.25 micron process technology, you could place between 40 and 400 transistors in the width of a pollen spore. Intel is mass producing the 0.25 micron process technology. Next year, in 1999, a 0.18 micron technology will be in production, and we are already working in the lab on a 0.13 micron technology.

The third paper describes the challenges faced when shrinking transistors below the 0.13 - 0.10 micron range. Intel is now addressing these challenges in preparation for the turn of the millennium.

And finally, the fourth paper describes the future of lithography used to imprint very small patterns onto silicon wafers. Optical projection lithography is used today, but will not be able to imprint the ever finer patterns needed in the future. Over the next several years, a new lithographic technology needs to be developed that can print lines of 50 nanometers and smaller. Extreme Ultraviolet Lithography (EUVL) is one of the technologies being evaluated.