

# International Technology Roadmap for Semiconductors

## 2002 ITRS Update



The ITRS process is an ongoing event. The industry is dynamic—continually innovating; introducing new products; and achieving solutions. To keep the ITRS information as current as possible with this dynamic industry environment, during each year following an edition such as the 2001 ITRS the roadmap information is reviewed. Data adjustments, corrections, and new information items are agreed to among the ITWG members and by soliciting public feedback during the annual ITRS Summer Conference in San Francisco. For the 2002 Update effort, all the ITRS tables were reviewed. If necessary, data and notations were updated to match industry advancements.

The International Technology Roadmap for Semiconductors (ITRS) is the result of a worldwide consensus building process. This document predicts the main trends in the semiconductor industry spanning across 15 years into the future. The participation of experts from Europe, Japan, Korea, and Taiwan as well as the U.S.A. ensures that the ITRS is a valid source of guidance for the semiconductor industry as we strive to extend the historical advancement of semiconductor technology and the worldwide integrated circuit (IC) market. These five regions jointly sponsor the ITRS efforts.

### Key Changes to the 2001 ITRS

All chapters of the 2001 ITRS have updates. Tables that were changed are noted in the List of 2002 ITRS Updated Technology Requirements contained in the Table of Contents section. If notations were revised for a particular table with no line item changes, that table was included for completeness. Of the 176 tables contained in the 2001 ITRS, eighty-four tables and/or table notes plus one figure were updated.

A new technology requirements category has been introduced and defined. “Interim Solutions are Known” is an additional category to the requirements tables’ legend. This new cell color is now used in updated tables in Lithography, Interconnect, Metrology, and Modeling and Simulation. This requirements category appears as varigated colored cell with a red tag next to the data.

White—Manufacturable Solutions Exist, and Are Being Optimized  
 Yellow—Manufacturable Solutions are Known  
 Red—Manufacturable Solutions are NOT Known  
 Interim Solutions are Known



A definition of interim solutions is included in the Glossary.

The Glossary now includes the added definition of Interim Solutions to augment the new legend category.

The Overall Technology Roadmap Characteristics were updated to reflect chapter table updates.

### Features of the 2002 Update

- Updated tables are noted with a line-item comparison of the 2001 ITRS [noted as “Was”] and the 2002 Update data [noted as “Is”], with the changed cells clearly outlined and data in underlined font. If a line item was either deleted or added during the 2002 Update, the line is indicated.

Was	Line item	2001 data	2001 data	2001 data	2001 data	2001 data
Is	Line item	<u>2002 data</u>	2001 data	<u>2002 data</u>	<u>2002 data</u>	<u>2002 data</u>

<del>Delete</del>	<del>Line-item</del>	<del>2001 data</del>	<del>2001 data</del>	<del>2001 data</del>	<del>2001 data</del>
Add	New line item	<u>data</u>	<u>data</u>	<u>data</u>	<u>data</u>

- Links to the 2001 ITRS chapters are provided for convenience and easy review.
- The 2001 ITRS chapters link to the corresponding 2002 Update section for the changed tables.

### For More Information

The 2002 Update is available free online to download at the website <http://public.itrs.net>. The 2001 ITRS with the 2002 Update is also available as a CD. The website has order forms and instructions. For details regarding how to participate in the 2003 ITRS edition and working group contact information, please call Linda Wilson at 512.356.3605 or email to [linda.wilson@sematech.org](mailto:linda.wilson@sematech.org).