

# The Long-term Industry Outlook



**Programmable logic continues to outpace the overall electronic industry growth.**

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**U**nderstanding the trends and business cycles that affect our industry will help you make better decisions when you choose the critical technologies that affect your designs.



## Industry Growth Cycles – 1980-1998

From 1980 to 1998, the global semiconductor industry has grown at a 13.0 percent compound annual growth rate (CAGR), as shown in Figure 1. During this period, the industry endured four dramatic business cycles, with the deepest correction occurring in 1985, when semiconductor shipments dropped 16.5% (A net of 29.5% in a one-year period).

## 1996-1999

The past three years have been below average for the overall industry, and 1996 was the first time since the 1985 downturn that semiconductor shipments were down on a sequential basis. However, the 13.0 percent longer-term growth rate for the semiconductor industry is still almost 5 percent higher than other segments of the electronics industry; U.S. shipments of computer and office equipment (SIC 371) and communication equipment (SIC 366) have only grown at a CAGR of 8.4 and 8.1 percent respectively between 1980 and 1998.

Excess wafer fab capacity, the Asian economic crisis, and tighter inventory management by computer manufacturers has contributed to these below-average results, and has hampered the industry recovery. And although the business outlook is steadily improving, the economics of shortage and oversupply radically affect the semiconductor industry, causing extreme variations.

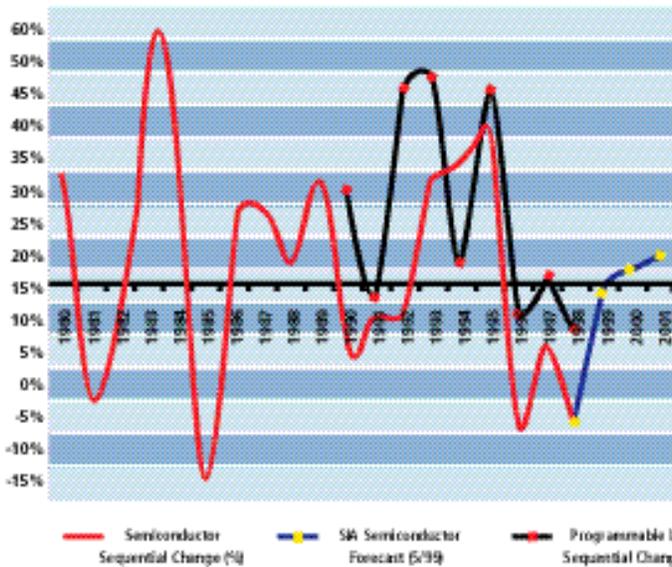
## Semiconductor Industry Recovery

On a global basis, Japan's nascent recovery appears underway as the economy grew 1.9 percent in Q199. South Korea is already well on its way to recovery from a dismal 5.8 percent GDP decline in 1998 with GDP growth of 4.6 percent in Q199.

A good way to gauge the health of the semiconductor industry is by measuring the utilization of the available wafer fabrication capacity, as shown in Figure 2. This graph shows three solid quarters of increasing utilization and the trend is likely to continue upwards, due to strong demand.

The Semiconductor Industry Association (SIA) forecasts that total semiconductor sales are expected to reach about \$140.8 billion in 1999, a jump of 12.1 percent over 1998. Industry growth will be fueled by sales of PCs and Internet-related equipment. This compares with an 8.4 percent decline to \$125.61 billion in 1998 (Figure 3).

(Continued)



Long Term Semiconductor Industry Outlook (%) History And Forecast (Source: WSTS Inc./SIA)

Figure 1

Semiconductor Industry Outlook (Billion \$) (Source: WSTS Inc./SIA)



Figure 2

### Programmable Logic is Leading the Industry

While the semiconductor industry has exhibited low double-digit growth, the programmable logic sector has grown more rapidly. From 1989, the first year when these statistics were available, to 1998 the PLD industry grew at a CAGR of 21.4 percent. Programmable logic is forecasted to continue to outpace the overall semiconductor industry at 18.6 percent growth in 1999. According to industry prognosticators, the longer-term outlook for PLDs will remain positive with growth rates of around 20% for the next few years.

This growth is fueled in part by the increased capabilities of our latest programmable logic and software technologies. Plus, many futuristic applications such as those made possible by the Xilinx Online technologies, can only be accomplished through field-reconfigurable programmable logic. These features, combined with very efficient development tools and significantly lower costs, are compelling many companies to view programmable logic technology as their primary design solution. **Σ**