

CPU Business to Rebound in 1999

Improving Industry, New Products, and Y2K Upgrades Point to High Growth

by Mel Thomsen

The 32-bit microprocessor business should be much better this year than last. We expect a revenue growth of approximately 41%, from \$24.3 billion in 1998 to \$32.1 billion this year. Unit shipments should grow by 45%, from 217 million units in 1998 to 315 million in 1999, as Figure 1 shows. Although this is a high growth rate, it is due to low unit shipments in 1998. Average selling prices will continue to decline along the historical trend, from \$112 in 4Q98 to about \$102 by 4Q99, as Figure 2 shows. This forecast is for worldwide sales of all 32-bit microprocessors, including both embedded and nonembedded processors.

Semiconductor Industry Recovers in 1999

The worldwide recession that has plagued the semiconductor industry since 1996 finally reached bottom during July and August last year. The global semiconductor industry is now on a gradual recovery that will accelerate in the second half of this year, as seasonal strength adds to the fundamental recovery.

A look at other global factors shows that the economic crisis in Asia that surprised the industry last year is not over but has stabilized. A year ago, the sudden collapse of the Asian economy seemed so bleak as to engender serious talk about triggering a global depression. That doomsday forecast is less pervasive now, but the fear still lurks in the shadows.

Although PC sales won't be booming in Asia this year, any microprocessor manufacturer or PC supplier with a reasonably conservative sales forecast (meaning no growth or very low growth) should be safe from downside surprises from sales in that region. At the same time, European sales are stable and probably will remain so, as the currency

unification seems to be giving a psychological boost to the economy throughout that region. Finally, PC sales in the United States should resume their historical rates. PC sales growth this year should be slightly better than last year, which suffered from a first-half inventory glut.

Seasonal patterns will be typical, although the first quarter of this year will be slightly stronger than historical trends suggest. There are two underlying reasons for this prediction. First, despite the stronger-than-expected surge in 4Q98, there is not as much inventory in the PC channel. Second, Intel's new Pentium III (see MPR 3/8/99, p. 1) will give a slight boost to 1Q99 CPU sales as PC makers purchased early production units before the formal introduction of Katmai-based systems in February.

ASPs Trending Downward

Average selling prices (ASPs) will continue to decline as in the past—perhaps even faster. This is driven by renewed competition at the low end for PC processors, as Intel has become more aggressive in Celeron pricing than it was last year (see MPR 1/25/99, p.18). If there is any downside to our forecast, it could come from even lower ASPs caused by a price war at the low end of the market.

Also contributing to declining ASPs for 32-bit processors is the changing mix between PC processors and the low-priced embedded processors that now represent approximately 65% of all 32-bit units. The embedded processors typically sell in the \$5–\$70 range, while most PC processors are priced in the \$60–\$400 range.

One upward force on ASPs is the growth in shipments of Xeon-class server processors. Another upward factor is the shift to units with on-chip L2 cache, as MPU makers take more system dollars from the SRAM suppliers. Neither of

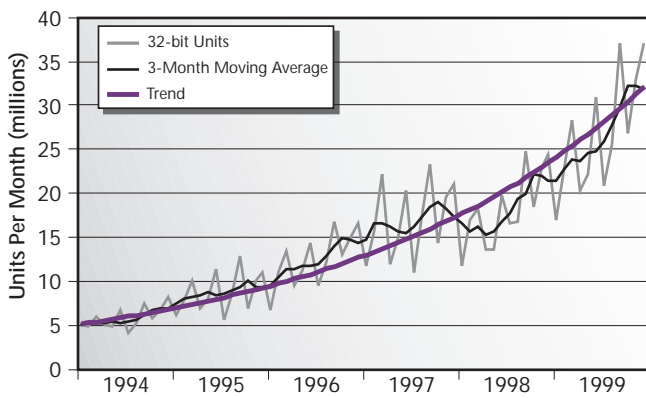


Figure 1. CPU unit shipments should remain below the trend line for the first half of 1999, giving a unit growth of 45% this year.

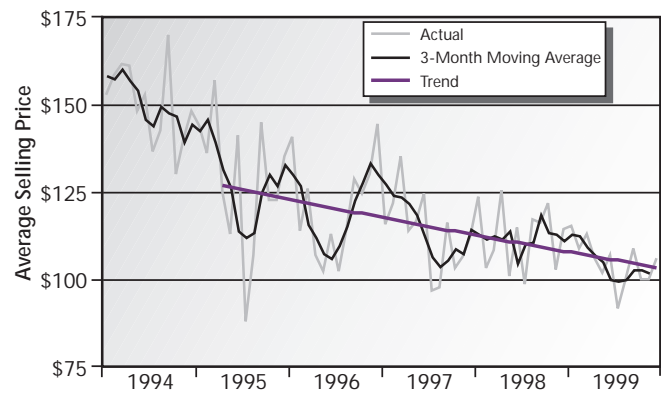


Figure 2. CPU ASPs will decline throughout the first half of the year before slightly recovering in the fourth quarter.

these trends, however, is strong enough to counterbalance the downward pressures.

End-Use Demand Remains Strong

The bright spot in the outlook is that end-use demand remains strong for PCs and products such as laser printers, handheld PCs, DVD players, automotive-engine controllers, and cellular phones that use 32-bit microprocessors. Sales of video games, while still large, fell off in 1998 and may decline further this year because the technology is old. New video-game consoles will not enter the market early enough this year to have a significant impact. Sales of digital cameras are growing rapidly, but their volume is still too small to have a significant impact on CPU demand this year.

Y2K Creates Uncertainty

The Y2K problem creates a large uncertainty in the sales growth of PCs and microprocessors this year. There are two scenarios. The negative scenario suggests that most IT budgets will be reserved for solving the software aspects of the Y2K problem, with little left for PCs, networks, or communications hardware—all of which drive semiconductor consumption.

While those IT managers are consumed with fixing the software aspect of the amorphous problem, there is little mental bandwidth remaining to evaluate new hardware, let alone purchase any. A corollary to this scenario suggests that by midyear, IT departments may give up trying to fix software and decide to replace equipment in desperation, strengthening demand in the second half. Although there may be some cases where that scenario occurs, we don't give it much credence in our outlook.

The other, more positive, scenario is that IT managers will decide that the best way to solve the Y2K problem is to replace old Y2K-noncompliant PCs. Although problems with PCs are a minor facet of the Y2K issue, there are some older, noncompliant systems in the field. Given the cost of upgrading, testing, and requalifying those systems, many IT managers are opting to replace them. They may do so early so they can exit the year with a stable environment.

Although large enterprises have been waiting (hoping, actually) for Windows 2000, many have given up any hope of deploying it this year. If we assume an evaluation period of three to six months, a shipping release of Windows 2000 would have to be ready now to be in a first-half upgrade cycle. And if there is a stable equipment environment during the second half, we won't see a significant push from Windows 2000 upgrades, even if it is released before June. Buyers are abandoning the idea of installing Windows 2000 in 1999, making it an easy choice to upgrade noncompliant PCs now.

Although it is too early to tell if either scenario will be strong enough to significantly alter the business pattern this year, there are signs that the early PC-upgrade scenario is happening now.

1998 Is Behind Us—Thankfully

This forecast is much more optimistic than the year just ended would indicate. In 1998, worldwide 32-bit microprocessor revenue grew a dismal 4.8% from \$23.2 billion in 1997, making it the worst year in the past decade. However, unit shipments in 4Q98 rebounded quite strongly. During the same year, shipments grew a mere 7.1% from 203 million units.

As 1998 began, the industry consensus was for approximately 15% revenue growth. But the world was stunned into a different reality when, in the first quarter last year, Intel announced that its revenue would fall 10% short of expectations and that it would allow its worldwide workforce to decline by about 3,000. Other companies followed with their own bad news. Although the microprocessor business recovered more strongly in the fourth quarter than we anticipated, that surge came too late to offset the dismal first half.


Several factors contributed to 1998's poor showing for this premiere segment of the chip industry. The first was the extremely robust shipments in the last quarter of 1997, as PC makers built excessive inventory. That action may have been motivated by a desire to stockpile Socket 7 microprocessors to maintain that configuration in the face of a shift toward the more expensive Pentium II module. Or perhaps it was merely overzealous forecasting by PC suppliers. Whatever the reason, it caused a severe inventory excess in the PC channel during most of the first half of 1998.

Second, PC OEMs made a rapid shift to a build-to-order business style, causing a sharp slowdown in microprocessor shipments as they depleted existing inventory. Fortunately, the build-to-order transition is nearly complete, and this one-time event will not be a factor this year.

Adding to the situation was the Asian Flu—the rapidly worsening economic situation throughout the countries of Asia—which caused a slowdown in PC sales in those previously fast-growing regions. Finally, computer retailers, knowing that Windows 98 and 100-MHz bus systems were coming by mid-1998, were not willing to restock their shelves with computers that they feared would rapidly become obsolete.

Sunny Outlook for '99

For 1999, we see more positive signs than negative, with Y2K effects, real or imagined, the big question mark. This year will usher in major new products, such as AMD's K6-III (see MPR 3/8/99, p. 22) and K7 (see MPR 10/26/98, p.1), and Intel's Pentium III (see MPR 3/8/99, p. 1).

If there are any surprises this year, and there always are, they are likely to be upside surprises. The high end of our forecast model showed as much as 55% unit growth for 1999, but we need to see stronger activity before making that call. 

Mel Thomsen, Director of Market Analysis at Micro-Design Resources, has been tracking the semiconductor market for more than 10 years. Mel will present MDR's Semiconductor Industry Forecast at the March 18 MDR dinner meeting. For more information, visit www.MDRonline.com/events/sve/.