

JANUARY 23, 2008

Abrupt Change to Semiconductor Industry Cycle

Product sub-cycles now working independently of each other

Increased specialization of IC suppliers has brought about an abrupt change to the semiconductor industry cycle, according to the new 2008 edition of *The McClean Report*, by IC Insights. Historically, the semiconductor industry acted as one giant cycle, which contained eight very distinct stages (Figure 1).

Although, the exact timing of moving from one phase to the next within a cycle was always difficult to predict, there were some key elements (e.g., worldwide GDP growth, electronic system sales growth, IC unit volume shipments, semiconductor industry capital spending trends, etc.) that suggested when a cycle was bottoming or peaking.

Since 2004, however, the IC Insights believes the "traditional" industry cycle model has taken on a new look. It appears that the previous singular IC industry cycle that typically influenced all IC product segments at essentially the same time—although not to the same extent—has evolved into at least four sub-cycles (i.e., Logic/Foundry, MPU, analog, and DRAM/flash cycles; Figure 2). Moreover, a case could be made that DRAM and flash operate in their own individual cycles. The individual product cycles move independent of each other and sometimes counter to the overall trend in the IC industry.

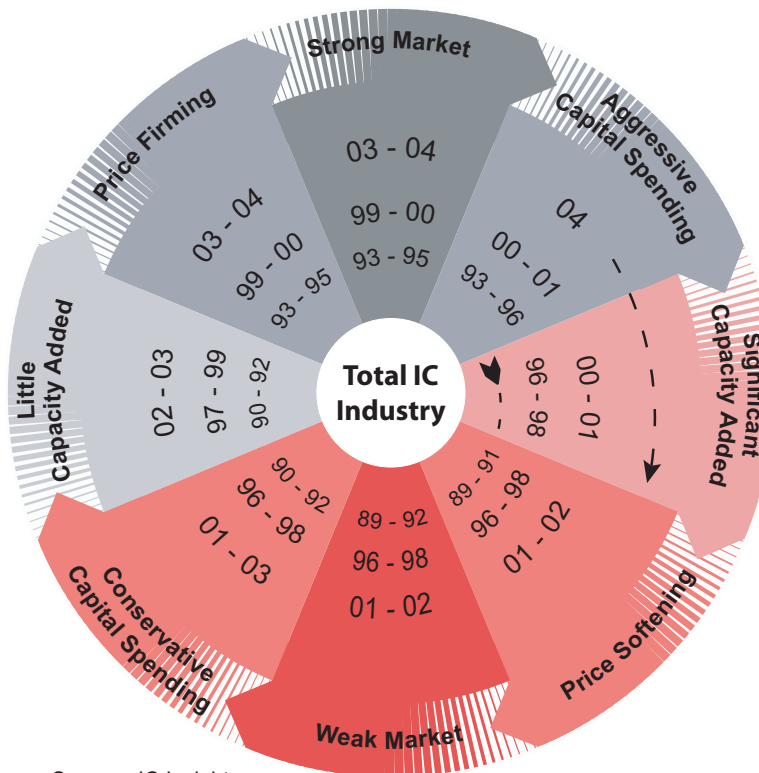
One reason for the evolution from one large cycle to four smaller ones is the increased specialization of the IC supplier. In the past, many large IC suppliers (e.g., Motorola, TI, NEC, etc.) competed in many product segments such as DRAM, logic, analog, MPUs, etc. However, most companies have moved, or are moving to, more focused IC product lines. Thus, capital investment and R&D dollars are more focused on a particular IC product segment. Moreover, each IC product segment (i.e., foundry, DRAM, MPU, etc.) now faces its own competitive environment that does not necessarily coincide with the other product segments.

The DRAM market is a good recent example of a sub-cycle. In 2006, the DRAM market grew 32% with DRAM ASP increasing 13%. In contrast, the total IC market grew 9% in 2006 with IC ASP dropping 8%. Moreover, the surge in capital spending in 2006 for DRAM, up 44%, was more than twice the total semiconductor industry increase in capital spending (18%). As a result of this DRAM spending surge, in 2007, DRAM ASP declined 39% in comparison to a 6% decline in industry-wide IC ASP.

MORE INFORMATION CONTACT

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The IC Industry Cycle (Up Through 2004)



Source: IC Insights

Figure 1

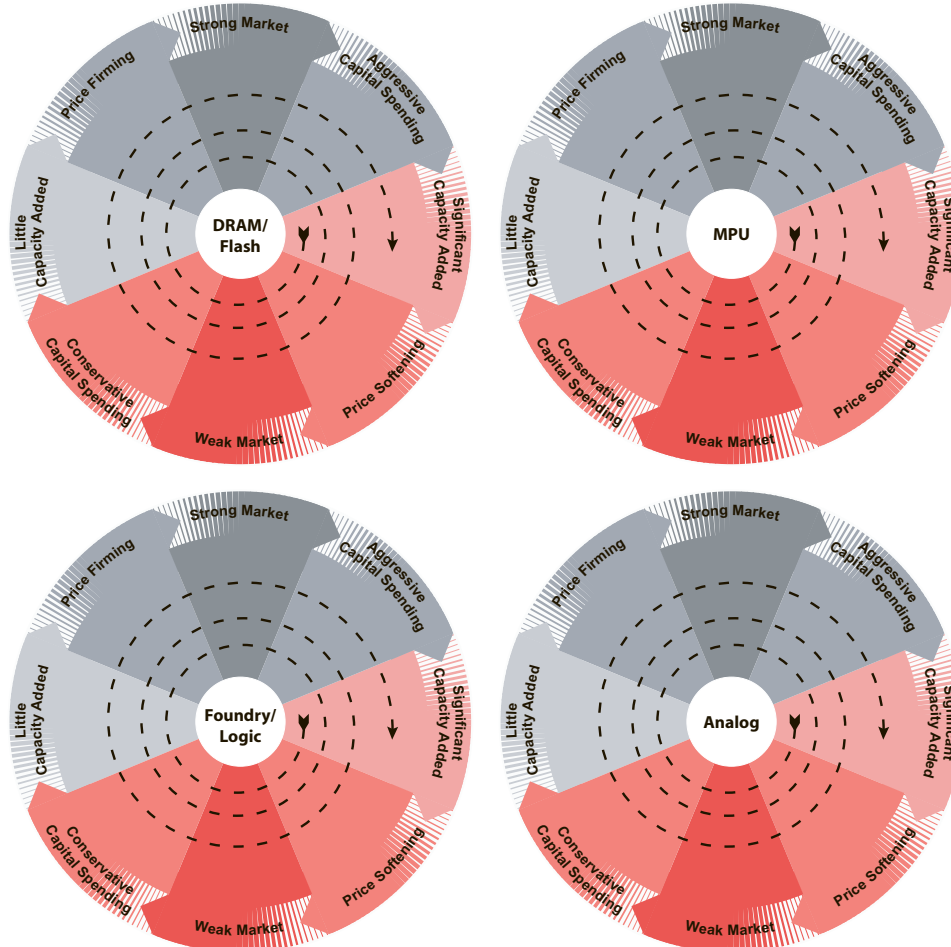
Another example of the workings of a sub-cycle was the significant IC unit inventory correction in 4Q06-1Q07 in the analog and DSP IC segments targeting the cellular phone business. However, this inventory correction had little to no affect on the MPU, MCU, and many other IC product segments.

The current MPU marketplace must also be considered an example of a sub-cycle. With only Intel and AMD left as major suppliers to this large IC segment (\$35 billion in 2007), capital spending, R&D spending, pricing schedules (or price wars), etc., for MPUs are now really in control of only these two companies. Thus, the MPU sub-cycle can be expected to behave in the future in a manner that is sometimes out of phase with other IC product segment cycles.

IC Insights believes that these sub-cycles will continue to act to moderate the intensity, up and down, of the total IC industry cycle. Despite the irrational exuberance of the DRAM and flash memory capital spending in 2006-2007, it is expected that more rational future capital spending by increasingly specialized IC suppliers will continue to support the sub-cycle model and moderate the volatility of the total IC industry cycle.

However, IC Insights believes that the potential still exists for the IC product sub-cycles to come into alignment, in the strong or weak portions of their respective cycles, and create very weak IC industry growth (-10% or lower) or very strong IC industry growth (20% or higher).

The IC Industry Sub-Cycles (Post 2004)



Source: IC Insights

Figure 2

Report Details

- The 2008 edition of *The McClean Report*, IC Insights' complete analysis and forecast of the integrated circuit market, is now available. Packed with 400 tables and graphs, the report is available in three-ring binder, CD-ROM, and on-line formats, and also comes with free monthly updates by e-mail from March through November. A single copy of the report in CD-ROM or binder format is priced at \$2,790. A bundled CD-binder set is priced at \$3,285. An Internet access password is available as a \$695 option. The report is also available under a multi-user corporate license for \$5,990.

About IC Insights

IC Insights, Inc., based in Scottsdale, Arizona USA, is dedicated to providing high-quality, cost-effective market research for the semiconductor industry. Founded in 1997, IC Insights offers coverage of global economic trends, the semiconductor market forecast, capital spending and fab capacity trends, product market details, and technology trends, as well as complete IC company profiles and evaluations of end-use applications driving demand for ICs.

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