

# Texas Instruments to Acquire National Semiconductor



## OBJECTIVE ANALYSIS SEMICONDUCTOR MARKET RESEARCH

### Combining Linear Strengths

Texas Instruments (TI) and National Semiconductor announced April 4, 2011 that the companies have signed a definitive agreement, approved by both companies' boards, under which TI will acquire National for \$25 per share in an all-cash transaction worth roughly \$6.5 billion. The transaction, which is expected to close in six to nine months, will be financed using a combination of existing cash balances and debt.

National will become a part of TI's analog segment. Sales of linear semiconductors (a category that includes analog and other linear functions) will represent almost 50 percent of TI's revenue. In 2010 TI claims to have had a 14% share of the market for linear semiconductors, and put National's share at 3%.

National's headquarters will remain in Santa Clara, California, and TI will continue to operate National's manufacturing plants in Maine, Scotland and Malaysia.

### Some History

It would be a mistake to overlook the histories of these two companies. Both TI and National are some of the oldest manufacturers of semiconductors. Texas Instruments was formed in 1947 to manufacture transistors when those devices were new. National began operations in 1959 in Danbury, Connecticut.

Texas Instruments has traveled a long and winding path centering first around its original transistor business and later focusing on the IC, which was first invented at TI in 1958. A strong military leaning during the Cold War led to the company putting a large effort into supporting the military business balanced by computer chips and various thrusts into consumer electronics. TI was an early supplier of pocket calculators (a market in which the company still participates), produced toys based on speech synthesis chips, and even shipped a proprietary product in the early 1980s aimed at the budding PC market. TI pioneered and dominated the digital signal processor (DSP) business. In recent times the company has seen success in the markets for cell phone baseband chips and its DLP (Digital Light Processing) chips for projection TV and theaters.

National has always been a linear powerhouse. The two "Bobs", Bob Widlar and Bob Pease, both linear design geniuses, and many other outstanding linear design experts fostered an environment of excellence in the company. Although this was a profitable segment, management continually departed from their core strength to pursue other opportunities including memory chips (DRAM, SRAM, and EPROM) microprocessors and microcontrollers, and even pocket calculators and watches. Brian Halla, a recent National CEO, joined the company in the 1990s



with a mission to make it the provider of chips for the "Information Appliance" a glorified set-top box that some industry participants expected to be the next PC. Although these opportunities have come and gone, National's linear chips have continued to thrive.

### **Are There Synergies?**

TI pointed out certain synergies in Monday's press release. Both companies sell a broad range of linear products: 12,000 for National, and 30,000 for TI. There is overlap in these products, and this overlap will end up being weeded out after the deal is closed. TI states that National's power control chips and the customers for those products will be a welcome addition to the TI product line and customer base, and TI tips its hat to National's "excellent development team" and "excellent customer design tools" but TI doesn't mention any other specific strengths that attracted the National acquisition. There is also no mention of ways that any existing TI products will benefit through their association with National's product line, or vice versa.

TI boasts that its sales organization is ten times the size of National's, implying that National has been doing an insufficient job of merchandising its products. TI's management expects to be able to remedy this situation with its larger sales organization.

Linear semiconductors do require a very good sales organization since few of these products are commodities. Differentiated semiconductors require a more engineering-focused sales effort than do commodities. A large and competent sales organization allows a semiconductor supplier with a differentiated product line to assign field application engineers to work alongside their customers' designers to assure that a system's final bill of materials is rich with the supplier's proprietary products. As opposed to commodities (like DRAM and NAND flash) whose price is negotiated hard between a buyer and all suppliers, proprietary products tie the hands of the buyer, disallowing multiple sourcing and severely limiting the buyer's negotiating power. This translates to negotiating power for the supplier.

In a nutshell, a large and competent sales staff is a valuable resource to any maker of differentiated linear chips.

TI also points out that it brings to the merger "the world's first 300-millimeter analog factory," a fab in Richardson Texas largely equipped with tools from Qimonda's Dresden fab which were sold at liquidation prices. Objective Analysis is not convinced that a 300mm fab is necessary for success in the sale of linear chips. Larger wafers and tighter process geometries bring important cost savings, but these cost savings are more important to makers of undifferentiated chips with large die sizes that run in high unit volumes. Linear chips tend to use smaller die sizes and many ship in lower unit volumes, consuming fewer wafers. The higher margins of differentiated products often obscure the cost difference between chips made using an advanced manufacturing plant and those made using older tooling. We would expect the bulk of TI's product line to achieve a satisfactory cost structure using older 200mm facilities.

### **Is This a Good Thing?**

Perhaps the most intriguing thing about this deal is its timing and the way that TI is taking advantage of the current state of the semiconductor and financial markets. The semiconductor market has been strong since the second quarter of 2009, and semiconductor suppliers like TI are in a good cash position with many using this cash to expand their manufacturing capacity. Meanwhile debt is

cheap. Rather than invest their cash in securities, TI is using cash and cheap debt to finance this deal. This should pay off well in the long run.

The merger will help to grow TI's revenues at a time when the company's baseband processor business is in question. Nokia was a major consumer of TI's chips, and Nokia's market share is in decline.

Overall this appears to be a wise deal with moderate synergies that takes good advantage of the current financial situation.

---

**Jim Handy**

**OBJECTIVE ANALYSIS**

**Semiconductor Market Research**

[www.Objective-Analysis.com](http://www.Objective-Analysis.com)

**PO Box 440**

**Los Gatos, CA 95031-0440**

**USA**

**+1 (408) 356-2549**