Moore's New Law

Gordon Moore, 72, is known throughout the electronics industry as the originator of "Moore's Law." The law allows chip makers to be able to double the number of transistors in an integrated circuit each year for the same cost. He also predicted this would continue for about 10 years. History has proven him right.

Moore expects that chips will continue to double in capacity for awhile. When we run up against the problem that materials are made up of atoms and they stop behaving like bulk materials, then we will lose the ability to make things smaller. At that time, densities will double every five years - instead of three years as it is now. Moore, who recently stepped down as chairman of Intel, is now embarking on a new venture, a research foundation.

Moore explains his vision for the foundation in an interview with the Los Angeles Times: "Higher education, scientific research, and environmental concerns would be our initial focus. Hopefully we can find something that may be a higher risk than the usual funding agencies would like to do that we can take on."

"I suspect most of the kinds of things we're looking for we're likely to find at an established institution - such as finding people who have ideas they just can't get supported, because they're outside the conventional way of looking at a field," says Moore.

One of Moore's concerns is the problem of getting young people to attend engineering universities. For example, there has been a drop in university enrollment for electrical engineering. He's not sure whether a lack of motivation is causing this decline, or if something else is causing the problem.

Moore says women and minorities are not well represented in engineering careers. He points out that engineering has not been attracting women, but that may be changing. On the other hand, women are now well represented in fields such as biology. Minority representation in engineering is an area he feels is an effect of K-12 education. He says many of these students just don't seem to be getting the fundamentals required for a technical career.

When asked what the educational system portends for the future of the tech industry in the United States, Moore says it certainly weakens it. "Many [American] companies operate pretty much globally, and we find ourselves putting technical jobs in places where technical people are available. And things that we would ordinarily do in the United States, we're

likely to be doing in Europe or Russia or China - even India...[and] we're actually exporting some of those very good jobs..."

Other countries are doing a better job at educating young people for technical careers, Moore notes. He points to Ireland as an example of a country that has done outstanding work in technical training. For that reason, Intel built a big plant in Ireland about 12 years ago. "Since then, there's been re-migration of people back to Ireland, and the economy has just boomed. It's a perfect example of the impact the technology business can have on a country. Ireland now has very low unemployment."

From information coming from a number of sources, Moore's concerns about higher education are well founded. The power electronics industry in the United States must learn how to solve this situation. Any suggestions?