

As world economies struggle with the effects of the current macro-economic recession, many countries have announced stimulus spending plans especially for infrastructure projects. Long overdue investment is finally happening in aging infrastructure facilities like dams, roads and bridges. Investment in the Smart Grid has drawn a lot of attention recently. While content creation i.e. methods of generating electricity held the most attention over the previous decade – witness the growth of alternative energy sources such as solar power, wind and water, and debates over coal fired generation and nuclear generation- storage, transmission and distribution are now the focus.

Given the billions of dollars that are expected to flow into projects related to the smart grid, it is no surprise that hi tech companies are all lining up for a piece of the pie. Looking down the supply chain, it would then stand to reason that the EDA industry and the embedded software industry can hope to gain a small share of the dollars flowing from this initiative.

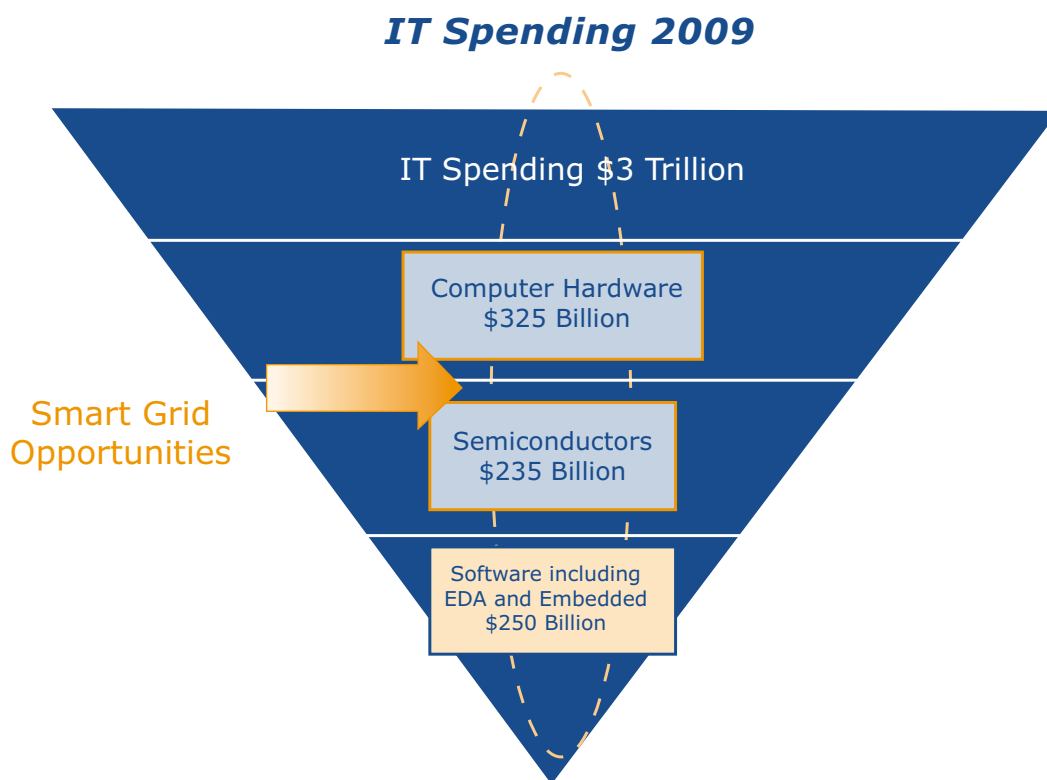
WHAT IS THE SMART GRID?

The smart grid can be described as a generation, transmission and distribution mechanism that allows for two-way information flows. While there is no doubt that aging infrastructure needs to be replaced and will likely consume the bulk of the first stage of spending, the emerging vision is of a well-monitored network that can allow producers and consumers of electricity to be connected in real time through the use of smart meters and other smart appliances. Additionally, real time information about grid performance will allow utilities to monitor, adjust and respond to changes in demand and supply. On this infrastructure foundation, there is an expectation that third parties can begin to develop energy management software, security software and other new and innovative applications. In the grand scheme of things, there are those who believe that the smart grid will perhaps become the next information superhighway.

WHERE DO THE OPPORTUNITIES LIE FOR EDA AND EMBEDDED SOFTWARE COMPANIES?

Today, Cisco, IBM, Google, Intel and a couple of embedded device manufacturers such as Echelon, are at the front of those staking claim to government spending that is expected to flow into electricity transmission and distribution. It is expected that investments will be made in data monitoring systems, smart meters that will be installed at customer sites (residential and commercial) and other sensors that may be deployed throughout the grid for data collection and analysis and security monitoring. Data monitoring centers might well be SCADA systems under a new name but at the end of the day, they involve server deployments, middleware, software and real time data monitoring, network management software and other IT applications.

There are opportunities for EDA and embedded software vendors to participate in the market though likely it will be through existing partnerships that are in place with device manufacturers and semiconductor vendors. Perhaps one way to size the possible opportunity that the design engineering community could potentially participate in, is to look at the IT markets today. Consider the graphic below showing the total size of the IT spending market drawn from Gartner and IDC press releases and my estimates. The \$3 Trillion US includes telecom equipment spending and IT services (not sized separately here).



Source: Gartner and IDC news releases 2008-9 and Gary Smith EDA estimates May 2009

While there is definitely opportunity for all vendors in the supply chain to participate in the market, calculating the actual opportunity will depend upon the implementation paths being followed. For vendors that offer software, hardware and services, the market potential is obviously greater than for those that specialize in specific areas of IT hardware or design software. It is worth noting that while the US government is currently committing an estimated \$4.5Billion for smart grid efforts, there will be additional spending coming from the corporate utilities sector and from other government agencies around the world that are also looking to invest in smart grid technology. Additionally consider that government spending usually takes awhile to work its way through the pipeline. So the opportunity here must be considered as a TAM that will be available over time.

AND A WORD ABOUT STANDARDS

It is also interesting to note that the IEEE is planning to kick off a standards committee meeting in June charged with designing standards for various parts of the smart grid effort. All this is well and good. Standards offer a level playing field for all participants, or at least hope for a more level one. Just last week, 16 standards for the smart grid have been announced for interoperability among competing standards. Interoperability, always a favorite topic in EDA, has just been given a whole new sandbox to play in.

In conclusion, the utility industry is undergoing a large amount of investment in IT networking and other software technologies. Opportunities are available to EDA and embedded software vendors through partnerships with device manufacturers and other hardware and service partners.