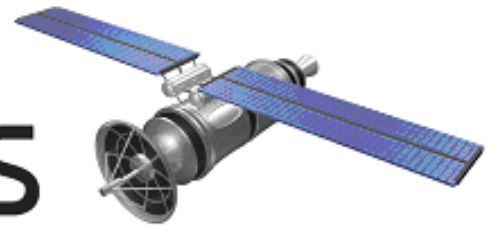


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The Global Semiconductor Industry Analysts

FH MONDAY

7 February 2022

GM to invest \$7 billion in four EV manufacturing sites

General Motors has pledged more than \$7 billion to four Michigan manufacturing facilities for increasing battery cell and electric truck manufacturing capacity.

GM said it is the single largest investment in GM's history.

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AMD Acquisition of Xilinx Heats Up Competition with Intel

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Tech Giants Allude to Continued Supply Chain Disruptions

Tech giants Apple, Samsung and Intel reported record revenues this past week. Other companies, such as Lam Research, weren't so fortunate, reporting lower-than-expected numbers and dwindling sales. But if there's one thing these companies can agree on, it's that supply chain disruptions are here to stay.

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TALK TO US



S-MOS Cell Technology Improves Efficiency of SiC MOSFETs

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Cutting-edge gallium nitride tech could help EVs charge much faster

Navitas Semiconductor, a company that makes technology for super-fast phone chargers, says electric vehicles are its next big bet.

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The expansion would create 4,000 new jobs, while retaining 1,000 employees. Additionally, the expansion will include the construction of a new Ultium cells battery plant in Lansing, Michigan, and the conversion of GM's assembly plant in Orion Township, Michigan, into a Chevrolet Silverado electric vehicle (EV) and electric GMC Sierra production line.

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Intel bought Xilinx competitor Altera for \$16.7 billion in 2015. Xilinx and Altera are the world's largest field programmable gate array (FPGA) makers. Taiwan Semiconductor Manufacturing Co. (TSMC) supplies chips made with advanced process technology to both Xilinx and Altera.

AMD said its combination with Xilinx will create the industry's leading high-performance computing company, expanding product offerings and customers in growth markets where Xilinx is an established leader.

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On Thursday, Samsung reported an all-time quarterly high with a Q4 revenue of 76.6 trillion won (\$63.4 billion), which the company says is due in part to its expanded sales in premium smartphones, smart TVs and home appliances. Gross margins did decrease because of a decline in memory prices, according to the company.

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The performance of silicon-based power devices, such as power MOSFETs and insulated gate bipolar transistors (IGBTs), has been greatly improved over the years using MOS cell process and design platforms. Both these devices have been based either on planar or trench MOS cells, arranged in cellular or linear layout designs.

The results achieved on silicon-based MOS devices can be exploited for the development of SiC power MOSFETs, where high cell packing density is an essential requirement. In order to improve the static and dynamic characteristics of the device, over the past few years, advanced 3D design concepts have been proposed. These 3D structures are similar to the low voltage FinFET cell structure, where multi-dimensional channel width is arranged in order to increase the cell density and reduce the on-state resistance RDS(ON).

Cutting-Edge Gallium Nitride Tech Could Help Evs Charge Three Times Faster

Navitas Semiconductor, a company that makes technology for super-fast phone chargers, says electric vehicles are its next big bet.

"The same thing we're doing at 50 watts for a phone or a tablet, we're going to do that for 5,000 watts or 20,000 watts to fast-charge your your EV," Navitas CEO Gene Sheridan told CNBC in a phone conversation.

With Navitas' technology, an electric vehicle could charge at a consumer's home in a third of the time it currently takes.

As an example: "It will take about 10 hours to fully charge a Tesla. You can say, 'Well, that's overnight. I'm sleeping. It's no big deal,'" Sheridan said. "But there's times when you don't have 10 hours to get on the road."