

March 25th 2011

Dear Customer,

Following our initial comments published via email on 17/03 we thought it prudent to update you with our latest thoughts on events in Japan as they have continued to evolve during the past week. We are also adding these updates to our blog which may be viewed on our group website www.paragon-electronics-group.com.

We are sure it goes without saying, but we are continuing to liaise closely with our suppliers and to take action immediately if we can identify items that are a clear threat to any customers supply chain (where we have visibility of the customers' forward demand).

As we write the situation in Fukushima continues to be the main source of concern and we suspect will remain so for some weeks. However the Japanese are a resourceful, resilient First World nation and economic power and are throwing massive resources at getting their economy back on track after the devastating events of the 11th March. Indeed recent pictures have shown a road destroyed by the earthquake already completely re-built and fully open to traffic less than two weeks post the destruction!

It is interesting to observe that the global electronics industry has one of the most developed, dynamic, high velocity supply chains in the world today. Yet this is still highly dependent on a handful of companies, a handful of geographically concentrated supply clusters, and a handful of constrained sources of critical raw materials. During the last week we have learnt more about the potential medium term impact of this, which perhaps represents the most serious issue from the wider electronics business point of view.

The earthquake has resulted in the suspension of one-quarter of the global production of silicon wafers used to make semiconductors. Manufacturing operations have stopped at Shin-Etsu Chemical Co. Ltd.'s Shirakawa facility. MEMC Electronic Materials Inc. also stopped manufacturing at its Utsunomiya plant. Together, these two facilities account for 25% of the global supply of silicon wafer used to make semiconductors.

The facility in question, at Shirakawa, produces large 300mm wafers, which are used in more advanced semiconductors that have high transistor counts. These are mainly used in the manufacturing of memory devices, such as flash memory and DRAM. Because of this, the global supply of memory semiconductors is likely to suffer the most of any segment of the chip industry by the production stoppage. Logic devices represent the next largest use of these wafers.

These companies supply not only domestic Japanese demand for wafers but also semiconductor manufacturers around the world. Because of this, the suspension of operations at these plants could have wide-ranging implications beyond the Japanese electronics industry. A 25% reduction in supply is likely to have a major effect on worldwide semiconductor production. However, once again the actual impact is difficult to quantify at this stage, as clearly 75% of World Production is unaffected, and we do not yet know how rapidly the rest of the Worlds production capacity can be ramped to make up any shortfall created by the temporary suspension of the affected plants.

Shin-Etsu's Shirakawa plant is responsible for 20% of global silicon semiconductor wafer supply. Shin-Etsu reported that there has been damage to the plant's production facilities and equipment but to compensate for the lost manufacturing, Shin-Etsu said it would set-up production systems at other facilities. However, the company advised it was unclear at the moment how long it would take to restore the damaged facilities and equipment.

MEMC said it evacuated employees and suspended operations at its Utsunomiya plant after the earthquake. The Utsunomiya facility accounts for 5% of worldwide semiconductor wafer supply. MEMC said it expects that shipments from this facility will be delayed during the near term.

In another development, we have been advised that production of the raw materials for Copper Clad Laminate (CCL) have been disrupted. The companies, Mitsubishi Gas Chemical Company Inc. and Hitachi Kasei Polymer Co. Ltd., said they will resume production of CCL within two weeks.

However, with current inventory levels, IHS iSuppli believes that there is sufficient supply of finished PCBs and raw CCL material to keep electronics production lines running at global electronics manufacturers, as long as the interruption doesn't last significantly longer than the predicted two weeks.

Paragon have been working with their suppliers and have already advised customers where we believe there is a potential supply threat. We will continue to monitor this situation carefully.

The earthquake has apparently damaged about 40% of the total wafer capacity of Renesas Electronics. The company has currently stopped production at its Tsugaru fabs producing analogue and discrete devices, at its Naka facility making system-on-chip and microcontroller devices, and at its Takasaki and Kofu fabs making analogue and discrete parts. At this time we do not know how long these plants will be affected by the production stop.

Half of the total wafer capacity at Fujitsu has been damaged. While the company's fabs and wafer equipment are intact, the shortage of electricity, gas and wafers means it will take three or four weeks for the company to recover production to pre-earthquake levels.

The conclusion that could be drawn from the analysis above is that perhaps the consequences, purely in terms of wafer production, may turn out to be a short-term blip rather than any long-term damage. We do not of course draw any parallel between that and the real cost to people, families and communities in the area, but it is clearly important in the global context for the electronics industry to have its own perspective on this disaster and its consequences.

The catastrophic events of two weeks ago in Northern Japan represent the most significant shock to the global electronics supply chain in recent memory. Although the initial dust from the quake has now settled, the impacts of these events on the supply chain - and more importantly the impacts of how significant global players respond to these events - will ripple through the electronics supply chain for the remainder of 2011 and beyond.

The history of the electronics industry tells us that the majority of global, systemic, supply chain issues are either caused by, or are dramatically exacerbated by, the reaction and over-reaction of various supply chain players to signals and shocks that are otherwise quite manageable. The key questions are therefore; will the recent events in Japan be any different? What is the real impact of the disaster and what should electronics supply chain professionals be doing in response?

In our opinion, as alluded to at the beginning of this missive, blanket panic buying is futile and counter productive, we do however believe that, as and when we can clearly identify threats to supply chain continuity, and define a defensive strategy on behalf of our customers, we should move quickly to implement this strategy.

As an example of this 'in action' we have already identified a number of items, where issues from the earthquake and resulting Tsunami, could adversely affect our ability to deliver customers products in the coming months. In these cases we have moved swiftly to secure inventory and identify alternative options if necessary. Please be assured that we will continue to keep you updated and to use all means to identify threats to the supply chain and take such actions as are necessary in the coming weeks and months to secure continuity of supply. In the meantime we have updated the spreadsheet we sent out last week which should help you to keep abreast of the latest information.

We will continue to keep you informed via bulletins and, of course, directly via your Account Manager. If at any time you would like to discuss this further with us, please do not hesitate to contact anyone of us either by phone or email.

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