

## SC Response - Examples Matrix

Company	Product	Core Capacity Loss (Failure mode)	Brief Impact	Case Description	URL	Citation
Apple	iPad 2	Expect loss of supply	Key component suppliers shutdown	"The earthquake, tsunami and aftershocks have halted or delayed production of many components that are found in the iPad 2, including NAND Flash memory, touch screens, image sensors, batteries and the special resins that are used to hold chipsets together." "Japanese suppliers are responsible for 35% of the world's NAND Flash production, according to IHS iSuppli, and Japan is the world's leading source of semiconductor and LCD manufacturing equipment, according to DisplaySearch."	<a href="http://money.cnn.com/2011/03/23/technology/apple_ipad_japan_supply_chain_concerns/">http://money.cnn.com/2011/03/23/technology/apple_ipad_japan_supply_chain_concerns/</a>	CNN Money "Apple's iPad 2 supply concerns mount" by D. Goldman, March 23, 2011
Apple	iPad 2	Expect loss of supply	Key component suppliers shutdown	"news is that Apple has received word that iPad 2 components are in dire supply, and that production rates on their "king of the Hill" tablet have slowed considerably. according to iSuppli, many of the necessary components for the iPad 2 were being manufactured at a couple of suppliers in Japan. Toshiba manufactures the iPad 2's NAND flash-memory, and Japan-based Elpida Memory creates the DRAM memory that is used in the iPad and iPad 2.  Also, the electronic compass is made by AKM Semiconductor, the tablet's glass is developed by Asahi Glass, and the iPad 2 batteries are made by the previously mentioned Japanese Apple manufacturing plant.  Apple can pretty quickly replace these supplies by using other suppliers, but the same is not true of the iPad 2 battery. This is a very specific device, and it is going to be tough to keep up with production at the other supply houses. Also, you never can tell what problems can develop from using manufacturers that are new to your specific needs. Good for Motorola, bad for Apple."	<a href="http://www.topcomputerTablets.com/USiPad2FeelsRumblingsFromJapanEarthquake">http://www.topcomputerTablets.com/USiPad2FeelsRumblingsFromJapanEarthquake</a> by Sarah, March 24, 2011	TopComputerTablets.com "USiPad 2 Feels Rumblings From Japan Earthquake" by Sarah, March 24, 2011
Boeing	777, 787 jetliners		NO IMPACT YET	"Boeing Co. said Wednesday that some of its downstream suppliers in Japan were disrupted by the country's recent earthquake, but alternative sources have been filling in and so far there's been no impact to the aircraft builder's production rate." "Boeing has said it made mistakes in its 787 supply chain by relying too heavily on the engineering of others to spread the development and risk for the new aircraft."	<a href="http://www.marketwatch.com/story/boeing-works-around-japan-quake-disruptions-2011-03-23">http://www.marketwatch.com/story/boeing-works-around-japan-quake-disruptions-2011-03-23</a>	MarketWatch "Boeing works around Japan-quake disruptions" by C. Hinton, March 23, 2011
Freescale	Accelerometers, pressure sensors and other chips	Loss of internal capacity	Plant in Sendai shutdown, shifting production to other facilities	"Austin, Texas-based Freescale Semiconductor provided a rare glimpse of how its employees coped after the disaster. The coastal city of Sendai was hit by a 10-meter (33 feet) tsunami following the quake, causing catastrophic damage. Freescale has a facility there making accelerometers, pressure sensors and other chips for cars that shut down after the tsunami. Spokesman Rob Hatley said fast-thinking Freescale employees elsewhere in Japan leased trucks after the quake to get emergency supplies like dry food, water, clothes and batteries to their colleagues in Sendai who are shifting production to other facilities and moving inventory to customers. "We run a global supply chain, so the same resources, skillsets, problem solving and ingenuity that we put in our fab every day, we continue to apply in our current environment," Mr. Hatley said.	<a href="http://www.montrealgazette.com/technology/Japan+disasters+expose+flaws+just+time+production/4478439/story.html">http://www.montrealgazette.com/technology/Japan+disasters+expose+flaws+just+time+production/4478439/story.html</a>	The Gazette "Japan disasters expose flaws in just-in-time production" by N. Carey, N. Randewich, K. Krolicki, March 21, 2011
GM	Automobiles	Loss of supply	US plant closed	General Motors Co. on Thursday became the first U.S. auto maker to close a factory because of the crisis in Japan. GM said it plans next week to idle a Shreveport, La., plant that builds small pickup trucks. The company cited short supplies for a Japan-made part it didn't identify and didn't say when it expected to restart production.	<a href="http://online.wsj.com/article/SB10001424052748703818204576206170102048018.html">http://online.wsj.com/article/SB10001424052748703818204576206170102048018.html</a>	WSJ "Crisis Tests Supply Chain's Weak Links" by J. Hookway, A. Poon, March 18, 2011
Hitachi	Engine air flow sensor	Loss of internal capacity	Plant damaged	"The part coming under increased scrutiny is a mass air flow sensor made by Hitachi Automotive Systems Ltd. at a plant north of Tokyo that was damaged by the quake and remains shut down. The Hitachi part, which costs about \$90 in retail stores, is used by about a dozen auto makers. Some are curtailing production out of fear that their supplies of the sensor could run out." GM in Louisiana shut down pick up truck plant and slowed ops in Germany and Spain plants; PSA Peugeot-Citroen also planning to reduce ops in Euro plants due to this shortage. NHitachi expecting plant to restart Mar 25 or 26 but not certain how much capacity available	<a href="http://online.wsj.com/article/SB10001424052748704050204576218710838251784.html?mod=wsj_qt_latest_wsj">http://online.wsj.com/article/SB10001424052748704050204576218710838251784.html?mod=wsj_qt_latest_wsj</a>	WSJ "Engine Sensor Shortage Hits US, European Auto Makers" March 12, 2011, J. Osawa & S. Moffett

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Hitachi	Engine air flow sensor	Loss of internal operations	Plants still down	<p>"Hitachi is trying to resume shipments of its airflow sensors as quickly as possible. Tadashi Hisanaga, a Hitachi Group spokesman, said the company expected the two plants that make the airflow sensor to be "up and running by Friday or Saturday."</p> <p>The structural damage — some broken steps, pipes and ducts knocked out of place — was marginal, he said. However, the precision manufacturing equipment used to make chips was bounced around, requiring days of tweaking to come back on line.</p> <p>"That's what takes time," he said. "This stuff has to be realigned and tested." "</p>	<a href="http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss">http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss</a>	NYT "Disruptions Spread in Global Carmaking: Toyota, Struggling With Part Shortages, to Restart Car Lines" by N. Bunkley, D. Jolly, March 24, 2011
Honda		Loss of internal capacity	Closed 3 component & 2 assembly plants; expect to lose 16500 units; lost contact with 44 of 113 suppliers	Closed engine, transmission and chassis plant and two finished product plants making CR-V Accord, US Fit, Acura RL and TSX, Japan Fit, Civic, Civic Hybrid, Insight and Honda CR-Z; expect to lose 16500 units of production up thru March 20; lost contact with 44 of 113 suppliers in the area affected by tsunami and quake		Earthquake Shakes Global Supply Chain, Automotive Logistic News 16-22 March 2011
Honda	Finished vehicles	Loss of supply	Dependent on 10 suppliers located in radiation zone	"A major problem for all the automakers is ensuring a reliable supply of parts from Japanese component makers. Honda gets parts from 10 suppliers located in the radiation zone around the stricken Fukushima Daiichi nuclear plant." "Honda Motor announced Thursday that it would extend the closure of automobile assembly plants at its Sayama and Suzuka factories until at least April 3, and that the decision on whether to resume production would be "based on the status of the recovery of Japanese society as a whole as well as the supply of parts." "	<a href="http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss">http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss</a>	NYT "Disruptions Spread in Global Carmaking: Toyota, Struggling With Part Shortages, to Restart Car Lines" by N. Bunkley, D. Jolly, March 24, 2011
Kikoman	Soy sauce, seaweed, wasabi	Loss of internal capacity	Impacting buyers in Isreal which purchases 85% of soy sauce supply from Kikoman	<p>" Israel relies on a particular type of soy sauce – Kikoman – and that one of the company's manufacturing plants in Japan was damaged. Israel has already seen delays in delivery, according to Dudi Afriat of the Rakuto Kasei company, which imports the Kikkoman soy sauce</p> <p>Israel is particularly reliant on Kikoman – the brand makes up 85% of the soy sauce in the country.</p> <p>Seaweed and wasabi may also be affected, although not sushi rice, which comes to Israel from California. Israel's supply of sushi rolling mats and chopsticks are made in China and tempura is imported from South Korean.</p>	<a href="http://israelity.com/2011/03/19/post-earthquake-will-israel-suffer-a-sushi-shortage/">http://israelity.com/2011/03/19/post-earthquake-will-israel-suffer-a-sushi-shortage/</a>	ZIC Israelity "Post earthquake: Will Israel suffer a sushi shortage?" by B. Blum, March 19, 2011
Mazda		Loss of supply	2 plants closed for 1 week	Plants not affected, but suppliers have been affected and co suspended ops at 2 plants for entire week		Earthquake Shakes Global Supply Chain, Automotive Logistic News 16-22 March 2011
Mazda	Automotive parts	Loss of supply		"Also on Thursday, Mazda suspended production at a parts plant, and Honda said it was keeping two of its Japanese plants closed until early April."	<a href="http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss">http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss</a>	NYT "Disruptions Spread in Global Carmaking: Toyota, Struggling With Part Shortages, to Restart Car Lines" by N. Bunkley, D. Jolly, March 24, 2011
Mitsubishi			NO LOSS (YET)	3 production hubs not yet affected		Earthquake Shakes Global Supply Chain, Automotive Logistic News 16-22 March 2011
Nikon	SLR cameras		Plant closed	Only Nikon plant making SLR cameras suspended ops	<a href="http://www.cbc.ca/news/world/story/2011/03/16/f-japan-quake-affect-on-consumer-products.html">http://www.cbc.ca/news/world/story/2011/03/16/f-japan-quake-affect-on-consumer-products.html</a>	CBSNews: World "Quake hampers prouction of cars, gadgets" March 16, 2011
Nissan	Vehicle assembly		Closed 6 factories	Plan to restart 6 factories 3-22-11 and assembly op on 3-24-11		Sony, Nissan Plan to Resume Operatoins at Factories Idled by Earthquake, Bloomberg, 3-21-11, by M. Yasu and Y. Hagiwara

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Nissan	Engine factory	Loss of internal capacity (due to destruction, utility outage)	Facilities closed	Lack water, electricity and gas to operate. Considering sending engines from Tennessee plant to Japan		Sony, Nissan Plan to Resume Operatoin at Factories Idled by Earthquake, Bloomberg, 3-21-11, by M. Yasu and Y. Hagiwara
Nissan		Loss of supply; Loss of internal capacity	Finished inventory damaged, 2300 vehicles	All plants in Japan hit by aftershocks, some able to repair damage but parts from suppliers limiting ops. Finished inventory damaged, 2300 during tsunami		Earthquake Shakes Global Supply Chain, Automotive Logistic News 16-22 March 2011
Nissan	Automobiles			"Nissan Motor Co.'s (7201.TO) chief executive says about 40 auto parts suppliers in Japan are still suffering effects from the March 11 earthquake and tsunami, and subsequent damage to nuclear reactors and transportation lines, complicating efforts by vehicle manufacturers to resume production." Nissan is considering sending engines from US plant (Tennessee)	<a href="http://online.wsj.com/article/BT-CO-20110323-711049.html?mod=wsj_qt_latest_wsj">http://online.wsj.com/article/BT-CO-20110323-711049.html?mod=wsj_qt_latest_wsj</a>	WSJ "Nissan CEO: Japan Parts Suppliers Reeling From Quake - Bloomberg", March 23, 2011
Nissan	Engine plant, finished vehicle	Loss of internal operations, loss of supply	Plants closed	"The company's Iwaki engine factory — damaged in the quake and located just outside the official safety zone around the Fukushima Daiichi nuclear plant — remains closed. That is creating ripple effects throughout Nissan's production system. Last week, a top executive said the company was considering the unprecedented step of shipping V6 engines made at its factory in Decherd, Tenn., to Japan to replace the lost production." "Nissan and other automakers also needed to worry about the loss of a crucial microprocessing unit made by Renesas Technology. The unit is an essential element in the drive train, a part for which there doesn't seem to be any alternative.  Renesas said Thursday that it had temporarily shut its facility in Naka, where the part is made and was assessing the status of the clean rooms at the facility."	<a href="http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss">http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss</a>	NYT "Disruptions Spread in Global Carmaking: Toyota, Struggling With Part Shortages, to Restart Car Lines" by N. Bunkley, D. Jolly, March 24, 2011
ON Semiconductor	Semiconductors	Potential loss of internal operations (due to utility failure)		Main plants not significantly affected. "However, infrastructure services such as fuel, electricity, gases, water, chemicals and logistics to ON Semiconductor's factories and those of its customers and suppliers in Japan have nevertheless been impacted by the consequences of the earthquake and tsunami. Based on currently available information, this infrastructure disruption is now expected to result in a temporary shutdown of operations at the company's Aizu and Gunma facilities until services can be reliably restored. The potential for intermittent supply of these services may cause temporary production disruptions at other locations as well."		Business Standard, March 19, 2011 "Update on Impact to ON Semiconductor from Japan Earthquake"
Ports in Japan		Loss of supply	Est cost of port closures \$3.4B	Some congestion at Tokyo, Yokohama due to shortages of fuel and trucks stranding incoming containers. "According to one estimate port closures have already cost the Japanese economy over \$3.4bn."		IFW "Japan: the logistical crisis deepens" by M. King, March 18, 2011
Powerchip Technology	DRAM	Loss of supply	Force co to redesign product to use available supply	Note - Powerchip considering redesigning its material supply needs to continue producing as a work around the supply shortage. "Taiwan-based DRAM maker Powerchip Technology reportedly is considering adopting epitaxial wafers if supplies of wafers by major producers such as Shin-Etsu Handotai remain disrupted for a prolonged period of time, according to industry sources. Epi-wafers are produced in wafer diameters up to 8-inch, which means that Powerchip would have to switch back to above-50nm processes to make DRAM chips. In response, Powerchip only said that the company will revise its production and sales plans to counter the potential impact of Japan's earthquake on its supply chain."		Digitimes, March 17, 2011 "Powerchip considers using epi wafers if Japan supply squeezes" by J. Lien & J. Shen
Qualcomm	Semiconductors			No problem anticipated. "It said that it had carried out a review of its extended semiconductor supply chain and did not "foresee any significant impact in our ability to supply product to our customers due to the events in Japan." It added that the company had "multiple, geographically diverse sources for supply as well as production processes specifically designed to enable us to mitigate disruptions in our supply chain." And it continued with its reassurance, saying the availability of Bismaleimide Triazine (BT) resin is OK, the stuff it uses, either BT-based or epoxy-based laminate materials, in its chipset packages. "To account for any potential disruption in BT supply, we believe our use of buffer stock and adjustments to our near term material mix will enable us to mitigate potential supply disruptions to our customer base," it concluded."	<a href="http://www.techeye.net/business/companies-rush-to-taiwan-to-fill-supply-boots">http://www.techeye.net/business/companies-rush-to-taiwan-to-fill-supply-boots</a>	TechEye.net "Companies rush to Taiwan to full supply boots" by A. Petrou, March 17, 2011

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Renesas	Drive train microprocessor	Loss of internal capacity (clean room down)	Facility closed	"Nissan and other automakers also needed to worry about the loss of a crucial microprocessing unit made by Renesas Technology. The unit is an essential element in the drive train, a part for which there doesn't seem to be any alternative.  Renesas said Thursday that it had temporarily shut its facility in Naka, where the part is made and was assessing the status of the clean rooms at the facility. "	<a href="http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss">http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss</a>	NYT "Disruptions Spread in Global Carmaking: Toyota, Struggling With Part Shortages, to Restart Car Lines" by N. Bunkley, D. Jolly, March 24, 2011
Shin-Etsu Chemical	Silicon wafers	Loss of internal capacity	World's largest maker of silicon wafers disrupted; 57% of world's wafers come from Japan	"Shin-Etsu Chemical, the world's leading maker of silicon wafers, and chip maker Texas Instruments have also reported that quake damage has hurt production. Japan produces 57% of the world's wafers and around 20% of its semiconductors."	<a href="http://www.montrealgazette.com/technology/Japan+disaster+expose+flaws+just+time+production/4478439/story.html">http://www.montrealgazette.com/technology/Japan+disaster+expose+flaws+just+time+production/4478439/story.html</a>	The Gazette "Japan disasters expose flaws in just-in-time production" by N. Carey, N. Randewich, K. Krolicki, March 21, 2011
Sony	Rechargeable batteries, DVD, Blu-ray discs, semicon lasers		Closed 10 factories	Had to stop 10 factories. Plan to restart battery plant on March 22. May restart DVD factory in Ibaraki prefecture within week (as of 3-21-11). Battery plant in Tochigi prefecture (Northern Japan), DVD mfg plant in Ibaraki, Miyagi prefecture (4 plants making Blu-ray discs, semiconductor lasers), Fukushima prefecture (two plants making rechargeable batteries)		Sony, Nissan Plan to Resume Operations at Factories Idled by Earthquake, Bloomberg, 3-21-11, by M. Yasu and Y. Hagiwara
Sony	Tagajo City, Miyago	Loss of internal capacity (due to destruction, utility outage)	Facilities closed	Lost power, plant covered in rubble and mud		Sony, Nissan Plan to Resume Operations at Factories Idled by Earthquake, Bloomberg, 3-21-11, by M. Yasu and Y. Hagiwara
Sony & Hitachi	Batteries	Loss of internal capacity	Plants closed	Both shut down battery plants in the area of the quake/tsunami, note about the area - "world's production ecosystem for lithium ion batteries used in notebooks are not only located in Japan, but many are in areas affected by the quake or within the evacuation radius of the troubled nuclear power plant there."	<a href="http://news.cnet.com/8301-1001_3-20044042-92.html">http://news.cnet.com/8301-1001_3-20044042-92.html</a>	CNET News Business Tech, March 16, 2011 "How quake is disrupting supply of batteries, LCD displays"
Sony & Hitachi	LCD & LCD materials	Loss of internal capacity	Production ops affected, not reliable enough to produce	Both have plants in the quake/tsunami area and both plants affected. "Between them, the two companies produce 90 percent of the world's supply of Anisotropic Conductive Film, an interconnect material that's widely used in LCD panels." Production ops will also be affected by inconsistent power, LCD ops very sensitive to power fluctuations	<a href="http://news.cnet.com/8301-1001_3-20044042-92.html">http://news.cnet.com/8301-1001_3-20044042-92.html</a>	CNET News Business Tech, March 16, 2011 "How quake is disrupting supply of batteries, LCD displays"
Toyota	finished vehicles; Yaris, Scion xB and Scion xD	Loss of internal capacity (assembly plant); loss of supply (parts for US ops)	3 day shutdowns across all TMC plants. Expected loss of 95,000 vehicles.	Initially announced 3 day shutdowns across all TMC plants. Exceeded. Expected loss of 95,000 vehicles. Reduced OT in US due to part shortage for the 20% sourced from Japan. All TMC models in US and Japan expected to be impacted not EU tho.		Earthquake Shakes Global Supply Chain, Automotive Logistic News 16-22 March 2011
Toyota	Prius V		All ops suspended in Japan, est loss of 140,000 vehicles	"The world's largest automaker has suspended all assembly operations in Japan since March 14 because some suppliers can't deliver necessary parts. That production will last at least through this coming weekend. The halt in production has resulted in a loss of 140,000 vehicles." ... "Toyota dealers said last week they had about 40 days' supply of Priuses at the end of February."	<a href="http://www.freep.com/article/20110323/BUSINESS01/110323017/0/FEATURE/S08/Toyota-delays-Japan-launch-Prius-minivan?odyssey=nav/head">http://www.freep.com/article/20110323/BUSINESS01/110323017/0/FEATURE/S08/Toyota-delays-Japan-launch-Prius-minivan?odyssey=nav/head</a>	Detroit Free Press "Toyota delays Japan launch of Prius minivan" by G. Gardner, March 23, 2011

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Toyota	Finished vehicles	Loss of internal capacity, loss of supply		"At least half of Japan's auto production will still be shuttered by early May, a leading research firm, IHS Automotive, predicted Thursday. And because so many other auto plants around the world are dependent on parts from Japan, about one-third of vehicle production globally is expected to grind to a halt during that time." Now having difficulty restarting because of lack of part supply. "IHS projects that as many as five million cars worldwide will not be built, out of about 72 million that analysts had expected to be sold this year. Already, automakers have been unable to make 320,000 vehicles that they had planned to produce since the March 11 earthquake and tsunami." "Currently, 13 percent of the world's automotive production is out of commission, IHS said." "The automakers "have established 'war rooms' to monitor the situation and do not expect an 'all clear' for some time," Brian A. Johnson, an analyst with Barclays Capital, wrote in a note to clients Thursday." Toyota changing its restart plans on a daily basis. "The company closed 18 Japanese assembly plants after the quake, as well as seven facilities that make parts and engines. It is delaying the introduction in Japan of a new Prius wagon that was to go on sale in April, though it has not said whether the United States version of that model, scheduled to arrive this summer as the Prius V, would be affected. On Wednesday, Toyota told its workers in North America that it expected to halt production at one or more plants because of shortages of Japanese-made parts."	<a href="http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss">http://www.nytimes.com/2011/03/25/business/global/25auto.html?_r=1&amp;partner=rss&amp;emc=rss</a>	NYT "Disruptions Spread in Global Carmaking: Toyota, Struggling With Part Shortages, to Restart Car Lines" by N. Bunkley, D. Jolly, March 24, 2011
Toyota Boshoku Co	Auto-parts supplier		Plants idled, waiting for Toyota to restart. Facilities not damaged	Plants idled, waiting for Toyota to restart. Facilities not damaged		Sony, Nissan Plan to Resume Operations at Factories Idled by Earthquake, Bloomberg, 3-21-11, by M. Yasu and Y. Hagiwara
Toyota Motor Co			21 plants idled.	21 plants idled.		Sony, Nissan Plan to Resume Operations at Factories Idled by Earthquake, Bloomberg, 3-21-11, by M. Yasu and Y. Hagiwara
Wafer mfrs	Silicon wafers			"Chipmakers around the world will only have an estimated silicon wafer stock of around four to five months if Japanese suppliers fail to get their production lines moving again, a Merrill Lynch analyst has warned. Another analyst has told TechEye that the situation is the "inevitable outcome of stupidity." Dan Heyler, an analyst at Merrill Lynch, said the supply shortage will occur in May as Japanese manufacturers fill 60-70 percent of this industry and the shortage will affect sales revenue of chipmakers in the second quarter. He warned that even big companies such as Taiwan Semiconductor Manufacturing Co (TSMC) has around 30 days of net inventory left. However, although Malcolm Penn, top analyst at Future Horizons showed sympathy for the Japanese tragedy, he said the shortage was the fault of CEOs who had cut inventory, supply chain, stocks and buffers as much as they could. He told TechEye: "This was the inevitable outcome of stupidity. The whole thing has been stretched back as much as possible so that as soon as an issue hit it all unravelled." Although no one knows what the full extent of the problem will be, Penn said even if it stood at five percent there would be no fall back. "CEOs have literally taken everything out of the supply chain, all in a bid to make the books look better. They used to be concerned about the security of the business, now it's all about how good the books look. This was a disaster waiting to happen."	<a href="http://www.techeye.net/chips/silicon-wafer-supply-disrupted-ceos-accused-of-stupidity">http://www.techeye.net/chips/silicon-wafer-supply-disrupted-ceos-accused-of-stupidity</a>	TechEye.net "Silicon wafer supply disrupted - CEOs accused os stupidity" by A. Petrou, March 16, 2011
xJapan			Est loss ~\$200-300B	"Japan on Wednesday released the first official estimate of the cost of damages from its triple disaster of earthquake, tsunami and nuclear crisis, and the figure tops \$300 billion."	<a href="http://www.advisorone.com/article/japan-damage-300-billion-concern-radiation-food">http://www.advisorone.com/article/japan-damage-300-billion-concern-radiation-food</a>	AdvisorOne "Japan Damage at \$300 Billion; concern on Radiation in Food" by M. Satter, March 23, 2011

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xJapan				"Japanese companies account for 40% of the world's technology component supplies. The country makes 30% of the world's flash memory used in smart phones and digital cameras, and 10-15% of D-Ram memory, a key part of every computer. Asahi, NH Techno and Nippon Electric Glass are three of the world's top suppliers of glass for flat panels. Japanese components account for a third of the cost of Apple's iPhone. These supply chains are being broken by reductions in output due to power cuts and production stoppages. Infrastructure has also been affected by the crisis, especially transport, again due to fuel shortages. There are concerns about the country's ports. Chip plants need large amounts of electricity and water, both of which have been badly affected. Given the complex nature of these manufacturing operations, even small disruptions can reverberate for months. Honda has 113 suppliers around the disaster area. These will be affected to one degree or another. This disruption will have a knock-on effect further afield. There were potential supply problems at the Honda plant in Swindon, its main facility in Europe. Japan is not only an exporter, but has an important internal market for cars, the third largest after China and the US, which will be also affected by the crisis."	<a href="http://www.marxist.com/japans-crisis-shakes-the-world.htm">http://www.marxist.com/japans-crisis-shakes-the-world.htm</a>	Marxist.com "Japan's crisis shakes the world" by R. Sewell, March 23, 2011
xJapan	Wafers, Epoxy resin			An estimated 25 percent of the world's supply of raw silicon wafers has been taken off line do to infrastructure damage at <b>two facilities in the area</b> , which could result in shortages if the factories remain idle for a prolonged period. Analysts have also warned that all or nearly all of the world's supply of an epoxy resin used in many chip package substrates is produced in two Mitsubishi Gas Chemical Inc. facilities that <b>remain idle due to equipment and infrastructure damage</b> .	<a href="http://www.eetimes.com/electronics-news/4214433/Analyst--Quake-impact-on-IC-chain-temporary">http://www.eetimes.com/electronics-news/4214433/Analyst--Quake-impact-on-IC-chain-temporary</a>	EETimes "Analyst: Quake impact on IC chain temporary" by D. McGrath, March 23, 2011
xJapan				"Japan, which suffered a 9.0 magnitude earthquake and 10 meter tsunami two weeks ago, supplies about a fifth of the world's semiconductors and 14 percent of all electronic equipment manufacturing, according to research firm IHS iSuppli.	<a href="http://www.reuters.com/article/2011/03/24/us-dell-idUSTRE72N6O020110324">http://www.reuters.com/article/2011/03/24/us-dell-idUSTRE72N6O020110324</a>	Reuters "Dell says no material supply disruption from Japan" March 24, 2011
xJapan				"-The government has estimated that the cost of repairing earthquake damage to homes, commercial buildings and infrastructure could be as much as 25 trillion yen (around \$300 billion). However, it would be quite wrong to interpret this as an estimate of the blow to GDP, which measures economic activity rather than changes in the stock of capital. Indeed, reconstruction spending will actually boost GDP. This would not of course mean that the country is any better off, even in narrow economic terms: lost assets have simply been replaced and productive potential is no higher than before. But it does mean that this 25 trillion yen should be seen as a potential positive for the official GDP data rather than a negative. This spending would be equivalent to around 5% of one year's GDP, although it would be spread over several years and the boost to overall economic activity would be partly offset by reductions elsewhere... [From a separate note] We suspect that the consensus is giving far too little weight to the blow to confidence and activity from the nuclear crisis. Admittedly, the steeper the initial fall in GDP, the sharper the rebound is mechanically likely to be. Nonetheless, the next few months may still see some shockingly weak economic data. -Julian Jessop, Capital Economics	<a href="http://blogs.wsj.com/economics/2011/03/24/economists-react-japans-unique-uncertain-challenges/?mod=google_news_blog">http://blogs.wsj.com/economics/2011/03/24/economists-react-japans-unique-uncertain-challenges/?mod=google_news_blog</a>	WSJ "Economists React: Japan's Unique, Uncertain Challenges" by P. Izzo, March 24, 2011
xJapan	Silicon wafers			"According to a report issued this week by research firm HIS iSuppli, 25% of the global production of silicon wafers, which are used to craft semiconductors, has been suspended."	<a href="http://www.millionairecorner.com/article/japan-earthquake-tests-global-supply-chain">http://www.millionairecorner.com/article/japan-earthquake-tests-global-supply-chain</a>	Millionaire Corner "Japan Earthquake Tests the Global Supply Chain" March 23, 2011

#### Quotes

"Although the full impact of the current situation on our business will take additional time to assess, Sony Ericsson anticipates disruption to its supply chain operations," the company, owned by Ericsson (ERICB.ST) and Sony Corp. (6758.T), said in a statement. "As part of our business continuity plan, we are in contact with all our key suppliers in the region and we are identifying the possible relocation of certain component manufacturing, and looking at secondary sources of supply." From Reuters, March 17, 2011 "CORRECTED - Sony Ericsson sees supply chain disruption after quake"

"The company (ON Semiconductor) currently anticipates infrastructure services will improve towards the end of the first quarter. The company is identifying options to shift production to other facilities to support supply continuity for customers." from Business Standard, March 19, 2011 "Update on Impact to ON Semiconductor from Japan Earthquake"

Company	Product	Core Capacity Loss (Failure mode)	Brief Impact	Case Description	URL	Citation
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"The country also supplies about 90% of the world's supply of bismaleimide triazine, a chemical used in making circuit boards for telephone handsets. .... The country has carved out a niche as a high-end producer of many advanced components and materials, and Japanese companies often dominate their sectors. Japan supplies 78% of the global supply for the electrode materials in lithium-ion batteries, nearly all of the protective polarized film for liquid crystal displays and large quantities of other high-tech materials, according to Credit Suisse AG." from WSJ "Crisis Tests Supply Chain's Weak Links" by J. Hookway, A. Poon, March 18, 2011

"A Boeing spokesman said the company had "identified points of risk within the supply chain and [is] developing mitigation plans." He said the company will be able to largely manage those risks with "minimal" supply-chain disruption as long as the power supply and transportation infrastructure doesn't worsen in the coming days or weeks." from WSJ "Crisis Tests Supply Chain's Weak Links" by J. Hookway, A. Poon, March 18, 2011