ELECTRONICS REPORT
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ET TRENDS

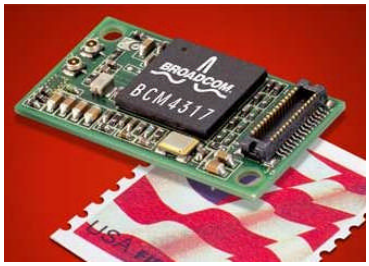
BUSINESS & MARKET NEWS

Tech to Watch in 2008 [based on several tech reports and gut feel] - Carbon capture (CO_2) and storage (pilot plants only), disaster mitigation technology (wide ranging), low carbon electricity distribution (alternative energy projects/products), more medical devices (many aimed at consumer), e-health (mostly reduce cost through logistics, information and efficiency), plastic/printed electronics (2008 is the year of commercialization), stem cell research (less controversial routes), bio-generation of body parts (growing organs and organ parts), more supplicated automotive electronics with some level of autonomy (safety intervention/guidance; GPS, MEMS, telecom integration), energy-saving electronics (focus on efficiency), food-electronics (greater ability to know what you are eating and the consequences), cellphone/Smartphone transactions (use for purchasing, passes, tickets, etc.), more and better trans-medicine (distance diagnosis and medical assistance), wearable medical monitors/dispensers, more single-chip telecom systems (radio, Wi-Fi, BT, combinations), extremely dense multi-chip modules (including stacked silicon), MEMS motion input for portable electronics (beyond Apple's iPhone), higher-density/safer batteries (mostly Li-based), more solid-state lighting, better/cheaper displays, large and small; ***the telecom area will remain the technology and market driver for 2008 - no end in sight. U tethering is here to stay. Internet is the buss, wireless is last link.***

More Tech Webinars for 2008 - Expect more free information from the Internet of an increasingly technical nature ***[right, it's an efficient marketing tool].*** Here's one example. MacDermid announced it is starting a webinar series designed to disseminate critical information around the world via the Internet. MacDermid Director of OEM and Assembly Operations, Don Cullen, said that the company is now focusing on webinar communications as a major strategy for reaching the industry. MacDermid topics range from the **basics of copper plating** to PCB surface finishes. Webinar technology has evolved to the point where it can communicate with crisp audio and visual to any PCB engineer anywhere in the world. The company decided to embrace webinars to **augment normal advertising**, PCB school seminars, and in-person service. MacDermid is targeting the Asia region, scheduling its next three webinars at Asia-oriented times, but the webinars are available on-demand for anyone once they are recorded. All on-demand webinars will be free of charge. Source**: http://www.macdermid.com/electronics/.**

SmartPhones to Top 195 million Units in 2008 - Global shipments of SmartPhones are expected to top 195 million units in 2008, accounting for **16% of total** global handset shipments, compared to shipments of 149 million units and a ratio of 13% projected for 2007, according DigiTimes Research. With

the increasing market size in Asia, Symbian and Microsoft both will target China and Japan to boost their market shares in the region. According to Symbian, 9 out of the 15 Symbian-based handsets launched by its handset partners in the Q3-07 were targeting markets in Japan and China. Accumulated sales of Symbian-based handsets in Japan have surpassed 30 million units, accounting for 72% of Japan's Smartphone segment. Symbian, which has set up a global R&D center in Beijing, said that 12% of global production of Symbian handsets is currently shipped to China, with Symbian-based models now accounting for 60% of China's SmartPhones market. On the other hand, Microsoft is planning to set up a chain of 35 "Windows Mobile-concept" shops to promote its mobile handset solutions in China. Huawei Technologies (China) and ZTE both plan to enter design-in process for the production of Windows Mobile-based Smartphones in addition to Amoi Electronics, TechFaith Wireless and Lenovo who have already built up business relationships with Microsoft. A total of 12 Windows Mobile-based Smartphones are currently available in Japan's handset market compared to only one model in 2005, Microsoft said. Source: DigiTimes.



Wi-Fi Hits 300 Million Chipsets in 2007 - Wi-Fi, the pervasive short-range link, will reach 300 million units for 2007 per the Wi-Fi Alliance and In-Stat. Driven by ongoing strength in the PC networking market and new growth in consumer electronics and handsets, this milestone represents a 41% growth from 2006, in which 213 million chipsets were shipped. Users have come to expect Wi-Fi as a feature in all devices, not just notebook computers, and manufacturers have responded accordingly ***[The new iPod Touch has Wi-Fi].*** Wi-Fi connectivity was included on virtually all gaming devices and an increasing number of handsets and music players this year, and we expect the overall proportion of consumer devices incorporating Wi-Fi to continue to grow for 2008. In-Stat predicts that by 2011, about 700 million devices will ship with Wi-Fi on board, and by that time, Wi-Fi-enabled consumer electronics and phones will begin to exceed notebook computers in the total number of shipments. Inclusion of Wi-Fi in consumer electronics became more widespread this year, with the 802.11g standard wirelessly connecting some of the most popular consumer gadgets, including phones, music players and gaming devices. The June 2007 introduction of certification for products based upon 802.11n draft 2.0 helped boost sales of new higher-throughput products to 9% of the total shipments. With up to five times the throughput and twice the range of previous-generation products, Wi-Fi-certified 802.11n draft 2.0 readies Wi-Fi for connected home applications such as home theater, audio, gaming and computing systems. Wi-Fi Protected Setup, a new ease-of-use enhancement launched in early 2007, helps consumers and small businesses easily set up security-protected networks. All Wi-Fi certified devices have passed rigorous interoperability tests and meet WPA2 security requirements. To date, more than 4,100 products have been Wi-Fi certified. ***[Don't confuse Wi-Fi with WiMAX - the latter is a different technology with different goals and not Wi-Fi on steroids.]*** Source In-Stat.

China Mobile Market - Mobile phone sales in China are forecast to reach 150 million units in 2007; **up 23.1%** year-on-year. The sales however, are expected to drop 0.3% to $22.66 billion because more low-end mobile phones were sold during the period. The average price of a mobile in China in 2006 was $156 year. In addition, more than 20% of mobiles sold were less than $68.

Increased demand for tailored phones by mobile operators and rising low-end mobile users in rural areas is the main reasons for the price drop. Promotions by domestic manufacturers of mid- and low-end mobiles also brought down the general selling price. In the third quarter of 2007, Chinese brand mobiles accounted for 33.4% market share, up from 31.1 percent in the second quarter. They also predict mobile sales, driven by rising low-end mobile users and the forthcoming launch of the third generation mobile networks, would exceed 200 million units in 2009. Source:Xinhua1

China Will Make Most of World's Mobile Phones - Shipment volume of the China's mobile phone industry is expected to increase 6.9% sequentially to 179.6 million units Q4-07. China's share will have reached 50.7% of the world's total in 2007, making it the world's largest phone manufacturer. The country had reached 48.1% in 2006. Global system for mobile communications (GSM) models remains the mainstream product in China. However, makers such as Calcomp, Haier, Hisense, Huawei, and ZTE have become important suppliers of low-cost code division multiple access (CDMA) phones, and shipment of these products to Africa, India, and central Asian countries is very strong. Taiwanese makers had an outstanding performance in the Chinese industry in the third quarter. Combined shipment volume of Taiwanese manufacturers increased 41% sequentially to 29.9 million units, accounting for 17.8% of China's total. This ended a period of two consecutive quarters during which this share declined. Combined shipment volume of Nokia, Samsung, Motorola, Sony Ericsson, and LG in the third quarter reached 87.4 million units in Q3-07, up 7.3% over the previous quarter. However, their combined share of the Chinese industry's shipment in fell to 52%, down from 54.1%, due to the strong performance of Taiwanese makers. Among the Chinese makers, ZTE has consolidated its status as the largest Chinese mobile phone manufacturer. ZTE has become the first Chinese maker to have a quarterly shipment of more than four million, with third-quarter shipment reaching 4.1 million units. Furthermore, Huawei, TCL, Bird, and Tianyu all had shipment volumes exceeding three million units in the third quarter. Chinese makers accounted for 10 of the top 20 mobile phone manufacturers in China, with these combined shipment growing from 23.5 million units in second quarter to 26.6 million units in the third quarter of 2007. Source: Nikkei Electronics Asia

MORE ON TELECOM

Wireless Internet - Google will bid on the FCC's spectrum auction in 2008. As part of the nationally-mandated transition to digital television, the 700 MHz spectrum auction, will free up spectrum airwaves for more efficient wireless Internet service for consumers. The winner must ensure these rights for consumers if the reserve price of $4.6 billion for the C Block is met at auction. The 700 MHz spectrum is a hot commodity for hi-tech companies. It can penetrate walls and other obstructions with ease and the signal strength is consistent making it something carriers drool over. There is a total of sixty megahertz to be placed up for auction. Twenty-two megahertz are subject to the open access rules and another ten megahertz will be dedicated to a national public safety network. The final ten megahertz will be shared between a commercial operator and public safety agencies. The FCC hopes to rain upwards of $15 billion in total from the auction. Source: AP

WiMAX Keeps Gaining - ***[I've been beating the old cyber drum for WiMAX, even though there are plenty of naysayers, but the hardware is coming. WiMAX is the long-range wireless system that is barely a close cousin to low-powered Wi-Fi that runs on the over-crowded 2.5GHz shared part of the radio spectrum. First, WiMAX is in the licensed band where you can turn up the power; licensed regions of 2.5, 3.5 GHz for fixed, are others in different areas.]*** Motorola has been building WiMAX hardware and the latest modem can run at 8 GB/s and has a range of 3-miles. Motorola has demonstrated two WiMAX modems: the CPEI300 (right) and the CPEI800. Some think of WiMAX as "Wi-Fi on steroids" with a range of miles, versus yards, but while it has much more power, the system is very different and has the ability to "hand-off", just like cellular [see next item]. WiMAX modems have Ethernet ports and often add Wi-Fi. Expect to see the R2D2 look-alike out soon at about $200.

Why WiMAX will Dominate in the Last Mile/Meter - The most challenging part of network delivery is between the backbone and end user - the so-called "last mile" - and the broadband wireless technology expected to dominate here is WiMAX. Physical obstructions represent a challenge for wireless technologies, even in ideal conditions. Objects in the signal's path lead to multipath reflections, representing increased noise in most wireless technologies. However, the multiple reflections that arrive, albeit undesired, at the receiving end, still contain valid data. If that data can be extracted it would effectively improve the signal-to-noise and potentially increase the maximum available bandwidth. This premise makes WiMAX ideal for last mile broadband wireless delivery. The current WiMAX specification uses scalable Orthogonal Frequency Division Multiple Access (OFDMA). This makes it more applicable to Non Line of Sight (NLOS) systems and makes the technology better suited for mobile subscribers. In conjunction with incidental multiple paths, WiMAX employs multiple antennas to generate multiple transmission paths, which in optimal cases are complemented by multiple receiving antennas. WiMAX is also adopting smart antennas that can deliver 10 - 15dB improvement. The principle involves combining an antenna array with signal processing to implement beam forming. When receiving a signal, beam forming can increase gain in the direction of wanted signals and decrease it in the direction of interference or noise. When transmitting, it can focus the signal in the right direction and direct nulls at users who might otherwise be interfered with. This active interference management can push spectral efficiency into the 5-bit/s/Hz range, providing significant capacity benefits, especially when used in conjunction with spatial multiplexing techniques. Subscriber mobility is clearly on the increase and WiMAX technology is expected to be integrated into more portable consumer devices in the future. Source: Electrics Weekly.

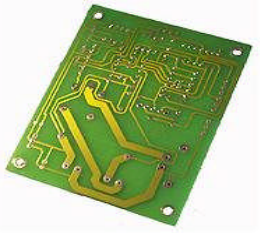
Fujitsu and Taiwan Establish WiMAX Platforms - Fujitsu and the Taiwan government sponsored Institute for Information Industry (III) announced their agreement to establish a new company in Taiwan that will develop application platforms and provide engineering support based on WiMAX. Through the joint venture, set March 2008, will significantly contribute to the development of the WiMAX industry in Taiwan. Leveraging Fujitsu's WiMAX SoC solutions and

III's software technologies, the new joint venture will develop WiMAX application platforms and provide them to ODM vendors in Taiwan. With fully localized engineering support provided by the new company, such platforms will enable ODM vendors to rapidly achieve mass production of attractive and competitive WiMAX equipment, stated Fujitsu. Since numerous global brand equipment vendors are using Taiwan-based ODM vendors as manufacturing partners, it is expected that application platforms and localized engineering support provided by the new company will spur the rapid growth of the global WiMAX industry. The new joint venture's initial target applications will include mobile WiMAX handsets, and femto/pico base stations. Such application platforms will be delivered to ODM vendors in Taiwan to shorten the time-to-market and help them to bring up their WiMAX products to worldwide customers quickly, Fujitsu highlighted. Source: DigiTimes.

Polymer Antennas - Omron Corp has announced the introduction of a global WiMAX band polymer antenna, the HAWK-WMX, for notebook PCs, Tablet and ultra-mobile PCs. Significantly smaller than competing products, the HAWK-WMX fits under the lid of notebook PCs, enabling computer manufacturers to design smaller and lighter models for highly mobile users. The HAWK-WMX, which employs the high dielectric polymer material and precision molding technology used in Omron's UWB antenna range, measures just 30 x 6.6-mm but can deliver uniform RF performance across three global WiMAX bands (2.3-2.8GHz, 3.3-3.8GHz and 5.25-5.85GHz). The HAWK-WMX is WiMAX MIMOi compliant, and with its global band attributes can also be used as a Wi-Fi (IEEE 802.11n) MIMO antenna. WiMAX offers a powerful next-generation solution for providing wireless mobility, but the frequencies on which WiMAX services are offered differ from country to country and sometimes region to region. Meanwhile, computer OEMs and ODMs are already supporting multiple wireless protocols such as 3G, Bluetooth, GPS, Wi-Fi and UWB, each of which usually requires a separate antenna. With mounting space at a premium, there is a clear need for ultra-small antennas that will enable products to function in any region with consistently high performance. The HAWK-WMX delivers a small footprint without compromising performance and can replace five notebook antennas for WiMAX and Wi-Fi with three smaller ones. Source: Nikkei Electronics Asia.

Paperless Boarding Pass - Continental Airlines passengers can use their mobile phone or PDA as their boarding pass in a three-month trial program just launched. If you are flying out of Houston's Bush Intercontinental Airport on Continental then you can show TSA the code that the airline sent you on your mobile device. The code is a 2-D bar code that has your name and flight info encoded into it. TSA will use a handheld scanner to verify the authenticity and will then check your ID like they would with a standard boarding pass. If your device battery dies, you can still print out a boarding pass at a kiosk or agent desk. One limitation of the trial program is that you have to be traveling alone.

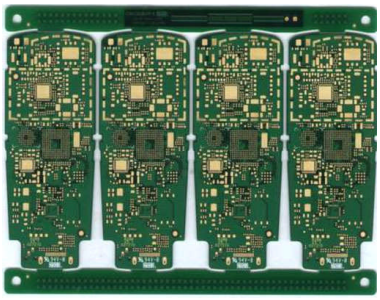
PCBs/SUBSTRATE



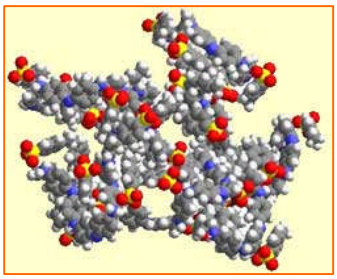
PCB Shortages in 2008 - The printed circuit board market may see shortages in 2008 as expansion plans in China are being hindered by toughening regulations concerning wastewater control. The PCB industry, which consumes high quantities of water and electricity, is finding it almost

impossible to expand capacity in southern and eastern China where wastewater disposal is tightly monitored. With no more wastewater quota available in the regions, the authorities have stopped issuing new environmental assessment certificates. The wastewater quota can only be freed up when existing factories are shut down. PCB makers think that the stagnant capacity expansion will help the industry achieve a balance in supply and demand, and there is a chance that PCBs will run into shortages next year, according to the sources. Gold Circuit Electronics (GCE) may still be able to expand its capacity at its current PCB plant at Changshu in southeastern China because it has not used all of its wastewater quota already awarded by the authorities, according to the sources. It plans to increase monthly capacity to 1.5 million square feet in 2008 from the present 1.2 million square feet. But GCE said the plant's second-phase project has not yet received waste a water disposal license and it will be difficult to expand next year. But, Unitech Printed Circuit Board's plant in Shanghai will have little problem expanding its capacity next year since it received a 2008 waste water quota that is double that of 2007. It plans to double its Shanghai plant's monthly capacity to 3 million units in 2008 from the current 1.5 million. So what's the answer? Use existing US and other capacities, or build in Vietnam (but power may be an issue today). Some Chinese companies are assessing the possibility of setting up a production base in Vietnam. Source: DigiTimes.

Taiwan Ups HDI Capacity - Taiwan-based printed circuit board (PCB) maker Tripod technology expects its high density interconnect (HDI) capacity to reach 100,000 square meters monthly by the end of 2008, as it gears up expansion for the segment at its production base in China, according to company sources. One of Tripod's plants in Wuxi, China that specializes in HDI boards will start production in the first quarter of 2008, with capacity to be increased steadily to add a total of 40,000 square meters to the company's overall HDI monthly capacity by the end of 2008, the sources said. The HDI segment accounted for 11.6% of the company's third-quarter sales, the sources said. Over half of the HDI revenues came from the handset sector, with the white-box handset market in China being the company's chief focus for HDI boards, the sources added. Another Wuxi plant of Tripod's has already ramped up PCB monthly capacity to 530,000 square meters, and another 100,000 square meters will be added next year (6-layer HDI at right). Source: DigiTimes.



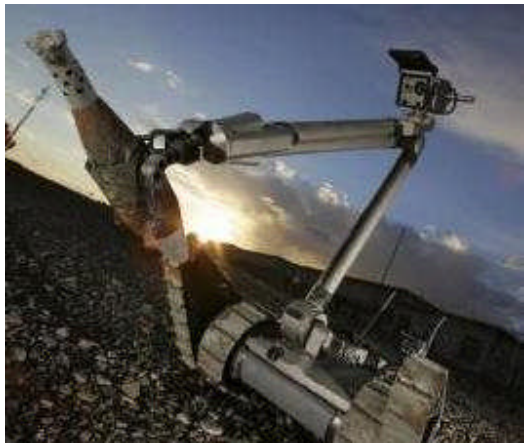
Nano-scale PCB Protective Finish - A completely new nano-size surface finish is being introduced by Ormecon International into the PCB market. The thickness is only 55 nm, with the layer consisting of a nanoparticle complex formed between the organic nanometal and silver (the silver contributes less than 10 per cent to the total thickness). This ultrathin layer is claimed to provide greater oxidation protection and solderability preservation than any other established metallic finish such as ENIG, immersion silver, immersion tin or OSP - although the established finishes are between six and 100 times thicker than this new nanofinish. According to Ormecon, several tests in PCB manufacturers and assemblers have already shown a superior thermal resistance and full solderability also under lead-free multi-reflow conditions. Only three months after the first public presentation by Dr Bernhard Wessling, the inventor and Ormecon CEO, in July 2007, a first industrial line for the deposition of the new nanofinish will be installed in Korea at Ormecon's customer Yoojin. The line will begin operating in the second half of October 2007 [has

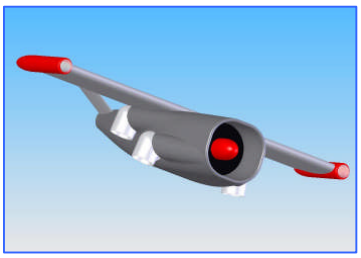


publications on conductive polymers]. It is believed that this will be the first commercial line to provide a nano-sized surface finish for printed circuit boards. Compared to conventional surface finish processes, the line's energy consumption will be 10-30 per cent lower and the total environmental resource consumption less than one per cent. Source: Engineer Live.

MILITARY

A new DoD report reflects military needs and goals in acquiring improved unmanned systems during the decades ahead. Titled, **"Unmanned Systems Roadmap: 2007-2032,"** the report looks at how the U.S. military should proceed in developing, acquiring and integrating air-, land- and sea-based unmanned technology over the next 25 years. The publication of this most-recent roadmap will further the strategic planning and our overall objective of developing, procuring and integrating unmanned systems into the force structure of the DoD. The document is the result of more than 18 months of work between the department, the services and other military and government agencies. Past reports mostly focused on unmanned aircraft systems, but also addresses land-and maritime-operated unmanned systems. It is the DoD's belief that the integration of all the unmanned domains – air, ground and sea – are the future of military integrated operations, not only from a systems perspective, but (also) from a joint-service perspective, and in many cases, a coalition perspective. Drone aircraft and ground-based robots already are proving their worth in Iraq and Afghanistan. The new report discusses those successes while also pointing out additional requirements cited by combatant commanders. Recommendations point out the need to develop an integrated infrastructure so that information and intelligence data provided by unmanned systems can be more rapidly and readily shared among users, including allies and coalition partners. Army and Air Force developmental plans for unmanned systems are to undergo executive review in the spring. The report also reflects commanders' requirements for better sensor technology used by unmanned systems to identify underwater mines and land-based improvised explosive devices. Continued development of artificial intelligence (robotics) technology may one day produce autonomous, "thinking" unmanned systems that could, for example, be used in aerial platforms designed to suppress enemy air defenses. The roadmap projects an increasing level of autonomy, and as the autonomy level increases, the DoD believes that that will open the avenue for additional mission areas. Source: DoD.





MATERIALS

Ferrite Plating Process - The ability to integrate a material with a high permeability on chip, allows for magnetically coupled circuits and structures to be designed and incorporated along side CMOS circuitry. Devices ranging from A.C. transformers to magnetically driven MEMS structures can be designed and fabricated. Desirable characteristics of magnetic cores for integrated inductors and transformers are first high saturation flux in order to obtain high saturation current; high permeability to obtain high inductance; high resistivity to reduce eddy current loss at high

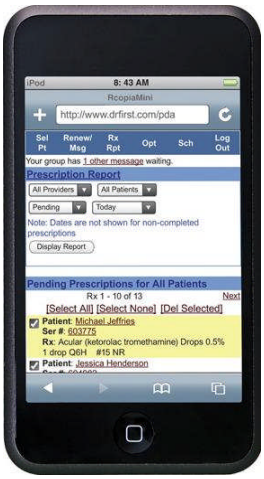
frequencies and compatible deposition and patterning processes. High frequency magnetic materials are oxide based ceramics and are therefore difficult to evaporate, sputter, plate and selectively etched. Electro-Phoretic Deposition (EPD) is a method where insulating particles are imparted charge in a suspension and are made to deposit on an electrode by applying electric field. EPD has been extensively employed in depositing oxide-based phosphors for display applications. In this study, ferrite particles have been prepared by grinding sintered toroids and deposited by EPD. The electrophoretic solution bath is composed of isopropyl alcohol with traces of $Mg(N0_3)_2$ and $La(N0_3)_3$ salts. Glycerol is added to the solution bath as a surfactant to promote increased substrate adhesion. The dissociation of magnesium nitrate in the solution bath charges the ferrite particles. An electric field of ~ 50-160 V/cm is applied with negative terminal connected to the wafer to be plated and aluminum electrode is used as the anode. The deposition process is found to be self-limiting with the initial high electrophoretic current declining to 10% of its value in 10 minutes. The deposition rate and zeta potential measurements indicate a high particle velocity on the order 5.7 x 10^{-3} cm/s with an electric field of 160V/cm generated across the 2-cm electrode spacing. Pattern filling and conformal coverage in copper damascene planar micro-inductors has been investigated. A method to extracted permeability from S11 impedance analysis has been employed. It has been found that grinding process deteriorates magnetic response. With recent advances in magnetic particle technology for high frequency materials, these results enable unique hard and soft powder ferrite material to be selectively deposited in wide variety of CMOS and MEMS based applications. Source: Department of Microelectronic Engineering - RIT.

MEDICAL ELECTRONICS

Telemedicine German service firm Vitaphone has announced a joint venture with Denmark based RTX Healthcare to deliver a tele-monitoring solution to their customers via Telehealth Monitor RTX 3370. The Telehealth Monitor is an interactive and simple to use device, designed specifically to improve the way of providing healthcare to patients outside hospitals suffering from chronic diseases such as heart failure, COPD and diabetes. The Monitor engages the patients through personalized daily interactions and questionnaires while collecting vital signs and transmitting the information directly into a database using regular telephone lines. The Telehealth is a wireless gateway, which serves as the central device for seamless and secure collection of data from chronically ill patients. It collects data from a range of standard external vital sign monitoring devices such as scales, blood pressure monitors, blood glucose monitors, and peak flow meters and transmits the data to a HTTPs server on the Internet. The device has a large easy-to-read display and large buttons. It is designed for the 60+ target group with simplicity and usability as important targets. Besides collecting vital sign data, the device has the ability to serve as a communicator between the care provider and the patient. The monitor can be configured to ask symptomatic questions and also for patient

reminders. It can also be configured to verbalize what is on the screen using compressed audio files. The files can be replaced to match language and text for each specific text that needs to be spoken. Source: Telemedicine.

One More iPhone Application - Prescriptions - As physicians are becoming more tech savvy, and a younger flock is graduating from medical school more comfortable with gizmos, many companies are releasing mobile productivity tools specifically designed for physicians. DrFirst™, for example, just released its attractive e-prescribing system for the iPhone, allowing doctors to very easily, and securely, send a prescription to a patient's pharmacy. E-prescribing on the iPhone with RcopiaMini allows physicians to provide a higher level of patient service and safety, streamline practice workflows, and save time and money through the efficiency of electronic medication orders, renewals and formulary checking. New prescriptions and renewals are sent electronically to the patient's retail or mail order pharmacy. RcopiaMini checks for patient insurance eligibility, formulary, and patient medication history. The application also offers clinical decision support tools to check prescriptions for drug-drug and drug-allergy interactions and appropriate dosing. Source: Informatics



INTELLECTUAL PROPERTY

More Patent Applications in China - China has accepted over 1 million patent applications in the past 18 months, bringing the total to 4 million since 1985 when the country's Patent Law took effect. Statistics from the State Intellectual Property Office (SIPO) showed that patent applications accepted by SIPO reached 1 million after 15 years. It took 50 months for the figure to reach 2 million, and only 27 months for 3 million. Of the latest 1 million patent applications accepted, about 60.8% were made by Chinese applicants. Only 47.8 % were made by Chinese among the first 1 million patent applications. Last year, Chinese applications were up 30.8% over 2005, 20% higher than foreign applicants at the same period. Source: Peoples Daily.

INTERNATIONAL NEWS

China is Losing Cost Advantage - China is losing its main competitive advantage due to rising costs, according to the American Chamber of Commerce in Shanghai. Rampant product piracy is another persistent problem highlighted in a report based on a survey of the group's 1,600 corporate members. ***Some companies plan to move to India or Vietnam***, some already have. Still, most companies with operations in China are still planning to expand capacity on the Chinese mainland,

but often ***moving factories and offices inland*** to smaller cities where costs are lower. For many U.S. and other foreign companies, finding, paying for and retaining good employees remains the biggest challenge. Expansion has stretched the supply of talent and there's no sign of easing in the short term.

Meanwhile, a new labor law, due to take effect next year, has increased uncertainties over hiring and firing practices. ***The Labor Contract Law will take effect Jan. 1, 2008***. [See more on this law in last section]. The recent spate of product recalls of products ranging from tires to toothpaste due to safety and quality concerns is prompting U.S. businesses to become much more vigilant over how their products are made. Problems with piracy of technology and products remained more or less unchanged from earlier surveys. Such problems are a perennial headache for both domestic and foreign companies operating in China: businesses say they lose billions of dollars (Euros) each year due to the lack of effective enforcement of copyrights, patents and trademarks. Despite the difficulties of doing business in China's unpredictable, fast changing markets, most companies said they were profitable in 2007 and that their profitability improved. Source: Technology Review.

Marching Off to Nam - Foxconn (world's largest contract maker of mobile phones) plans to open its first factory in Vietnam in 2008 - get away from "higher priced China" [already?]. Foxconn (Shenzhen) will join other members of the Hon Hai Precision Industry group to start production around Hanoi, northern Vietnam. Foxconn has factories at 5 Chinese locations. Compal Electronics is getting read to build factories in Vietnam [see new item]; costs are 5% lower than Shanghai [***differential will be higher in 2008***]. Hon Hai, the largest contract electronics manufacturer in the world, and 72% owner of Foxconn, will spend $5 billion over 5-years to increase capacity in Vietnam ***[but, is there really a good ROI for a 5% labor savings?***] But lack of construction workers and related infrastructure makes building plants there more difficult in Vietnam than in China. Foxconn is also building plants in India to be closer to customers including Nokia, which is expanding in the second-most populated country in the world. Nokia began manufacturing mobile phone components in the Indian state of Tamil Nadu this year and has committed to investing at least $150 million there. "India is turning into one of our key sites," Tong said, declining to comment on an Economic Times report that Foxconn will spend $1.5 billion to expand there. Current capacity in India is "not even 10 percent" of future capacity. "We'll be expanding our capacity because one of our biggest customers is getting big there," he said, declining to name the client.

More Moves to Vietnam - Compal Electronics (world's 2nd largest contract manufacturer of notebook computers) seeks investors to help set up as many as 50 satellite plants in Vietnam. The company will set up a main plant in Vietnam, which will begin mass production in the first quarter of 2009. The new plant in Vietnam will have an annual production capacity of 25 million units of notebook computers on the OEM (original equipment manufacturer) basis with in the next 5-years and this is equivalent to its present overall annual production capacity. The plant in mainland China is already running at full capacity. Compal is also considering setting up a production facility in Brazil because the government has imposed high tariffs on imported products in an attempt to protect domestic enterprises. Compal is also talking to customers in India to decide whether to launch a production facility there. The Vietnam government has promised to provide a land area of 327 hectares, 100 hectares of which will be used by Compal with the remainder for the

50 satellite plants. Compal said with the acquisition of the ample land space, it would be able to set up a notebook supply chain in Vietnam as soon as possible. Compal anticipated it would be able to ship 23 million units of NBs this year and a 20% up to 30% annual growth is expected in 2008. They will ship 600,000 units of LCD (liquid crystal display) TVs this year and target to ship one million units in 2008. Over the past several years, domestic high-tech firms have been rushing to invest in Vietnam and Brazil. Many believed the next-wave growth will come from such emerging markets as Brazil, India, mainland China and Russia. At present, Hon Hai Precision Industry Co. has been deploying in Brazil, while the U.S.-based Dell Computer Inc. has expressed desire to set up a second plant there. Taiwan's Hon Hai and Chi Mei Group have set up plants in Vietnam. Source: CENS.

Taiwan Transitions - China's new labor laws are coming into enforcement in 2008, and that means changes and higher costs. Asustek Computer is reportedly planning to move its production lines to Vietnam. The Vietnam government has promised to provide several benefits and tax reductions which have persuaded Asustek to relocate Pegatron Technology, one of the planned subsidiaries that will result from Asustek's spin-off in January 2008, to Vietnam where it will focus on the production of PC related products and components, noted the sources. If the movement plans are settled, it is expected they will trigger a trend for Taiwan-based IT companies to move their production lines to Vietnam in order to reduce the heavy reliance on China. Source: DigiTimes.

China Labor Law - Changes in China's labor laws, which will take effect in January 2008, could increase the cost of labor by 20% while decreasing pre-tax profits of electronic product manufactures by 7-10%, Since China is a major production base for the global PC industry, this is a problem that the whole IT industry needs to face. Although some makers have sped up their movement to other countries like Vietnam, such measures will not be fast enough to resolve the pending issues. The Labor Contract Law for 1/1/2008 gives employees who have worked at a company for more than 10 years the right to sign contracts protecting them from being fired without a legitimate reason. Some companies worry that the law might restore the "iron rice bowl" of lifetime employment practiced by China's state sector during the era of central planning that followed the 1949 communist revolution.