

# GREAT AMERICAN GROUP ADVISORY & VALUATION SERVICES

## Technology Monitor February 2011 - Volume 1

### In this Issue:

Overview	4
Recent Appraisal Trends	4
Monitoring Points	6
Pricing Trends	6
2011 International CES	12
Technology Reference Sheet	13

### Introduction

Welcome to the first issue of the *Technology Monitor* from Great American Group Advisory & Valuation Services (“GA”). This publication will provide you with market value trends for a variety of segments within the technology industry. The enclosed information is based on a composite of our monitoring within the industry, including publications, contacts with industry personnel, liquidation experience, and our continuing appraisal experience. Due to the volatile nature of the industry’s technologies and products, timely reporting is necessary to understand an ever-changing marketplace. GA strives to contextualize important indicators in order to provide more in-depth perspective of the market as a whole.

In this issue of the *Technology Monitor*, we have included discussions of a range of industry segments, including telecommunications, computers, semiconductors, and information technology (“IT”), among others, and their relation to the valuation process. GA provides our customer base with a concise document highlighting the technology industry. Please feel free to utilize our contact information shown in this and all *Technology Monitor* issues. GA welcomes the opportunity to make our expertise available to you in every possible way.

### Trends in Recovery Values

In general, GA has recently witnessed recovery value increases of between one and two points. When examining recovery trends in such a volatile marketplace as the technology sector, inventory aging and weeks of supply are particularly significant determinants in GA’s analyses. Factors such as product innovation, ever-changing technologies, and the saturation of markets such as telecommunications and consumer electronics contribute to a constantly changing and evolving market.

Recovery values are consistently higher for prime inventory, or inventory aged less than 90 days, and inventory with low weeks of supply on-hand. In particular, more traditional technology models, such as non-smartphone mobile phones and non-DVR set top boxes, have declined in value as innovative technologies have decreased demand for these items. With improvement in the economy and a surge in consumer spending, recent sales have increased across many technology industries.

GA internally tracks pricing and recovery ranges for a wide range of technological and electronic products, as well as retail and distribution trends in the industry, but we are mindful to adhere to your request for a simple reference document. Should you need further information or wish to discuss recovery ranges for a particular segment, please feel free to contact your GA Business Development Officer.



## ABOUT GREAT AMERICAN GROUP

---

Great American Group is a leading provider of asset disposition solutions and valuation and appraisal services to a wide range of retail, wholesale and industrial clients, as well as lenders, capital providers, private equity investors and professional services firms. In addition to the *Technology Monitor*, GA also provides clients with industry expertise in the form of monitors for the metals, building materials, automotive, food, and chemicals industries, among many others.

### Headquarters:

21860 Burbank Blvd.  
Suite 300 South  
Woodland Hills, CA 91367  
800-45-GREAT  
[www.greatamerican.com](http://www.greatamerican.com)

**Atlanta**  
**Boston**  
**Chicago**  
**Dallas**  
**London**  
**Los Angeles**  
**New York**  
**San Francisco**

## EXPERIENCE

GA was involved in the liquidation of numerous technology and electronics-related companies, including Circuit City, Diva Systems, MPC Computers, Pioneer Electronics, Mitsubishi Wireless, Tranax Technologies, Pegasus Communications, Amp'd Mobile, Pacific Title Studio, and Arthur Andersen (HQ Technology), which affords GA with a familiarity as to the nature of products and the industry. Additionally, GA has appraised a myriad of technology companies serving a wide range of functions. GA's extensive list of appraisal experience includes:

- A worldwide distributor of cellular phones and wireless products and services to the wireless and telecommunications industry, operating facilities in more than 45 countries worldwide and achieving over \$1 billion in annual sales;
- A supplier of technology products and services to businesses, government agencies, educational institutions, and healthcare providers, with locations throughout the US and generating over \$6 billion in annual sales;
- A worldwide manufacturer and distributor of digital power supplies, power systems, and industrial controls, including AC/DC switching power supplies, battery chargers, rectifiers, and interconnect devices;
- A manufacturer of custom electronics intended for OEMs, including microprocessor-based systems, transducers, printed circuit boards and assemblies, sensors, and electromechanical devices utilized in aerospace, medical instruments, government devices, and components for gaming equipment and other industrial applications;
- A distributor of high-end, customized, in-wall, and weather-resistant speakers;
- A national distributor of consumer electronics and computer equipment that achieves over \$700 million in annual sales, servicing retailers, catalog and mail order companies, rent-to-own companies, national office product retailers, TV shopping networks, and wholesale clubs;
- A provider of repair, refurbishment, and other services for information technology products to companies across the US; and
- A designer and manufacturer of global positioning satellite units with locations and operations across the globe.

In addition to our internal personnel, GA maintains contacts within the technology industry that we utilize for insight and perspective on recovery values.

# APPRAISAL & VALUATION TEAM

---

## BUSINESS DEVELOPMENT

### Mike Marchlik

National Sales & Marketing Director  
[mmarchlik@greatamerican.com](mailto:mmarchlik@greatamerican.com)  
818-746-9306

### Drew Jakubek

Vice President - Southwest Region  
[djakubek@greatamerican.com](mailto:djakubek@greatamerican.com)  
972-265-7981

### Daniel Levene

Vice President - Western Region  
[dlevene@greatamerican.com](mailto:dlevene@greatamerican.com)  
818-746-9327

### Ryan Mulcunry

Senior Vice President - Northeast Region, Canada & Europe  
[rmulcunry@greatamerican.com](mailto:rmulcunry@greatamerican.com)  
617-692-8310

### Fred Raccosta

Senior Vice President - New York/Mid-Atlantic Region  
[fraccosta@greatamerican.com](mailto:fraccosta@greatamerican.com)  
646-381-9204

### David Seiden

Executive Vice President - Southeast Region  
[dseiden@greatamerican.com](mailto:dseiden@greatamerican.com)  
770-551-8114

### Bill Soncini

Vice President - Midwest Region  
[bsoncini@greatamerican.com](mailto:bsoncini@greatamerican.com)  
312-777-7945

## OPERATIONS

### Ken Bloore

Chief Operating Officer  
[kbloore@greatamerican.com](mailto:kbloore@greatamerican.com)  
818-884-3737

### Daniel Edgar

Associate Project Manager, Technology Specialist  
[dkeyes@greatamerican.com](mailto:dkeyes@greatamerican.com)  
818-746-9342

### Gary Laubscher, ASA, CEA

Vice President - Financial Advisory Services  
[glaubscher@greatamerican.com](mailto:glaubscher@greatamerican.com)  
818-746-9349

## Overview

The technology (“tech”) industry grew substantially in 2010, and continued improvement is expected in 2011. Forrester Research (“Forrester”) reported in December that the technology industry grew at twice the rate of the US economy in 2010; however, the conclusion of programs geared toward economic stimulus will suppress GDP growth in 2011 to a modest 4% in current dollars. The tech industry is still predicted to grow at nearly twice the rate of the GDP, currently forecast at approximately 7.4% for 2011, Forrester reports.

Bright spots for the tech industry include increased investments in Smart Computing and cloud computing, which involves increased availability of web-based resources regardless of location, which are increasing IT company profits. Forrester additionally projects that the government market for IT in 2011 will not be a highly profitable one, as the current challenges of high deficits make it unlikely that federal, local, and state governments will be making substantial technological investments.

Although computer restocking and replacement was largely responsible for the success of the industry in 2010, it is expected that growth will slow in this area to 5.9% in 2011; however, the software and IT consulting segments are predicted to compensate for the slow-down, increasing at rates of 8.4% and 8.2%, respectively.

The consumer electronics segment of the technology industry is also particularly poised for growth in 2011. The start of the recession brought with it significant challenges for the industry. As a result, 2009 was a tough year for consumer electronics, as elevated unemployment and an uncertain economic outlook functioned to limit discretionary spending on purchases such as electronics. In the Consumer Electronics Association’s (“CEA”) most recent forecast, however, the trade association reported that 2010 represented a year of turnaround and recovery, as industry revenue rose to a higher-than-expected \$180 billion, marking a 6% increase from the prior year.

Bright spots in 2010 included personal computer (“PC”) sales; new products, such as tablet computers, e-readers, and smartphones; internet-connected TVs, and audio. Innovative technologies have been significant drivers of growth within the industry.

Although growth is expected in the coming year, the challenges remaining among consumer electronics manufacturers include continually innovating features to remain current and competitive, as well as intense price competition among electronics companies. While a benefit to the consumer, price competition has been cutting into industry revenues as the market becomes more saturated. Overall for 2011, the CEA forecasts revenues to reach \$186.4 billion, which represents growth of just over 3%.

## Recent Appraisal Trends

### Telecommunications

Overall, GA has witnessed recovery values within the telecommunications industry recently increasing anywhere from one to two points. Recent recovery trends for telecommunications appraisals have emphasized the importance of inventory aging for inventory on-hand. Within the phone and related accessories sector, constantly changing inventory mix made aging and weeks of supply the most critical factors in GA’s analyses. Aging for phone companies was the primary driver behind GA’s distribution assumptions and determined which customers would likely participate in a liquidation scenario. Prime inventory, or inventory aged between zero and 90 days, consistently recovered the most favorably, while non-



prime inventory, or inventory aged greater than 90 days, recovered significantly lower. Accessories and parts also achieve much lower recovery values in a liquidation.

## Recent Appraisal Trends

---

The telecommunications lifecycle is particularly important in the development of recovery rates. With the increasing popularity of smartphones, the lifecycle of traditional phones has been impacted. This has resulted in such phones being forced out of the mainstream market at a faster rate than originally anticipated, and therefore being subject to lower recovery values. Additionally, complete phone sets, which include a handset, charger, and booklet, were the most favorable asset class. Individual handsets, which were new and refurbished, were less favorable and assigned lower recovery rates.

Sales trends in 2010 were significantly improved over 2009 for the companies appraised, as improvement in recent economic conditions contributed to strong fourth quarter sales across the board. Gross margins were largely consistent with comparable appraisals, ranging between 6% and 15%.

A recent trend in the industry is the adoption of LTE and 4G networks; therefore, all older infrastructure equipment is expected to receive lower recovery values as they become less relevant in the telecommunications market. The market for older generation equipment is intermittently strong.

Other trends to note in 2010 include the declining value of non-DVR set top boxes due to the increased popularity and demand for cable boxes with DVR capabilities.

### Consumer Electronics

Recovery values in the consumer electronics industry have recently increased between two and three points. GA noted similar recovery trends in consumer electronics and telecommunications with regard to the significance of aging and weeks of supply in our analyses and the higher recoveries for prime versus non-prime inventory. In late 2010, management of inventory levels and the ability to keep new products on hand were important factors in recovery rate expectations as a result of new product introductions, changing technology, and the sheer number of electronics options present in the marketplace.

Overall retail gross margin ranged from 14% to 26%, with televisions, home theater/audio, and accessories maintaining the highest margins of between 20% and 40%. In general, sales trends have been positive over the course of 2010 compared to 2009. As retail business has picked up with the improving economy and surge in consumer purchasing power, wholesalers have fared similarly well, experiencing significant increases in sales in 2010 compared to 2009.

GA has noted that 3D televisions have yet to garner full adoption by consumers. Therefore, LED televisions have not declined in value to the extent that was originally expected. Should 3D televisions become the industry norm, GA expects that a more substantial fallout in recovery values will occur with regard to competing television models. Additionally, a number of glasses-free 3D televisions are beginning to emerge in the market, which could pose a threat to existing 3D television technology.

### IT and Networking

Historically, GA has recognized that electrical subassemblies, such as hard drives, control panels, and displays; and generic electrical components, such as PC boards and integrated circuits, have recovered at the highest rates, while more customized assemblies, parts, and components have recovered significantly lower. Generic components, in particular, recover well, as they maintain wide appeal across a number of industries and can be sold into numerous channels during a liquidation.

As economic conditions have improved, GA has witnessed an overall increase in recent sales trends; however, recovery values have remained flat.

### Semiconductors and Circuit Boards

Many circuit board manufacturers are contract manufacturers. As products built to customer specifications maintain a high liquidation value through existing customer channels, GA factors this into its appraisals of these types of manufacturers. Liquidation channels outside of the normal customer base, however, are scarce, and this type of custom inventory achieves low recovery values.

As chips are constantly being reinvented at smaller and higher capacity models, inventory aging is a critical factor in GA's analyses, as older chips decline significantly in value upon introduction of new generation products. Consistent with the improving economy and the resurgence of IT spending, GA has witnessed an improvement in sales trends and gross margins, while recovery values have remained flat.

# Monitoring Points

Monitoring Point	Impact
Monitor technological obsolescence of inventory and inventory aging.	In such a volatile market, aged inventory may also represent obsolete technology or technology that is no longer applicable to the marketplace. As new technologies are being continuously introduced to the marketplace, technologically obsolete items would no longer be popular and would be less marketable during a liquidation scenario. In particular, inventory outside of the zero to 30 day aging bucket should be closely monitored.
Monitor weeks of supply.	Inventory segments with elevated weeks of supply on-hand, particularly non-prime inventory that may contain outdated technology, typically recover lower than categories with low weeks of supply, as they can require increased discounting to sell through the inventory.
Monitor market saturation, acquisition costs, and selling price.	With so many similar products on the market, price competition is an important factor in consumers' purchasing decisions, particularly considering the value-driven consumer purchasing habits amplified by the economic downturn.

# Pricing Trends

## Telecommunications

The US telecommunications industry is expected to experience growth into 2011, according to Fitch Ratings' Outlook for US Telecommunications. Factors such as consolidation in the industry, improvement in the overall economy, and increasing growth in data demand are predicted to drive revenue growth in the business and commercial sectors.

The US market for mobile handsets continues to increase, and sales are expected to experience growth in the next several years, according to Companiesandmarkets.com. Handset revenues are particularly driven by such categories as smartphones, touchscreen phones, and HD camera phones. The first half of 2011 will witness a smartphone market share battle between the iOS, BlackBerry, and Android, with the iPhone expanding into the Verizon market in 2011. Strength in the smartphone segment has hurt market share for manufacturers that do not carry an equivalent model. Gartner, Inc. reports that LG's global market share has begun to slip, as the manufacturer does not carry a comparable smartphone to its competitors.



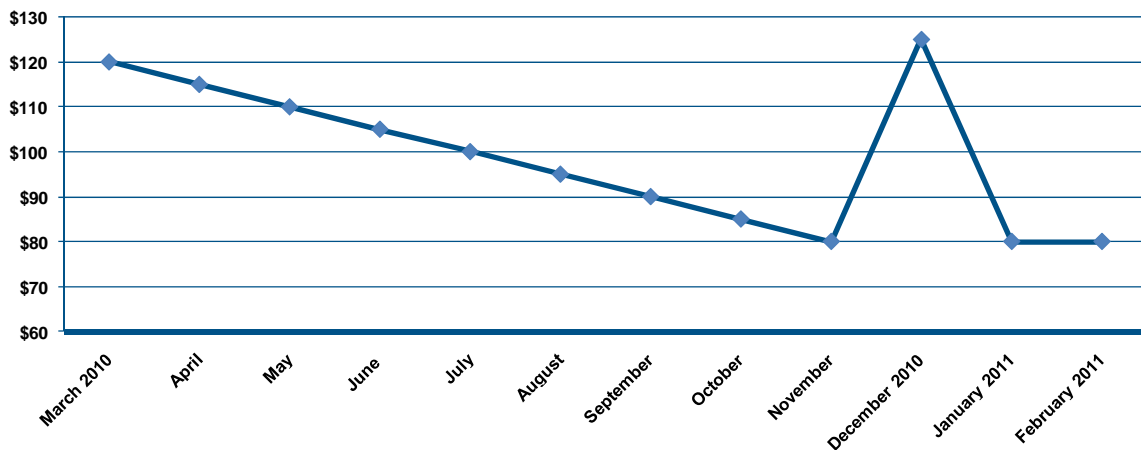
Although growth within the industry is expected to continue, the International Telecommunications Union reports that the rate of growth will continually slow as the market in developed countries reaches saturation levels. In fact, global wireless handset sales are projected to grow approximately 8% in 2011, with nearly 70% of new handsets being sold in emerging markets. GA has witnessed wholesale pricing for higher-end mobile handsets ranging between \$500 and \$700, and lower-end and end-of-life models ranging between \$50 and \$150.

## Pricing Trends

With regard to other segments within the telecommunications industry, cable set-top boxes ranged from \$25 for the most basic models all the way to \$150 for higher-end, “TiVo” boxes in 2010, and trends within the industry indicate that cable TV operators are witnessing subscribership declines as internet-based entertainment becomes the preference of most consumers. Bulk fiber optic cable averaged \$0.10 per foot in 2010.

A recent development that GA’s technology experts and industry sources identify as a potential trend in the coming year is the replacement of traditional hard drives with solid state hard drives (“SSD”) for PCs. SSDs are gaining popularity in the market, as they are faster and more reliable than their traditional alternative. These products are currently significantly more expensive than traditional hard drives, but GA expects that prices will decline as SSDs become more commonplace on the market; however, more research and development is necessary before this will be the case.

**BlackBerry 8700g Wireless Handset Approximate Per Unit Retail Price**  
**March 2010 through February 2011**



### Computers and Office Equipment

The CEA identifies the PC segment of the consumer electronics industry as the top performer in 2010, with shipment revenues increasing 34% to account for over 16% of overall consumer electronics industry revenue. Mobile computing, in particular, was a significant source of growth, as tablets became increasingly popular and contributed to a 35% increase in revenue in the category. The CEA reports that tablets accounted for just under one third of revenue in the mobile computing sector, and this is expected to increase in 2011. PC sales rose approximately 6% in 2010 compared to the prior year to an average retail price of \$615.

According to industry sources, the computer monitor and peripheral manufacturing industry has been experiencing decreased revenue for the past several years due to lower per-unit selling prices; however, revenue growth is expected to return over the course of the next few years. The industry produces monitors, hard drives, printers, scanners, webcams, and digital cameras, with items such as all-in-one printers gaining popularity in 2010.

### Audio and Video Equipment

The audio and video equipment (“AV”) industry experienced an extended period of contraction with the onset of the economic downturn, as industry sources reported decreasing revenues due to low discretionary income levels and consumer spending. Other changes include evolving technology, import competition, and falling selling prices, which all had adverse effects on the industry in the wake of the economic downturn. Despite improved sales in 2010, average TV set prices declined. LCD prices decreased by 5%, plasma by 20%, and 3DTVs by 50%.

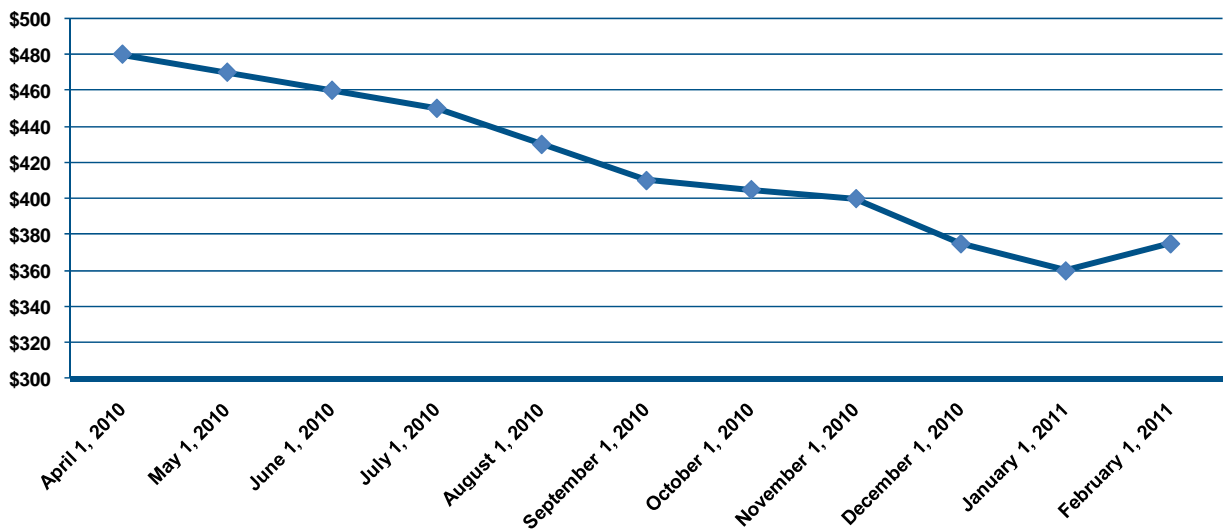
## Pricing Trends

Additionally, within the gaming sector, Microsoft's Xbox 360 was less than 75% of the 2005 introductory price, while prices for standard Playstation 3 and Wii consoles were 66% and 80% of introductory prices in 2005 and 2006, respectively. Prices for digital cameras and other accessories fell in late 2010 due to retailers slashing prices to encourage Black Friday and Cyber Monday sales.

Industry sources and analysts predict manufacturing within the industry to be increasingly outsourced abroad, and competition from foreign companies will put additional pressure on US selling prices and margins. Consumer demand is forecast to improve, as well as emerging demand within the automotive market.



**Samsung LN32C350 32" 720p LCD HDTV Approximate Per Unit Retail Price  
April 1, 2010 through February 1, 2011**



### Semiconductors

Although decreased consumer demand for electronics and falling semiconductor prices hurt the semiconductor industry with the onset of the recession, semiconductor sales experienced a much more promising year in 2010 than 2009, as global semiconductor sales increased 14.4% in November 2010 versus 2009, and year-to-date sales increased 34% from year-earlier levels, according to the Semiconductor Industry Association. The increase in sales is largely attributed to increased demand for smartphones, tablet computers, and other mobile devices.

## Pricing Trends

Manufacturing of semiconductors is primarily performed overseas, and the prices of raw material inputs have increased; however, these price increases have been passed on to the consumer, as the improving economy and increased IT spending have resulted in sustained demand. This has led to an overall increase in profitability in the most recent three months.

### Printed Circuit Design and Manufacturing

The circuit board and electronic component manufacturing industry experiences high levels of volatility because of several factors. Inventory levels increase significantly during periods of strong demand; however, demand can soften quickly, which causes a build-up of excess inventory and requires that these products be sold at significant discounts. The cost of raw materials also occasionally fluctuates beyond what can be offset by selling prices and productivity adjustments. Exchange-rate fluctuations can also have an impact on competitiveness abroad.

According to the Association Connecting Electronics Industries, shipments of rigid and flexible printed circuit boards were up 11.8% during November 2010 versus 2009. Year-to-date shipments were up 18.1% compared to the 11 months ended November 2009; however, sales were down from the previous month due to normal seasonality.



### Information Technology

Fitch Ratings (“Fitch”) predicts that the global IT industry will continue to grow in 2011, driven primarily by emerging markets, continual upgrades of PCs and servers, and ever-increasing demand for storage, analytics, and virtualization products.

Gartner, Inc. (“Gartner”) reports that worldwide server revenue increased by 15.3% during the third quarter, marking the third consecutive quarter of year-over-year growth, and global shipments were up 14.2% for the quarter. The US, alone, experienced vendor revenue growth of 16.3%, as large-scale data center purchases drove sales. Pricing trends throughout 2010 have been on the rise, with prices for servers up significantly.

Fitch predicts that many IT companies will experience increased pricing pressure in 2011, as competition and product overlap with other companies will limit the ability to raise selling prices. Continued M&A activity is also expected in 2011.

### Biometrics

The biometrics industry is focused on the development of automated personal identification methods. Methods are based on behavioral and physiological characteristics, such as face, fingerprints, hand geometry, handwriting, and voice. Biometrics is typically integrated with other security technologies, including identification cards, encryption keys, digital signatures, and electronic identification checks.

The Department of Homeland Security’s (“DoHS”) annual budget for 2010 reached approximately \$42.6 million and is projected to increase to \$43.6 million in 2011, according to the DoHS FY 2011 Budget Overview (“Overview”). The Overview designates approximately 14% of the budget to the Transportation Security Administration (“TSA”), whose task it is to patrol security-sensitive locations such as airports, subways, and railcars. Recent developments that could impact the biometrics industry include the TSA requesting an additional \$20 million to train Behavioral Detection Officers that incorporate biometrics methods to patrol airports and identify suspicious persons.

## Pricing Trends



### Green Energy/Clean Technology

According to Cleantech Group LLC ("Cleantech"), venture capital investment in clean technology firms totaled \$1.6 billion in the third quarter of 2010. These figures bring the total amount of invested capital to \$5.8 billion through the first three quarters of 2010, meaning that the first three quarters of 2010 surpassed the entire full-year 2009 total of \$5.7 billion. Particular strength was witnessed in the transportation, biofuels, digital "smart grid" technology, energy efficiency, and solar energy production.

Despite efforts by US legislators at the federal and state levels to increase reliance on renewable energy and sporadic capital infusions from government stimulus programs, Ernst and Young LLP report that the US' position as a former world leader in the renewable energy market was hurt by lower conventional energy prices, uncertainty regarding medium and long-term policy environments, and the continuing effects of the economic downturn. As a result, China has surpassed the US in the global renewable energy market, with other market leaders including Germany, India, the UK, Italy, France, Spain, and Canada.

### Test and Measurement

The test and measurement industry designs, manufactures, and markets equipment and tools used to measure, analyze, and verify the functioning of electronic and mechanical systems. The industry encompasses a wide range of products, including oscilloscopes, logic analyzers, video test equipment, and network protocol analyzers.

Demand for these items is typically generated by the high-tech industrial, automotive, communications, and medical device sectors. Industry sources identify downstream markets and overall economic conditions as primary drivers of demand within the test and measurement sector, and growth of the industry in the near-term will be determined by the laboratory testing services industry, as well as the energy, health, and biotechnology industries.

Industry sources report that the test and measurement industry contracted with the onset of the recession; however, modest increases were noted in 2010, with further improvement expected for 2011. In particular, Frost & Sullivan assert that the wireless test equipment market will experience a revenue increase of 22.8% by 2014, while *Test and Measurement World Magazine* forecasts a strengthening oscilloscopes market through 2011.

### Biotechnology

The biotechnology ("biotech") industry deals with the technological application of biological systems, living organisms, and derivatives of organisms to create or modify products and processes for human utilization. The field draws from a number of academic disciplines, including genetics, microbiology, biochemistry, physics, chemistry, information technology, and molecular ecology.

Industry sources contend that the biotech industry encouragingly generated more revenue in 2010 compared to 2009. G. Steven Burrill, biotech specialist and CEO of Burrill & Company, predicts that 2011 will see improved performance in the biotech industry as financing conditions improve and investor confidence returns to the market. Additionally, Burrill predicts that the increase in pharmaceutical companies' acquisitions of biotech companies that was expected to occur in 2010 (but never did) will do so during 2011.

Ongoing areas of concern within the industry in 2011 include emphasis on prevention and wellness within the healthcare market, continuation of regulation, and the ongoing legal battle over patentability of genes and stem cell research.

# Pricing Trends

## Aerospace

According to the US Aerospace Industries Association's ("AIA") *2010 Year-End Review and Forecast*, the aerospace industry experienced record sales of \$216.5 billion in 2010. In particular, strength was witnessed in the military aircraft segment, while declines were noted in commercial aircraft sales. Challenging economic conditions have contributed to the commercial segment's struggling sales; however, recovery is expected in the forthcoming year, contingent upon improvement in the overall economy, prices of jet fuel, environmental regulations, and financing opportunities and availability for aircraft. Overall in 2011, the AIA expects the US aerospace industry to experience 1.3% sales growth to approximately \$219.2 billion.

The space sector is expected to remain flat over the course of 2011 with sales steady at \$45.5 billion, according to AIA's projections. Through 2015, NASA's budget is expected to increase at a rate of 2.5% annually, as growth in the commercial space sector will spur increased investment. Additionally, the Department of Defense is continuing to develop plans for space-based national security efforts. Despite the domestic prospects, the international market will remain the main area for growth in the coming years.

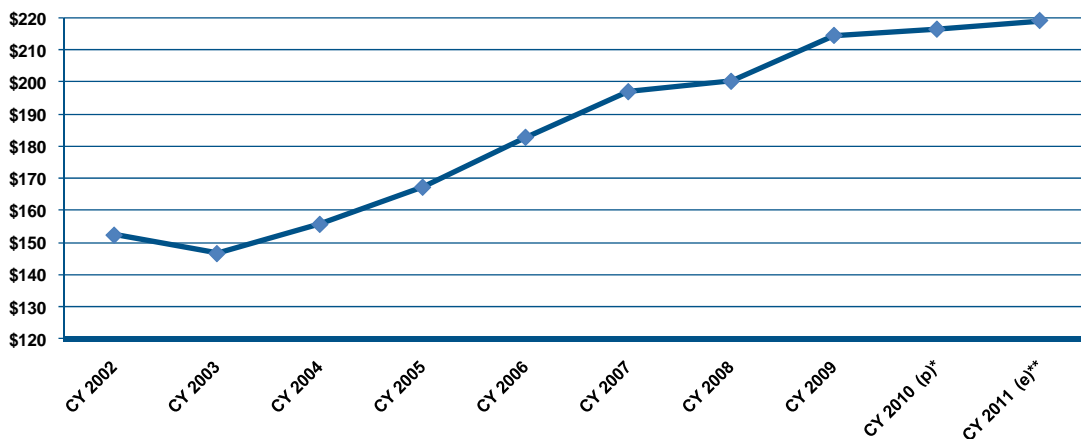
## Nanotechnology

Nanotechnology involves the manipulation and development of materials and devices that are smaller than 100 nanometers, or one ten-thousandth of a millimeter. It is a rapidly expanding discipline of study that has applications in a number of diverse fields, such as medicine, bioscience, technology, and cosmetics. End-users include electronics manufacturers, chemical firms, cosmetics firms, pharmaceutical companies, packaging companies, environmental conservation groups, auto manufacturers, and clothing manufacturers.

According to a recent report issued by Piribo Limited ("Piribo"), the 2010 market for nanobiotechnology products totaled \$19.3 billion. At a predicted CAGR of 9%, the nanobiotechnology market is expected to reach \$29.7 billion by 2015. Nanotechnology has been increasingly penetrating many industries, among them the biotech market, as the properties of nanomaterials allow for enhanced performance in encapsulation and release of drugs, as well as increased usage in imaging applications.

Piribo identifies the medical sector as the dominant market for nanomaterials, as applications such as drug delivery and microbicides continue to develop. In 2010, sales into the medical sector totaled \$19.1 billion, and this is projected to reach \$20 billion by 2015. Piribo additionally identifies DNA sequencing as a potential market to spur growth in the nanotechnology industry.

**Aerospace Industry Sales for Calendar Years 2002 to 2011 in Current Dollars (AIA)**  
 (\$ in 000,000,000s)  
 January 2010 through December 2010



\*P: Preliminary  
 \*\*E: Estimate

## 2011 International CES

---

GA attended this year's International CES held in Las Vegas. As well as further establishing contacts within the industry, the conference provided GA with additional insight into where the consumer electronics market stands and where it will go in the next year. In such a volatile and fluid market, it is critical to keep up with burgeoning trends and significant developments in the industry.

With regard to popular trends, if last year was the year of the 3D TV, this year is the year of the tablet. Nearly 80 tablets were introduced over the course of the four-day event, following largely in the footsteps of Apple's iPad. Devices ranged in size from seven to 10 inches, and included features such as fold-out keyboards and dual-sided cameras for video chat.



The most well received was Motorola's new Xoom tablet, winning the award for best gadget. Motorola's new smartphone Atrix also garnered the award for best smartphone, a sign that the newly spun-off mobile device company may be well positioned to capture a piece of Apple's large market share.

Still playing a prominent role, 3D TVs abounded on the show floor; however, advances in 3D technology this year expanded far beyond TVs to include portable gaming devices, laptops, mobile devices, and even 3D printers. Most exciting was the technology on display using glasses-free technology. Already available on portable devices and smaller TVs, prototypes for large flat screens were also displayed. There is speculation that this new technology will render the inconvenience of glasses-dependent 3D obsolete; however, this new technology is still far from perfect, as 3D effects are best viewed only from a narrow range directly in front of the screen, ideal for single user environments, but not suitable for group settings.

Individual gadgets aside, the underlying theme of this year's show was connectivity. Wireless devices took on a role of prominence, and devices that previously stood alone took on wireless connectivity. For the first time in the history of CES, appliances were on display. This was to showcase new features that allow appliances to connect to your existing Wi-Fi network and be tracked and controlled from your computer, TV, or mobile phone. Devices can be programmed to send you alerts when a load of laundry is done, an oven is pre-heated, or even when your milk in the fridge is expired. Ford even introduced a new electric car with fully-integrated GPS, phone, music player, and internet access powered by the user's mobile phone.

The most compelling implication of this new interconnectivity is the ability for a user to have a seamless experience. In the past, more devices meant more complication and frustration, but today's devices are increasingly user friendly and integrated. If a consumer's phone, TV, and tablet interface all operate seamlessly and automatically sync wirelessly, they can purchase a song on their computer and it will already be there when they go jogging with their smartphone later in the day. They can take pictures on their ski trip, and when they arrive home, the photos will already be loaded to the TV for easy viewing. They can set their DVR from anywhere in the world so that they don't miss their favorite show, and then they can watch it on their tablet from the airport streaming live from their home DVR. The possibilities are endless, and change the way we view the concept of "devices." If every device is a computer, camera, phone and TV, then the "device" is merely a screen/keyboard in various shapes and sizes designed for specific locations, but the experience is the same.

# TECHNOLOGY REFERENCE SHEET

## Smartphones: Approximate Wholesale per Unit Price Ranges as of January 2011

	Price Low	Price High
iPhone 4 32GB	\$660	\$952
iPhone 3GS	\$375	\$708
Motorola Droid 2	\$310	\$330
BlackBerry Bold 9700	\$330	\$437
Palm Treo 750	\$145	\$410

## Computers

	Price Low	Price High
Desktop (“everyday” option) <sup>1</sup>	\$350	\$750
Laptop (“everyday” option) <sup>2</sup>	\$300	\$1,000
Tablet - iPad <sup>3</sup>	\$500	\$850
Tablet - All Others <sup>4</sup>	\$100	\$1,000

Note(s):

- (1) New desktop PC / Windows 7 - Premium Home 64-bit / 750 GB - 2 TB / 2.93 GHz - Any number of options can drive this price north of \$2,000 to \$3,000.
- (2) New laptop / Windows 7 - Premium Home 64-bit / Intel Dual Core Processor / Everyday laptop - Any number of options can drive this price north of \$1,500 to \$2,000.
- (3) Apple iPad
- (4) Samsung Galaxy, Lenovo IdeaPad, Velocity Micro, Archos (28, 32, 5), ASUS Eee Slate

## Memory

	Price Low	Price High
Desktop Computers		
Dual Memory - DDR	\$25	\$100
Dual Memory - DDR2	\$25	\$200
Dual Memory - DDR3	\$50	\$450
External Hard Drive <sup>1</sup>	\$50	\$200
USB Flash	\$10	\$200

Note(s):

- (1) Price difference depends on storage space ranging from 320 GB to 3 TB.

# TECHNOLOGY REFERENCE SHEET

## Television

	Price Low	Price High
LCD HD		
30" - 39" Display (Flat panel)	\$280	\$700
40" - 47" Display	\$400	\$1,000
52" - 60" Display	\$800	\$2,000
3D LED-LCD HDTV		
40" - 49" Display	\$1,600	\$3,500
50" - 59" Display	\$1,300	\$4,500
60"+	\$2,000	\$6,000

## Gaming

	Price Low	Price High
Microsoft X-Box 360 <sup>1</sup>	\$200	\$400
Sony Playstation 3 <sup>1</sup>	\$300	\$450
Nintendo Wii <sup>1</sup>	\$200	\$300

Note(s):

(1) Price difference by bundle type.

## Servers

	Price Low	Price High
Rack-mounted/Tower Servers <sup>1</sup>	\$750	\$5,400

Note(s):

(1) Intel Processor / Xeon Quad Core