



Supply Chain Technology

RFID Monthly

Technology Research

November 2007

Reik Read

rread@rwbaird.com

414.298.1030

Robb Timme

rtimme@rwbaird.com

414.298.1762

Samantha DeLay

sdelay@rwbaird.com

414.298.6215



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Key RFID Developments

HF Version 2. We understand that silicon for the HF Version 2 protocol (similar to UHF Gen 2 protocol) was successfully tested in Europe this past October. Apparently, both NXP and ST have working silicon. Our latest understanding is that the Hardware Action Group has approved the protocol and reviews are currently underway. Our expectation is for the standard to be ratified by GS1/EPCglobal by January. We understand that ISO will look to publish a similar standard as ISO 18000-3, mode 3. Industry insiders suggest that the earliest publication by ISO will be mid-to-late 2009.

Publicly Traded Companies Making Greater Mention of RFID. We mentioned last quarter that public companies are beginning to profile more significantly on their conference calls, which we saw again this quarter. Avery Dennison, despite reducing investment in RFID, indicated that unit volumes have been +200% y/y and that RFID is expected to represent \$50M in revenue for Avery in 2008. Intermec announced an impressive number of closed-loop opportunities, while Zebra is making substantial investments in building up its active RFID portfolio. We believe such discussion is indicative of small, but improving market opportunities.

International RFID Continues with Good Progress. While many remain focused on Wal-Mart and US RFID efforts, we continue to hear that the European and Korean markets remain the strongest for supply chain, closed-loop and consumer applications. Europe appears more comfortable with the technology given their history with smart card applications, and Korea enjoys government support, including subsidies. We understand that most of the major handset providers, which reside in Europe in Korea, are looking at ways to integrate near-field RFID for consumer applications. Europe appears strong for apparel, aerospace, supply chain and libraries.

RFID Hardware News and Comment

Following up on an item in October's RFID Monthly, Texas Instruments officially introduced the RF360, a chip designed for contactless government ID cards. It has the processing power and memory to meet Basic Access Control and Extended Access Control requirements, and supports both public and symmetric key cryptography protocols. According to TI, there will be versions of the RF360 that will have enough memory for biometric data (e.g., digital fingerprints and photos), and will be compatible with ISO 14443 contactless and ISO 7816 smart card standards.

NXP announced that the company is supplying chips for Germany's e-passport initiative. German passports are now required to digitally store images of two fingerprints in order to verify a traveler's identity and increase security measures, part of a greater initiative on the part of the European Union. To date, NXP has shipped 4.5 million chips to Bundesdruckerei GmbH for the passports. NXP notes that the company has shipped over 100 million chips to date for passport applications.

UPM Raflatac announced that it is the exclusive provider of UHF RFID tags for Galeria Kaufhof, a division of METRO Group. Galeria Kaufhof will operate an RFID-enabled smart store using 100% RFID tagged merchandise, smart shelves and smart mirrors. The project involves about 30,000 tagged items in a men's clothing store measuring about 6,000 square feet. Recall the Galeria Kaufhof pilot program was discussed in last month's edition. We believe the tags use Impinj's Monza silicon. Impinj is also a supplier of readers while Reva Systems is providing the network infrastructure.

RSI ID Technologies released four new antenna designs for passive tag applications, including Corkscrew, Interval, KAT2 and Cube2, all based on NXP's UCODE G2X IC. The tags offer scalable memory capacity of 240 bits for EPC codes and 512 bits for user-defined memory.

Sirit announced a reader swap-out program in which end-users can exchange legacy Sirit RFID readers or competitive products for a \$250

discount on an INfinity 510 reader. The program runs from the beginning of November through the end of March, 2008, and is designed to encourage users to upgrade first-generation pilot equipment to the most current Gen 2 technology.

TAGSYS introduced the Medio 400, a new HF reader that is expected to be compatible with EPC's HF Version 2 standard (same logical protocol as UHF Generation 2) with a firmware upgrade. The Medio L400 is also compatible with ISO 15693, ICODE 1 and ICODE UID. TAGSYS indicated that the Medio L400 will have substantially faster read/write capabilities and has a 40% longer read range than its existing HF equipment. The Medio L400 also can self-monitor for nine different environmental factors, such as temperature. When combined with TAGSYS e-connectware, the Medio L400 can monitor up to 50 separate factors, including antenna detuning, reader uptime, number of connections and power consumption. The system provides a mechanism to discover, diagnose and repair problems on a remote basis.

Magellan introduced a new Phase-Jitter Module product designed for document tracking. The StackTag allows users to read up to 16,000 tags at a rate of 700 per second when the tags are attached individual sheets of paper and stacked consecutively. Previous technologies would have difficulty separating the signals from closely-placed tags. The technology is expected to be used in financial institutions, healthcare, law firms, governmental office and other locations where document tracking and storage is vital.

Intelleflex announced that its battery-assisted passive technology has been approved for use in the European Union. The products will operate in the 865-868 MHz range and are RoHS-compliant.

WJ Communications announced the availability of a new Gen 2 reader for the European market. The reader, WJR7080, was designed for mobile and handheld applications, has two antenna ports and operates at 869.525 MHz to be ETSE 300 330 compliant. The device is meant to be interoperable with existing WRJ reader modules in operation and

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data collection.

Tracient Technologies unveiled a UHF version (855 MHz – 960MHz) of their Padl-R RFID reader. The reader connects via Bluetooth to a user's PDA, smartphone or laptop, and is designed to be a low-cost add-on to existing mobile systems for security, field service and inventory/asset management applications. SkyeTek announced that the Padl-R uses its M9 reader module. The companies say that the lightweight Padl-R is well suited for retail inventory applications, citing an example of a clothing retailer reducing inventory-taking time from 12 hours to 25 minutes.

RF Monolithics introduced a new transceiver, the TRC103, designed for low-power, short-range RF applications. The integrated circuit features 64-byte memory, a three meter range, on-off keying and supports frequency-shift keying. The device is best-suited for industrial applications where power preservation is a key goal.

Datamax introduced a new family of thermal bar code printers with RFID capabilities. The M-Class Mark II printers offer a smaller form factor and faster processing than previous iterations.

The Wall Street Journal reported that California start-up Kovio has developed an ink that can be sprayed onto flexible surfaces to create semiconductors. The silicon ink can be sprayed using a commercial printing system, allowing for a low-cost alternative to semiconductor technologies. The company plans on marketing the technology to RFID providers once it becomes a viable product. We believe that such technology still has meaningful constraints, including size and performance. We do not believe that printed products could reasonably support Gen 2 based applications at this time.

Systems and Solutions

Impinj introduced a solution to provide serialized e-pedigree capability to the pharmaceutical industry. The solution leverages Impinj Speedway readers, "Guardwall" application-specific near-field antennas

and Monza tags. According to Impinj, the offering is designed to be used with a wide variety of Pharma products, including tablets, liquids and metallic blister packs. The mass-serialization commissioning process is done at the end of a packaging line, and allows for bulk encoding of a particular drug or type of drugs.

IBM and TAGSYS also introduced a serialization product designed for e-pedigree applications in the pharmaceutical industry. The companies are jointly producing a pilot kit that includes 50K HF TAGSYS tags for item-level tagging and 1,000 UHF tags for case-level tagging, TAGSYS Medio L400 reader stations, a HF/UHF reader station to associate items to cases, one printer/encoder to print case labels and IBM's WebSphere software to monitor the pilot and manage information flow. The pilot offering can be deployed in about four weeks and will cost \$125,000.

Ekahau upgraded its Site Survey 4.0, a product that aids in Wi-Fi network planning. Site Survey is designed to plan a network with clear signals in an efficient manner over a particular area to ensure that the company's Real Time Location System operates optimally. The system addresses signal leakage by planning on a 3D layout, signal overlap, and troubleshooting.

ViVOTech announced that its ViVOpay 5000 contactless payment system has been approved for installation in Europe, the Middle East, Africa, Latin America and Canada. The device received a variety of certifications, including those from MasterCard. The company noted that over 320,000 readers had been shipped over the world, with the ViVOpay 5000 being the most popular. The approval will allow for the reader to be installed as part of the contactless payment rollout for PayPass currently underway in London.

Axcess International unveiled an IC chip with its Dot technology. Powered by a watch battery, the chip is designed to be used in active tags, but is also compatible with UHF Gen 2 standards. Axcess International believes the chip will be used in a wide variety of applications, including supply chain, RTLS, and distributed sensor

RFID Hardware News and Comment

applications. (RT)

Austriamicrosystems and IDS Microchip announced a partnership to develop a simple, low-cost IC chip for portable UHF Gen 2 RFID readers. The two companies anticipate that the total cost of materials for a reader using its new chip would be less than \$75 in quantities of more than 1,000. Production of the chip is expected to begin in the first quarter of 2008. (RT)

RFID Software and Service News

Printronic announced that the latest version of its PrintNet Enterprise Suite printer management software is now able to record all bar code and RFID information encoded by the printer. According to Printronix, users can produce audit trails with the software. We anticipate that an application for this software could be in compliance with e-pedigree requirements.

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Standards, Industry Policy and Government

We understand that silicon for the HF Version 2 standard was successfully tested in Europe this past October. Apparently, both NXP and ST have working silicon. Our latest understanding is that the Hardware Action Group has approved the protocol and reviews are currently underway. Our expectation is for the standard to be ratified by GS1/EPCglobal by January. We understand that ISO will look to publish a similar standard as ISO 18000-3, mode 3. Industry insiders suggest that the earliest publication by ISO will be mid-to-late 2009.

GS1 UK announced that it is seeking participants for the Electronic Product Code Information Service (EPCIS) project. Recall that EPCIS is a database that collects information (e.g. what, where, when, why, sensor information such as temperature and humidity) about products as they move through the supply chain, enabling tracking of those products. The pilot will be a proof-of-concept test of data exchange between supply chain members and the benefits produced by the data exchange. Potential applications for the EPCIS standard could include asset tracking, promotions management, and chain of custody functions.

Passive RFID Applications

Alien Technology announced that over 250,000 runners have utilized the company's Squiggle tag to track race times in Europe. Previous technology included low frequency tags that required mats to be laid on the track at regular intervals. Because the low frequency tags were most costly, organizers would reuse and reprogram the tags for additional events. Therefore, after the race was concluded, the tags were then collected from runners' shoes. Alien and partner, Racetimer of Sweden, developed a system to use UHF tags and readers instead of mats. Further, as a result of the low cost of a UHF, the tag can be disposed after the race without having to be collected by race officials.

Alien has indicated that 90% of its business is currently in closed loop

applications. An example is the recent announcement from Alien that it is supplying RFID readers and tags for an asset tracking program for Penam, a Czech and Slovak breadmaker. Penam will use Alien's tags and readers to track 300,000 crates in its supply chain. Alien also is supplying RFID tags for a pilot program involving Throttleman, a Portuguese fashion retailer. Throttleman will tag 1.5 million garments in a project designed to increase efficiency at its distribution centers.

Fujitsu Transactions Solutions announced the results of a pilot inventory tracking system installed at STAPLES Business Depot in May. Fujitsu, the system integrator, installed AbsoluteSKY's long-range inventory tracking system at a 37,000 square foot facility. Approximately 1,500 SKUs were tagged. Fujitsu reports that the system has recorded a 100% read rate, a 21% reduction in out-of-stock merchandise, increased sales of tagged items, and had a cost-per-use of \$0.08. The company also notes that it no longer conducts manual inventory counts on tagged items and that shrinkage has been substantially reduced.

According to *Computerworld*, RFID chips were integrated into attendee name tags at IBM's Information on Demand conference in Las Vegas. The tags were used to determine attendance at conference events, and information gleaned may be used to help plan future conferences. IBM provided disclosure about the tags, and about 2% of the 6,500 attendees rejected having the tags integrated into their name badge.

SkyeTek announced that its RFID readers and audio tags will be used by Gaishan Technology, a company that makes devices for the visually-impaired. Gaishan produces a device that tells the user about his/her surroundings by identifying nearby objects. The company will incorporate SkyeTek's tags to develop speech-enabled devices that self-identify.

Ship2Save reported that it deployed its Raw Material Tracking software at CVRD Inco's Stobie Mine. The system, installed in conjunction with Avery Dennison UHF, Gen 2 tags and Motorola readers, will track nickel ore as it is extracted from the mine. By tracking the movement of

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the ore throughout each stage of the extraction, the company hopes to make the process more efficient and have more detail about the exact source of the ore.

Compsee announced that Freightliner's Portland Oregon Truck manufacturing plant has deployed a closed-loop RFID solution to better control and monitor the company's inventory totes. The system, deployed by Compsee, used System Concept's TraxWare Software and reader/writers and tags from Motorola. Approximately 750 totes are transferred between the shop floor and the warehouse per 6-hour shift; the system reads the tote at two portals and tracks its contents.

SupplyScape announced that Par Pharmaceutical Companies has elected to use SupplyScape's E-Pedigree data management system in order to comply with California's 2009 ePedigree law and improve patient safety. Par sells over types of 100 prescription drugs and is the seventh largest pharmaceutical manufacturer in the country. Additionally, Global Pharmaceutical Sourcing has adopted the company's E-Pedigree system to improve drug security, patient safety and, like Par, to comply with California's ePedigree law.

Clothing retailer NP Collection reported that it has installed an item-level tracking system for all clothes manufactured in Europe that traces inventory from the manufacturer to the store shelf. Tags are attached at the time of manufacture, so that they can be effectively traced throughout the supply chain and so that inventory can be adjusted daily on store shelves. The company, using UPM Raflatac tags and readers by ADT, equipped its European supply chain lines in June of this year and the Chinese manufacturing facility is expected to be equipped in January.

An article on Times Online reported that a secondary school in Doncaster, England is using RFID chips embedded in students' clothing to track attendance. The small pilot program involves ten students and has been running eight months.

Active RFID Applications

WhereNet announced that its WhereSoft Yard Management System had been installed in more applications at South Gate (Los Angeles) and Seattle distribution facilities for Performance Team, a logistics provider. The deployment follows a successful application at a Santa Fe distribution facility in 2005 for Performance Team. WhereNet also installed WhereSoft at the Long Beach, California facility of NYK Logistics. With the additional deployments, WhereSoft manages and monitors the flow of approximately 350,000 TEUs in the US.

ID Systems announced that the United States Postal Service has contracted to deploy ID Systems' vehicle tracking system at an additional 5 distribution centers. The USPS will then have a total of 77 distribution centers using ID Systems' Wireless Asset Net, a solution designed to improve the efficiency of the centers and center safety. The contract is valued at \$1.4 million.

ID Systems also announced that the National Center for Manufacturing Sciences, a governmental organization that oversees partnerships between the DOD and private companies, has selected Wireless Asset Net for the Sierra Army Depot. The installation will track tanks, automotive components and similar items, and integrate into the site existing inventory management database. Wireless Asset net will provide metrics and real-time data on performance and efficiency of the system, as well as information on the location of certain items.

Polycom and Ekahau announced that Ekahau's RTLS technology will be available on Polycom's SpectraLink 8000 series wireless telephones. The Wi-Fi phones would be able to determine the location of carriers throughout a building or lot. The companies anticipate it would be useful for determining the location of critical people, such as hospital personnel, or pin-pointing appropriate individuals on a sales floor.

Ekahau also introduced an RTLS application for Stargate, a Dubai-based theme park. Using the Ekahau Positioning Engine and Cisco's

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Wi-Fi network, parents and children wearing Ekahau's T301A tags can be located if a family member were to become missing. The system is designed to more quickly locate lost children and increase safety throughout the park.

Ekahau announced an RTLS application for Madrid's public bus system, governed by Consorcio Regional de Transportes de Madrid. By working with Neomedia, a local engineering group, Ekahau will track up to 2,000 buses within the city's public transport complex, a center where passengers move between buses, trains and the subway, using a Linux-based software system.

Alanco Technologies announced that it has been contracted by the federal government for a hazardous materials tracking pilot. The company will track and monitor highly hazardous materials within the storage facility using a modified version of its inmate tracking system, with tamper detection added. The equipment is expected to be installed by the end of December and the evaluation process will occur for several months at the beginning of 2008.

Partnerships

INSIDE Contactless announced that Kyocera would incorporate INSIDE's Near-Field Communication technology into a prototype line of mobile phones. With INSIDE Contactless' microread chip in the mobile phones, the devices could be used in a variety of purchasing applications and banking.

Checkpoint Systems and Metro Group announced that the "Tag it Easy" program has been extended to include an additional 70 suppliers in China and Vietnam. Recall, the "Tag it Easy" pilot program connects suppliers in Asia with distribution centers and stores in Europe using both passive and active RFID. Checkpoint Systems will provide labels for the merchandise sent from the newly added suppliers.

Checkpoint Systems and 3M announced a sales and market alliance

for library products in which 3M Library Systems will become the exclusive reseller for Checkpoint's library products. The agreement will be on January.

Corporate News

Zebra Technologies announced its intent to acquire software provider Navis for \$145 million in cash. Navis, based on Oakland, California, is the leading provider of marine terminal management software, with roughly 40% of the worldwide market. The acquisition is expected to close in the fourth quarter. Additionally, Zebra acquired the Proveo AG, a German company that specializes in active RFID hardware and software, specifically in airports. Zebra purchased Proveo for \$16.4 million. We expect these acquisitions will be integrated with Zebra's existing RTLS WhereNet operation.

Blue Vector Systems announced that its RFID infrastructure systems have been certified by SAP for integration with SAP's Auto-ID Infrastructure. The interoperability will allow users to monitor RFID solutions in conjunction with their company's other operations.

Omron announced that its V750 RFID reader now has drivers available that enable it to be used by Microsoft's BizTalk RFID device management platform. Recall that several major RFID hardware companies have announced compatibility with BizTalk RFID in the last few months.

SATO America announced that it would acquire TrakIT Systems, an AIDC and RFID solutions provider of Nashville, Tennessee. The acquisition is part of SATO's intent to offer a complete RFID solution; as a result, TrakIT will be a new division of SATO America called the Integrated Solutions Division. The companies had previously partnered on a hybrid solution (RFID and barcode) for a truck manufacturer; the terms of the acquisition were not announced.

Tego, a developer of high-memory passive RFID tags, announced that

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it had received \$6 million in Series A funding from Bainco International Investors. The company intends to use the investment to launch a solution designed for the Aerospace vertical.

UPM Raflatac announced that its RFID facilities have been certified as ISO 9001 compliant for quality management and the facilities have conformed to ISO 14001, an environmental impact standard.

Corporate Results

Zebra Technologies reported third-quarter sales of \$217 million, up 17% from the previous year. Sales exceeded the consensus estimate of \$211 million. EPS totaled \$0.43 versus \$0.40 in the previous year. EPS exceeded the consensus estimate of \$0.38. On the company's quarterly conference call, management highlighted the developing active RFID business, built from the acquisitions of WhereNet, Proveo AG and the pending acquisition of Navis, and the passive RFID business focused on printers.

Intermec reported third-quarter sales of \$206 million, up 5% from the previous year. Revenues were slightly below the consensus estimate of \$209 million. EPS from continuing operations totaled \$0.11, up from \$0.05 in the previous year and slightly below the consensus estimate of \$0.12. Intermec management highlighted the growth of closed-loop applications, several pilots including those at METRO Group and Tesco as well as the certification of the company's products in China.

Avery Dennison reported revenues of \$1.68 billion, up 19% from the prior year, exceeding the consensus estimate of \$1.66 billion. The increased sales were driven by the Paxar acquisition; organic sales were flat compared to the prior year. EPS totaled \$1.00, up from \$0.98 in 3Q06, exceeding the consensus estimate of \$0.90. On the quarterly conference call, management noted that the loss from the RFID

business was expected to decline 50% next year and that the inlay business is expected to grow about 200%. Management also highlighted the growth of item-level pilots, specifically in retail.

I.D. Systems reported revenue of \$6.5 million, compared to \$8.1 million in the third quarter of 2006. Net loss for the quarter was \$790,000, or (\$0.07) per share, compared to net income of \$632,000, or \$0.05 per share, in the previous year.

Sirit reported third-quarter revenues of \$5.6 million, up from \$5.1 million in the previous year. Loss per share totaled \$0.01, down from \$0.02 in 3Q06. The Automatic Vehicle Identification division grew revenues 0.5% from the prior year to \$4.2 million while the Radio Frequency Solutions segment remained flat at \$1.4 million.

WJ Communications announced its financial results for the third quarter. Sales totaled \$9.8 million, down from revenue of \$12.7 million in both the previous quarter and the third quarter of last year. The company recorded a net loss of \$1.3 million (\$0.02 a share) compared to a loss of \$416,000 (\$0.01 per share) last quarter and a loss of \$1.2 million (\$0.02 per share) in the third quarter of 2006.

Manhattan Associates reported its third-quarter results. Revenue totaled \$84.6 million, up 17% from the prior year, while EPS totaled \$0.29, up 53% from the prior year.

Axcess International reported third-quarter revenue of \$281,656, down 24% from the previous year. Net loss in the quarter totaled \$1.0 million, up from a loss of \$873, 608 in the prior year's period.

Digital Angel reported quarterly sales of \$20.3 million, up 64% from the prior year's period. The company recorded a net loss of \$1.3 million (\$0.03 per share), essentially flat with last year's loss of \$1.4 million (also \$0.03 per share).

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Upcoming Events

RFID Journal Live! Canada – November 26-28 in Toronto, Canada. The 2nd annual RFID Journal LIVE! Canada - produced by RFID Journal in partnership with EPCglobal Canada - will bring together the leading end users, systems integrators, consultants and vendors to address critical RFID adoption issues. To learn more visit: www.rfidjournal.com/livecanada/

RFID Journal Live in Healthcare – January 23 at The Westin Casuarina Las Vegas Hotel, Las Vegas, NV. The 2nd Annual Leadership Summit on Healthcare Supply Chain Management will convene the industry's opinion leaders to present solutions that will drive change in the industry. To learn more visit: www.rfidjournal.com/healthcare/

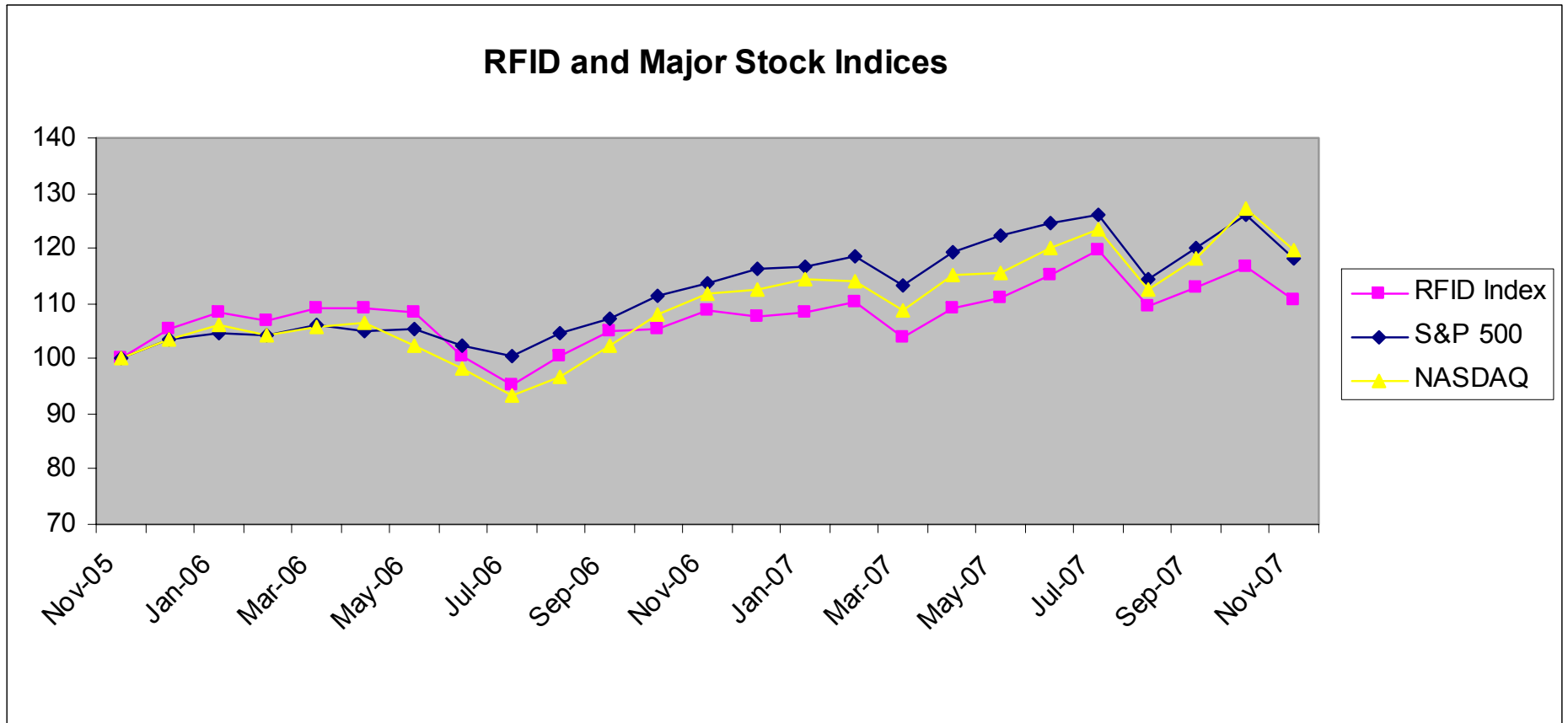
The 2008 Asset Management Conference & Expo will take place January 22-23 in Atlanta, GA. The event focuses on new asset management technologies, including RFID, to meet regulatory requirements and industry-specific best practices, including tracking and remote monitoring of mobile assets and materials, and improved financial reporting of assets. This event will be held in conjunction with the UID Forum. To learn more, visit www.AssetExpo.com

The DoD RFID Summit will take place February 26-27 in Arlington, Virginia. The summit which is sponsored by the Principal Assistant Deputy Under Secretary of Defense (Logistics and Materiel Readiness), will provide direction on supplier RFID implementation requirements and timelines based on procurement methods, classes/commodities and locations. Robert W. Baird & Co. will be presenting at this event. To learn more, visit www.DoDRFIDsummit.com.

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To receive RFID Monthly, please send us an e-mail at read@rwbaird.com. There is no charge for the publication.

RFID Stock Index and Comment



On November 15, Baird's RFID Index declined -4.96% versus October 15. The index was in line with the NASDAQ (-4.96%) and outperformed the S&P 500 (-5.81%). Of companies under Baird Supply Chain Technology coverage ScanSource (+11.92%), Zebra (+9.33%), NCR (-4.07%) and Avery Dennison (-4.57%) outperformed all three indices. Intermec (-11.20%) underperformed all three indices. Stocks that outperformed the indices included Sun Microsystems (+226.51%), I.D. Systems (+6.84%), and Printronix (+0.97%). Big movers that underperformed the indices included WJ Communications (-29.58%), Digital Angel (-26.39%), Atmel (-16.73%), 3M (-15.62%), Infineon (-14.01%), Axxess (-11.67%) and Cisco (-10.64%).

RFID Stock Index Table

Company Name	Ticker	11/15/07	% change		52 week	
		Price	vs. Last Month	vs. Last Year	High	Low
3M	MMM	94.39	-15.62%	-1.31%	97.00	72.90
Accenture	ACN	41.00	-10.59%	6.72%	44.03	33.02
Atmel	ATML	5.62	-16.73%	-13.97%	6.49	4.41
Avery Dennison	AVY	54.92	-4.57%	-20.78%	71.35	50.30
Axcess	AXSI	1.80	-11.67%	27.20%	1.96	1.01
Brady Corporation	BRC	36.56	-4.38%	-13.08%	44.46	30.50
Cisco	CSCO	32.79	-10.64%	10.15%	34.24	24.82
Digital Angel	DOC	1.44	-26.39%	-64.07%	2.95	0.95
IBM	IBM	118.03	-12.23%	11.27%	121.46	88.77
ID Systems	IDSY	13.15	6.84%	-34.07%	22.00	8.96
Infineon	IFX	15.27	-14.01%	4.37%	18.74	12.13
Intel	INTC	25.75	-0.85%	14.37%	27.71	18.75
Intermec	IN	25.00	-11.20%	-9.94%	30.16	20.50
Motorola	MOT	19.34	-14.89%	-26.06%	22.72	15.61
NCR Corporation	NCR	26.53	-4.07%	20.81%	29.01	15.07
Omron Corporation	OMRNF.PK	26.50	0.00%	20.45%	26.50	21.75
Philips	PHG	42.60	-1.10%	12.26%	45.90	35.35
Printronix	PTNX	15.50	0.97%	27.65%	16.25	11.02
SAP	SAP	55.31	-8.44%	-1.48%	59.86	44.17
ScanSource	SCSC	30.95	11.92%	14.44%	39.50	25.22
Sirit	SI.TO	0.33	-10.77%	52.63%	0.41	0.17
STMicroelectronics	STM	16.55	-0.06%	-10.16%	20.84	15.72
Sun Microsystems	SUNW	6.11	226.51%	268.76%	27.12	18.00
Texas Instruments	TXN	34.42	-10.26%	2.39%	39.63	28.24
UPM Rafsec	UPM	20.43	1.66%	-18.58%	27.08	20.01
Verichip	CHIP	4.26	-29.58%	NA	10.62	2.80
WJ Communications	WJCI	0.88	-2.27%	-58.05%	2.17	0.60
Zebra Technologies	ZBRA	33.98	9.33%	1.25%	42.50	32.93
RFID Index		774.81	-4.96%	1.72%	822.24	712.77
S&P 500		1476.65	-5.81%	3.91%	1576.09	1363.98
NASDAQ		2581.66	-4.96%	7.20%	2861.51	2331.57

Table of Key RFID Providers

Company Name	Ticker	Semi-Conductors	Inlays/Tags	Readers	Printers/Encoders	Networking	Software	Integration/Services
3M Company	MMM	X	X				X	
AbeTech	Private						X	
Accenture	ACN						X	
Acsis	Private					X	X	
Aeroscout	Private	X	X			X	X	
Alien	Private	X	X			X		
Applied Wireless	Private		X					
AssetPulse	Private					X	X	
Atmel	ATML	X						
Avery Dennison	AVY	X						
Axcess	AXSI	X	X			X		
Brady Corp	BRC	X		X				
BlueStar	Private						X	
Blue Vector	Private				X	X	X	
Checkpoint Systems Inc.	CKP	X	X			X		
CIM Bar Code	Private						X	
Cisco	CSCO				X			
Computer Sciences Corp.	CSC						X	
Confidex		X						
Danaher (Accu-Sort)	DHR						X	
Datalogic	DAL	X	X					
Dover (Datamax)	DOV			X				
Digital Angel	DOC	X	X					
Domino-ISG	Private						X	
Ekahau	Private	X	X		X	X	X	
EM Microelectronic Marin	UHR.DE	X						
Feig Electronic	Private	X	X					
Fluensee	Private					X	X	
Globe Ranger	Private					X		
Goliath Solutions	Private	X	X					
Hewlett-Packard	HPQ						X	
ASSA-ABLOY (HID)	ASSA	X	X					
HighJump Software	Private					X	X	
HK Systems	Private						X	
IBM	IBM					X	X	
ID Systems	IDSY	X	X			X		
Identec Solutions	Private	X	X			X	X	
Impinj Inc.	Private	X	X					
Infineon	IFX	X						
Intel Corporation	INTC				X		X	
Intellex	Private	X	X	X				
Intermec	IN	X	X	X			X	
IPICO	Private	X						
Lexmark	LXK			X				
Lowry Computer	Private	X		X		X	X	
Kennedy Group	Private	X		X		X	X	
Magellan Technology	Private	X	X			X		
Manhattan Associates	MANH					X	X	
MARKEM	Private	X					X	
Miles Technologies	Private						X	
Moore Wallace	RRD	X						
Motorola (Symbol)	MOT	X	X				X	

Company Name	Ticker	Semi-Conductors	Inlays/Tags	Readers	Printers/Encoders	Networking	Software	Integration/Services
Nashua	NSHA	X						
Navis	Private					X	X	
NCR Corporation	NCR	X				X	X	
OATSystems, Inc.	Private					X		
Odin	Private						X	
Omron Corporation	OMRNF.PK	X	X					
Oracle	ORCL				X	X	X	
Panatrack, Inc.	Private					X	X	
Paxar Corporation	PXR			X				
NXP	NXP	X						
PLITEK	Private	X						
Precision Dynamics	Private	X	X					
Printronic	PTNX			X				
Provia Software Inc.	Private					X		
Red Prairie	Private					X	X	
Reva Systems	Private				X			
RF Code	Private	X	X			X		
RF Technologies	Private	X	X					
Rfid, Inc.	Private	X	X					
RFID Global Solution	Private					X	X	
RFTechnologies	Private	X	X			X		
RSI ID Technologies	Private	X				X	X	
Rush Tracking Systems	Private						X	
SAP	SAP					X	X	
Sato	Japan	X		X				
Lockheed (Savi)	LMT	X	X		X	X	X	
ScanSource Inc.	SCSC						X	
Siemens	SI				X		X	
SimplyRFID	Private					X	X	
Sirt	SI.TSX			X				
SkyeTek	Private		X					
Sovereign Tracking Sys.	Private	X	X			X	X	
STMicroelectronics	STM	X	X					
Sun Microsystems	SUNW					X	X	
System Concepts, Inc.	Private					X	X	
Tagsys	Private	X	X	X		X	X	
Texas Instruments	TXN	X	X					
ThingMagic	Private		X					
Toppan Printing	7911	X	X	X				
Roper (TransCore)	ROP	X	X				X	
TrenStar Inc.	Private					X	X	
Tyco (Sensormatic)	TYC	X	X				X	
UPM Rafilatac	UPM	X						
Venture	Private						X	
Verichip	CHIP	X	X					
Verisign	VRSN				X	X	X	
Vue Technology	Private					X	X	
Wavetrend	Private	X	X			X	X	
Wherenet	Private	X	X		X	X	X	
WJ Communications	WJCI		X					
Xterprise	Private					X	X	
Zebra Technologies	ZBRA	X		X				

Comparable RFID Valuation

COMPARABLE RFID VALUATION

Analysis of Selected Ratios and Current Market Multiples

(in millions, except per share amounts)

Ticker	Company ⁽¹⁾	Fiscal Year End	Latest Quarter	Shares ⁽²⁾	Price Per Share 11/15/2007	Market Value of Equity	Debt ⁽³⁾	Enterprise Value	Book Value	52 Week Price	
										Low	High
<u>Wireless Infrastructure:</u>											
RIMM	Research In Motion Ltd.	2/28/2007	8/31/2007	557.6	\$109.95	\$61,309.5	7.2	\$60,217.6	2737.3568	\$39.92	\$137.01
GRMN	Garmin	12/31/2007	9/30/2007	216.1	\$85.60	18,498.0	0.6	17,778.1	1694.3099	\$46.40	\$125.68
ELMG	EMS Technology (LXE)	12/31/2007	9/30/2007	15.3	\$30.00	459.8	13.7	348.8	216.43171	\$18.00	\$31.32
NVTL	Novatel Wireless Inc.	12/31/2007	9/30/2007	29.7	\$18.76	558.0	0.4	469.4	147.6035	\$9.02	\$29.14
IDSY	ID Systems Inc.	12/31/2007	9/30/2007	11.3	\$13.62	153.9	0.1	87.5	80.230831	\$8.96	\$22.00
<u>IT Solutions/Software:</u>											
ACN	Accenture Ltd.	8/31/2008	8/31/2007	595.9	\$35.57	\$21,196.9	26.4	\$18,417.8	1894.4594	\$33.02	\$44.03
IBM	International Business Machines Corp.	12/31/2007	9/30/2007	1506.5	\$103.44	155,830.6	35,321.0	164,033.8	18555.2	\$88.77	\$121.46
MANH	Manhattan Associates Inc.	12/31/2007	9/30/2007	27.6	\$27.50	759.3	0.0	638.0	224.8774	\$23.45	\$31.63
SAP	SAP AG	12/31/2007	9/30/2007	1218.3	\$51.20	62,376.2	34.5	57,401.5	8182.5302	\$44.17	\$59.86
SUNW	Sun Microsystems Inc.	6/30/2007	9/30/2007	883.5	\$20.00	17,670.0	1,270.0	13,168.0	6853.2158	\$18.00	\$27.12
UIS	Unisys Corp.	12/31/2007	9/30/2007	345.4	\$5.74	1,982.6	1,049.7	2,609.9	-5.26414	\$5.68	\$9.70
VERSN	Verisign	12/31/2007	9/30/2007	243.8	\$33.70	8,217.5	1,262.6	7,791.4	2521.2092	\$22.76	\$35.42
<u>Data Capture:</u>											
ZBRA	Zebra Technologies Corp.	12/31/2007	9/30/2007	68.8	\$37.55	\$2,584.6	0.0	\$2,255.3	939.04597	\$32.93	\$42.50
IN	Intermec, Inc.	12/31/2007	9/30/2007	60.3	\$22.40	1,351.1	100.0	1,234.2	412.99566	\$20.50	\$30.16
AVY	Avery Dennison	12/31/2007	9/30/2007	98.3	\$51.25	5,038.5	2,327.8	7,287.8	1825.696	\$51.00	\$71.35
BRC	Brady Corp.	7/31/2008	10/31/2007	54.1	\$35.38	1,914.9	500.0	2,252.9	852.96784	\$30.50	\$44.46
CKP	Checkpoint Systems Inc.	12/31/2007	9/30/2007	39.3	\$25.50	1,001.6	16.3	880.0	482.43739	\$18.19	\$30.50
PTNX	Printronix Inc.	3/31/2008	9/30/2007	6.7	\$15.64	104.5	0.0	75.5	71.954001	\$11.02	\$16.25
<u>Components/Semi-Conductors:</u>											
IFX	Infineon Technologies AG	9/30/2007	9/30/2007	747.6	\$13.81	\$10,324.5	1,869.7	\$10,687.5	7126.9183	\$12.03	\$18.74
PHG	Koninklijke Philips Electronics NV	12/31/2007	9/30/2007	1106.9	\$42.84	47,419.3	5,147.1	43,439.4	29631.105	\$35.35	\$45.90
STM	STMicroelectronics NV	12/31/2007	9/30/2007	897.4	\$16.70	14,986.5	2,173.0	14,203.6	9861.7052	\$15.72	\$20.84
WJCI	WJ Communications	12/31/2007	9/30/2007	67.3	\$0.90	60.6	0.0	36.6	21.959674	\$0.60	\$2.17
CHIP	Verichip	12/31/2007	9/30/2007	3.5	\$3.00	10.5	14.0	33.3	12.031058	\$2.95	\$10.62
TXN	Texas Instruments Inc.	12/31/2007	9/30/2007	1450.0	\$31.07	45,052.5	0.0	39,773.3	11662.467	\$28.24	\$39.63
<u>Networking/Telecom</u>											
INTC	Intel Corporation	12/31/2007	9/30/2007	5766.0	\$25.85	\$149,051.1	1,990.0	\$139,855.5	39309.405	\$18.75	\$27.71
MOT	Motorola Inc.	12/31/2007	9/30/2007	2397.4	\$16.64	39,892.7	4,151.0	33,762.8	15640.17	\$15.61	\$22.72
CSCO	Cisco Systems Inc.	7/31/2008	10/31/2007	6100.0	\$29.71	181,231.0	6,582.0	163,265.0	28734.691	\$24.82	\$34.24
NOK	Nokia Oyj	12/31/2007	9/30/2007	3965.7	\$38.48	152,601.3	1,345.1	135,838.3	16666.325	\$18.87	\$42.22
QCOM	Qualcomm Inc.	9/30/2007	9/30/2007	1652.0	\$40.04	66,146.1	91.0	58,994.8	15741.426	\$35.23	\$47.72
ERIC	LM Ericsson	12/31/2007	9/30/2007	1588.1	\$29.69	47,151.4	4,077.2	44,449.6	18490.138	\$28.06	\$43.41

(1) Information Provided by Capital IQ and Factset.

(2) Excludes options

(3) Net debt equals total debt (including capital leases) plus preferred stock at book value plus minority interest minus cash and short term investments

(4) Book value equals total shareholders' equity less preferred stock at book value

** Incomplete metrics as a result of recent IPO

Comparable RFID Valuation

COMPARABLE RFID VALUATION
Analysis of Selected Ratios and Current Market Multiples
(in millions, except per share amounts)

Ticker	Company ⁽¹⁾	Latest Twelve Month Results					Latest Twelve Month Margins					* Cap		Cap
		Net Sales	Gross Profit ⁽²⁾	EBITDA	EBIT	Net Income ⁽³⁾	Gross Profit ⁽²⁾	EBITDA	EBIT	Net Income ⁽³⁾	Debt to:		EBIT to:	
											Total Cap.	EBITDA	Int	
<u>Wireless Infrastructure:</u>														
RIMM	Research In Motion Ltd.	\$4,219.6	\$2,123.0	\$1,354.2	\$1,206.3	\$631.6	50.3%	32.1%	28.6%	15.0%	0%	0.6%	NA	
GRMN	Garmin	\$2,574.5	\$1,258.7	\$880.8	\$830.1	\$514.1	48.9%	34.2%	32.2%	20.0%	0%	0.1%	2,338.2	
ELMG	EMS Technology (LXE)	\$284.2	\$29.5	\$6.4	\$6.4	\$15.8	10.4%	2.3%	2.3%	5.6%	5%	52.0%	NA	
NVTL	Novatel Wireless Inc.	\$388.9	\$123.2	\$5.9	-\$2.1	\$0.4	31.7%	1.5%	-0.5%	0.1%	0%	0.9%	NA	
IDSY	ID Systems Inc.	\$17.3	\$7.9	-\$6.9	-\$7.4	-\$1.6	45.8%	-40.0%	-43.0%	-9.4%	0%	NA	(495.7)	
<u>IT Solutions/Software:</u>														
ACN	Accenture Ltd.	\$21,452.7	\$6,041.5	\$2,999.2	\$2,670.3	\$1,243.1	28.2%	14.0%	12.4%	5.8%	0%	0.9%	106.7	
IBM	International Business Machines Corp.	\$96,178.0	\$36,530.0	\$20,129.0	\$14,964.0	\$9,416.0	38.0%	20.9%	15.6%	9.8%	33%	186.2%	15.6	
MANH	Manhattan Associates Inc.	\$328.3	\$173.4	\$60.3	\$46.7	\$19.3	52.8%	18.4%	14.2%	5.9%	0%	0.0%	88.9	
SAP	SAP AG	\$14,155.9	\$9,464.0	\$4,301.5	\$3,951.9	\$2,469.7	66.9%	30.4%	27.9%	17.4%	0%	0.9%	NA	
SUNW	Sun Microsystems Inc.	\$13,903.0	\$6,438.0	\$1,702.0	\$883.0	\$473.0	46.3%	12.2%	6.4%	3.4%	15%	87.2%	NA	
UIS	Unisys Corp.	\$5,668.8	\$1,288.3	\$509.7	\$132.1	-\$278.7	22.7%	9.0%	2.3%	-4.9%	107%	475.8%	1.8	
VRSN	Verisign	\$1,522.1	\$800.9	\$360.0	\$121.6	\$378.0	52.6%	23.7%	8.0%	24.8%	0%	351.3%	NA	
<u>Data Capture:</u>														
ZBRA	Zebra Technologies Corp.	\$844.6	\$393.7	\$196.0	\$172.1	\$69.6	46.6%	23.2%	20.4%	8.2%	0%	0.0%	1,593.4	
IN	Intermec, Inc.	\$814.6	\$305.7	\$43.0	\$31.3	\$35.0	37.5%	5.3%	3.8%	4.3%	19%	236.1%	3.4	
AVY	Avery Dennison	\$6,005.2	\$1,629.3	\$757.4	\$543.6	\$352.5	27.1%	12.6%	9.1%	5.9%	23%	320.5%	6.5	
BRC	Brady Corp.	\$1,362.6	\$657.0	\$240.1	\$186.3	\$109.4	48.2%	17.6%	17.6%	8.0%	35%	208.2%	8.1	
CKP	Checkpoint Systems Inc.	\$787.8	\$347.0	\$75.2	\$75.2	\$35.0	44.1%	9.5%	9.5%	4.4%	2%	18.6%	44.1	
PTNX	Printronix Inc.	\$127.5	\$53.2	NA	NA	\$2.9	41.7%	NA	NA	2.3%	0%	0.0%	NA	
<u>Components/Semi-Conductors:</u>														
IFX	Infineon Technologies AG	\$11,082.1	\$3,148.1	\$2,525.1	\$731.9	-\$340.0	28.4%	22.8%	6.6%	-3.1%	19%	74.0%	9.0	
PHG	Koninklijke Philips Electronics NV	\$38,156.4	\$12,522.6	\$3,047.2	\$2,302.9	\$1,212.8	32.8%	8.0%	6.0%	3.2%	12%	168.9%	NA	
STM	STMicroelectronics NV	\$9,741.0	\$3,433.0	\$2,238.0	\$717.0	\$782.0	35.2%	23.0%	7.4%	8.0%	17%	93.3%	16.3	
WJCI	WJ Communications	\$44.6	\$21.7	-\$6.4	-\$10.3	-\$8.4	48.6%	-14.3%	-23.2%	-18.8%	0%	NA	(143.6)	
CHIP	Verichip	\$23.7	\$15.5	-\$6.5	-\$8.9	-\$6.7	65.4%	-27.6%	-37.6%	-28.4%	38%	NA**	(5.9)	
TXN	Texas Instruments Inc.	\$13,741.0	\$7,134.0	\$4,619.0	\$3,451.0	\$2,638.0	51.9%	33.6%	25.1%	19.2%	0%	0.0%	1,725.5	
<u>Networking/Telecom</u>														
INTC	Intel Corporation	\$37,316.0	\$18,582.0	\$13,271.0	\$8,417.0	\$5,044.0	49.8%	35.6%	22.6%	13.5%	5%	15.0%	324.0	
MOT	Motorola Inc.	\$38,768.0	\$10,179.0	\$2,108.0	\$1,271.0	\$3,261.0	26.3%	5.4%	3.3%	8.4%	14%	196.6%	16.6	
CSCO	Cisco Systems Inc.	\$36,292.0	\$22,857.0	\$10,564.0	\$9,078.0	\$7,333.0	63.0%	29.1%	25.0%	20.2%	17%	58.1%	24.1	
NOK	Nokia Oyj	\$70,608.0	\$25,408.7	\$11,681.8	\$10,101.7	\$5,682.6	36.0%	16.5%	14.3%	8.0%	1%	13.5%	52.9	
QCOM	Qualcomm Inc.	\$8,871.0	\$6,190.0	\$3,986.0	\$3,603.0	\$2,470.0	69.8%	44.9%	40.6%	27.8%	0%	2.3%	327.5	
ERIC	LM Ericsson	\$29,026.3	\$8,730.0	\$6,640.0	\$5,847.9	\$3,841.1	30.1%	22.9%	20.1%	13.2%	10%	61.4%	23.0	
Mean							42.7%	14.7%	9.4%	6.4%	12.0%			
Median							45.6%	17.1%	9.6%	5.9%	3.6%			
High							69.8%	44.9%	40.6%	27.8%	106.5%			
Low							10.4%	-40.0%	-43.0%	-28.4%	0.0%			

(1) Information Provided by Capital IQ.

(2) Before depreciation and amortization.

(3) Represents income from continuing operations before extraordinary items.

* Numbers not available as systems are still in the process of being updated following earnings reports.

** Incomplete metrics as a result of recent IPO

Comparable RFID Valuation

COMPARABLE RFID VALUATION
Analysis of Selected Ratios and Current Market Multiples
(in millions, except per share amounts)

Ticker	Company ⁽¹⁾	LTM		Cal. Year Ended 2006		Cal. Year Ended 2007		Growth Rate ⁽²⁾	PEG Ratio	Price to:				Book Value	Dividend Yield
		EPS	P/E	EPS ⁽²⁾	P/E	EPS ⁽²⁾	P/E			Net Sales	EBITDA	EBIT	Net Inc		
<u>Wireless Infrastructure:</u>															
RIMM	Research In Motion Ltd.	\$1.52	72.2x	\$0.97	113.2x	\$1.98	55.5x	34.6%	1.6	28.9	45.3x	50.8x	97.1x	22.4	0.0%
GRMN	Garmin	\$3.32	25.8	\$2.35	36.4	\$3.56	24.1	20.8%	1.2	14.7	21.0	22.3	36.0	10.9	1.3%
ELMG	EMS Technology (LXE)	\$1.22	24.6	\$0.81	37.0	\$1.14	26.4	26.0%	1.0	15.6	71.8	71.8	29.1	2.1	0.0%
NVTL	Novatel Wireless Inc.	\$0.96	19.5	\$0.01	1,876.0	\$1.18	16.0	24.1%	0.7	4.5	94.6	(265.7)	1259.5	3.8	0.0%
IDSY	ID Systems Inc.	-\$0.66	(20.6)	\$0.11	123.8	-\$0.27	(50.2)	21.3%	(2.4)	19.5	(22.3)	(20.7)	-95.2	1.9	0.0%
<u>IT Solutions/Software:</u>															
ACN	Accenture Ltd.	\$1.97	18.1x	\$1.73	20.6x	\$2.07	17.2x	13.4%	1.3	3.5x	7.1x	7.9x	17.1	11.2	0.0%
IBM	International Business Machines Corp.	\$6.70	15.4	\$6.06	17.1	\$6.97	14.8	10.9%	1.4	4.3	7.7	10.4x	16.5	8.4	0.9%
MANH	Manhattan Associates Inc.	\$0.97	28.4	\$1.08	25.5	\$1.33	20.7	14.5%	1.4	4.4	12.6	16.3	39.3	3.4	0.0%
SAP	SAP AG	\$2.25	22.8	\$2.01	25.5	\$2.23	22.9	14.1%	1.6	6.6	14.5	15.8	25.3	7.6	0.7%
SUNW	Sun Microsystems Inc.	\$0.72	27.8	-\$0.08	(250.0)	\$0.77	26.0	8.8%	3.0	2.7	10.4	20.0	37.4	2.6	0.0%
UIS	Unisys Corp.	-\$0.21	(27.3)	-\$0.81	(7.1)	-\$0.15	(37.4)	7.5%	(5.0)	1.5	3.9	15.0	-7.1	-376.6	0.0%
VRSN	Verisign	\$0.17	198.2	\$0.96	35.1	\$1.02	33.1	16.6%	2.0	10.3	22.8	67.6	21.7	3.3	0.0%
<u>Data Capture:</u>															
ZBRA	Zebra Technologies Corp.	\$1.45	25.9x	\$1.56	24.1x	\$1.60	23.5x	15.4%	1.5	6.6x	13.2x	15.0x	37.1	2.8	0.0%
IN	Intermec, Inc.	\$0.22	101.8	\$0.38	58.9	\$0.36	62.4	18.6%	3.4	4.4	31.4	43.2	38.6	3.3	0.0%
AVY	Avery Dennison	\$3.27	15.7	\$3.78	13.6	\$3.79	13.5	10.5%	1.3	3.1	6.7	9.3	14.3	2.8	2.5%
BRC	Brady Corp.	\$2.00	17.7	\$2.04	17.3	\$2.15	16.4	12.0%	1.4	2.9	8.0	10.3	17.5	2.2	2.0%
CKP	Checkpoint Systems Inc.	\$1.29	19.8	\$1.00	25.5	\$1.38	18.5	17.0%	1.1	2.9	13.3	13.3	28.6	2.1	0.0%
PTNX	Printronix Inc.	\$0.66	23.7	-\$0.77	(20.3)	NA	NA	NA	NA	2.0	NA	NA	36.3	1.5	0.0%
<u>Components/Semi-Conductors:</u>															
IFX	Infineon Technologies AG	\$0.13	106.2x	-\$0.51	-27.2x	-\$0.40	-34.9x	8.0%	(4.4)	3.3x	4.1x	14.1x	-30.4	1.4	0.0%
PHG	Koninklijke Philips Electronics NV	\$4.18	10.2	\$1.09	39.3	\$3.09	13.9	24.8%	0.6	3.8	15.6	20.6	39.1	1.6	1.7%
STM	STMicroelectronics NV	-\$0.26	(64.2)	\$0.83	20.1	-\$0.08	(204.5)	15.0%	(13.6)	4.4	6.7	20.9	19.2	1.5	0.7%
WJCI	WJ Communications	-\$0.14	(6.4)	-\$0.13	(6.9)	-\$0.11	(7.9)	NA	NA	2.8	(9.5)	(5.9)	-7.2	2.8	0.0%
CHIP	Verichip	-\$1.46	(2.1)	-\$1.21	(2.5)	-\$1.30	(2.3)	NA	NA	0.7	(1.6)	(1.2)	-1.6	0.9	0.0%
TXN	Texas Instruments Inc.	\$1.74	17.9	\$1.69	18.4	\$1.79	17.3	18.1%	1.0	6.3	9.8	13.1	17.1	3.9	0.4%
<u>Networking/Telecom</u>															
INTC	Intel Corporation	\$1.06	24.4x	\$0.86	30.1x	\$1.20	21.6x	16.8%	1.3	8.0x	11.2x	17.7	29.6	3.8	0.7%
MOT	Motorola Inc.	\$0.12	138.7	\$1.19	14.0	\$0.22	74.8	9.6%	7.8	3.9	18.9	31.4	12.2	2.6	1.1%
CSCO	Cisco Systems Inc.	\$1.27	23.4	\$1.20	24.8	\$1.44	20.6	15.3%	1.3	7.9	17.2	20.0	24.7	6.3	0.0%
NOK	Nokia Oyj	\$2.38	16.2	\$1.27	30.3	\$1.86	20.6	13.0%	1.6	6.0	13.1	15.1	26.9	9.2	2.7%
QCOM	Qualcomm Inc.	\$1.95	20.5	\$1.73	23.1	\$2.03	19.7	24.3%	0.8	10.7	16.6	18.4	26.8	4.2	0.6%
ERIC	LM Ericsson	\$2.57	11.6	\$2.24	13.3	\$2.17	13.7	11.2%	1.2	5.4	7.1	8.1	12.3	2.6	0.0%
Mean			30.6x		78.3x		8.8x	16.4%	0.5x	6.7x	16.2x	9.5x	60.6	(8.4)	0.5%
Median			20.5		23.6		18.5	15.3%	1.3	4.4	12.6	15.1	25.0	2.8	0.0%
High			198.2		1,876.0		74.8	34.6%	7.8	28.9	94.6	71.8	1,259.5	22.4	2.7%
Low			(64.2)		(250.0)		(204.5)	7.5%	(13.6)	0.7	(22.3)	(265.7)	(95.2)	(376.6)	0.0%

(1) Information Provided by Capital IQ.

(2) Based on mean Multex estimates. EPS estimates are calendarized for comparison purposes.

(3) Cal. Year Ended 2004 P/E divided by Multex's estimated mean five year growth rate.

* Numbers not available as systems are still in the process of being updated following earnings reports.

** Incomplete metrics as a result of recent IPO

Glossary of RFID Terms

Active RFID Tag – The tag has an internal power source (i.e., a battery), which allows for significantly longer read ranges. Primarily used to track large, high-value assets such as intermodal shipping containers. Active tags are significantly larger and more expensive (\$25-\$250 per unit) than passive tags.

Air Interface – The communication protocol between the tag and reader. Passive tags at UHF are standardized around the Generation 2 protocol; HF is seeking a similar standard. Some active tags are increasingly communicating with standardized Wi-Fi networks (IEEE 802.11x), however, active continues to see several proprietary air interface protocols.

Antenna – Attached to chips on tags and an integral part of a reader; antennas are devices that send and receive radio frequency (electromagnetic) energy.

Anti-Collision – A component of the air-interface protocol that prevents tag data from multiple tags in the read area from interfering (colliding) with each other. Also prevents multiple readers in close proximity from interfering with each other. This is a key component to the Generation 2 standard.

Battery Assisted Passive (also semi-passive) – Passive tags that offer a small battery to boost signal strength, or improve tag sensor capability. The battery generally goes into sleep mode until required. Referred to as Class 3 products; a standard is expected in early 2008.

Class 0 – Class 0 refers to a proprietary air interface protocol for passive UHF tags. Class 0 is read only, while a subsequent protocol, Class 0 Plus, offers read/write capability. This protocol is largely obsolete with Gen 2.

Class 1 – Class 1 refers to a proprietary air interface protocol for passive UHF tags. Class 1 offers read/write capability. Class This protocol is largely obsolete with Gen 2.

Closed Loop Solution – Set of readers and tags intended for a particular application having specific, well defined start and end point. Generally seen in tracking work in process or reverse logistics operations.

DoD Mandate – A mandate to all 43,000+ DoD suppliers, announced in June of 2003, to employ RFID. The DoD issued a timetable specifying when RFID will be required (by products into specified DoD depots). The timetable has been somewhat fluid given DoD budget dollars are focused on existing operations in Iraq and Afghanistan.

Dual Di-Pole – A tag that essentially has two antennas, reducing the sensitivity to orientation and increasing read capability.

Electronic Product Codes (EPC) – The code that resides on an RFID tag that is unique to each product. The code contains manufacturer and product

information as well as an individualized serial number. EPCs are maintained by EPCglobal.

Encode and Apply – A step up from “Slap and Ship,” where labels are encoded and applied on a more automated basis. Slightly more capital intensive, but more operationally efficient than slap and ship.

Encoder – Device that transmits and writes data on to an RFID tag. Used extensively in printers and label applicators for product shipments. Encoders are generally RFID reader modules developed for a printing or other encoding application.

Environmental Factors – Typically discussed with respect to UHF products, which can be affected by many factors including the presence of metal, liquids, significant reader activity, other RF “noise,” etc. These factors require process controls in terms of tag and reader placement. Readers also need proper adjustment for a given environment.

EPC Global – The body responsible for RFID standards creation; formed originally as a joint venture between the Uniform Code Council (UCC) and the Electronic Article Numbering Association (EAN). EPC Global is responsible for RFID standards development and for promoting vertical RFID solution development.

EPC Network – Developed by the Auto-ID center, this Internet-based system allows supply chain participants to retrieve data associated with an EPC through the Internet. The network remains in an emerging phase, and is administered by EPC Global.

Fluidic Self Assembly (FSA) – A proprietary process developed to rapidly attach chips to straps. The process uses a fluid bath to place small chips on a substrate for strap attachment. This process continues to be developed.

Generation 2 – The RFID air interface standard for supply chain shipments using UHF. The Gen 2 standard was approved in December 2004 by EPC Global, and has since received international approval by ISO as 18000-6C. EPCglobal is working to create a similar standard for HF.

High Frequency (HF) RFID – RFID products that use the 13.56MHz band, which is not regulated by any government. This frequency generally allows read ranges of 4-8 feet, and is not affected by environmental factors such as liquid due to magnetic coupling. The existing ISO 15963 standard is different from the Gen 2 protocol. We expect a new EPC-based standard by the end of 2007. HF has historically been used in contactless payment and item level tracking applications.

Glossary of RFID Terms

Hybrid (semi-active) RFID Tag – Tag that incorporates a smaller internal power supply, which is triggered by reader action. After interrogation, the tag resumes a passive stance.

ISO – International Organization for Standardization is a network of the national standards institutes of 148 countries, on the basis of one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system. ISO is not government affiliated. EPC Global is an ISO member and has received ISO approval for the Generation 2 standard.

Kill Command – A code within the RFID tag that once activated will permanently disable the tag. Intended to limit consumer tracking after purchase for privacy protection.

Low Frequency (LF) RFID – RFID products that use the 125Kz band. Products that use this frequency are generally smaller and cheaper as read ranges are short, typically less than 12 inches. Security access and control and contactless payment are typical applications.

Mandate Requirements – Primarily refers to an edict put in place by retailers, most notably Metro, Wal-Mart and the DoD, requiring that certain types of shipments (mostly deliveries at the case and pallet level) use RFID for tracking purposes. The Metro mandate is the only one that imposes a charge for non-compliance.

Metro Mandate – German based retailer that is piloting Gen 2 based RFID at 229 German based stores. Suppliers are required to tag all pallets by October 1, 2007 or face a charge of approximately 2 euros per pallet. Case level tagging is expected in 2008. Metro, the worlds 5th largest retailer, operates roughly 2,400 stores in Europe and Asia.

Middleware – A specific class of software that offers several levels of functionality. Middleware acts as a data filter, eliminating duplicate reads so that the host system maintains accurate records and is not inundated with excessive data. Middleware also ensures that the RFID data formatting “maps up” with the host system data structure.

Optional User Memory – Additional bits memory available on a tag that can be used by any member of the supply chain as they see fit (i.e., routing information). Intended to allow for increased tracking efficiency.

Parallel Integrated Chip Assembly (PICA) – A proprietary process developed by Symbol (Motorola) to rapidly assemble chips to tags. The process uses small punches to extract a chip from the wafer and attach the chip to the tag antenna using a single motion. The process remains in test stages, and

Motorola no longer produces tags.

Passive RFID Tag – A tag that receives its power supply from the reader upon interrogation. Used primarily in supply chain applications, these tags tend to be small in size and relatively inexpensive compared to active tags.

Pilots – Testing done by companies seeking RFID solutions, primarily for supply chain applications. Consumer product companies under mandate requirements are seeking ways to increase the value add to themselves in addition to meeting mandate compliance, which requires evaluation of equipment and internal business processes.

Portal – A door or other point in a facility surrounded by fixed RFID readers to identify and track the flow of product. Dock doors are a typical example.

Reader – Also known as an interrogator. Typically a network-based device and antenna configuration, which reads the information contained on an RFID tag. In passive operations, the reader supplies the tag with power. Readers can be fixed position for dock door or other portal applications, or embedded into mobile computing devices for in store or exception reporting requirements.

Rollout – When pilots provide sufficient evidence of a strong return on investment, companies are expected to deploy (rollout) the technology into greater parts of their internal operations or external supply chain partners. This process is expected to result in significant growth for the RFID industry.

Slap and Ship – Refers to placing an RFID tagged bar code label on products immediately before shipment. The process is typically done on an exception basis for products requiring compliance labeling. Slap and Ship is not labor efficient and allows virtually no incremental value add to the supplier; however, the up-front capital investment is small.

Strap – Component of a tag or inlay that connects the microchip to the antenna. The purpose of the strap is largely to make the manufacturing process of antenna attachment easier and faster.

Tag – Also referred to as transponder or transponder tag, which is typically affixed to an item for tracking purposes. Composed of a semi-conductor chip and antenna held together in a substrate. Each tag has a manufacturer installed unique identification number as well as additional few bits to many kilobits of incremental memory. Passive tags receive energy from the reader, while active tags have an internal power supply.

Glossary of RFID Terms

UID – Unique Identification is a DoD based numbering scheme to identify a broad range of high-value assets. RFID is not necessarily required, but is preferred in many UID applications. UID applications typically require more than 256 bits of memory.

Ultra High Frequency (UHF) RFID – RFID products that use the 868MHz to 950MHz frequency band, which is regulated by governments. This frequency allows read ranges of 8-30 feet (2x-4x of HF), but can be heavily affected by environmental factors, including liquids and metals.

Wal-Mart Mandate – Wal-Mart mandated that its top 600 suppliers ship products with Gen 2 RFID tags identifying each pallet and case to up to 1,400 stores by the end of 2007. As part of this program, Wal-Mart continues to conduct pilots to determine ROI.

Write Once Read Many (WORM) – Used to describe an RFID tag that allows only one set of data to be written on to it. Typically used in applications where security is a concern.

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Baird's RFID Contacts

Research

Reik W. Read
rread@rwbaird.com
414.298.1030

Robb Timme
rtimme@rwbaird.com
414.298.1762

Samantha DeLay
sdelay@rwbaird.com
414.298.6215

Investment Banking

Tom Lange
tlange@rwbaird.com
813.273.8248

Tre Mischka
tmischka@rwbaird.com
813.273.8208

Michael Bruns
mbruns@rwbaird.com
312.609.5486

Ben Brown
bbrown@rwbaird.com
414.298.7013

Robert W. Baird & Co.
www.rwbaird.com

800.RW.BAIRD

Equity Capital Markets and Private Equity Office Locations

U.S. Offices

Atlanta

3282 Northside Parkway
Suite 225
Atlanta, GA 30327
888.792.9478

Boston

One Post Office Square
36th Floor, Suite 3620
Boston, MA 02109
888.661.5431

Chicago

227 West Monroe Street
Suite 2100
Chicago, IL 60606
800.799.5770

Madison

510 Charmany Drive
Suite 275
Madison, WI 53719
608.441.2900

Milwaukee

777 East Wisconsin Avenue
Milwaukee, WI 53202
888.224.7326

Nashville

2525 West End Avenue
Suite 1000
Nashville, TN 37203
888.454.4981

Philadelphia

175 Strafford Avenue
Wayne, PA 19087
610.975.0929

San Francisco

One Market Street, Spears Tower
Suite 3667
San Francisco, CA 94105
888.224.7326

Stamford

263 Tresser Boulevard
Suite 910
Stamford, CT 06901
888.224.7326

Tampa

401 East Jackson Street
Suite 2900
Tampa, FL 33602
888.238.2672

Washington, D.C.

Pinnacle Tower North
1751 Pinnacle Drive
Suite 1100
McLean, VA 22102
888.853.2753

International Locations*

Beijing

Unit 1006, Quanshitiandi Tower A
Jia No.50-1, Wangjing Xilu
Chaoyang District,
Beijing 100102 China
011.86.10.6479.5151

Frankfurt

Baird GmbH
Kirchnerstrasse 6-8
60311 Frankfurt
Germany
011.49.69.13.01.49.10

Hamburg

Haus am Hafem
Steinhöft 5-7
20459 Hamburg
Germany
011.49.40.37.48.02.10

Hong Kong

18 Harbour Road
Central Plaza
Suite 3202
Wanchai, Hong Kong
011.852.2827.8822

London

Mint House
77 Mansell Street
London E1 8AF
UK
011.44.207.488.1212

Shanghai

Room 603, Citigroup Tower
No.33 Huayuan Shiqiao Road
Pudong Shanghai 200120 China
011.86.21.5887.8238

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