



The DATA CAPTURE Report

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Special SCAN: The DATA CAPTURE Report Reprint

Alien “Higgs” IC Gets Rave Reviews

Alien Technology recently introduced a new integrated circuit (IC) for RFID Gen 2 products. It offers improved read ranges and accuracy, as well as the ability to work in tough environments, such as on tags covered in liquid. Mike Lowery, president and CEO of **Lowery Computer Products**, which utilizes RFID IC technology, was especially excited about the soon-to-be-launched product line—code named “Higgs.”

“It’s absolutely amazing,” Lowery told *SCAN/DCR*. “They dropped a tag in a liquid-filled container and the chip still read fine. And, I saw it read at a distance of 100 feet [not in the liquid].”

Even Alien isn’t claiming its chips can always read at 100 feet, but the company is clearly proud of its new Gen 2 offering.” Alien execs Keith McDonald, SVP sales and marketing and Scot Stelter, director of product marketing, were more than willing to discuss the benefits of the Higgs IC, but also modestly gave a lot of credit to the development of Gen 2 technology and specs. “This is just a normal evolution of technology,” said McDonald. “We’ve seen the same thing in electronics, computers, PCs, etc. As RFID technology improves, tags and readers will have greater sensitivity.”

Higgs is actually the second wave of Gen 2

technology for Alien, which according to McDonald, developed the original Gen 1 technology. Today, approximately 70% of Alien’s sales are Gen 2 products. The company has been using an IC

developed by **Impinj** for its first round Gen 2 sales, but will now begin promoting and selling the Higgs IC.

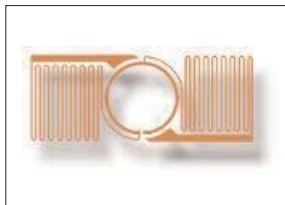


Keith McDonald, VP sales and marketing, Alien Technology.

Stelter told *SCAN/DCR*, “Our new IC provides some significantly improved benefits. Although Mike Lowery saw our chip read at 100 feet, we believe average read ranges will be around 13 meters. Most other chips today read up to 10 meters. What’s really important is that read rates are very high.

“In addition, we have architected the IC to offer expanded functionality. The basic, or default, configuration contains the standard 96-bit EPC memory. Depending on application needs, additional configurations can include extended EPC memory (128 bits), 64 bits of independently lockable user memory, and unique tag IDs (locked factory-programmable serial numbers) for anti-counterfeiting applications.”

Equally significant, the Alien Gen2 chip supports programming, or write speeds, that are up to 10 times faster than currently available Gen2 ICs, which



**Mini-Squiggle®
ALN-9420**

- Tag for item level tagging
- 27mm x 10mm
- 1.0 – 1.5 meters (est)
- 902-928 MHz



**1x1
ALN-9422**

- Tag optimized for plastic packaging such as pharmaceutical bottles
- 25.4mm x 25.4mm
- 1.25 – 2.5 meters (est)
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translates to increased throughput for label printers and applicators and on assembly lines. The new IC's memory, including EPC, lock, kill, and access codes, can be loaded in a single command cycle, compared to the 10 or more cycles required by currently available ICs. Hence, 10 times more tags can be programmed per second, enabling higher speed manufacturing integration and labeling.

The Higgs IC will now become the foundation for Alien's Gen 2-tag offerings, including the Squiggle® tag family, the 2x2 ALN-9434, the Castle Tag ALN-9452, the M Tag ALN-9454, and the 1x1 ALN-9422. The increase in sensitivity provided by the IC will enable tag manufacturers to use smaller antennas, which will take some of the cost out of tag production.

"We were getting complaints from printer vendors and VARs," said Stelter. "They were constantly telling us that we needed to improve write-speeds if we were ever going to take RFID to the manufacturing level."

The Higgs IC was designed to be a drop-in replacement for current Gen 2 chips. Each IC will hold both EPC and UID information. In yet another progressive move, Alien is designing technology to match specific applications. "We realize that, if the technology is to become successful, it must provide customer value," said McDonald. "And that means we must offer the ability to customize a tag, so to speak. With our new technology, the same chip can be configured four different ways, depending on the application."

"Each tag has its own personality," added Stelter.

UHF vs. HF

Alien was part of a group of vendors that released a white paper extolling the virtues of UHF over HF. In particular, the group was comparing near field UHF to HF, claiming UHF could offer similar benefits to HF for item-level tracking. So, while we had two Alien reps on the phone, we asked them

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- Biometrics
- Application software
- Peripherals or supplies for the above

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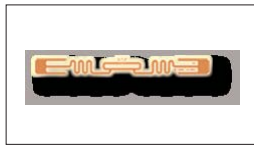
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2x2
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- Apparel & baggage tags
- 47mm x 42mm



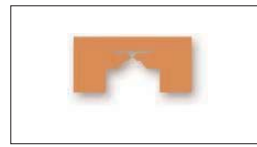
Squiggle®
ALN-9440

- General-purpose tag
- Corrugate, paper and plastic
- 97mm x 11mm



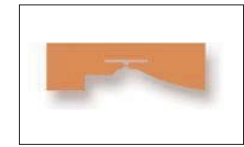
Omni-Squiggle®
ALN-9460

- Omni-directional
- Corrugate, paper and plastic
- Pallet tag
- 75mm x 75mm



Castle Tag
ALN-9452

- General purpose tag 3in wide label
- Paper and corrugate packaging
- 73mm x 34mm



M Tag
ALN-9454

- Liquids and metals
- Plastic; reusable totes, pallets
- 94mm x 42mm

to give us their take on the debate.

In a very candid response, McDonald told us, “You cannot surpass the laws of physics. HF has greater flexibility when it comes to reading tags that are close to metals or liquids. But, the technology is also more expensive. With Gen 1 UHF technology, you could never read a tag attached to a liquid. And you couldn’t do it with the first wave of Gen 2 products either. But, with our latest UHF ICs, we can read a tag placed inside water at a distance of up to three feet. This is a meaningful performance improvement, and as the technology is further developed, we believe we’ll see more improvements of this type.

“The benefits of different technologies are beginning to blend,” he continued. “The gap is closing with each new wave of Gen 2. So, eventually, the decision will be: ‘How many types of chips do we want to use in one inventory system?’ We believe the answer will be one, and that technology will be UHF.”

Going to market

McDonald said Alien now owns about 50% of the UHF inlay market, selling approximately a half billion inlays per year to a large variety of converters. He said if the number reaches a billion, the market will change drastically...especially where price is concerned.

To date, the Higgs IC has only been tested by Alien’s partners, such as some of the major printer vendors. McDonald said the company will be able to ship its new products in high volume this month.

Comment: We believe Alien is doing exactly what is needed to drive Gen 2 UHF RFID adoption. As we said in our headline, its new product is drawing rave reviews, and it hasn’t really even hit the streets yet. Mainly, Alien is focusing on “performance” and that is what needs to be done to grow the industry.

For more information: **Alien Technology**, Morgan Hill, CA, PH (408) 782-3963, FX (408) 782-3908, Email: lprosser@alientechnology.com. **SCAN**

AIDC Vet Mike Lowry Touts Gen 2 Quality

Mike Lowry, president and CEO of **Lowry Computer Products**, has long played major roles in the development and promotion of AIDC technologies. True to form, since RFID has begun to make its way into mainstream markets, Lowry has once again taken a lead position in shaping the industry. In a recent conversation, Lowry could not say enough good things about the latest Gen 2 products on the market.

“Since July, we have seen a big uptick in the market,” said Lowry. “Our second-half RFID sales are up considerably over the first six months of 2006, and our total 2006 sales will be up year-over-year, as well. But, we still have a lot of capacity in our converting business. We are one of the top five RFID converters in the United States, and as a converter, I cannot say enough about the quality of the new [EPC] Gen 2 products. With Gen 1 technology, up to 40% of the inlays we received might be bad. With Gen 2, 95% of the inlays we receive are good.

“We now have better protection against ESD (electro-static discharge) and are getting much higher yields in our manufacturing process—approximately 98%. The old saying ‘good-in

equals good-out' is true. Even more importantly, customers are experiencing 98% read rates. In the past, read rates were horrible—around 70%. Gen 2 is more robust from a manufacturing standpoint, and more robust with functionality, as well. At the end of the day, if a 12-cent tag isn't reading, all other infrastructure investment is a waste."

Lowry Computer purchases its RFID inlays from a variety of vendors, including **Avery Dennison**, **Symbol**, **Rafsec**, **Impinj**, and **Alien Technology**. To date, Impinj has lead the way in providing the lion's share of Gen 2 ICs for most of the RFID industry's inlay manufacturers, according to Lowry. But that may be about to change. "I was recently at an open house at Alien, and their new 'Higgs' IC literally blew me away," Lowry told *SCAN/DCR*. "From what I witnessed, tag performance is well on its way to meeting market expectations. In 30 years, I have never seen such a giant leap in technology performance at one time." [For more details on the Higgs IC, see preceding story.]



Mike Lowry, president and CEO, Lowry Computer Products.

Continuing, Lowry said he was impressed that Alien was offering a broader selection of inlays that target specific applications. "This is really what our industry needs to be doing—focusing on how to solve user business problems," he told us. "If we can show value, and in turn, decent ROIs, we can make sales."

Write speed—a critical improvement

Although all the improvements mentioned by Lowry are significant, an increase in write-speed is probably one of the most critical. Lowry explained, "We really needed write-speed enhancement, particularly for automated label applicators. On average, CPG companies can drop items, tape the packages, and send them along on a conveyor belt at a rate of 45-60 cartons per minute. But, with prior RFID tags [CI 1/Gen 1], we could only write information to the tags at a rate of 20-25 cartons per minute. You can't sell a company on a technology that is going to slow down their processes. With the new Alien IC, we can write data to tags at a rate of 100 cartons per minute. This is Gen 2 technology at its best."

On the reader side

Lowry is also impressed with the latest

generation of RFID readers to hit the market. He said Symbol has a "best-in-class" handheld reader and that Lowry Computer has had great success with fixed-portal interrogators from both Symbol and Alien.

"Readers have come down in price," said Lowry, "and they're becoming more ergonomic and easier to install. Fork-lift readers are going to be a very important and sizeable part of the RFID market. For instance, let's say a giant warehouse has 50 dock doors with two readers in each door. That's 100 readers you have to buy plus all the software and networks to support them. For a facility of that size, 15 forklifts would probably be sufficient to handle the workload. So, why not put the readers on the forklifts rather than in the dock doors. Plus, the reader on the forklift could record the location where an item was stored. This is a case where we can provide a clear reason to adopt RFID technology.

"Currently, we have Symbol's forklift reader offering in our lab for evaluation. We are waiting on **LXE's** forklift product, so we can test it, as well. LXE is a major Lowry supplier of bar code forklift readers. With a great lineup of handheld, fixed-mount, and forklift readers, we believe we have the right combination to meet all our customers' needs."

Commonality a must

Also on the topic of Gen 2, Lowry said "commonality is a must." He believes Gen 2 and the process in which it was created are entirely different from prior standards efforts. "Right from the start, the **EPCglobal** Gen 2 team worked in conjunction with ISO," said Lowry. "In any supply chain application, you must have interoperability, and I believe this will be even more true with RFID.

"The really great thing is that we are at a point where vendors can begin to excel in their product development. We'll see who has the most to offer for the smallest amount of money. This is where product differentiation will begin to occur."

Enter software partners

When working standards are in place, and hardware is proven in the field, the next step is to produce software that enables numerous devices to collect and transmit meaningful data. Lowry is now looking at a number of software/middleware vendors that can help create application-specific systems. He is also hoping these vendors will provide leads for sales. "We're past the slap-and-ship stage," said Lowry. "Software now becomes a

very critical part of an RFID solution.

Continuing, Lowry told *SCAN/DCR*, “We’ve been working with **ePC Solutions** for our slap-and-ship applications. But now that companies are moving beyond the simple compliance stage, we have begun to work with **Insynch Technologies**. These are just two of our partnerships that have served us well.”

Just like the old times

Closing, Lowry confided, “This is fun...just like the old days in the late 70s and early 80s. I am more enthused about my business today than I was when I was in my 20s. In 10 years, RFID will be more ubiquitous than bar codes. And everyday, some new and improved technology comes out, just like the **Intellflex** technology in the last issue of *SCAN/DCR*. It is a great time to be in this business, and we continue to look at all types of emerging products. We’ve seen the improvements that can be made by looking at how well Gen 2 is doing. Other technologies will develop and improve, as well.”

For more information: **Lowry Computer Products**, Brighton, MI, PH (810) 229-7200, FX (810) 229-5189, Email: info@lowrycomputer.com. **SCAN**

Continued from page 1.

SCAN/DCR MARKET WATCH

For November 2, 2006

AIDC Public Company Names	Phone	Exchange	Symbol	Close Price	52-Week	52-Week	Dividend	P/E	EPS
					Low	High			Yield
Astro Med	(401) 828-4000	NASDAQ	ALOT	10.57	7.52	10.75	2.00	27.53	0.36
Avnet Convergent Technologies	(480) 643-7291	NYSE	AVT	24.20	18.70	27.25	N/A	14.61	1.65
AXCESS Inc.	(972) 407-6080	NASDAQ	AXSI.OB	1.05	0.77	1.47	N/A	N/A	-0.23
Brady Corporation	(414) 438-6880	NYSE	BRC	35.70	28.97	42.79	1.50	17.28	2.07
Checkpoint	(800) 257-5540	NYSE	CKP	18.50	15.37	29.91	N/A	21.92	0.84
3Com Corporation	(877) 463-6326	NASDAQ	COMS	4.80	3.47	5.70	N/A	N/A	-0.19
Cisco Systems, Inc.	(408) 526-8890	NASDAQ	CSCO	24.05	16.87	24.78	N/A	27.02	0.89
Cognex Corp.	(580) 650-3353	NASDAQNM	CGNX	22.48	20.87	33.24	1.50	25.34	0.89
CSP Inc.	(508) 663-7598	NASDAQ	CSPI	8.43	5.51	9.25	N/A	N/A	0.00
Danaher Corporation	(202) 828-0850	NYSE	DHR	70.06	52.54	72.19	0.10	21.48	3.26
Datalogic (Euros)	39 051 3147011	MILAN	DAL.MI	5.77	5.30	7.69	N/A	N/A	0.00
Dover Corporation	(212) 922-1640	NYSE	DOV	47.51	38.44	51.92	1.60	17.41	2.73
EMS Technologies, Inc.	(770) 729-6510	NASDAQ	ELMG	19.90	14.47	20.92	N/A	N/A	-0.28
Intermec Inc.	(818) 992-3000	NYSE	IN	23.77	20.50	38.81	N/A	21.63	1.10
Itron	(509) 924-9900	NASDAQ	ITRI	51.71	39.44	73.72	N/A	33.49	1.54
Kronos	(617) 890-3232	NASDAQ	KRON	34.04	26.59	49.35	N/A	24.01	1.42
Lockheed Martin Corporation	(607) 751-2690	NYSE	LMT	87.06	58.88	89.89	1.60	16.08	5.41
Metrologic	(856) 228-8100	NASDAQ	MTLG	18.36	13.57	24.49	N/A	23.60	0.78
NCR Corporation	(937) 445-5905	NYSE	NCR	41.20	29.10	44.45	N/A	21.19	1.94
NeoMedia Technologies Inc.	(941) 337-3434	NASDAQ	NEOM.OB	0.08	0.06	0.43	N/A	N/A	-0.01
Paxar	(914) 697-6814	NYSE	PXR	19.97	17.00	22.67	N/A	17.86	1.11
Printronix	(714) 221-2924	NASDAQ	PTNX	11.96	11.77	17.88	3.30	N/A	-1.23
Proxim, Inc.	(650) 526-3619	NASDAQ	PROXQ.PK	0.01	0.01	0.10	N/A	N/A	-4.42
Psion Tekloxix (UK P)	(416) 875-8000	LONDON	PON.L	115.75	99.75	205.50	N/A	N/A	0.00
ScanSource	(864) 288-2432	NASDAQ	SCSC	30.36	26.33	32.39	N/A	18.75	1.62
Sirit	(905) 949-4404	TORONTO	SI.TO	0.16	0.14	0.53	N/A	N/A	0.00
Symbol Technologies, Inc.	(631) 563-2400	NYSE	SBL	14.85	8.01	15.37	0.10	38.57	0.39
Zebra Technologies	(847) 793-6735	NASDAQ	ZBRA	35.93	29.23	47.97	N/A	22.44	1.60

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