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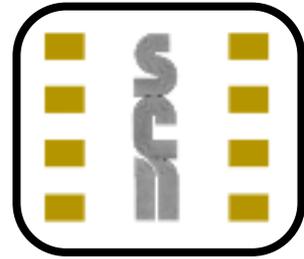
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Dear Subscribers,

Yet another month of excitement with the UK's National ID Card bill. It keeps bouncing from the House of Commons to the House of Lords and back again. First it was the unexplained costs and now it's the compulsory linking of the ePassport with the ID card. When you apply for a new passport you automatically get the ID card.

Andy Burnham MP, the Parliamentary Secretary responsible for ID cards and Passports at the Home Office and Stephen Harrison, Head of Policy for the UK Passport and ID card programme at the Home Office both gave good accounts of the project at the Smart Cards and eGovernment conference arranged by SMF in London this month. Andy was keen to point out that its not about control but more about giving the citizen the ability to navigate the increasingly complex electronic world. The NIR (National Identity Register) is the focal point of the program and that identity is it's sole purpose which means that duplicates on the data bases held across government (e.g. DVLA, Criminal records, National Insurance, Passport, etc) can be cut out. Biometrics are seen as the fundamental key that links identity with an individual. I must confess I do wonder if they have under estimated the problems here.

Judging by the mood of the audience it is not the objectives of the programme or the costs that are really worrying people, its security. Will my privacy be threatened and what is the level of integrity provided by the scheme? Now both of these issues are concerned with the implementation, its design and operation, of which we have so far heard very little, perhaps that will allay my concerns about the biometrics.

We have updated our web site to provide new services and apart from the Industry Directory and the archive which goes back over 10 years we are now providing video interviews with key industry speakers to keep you up to date on the products and the companies. Currently you will find Christophe Dolique from Gemplus talking about high capacity SIMs and Dominique Brule from Philips on Near Field Communications (NFC). Please give it a go and if there are any particular subjects or people you would like us to cover, please let me know.

Apart from the high capacity SIMs which are well covered in this months newsletter please also have a look at Jason's article on Watchdata. Many people believe that it is the Smart Card activities in China that has led to the planned merger of Gemplus and Axalto.

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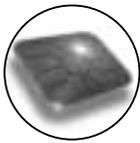
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Smart Card News



# World's First 512 Megabyte SIM Card



The world's first 512 megabyte high-density subscriber identity module (SIM) Card has reached the market. A standard SIM currently only has a capacity of 16 or 32 kilobytes free on a 64 kilobyte chip. The new half-gigabyte SIM card has 8000 times more memory than standard 64 kilobyte SIM cards and is expected to provide mobile network operators (MNO) with new revenue opportunities through smarter mobile services. Known as the MegaSIM, it has been developed by flash manufacturer M-Systems as a way to add capacity to the number of SIM cards already in use. The MegaSIM cards will actually be manufactured by Oberthur Card Systems and will be empowered with M-Systems' platform

Originally announced in 2004, the MegaSIM contains some Smart Card functions as well as a large flash store. The new SIM card is also a highly secure authentication device connecting the subscriber to the network. At the same time, it enables secure portability of sensitive personal data and DRM-protected files, permitting instant access to additional services and content. In addition to storing normal contact information, the mobile phone can now be transformed into a true multimedia player, capable of securely storing a music library containing up to 125 songs, three full-length movies, or 80 Java games. The 512 megabytes offering will enable subscribers to store comprehensive SMS, MMS and e-mail archives, complete with attachments, in addition to complete calendar functionality. Ira Cohen, VP of Marketing at M-Systems also pointed out that the device is faster. Mr Cohan said, "The MegaSIM runs at 20 megabits a second, instead of the usual 96 to 128 kilobits per second of the normal configured chip."



Leveraging on M-Systems' flash expertise with its field-proven M-Safe crypto core technology the MegaSIM platform, incorporating M-Systems' TrueFFS flash file management, combines high-density flash storage, processing power, high-speed data protocols and crypto functionality. M-Systems' MegaSIM platform far enhances typical SIM architecture while maintaining full compatibility with legacy industry standards. "With more than 1.5 billion SIM cards expected to be sold next year, there is a massive opportunity in the market for a secure MNO-provisioned SIM card with high-density memory," said Simone Cavallo, general manager of M-Systems' MNO division.



Orange, a UK mobile carrier, has announced that they will be the first operator to incorporate the new 512-Mbyte SIM card into their line of mobile phones. The high density SIM will be rolled out across Orange European markets during 2006, commencing in France, where it will be initially available on an LG U8210 handset. In this move Orange will be the first mobile network operator to offer multimedia content services to subscribers via 512 megabyte SIM cards.

Frank Boulben, Executive Vice President, Brand Consumer Marketing, Orange, said "This collaboration demonstrates our continued commitment to delivering an end-to-end multimedia solution to our customers. This high density SIM brings with it a range of customer benefits: portability, choice, security and personal spontaneity, we expect the value delivered to our customers through this technology will be empowering. The ultimate end-user experience is set to chart previously unexplored territory, something we are very excited about."

Mr Cavallo concluded by saying "The deployment of our MegaSIM in 2006 represents a major step forward for the SIM card market and reinforces our commitment to making mobile services smarter. Our ongoing collaboration with major market players such as Oberthur Card Systems and Orange, demonstrates that key players in the mobile network ecosystem see the value and promise of secure, high-density SIM cards. We believe that the additional functionality of our M-SIM MegaSIM series may provide our partners with new, smarter ways to drive revenue."





## Smart Cards

### e-Passports Now Issued in the UK

The first UK biometric e-passports have been issued to UK applicants this month. The new passports have a Smart Card chip embedded within the passport which contains the digitally coded measurements of the holders features, like the distances between eyes, nose, mouth and ears. UK Home Office minister Andy Burnham said: "Not only will they improve the integrity and security of British passports, they will also help in the detection of forged or manipulated documents while confirming the identity of the individual." The UK e-passports will be introduced gradually throughout 2006 and will be issued to all applicants by the end of August.

### Worlds First CNI Certificated Card

Microelectronica has received certification by Spain's Centro Nacional de Inteligencia (CNI) for its M.MAR TEMD (Electronic Card for the Ministry of Defense) product. As a result, this card, developed for use in environments and on applications with special security requirements, is the first of its kind to receive this certification from Spain's National Cryptographic Centre (CCN) for high security applications.

### ID Cards for South Korea by 2008

The South Korean Government wants to start issuing multi-functional smart ID cards to its citizens from 2008. According to a report in The Korea Times newspaper, the state-run Korea Minting and Security Printing Corporation (KOMSCO), Samsung SDS and Samsung S1 are developing the new cards. Aside from its use as a general ID card, the new card will also be capable of being used for online governmental transactions. The Ministry said that from 2008, the roll out process will take an estimated three to five years. It is believed that in the region of 35 million South Koreans currently hold ID cards.

### New Standards For US ID Cards

Identity Alliance and National Institute of Standards and Technology (NIST) have co-authored a new set of reports and standards for US ID cards issued by the Federal Government to employees and civilian contractors. The standards fulfil a mandate issued by US President Bush in an August, 2004 Homeland Security Presidential Directive-12 (HSPD-12).

All ID and access cards issued by agencies of the Federal Government must comply with the new standards starting in October 2006. Identity Alliance explains, the new standards are not only critical for Homeland Security, but will have implications for private-sector companies as well: "These standards will usher in a new generation of "smart" Personal Identity Verification (PIV) cards that will work the same across all federally secured facilities. The very same standards will also be useful for private-sector organizations that need security and positive identity verification, like health care facilities, banking, insurance and financial institutions, emergency first-responders, and high-tech companies with valuable intellectual properties and corporate communications to protect."

### First JCB Smart Card in Europe

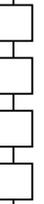
Transcard AD is set to roll out the JCB branded Transcard JCB card this month. The newly issued Transcard JCB card is Bulgaria's first international credit card in compliance with EMV.

### Australia Hit By Migrating Fraud

Three Bulgarian men and a Russian man, who entered Australia on Canadian passports, are being prosecuted after being arrested on Australia's Gold Coast. They were picked up by Australian police for allegedly organising an international card skimming racket targeting Australian automatic teller machines (ATMs). These arrests were the second of their kind in Australia after four Bulgarians, also travelling on Canadian passports, were intercepted by NSW police in Sydney in September last year. Detective Superintendent Kev Robinson said that because of security improvements, such as Smart Card usage overseas, Australia has become a more attractive target for international organised crime due to its ATM card system being easier to manipulate.

### FedEx Kinko Smart Card Cracked

Secure Science researchers have cracked the security code on a FedEx Kinko's Smart Card which is an ExpressPay payment card. They discovered that by soldering wires to the contact points of the card and then connecting those wires to an inexpensive logic analyzer, an attacker can sniff the three-byte code as the kiosk or card terminal prepares to write data to the card. Once the attacker knows the three-byte code, the card's stored value and serial number can be changed to any value.





To prove their point, Secure Science posted a picture, as well as a video on the Web to demonstrate the breach.

## **PAC Probe Vehicle Smart Cards**

The Indian Public Accounts Committee (PAC) has called for a probe into the process of issuance of Smart Cards for vehicle owners in the ongoing budget session of the Delhi Assembly. They state that the process in its current form should be scrapped and have consulted the government over the manner of issuance of Smart Cards on the grounds that the process was contrary to the statutory provisions laid down by the Central government. The committee also recommends that the entire matter be handed over for investigation due to acts of omission by the officials of the transport department. PAC believe that there was impropriety in the award of tenders for the issuance of Smart Cards and so they are calling for identification and punishment of the persons who have benefited from the contract, whether they are from the department or the vendor company or any middlemen.

## **Smart Cards for Istimaras**

The Traffic Department of Qatar has introduced Smart Cards to Istimaras for their annual road permits. The cards will hold the information about the car, including its registration number, chassis number, year of make, colour and the owner's details including his blood group.

## **CPI Receives F&S Prestigious Award**

Frost & Sullivan has named CPI Card Group as the recipient of the 2006 Smart Card Entrepreneurial Company of the Year Award. When financial institutions in the US started to shift to Smart Cards, CPI was ready to supply them with contactless cards. As demand expanded in 2005, the company dramatically increased production for Smart Cards, and it now has the capacity to supply over 25 million contactless Smart Cards in 2006.

## **OMNIKEY Receives Strategy Award**

OMNIKEY has been presented with the 2005 Frost & Sullivan Competitive Strategy Leadership Award in recognition of its performance in the global Smart Card reader market. Unique strategies underlined OMNIKEY's strong market growth in 2004 as well as its exceptional growth in the first half of 2005, culminating in an estimated unit shipment increase of 55%.

## **Sagem Orga Wins Tachograph Order**

Poland's state-run printing works PWPW S.A. has commissioned Sagem Orga to supply 40,000 certified tachograph Smart Cards. Sagem Orga will also provide concept design and consulting services for the introduction of a digital tachograph system in Poland. Sagem Orga will work in a strong alliance with IBM Poland and provide consulting, design a concept for implementation of type approval and practice statements, and prepare a crypto concept.

## **Smart Cards for John Lewis Staff**

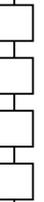
The John Lewis Partnership will be piloting a Smart Card project, which will allow employees secure access to all staff-related systems. The company plans to install the first system into its London headquarters this year. The aim is to save staff carrying a variety of forms of identification, ease access and improve the security of premises and systems. The lead vendor of the project is Siemens Communications who are using their DirX integration and Smart Card technology and consulting services.

## **Collaboration Over UC Card**

NTT DoCoMo, Inc., UC Card Co., Ltd. and Mizuho Bank, Ltd have made a comprehensive agreement that includes joint promotion of DoCoMo's iD brand card business. Under the agreement, Mizuho Bank will transfer its stake in UC Card (approximately 18% of UC Card's outstanding shares) to DoCoMo for about 1 billion yen in the middle of March 2006. In addition, UC Card will work to expand acceptance of the iD brand at its network of participating stores nationwide. In collaboration with DoCoMo, Mizuho Bank will upgrade the function of Mizuho Mileage Club (MMC) Card, an ATM card with credit card functions issued by Credit Saison. MMC members will be provided with the latest method of credit card payment via iD service through their mobile phones

## **HK Banks Adopts ID Card Reader**

Advanced Card Systems Ltd has successfully secured orders for over 60,000 ACR30 Smart ID card readers for 2-factor authentication in HK secure e-banking project. Following the guidelines of the Hong Kong Monetary Authority (HKMA), starting from July 2005, local banks will employ two-factor authentication tools like e-Cert for high-risk online banking transactions. Two-factor authentication strengthens the security of e-banking by offering stronger online identity authentication.





## ID Cards for US DoI

Oberthur Card Systems, has won a contract to issue the TotalIDOne Smart Card solution to all personnel within the Department of the Interior (DoI) as well as any Agencies that contract through the National Business Center for their HSPD-12 needs. Under the multi-year program, Oberthur Card Systems will manufacture and issue all DoI identification cards as part of the Department's HSPD-12 mandate.

## First PayPass Cards for Middle East

Fransabank, one of the top 5 banks in Lebanon have selected a number of its customers to take part in the introduction of PayPass and has already ordered another batch of cards since the pilot cards were launched in February 2006. The card, which is the first of its kind in the Middle East, can be used as a traditional credit card, and at selected terminals, can be used with the PayPass contactless functionality eliminating the need for a signature or PIN. Sagem Orga was the exclusive supplier of the technology and cards to facilitate this launch of the Fransabank MasterCard PayPass.

## New All Weather Smart Card Reader

Saflink Corporation has launched the Saflink SureAccess, an all-weather, Smart Card, biometric reader that reduces the threat of unauthorised access to critical facilities. The Saflink SureAccess reader is the first in a family of products designed to meet the strict requirements of the National Institute of Standards and Technologies' (NIST) Federal Information Processing Standard (FIPS) 201, also known as Personal Identity Verification (PIV) of federal employees and contractors. SureAccess is based on the same Saflink contactless Smart Card and biometric reader technology previously deployed by the TSA as part of TWIC Phase III. Rated IP65 for dust and moisture resistance, the system is ideal for outdoor deployments in extreme conditions.

## New \$56 Million Contract Extension

US Department of State (DoS) has increased its existing sole source IDIQ contract ceiling with Viisage by \$56 million, bringing the total potential value to \$121 million. The Department of State expects demand for US passports to increase by approximately 20% per year and estimates that the US will produce 17 million passports annually by 2009. The original five-year contract awarded in 2003 to TDT was valued at \$65 million.

## New Embedded Security Solutions

Renesas Technology has licensed the high-security Java Card Operating System from Giesecke & Devrient (G&D) for its security IC used in embedded security applications. Security ICs are specifically designed microcontrollers based on high security Smart Card chip technology. The Renesas Technology security IC, which is equipped with a FIPS-validated Java Card OS, is suitable for network access ID, point of sale (POS) terminals, and other authentication systems. It allows for the design of embedded security solutions, which meets the highest security standards.

Europay, MasterCard & Visa

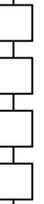
## Benefits of Unlocking Hidden EMV

Fraud Analysts have discovered a way to exploit hidden EMV data to strengthen card security. This data can identify fraud patterns, credit risk situations and further enhance customer service. ACI, a provider of solutions for consumer and wholesale banking and retail systems, believes that while SEPA is pushing EMV compliance as the de facto approach to security and risk management, this new technology will bring other challenges such as how to track changing fraud patterns, how to implement flexible systems that can respond to changes in the chip data and how to understand what all the new chip data means.

Banks can use the risk management data that EMV provides to assist in the battle against fraud, provide management information for operational analysis and learn more about fraud patterns post EMV issuance. By unlocking this data, it is now possible to track and stop fraudulent transactions once they have passed the POS sale terminal. This "safety net" cuts fraudulent transactions significantly. Banks have invested significant sums in EMV compliance, yet many are missing out on the potential of EMV data. If the banks have the ability to drill down further into this data, they will reap the benefits of an enhanced risk management system.

## Indonesia's First EMV Credit Card

Gemplus has delivered Indonesia's first advanced security EMV Dynamic Data Authentication (DDA) cards to Bank Buana, an Indonesian commercial bank. The implementation of the DDA EMV cards is in line with Bank Indonesia's recommendation to banks to migrate to chip based EMV cards in 2006.





Bank Buana plans to migrate its entire credit card base to the DDA EMV cards from this year.

### **Vakifbank Receives EMV Solution**

Axalto is providing Vakifbank, Turkey's largest card issuer, with a complete EMV package including data preparation, multi-application cards supply and a turnkey personalisation solution. Vakifbank also selected Axalto for a second project -providing its personnel with advanced corporate badges to ensure identification and secure access to its networks and premises. The issuance of EMV cards and corporate badges started last December.

### **Vx Certified for China EMV**

VeriFone Vx Solutions payment products have been certified to meet the People's Bank of China's (PBOC) standard for chip card payment acceptance. The bank's PBOC V2 standard is a localised version of EMV for domestic bank cards. With the certification, Vx Solutions products will be able to support EMV cards and China UnionPay branded chip cards inside and outside of China. To drive chip migration in China, the PBOC issued the EMV-compatible national payment standard for new POS payment systems deployed in China.

## Terminals

### **VeriFone System for ICICI Bank**

VeriFone has delivered 50,000 payment systems to ICICI Bank Limited, the largest private sector bank in India. Seeking to meet the needs of retailers in India, ICICI Bank is deploying VeriFone's Vx 510 with multiple applications installed, including credit, debit, EMV. VeriFone has been working closely with ICICI since the bank began developing its merchant acquiring business, and has previously delivered more than 50,000 units of the Omni 3750 payment system.

### **XI-Sign 6000 Certified by MasterCard**

XIRING's Xi-Sign 6000 authentication solution has been certified by MasterCard as compliant with the MasterCard OneSmart Web specifications. Xi-Sign 6000 is the first product in the world to achieve this certification. Authentication solutions are becoming increasingly important in the financial sector. By deploying Smart Card based authentication solutions banks improve the security of their remote services.

### **GE Selects VeriFone Solution**

VeriFone has been awarded a multi-year, multimillion dollar contract to supply as many as 20,000 units annually of its Vx Solutions payment systems to GE Consumer Finance's Retail Sales Finance unit, a provider of private label credit card programs. The contract encompasses an initial five-year period, with an option for three additional years, and includes VeriFone hardware, client services, and software development.

### **New Mobile PoS Device**

Fujitsu Services has launched the B-Pad, a hand-held mobile Point of Sale (PoS) device. The mobile computer allows retailers to take customers' orders and receive secure payment from one device. The Fujitsu B-Pad is the first device of its kind with full EMV approval, certifying its compliance with secure Smart Card payment operations. This was achieved with the integration of Smart Technology Solutions' Smart NS suite and the Emvelink payment kernel.

## Biometrics

### **World's First Iris-Retina System**

Retica Systems has released a beta version of its multi modal biometric product, code named Cyclops. Cyclops is a combined hardware and software solution that allows the capture and fusion of data from both the retina and the iris creating the most secure and accurate biometric in the industry. The ocular fusion of the widely accepted iris biometric with the more powerful retinal biometric provides users with a quantum leap in security while overcoming the limitations of iris image capture.

### **IRIS System Installed at UK Airport**

The Iris Recognition Immigration System (IRIS), a partnership between the Home Office, border control, law enforcement and intelligence agencies, has announced that their e-Borders programme system has been installed at Heathrow's terminal 1. IRIS will allow passengers to walk up to an automated barrier, simply look into a camera and if the system recognises them enter the UK, leaving immigration officers to concentrate on other priorities. Plans to install the IRIS biometric system at Gatwick North and South, Heathrow's terminal 3, Stansted, Birmingham and Manchester terminals 1 and 2 are set for the end of 2006





## Precise Finalise JV in China

Precise Biometrics AB announced previously in Smart Card News, that they had entered into a joint venture in China together with the Smart Unicorn Group. The agreement gives Precise Biometrics the opportunity to penetrate the Chinese market for mobile services. Now Precise Biometrics has followed through the establishment of the above-mentioned joint venture. The company's Chinese patents have been transferred to the jointly owned company Smart Unicorn Solutions. Furthermore approx. SEK 4.4 million (\$560,000) in available funds have been transferred to the joint venture company. A further SEK 7.8 million (\$1 million) will be provided in 2006.

## Shopping With Your Finger

Beginning this month shoppers and members at the Midcounties Co-operative supermarket will have the option of quickly and securely paying for their shopping using a finger scan linked to their bank account rather than a card, cheque book or cash. The Pay By Touch system will be available in three Midcounties Co-op supermarkets in and around Oxford, UK

## Biometric Readers At Disney Parks

Disney is using biometric technology to secure access to their theme parks. Finger geometry readers are being used to grant ticket holder's admittance to the Magic Kingdom, Epcot, Animal Kingdom, or the MGM Studios. These finger geometry readers are used to authenticate visitors not to identify them. They have also been implemented to secure Disney's pricing structure and marketing strategy. Visitors simply place their hand on a flat surface, aligning their fingers against several pegs to ensure an accurate reading. Then, a camera takes one or more pictures of their hand and the shadow it casts. The reader then uses this information to determine the length, width, thickness and curvature of the hand or fingers.

## New Open Source Initiative

Precise Biometrics AB is now launching Microsoft Windows XP login as an open source code with support for Precise Match-on-Card. The company has also introduced the Precise 100 XS, a biometric fingerprint reader on the market. Since the company's solutions already support standardised biometric readers, this means that the market for laptops with built-in fingerprint readers can now quickly be adopted as a widely deployed and secure solution based on biometrics and Smart Cards.

## Financial

### Oberthur See Record Growth Year

Oberthur Card Systems has reported that their 2005 sales reached 500.8 million euros, a year-on-year improvement of 11.3%, a historic achievement in terms of growth. All business segments contributed to this growth. Sales in the microprocessor card segment increased by 12% at constant exchange rates compared to 2004.

The total volume of microprocessor cards delivered was an unprecedented 195 million units, a 31.3% increase compared to 2004. At the same time, sales of magnetic stripe cards increased by 12.4%, to 75.5 million euros. Oberthur has reinforced its leadership in personalisation, posting an 8.4% increase from 2004. Oberthur has achieved a sharp improvement in profitability reaching 50.6 million euros.

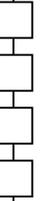
### SuperCom's Fourth Quarter Results

SuperCom Ltd revenues for the year were \$8.5 million, representing a growth of 15% over revenues of \$7.3 million as reported for 2004. Gross profit for 2005 was \$3.9 million compared with \$3.6 million for 2004. Pro-forma gross profit for the year reached \$4.2 million representing a gross margin of 49.3% compared with \$3.6 million or gross margins of 49.2% in 2004. Operating losses for 2005 was \$3.9 million compared to a loss of \$1.6 million in 2004. Net losses for the year were \$4.0 million, or (\$0.21) per diluted share compared with \$1.9 million, or (\$0.13) per diluted share for 2004. Pro-forma net loss for 2005 was \$3.0 million, or (\$0.16) per diluted share.

Fourth quarter revenues were \$1.6 million, 53% below last year's fourth quarter revenue of \$3.5 million and 22% below the previous quarters revenue. Fourth quarter net loss was \$966 thousand, or \$(0.05) per diluted share compared with a net income of \$451 thousand, or \$0.02 per diluted for the quarter of 2004.

### VASCO's Fourth Quarter Results

VASCO Data Security International has reported that their revenues for the fourth quarter of 2005 have increased 88% to \$17,519,000 from \$9,298,000 in 2004 and, for the full-year 2005, increased 83% to \$54,579,000 from \$29,893,000 in 2004. Operating income increased 182% over fourth quarter and 97% over the full-year 2004.





## Radio Frequency Identification

### CPC Wins RFID Innovation Award

Colder Product Company (CPC) has been presented with a coveted RFID Breakthrough Award for 2005 in recognition of the success of its IdentiQuik Smart Coupling fluid connectors developed in conjunction with Innovision Research & Technology (IRT), the UK based leader in RFID design services.

### RFID Blood Bank Project

Blood bank supplies at the Saarbruecken Clinic in Germany are now equipped with RFID chips to prevent mix-ups with blood treatments. In a combined effort, Siemens Business Services, Intel, Fujitsu Siemens Computers, RP Doc Solutions and IMP Computersysteme will extend the RFID pilot project already underway at the clinic. In 2005, Siemens Business Services chose Saarbruecken as the first hospital in Germany to try out an RFID project for patient identification by fitting all patients admitted to the clinic with a bracelet containing an RFID chip. In the future, this system will be extended to blood bank supplies for around 1,000 patients.

## On the Move

### Management Changes at Renesas

Renesas Technology has made changes to its management team. Satoru Ito, President & CEO will be appointed to Chairman & CEO and will oversee all aspects of the management at Renesas. Katsuhiko Tsukamoto, Executive Vice President is appointed to President & COO and will focus on business operations. The new appointments will strengthen the company's corporate structure

Yasuhiko Fukuda, Senior Executive Vice President, Board Director and Katsumi Suizu, Senior Vice President, Board Director will retire from their current positions on March 31, 2006. In addition, Yutaka Funada, Koji Yamanaka and Tadashi Nishimura will be promoted to Board Directors on April 1, 2006. Finally, as part of the company's efforts to strengthen the area of internal control functions, Toshio Nohara will be newly appointed to the post of Corporate Auditor.

### Changes at ActivIdentity

ActivIdentity has named Jason Hart, Chief Executive Officer. Hart, a member of the company's board of directors, a major shareholder, and Senior Vice President of Sales and Marketing, assumes leadership of ActivIdentity from Ben C. Barnes. Hart joined ActivIdentity in August 2005 through the acquisition of Protocom. ActivIdentity has also announced the board's appointment of Thomas Jahn as Chief Operating Officer. Jahn was formerly the company's Chief Restructuring and Integration Officer. He joins company founder and President, Yves Audebert, and Mark Lustig, whose appointment as Chief Financial Officer was recently announced, as a member of the executive management team.

### New Executive Manager at Sokymat

Sokymat SA, has announced that Thomas Hitzer has now become a member of Sokymat's Executive Management. Thomas Hitzer, who has been Vice President of Sales & Marketing since April 2005, continues to be responsible for leading the group's sales and marketing team with the aim of consolidating the company's role within the global RFID markets.

### Pay By Touch News VPs

Pay By Touch has announced that Bill Townsend has been named Executive Vice President, Office of the Chief Executive Officer. In this capacity, Townsend will work closely with Pay By Touch founder, Chairman, and CEO John Rogers to oversee the company's strategic and visionary efforts. Pay By Touch has also announced that Gary Bender has been named Vice President of biometrics at Pay By Touch. In this capacity, Bender will oversee Pay By Touch's biometric technology applications.

### Executive Succession at SuperCom

SuperCom Ltd is making plans for Eyal Tuchman, Chief Financial Officer of Supercom over the past three years, to succeed Avi Schechter as Chief Executive Officer in April 2006. Mr. Schechter will continue to serve as a consultant for the Company.

### New Sales Director at HID

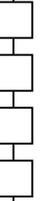
HID has appointed Frankie Man to sales director for the Asia Pacific region, reporting to Lester Doig, managing director of HID Asia Pacific Limited.





# The Chinese Dragon Widens Its Den

By Jason Smith, Staff Reporter, Smart Card News Limited



Jason Smith

Founded in 1994 as Beijing Watch Data System, the company and its Singapore-based subsidiary, Watchdata Technologies, reorganised in 2004 as Watchdata Technologies. Watchdata's current product offerings range from Smart Card operating systems, Smart Cards, card terminals, card management systems, public key infrastructure (PKI) products, to security consultancy. Headquartered in Beijing, Watchdata has established local subsidiaries and technical support teams in Shanghai, Guangzhou and Chengdu, as well as an international office in Singapore to cater for the international market, exporting to Thailand, Indonesia, Taiwan, India, Korea, Singapore, Malaysia, Italy and the United States.

With the launch of China's first own Proprietary Smart Card operating system (TimeCOS), Watchdata has played a key and defining role in the promotion of Smart Card technology throughout China. TimeCOS is a generic Smart Card operating system which is compliant with the international ISO standard and other domestic and international industrial standards, including ISO 7816-1/2/3/4/5/6, ISO 14443, the People's Bank of China Banking IC Card Standard, the China Social Insurance Card Standard and EMV.



Watchdata has established a wealth of experience in multi-application and nationwide Smart Card projects thus continually gaining important market and technology insights through its active participation in many standardisation committees, for instance the ISO 14443 Committee for contactless Smart Card standard, the working committee for New China Banking IC Card Standard, the Digitalise Action group for the Digital Olympic of Beijing City. These strong assets have enabled Watchdata to offer consulting and project management for multi-application card projects as well as the customised development of Smart Card applications.



**WATCHDATA**

By 2004 Watchdata had achieved major progress in the China and Asia-Pacific market and was rapidly emerging as a major Smart Card player. They had delivered more than 100 million units of Smart Cards all over the world achieving revenues of \$59.2 million. This revenue figure was 52% up on the previous years recorded revenue. In 2004 Watchdata also achieved the listed ranking of the number 6 Smart Card vendor in the world (Source: Card Technology 2004 Annual Smart Card Vendor Survey).

According to the statistics provided by 'China Mobile Telecom Smart Card Market 2003-2005,' the Smart Card Society of China Information Industry Trade Association, Watchdata's shipments to China Unicom reached 12.88 million pieces as of December 23rd 2005. China Unicom is the world's third-largest mobile operator. This shipment amount actually contributed to 14.47% of China Unicom's total SIM cards issued. The total delivery made by Watchdata has led Watchdata to emerge as the biggest supplier for China Unicom in 2005. As of 31st Dec 2005, Watchdata's total shipment to China Unicom reached 15.09 million pieces, with a 15.28% market share in terms of sales revenue.



In November 2005 Watchdata expanded its reach into Europe by establishing a representative office in Munich, Germany. This raise in statue within the Smart Card industry of this little known company in much of the world has had the "old guard" manufacturers from Western Europe sitting up in their chairs. Europe is the home of the Smart Card. The European Smart Card market represents about a half of the total world market.

To date only the largest Smart Card vendors come from Europe. Mr. Jianhua Yu, Manager of Watchdata, EMEA says: "Most of the new technologies and new applications are already implemented in Europe.



Industry Insights





European users are the most active as well as the most experienced Smart Card users. Based on our own proprietary technology, rational and stable management, sound financial basis, as well as a team with rich market experiences, Watchdata has the competence to provide differentiated and reliable products and services to satisfy European customer requests promptly."

In February 2006 <Forbes> in China listed Watchdata the number one position within "The China Top 100 Most Promising SMEs" for its remarkable growth and market potential. Statistics showed that amongst the listed enterprises, Watchdata was the leader in terms of revenue growth rate, return on net asset, and profit margin growth rate within three years. The return on net assets of Watchdata is 94%, and the revenue growth rate is 167%, both almost doubling the average figure. The average profit margin growth rate in 3 years is 300%, more than two times the average figure. All these figures evidently prove that Watchdata has an outstanding growth speed empowering it to become a new industrial star and one of the leading SMEs among hi-tech enterprises in China.

Watchdata's arrival in Europe is a significant indication of their move towards globalisation. Watchdata's growth potential has now changed the boundaries of the Smart Card playing field. The European Smart Card companies' dominance over the Industry is now under threat as the Chinese dragons roar now echoes around the borders of Europe. The decision to merge Gemplus and Axalto, two of the industry's biggest players, made in December 2005, was rumoured to be a reactive move in light of this new emerging threat from China. To unsettle such big players as Gemplus and Axalto shows that this company has a lot of competitive potential. It will be interesting to see what Watchdata's next move is now that it has the Smart Card Industry's full attention as a serious contender.

## Gemalto - The Merger Makes Further Inroads



The creation of the world's biggest Smart Card vendor - Gemalto - that will have a synergy of around 85 million euros (\$101.3 million) is now closer to a completion. Gemplus' shareholders have now officially agreed the proposed merger between Axalto and Gemplus, which was announced on December 7, 2005. A large majority of the shareholders present at Gemplus' recent General Meeting of Shareholders have agreed to the proposed resolutions, with votes in favour ranging between 97.8% and 99.9%.

The shareholders approved a distribution of available reserves of an amount of 0.26 euros per share. The distribution would represent an amount of approximately 164 million euros based on current Gemplus shares outstanding. Gemplus shareholders also approved the proposed conditional recomposition of its Board of Directors.

Alex Mandl, President and CEO of Gemplus, has said, "This is another important step towards the creation of Gemalto. The combination of the two companies with a sound industrial logic will create value for our shareholders, clients and employees. After the unanimous support of our Board, we are now strongly supported by our shareholders." Axalto shareholders, on January 31, 2006, also approved the combination project with Gemplus during its Extraordinary General Meeting of Shareholders with a vote of over 99.9%.



Another hurdle has been cleared along Gemplus and Axalto's proposed merger path. The US Department of Justice has raised no objection to the deal. Following the expiration on March 8, 2006 of the waiting period under the US Hart-Scott-Rodino Antitrust Improvements Act of 1976, subsequent to the filing of a Pre-merger Notification and Report Form on February 6th, 2006 with the Antitrust Division of the US Department of Justice and the Bureau of Competition of the Federal Trade Commission, Axalto and Gemplus have now satisfied their obligations under the US antitrust laws in respect of the proposed transaction.





Olivier Piou, Chief Executive of Axalto, said: "Our confidence in the favourable reception to the merger by the other competition authorities has been further reinforced." Independently both companies have had a very strong year in 2005. Axalto reported record levels of revenue and net income for the full year 2005. Over the period and compared with 2004, the company increased its revenue to \$992 million (832m euros), and its net income that reached \$59 million (49m euros). Axalto also shipped a record 440 million micro-processor cards during 2005, a 24% increase in volume when compared with 2004.

Gemplus also saw strong results with their revenue for 2005 increased by 8.5% to 939 million euros (\$1,120m) and a net income of 90 million euros (\$107m). However in a recent interview with the Financial Times, Mr Piou said he expected to lose market share as a result of the merger: "It will probably be single-digit, but we will lose some."



Now the two companies are waiting for the European Commission to make a decision over the merger amid attempts by one of their competitors, Oberthur Card Systems, to derail it. However Gemplus and Axalto are still working closely with the necessary authorities to obtain antitrust and other regulatory approvals for the transaction. But these new steps constitute further positive conditions to the contemplated combination of Axalto and Gemplus.

Commenting on the recent positive events Mr Piou, said "Our combination project with Gemplus is moving forward now that we are strongly supported by the vote of confidence of our respective shareholders at the recent general assemblies." Mr Mandl summed up by saying "We feel very excited about this project which will take the Company to new horizons."

## Events Diary

### April 2006

- 4 NFC Technology Summit 2006 - Las Vegas, Nevada, USA - [www.scievents.com/NFC/](http://www.scievents.com/NFC/)
- 5 - 7 ISC West 2006 - Las Vegas, Nevada, USA - [www.iscwest.com](http://www.iscwest.com)
- 25 Advanced SIM Applications - Pargue, Czech Republic - [www.telecomsacademy.com](http://www.telecomsacademy.com)
- 25 - 27 SIM 2006 - Corinthia Towers, Prague - [www.informamedia.com](http://www.informamedia.com)
- 25 - 27 The 3rd IMS World Forum 2006 - Barcelona - <http://click.cminteractive.com>
- 25 - 27 Infosecurity Europe 2006 - Grand Hall at Olympia, London - [www.infosec.co.uk](http://www.infosec.co.uk)
- 26 - 28 Cards Asia 2006 - Singapore - [www.worldofcards.biz/2006/ca\\_SG](http://www.worldofcards.biz/2006/ca_SG)
- 26 - 28 Payment World Asia 2006 - Singapore - [www.worldofcards.biz/2006/pwa\\_SG](http://www.worldofcards.biz/2006/pwa_SG)
- 26 - 27 Mobile Central Asia - Regent Almaty, Kazakhstan
- 26 - 28 RFID World Asia 2006 - Singapore - [www.worldofcards.biz/2006/rfidwa\\_SG/](http://www.worldofcards.biz/2006/rfidwa_SG/)

### May 2006

- 2 - 4 CardTech/SecurTech 2006 - San Francisco, USA
- 6 - 8 The CardEx International Conference - Cairo, Egypt - [www.egytec.com/home.htm](http://www.egytec.com/home.htm)
- 17 - 19 8th Smart Cards + Smart Label (RFID) Expo- Beijing, China - [www.scfc.org.cn](http://www.scfc.org.cn)
- 22 - 23 Cards Middle East - Al bustan Rotana, Dubai - [www.worldofcards.biz/2006/cme](http://www.worldofcards.biz/2006/cme)
- 24 - 25 RFID Global Partnering Symposium 2006 - London - [www.rfidpartnering.com](http://www.rfidpartnering.com)
- 30 - 1st June The 9th International Fair of Smart Cards - World Trade Centre, China - [www.smartcards-china.com](http://www.smartcards-china.com)

### June 2006

- 8 - 9 The Electronic Passport Forum - Paris, France - [www.electronic-passport.com](http://www.electronic-passport.com)
- 13 - 14 CardEx Asia 2006 - Kuala Lumpur, Malaysia - [www.cardexasia.com](http://www.cardexasia.com)
- 14 - 17 CardExpo 2006 - Lagos, Nigeria - [www.cardexpoafrika.com/index\\_wa.htm](http://www.cardexpoafrika.com/index_wa.htm)
- 26 - 27 Contactless Cards - London - [www.smi-online.co.uk/events/overview.asp?is=8&ref=2351](http://www.smi-online.co.uk/events/overview.asp?is=8&ref=2351)
- 21 - 22 Extended Retail Solutions Symposium 2006 (Europe) - Munich, Germany - <http://erssummit.extendedetail.com>
- 27 - 28 Smart Label Summit Americas 2006 - Miami, Florida, USA - [www.smartlabelsevents.com](http://www.smartlabelsevents.com)





# Enabling Contactless Payments via a Next Generation Platform

**Inside**  
CONTACTLESS

By Charles Walton, EVP of Sales and Marketing, INSIDE Contactless

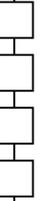
Only 18 months ago, contactless payments were in the experimental stage within the US bank card market with few deployments each of limited scope. Today, there are near 10 million cards deployed with more than 100,000 point of sale terminals in use accepting payments with these cards. Such systems, based upon the standards and applications from Visa, MasterCard, and American Express, provide consumers and retailers with the convenience of faster transactions, shorter checkout lines, and the simplicity of paying without coins.

The current wave of industry growth in 2006 and beyond will be fueled by next generation contactless card platforms which provide further convenience, reliability, and performance. This paper intends to outline the key parameters driving a next generation contactless card platform. A great example of the value of contactless payment cards is the recent experience of CVS stores in the US. In 2005, 40,000 contactless payment terminals were deployed across the 5,400 CVS stores in the US. The business case for this deployment was substantiated following a 19 store pilot earlier in that year when: i) contactless cards resulted in a 20% increase in average purchase vs. cash; and, ii) time per transaction was observed to drop to 12.5 seconds (vs. 26.7 seconds for basic magnetic stripe transaction acceptance and vs. 33.7 seconds for cash). Contactless payment cards have provided CVS with greater average purchase size and faster transactions. Further, organisations such as 7/11, McDonalds, and regional players such as Sheetz and Wawa stores have also jumped on this trend and deployed contactless card acceptance infrastructure within their stores.

So, what does a contactless card consist of? A contactless payment card looks to the consumer just like a traditional magnetic stripe bank card. A plastic card of the same size, shape, and appearance, with traditional security mechanisms such as embossed cardholder/bank information, a magnetic strip, holograms, logo's, and bank security code information. But inside, the card is vastly different. Traditional cards are all plastic inside, whereas contactless cards have a chip connected to an antenna embedded within the 'plastic skin' of the card. Typically, the chip for a payment card would be a microcontroller (really a small computer) along with EEPROM (really the hard disk for the computer). This chip holds key information about the card and also performs the computations necessary to conduct a payment transaction. The antenna is essential as this is the means to power the chip and exchange information via RF wireless signals with a payment terminal. Antenna's are typically made of wound copper wire or may be printed using a conductive material placed on an inlay - in either case, the chip is then connected to the antenna for embedding within the plastic card.

**Design Challenges:** The main challenge in design of such a high performance contactless platform is to provide enough energy to the chip to perform properly. Contactless payment cards must operate without a battery, must provide very rapid execution of a payment transaction while 'waved' across the field of a terminal, must do so when oriented in varying ways, and must operate at distances in the neighborhood of up to 4cm while providing sound performance of the payment application. This is challenging with general purpose, complex instruction set microcontroller chips as they tend to be slow and tend to require more power than available in a contactless environment. They have been made to work, however, not in a highly optimized manner. The answer is the ground-up design of a reduced instruction set (RISC) processor, specifically tuned to the requirements and constraints of an energy-starved contactless environment. INSIDE's answer to this was in fact the MicroPass product line, launched in 2005 and certified for use by a number of card manufacturers for Visa issuer deployments.

**Top Ten List for Selection of a Contactless Chip/OS Platform:** Underlying the 'skin' of a contactless payment card, is a sophisticated processing platform. INSIDE Contactless introduced a platform in 2005 called MicroPass which incorporates innovative design attributes and contrasts with other prior generation general-purpose micro-controller chips. Critical to the design of such a platform was a "Top Ten List for Contactless" - a set of key factors which should be analysed when selecting a contactless chip platform for payment applications. Close examination of these factors is important as 'all cards are not alike'!!





**1) Antenna Design & Layout:** The antenna used in a contactless payment card must be of sufficient size to power the chip at the required read distance from the terminal. Clearly the antenna must also be physically contained within the boundary of a standard size credit or debit card (or mini card, fob). This is further compounded by the need to layout the antenna so that it does not interfere with the embossing that is required on such cards, typically to include 4 lines. **2) Chip Clock Cycle:** The faster the chip clock cycle, the more power consumed; conversely, slower means less power consumed for an equivalent transaction. A RISC microcontroller can operate at speeds around 1MHz or less, which contrasts with 6MHz speed of a fast 8051 chip or greater than 3MHz for a fast 6805 chip. Now, it might seem counterintuitive, but a slower clock cycle means less power consumption which in turns means better read distance range for an equivalent transaction. **3) Optimised & Bundled Operating System:** Matching an operating system optimised to the performance characteristics of an advanced microcontroller is an effective technique in achieving improved performance results. Further, bundling eliminates integration and support difficulties and tends to reduce overall cost.

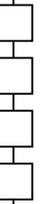
**4) Transaction Speed:** Contactless transactions need to be performed quite fast - typically in less than 150 milliseconds and in many cases more rapidly than that since the user experience desired is for a simple 'tap and go' transaction when the card is present in the field of the reader. **5) Chip Size:** A smaller chip has a lower cost. This is simply because the total yield of chips from a standard size wafer (with relatively consistent cost) is greater. So, reducing chip size while maintaining performance characteristics is an ideal way to reduce overall cost. RISC microcontrollers have fewer gates, thus are simpler and smaller. **6) Platform Reliability:** The above factors of antenna design, chip clock cycle, operating system, transaction speed, and chip size all contribute to performance or 'reliability' of a transaction. Reliability is thus the measure of the frequency of proper operation of the contactless product when presented for a transaction. Obviously a product which performs well is 'reliable' and will properly conclude a transaction 100% of the time when presented at a terminal. **7) Multi-Application Support:** Flexibility is created within a platform which allows for: i) multiple payment brands; ii) incorporation of loyalty and other retailer incentive applications; iii) usage with transit, access, and other contactless infrastructures being deployed. Support for an expanding software developer community, much like Microsoft provided in the PC market, is essential to delivering good value to the payment industry.

**8) Support for Multiple RF Standards:** Flexibility is also created with a platform supporting multiple contactless RF standards. ISO 14443/A, ISO 14443/B, ISO 15693, and FeliCa are the four primary standards supported throughout the globe. **9) Security Mechanism:** Advanced platform implementations must provide protection against compromise of key data, modification of software, and inadvertent use through both hardware and software measures. Further, countermeasures against SPA, DPA and EMA attacks are also necessary. **10) Price:** Clearly price is a consideration in a platform to be deployed in the hundred's of millions of units where every penny counts. Many of the good design techniques mentioned above - smaller chip, bundled operating system, and new core chip technology - all contribute to a much lower price. Further, good integration amongst the players in the contactless card supply chain also helps. Organisations structured and committed to a continued R&D and process improvement focus will succeed in delivering innovation AND lower price over time.

Such a platform has indeed been designed, development, certified, and deployed by INSIDE Contactless - this is MicroPass L4, a part of the MicroPass product line. MicroPass L4 is a new generation 16-bit RISC architecture microcontroller, optimised from the ground up to meet the unique challenges of short-range contactless communications and optimised to the disparate standards environments in place within the payments, access, ID, and mass transit markets around the globe.



MicroPass was designed for very low power consumption, a key design challenge for contactless applications which do not have the benefit of dedicated battery or connected power. MicroPass is also unique as it offers the largest range of communication standards, including ISO 14443A/B, FeliCa, and ISO 15693, enabling compatibility with any infrastructure in place. industry, while combining contactless environment unique features. Up-to-date countermeasures provide a high level of resistance against SPA, DPA and EMA attacks.





# Companies Not Doing Enough to Reduce Identity Theft

PRICEWATERHOUSECOOPERS 

By Andrew Beard, Director, PricewaterhouseCoopers LLP



Andrew Beard

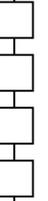
99% of UK companies are still not implementing all the safeguards available to them to manage and control access for the right users to their systems and reduce the risk of crimes such as electronic identity theft. Just 1% of companies have in place all the pieces of the identity and access management jigsaw, according to the findings from the 2006 Department of Trade and Industry's biennial Information Security Breaches Survey, conducted by a consortium led by PricewaterhouseCoopers LLP.

The survey showed, however, that where organisations did have all identity and access management safeguards in place, none reported a single identity-related security incident. Overall, levels of identity management related incidents were consistent with 2004 when the last survey was carried out. Among large companies there was a small increase; in one in five, staff had gained unauthorised access to data. While the incidence of fraud was low, when it did occur, it tended to have a worse impact than any other type of security breach - particularly in terms of reputation damage, adverse media coverage and cost of remediation. Several small businesses reported direct losses of £10,000-50,000 as a result of fraud. Key findings from the telephone survey of 1,000 companies include:

- 1) Compliance with laws and regulations has become the key driver (90%) for managing and controlling systems access, taking over from reducing cost of user access management and enabling new ventures over the internet.
- 2) More businesses are using strong authentication techniques such as hardware tokens or digital certificates than ever - one reason why the number of incidents has not risen more.
- 3) However, single factor authentication continues to prevail with 80% of companies still relying on passwords alone.
- 4) Businesses using stronger forms of authentication such as biometrics had fewer security incidents than those using software tokens and certificates alone.
- 5) Nearly a fifth of large businesses reported staff gaining unauthorised access to data while six percent suffered impersonation or phishing attacks.
- 6) More firms are now using electronic requests (typically email) to notify changes to access rights; in a quarter of large businesses, authorisation of a user request now triggers the automatic set-up of access rights (so-called user provisioning).
- 7) However, 92% of companies do not have fully automated user provisioning, which provides security and efficiency benefits, leaving systems wide open to abuse through unauthorised access.

Identity theft and phishing are on the increase, particularly in financial services and telecoms providers. Several businesses reported daily attacks of this nature. It is all the more important therefore that companies adopt an integrated approach to identity and access management; those that have, are seeing real benefits from their investment.

At the moment, regulatory compliance is the key driver of security expenditure rather than the business opportunities to be derived from it. Too many companies are still relying on single factor authentication techniques such as user ID and passwords. More companies need to follow the lead of the few larger businesses which are using stronger methods to authenticate their users.





# Meeting the ICAO Challenge



By Carl Norell, Marketing Communications Manager, Gemplus



Carl Norell

Thanks to extensive work from the ICAO (International Civil Aviation Organization) to develop standard frameworks and interoperability tests on a global scale, electronic passports are slowly but surely becoming a reality. Though in spite of ICAO's efforts, there are still some road bumps ahead caused by the complexity that a program of this magnitude inflicts. As a result, the U.S. House of Representatives recently voted for a year long extension (October 2006) for countries to introduce biometric passports for their citizens.

This is the second time that the deadline has been pushed forward due to implementation issues among the VWP countries. These delays should in no way be interpreted as failures, but merely reflects how extremely complex it is to implement advanced technology in a traditional environment, and on such a large scale. So knowing this, what challenges can we expect before reaching the October 2006 deadline, and what lessons can we draw from previous international Smart Card initiatives?

**A technology crossroad:** From a technology perspective, the e-passport application approach is not much different from other secure Smart Card applications, e.g. for payment cards or national ID cards. However, a new challenge emerges at the junction of two technological worlds; the one for the printed security features in the passport booklet, and the one of an operating system based on microchip, where mature actors and equipment need to be integrated and function with new ones. Needless to say this imposes several challenges, especially as these multiple new technologies are being introduced in a highly volatile environment where strict implementation guidelines are yet to be established. Some of these challenges include:

- Launching the first ever worldwide deployment of biometrics-based authentication,
- Integrating contactless chips in passport booklets that are expected to last up to 10 years,
- Employing new airport IT systems while allowing those to remain compatible with legacy procedures and technologies.

Furthermore, all of the technical integration needs to be addressed in a fashion that in no way compromises the e-passport's security, durability and functionality. A difficult task to say the least, why efforts are made to capitalise on experience gained from other international Smart Card initiatives.

**Payment lessons learnt:** EMV (Europay MasterCard Visa) representatives, who take part in the various ICAO or ISO (International Standards Organization) work groups, have already raised the concerns of merging new and mature technologies. In the EMV case, cards and readers were already in technical harmony, and the technologies implemented were standardised and widely accepted among both vendors and users. Nevertheless, the evolution of EMV has still taken over a decade to mature. Thus, if using EMV as a frame of reference, it is fair to assume that an e-passport program, involving hundreds of countries and vendors, should require thorough interoperability testing before reaching the implementation phase. This also includes the form factor, which unlike the payment industry imposes radical changes in the manufacturing processes. While for payment cards the form-factor remains the same, and can also be replaced relatively easily and inexpensively, the passport booklets need to be durable enough to carry a contactless antenna for 5-10 years. This has resulted in a variety of different e-passport form factors.

**Alternative form-factors:** As the e-passport market landscape is gradually settling, it becomes possible to identify three different form-factors. A first form-factor, limited to a few countries in East Asia, consists of an inlay that is glued between two passport pages. This solution is referred to as 'middle page'. All other countries will choose between a 'data page' solution and a 'cover page' solution. The cover page solution is also an inlay, which is positioned inside the cover of the passport booklet. The data page on the other hand, embeds the electronic chip and antenna within a highly secure polycarbonate data page that is also capable of visually presenting the passport-holder's information.





This latter 'data page' option, based on laser engraving into security-feature-rich polycarbonate layers, provides strong security even when only visual passport checks can be performed, thus offering a strong return on investment. This laser engraving data page technology is used by some of the early adopters of e-passport technology in Scandinavia.

**Scandinavia leading the way:** Issuing of biometric passports is under way around the world and particularly in Europe during the next 12 months. The Scandinavian countries are so far leading the way when it comes to rolling out ICAO compliant passport solutions. Biometric passports were deployed in Sweden and Norway from the beginning of October 2005, making them among the first VWP nations to comply with the ICAO specifications. The solutions delivered to Norway and Sweden by Setec (a Gemplus company), involves polycarbonate plastic data page and a microchip embedded inside the page with the passport-holder's personal data and facial image in digital form.

Setec will supply Norway with around 600,000 microchip-enabled e-passports during a three-year contract term. Sweden will receive almost a million passports a year over the next five years. The passports delivered to both Norway and Sweden, are personalised locally in each respective country by Setec subsidiaries.

**Electronic passports the way forward:** In spite of the many challenges ahead, biometric-based e-passport technology is without doubt a move in the right direction. We also are starting to see some significant progress as a result of the strong standardisation efforts fostered by the ICAO. This improved standardisation has resulted in products that are interoperable and reliable enough to integrate with demanding applications. Moreover, passports are continuously improving over time, offering digital imaging, enhanced security features, Machine-Readable Zone (for quicker verification) and now a contactless chip. To further support the evolution of e-passports, suppliers of electronic inlays and electric personalisation are now delivering quality assured components and solutions that can easily be integrated into the existing passport scheme, thus allowing governments to control and limit risks.



## For Contactless Payments, Consistency is Key

**ABI**research

By Erik Michielsen, Director of RFID and M2M Research, ABI Research

2005 was notable in the United States for its demonstration - in the rollout of contactless payment capabilities to millions of people - of just how fast a major technology can be deployed. Issuers such as Chase Bank, HSBC, American Express and others have distributed contactless cards and key fobs to millions of their customers. Many constituents are involved: merchants, consumers, card-issuers, associations, and all the members of the contactless payments ecosystem - chip manufacturers, antenna designers, operating system developers, inlay makers, and card plastics packagers. Dozens of companies have swiftly changed gears to take advantage of this emerging opportunity. Many companies are trying to provide piecemeal solutions.

There are many brands and co-brands, many form-factors. But one theme that has emerged time and time again from our research is the need for consistency. As this technology is being rolled out, it's incredibly important to develop a consistent industry-wide message that speaks to merchants, consumers and even component manufacturers. Some common technology standards have been put in place, but that consistency must extend all the way to the consumer who will understand that despite different form factors, modes of use and retailer adoption rates, contactless payment is one option, not two dozen. Similarly, it's beneficial if merchants, and all the players in the design and manufacturing chains that underpin the retail effort, fully understand the issuers' needs. "Market-wide coordination will ensure the best outcomes for all concerned."



# From Pen to PIN

By Rob Macmillan, Operations Director, Aconite



Rob Macmillan

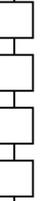
Understanding the customer relationship implications for Chip and PIN payments when card signatures are 'phased out' on February 14th. For those that bought last-minute gifts on Valentine's Day 2006, this was the last time people could make card purchases without a PIN (personal identification number). APACS announced that from 14th February 2006, signatures would no longer be allowed for Chip-based card transactions. This means - no PIN, no purchase.

**Supporting the change - helping to manage your PIN:** The migration to EMV for debit and credit cards represents a significant business and technical challenge to banks and financial institutions, not least of which is the impact on their customers. The APACS deadline will focus attention on support for PIN Management Services - providing cardholders with the ability to change their PIN or 'unblock' a card which has been locked by repeated use of an incorrect PIN. These services are typically provided via ATM's but could also be offered via branch based devices. Either way, card issuers are now faced with the challenge of not only developing the service, but also making it readily available to their customers both nationally or even internationally. Whilst consumers have adapted well to using PIN numbers for retail purchases and ATMs, there continues to be significant numbers of transactions (3% for debit and 11% for credit) being verified using a signature instead of PIN. Remembering PINs is a challenge for those with multiple cards, or who are infrequent card users. However, if the merchant allows, they can still resort to using their signature instead, a prospect which is also attractive to fraudsters with stolen cards.

**Pen to PIN - Education and Guidance:** Beyond those cardholders that do not easily remember PINs, many are beginning to realise their importance and security benefits. The threat of PIN compromise by fraudsters through 'shoulder surfing' or videoing PIN entry means that cardholders will now routinely change their PIN numbers to protect the integrity of their cards. APACS statistics clearly illustrate the benefits of EMV technology. Fraud rates from lost and stolen cards dropped by nearly a third (29%) from £126.6m to £89.9m between January and June 2005 compared with the same time period in 2004. APACS now plans to further reduce the potential for fraud by ceasing the use of signatures instead of PINs at merchants from February 14th 2006. This will emphasise the importance of PIN Management Services that card issuers must provide to their customers. To date, some card issuers have adopted a 'minimum change' approach to PIN Management Services, knowing that fallback to signature was available. The major card issuers have developed PIN management services and have also implemented a degree of reciprocity between their ATM networks so that cardholders have a range of access points to change their PINs. However, mid to low tier financial institutions (e.g. building societies) face challenges not just to develop the service, but also to deploy it. This is either because they lack their own ATMs or because they have insufficient geographical coverage for their cardholders.

**The challenges of PIN management - how it works:** Historically, magnetic stripe card PIN Management Services evolved to include options for customers to change their PIN values at an ATM, yet the migration to EMV based Chip and PIN cards introduces additional PIN challenges. The PIN value used by EMV cards is stored securely both on the chip and in the card issuer's system. The chip card verifies the PIN entered during merchant based transactions. Consumers are typically allowed three attempts to enter the correct PIN, before the PIN is blocked within the chip. After this, transactions may not be authorised unless they are sent to the card issuer for a decision. Issuers may start to decline merchant-based transactions where the PIN is blocked. The PIN used during ATM transactions is verified by the issuer system and not the chip card. If the card issuer supports PIN Management Services they need to ensure that the PIN value on the chip is the same as that stored by the issuer system, especially during PIN Change service requests. Card issuers that plan to offer PIN Management Services must either use their own ATM or branch devices and systems, or reach agreement with a third party that will support the service. There are already domestic reciprocal agreements in place between the major issuing banks, supported by the payment schemes.





**Getting the best out of PIN Management to maintain customer loyalty:** Consideration needs to be given as to how the geographic location of ATM and branch networks compares with where cardholders live and travel. The card payment industry in general is still to address how PIN Management Services can be provided when travelling abroad. If your customer cannot change or unblock a blocked PIN, how long will they remain a loyal customer? Anything that has the potential to introduce customer service problems within the UK Card Payment market is likely to result in shifts in loyalty. This would have immediate effects on market share and profitability driven by usage and retention, especially in the credit card market. APR 'rates' are a case in point. If banks and other card issuers are able to manage their cardholders' PIN concerns, they are much more likely to remain top of wallet. Failure to do so will drive customers to one of the many other products available in the market. The cards payments industry has made significant investment in EMV, primarily to reduce fraud. It is now looking to leverage this investment by offering additional services to both cardholders and partners such as merchant and airline loyalty programmes, tolls, public transport, authentication and so on.

Whilst these additional chip-based applications can be included on cards when first sent to the customer, it is anticipated that it will develop into an ATM-based service (offered by issuers). The customer will decide which additional applications they wish to use, for how long and which ones to swap and change. Already piloted in Asia, this "customer centric" model offers issuers an opportunity to enhance their customer relationships and create product loyalty. A PIN Management Service is the first simple customer service available, allowing cardholders to change the attributes of their cards. If issuers do not invest in PIN Management Services, they not only risk delivering a poor service to their cardholders, they also risk being left behind in the development of enhanced card and loyalty services.

## How Big is Your SIM Card Memory?



By Dr David Everett, CEO, Smart Card Group Limited



*Dr David Everett*

It really wasn't that long ago that floppy disks were the routine backup and transfer storage on a PC, initially 360 Kbytes moving to the heady heights of 1.44 Mbytes. Today people walk around with Gigabyte USB memory sticks in their pocket. The early micro-processor Smart Cards started out with one or two Kbytes of EEPROM (Electrically Erasable Programmable Read Only Memory) non-volatile memory. It was GSM that drove up the size of memory such that the early SIM card chips from manufacturers such as Hitachi had 8 Kbytes of memory.

Today SIM cards typically range from 32 Kbytes to 128 K bytes of memory, but nothing like the leverage that has happened in the PC world in the same time. But that might all be about to change, most of the major SIM card manufacturers are now offering High Capacity SIMs (HCS) with up to 512 Mbytes of memory and guess what? 1 Gbyte is just around the corner.



Why do we need large SIM card memories? Well you can store more contacts in your SIM card but steering clear of Bill Gates and the 'Who needs more than 640 Kbytes of memory' syndrome it is clear that this requirement is easily met by the sort of expansion rate we have witnessed to date.

There are three key drivers for this potential change; **1)** The network operator can only maintain the customer relationship through the SIM card in the mobile handset. **2)** Multi-media such as photos and videos do require large memory and often security controls for Digital Rights Management (DRM). **3)** SIM card mobility, the whole reason for the SIM in the first place but never really utilised now becomes important because of the increasing amount of data the user and the operator can potentially hold on the SIM card. Sometimes people confuse security with memory but you don't need large memories to increase security nor do large memories necessarily need more security i.e. they are mutually exclusive. It is the fact that the network operator owns the SIM that is really behind the business case for High Capacity SIMs, but this has always been the case regardless of memory size so what has changed? This probably comes down to number 2 on the list, the fact that the customer (enterprise or personal) has good reason to want to hold a significant amount of data at the handset;

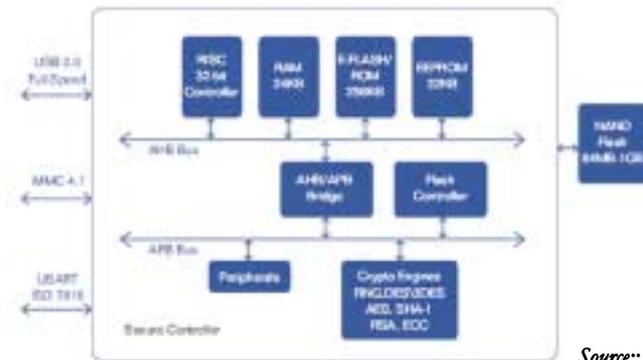




- ❑ User created multi-media content (e.g. photos, videos, etc)
- ❑ Contact data (e.g. address book, messages, emails, etc)
- ❑ Third party content (e.g. Ring tones, photos, music videos, etc)
- ❑ Applications (e.g. Identity, m-commerce, time management, etc)
- ❑ Corporate data (many phones act as a smart PDA)
- ❑ Network/Operator configuration data (Brands, SMS/MMS setup, etc)



Now the issue is whether you store it in the memory of the phone, the MMC card or in the SIM card memory? Well portability knocks out the handset memory so it's down to the MMC (or variant) or SIM card. Clearly the network operator is highly motivated to pursue the SIM card because as mentioned previously that is his link to the customer. There is however a problem in that the traditional ISO 7816 communications interface is very slow, typically 9600 bits/sec and although the standard does allow much higher rates they are not high enough when thinking about 1 Gbyte of data. ETSI has been working on this with a new proposal which unfortunately has two schools of thought, an MMC interface or a USB interface for the SIM card.



Source: [www.m-systems.com/msim](http://www.m-systems.com/msim)

The lines are drawn with Vodafone, Telefonica Moviles, and T-Mobile supporting USB while Orange and Telecom Italia supporting MMC. The two major card companies (albeit about to become one) are also split with Gemplus backing MMC while Axalto is supporting USB where they own some core patents. The first vote in January ended with stale mate, USB got 57.6% of the votes but not the 70% necessary under the ETSI rules. The second round is due later this month. What are the issues? Well they are numerous but to start with many phones already have an MMC interface. USB is also power hungry particularly on standby but it does only require two pins whereas MMC needs 3 connectors. The ISO 7816 connector plate has two pins Reserved for Further Use (RFU) and the redundant Vpp (the original now disused programming voltage for the EEPROM memory). The problem is that nobody wants to use all 3 pins because then you haven't got room for the contactless interface.

Who is marketing High Capacity SIMs?

Card Manufacturer	Product Name	Memory Size	Source
Gemplus	dot SIM (.sim)	512 Mbyte	Spansion/M-Systems
Axalto	U2 SIM	128 Mbyte	Samsung
Oberthur Card Systems	GIGantIC Card	512 Mbyte	Atmel/Spansion/M-Systems
Sagem Orga	SIMply XXL	128, 256, 512 Mbyte	Samsung
Giesecke & Devrient	GalaxSIM/ UniverSIM	64, 512 Mbyte	Spansion/M-Systems



And who is using them? Well so far Orange has been piloting the GIGantIC card in France but now plans a bigger roll-out across Europe using the LG U8210 handset. Gemplus have been piloting a pre dot SIM version from Renesas with Bouygues Telecom in France but a larger roll-out is now planned with the dot SIM card. As an additional note all the other major silicon suppliers are also working on High Capacity SIMs including ST Microelectronics and Infineon. With all these names it's just going to happen, I hope ETSI doesn't slow things up trying to sort out the interface standards for MMC/USB.