



# MULTOS Product Directory

*Section 4*

**Consultancy & Training**

v7.00



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## Consultancy & Training

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Applied Card Technologies  
Consult Hyperion  
Cyber-A Corporation Ltd.  
Datacard Group  
Giesecke and Devrient  
Hitachi Ltd (Europe)  
Keycorp Ltd.  
Riscure



## ACI Worldwide



ACI has a proven history of delivery. With more than 30 million smart cards handling multiple applications globally, and around 20 billion transactions facilitated by ACI's expertise every year, no other company is doing more to bring the future of card solutions in the present day.

Our electronic commerce and electronic ID solutions, including Smart Chip Manager and BASE24, are trusted by more than 500 customers in over 80 countries, world-wide (including more than 100 of the world's top 500 banks and multiple governments).

ACI offers unrivalled expertise in the successful implementation and exploitation of the MULTOS platform both in the banking area as well as in Government – such as the Hong Kong Smart ID Card System.

Therefore, ACI is the ideal technology partner on the journey to realizing the potential of MULTOS and full MULTOS implementation.

ACI has been helping clients from initial advice through to managing various smart card related project implementations. Our consultancy services cover smart card technologies as well as other areas, both in brick and mortar environments and in the virtual world such as e-commerce service offerings and e-Government.

ACI also offers workshops to facilitate the formulation and implementation of smart card initiatives – such as EMV.

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## Applied Card Technologies Ltd.



Having developed, integrated and managed many smart card projects for our clients, ACT are able to offer core competencies and in-depth understanding of smart card technologies gained from live consumer implementations, helping clients to deliver effective smart card solutions.

### Services

ACT's capabilities and industry knowledge is based on our proven ability to provide a complete range of commercial, technical and operational support services for smart card and Internet based projects. These include:

#### Business analysis

Ensuring that clients can make informed strategic decisions on smart card technology, enabling the transition of objectives into workable business and implementation plans relevant to the market and environment.

#### Scheme Management

Having designed and deployed the 'InterCredits' and 'The London Pass' smart card schemes, ACT staff can provide invaluable expertise and experience helping clients deliver smart card schemes using tried and tested operational processes that support your business requirements.

#### Implementation Management

ACT staff are able to provide project management support for smart card implementations, including: project planning, business process, re-engineering, supplier appraisals and fulfillment management

#### Solution design

ACT is able to bridge the gap between each value chain element (silicon production, card manufacture, system integration and application development) to provide you with technical options and business models.

#### Demonstration Centre

Using our in-house demonstration centre, clients can build a vision of current and future technology such as smart cards, databases, Internet, mobile technology, cashless solutions or as a platform for software applications designed to enhance product offerings or overall business performance.

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## Consult Hyperion



Consult Hyperion is an **independent** information technology consultancy. We have over sixteen years experience of helping organisations to derive maximum benefit from technology. Our success lies in our ability to apply a unique blend of business and systems analysis skills to deliver a strong interface between business and technology.

We specialise in transactions and security, providing professional services from the conceptual stage of a project through to completion. We advise on business and technical strategy, performing requirements analysis and producing technical specifications for internal development or external procurement. We can also help to dramatically shorten project life cycles by building proof of concepts, integrating pilot services and developing bespoke software.

Our practical experience with key technologies including cryptography, smart cards, wireless devices, messaging, internet and digital TV and of working with international blue-chip clients on innovative projects, make us uniquely qualified to advise on turning great business ideas into working systems.

We have extensive MAOS experience from designing MULTOS for NatWest in the early 1990s through to the present day where we continue to work on projects utilising both MULTOS and Java Cards involving specification and development of card applications, terminal applications and MAOS smart card management systems. This includes writing 'codelets' (allowing applications to be issued on cheaper smart card devices), developing EMV and Digital Identity applications and application approval and testing. We are accredited trainers for MAOSCO, and have most recently provided training on behalf of the Hong Kong Productivity Council.

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### **Build security and reliability into your smart card program**

Datacard has formed an elite consulting group – Datacard Consult p7<sup>sm</sup> – comprised of experienced mathematicians, physicists, cryptographers and smart card professionals who have the skills and expertise required to identify potential security and reliability issues involved in smart card programs.

This group is a premier technical resource bringing more than a decade of advanced smart card experience to every client engagement and has already collaborated with clients to develop important breakthrough products such as the Mondex<sup>TM</sup> electronic purse scheme and the MULTOS<sup>TM</sup> multi-application chip operating system.

### **Smart Card Information Service**

Datacard Consult p7 provides you with a regular market information service which covers important, up to the minute news about the following topics:

- Current smart card market status and projections
- Competitor product analysis
- Smart card security issues
- Smart card cryptographic trends and issues
- Co-processor market requirements
- Smart card technology trends

### **Common Criteria Process Management Service**

The Datacard Consult p7 Service provides support in pursuing the evaluation and certification of products under such formal criteria as Common Criteria.

The service incorporates some or all of the following elements tailored to meet individual needs:

- Evaluation structure design to meet individual requirements, with the option of certificate maintenance.
- Specification and writing of the security target for products in compliance with hardware requirements of the relevant Protection Profile.
- Identification of the information and procedures required to complete a Common Criteria evaluation package
- Advice and consulting services on any recommended changes to internal design and manufacturing procedures for successful Common Criteria completion.
- Formulation and preparation of recommended Common Criteria documents in full consultation with client personnel.
- Interface with the evaluator and certifier for penetration testing and other hardware aspects of the evaluation in a manner compliant with the Common Criteria scheme.
- Submission of required documentation package for the independent evaluation and certification of the chip by mutually agreed third parties.
- Consultancy support for the evaluation and certification process

In addition, Datacard Consult p7 can also provide the following support:

- Provision of information on the target product performance and architecture, highlighting weaknesses and suggesting possible improvements to the design.
- Involvement of client personnel at each stage of the evaluation and certification process, to help ensure that you can undertake subsequent evaluations more easily.
- Revision and updating documentation as required.

### **Chip Security Investigation Service**

The skill, innovation and tenacity of the Datacard Consult p7 analysts in smart card chip investigation, provides the expertise required for the efficient production of smart card chips that meets the market needs for today and future demands.

Our involvement in the early stages of development will help you be more productive with:

- Direct improvements in the chip's ability to resist hostile attacks by third parties.
- Improvements in the time-to-market of chips by early analysis to reveal weaknesses.
- Development of new defenses based on real methods used by attackers today.
- Development of support for new cryptographic schemes.



Involvement of the Datacard Consult p7 team in the early stages of the product development cycle helps to improve development efficiency and adds value to the process.

Datacard Consult p7 offers several attack techniques as a service:

- Differential power analysis
- Differential fault analysis
- Physical attacks on chips
- Operational envelope analysis
- Random number generation analysis
- Test mode analysis

To learn more about Datacard and our complete portfolio of smart card consulting services, please contact Datacard, or visit us at: [www.datacard.com](http://www.datacard.com)

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# Consultancy & Training

**Giesecke and Devrient**



**Giesecke & Devrient**

G&D is a member of the MAOSCO consortium and offers complete end-to-end services for MULTOS cards. This starts with consulting the customer on requirements and implementation of MULTOS applications, and extends through card manufacturing and processing to personalization and fulfillment.

G&D has established competence centers for MULTOS application development: in our headquarters in Munich, Germany as well as in some of our subsidiaries world-wide.

We have a unique experience in smart card systems in general and have successfully delivered MULTOS consulting to several customers in North America and Europe. Our consultancy services cover business and technical issues, requirement analysis, benchmarking of software platform, advice on development tools, etc.

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## Hitachi, Ltd (Europe)



Hitachi has extensive experience of how smart card technologies can be applied to a number of industry sectors including, finance, telecommunications, retail, transport, and the public sector. Our Smart Commerce services provide advice not only on how our range of products can be utilised but also the wider business and process issues key in ensuring the successful rollout of any smart card system. Additionally, we are able to advise on how new systems can be made to fit seamlessly within existing IT architectures and support e-commerce strategies. Our consulting teams are located at a number of centres across the globe to ensure they are able to work with our customers wherever they may be located.

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**Keycorp Limited**

## KEYCORP LIMITED

Keycorp smartcard team has its track records in the world wide MULTOS projects on

- MULTOS implementation and application development
- Managing and interacting the Key Management services from MULTOS CA
- Supervising and co-ordinating MULTOS card production procedure, including personalisation, customisation and etc.
- Training

No matter you wish to become a card issuer, card distributor, card manufacturer or application developer in MULTOS scheme, Keycorp MULTOS introductory training program can bring you quickly up to the level with the sound knowledge. Or let our experts to tailor-make a course to suit your demand.

**Keycorp MULTOS introductory training:**

- Introduction – MULTOS & Keycorp
- MULTOS technology – The device
- MULTOS technology – Personalisation
- Interacting with MULTOS CA and smartcard production
- MULTOS applications – personalisation aspects
- MULTOS application development

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## Riscure



The smart card security resource

Riscure is an independent smart card evaluation lab. From our offices in the Netherlands, we provide design, consulting and evaluation services in the field of smart card security. Our clients are card manufacturers and card issuers based in Asia, Europe, North America and Africa. In addition to smart cards, Riscure evaluates card terminals, smart phones and PDAs for banks, credit card companies and GSM operators.

### Services

A selection of our security evaluation and consulting services:

- MasterCard CAST Certification
- MCHIP evaluation
- protocol analysis
- Java card evaluation
- high-order DPA
- power glitching
- EMV applet review
- SIM evaluation
- interoperability testing

### Your MULTOS implementation

We can test and certify your MULTOS and step/one card. Furthermore, we can assist you with secure application and platform development and ensure that your new MULTOS chip is well-protected against side channel attack techniques. In 2004, Riscure was involved with building the MULTOS and Step/One Type Approval test tool for the MAOSCO consortium.

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