Smart Card Devices

Make smart decisions when you select a smart card solution

the LAB
Windows 2000 Magazine Network

Europeans use smart cards as prepaid phone cards, public-transit fare cards, and health-insurance ID cards. Smart cards aren't as widely accepted in North America, but some organizations use them for security applications.

Smart cards are available in two forms: memory cards and microprocessor cards. Memory cards are a relatively inexpensive way to improve PC and network security because the user must present a card, a username, and a password to gain access. You generally use memory cards to access personal computers and networks, but some vendors offer cards that also let you access your employer's entry doors so that you don't have to carry more than one card.

The least expensive memory cards have contacts on the card that mate with the contacts on a card reader, so you're required to place the card into the reader each time you use the card. Contact wear and dirt can diminish the reliability of the card and reader. Contactless cards contain a small antenna coil that lets a reader communicate with the card without requiring the two to come in contact. Contactless cards and readers cost more, but they last longer and require less long-term maintenance. Some vendors offer cards that work with both types of readers.

Microprocessor cards let you load and run customized applications, but these added capabilities could cost you. Microprocessor cards add a CPU, a larger OS than memory cards, as much as 64KB of EEPROM, and a small amount of RAM. Some microprocessor cards provide an encryption coprocessor to handle digital signatures and public key encryption of messages. Depending on the amount of EEPROM on the card, several applications can reside on the card, including functions common to memory cards. Generally, microprocessor cards are more tamper-resistant than memory cards. Because contactless interfaces are intended for only high-speed transactions, microprocessor cards usually come with contact interfaces. Some vendors' cards, however, might also include a contactless interface that you can use for suitable applications.

When choosing a smart card solution, consider what applications you plan to use so that you can determine which card type meets your needs. Discuss your plans with the smart card vendor or a smart card software developer. The vendor might already have the applications you need, and if so, it can determine total cost, memory requirements, and how the applications will work with various microprocessor-card CPUs. If you require custom applications, the vendor might offer to create them at an additional cost, or it might refer you to a smart card application developer.

Then, you need to select a reader. Standalone readers for desktop systems typically plug into a USB or RS232 port. Some readers provide keypads with security modules to encrypt keystrokes so that you can prevent someone from capturing PINs. For notebooks, PC Card readers are usually the simplest solution.

If you plan to buy very few readers, you might find it easier to buy the reader that the card vendor offers. If you purchase contactless cards and readers from different suppliers, you should verify compatibility with the vendors. Cards with contact interfaces won't cause compatibility problems as long as the readers support both the T=0 and T=1 communications protocols from the International Organization for Standardization (ISO) 7816 standard. Make sure that the reader you choose complies with the PC/SC Workgroup specification.

If you choose a card with a contact interface, you probably want a reader that uses landing contacts. Readers that use sliding contacts tend to be less expensive but can scratch the card's contact area and shorten the card's life. Landing contacts drop down onto the card and don't scratch the card's surface.

—Mark Weitz

InstantDoc ID 20946

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Contact Information	Product Name	Price	Description
Aladdin Knowledge Systems 847-808-0300 800-562-2543 http://www.ealaddin.com	eToken	$46	Portable USB authentication device that provides complete logical access control; stores private keys, passwords, and electronic certificates in a house-key–sized USB-based token; lets businesses provide secure remote access, verify identity, and enable secure e-commerce through digital certificate storage
Athena Smartcard Solutions sales@athena-scs.com (972) (9) 951-7550 http://www.athena-scs.com	ASEDrive Serial	$35	PC/SC-certified serial smart card reader/writer; Europay, MasterCard, and Visa (EMV)–compliant; supports T=0 and T=1 protocols for CPU cards and memory cards; includes a landing acceptor for smart card protection
	ASEDrive USB	$45	PC/SC-certified USB smart card reader/writer; EMV-compliant; supports T=0 and T=1 protocols for CPU cards and memory cards; includes a landing acceptor for smart card protection
Compaq 281-370-0670 800-282-6672 http://www.compaq.com	Smart Card Reader/ 11371-B21	$67	Supports all reader functions; connects to the PC through a PS/2-style port for the power and through the serial port for the reader; PC/SC-certified and EMV Level 1–compliant
Cylink info@cylink.com 800-533-3958 http://www.cylink.com	MiniKey	$53	A security token that combines smart card and reader functionality; connects to the USB port of any PC or laptop; provides user identification, authentication, and encryption for all Internet, intranet, extranet, and Web-based applications
	PrivateCard	$30	A public key–based smart card that keeps user-unique keys, PINs, and passwords secure; uses an onboard microprocessor and control program to protect information; contains the user's digital signature and public key–private key pair; can perform all signing and decryption operations
Datakey 952-890-6850 888-328-2539 http://www.datakey.com	Datakey Model 330	$108	Cryptographic smart card that can secure communications and authentication over the Internet or private networks (including VPNs)
Gemplus 650-654-2900 888-436-7627 http://www.gemplus.com	GemPC400	Contact vendor for pricing	Plug and Play (PnP) compact smart card reader/writer that can connect to any device equipped with a PC Card Type II slot; PC/SC- and EMV-compliant; can read/write to all ISO 7816–compliant microprocessor and memory cards
	GemPC410	Contact vendor for pricing	PnP compact smart card reader/writer with tower form; features a serial interface; PC/SC- and EMV- compliant; can read/write to all ISO 7816–compliant microprocessor and memory cards
	GemPC410-FD	Contact vendor for pricing	PnP compact smart card reader/writer that you can install in a floppy disk bay; features a serial interface; PC/SC- and EMV-compliant; can read/write to all ISO 7816–compliant microprocessor and memory cards
	GemPC410-SL	Contact vendor for pricing	PnP compact smart card reader/writer with slim-line casing; features a serial interface; PC/SC- and EMV-compliant; can read/write to all ISO 7816–compliant microprocessor and memory cards

Contact Information	Product Name	Price	Description
Gemplus continued	GemPC430	Contact vendor for pricing	PnP compact smart card reader/writer with slim-line casing; features a USB interface; PC/SC- and EMV-compliant; can read/write to all ISO 7816–compliant microprocessor and memory cards
	GemSAFE IS	Contact vendor for pricing	GemSAFE IS workstation 1.1 consists of a smart card, a smart card reader, and client-side software; enables and secures digital signature over the Internet; designed to secure business communications within the Identrus system
	GemUtilities	$30	Consists of a smart card, smart card reader, and PC-client software; manages personal information such as usernames and passwords, user profiles, credit card numbers, and URLs for favorite Web sites
General Information Systems info@gis.co.uk http://www.gis.co.uk	Point of Sale Terminal (POST)	$75 to $120	Features as many as five card readers in a desktop or wall-mount case; features a screen and keypad; connects to your PC through an RS232 or USB port; includes DLLs and PC/SC support
	Smart Mouse 1	$8 to $20	ISO 7816–compliant smart card reader; available in vertical or horizontal card entry mode with proprietary DLL drivers and full PC/SC support; includes various interface options
	SM2000-1	$15 to $25	ISO 7816–compliant smart card reader; features a 17-button keypad; you can use offline as a pocket reader or connected to a PC through a serial or USB port; includes full PC/SC support
	SM2000-2	$20 to $30	ISO 7816–compliant smart card reader; features a 17-button keypad; includes PC/SC support and Secure Application eXchange (SAX) security; you can connect your PC to the reader offline or through a serial port, USB, or Public Switched Telephone Network (PSTN)
	SM2000-3	$30 to $40	ISO 7816–compliant smart card reader; features a 17-button keypad and serial port and USB connection options; incorporates Triple Data Encryption Standard (3DES) and RSA encryption; includes public key infrastructure (PKI) functionality
	SM4N Reader	$45 to $140	Dual reader with keypad and display options; features RS232 connectivity; has mounting options for a variety of host machines
	Transactor TX2	$35 to $70	ISO 7816–compliant card reader with dual card support for card-to-card transfer and electronic-purse applications; features Infrared Data Association (IrDA) and serial port connectivity
	ValuePad	$8 to $12	One-time-programmable pocket card reader; ISO 7816–compliant; features a display and keypad for personal card data reading
HID 949-598-1600 800-237-7769 http://www.hidcorp.com	IQcard MIFARE	Contact vendor for pricing	Contactless memory card for access control, public transportation, road toll, park-and-ride, airline ticketing, and photo ID applications; has 16 separate files to let you run complex applications; 13.56MHz operating frequency provides high-speed communication

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HID continued	IQcard Prox	Contact vendor for pricing	A 13.56MHz MIFARE and 125KHz contactless smart card that combines smart card and proximity technologies; can be used for access control, public transportation, road toll, park and ride, airline ticketing, customer loyalty, and photo ID applications; includes 16 separate files to let you run complex applications
	MIFARE Reader	Contact vendor for pricing	Reader with contactless smart card technology; features a built-in Wiegand communication interface and read/write capability through the RS232 communication interface; lets you run biometrics, time and attendance, and closed-system debit card applications
Labcal Technologies info@labcal.com 877-447-8881 http://www.labcal.com	Smartprint	$675 each for 100 or more units	Wireless, handheld unit can read data from contactless smart cards; features biometrics capability; can display the owner's name, ID number, and any other records on its LCD display for secure identification
Litronic 949-851-1085 http://www.litronic.com	Forté Smart Card	Contact vendor for pricing	Multifunction smart card with a 32-bit RISC processor and high-speed USB interface; provides expanded storage and accelerated processing of complex cryptographic functions; offers processing power for multiple applications, algorithms, and protocols
	NetSignia 210	$59	ISO 7816–compliant reader that comes equipped with a DB9 connector and an adapter that lets the reader tap the PC's keyboard for power
NexSmart Technology sales@nexsmart.com 949-453-8588 http://www.nexsmart.com	NexSmart Smart Card SDK Pro	$595	Includes 10 NexSmart microprocessor cards with contact interfaces, a PC/SC-compliant smart card reader, and the vendor's software development kit (SDK); includes a tool that can send and receive smart card commands; provides Visual Basic (VB) source code and two sample programs
SCM Microsystems adapter@scmmicro.com 510-360-2300 http://www.scmmicro.com	SCR111	$38	RS232 smart card reader; PC/SC- and EMV-compliant
	SCR201	$75	PCMCIA-certified smart card reader; PC/SC-compliant
	SCR301	$48	USB-certified smart card reader; PC/SC- and EMV-compliant
SDLOGIC Technologies 866-524-7272 http://www.sdlogic.com	SDR-30RS	$85	Smart card terminal that's compatible with all RS232 and PC/SC smart card applications
SpartaCom Technologies 520-670-7100 800-846-9726 http://www.spartacom.com	CryptoGram iKey	Starts at $149	Combines 3DES encryption with the portability of a key-chain-sized USB-based authentication token; lets you encrypt and protect PC files and applications and quickly retrieve encrypted file pass codes
XAC Automation marketing@xac.com.tw 704-597-9045 http://www.xacautomation.com	P58	Starts at $30 each; volume discounts available	PC/SC- and ISO 7816–compliant smart card reader; Windows Hardware Quality Labs (WHQL)–qualified; includes landing-type contacts and an 8KB buffer; supports T=0 and T=1 communication protocols
	P68	Starts at $74 each; volume discounts available	PC/SC- and ISO 7816–compliant smart card reader; WHQL-qualified; includes landing-type contacts and an 8KB buffer; supports T=0 and T=1 communication protocols
	P69	Starts at $63 each; volume discounts available	Smart card reader that installs in a standard 3.5" disk bay; is PC/SC- and ISO 7816–compliant and WHQL-qualified; includes landing-type contacts and an 8KB buffer; supports T=0 and T=1 communication protocols