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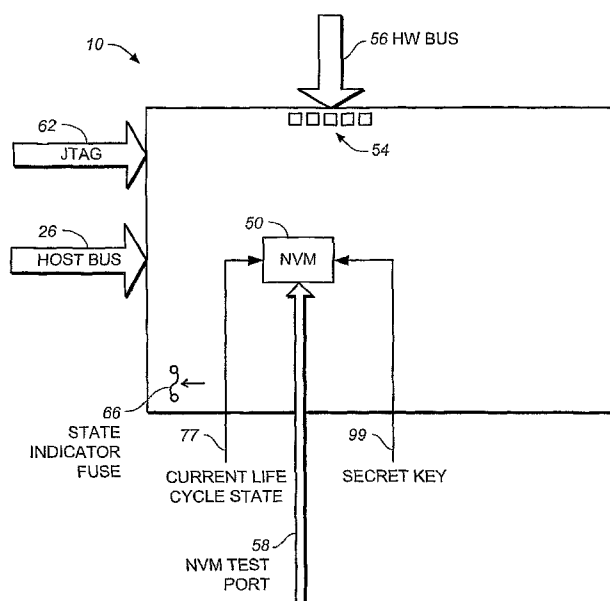
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[Continued on next page]

(54) Title: SECURE MEMORY CARD WITH LIFE CYCLE PHASES



(57) Abstract: A secure memory card with encryption capabilities comprises various life cycle states that allow for testing of the hardware and software of the card in certain of the states. The testing mechanisms are disabled in certain other of the states thus closing potential back doors to secure data and cryptographic keys. Controlled availability and generation of the keys required for encryption and decryption of data is such that even if back doors are accessed that previously encrypted data is impossible to decrypt and thus worthless even if a back door is found and maliciously pried open.

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FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G06F11/22 G06K19/07

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06F G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 783 078 B1 (LEAMING TAYLOR J [US]) 31 August 2004 (2004-08-31) column 3, line 15 - line 62 column 9, line 12 - line 43 column 12, line 12 - line 41 figures 1,3,8-11	1,18-26, 30-40
X	US 5 917 909 A (LAMLA MICHAEL [DE]) 29 June 1999 (1999-06-29) column 1, line 17 - line 18 column 1, line 56 - column 2, line 19 column 3, line 51 - line 62 column 4, line 29 - column 5, line 64	1,18-26, 30-40
X	US 2003/131210 A1 (MUELLER DETLEF [DE]) 10 July 2003 (2003-07-10) page 1, paragraph 1 - paragraph 17	1,18-26, 30-40
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

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- *E* earlier document but published on or after the international filing date
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- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

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INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/025355 A1 (PALM HERBERT [DE] ET AL) 27 September 2001 (2001-09-27) page 1, paragraph 1 - paragraph 13 figure 2	1, 18-26, 30-40
X	WO 03/081544 A (SUN MICROSYSTEMS INC [US]) 2 October 2003 (2003-10-02) page 3, paragraph 9 - paragraph 10 page 13, paragraph 37 - page 14, paragraph 39 page 16, paragraph 47 figures 7, 9	2-6
X	EP 1 457 922 A (ST MICROELECTRONICS INC [US]) 15 September 2004 (2004-09-15) the whole document	7
A	US 5 629 513 A (GERONIMI FRANCOIS [FR] ET AL) 13 May 1997 (1997-05-13) the whole document	7
X	WO 99/64996 A (LANDIS & GYR COMMUNICATIONS S [CH]; CAMBOIS ETIENNE [FR]) 16 December 1999 (1999-12-16) page 2, line 9 - line 27 page 3, line 21 - page 7, line 17 figures 1, 2	8-17, 27-29
A	EP 1 004 992 A (VISA INT SERVICE ASS [US]) 31 May 2000 (2000-05-31) the whole document	8-17, 27-29

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/003876

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1,18-26,30-40

Memory card system (and corresponding method of making a memory card) comprising a security system and two states of operation: a testing state for testing the memory card prior to normal use and an operating state for normal use of the card

2. claims: 2-6

Method of testing a memory card comprising testing the memory die prior to memory card assembly and configuring the assembled memory card and testing the assembled memory card

3. claim: 7

Method of testing a memory card comprising a security system after normal use of memory card

4. claims: 8-17, 27-29

Memory card system adapted to produce either a secure or a non secure card

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2006/003876

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6783078	B1	31-08-2004	EP 1475742 A2 US 2004222305 A1	10-11-2004 11-11-2004
US 5917909	A	29-06-1999	AT 145294 T DE 4243888 A1 WO 9415318 A1 EP 0676073 A1 ES 2094046 T3 HK 1007816 A1 JP 8507164 T SG 50470 A1	15-11-1996 30-06-1994 07-07-1994 11-10-1995 01-01-1997 23-04-1999 30-07-1996 20-07-1998
US 2003131210	A1	10-07-2003	CN 1427347 A DE 10162306 A1 EP 1321887 A1 JP 2003263618 A	02-07-2003 03-07-2003 25-06-2003 19-09-2003
US 2001025355	A1	27-09-2001	AT 234472 T BR 9914083 A CN 1320214 A DE 59904556 D1 WO 0019224 A1 EP 0992809 A1 ES 2195616 T3 JP 3605361 B2 JP 2002525888 T RU 2211457 C2	15-03-2003 24-07-2001 31-10-2001 17-04-2003 06-04-2000 12-04-2000 01-12-2003 22-12-2004 13-08-2002 27-08-2003
WO 03081544	A	02-10-2003	AU 2003225890 A1 US 2003177319 A1	08-10-2003 18-09-2003
EP 1457922	A	15-09-2004	JP 2004280817 A US 2004178276 A1 US 2004178278 A1	07-10-2004 16-09-2004 16-09-2004
US 5629513	A	13-05-1997	DE 69500116 D1 DE 69500116 T2 EP 0670561 A1 ES 2098163 T3 FR 2716989 A1 JP 3343177 B2 JP 8030748 A	06-02-1997 12-06-1997 06-09-1995 16-04-1997 08-09-1995 11-11-2002 02-02-1996
WO 9964996	A	16-12-1999	AU 3841999 A TW 413799 B	30-12-1999 01-12-2000
EP 1004992	A	31-05-2000	NONE	