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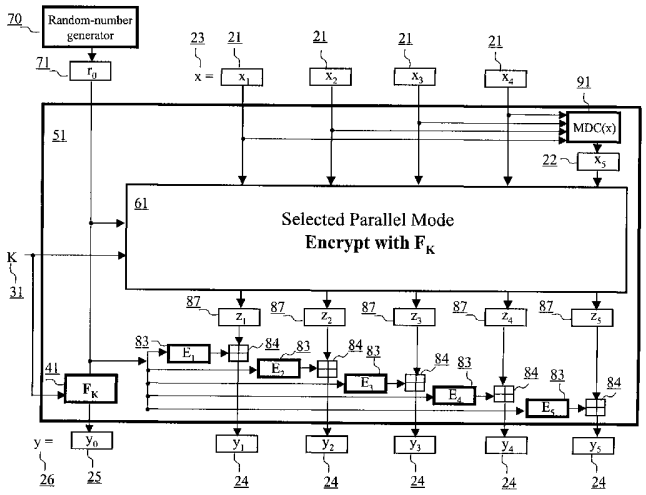
(54) Title: PARALLEL BOCK ENCRYPTION METHOD AND MODES FOR DATA CONFIDENTIALITY AND INTEGRITY PROTECTION



(57) Abstract: A parallel block encryption method and modes (modes or operation) that provide both data confidentiality and integrity with a single cryptographic primitive and a single processing pass over the input plaintext string by using a non-cryptographic Manipulation detection Code function for secure data communication over insecure channels and for secure data storage in insecure media. The block encryption method and modes of this invention allow, in yet a further aspect, parallel or pipelined operation of the block enciphering and deciphering functions in and architecture-independent manner. The present invention allows, in a further aspect, error recovery. In a yet further aspect, the present invention allows software and hardware implementations, and use in high-performance and low-power applications, and low-power, low-cost hardware devices. In a yet further aspect, the block encryption method and modes of this invention are suitable for real-time applications.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L9/06 H04L9/32

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)
IPC 7 H04L

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, PAJ, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	GLIGOR V D ET AL: "Fast Encryption and Authentication: XCBC Encryption and XECB Authentication Modes" VDG INC, 27 October 2000 (2000-10-27), XP002178464 6009 Brookside Drive, Chevy Chase, Maryland 20815, USA cited in the application page 1 -page 11 --- -/--	1,2,5, 8-19, 38-40, 44,45, 48-50, 53, 56-76, 82,83, 86,88, 89,92-94

[X] Further documents are listed in the continuation of box C.

[ ] Patent family members are listed in annex.

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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	JUENEMAN R R ET AL: "MESSAGE AUTHENTICATION WITH MANIPULATION DETECTION CODES" PROCEEDINGS IEEE SYMPOSIUM ON SECURITY AND PRIVACY, XX, XX, 25 April 1983 (1983-04-25), pages 33-54, XP002055686 cited in the application the whole document	62-76, 92-94
A	---	1-61, 77-91, 95-99
P,A	JUTLA C S: "Encryption modes with almost free message integrity " ADVANCES IN CRYPTOLOGY - EUROCRYPT 2001. PROCEEDINGS (LECTURE NOTES IN COMPUTER SCIENCE VOL.2045), SPRINGER-VERLAG, 10 May 2001 (2001-05-10), pages 529-544, XP002214999 Innsbruck, Austria ISBN: 3-540-42070-3 cited in the application page 1 -page 10	1-99
