

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/019387

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06T9/00 G06T7/20

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 G06T

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, WPI Data, PAJ, INSPEC, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOANG D T ET AL: "EFFICIENT COST MEASURES FOR MOTION ESTIMATION AT LOW BIT RATES" IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE INC. NEW YORK, US, vol. 8, no. 4, 1 August 1998 (1998-08-01), pages 488-500, XP000777988 ISSN: 1051-8215 page 488, left-hand column, line 1 - page 497, left-hand column, line 7	1-7, 20-23, 28-36
X	US 5 847 776 A (TAITS EUGENE ET AL) 8 December 1998 (1998-12-08) column 2, line 8 - line 27 column 5, line 58 - column 7, line 51; figures 4,5	1-3,7, 20,21, 23,24, 28,29

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *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.
- * & * document member of the same patent family

Date of the actual completion of the international search

12 July 2005

Date of mailing of the international search report

05.08.2005

Name and mailing address of the ISA

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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.
A	SALARI E ET AL: "LOW-BIT-RATE SEGMENTATION-BASED IMAGE SEQUENCE CODING" OPTICAL ENGINEERING, SOC. OF PHOTO-OPTICAL INSTRUMENTATION ENGINEERS. BELLINGHAM, US, vol. 34, no. 3, 1 March 1995 (1995-03-01), pages 829-832, XP000495226 ISSN: 0091-3286 the whole document	1-7, 20-23, 28-36
X	WIEGAND T ET AL: "LONG-TERM MEMORY MOTION-COMPENSATED PREDICTION" IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE INC. NEW YORK, US, vol. 9, no. 1, February 1999 (1999-02), pages 70-84, XP000802288 ISSN: 1051-8215	1,2, 4-12,14, 23,28
Y	abstract page 71, right-hand column, line 6 - page 72, left-hand column, line 25 page 74, right-hand column, line 18 - page 76, left-hand column, line 40	13
X	GALLANT M ET AL: "AN EFFICIENT COMPUTATION-CONSTRAINED BLOCK-BASED MOTION ESTIMATION ALGORITHM FOR LOW BIT RATE VIDEO CODING" IEEE TRANSACTIONS ON IMAGE PROCESSING, IEEE INC. NEW YORK, US, vol. 8, no. 12, December 1999 (1999-12), pages 1816-1823, XP000875325 ISSN: 1057-7149	1,8-12, 14,23,28
Y	abstract page 1817, right-hand column, line 15 - page 1819, right-hand column, line 7	13
A	RICHARDSON IAIN E G: "Video Codec Design; Ch. 6 - Motion estimation and compensation, pg. 93-126" 25 June 2002 (2002-06-25), JOHN WILEY & SONS, XP002335508 page 97, line 1 - page 100, last line page 105, line 19 - page 107, line 11 page 114, line 10 - last line	8-14

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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.
A	<p>CHALIDABHONGSE J ET AL: "FAST MOTION VECTOR ESTIMATION USING MULTIREOLUTION-SPATIO TEMPORALCORRELATIONS" IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE INC. NEW YORK, US, vol. 7, no. 3, June 1997 (1997-06), pages 477-488, XP000690586 ISSN: 1051-8215 abstract page 479, left-hand column, line 2 - page 480, left-hand column, line 7 page 481, right-hand column, line 42 - page 482, left-hand column, line 34 -----</p>	8-14

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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.:

1-14, 20-24, 28-36
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: 1-7,20-24,28-36

Systems and method for motion compensated predictive coding in which the estimated motion depends on the minimization of a system objective.

2. claims: 8-14

System for motion compensated predictive coding in which the motion vectors are searched by exploiting the search results obtained by the neighbouring blocks.

3. claims: 15-19

System for motion compensated predictive coding using fractional point prediction.

4. claims: 25-27

Method for motion compensated predictive coding in which the frames for prediction are hierarchically scanned.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/019387

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5847776	A	NONE	