



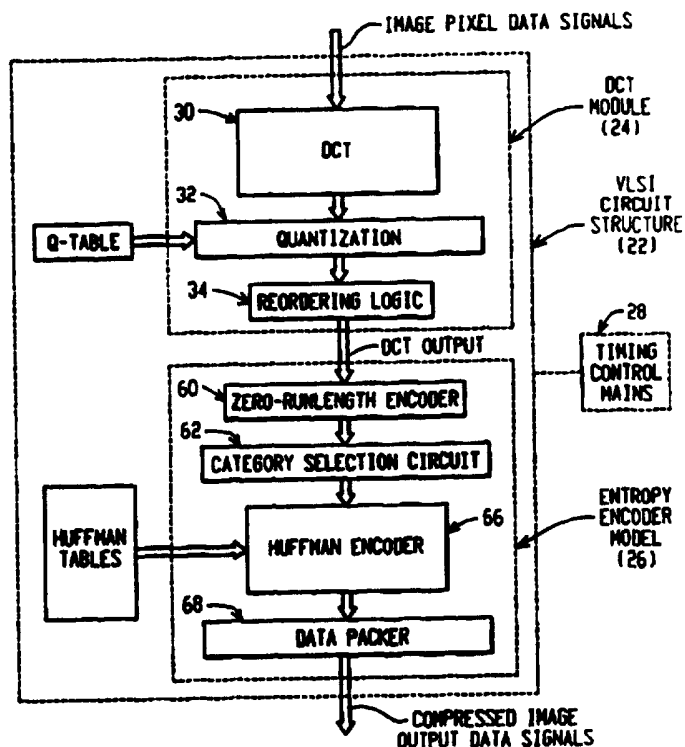
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/US95/11338 (22) International Filing Date: 6 September 1995 (06.09.95) (30) Priority Data: 08/302,110 7 September 1994 (07.09.94) US (71) Applicant: UNIVERSITY OF SOUTH FLORIDA [US/US]; 4202 East Fowler Avenue, FAO 126, Tampa, FL 33620-7900 (US). (72) Inventors: KOVAČ, Mario; Mandaličina 3, 41000 Zagreb (HR). RANGANATHAN, Nagarajan; 13426 Thomasville Circle, Tampa, FL 33617 (US). (74) Agents: MOORHEAD, Sean, T. et al.; Calfee, Halter & Griswold, Suite 1400, 800 Superior Avenue, Cleveland, OH 44114-2688 (US).</p>		<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 18 April 1996 (18.04.96)</p>

(54) Title: VLSI CIRCUIT STRUCTURE FOR IMPLEMENTING JPEG IMAGE COMPRESSION STANDARD

(57) Abstract

A fully pipelined VLSI image processing structure (fig. 5) comprising a DCT module (24) for transforming input video signals to produce DCT output signals, an entropy processing module (26) for receiving the DCT output signals and processing them to produce compressed image data signals, and a timing control means (28) for providing timing control signals at predetermined timing interval to control the processing of the input, and the processing of the data signals across the DCT and entropy encoder modules. The DCT output signals are directly transmitted from the DCT module to the entropy encoder module.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/11338

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : H04N 7/26, 7/30
US CL : 348/384

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)

U.S. : 348/384, 390; 358/426, 432, 433; 382/56; 395/163

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 practicable, search terms used)

APS, IEEE CD-ROM

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Chen et al, "VLSI Implementation of Single Chip JPEG Codec", IEEE VLSITSA 1993, pages 189-193.	1-4
A	US, A, 5,253,078 (BALKANSKI ET AL) 12 OCTOBER 1993, FIG. 1; COL. 3, LINES 38-68; COL. 4, LINES 1-20.	1-7
A,E	US, A, 5,452,466 (FETTWEIS) 19 SEPTEMBER 1995, COL. 4, LINES 5-46.	1-7
A,P	US, A, 5,379,351 (FANDRIANTO ET AL) 03 JANUARY 1995, COL. 1, LINES 23-54.	1-7
A,E	US, A, 5,450,599 (HORVATH ET AL) 12 SEPTEMBER 1995, COL. 1, LINES 21-68; COL. 2, LINES 1-55.	1-7

Further documents are listed in the continuation of Box C. See patent family annex.

<ul style="list-style-type: none"> * Special categories of cited documents: *A* document defining the general state of the art which is not considered to be part of particular relevance *E* earlier document 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 	<ul style="list-style-type: none"> *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 *G* document member of the same patent family
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Date of the actual completion of the international search 07 FEBRUARY 1996	Date of mailing of the international search report 05 MAR 1996
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/11338

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 5,339,265 (LIU ET AL) 16 AUGUST 1994, ABSTRACT; COL. 2, LINES 37-68; COL. 3, LINES 1-30.	1-7