(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 March 2001 (15.03.2001)

PCT

(10) International Publication Number
WO 01/19089 A1

(51) International Patent Classification[7]: H04N 7/26

(21) International Application Number: PCT/US00/21956

(22) International Filing Date: 10 August 2000 (10.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/390,255 3 September 1999 (03.09.1999) US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 09/390,255 (CON)
Filed on 3 September 1999 (03.09.1999)

(71) Applicant *(for all designated States except US)*: INTEL CORPORATION [US/US]; 2200 Mission College Blvd., Santa Clara, CA 95052 (US).

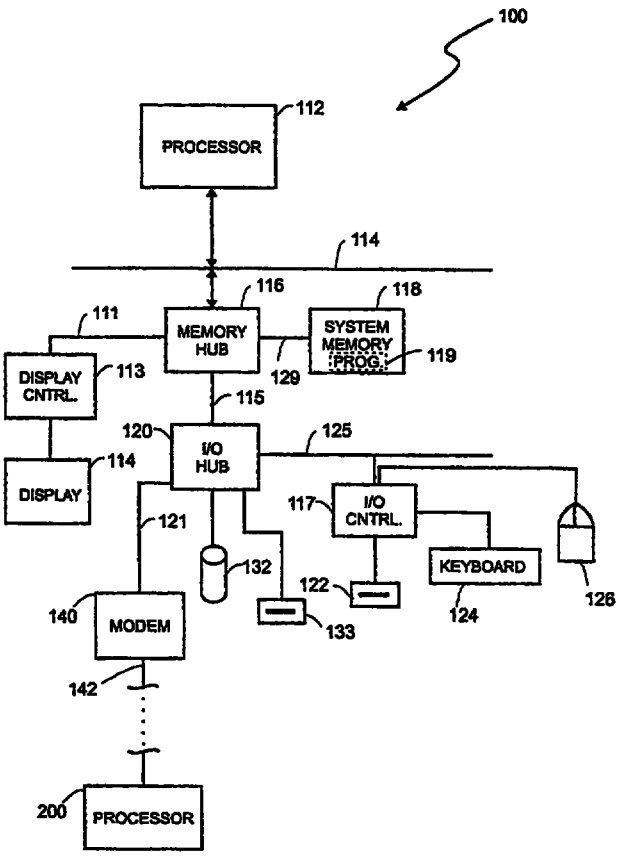
(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: ACHARYA, Tinku [IN/US]; 4840 W. Erie Street, Chandler, AZ 85226 (US). MITRA, Niloy, J. [IN/IN]; 231 Rash Behari Avenue, 700019 Calcutta (IN). BISWAS, Prabir, K. [IN/IN]; 2Br-F-20, Indian Institute of Technology, 721302 Kharagpur (IN).

(74) Agent: TROP, Timothy, N.; Trop, Pruner, Hu & Miles, P.C., 8554 Katy Freeway, Suite 100, Houston, TX 77024 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,

[Continued on next page]

(54) Title: ZEROTREE ENCODING OF WAVELET DATA



(57) Abstract: A computer system (100) includes a memory (118) and a processor (112). The memory (118) stores a program (119) to cause the processor (112) to provide wavelet coefficients that indicate an image. The processor (112) represents each wavelet coefficient as a collection of ordered bits, and the processor (112) codes the bits of each order to indicate zerotree roots that are associated with the order. Thus, unlike conventional zerotree coding thresholds are not computed in subordinate pass to identify insignificant values, but bits are classified: if bit equals to "1" it is a Positive node (P), if bit equals to "-1" it is a Negative node (N), a zerotree root is coded as R and an Isolated zero is noted IZ.

WO 01/19089 A1

HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) **Designated States** *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.