Title (en)

USING GAIN-ADAPTIVE QUANTIZATION AND NON-UNIFORM SYMBOL LENGTHS FOR AUDIO CODING

Title (de)

AUDIOKODIERUNG MIT VERSTÄRKUNGSADAPTIVER QUANTISIERUNG UND SYMBOLEN VERSCHIEDENER LÄNGE

Title (fr)

MISE EN OEUVRE D'UNE QUANTIFICATION A GAIN ADAPTATIF ET DE LONGUEURS DE SYMBOLES NON UNIFORMES POUR CODAGE AUDIO

Publication

EP 1175670 B2 20070919 (EN)

Application

EP 00922036 A 20000411

Priority

- US 0009604 W 20000411
- US 29357799 A 19990416
- US 34964599 A 19990708

Abstract (en)

[origin: WO0063886A1] Techniques like Huffman coding can be used to represent digital audio signal components more efficiently using non-uniform length symbols than can be represented by other coding techniques using uniform length symbols. Unfortunately, the coding efficiency that can be achieved by Huffman coding depends on the probability density function of the information to be coded and the Huffman coding process itself requires considerable processing and memory ressources. A coding process that uses gain-adaptive quantization according to the present invention can realize the advantage of using non-uniform length symbols while overcoming the shortcomings of Huffman coding. In gain-adaptive quantization, the magnitudes of signal components to be encoded are compared to one or more thresholds and placed into classes according to the results of the comparison. The magnitudes of the components placed into one of the classes are modified according to a gain factor that is related to the threshold used to classify the components. Preferably, the gain factor may be expressed as a function of only the threshold value. Gain-adaptive quantization may be used to encode frequency subband signals in split-band audio coding systems. Additional features including cascaded gain-adaptive quantization, intra-frame coding, split-interval and non-overloading quantizers are disclosed.

IPC 8 full level

G10L 19/032 (2013.01); **G10L 19/02** (2013.01); **H03M 7/30** (2006.01); **H04B 1/66** (2006.01); **H04B 14/04** (2006.01)

CPC (source: EP KR)

G10L 19/0208 (2013.01 - EP); **G10L 19/032** (2013.01 - KR)

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 0063886 A1 20001026; AR 023444 A1 20020904; AT E269574 T1 20040715; AU 4227900 A 20001102; AU 771454 B2 20040325; BR 0010672 A 20020219; BR PI0010672 B1 20160607; CA 2368453 A1 20001026; CA 2368453 C 20091208; CN 1158646 C 20040721; CN 1347549 A 20020501; DE 60011606 D1 20040722; DE 60011606 T2 20050623; DE 60011606 T3 20080124; DK 1175670 T3 20041011; DK 1175670 T4 20071119; EP 1175670 A1 20020130; EP 1175670 B1 20040616; EP 1175670 B2 20070919; ES 2218148 T3 20041116; ES 2218148 T5 20080216; HK 1045747 A1 20021206; HK 1045747 B 20041231; JP 2002542522 A 20021210; JP 4843142 B2 20111221; KR 100893281 B1 20090417; KR 20010112434 A 20011220; MX PA01010447 A 20020730; MY 122486 A 20060429; TW 536692 B 20030611

DOCDB simple family (application)

US 0009604 W 20000411; AR P000101655 A 20000411; AT 00922036 T 20000411; AU 4227900 A 20000411; BR 0010672 A 20000411; CA 2368453 A 20000411; CN 00806330 A 20000411; DE 60011606 T 20000411; DK 00922036 T 20000411; EP 00922036 A 20000411; ES 00922036 T 20000411; HK 02107256 A 20021003; JP 2000612930 A 20000411; KR 20017013223 A 20011016; MX PA01010447 A 20000411; MY PI20001607 A 20000414; TW 89106701 A 20000411