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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
7 August 2008 (07.08.2008)

PCT

(10) International Publication Number
WO 2008/095020 A3

(51) International Patent Classification:
H04L 27/26 (2006.01) *H04N 7/26* (2006.01)

(21) International Application Number:
PCT/US2008/052497

(22) International Filing Date: 30 January 2008 (30.01.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/700,369 30 January 2007 (30.01.2007) US

(71) Applicant *(for all designated States except US)*: **QUALCOMM INCORPORATED** [US/US]; Attn: International IP Administration, 5775 Morehouse Drive, San Diego, California 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **RAVEENDRAN, Vijayalakshmi, R.** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **WALKER, Gordon, Kent** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **GUPTA, Binita** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **BHAMIDIPATI, Phanikumar** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **COLLINS, Bruce** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **SHAH, Devarshi** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **DALEY, Robert, S.** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **DAHL, Sten, Jorgen** [SE/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **LOUKAS, Serafim, S. Jr.,** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **AHUJA, Bharat** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **NAGARAJ, Thadi, M.** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **KAUSHIK, Vinod** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **KANNAN, Prasanna** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121 (US).

(74) Agents: **BACHAND, Richard, A.** et al.; Attn: International IP Administration, 5775 Morehouse Drive, San Diego, Califonia 92121 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID,

[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR RESIZING MULTIMEDIA CONTENT BASED ON QUALITY AND RATE INFORMATION

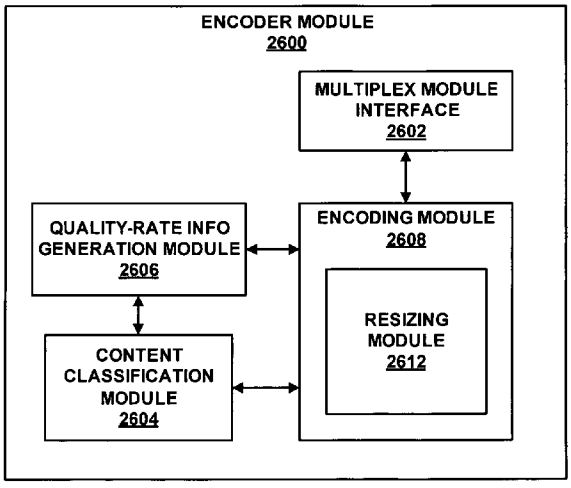

FIG. 26

(57) Abstract: In general, this disclosure describes techniques for exchanging information between a plurality of encoder modules and a multiplex module to combine segments of data from the encoder modules with an improved overall quality. In particular, the encoder modules associate their respective segments of data with quality and rate information and send at least the quality and rate information associated with the segments of data to the multiplex module. The multiplex module analyzes the quality and rate information to determine whether the segments of data that encoder modules desire to include in the current superframe fit within the available bandwidth of a transmission channel. If the multiplex module determines the plurality of segments of data do not fit within the available bandwidth, the multiplex module selects one or more of the segments to be resized based on the quality and rate information received from the encoder modules.

WO 2008/095020 A3

IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
25 September 2008