



(51) International Patent Classification:

G10L 19/00 (2006.01) **G10L 21/04** (2006.01)
G10L 19/02 (2006.01)

(21) International Application Number:

PCT/EP2011/067318

(22) International Filing Date:

4 October 2011 (04.10.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/390,267 6 October 2010 (06.10.2010) US

(71) Applicants (for all designated States except US):

FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V. [DE/DE]; Hansastraße 27c, 80686 München (DE). **VOICEAGE CORPORATION** [CA/CA]; 750 Lucerne Road, Suite 250, Montreal, Québec H3R 2H6 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MULTRUS, Markus** [DE/DE]; Etzlaubweg 7, 90469 Nürnberg (DE). **GRILL, Bernhard** [DE/DE]; Peter-Henlein-Str. 7, 91207 Lauf (DE). **NEUENDORF, Max** [DE/DE]; Paradiesstr. 20, 90459 Nürnberg (DE). **RETTELACH, Nikolaus**

[DE/DE]; Spessartstr. 38, 90427 Nürnberg (DE). **FUCHS, Guillaume** [FR/DE]; Fürther Str. 17, 91058 Erlangen (DE). **GOURNAY, Philippe** [FR/CA]; 3012 rue du Sauvignon, Sherbrooke, Québec J1L 0A2 (CA). **LEFEBVRE, Roch** [CA/CA]; 259, rue de la Bourgade, Magog, Québec J1X 0L6 (CA). **BESSETTE, Bruno** [CA/CA]; 1600 Rue Murillo, Sherbrooke, Québec J1N 4G5 (CA).

(74) Agents: **ZINKLER, Franz** et al.; Postfach 246, 82043 Pullach (DE).

(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, CL, 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, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD,

[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR PROCESSING AN AUDIO SIGNAL AND FOR PROVIDING A HIGHER TEMPORAL GRANULARITY FOR A COMBINED UNIFIED SPEECH AND AUDIO CODEC (USAC)

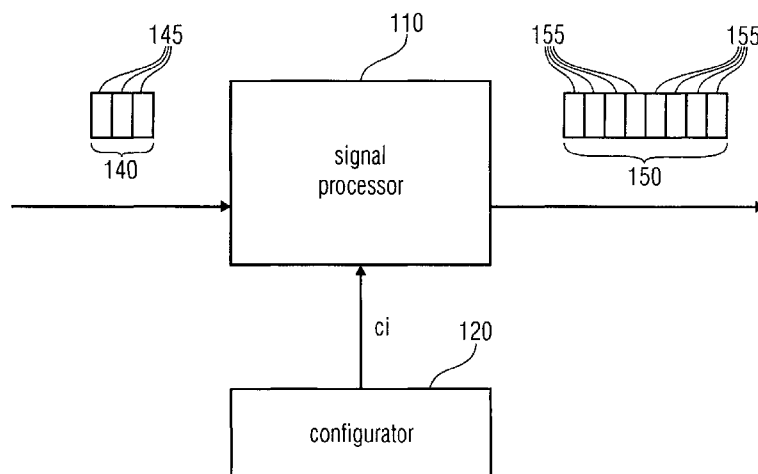


FIG 1

(57) Abstract: An apparatus for processing an audio signal is provided. The apparatus comprises a signal processor (110; 205; 405) and a configurator (120; 208; 408). The signal processor (110; 205; 405) is adapted to receive a first audio signal frame having a first configurable number of samples of the audio signal. Moreover, the signal processor (110; 205; 405) is adapted to upsample the audio signal by a configurable upsampling factor to obtain a processed audio signal. Furthermore, the signal processor (110; 205; 405) is adapted to output a second audio signal frame having a second configurable number of samples of the processed audio signal. The configurator 120; 208; 408) is adapted to configure the signal processor (110; 205; 405) based on configuration information such that the configurable upsampling factor is equal to a first upsampling value when a first ratio of the second configurable number of samples to the first configurable number of samples has a first ratio value. Moreover, the configurator (120; 208; 408) is adapted to configure the signal processor (110; 205; 405) such that the configurable upsampling

factor is equal to a different second upsampling value, when a different second ratio of the second configurable number of samples to the first configurable number of samples has a different second ratio value. The first or the second ratio value is not an integer value.



RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, **Published:**

DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT,

LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS,

SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM,

GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— with international search report (Art. 21(3))