

(51) International Patent Classification:
H03M 1/12 (2006.01)

(21) International Application Number:

PCT/SG2012/000324

(22) International Filing Date:

6 September 2012 (06.09.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/531,170 6 September 2011 (06.09.2011) US

(71) Applicant (for all designated States except US): **NATIONAL UNIVERSITY OF SINGAPORE** [SG/SG]; 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LIAN, Yong** [SG/SG]; c/o National University of Singapore, Faculty of Engineering, Department of Electrical and Computer Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **LIEW, Wen-sin** [MY/SG]; c/o National University of Singapore, Faculty of Engineering, Department of Electrical and Computer Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG). **ZOU, Xiaodan** [CN/SG]; c/o National University of Singapore, Faculty of Engineering, Department of Electrical and Computer Engineering, 21 Lower Kent Ridge Road, Singapore 119077 (SG).(74) Agent: **ELLA CHEONG SPRUSON & FERGUSON (SINGAPORE) PTE LTD**; PO Box 1531, Robinson Road Post Office, Singapore 903031 (SG).

(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, BN, 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.

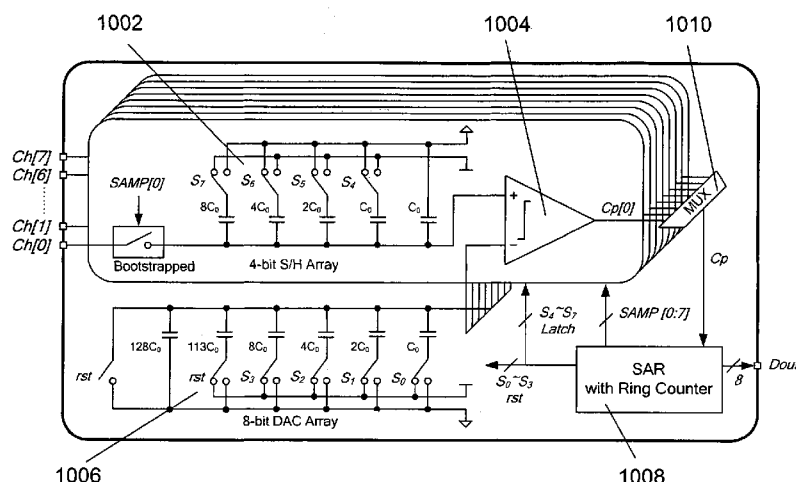
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, 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).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: AN ANALOG-TO-DIGITAL CONVERTER FOR A MULTI-CHANNEL SIGNAL ACQUISITION SYSTEM



(57) Abstract: An analog-to-digital converter (ADC) for a multi-channel signal acquisition system, a signal acquisition system, a method of generating a digital output code from an analog input signal received at an input channel of a plurality of input channels, and a method of converting a plurality of analog input signals to a digital output signal are provided. The ADC comprises a sample-and-hold (S/H) circuit for each input channel, and operable to receive a respective analog input signal for each input channel; a digital-to-analog converter (DAC) common to all input channels; a comparator for each input channel, said comparator configured to receive an output signal from the S/H circuit of the respective input channel as a first input signal, and an output signal from the DAC as a second input signal, for generating a comparison result at each conversion cycle of the comparator; and a successive approximation register (SAR) common to all input channels and configured to generate, for each input channel, a digital output code based on the comparison results received from the respective comparator.



Published:

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