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[Continued on next page]

(54) Title: MODULAR DIGITAL SIGNAL PROCESSING CIRCUITRY WITH OPTIONALLY USABLE, DEDICATED CONNECTIONS BETWEEN MODULES OF THE CIRCUITRY

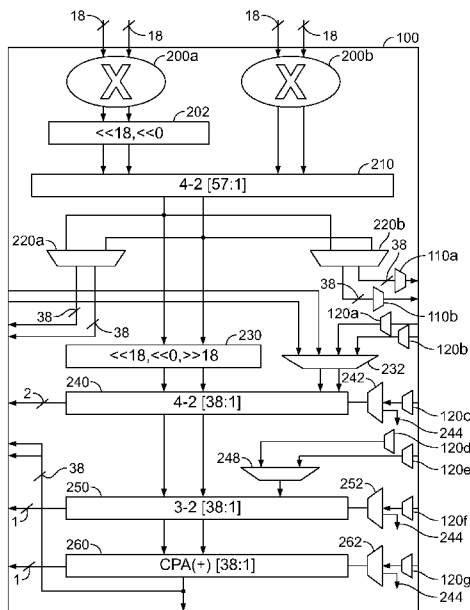


FIG. 4

(57) Abstract: Digital signal processing ("DSP") circuit blocks are provided that can more easily work together to perform larger (e.g., more complex and/or more arithmetically precise) DSP operations if desired. These DSP blocks may also include redundancy circuitry that facilitates stitching together multiple such blocks despite an inability to use some block (e.g., because of a circuit defect). Systolic registers may be included at various points in the DSP blocks to facilitate use of the blocks to implement systolic form, finite-impulse-response ("FIR"), digital filters.

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ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM,
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ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06F H03K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 936 809 A2 (ALTERA CORP [US]) 25 June 2008 (2008-06-25)	1-4, 10
Y	* abstract column 2, paragraph 6 - paragraph 8 paragraph 21 - column 6, paragraph 34 figures 3-5	5-9, 11-13
Y	US 7 287 051 B1 (LANGHAMMER MARTIN [GB]) 23 October 2007 (2007-10-23)	5, 6, 11-13
A	* abstract column 1, line 34 - line 54 column 4, line 51 - column 6, line 57 column 8, line 35 - line 40 column 9, line 1 - line 53 claims 1,3 figures 3-5	1-4, 10
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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- "&" document member of the same patent family

Date of the actual completion of the international search

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23/09/2010

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/026056

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 298 366 B1 (GATHERER ALAN [US] ET AL) 2 October 2001 (2001-10-02) * abstract column 1, line 66 - column 2, line 37 column 12, line 25 - line 67 figures 8A,8B	1-6,10
A	EP 1 830 252 A2 (ALTERA CORP [US]) 5 September 2007 (2007-09-05) * abstract figures 2,5	1-6,10
Y	US 4 972 356 A (WILLIAMS TIM A [US]) 20 November 1990 (1990-11-20)	7,8
A	* abstract column 5, line 57 - column 6, line 40 figures 17-19	13
A	WO 92/00561 A1 (LUMINIS PTY LTD [AU]) 9 January 1992 (1992-01-09) * abstract figure 5	7,8
Y	US 7 119 576 B1 (LANGHAMMER MARTIN [GB] ET AL) 10 October 2006 (2006-10-10) * abstract column 19, line 61 - column 21, line 63; figure 10	9
Y	WO 2006/076276 A2 (VELOGIX INC [US]; VERMA HARE K [US]; VITTAL ASHOK [US]; SUNKAVALLI RAV) 20 July 2006 (2006-07-20) * abstract figure 2	11
A	WO 97/14090 A1 (CHROMATIC RES INC [US]) 17 April 1997 (1997-04-17) * abstract figure 1	14-16, 19-33
A	US 2004/199558 A1 (ALDRICH BRADLEY C [US] ET AL) 7 October 2004 (2004-10-07) * abstract figures 1-5	14-16, 19-33

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/026056

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6, 10

DSP circuit block of claim 1 with a pre-adder circuitry for adding inputs

2. claims: 7, 8

DSP circuit block of claim 1 using systolic register circuitry (for in- or output signals)

3. claim: 9

DSP circuit block of claim 1 with optional feedback from outputs of the second compressor circuit to its input

4. claims: 11-13

DSP circuit block of claim 1 with alternative routing circuitry

5. claims: 14-16, 19-33

(DSP) circuitry similar to the one disclosed in D1 but which comprises only one $N \times N$ -multiplier and at least one $0.5N \times 1.5N$ -multipliers

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/026056

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