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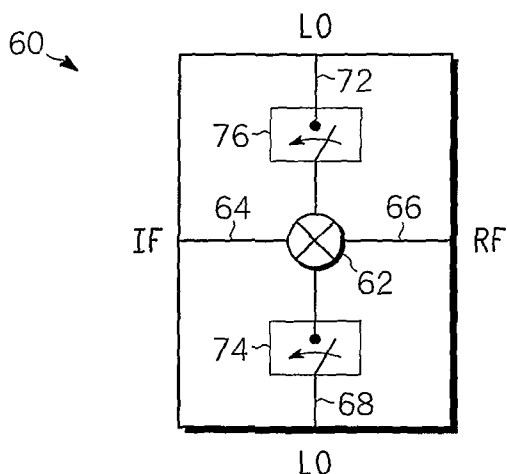
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(54) Title: MIXER APPARATUS HAVING SWITCHABLE LOCAL OSCILLATOR INPUTS



(57) Abstract: A mixer apparatus (60), such as an integrated circuit (IC) mixer, is provided for improving the physical layout of devices containing mixers. The mixer includes a multiplier (62) with an input port (64), an output port (66), a first switchable local oscillator input port (68) and a second switchable local oscillator input port (72). The dual switchable local oscillator ports are located on either side of the mixer, between the input side and the output side. The dual switchable local oscillator ports allow the mixer to provide more flexibility in integrated circuit and printed circuit board design layouts involving mixer apparatus. For example, in dual channel devices, a local oscillator can be coupled to a pair of the mixers using transmission lines that do not have to be routed around the integrated circuit, to a different level of the printed circuit board or underneath one of the mixers.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

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USPC - 455/318

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)

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USPC - 455/318, 323, 326

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 practicable, search terms used)

Patbase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,882,834 B1 (BALBONI) 19 April 2005 (19.04.2005) entire document	1-3, 5, 7-11
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Y		4, 6, 12, 13
Y	US 6,125,272 A (BAUTISTA et al) 26 September 2000 (26.09.2000) entire document	4, 6, 12, 13
A	US 6,192,225 B1 (ARPAIA et al) 20 February 2001 (20.02.2001) entire document	1-13
A	US 6,959,179 B1 (WONG et al) 25 October 2005 (25.10.2005) entire document	1-13
A	US 2005/0164662 A1 (TSENG et al) 28 July 2005 (28.07.2005) entire document	1-13

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Date of the actual completion of the international search

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