INTEGRATED PACKAGING OF MICROMECHANICAL SENSORS AND CONTROL CIRCUITS

A micromechanical sensor (42) is fabricated on a first semiconductor wafer (40), and a control circuit is fabricated on a front side of a second wafer (30). A cavity (36) is formed on the backside of the second wafer, the cavity is being formed such that the sensor on the wafer fits within the cavity when the wafers are brought together in an adjoining relationship. Through-holes (34) are etched through the backside of the second wafer to allow access to electrical points and a patterned layer (38) is deposited to form electrical interconnections between electrical contact points and terminal points on the backside of the wafer via through-holes. The two wafers are cleaned and bonded together. The bonded wafers are diced to yield individual bonded sensor-control circuit pairs.
INTERNATIONAL SEARCH REPORT
Form PCT/ISA/210 (second sheet) (July 1998)
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International application No.
PCT/US00/41193

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7): HOIL 21/302, 21/48, 21/52, 21/60, 21/70; HOIL 29/84, 23/02
US CL: Please See Extra Sheet.
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)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WEST, JPO, EPO, CA, INSPEC, NPL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevance to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 5,837,562 A (CHO) 17 November 1998 (17.11.1998), fig.5 and col-4-5.</td>
<td>1-18</td>
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<tr>
<td>Y, P</td>
<td>US 6,114,221 A (TONTI et al.) 05 September 2000 (05.09.2000), figs. 15-16, col. 3, lines 5-60.</td>
<td>1-18</td>
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<td>Y</td>
<td>US 5,866,469 A (HAYS) 02 February 1999 (02.02.1999), fig.3B col. 3-col.4.</td>
<td>1-18</td>
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<tr>
<td>Y</td>
<td>US 5,492,596 A (CHO) 20 February 1996 (20.02.1996), see 3A-4B and col.3-col.4.</td>
<td>1-18</td>
</tr>
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<td>Y</td>
<td>US 5,646,072 A (MAUDIE et al.) 08 July 1997 (08.07.1997), fig. 4 and col. 2, lines 59- col. 3, lines 62.</td>
<td>1-18</td>
</tr>
</tbody>
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X Further documents are listed in the continuation of Box C.  
☐ See patent family annex.

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*A* document member of the same patent family

Date of the actual completion of the international search
20 MARCH 2001

Date of mailing of the international search report
19 APR 2001

Facsimile No. (703) 305-3230

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SAVITRI MULPURI
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<td></td>
<td>(24.02.1998), detailed description.</td>
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<td>US 6,143,583 A (HAYS) 07 November 2000 (07.11.2000), see detailed description.</td>
<td>1-18</td>
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<tr>
<td>Y, P</td>
<td>US 6,074,891 A (STALLER) 13 June 2000 (13.06.2000), detailed description.</td>
<td>1-18</td>
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</table>
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A. CLASSIFICATION OF SUBJECT MATTER:
US CL :

International application No.
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