## PATENT ASSIGNMENT

## Electronic Version v1.1 Stylesheet Version v1.1

|  |  | NEW ASSIGNMENT   |                  |  |  |  |
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| CONVEYING PARTY DATA   |  |  |                  |  |  |  |
|  |  | Name   | Execution Date   |  |  |  |
| IRVINE SENSORS C   | ORPORATION   |  | 03/16/2009       |  |  |  |
| RECEIVING PARTY [  | ATA  |  |                  |  |  |  |
| Name:  | APROLASE DEV   | ELOPMENT CO., LLC  |                  |  |  |  |
| Street Address:  | 2711 Centerville I   | Road   |                  |  |  |  |
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| State/Country:   | DELAWARE   |  |                  |  |  |  |
| Postal Code:   | 19808  |  |                  |  |  |  |
|  |  |  |                  |  |  |  |
| Property T   | уре  | Number   |                  |  |  |  |
| Application Number:  | 081  | Application Number: 08178923   |                  |  |  |  |
| CORRESPONDENCE DATA  |  |  |                  |  |  |  |
| CORRESPONDENCE   | DATA   |  | 08178923         |  |  |  |
| CORRESPONDENCE<br>Fax Number:  | E DATA<br>(608)258-42  | 58   |                  |  |  |  |
| Fax Number:<br><i>Correspondence will</i>  | (608)258-42<br>be sent via US Mai  | when the fax attempt is unsuccessful.  | \$40.00<br>08178 |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:  | (608)258-42<br><i>be sent via US Mai</i><br>608-257-503  | <i>when the fax attempt is unsuccessful.</i><br>5  | \$40.00          |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:<br>Email:  | (608)258-42<br><i>be sent via US Mai</i> i<br>608-257-503<br>MadisonIPD  | when the fax attempt is unsuccessful.<br>5<br>ocketing@foley.com, wmorris@foley.com  |                  |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:  | (608)258-42<br><i>be sent via US Mai</i> i<br>608-257-503<br>MadisonIPD  | <i>when the fax attempt is unsuccessful.</i><br>5  | \$40.00          |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:<br>Email:<br>Correspondent Name  | (608)258-42<br><i>be sent via US Maii</i><br>608-257-503<br>MadisonIPD<br>: Paul S Hunt  | when the fax attempt is unsuccessful.<br>5<br>ocketing@foley.com, wmorris@foley.com<br>er, Foley & Lardner LLP                                     | \$40.00          |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:<br>Email:<br>Correspondent Name<br>Address Line 1:                                       | (608)258-42<br>be sent via US Maii<br>608-257-503<br>MadisonIPD<br>: Paul S Hunt<br>Verex Plaza<br>150 East Gil                | when the fax attempt is unsuccessful.<br>5<br>ocketing@foley.com, wmorris@foley.com<br>er, Foley & Lardner LLP                                     | \$40.00          |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:<br>Email:<br>Correspondent Name<br>Address Line 1:<br>Address Line 2:                    | (608)258-42<br>be sent via US Maii<br>608-257-503<br>MadisonIPD<br>: Paul S Hunt<br>Verex Plaza<br>150 East Gil<br>Madison, Wi | when the fax attempt is unsuccessful.<br>5<br>ocketing@foley.com, wmorris@foley.com<br>er, Foley & Lardner LLP<br>man Street                       | \$40.00          |  |  |  |
| Fax Number:<br><i>Correspondence will I</i><br>Phone:<br>Email:<br>Correspondent Name<br>Address Line 1:<br>Address Line 2:<br>Address Line 4: | (608)258-42<br>be sent via US Maii<br>608-257-503<br>MadisonIPD<br>Paul S Hunt<br>Verex Plaza<br>150 East Gil<br>Madison, Wi   | when the fax attempt is unsuccessful.<br>5<br>ocketing@foley.com, wmorris@foley.com<br>er, Foley & Lardner LLP<br>man Street<br>SCONSIN 53703-1481 | \$40.00          |  |  |  |

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## **ASSIGNMENT OF PATENT RIGHTS**

For good and valuable consideration, the receipt of which is hereby acknowledged, Irvine Sensors Corporation, a Delaware corporation, with an office at 3001 Redhill Ave., Bldg. 4, Suite 108, Costa Mesa, CA 92672 ("*Assignor*"), does hereby sell, assign, transfer, and convey unto Aprolase Development Co., LLC, a Delaware limited liability company, having an address at 2711 Centerville Road, Suite 400, Wilmington, DE 19808 ("*Assignee*"), or its designees, all right, title, and interest that exist today and may exist in the future in and to any and all of the following (collectively, the "*Patent Rights*"):

(a) the provisional patent applications, patent applications and patents listed in the table below (the "*Patents*");

|                           |                |                            | <b>Title of Patent and First Named</b>   |
|---------------------------|----------------|----------------------------|--|
| Patent or Application No. | <b>Country</b> | Filing Date                | Inventor   |
| 5,235,672<br>(07/651,477) | US             | 8/10/1993<br>(2/6/1991)    | Hardware for electronic neural<br>network<br>Carson, John C.   |
| 6,389,404<br>(09/223,476) | US             | 5/14/2002<br>(12/30/1998)  | Neural processing module with<br>input architectures that make<br>maximal use of a weighted<br>synapse array<br>Carson, John C.; Saunders,                                 |
|                           |                |                            | Christ H.  |
| 6,650,704<br>(09/427,384) | US             | 11/18/2003<br>(10/25/1999) | Method of producing a high<br>quality, high resolution image<br>from a sequence of low quality,<br>low resolution images that are<br>undersampled and subject to<br>jitter |
|                           |                |                            | Carlson, Randolph S.; Arnold,<br>Jack L.; Feldmus, Valentine G.  |
| 6,829,237<br>(09/973,857) | US             | 12/7/2004<br>(10/9/2001)   | High speed multi-stage switching<br>network formed from stacked<br>switching layersCarson, John C.;<br>Ozguz, Volkan H.  |
| 7,082,591<br>(10/346,363) | US             | 7/25/2006<br>(1/17/2003)   | Method for effectively embedding<br>various integrated circuits within<br>field programmable gate arrays   |
|                           |                |                            | Carlson, Randolph S.   |
| 6,856,167                 | US             | 2/15/2005                  | Field programmable gate array<br>with a variably wide word width<br>memory   |
| (10/347,038)              |                | (1/17/2003)                | Ozguz, Volkan H.; Carlson,<br>Randolph S.; Gann, Keith D.;<br>Leon, John P.  |

| Patent or Application No. | Country | Filing Date               | <u>Title of Patent and First Named</u><br>Inventor  |
|---------------------------|---------|---------------------------|---|
| 7,265,579                 | US      | 9/4/2007                  | Field programmable gate array<br>incorporating dedicated memory<br>stacks   |
| (11/037,490)              | 03      | (1/18/2005)               | Carlson, Randolph Stuart; Ozguz,<br>Volkan; Gann, Keith D.; Leon,<br>John P.  |
| 5,508,836<br>(08/305,066) | US      | 4/16/1996<br>(9/13/1994)  | Infrared wireless communication<br>between electronic system<br>components<br>DeCaro, Robert; Saunders,   |
| 5,635,705<br>(08/526,415) | US      | 6/3/1997<br>(9/11/1995)   | Christ H.; Maeding, Dale<br>Sensing and selecting observed<br>events for signal processing  |
| 6,195,268<br>(09/031,435) | US      | 2/27/2001<br>(2/26/1998)  | Saunders, Christ H.<br>Stacking layers containing<br>enclosed IC chips  |
| 5,045,685<br>(07/534,969) | US      | 9/3/1991<br>(6/6/1990)    | Eide, Floyd K.<br>Analog to digital conversion on<br>multiple channel IC chips  |
| 5,104,820<br>(07/720,025) | US      | 4/14/1992<br>(6/24/1991)  | Wall, Llewellyn E.<br>Method of fabricating electronic<br>circuitry unit containing stacked<br>IC layers having lead rerouting<br>Go, Tiong C.(deceased,);<br>Minahan, Joseph A.; Shanken,<br>Stuart N. |
| 5,279,991<br>(07/996,794) | US      | 1/18/1994<br>(12/24/1992) | Method for fabricating stacks of<br>IC chips by segmenting a larger<br>stack<br>Minahan, Joseph A.; Pepe, Angel<br>A.   |
| 5,432,318<br>(08/178,923) | US      | 7/11/1995<br>(1/7/1994)   | Apparatus for segmenting<br>stacked IC chips<br>Minahan, Joseph A.  |
| 5,304,790<br>(07/956,914) | US      | 4/19/1994<br>(10/5/1992)  | Apparatus and system for<br>controllably varying image<br>resolution to reduce data output  |
| 5,347,428<br>(07/985,837) | US      | 9/13/1994<br>(12/3/1992)  | Arnold, Jack<br>Module comprising IC memory<br>stack dedicated to and<br>structurally combined with an IC<br>microprocessor chip<br>Carson, John C.; Indin, Ronald<br>J.; Shanken, Stuart N.            |

| Patent or Application No. | Country | Filing Date               | Title of Patent and First Named<br>Inventor   |
|---------------------------|---------|---------------------------|---|
| 5,406,701                 | US      | 4/18/1995                 | Fabrication of dense parallel solder bump connections   |
| (08/120,675)              |         | (9/13/1993)               | Pepe, Angel A.; Reinker, David<br>M.; Minahan, Joseph A.<br>Non-conductive end layer for  |
| 5,424,920<br>(08/232,739) | US      | 6/13/1995<br>(4/25/1994)  | integrated stack of IC chips  |
| 5,432,729<br>(08/255,465) | US      | 7/11/1995<br>(6/8/1994)   | Miyake, Michael K.<br>Electronic module comprising a<br>stack of IC chips each interacting<br>with an IC chip secured to the<br>stack |
|                           |         |                           | Carson, John C.; Some, Raphael<br>R.  |
| 5,581,498                 |         | 12/3/1996                 | Stack of IC chips in lieu of single IC chip   |
| (08/326,645)              | US      | (10/20/1994)              | Ludwig, David E.; Saunders,<br>Christ H.; Some, Raphael R.;<br>Stuart, John J.  |
| 5,688,721<br>(08/62,2671) | US      | 11/18/1997<br>(3/26/1996) | 3D stack of IC chips having leads<br>reached by vias through<br>passivation covering access<br>plane                                  |
|                           |         |                           | Johnson, Tony K.<br>Stackable layers containing   |
| 5,953,588<br>(08/777,747) | US      | 9/14/1999<br>(12/21/1996) | encapsulated IC chips<br>Camien, Andrew N; Yamaguchi,   |
|                           |         |                           | James S.<br>Stack of equal layer neo-chips  |
| 6,072,234<br>(09/316,740) | US      | 6/6/2000<br>(5/21/1999)   | containing encapsulated IC chips of different sizes   |
|                           |         |                           | Camien, Andrew N.; Yamaguchi,<br>James S.   |
| 5,955,668<br>(09/166,458) | US      | 9/21/1999<br>(10/5/1998)  | Multi-element micro gyro<br>Hsu, Ying W.; Reeds, III, John<br>W.; Saunders, Christ H.   |
| 6,089,089<br>(09/301,847) | US      | 7/18/2000<br>(4/29/1999)  | Multi-element micro gyro<br>Hsu, Ying W.  |
| 6,578,420<br>(09/604,782) | US      | 6/17/2003<br>(6/26/2000)  | Multi-axis micro gyro structure<br>Hsu, Ying Wen  |
| 6,014,316<br>(09/095,416) | US      | 1/11/2000<br>(6/10/1998)  | IC stack utilizing BGA contacts<br>Eide, Floyd K.   |

| Patent or Application No. | tent or Application No. Country Filing Date |   | Title of Patent and First Named<br>Inventor  |
|---------------------------|---|---|--|
| 6,028,352<br>(09/095,415) | US  | 2/22/2000(6/10/199<br>8)  | IC stack utilizing secondary lead<br>frames<br>Eide, Floyd K.  |
| 6,117,704<br>(09/282,704) | US  | 9/12/2000<br>(3/31/1999)<br>Yamaguchi, James S.; C<br>Volkan H.; Camien, Andr |  |
| 6,476,392<br>(09/853,819) | US  | 11/5/2002<br>(5/11/2001)  | Method and apparatus for<br>temperature compensation of an<br>uncooled focal plane array<br>Kaufman, Charles S.; Carson,<br>Randolph S.; Hornback, William                           |
| 6,891,160<br>(10/281,393) | US  | 5/10/2005<br>(10/25/2002)   | B.<br>Method and apparatus for<br>temperature compensation of an<br>uncooled focal plane array<br>Kaufman, Charles S.; Carson,<br>Randolph S.; Hornback, William                     |
| 7,235,785<br>(11/048,634) | US  | 6/26/2007<br>(1/31/2005)  | B.<br>Imaging device with multiple<br>fields of view incorporating<br>memory-based temperature<br>compensation of an uncooled<br>focal plane array<br>Hornback, Bert; Harwood, Doug; |
| 6,596,997<br>(09/921,525) | US  | 7/22/2003<br>(8/3/2001)   | Boyd, W. Eric; Carlson, Randy<br>Retro-reflector warm stop for<br>uncooled thermal imaging<br>cameras and method of using the<br>same<br>Kaufman, Charles S.                         |
| 6,706,971<br>(10/142,557) | US  | 3/16/2004<br>(5/10/2002)  | Stackable microcircuit layer<br>formed from a plastic<br>encapsulated microcircuit<br>Albert, Douglas M.; Gann, Keith<br>D.  |
| 7,174,627<br>(10/338,974) | US  | 2/13/2007<br>(1/9/2003)   | Method of fabricating known<br>good dies from packaged<br>integrated circuits<br>Gann, Keith D.  |
| 6,560,109<br>(09/949,024) | US  | 5/6/2003<br>(9/7/2001)  | Stack of multilayer modules with<br>heat-focusing metal layer<br>Yamaguchi, James Satsuo;<br>Pepe, Angel Antonio; Ozguz,<br>Volkan H.; Camien, Andrew<br>Nelson                      |

| Patent or Application No. | Country | Filing Date               | <u>Title of Patent and First Named</u><br>Inventor   |
|---------------------------|---------|---------------------------|--|
| Tatem of Application Her  |         |                           | Stacking of multilayer modules   |
| 6,717,061<br>(09/949,512) | US      | 4/6/2004<br>(9/7/2001)    | Yamaguchi, James Satsuo;<br>Pepe, Angel Antonio; Ozguz,<br>Volkan H.; Camien, Andrew<br>Nelson<br>Multilayer modules with flexible<br>substrates   |
| 6,734,370<br>(09/948,950) | US      | 5/11/2004<br>(9/7/2001)   | Yamaguchi, James Satsuo;<br>Pepe, Angel Antonio; Ozguz,<br>Volkan H.; Camien, Andrew<br>Nelson   |
| 7,127,807<br>(10/431,914) | US      | 10/31/2006<br>(5/7/2003)  | Process of manufacturing<br>multilayer modules<br>Yamaguchi, James Satsuo;<br>Pepe, Angel Antonio; Ozguz,<br>Volkan H.; Camien, Andrew<br>Nelson   |
| 6,797,537<br>(09/938,686) | US      | 9/28/2004<br>(10/30/2001) | Method of making stackable<br>layers containing encapsulated<br>integrated circuit chips with one<br>or more overlaying interconnect<br>layers<br>Pepe, Angel Antonio; Yamaguchi,            |
| 6,784,547<br>(10/302,680) | US      | 8/31/2004<br>(11/21/2002) | James Satsuo<br>Stackable layers containing<br>encapsulated integrated circuit<br>chips with one or more overlying<br>interconnect layers<br>Pepe, Angel Antonio; Yamaguchi,<br>James Satsuo |
| 7,239,012<br>(10/951,990) | us      | 7/3/2007<br>(9/28/2004)   | Three-dimensional module<br>comprised of layers containing IC<br>chips with overlying interconnect<br>layers<br>Pepe, Angel; Yamaguchi, James  |
| 6,806,559<br>(10/128,728) | US      | 10/19/2004(4/22/20<br>02) | Method and apparatus for<br>connecting vertically stacked<br>integrated circuit chips<br>Gann, Keith D.; Albert, Douglas<br>M.   |
| 6,912,862<br>(10/615,641) | US      | 7/5/2005<br>(7/8/2003)    | Cryopump piston position<br>tracking<br>Sapir, Itzhak  |
| 6,967,411<br>(10/360,244) | US      | 11/22/2005<br>(2/7/2003)  | Stackable layers containing ball<br>grid array packages<br>Eide, Floyd K.  |

| Patent or Application No. | <u>Country</u> | Filing Date               | Title of Patent and First Named<br>Inventor   |
|---------------------------|----------------|---------------------------|---|
| 7,242,082<br>(11/229,351) | US             | 6/10/2007<br>(9/15/2005)  | Stackable layer containing ball grid array package<br>Eide, Floyd   |
| 6,993,835<br>(10/726,888) | US             | 2/7/2006<br>(12/4/2003)   | Method for electrical<br>interconnection of angularly<br>disposed conductive patterns<br>Albert, Douglas Marice   |
| 6,998,328<br>(10/701,783) | US             | 2/14/2006<br>(11/5/2003)  | Method for creating neo-wafers<br>from singulated integrated circuit<br>die and a device made according<br>to the method  |
| 7,417,323<br>(10/703,177) | US             | (11/6/2003)               | Stern, Jonathan Michael<br>Neo-wafer device and method<br>Sambo S. He   |
| 7,198,965<br>(11/354,370) | US             | 4/3/2007<br>(2/14/2006)   | Method for making a neo-layer<br>comprising embedded discrete<br>components   |
| 7,180,579<br>(10/806,037) | US             | 2/20/2007<br>(3/22/2004)  | He, Sambo<br>Three-dimensional imaging<br>processing module incorporating<br>stacked layers containing<br>microelectronic circuits<br>Ludwig, David E.; Kennedy, John<br>V.; Kleinhans, William; Liu, Tina;<br>Krutzik, Christian |
| 7,436,494<br>(11/706,724) | US             | 10/14/2008<br>(2/15/2007) | Three-dimensional LADAR<br>module with alignment reference<br>insert circuitry<br>Ludwig, David E.; Kennedy, John<br>V.; Kleinhans, William; Liu, Tina;<br>Krutzik, Christian   |
| 7,335,576<br>(11/197,828) | US             | 2/26/2008<br>(8/5/2005)   | Method for precision integrated<br>circuit die singulation using<br>differential etch rates<br>David, Ludwig; Yamaguchi,<br>James; Clark, Stuart; Boyd, W.<br>Eric  |
| 7,380,459<br>(11/654,292) | US             | 6/3/2008<br>(1/16/2007)   | Absolute pressure sensor<br>Sapir, Itzhak   |
| 10/968,572                | US             | 10/19/2004                | Vertically stacked pre-packaged integrated circuit chips  |
| L                         |                |                           | Keith Gann; Douglas N. Albert   |

| Patent or Application No. | Country | Filing Date | <u>Title of Patent and First Named</u><br>Inventor  |
|---------------------------|---------|-------------|---|
| 7,440,449<br>(10/960,712) | US      | 10/6/2004   | High speed switching module<br>comprised of stacked layers<br>incorporating T-connect<br>structures                                 |
| <u> </u>                  |         |             | John C. Carson; Volkan H. Orguz<br>Wire bond method for angularly<br>disposed conductive pads and a                                 |
| 11/977,447                | US      | 10/24/2007  | device made from the method<br>Randy Wayne Bindrup  |
| 11/897,938                | US      | 08/31/2007  | Field programmable gate array<br>utilizing dedicated memory stacks<br>in a vertical layer format<br>Ozguz, Volkan; Carlson,         |
|                           |         |             | Randolph Stuart; Gann, Keith D.;<br>Leon, John P.; Boyd, W Eric<br>Ball grid array package format<br>layers and structure           |
| 11/825,643                | US      | 7/7/2007    | Keith Gann; W Eric Boyd   |
| 11/807,671                | US      | 5/30/2007   | Infrared Detector and a Method<br>of Fabrication  |
| 11/731,154                | US      | 3/31/2007   | Ying Hsu<br>Ball Grid Array Stack<br>Frank Mantz  |
| 11/524,090                | US      | 9/20/2006   | Stackable tier structure<br>comprising high density<br>feedthrough  |
| 11/511,117                | US      | 8/26/2006   | Volkan Ozguz; Jonathan Stern<br>MEMS cooling device<br>Itzhak Sapir   |
| 11/499,403                | US      | 8/4/2006    | High density interconnect<br>assembly comprising stacked<br>electronic module   |
| 11/441,908                | US      | 5/26/2006   | John V. Kennedy<br>Stackable tier structure<br>comprising prefabricated high<br>density feedthrough<br>Volkan Ozguz; Jonathan Stern |
| 11/429,468                | US      | 5/5/2006    | Global positioning using<br>planetary constants<br>Sapir Itzhak   |

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| Detect on Application No.  | Country | Filing Date       | Inventor                                       |
|--|---------|-------------------|--|
| Patent or Application No.  | Country | <u>rning Date</u> | Low power electronic circuit                   |
|  |         |                   | incorporating real time clock                  |
| 11/415,891   | US      | 5/1/2006          | incorporating rear time clock                  |
|  |         |                   | Gary Gottlieb                                  |
|  |         |                   | Stacked ball grid array package                |
|  |         |                   | module utilizing one or more                   |
|  |         | 0/0/0000          | interposer layers                              |
| 11/350,974   | US      | 2/8/2006          | interposer layers                              |
|  |         |                   | William E. Boyd; Daniel Michaels               |
| ······································   |         |                   | Cornerbond assembly comprising                 |
|  |         |                   | three-dimensional electronic                   |
| 441004 045   | US      | 12/12/2005        | modules  |
| 11/301,645   | 05      | 12/12/2005        | modules  |
|  |         |                   | Albert Douglas                                 |
| and the second |         |                   | Stacked microelectronic layer                  |
|  |         |                   | and module with three-axis                     |
|  |         | 10/25/2005        | channel T-connects                             |
| 11/259,683   | US      | 10/25/2005        | Channel 1-Connects                             |
|  |         |                   | Keith D. Gann; W. Eric Boyd                    |
| and the second |         |                   | Anti-tamper module                             |
|  | 110     | 40/44/2005        | Anti-tamper module                             |
| 11/248,659   | US      | 10/11/2005        | Volkan H. Ozguz; John Leon                     |
|  |         |                   | Video event capture, storage and               |
|  |         |                   | processing method and                          |
|  | US      | 6/24/2002         | •  |
| 10/178,390   |         |                   | apparatus                                      |
|  |         |                   | Randolph S. Carlson                            |
| ·  |         |                   | Chip scale vacuum pump                         |
|  | 10      |                   | Chip scale vacuum pump                         |
| 60/993,689   | US      |                   | Itzhak Sapir                                   |
|  |         |                   | Stackable semiconductor chip                   |
|  |         |                   | layer comprising prefabricated                 |
|  |         |                   | trench interconnect vias                       |
|  |         |                   | trench miterconnect vias                       |
| 11/150,712   | US      | 6/10/2005         | W. Eric Boyd; Angel Pepe;                      |
|  |         |                   | James Yamaguchi; Volkan                        |
|  |         |                   | Ozguz; Andrew Camien; Douglas                  |
|  |         |                   | Albert   |
|  |         |                   | BGA-scale stacks comprised of                  |
|  |         |                   | layers containing integrated                   |
|  |         |                   | circuit die and a method for                   |
| 11/062,507   | US      | 2/22/2005         | making the same                                |
| , , ,  |         |                   | Inaking the same                               |
|  |         |                   | Gann Keith; William E. Boyd                    |
| ······································   |         |                   | Microcombustion power system                   |
| 40/000 050   | 110     | 1/0/2000          | where our output strong power system           |
| 12/008,253   | US      | 1/8/2008          | Ying Hsu                                       |
|  |         |                   | Forced vibration piezo generator               |
|  |         | 40/40/0007        |  |
| 61/007,497   | US      | 12/12/2007        | Itzbak Sanir                                   |
|  |         |                   | Itzhak Sapir<br>Hardware for electronic neural |
|  |         | 40/40/0004        |  |
| SE0570479  | SE      | 10/10/2001        | network  |
| (SE92905662.0)   |         | (1/29/1992)       | Carson John C                                  |
|  |         |                   | Carson, John C.                                |

| Patent or Application No.          | Country | Filing Date               | Title of Patent and First Named<br>Inventor  |
|------------------------------------|---------|---------------------------|--|
| NL0570479<br>(NL92905662.0)        | NL      | 10/10/2001<br>(1/29/1992) | Hardware for electronic neural network   |
| (,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |         |                           | Carson, John C.  |
| JP2005-507894                      | JP      | 1/16/2006                 | Stackable layers containing ball grid array packages   |
|                                    |         |                           | Inventorship not available   |
| JP2006-286556                      | JP      | 10/20/2006                | Stackable tier structure<br>comprising high density<br>feedthrough   |
|                                    |         |                           | Volkan Ozguz; Jonathan Stern   |
| JP2000-591490                      | JP      | 12/30/1999                | Neural processing module with<br>input architectures that make<br>maximal use of a weighted<br>synapse array<br>Carson, John C.; Saunders,           |
|                                    |         |                           | Christ H.  |
| JP3308265<br>(JP12-554175)         | JP      | 6/10/1999                 | IC stack utilizing flexible circuits<br>with BGA contacts<br>Eide, Floyd K.  |
| JP3511008<br>(JP12-553982)         | JP      | 6/10/1999                 | IC stack utilizing secondary<br>leadframes   |
|                                    |         |                           | Eide, Floyd K.   |
| JP3544974<br>(JP06-0502691)        | JP      | 5/5/1993                  | Non-conductive end layer for<br>integrated stack of IC chips   |
| •                                  |         |                           | Miyake, Michael K.   |
| GB0570479<br>(GB92905662.0)        | GB      | 10/10/2001<br>(1/29/1992) | Hardware for electronic neural<br>network  |
|                                    |         |                           | Carson, John C.  |
| GB1097467<br>(GB9992850.2)         | GB      | 11/2/2006<br>(6/10/1993)  | IC stack utilizing secondary<br>leadframes   |
|                                    |         |                           | Eide, Floyd K.   |
| GB1596433<br>(GB04394026.1)        | GB      | 1/2/2008<br>(5/12/2004)   | A method for creating neo-wafers<br>from singulated integrated circuit<br>die and a device made according<br>to the methodStern, Jonathan<br>Michael |
| GB0596075<br>(GB93911250.4)        | GB      | 8/22/2001<br>(5/5/1993)   | Non-conductive end layer for<br>integrated stack of IC chips<br>Miyake, Michael K.   |

| Patent or Application No.   | Country | Filing Date               | Title of Patent and First Named<br>Inventor  |
|-----------------------------|---------|---------------------------|--|
| GB0683968<br>(GB94903352.6) | GB      | 10/24/2002<br>(12/1/1993) | Module comprising IC memory<br>stack dedicated to and<br>structurally combined with an IC<br>microprocessor chip<br>Carson, John C.; Indin, Ronald<br>J.; Shanken, Stuart N. |
| GB0695494<br>(GB94915397.7) | GB      | 2/24/2001<br>(4/19/1994)  | Electronic module comprising a<br>stack of IC chips<br>Carson, John C.; Some, Raphael<br>R.  |
| GB0713609<br>(GB94925876.8) | GB      | 5/7/2003(8/12/1994)       | Stack of IC chips as substitute for<br>single IC chipLudwig, David E.;<br>Saunders, Christ H.; Some,<br>Raphael R.; Stuart, John J.  |
| GB067087<br>(GB94909418.9)  | GB      | (12/16/1993)              | Fabricating stacks of IC chips by<br>segmenting a larger stack<br>MINIHAN JOSEPH A; PEPE<br>ANGEL A  |
| FR1097467<br>(FR99928570.2) | FR      | 11/2/2006<br>(6/10/1993)  | IC stack utilizing secondary<br>leadframes<br>Eide, Floyd K.   |
| FR1596433<br>(FR04394026.1) | FR      | 1/2/2008<br>(5/12/2004)   | A method for creating neo-wafers<br>from singulated integrated circuit<br>die and a device made according<br>to the method   |
| FR0596075<br>(FR93911250.4) | FR      | 8/22/2001<br>(5/5/1993)   | Stern, Jonathan Michael<br>Non-conductive end layer for<br>integrated stack of IC chips<br>Miyake, Michael K.  |
| FR0683968<br>(FR94903352.6) | FR      | 10/24/2002<br>(12/1/1993) | Module comprising IC memory<br>stack dedicated to and<br>structurally combined with an IC<br>microprocessor chip<br>Carson, John C.; Indin, Ronald<br>J.; Shanken, Stuart N. |
| FR0695494<br>(FR94915397.7) | FR      | 2/24/2001<br>(4/19/1994)  | Electronic module comprising a<br>stack of IC chips<br>Carson, John C.; Some, Raphael<br>R.  |
| FR0713609<br>(FR94925876.8) | FR      | 5/7/2003<br>(8/12/1994)   | Stack of IC chips as substitute for<br>single IC chip<br>Ludwig, David E.; Saunders,<br>Christ H.; Some, Raphael R.;<br>Stuart, John J.                                      |

| Patent or Application No. | Country | Filing Date | Title of Patent and First Named<br>Inventor   |
|---------------------------|---------|-------------|---|
| EP02705988.0              | EP      | 1/25/2002   | A stackable microcircuit layer<br>formed from a plastic<br>encapsulated microcircuit and<br>method of making the same<br>Albert, Douglas M.; Gann, Keith<br>D.  |
| EP06255467.0              | EP      | 10/24/2006  | Stackable tier structure<br>comprising high density<br>feedthrough  |
| EP99967712.3              | EP      | 12/30/1999  | Volkan Ozguz; Jonathan Stern<br>Neural processing module with<br>input architectures that make<br>maximal use of a weighted<br>synapse array<br>Carson, John C.; Saunders,<br>Christ H.                         |
| EP99928570.2              | EP      | 6/10/1993   | IC stack utilizing flexible circuits<br>with BGA contacts<br>Eide, Floyd K.   |
| EP02805694.3              | EP      | 7/16/2002   | Wearable biomonitor with flexible<br>thinned integrated circuit<br>Ogzuz, Volkhan H; Khashayar,<br>Abbas  |
| EP02789292.6              | EP      | 10/25/2002  | Stackable layers containing<br>encapsulated integrated circuit<br>chips with one or more overlying<br>interconnect layers and a method<br>of making the same<br>Pepe, Angel Antonio; Yamaguchi,<br>James Satsuo |
| EP02798173.7              | EP      | 9/9/2002    | Stacking of multilayer modules<br>Yamaguchi, James Satsuo;<br>Pepe, Angel Antonio; Ozguz,<br>Volkan H.; Camien, Andrew<br>Nelson  |
| EP95935157.8              | EP      | 9/27/1995   | Infrared wireless communication<br>between electronic system<br>components<br>DeCaro, Robert; Saunders,<br>Christ H.; Maeding, Dale   |
| EP03721978.9              | EP      | 4/22/2003   | Method and apparatus for<br>connecting vertically stacked<br>integrated circuit chips<br>Gann, Keith D.; Albert, Douglas<br>M.  |

| Patent or Application No.          | Country | Filing Date               | <u>Title of Patent and First Named</u><br>Inventor   |
|------------------------------------|---------|---------------------------|--|
| DE69232116<br>(DE69232116)         | DE      | 10/10/2001<br>(1/29/1992) | Hardware for electronic neural<br>network  |
|                                    |         |                           | Carson, John C.<br>Non-conductive end layer for  |
| DE69330630<br>(DE69330630)         | DE      | 8/22/2001<br>(5/5/1993)   | integrated stack of IC chips   |
| DE69426695<br>(DE6942669.5)        | DE      | 2/24/2001<br>(4/19/1994)  | Miyake, Michael K.<br>Electronic module comprising a<br>stack of IC chips  |
| (DE0842008.0)                      |         |                           | Carson, John C.; Some, Raphael<br>R.   |
| DE602004011025<br>(DE602004011025) | DE      | 1/2/2008<br>(5/12/2004)   | A method for creating neo-wafers<br>from singulated integrated circuit<br>die and a device made according<br>to the method |
| PCT/US06/039915                    | wo      | 8/26/2006                 | Stern, Jonathan Michael<br>MEMS cooling device   |
| 4,814,629<br>(07/107352)           | US      | 3/21/1989<br>(10/13/1987) | Itzhak Sapir<br>Pixel displacement by series-<br>parallel analog switching   |
| 11/825,643                         | US      | 7/7/2007                  | Arnold, Jack L.<br>Ball grid array package format<br>layers and structure<br>Keith Gann                                    |
| EP06738029.5                       | EP      | 3/10/2006                 | Method for making a neo-layer<br>comprising embedded discrete<br>components<br>Sambo S. He                                 |
| JP2000-519921                      | JP      | 11/10/1998                | Method for thinning<br>semiconductor wafers with<br>circuits and wafers made by the<br>same<br>Inventorship not available  |
| JP2004-72804                       | JP      | 3/15/2004                 | Stackable layer, mini stack, and<br>laminated electronic module<br>Volkan Ozguz  |
| EP06735419.1                       | EP      | 2/14/2006                 | Stacked ball grid array package<br>module utilizing one or more<br>interposer layers<br>William E. Boyd                    |
| 5,635,010                          | US      | 4/14/1995                 | Dry adhesive joining of layers of<br>electronic devices<br>Angel A. Pepe   |
| 6,731,121                          | US      | 10/16/2000                | Highly configurable capacitive<br>transducer interface circuit<br>Christ Ying Hsu  |

| Patent or Application No. | Country | Filing Date | Title of Patent and First Named Inventor   |
|---------------------------|---------|-------------|--|
| 6,513,380                 | US      | 6/19/2001   | Mems sensor with single central<br>anchor and motion-limiting<br>connection geometry<br>John William Reeds III   |
| 6,715,352                 | US      | 6/26/2001   | Method of designing a flexure<br>system for tuning the modal<br>response of a decoupled<br>micromachined gyroscope and a<br>gyroscoped designed according<br>to the method<br>Michael J. Tracy |
| 6,370,937                 | US      | 3/19/2001   | Method of canceling quadrature<br>error in an angular rate sensor<br>Ying Wen Hsu  |
| JP2664754                 | JP      | 1/4/1998    | High density electronic package<br>comprising stacked sub-modules<br>Tiong C. Go   |
| JP2001-533437             | JP      | 10/16/2000  | Highly configurable capacitive<br>transducer interface circuit<br>Christ Ying Hsu  |
| EP02744453.8              | EP      | 6/18/2002   | Mems sensor with single central<br>anchor and motion-limiting<br>connection geometry<br>John William Reeds III   |
| EP02746710.9              | EP      | 6/18/2002   | Method of designing a flexure<br>system for tuning the modal<br>response of a decoupled<br>micromachined gyroscope and a<br>gyroscoped designed according<br>to the method<br>Michael J. Tracy |
| JP2002-562134             | JP      | 1/25/2002   | A stackable microcircuit layer<br>formed from a plastic<br>encapsulated microcircuit and<br>method of making the same  |
| 12/287,691                | US      | 10/10/2008  | Three dimensional LADAR<br>module with alignment reference<br>insert circuitry comprising high<br>density interconnect structure<br>John Kennedy; David Ludwig;<br>Christian Krutzik           |
| EP03818224.2              | EP      | 8/8/2003    | Stackable layers containing ball grid array packages<br>Eide, Floyd K.   |

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(d) all foreign patents, patent applications, and counterparts relating to any item in any of the foregoing categories (a) through (c), including, without limitation, certificates of invention, utility models, industrial design protection, design patent protection, and other governmental grants or issuances;

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- (2) injunctive relief, and
- (3) any other remedies of any kind

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IN WITNESS WHEREOF this Assignment of Patent Rights is executed at <u>CALIFORNIA</u> on <u>Hunch</u> 16, 2009.

**ASSIGNOR:** 

**Irvine Sensors Corporation** 

B Name: Hier SiX VIP ŝ ( Title: inance (Signature MUST be attested)

ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. § 1746 The undersigned witnessed the signature of  $\overline{\underline{f}}_{\mathcal{H} \sim \mathcal{J}}, \underline{f}_{\mathcal{H} \sim \mathcal{J}}, \underline{f}_{\mathcal{H}}, \underline{f}_{\mathcal{H}}$  to the above Assignment of Patent Rights on behalf of Irvine Sensors Corporation and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.

2.  $\overline{J_{0H}}$   $\overline{J}$ .  $\overline{S_{10H}}$  is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on <u>16 m each</u>, 2009 to execute the above Assignment of Patent Rights on behalf of Irvine Sensors Corporation.

3. Jo m J. Strue of Jc subscribed to the above Assignment of Patent Rights on behalf of Irvine Sensors Corporation.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on <u>16 march, 2009</u>(date) Print Name: <u>John C. Carson</u>

**RECORDED: 05/21/2009**