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VLSI RESEARCH INC

2008 VLSI Research Inc 10 BEST Awards for Wafer Processing Equipment and Process Diagnostics Equipment

Keithley Instruments, SEN, and Varian capture top spots

Santa Clara, CA, June 9, 2008: VLSI Research Inc, the leading public source for customer feedback on semiconductor equipment, has announced the winners of the 2008 10 BEST Awards.

This year's top winners in Process Diagnostics Equipment, Small Suppliers of Wafer Processing Equipment, and Large Suppliers of Wafer Processing Equipment were Keithley Instruments, SEN Corporation, and Varian Semiconductor.

The results are based on 4,565 surveys collected from chip makers that represent more than 95% of worldwide chip production. Each equipment supplier was rated on thirteen different categories which encompass both equipment performance as well as customer service. Listed below are the 10 BEST winners.



2008 10 BEST PROCESS DIAGNOSTICS EQUIPMENT

| Rank | Company | Overall Rating [†] |
|------|---------------------------------------|-----------------------------|
| 1 | Keithley Instruments, Inc. | 8.72 |
| 2 | Agilent Technologies, Inc. | 7.85 |
| 3 | Hamamatsu Photonics K.K. | 7.79 |
| 4 | Hitachi High-Technologies Corporation | 7.32 |
| 5 | FEI Company | 7.31 |
| 6 | Vistec Semiconductor Systems | 7.08 |
| 7 | Rudolph Technologies, Inc. | 6.94 |
| 8 | Nanometrics Incorporated | 6.77 |
| 9 | Applied Materials, Inc. | 6.70 |
| 10 | KLA-Tencor Corporation | 6.66 |

2008 10 BEST WAFER PROCESSING EQUIPMENT (Small Suppliers Based on Revenue)

| Rank | Company | Overall Rating [†] |
|------|--------------------------|-----------------------------|
| 1 | SEN Corporation | 8.15 |
| 2 | Rite Track | 7.64 |
| 3 | Oerlikon Systems | 7.61 |
| 4 | Aixtron AG | 7.59 |
| 5 | SUSS MicroTec | 7.53 |
| 6 | Tegal Corporation | 7.20 |
| 7 | EV Group | 7.13 |
| 8 | Brooks Automation, Inc. | 7.11 |
| 9 | Mattson Technology, Inc. | 7.06 |
| 10 | FSI International, Inc. | 6.97 |

2008 10 BEST WAFER PROCESSING EQUIPMENT (Large Suppliers Based on Revenue)

| Rank | Company | Overall Rating [†] |
|------|---------------------------------------|-----------------------------|
| 1 | Varian Semiconductor | 8.00 |
| 2 | Novellus Systems, Inc. | 7.66 |
| 3 | ASML | 7.41 |
| 4 | Tokyo Electron Limited | 7.24 |
| 5 | Ulvac, Inc. | 7.14 |
| 6 | ASM International N.V. | 7.13 |
| 7 | Hitachi Kokusai Electric Inc. | 7.10 |
| 8 | Hitachi High-Technologies Corporation | 6.98 |
| 9 | Canon, Inc. | 6.95 |
| 10 | Dainippon Screen Mfg. Co., Ltd. | 6.73 |

Process Diagnostics Equipment Suppliers

Within Process Diagnostics Equipment Suppliers, perennial 10 BEST contenders Keithley Instruments and Agilent Technologies were first and second, respectively. Keithley, ahead of Agilent almost a full point, received the highest rating in eleven of the thirteen categories, with its best rating in *equipment uptime*. Hamamatsu Photonics, the third-place contender, achieved the best scores in *usable throughput* and *quality of results*. Hitachi High-Technologies and FEI Company rounded out the top five.

The forte of process diagnostics equipment suppliers appears to be equipment performance, as each 10 BEST contender received their highest score either in equipment *uptime*, *usable throughput*, or *quality of results*. The most improved category was *usable throughput*, increasing by an average of 0.42 points from last year. Customers filling out the surveys were most critical of *cost of ownership*, *software*, and *process support*. The lower average ratings in the customer service categories indicate room for improvement for these suppliers.

| Manufacturer | Overall Rating | Equipment Performance | | | | | | Customer Service | | | | | | |
|---------------------------|----------------|-----------------------|-------------|-------------|---------------|-------------------|-------------------|---------------------|-----------------|-------------------|----------------|---------------------|----------------------|-------------|
| | | C.O.O. | Uptime | Software | Build Quality | Usable Throughput | Quality of Rsults | Product Performance | Process Support | Field Engineering | Spares Support | Support After Sales | Technical Leadership | Commitment |
| Keithley Instruments | 8.72 | 8.14 | 9.21 | 8.00 | 9.00 | 8.64 | 9.07 | 8.86 | 8.21 | 8.79 | 8.64 | 8.86 | 9.00 | 8.93 |
| Agilent Technologies | 7.85 | 7.21 | 8.25 | 6.88 | 7.91 | 8.21 | 8.67 | 8.42 | 7.46 | 7.58 | 7.13 | 7.71 | 8.50 | 8.25 |
| Hamamatsu Photonics | 7.79 | 6.60 | 7.73 | 6.60 | 8.07 | 8.67 | 9.27 | 8.20 | 6.73 | 6.73 | 7.40 | 8.00 | 8.67 | 8.53 |
| Hitachi High-Technologies | 7.32 | 7.02 | 8.22 | 7.15 | 7.69 | 7.56 | 8.22 | 7.67 | 6.04 | 7.26 | 6.83 | 7.15 | 7.36 | 7.08 |
| FEI Company | 7.31 | 6.75 | 6.69 | 7.38 | 7.13 | 7.94 | 7.94 | 7.06 | 7.71 | 6.38 | 7.44 | 6.93 | 7.93 | 7.56 |
| Vistec Semiconductor | 7.08 | 7.25 | 7.88 | 7.13 | 7.38 | 7.63 | 7.88 | 7.13 | 5.25 | 7.50 | 7.00 | 5.63 | 7.25 | 7.13 |
| Rudolph Technologies | 6.94 | 7.56 | 7.83 | 4.83 | 6.67 | 7.06 | 7.08 | 6.83 | 6.44 | 7.17 | 7.25 | 6.92 | 6.73 | 7.75 |
| Nanometrics | 6.77 | 6.81 | 6.75 | 6.57 | 6.64 | 7.38 | 7.13 | 6.93 | 6.43 | 6.93 | 6.29 | 6.21 | 6.07 | 6.50 |
| Applied Materials | 6.70 | 6.41 | 6.74 | 6.02 | 6.73 | 7.46 | 7.68 | 6.82 | 6.68 | 6.84 | 6.07 | 6.10 | 7.19 | 6.90 |
| KLA-Tencor | 6.66 | 5.61 | 7.05 | 6.54 | 7.02 | 7.46 | 7.40 | 7.28 | 6.47 | 6.57 | 5.99 | 6.15 | 6.97 | 6.33 |
| AVERAGE | 7.31 | 6.94 | 7.64 | 6.71 | 7.42 | 7.80 | 8.03 | 7.52 | 6.74 | 7.17 | 7.00 | 6.96 | 7.57 | 7.50 |

Source: VLSI Research Inc

Small Suppliers of Wafer Processing Equipment

SEN Corporation, the customer satisfaction winner in the Small Suppliers of Wafer Processing Equipment segment, won the highest rating in five categories, with its best scores coming from *spares support* and *technical leadership*. In a very tight competition where the number one and the number ten companies were only separated by 1.18 points, SEN Corp. was a distant 0.51 points ahead of the next competitor. Second place Rite Track achieved the best scores in *field engineering* and *support after sales*. The highest ratings in *quality of results* and *product performance* were achieved by fourth place Aixtron AG. SUSS Microtec scored the highest for *build quality*. Brooks Automation won the best results in the *process support* category, while Mattson Technology scored the best rating for *cost of ownership* and *equipment uptime*.

The strongest category for this market segment was *equipment uptime*, with an average rating of 7.94, followed by *quality of results*, *product performance*, and *throughput*. The lowest rated categories were *software*, *spares support*, and *support after sales*. Once again, customer service categories fell into the lower end of the scoring spectrum, receiving an average of 0.5 points less than equipment performance categories.

| Manufacturer | Overall Rating | Equipment Performance | | | | | | Customer Service | | | | | | |
|--------------------|----------------|-----------------------|-------------|-------------|---------------|-------------------|-------------------|---------------------|-----------------|-------------------|----------------|---------------------|----------------------|-------------|
| | | C.O.O. | Uptime | Software | Build Quality | Usable Throughput | Quality of Rsults | Product Performance | Process Support | Field Engineering | Spares Support | Support After Sales | Technical Leadership | Commitment |
| SEN Corp. | 8.15 | 7.33 | 7.33 | 8.00 | 8.33 | 8.33 | 8.33 | 8.00 | 8.33 | 8.33 | 8.67 | 8.00 | 8.67 | 8.33 |
| Rite Track | 7.64 | 7.29 | 7.95 | 6.69 | 7.59 | 8.04 | 7.78 | 7.96 | 7.45 | 8.48 | 8.07 | 8.07 | 6.76 | 8.10 |
| Oerlikon | 7.61 | 6.91 | 7.87 | 7.05 | 8.14 | 7.87 | 8.20 | 8.10 | 7.31 | 7.71 | 6.93 | 7.40 | 7.74 | 7.80 |
| Aixtron | 7.59 | 6.81 | 8.00 | 6.94 | 7.78 | 7.31 | 8.44 | 8.28 | 6.50 | 7.19 | 7.67 | 7.13 | 7.71 | 7.39 |
| SUSS MicroTec | 7.53 | 7.05 | 8.16 | 7.13 | 8.36 | 7.87 | 8.22 | 8.07 | 6.84 | 7.17 | 6.34 | 7.14 | 7.49 | 7.46 |
| Tegal Corp. | 7.20 | 7.00 | 8.00 | 7.00 | 6.90 | 7.00 | 7.60 | 7.60 | 7.00 | 7.40 | 7.20 | 7.30 | 7.00 | 6.30 |
| EV Group | 7.13 | 6.69 | 7.39 | 6.69 | 7.46 | 6.80 | 7.42 | 7.30 | 6.93 | 7.06 | 6.77 | 7.24 | 7.33 | 7.57 |
| Brooks Automation | 7.11 | 6.33 | 8.00 | 7.67 | 8.00 | 8.00 | 7.67 | 7.33 | 8.50 | 5.50 | 5.50 | 5.50 | 8.00 | 6.00 |
| Mattson Technology | 7.06 | 7.68 | 8.36 | 6.57 | 7.04 | 8.25 | 7.82 | 7.71 | 6.64 | 7.07 | 6.14 | 6.04 | 6.21 | 6.25 |
| FSI International | 6.97 | 7.40 | 8.30 | 6.00 | 7.17 | 7.53 | 7.38 | 7.45 | 6.68 | 6.80 | 6.87 | 6.47 | 6.18 | 6.32 |
| AVERAGE | 7.40 | 7.05 | 7.94 | 6.97 | 7.68 | 7.70 | 7.89 | 7.78 | 7.22 | 7.27 | 7.02 | 7.03 | 7.31 | 7.15 |

Source: VLSI Research Inc

Large Suppliers of Wafer Processing Equipment

Varian Semiconductor has captured the top spot among Large Suppliers of Wafer Processing equipment for the fourth year in a row. The company earned the highest rating in eleven of the thirteen categories, with its best score in *quality of results*. Novellus ranked second overall and received the highest score in *cost of ownership*. The best rating in *technical leadership* went to ASML, which was third overall. Tokyo Electron and Ulvac were fourth and fifth, respectively.

As in the case of small suppliers, customers of Large Suppliers of Wafer Processing Equipment were most satisfied with *equipment uptime*, giving it an average rating of 7.72. They were most critical of *cost of ownership*, rating suppliers with an average score of 6.53. Additionally, *software* continues to be one of the lowest rated categories in VLSI's survey year after year. Large wafer processing suppliers were outperformed by small suppliers in the survey in most categories. However, large suppliers did achieve better average scores in four customer service categories: *field engineering*, *spares support*, *support after sales*, and *commitment*. All four of these categories received higher average ratings than last year, with *spares support* improving by the relatively high margin of 0.30 points.

| Manufacturer | Overall Rating | Equipment Performance | | | | | | | Customer Service | | | | | |
|---------------------------|----------------|-----------------------|-------------|-------------|---------------|-------------------|-----------------|---------------------|------------------|-------------------|----------------|---------------------|----------------------|-------------|
| | | C.O.O. | Uptime | Software | Build Quality | Usable Throughput | Quality of Rsts | Product Performance | Process Support | Field Engineering | Spares Support | Support After Sales | Technical Leadership | Commitment |
| Varian | 8.00 | 7.29 | 8.18 | 7.45 | 8.24 | 8.39 | 8.44 | 8.28 | 7.69 | 8.18 | 7.90 | 7.92 | 8.10 | 8.02 |
| Novellus Systems | 7.66 | 7.46 | 7.99 | 6.52 | 7.87 | 8.09 | 8.03 | 8.01 | 7.11 | 8.02 | 7.55 | 7.68 | 7.52 | 7.93 |
| ASML | 7.41 | 5.93 | 7.70 | 6.97 | 7.78 | 8.02 | 8.02 | 7.86 | 7.13 | 7.18 | 6.92 | 6.97 | 8.20 | 7.35 |
| Tokyo Electron | 7.24 | 6.61 | 7.82 | 7.00 | 7.74 | 7.81 | 7.64 | 7.50 | 6.77 | 7.01 | 7.01 | 7.16 | 7.17 | 7.05 |
| Ulvac | 7.14 | 6.42 | 7.21 | 6.27 | 7.08 | 7.05 | 7.19 | 6.92 | 7.02 | 7.68 | 7.33 | 7.42 | 7.50 | 7.64 |
| ASM International | 7.13 | 6.72 | 7.76 | 6.94 | 7.13 | 7.18 | 7.50 | 7.63 | 7.00 | 7.22 | 6.91 | 6.46 | 6.06 | 7.16 |
| Hitachi Kokusai | 7.10 | 6.48 | 7.69 | 6.71 | 7.30 | 7.37 | 7.70 | 7.46 | 6.70 | 6.87 | 6.93 | 7.46 | 6.87 | 6.96 |
| Hitachi High-Technologies | 6.98 | 5.36 | 7.43 | 7.07 | 7.93 | 6.36 | 6.86 | 7.14 | 6.79 | 7.29 | 7.21 | 6.79 | 6.93 | 7.64 |
| Canon | 6.95 | 6.78 | 7.85 | 5.98 | 7.36 | 7.17 | 7.60 | 7.30 | 6.13 | 6.95 | 7.23 | 6.93 | 6.24 | 6.83 |
| Dainippon Screen | 6.73 | 6.26 | 7.60 | 6.04 | 7.24 | 6.92 | 7.13 | 7.04 | 5.78 | 6.60 | 6.57 | 6.50 | 6.10 | 6.88 |
| AVERAGE | 7.23 | 6.53 | 7.72 | 6.70 | 7.57 | 7.44 | 7.61 | 7.51 | 6.81 | 7.30 | 7.15 | 7.13 | 7.07 | 7.35 |

Source: VLSI Research Inc

The Large Suppliers of Wafer Processing Equipment 10 BEST competition is comprised of the 15 largest companies in terms of their sales of wafer processing tools only. These 15 companies are ranked against each other for a 10 BEST placement based on survey responses from their customers. The Small Suppliers of Wafer Processing Equipment market segment is comprised of manufacturers that are smaller than the largest fifteen in wafer processing sales.

This is the first announcement in a series of three press releases listing the 10 BEST companies in each competitive segment. The next release will announce the 10 BEST suppliers in Test, Material Handling, and Assembly Equipment.

Last year's lists of 10 BEST Process Diagnostics Equipment Suppliers, Small and Large Suppliers of Wafer Processing Equipment are noted below for reference. Prior years' lists can be found at www.vlsiresearch.com in the Reference section under Press Releases for the Customer Satisfaction Survey.

| 2007 10 BEST PROCESS DIAGNOSTICS EQUIPMENT | | |
|-------------------------------------------------------|---------------------------------------|-----------------------------------|
| Rank | Company | Overall Rating[†] |
| 1 | Carl Zeiss SMT AG | 8.12 |
| 2 | Nikon Corporation | 8.06 |
| 3 | Keithley Instruments, Inc. | 7.81 |
| 4 | Agilent Technologies, Inc. | 7.71 |
| 5 | Hitachi High-Technologies Corporation | 7.25 |
| 6 | JEOL Ltd. | 7.15 |
| 7 | Applied Materials, Inc. | 6.97 |
| 8 | Hamamatsu Photonics K.K. | 6.89 |
| 9 | Vistec Semiconductor Systems | 6.72 |
| 10 | Nanometrics Incorporated | 6.64 |

| 2007 10 BEST WAFER PROCESSING EQUIPMENT <i>(Small Suppliers Based on Revenue)</i> | | |
|---------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------|
| Rank | Company | Overall Rating[†] |
| 1 | JEOL Ltd. | 8.80 |
| 2 | Rite Track | 8.08 |
| 3 | Nissin Ion Equipment Co., Ltd. | 7.93 |
| 4 | centrotherm thermal solutions | 7.75 |
| 5 | Oerlikon Balzers Coating / Systems | 7.72 |
| 6 | SEN Corporation | 7.65 |
| 7 | CHA Industries | 7.58 |
| 8 | Oxford Instruments | 7.52 |
| 9 | MRL Industries, Inc. | 7.51 |
| 10 | EV Group | 7.44 |

| 2007 10 BEST WAFER PROCESSING EQUIPMENT <i>(Large Suppliers Based on Revenue)</i> | | |
|---------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------|
| Rank | Company | Overall Rating[†] |
| 1 | Varian Semiconductor | 8.12 |
| 2 | ASML | 7.71 |
| 3 | Hitachi High-Technologies Corporation | 7.59 |
| 4 | Dainippon Screen Mfg. Co., Ltd. | 7.38 |
| 5 | Novellus Systems, Inc. | 7.32 |
| 6 | Tokyo Electron Limited | 7.16 |
| 7 | ASM International N.V. | 6.89 |
| 8 | Lam Research Corporation | 6.77 |
| 9 | Hitachi Kokusai Electric Inc. | 6.69 |
| 10 | Nikon Corporation | 6.60 |

Source: VLSI Research Inc

ABOUT THE SURVEY

The VLSI Research annual *Customer Satisfaction Survey on Chip Making Equipment* is the only publicly available opportunity for chip manufacturers to provide feedback on their suppliers. The 10 BEST rankings award special recognition to the suppliers that are rated highest by their customers.

The survey asks users of chip making equipment to rate their suppliers on a ten-point scale among thirteen categories that exemplify a supplier's relationship with its customers. These thirteen categories include seven measures of equipment performance and six measures of customer service. *Cost of ownership, uptime, software, build quality, usable throughput, quality of results achieved, and product performance* are the equipment performance measures. Customer service measures include *process support, field engineering support, spares support, support after sales, technical leadership in the supplier's field, and the supplier's overall commitment to supporting its customers' needs*.

VLSI Research Inc conducts these surveys across sixty major equipment market segments and compiles competitive positioning reports for each segment. These sixty categories are grouped into the six major market categories of wafer processing equipment (small and large companies), test equipment, material handling equipment, process diagnostics equipment, and assembly equipment.

The statistics were drawn from a distribution of 66,717 questionnaires sent worldwide by mail, email, and fax in six languages: English, Japanese, Korean, Chinese, German, and French. Virtually every chipmaker was given a chance to respond.

Respondents returned surveys rating 4,565 equipment models. The companies that responded to VLSI Research's customer satisfaction survey represent 95% of worldwide chip production. When calculating each of the thirteen separate categories previously mentioned, total responses comprised about 59,300 individual ratings across the categories, each on a scale of 1 through 10.

There are two parts to the 10 BEST methodology. The first part is that the qualification rule for the 10 BEST Awards is based on the *Respondents' Share of Market* statistic. This statistic is the sum of share of market held by unique companies responding to the survey for each specific equipment supplier and equipment type.

The second part of the 10 BEST methodology is the calculation of the 10 BEST ranking itself. The rankings are based on the **equally weighted average** rather than the straight average. This rating is weighted equally for each unique responding company (not individual survey response). Hence, each surveyed company only gets "one vote", based on the average of the individuals from that company

responding to the survey. This rating method has the advantage that no single customer/company can stuff the ballot box, giving a much more meaningful picture for potential effects on market share.

SURVEY STATISTICS

| | |
|--------------------------------------------|------------|
| Percent of Chip Market Represented: | 95% |
| Surveys Distributed: | 66,717 |
| Equipment Models Rated: | 4,565 |
| From North America: | 28.8% |
| From Europe: | 20.8% |
| From China: | 11.9% |
| From Korea: | 10.0% |
| From Taiwan: | 9.5% |
| From Japan: | 9.0% |
| From Other: | 10.0% |

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† In cases where a tie has occurred, the ranking position is determined by a single-sided 97.5% confidence margin.

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