



Industry Research and Statistics

Q4 2015 Snapshots

www.semi.org/marketinfo

December 2015

About Us

- The SEMI Industry Research and Statistics group provides market data and market research reports covering semiconductor capital equipment, semiconductor materials, packaging materials, semiconductor, optoelectronics, and high brightness LED fabs.
- For our major reports, we collect actual data from suppliers around the world following strict professional standards of confidentiality. Our reports provide trends, forecast, and outlook to help the industry make important investment, strategic, and business planning decisions.
- For additional information regarding our products and our data collection program, please visit us at www.semi.org/marketinfo or contact us at mktstats@semi.org.

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Q3 2015 Silicon Area Shipment

Quarterly Silicon* Area Shipment Trends (in Million Square Inches)

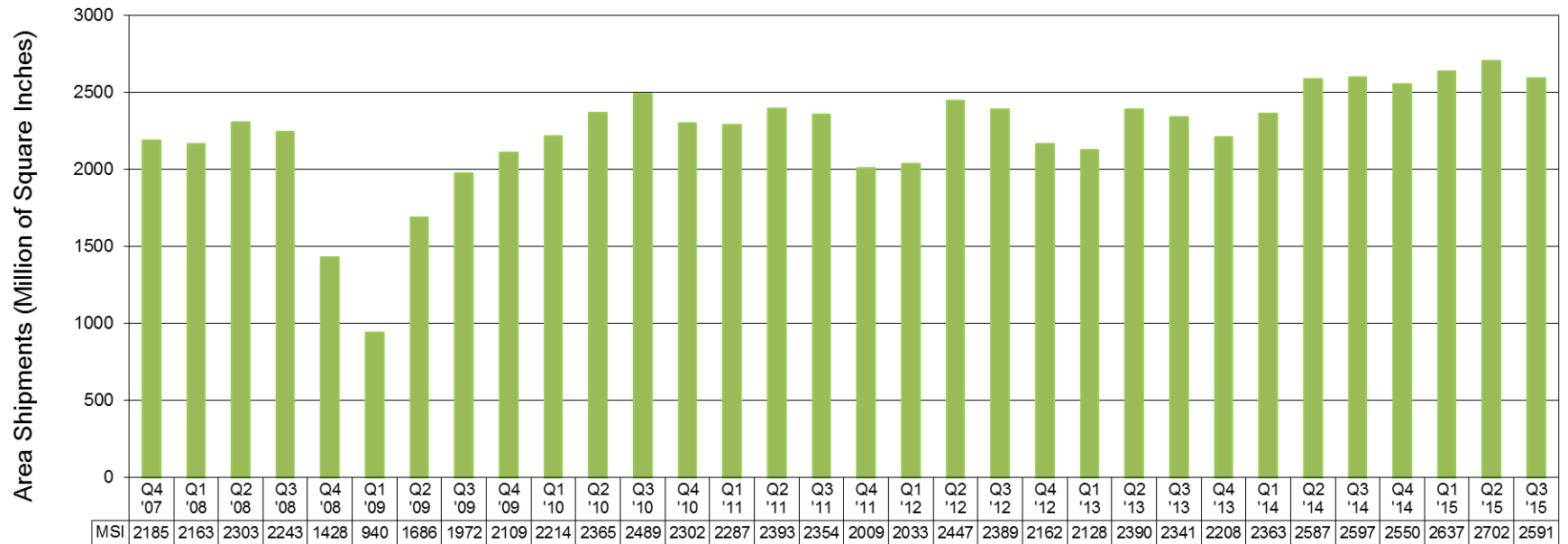
Q3 2014	Q2 2015	Q3 2015	9 months 2014	9 months 2015
2,597	2,702	2,591	7,548	7,930

* Shipments are for semiconductor applications only and do not include solar applications

Source: SEMI, November 11, 2015 <http://bit.ly/1PkBOml>

Quarterly Silicon Area Shipment Trends

Quarterly Silicon Wafer Area Shipment Trends*



Source: SEMI Silicon Manufacturers Group (SMG), November 2015

* shipments are for semiconductor applications only and do not include solar applications

Source: SEMI Silicon Manufacturers' Group (SMG) Silicon Shipment Statistics bit.ly/1Ovuaan

Worldwide Semiconductor Equipment Figures

Third Quarter 2015 Billings: \$9.64 Billion

	3Q 2015	2Q 2015	3Q 2014	3Q15/2Q15 (Qtr-over-Qtr)	3Q15/3Q14 (Year-over-Year)
Taiwan	2.85	2.34	2.30	22%	24%
China	1.70	1.04	0.96	63%	78%
Korea	1.56	2.00	1.00	-22%	56%
Japan	1.43	1.40	1.10	2%	30%
North America	1.18	1.55	2.16	-23%	-45%
Rest of World	0.58	0.53	0.64	9%	-10%
Europe	0.34	0.52	0.66	-36%	-49%
Total	9.64	9.39	8.82	3%	9%

Source: SEMI/SEAJ December 2015; Note: Figures may not add due to rounding. Article: bit.ly/1Tx3t2Z

Fabs/Foundries/IDM Update

Fab Equipment Spending

- Equipment spending (new and used) growth for 2015 dropped from 5% in the August report to 0.5% (US\$35.8B). The spending outlook for 2016 drops from 6.6% in the August report to 2.6% (US\$ 36.7B)
- Overall equipment spending declined in 2H2015 driven by weakening in some industry segments as some companies cut spending.
- In 2015 spending for Logic (including CMOS image sensors) and memory (especially DRAM) increased, while spending for all other segments decreased.
- In 2016, we expect an increase in equipment spending for 3D-NAND, Foundries (including System LSI) , MPU, Power and MEMS

Source: www.semi.org/node/FabNov2015

Fabs/Foundries/IDM Update (cont't)

Installed Capacity

- Worldwide installed capacity growth will increase 2% in 2015 and 1% in 2016.
- Most capacity added in 2015 and 2016 is for foundries (5% in 2015 and 5% in 2016), Flash including 3D NAND (50% in 2015 and over 80% in 2016), and a slight increase in Power in 2016 (3%)
- 200mm wafer capacity continues to increase: 0.5% (vs. 300mm 4.3%) in 2015; 2.1% (vs. 300mm 2.0%) in 2016

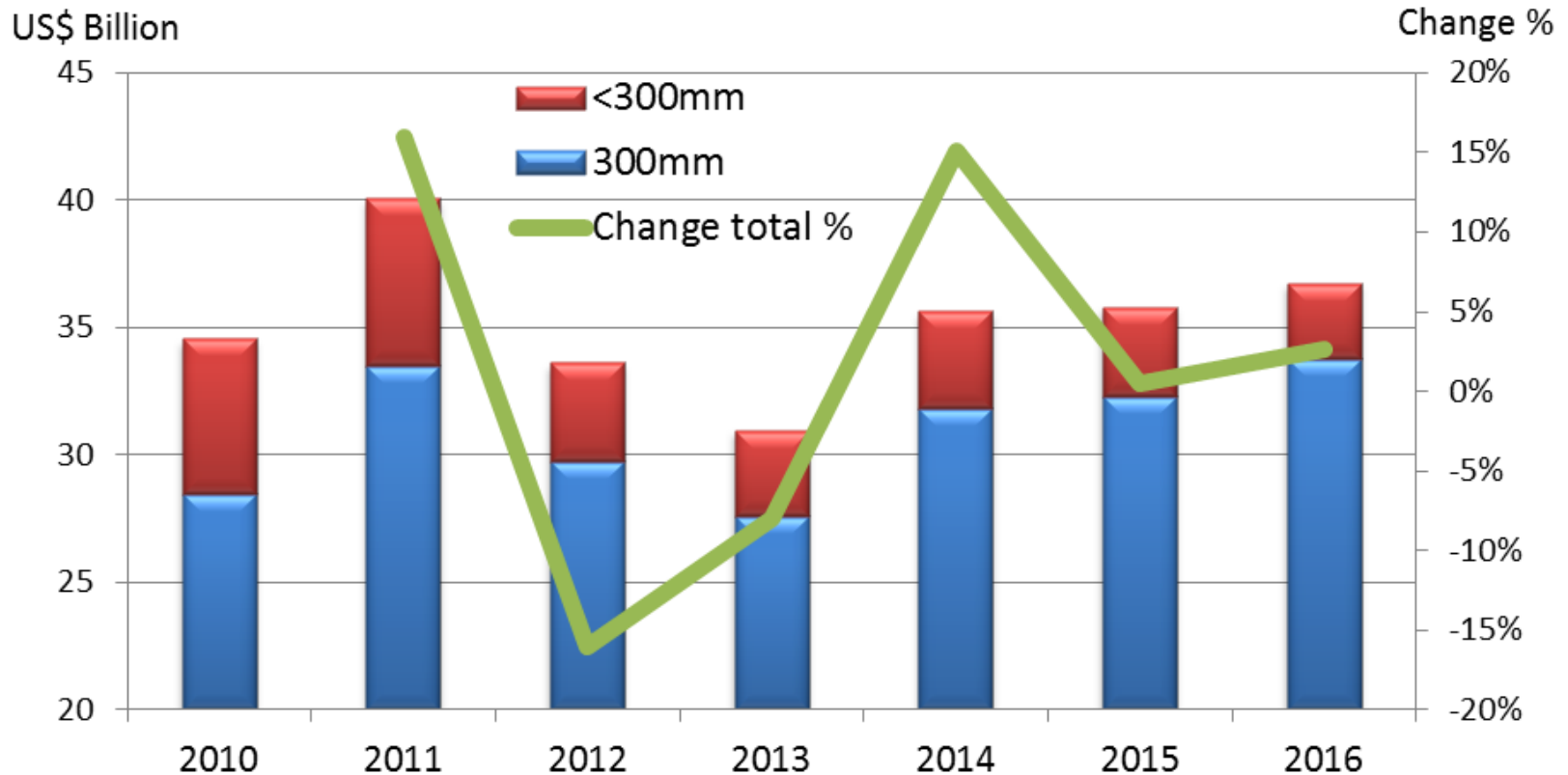
Source: www.semi.org/node/FabNov2015

Fabs/Foundries/IDM Update (con't)

- New Facilities / Construction Spending
There are 25 facilities (with various probabilities) which will begin construction in 4Q15 or later. This number is expected to increase as more information comes in.
- In 2015, 13 new projects began construction; and in 2016 14 new projects are expected to start.
- In 2015, there are 48 construction projects with investments totaling over \$6.5B (-13% YoY).
- In 2016, there are 34 construction projects with investments totaling \$6.5B (+0% YoY).

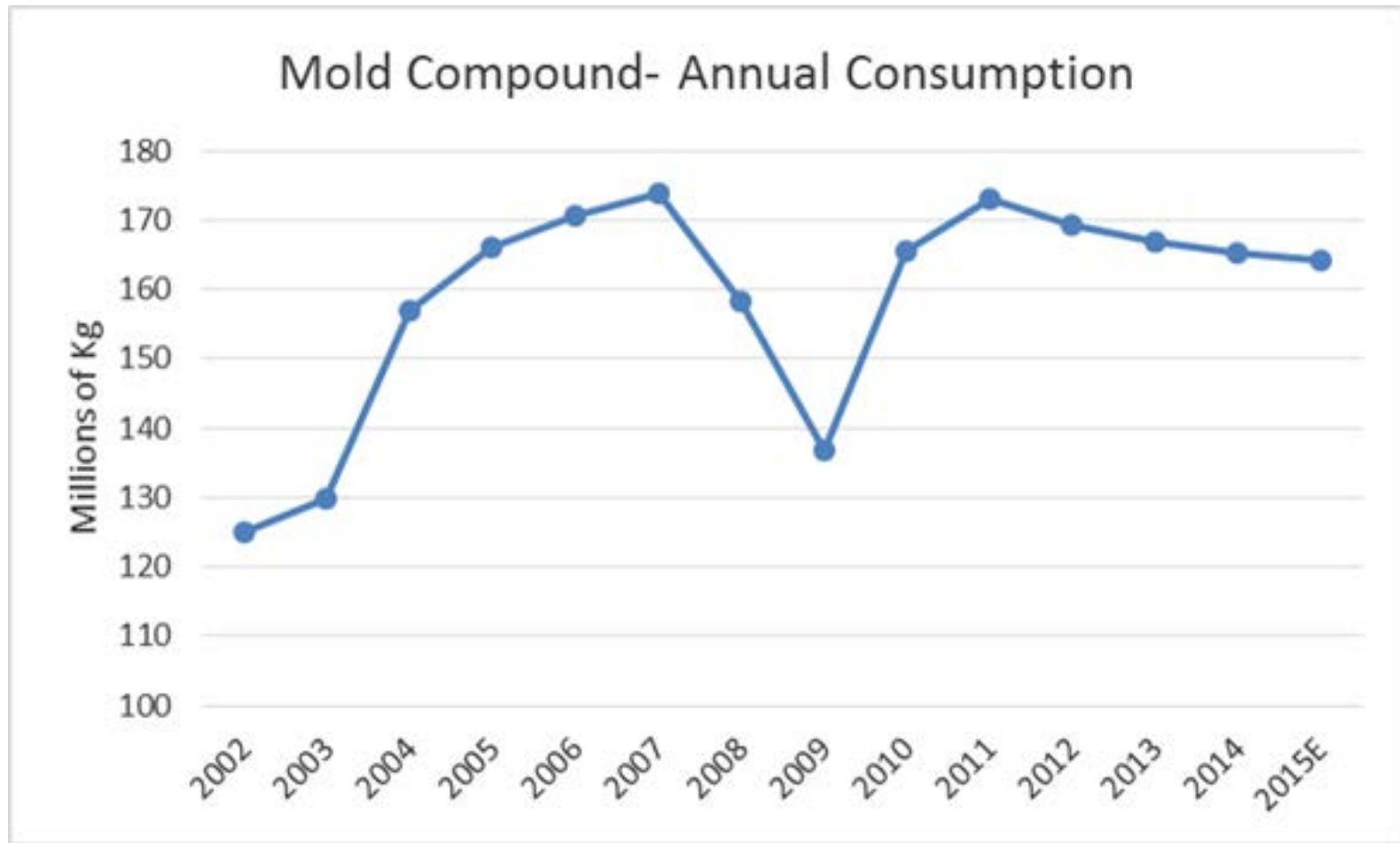
Source: www.semi.org/node/FabNov2015

Fab Equipment Spending by Wafer Size



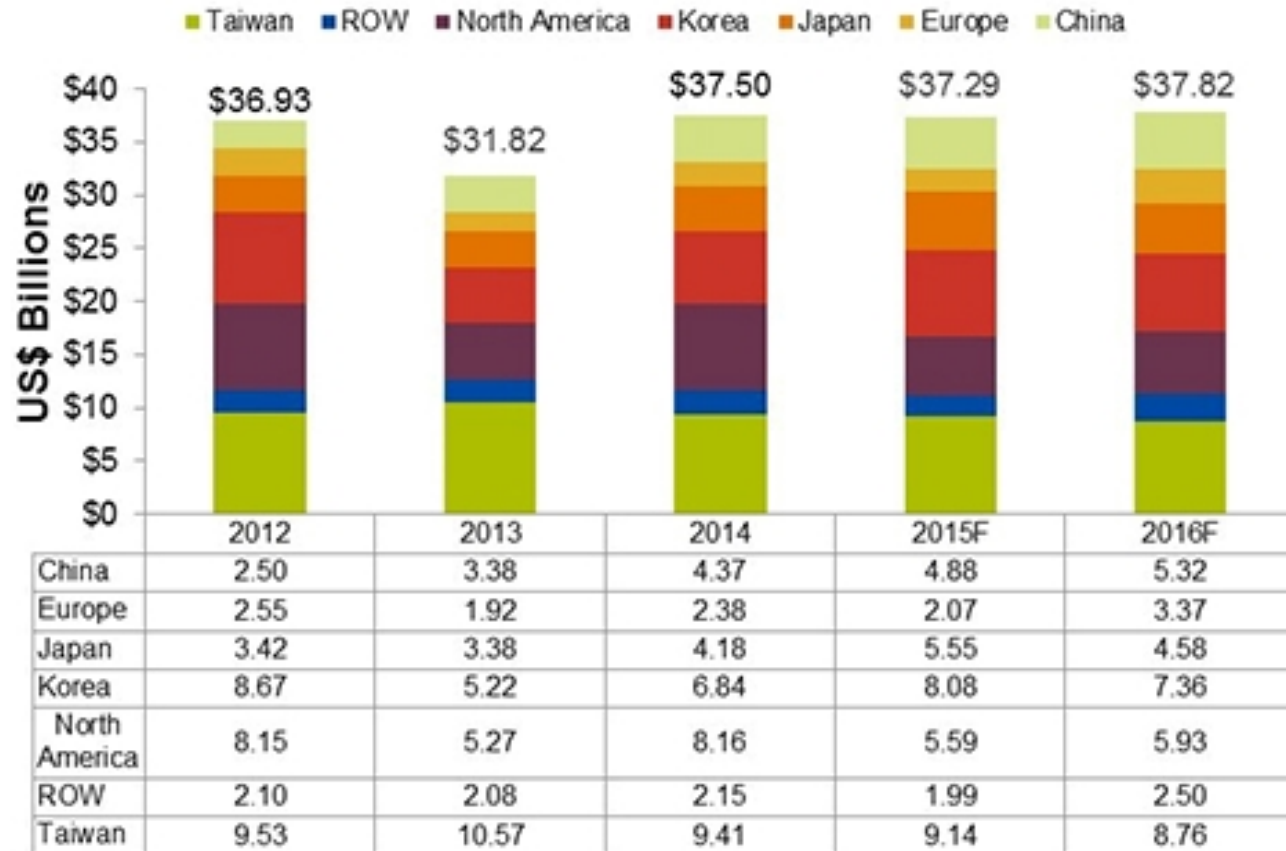
Source: World Fab Forecast published by SEMI (November 2015). Article: bit.ly/1R8AFzV

Semiconductor Packaging Materials – Mold Compound



Source: SEMI and TechSearch International, Global Semiconductor Packaging Materials Outlook 2015/2016 Edition
Press Release: <http://bit.ly/1m2pBaC>

SEMI® 2015 Year-end Equipment Forecast by Market Region

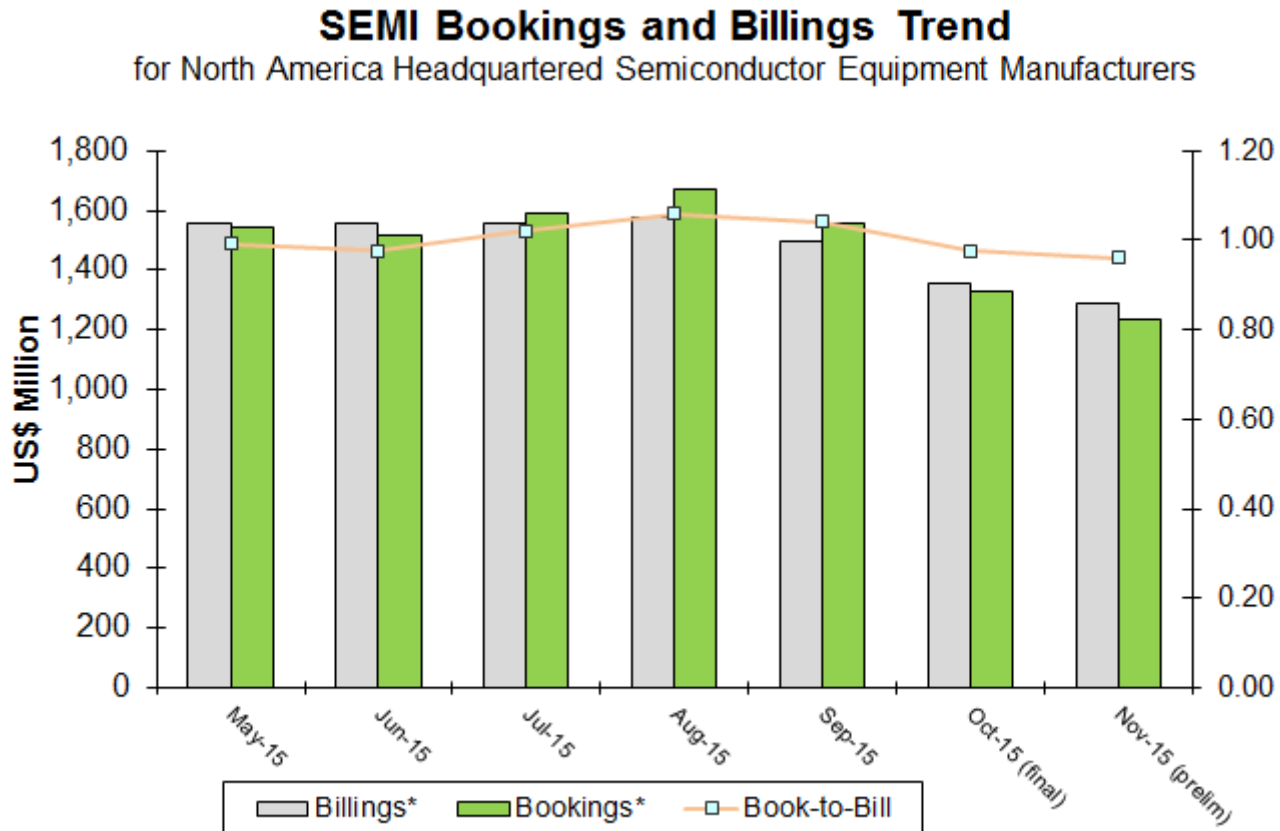


Source: SEMI December 2015

Totals may not add due to rounding

Press Release: <http://bit.ly/1NokV8e>

North American Semiconductor Equipment Industry Posts November 2015 Book-to-Bill Ratio of 0.96



Source: SEMI, December 16, 2015

* 3-month averages

Press Release: bit.ly/1OB9cko

Appendix

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SEMI Industry Research & Statistics

Market Reports and Databases

Semiconductor Equipment



- Equipment Market Data Subscription (EMDS):
- Book-to-Bill Report
- Secondary Fab Equipment Report
- Historical WWSEMS (1991-2014)
- Historical Book-to-Bill (1991-2014)

Semiconductor Materials and Components



- Material Market Data Subscription (MMDS): Quarterly
- Photomask Report *
- Silicon Reclaim Wafer Report *
- Mass Flow Controllers

Semiconductor Packaging Materials



- Global Semiconductor Packaging Materials Outlook 2015-16 *New*
- China Packaging **Report** *Q1 '16*

Semiconductor Manufacturing Fabs



- World Fab Forecast: Quarterly
- FabFutures: Quarterly
- World Fab Watch: Quarterly
- Global 200mm Fab Outlook Report *New*
- Fab Transition Report**

Notes:

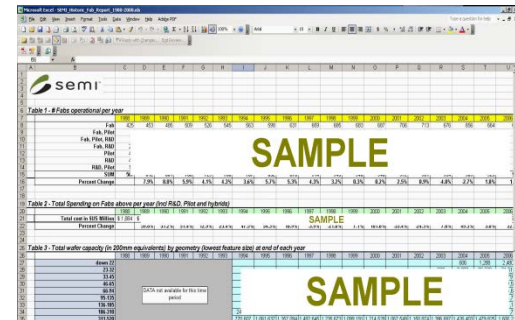
** Customized reports

* These reports are included FREE with the purchase of the MMDS report, but also available as stand-alone reports.

Need Customized Reports?

Custom reports we have done for clients

- Fab Transitional Report
(fabs to be sold, sold, for sale, may-be-closed, etc.)
- Historical Fab Report
 - # of fabs operational/year (1988-2014)
 - Total spending on fabs per year (1988-2014)
 - wafer capacity by geometry (1994 – 2014)
- Historical Fab Report
 - Fab Construction spending (1996 – 2014)
 - Fab Equipping spending (1996 – 2014)
- Regional Fab Capacity Report (2000 - 2014)



The image shows a screenshot of a Microsoft Excel spreadsheet displaying SEMI data. The spreadsheet is titled 'Table 1 - # Fabs operational per year' and 'Table 2 - Total spending on Fabs above per year (R&D, Pilot and full)'. The data is presented in columns for years from 1988 to 2014. The first table shows the number of fabs operational per year, and the second table shows total spending on fabs above per year. The data is presented in a tabular format with columns for years and rows for different categories. Large 'SAMPLE' text is overlaid on the data.

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Fab																											
Fab Pilot																											
Fab Pilot R&D																											
Fab Pilot																											
Fab																											
Fab Pilot																											
Fab Pilot R&D																											
Fab Pilot																											
Total																											

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total spending on Fabs above																											
Total spending on Fabs above																											
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