

IEEE SW Test Workshop
Semiconductor Wafer Test Workshop



Welcome to the 20th Annual IEEE SW Test Workshop



Jerry Broz, Ph.D.
SW Test General Chair



June 6 to 9, 2010
San Diego, CA USA

Twenty Years of Probe Technology

- Many thanks to all of the 5000+ attendees !



June 6 to 9, 2010

IEEE SW Test Workshop

2

IEEE SW-Test Workshop

- **SW Test IS a Probe Technology Forum ...**
 - It is **“THE”** Conference for Wafer Test Professionals
 - Practical solutions to real problems
 - A balance mixture of semiconductor manufacturer and supplier presentations
- **Informal Conference ...**
 - Great social activities and informal discussions
 - Meet new people and have a little fun !



IEEE SW-Test Workshop

- Sponsored by the IEEE Components, Packaging and Manufacturing Technology (CPMT) Society
- Leading international forum for scientists and engineers engaged in the research, design and development of revolutionary advances in micro-systems packaging and manufacture.



IEEE COMPONENTS, PACKAGING AND
MANUFACTURING TECHNOLOGY SOCIETY



June 6 to 9, 2010

IEEE SW Test Workshop

4

New Location for 2010 and 2011



You Will Be Here!

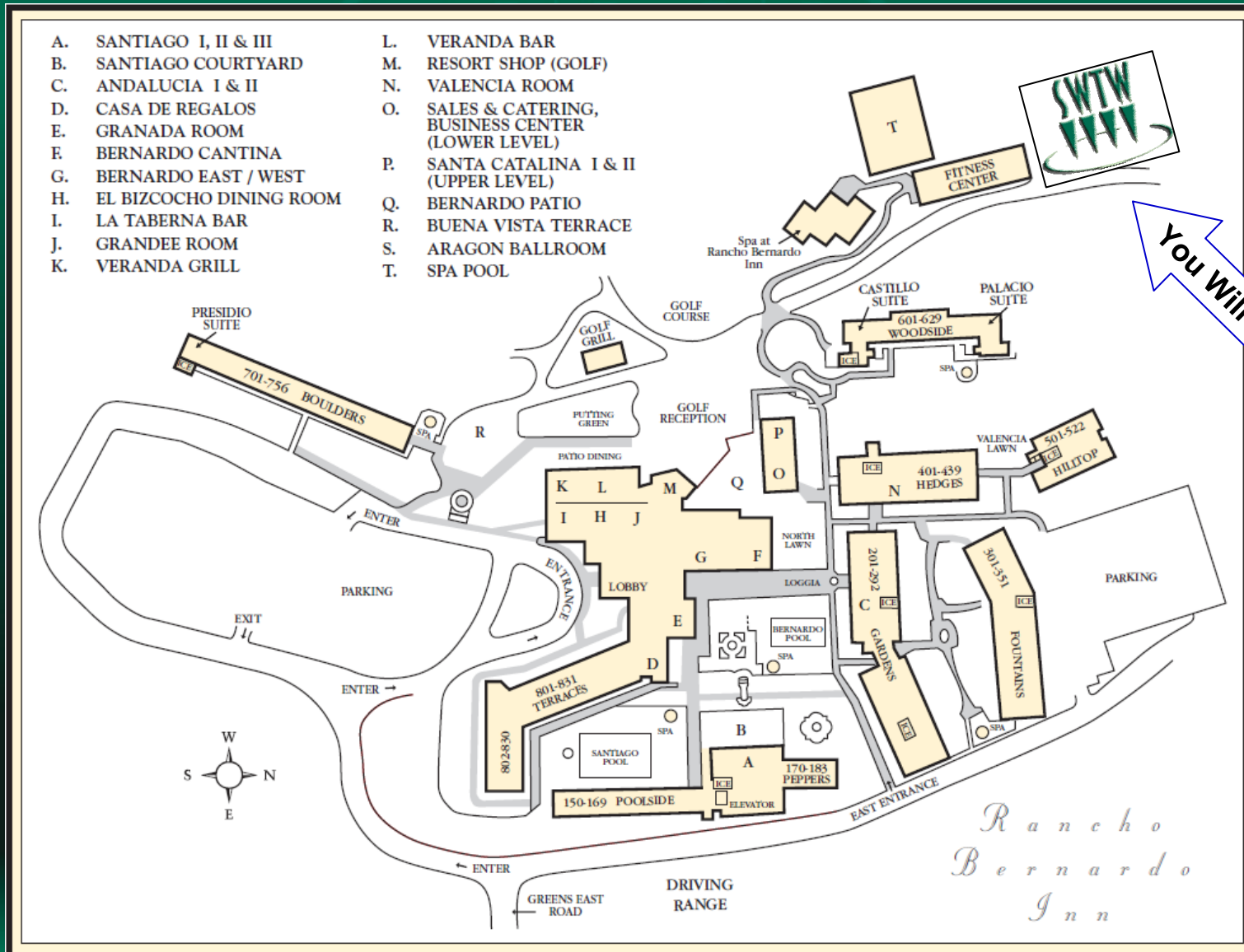


June 6 to 9, 2010

IEEE SW Test Workshop

5

Map of the Area



June 6 to 9, 2010

IEEE SW Test Workshop

IEEE SW Test Workshop
Semiconductor Wafer Test Workshop



Probe Year In Review

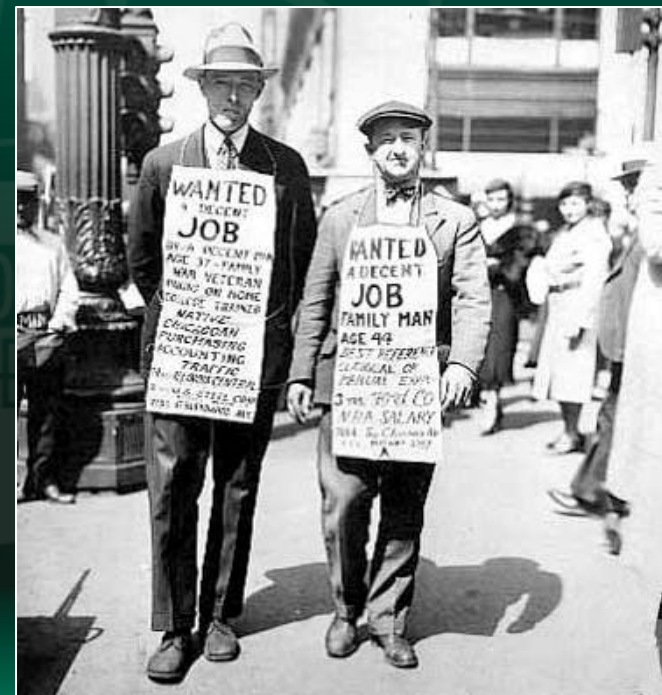
20th ANNIVERSARY

Probe Year In Review

- Were there any “GOOD THINGS” that happened since SW Test 2009 ???
- “What doesn’t KILL you, makes you stronger !”

- **Overview**

- Some Metrics
- People in Probe
- Keynote Speaker

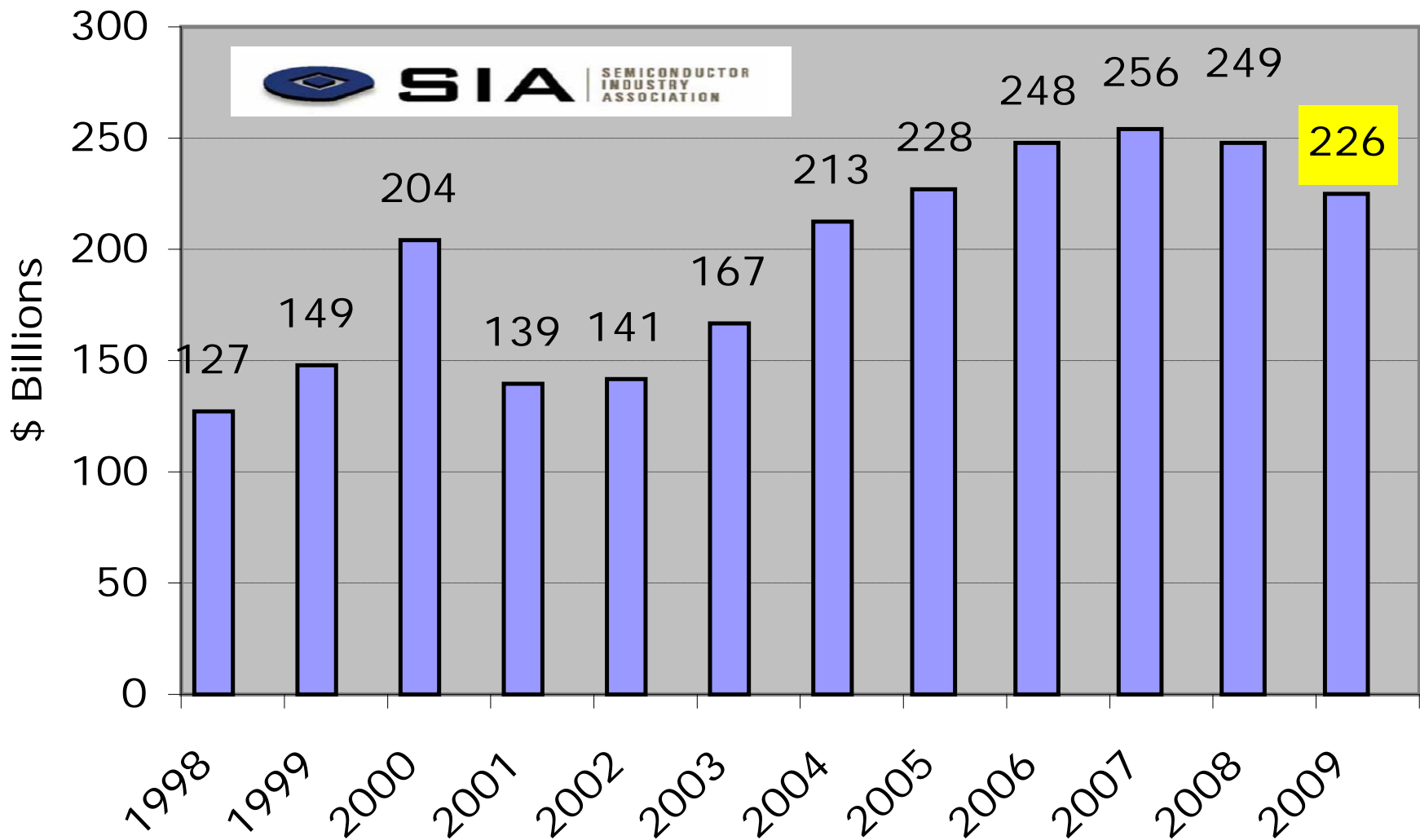


Ouch !

2008 Rank	2009 Rank	Company	2008 Revenue	2009 Revenue	Percent Change	Percent of Total
1	1	Intel	\$ 33,767	\$ 32,095	-5.0%	14.2%
2	2	Samsung	\$ 16,902	\$ 17,123	1.3%	7.6%
3	3	Toshiba	\$ 11,081	\$ 10,640	-4.0%	4.7%
4	4	Texas Instruments	\$ 11,068	\$ 9,612	-13.2%	4.2%
5	5	STMicroelectronics	\$ 10,325	\$ 8,400	-18.6%	3.7%
8	6	Qualcomm	\$ 6,477	\$ 6,475	0.0%	2.9%
9	7	Hynix	\$ 6,023	\$ 5,940	-1.4%	2.6%
6	8	Renesas Technology	\$ 7,017	\$ 5,664	-19.3%	2.5%
12	9	Advanced Micro Devices	\$ 5,455	\$ 5,038	-7.6%	2.2%
7	10	Sony	\$ 6,950	\$ 4,670	-32.8%	2.1%
11	11	NEC Electronics	\$ 5,826	\$ 4,403	-24.4%	1.9%
10	12	Infineon	\$ 5,954	\$ 4,340	-27.1%	1.9%
14	13	Broadcom	\$ 4,643	\$ 4,198	-9.6%	1.9%
16	14	Micron Technology	\$ 4,435	\$ 3,995	-9.9%	1.8%
24	15	MediaTek	\$ 2,896	\$ 3,524	21.7%	1.6%
19	16	Elpida Memory	\$ 3,599	\$ 3,498	-2.8%	1.5%
13	17	Freescale Semiconductor	\$ 4,966	\$ 3,344	-32.7%	1.5%
15	18	Panasonic Corporation	\$ 4,473	\$ 3,330	-25.6%	1.5%
17	19	NXP Semiconductor	\$ 4,055	\$ 3,247	-19.9%	1.4%
18	20	Sharp Electronics	\$ 3,607	\$ 2,886	-20.0%	1.3%
Top 20 Companies			\$ 159,519	\$ 142,422	-10.7%	62.8%
All Others			\$ 99,389	\$ 84,313	-15.2%	37.2%
Total Semiconductor			\$ 258,908	\$ 226,735	-12.4%	100.0%



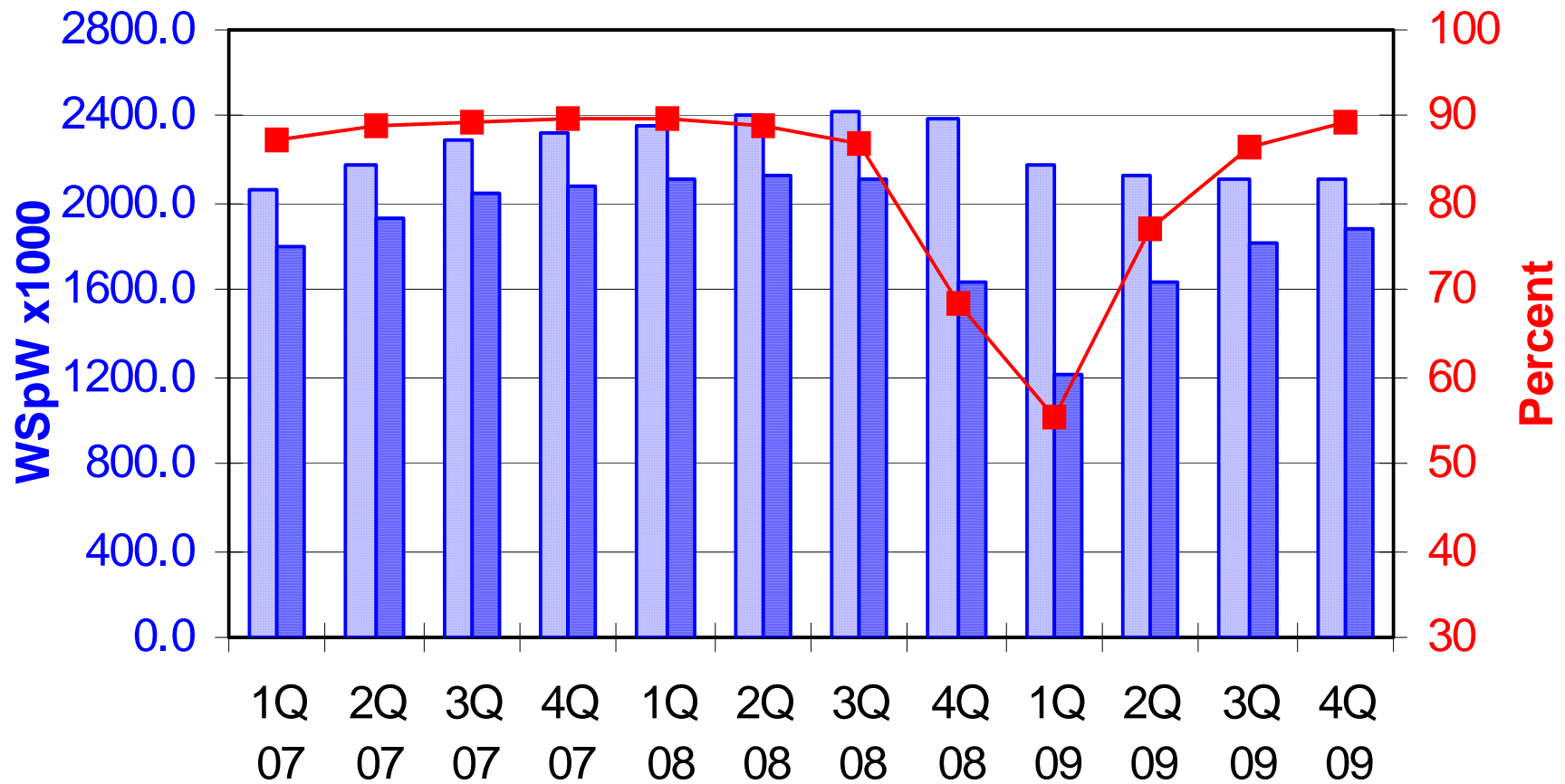
Overall WW Semiconductor Revenue



Wafer Starts Drop to below 60% of Capacity Utilization in 1Q09

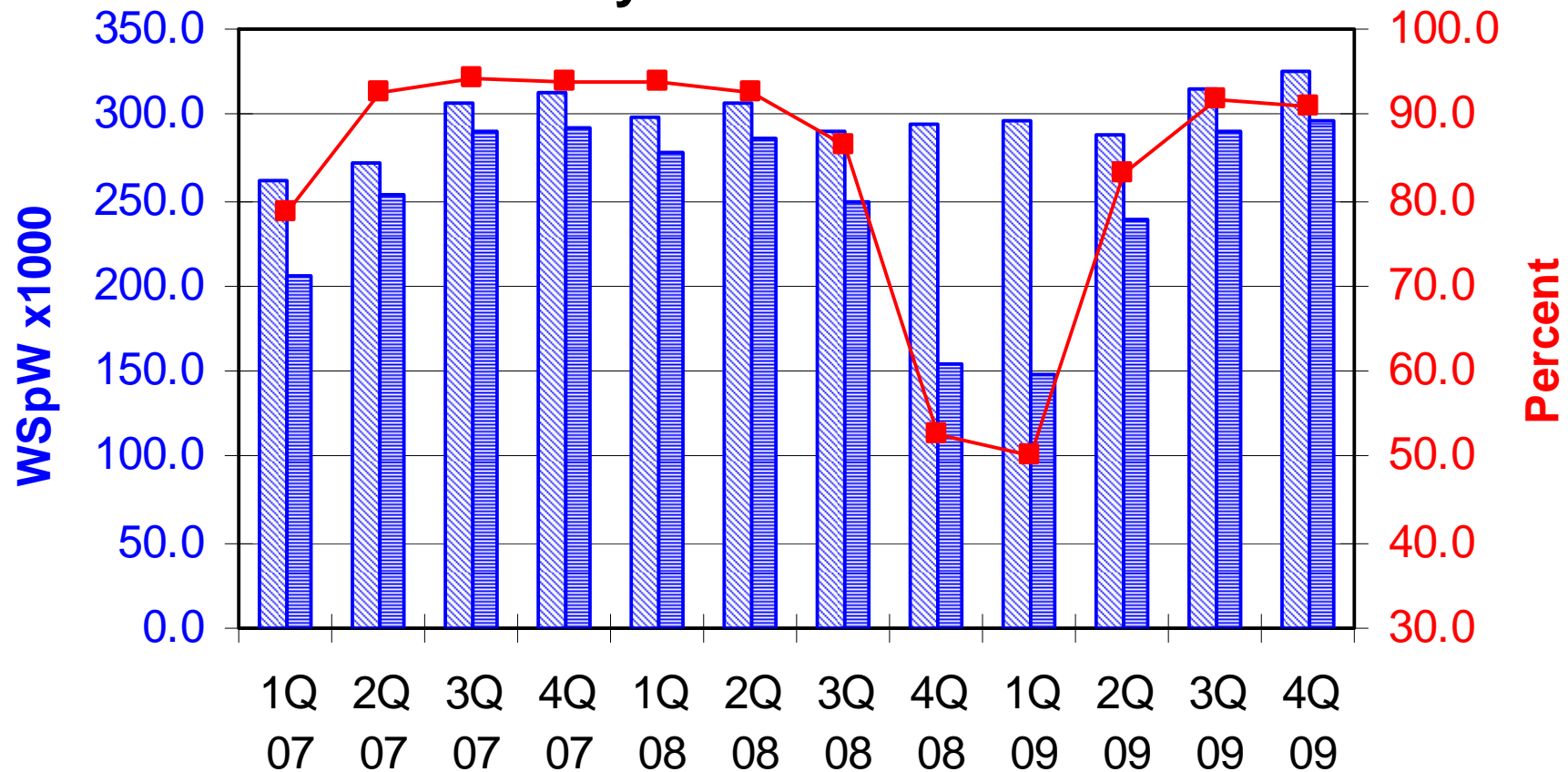


TOTAL Semiconductors



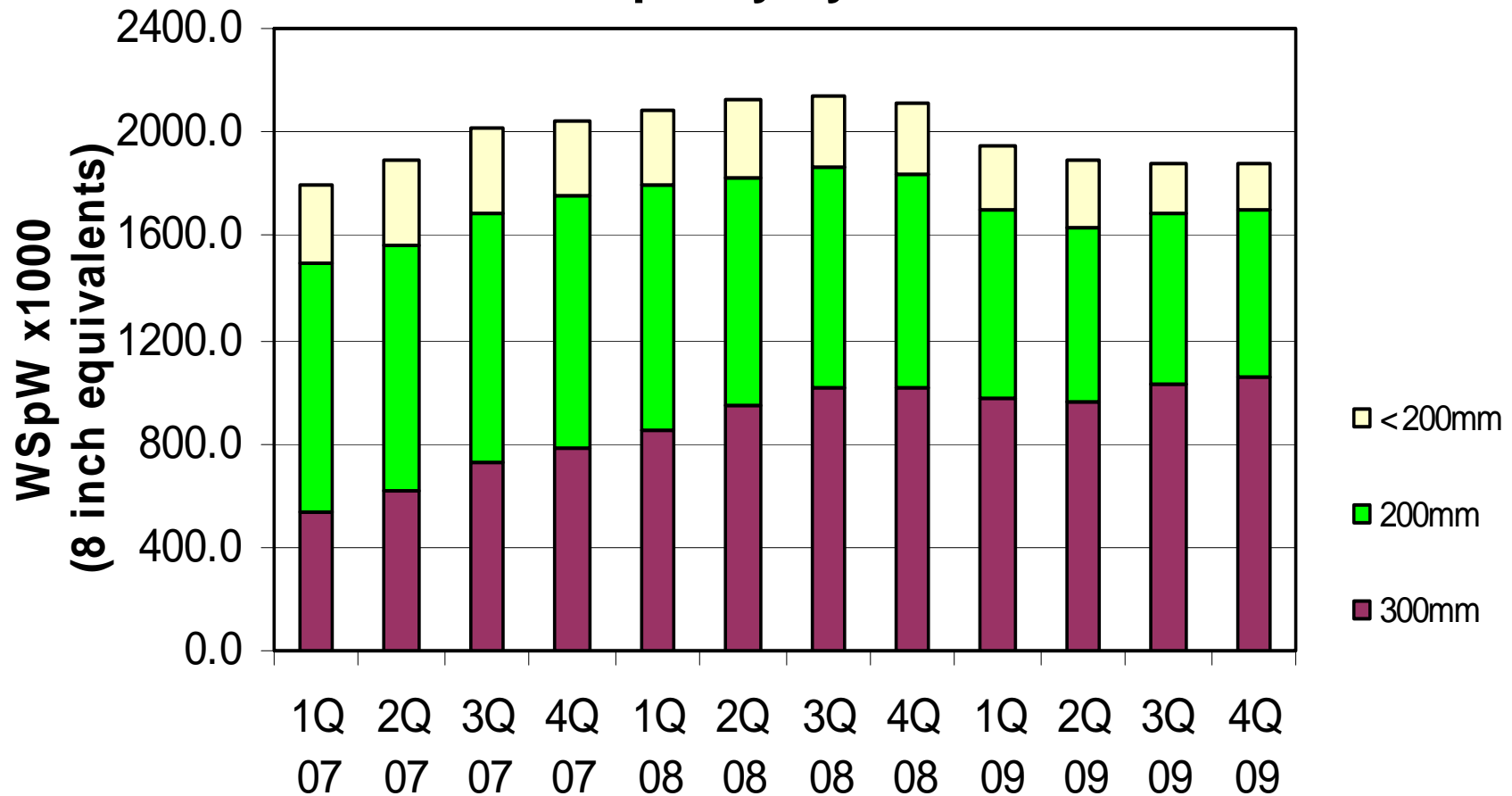
Foundry 1Q09 Capacity Utilization Dropped Below 50%

Foundry Wafers in MOS Total

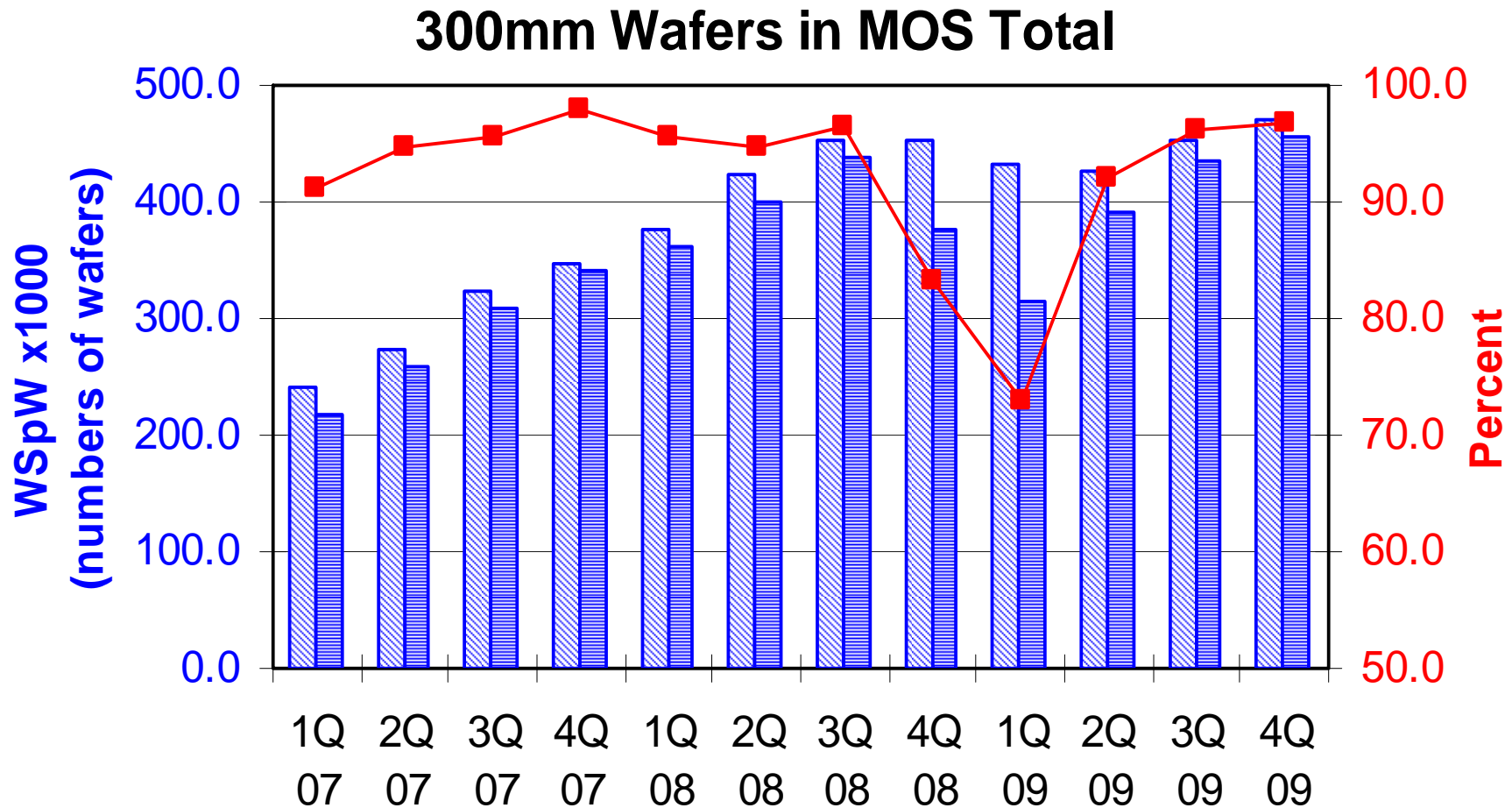


More than 50% Of Worldwide Wafer Capacity Is Now 300mm

MOS Capacity by Wafer-size



300-mm Wafers Produced



Top Probe Card Vendors

TOP 10 Semiconductor Probe Card Vendors - 2009 (Including Service & Spares)

2009 Rank	Company	2009 \$M	2008* Rank	2008* \$M
1	FormFactor	135.3	1	210.2
2	Micronics Japan Co., Ltd (MJC)	118.2	2	193.3
3	JEM: Japan Electronic Materials	90.4	3	132.9
4	Technoprobe	36.1	6	37.0
5	Microprobe	34.6	9	31.2
6	Tokyo Cathode Laboratories Inc	32.2	4	47.4
7	SV Probe Inc	29.0	5	41.8
8	MPI	24.5	7	36.9
9	Wentworth Laboratories	23.4	11	25.9
10	Will Technology	20.3	15	19.0

Copyright © 2010 by VLSI RESEARCH INC. All rights reserved. Reprinted by SWTW with permission from VLSI RESEARCH INC.

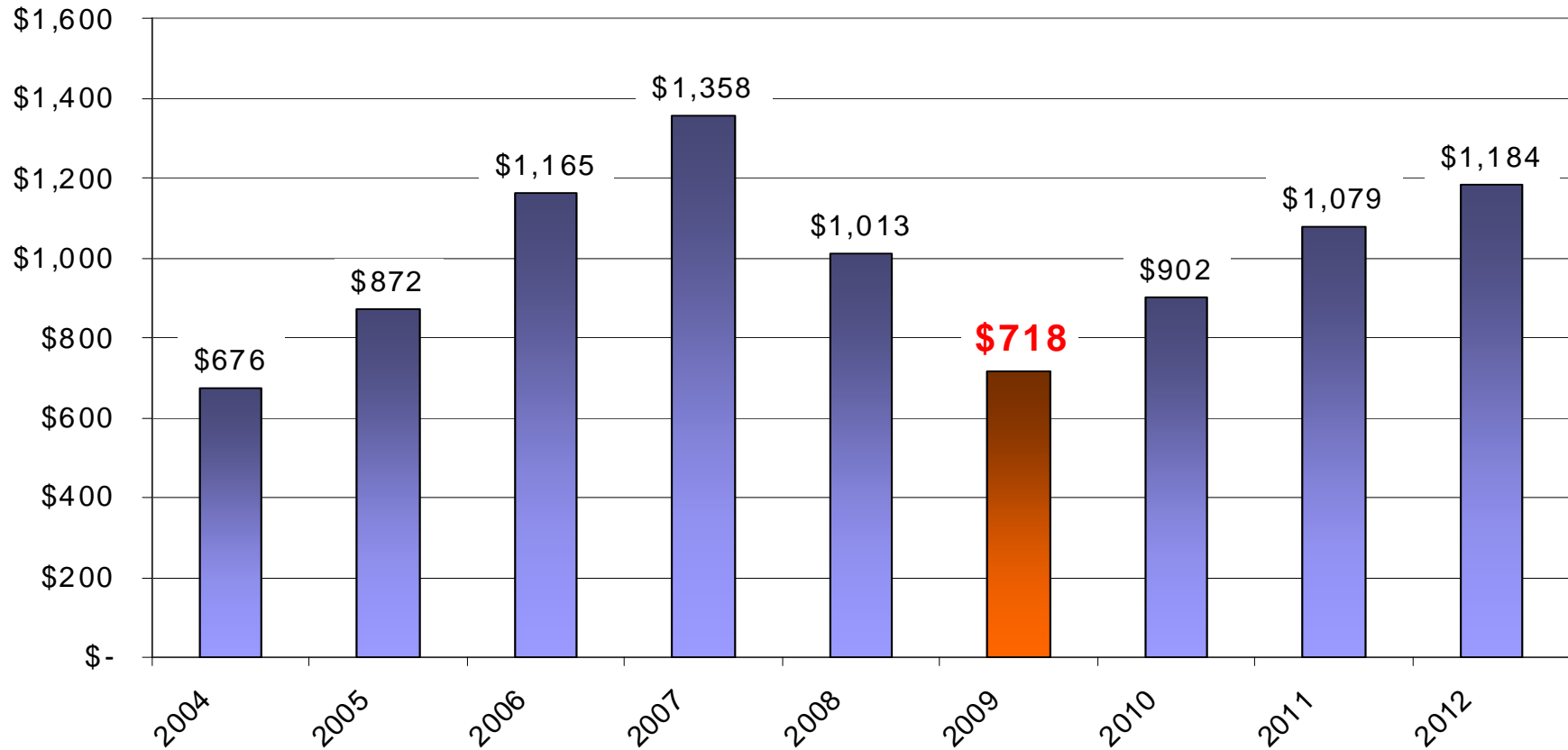
Thanks to Bob Mariner and Risto Puhakka!



Probe Card Revenue

History and Forecast of Probe Card Revenue

Millions of \$US: Excludes Service & Repair



Copyright © 2010 by VLSI RESEARCH INC. All rights reserved. Reprinted by SWTW with permission from VLSI RESEARCH INC.

Thanks to Bob Mariner and Risto Puhakka!



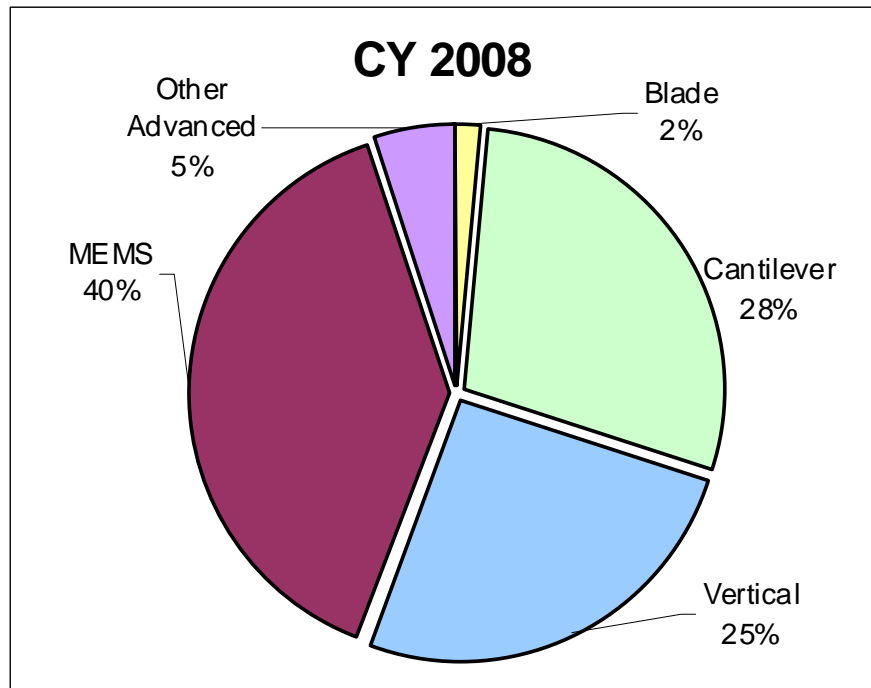
June 6 to 9, 2010

IEEE SW Test Workshop

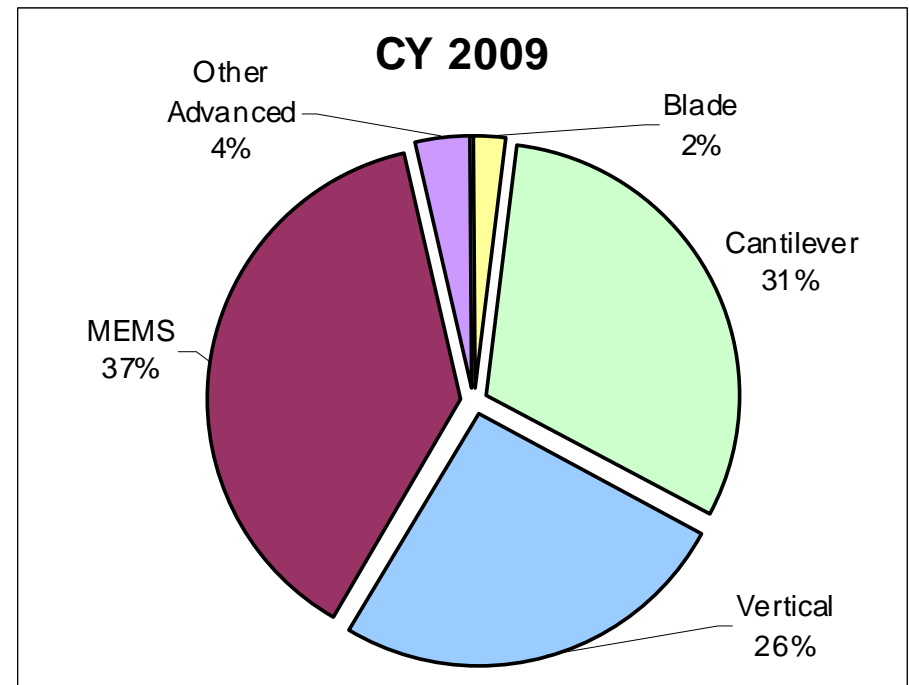
16

Revenue by Technology

Probe Card Revenue by Technology *Semiconductor*



\$1012.8M



\$717.7M

Copyright © 2010 by VLSI RESEARCH INC. All rights reserved. Reprinted by SWTW with permission from VLSI RESEARCH INC.

Thanks to Bob Mariner and Risto Puhakka!



June 6 to 9, 2010

IEEE SW Test Workshop

17

Memory Segment

- **Revenue from memory segment as % of total:**
 - In 2008 = 54% ... (that was approximately \$540M)
 - In 2009 = 43% ... (that was approximately \$330M)
- **Cantilever probe cards almost “disappeared” from memory segment with < 2% of overall revenue.**
- **Memory probe card demand is clearly dominated by Advanced / MEMS technologies.**

Copyright © 2010 by VLSI RESEARCH INC. All rights reserved. Reprinted by SWTW with permission from VLSI RESEARCH INC.

Thanks to Bob Mariner and Risto Puhakka!



We Lost

Good Friends

in 2009 ...



June 6 to 9, 2010

IEEE SW Test Workshop

19

Departed Friends of SW Test



Frank Pietzschmann

April 15, 1957 to June 6, 2009

SW Test Contributor and Committee Member



June 6 to 9, 2010

IEEE SW Test Workshop

20

Departed Friends of SW Test



Brett Crump

September 27, 1958 to October 11, 2009

SW Test Technical Program Chair



Departed Friends of SW Test



Bill Mann

August 25, 1943 to March 3, 2010
SW Test Founder and Chair Emeritus



June 6 to 9, 2010

IEEE SW Test Workshop

22

There's More News ... BUT ...



June 6 to 9, 2010

IEEE SW Test Workshop

23

Keynote Speaker



**“What's Going to Rock Your
World ...**

**Or, At Least Push Your
Probes.”**

Dean Freeman
Research Vice President
Gartner Research, Inc.

The Gartner logo, consisting of the word "Gartner" in a bold, blue, sans-serif font, with a registered trademark symbol (®) to the right.



June 6 to 9, 2010

IEEE SW Test Workshop

24

