



MicroProbe, headquartered in San Jose, CA, was founded by Carol Whann in 1973 - making it one of the oldest still surviving companies in the semiconductor test tool industry. Shortly after starting the company in San Jose, CA, she moved it to Carlsbad, CA where it was able to find a more stable workforce.

In 2004 MicroProbe acquired Universal Probe (Fremont, CA) to expand its manufacturing capabilities in both the cantilever and vertical probe card manufacturing lines. Also in June 2004, Jerek (January) Kister joined MicroProbe as its CTO. Before joining the company,



January Kister

he had served as VP of Engineering with Kulicke & Soffa's Test Division from 2000 to 2004. From 1990 to 2000, Kister served as Director of Engineering and later as CTO for with Probe Technology,

He headed the development, and is credited as the 'inventor' of MicroProbe's MEMs advanced probe card technology.

According to Dr. Mike Slessor, its president/CEO, in 2010 MEMs cards (made in San Jose, CA) accounted for about half of its revenues, Vertical cards about 40 percent (made in



Mike Slessor

Carlsbad, CA facility, and cantilever cards (made in China) the remaining 10 percent. MicroProbe has about 330 employees worldwide and is unique among the leading probe card makers in that it does not supply memory-test cards. He also noted that its profit for 2010 was about 10 percent of its revenues.

In 2008, a group of venture capital companies founded Astria Semiconductor - a privately held company with three major institutional investors - Flywheel Ventures, Gemini Investors and Intel Capital.- to acquire and merge MicroProbe and Micromanipulator, a Carson City, NV-based supplier of analytical probing equipment.

He has served as president/CEO of MicroProbe and as president/CEO of Astria Semiconductor since July 2008. Prior to the forming of Astria, Dr. Slessor held various management, product-marketing, and applications-engineering positions in the semiconductor industry, most notably with KLA-Tencor.

There are roughly 40 probe card vendors worldwide, consisting of:

- The top tier - FormFactor (FORM), Micronics Japan Company (MJC), and Japan Electronic Materials (JEM) each with approximately \$100 million /year or more in sales.

- The middle tier - companies in the \$30 to \$60 million/ year sales. Four companies are solidly in this tier: MicroProbe, Technoprobe, SV Probe, and Tokyo Cathode Laboratories (TCL). Two are on the border: TSC Memsys (Phicom) and TSE.

- The bottom tier - small companies with less than \$30 million/year in sales. Many of those companies are closer to \$10 M / year in revenue. (Approximately 30 - 40 companies.)

According to VLSI all segments of the chip probe card market recovered in 2010. Probe cards for memory applications lead the way growing 45 percent, and revenues for non-memory probe cards grew by 38 percent. Sales of blade probecards and revenues from service and support revenues brought the annual total probe card market up to \$1,040 million last year. That was after revenues for 2009 fell about 29 percent - from \$1.0B in 2008 to \$700M in 2009.

VLSI noted that there was a noticeable switch away from cantilever probe cards last year in favor of advanced probe cards which now account for 72 percent of revenues compared to 68 percent in 2009. It said the fastest growing segment was advanced probe cards for non-memory applications which grew 59 percent YoY.

In 2011, sales of semiconductor probe cards, including spares and service, are forecast by VLSI to grow by 10.6 percent to \$1,151M. Over the next five years probe card revenue is expected to stabilize and stay above the billion-dollar mark despite severe pricing pressure. VLSI Research projects that probe card market will reach \$1.4B by 2014.

In its survey for 2010 of the world's top suppliers of probe cards in 2010, VLSI ranked MicroProbe as the number one supplier of advanced non-memory probe cards and also as the fastest-growing company by revenue in its TOP-10 list and the only one that has charted successive revenue gains since 2007 - moving from number 9 in 2008 to the 5th place in 2009 and to 4th place position last year.

TOP 5 Probe Card Vendors						
<i>(Including Service & Spares)</i>						
(US\$M)						
'10	'09	'08	'10	'09	'08	
Rank	Company	Revenue				
1	1	1	FormFactor	188.6	135.3	210.2
2	2	2	MJC	176.1	118.2	193.3
3	3	3	JEM:	121.4	93.6	132.9
4	5	9	Microprobe	57.3	34.6	31.2
5	4	6	Technopobe	55.7	36.4	37.0

Source: VLSIresearch

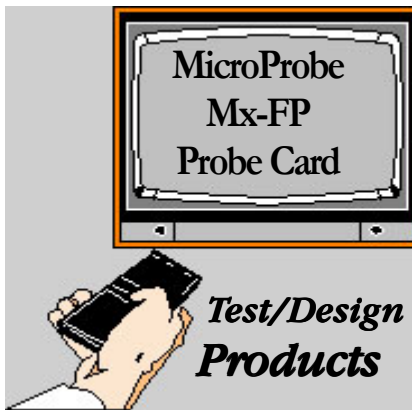
MicroProbe CEO Mike Slessor told *FTR* that he expected his company's revenues to reach \$80 million in 2011 – unless there is a major worldwide economic melt-down!" He noted that, "Our multi-year focus on advanced system-on-a-chip (SoC) probe cards has allowed us to solve the key customer technical and economic challenges in this large and fast-growing space, and we're pleased to lead this segment in VLSI Research's respected survey.

He also said that MicroProbe's legal battle with FormFactor is still ongoing. (See *FTR*'s August '10 article).

In July 2010 FormFactor filed a patent infringement suit against MicroProbe. The lawsuit, filed in federal district court in California, charges that "MicroProbe "is willfully infringing six US patents that cover aspects of FormFactor's proprietary technology and wafer probe cards.". The complaint also seeks injunctive relief and damages against MicroProbe for unfair competition and further includes claims directed against a former FormFactor employee David Browne for breach of confidence relative to FormFactor's confidential and propriety information. Browne has served as VP of Sales and Business Development at MicroProbe since March 2010. From 2000 to 2010, Browne held various senior management positions with FormFactor, including VP of Marketing and Senior Director of Sales.

Dr. Slessor, said: "We believe the claims are without merit and we intend to mount a vigorous defense. With a robust intellectual property portfolio developed over its 35-year history, MicroProbe takes IP issues seriously. We will defend our right to compete fairly in the marketplace."

He told *FTR* that the court has split the lawsuit into two tracks – the patent infringement claims and the breach of confidentially claim against MicroProbe and Browne. He added that he believes the case will take three to five years to work its way through the courts and he views it as just "a cost of doing business!"



MicroProbe's Mx-FinePitch probe card supports fine pitch, wire bond wafer testing for logic and SoC devices. Its unique architecture enables maximum pad layout flexibility for SoC feature integration, which is ideal for rapidly changing, small die size consumer semiconductor devices. Compared to cantilever fine pitch products, the Mx-FinePitch is designed for multi-DUT testing in high-volume production environments, with no probe positioning adjustment needed throughout the product's lifetime.

Mx-FinePitch Features

Fine pitch scalable down to 40um in-line, 20/40um staggered designs

Min Pitch: 50um in 2011

Min Pad Size: 45um

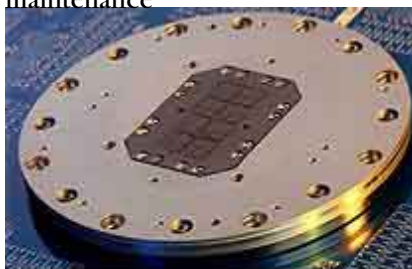
Low probe force: 2-3 g/probe at recommended overtravel

Maximum pad layout flexibility, core pad and multi-row corner pads accessible

Low contact force for low-k compatibility and probing over active circuitry

Small scrub area offers die size reduction opportunity for pad-limited devices

Replaceable MEMS probe for easy maintenance



MicroProbe Mx-FP Probe Card

Multitest MT2168 Offers Improved Placement

Multitest claims that its new MT2168 offers a significant improvement in the placement rate of tested devices in the output tray. The MT2168's position detection and control (PDC) addresses the issue of misplacement into trays and plates due to mechanical tolerances or thermal expansions. This is a common issue of any pick-and-place handler, particularly for small packages or variations of trays.

For misplaced devices, there is the risk of getting damaged, when the trays are stapled, or of causing jams. The PDC concept on the MT2168 ensures a substantially better placement rate by integrating a sensor based alignment feature into the standard pick-and-place processes.

The MT2168's PDC replaces repeated teaching processes, but is performed on-the-fly and independent of human operations and impact. With PDC, fine-tuning after kit conversion becomes obsolete. Additionally, PDC is an adaptive process that is optimized for the actual handling situations and requirements, e.g., during the heating-up phase.

FEATURES

- up to 16 contact sites (prepared for 32 sites)
- index time 0.45 s
- soak capacity for 3.5 JEDEC trays
- temperature accuracy +/- 1.0°C
- throughput up to 18,000 uph
- flexible contact site



Multitest MT2168