

IEEE SW Test Workshop
Semiconductor Wafer Test Workshop



2008 Lifetime Achievement Award

Past Recognition ...



K. R.
Casca



William Mann
2007
IEEE SW Test Workshop
Founder and Chair Emeritus



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6
crotech

The Selection Committee Meets



Jerry Broz
General Chair

Brett Crump
Technical Chair

Bill Mann
Chair Emeritus

Some Research Is Required !



A Choice is Made !



We selected the co-founder of a company that became the world market leader in probe card test and probe process analysis equipment

- Our awardee started his engineering career at Fairchild Semiconductor in 1959
- Co-founded his first company, Pacific Western Systems, in 1967
- Co-founded Applied Precision, Inc., in 1986

Fairchild Semiconductor

- 1959 – our awardee started his career in the new and rapidly developing field of “integrated circuits” and semiconductor testing.
- 1957 – “Traitorous Eight” led by Robert Noyce and Gordon Moore, quit Shockley Semiconductor with help from financier Arthur Rock to start Fairchild Semiconductor.



Traitorous Eight at Fairchild

Fairchild Semiconductor

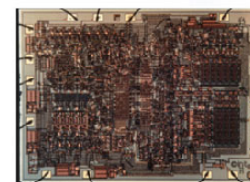
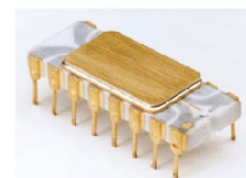
- In 1959, Fairchild produced a series of in-house transistor testers beginning with the Type 1A.
- Our awardee worked on the Type 4 tester that was eventually introduced for public sale in the March 1961.
- In 1962, Fairchild pioneered the "offshore assembly" trend by setting up the first assembly facility in Hong Kong.
- In 1964, our awardee developed the first off-shore transistor testing group for Fairchild in Hong Kong.
- In 1965, he left Fairchild Semiconductor.



Pacific Western Systems

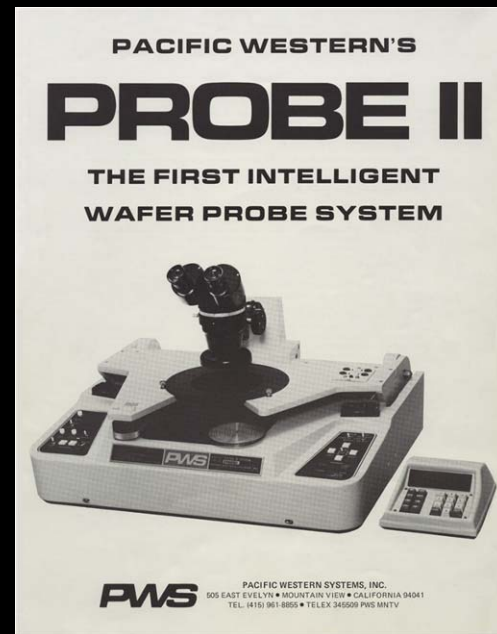
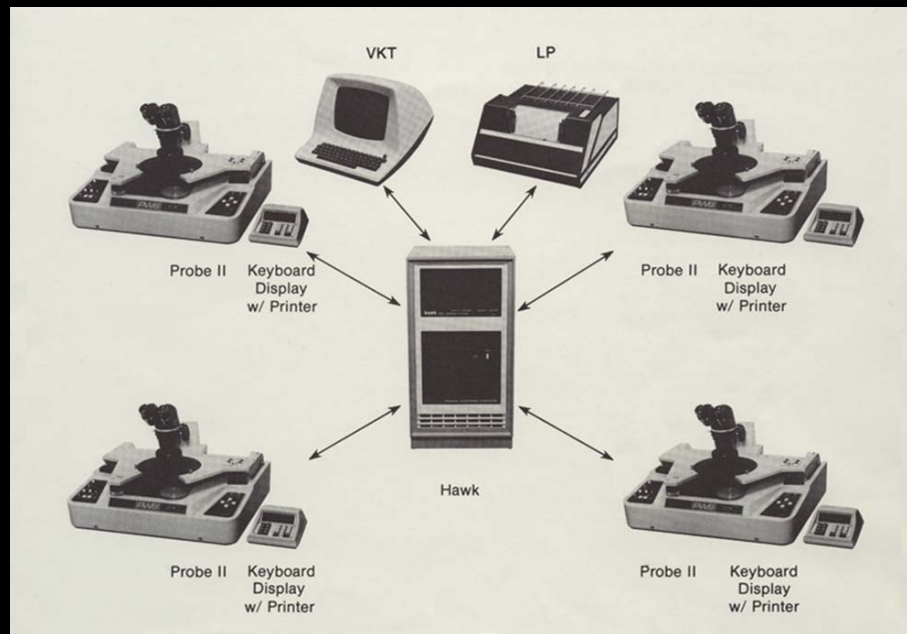
- In 1967, he founded Pacific Western Systems
 - Designed and built the first prototype tester board for the Intel 4004 processor
 - Designed automated milling machine that had two axis coordinated linear and circular interpolation using the Intel 4004 processor
- In 1976, he established the PWS Corporate Research and Development Center on Mercer Island, WA.
- In 1980, he created the architecture for the TI 64K DRAM tester platform.
 - First memory tester system purchased outside of Texas Instruments
 - 500 pico-second resolution of pulse placement using printed circuit propagation delay
 - 33 MHz ECL, 3 stage pipelined processor for memory tester
- In 1982, he directed the design of the first linear axis wafer prober.

4004 Microprocessor



64K DRAM at Smithsonian

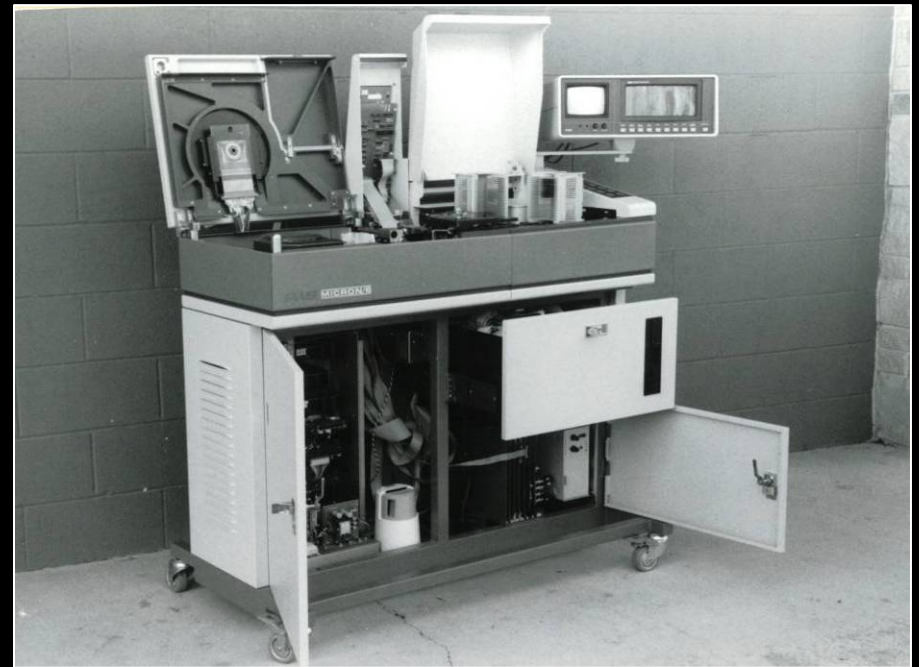
Prober / Tester Interfacing



PACIFIC WESTERN'S PROBE II WITH HAWK DATA COLLECTION CENTER

- Bin summaries of each die location stored by row and column.
- Total wafer lots stored and "imaged" for each die location.
- Display and Printout of number of die per bin, full wafer maps showing bin codes for each die or only die with same code.
- Individual display and printout of bins, summaries and yield graphs at each station.
- All data collection and displays run concurrent with no degradation of test times or tester overhead.
- Interfaces with any tester or combination of testers.

Automated Prober Development



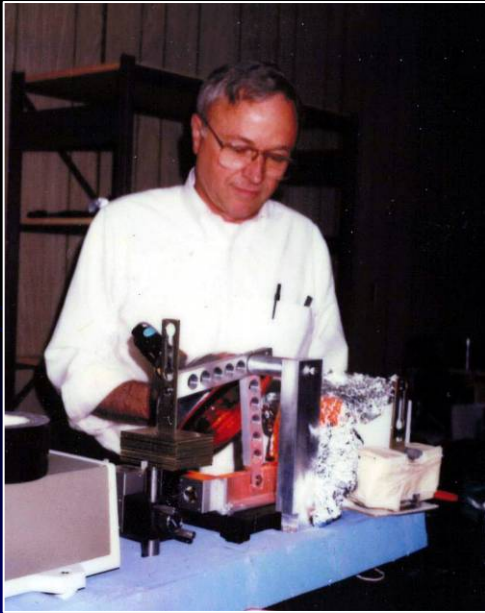
- Microprocessor based control with 64K RAM!
- 6-μinch stage resolution and better than 0.1 mil repeatability
- Touch screen interface with servo and step mode operation

Applied Precision, Inc.

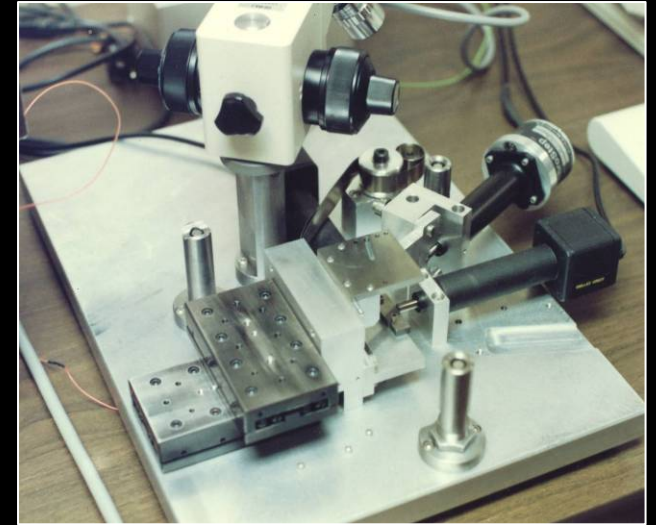
- In 1986, he co-founded Applied Precision with Ron Seubert and John Stewart using \$3000 in capital.
- Founding principles and business goals (as excerpted from business meeting minutes, 03-Sept-1983, ... thanks Ron !)
 1. Steady growth in size and profits
 2. Team management
 3. Honesty and integrity in aspects of the business
 4. A strong customer orientation
 5. Excellent products
 6. A friendly and rewarding work place
 7. Social and human as well as economic value

Applied Precision, Inc.

- Relentless in his pursuit of quality and innovation, confirmed through metrology.



IC verification
test system interface



Beginnings of the
probe card analyzer

Probe Card Analyzer Development

- In 1989, a CheckPoint was capable of measuring the locations of 256 probe points in three dimensions
- In 2008, a ProbeWorx® 300 uses 3D optical comparative metrology and measures up to 40,000 probe points
- From 1986 to 2006, API achieved a CAGR of ~30%.



In the 1990's



In the 2000's

Always Time for Fun and People !



SW Test Lifetime Achievement Award 2008



Donald Snow

Co-Founder, CEO emeritus
Applied Precision, LLC

AppliedPrecision

“Don is a leader, a source of
inspiration, and of highest integrity.”

- Ron Seubert (2008)