The Chip Insider®
2016 All Stars and Hall of Fame

- **2016 All Stars of the Semiconductor Industry**
  - J.K. Park, Besi
  - Tom Caulfield, GLOBALFOUNDRIES
  - Mark Bohr, Intel
  - Asher Levy, Orbotech
  - Jack Sun and Cliff Hou, TSMC
  - Heinz Kundert, VAT Vacuum

- **2016 Inductees to the Hall of Fame**
  - Andy Bryant, Intel
  - Gary Patton, GLOBALFOUNDRIES
  - Also expanded to cover all of Semiconductors

- **CHIP MAKING INDUSTRY HALL OF FAME**

VLSIresearch *... intelligence to make better decisions faster*

ALL STARS
OF THE CHIP MAKING INDUSTRY

- These are the executives that made the most of this year

- For some, it has taken several years of methodical execution to an overarching strategy to bring this year together

- For others it was about being fleet of feet

- They will tell you they are parts of bigger teams who really made it possible

  - It's true, but these people took the point, making them the most visible for either adulation or the well-placed sniper's bullet

- They have led the industry and their companies forward, for which we can all be thankful

2016 All Stars

J.K. Park: Has been critical to Besi's success by running the company's Asia Pacific Sales; instrumental in establishing great customer relationships that have resulted in record sales for Besi

- J.K. has a unique understanding of technology direction, technical specs, and implementation timing
- Significant contributions in building the ONE Besi organization
    - Integrating all Besi cultures to work together as tightly unified global equipment supplier
- Never satisfied, drives himself and his organization in continuous improvement

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2016 All Stars

Tom Caulfield: Successfully brought GLOBALFOUNDRIES' Malta Fab up to its core capability to reliably deliver leading-edge chip manufacturing

- Walked-the-talk delivering what's been promised and managing customer expectations
- Elevated a first-time-right attitude as key performance metric for all designs, resulting in
  - Excellent track record of yielding first-time-right silicon
  - Key design wins resulting in increased14nm production
- Tom's manufacturing leadership enabled GLOBALFOUNDRIES to tape out over 20 14nm designs into production by end of 2016

GLOBALFOUNDRIES®

2016 All Stars

Mark Bohr: Continued to drive Moore's law, leading Intel's 10nm development efforts into successful high-volume production ramp

- Mark has been intimately involved in each manufacturing node since 80s
- Continues to push limits of scaling by driving realization of innovation at Intel
  - Under his leadership, Intel has brought groundbreaking technologies to production with an unmatched consistency of cadence
- Mark's work has enabled Intel to maintain semiconductor technology leadership in all key metrics including
  - Device performance
  - Active power reduction
  - Performance-per-Watt

2016 All Stars

Asher Levy: Successful business leadership at Orbotech, resulting in a world-class equipment and technology supplier

- Acquisition and successful integration of SPTS into Orbotech added strong business into portfolio
  - SPTS is today a leader in advanced packaging equipment market with substantial wins over last two years
- Orbotech's business has been booming recently due to well-positioned products
  - Display and PCB business are thriving due to expanding markets
  - Semiconductor equipment is expanding packaging applications
- Resulting record year in 2016

orbotech
The Language of Electronics

2016 All Stars

Jack Sun and Cliff Hou: Accelerated TSMC's R&D and challenged Intel in industry technology leadership, ultimately benefitting customers and consumers with wider access to cutting-edge IC performance and technology

- Dr. Sun has been vital in implementing Chairman Chang's vision of accelerating node TSMC's transitions since 65nm introduction
    - Successful 10nm ramp and race to 7nm
- Dr. Hou has delivered the technology implementation along with design enablement
    - TSMC's Open Innovation Platform has enabled customers' designs to be ported seamlessly into TSMC's manufacturing

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2016 All Stars

Heinz Kundert: Successfully executed VAT Vacuum's transformation from a private family-managed business into a global public critical sub-system supplier

- Built up a new and experienced team to execute this transformation in very short time

- Vision to position VAT to exploit current surge in equipment demand
  - VAT is achieving record sales and profitability in 2016
  - Share price is up 75% since April 2016 IPO
  - Has ability to operate all major regions and forge relationships across equipment supply chain

- Heinz is positioning VAT for future growth with strategic investments in semiconductor equipment and other industries

VAT

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

- These are the executives who have made systematic contributions to our industry
- They were key to the advancement of
  - Customers
  - Technology
  - Moore's Law
  - Business Fundamentals
- Without them, our industry would be much smaller
  - And would have had a much smaller impact on everyone's lives around the globe

2016 Inductee to the Hall of Fame

Andy Bryant (2016)**:** Operational, business and financial leadership for decades; in his multiple roles he has been a part of all of Intel's strategic moves
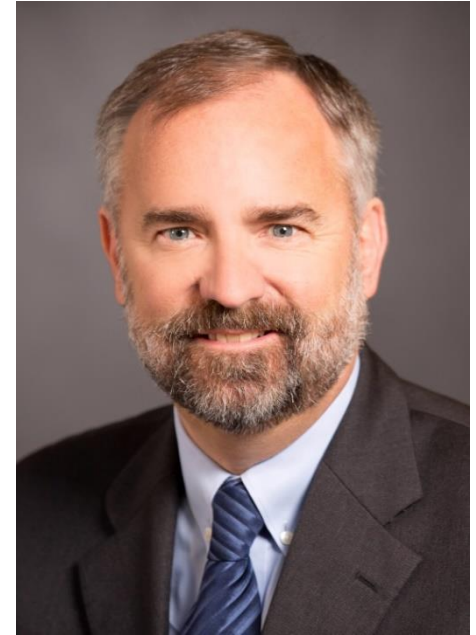
- Andy is true scholar of Moore's Law
    - Knows how to apply Moore's law as a semiconductor industry business model and not just a marketing ploy
        - How it can be turned into a multi-billion dollar business that has sustained for decades
    - His experience through decades of investing in technology and research have provided unique insight into technology business management
- Andy's lifetime leadership has kept Intel in the forefront of business and financial management
    - Intel is one of the most profitable manufacturing-based companies

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2016 Inductee to the Hall of Fame

Gary Patton (2016)**:** Decades of technology vision and leadership for IBM and now GLOBALFOUNDRIES

- Gary has provided technology leadership in developing and commercializing critical technologies
  - Cu damascene process, strained silicon, FinFET
  - Moving scaling from lithography and into materials and design based innovation
- Instrumental in tailoring IBM's semiconductor pipeline into GF's foundry environment
  - Enabling the transfer of IBM's research under GLOBALFOUNDRIES' umbrella
  - Establishing solid roadmap for 7nm and beyond
  - Driving GLOBALFOUNDRIES' differentiation using 22nm FDX™ FD-SOI platform

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VLSIresearch's *new*
SEMICONDUCTOR INDUSTRY HALL OF FAME

No longer just about Chip Making, we are now including people who changed the business:

Gordon A. Campbell: Father of the Fabless model

Morris Chang: Father of the Foundry model

Andrew Grove: A career of remarkable bandwidth

Pat E. Haggerty: Broke semiconductors out

Gordon Moore: Created the business model

Robert Noyce: The true father of Silicon Valley

Charlie Sporck: Perfected manufacturing discipline

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Gordon A. Campbell is the father of the fabless semiconductor industry

- Co-founded Chips and Technologies in 1985
  - First successful fabless company
- Created the fabless business model
  - It would be cloned to create an entire industry
  - Made the foundry model possible
- Proved the fabless model worked in large markets
  - Ultimately became larger than what a single fab could fill
  - It blew the PC up into an open horizontal standard
    - to drive volume via a SoC chip set model
  - Resisted turning to an IDM model

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Morris Chang is the father of the semiconductor foundry industry

- TSMC was the first dedicated chip foundry
- Prior to his founding of TSMC, there was only a foundry service model
  - Service providers were suppliers and competitors
  - Foundry services were only a side business to fill capacity
- TSMC was architected to be trusted
  - Would never compete with its customers
- A true visionary, he saw how EDA's cleaving of design and process made it possible to split the industry into fabless and foundry
  - Ending IDM foundry service conflicts of interest

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Andrew Grove had a career of remarkable bandwidth and contributions

- His engineering texts on process technology were the mainstay of process engineers throughout the early days of the industry

- Later his management texts became just as important

- He ended second sourcing via his virtual second source strategy

- He was the first to directly market chips to consumers

- His extendibility model for microprocessors meant the PC market would gain scale, making computers affordable for the masses

(intel®)

The Chip History Center

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Pat E. Haggerty broke semiconductors out of old-guard electronics companies

- Military needed reliable transistors
  - Old-guard electronics companies were not delivering
  - They simply moved too slow
- "One day this Texan walks into" Howard Moss's office at the U.S. Army Signal Corps Lab, Ft. Monmouth, N.J.
  - Pulls a beaker, a jug of water, a Bunsen burner, and a transistor radio out
  - Brings the water to a boil, turns on the radio, and drops it into the water
  - As the radio played in boiling water, Haggerty said. "Mr. Moss, I want to talk to you about reliability."
  - Howard Moss wrote him a check that day for a contract
  - With it, the modern semiconductor industry was born
    - An industry that would epitome of fast product development cycle times

TEXAS INSTRUMENTS

Source: conversations with Howard Moss

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Gordon Moore created the business model for the entire industry with his 1965 paper describing what would later become known as Moore's law

- Showed how innovation was a fourth factor of production
  - First relevant work in what become known as innovation economics
- His strategy for Intel created the first vertical product semiconductor company
  - By focusing Intel as a start-up in memories, he showed that a chip company could be successful with a single product focus
  - His strategy also created the first IC/MOS specialist
- Drove further focus with a non-vertically integrated model
  - Intel was the first with an explicit strategy of not making its own masks, materials, and equipment

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Robert Noyce is the true father of the IC and Silicon Valley, the original model for start-ups and serial entrepreneurs, as well as the first statesman for the semiconductor industry

- All ICs would be integrated with the planar process
    - The key differentiating factor in his patent
- Led the 'traitorous 8' from Shockley to start Fairchild
- Then led the spin off from Fairchild that would put the 'Silicon' in Silicon Valley to start Intel
    - This was the start of the Venture Capital model for funding start-ups
- His vision was that the pie was bigger than any one company
- As first CEO of SEMATECH, his efforts were key to saving America's semiconductor industry

Noyce's IC

Intel's Business Plan

The Chip History Center

VLSIresearch's
SEMICONDUCTOR INDUSTRY HALL OF FAME

Charlie Sporck perfected manufacturing management and drove the first off-shoring, putting assembly plants in Asia

- He was the first real manufacturing person at Fairchild
  - Led the industry from the lab to the fab
  - Was pushed out by management consultants
  - Fairchild never regained its edge
- Saved National Semiconductor in a key turn-around
  - Developed manufacturing engineering long before it was a profession -- used to drive down prices, via lower costs
  - Became one of the Big 3: AMD, Intel, & National
- One of the first to raise the flag against the threat of Japan
  - Key founder of the SIA, SRC, and SEMATECH
- Kept unions out of semiconductors
  - "I make less than the Union bosses do."
  - Treat your people well and they won't need Unions

National Semiconductor

The Chip History Center

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

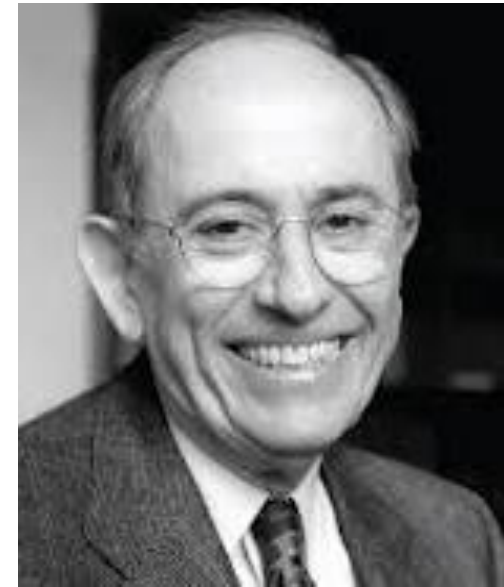|		
Alex d'Arbeloff (1993)	Robert Holzel (1993)	Arthur del Prado (1993)
James Bagley (1994)	Bob Huston (2006)	Egon Putzi (2006)
Richard Blickman (2011)	Winfried Kaiser (2008)	Barry Rapozo (2006)
Robert Boehlke (2005)	Tokuo Kubo (1993)	Ken Schroeder (1996)
Mark Bohr (2006)	C. Scott Kulicke (1994)	Mike Splinter (2007)
Mike Bradley (2013)	Patrick Lam (2006)	Larry Sumney (2009)
Martin van den Brink (2006)	Jean LeMoin (1994)	Jon Tompkins (1996)
Mike Cadigan (2008)	Ken Levy (1995)	Randhir Thakur (2012)
Sunlin Chou (2006)	Walt Mathews (1995)	Ray Thompson (2006)
Gary Dickerson (2006)	Toshio Maruyama (2009)	Papken Der Torossian (1994)
Roger Emerick (1993)	Haruo Matsuno (2014)	Tetsuo (Tom) Tsuneishi (2015)
Paolo Gargini (2009)	Dan Maydan (1996)	Kouichi Uehara (2007)
Aart de Geus (2012)	Eric Meurice (2008)	Kazuo Ushida (2007)
Robert Graham (1993)	James Morgan (1993)	Shoichiro Yoshida (1993)
Gary Heerssen (2012)	Steve Newberry (2011)	Arthur Zafiropoulo (1994)
Terry Higashi (2005)	Karl Nicklaus (1994)	
Bill Holt (2015)	Mike Polcari (2009)	

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Alex d'Arbeloff (1993) can probably lay claim to being the leader of a semiconductor equipment company longer than anyone in history

- Earned this distinction with honor--Teradyne has been consistently well-managed and profitable under his tenure

- Kept Teradyne a consistent leader in ATE, throughout more than twenty years of business and product cycles

- Brought a strong sense of ethics to the equipment industry that all companies would do well to emulate

TERADYNE

Alex d'Arbeloff
died on
July 8, 1998

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

James Bagley (1994) built an infrastructure that created industry's first billion-dollar company

- Saw infrastructure as key to the planned architectural growth of an organization
  - Competent individuals are hired in advance of need, ensuring that a company never outgrows its ability (a typical problem for early equipment companies)
- An early visionary to recognize that the days of captive equipment organizations were numbered
  - Always had crystal clear vision and decisively moved organizations to take advantage of it
- Successfully jumped from the world's captive equipment company (TI)
  - To build the world's largest merchant equipment company (Applied Materials)
  - Then jumped again to save Lam Research
  - Few can say they engineered global success three times

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Richard Blickman (2011) has built BE Semiconductor into a world-class assembly equipment company through a string of crafty acquisitions, persistent operational standardization & excellence, as well as alignment of products to end-application markets

- Also moved company out of Europe to Asia, completely reengineering the company's cost structure
- Successful acquisitions are rare; successful corporate moves are even rarer
    - Yet, these tactics that so many others have failed at, resulted in the company doubling its size over the last ten years, as it also became a leader in profitability
- This is a feat that only a few tier-one equipment suppliers have achieved

Besi

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Robert Boehlke (2005) transformed KLA from technology leader that analysts described as "flakey" to a profitable "well oiled machine"

- Before he took charge as CFO, KLA was always missing quarters and never earned consistently
- Few CFOs ever have a transformative effect, which makes Bob so special
- What makes him stand above the crowd is his unique understanding of human nature; his complete mastery of strategy and tactics; and his ability to always see the plainly obvious things everyone else overlooks

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Mark Bohr (2006) has driven the industry, by scaling down circuits at the hard pace dictated by Moore's Law

- Most of the industry's leaders had given up, calling for a slowing of the pace

- But by caning Intel into a leadership position in the nineties, he forced the rest of the industry to follow

- He did so because his efforts did not end up as pretty papers in technical conferences

  – they wound up as real . . .

  – manufacturable . . .

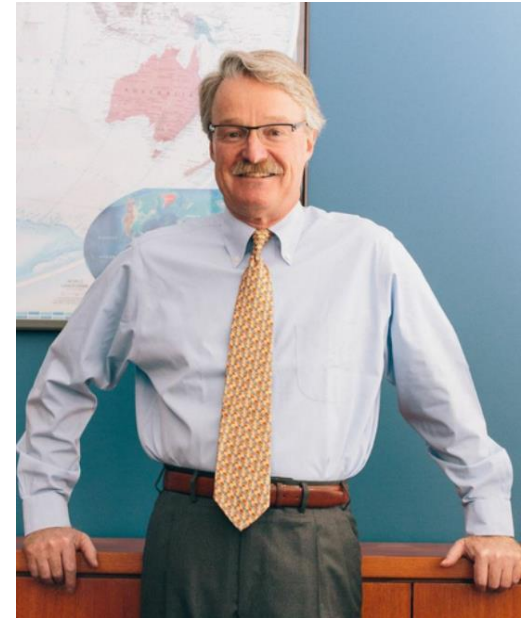 – product that forced others to respond competitively

VLSIresearch … intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Mike Bradley (2013) Establishing the leading operational model for semiconductor equipment suppliers through one of the most challenging equipment segments

- Mike's career spans all aspects of semiconductor equipment company management at Teradyne
- His vision for the operational model enabled Teradyne to become one of only two surviving mainstream ATE suppliers
  - Razor-sharp product focus to deliver best product solutions from core competencies
  - This means stripping off all activities that do not fit core competencies
- Brilliant and one of the most successful acquisition track records to build the leading test equipment supplier

TERADYNE

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Martin van den Brink (2006) is a master of hi-tech marketing and development, competing on raw intellect and out-thinking the competition at every step

- A modern day MacArthur, he brilliantly finds ways to leap over the competition's strongholds, turning strengths into weaknesses--he made fighting the Japanese look easy

- His real break came in the late eighties, when customers clamored to skip i-line and jump to DUV

- Martin and the team at ASML didn't take the bait and developed i-line instead
    - They risked all betting that customers were wrong
    - The bet paid off and they took the lead while everyone else back-tracked

- He insisted customers put skin in the game with 157nm and pay for development tools

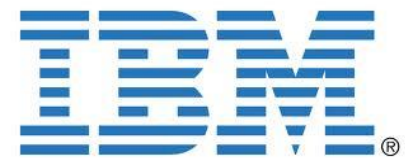- Doing the same with immersion took them from behind to the lead as well

ASML

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Mike Cadigan (2008) not only turned IBM around, he also built what is arguably the most influential company in the industry

- No other company touches so many corners of the industry, managing to ensure a competitive landscape, while lowering development costs at the same time

- He brought IBM a leadership role that is greater than what it held in the last century, because for the first time IBM is a true partner to the development of the industry

- No one shakes their head about IBM's future anymore and that's largely due to Mike

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Sunlin Chou (2006) took research and turned it into a manufacturing center that systematically turns ideas into product

- He created the R&D pipeline concept and

- Built it into an innovation machine that …

- Marched Intel ahead at a pace that would take them from being behind, process-wise, to being a full generation ahead

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Gary Dickerson (2006) is the man who built KLA-Tencor's mind-share in the nineties

- He then left to go to Varian Semiconductor, which was locked in small company purgatory
  - They had great product and technology, but couldn't go anywhere because customers were too afraid to take the risk
  - Worse, many customers had been burned by Varian in the eighties
- Gary's taking them into a strong leadership position is proof of prowess . . . proof that he wasn't just lucky at K-T
- Gary was the soft and gentle side of K-T
  - Look into his eyes and you'll see a man who's easy to trust
  - But he never took advantage of it
- He always makes sure his organization can do what he promises or he doesn't promise it
- He is a Zen master of the customer relationship

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Roger Emerick (1993) is unique in his ability to build a company that is a joy for its customers and a joy for its employees

- The value of this strategy is that it has made LRC a consistent leader
  - Its employees are quick to respond to customer problems without arrogance, and its customers are more forgiving when it stumbles
- On occasions when Lam does stumble, as all companies do, it never falls far

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Paolo Gargini (2009) is one of the best consensus builders in the chip making R&D ecosystem

- Mr. Gargini has been part of each controversial R&D program, critically ensuring that all elements of the program were covered

- With little credit, he travels relentlessly each year, cajoling company and industry researchers alike to somehow find a way to build the strong alliances needed to keep Moore's law alive

- He is amazingly able to navigate the thin grey line between the interests of Intel and the industry in a way that builds trust

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Aart de Geus (2012): Founding and building the modern EDA company, re-shaping EDA industry into a customer-focused and trusted design partner

- Co-founded and runs Synopsys, which has become the world's largest supplier

- His vision has been instrumental in EDA evolving from crude cowboy software code

- Into today's hierarchical software that keeps track of the billions of things that have to happen to turn an idea into a design and ultimately into a computer chip

- Aart has done this with razor-sharp internal and external product focus

- He has not been shy on acquisitions by building Synopsys into today's EDA leader with largest product portfolio in the industry

SYNOPSYS®

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Robert Graham's (1993) marketing prowess was legendary

- He consistently brought more successful systems to market, while suffering fewer introduction failures than anyone in the history of the equipment market

- His secrets are simple: Know your customer's business better than they do, sell only what the customer needs and benefits from, do not cater to their wants, and know when not to listen to them

- His advantage was that he did these better than anyone

- As a result, he became one of those rare individuals who gets deep respect from even his fiercest competitors

- He was also the first to recognize the potential of Japan as a future market
  - This enabled Applied Materials to become one of the most successful American companies in Japan as measured by share of sales

NOVELLUS

Bob Graham
died on
September 3, 1998

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Gary Heerssen (2012): Manufacturing hero with a focus on people and capital

- Gary was driven by the principle of knowing how to spend money to make money – often leaving cost in the back seat, but never profits
  - As diffusion section manager at Texas Instruments MOS 11 in Houston, he insisted on engineering content for all shifts
  - Resulted in soaring yields at MOS 11, more than paying for the added expense
- In 1991, Gary implemented a long-term vision at AMD called "Journey to Excellence." The four cornerstones of Journey to Excellence are:

  1) Systems for better control 2) People educated and empowered 3) Detect problems before they are a problem 4) Organizational structure that is modular rather than hierarchical

- This was at core of how AMD competed globally against far larger competitors with far greater resources
- Gary Heerssen's legacy leaves many lessons to be learned at a time when America is again experiencing major challenges to its leadership

AMD

Gary Heerssen
died on
December 20, 2004

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Terry Higashi (2005) navigated TEL through the toughest times the Equipment Industry has ever seen, all the while building them into a technology leader

- TEL was once known as the best representative in Japan and the best builder of American designed equipment

- Mr. Higashi steered TEL through rough waters to be a global leader
  - Globalizing TEL's customer approach
  - Truly partnering with customers around the world
  - With a focus on fully integrated co-development teams

- He is a man of great integrity and one of the few that customers truly respect

TOKYO ELECTRON

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Bill Holt (2015) The leadership to keep Intel in the forefront of Semiconductor Technology

- Bill has been the driving force behind a number of breakthrough technologies to introduce new device generations for Intel. Among them:
    - 90nm Strained Silicon in 2003
    - 45nm high-k metal gate in 2007
    - 22nm tri-gate transistor in 2011
- His leadership has kept Intel consistently a full three years ahead in technology introductions compared peer logic device suppliers
    - These technologies have enabled Intel to become and maintain the leading technology supplier status in high performance computing and PCs
- Bill was selected as a *Robert N. Noyce Award* recipient for his accomplishments in the industry

(intel)

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Robert Holzel (1993) brought the concepts of systems integrator manufacturing strategies to the industry, and showed that vertically integrated manufacturing was not needed

- He was the first to use subcontracting of subsystems as a way to significantly reduce overhead, an approach that single-handedly put Extrion back in the black after 1985's recession

- Today, his subcontracting strategies are widely copied and are in use at virtually all profitable equipment companies
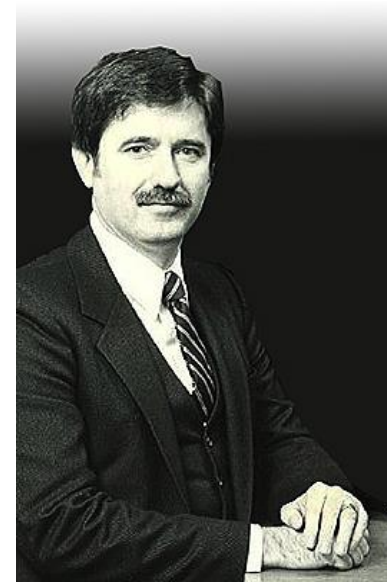
varian extrion division

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Bob Huston (2006) was both a modern Nick DeWolf and a west coast version; he was legendary inside the test industry

- Bob had an ability to get inside the machine, to think like the machine, to be one with the soul of the machine
  - He invented Shmoo plotting, a huge testing advance for memories
  - But his legend really comes from his ability to solve customer application problems: ones that without a solution, the product would have never made it to market
    - He would guide the tester through the chip, searching, and finding faults no one else could
  - The biggest block-buster chip of the last three decades has to be Intel's 386 microprocessor. Intel could not figure out how to reliably test it and Bob did
    - Intel was grateful enough to shower Trillium with all its 386 tester business
- Without Bob, our industry would be much smaller
- Bob Huston is proof of the immense power of the individual contribution

trillium
TEST SYSTEMS
An LTX Company

FAIRCHILD
SEMICONDUCTOR®

Bob Huston
died in 2006

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Winfried Kaiser (2008) is the perfect example of a technical marketing master

- B-school marketing doesn't work in hi-tech because you must integrate development with it
  - A master understands how to take the technology and core strengths of his company and forge them into solutions for customers
  - The master must be able to build a bridge between technology and core strengths of his company, as well as those of his customers
- Winfried's defining moment came when chip makers were trying to push ahead to 248nm DUV tools
  - He made a very gutsy call: ignore them and focus on an i-line solution
  - It wasn't really that gutsy, for Winfred knew that the technology and infrastructure for DUV was not going to come together on time--all he had to do was wait for the industry to step back to i-line
- He gained the upper hand for Zeiss and ASML because competitors were just listening to customers and doing what they were told
- The true grit and brilliance came from holding to what he knew and believed and ignoring the customer on things they were not qualified to talk about
- That's an extremely thin tightrope to walk and he does it all the time, saving untold amounts in development costs

ZEISS

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Tokuo Kubo (1993) was the first to recognize the value of alliances and to capitalize on this

- This enabled him to successfully build the world's largest equipment company without a strong technology base
- Mr. Kubo made TEL one of the best marketing companies in the industry

TOKYO ELECTRON

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

C. Scott Kulicke (1994) was the first to prove that a Japanese competitor could indeed be beaten with superior products

- He is a master of using product innovation as a means to gain a competitive advantage
  - Using a technology strategy, he was the first executive from any industry to systematically beat a Japan giant
    - He did this in the early eighties, when Japan was at its strongest
  - A cynic at heart, he was always prepared
- Then he was the first to successfully move an entire equipment company to Asia
  - Many others had been broken just moving companies inside their own countries
  - In doing so, Scott ensured the long term success of K&S

Kulicke & Soffa

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Patrick Lam (2006) was the first to build an equipment company in Asia, outside of Japan

- He showed how this region could lead, with ASM Pacific taking the top spot in the assembly equipment market

- His strategy was unique to chip making equipment:
  - Be as vertically integrated as possible
  - Rely on local low-cost Asian manufacturing to gain a cost advantage
  - Avoid the leading edge and sell good-enough at very good prices

- ASM Pacific went on to develop an impressive array of technical capability

ASM

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Jean LeMoin (1994) pioneered the concept that a PR agency is a mechanism for managing a company's image across a broad front

- She focused on creating an image that is cohesive with the media, customers, and the financial community
- Consequently, the presentation of the company is deep and rings true

Jean LeMoin
died on
May 3, 2010

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Ken Levy (1995) applied his vision of using pattern recognition as a means to dramatically improve yield, ensuring the continued success of Moore's Law

- He built a strong company around this vision, with the principles of having the best products available throughout the world
- He proved to be a tough, hands-on manager that could keep his company consistently on track
- He was bold enough to kill marginal products just before introduction
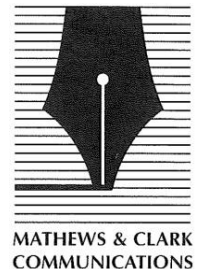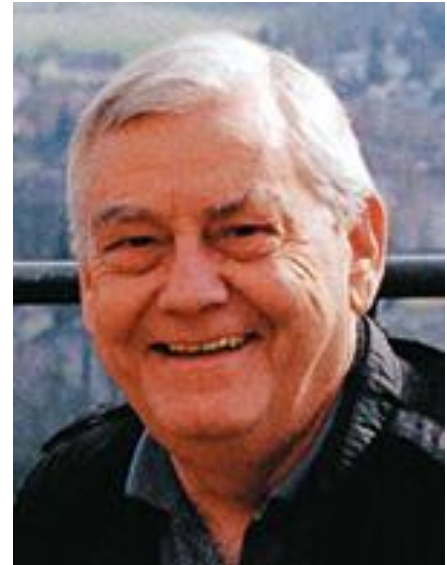   - And focus his teams on hitting the home run

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Walt Mathews (1995), more than any other individual, was responsible for giving the semiconductor equipment industry its own presence separate from the semiconductor industry

- People now know it is semiconductor equipment that makes the chips inside their computers, and that
- Semiconductor equipment is at the beginning of the technology food chain
- He left a successful career as a journalist to found the first PR agency dedicated to promoting the chip equipment industry

MATHEWS & CLARK
COMMUNICATIONS

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Toshio Maruyama (2009) transformed Advantest from the local, domestically focused ATE and instrumentation supplier, Takeda Riken, into a global ATE equipment supplier

- Maruyama worked through his career at Advantest and left his marks at all levels
  - He was the inventor of IDDQ testing
- During his time as CEO, Advantest was the most profitable ATE supplier
- His soft-spoken manners won trust from the customer, which consistently enabled the company to deliver outstanding products and solutions

ADVANTEST®

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Dan Maydan (1996) is the only technologist to have implemented multiple visions into successful semiconductor equipment types

- He often sees beyond any marketing survey or customer to find products they absolutely need, sometimes selling the unsellable while doing it

- He has created more wealth and jobs than anyone in the history of this industry, while pursuing his vision

- Quiet, unassuming and relentless, there is only one word that describes this man: genius

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Haruo Matsuno (2014) for successfully integrating Verigy into Advantest and creating the leading ATE company with three cultures that could not have been further apart

- Created value without a slash-and-burn strategy
- Systemically took the best talent from both companies and matched their expertise to responsibilities
  - Today we see Germans leading Japan-based teams, Japanese leading US-based teams among many mixes that have been created
- Matsuno-san drove huge cultural change through Advantest's and Verigy's organizations
- Cultural combination along with normal company integration challenges have not been easy but today's Advantest can serve a far wider range of customers than in the past and the industry is better for that

ADVANTEST®

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Eric Meurice (2008) We are always amazed at how a great CEO can make all the difference in the world

- When he joined ASML, it had been infected with the big-us virus that all market leaders eventually contract
  - The symptoms are distant cold arrogance and extreme risk aversion accompanied with NIH syndrome (Not Invented Here)
  - Eric's managed to pretty much eradicate this throughout the company, saving an extremely important industry resource that is also extremely important to the future of the world
- Without advances in lithography, Moore's Law stops and so does the incredible anti-inflationary power that it brings
- Eric could do this anywhere, because he's really good at listening and learning before acting
  - When he acts, he sells you before he tells you
  - You want to come along, he's not pushing
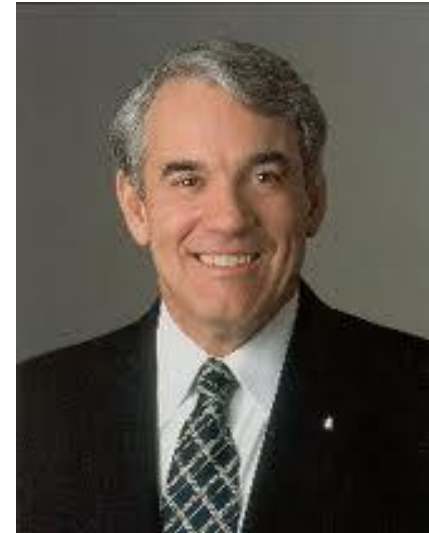 - Doesn't bring out-of-date decision making baggage from the previous companies and industries he's worked at

ASML

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

James Morgan (1993) is in a class by himself, likely ranking as the best business executive of the eighties, comparing his accomplishments to executives in other industries

- He came to Applied Materials as a turnaround artist, taking them from near failure to being one of the most successful companies in the history of the equipment industry
- He developed a method of financing that enabled equipment companies to grow profitably while introducing new products
  - Invented the "Cash is King" model in era where debt reigned
- Mr. Morgan has also developed innovative ways to attract the best people in the industry, gotten them to work together (in spite of clashing egos), and provided the incentives that led to the introduction of innovative products
- He literally wrote the book on how to compete with Japan
  - Applied Materials was largely successful because of its thrust into Japan in the eighties
  - It learned to compete in this market better than many Japanese companies, and pushed many of them aside to gain its dominance

APPLIED MATERIALS®

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Steve Newberry (2011) for leadership in operations, marketing, and technology enabled Lam Research to become the undisputed leader in etch

- Started at Lam with a razor- sharp focus on operational excellence, something sorely missing at the time
- Applied operational skills to redefine account management, developing original tools and capabilities at Lam that we've not seen elsewhere
  - Evaluate each account as a portfolio of opportunities that can be invested in at the right time with the right product
  - Ran sales and marketing like the flight deck of an aircraft carrier
  - Took a memory market strategy focus, as flash memory emerged
  - Came with perfect timing, as the foundries began to fall off the horizon as major semiconductor equipment sales targets
- Made Lam Research one of the largest and most profitable semiconductor equipment companies

Lam® RESEARCH

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Karl Nicklaus (1994) created one of the most longest-lived equipment companies in history

- He founded ESEC in 1968 and brought it through many turns of the market

- He was the first to implement software as a way to reduce mechanical components, thereby increasing equipment reliability and lowering cost of ownership

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Mike Polcari (2009) transformed SEMATECH from a consortium known for its focus on American interests to the global interest of 'realizing the roadmap.'

- Under his leadership, SEMATECH became credible as a place where any global semiconductor company could work to keep Moore's Law on track
- The result has saved our industry billions in what would have been wasted and duplicative research

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Arthur del Prado (1993) can lay claim to being the first to recognize the benefits of foreign investments and decentralized management

- This innovation made him the first European business leader to build a significant-sized equipment company from a European base
- He built development bases in America, Japan, Hong Kong, and Singapore
  - His vision made ASM Pacific possible
- Played a critical role in the founding of ASML
- An audacious visionary
  - Art had that rare ability to see a future that spanned technology, markets, people, and business models
- The father of Europe's semiconductor equipment industry

ASM

Arthur del Prado
died on
September 9, 2016

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Egon Putzi (2006) has beaten all the odds to make SEZ a consistently profitable wet processing company.

- First of all, SEZ is in the middle of technology nowhere: Austria

- Second, he has uniquely differentiated something that many thought were un-differentiable: wet processing…

- And that was in a time when most equipment companies were giving up on differentiation

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Barry Rapozo (2006) won his Bob Graham Award for excellence in sales and marketing for bringing professional sales methods to our industry

- He is the master of the relationship sale
- His method is to establish a life-long relationship with the customer, which he carefully glues together with trust
    - His is not a love-em and leave-em style
    - Do what you say; say what you do; and when you can't, go to the customer hat in hand with honesty and integrity to figure out how you can fix it together
- But the thing that is most endearing to me about Barry is his ability to pass it on
    - I've learned so much from this man
    - Look at some of his other students for proof: Harvey Frye and Gary Dickerson
    - Plus, he taught us all to pass it on
- Few people will have had such lasting effect on this industry as Barry

TOKYO ELECTRON

VLSIresearch... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Ken Schroeder (1996) focused KLA's product line on yield management, not only ensuring KLA's fortunes, but also making them instrumental in keeping the semiconductor industry on the learning curve

- Mr. Schroder can also be credited with turning KLA into a profitable company by deftly cutting the deadwood that plagued it in the early nineties.
- Ken's brought discipline at a time when the entire American equipment industry needed it most.
  - Ken brought process to KLA's manufacturing
  - Which resulted in quality, reliability, and repeatability
  - He drove performance and execution throughout the organization
  - Ken Levy said, "he could make it happen."
  - Is the source of the maxim: *Discipline in development leads to long-term sustainable competitive advantage*.

KLA Tencor

Ken Schroeder
died on
October 26, 2016

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Mike Splinter (2007) had some very big shoes to step into when he came to Applied Materials--it was the largest equipment company in the world, having grown from nothing as a scrappy start-up into an unwieldy giant

APPLIED MATERIALS®

- Mike is no stranger to challenge, having run Intel's manufacturing under Craig Barrett as they took the challenge of turning manufacturing around and besting Japan in the late eighties

- He got Applied turned around in 2006. A block-and-tackle style executive, Mike first focused on eliminating the fiefdoms, tearing down some castle walls, and streamlining operations at Applied

- He redirected sales and marketing away from Taiwan and the foundries and made it more evenly balanced, resulting in an impressive turn in market share.

- In 2007 he set in place the most significant new strategy since Applied broke out of deposition and entered the etch business in 1981: he broke solar out into its own separate business structure and put chip equipment under one person

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Larry Sumney (2009) has led the SRC since its earliest days, transforming the way that our industry relates to the University system, and establishing Universities as true centers of excellence for semiconductor research

- The SRC continues to contribute essential guidance and coordination to these research efforts, while helping numerous students navigate their way to careers in our industry

- When he started, no university taught semiconductors as a discipline and only few even offered a course in it

- Today it is a mainstay of the most prestigious engineering universities in the world

SRC®
Semiconductor Research Corporation

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Jon Tompkins (1996) deftly managed the acquisition of Prometrix, in the middle of a boom, without losing key people

- Acquisitions are rarely beneficial and usually risky
- Mr. Tompkins beat the odds, displaying true management skill, and turning Tencor into a power player in the process

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Randhir Thakur (2012) re-defined product development at Applied Materials

- Since his appointment to lead Applied's Silicon Systems Group, new product introductions have accelerated to levels that rival the late 80's and 90's
  - When the company built its dominance as a wafer fab equipment supplier
- He did it by going back to basics, throwing out the spreadsheets in favor of a sharp focus on unrealized customer need
- Instead of the classic marketing approach of looking for big markets to penetrate, Mr. Thakur redirected Applied to chasing the big semiconductor problems to solve
- As a result, Applied Materials' product line got a refresh with lots of new apps, and continuing its solid lead in all its key equipment markets
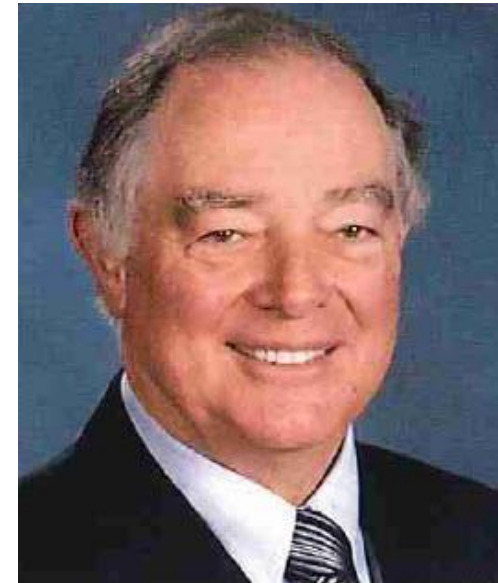

APPLIED MATERIALS®

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Ray Thompson (2006) showed the world that you don't have to be in the valley to be competitive

- You can be anywhere, as long as you understand the strengths and weaknesses of your local environment and adapt to them
- Flying into the wind with private aircraft, he gained massive lift from being in Montana
- Journalists may hate it, but no one can deny that it works
- Another thing was having a stable workforce that wasn't polishing resumes, while thinking about the next job and the pay increase it would bring
- Relying on this allowed Ray to build an extremely responsive company--almost too extreme in fact

SEMITOOL

VLSIresearch ... intelligence to make better decisions faster

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Papken Der Torossian (1994) saved the step-and-scan lithography technology for America

- He was best known for finding win-win solutions for issues of state as well as business
- He was the first statesman of the equipment industry
- His extremely pro-American approach set a standard for the recovery of the equipment industry in the United States
    - At a time when it was generally thought both the EU and the US would lose its leadership position

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Tetsuo (Tom) Tsuneishi (2015) The vision behind Tokyo Electron's successful history

- Tom has been the complement to Terry Higashi in making TEL's leadership so solid
    - Provided the executional vision to Terry's "trusted relationship style"
    - Second to none in being the team player needed to make Tokyo Electron the powerhouse that it is today
- Drove the vision down into the organization
- Instrumental in delivering Tokyo Electron's value promise to customers
    - Tokyo Electron is an industry benchmark for delivering quality and performance
    - Tirelessly worked through his career on the delivery part of what builds great customer relationships

TOKYO ELECTRON

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Kouichi Uehara (2007) saved what was one of Japan's treasures: Shinkawa

- Shinkawa was once the world's largest wire bonder manufacturer, based on Mikiya Yamazaki's development of the first microprocessor controlled wire bonder in the 1970's

- Shinkawa (which means new stream) led the way in establishing Japan's reputation for quality and reliability in this industry
    - Sadly, they lost the way in the eighties and followed Japan's down in the nineties

- But there were always lots of great people there, they just needed a great leader to turn them around

- He's been with the company since 1965 and became president just after the Y2K boom became everyone's nightmare

- He has definitely proven wrong the old saw about needing outside management to get different results
    - It just takes good people and they can be insiders

Shinkawa

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Kazuo Ushida (2007) has proven himself a great leader in a part of the world where being a leader is the most difficult: Japan

- The best in Japan somehow manage to lead without leading
  - They sell their people; they never tell them
- Action emerges like water swelling up from the source of a spring creek, pure and loaded with energy, but painfully slow for the modern world of hi-tech
- Ushida overcame that, as I've seen Nikon's decision cycle times fall dramatically
  - In so doing, he has been able to drive their immersion effort to full fruition, while bringing out an impressive array of new products to market, which included backing up and bringing clean-sheet-of-paper new i-Line tool to market
- The lens offerings have been fantastic and stages certainly creative
- As a result, Nikon has come to lead the market in its own special way

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Shoichiro Yoshida (1993) took Nikon from being an OEM supplier to being one the world's most respected semiconductor equipment companies

- He successfully leveraged Nikon's reputation for quality and reliability in the camera business into a similar reputation for its steppers

- He ushered in a new era in which quality and reliability would become primary decision factors in equipment selection

- They were the first to deliver leading-edge lithography tools that could be installed and turned-on without any hick-ups

VLSIresearch's
CHIP MAKING INDUSTRY HALL OF FAME

Arthur Zafiropoulo (1994) was the first and only American executive to turn around a lithography company

- His strength is in his ability to properly balance technology with marketing and sales
  - Successfully marketed Mix-and-Match lithography, which today is a mainstay for controlling capital depreciation cost
  - Was critical to moving litho into assembly, thereby paving the way for 2.5D and 3D packaging
- He knows how to identify and evoke the strength of a company
- The first to successfully develop an R&D pacing process for 10+ year payback efforts

Ultratech

Thank You

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