Setting the Test Standard for Tomorrow

May 29, 2024

Nasdaq: AEHR

Forward Looking Statements

This presentation contains forward-looking statements that involve risks and uncertainties relating to projections regarding industry growth and customer demand for the Company's products. Actual results may vary from projected results. These risks and uncertainties include without limitation, acceptance by new customers of the FOX™ wafer level burn-in and test system, world economic conditions, the Company's ability to maintain sufficient cash to support operations, and the potential emergence of alternative technologies, which could adversely affect demand for the Company's products in fiscal year 2024. See the Company's recent 10-K and 10-Q reports filed with the SEC for a more detailed description of the risks facing the Company's business. The Company disclaims any obligation to update information contained in any forward-looking statement to reflect events or circumstances occurring after the date of this presentation.

AEHR TEST SYSTEMS

Presenting Today

Gayn Erickson
CEO, Aehr Test Systems

AEHR TEST SYSTEMS

Aehr Test Systems Company Overview

Production Semiconductor Test & Burn-in for over 40 Years!

- Technology leader in massively parallel test and burn-in systems
- World-wide leader in wafer-level burn-in and test systems
- Unique full-wafer test and burn-in systems and contactors

AEHR TEST SYSTEMS

Worldwide Customer Base

SIERRA WIRELESS
SAMSUNG
SEAGATE
NXP
hynix
SPANSION
SKORPIOS TECHNOLOGIES
U.S. DEPARTMENT OF DEFENSE
infineon
sicoya
RENESAS
Amkor Technology
infineon
ISE LABS
ASE GROUP
MICROCHIP
BOSCH
ATMEL
SPREADTRUM
BPIL
onsemi
MACOM
TDK
ADVANCED
STATSChipPAC
tsmc
LUMENTUM
TEXAS INSTRUMENTS
QRT
UMC
Inphi
MAXIM
FATC
ASE GROUP
amkor
NANYA
GLOBALFOUNDRIES

Aehr has been a leader in burn-in test solutions for over 40 years with thousands of systems shipped worldwide

AEHR TEST SYSTEMS

(Partial Customer List)

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FY24 Update (FY ending May 31, 2024)

- **Financial Summary**
  - Guidance for Fiscal Year Revenue of > $65.0M
  - Guidance for Profits of > $11M GAAP net income (~ 17% net profit)
  - $47.6M in cash and cash equivalents at 2/29/24
  - Working capital of $83.2M at 2/29/24
- **Business Highlights**
  - Market share leader in Wafer Level Burn in for Silicon Carbide (7 Customers announced to date and engaged with all major suppliers and over a dozen companies worldwide)
  - Silicon Carbide clear winner for EV traction inverter and charging infrastructure, growing significantly in industrial power conversion including data center
  - Shipped first order for new High-Power production configuration of FOX-XP multi-wafer system for Silicon Photonics which company sees as leading indicator to new optical I/O market
  - NEW: Lead customer on new high volume data storage device wafer level burn-in application ramp to begin in FY25 will drive orders for FOX production systems and WaferPaks
  - NEW: Engaged with NAND memory suppliers with commitment from one leading NAND supplier do to wafer level burn in evaluation during FY25
  - NEW: Commitment received from AI Accelerator company for wafer level burn in evaluation

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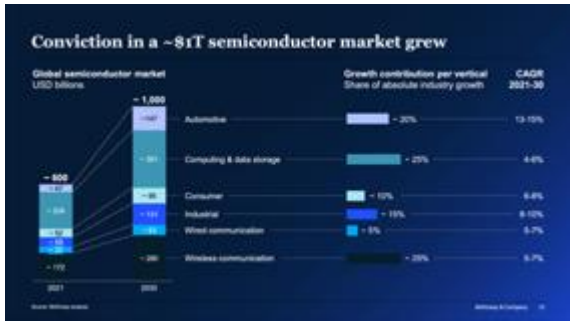
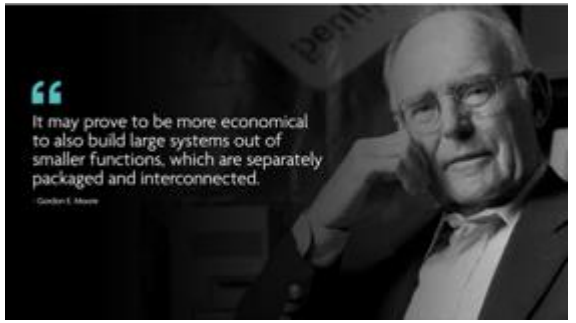
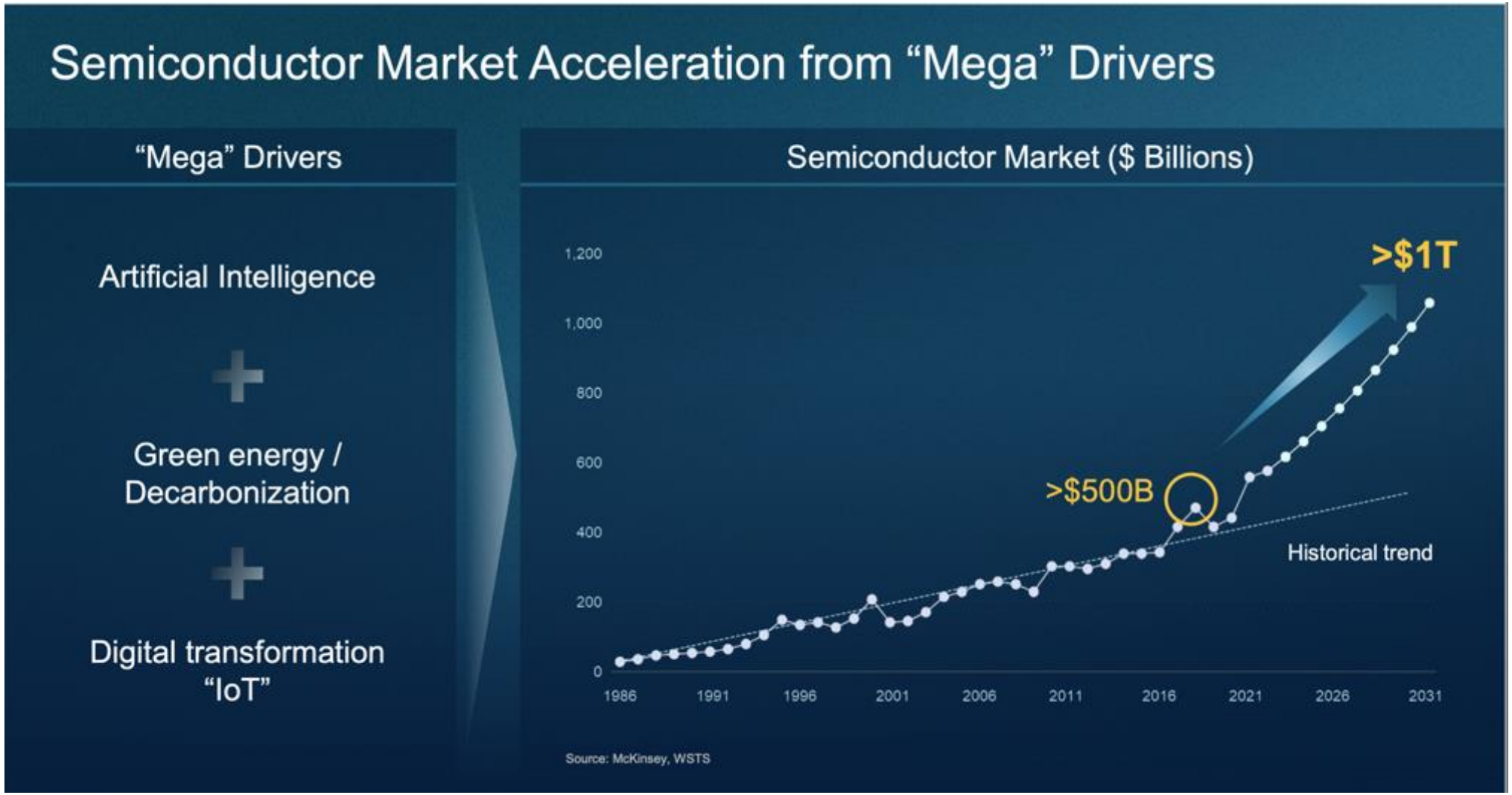
Aehr Market Growth Drivers

- **Semiconductors will grow > $1.0T in 2030!**
  - Lead by Mega Drivers AI, Green Energy, and Digital Transformation
  - Compute and Data, Automotive, and Wireless Communications to each grow over $100B each annually between 2021 and 2030
- **Reliability test needs to grow with or ahead of the market as**
  - Semiconductors are getting less reliable
    - ✓ Larger die size and therefore more likely to have defects
    - ✓ Smaller geometries
    - ✓ More compound semis (SiC and GaN for power, and optical for communication)
  - Semis going into more applications where quality, long term reliability, safety, and security are critical
    - ✓ Autos / EVs (reliability more financially impactful, out of warranty recalls, processing, communication, ADAS, autonomous driving, power train, BMS, charging)
    - ✓ Electrification of WW infrastructure (charging, power storage, power transmission and conversion, efficiency in data centers, industrial)
    - ✓ Semi content increasing in value in non consumer applications (AI, data center, Autos/EVs)
- **Semiconductors packaged as modules, Heterogeneous Integration, packages optics due to more than Moore, Huang's Law, data and power density, drives greater spend in wafer and die level test and burn in**

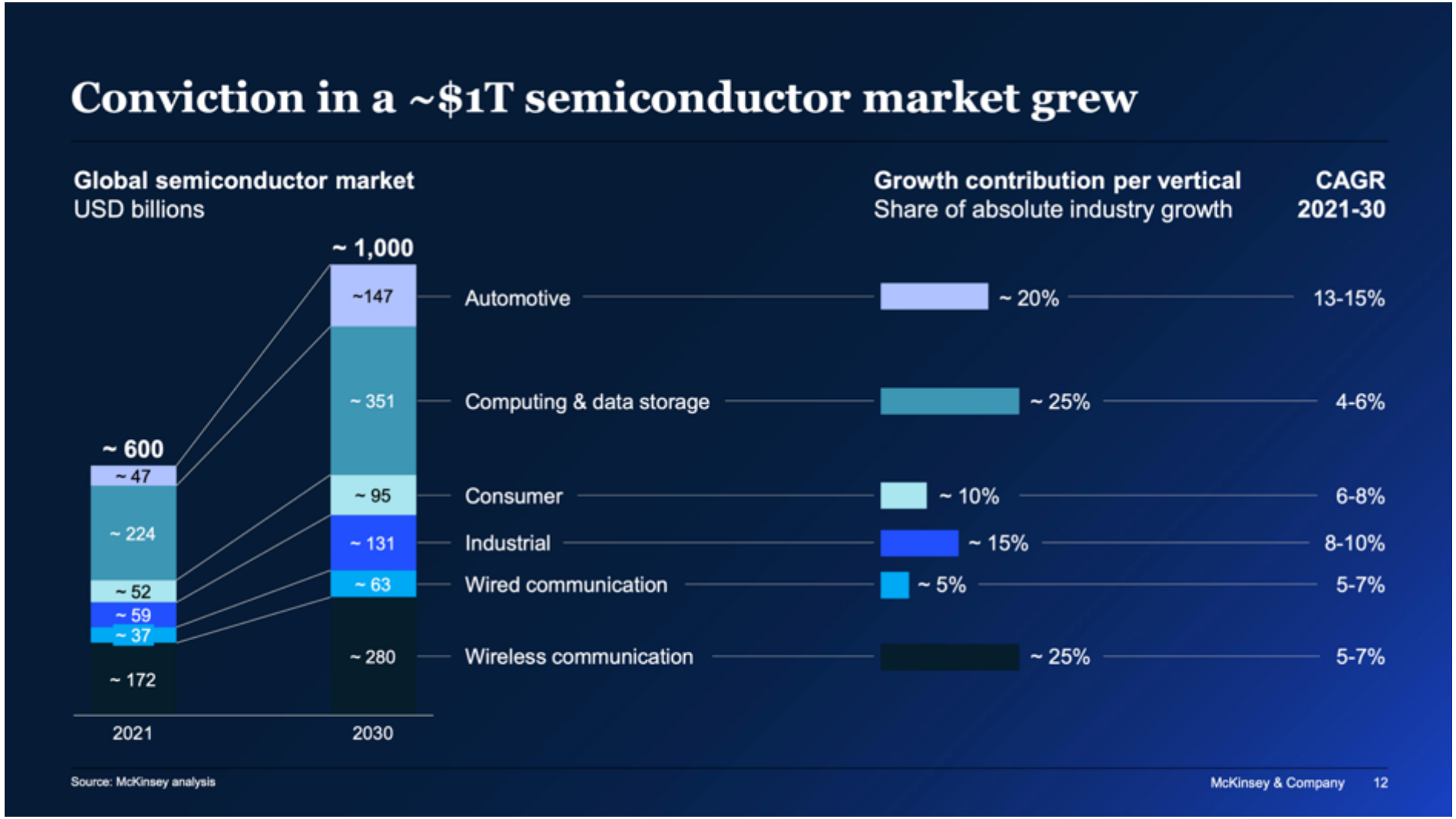




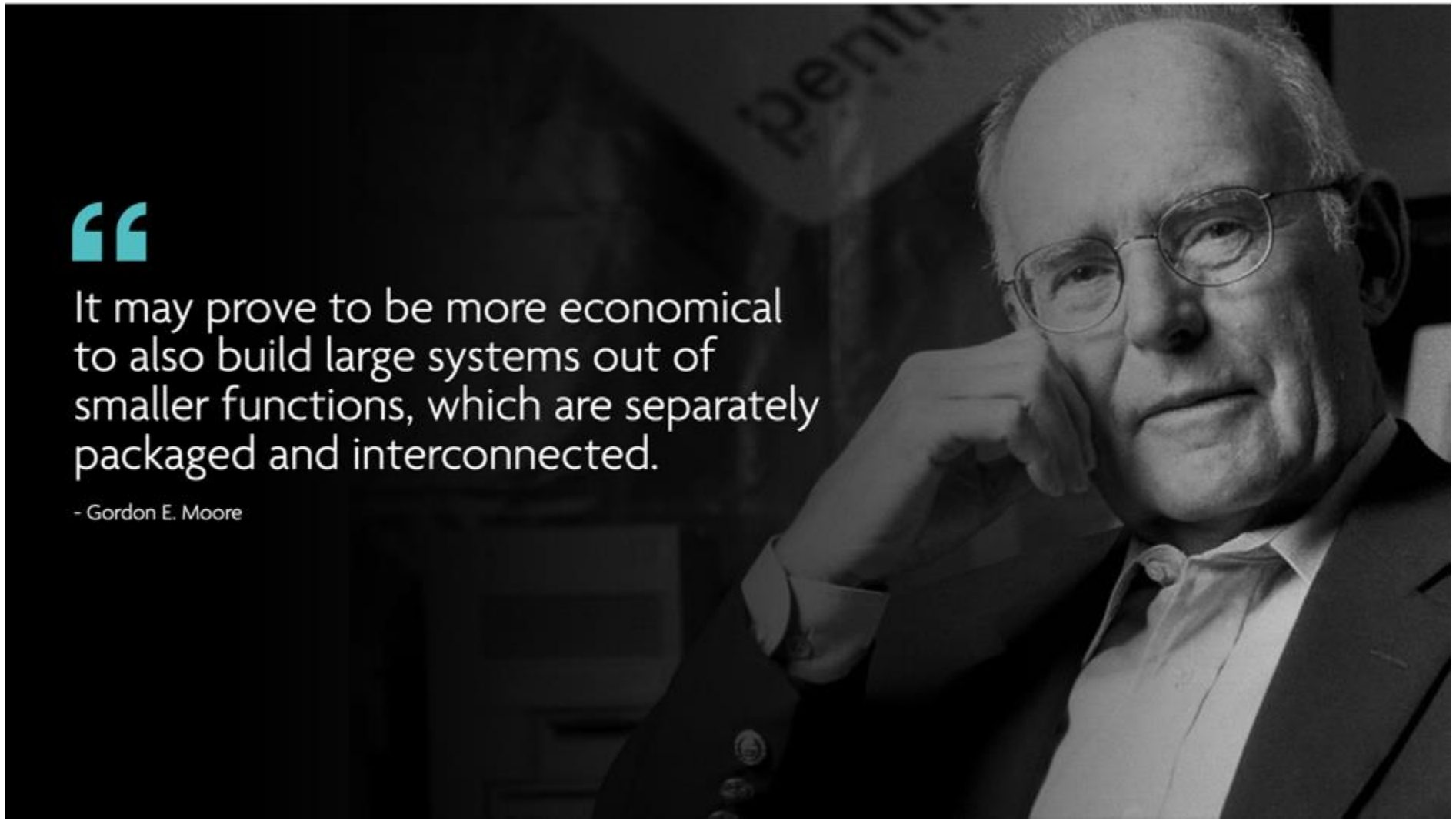
Aehr Market Growth Drivers



Aehr Market Growth Drivers



Aehr Market Growth Drivers



Key Trends Driving Wafer Level Burn-in

Decreasing Semiconductor Reliability

- *Smaller Geometries*
- *Larger Die Sizes*
- *Compound Semiconductors*
- *Optical Semiconductors*

Increasing Reliability Needs

- *Electric Vehicles*
- *Automotive Electronics*
- *Electrification Infrastructure*
- *Data Communication & Storage Infrastructure*
- *Mobile Electronics Devices*
- *Artificial Intelligence Processing / Processors*

Increasing Known Good Die

- *Heterogeneous Integration (Extends Moore's Law)*
- *Multi-Die Modules (Power Density / Efficiency)*
- *Photonics Integration (Extends Data Rates)*
- *Stacked Die Packaging (Density and Cost)*

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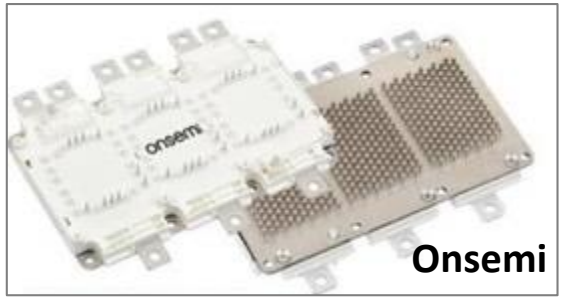
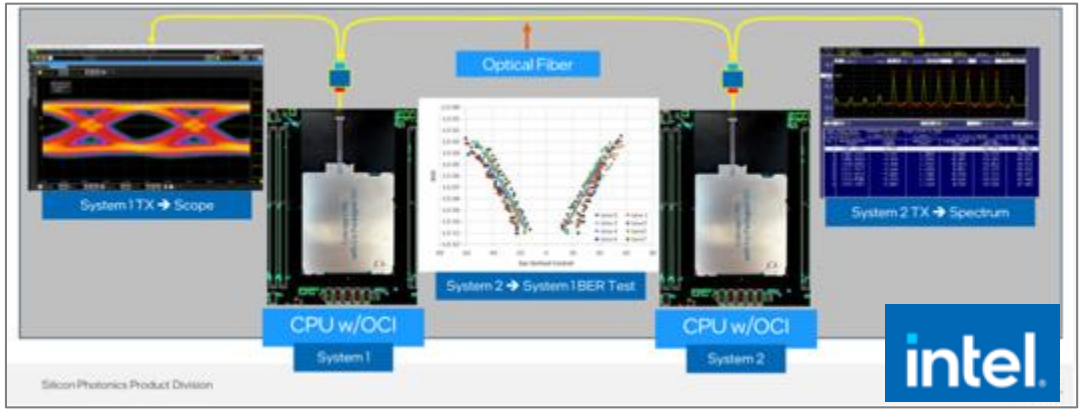
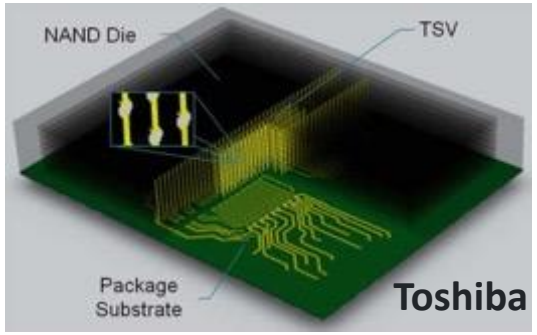
Multi-Die Packages Drive Wafer Level Test & Burn-in



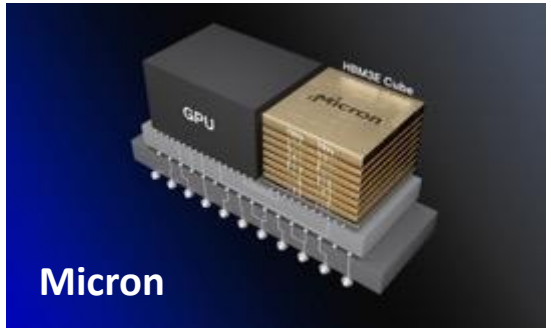
EV Traction Inverters
(24-die module for Power)



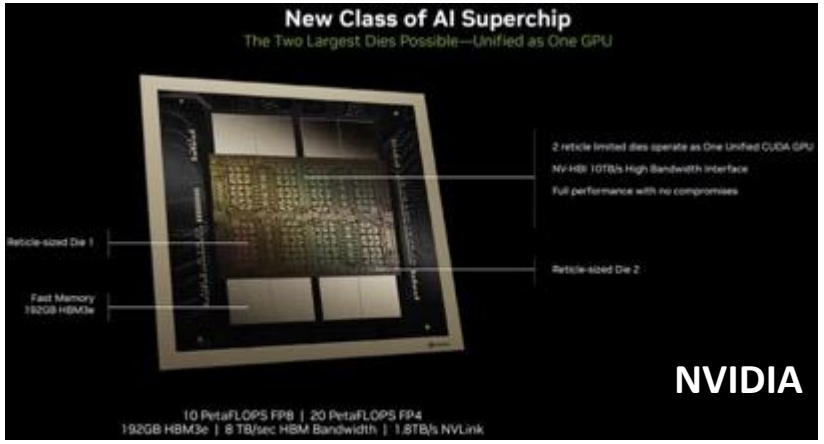
Intel Co-Packaged Optics Demo at OFC 2024



16-die NAND flash memory
for Enterprise Data Storage



HBM3E 8 Die DRAM Stack
for AI and Supercomputing



Blackwell AI MCM announced at GTC 2024

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Aehr Test Systems Market Drivers

Need for cost-efficient wafer level and singulated die burn-in, stabilization, & testing are creating significant revenue opportunities for Aehr Test in the following key markets

- **Electric Vehicle & Electrification of Transportation Infrastructure** driving motor control, charging infrastructure, and power conversion using **Silicon Carbide & Gallium Nitride semiconductors**
- **Electrification of the World's Power Infrastructure and Shift to Clean Energy** driving efficient and economical electrical power conversion using **Silicon Carbide & Gallium Nitride semiconductors**
- **Data Center Infrastructure** and unstoppable growth in **Data Storage** driving **Silicon Photonics, Flash Memory** Based Solid State Data Storage, and new **Photonics Assisted Hard Disk Drive Storage**
- **Worldwide 5G Infrastructure** build out using **Silicon Photonics** fiber optic transceivers and new **Optical Network Switches**
- **Datacenter, Healthcare, Robotics and Generative Artificial Intelligence** applications driving exponential increase in data I/O exceeding the limits of electrical signal bandwidths driving **Silicon Photonics I/O** using CoPackaged/Heterogeneous Integraton/Multi-Chip Module Integration
- **Heterogeneous Integration of semiconductors** and **3D fabrication and stacking** driving technology and cost roadmaps pushing known good die with test and burn-in of device in wafer form prior to packaging

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Update on Silicon Carbide Burn-in Market

- Aehr is well on way to becoming the industry standard for a critical manufacturing step for silicon carbide power semiconductors used in electric vehicle traction inverters that power EV engines.
- Aehr's FOX multi-wafer test and burn in systems with proprietary WaferPak full wafer contactors provide enabling technology for adoption of new silicon carbide devices and modules used in EVs
- Aehr currently has 7 silicon carbide customers and is currently engaged with all major players in the market including over a dozen companies entering the market (including China).
- Aehr is expecting a significant market share in a market growing 25% CAGR through end of the decade or longer

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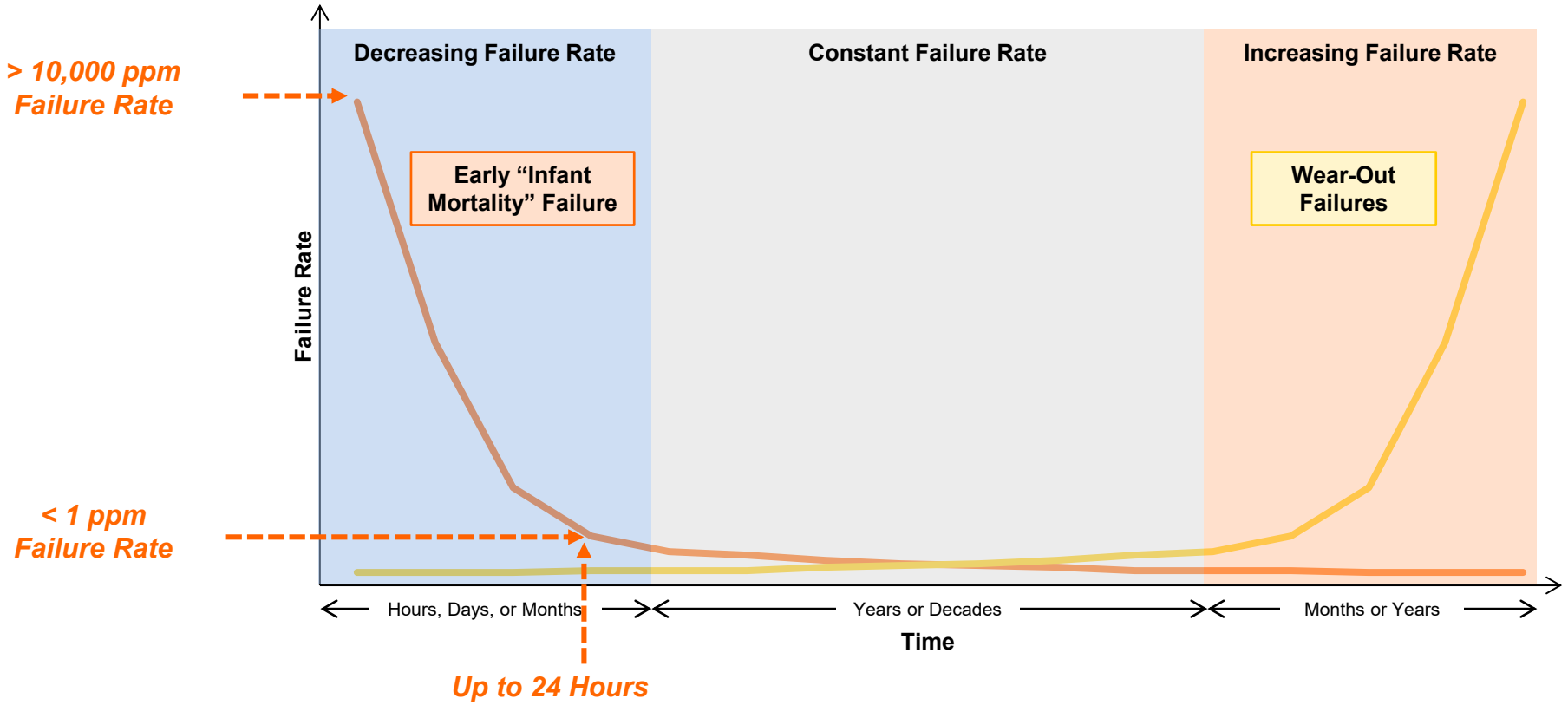
Burn-in Testing – The Bathtub Curve

Example Silicon Carbide Failure Rate



- **Burn-in:** A functional test in which electronic components are subject to elevated voltages and/or temperatures for a duration of time (2 – 48 hours) to screen for reliability and early failure
- Burning-in components exposes them to a high-stress level and screens out "Infant Mortality" failure in electronic components prior to the components making it into a module

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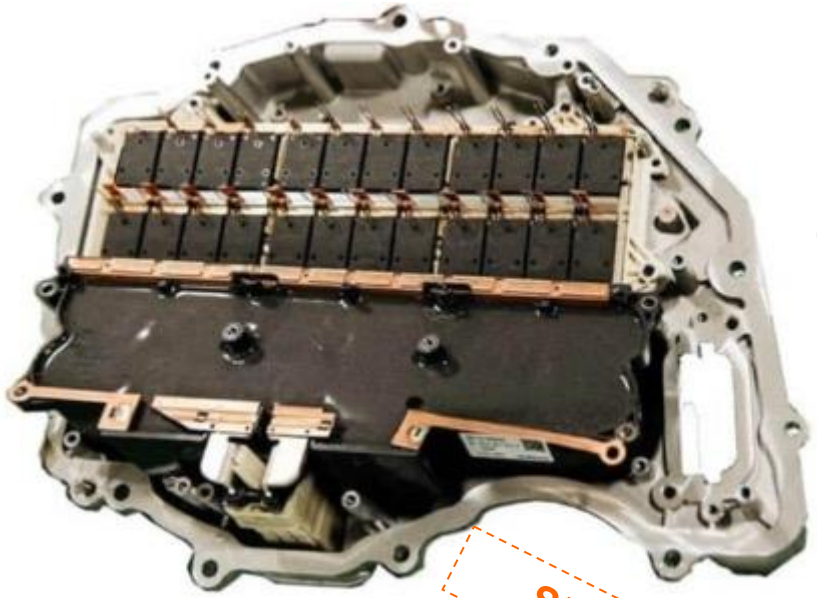
SiC and Multi-Die Packages / Modules



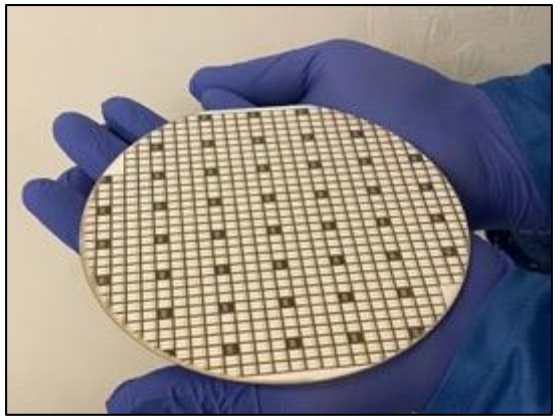
Tesla Traction Inverter
with 24 2-die modules

Lucid Traction Inverter
with 3 10-die modules

Onsemi Traction Inverter
with 1 24-die module

Onsemi Traction Inverter
with 3 8-die modules

Package/Module yield loss
cost much greater than cost
of wafer level burn-in



Silicon Carbide 3-Phase EV Traction Inverter Integration

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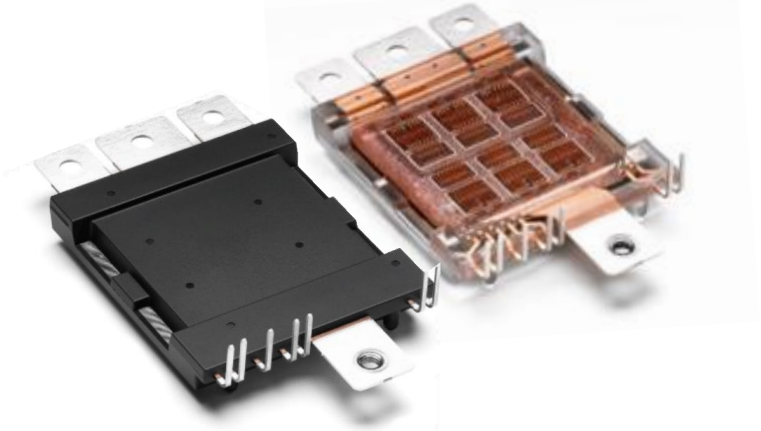
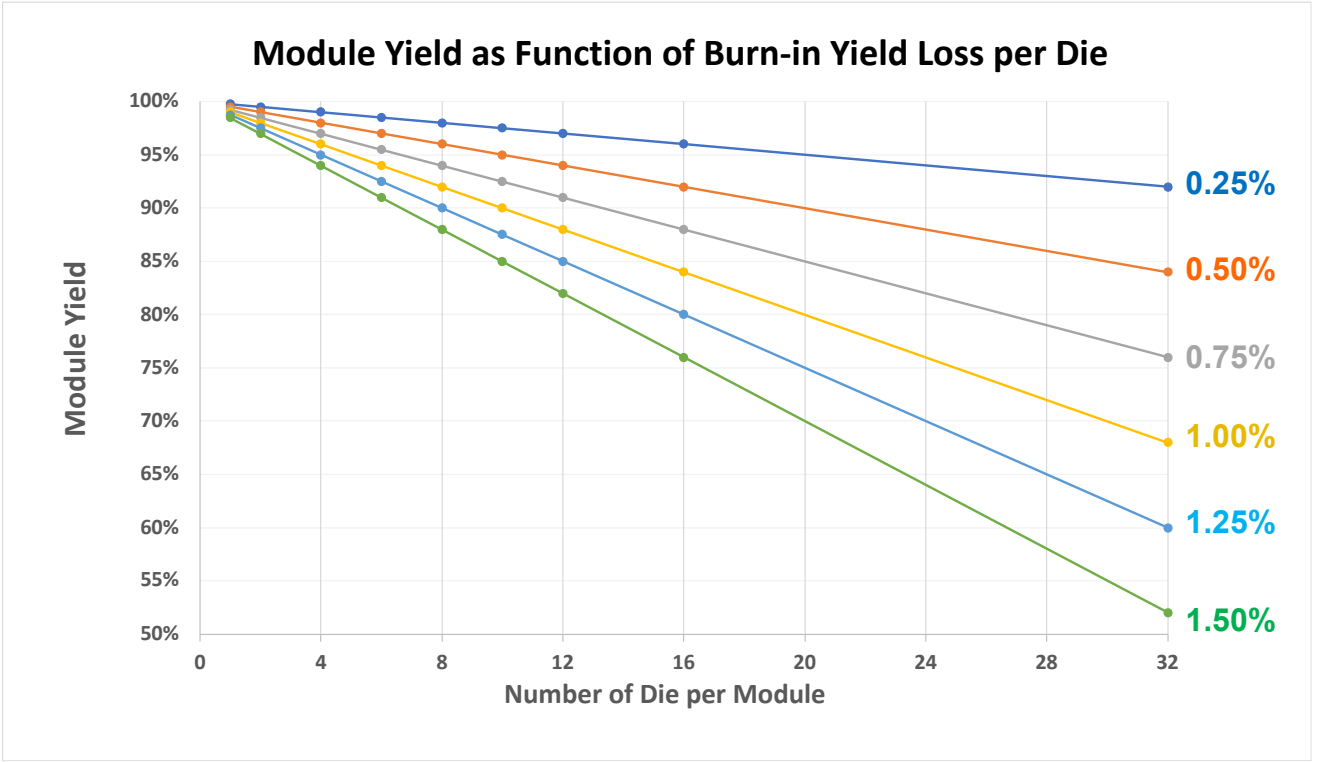
SiC and Multi-Die Packages / Modules





- Infant Mortality Yield loss of Modules linear with yield loss per die times number of die per module
- Cost of yield loss much greater than cost of burn-in test
- This is why the industry is driving to Wafer Level Burn-in

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FOX-XP Multi-Wafer Production Test & Burn-In System

FOX-XP 18 Wafer SiC Test & Burn-In System configured for SiC Gate Stress Test

- **9 / 18 Wafer System for High Volume Production**
  - 100% compatible using the same Blade resources as FOX-NP
  - Configurable for Gate, Drain, and Body Diode Stress tests
  - Integrated standard 20ºC to 150ºC thermal control unit
- **FOX WaferPak Contactors**
  - Robust full wafer contactor with >> 100,000 cycle life
  - Very high compliance / robust micro pogo pins
  - Offline or online wafer alignment via Aehr proprietary WaferPak aligners

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Aehr Wafer Level Test & Burn-in Patents

- WaferPak temperature control methods
- Vacuum & pressure-based WaferPaks
- Maintaining probe contact over temperature
- Electrical components in WaferPak
- Individual DUT power supplies
- Per Die Current Protection
- Redundant power supplies
- Portable WaferPaks
- And more . . .

AEHR TEST SYSTEMS

Proprietary Wafer Level Enabling Technology

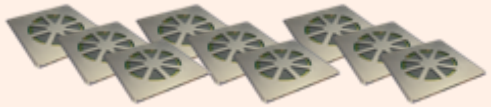
- **Aehr's FOX-XP is capable of both functional burn-in and test solutions – leverages proprietary aligner and contactor technology**
- **Multi-wafer technology enables customers to achieve an overall decrease in test equipment cost and fab footprint – while increasing die yield and throughput**

MULTI-WAFER TESTER

FOX-XP Multi-Wafer Test System

- May be configured with up to 18 Blades, enabling 18 wafers to be tested in parallel – driving cost efficiency and throughput
- High performance thermal chucks allow uniform temperature control of the wafers
- Footprint similar to single wafer automated test equipment – reducing lab test space

CONTACTOR



FOX-XP WaferPaks

- Houses the wafer and distributes signals and power to the wafer itself
- The WaferPak contactor is capable of over 50,000 contacts in a single touchdown on up to 300mm wafers
- Consumable input into the test system driving recurring revenue from the installed base

ALIGNER

FOX WaferPak Aligner

- Integral piece of test cell as it loads the wafer in the WaferPak at immense levels of precision
- By perfectly setting the wafer in a cartridge it ensures perfect contact
- Performs wafer alignment "offline" which eliminates the need for one wafer prober per wafer during long burn-in and test times

AEHR TEST SYSTEMS

Testing without Compromise

Reliability, Stress, and DFT Testing without compromise

- Solutions for **package parts, modules, panels,** or **wafers** allow testing at optimal process point
- **Confirm** which devices received desired test with **per device measurements, monitoring, & feedback**
- **100% traceability** with die location (wafer) or device ID read back (module) and electronic tracking ensures knowledge of “good” devices
- Thermal range, uniformity, and capacity permit **reduced test times** & **confidence** in target **test conditions**
- Vast system resources allow for minimal sharing (**higher sample size, higher yields, fewer hostage failures**)
- **Economical solutions** and **customizations** allow required testing to be performed at the **lowest cost**

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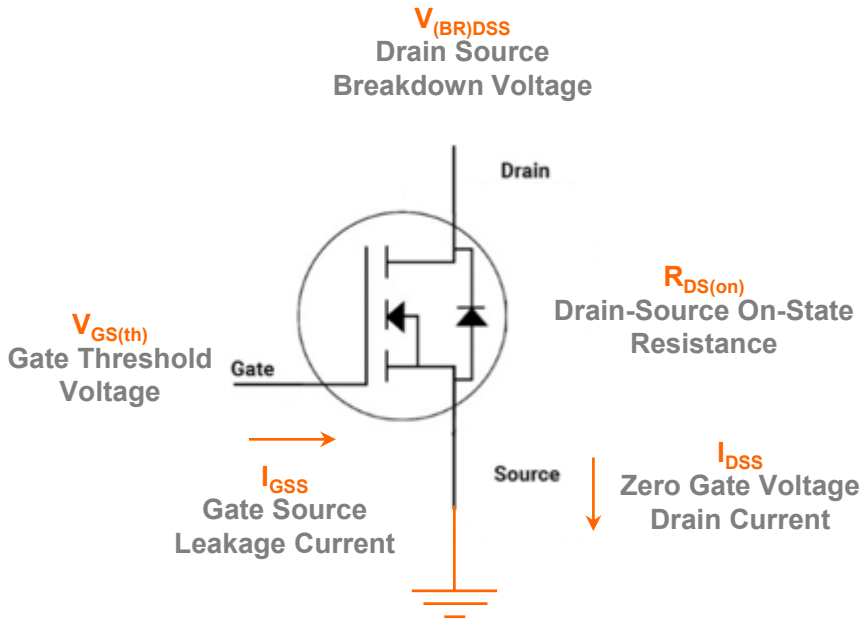
Critical SiC MOSFET Parameters & Stress Tests

Higher than acceptable extrinsic (infant mortality) failure rates of silicon carbide MOSFETs require 100% production stress / burn-in testing to achieve automotive and industrial quality levels

Example Stress / Burn-in Tests

- **Positive Gate Stress (HTGB+)**
  - Positive Gate Voltage (Vgs)
- **Negative Gate Stress (HTGB-)**
  - Negative Gate Voltage (Vgs)
- **Drain Stress (HTRB)**
  - Positive Drain Voltage (Vds)
- **Body Diode Stress**
  - High Current Source from Source to Drain



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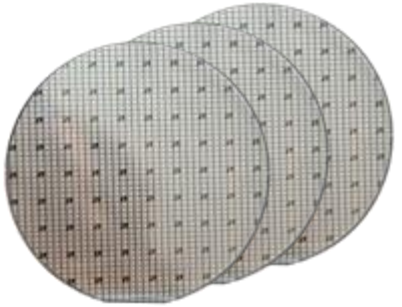
Package Part vs Wafer Level Burn in

Package / Module Part Burn-in

- Up to ~ 2,500 SiC devices per system
- Individual device handling with limited life sockets and scrub marks on device leads
- Convection Thermal Control (Oven)
- Equipment depreciation cost of ~ $0.01 per hour burn-in cost (fixed with standard discrete packages)

Wafer Level Burn-in



x18

- Up to ~ 45,000 SiC devices per system
- 1000s of devices handled at a time with micro-pogo contact to die >> 100,000 cycle life
- Conduction Thermal Control (Thermal Chuck)
- Equipment depreciation cost of ~ $0.01 per hour burn-in cost (typical 500 die per wafer inverter MOSFET) and ~ $0.002 per (2500 die per wafer charger or photovoltaic application MOSFET)

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Update on Gallium Nitride Burn-in Market

- Engaged with multiple large and small semiconductor companies developing GaN based MOSFETs for electrification infrastructure used in AC to DC and DC to AC power conversion
- GaN expected to grow enormously moving forward as it is faster, more effective, and has lower power losses than traditional silicon-based power semiconductors
- Markets such as photovoltaic (solar) power converters and consumer electronic power adapters are major market segment targets for GaN
- Solar and automotive and industrial applications appear to require additional stress tests and burn in to meet the critical quality and reliability and this appears to be a significant market opportunity for our products especially our newly introduced very high voltage option that we began shipments on in FY24 and now have multiple customers using this for production use in their products.

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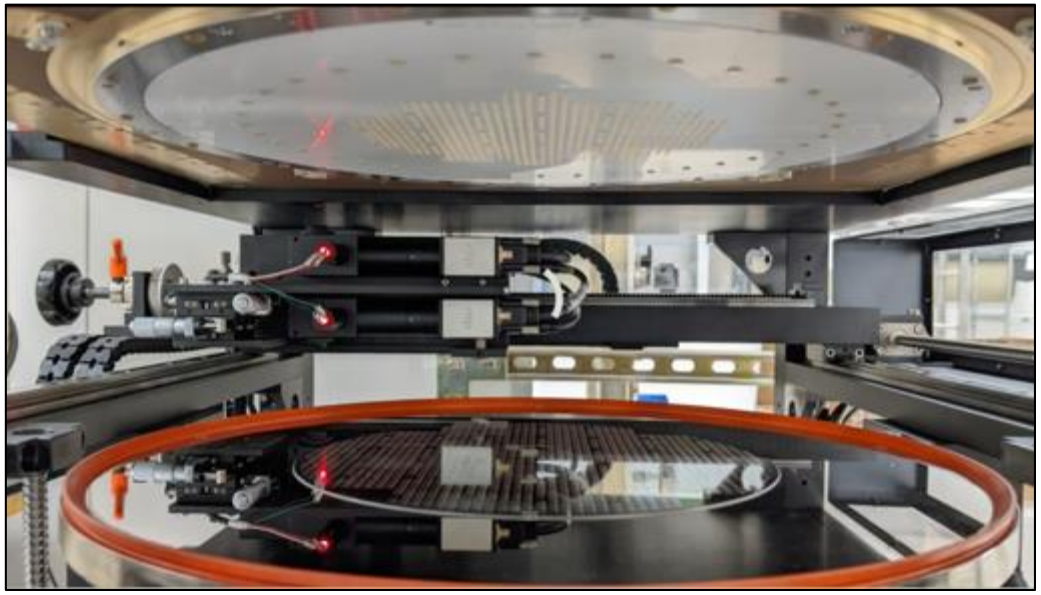
Update on Silicon Photonics Burn-in Market

- In FY24, we shipped our new higher power production system capable of testing and burning in up to 3.5 kW per Wafer on the 9 Wafer FOX-XP Test and Burn-in System.
- Optical I/O has the potential to be a game changer for semiconductors as it breaks the bottleneck of data transmission bandwidth limitations of electrical I/O



FOX-XP WaferPak
with 8” Silicon Photonics IC Wafer
https://www.skorpiosinc.com

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Optical I/O is Coming…

- “It was never about just … transceivers, it was about the learning curve because we knew that, down the road, optics needed to be co-packaged with Ethernet switches. And it will eventually be integrated with the CPU or XPU as well.” – Robert Blum, Senior Director of New Business and Marketing, Intel, May 2021
- “Intel announces silicon photonics advancement towards optical I/O” – Venturebeat, June 2022
- “Nvidia and TSMC working on multi-GPU solutions based on silicon photonics, latency data transmissions and significantly reduced signal loss” – notebookcheck.net, September 2022
- “Optical communication is a key area that we think is very, very important for us to reach anything like zettascale type of computing capability.” “AMD is working with DARPA on packaging optics solutions into chips” – Dr. Lisa Su, CEO, AMD March 2023 (HPCwire)
- “Interoperability of AMD Versal adaptive SoCs with the co-packaged Odin® 800G direct-drive optical engine and third party 800G DR8+ retimed pluggable modules” announced – RANOVUS, March 2023
- “Performance metrics in applications like machine learning could ultimately pave the way for high-density integration and optical I/O to connect GPUs.” – Vivek Raghuraman, Director of R&D, Broadcom, March 2023
- “In-package optical I/O technology to accelerate data movement and enable future AI” – Yole Group, April 2023

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Optical I/O is Coming…

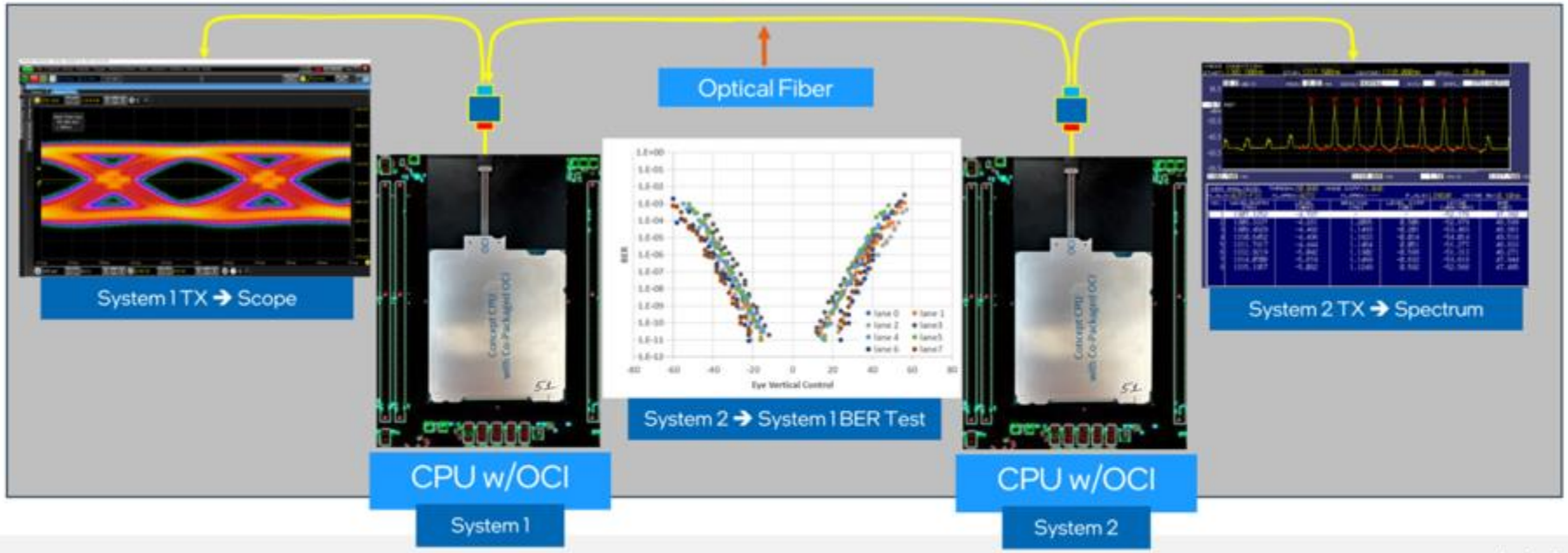
Intel Co-Packaged Optics Demo at OFC 2024

System 1:

- ✓ Optical RX checks BER of PRBS-31 data sent by System 2.
- ✓ Optical TX is captured on Real-Time Scope.

System 2:

- ✓ Optical TX drives PRBS-31 data to System 1 over Single-Mode Fibers.
- ✓ Optical TX shows optical spectrum of 8 wavelengths per fiber, 200GHz spacing on the scope.



Silicon Photonics Product Division

intel.

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Aehr's New Fully Automated WaferPak Aligner

- Available in stand-alone as well as fully integrated with FOX-XP System configurations
- Provides customers fully hands-free operation up to lights out SECS/GEM factory automation and integration
- Expands Aehr markets & opportunities
- Both stand-alone and integrated configurations have now shipped to customers and are released into production

FOX-XP with Integrated WaferPak Aligner
(Shown with 150mm/200mm Wafer Cassettes)

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NEW: Data Storage Device WLBI Opportunity

- Aehr announced a FOX-CP System order and shipment in 2019 prior to COVID-19 pandemic
- A major new customer for Aehr and our FOX-CP system
- 100% test and burn-in of devices, versus sampling
- This very high-volume application for the Enterprise and Data Center market, was forecasted to ramp into production over several years, but the pandemic impacted the customer's plans

FOX-CP

Single Wafer Stepping Test & Burn-In System

- After multi-year pause caused by shifts in their strategy and timing due to COVID-19, this customer now reforecasting multiple additional FOX-P systems to be delivered in FY25
- Devices targeted at explosive growth in data storage worldwide
- FOX-P System configured with up to 2,048 independent test resources using Aehr proprietary high-power WaferPak contactors
- We see the data storage market, as well as multiple devices related to the worldwide 5G build-out, as critical new opportunities for our systems, where these end markets and customers require devices to have extremely high levels of quality and long-term reliability

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NEW: Flash Memory WLBI Opportunity

- Aehr has been engaged with multiple Flash memory companies related to our FOX wafer level test and burn in systems for their high-volume production
- Aehr has now secured a commitment from one of the major Flash memory suppliers to evaluate the FOX-XP system with our proprietary WaferPak full wafer contactors for their flash devices
- This application is for 100% test and burn-in of devices to be used in mission critical applications such as enterprise storage
- We see this as a multi-year program but expect to have preliminary results and feedback during our FY25 which begins June 1, 2024
- We see the NAND Flash market as a key new market opportunity for our systems and WaferPaks with long term potential to also move into DRAM wafer level test and burn-in

FOX-XP

Multi-Wafer
Test & Burn-In System
(Shown with Integrated WaferPak Aligner)

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NEW: AI Accelerator/Processor WLBI Opportunity

- Aehr is working with an AI accelerator company to move their AI processor to wafer level test and burn-in
- Aehr secured a commitment to evaluate our FOX solution for production level test and burn-in of the processors
- Upon successful demonstration of wafer level test results and throughput, we expect they will utilize Aehr's FOX-XP™ solution for production wafer level test and burn-in of their next generation devices

FOX-XP

High Power Multi-Wafer Test & Burn-In System
(Shown with Integrated WaferPak Aligner)

- This company recognizes the potential of the significant benefits of production test and burn-in of their AI accelerators while still in wafer form before they are integrated into the end application product, which would prove to be more cost effective and significantly more scalable than doing this screening later in their manufacturing process
- Our proprietary WaferPaks and new high-power FOX-XP system allow delivery of precise voltages at extremely high currents up to thousands of amperes and to thermally control thousands of watts of power per wafer while also delivering signals required to determine functionally of good and bad devices
- ***Aehr also sees opportunities in AI test and burn-in at Packaged Part level – Stay Tuned…***

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Setting the Test Standard for Tomorrow
Nasdaq: AEHR