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## Paradigm Shift in Functional Test





#### **Automated Test Synthesis**









#### Factory Floor ATE

Bais

## **Application Examples**

For public distribution, vI2.2017



#### **At Volume Production Line**

QI would screen out defective parts before applying time-consuming functional and application tests.



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#### **At Troubleshooting Station**

QI help to narrow down defects caused functional test to fail, thereby shortening the repair and retest cycle.

## **More Than Functional Test**

Determine how much of signal distortion can still be tolerated

- Error rates are color-coded
- The more red area observed the less distortion can be tolerated
- Quick BER eye measurement (1-5 seconds)



#### **More Than Functional Test**



Two GND lines for DQ40-47 byte group missing



### In-field Experience is Sorrowful



Microsoft

AMD



(intel)

"Non-DRAM memory failures, such as those in the memory controller and the memory channel, are the source of the *majority* of errors that occur" (1)

"A DIMM that sees a correctable error is 13–228 times more likely to see another correctable error in the same month, compared to a DIMM that has not seen errors." (2)



#### **ATE Integration**



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## **Demo Application at NTF**



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- Automatically synthesized and placed
- Eliminate the need for FPGA designer
- Controlled from ATE/ATS or standalone
- Provide better than functional test coverage
- Cover Marginal Faults/Defects
- Cloud-based service

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#### Instruments







Lowers Test Development Costs

*Reduces* Test Escape Rate

**Easy** Integration

**Faster** prototype bring-up





#### **THANK YOU!**