IEEE P1581
Receiver Test Enhancement

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P1581 Working Group may or may not agree with content.

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Outline

• P1581 Refresher

• Receiver Test Problem

• Solution

• Future P1581 Plans

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Refresher - 1149.1 Problem

Memory Device w/ 1149.1

Functional Circuitry

(Memory Cells, Etc.)

1149.1 Test Circuitry

- Continuity
- Options:
  - Device ID
  - BIST, Etc.

- ADDRESS
- TMS
- TDI
- PWR
- DATA & CONTROL
- TCK
- TDO

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Ideal Solution

- Functional Circuitry
  - (Memory Cells, Etc.)
- Test Circuitry
  - Continuity
  - Options:
    - Device ID
    - BIST, Etc.
P1581 Vs. Ideal

Memory Device w/ P1581

Functional Circuitry
(Memory Cells, Etc.)

P1581 Test Circuitry
- Continuity
- Options:
  - Device ID
  - BIST, Etc.

Functional Circuitry
(Memory Cells, Etc.)

Test Circuitry
- Continuity
- Options:
  - Device ID
  - BIST, Etc.
P1581 Continuity Test Concept
Continuity Test Gating - IAX

(12 Address, 4 Data Bits)
Test Pattern Partitioning

12 Address Bits

Unpartitioned

XXXXXXXXXXXXX  4096  Continuity

Partitioned

All 0's/1's  2  Continuity

One 0/1  24  "  "  "

Two 0's/1's  132  "  "  "

1110000XXXXX  32  Device ID

101010XXXXXX  64  Public

010101XXXXXX  64  Private
Device Identification Option

- Gates (Continuity)
- Device ID Reg.
- Decoder

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BIST & Device ID Options
Receiver Test Issue

Device(s) w/ 1149.1

Memory Device w/ P1581

Functional Logic

From TDI

Address

Control

Data

To TDO

Functional (Cells)

Test Gates (P1581)

Mode Control
Basic P1581 Circuitry
Rcvr. Test Conns. Added

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Step 1
Step 2
Step 3
Step 4
Working Group Future Plans

- Complete Draft
- Ballot & Ballot Resolution (Then Std. 1581)
- Develop 1581 Description Language
- Consider Receiver Test Enhancement
- Consider Other Enhancements (TBD)
- Complete Revised Draft and Ballot (1581 rev. B)

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Conclusion

• P1581 Receiver Test Potential

• P1581 Ballot In Near Future

• Next P1581 Revision Already Being Considered
Further Information

• IEEE P1581 Working Group Website: http://grouper.ieee.org/groups/1581
• Read White Paper (on website)
• Sit In On WG Phone Conference
• Contact Author: r.russell@ieee.org
• Discuss w/ H. Ehrenberg (Chair) at BTW