



# Standard Test Data Format (STDF) Working Group

SEMICON West 2014 Update

# STDF Next Generation

- Led by Ajay Khoche [akhoche@gmail.com](mailto:akhoche@gmail.com)
- Create, Enhance, Deploy and Support Standard Test Data Formats
  - Enhance STDF - Scan Memory additions
  - Replace STDF - RITdb
  - Extend to non test data logging
    - Equipment, PCM
- Support emerging Adaptive Test needs
  - Real time data driven decision making
- Meets weekly



# Focus

- Common transport format
  - SQLITE noSQL binary file
  - Legacy STDF support
- Provenance
  - Metadata attached to each data file
- Security Model
  - Encryption
- Real time query and analytics support



# STDF to RITdb: PTR



```

Parametric Test Result Record-
Ptr.rec_len = 65 MSB = 0x00, LSB = 0x00
Ptr.rec_typ = 15
Ptr.rec_sub = 10
Ptr.test_num = 100001 MSB = 0x00, LSB = 0x01
Ptr.head_num = 1
Ptr.site_num = 255
Ptr.test_flg = 0x12
Ptr.parm_flg = 0xd0
Ptr.result = 0 not valid
Ptr.test_txt
Ptr.alarm_id
Ptr.opt_flag
Ptr.res_scal
Ptr.llm_scal = 0
Ptr.hlm_scal = 0
Ptr.lo_limit = -0.7942
Ptr.hi_limit = -0.3058
Ptr.units = VOLTS
Ptr.c_resfmt = $9.4f
Ptr.c_llmfmt = $9.4f
Ptr.c_hlmfmt = $9.4f
Ptr.lo_spec = NaN not present
Ptr.hi_spec = NaN not present
    
```

PTR => test\_info

PTR => limits

```

Part Information Record-
Pir.rec_len = 2 MSB = 0x00, LSB = 0x02
Pir.rec_typ = 5
Pir.rec_sub = 10
Pir.head_num = 1
Pir.site_num = 1
    
```

PIR/PRR = test\_event

```

Prx.rec_len = 19 MSB = 0x00, LSB = 0x00
Prx.rec_typ = 5
Prx.rec_sub = 20
Prx.head_num = 1
Prx.site_num = 1
Prx.part_flg = 0x08
Prx.num_test = 19 MSB = 0x00, LSB = 0x00
Prx.hard_bin = 65535 MSB = 0xfff, LSB = 0
Prx.soft_bin = 8 MSB = 0x00, LSB = 0
Prx.x_coord = 1 MSB = 0x00, LSB = 0
Prx.y_coord = 0 MSB = 0x00, LSB = 0
Prx.z_coord = 208 MSB = 0x00, LSB = 0
Prx.part_id = 1
Prx.part_txt not present
Prx.part_fix not present
    
```

Ptr.result, \*flg

```

Parametric Test Result Record-
Ptr.rec_len = 18 MSB = 0x00, LSB = 0x00
Ptr.rec_typ = 15
Ptr.rec_sub = 10
Ptr.test_num = 100001 MSB = 0x00, LSB = 0x01
Ptr.head_num = 1
Ptr.site_num = 1
Ptr.test_flg = 0x80
Ptr.parm_flg = 0xd0
Ptr.result = -10.25
Ptr.test_txt not valid
Ptr.alarm_id = FAIL
Ptr.opt_flag = 0xff not present
Ptr.res_scal = 0 not present
Ptr.llm_scal = 0 not present
Ptr.hlm_scal = 0 not present
Ptr.lo_limit = NaN not present
Ptr.hi_limit = NaN not present
Ptr.units = not present
Ptr.c_resfmt = not present
Ptr.c_llmfmt = not present
Ptr.c_hlmfmt = not present
Ptr.lo_spec = NaN not present
    
```

sequence	entityID	indexID	name	value	value2
1344355240000035	2	4	ACTIVE_SITE	4	
1344355240000039	4	0	ENTITY_TYPE	TEST_INFO	
1344355240000040	4	0	TEST_NUMBER	100001	
1344355240000041	4	0	TEST_UNIQUE_ID	100001	
1344355240000042	4	0	TEST_TYPE	PTR	
1344355240000043	4	0	TEST_RESULT_TYPE	CONTINUOUS	
1344355240000044	4	0	TEST_UNITS	VOLTS	
1344355240000045	4	0	TEST_UNITS_LABEL	VOLTS	
1344355240000048	5	4	UL	-0.3057999908924103	
1344355240000049	5	4	LL	-0.7942000031471252	
1344355240000050	4	0	R_SCALE	0	
1344355240000051	4	255	TEST_TEXT	ARTN continuity	
1344355240002091	190	0	ENTITY_TYPE	TEST_EVENT	
1344355240002092	190	0	SITE	1	
1344355240002093	190	0	EVENT_GROUP	2	
1344355240002094	190	4	R	-10.250015258789062	F
1344355240002095	190	4	ALARM_ID	FAIL	
1344355240002134	190	0	TEST_LIMITS_EID	5	
1344355240002135	190	0	HARD_BIN	65535	
1344355240002136	190	0	X	1	
1344355240002137	190	0	Y	0	
1344355240002138	190	0	SOFT_BIN	8	
1344355240002139	190	0	UNIT_TEST_TIME	208	
1344355240002140	190	0	NUM_TESTS	19	
1344355240002141	190	0	PART_ID	1	
1344355240002142	190	0	PF	FAIL	F





# CAST Status Report

SEMICON West 2014 Update

# CAST?

- Collaborative
  - Pre competitive
  - Anti trust protection
- Alliance
  - Vendors and Customers
- Semiconductor
- Test
  - Front and back ends



# Who Is Involved

- Chair
  - Chris Portelli-Hale – ST Microelectronics
- Vice Chair
  - Octavio Martinez – Qualcomm
- Participation
  - Open to all SEMI members
  - Fee for non SEMI members
  - Special membership for customers



# Accomplishments

- Enhancements to STDF
  - Obtained SEMI control of specification
  - Scan datalog extensions standardized
  - Memory datalog extensions standardized
- Handler Interface guidelines published
- Annual Workshops conducted



# Current Objective

- Create an environment which will enable Adaptive Test



# Why Adaptive Test?

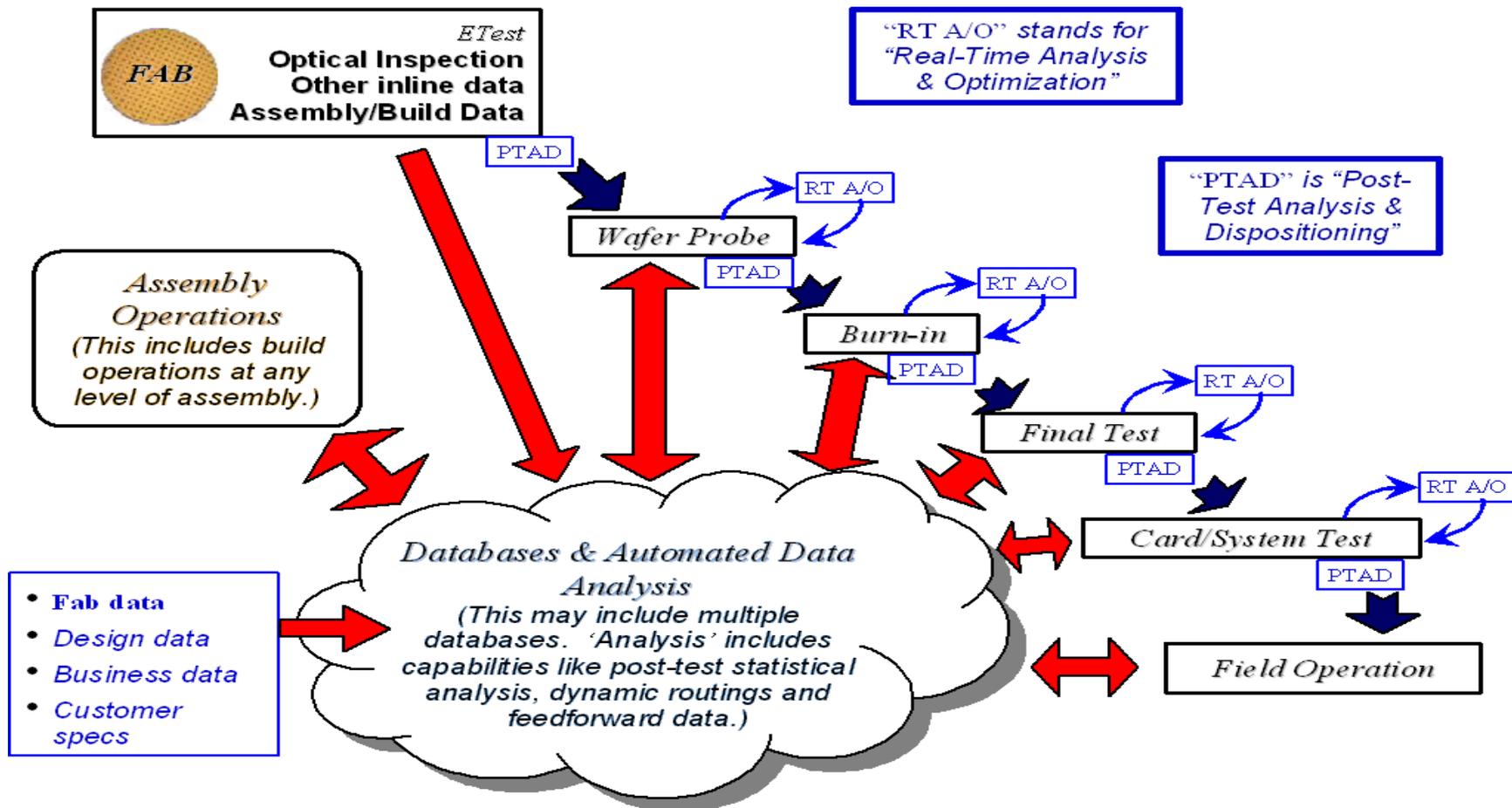
- Popular Request (after OEE)
- Lots of questions about what it is
- No standardized solutions
- Needs shared data
- Potential contributions are large
  - Improved quality and yield
  - Improved processes
  - Lower costs



# Adaptive Test Universe



- Slide courtesy of ITRS Adaptive Test working group
- [www.itrs.net](http://www.itrs.net)



# Current Efforts

- Data sharing
  - STDF next generation wg
- Test Cell Management
  - Test cell communications wg





# Test Cell Communication Standard (TCCS) Working Group

SEMICON West 2014 Update

# Test Cell Communications

- Led by Keith Thomas  
[keith.thomas@teradyne.com](mailto:keith.thomas@teradyne.com)
- To develop a common ATE data communications interface for standardization across future ATE platforms
- Web Server/Browser API based
- Meets every 2 weeks
  - Contact Paul Trio at SEMI ([ptrio@semi.org](mailto:ptrio@semi.org))



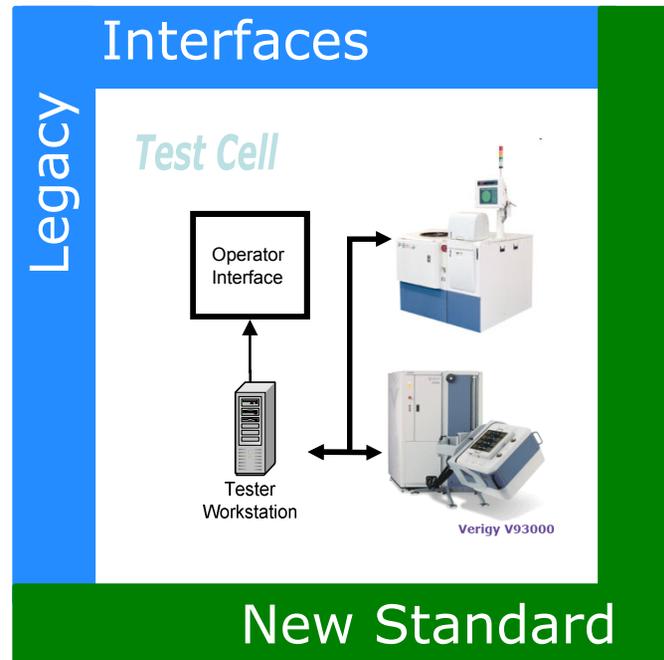
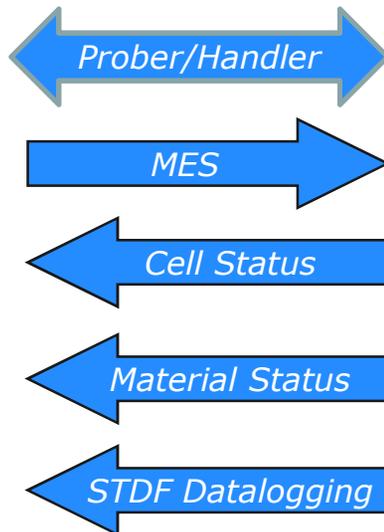
# Focus

- Use of HTTP, REST web standards
- Web servers as data users
- Not for real time decision making
- Recipe distribution
- Status monitoring
- Tester controlled message flow



# Overview

## Not In Scope



## In Scope

