



Standard Test Data Format (STDF) Working Group

SEMICON West 2014 Update

STDF Next Generation

- Led by Ajay Khoche 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

PIR/PRR = test_event

Ptr.result, *flg

```

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
    
```

```

Prr.rec_len = 19 MSB = 0x00, LSB = 0x00
Prr.rec_typ = 5
Prr.rec_sub = 20
Prr.head_num = 1
Prr.site_num = 1
Prr.test_flg = 0x08
Prr.num_test = 19 MSB = 0x00, LSB = 0x00
Prr.hard_bin = 65535 MSB = 0xff, LSB = 0xff
Prr.soft_bin = 8 MSB = 0x00, LSB = 0x00
Prr.x_coord = 1 MSB = 0x00, LSB = 0x00
Prr.y_coord = 0 MSB = 0x00, LSB = 0x00
Prr.test_t = 208 MSB = 0x00, LSB = 0x00
Prr.part_id = 1
Prr.part_txt = not present not valid
Prr.part_fix = not present not valid
    
```

```

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 not valid
Ptr.llm_scal = 0 not present not valid
Ptr.hlm_scal = 0 not present not valid
Ptr.lo_limit = NaN not present not valid
Ptr.hi_limit = NaN not present not valid
Ptr.units = not present not valid
Ptr.c_resfmt = not present not valid
Ptr.c_llmfmt = not present not valid
Ptr.c_hlmfmt = not present not valid
Ptr.lo_spec = NaN not present not valid
    
```

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

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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?

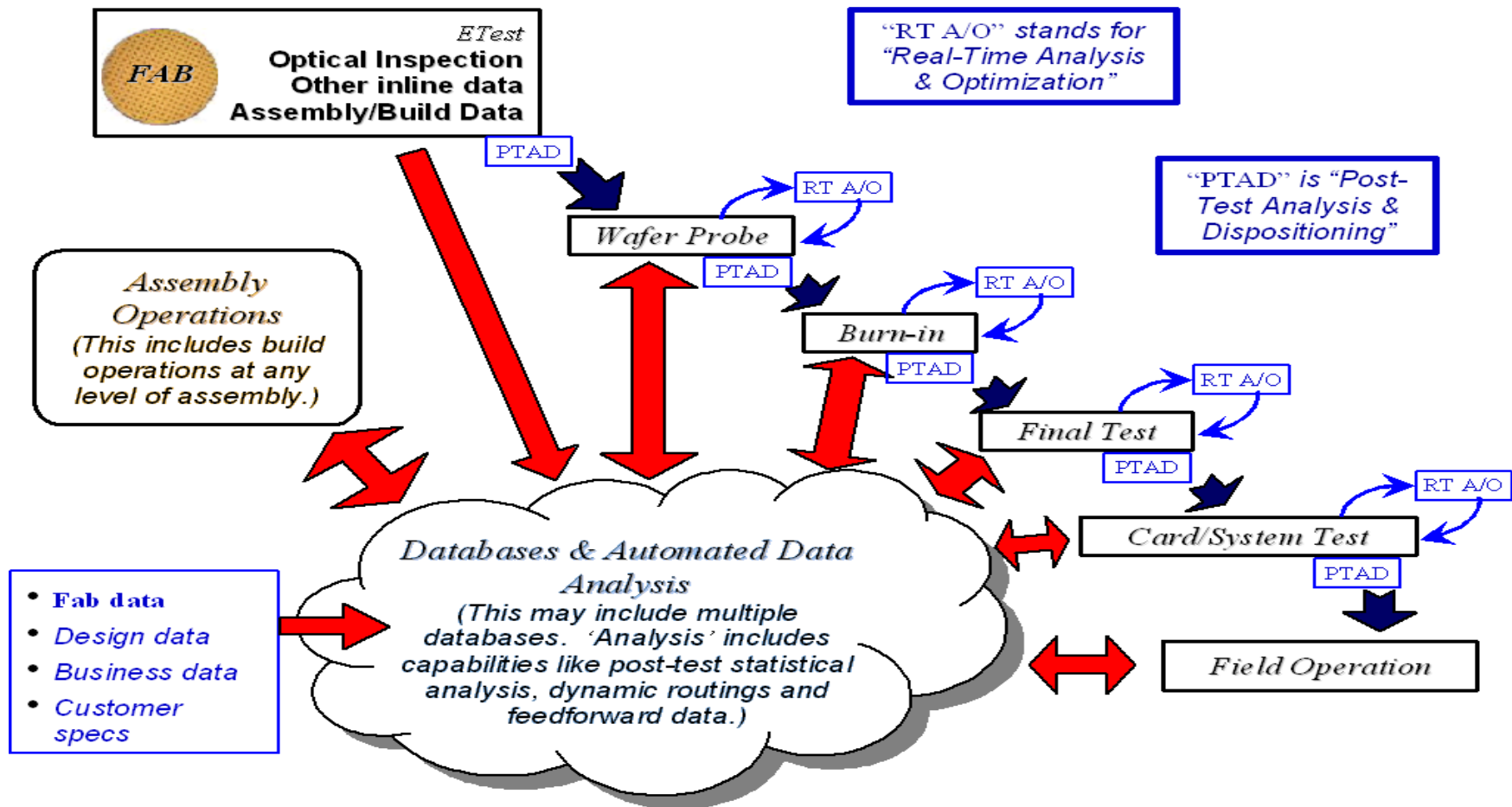
- Popular Request (after OEE)
- Lots of questions about what it is
- No standardized solutions
- Needs shared data
- Potential contributions are large
 - Improved quality and yield
 - Improved processes
 - Lower costs



Adaptive Test Universe



- Slide courtesy of ITRS Adaptive Test working group
- www.itrs.net



Current Efforts

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





Test Cell Communication Standard (TCCS) Working Group

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Test Cell Communications

- Led by Keith Thomas
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)



Focus

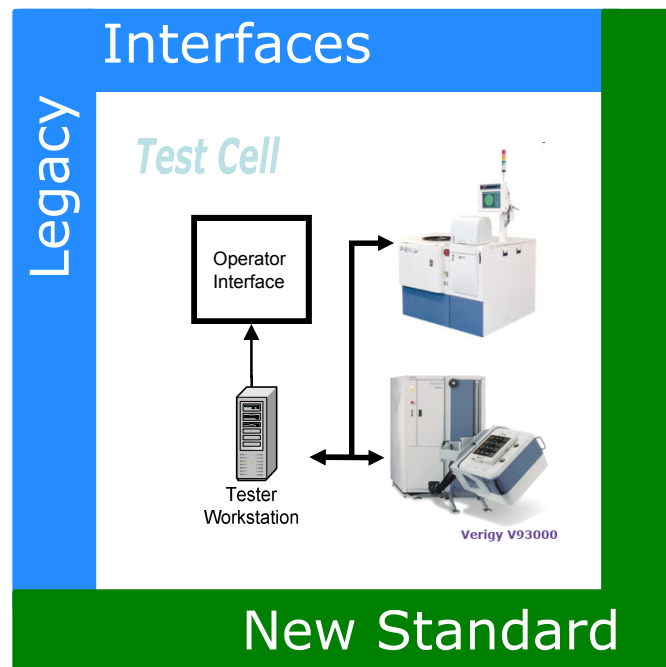
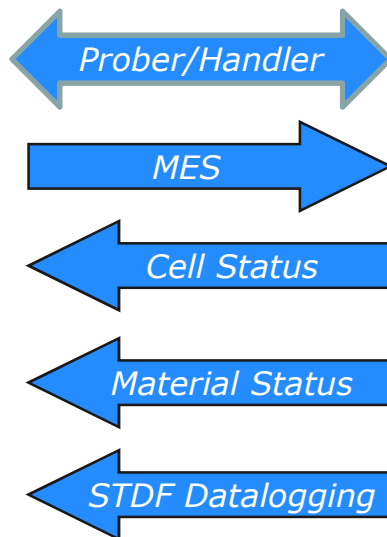
- Use of HTTP, REST web standards
- Web servers as data users
- Not for real time decision making
- Recipe distribution
- Status monitoring
- Tester controlled message flow



Overview



Not In Scope



In Scope

