

SV-AC Scope for 1800-2012

Dmitry Korchemny

Process

- ▶ SV-AC made prioritization according to issues, and not according to Mantis items since specific Mantis items have too low level of detail, and the issue partitioning between different Mantis items is often artificial
 - ▶ It was decided not to create new Mantis items per issue
- ▶ SV-AC recommends to limit the list by 12 issues only to keep the effort manageable
 - ▶ Chosen 12 issues comprise 33 Mantis items
- ▶ Prioritized issue list was unanimously approved by voice vote on May 11, 2010
- ▶ Issues are sorted by score
 - ▶ List of Mantis items with indication of their individual score appears for each issue



Results: Top SV-AC Issues

Rank	Name		Rank
	Id	Summary	
1	AMS assertions		
	2328	Review and relax restrictions on data types in assertions	1
	3058	Add support for real variables and continuous time, which are necessary for mixed-signal assertions	2
2	Checker usability		
	2093	Checker construct (Mantis 1900) should permit output arguments	3
	3034	Allow continuous and blocking assignments in checkers	5
	3033	Allow procedural control statements in checkers	9
	2743	Allow subroutine_call_statement in a checker	13
	3032	Allow forcing in checkers	19
	2751	P1800-2009: checker formal arguments may not be connected to interfaces // WHY?	20
	2111	Allow parameters in checkers	26
3	Assertion system functions		
	3037	Introduce assertion system functions for 4-valued type support	4
	3027	\$assertondoesn't report existing failures in immediate assertions: should the language require it to?	8
	2205	\$asseroff, \$assertkilland \$assertondescription is ambiguous	14
	3036	Explicitly allow unpacked data types for arguments of assertion system functions	15
	1675	Assertion system function syntax is not complete	29
	1763	The LRM does not define whether assertion control tasks affect sequence methods and events	32



Results: Top SV-AC Issues (cont.)

Rank	Name		Rank
	Id	Summary	
4	Inference		
	2412	Allow clock inference in sequences	6
5	Sampling		
	3035	More flexible definition of checker argument sampling	7
6	Local variables		
	3057	Make local variables a first class language construct in SVA	10
	2555	Clarify relationships of different local variable binding mechanisms	30
7	Scoping		
	3069	Relax rules for \$global_clock resolution	11
	3030	Allow checker instantiation in functions and tasks	12
	2151	Referencing assertions in functions	21
	2944	concurrent assertions in tasks/functions	23
	3031	Allow checker instantiation in classes	24
8	Type system		
	3029	Remove limitation regarding passing dynamic arrays to sequences, properties and checkers	16
	3024	Introduce generic integral type	17
	966	\$isunbounded()	24
	1647	Type query functions	31



Results: Top SV-AC Issues (cont.)

Rank	Name		
	Id	Summary	Rank
9	Covergroups		
	3038	Tighter integration between SVA constructs and covergroups	15
10	Formal Semantics		
	1296	Annex E does not cover all clocked derived forms	7
11	Vacuity		
	2546	'empty match' and 'vacuous success' are not clearly defined in LRM	27
12	Temporal logic		
	2172	Add sequence if...else	28
	2297	Case construct for sequences	33



SV-BC Scope for 1800-2012

Matt Maidment

Process

- ▶ Solicited input on top issues: 82 raised by participants
- ▶ 19 participants voted on Top-25 issues in priority order from 1 (highest) to 25 (lowest)
- ▶ Vote completed on May 10, 2010
- ▶ Weighted score computed for each issue
 - ▶ Votes receive weight according to priority
- ▶ Issues sorted by weighted score
- ▶ Top-25 comprised of 25 highest scoring items
 - ▶ Issues either individual or parent Mantis entries
 - ▶ Implies Top-25 comprised of > 25 Mantis entries
- ▶ Effort and schedule not considered in selection of Top-25
 - ▶ Most issues appear to require non-trivial effort to resolve
 - ▶ Aligning issues to schedule requires further work

Results: Top-25 SV-BC Issues

Rank	Mantis ID	Summary
1	696	Parameterized tasks, functions
2	2310	Clarified Macro Semantics
3	3053	Virtual interface and interface-port issues
4	3055	Design construction issues
5	2991	Extension of enumerated types
6	1566	Variable number of task and function arguments
7	2114	Problems in definition of modports/abstract modports
8	210	Generate for module port definitions and instance port connections
9	3056	Master list of port issues
10	1084	Logical Expressions in Macros
11	2115	X-Optimism/X-Pessimism resolution
12	3073	Collected \$bits issues

Rank	Mantis ID	Summary
13	1697	Macro Loops
14	1202	define standard preprocessor
15	1251	x/z behavior in various contexts
16	2289	parameters inside comp unit and gen block are local
17	1504	Parameterized Structures (and Unions)
18	1144	Out-of-bounds array address
19	2081	always_combstatements
20	1553	nested module clarifications
21	2684	Variable part-selects
22	1861	Major enhancement of modports
23	1523	behavior of ?: on complex types
24	3074	Connectivity Enhancements
25	2124	`default_nettypevar-type directive

Results: Strong Mandate for Top Issues

- ▶ Weighted scoring system used
 - ▶ More points for highest priority votes
- ▶ High score indicates more votes at higher priorities
- ▶ Top-25 Range: 280-87
- ▶ Strong mandate for **Top-4 Issues**

Mantis ID	Summary	Score
696	Parameterized tasks, functions	280
2310	Clarified Macro Semantics	253
3053	Virtual interface and interface-port issues	221
3055	Design construction issues	201
2991	Extension of enumerated types	187
1566	Variable number of task and function arguments	173
2144	Problems in definition of modports/abstract modports	161
210	Generate for module port definitions and instance port connections	146

SV-CC Scope for 1800-2012

Charles Dawson

SVCC	Id	Class	Summary	Effort	Priority	Comment
1	3087	DPI	Improve interaction between SystemC, C++ and DPI	Huge	High	The requirement here is class level inter-operability across three languages. Will need detailed discussion for spec'ing. Also, the scope of this mantis should be split into two. One should be for defining class level inter-operability with C++ or SystemC. The other aspect should be defining simulation semantics for SystemC inter-operability.
2	732	VPI	Representation of super and this in VPI?	Large	High	Definitely needs some thinking
3	3094	VPI	Support for Unified Coverage Interoperability Standard	Large	High	
4	3086	DPI	Improve interaction between DPI and VPI	Large	High	Inter-operability of VPI and DPI will needed to be analyzed from all possible phases of simulation cycle
5	3090	VPI	Create VPI data model extensions for Checkers	Large	High	
6	2307	BC	0002307: Master issue for SV-BC VCD issues	Large	High	Two basic questions: a) do want to pursue a Reader API or a VCD extension b) items covered by this master issue are SV-BC or SV-CC (most are SV-BC, I think). For me 0104, 1142 and 1950 are falling DEFINITELY into our realm !!!
7	1764	VPI	vpi_put_value does not specify the scheduling regions	Large	High	Aligning the described semantics with all the new regions will take some work
8	3091	VPI	Update IP protection model to reflect changes since 2001	Large	High	Needs consensus on a data protection convention, which requires participation from IP producers (which P1735 can help with)
9	2015	VPI	How should cbValueChange callbacks work with nonstatic variables?	Medium	High	Has a proposal
10	1352	VPI	VPI 27.37 "Multiclock sequence expression" error	Small	High	
11	2068	VPI	Cannot represent interface as vpiHighConn of port	Small	High	
12	2359	VPI	Example (Traversing expressions) should use vpiType instead of vpiExpr	Trivial	High	Error that should be fixed
13	2058	VPI	Diagram 36.25 Class definition - vpiDerivedClasses	Trivial	High	
14	3089	VPI	Provide ULM version of VPI data model	Huge	Medium	UML
15	880	DPI	DPI functions should be allowed to return non-small values	Large	Medium	Non-small values is a large scope and this will need to be discussed. Effort will be large in case canonical formats need to be defined for non-small values when being returned from DPI
16	2332	VPI	Expressions as statements and statements as expressions in VPI	Large	Medium	Effort reflects no precedent for this- duplicates 2065

17	3072	VPI	VPI for covergroup	Large	Medium	Who needs this? Do 3rd party apps need this?
18	741	VPI	File and line number for vpiClassObj?	Large	Medium	Needs a clearly articulated approach to defining properties and relationships for dynamic objects; not sure that this has been done for VPI yet
19	756	VPI	vpiExpr of expr?	Medium	Medium	Suspect it is using a really bad idiom to model an iteration for expressions (possibly should be a vpiOperation concatenation type?). Otherwise don't know what it means
20	463	VPI	27.16 should not perpetuate unused functionality	Medium	Medium	Involves deprecating stuff
21	1311	VPI	type parameters VPI model	Medium	Medium	
22	1593	VPI	vpiName property for members of structs and unions	Medium	Medium	Child of 3095
23	2355	VPI	Specify what the effect of a vpi_put_value[_array] on a net/element is when a force is active on it.	Medium	Medium	This probably should be reviewed by BC or other committee to comment-on before resolving (language/behavior consistency issue).
24	3092	VPI	Need efficient mechanism for tracking aggregate value changes	Medium	Medium	Put/get_value covered by 1688, CBs perhaps by 2346
25	2425	VPI	Use of 'reg' in VPI diagrams	Medium	Medium	
26	750	VPI	In VPI, constraint from class defn differs from constraint in class obj	Medium	Medium	
27	3095	VPI	Better defined handling of unnamed objects	Medium	Medium	
28	424	VPI	29.3.1 Should this be here?	Medium	Medium	Very useful information, need to identify best way to represent this information
29	2139	VPI	Obtaining members of superclasses of vpiClassObj	Medium	Medium	Clarification, but will require some discussion
30	747	VPI	Add common VPI properties to typespecs	Medium	Medium	Need an itemized list of common properties, otherwise this would be a small effort
31	1838	VPI	Finding gen scope for VPI net or net array, etc.	Medium	Medium	
32	1862	VPI	Key to VPI data model diagrams uses "class" terms in description which are potentially confusing.	Medium	Medium	
33	1477	VPI	virtual interfaces information model	medium	medium	

SV-EC top 25 list

Vote result and discussion

May 13 2010

SV-EC voting process

- SV-EC participants voted on top 25 prioritized issues for next PAR.
- 13 members participated.
 - Gave 1 (highest priority) to 25 (lowest priority)
- Total of 218 line items were listed
 - 16 extra no-mantis-number items.
- Voting ended May 10 2010

SV-EC top 25 list: Vote result (1)

top 25 Rank	Mantis ID	Number of Votes	weighted vote	Summary	Degrees of difficulty	Category
1	2848	7	159	Is it legal to assign an interface containing class declaration to a virtual interface	med	Virtual Interface and class
2	3002	8	125	Aspect Oriented Programming (AOP) features	High	class
3	3046	8	112	Dotted names within inlined constraints	Low	class
4	1356	6	112	Multiple Inheritance	High	class
5	3001	9	102	Proper Polymorphic behavior of instantiation	low	class
6	2999	7	99	Class Handle reference inside of Constraints	med	class
7	3003	6	98	Constraint Composition	High	Randomization
8	3082	7	96	(4) Ambiguity resolution (see slide 10 for examples of parts of the Standard that have been interpreted differently by different simulators)		Various
9	2845	4	84	virtual interface type checking versus interface type that had been defparam'ed	high	Virtual Interface
10	2956	4	76	clarify class 'process' definition (9.7 vs 18.13.3, 18.13.4, 18.13.5)	low	Process control
11	2505	4	76	class select: what is allowed after the dot?	low	class
12	2735	4	73	Ballot Comment #48: Chaining of method calls	med	class
13	1706	4	72	Meaning of static prefix for virtual interface assignments		Virtual Interfaces

SV-EC top 25 list: Vote result (2)

top 25 Rank	Mantis ID	Number of Votes	weighted vote	Summary	Degrees of difficulty	Category
14	2488	4	69	Are virtual method calls legal within class constructors?	med	Vl OO classes
15	2112	6	69	Remove restrictions on NBA assignmentsto class members	med	class
16	3028	6	68	constraints for unique array elements.	Med	Randomization
17	2950	4	67	virtual method prototype matching	low	class
18	2794	4	64	Clarify queue methods return status	low	class
19	2993	4	63	Cross cover points across different cover groups	med	Built-in Methods
20	1442	3	63	Clocking blocks legal in modports, missing from text description in 20.9		Functional Coverage
21	2953	6	61	Algorithmic generation of covergroupbin contents	high	clocking block
22	1349	5	61	fork/join_none: what if parent thread terminates without blocking statement?		Functional Coverage
23	2949	4	60	LRM is silent about the semantics of referencing a clocking block output	low	Process control
24	2451	6	58	Omitting body defaults	med	clocking block
25	2987	6	56	Soft Constraints	med	class

SV-EC top 25 list: Vote result

The next 10 items

Rank	Mantis ID	Number of Votes	weighted vote	Summary	Degrees of difficulty	Category
26	3006	5	55	LRM doesn't say explicitly what should happen if pointer is randomized	low	class
27	3004	5	55	Ability to declare/qualify classes/methods/variables/constraints final	med	class
28	2998	4	55	Solve Before enhanced	low	Randomization
29	2117	3	52	Allow extending of covergroups in classes	high	Functional Coverage
30	No Mantis 6	5	51	(3) Allow reuse of enumerated names (slide 31)		cross-committee
31	2928	3	50	ambiguous restriction on function calls in constraint expressions	low	Randomization
32	2787	3	50	reference via scope operator to parametrized superclassitem	med	class
33	2972	3	49	add class constructor/method, task/function overloading	High	class
34	2996	4	49	Method overloading	High	class
35	2988	2	48	Defaults Constraints	med	Randomization
36	No Mantis 4	2	47	(1) AOP when-inheritance (slide 31)	High	Class/AOP