

# **Inputs to P1800WG from SV-EC**

**February 26 2010**

**P1800 WG face-to-face meeting**

# Approach

- Based on p1800 recommendation, all members of sv-ec email list were requested to provide their prioritized list of issues for next PAR.
- Requested top enhancement list with justifications.
- Reviewed latest entries up to February 25 2010.

# Overview of requests

- Prioritized requests were divided into main categories:
  - **Class construct, ObjectOriented programming:** clarifications, syntax/semantics enhancements
  - **Functional Coverage**
  - **Randomization:** random constraints [enhancements, clarifications]
  - **Virtual Interfaces/virtual ports**
- Four responses were received.

# Overview of sv-ec mantis items (1)

- There are 189 open mantis issues under sv-ec:
  - **97 Errata**
  - **38 Clarification**
  - **54 Enhancement** [including recently added]
- Main categories:
  - OO (class), Coverage, Constraints, Clocking Block/Virtual Interface (Virtual ports), Miscellaneous [Arrays & Queues, Parallel processes, strings,]
- Some mantis items are old
  - Were filed back in 2004.
  - Relate to modified/non-existing sections of LRM.

# Overview of sv-ec mantis items (2)

- Errata & Clarifications:
  - Some can be editorials
  - Some Errata items should be categorized as clarification requests
- Enhancements:
  - There are a few duplicates/related items in Enhancement requests:
  - Some Example:
    - AOP: mantis items 242, 3002.
    - Method overload / overwrite: 244, 2996, 2972
    - Multiple inheritance: 1356, 2997

# Summary

- Four responded with list of items.
- Our Recommendations: Plans for the next PAR/Standard:
  - Prioritize and address the Errata and Clarifications
  - Prioritize and address Enhancements

# Members' Requests: from SV-EC Errata and Clarifications Manti database

| Requester | ID   | Type          | Updated    | Summary  |
|-----------|------|---------------|------------|--|
| MF        | 2080 | Errata        | 2/22/2010  | ":" is ambiguous in parameterized classes                              |
| MF        | 2950 | Errata        | 1/22/2010  | virtual method prototype matching                                      |
| MF        | 2936 | Errata        | 12/22/2009 | srandom, set_randstate restrictions                                    |
| MF        | 2522 | Errata        | 11/16/2008 | Constraint ordering with function calls                                |
| MF        | 1516 | Errata        | 9/12/2007  | arguments to randomize calls   |
| DR        | 2954 | Errata        | 1/29/2010  | covergroup clause is unclear on degenerate open value ranges           |
| DR        | 2055 | Errata        | 8/17/2008  | coverage bin distribution is not even                                  |
| MF        | 2967 | Clarification | 2/3/2010   | define explicitly legal set of data types for randomize variables list |
| MF        | 2787 | Clarification | 6/11/2009  | reference via scope operator to parametrized superclass item           |

# Mantis Errata list for sv-ec (1)

## class/OO

| comments                     | Category               | ID   | Summary   | Updated    |
|------------------------------|------------------------|------|---|------------|
|                              | class / scoping        | 2080 | "::" is ambiguous in parameterized classes  | 2/22/2010  |
|                              | class                  | 2974 | LRM should be updated after methods with static lifetime was banned in 1800-2009                        | 2/12/2010  |
| editorial ??                 | class                  | 2935 | Correction to example in 9.7. in 1800-2009  | 2/5/2010   |
|                              | class                  | 1584 | problems with default arguments in virtual methods  | 1/24/2010  |
|                              | class                  | 2950 | virtual method prototype matching   | 1/22/2010  |
|                              | class/randomization    | 2936 | srandom, set_randstate restrictions   | 12/22/2009 |
|                              | class / scope          | 2919 | Class scope operator access description incomplete  | 11/16/2009 |
|                              | class / virtual method | 2867 | no BNF for pure virtual methods   | 9/1/2009   |
|                              | class / virtual method | 2798 | Are "pure extern virtual" methods allowed? Or, should "pure extern" method declarations issue an error. | 6/22/2009  |
|                              | class / BNF            | 2615 | Conflicting class_new rule  | 3/27/2009  |
|                              | class                  | 2451 | Omitting body defaults  | 3/15/2009  |
|                              | class                  | 2505 | class select: what is allowed after the dot?  | 10/22/2008 |
|                              | class                  | 2488 | Are virtual method calls legal within class constructors?   | 10/3/2008  |
|                              | class                  | 1719 | Shallow copy constructor needs clarification  | 9/11/2008  |
|                              | class                  | 2467 | Is super/this allowed as a prefix for a type name or type parameter                                     | 8/27/2008  |
|                              | class                  | 1527 | Constant function call can be to static class method  | 11/7/2007  |
|                              | class / randomization  | 1868 | Initialization RNG seeding should depend on instance name   | 6/19/2007  |
|                              | class                  | 1542 | Overriding parameters within static class methods and packaged subroutines (BNF)                        | 6/3/2007   |
|                              | class BNF              | 1771 | variable_lvalue BNF omits class_scope?  | 4/6/2007   |
|                              | class                  | 1642 | Call to static class method   | 10/23/2006 |
| LRM modified?Clarification?? | class / randomization  | 1355 | LRM 13.3 is not clear about non-rand variables, handles and structs                                     | 2/23/2006  |
| RM modified?Clarification??  | class / randomization  | 211  | Add clarifying example to builtin / scope randomize   | 9/17/2004  |

## Mantis Errata list for sv-ec (2) constraints & coverage

| comments         | Category     | ID   | Summary   | Updated    |
|------------------|--------------|------|---|------------|
|                  | constraints  | 2352 | inout' missing in some descriptions   | 2/21/2010  |
|                  | coverage     | 2954 | covergroup clause is unclear on degenerate open value ranges  | 1/29/2010  |
|                  | constraints  | 2902 | syntax description for rand_mode and constraint_mode uses :: instead of . - and task instead of function void | 12/2/2009  |
|                  | constraints  | 2841 | non-integral function actual argument allowed in a constraint expression?                                     | 8/10/2009  |
|                  | coverage     | 2741 | Further set of changes related to 0002543   | 5/16/2009  |
|                  | coverage     | 2714 | 19.5.6 value resolution should specify transition bin values as well  | 4/24/2009  |
|                  | coverage     | 2382 | are there semantic restrictions on covergroup bin names?  | 4/24/2009  |
|                  | coverage     | 2564 | Coverpoint identifier usage context list does not contain bins of expression                                  | 1/15/2009  |
|                  | constraints  | 2522 | Constraint ordering with function calls   | 11/16/2008 |
|                  | coverage     | 2055 | coverage bin distribution is not even   | 8/17/2008  |
|                  | coverage     | 2401 | clarification needed: covergroup transition bin non-consecutive repetition operators                          | 6/3/2008   |
|                  | coverage     | 2287 | 39.3.2.1 coverage access system functions   | 2/22/2008  |
|                  | coverage     | 2244 | coverage database loading behavior must be better defined   | 1/22/2008  |
|                  | coverage BNF | 2030 | issues with covergroup/class new in BNF   | 10/5/2007  |
|                  | constraints  | 1516 | arguments to randomize calls  | 9/12/2007  |
|                  | coverage     | 2020 | Coverage system tasks and functions   | 9/6/2007   |
|                  | coverage     | 1672 | 18.9: "type" should be "option"   | 7/23/2007  |
|                  | coverage     | 1802 | coverage bins rhs expression legality for non-constant expressions  | 5/9/2007   |
| clarifications?? | constraints  | 1753 | solve...before: hard or recommendation only?  | 3/1/2007   |
|                  | coverage     | 1695 | Clarify effect of ignore/illegal transition on transition bin coverage  | 12/6/2006  |
| clarifications?? | coverage     | 1421 | static method 'get_coverage' cannot have 'ref' arguments  | 5/8/2006   |

## Mantis Errata list for sv-ec (3) clocking / Virtual interface

| comments         | Category                | ID   | Summary  | Updated    |
|------------------|-------------------------|------|--|------------|
|                  | clocking block          | 2949 | LRM is silent about the semantics of referencing a clocking block output               | 1/21/2010  |
|                  | clocking block          | 1442 | Clocking blocks legal in modports, missing from text description in 20.9               | 1/8/2009   |
|                  | clocking block          | 1715 | Triggered property of a clocking block   | 10/18/2007 |
| clarifications?? | clocking expressions    | 1513 | LRM does not clarify if class variables can be used in clock expressions               | 6/23/2006  |
| LRM modified??   | clocking/cycles related | 1793 | Updates to the proposal in mantis item 890   | 4/30/2007  |
|                  | Virtual Intf            | 2952 | Identifier case error in 25.9 virtual interface example                                | 1/29/2010  |
|                  | Virtual Intf            | 2848 | Is it legal to assign an interface containing class declaration to a virtual interface | 1/29/2010  |
|                  | Virtual Intf            | 2845 | virtual interface type checking versus interface type that had been defparam'ed        | 8/13/2009  |
|                  | Virtual Intf            | 2840 | Virtual interface datatype BNF incomplete  | 8/9/2009   |
|                  | Virtual Intf            | 1441 | 20.8 restriction on virtual interfaces in "sensitivity list" not defined               | 1/20/2009  |
|                  | Virtual Intf            | 1706 | Meaning of static prefix for virtual interface assignments                             | 1/8/2009   |
| editorial ?      | Virtual Intf            | 1541 | 24.5.5, 24.9.2: example errors?  | 5/26/2008  |

# Mantis Errata list for sv-ec (4) Miscellaneous

| comments                      | Category                   | ID   | Summary  | Updated    |
|-------------------------------|----------------------------|------|--|------------|
|                               | Misc / process class       | 2956 | clarify class 'process' definition (9.7 vs 18.13.3, 18.13.4, 18.13.5)        | 2/4/2010   |
|                               | Misc / Mailbox             | 1714 | singular types for mailboxes   | 12/10/2009 |
|                               | Misc / wildcard            | 1740 | Item 1457 did not correct section 10.5.3                                     | 12/7/2009  |
|                               | Misc / arrays              | 2831 | Conflicting descriptions of empty unpacked array concatenation               | 7/29/2009  |
|                               | Misc / arrays              | 2796 | why do array locator methods that return a single value, return queues?      | 6/21/2009  |
|                               | Misc / queues              | 802  | Assigning too many elements to a queue                                       | 6/21/2009  |
|                               | Misc / process class       | 2559 | Wrong LRM example in section 9.7   | 1/7/2009   |
|                               | Misc / processes           | 2471 | what is a dynamic process?   | 9/9/2008   |
|                               | Misc / strings             | 1685 | 6.3.2 should be clarified as allowing string literals                        | 8/3/2008   |
|                               | Misc / strings             | 346  | Usage of word string (from issue 275)  | 8/3/2008   |
| editorial ?                   | Misc                       | 2432 | funny sentence on built-in methods   | 6/29/2008  |
| editorial ?                   | Misc                       | 1701 | capitalization scheme for scheduling region names                            | 6/5/2008   |
| clarifications??              | Misc                       | 1295 | scheduling algorithm question  | 6/5/2008   |
|                               | Misc / assignments         | 2303 | Champions feedback on Mantis item 1447                                       | 3/17/2008  |
|                               | Misc / automatic variables | 1967 | Restrictions on automatic and dynamic variables are incomplete               | 3/2/2008   |
| LRM modified??                | Misc                       | 204  | Missing \$unit and program identifier for class resolution operator          | 12/8/2007  |
| editorial ??                  | Misc / arrays              | 2176 | Redundant sentence can be removed from 7.5.1                                 | 11/29/2007 |
|                               | Misc / arrays              | 1760 | dynamic array new[]() init expr can be any array of right type               | 11/23/2007 |
| editorial ??                  | Misc / 'new' terminology   | 1856 | D3: inconsistent "new" terminology   | 11/23/2007 |
|                               | Misc / arrays              | 2073 | 7.13.1 Do min() and max() return 1 or more elements?                         | 10/3/2007  |
|                               | Misc / arrays              | 1801 | Problem with omitted foreach iterator before dynamic array iterator          | 9/25/2007  |
|                               | Misc / events              | 1312 | wait_order specification with repeated events                                | 9/20/2007  |
|                               | Misc / Mailbox             | 1552 | Wording of mailbox description - section 14.3                                | 9/12/2007  |
|                               | Misc / arrays              | 2022 | index value width extension for associative arrays                           | 9/7/2007   |
|                               | Misc / string              | 2002 | Followup issues from mantis 1680 - Champions email vote                      | 8/29/2007  |
|                               | Misc / Scheduling          | 1293 | event region unclearness   | 8/12/2007  |
|                               | Misc / arrays              | 1087 | How do array manipulation methods work with multi-D arrays?                  | 8/6/2007   |
|                               | Misc / Mailbox             | 1738 | does try_get have priority over a queued up get?                             | 2/20/2007  |
|                               | Misc / arrays              | 1690 | Array reduction methods for non-integral types                               | 12/1/2006  |
|                               | Misc / built-in pkg        | 1624 | 8.10.1 needs to reference Annex C  | 10/16/2006 |
|                               | Misc / arrays              | 1585 | BNF error on trigger of element of event array                               | 9/13/2006  |
|                               | Misc / arrays              | 1576 | In 5.15.1 unique and unique_index need to be reworded                        | 8/30/2006  |
|                               | Misc / typename()          | 1511 | \$typename() and parameterized classes (22.2)                                | 6/25/2006  |
|                               | Misc / process class       | 1391 | Invalid example code using 'process::self.random(100)'                       | 5/8/2006   |
|                               | Misc / parallel process    | 1363 | Behavior of join_any containing no statements is unclear                     | 3/3/2006   |
| LRM Modified, Clarification?? | Misc / parallel process    | 1349 | fork/join_none: what if parent thread terminates without blocking statement? | 2/21/2006  |
| LRM Modified, Clarification?? | Misc / arrays              | 975  | 5.9: "illegal for index_type to declare a type" is unclear                   | 11/16/2005 |
| LRM Modified, Clarification?? | Misc / scheduling          | 549  | Issues with Section 15 on "Scheduling Semantics"                             | 5/2/2005   |
| LRM Modified, Clarification?? | Misc / randcase            | 261  | randcase width rules inconsistent with Verilog                               | 12/6/2004  |
| LRM Modified, Clarification?? | Misc / cycle delay         | 255  | include sequence_expr in primary   | 10/1/2004  |
| LRM Modified, Clarification?? | Misc / parallel process    | 237  | Clarification of wait fork   | 9/13/2004  |

# Additional Information/Refereces

- Requests sent to sv-ec.

# Requests sent to sv-ec (1)

[From Mirek.Forczek @ aldec.com.pl](mailto:Mirek.Forczek@aldec.com.pl) 2/3/2010

scope 1: classes

(critical clarifications, if left unresolved may lead to the tools incompatibility issues)

Enhancement(2470) The order of initialization of class properties initialized in the declaration vs. constructor calls should be clearly defined.

Errata (1511) \$typename() and parameterized classes (22.2)

Errata (1584) problems with default arguments in virtual methods  
(important syntax/semantics enhancements/closures)

Enhancements

(2487) Syntax for specifying an object type when creating a object - syntax proposal : b = C::new; or b = new C;

(2349) CONST: LRM should add constant method/function/task and introduce 'const pointer' and 'pointer const' functionality

(2735) Ballot Comment #48: Chaining of method calls

(2972) add class constructor/method, task/function overloading

(2350) Local, protected modifiers allowed for nested class declaration

## Requests sent to sv-ec (2)

[From Mirek.Forczek @ aldec.com.pl](mailto:Mirek.Forczek@aldec.com.pl) 2/3/2010

(supplemental issues) Errata

Errata - (2950) virtual method prototype matching

Clarifications - (2787) reference via scope operator to parametrized superclass item

Errata (2080) "::" is ambiguous in parameterized classes

scope 2: random constraints

(recently filed)

Clarifications(2967) define explicitly legal set of data types for randomize variables list

Enhancement (2968) allow constraint reference at constraint expression

Enhancement(2969) allow data members references in in-line random variable control (8.11)

Enhancement(2970) allow hierarchical references in randomization of scope variables—std::randomize() (18.12)

Enhancement(2971) allow scope constraint definition (in module/interface/program/checker)

(already found in database)

Errata(2936) srandom, set\_randstate restrictions

Errata(2522) Constraint ordering with function calls

Errata(1516) arguments to randomize calls

## Requests sent to sv-ec (3)

[From Dave Rich @ mentor.com 2/15/2010](#)

Enhancement 1356: Multiple inheritance

Enhancement 2112: Remove restrictions on NBA assignments to class members

Errata 2954: covergroup clause is unclear on degenerate open value ranges

Enhancement 2117: Allow extending of covergroups in classes

Errata 2055: coverage bin distribution is not even

Enhancement 2506: Non-trivial coverage space shapes and joint conditions are difficult to specify with covergroups

[From Srinivasan svenka3 @ gmail.com 2/17/2010](#)

- Ability of "deep\_copy, deep\_compare" from E/Vera (object\_copy..)
- FCOV: cross-of-cross, hierarchical cross
- AOP - my TOP priority REQUEST.
- Variable part/bit select

## Requests sent to sv-ec (4)

| ID   | <u>From Thomas Alsop @ intel.com 2/19/2010</u> |  |
|------|--|--|
| 3003 | Enhancement                                    | Constraint Composition   |
| 3002 | Enhancement                                    | Aspect Oriented Programming (AOP) features   |
| 3001 | Enhancement                                    | Proper Polymorphic behavior of instantiation   |
| 3000 | Enhancement                                    | Standardize Warning on Unsolveable Constraints   |
| 2999 | Enhancement                                    | Class Handle reference inside of Constraints   |
| 2998 | Enhancement                                    | Solve...Before enhanced  |
| 2997 | Enhancement                                    | Multiple Inheritance   |
| 2996 | Enhancement                                    | Method overloading   |
| 2995 | Enhancement                                    | Exceptions   |
| 2994 | Enhancement                                    | Introspection  |
| 2993 | Enhancement                                    | Cross cover points across different cover groups   |
| 2990 | Enhancement                                    | 'Pass' distribution inheritance with superset weight applied along with new constrains added |
| 2989 | Enhancement                                    | 'Other' soft distribution weight range   |
| 2988 | Enhancement                                    | Defaults Constraints   |
| 2987 | Enhancement                                    | Soft Constraints   |
| 2986 | Enhancement                                    | \$void()   |
| 2985 | Clarification                                  | Multi-dimensional queues   |
| 2984 | Enhancement                                    | Virtual ports enhancement  |