



**IEEE DASC P1076.1 Working Group**  
<http://www.eda-twiki.org/vhdl-ams/>

**Working Group Meeting**  
**March 9, 2016**

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 WG Chair  
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**Agenda**

- ◆ **Call to order**
- ◆ **Approval of agenda**
- ◆ **Administrative issues**
  - Minutes of February 10, 2016 meeting
  - Review of IEEE patent policy
  - Eda.org end of life
- ◆ **Project discussions**
  - Review of LCSs: 201x-15
  - Approval of revised LCSs, where possible.  
 Candidates: 201x-05, 201x-11, 201x-13, 201x-14
  - Discussion of new LCSs: 201x-17
  - LRM status
- ◆ **Next meeting**
- ◆ **AOB**
- ◆ **Adjourn**

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**Administrative Issues**

- ◆ **Approval of WG meeting minutes**
  - [Meeting of February 10, 2016](#)
  - Available at <http://www.eda-twiki.org/vhdl-ams/>
- ◆ **Review of IEEE patent policy**
  - <http://standards.ieee.org/board/pat/pat-slideset.pdf>
- ◆ **Coordination with P1076**
  - No progress
- ◆ **Handling of copyrighted material**
  - No progress, need resolution on VHPI

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**End of Life of eda.org**

- ◆ **Technical work of migration has been completed**
  - For 1076.1 web, all links, except 2 to Verilog-AMS email archive, are operational
  - This includes the old email archive
- ◆ **Migration announced to WG on March 8, 2016**
- ◆ **DASC is still investigating how to fund maintenance of eda-twiki.org**
  - Suggestions: Request funding from IEEE, increase membership fees
- ◆ **eda.org will go offline at the end of March**
- ◆ **Listserver.ieee.org has been operational since mid January**
  - Email archive is not yet ready

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### Mandatory Changes: LCS Status

| LCS     | Title                            | LRM Clauses       | Status      |
|---------|----------------------------------|-------------------|-------------|
| 201x-01 | External names                   | 8.7               | Approved    |
| 201x-02 | Simulation cycle                 | 14.7.5            | Approved    |
| 201x-03 | Architecture statements          | 3.3.3, 11, 14.5.3 | Approved    |
| 201x-04 | Types and natures                | 5                 | Approved    |
| 201x-05 | Expressions                      | 9                 | Submitted   |
| 201x-06 | Sequential statements            | 10                | Approved    |
| 201x-07 | Specifications                   | 7                 | Approved    |
| 201x-08 | Scope and visibility             | 12                | Approved    |
| 201x-09 | Design units and their analysis  | 13                | Approved    |
| 201x-10 | Lexical elements                 | 15                | Approved    |
| 201x-11 | Declarations                     | 6, 11.13, 16.2.6  | Revised     |
| 201x-12 | Design units                     | 3, 4              | Approved    |
| 201x-13 | Predefined language environment  | 16                | Revised     |
| 201x-14 | Elaboration and execution        | 14                | Revised     |
| 201x-15 | Standard tool directives         | 24                | Submitted   |
| 201x-16 | VHPI                             | 17-23             | In progress |
| 201x-17 | Integration of IEEE Std 1076.1.1 | Annex A, Annex G  | Submitted   |



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### Mandatory Changes: Per LRM Clause

| Clause | Title                              | Status               |
|--------|------------------------------------|----------------------|
| 1      | Overview of this Standard          |                      |
| 2      | Normative references               |                      |
| 3      | Design entities and configurations | 201x-03, 201x.12     |
| 4      | Subprograms and packages           | 201x-12              |
| 5      | Types and natures                  | 201x-04              |
| 6      | Declarations                       | 201x-11              |
| 7      | Specifications                     | 201x-07              |
| 8      | Names                              | 201x-01              |
| 9      | Expressions                        | 201x-05              |
| 10     | Sequential statements              | 201x-06              |
| 11     | Architecture statements            | 201x-03              |
| 12     | Scope and visibility               | 201x-08              |
| 13     | Design units and their analysis    | 201x-09              |
| 14     | Elaboration and execution          | 200x-14, 201x-02     |
| 15     | Lexical elements                   | 201x-10              |
| 16     | Predefined language environment    | 201x-13              |
| 17-23  | VHPI                               | 201x-16, in progress |
| 24     | Standard tool directives           | 201x-15              |



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### Mandatory Changes: Per Annex

| Annex         | Title                                    | Status                      |
|---------------|--|-----------------------------|
| A Informative | Description of accompanying files        | 201x-17 covers 1076.1.1     |
| B Normative   | VHPI header file                         | Related to 201x-16          |
| C Informative | Syntax summary                           | Done as part of LRM editing |
| D Informative | Potentially nonportable constructs       |                             |
| E Informative | Changes from IEEE Std 1076.1-2007        | To be done late             |
| F Informative | Changes from IEEE Std 1076-2002          | Merge with Annex E          |
| G Informative | Features under consideration for removal | No candidates               |
| H Informative | Guide to use of standard packages        | 201x-17 covers 1076.1.1     |
| I Informative | Guide to use of protect directives       | 201x-15                     |
| J Informative | Glossary                                 | Needs review                |
| K Informative | Bibliography                             | Needs review                |
| L Informative | Index                                    | Done as part of LRM editing |



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### Review and Approval of LCSs

- ♦ **Pending approvals**
  - 201x-11 Declarations
  - 201x-13 Predefined language environment
  - 201x-14 Elaboration and execution
- ♦ **Pending reviews**
  - 201x-05 Expressions
- ♦ **LCSs for analysis/review**
  - 201x-15 Standard tool directives
  - 201x-17 Integration of IEEE Std 1076.1.1



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## Project Discussion: VHPI 1

### ◆ Information model diagrams for AMS extensions

- Cadence donation ([ProjectsAlignment107608/Unimodel.zip](#))
  - Separate, not integrated with existing VHPI
    - e.g. ams\_port, in addition to port
    - It's possible this is to not affect VHPI data structures, but there is no good way to find out
  - Is donated information model complete?
- Issue: familiarity with UML
  - Example:
    - Class diagrams in LRM include a LexicalScope class diagram (Fig. 5). There is no explanatory description about this
    - Seems to be related to VHDL concept of scope and declarative regions (Clause 12)



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## Project Discussion: VHPI 2

### VHDL declarative regions

entity declaration, together with corresponding architecture body  
 configuration declaration  
 subprogram declaration, together with subprogram body  
  
 package declaration, together with corresponding body  
 record type declaration  
 component declaration  
 block statement  
 process statement  
 loop statement  
 block configuration  
 component configuration  
 generate statement  
 protected type declaration, together with corresponding body

### VHPI LexicalScope

designUnit  
  
 subpDecl why split?  
 subpBody why split?  
  
 recordTypeDecl  
 compDecl  
 blockStmt  
  
 loopStmt why not?  
 blockConfig  
 compConfig  
 generateStmt  
 protectedTypeDecl why split?  
 protectedTypeBody why split?  
 spec why?  
 useClause why?  
 decl why?



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## Project Discussion: VHPI 3

- Example contd.
  - LexicalScope is referenced in 19.4.6: Objects of class lexicalScope and decl in the library information model have both the DefName and DefCaseName properties.
  - LexicalScope is referenced in 23.22 vhpi\_handle\_by\_name: The scope argument is a handle to ...; or a handle to an object of class lexicalScope that represents an uninstantiated scope in the library information model; ...
- Low confidence in proposing extensions or changes
  - Completeness, correctness
- ◆ Other parts of VHPI (e.g. vhpi\_user.h) seem straightforward
  - Provided the relationship of the new parts of the information model and the existing parts has been established



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## Project Discussion: VHPI 4

### ◆ Options

1. Do not extend VHPI to include VHDL-AMS concepts
  - There is a precedent: VHPI does not support the new language features introduced in 1076-2008
  - Drawback: portability of VHPI description due to proprietary extensions of vhpi\_user.h
2. Attempt to extend information model based on current understanding
  - Drawback: confidence. After all, this will be an international standard
3. Try to find a person familiar with both VHDL and UML
  - Candidates?



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### Project Discussion: Other Projects

| Project                       | Status  |
|-------------------------------|---|
| Errata                        | Analyzed. LCS depends on having mandatory changes completed |
| IEEE Std 1076.1.1 integration | LCS 201x-17   |
| Table-driven modeling         | No progress   |
| Vector/Matrix operations      | Received revised packages from Zhichao; not reviewed yet    |
| Frequency-domain modeling     | Needs review and approval                                   |
| Minor enhancements            | Not started   |



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### P1076.1-201x Draft LRM Status (1)

| LCS Nr  | Title                            | WG status  | Clauses                           | Status   |
|---------|----------------------------------|------------|-----------------------------------|--|
| 201x-01 | External names                   | Approved   | 8.7                               | Integrated.  |
| 201x-02 | Simulation cycle                 | Approved   | 14.7.5                            | Integrated.  |
| 201x-03 | Architecture statements          | Approved   | 3.3.3<br>11<br>14.5.3<br>Glossary | Integrated.<br>Integrated.<br>Integrated.<br>Integrated.                                       |
| 201x-04 | Types and natures                | Approved   | 5                                 | Integrated.<br>Open issues: deleted "array" term in 5.3.2.2, array and record nature examples. |
| 201x-05 | Expressions                      | Submitted  | 9                                 |  |
| 201x-06 | Sequential statements            | Approved   | 10                                | Integrated.  |
| 201x-07 | Specifications                   | Approved   | 7                                 | Integrated.  |
| 201x-08 | Scope and visibility             | Approved   | 12                                | Integrated.  |
| 201x-09 | Design units and their analysis  | Approved   | 13                                | Integrated.  |
| 201x-10 | Lexical elements                 | Approved   | 15                                | Integrated.  |
| 201x-11 | Declarations                     | Submitted  | 4.2.1<br>6<br>11.13<br>16.2.6     |  |
| 201x-12 | Design units                     | Approved   | 3<br>4                            | Integrated.<br>Integrated.   |
| 201x-13 | Predefined language environment  | Submitted  | 16                                |  |
| 201x-14 | Elaboration and execution        | Submitted  | 14                                |  |
| 201x-15 | Standard tool directives         | Submitted  | 24                                |  |
| 201x-16 | VHPI                             | In process |                                   |  |
| 201x-17 | Integration of IEEE Std 1076.1.1 | Submitted  |                                   | Annex A<br>Annex G   |



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### P1076.1-201x Draft LRM Status (2)

- ◆ Change bars added at places where P1076.1-2007 text has been removed or replaced by P1076-2008 text
- ◆ New condition tag P1076-201x (underline olive) for indicating text not in P1076-2008 and proposed to be added in P1076-201x and P1076.1-201x
- ◆ Draft clauses now include headers/footers as recommended by 2014 IEEE Standards Style Manual
- ◆ Each draft clause has a version: D0.1(1), D0.1(2), etc.
- ◆ Twiki site to be updated with the latest draft clause pdfs in two versions
  - All tags
  - P1076.1-201x only text



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### Project Planning – Reminder

- ◆ **Completion of projects:** Q2 2016
  - Based on current data
- ◆ **Completion of LRM and other documents:** Q3 2016
  - Packages, UML
- ◆ **First ballot:** Q4 2016
- ◆ **Second ballot:** Q2 2017
- ◆ **RevCom:** Q3 2017
- ◆ **Expiration of extended PAR:** Dec. 31, 2017



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## Next Steps

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### ◆ Technical work

- Resolution of VHPI issue
- Mandatory Changes completion
- Errata, based on IRs
- Integration of IEEE Std 1076.1.1
- New functionality projects: TDM, VMO, FDM, other

### ◆ Administrative

- Handling of copyrighted material

### ◆ Next meetings (announced at [www.eda-twiki.org/vhdl-ams/](http://www.eda-twiki.org/vhdl-ams/)):

- Wednesday, April 13, 2016, 8:00 am PDT (15:00 UTC)

