

P1800 PAR 2010

Sun Microsystems input

2/26/10

Neil Korpusik
Sun Microsystems – DR

General Comments

- Abbreviated period of time
 - > 1800-2009 took 4 years to complete
 - > 1800-2012 is what we should strive for
 - > 2.5 years (June, 2012) – includes 2 years of technical committee work
- Avoid implementation divergence
 - > Main focus should be on clarifications and errata
 - > Allow for a limited set of enhancements
- Technical Committees
 - > Continue to have a set of TC's that report back to the WG (Working Group)
 - > The current set of TC's allows each to focus on their areas of specialties

Assertions

- Checkers
 - > Output ports
 - Allow the output of one checker to feed into the input of another checker
 - Complex checkers can be built out of a set of simple checkers (checker chaining)
- Variables in place of constant expressions
 - > Allow `##delay` to use non-constant expressions
 - Example

```
int t;
assert property (@(posedge clk)
    eventA |-> ##[1:t-1] !eventA);    // after eventA, no eventA for x cycle
endproperty
```
 - > Allow repetition in sequences to use non-constant expressions
 - `[*rep]`
 - `[->start:10]`
 - `[=2:end]`

Macros

- Possibly move to preprocessor capability from another language (e.g. C)
- Specific issue with nested ``if`, ``elsif`
 - > We tend to have lots of examples of nested ``if`, can be several levels deep
 - > Allow logical expressions in ``if`
 - > Example

```
`if defined(CMP_BENCH) || defined(FC_BENCH)
...
`else
...
`endif
```

Instead of

```
`ifdef CMP_BENCH
...
`elsif FC_BENCH
...
`else
...
`endif
```

Generate Blocks

- Internal perl scripts are used today at Sun
 - > xxx.vp source files are converted into xxx.v files
 - > Minimize the amount of coding required to instantiate modules
 - > Simplify code generation and declarations for repetitive items
 - > I can get more details on this
 - > Example

```
. @pku_entries = (0..39);  
.foreach $entry (@pku_entries) {  
    reg [6:0] pq_rob$entry;  
}  
  
always @(posedge l2clk) begin  
    if (some_cond) begin  
        case (pku_pq_waddr0_r3[5:0])  
.foreach $entry (@pku_entries) {  
            $entry: pq_rob$entry <= dest_tag_r3[6:0];  
        }  
        endcase
```

Force

- Non-blocking form of a force
 - > `force d <= 1'b0;`
 - > Useful to prevent race conditions

```
always @(posedge clk)  
  if (inject_error)  
    force d = 1'b0;      // this is prone to races
```

- Allow dynamic hierarchical reference
 - > Example

```
string my_xmr;  
$sformat(my_xmr, "tb_top.cpu%0d.some_path", cpuld);  
force my_xmr = 1'b0;      // just make it happen
```

class

- Multiple inheritance
 - > Not necessary to implement all of the C++ capabilities
 - > A “simplified” version should suffice for now
 - > I have heard internal requests for this for over 2 years