# 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", cpuId);
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