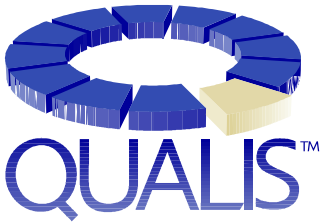

VHDL QUICK REFERENCE CARD

Revision 2.2

()	Grouping	[ ]	Optional
{}	Repeated	|	Alternative
bold	As is	CAPS	User Identifier
italic	VHDL-1993		

1. LIBRARY UNITS

[{use_clause}]
entity ID **is**
  [**generic** ({ID : TYPEID [**:=** expr];});]
  [**port** ({ID : **in** | **out** | **inout** TYPEID [**:=** expr];});]
  [{declaration}]
[**begin**
  {parallel_statement}]
end [***entity***] ENTITYID;

[{use_clause}]
architecture ID **of** ENTITYID **is**
  [{declaration}]
begin
  [{parallel_statement}]
end [***architecture***] ARCHID;

[{use_clause}]
package ID **is**
  [{declaration}]
end [***package***] PACKID;

[{use_clause}]
package body ID **is**
  [{declaration}]
end [***package body***] PACKID;

[{use_clause}]
configuration ID **of** ENTITYID **is**
for ARCHID
  [{block_config | comp_config}]
end for;
end [***configuration***] CONFID;

use_clause::=
  library ID;
  [{**use** LIBID.PKGID[**. all** | DECLID];}]

block_config::=
  for LABELID
    [{block_config | comp_config}]
  end for;

comp_config::=
  for all | LABELID : COMPID
    (**use entity** [LIBID.]ENTITYID [(ARCHID)]
      [[**generic map** ({GENID **=>** expr ,})]
       port map ({PORTID **=>** SIGID | *expr* ,})];
    [**for** ARCHID
      [{block_config | comp_config}]
    end for;]
    end for;) |
    (**use configuration** [LIBID.]CONFID
      [[**generic map** ({GENID **=>** expr ,})]
      port map ({PORTID **=>** SIGID | *expr*,})];)
  end for;

2. DECLARATIONS

2.1. TYPE DECLARATIONS

type ID **is** ({ID,});

type ID **is range** number **downto** | **to** number;

type ID **is array** ({range | TYPEID ,}) **of** TYPEID;

type ID **is record**
  {ID : TYPEID;}
end record;

type ID **is access** TYPEID;

type ID **is file of** TYPEID;

subtype ID **is** SCALARTYPID **range** range;

subtype ID **is** ARRAYTYPID({range,});

subtype ID **is** RESOLVFCTID TYPEID;

range ::=
  (integer | ENUMID **to** | **downto** integer | ENUMID) |
  (OBJID'[**reverse_**]**range**) | (TYPEID **range <>**)

2.2. OTHER DECLARATIONS

constant ID : TYPEID **:=** expr;

[***shared***] **variable** ID : TYPEID [**:=** expr];

signal ID : TYPEID [**:=** expr];

file ID : TYPEID (**is in** | **out** string;) |
  (***open read_mode*** | ***write_mode*** |
   append_mode is *string;*)

alias ID : TYPEID **is** OBJID;

attribute ID : TYPEID;

attribute ATTRID **of** OBJID | **others** | **all** : class **is** expr;

class ::=
  entity | **architecture** | **configuration** |
  procedure | **function** | **package** | **type** |
  subtype | **constant** | **signal** | **variable** |
  component | **label**

component ID [***is***]
  [**generic** ({ID : TYPEID [**:=** expr];});]
  [**port** ({ID : **in** | **out** | **inout** TYPEID [**:=** expr];});]
end component [*COMPID*];

[***impure*** | ***pure***] **function** ID
  [({[**constant** | **variable** | **signal** | ***file***] ID :
    [**in**]TYPEID [**:=** expr];})]
  return TYPEID [**is**
begin
  {sequential_statement}
end [***function***] ID];

procedure ID[({[**constant** | **variable** | **signal**] ID :
    in | **out** | **inout** TYPEID [**:=** expr];})]
[**is begin**
  [{sequential_statement}]
end [***procedure***] ID];

for LABELID | **others** | **all :** COMPID **use**
  (**entity** [LIBID.]ENTITYID [(ARCHID)]) |
  (**configuration** [LIBID.]CONFID)
    [[**generic map** ({GENID **=>** expr,})]
     port map ({PORTID **=>** SIGID | *expr*,})];

3. EXPRESSIONS

expression ::=
  (relation **and** relation) | (relation **nand** relation) |
  (relation **or** relation) | (relation **nor** relation) |
  (relation **xor** relation) | (*relation* ***xnor*** *relation*)

relation ::= shexpr [relop shexpr]

shexpr ::= sexpr [*shop sexpr*]

sexpr ::= [**+**|**-**] term {addop term}

term ::= factor {mulop factor}

factor ::=
  (prim [** prim]) | (**abs** prim) | (**not** prim)

prim ::=
  literal | OBJID | OBJID'ATTRID | OBJID({expr,})
  | OBJID(range) | ({[choice {| choice}] **=>**] expr,})
  | FCTID({[PARID **=>**] expr,}) | TYPEID'(expr) |
  TYPEID(expr) | **new** TYPEID[**'**(expr)] | (expr)

choice ::= sexpr | range | RECFID | **others**

3.1. OPERATORS, INCREASING PRECEDENCE

logop	**and** | **or** | **xor** | **nand** | **nor** | ***xnor***
relop	**=** | **/=** | **<** | **<=** | **>** | **>=**
shop	***sll*** | ***srl*** | ***sla*** | ***sra*** | ***rol*** | ***ror***
addop	**+** | **-** | **&**
mulop	* | / | **mod** | **rem**
miscop	** | **abs** | **not**

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See reverse side for additional information.