

VHDL: Objects to Hold Data Values

Objects to hold data values

- Constant → Static
 - Signal } → Non-Static
 - Variable }
- } → can be “global”

- FILE

↓

Postpone until we get into TB writing

“Local”
can only be used inside a piece of sequential code (i.e. PROCESS, FUNCTION, PROCEDURE)



The value cannot be passed out directly

Constant

- Serves to establish default values

```
CONSTANT name : type := value;
```

- A constant can be defined in
 - PACKAGE → Truly global
 - ENTITY (after PORT section)
 - ARCHITECTURE

SIGNAL

```
SIGNAL name : type [range] [ := initial_value ] ;
```

NOT Synthesizable

- A signal can be defined in:
 - PACKAGE → Truly global
 - ENTITY (after PORT section)
 - ARCHITECTURE
 - PROCESS
 - FUNCTION
 - PROCEDURE
- When used inside a section of sequential code its value it is not updated immediately

NOTE:

It is not possible to make multiple assignments to the same signal
(MULTIPLE DRIVERS)

- Assignment operator



VARIABLE

```
VARIABLE name : type [range] [:= init_value];
```

NOT Synthesizable

- A variable can be used only in sequential code

- PROCESS
- FUNCTION
- PROCEDURE

* It is updated immediately
* It represents only LOCAL information

- Assignment operator

:=