IBIS AMI Seen from User's Viewpoint

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IBIS vs. Spice

	IBIS 3.2	Spice	Comment
Accuracy	×	○	Spice is a Reference
Simulation Time	○	×	Over 10x
IP Protection	○	△	Encrypt
Customize	○	×	Text File
Verification	○	×	IBIS Viewer
Portability	○	×	
Version compatibility	○	×	Both direction

Many IBIS Tools (Editor, Viewer, S2I, Checker)
IBIS is a easy to use, easy to verify, easy to tune. User friendly

IBIS AMI

IBIS AMI Gives the new Life to IBIS

Ser-Des

Necessary on-time model changing depend on Bit stream

IBIS AMI is the Best Way to Simulate Ser-Des

IBIS AMI has more opportunities

Necessary on-time model changing depend on Bit stream

```
|============================================================
| Example of RX model in [Algorithmic Model]
|============================================================
[Algorithmic Model]
|
Executable Windows_VisualStudio_32 example_rx.dll example_rx_params.ami
|
[End Algorithmic Model]
|
|============================================================
| Example of TX model in [Algorithmic Model]:
|============================================================
[Algorithmic Model]
|
Executable Windows_VisualStudio_32 tx_getwave.dll tx_getwave_params.ami
Executable Solaris_cc_32 libtx_getwave.so tx_getwave_params.ami
|
[End Algorithmic Model]
|
```

Platform_Compiler_Bits File_Name Parameter_File

AMI (ALGORITHMIC MODELING INTERFACE)

```
|============================================================
| Example of Parameter File
|============================================================
(mySampleAMI                        | Name given to the Parameter file
  (Description "Sample AMI File")
  (Reserved_Parameters              | Required heading
    (Ignore_Bits (Usage Info) (Type Integer) (Default 21)
      (Description "Ignore 21 Bits"))
    (Max_Init_Aggressors (Usage Info) (Type Integer)(Default 25))
    (Init_Returns_Impulse (Usage Info) (Type Boolean)(Default True))
    (GetWave_Exists (Usage Info) (Type Boolean) (Default True))
  )                                 | End Reserved_Parameters
  (Model_Specific                   | Required heading
    (txtaps
      (-2 (Usage Inout)(Type Tap) (Format Range 0.1 -0.1 0.2)(Default 0.1)
          (Description "Second Precursor Tap"))
      (-1 (Usage Inout)(Type Tap) (Format Range 0.2 -0.4 0.4)(Default 0.2)
          (Description "First Precursor Tap"))
      (0  (Usage Inout)(Type Tap) (Format Range 1 -1 2)(Default 1)
          (Description "Main Tap"))
      (1  (Usage Inout)(Type Tap) (Format Range 0.2 -0.4 0.4)(Default2 0.2)
          (Description "First Post cursor Tap"))
      (2  (Usage Inout)(Type Tap) (Format Range 0.1 -0.1 0.2)(Default 0.1)
          (Description "Second Post cursor Tap"))
    )                               | End txtaps
    (tx_freq_offset (Format Range 1 0 150) (Type UI) (Default 0))
  )                                 | End Model_Specific
)                                   | End SampleAMI
|
```

```
|============================================================
| Example of RX model in [Algorithmic Model]
|============================================================
[Algorithmic Model]
|
Executable Windows_VisualStudio_32 example_rx.dll example_rx_params.ami
|
[End Algorithmic Model]
|
|============================================================
| Example of TX model in [Algorithmic Model]:
|============================================================
[Algorithmic Model]
|
Executable Windows_VisualStudio_32 tx_getwave.dll tx_getwave_params.ami
Executable Solaris_cc_32 libtx_getwave.so tx_getwave_params.ami
|
[End Algorithmic Model]
|
```

AMI (ALGORITHMIC MODELING INTERFACE)

```
[Model] xxx_ami_rx
Model_type Input
|
C_comp 0.55p 0.50p 0.60p
Vinh = 0.55
Vinl = 0.45
|
[Algorithmic Model]
Executable Windows_VisualStudio7.1.3088_32 xxx_ami_rx.dll xxx_ami_rx.ami
[End Algorithmic Model]
|
[Temperature_Range] 25 100 0
[Voltage Range] 1.0 0.9 1.1
[GND Clamp]
-2.5 -.05 -.05 -.05
0.00 +.00 +.00 +.00
2.50 +.05 +.05 +.05
|
```

AMI (ALGORITHMIC MODELING INTERFACE)

```
|
[Model] xxx_ami_tx
Model_type Output
|
C_comp 0.80p 0.75p 0.85p
Cref = 0
Vref = 0.5
Rref = 50
Vmeas = 0.3
|
[Algorithmic Model]
Executable Windows_VisualStudio7.1.3088_32 xxx_ami_tx.dll xxx_ami_tx.ami
[End Algorithmic Model]
|
[Temperature_Range] 25 100 0
[Voltage Range] 1.008 .941 1.097
|
[Pulldown]
-2.500 -6.12895E-02 -5.83158E-02 -5.80855E-02
0.000 +0.00000E+00 +0.00000E+00 +0.00000E+00
2.500 +6.12895E-02 +5.83158E-02 +5.80855E-02
[Pullup]
-2.500 +6.12895E-02 +5.83158E-02 +5.80855E-02
0.000 +0.00000E+00 +0.00000E+00 +0.00000E+00
2.500 -6.12895E-02 -5.83158E-02 -5.80855E-02
|
[Ramp]
| variable      typ          min          max
dV/dt_r         0.438/1p     0.078/1p     0.642/1p
dV/dt_f         0.438/1p     0.078/1p     0.642/1p
R_load = 50.0000
|
```

Parameter File

```
|================================================================================
| Example of Parameter File
|================================================================================
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      (Description "Ignore 21 Bits"))
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    (GetWave_Exists (Usage Info) (Type Boolean) (Default True))
  )                                 | End Reserved_Parameters
  (Model_Specific                     | Required heading
    (txtaps
      (-2 (Usage Inout)(Type Tap) (Format Range 0.1 -0.1 0.2)(Default 0.1)
         (Description "Second Precursor Tap"))
      (-1 (Usage Inout)(Type Tap) (Format Range 0.2 -0.4 0.4)(Default 0.2)
         (Description "First Precursor Tap"))
      (0  (Usage Inout)(Type Tap) (Format Range 1 -1 2)(Default 1)
         (Description "Main Tap"))
      (1  (Usage Inout)(Type Tap) (Format Range 0.2 -0.4 0.4)(Default2 0.2)
         (Description "First Post cursor Tap"))
      (2  (Usage Inout)(Type Tap) (Format Range 0.1 -0.1 0.2)(Default 0.1)
         (Description "Second Post cursor Tap"))
    )                               | End txtaps
    (tx_freq_offset (Format Range 1 0 150) (Type UI) (Default 0))
  )                                 | End Model_Specific
)                                   | End SampleAMI|
```

Trouble of IBIS AMI

Include Only Executable File: System Security
Model Quality: How to Verify?
No Guideline: Cook Book, Golden Parser
No Edit: No Tools, Curve Viewer, No Tune-up
Tool Dependency: Supporting Tools, No Support Tools, Some Work, Some do not Work

Something wrong?
How to fix it?
No Way, Trust It!

Conclusion

IBIS AMI

Best Way to Analyze Ser-Des

Possibilities: Program (Good or Bad)

Accuracy: Don‘t know (Trust it !)

We need

- Verification Tool
- More Documentation (Simulation result sample, Trouble Shooting)
- Model Quality

No Infrastructure, yet

We wish to release both Legacy IBIS Model & IBIS AMI Model