

IBIS 8.0: Specification and Parser Introduction

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An SAE Industry Technologies Consortia Program

IBIS 8.0 Timeline

- IBIS 7.2 Specification approved January 27, 2023
 - Start of IBIS 8.0 content development
- First IBIS 8.0 motion approving content voted on June 21, 2024
 - Start of IBIS 8.0 Editorial task group editing
- Original IBISCHK8 parser contract developed in November/December 2024
 - Reviews of Power Integrity BIRDs 223.1 and 226 revealed some syntax parsing issues
 - PI discussions resumed in ATM task group
- Second IBIS 8.0 motion on BIRD content approved August 8, 2025
 - Removes BIRD223.1 and BIRD226 content
- IBIS 8.0 Specification Draft 1.0 introduced in IBIS Open Forum on Sept. 26, 2025
- IBIS 8.0 approved on December 5, 2025
 - IBISCHK8 parser contract updated – parser development began in April 2026

IBIS 8.0 Content

BIRD ID	BIRD Title	Approval Date	Note
224	New AMI Reserved Parameters for Ts4file port order	June 23, 2023	AMI
225	Clarification for bus_label rules	September 15, 2023	Power Aware
227	AMI Ignore Block Feature	January 5, 2024	AMI
228	Pin Name Field Extension	January 26, 2024	General
229.1	AMI Test Data Support	April 19, 2024	AMI, Quality
230.1	Adding a Definitions Section to IBIS	May 31, 2024	General
231	Clarifications on AMI Block Concepts	May 31, 2024	AMI

- Additional editorial updates captured in IBIS 7.2 Known Issues document and IBIS Editorial task group spreadsheets distributed on the Editorial email reflector. See:
 - [IBIS Editorial website](#)
 - [IBIS Editorial Freelists email archive](#)

IBIS 8.0 Content – BIRD224

- [BIRD224](#): “New AMI Reserved Parameters for Ts4file port order”
 - Introduces alternate port ordering for Ts4file S-parameters of Tx and Rx AMI models
 - Two new AMI Reserved Parameters “Tx_Port_Order” and “Rx_Port_Order” to be supported in the parser
 - 13-24 indicates IEEE port order and 12-34 indicates Gonzalez port order

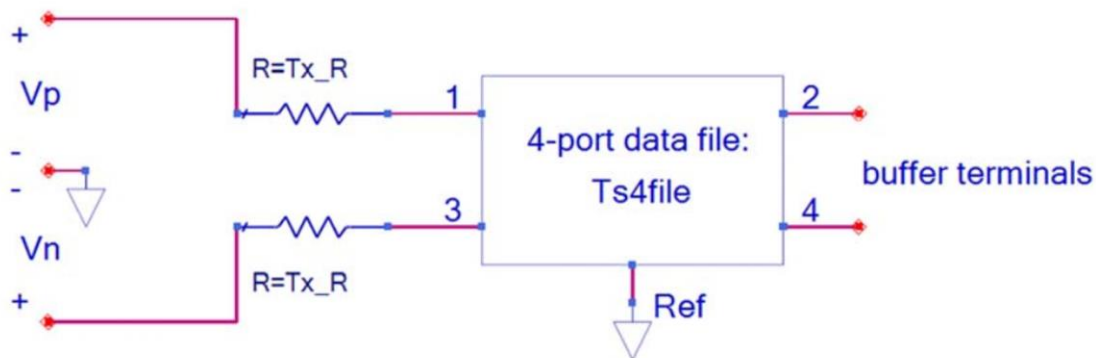


Figure 48 – Transmitter Analog Circuit with Tx_Port_Order 13-24 (default if Tx_Port_Order is omitted)

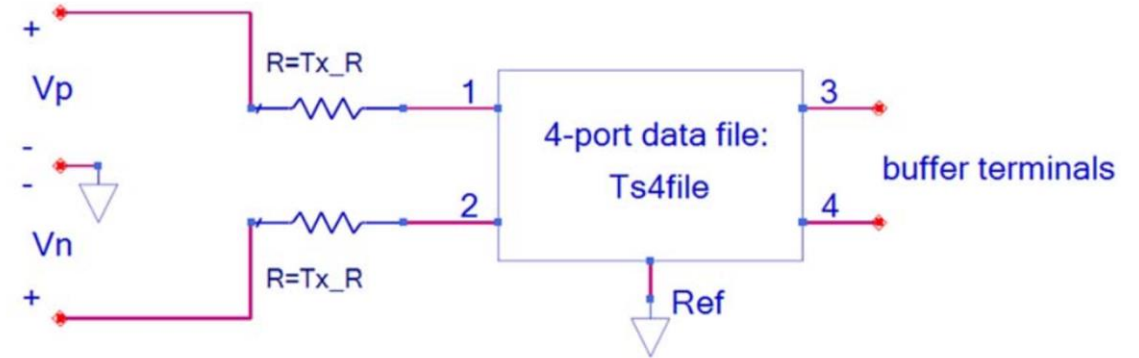


Figure 49– Transmitter Analog Circuit with Tx_Port_Order 12-34

IBIS 8.0 Content – BIRD225

- [BIRD225](#) “Clarification for bus_label rules”
 - Clarifies error message in IBISCHK7.2.1 parser: “IBIS 7.0 compatibility is required for IBIS files referenced by EMD”
 - This rule is enforced by the parser intentionally but is not clearly stated in the specification
 - Ensures that all power/ground pins that have the same bus_label will have the same signal_name within any IBIS [Component] referenced in [EMD Parts] in an EMD file
 - No parser changes needed

IBIS 8.0 Content – BIRD227

- [BIRD227](#) “AMI Ignore Block Feature”
 - Introduces new AMI Reserved Parameter “Adaptation_Valid” to be supported in the parser
 - Boolean Out parameter that indicates to the EDA tool that the block of bits in question should be ignored or discarded provided the tracking mode is False and consumed for eye accumulation when it becomes True
 - Can speed up simulation of channels where the Rx has locked and EQ adaptation has reached the tracking or relatively stationary mode before the timing specified by the Ignore_Bits parameter
 - Ignore_Bits should be set large enough to handle slowly locking channels
 - For example, with Ignore_Bits=500,000, Adaptation_Valid could switch to True at 50,000 UI, saving simulation of 450,000 UI

IBIS 8.0 Content – BIRD228

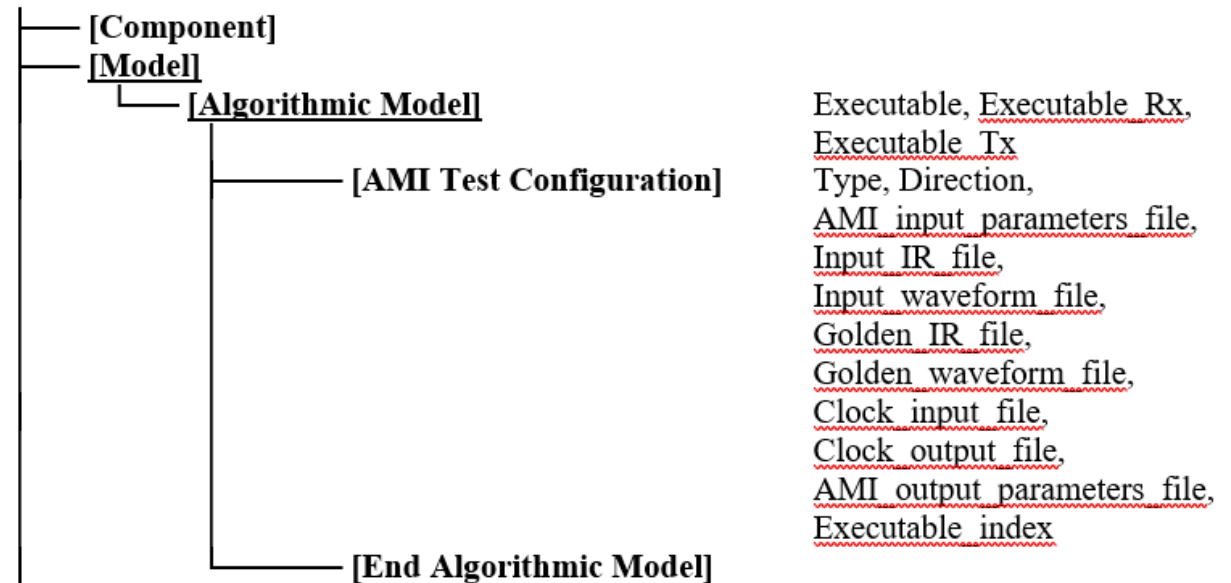
- [BIRD228](#) “Pin Name Field Extension”
 - Due to the size and complexity of today’s component designs, the pin names used for these components may be long and contain information rather than just serving as a simple, unique identifier
 - For example, AB32VCC3p3
 - Pin Name field extended from 5 to 20 characters, affecting parser character limit checks on 12 keywords
 - [Pin], [Pin Mapping], [Diff Pin], [Series Pin Mapping], [Pin Numbers], [Pin List], [Repeater Pin], [EMD Pin List], [Designator Pin List], [Merged Pins], [Clock Pins], and [Pin EMI]

IBIS 8.0 Content – BIRD229.1

- [BIRD229.1](#) “AMI Test Data Support”
 - Creates an equivalent of the [Test Data] keyword (used for traditional IBIS model correlation and quality testing) for AMI models
 - Introduces new keyword [AMI Test Configuration] scoped under [Algorithmic Model]
 - Defines example input stimulus and resulting output waveform data plus AMI configuration information for testing of the associated [Algorithmic Model]
 - The intent of [AMI Test Configuration] is to enable direct comparison by a simulation tool of the output of an AMI model against a “Golden Waveform” provided by the model maker

IBIS 8.0 Content – BIRD229.1

- [BIRD229.1](#) “AMI Test Data Support”
 - Includes 11 subparameters: Type, Direction, AMI_input_parameters_file, Input_IR_file, Input_waveform_file, Golden_IR_file, Golden_waveform_file, Clock_input_file, Clock_output_file, AMI_output_parameters_file, and Executable_index.
 - Tree structure view:



IBISCHK8 Parser – BIRD229.1

- [BIRD229.1](#) “AMI Test Data Support”
 - Significant syntax checking goes beyond subparameter parsing
 - Included files to be parsed to ensure they follow content rules such as:
 - Verifying parameter tree structures (like checking of a .ami file),
 - Correct number of columns of data
 - Minimum number of rows of data
 - Cross checking for same number of rows of data for specific files
 - Specific data formats such as floating-point numbers, etc.
 - AMI_input_parameters_file has additional 8 rules to check
 - AMI_output_parameters_file has additional 7 rules to check
 - Checking of root name as requested in BUG227 for the ibischk7 parser (not implemented in IBISCHK7.2.1) is enabled by this keyword, allowing IBISHCK8 to exercise AMI DLLs to output a root name for verification

IBIS 8.0 Content – BIRD230.1

- [BIRD230.1](#) “Adding a Definitions Section to IBIS”
 - Adds a new General Terminology Definitions section 3.3 defining:
 - Block
 - NRZ
 - PAM
 - Segment
 - Symbol
 - Time segment
 - UI
 - Only AMI terms added by this BIRD
 - No parser changes needed

IBIS 8.0 Content – BIRD231

- [BIRD231](#) “Clarifications on AMI Block Concepts”
 - The words “block” and “segment” are used in relation to the IBIS Algorithmic Modeling Interface waveform data without clear definitions in the specification text, particularly in sections related to the Back-Channel Interface
 - This BIRD makes several changes to ensure that “block” and “segment” are understood and refer to the same concept and to simplify related text
 - No parser changes needed

IBISCHK8 Parser Coverage

Current BUGs filed against IBISCHK7.2.1 (12 BUGs, some Severe and Fatal Severity)

ID#	Title	Requester	Date Submitted	Severity	Priority	Status
256	Unsupported path separators allowed in file references	Arpad Muranyi, Siemens EDA	September 5, 2025	MODERATE	MEDIUM	OPEN
255	Incorrectly harsh Warning about mixing C_comp and C_comp *	Curtis Clark, Ansys, Inc.	June 26, 2025	MODERATE	MEDIUM	OPEN
254	AMI Reserved Parameter Repeater_Type erroneously reported as missing	Arpad Muranyi, Siemens EDA	April 24, 2025	MODERATE	LOW	OPEN
253	Non-comments allowed after [End Interconnect Model Set] keyword	Justin Butterfield, Chinmaya Patra, Bibhu Panda; Micron Technology	March 31, 2025	MODERATE	MEDIUM	OPEN
252	Incorrect BCI Interpretation Invalidates All Tx Models	Michael Mirmak, Intel Corporation	March 17, 2025	SEVERE	HIGH	OPEN
251	Missing Repeater_Type not seen through Model Selector	Arpad Muranyi, Siemens EDA	November 15, 2024	SEVERE	HIGH	OPEN
250	Incorrect [Diff Pin] caution report	Michael Mirmak, Intel Corp.	July 1, 2024	ANNOYING	LOW	OPEN
249	Memory leaks caused by algmod.c, ami.c and cmn.c	Michael Mirmak, Intel Corporation	March 28, 2024	ANNOYING	LOW	OPEN
248	Crash Caused by iassert macro and abort()	Michael Mirmak, Intel Corporation	March 19, 2024	FATAL	MEDIUM	OPEN
247	Changing BOOL from Type Enum to Int	Michael Mirmak, Intel Corporation	March 19, 2024	ENHANCEMENT	LOW	OPEN
246	Clarification on Slash Characters and Parser Usage	Michael Mirmak, Intel Corporation	December 22, 2023	MODERATE	MEDIUM	OPEN
227	Check Root Name of .ami File with Root Name of Executable Model	Michael Mirmak, Intel Corp.	November 30, 2021	ENHANCEMENT	LOW	OPEN

IBISCHK8 Parser – Notes on BUG227 Root Name Checks

- BUG227 filed in 2021 but is still open
- The AMI root name exists at the top of the parameter tree in the .ami file
- This root name must match the root name in the output string of the AMI executable
- The AMI executable must be given a valid input string to get a valid output string
 - BIRD229.1 data supplies all the necessary input data for this

```
Tx .ami file contains:  
(generic_tx_ami  
  (Reserved_Parameters  
    (AMI_Version (Usage Info) (Type String) (Value "7.2")  
    ...  
  )  
  
Tx INIT() returns:  
(generic_tx_ami)
```

IBISCHK8 Parser – Notes on BUG227 Root Name Checks

- For any instance of [AMI Test Configuration], the parser should use the associated files as inputs to the AMI_Init and/or AMI_GetWave functions.
- The root name found in the AMI_parameters_out string can then be compared to the root name in the .ami file.
- An [AMI Test Configuration] of Type Statistical will have inputs to test the AMI_Init function.
- An [AMI Test Configuration] of Type Time_domain will have inputs to test the AMI_Init and AMI_GetWave functions.
- A single call to AMI_GetWave is sufficient for generating a parsable AMI_parameters_out string. This call will pass into the AMI_GetWave function the first set of data of size wave_size from the Input_waveform_file.
- Parser contract defines 5 valid [AMI Test Configuration] setups

IBIS 8.0 and IBISCHK8 Parser – Next Steps

- IBIS 8.0 specification is available on the IBIS website:
<https://ibis.org/ver8.0/>
- Parser development is nearing completion
 - Extensive testing and test suite development completed
 - Final security updates in progress
 - Expected completion in 2-3 weeks
 - BIRD229.1 parsing identified a deficiency in the tree structure defined for the AMI_output_parameters_file.
 - As a result, IBISCHK8.0.0 will not parse this file.
 - A bug and BIRD will be filed to fix this issue in a future specification and parser

[Thank You]



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