

TI SN65LVCP114 IBIS-AMI Models

User's Guide

Version 00.01.00

August 2012

Copyright © 2009, Texas Instruments Incorporated. All rights reserved.

The information and/or drawings set forth in this document and all rights in and to inventions disclosed herein and patents which might be granted thereon disclosing or employing the materials, methods, techniques, or apparatus described herein are the exclusive property of Texas Instruments. No disclosure of information or drawings shall be made to any other person or organization without the prior consent of Texas Instruments.

Texas Instruments Proprietary Information

Disclaimer

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI is a trademark of Texas Instruments Incorporated.

© 20, Texas Instruments Incorporated. All rights reserved.

Table of Contents

1	Introduction	4
1.1	Formatting Conventions.....	4
1.2	Charter of the SerDes IBIS-AMI models	4
1.3	Is / Is Not Table	4
2.1	IBIS-AMI Model Files	6
2.2	RX AMI model specific parameters.....	7
3	Model Limitations.....	8

1 Introduction

This document describes the organization, structure, and proper usage of the TI SN65LVCP114 IBIS-AMI models (compiled and approved for external customer release), hereafter referred to as the “model” for short. The model is intended for use by the SN65LVCP114 design team and by SN65LVCP114 customers for system-level modeling and verification. This document assumes that you are familiar with the relevant IBIS-AMI modeling specifications.

1.1 Formatting Conventions

The help readability, various formatting conventions are used throughout this document:

- Hyperlinks to material within and outside this document are marked in [blue](#).
- Courier font is used for file names, code, variables, structures, parameters, and terminal commands.

1.2 Charter of the SerDes IBIS-AMI models

The models are designed in accordance with the [IBIS-AMI standard](#) and attempts to model the significant characteristics of most components in the SN65LVCP114. The models are not intended to be an exact representation of SN65LVCP114 components implemented. Rather, the models seek to provide as high a degree of accuracy as is feasible outside of Spice-based models and simulations.

1.3 Is / Is Not Table

The following table describes the features and purposes of the models, as well as the limitations of the models.

Table 1: Model Is / Is Not Table

Is	Is Not
Compiled for 32-bit AMI EDA tool that run in Windows platform	Compiled for any other platform (i.e. 32- or 64-bit Linux)
Compliant to IBIS-AMI 5.0	Compliant to a more recent BIRD revisions, if they exist
Model of SN65LVCP114 functionality, non-idealities, and performance	Exact representation of implemented components

The TI IBIS-AMI models contain information on products that is based on high-level specifications. These may not accurately represent the product design in all cases. Please verify the accuracy of the models with TI before using the results.

2 About this Release

2.1 IBIS-AMI Model Files

[Table 2](#) shows the key IBIS-AMI model files delivered with the model release as part of the compressed archive.

Table 2: IBIS-AMI files included with the model release

File Name	Type	Description
TI_SN65LVCP114_AMI_users_guide.pdf	PDF	TI SN65LVCP114 AMI model user's guide.
sn65lvcp114.ibs	IBIS	Top-level IBIS wrapper for the Tx and Rx AMI model.
SN65LVCP114.ami	AMI	Parameters file for the Rx model as required by the IBIS-AMI standard. This is a text file which is common for all OS/execution platforms.
SN65LVCP114.dll	DLL	Windows 32-bit compiled shared library for the Rx model. This shared library includes the AMI_Init, AMI_GetWave, and AMI_Close functions defined in the IBIS-AMI standard.

The TI IBIS-AMI models contain information on products that is based on high-level specifications. These may not accurately represent the product design in all cases. Please verify the accuracy of the models with TI before using the results.

2.2 RX AMI model specific parameters

The following settings correspond to the following values for this model.

Table 3. Parameters for SN65LVCP114

VOD_Level	0 = 600mVpp 1 = 1200mVpp
INPUT GAIN	0 = -6dB 1 = 0 dB
EQ_Level	0 = 1.3dB 1 = 2dB 2 = 3.6dB 3 = 5dB 4 = 6.5dB 5 = 8.3dB 6 = 10dB 7 = 11.9dB 8 = 13.9dB

3 Model Verification

This model had been through detail verification and correlation processes. There are three project kits included in this release package for QCD, Hyperlynx, and ADS. User can use these project kits as the foundation and start building their system by adding more complex structure to it.

4 Model Caveats

The model has the following limitations and known issues:

- This is a Equalizer model and hence it does not generate clock tick. Users that simulate this model as serial link is responsible to verify the capability of an EDA tool to regenerate the RX eye without clock tick.
- This model is compiled for 32bit AMI EDA tools. One can possibly run this model on a 64bit Windows machine by installing 32bit AMI EDA tools on the 64bit Windows machine