



User Guide to ADSP-TS201S TigerSHARC® Processor IBIS Files

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Introduction

ADSP-TS201S TigerSHARC® Processor comes with 24 IBIS files. This guide explains which file to use under which circumstances.

Naming of IBIS Files

ADSP-TS201S IBIS files are named as following:

TS201-dx.ibs

Where

d = 0, 1, 2, 3, 4, 5, 6 or 7: the setting of the controlled impedance and

x = n, f or r: "n" if the processor's ID is not zero, "f" if the processor's ID is zero and the falling edge is simulated and "r" if the processor's ID is zero and the rising edge is simulated.

Controlled Impedance

ADSP-TS201S allows selectable impedance control of its drivers, depending on the setting of CONTROLIMP[1:0] and DS[2:0] pins at reset. Each setting will produce a different simulation and, thus, requires a different IBIS file.

Processor ID

On the cluster bus, ADSP-TS201S processors are distinguished by their individual processor IDs that can range from 0 to 7. On many bussed signals only processor with ID = 0 provides the

necessary internal pull-up or pull-down resistor. On those signals, IBIS simulations will be different for the processor with ID0 than for the processor with a non-zero ID. Thus, separate IBIS is provided for the non-zero IDs.

Rising and Falling Edge

This applies only to signal ACK and only on processor with ID = 0. This signal has a different DC behavior, depending on whether the signal is rising or falling. On processor with ID = 0 it always has a 500 Ohm resistor, but on rising edge it also turns on an additional 50 Ohm resistor to achieve a fast rise time. If this signal is simulated, it is important to choose the correct IBIS file, depending on whether a rising or a falling edge is simulated. Also, this signal is the only difference between the "f" and "r" types of files.

Additional Information

It is important to note that all of the resistors mentioned in the discussion above are, in fact, built as transistors and, thus, do not behave linearly as Voltage vs. Current and, moreover, are affected by the process variations. For this reason the simulation behavior of pulled up or down signals with ID = 0 is not the same as the simulation behavior of the same signal of non-zero ID with an external resistor. For proper results, the correct model must be used.

Document History

Version	Description
July 2, 2003 by Boris Lerner	Initial Release