SigmaDSP Digital Audio Processor

Silicon Anomaly

ADAU1452

This anomaly list describes the known bugs, anomalies, and workarounds for the ADAU1452.

Analog Devices, Inc., is committed, through future silicon revisions, to continuously improve silicon functionality. Analog Devices tries to ensure that these future silicon revisions remain compatible with your present software/systems by implementing the recommended workarounds outlined here.

ADAU1452 FUNCTIONALITY ISSUES

Silicon Revision	Silicon Status	Anomaly Sheet	No. of Reported Anomalies
C	Release	Rev. 0	1

FUNCTIONALITY ISSUES

Table 1. Failure to Service Interrupt Request [er001]

Background	If a certain interrupt source is active at the same time as a data memory access, there is a chance that the interrupt request will not be serviced. This can result in a missed audio sample, missed data block, or communication failure, which can manifest itself as distortion or noise on the audio outputs.	
Issue	The failure can occur if at least one interrupt source is active at the same time as a memory access while the DSP is running.	
	Interrupt Source used in SigmaStudio Project	**Memory Access During DSP Operation**
	Block processing	The I²C/SPI slave port is used to read from or write to the data memory
	I²C/SPI master control port	The DSP core reads from or writes to the register map
	The failure is caused when the memory controller attempts to access the memory at the same time as an interrupt is issued by one of the previously mentioned interrupt sources. In this situation, the memory controller forces the DSP core clock to stop for 1 clock cycle. If an interrupt request happens during this brief period when the DSP core clock is stopped, the DSP misses the interrupt, and the interrupt request is cleared, even though the interrupt service routine was not executed.	
Workaround	To avoid this functionality issue, the user must observe at least one of the two following restrictions: • Do not use block processing or the I²C/SPI master control port in the SigmaStudio project • Do not access the data memory via the I²C/SPI slave control port while the DSP is running This issue will be resolved in Silicon Revision D. Users must use SigmaStudio release Version 3.10 or later to avoid this issue, regardless of silicon revision.	
Related Issues	None.	

SECTION 1. ADAU1452 FUNCTIONALITY ISSUES

Reference Number	Description	Status
er001	Failure to service interrupt request	Resolved in Revision D silicon

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NOTES

I²C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

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