MAXIM

ERRATA SHEET
DS32506/DS32508/DS32512

_____ *Revision A1 Errata*

The errata listed below describe situations where DS32506/DS32508/DS32512 revision A1 components perform differently than expected or differently than described in the data sheet. Maxim Integrated Products, Inc., intends to correct these errata in subsequent die revisions.

This errata sheet only applies to DS32506/DS32508/DS32512 revision A1 components. Revision A1 components are branded on the topside of the package with a six-digit code in the form yywwA1, where yy and ww are two-digit numbers representing the year and work week of manufacture, respectively. To obtain an errata sheet on another DS32506/DS32508/DS32512 die revision, visit our website at __*www.maxim-ic.com/errata*__*.*

1) INITIALIZATION SEQUENCE

Description:
After power-up or reset, when a microprocessor interface is enabled (IFSEL ≠ 000), each LIU port must be initialized as follows for proper operation.

Workaround:
Follow this initialization sequence:

If GLOBAL.IDR:ID[15:12] = 0000 (i.e., device is rev A1) then
> Write C080h to (Port Base Address + 74h).
> Write 0020h to (Port Base Address + 76h).
> Set LIU.TWSCR2:TWSC[19:16] = 0010.

If the transmitter is terminated externally (LIU.CR1:TTRE = 0) then
> Set LIU.TWSCR1:TWSC[1:0] = 01.

2) HARDWARE-ONLY MODE ISSUES

Description:
In hardware-only mode (IFSEL[2:0] = 000 and HW = 1), analog loopback (LBS = 1, LBn[1:0] = 11), internal termination resistance enable (ITRE = 1), and receive monitor mode (RMONn = 1) do not work, and receiver performance over all operating conditions and cable lengths cannot be guaranteed.

Workaround:
None.

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3) RESREF CALIBRATION CIRCUIT ISSUE

Description:
When the RESREF pin is connected through a 10kΩ resistor to V_{SS} as directed in the data sheet, the internal resistor calibration circuit may have an oscillation issue that can affect internal impedances, most notably the receiver impedance.

Workaround:
Connect the RESREF pin through a 10kΩ resistor to V_{DD18} rather than to V_{SS}.

Note: The board design should have component placement options to connect RESREF through a 10kΩ resistor to either V_{DD18} or V_{SS}. These options allow the board to be compatible with both A1 revision DS325xx LIUs (resistor to V_{DD18}) and subsequent DS325xx revisions (resistor to V_{SS}).

4) CONTROL BIT TWSC<19> ISSUE

Description:
Control bit TWSC<19> should not be set because it can have a detrimental effect on the LIU receiver.

Workaround:
None.

5) AUTOMATIC RMON GAIN SELECTION NOT FUNCTIONAL (MANUAL SELECTION OK)

Description:
When LIU.CR2:RMON = 1, the logic that automatically determines whether to make use of the preamp's additional gain is not reliable for all data patterns.

Workaround:
When the initialization procedure for rev A1 devices in Section 9.12 of the data sheet is followed, the automatic preamp gain selection logic is disabled, and manual gain selection is controlled by LIU.CR2:RMON. In this mode when LIU.CR2:RMON = 1, the preamp's additional gain is applied. When LIU.CR2:RMON = 0, the preamp's additional gain is not applied. The manual gain selection behavior matches previous generation Maxim LIUs such as the DS3154 and DS3254.

6) ANALOG LOOPBACK REQUIRES ADDITIONAL BIT TO BE SET

Description:
Analog Loopback (LBS = 1 and LBn[1:0] = 11) does not work unless an additional register bit is set.

Workaround:
Follow this procedure to enable analog loopback:
          If GLOBAL.IDR:ID[15:12] = 0000   i.e., the device is rev A1
                 write 0008h to (Port Base Address + 74h)   set this bit
          Set PORT.CR3:LB[1:0] = 11 and LBS = 1   enable analog loopback

Follow this procedure to disable analog loopback:
          Set PORT.CR3:LB[1:0] = 00   disable analog loopback
          If GLOBAL.IDR:ID[15:12] = 0000   i.e., the device is rev A1
                 write 0000h to (Port Base Address + 74h)   clear the bit

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7) TFAIL STATUS BIT UNRELIABLE WITH EXTERNAL TERMINATION

Description:
When a transmitter is in external impedance match mode (TTRE = 0), the LIU.SR:TFAIL status bit is not reliable and may be set falsely when transmitting data with high ones density.

Workaround:
Ignore the LIU.SR:TFAIL status bit when TTRE = 0. Set LIU.SRIE:TFAILIE = 0 to mask TFAIL interrupts.

8) JITTER ATTENUATOR

Description:
The jitter attenuator will not work on the transmit side if the receiver is powered down.

Workaround:
If the jitter attenuator is on the transmit side, the receiver must be enabled (i.e., RPD = 0).