

TAS2562HYFPR – Debug Update

3rd September, 2019

TAS2562HYFPR | Summary of Returned Units

Units	TI Status	Comments	Customer Status
7 units	GREG/OC Issue	TI provided resolution. Screen Identified and added if required	Screen tested and accepted by customer.
4 units	Audio Cutoff	Software Reset and configuration reload needed. Scripts provided to customer	Fix verified at customer end. Optimized script to be tested.
7 units	Continuous Pop Noise	NA	Debug on-going on customer end to check the issue on processor side
2 Units	Debug On-going	Low Priority as issue was one off. Will follow up after alignment on remaining issues	NA

TAS2562HYFPR | Summary of Reported Issues

Reported Issue	TI Status	Customer Status
OC flag set, stops playing audio	▪ TI identified the root cause and have worked out the ATE screen & factory screen methodologies	▪ Screen tested and is confirmed to be working.
Intermittent audio cut-off	▪ Mapped the issue during testing to a boot loader status being stuck randomly between state changes ▪ Workaround provided at driver level to avoid this	▪ Customer accepted the workaround ▪ Updates Script with optimized solution is attached.
Audio POP noise	▪ Multiple debug sessions to root cause ▪ Suspected to be algorithm along with audio processing. ▪ TI to support further based on any future queries/debug request from customer	▪ To perform debugs on the processor along with the algorithm

TAS2562HYFPR | GREG Issue

- GREG design has been done for parasitic inductance of upto 4nH
 - GREG needs to support up to 4mA current to deliver max power in Class-D under datasheet conditions
- Earlier screen in FT was with lower current(~1mA) under tester conditions
 - This corresponds to 4mA current under datasheet conditions
 - Devices which are marginal can have issues with systems with higher parasitic inductance
- Additional stringent test added, screens for 4mA DC current capability on all devices
 - Allows the device to support maximum designed parasitic inductance of 4nH
 - The corner case devices which had lower current capability will also get screened out with the new program
 - Provides margin on the customer system which has ~2.6nH(2.1nH board routing + ~500pH of ESL) of parasitic inductance
- Customer Screen is tried and is confirmed to be working for this issue
 - The factory screen that is added also ensures that the device works in the actual system scenario

TAS2562HYFPR | Audio Cutoff

- TI has given updated script to fix this issue at customer end
 - Script has been tried and confirmed to be working on customer board
- Suggested changes in script to optimize load time, discussed in next Slide
 - Current script has a wait time of 1ms, which is required for device address detection and other miscellaneous house keeping
 - TI's recommendation is to:
 - Reduce the wait time to 450us after software reset → 1.05ms of expected load time

TAS2562HYFPR | Audio Cutoff Script

Original Script

```
i i2cstd
w 98 00 00 # Page-0
w 98 7f 00 # Book-0
w 98 01 01 # Software Reset
d 1 # 1mS Delay
w 98 0b 42 # TDM TX voltage sense transmit enable with slot 2,
w 98 0c 40 # TDM TX current sense transmit enable with slot 0
w 98 08 12
w 98 38 0c
####Class H fix for kink at boost on voltage issue:
w 98 00 00
w 98 7F 64
w 98 00 07
w 98 48 09 99 99 9a # increase headroom to 0.6V
w 98 4c 00 00 00 00 # disable hysteresis
w 98 00 00
w 98 7F 00
w 98 3b 38 # vbat filter to 100hz
w 98 3c 3c # classH release timer to 14
w 98 00 01 # Page-1
w 98 08 00 # thermal foldback disabled
w 98 00 00
w 98 02 00 # power up audio playback with I,V enabled
```

Updated Script

```
i i2cstd
w 98 00 00 # Page-0
w 98 7f 00 # Book-0
w 98 01 01 # Software Reset
d 0.45# 450uS Delay
w 98 0b 42 # TDM TX voltage sense transmit enable with slot 2,
w 98 0c 40 # TDM TX current sense transmit enable with slot 0
w 98 08 12
w 98 38 0c
####Class H fix for kink at boost on voltage issue:
w 98 00 00
w 98 7F 64
w 98 00 07
w 98 48 09 99 99 9a # increase headroom to 0.6V
w 98 4c 00 00 00 00 # disable hysteresis
w 98 00 00
w 98 7F 00
w 98 3b 38 # vbat filter to 100hz
w 98 3c 3c # classH release timer to 14
w 98 00 01 # Page-1
w 98 08 00 # thermal foldback disabled
w 98 00 00
w 98 02 00 # power up audio playback with I,V enabled
```

TAS2562HYFPR | Continuous Pop Noise

- Issue seen at customer end algorithm output as well
 - Need further debug at customer end to see what is happening on host
 - TI to support further, as and when more updates from customer available

End of Slides