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OB module: powering tests

WP3 Electrical interfaces

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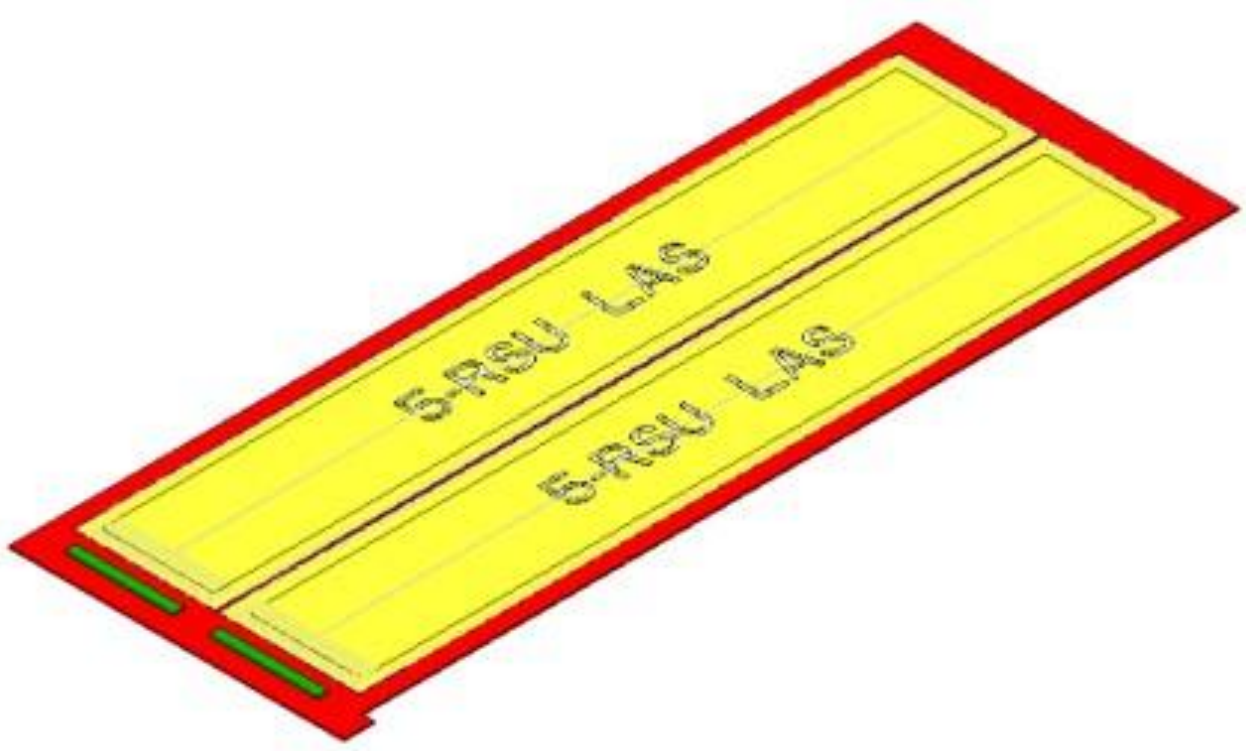
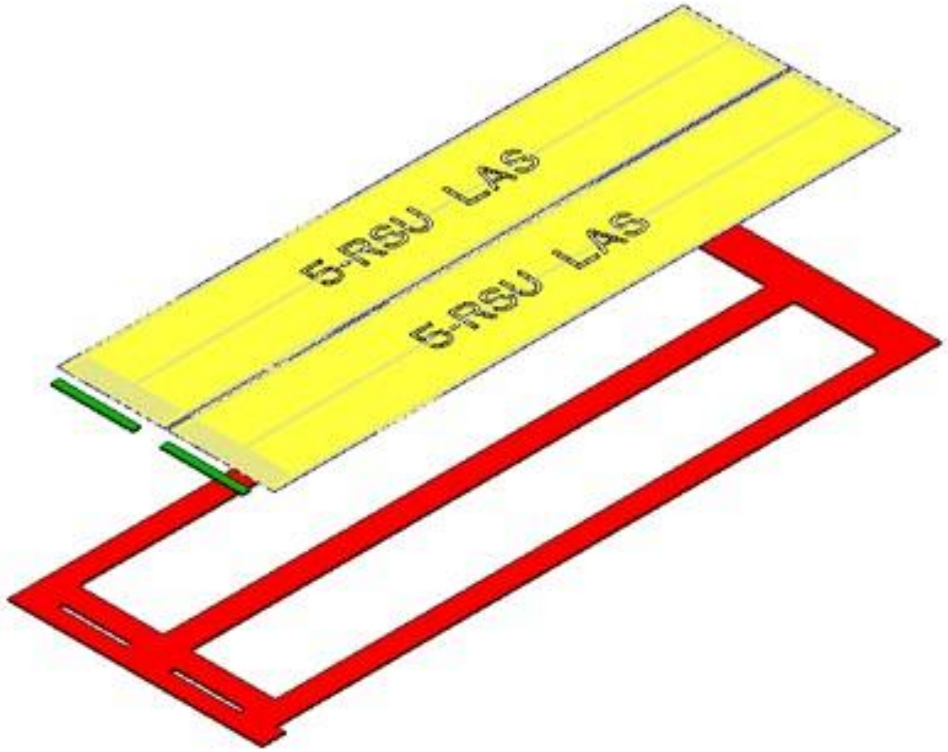
Overview of module





Goal: to capture how a powering test would look like on a module.

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Note: powering tests on a module depend on built-in features of AncAsic.

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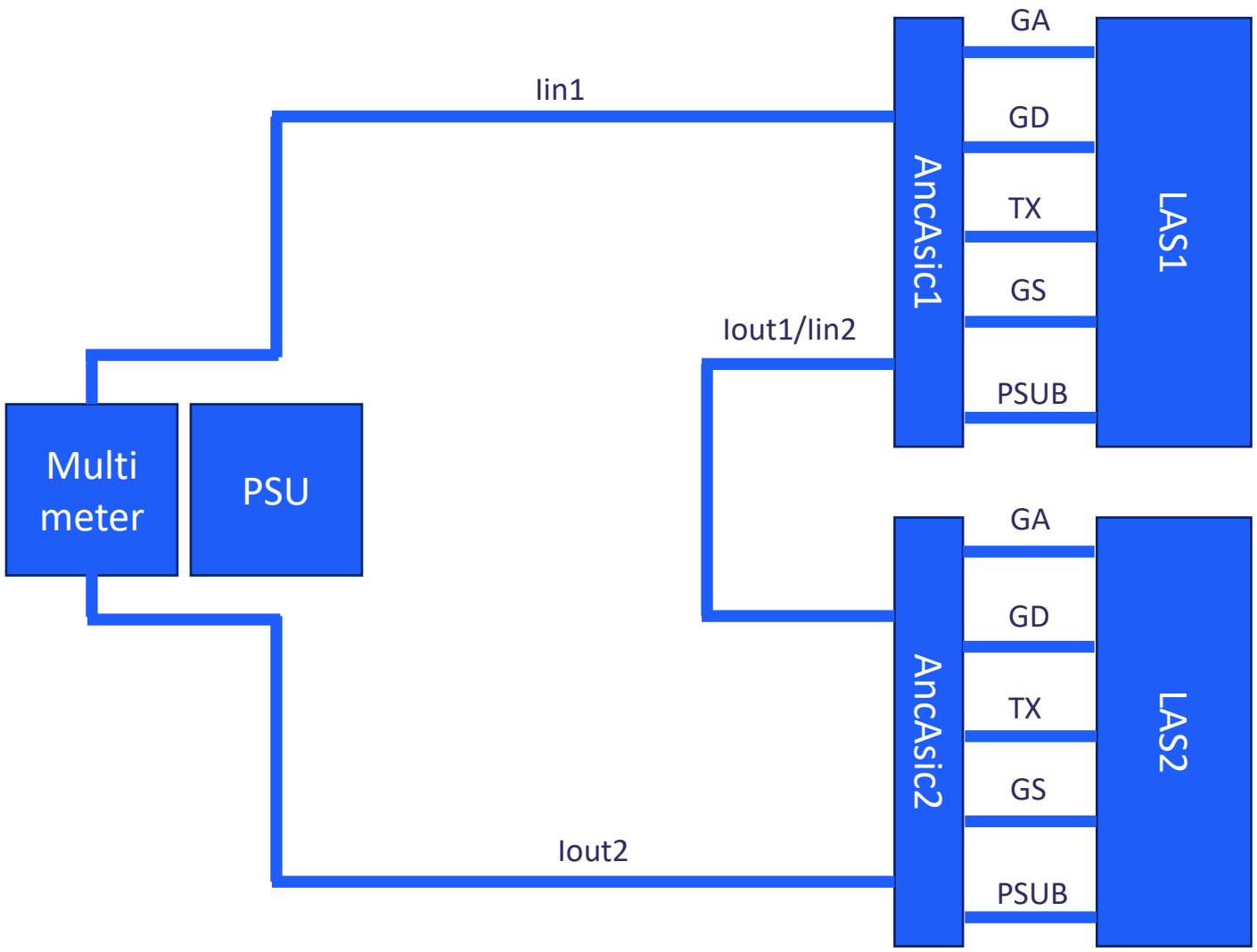
Step0 - power off

Probe lines to detect shorts or opens.



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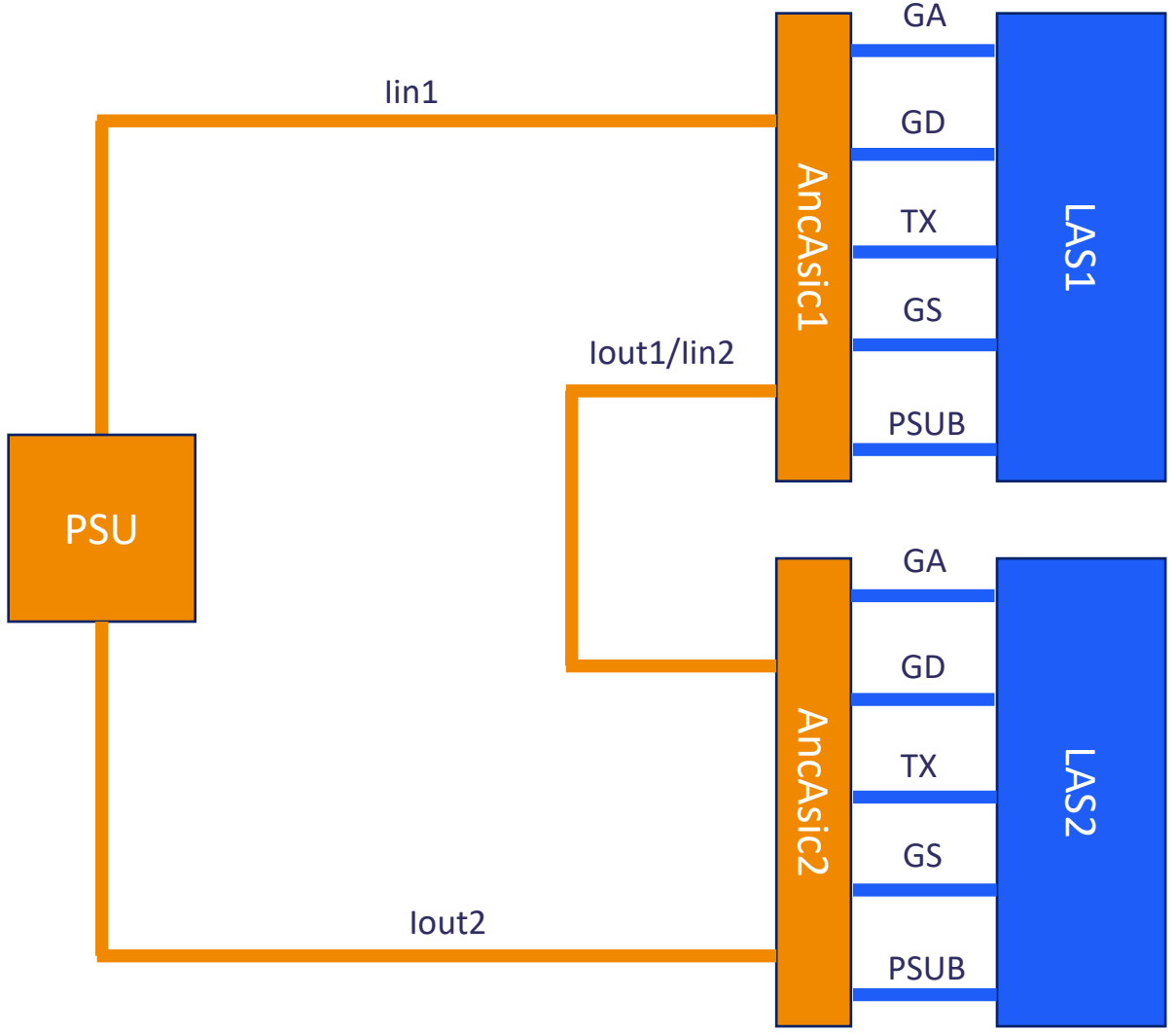
Step1 – AncAsics ON

Digital communication test:
Q:can perform configuration and read/write register operation on each AncAsic in this powering condition?
A: Yes, Arif: “to send read command from the control room”

GA, GD, TX, GS, PSUB are in high-impedance.

Measure PWR consumption on PSU and compare it to reference value.

Q: Is there a possibility to switch 1 AncAsic ON at the time?
A: No, Iain: “once a serially powered chain is constructed, I don’t think there is a way to turn off 1 AncASIC – it would mean asking the AncBrain to shut down its own supply, and then there would be no way to tell it to turn on again without a hard restart”



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Step2 – LAS1 ON

Digital communication test:
Q: can perform configuration and read/write register operation on the LAS this powering condition?
A: Yes, Arif: “to send read command from the control room”

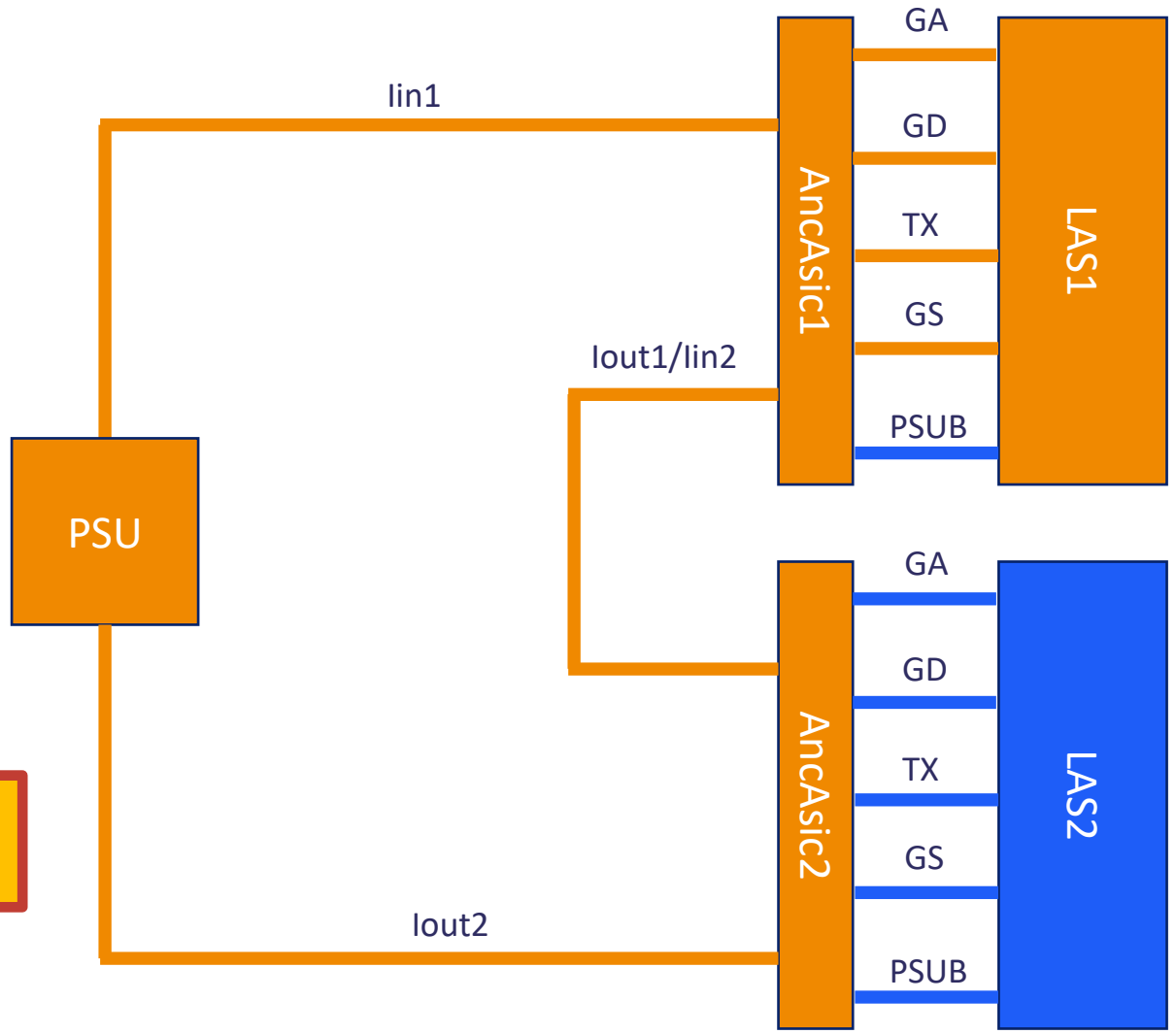
GA, GD, TX, GS are live (nominal).[range: 1.1V to 1.4 V]
PSUB is in-high impedance (off).

Measure V in output for GA, GD, TX, GS.

Shorts: Monitor Over Current Protection (OVC) flag (hardcoded) for GA, GD, TX, GS.

Opens: Q: any way to do it? Like an “Zero Current” flag?

Repeat measurement for under-bias and over bias condition (e.g. +/-10%).



PSUB supplied by NVG → Iain: “To check with Soumyajit about NVG high-impedance state”

Arif: “The NBVG will be turned off/on by dedicated commands from the control room”

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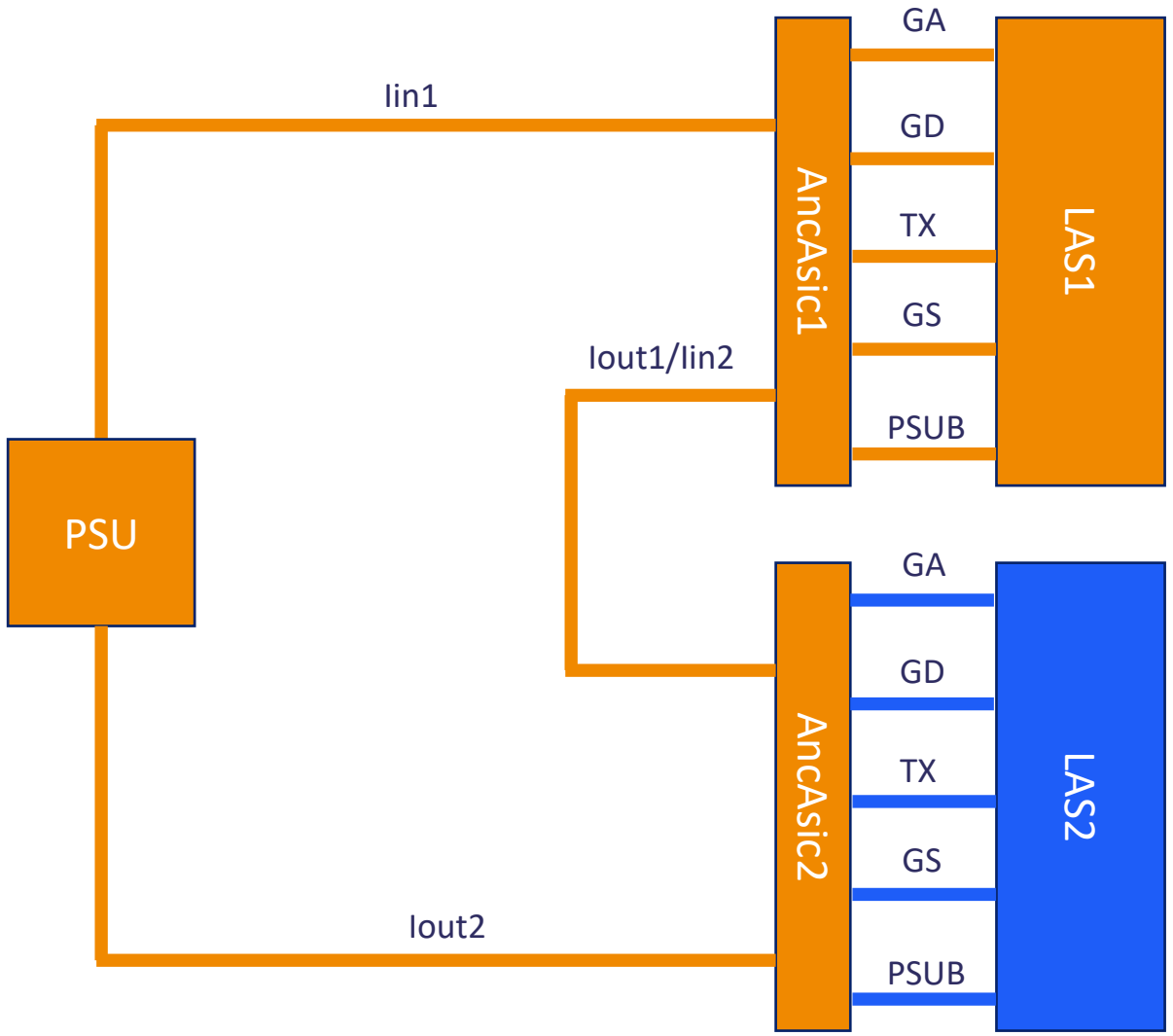
Step3 - LAS1 ON (w PSUB)

GA, GD, TX, GS are live (nominal).
PSUB is live. [range: 0V to -6V(??)]

Measure V in output for GA, GD, TX, GS and **PSUB**.

Monitor Over Current Protection (OVC) flag for GA, GD, TX, GS and **PSUB(?)**.

Q: To perform IV measurement if ADC is implemented?



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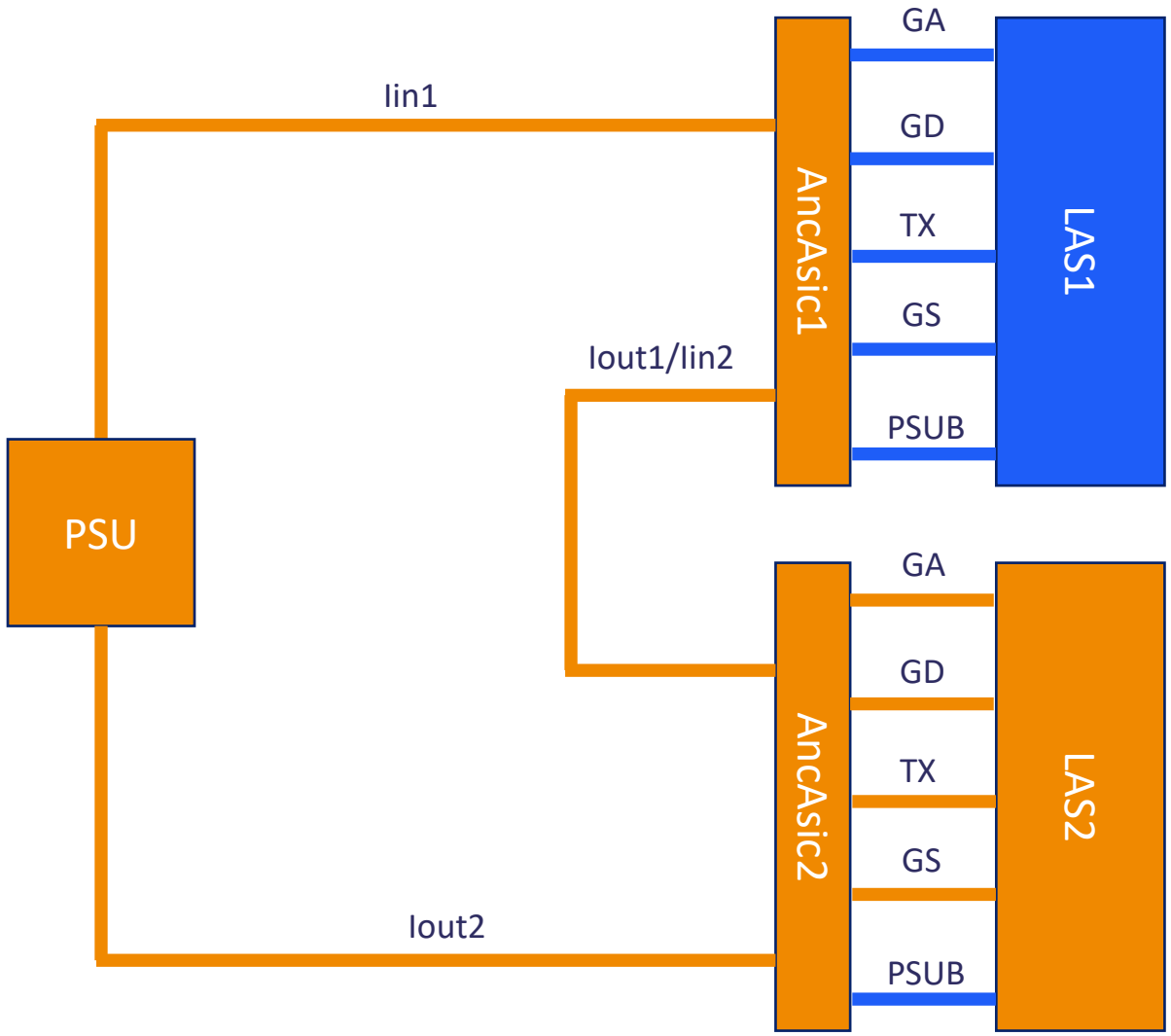
Step4 – LAS2 ON

See description for “LAS1 ON”



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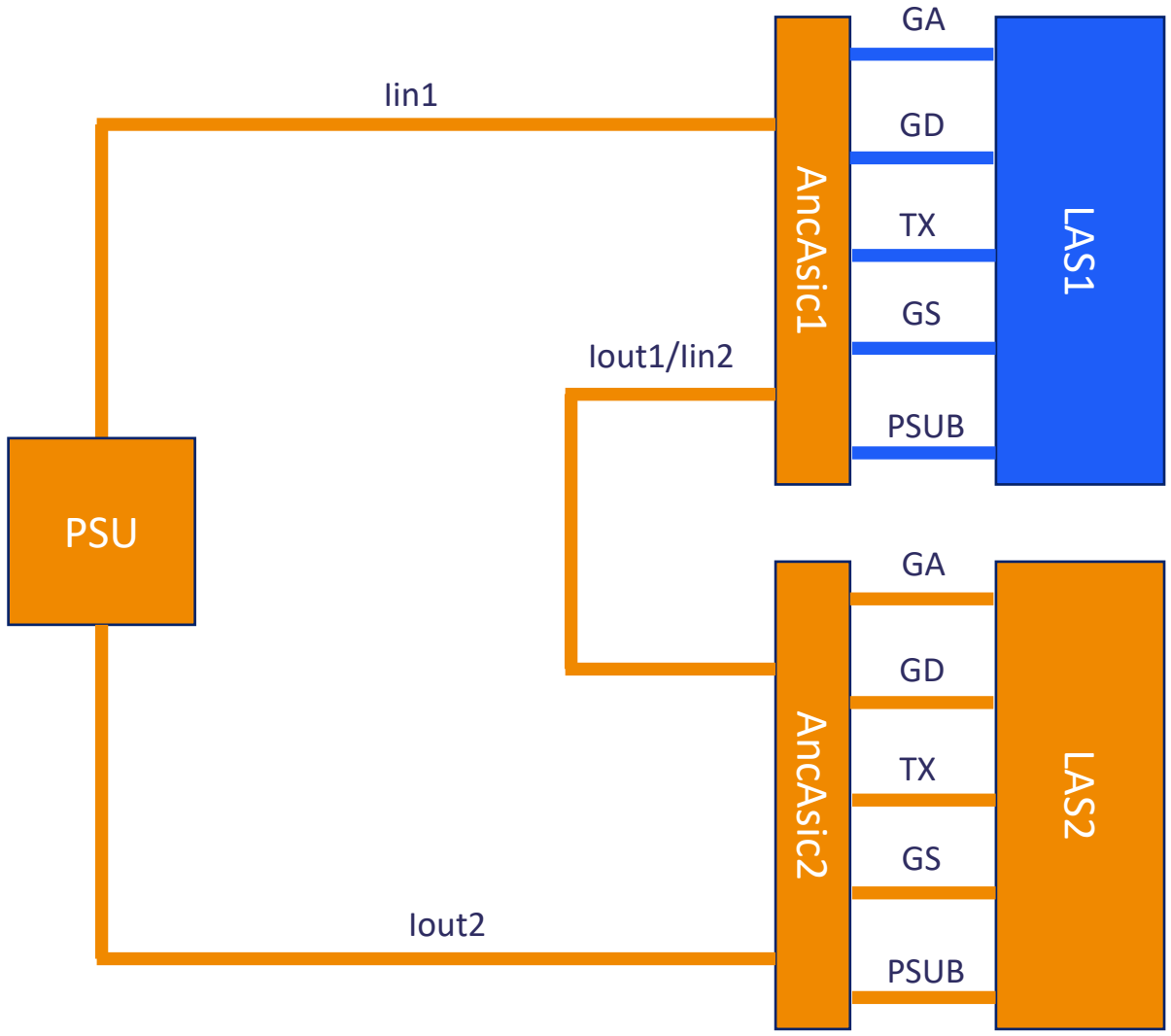
Step5 – LAS2 ON (w PSUB)

See description for “LAS1 ON (w PSUB)”



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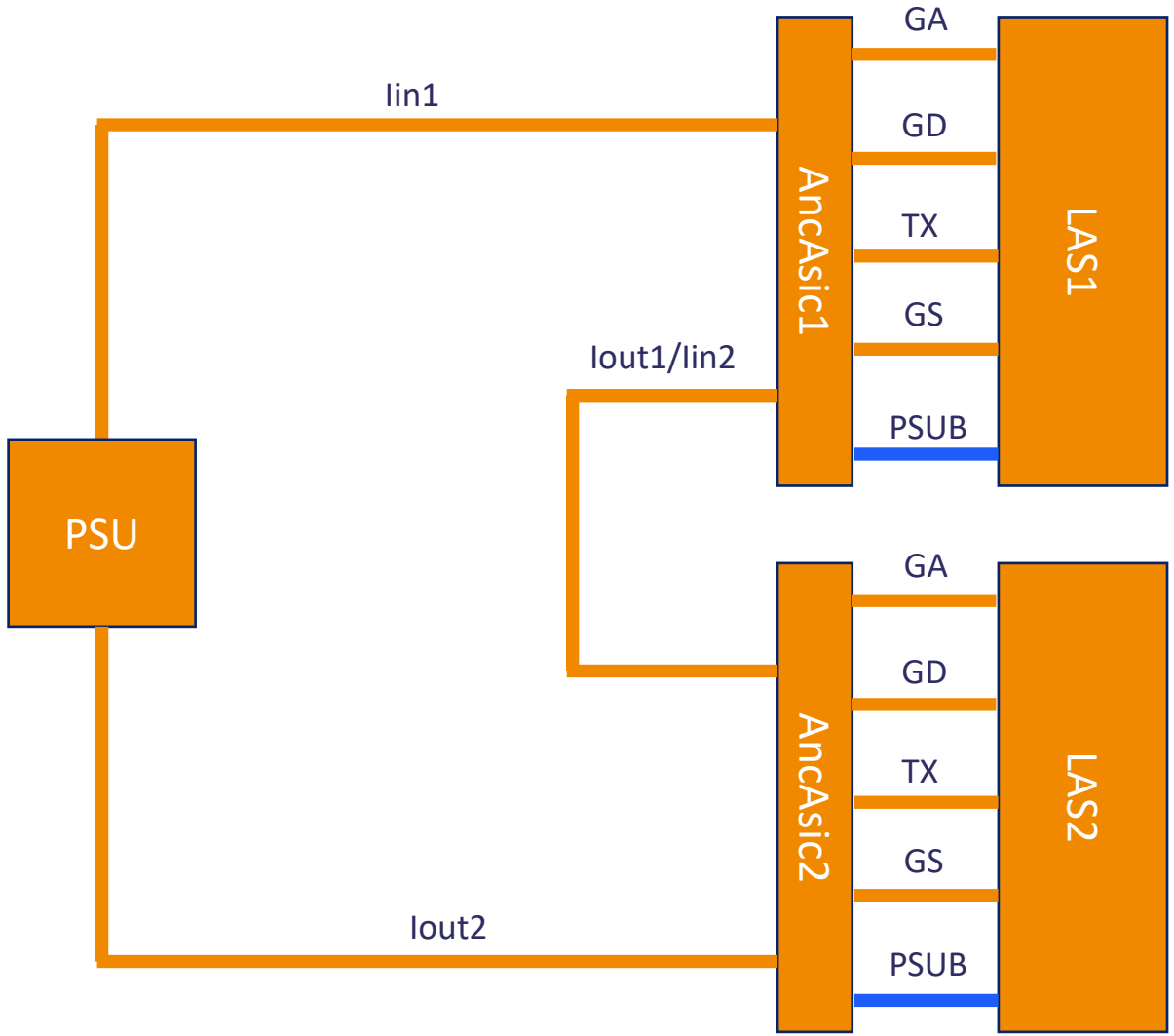
Step5 – LAS1 and LAS2 ON

GA, GD, TX, GS are live (nominal).
PSUB is in-high impedance.

Measure V in output for GA, GD, TX, GS.

Monitor Over Current Protection (OVC) flag for GA, GD, TX, GS.

Repeat measurement for under-bias and over bias condition (e.g. +/-10%).



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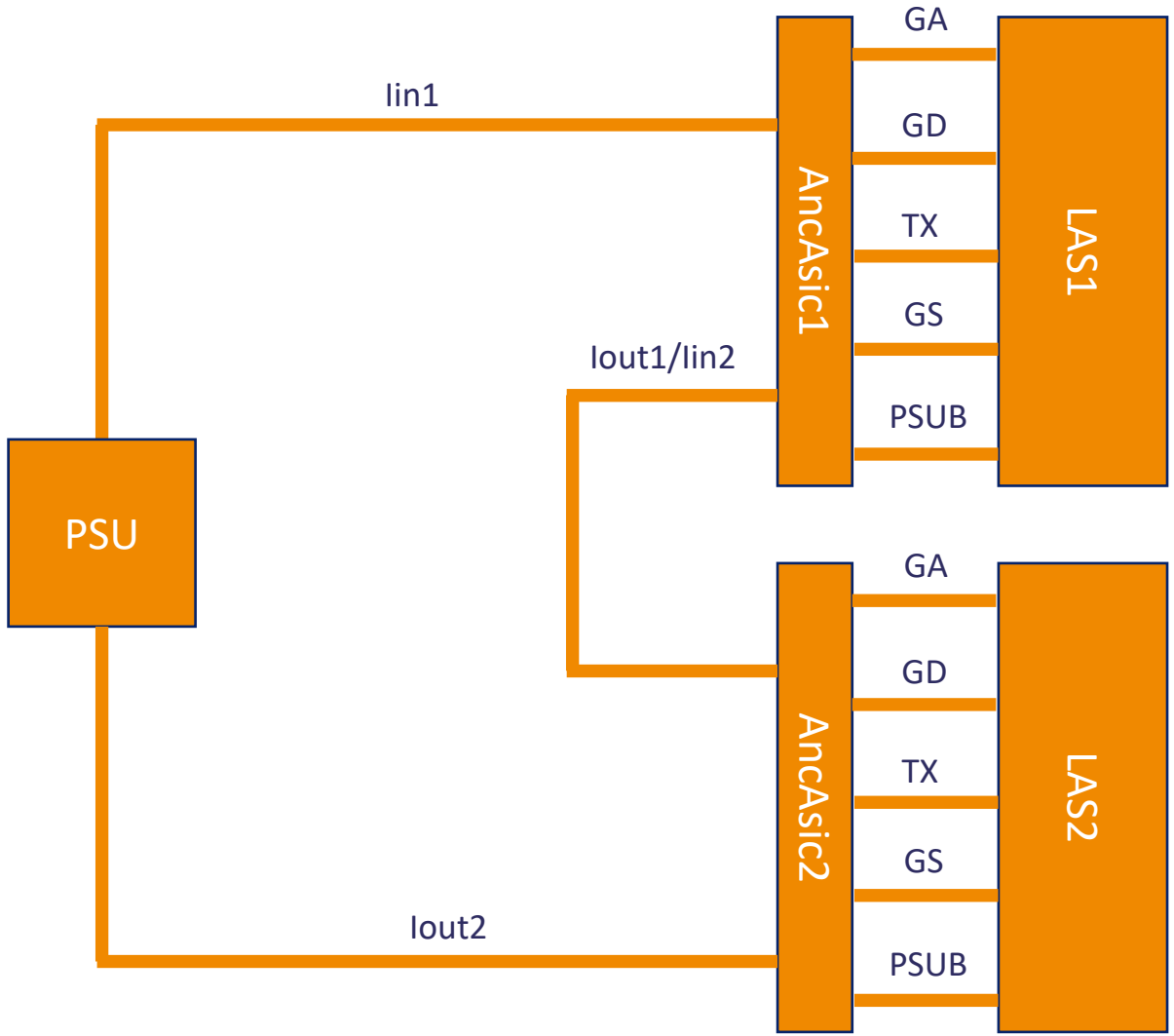
Step6 - LAS1 and LAS2 ON

GA, GD, TX, GS are live (nominal).
PSUB is live.

Measure V in output for GA, GD, TX, GS and **PSUB**.

Monitor Over Current Protection (OVC) flag for GA, GD, TX, GS and **PSUB(?)**.



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Conclusion

Sketched how a powering test on a module could look like based on the existing knowledge of the features implemented on AncAsic.

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Thank you

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