

300078 - DMO Support - AUV

Week 28

1. Rich Henthorn
 - a. i2MAP control

Week 26

1. Rich Henthorn
 - a. Local dead reckoning on the backseat
2. George Stern
 - a. PO transmitted to DSPL for initial pressure testing, waiting for their approval to ship HW

Week 25

1. Rich Henthorn
 - a. TRN support

Week 24

1. Brian Kieft
 - a. Reviewing hyperion proposal. Labor gaps to fill.
2. Thom Maughan
 - a. Hyperion Power supply assembly
 - b. Review / feedback on designs
 - c. Proposal review
3. George Stern
 - a. Tested a few things on the over pressured board and motor controllers; one polymer cap was hard shorted and replaced, the other had a soft short
 - b. Got cost clarification and discussed funding, need to follow up on the funding or take the risk and get the design started again

Week 23

1. Kent Headley
 - a. working with Tad re Dorado acomm's telemetry from LayeredControl
2. George Stern
 - a. Began testing pressure test cards after 14kpsi over test; one cap damaged and repaired

- b. Finally got quote clarification from DSPL regarding their quote, almost ready to get it sent out

Week 22

1. Kent Headley
 - a. Chatted w/ Erik re Reson and other hyperion drivers; looking for 2026 time to begin driver work
2. Thom Maughan
 - a. Hyperion power supply board is in fab and assembly at jlcpcb. Connectors and a cap will be assembled at MBARI. This version defines a footprint in the form established by Polulu with the addition of EXTVCC.

Week 21

1. George Stern
 - a. Looked at external pressuring testing suppliers and requested quotes

Week 20

1. Kent Headley
 - a. Last week, Erik and Tad ran some tests at sea using the updated Dorado layered control stack: a new Box behavior and a mission using the real-time clock start/end conditions. There were a couple of minor issues (now resolved), and the missions were otherwise successful. This body of code is aimed at enabling longer multi-day I2MAP missions that require the vehicle to transit to a site, loiter, then start a mission at a specified time of day. Now that the updates have been exercised successfully in isolation, the next step is to combine them in a scaled down version of a production mission.
2. Rich Henthorn
 - a. More TRN on LRAUV for Precision Control
3. Justin Tucker
 - a. Continued work on Capture head design review

Week 19

1. Rich Henthorn
 - a. Examining i2MAP no setup operations
2. Thom Maughan
 - a. Hyperion power supply, environmental board
 - b. Discussions
3. George Stern
 - a. Troubleshooting failed pressure test
4. Justin Tucker
 - a. Capture Head design support

Week 18

1. Kent Headley
 - a. prepping layered control tests for next week
2. Thom Maughan
 - a. Review, discussions regarding backplane, etc.
 - b. Helped with Hyperion proposal abstract
 - c. Signed up for project manager
3. George Stern
 - a. Support pressure testing and tried to get the strip chart recorder replacement working; unfortunately the old PID controller died and the spare we are lucky enough to have does not appear to have retransmission cards loaded. Hopefully the dead controller's retransmission cards still function and can be successfully swapped in after testing completes; 30 year old controller parts were not available on fleabay.

Week 17

1. Rich Henthorn
 - a. LRAUV TRN - closing the loop on TRN
2. Thom Maughan
 - a. Project proposal abstract / presentation
 - b. Wrapping up modular power supply board, preparing for fab and assembly
3. Justin Tucker
 - a. DP AUV capture head, continued work

Week 16

1. Brian Kieft
 - a. Hyperion meeting
2. Thom Maughan
 - a. Decided against producing the updated Hyperion Power Supply due to issues with hand assembly likely stemming from too much copper for heat dissipation on the 400W PCB. Redesigned the power supply to use modules modeled after Polulu. Preparing for fab and assembly.

Week 15

1. Rich Henthorn
 - a. Tricky process of closing the LRAUV loop with TRN updates
2. Brian Kieft
 - a. Hyperion meeting this week
3. Thom Maughan

- a. Hyperion Power supply design update finished. BOM uploaded for fab and assembly at JLCPCB. Holding off submitting the order until partial build assembly issues are resolved.
 - b. Hyperion Power Supply, second partial stuffing. Most of the small form factor chips had solder issues. Many iterations of reflow and reattach. The 6 layer PCB has lots of copper for high current and thermal dissipation and this is believed to be the culprit.
 - c. Reviewing next steps with Paul and Erik. Recommendation is to modularize and for the near term violate the 11mm component height goal.
- 4. Quinn Shemet
 - a. Monthly Hyperion meeting and LRAUV application code review

Week 14

- 1. Thom Maughan
 - a. Hyperion power supply design update. Fab at JLCPCB. Parts ordering, etc.
 - b. Partial build of first board

Week 13

- 1. Kent Headley
 - a. Tested refactoring of layered control macro code, and sent a write up and new scripts to DMO for testing at sea.
- 2. Thom Maughan
 - a. Parts kit, BOM and centroid for EE Tech partial stuff of power supply board to enable Erik's development
 - b. Finished updating next rev of power supply design, layout is complete, preparing fab and assembly package for JLCPCB
- 3. George Stern
 - a. Test plan for pressure testing
 - b. Initial discussions with stake holders to get pressure test scheduled/started

Week 12

- 1. Kent Headley
 - a. Before doing a test of dorado layered control modifications to support macros, Erik suggested a simple test I hadn't previously done. It turned up a priority management issue that, while OK for the planned test, was critical enough to postpone testing until the code could be refactored (~3+ days focused effort, including effort to speed up the build/sim environment). A refactored version is being tested. It addresses the priority issue, simplifies the logic, and makes the use of macros more

flexible.

It has some limitations (macros are currently mutually exclusive), though it may not be a limitation in practice, given current use cases.

2. Rich Henthorn
 - a. TRN on LRAUV with serial LCM data items
3. Brian Kieft
 - a. Hyperion meeting last week
4. Thom Maughan
 - a. Working on Hyperion power supply design update and pcb layout. Manufacturing plan is JLCPCB and LCSC for automated assembly.

Week 11

1. Rich Henthorn
 - a. Adapt TRN for serial LCM traffic
 - b. Still working through issues discovered in simulation
2. Brian Kieft
 - a. Hyperion meetings
3. Thom Maughan
 - a. Hyperion power supply partial build to test GaN FET 24v buck converter. Initially there were issues, but after swapping the controller the converter was working. 30v input was running ~96% efficient at 180W! Characterizing efficiency in 10v steps to 60v, one of the FETs blew when the input was at 60v and it took out the pads on the board. The design as is will work for development.
 - b. Working on an design update which will have automated assembly
4. George Stern
 - a. Wired up power to the the new electronic gauge Aaron installed on the pressure chamber

Week 9

1. Rich Henthorn
 - a. Accommodating LRAUV LCM messaging change for TRN

Week 7

1. Brian Kieft
 - a. Recovered LRAUV Daphne following MBTS deployment
 - b. B&T and prep for Ahi prior to MBTS
 - c. Attended a part of hyperion update
2. Thom Maughan
 - a. Hyperion meeting
 - b. Kitting, BOM and placement file for partial assembly - 24v supply
 - c. Hyperion environmental board design

Week 6

1. Thom Maughan
 - a. Hyperion Power Supply parts are in (delayed by weather). Parts kitting, assembly documents for handbuild by EETech of a) 24 supply only, then b) qty 3 of complete board. Using Erik's python script to change placement file formatting per Jose's request.
 - b. Hyperion Environmental board design
 - c. Various design discussions with Erik

Week 5

1. Thom Maughan
 - a. Hyperion: parts ordering and pref for assembly by EE-Techs . PCBs and parts expected in the next day or so.
 - b. Hyperion: started environmental board design