Preliminary Detailed Design Review Notes: P22257

Date November 7, 2024

Attendees

- Team - Ian, Tanner, Luke, Drew, Eva, Nsadhu
- Guide - Dr. McCauley
- Client - Philip Linden, Ashley Kosak

Goals

- Present current progress of project

Agenda and Discussion Notes

Time	Item	Who	Notes
10 min	Feedback	Phil	See notes in feedback section
50 min	Preliminary DDR	All	Split between action items and issues raised

Issues Raised

- Recreating everything - should reuse as much as possible from other open-soruce time cards
- 30 ns ER is not looking feasible - still good to go through the process trying to achieve it
- How many receivers does GNSS have?
    - Make an assumption - use 1
- Time of Day output pulse requirements and expectations
    - Time stamp is fine

Decisions Made

- Continue with project even if 30 ns requirement is a should instead of shall
- Take as much as possible from open-sourced time cards

Action items

- COMPLETE - Complete your peer evaluations in EduSourced
- Update meeting notes document
- Close the loop with your client afterward
- Identify what we can borrow from other time cards and carve out what we will be designing ourselves - Team
- Need to look into how Meta controls their frequencies? - Team
- Send resources on analog vs digital PLL - Tanner
- Show how allen deviation changes error (holdover specifications slide) - Ian

- COMPLETE - One pager summarizing with equations and thoughts (holdover specifications slides), Phil will send to contact at Meta (Amad) - Ian
- How does drift affect 1 year, 5 years, 10 years down the line? - Ian
- Graph of error line from simulink model - Luke
- COMPLETE - Show path of how vibe figures were determined (different sections that called out figures) - Eva
- Look into getting Meta time card (~$250) to help us
    - Phil will look into sponsorship
- Phil will provide emails to contacts at Meta
- COMPLETE - Need to color-code BOM materials that are early purchase - Drew
    - Customers approve purchase
    - Will still need to include on the BOM the materials that are donated (get invoice so we can put on BOM)

Feedback

- Milan conference went well
    - parts - there is a group doing educational type products
        - making lab equipment
        - space motionary - could maybe help make testing equipment
            - can give us an idea for what to make
            - help design and share some of the cost
        - microchip has academic path to get sponsorship
            - can get something for cheap or free if we put their name on card
- Made proposal for MoonDOA to buy one SA45 - would cover a little over 5k to cover 1 part which should ship within a few weeks
- talked to ansys about radiation testing
    - radiation load - 25 kilorad
    - ansys has simulation stuff that can hand electromagnetic high energy particle stuff
        - Phil needs to follow up
- didn't see explicit callout sto what we're borrowing from reference materials/existing time card
    - have we identified what we can borrow versus things we definitely can't borrow?
    - should take as much as we can so can focus energy on part that we want to make our own
        - we know it'll work if we "steal" it - experts have been working on it for years