Vaibhav Nandha

This document explains the function of the interposer, its schematic level design, its board level design, and its functional testing

Interposer

Revision 1.0.0



Table of Contents

[1 Introduction 1](#_Toc29304149)

[1.1 Function 1](#_Toc29304150)

[1.2 Requirements 1](#_Toc29304151)

[2 Detailed Description 2](#_Toc29304152)

[2.1 Functional Block Diagram 2](#_Toc29304153)

# Introduction

This document explains how the Interposer will fulfill the following Function and conform to the following Requirements.

## Function

The Interposer is responsible for the following:

* Connect the Backplane to the Germination Chamber

## Requirements

The Interposer does not have any direct requirements it needs to meet but rather, it enables the requirements the Germination Chamber from payload to be met and these can be found on [GitHub](https://github.com/CougsInSpace/CougSat1-Readme/blob/master/CougSat1-Requirements.pdf).

# Detailed Description

This section references the Interposer Board schematic. Page numbers will be listed and may have coordinates listed (number and letter combination found around the frame).

## Functional Block Diagram

The block diagram can be found on the first page of the schematic.

## Schematic

### Isolated Grounds

On page \_ of the schematic, an isolated ground is found on the Interposer. Power ground (PGND) is directly connected to the card. It is shorted to PGND using a 0𝛺 resistor rated up to 2𝐴, the expected current is less than 50𝑚𝐴 each.

### Card Connectors

Each card connector is a PCIe socket with \_ pins. See Table 1 for the pin allocation. Each power rail has two pins in parallel which allows loads rated up to 1𝐴. Each I2C and SPI data signal has two pins in parallel which increases redundancy1.

## Board

# Testing

All tests shall be performed at room temperature and not under vacuum unless otherwise specified. If any modifications are performed, take note. Include enough information to understand circuit behavior and for others to replicate the results. Include any software written to execute the test and link it in the test notes section. Save all software, waveforms, etc. in a subfolder of the board’s test folder for each test2.

• Waveforms shall be captured whenever appropriate

• Have the event take fill the screen (for fast events, zoom in; for slow events,

zoom out)

• Label each channel accurately

• Only have bandwidth limiting if necessary, for the test (this applies to the

oscilloscope and probe settings)

• If ringing or overshoot occurs, use a ground spring or differential probe

Results location: https://github.com/CougsInSpace/CougSat1- Hardware/tree/master/CougSat1-Backplane/Testing/Backplane.3.0

Common test instructions can be found on the wiki.