Electronics Assembly & Test

Peter Hansen

734-763-6241

pehansen@umich.edu

SPACE PHYSICS RESEARCH LABORATORY

TIDI

Assembly & Test Overview

- **Engineering Model (EM) - Assembly & Test Flow**
  - **P. Hansen**
- **Flight Stack & Electronics - Assembly & Test Flow**
  - **P. Hansen**
- **Electronics Stack Test Systems**
  - **S. Musko**

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Typical Individual EM Board Test Sequence

- **Initial power-up test**
  - **Lab Power Supplies**
  - **Bus Simulator GSE**
- **Flight Computer Interface Test**
  - **Emulator and Visual Basic Test Scripts to monitor and control board under test**
  - **External laboratory/custom engineering simulators for inputs/loads**
- **Temperature Test**
  - **Non operational temperature limits**
  - **Operational temperature cycling and performance tests**

EM Stack Integration Outline

- **Support Hardware**
  - Laboratory Power Supplies
  - GSE = Emulator and Spacecraft Simulator
  - EM Harnesses
  - EM Board Fixtures
  - Laboratory Test Equipment

    Logic Analyzer, Scope, DVM, etc.
- **Begin with Flight Computer Board**
  - Establish 1553 communications
- **Integrate Data Acquisition Board**
  - Acts as Voltage/Current and Temperature monitor for boards to be added as integration proceeds
  - Contains CCD image RAM

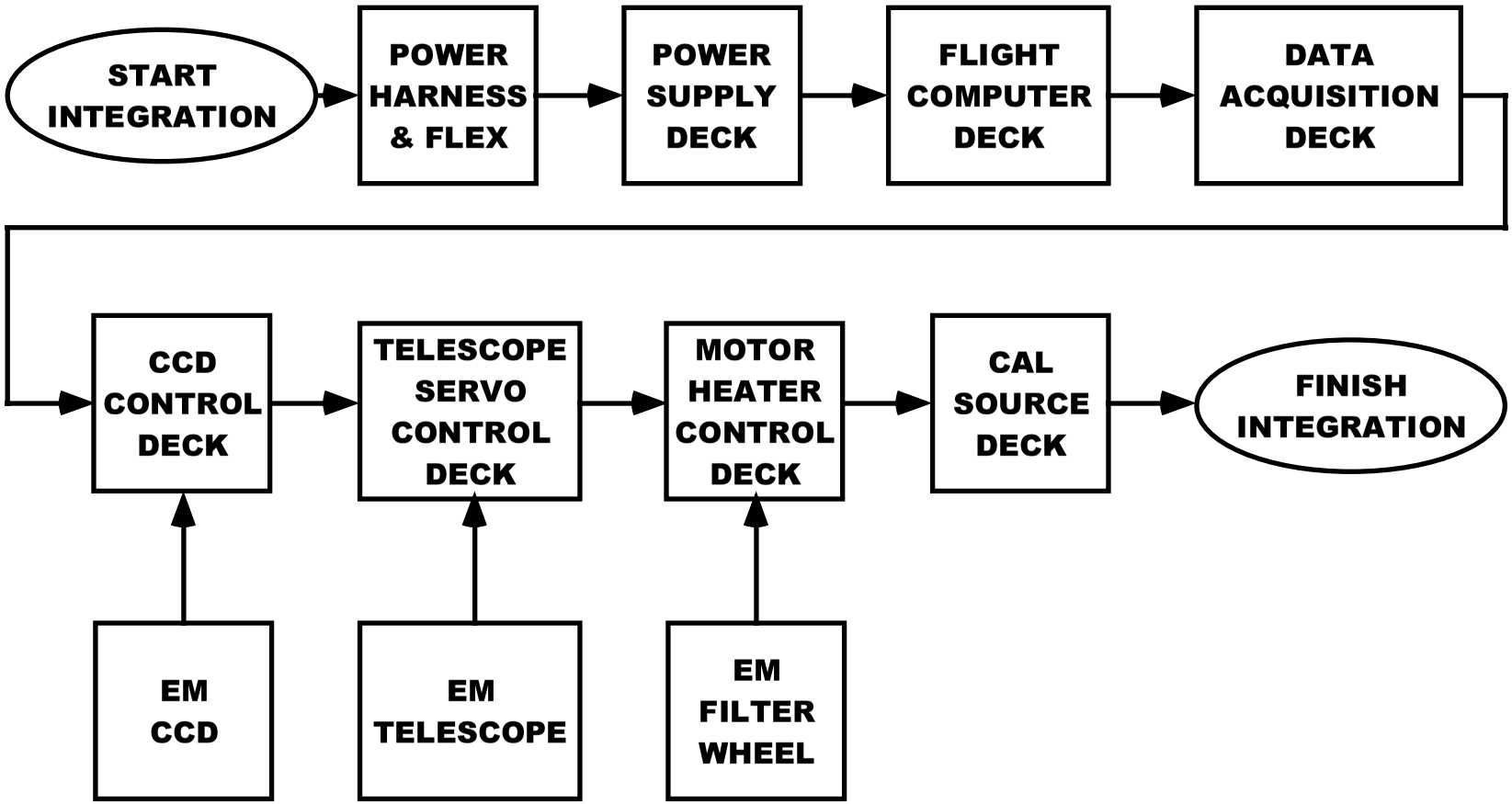
EM Stack Integration (contd)

- Integrate CCD Controller, and EM CCD hardware
- Integrate Telescope Servo Controller and single EM Telescope
- Integrate Motor Heater Controller, EM Filter Wheel, Dummy Heater/Sensors
- Integrate Breadboard Power Supply
- First Cut at integrated control with Spacecraft Simulator
- Assemble EM Board Fixtures into EM “Stack”
- Temperature Test

Flight Stack Assembly Flow

- All flight decks will be thoroughly tested in the EM stack environment prior to Flight Stack integration
- Flight Stack Assembly is Similar to EM integration plan
- All flight decks will be subject to standard SPRL QA log book tracking per the QA plan
  - Individual deck QA tracking will continue during stack integration
- Integration flow will begin with the flight power supply deck
  - Laboratory power supplies could be used to start the integration in the event of schedule problems with the PS deck
- Flight Computer deck is next, followed by DA deck and CCD Controller

Flight Stack Integration



Flight Electronics Integration