HINCube – Electronic Power Supply

Frode Knapstad

- an activity in NAROM

Presentation

- The Norwegian national student satellite program (Ansat)
- The HINCube Project
- The Electronic Power Supply(EPS) System

- an activity in NAROM

ANSAT

- Norwegian Center for Space-related Education(NAROM), Norwegian Space Center(NSC) and Andøya Rocket RangeARR
- Four Cubesats
- 2007-2011
- HINCUBE

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The HINCube Project

- Students
- Ten groups
  - PM, Int&Test, Struct, PR, MIAS, OBDH, ADCS, COMM, PAY, EPS
- Five PCB-boards
  - OBDH, ADCS, COMM, PAY, EPS

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EPS

- Solar Panels, Batteries, PCB board, Timer(antenna launch)
- Three voltage levels
  - 3,7V to the Coils(battery)
  - 3,3V to the Power Amplifier
  - 3,3V to the rest
- Mosfet Switches
  - COMM, PAY, ADCS, OBDH,

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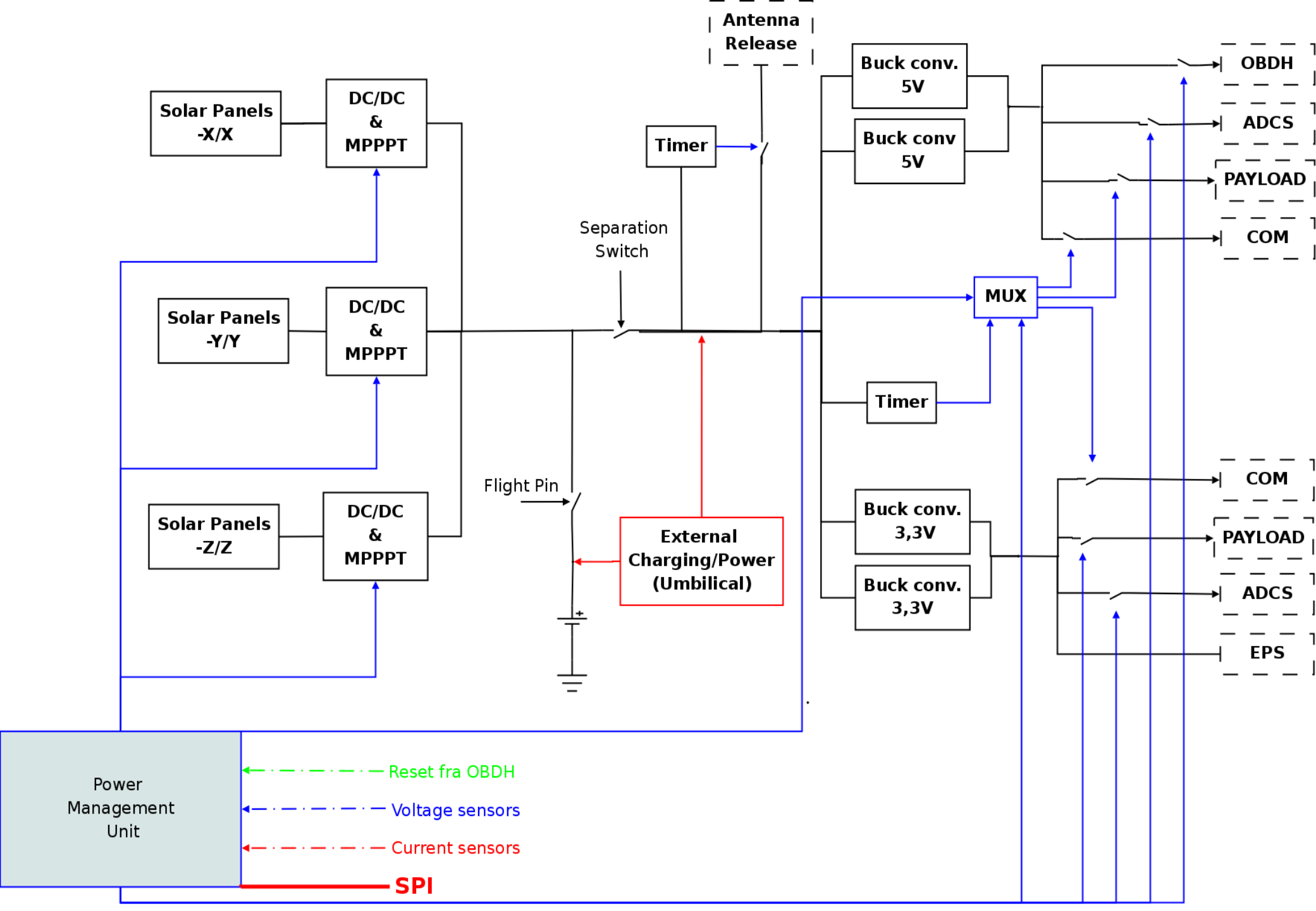
EPS

- Max Power Peak Point Tracker(MPPPT)
- Timer
- Micro-controller
  - Read sensor data
  - Communicate with OBDH
  - Turn Switches on/off
  - Control MPPPT

EPS

- Umbilical


Antenna Release
Solar Panels -X/X
DC/DC & MPPPT
Timer
Buck conv. 5V
Buck conv 5V
OBDH
ADCS
PAYLOAD
COM
Separation Switch
Solar Panels -Y/Y
DC/DC & MPPPT
MUX
Timer
Flight Pin
Solar Panels -Z/Z
DC/DC & MPPPT
External Charging/Power (Umbilical)
Buck conv. 3,3V
Buck conv. 3,3V
COM
PAYLOAD
ADCS
EPS
Power Management Unit
Reset fra OBDH
Voltage sensors
Current sensors
SPI

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Questions?

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