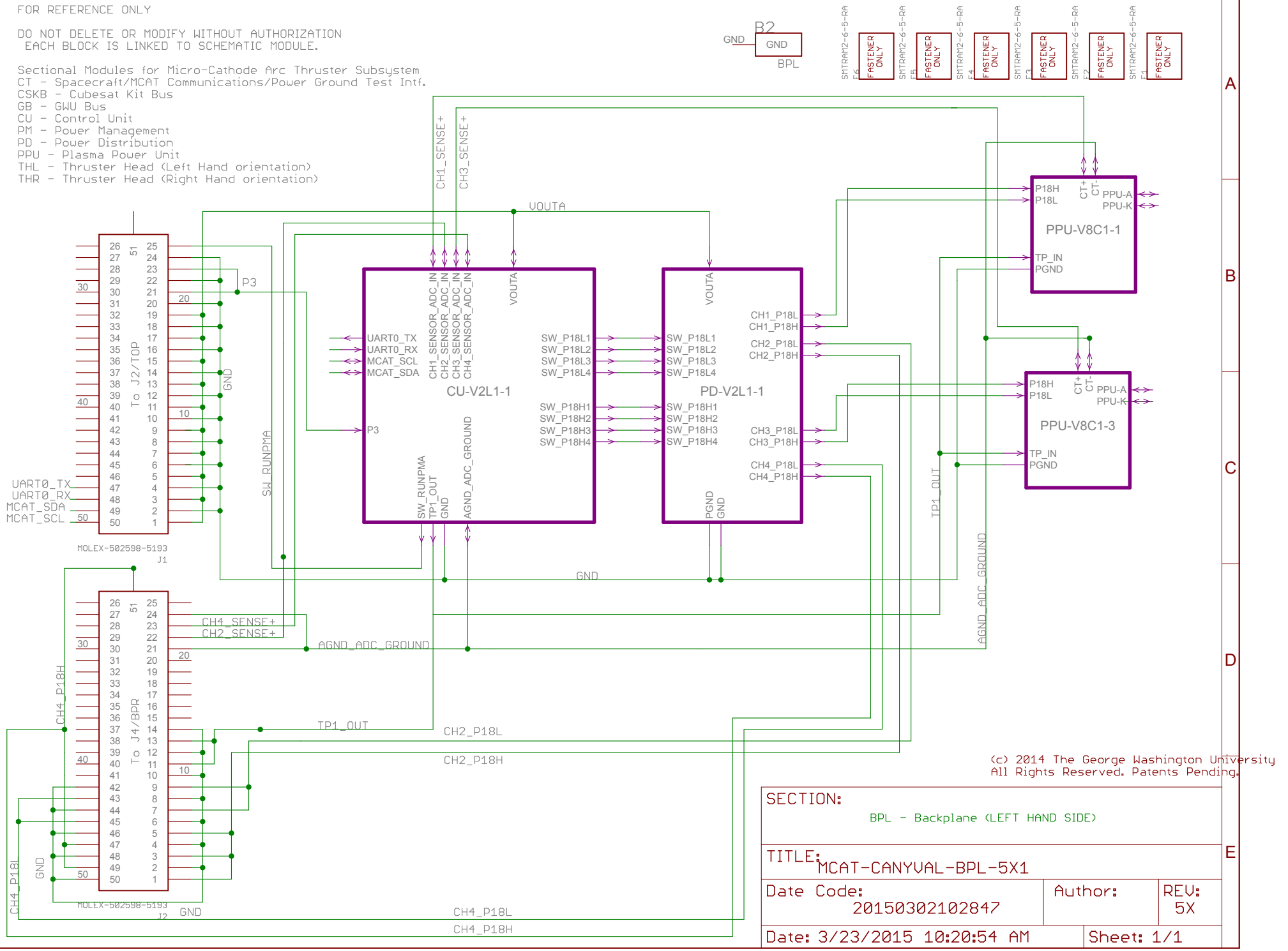
FOR REFERENCE ONLY

DO NOT DELETE OR MODIFY WITHOUT AUTHORIZATION
EACH BLOCK IS LINKED TO SCHEMATIC MODULE.

Sectional Modules for Micro-Cathode Arc Thruster Subsystem
CT - Spacecraft/MCAT Communications/Power Ground Test Intf.
CSKB - Cubesat Kit Bus
GB - GWU Bus
CU - Control Unit
PM - Power Management
PD - Power Distribution
PPU - Plasma Power Unit
THL - Thruster Head (Left Hand orientation)
THR - Thruster Head (Right Hand orientation)



SECTION: BPL - Backplane (LEFT HAND SIDE)		
TITLE: MCAT-CANYVAL-BPL-5X1		
Date Code: 20150302102847	Author:	REV: 5X
Date: 3/23/2015 10:20:54 AM	Sheet: 1/1	

Design: Samudra Haque, N3RDX, 2014
Ph.D Candidate (Aerospace Engineering)
Dept. of Mechanical and Aerospace Engineering
The George Washington University
(202) 812-3325

Microcontroller Module
(GPIO Control Line Assignment)

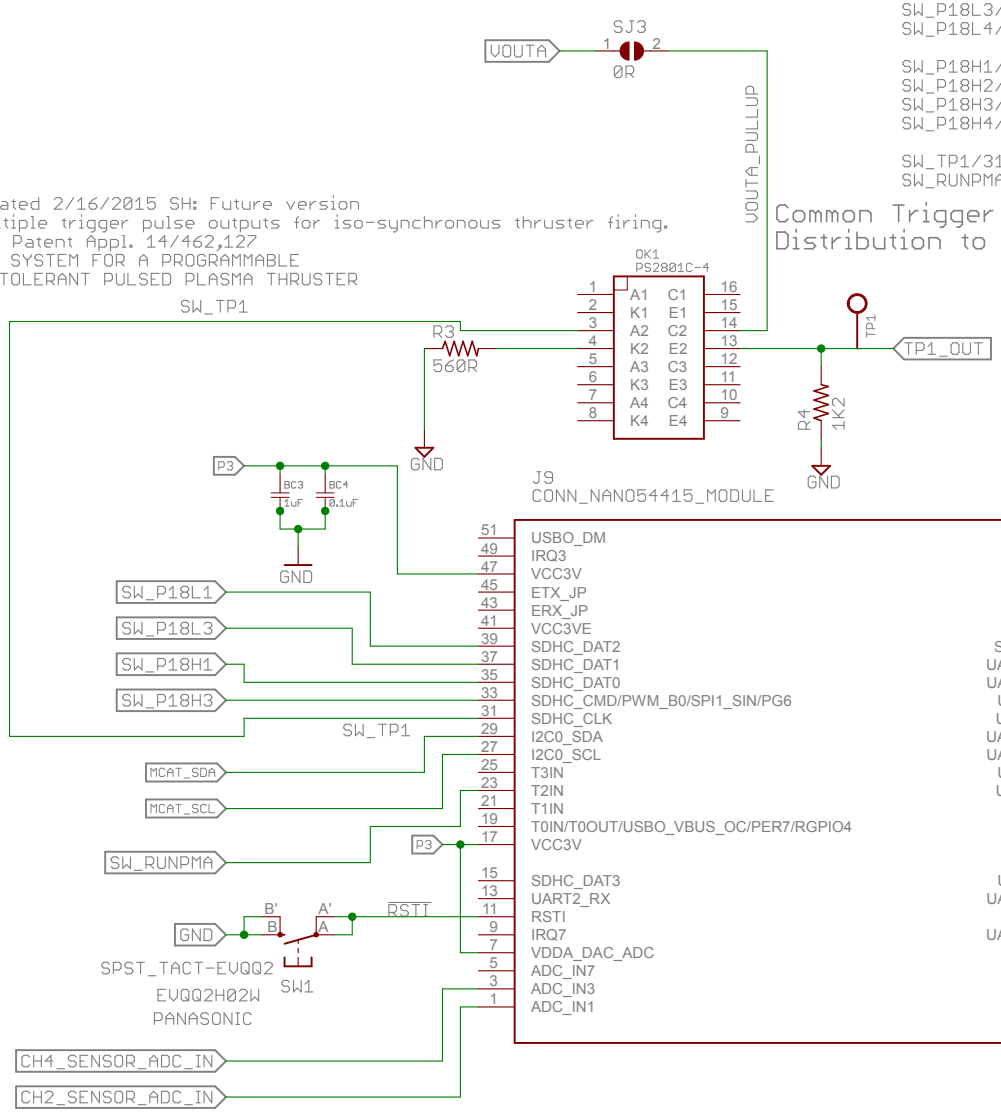
MCAT 4 Channel Configuration (2014)
SW_P18L1/39/PF1
SW_P18L2/38/PE2/RGPIO7
SW_P18L3/37/PF0
SW_P18L4/36/PE1/RGPIO8

SW_P18H1/35/PG7
SW_P18H2/34/PF7
SW_P18H3/33/PG6
SW_P18H4/32/PE0

SW_TP1/31/PG5
SW_RUNPMA/23/PD1/RGPIO2

NOTE 4 updated 2/16/2015 SH: Future version
to have multiple trigger pulse outputs for iso-synchronous thruster firing.
Refer to US Patent Appl. 14/462,127
METHOD AND SYSTEM FOR A PROGRAMMABLE
AND FAULT TOLERANT PULSED PLASMA THRUSTER

Common Trigger Pulse
Distribution to 4xPPU Ch.



Microcontroller Module
(Mini-PCI Express Conn.)

COMPULSORY ITEM
DO NOT DELETE THIS PART
USE FOR CONN_NANO55415_MODULE

LATCH FOR
MINIPCI-E
CONN; USE IN PAIRS

SECTION: CU - Control Unit Section (Version: 2L2)		
TITLE: MCAT-CANYVAL-BPL-5X1		
Date Code: 20150302102847	Author:	REV: 5X
Date: 3/23/2015 10:20:54 AM	Sheet: 1/1	

Design: Samudra Haque, N3RDX, 2014
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R7, R8, R9, R10, R11, R12, R13
SUBST. 3/2/2015 SEH with ERA-2AEB5491X
Thin Film Resistor
SMD 0402 5K49 0.1% 1/16W

From CU

NOTE 1
Current Limit functionality (SENSEx)
for LT1161 channels CHnnnnH
not implemented in this revision pending
determination of over current limit

NOTE 2
dv/dt control network for LT1161 Gates
not implemented pending further review

SEE NOTE 1

U3 LT1161ISW

U4 LT1161ISW

To PD Gate Drives Ch. 1/2

To PD Gate Drives Ch. 3/4

To PD High Current Supply for Ch1-4 P18H

Necessary for isolating the inputs to High Side MOSFET Driver

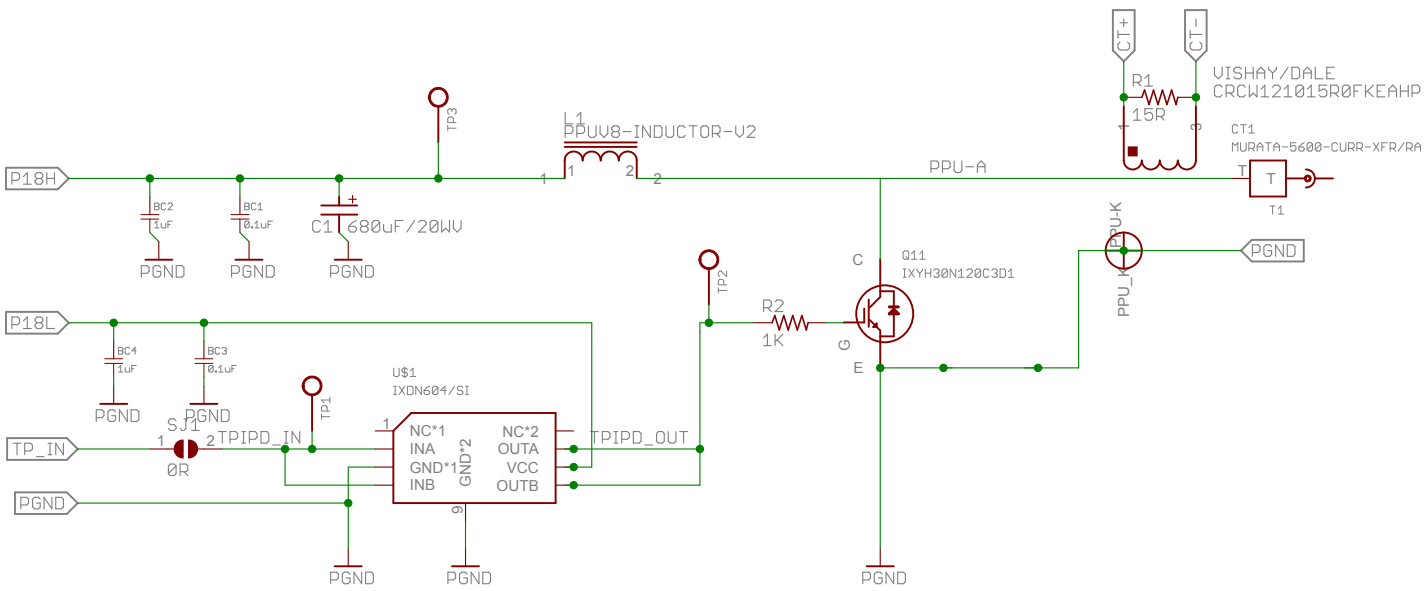
OK2 PS2801C-4

OK3 PS2801C-4

OK1E[1..4]

OK2E[1..4]

PD- Power Distribution Section (Version: 2L1)	
TITLE: MCAT-CANYUAL-BPL-5X1	
Document Number: 20150302102847	REV: 5X
Date: 3/23/2015 10:20:54 AM	Sheet: 1/1



SECTION: PPU - Plasma Power Unit Module Version 8C		
TITLE: MCAT-CANYVAL-BPL-5X1		
Date Code: 20150302102847	Author:	REV: 5X
Date: 3/23/2015 10:20:54 AM	Sheet: 1/1	