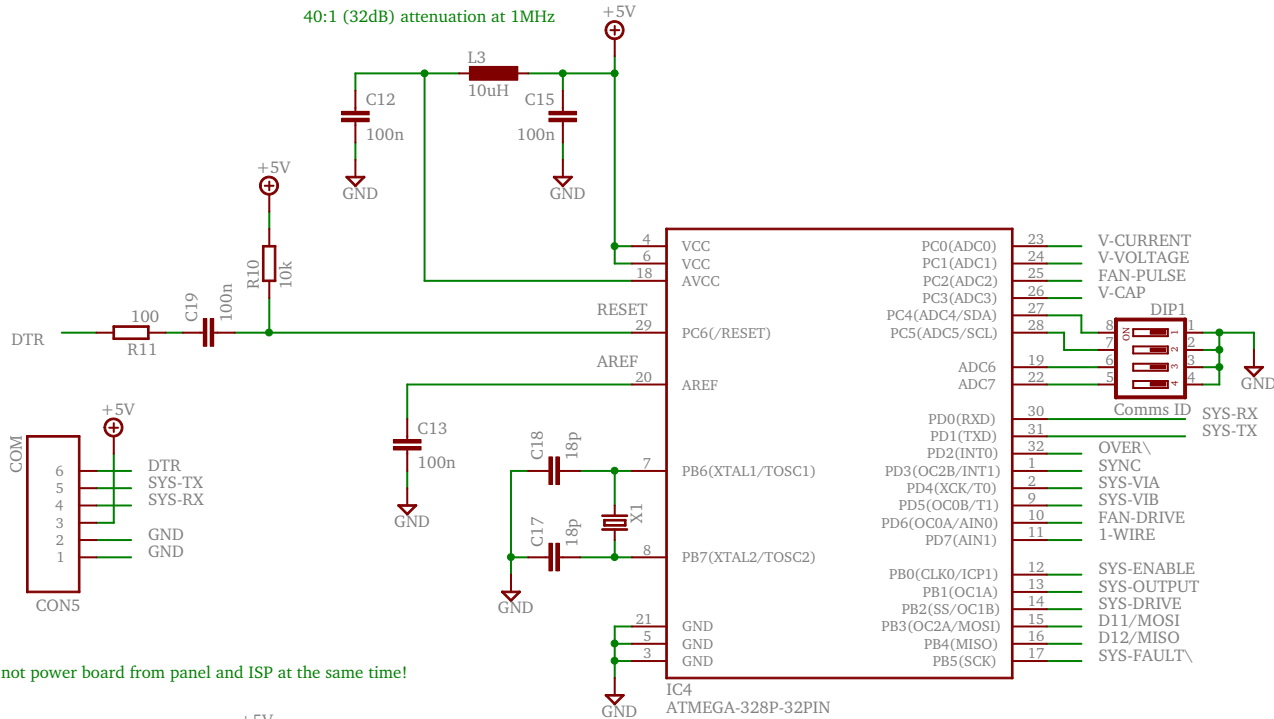


ATmega 328P, Atmel ATMEGA328P-AUR, Digikiy #ATMEGA328P-AURCT-ND
 16MHz crystal HC-49S, Cardinal Components CSM1Z-A5B2C5-40-16.0D18, Digikiy #370-1143-1-ND

Board max 3725 x 2250
 Holes at 175,175 3450,175 175,2050 3450,2050
 Delta X 3275 delta Y 1875

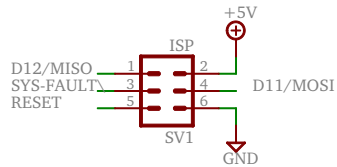
For input, influence, or ideas, special thanks to:

Matt Fox
 Daniel Jury
 Andrew Laphorn
 Bart Wenmeckers
 Ian Williamson



ADC6 & 7 cannot be used as digital inputs!
 Have to use uC pullups and analogread!

Do not power board from panel and ISP at the same time!



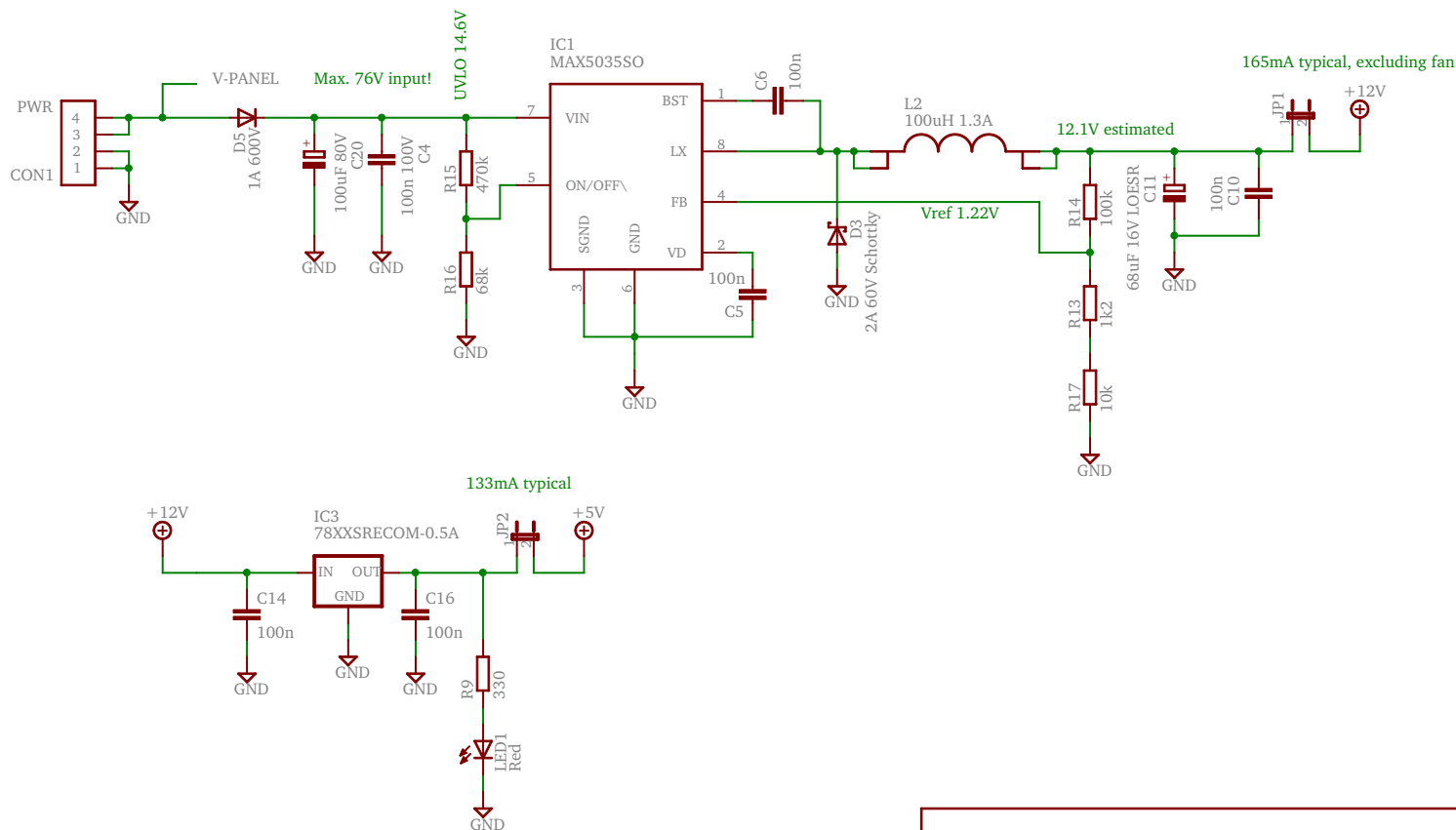
Micro-controller	
TITLE: controller-v101	
Document Number:	REV:
Date: 5/23/2017 10:50:52	Sheet: 1/4

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Add protection on 12V rail in case PSU goes AWOL... or maybe not required after all?

MAX5035 1A reg, Maxim MAX5035DASA+T, Digikey #MAX5035DASA+TCT-ND
 100uH 1.3A shielded, Sumida CDRH125NP-101MC 160mR, Digikey #308-1437-1-ND
 1A 600V SMB diode, Digikey #497-4406-1-ND
 2A 60V Schottky SMB diode, Digikey #B260-FDICT-ND
 5V 500mA DC-DC converter, Recom R-78E5.0-0.5, Digikey #945-1648-5-ND

100uF 80V, Rubycon 8000hr@105C -40-105C 367mA ripple 22mm long, Digikey #1189-3041-ND
 100n 100V 0805, Samsung CL21B104KCF5FNE X7R -55-125C, Digikey #1276-2923-1-ND
 68uF 16V, Panasonic FR series EEU-FR1C680 5000hr@105C -40-105C 280mA ripple 13mm long, Digikey #P14390-ND



5V and 12V power supplies

TITLE: controller-v101

Document Number:

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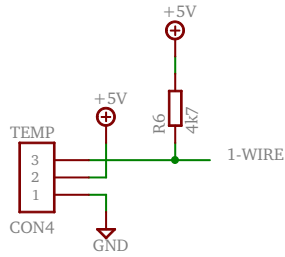
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Fan pulse is not wired up! Fan still directly connected to uC!!!

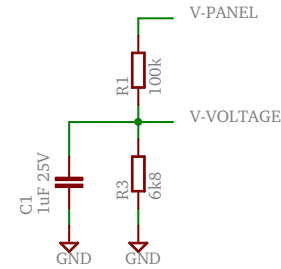
26-way header R/A, On Shore Technology Inc 302-R261, Digikey #ED10538-ND
 26-way connector IDC, On Shore Technology Inc 101-266, Digikey #ED10505-ND

General diode, Vishay LL4150GS18 Mini Melf, Digikey #LL4150GS18GICT-ND
 2N7002 N-CH MOSFET 60V 300mA, NXP 2N7002-215, Digikey #568-1369-1-ND

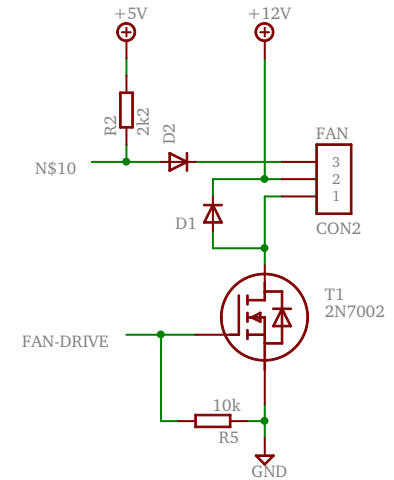
Eg. DS18B20 temp sensor



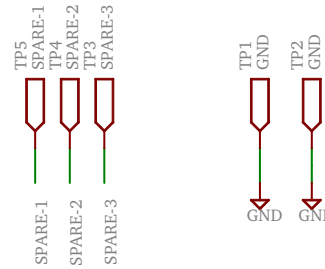
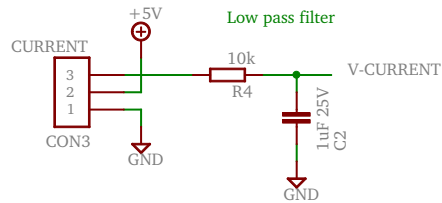
5.0V ref. -> 0-78.5V, 77mV resolution



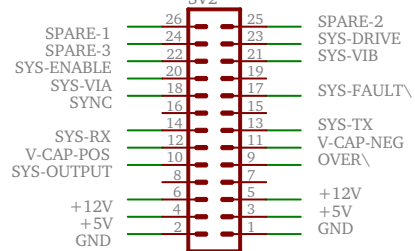
Fan output



Current sensor



Connector at X=2475



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Input/output connectors	
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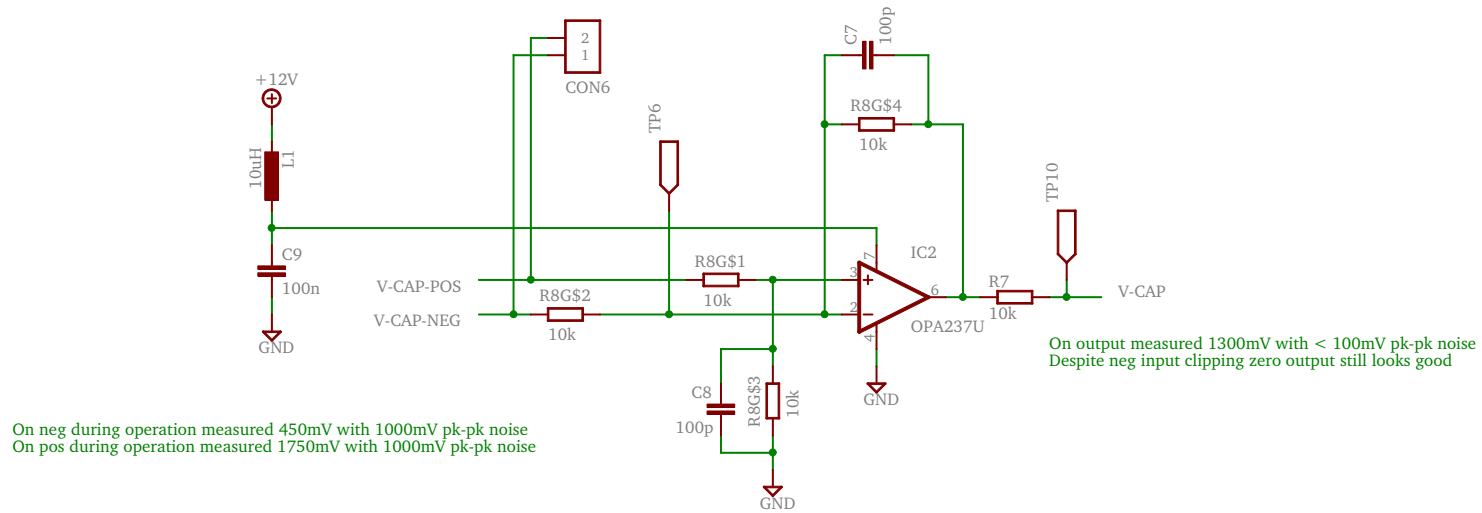
Op-Amp, TI OPA237UA, Digikey #OPA237UA-ND
 10k 1% quad resistor network 2012, Vishay Dale CRA12E08310K0FTR, Digikey #CRA12E810.0KACT-ND

Possibly use a differential amplifier with unity gain and common mode input capability that goes beyond the rails

Increase gain of differential measurement op-amp?

Würth WE-SL or WE-CNSW common mode choke for input to diff amp?

Does the Op-amp PSU need to go below GND for adequate range?



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Differential amplifier	
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