

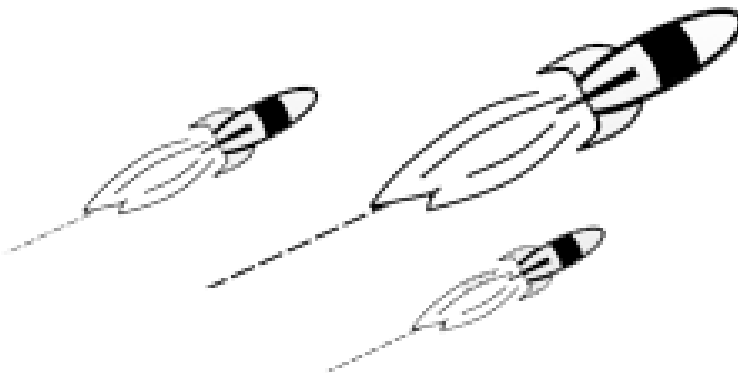
Stackable SPI Servo BoosterPack

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Overview

- Features
- Block Diagram
- Layout / Physical Design

Features

- Control up to 8 servo motors with your MSP430, C2000, or Stellaris LaunchPad via SPI or UART.
- Servos powered via wide input range (6V-20V) dual 1.5A buck regulators with adjustable output (3V-12V).
- Servo power selectable per servo. Can also power servos directly from board input voltage.
- Can be powered of 2+ cell LiPo or other rechargeable battery

Features (cont.)

- Two auxiliary outputs: N-channel MOSFET low side drivers which can be used for DC motors, solenoids, DC pumps, or other misc. devices.
- Aux. outputs can be powered by either servo power supply or from the board input voltage
- Aux. output power selectable per output.

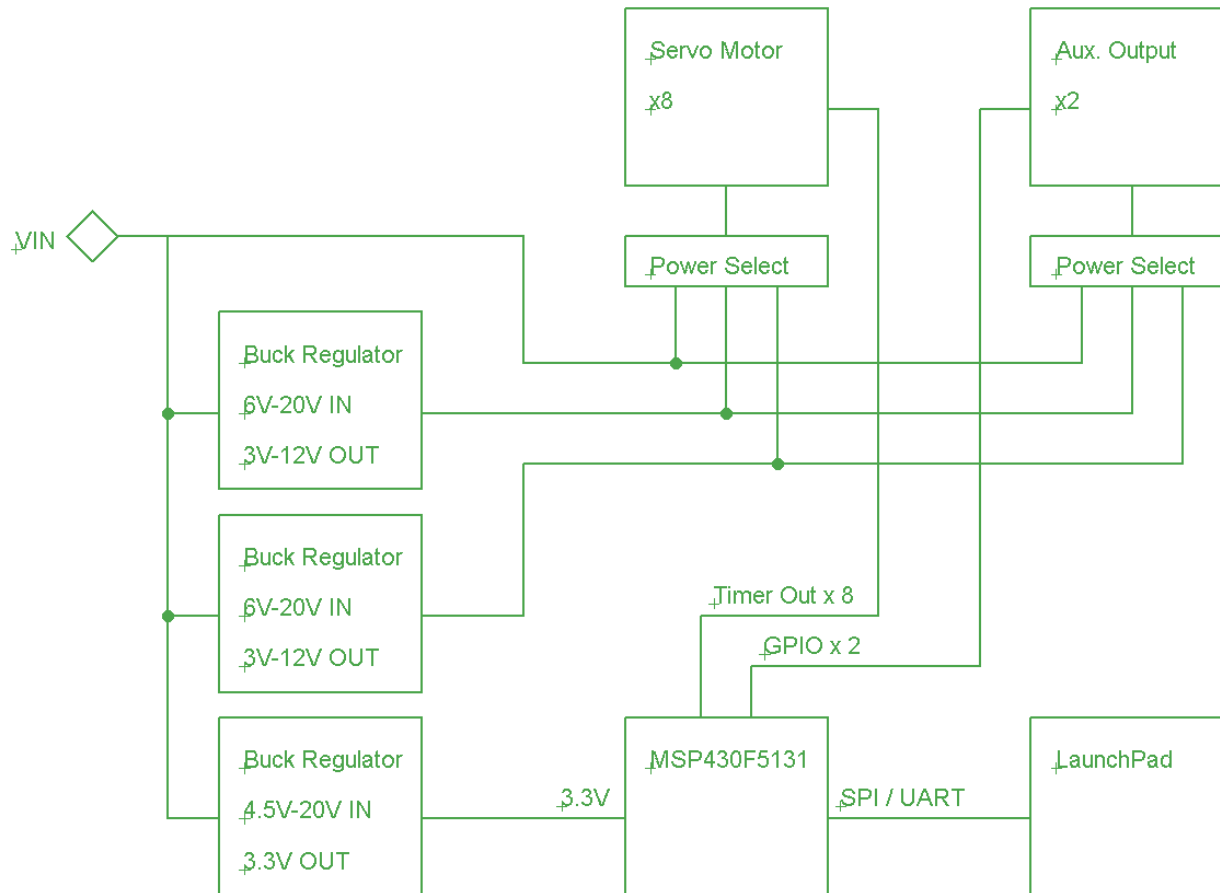
Features (cont.)

- Stackable headers allow combination with other booster packs or self-stacking.
- DIP switch allows selection between 4 SPI STE choices to allow easy self-stacking of up to 4 servo booster packs – enabling control of up to 32 servos.
- Self-stacking greater than 4 boards should be possible with some software hacking.
- Standalone operation using on-board MSP430F5131 should be possible with a little hacking

Features (cont.)

- BOM cost of about \$12.50 (>1000 volume)
- About \$4.75 of the BOM are TI parts
- 2-layer board

Block Diagram

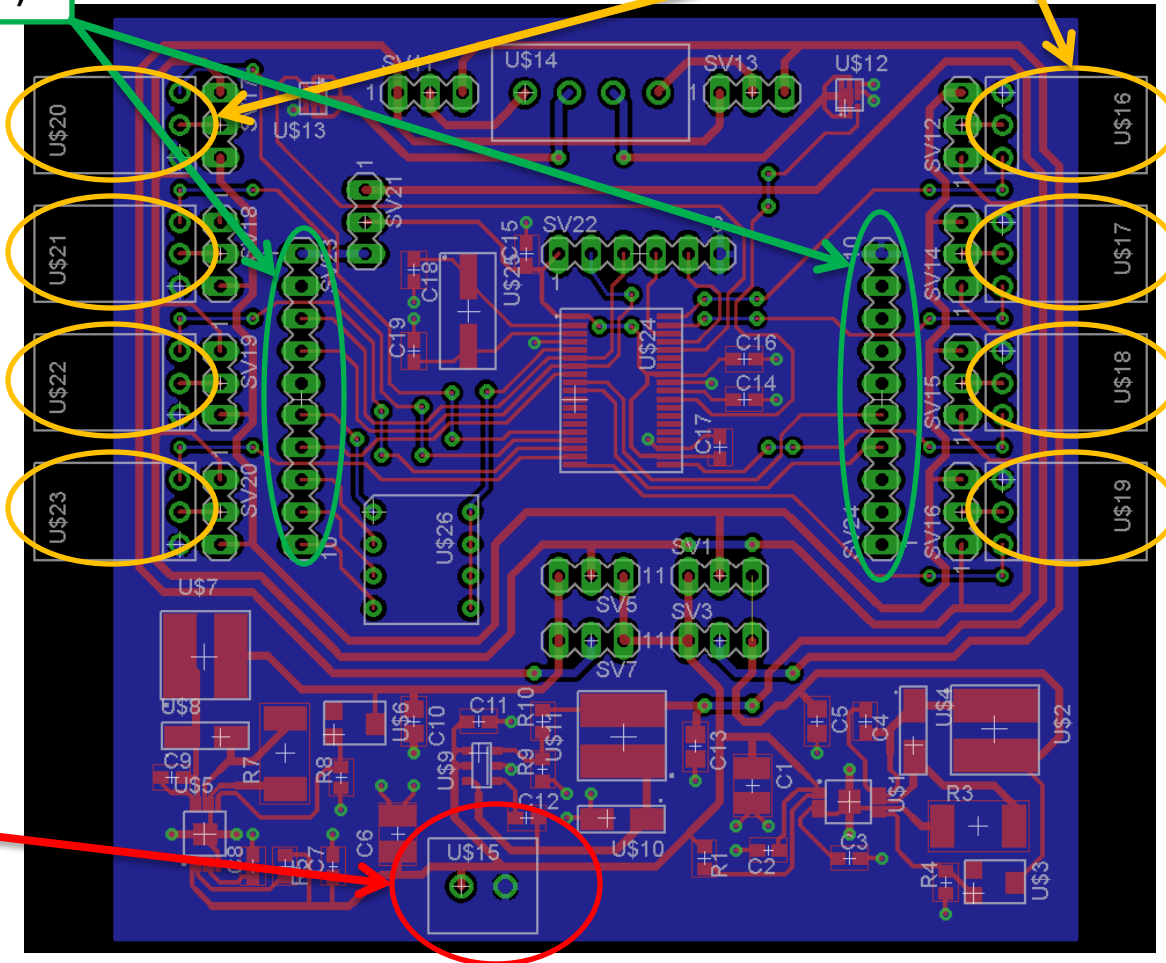


Connectors

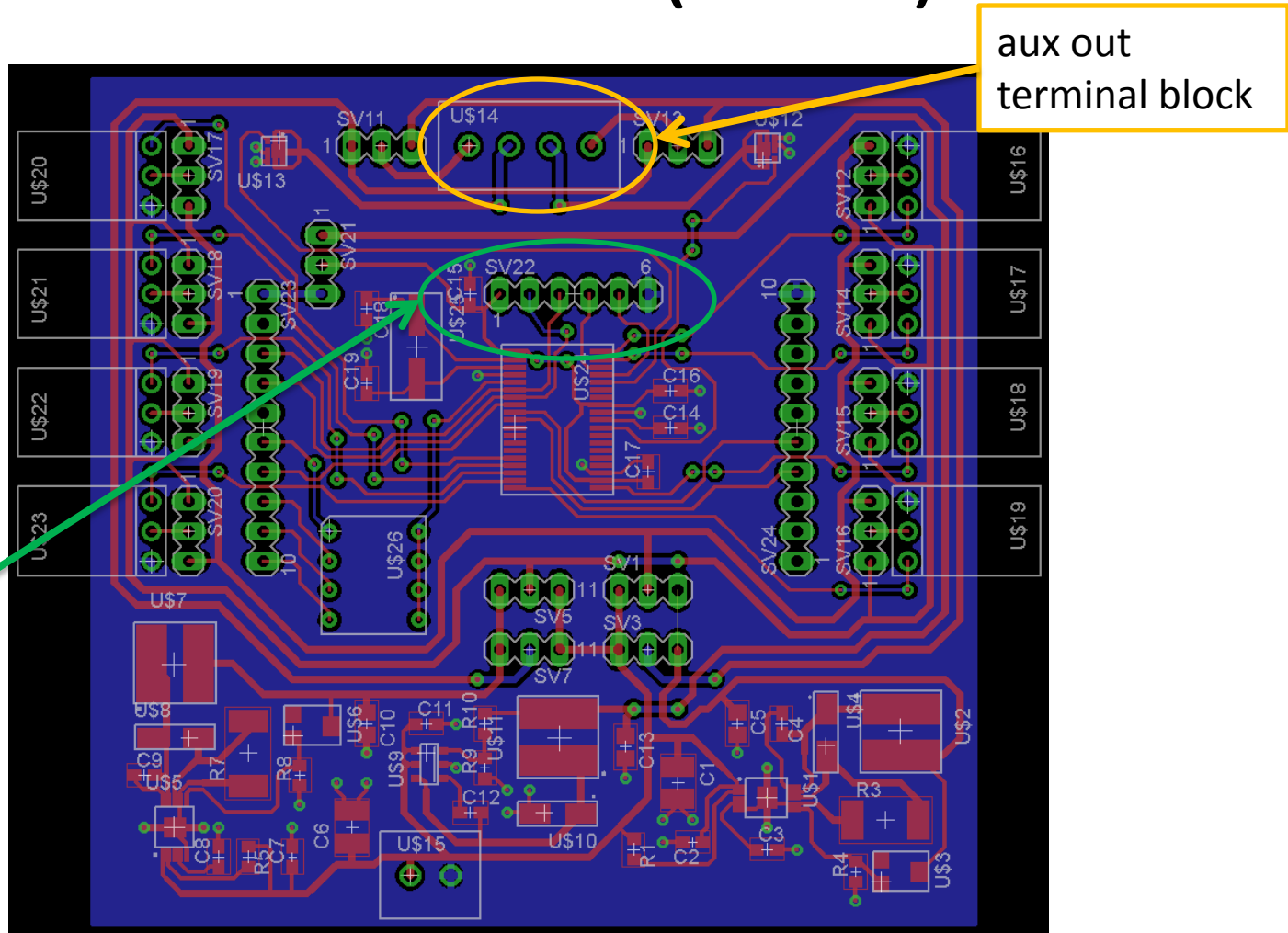
launchpad headers
(stackable)

Servo connectors

power in
terminal
block



Connectors (cont.)



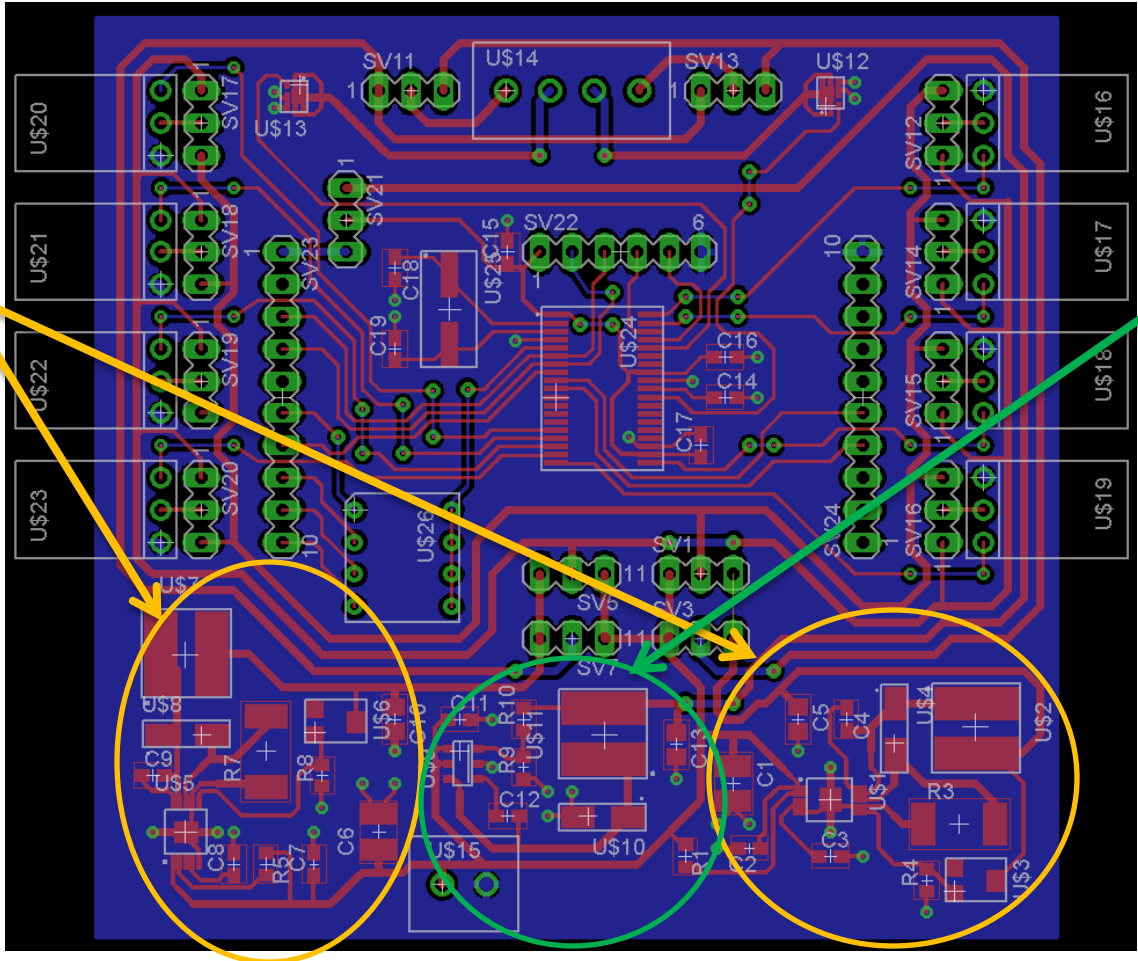
aux out terminal block

MSP430 programming header

Power Regulators

servo buck regulators

MSP430
3.3V buck
regulator



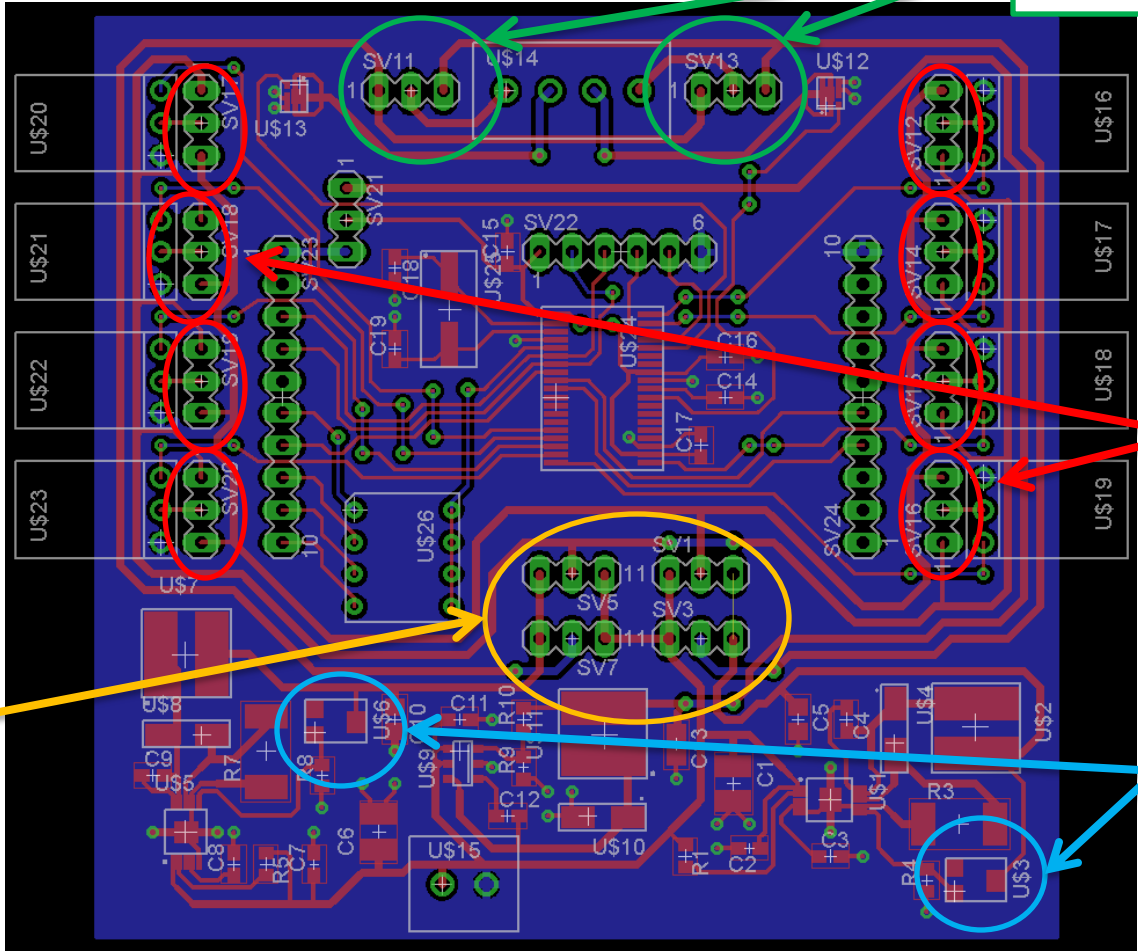
Power Selection

aux out
power
select
jumpers

servo power
select
jumpers

servo and
aux out
regulator
bypass
jumpers

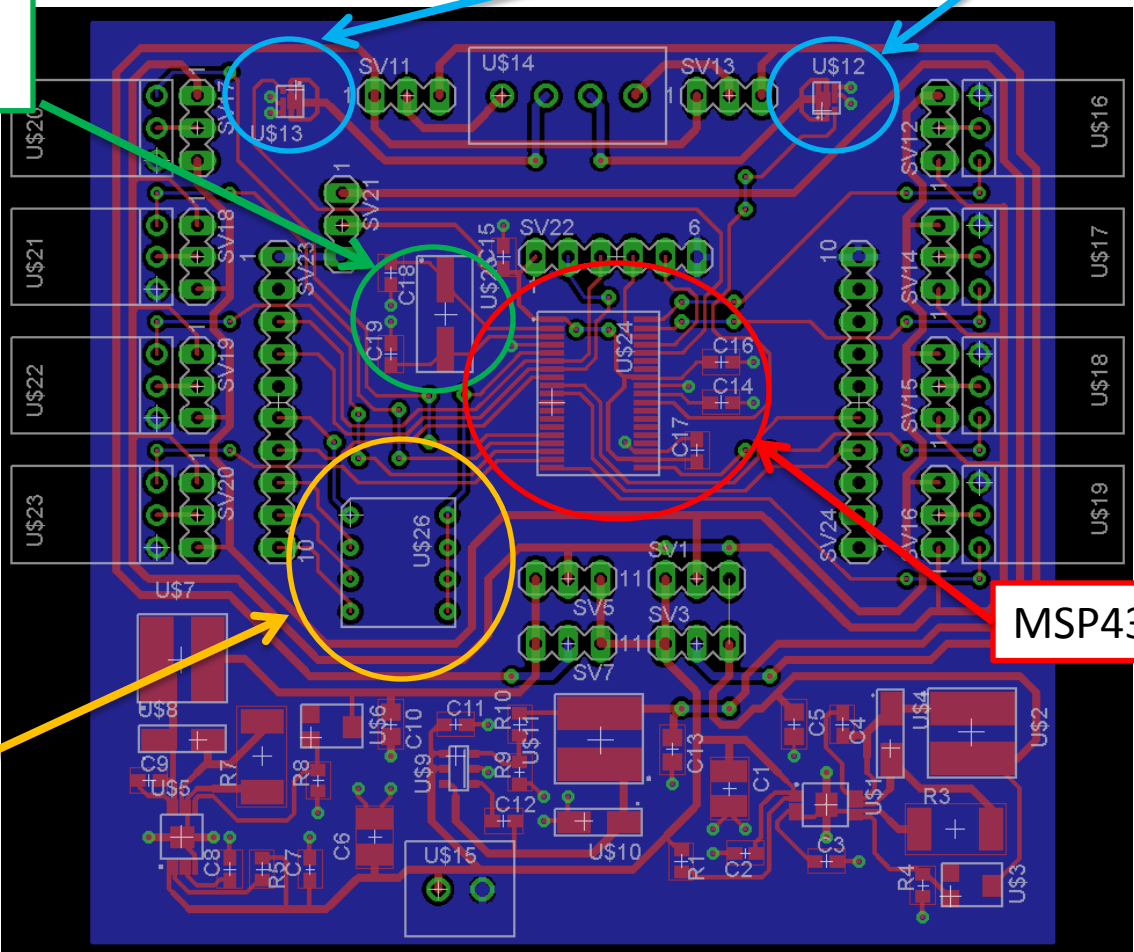
servo regulator
adjust
potentiometers



Misc.

aux out
MOSFETS

crystal
resonator



MSP430F5131

SPI STE select
DIP switch