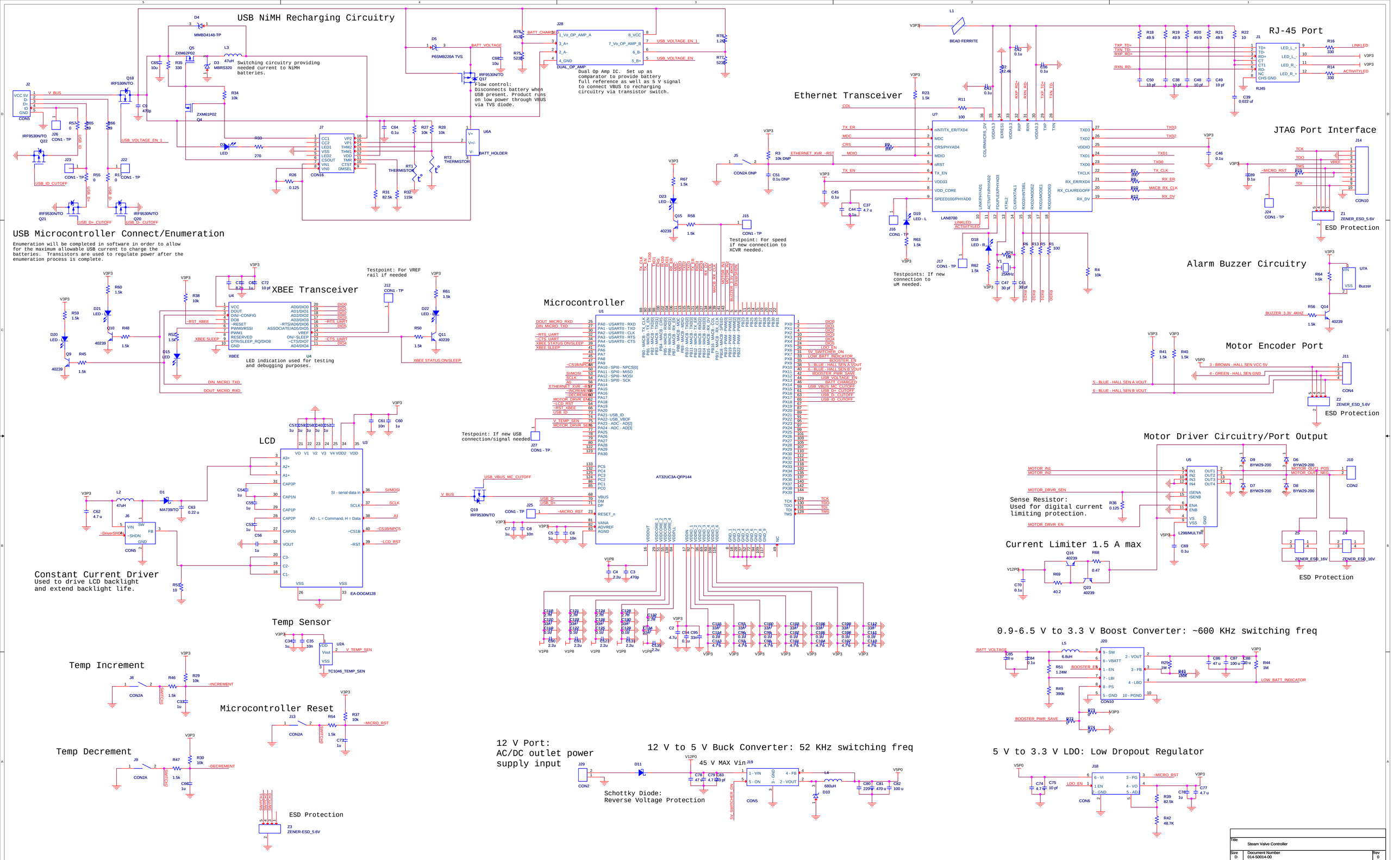
USB NiMH Recharging Circuitry
Switching circuitry providing needed current to NiMH batteries.
Flow control: Disconnects battery when USB present. Product runs on low power through VBUS via TVS diode.
Dual Op Amp IC. Set up as comparator to provide battery full reference as well as 5 V signal to connect VBUS to recharging circuitry via transistor switch.
USB Microcontroller Connect/Enumeration
Enumeration will be completed in software in order to allow for the maximum allowable USB current to charge the batteries. Transistors are used to regulate power after the enumeration process is complete.
XBEE Transceiver
LED indication used for testing and debugging purposes.
Testpoint: For VREF rail if needed
Microcontroller
AT32UC3A-QFP144
Testpoint: If new USB connection/signal needed
LCD
EA-DOGM128
Constant Current Driver
Used to drive LCD backlight and extend backlight life.
Temp Sensor
TC1046_TEMP_SEN
Temp Increment
Temp Decrement
Microcontroller Reset
ESD Protection
Ethernet Transceiver
LAN8700
Testpoints: If new connection to uM needed.
Testpoint: For speed if new connection to XCVR needed.
RJ-45 Port
JTAG Port Interface
ESD Protection
Alarm Buzzer Circuitry
Motor Encoder Port
ESD Protection
Motor Driver Circuitry/Port Output
Sense Resistor: Used for digital current limiting protection.
L298/MULTI
Current Limiter 1.5 A max
0.9-6.5 V to 3.3 V Boost Converter: ~600 KHz switching freq
12 V Port: AC/DC outlet power supply input
12 V to 5 V Buck Converter: 52 KHz switching freq
45 V MAX Vin
Schottky Diode: Reverse Voltage Protection
5 V to 3.3 V LDO: Low Dropout Regulator
Title
Steam Valve Controller
Size D
Document Number 014-50014-00
Rev 0
Date: Friday, December 24, 2010
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