

REVISION HISTORY :

REVISION	DATE	DESCRIPTION	MOTIVATION	STUFF ADDED/DROPPED/CHANGED	SHEET AFFECTED
5.00.00	07/25/06	EC054 Connect SPI_CS2 to pin 1 of u3	Allows the use of the last multiplexed CS on boards with more internal CS	added R26, connected CS2 to multiplexor enable	Carrier
5.00.00	07/27/06	EC055 Move to switching power supply	more efficient power conversion, lower heat	Dropped 5V regulator add associated components, added switching electronics	PWRetc
5.00.00	N/A	EC056 - TLV tolerance, not implemented on this design.	N/A	N/A	N/A
5.00.00	04/19/06	EC057 turn off latch when internal bootloader selected	support internal bootloader	inverted connection to boot option1, backwards compatibility through jumper	PWRetc
5.00.00	08/01/06	EC058 Move battery to accomodate chassis serial punchout	A serial punchout was obstructed by the battery holder in rev4	Internal PCB Layout	PCB
5.00.00	08/03/06	ECO 59 Add 5V/USR cathode-pullup connection to GPIO	Allows for up to 24V drive, backwards compatibility option provided (option 17)	Z5, JP8, HDR3 pin 49	GPIO
5.00.00	08/03/06	EC060 Add internal CAN signals to CAN header	Provide a generic serial connection, also allows an external opto c. connection.	HDR1 pins 5,7,8,9,10 connected	Serial IFs
5.00.00	08/11/06	EC061 Add debug JTAG connections to the header 7	Provide a way to debug new modules through the JTAG chain	HDR7 pins 6,8 connected, VCC changed to 3.3	GPIO
5.00.00	08/03/06	EC062 Add connections to the module specific header	Allow for more module specific pins on future modules	HDR11 pins 1,21,22 connected	Carrier
5.00.00	08/10/06	EC063 Replace R19 with a 1206 100 Ohm resistor	Forces a higher current into the analog subsection	R19	Analog
5.00.00	08/15/06	EC064 Lower Analog Vcc	5.6V is on the high end for many digital voltages, around 5.3 is better	D2 changed to MELF Schottky, Regular MELF diode available if necessary	Analog
5.01.00	08/15/06	EC065 remove PF1 from bare-bones population	fuse is unused on barebones board	BoM PF1	Serial IFs
5.02.00	12/29/06	EC066 brownout detector needs 3.3V Vcc	battery switchover needs to switch to 3.3V	Schematic annotation, wire mod	PWRetc
5.03.00	01/11/07	EC066 add bypass cap to wire mod	3.3V modification requires a bypass capacitor	Schematic annotation, wire mod	PWRetc

OPTION KEY:
 0 ALWAYS POPULATED
 1 AtoD
 2 DtoA
 5 SD/MMC card
 6 CAN
 7 AtoD and DtoA shared circuitry, required for options 1 and/or 2 to work.
 8 Modem
 9 Thermometer
 10 GPIO
 11 Never populated, legacy part
 12 SOM100ESR1 legacy populations, not normally populated
 13 Power options - Floppy connector, battery, and LED
 14 485/422 components
 15 SoM-5282 config. buffer
 16 NE64 BDM adaptor
 17 Rev4 functionality additions

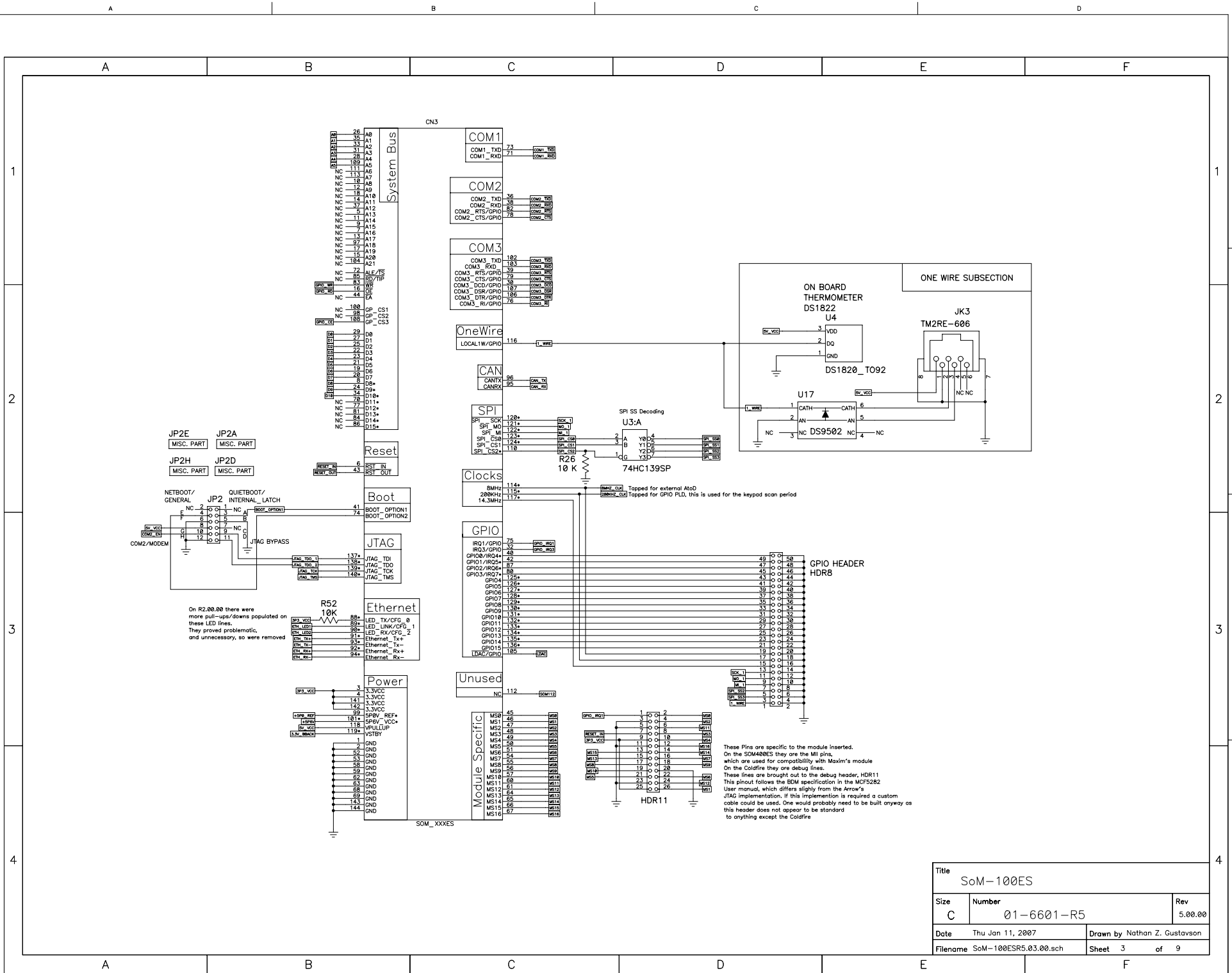
REVISION KEY:
 PCB_REV SCHEMATIC REV MODWIRE REV
 X.XX.XX
 PCB1
 [MISC. PART]
 BLANK PCB REV 5
 01-6601-R5

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Size C	Number 01-6601-R5	Rev 5.00.00
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JUMPER TABLE

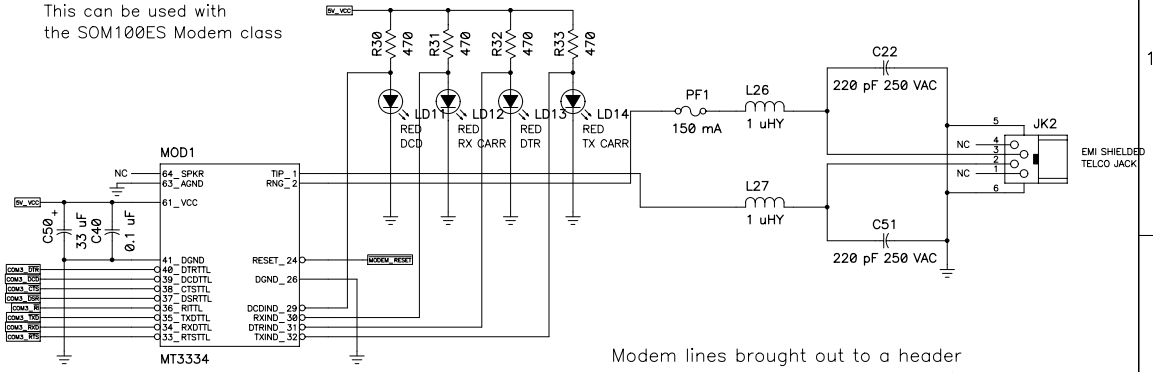
LOCATION	STYLE	FUNCTION	DEFAULT SETTING(S)	QTY OF JUMPERS REQUIRED PER LOCATION
JP1	2 X 3 0.1 INCH	LCD CONFIGURATION	A&D – BACKLIGHT EN	2
JP2	2 X 3 0.1 INCH	CONFIG OPTIONS	E A H D	4
JP3	1 X 3 0.1 INCH	RS-232 / RS-422 /RS-485 SERIALPORT CONFIG	232 – NO JUMPER, This has no park location	1
JP4	1 X 3 0.1 INCH	DTR RESET	ON	1
JP5	1 X 3 0.1 INCH	CAN PORT LINE TERMINATION	ON	1
JP6	1 X 3 0.1 INCH	USR/5V Cathode selection	5	1

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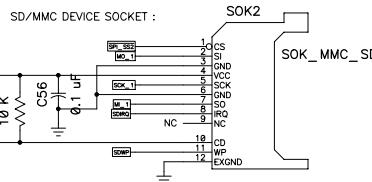
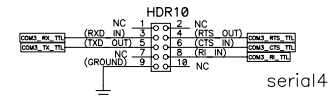


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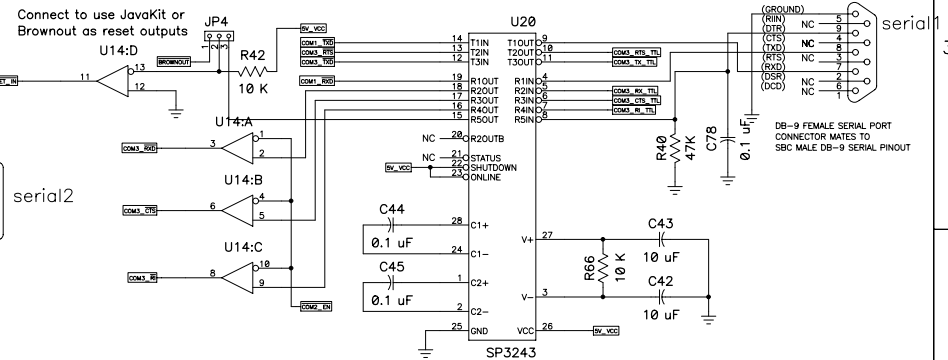
Standard Multitech Modem socket
 Compatible with the Multitech 56K modem and Multitech wireless modem.
 COM4 in the Tini OS.
 This can be used with
 the SOM100ES Modem class



Modem lines brought out to a header
 the 2 cannot be used at the same time.
 Note that this is serial4 in the TiniOS.
 This naming is based on the serial part convention
 used by the Tini OS, which skips serial3 for some
 reason.

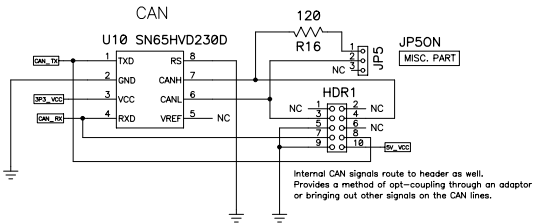


Main RS232 serial port.
 JAVAKIT compatible

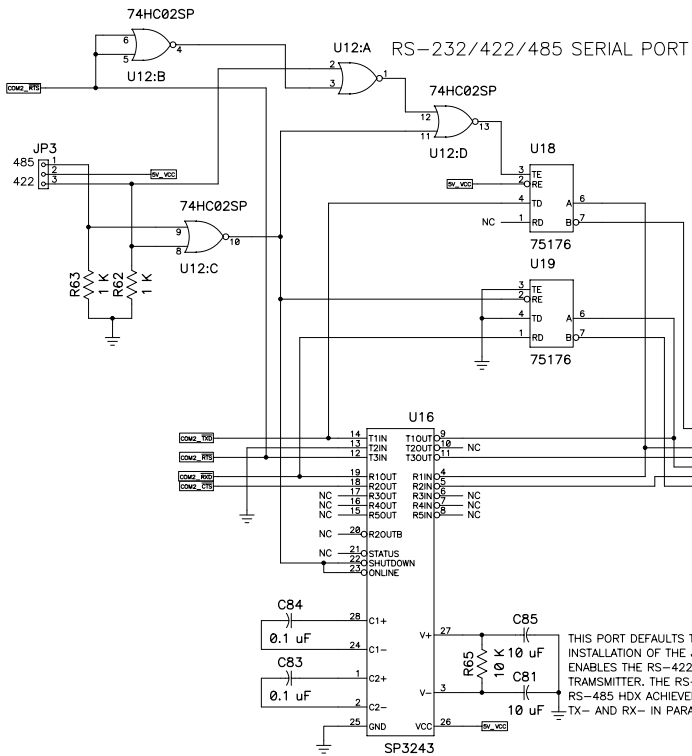


serial2

serial1

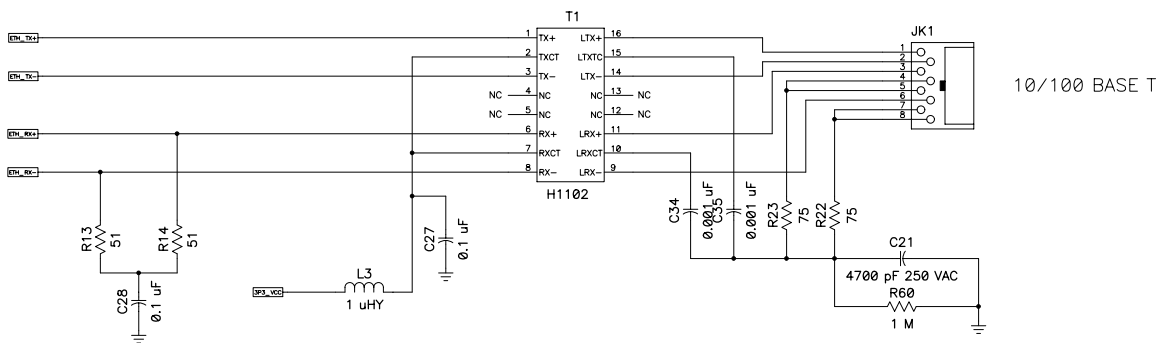


Internal CAN signals route to header as well.
 Provides a method of opt-coupling through an adaptor
 or bringing out other signals on the CAN lines.



THIS PORT DEFAULTS TO RS-232 MODE UNLESS JUMPER FOR RS-422/485.
 INSTALLATION OF THE JUMPER DISABLES THE RS-232 DRIVER AND
 ENABLES THE RS-422 DRIVERS. ASSERTION OF RTS ENABLES RS-485
 TRANSMITTER. THE RS-422 RECEIVE IS ALWAYS ACTIVE.
 RS-485 HDX ACHIEVED BY CABLE JUMPERING TX+ AND RX+.
 TX- AND RX- IN PARALLEL.

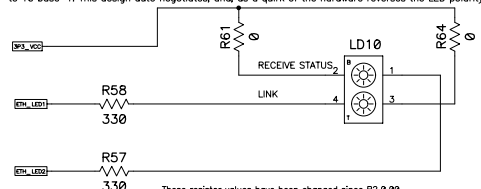
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ethernet LED'S and configuration options

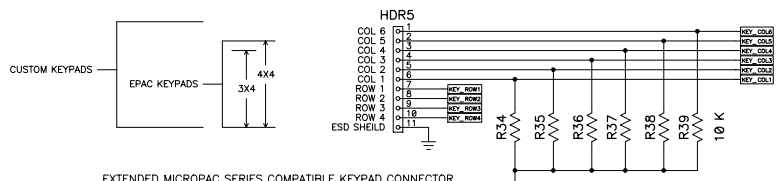
new LED polarity - auto-negotiation.

This is changed from the Rev1 design which hard coded the board to 10 base-T. This design auto negotiates, and, as a quirk of the hardware reverses the LED polarity.



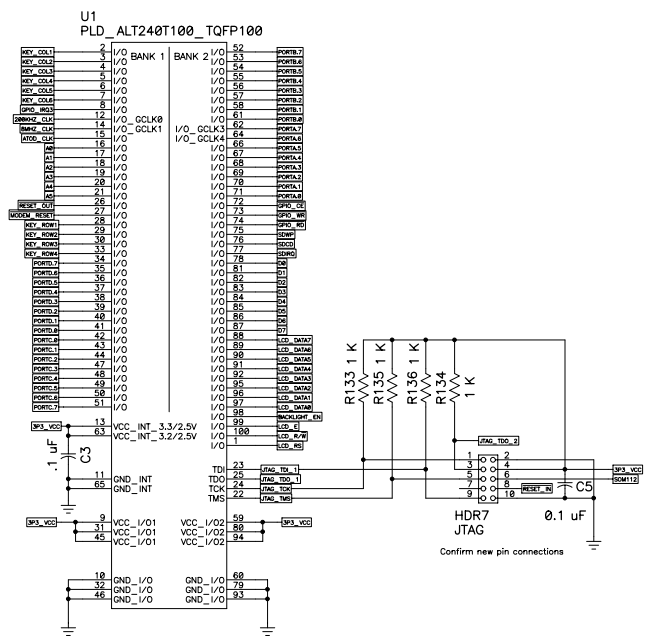
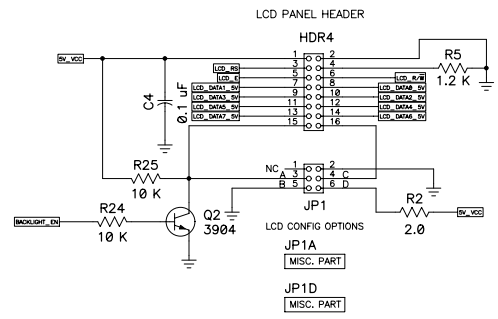
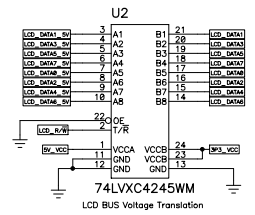
These resistor values have been changed since R2.0.00. The original values were found to be too strong a pull on the lines.

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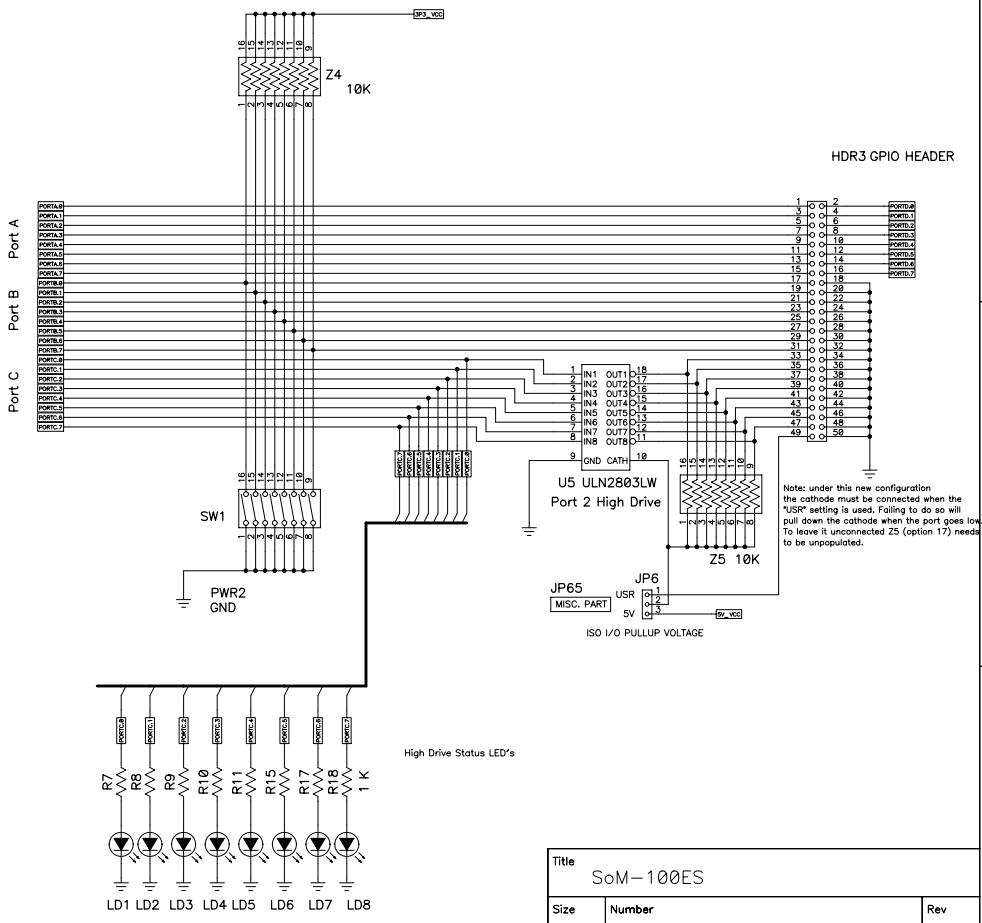


EXTENDED MICROPAC SERIES COMPATIBLE KEYPAD CONNECTOR

This page specifies the layout of the Altera Max II PLD - Option 10. The smallest 100 pin version is specified here, but larger, and faster Max parts are available in the same package. All the other IO on this page supports the PLD, and can really be programmed to anything, but are pre-programmed as GPIO, LCD, and Keypad functions. This device is in-circuit programmable and can be programmed through the JTAG header using a Byteblaster cable, or through the SoM header.



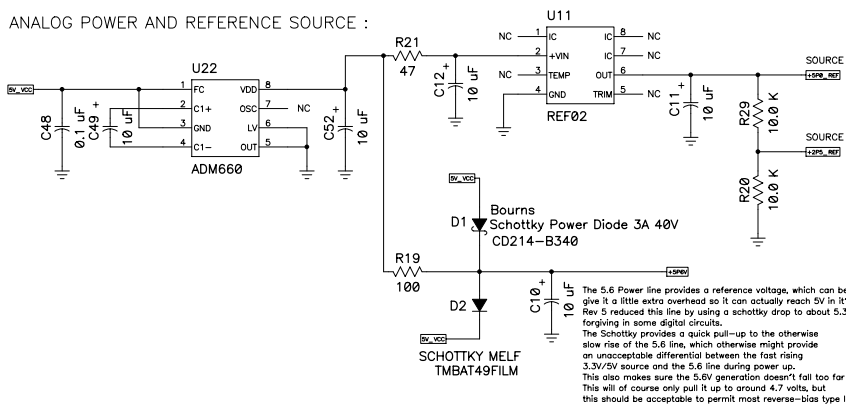
Confirm new pin connections



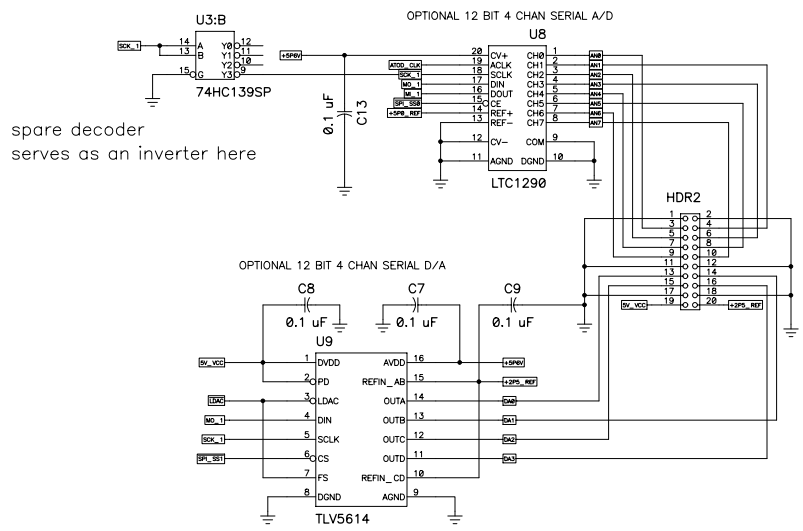
Note: under this new configuration the cathode must be connected when the "USR" setting is used. Failing to do so will pull down the cathode when the port goes low. To leave it unconnected Z5 (option 17) needs to be unpopulated.

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ANALOG POWER AND REFERENCE SOURCE :



The 5.6V Power line provides a reference voltage, which can be used by Analog circuitry to give it a little extra overhead so it can actually reach 5V in it's calculations.
 Rev 5 reduced this line by using a schottky drop to about 5.3V, which may be more forgiving in some digital circuits.
 The Schottky provides a quick pull-up to the otherwise slow rise of the 5.6 line, which otherwise might provide an unacceptable differential between the fast rising 3.3V/5V source and the 5.6 line during power up.
 This also makes sure the 5.6V generation doesn't fall too far behind the 5.0 reference.
 This will of course only pull it up to around 4.7 volts, but this should be acceptable to permit most reverse-bias type latch-ups.



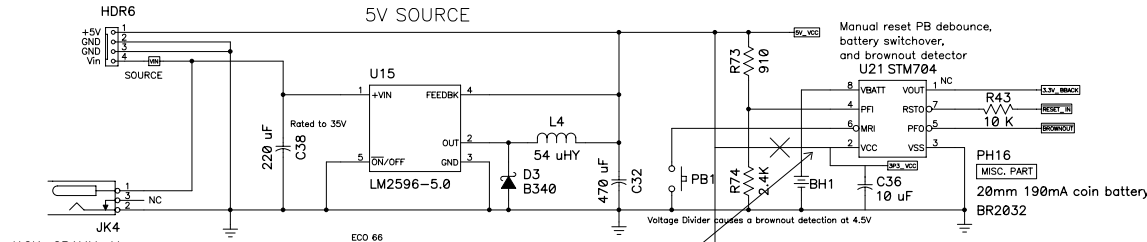
spare decoder serves as an inverter here

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DC/DC power conversion

This power system accepts a direct feed from 5V or switches down a supply from 7-35V Vin into 5. A LDO regulator is employed to generate 3.3 from the 5.

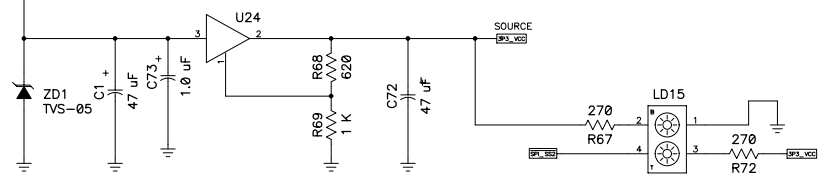
PC STYLE DISC DRV POWER CONNECTOR:



JACK_2P1MM_M
WAL-MOUNT DC POWER SUPPLY
BARREL JACK,
NOMINALLY 9V @ 500 mA.

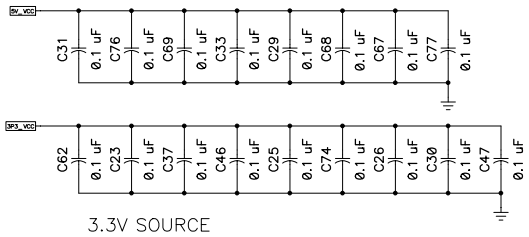
ECO 68
Cut track and connect pin to the 3.3V rail.
A bypass cap should also be added locally.
This correctly switches the battery line from bat to 3.3 on power up.

3.3V SOURCE



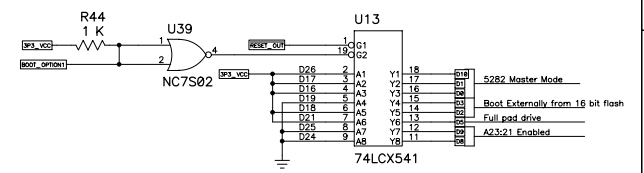
POWER LED&MMC ACTIVITY

MISCELLANEOUS SPRINKLE BYPASS CAPS:



3.3V SOURCE

OPTIONAL HARDWIRED
SoM-5282 BOOT CONFIGURATION OPTIONS :
SoM-5282M can be purchased with an internal latch which eliminates the need for this, this latch is included only for backwards compatibility. The internal latch is controlled by boot option 1, floating boot_option or pulling it high disables the module latch



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A

B

C

D

A

B

C

D

E

F

1

1

2

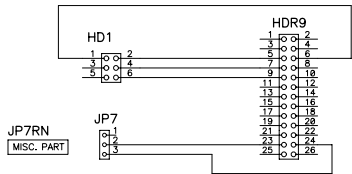
2

3

3

4

4



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A

B

B

C

D

c

E

D

F