

# PM1200 CPU Module

## Notes:

Rev 01 of this design has 1514 pins and 340 nets.

Rev 02 of this design has 438 Parts, 51 Library Parts, 332 Nets, 1557 Pins

See design and layout notes on schematic.

## Rework Instructions:

See REW001 and REW002 in Arena under 700-0072 Rev01.

REW001 corrects position of J2, J3, J9 and footprint of P2.

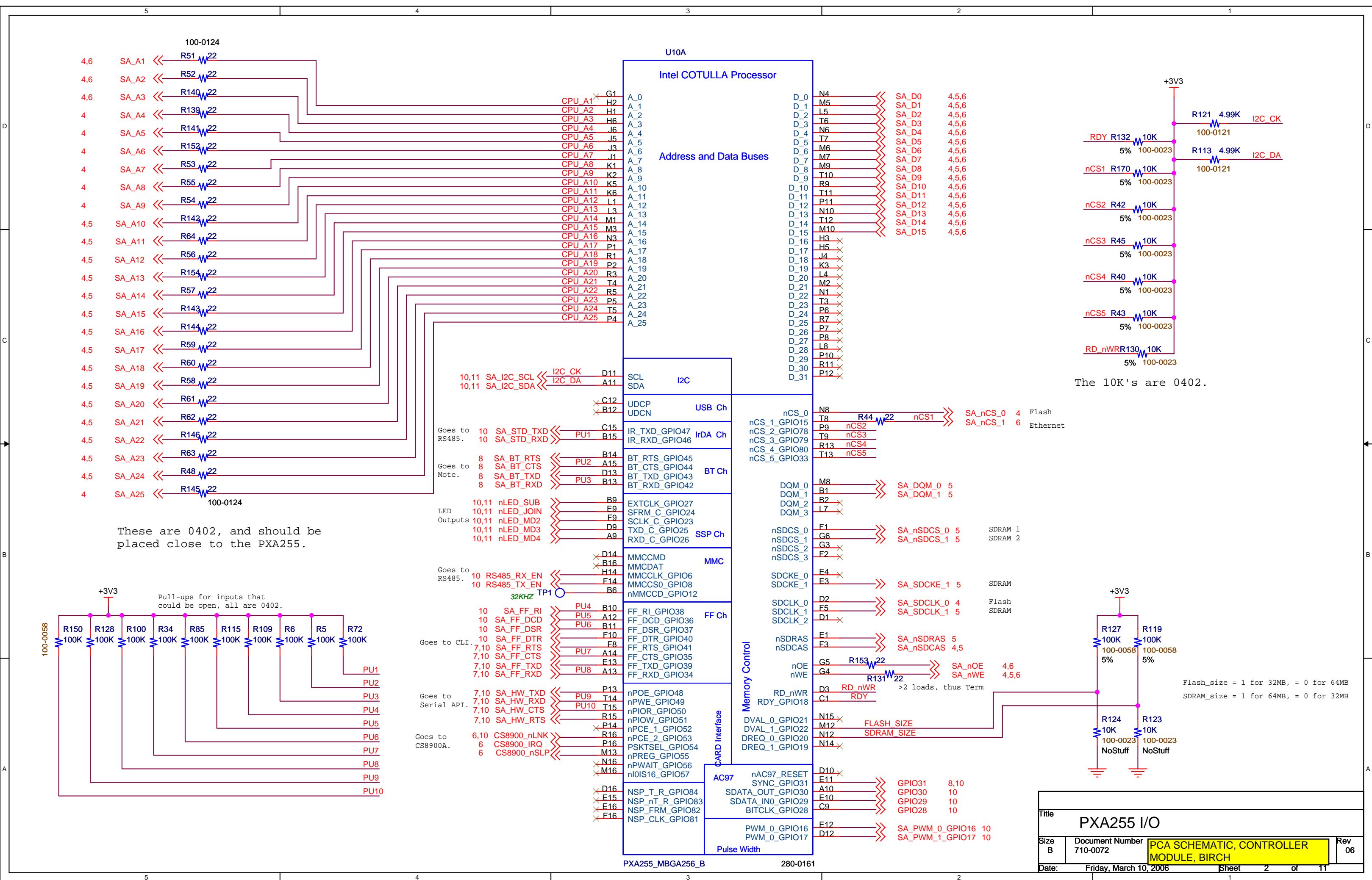
REW002 corrects timing of nOE to U16 (CS8900A).

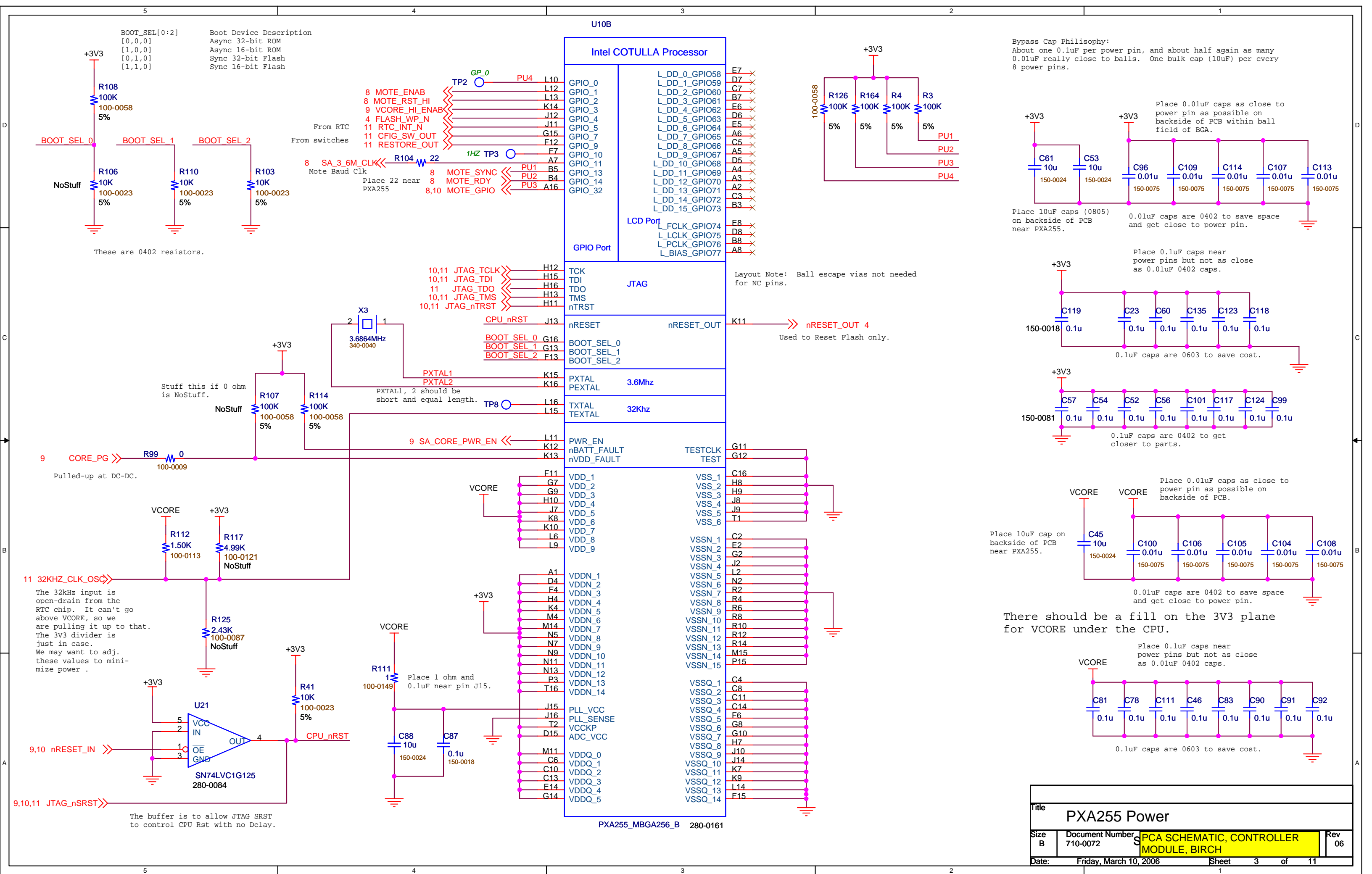
## Revision History:

Rev	Description	ECO	Author
01	Original board for fab.		R. Leath
02	Several minor corrections. See Rev 02 Change List.		R. Leath
06	Several minor BOM changes for Rev 03 to 06. See history in Arena.		R. Leath

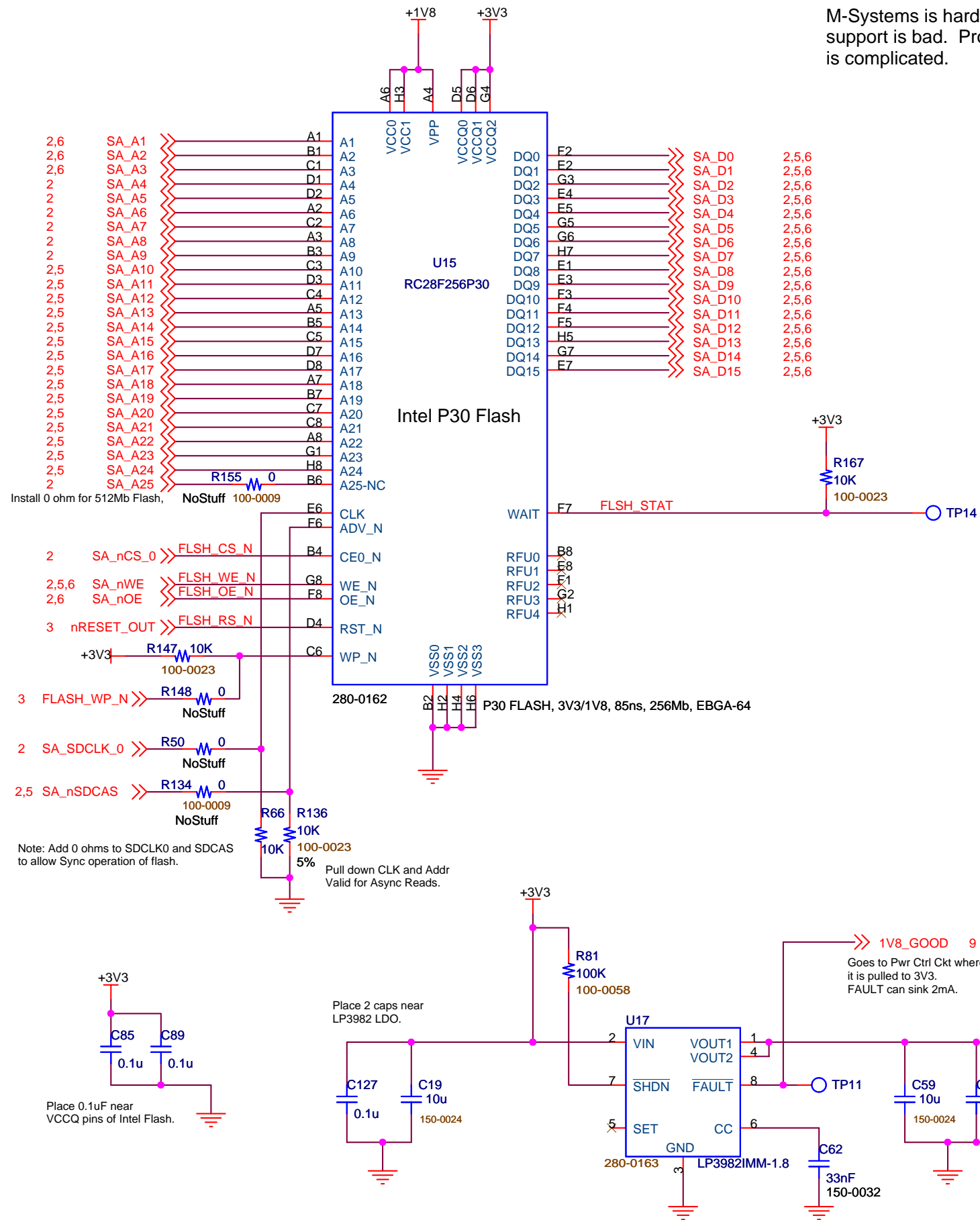
PCB fab - 600-0072  
PCA ASSY DWG- 705-0072  
Schematic - 710-0072

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Title Page / Revision History			
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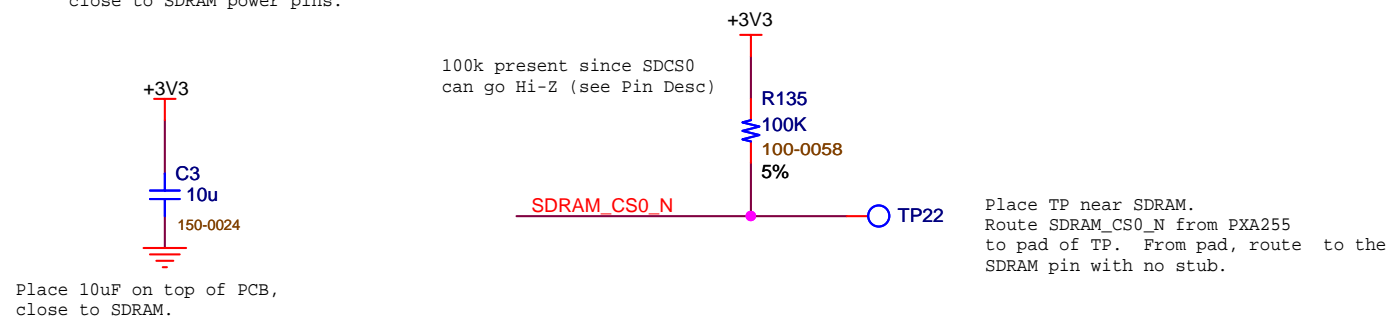
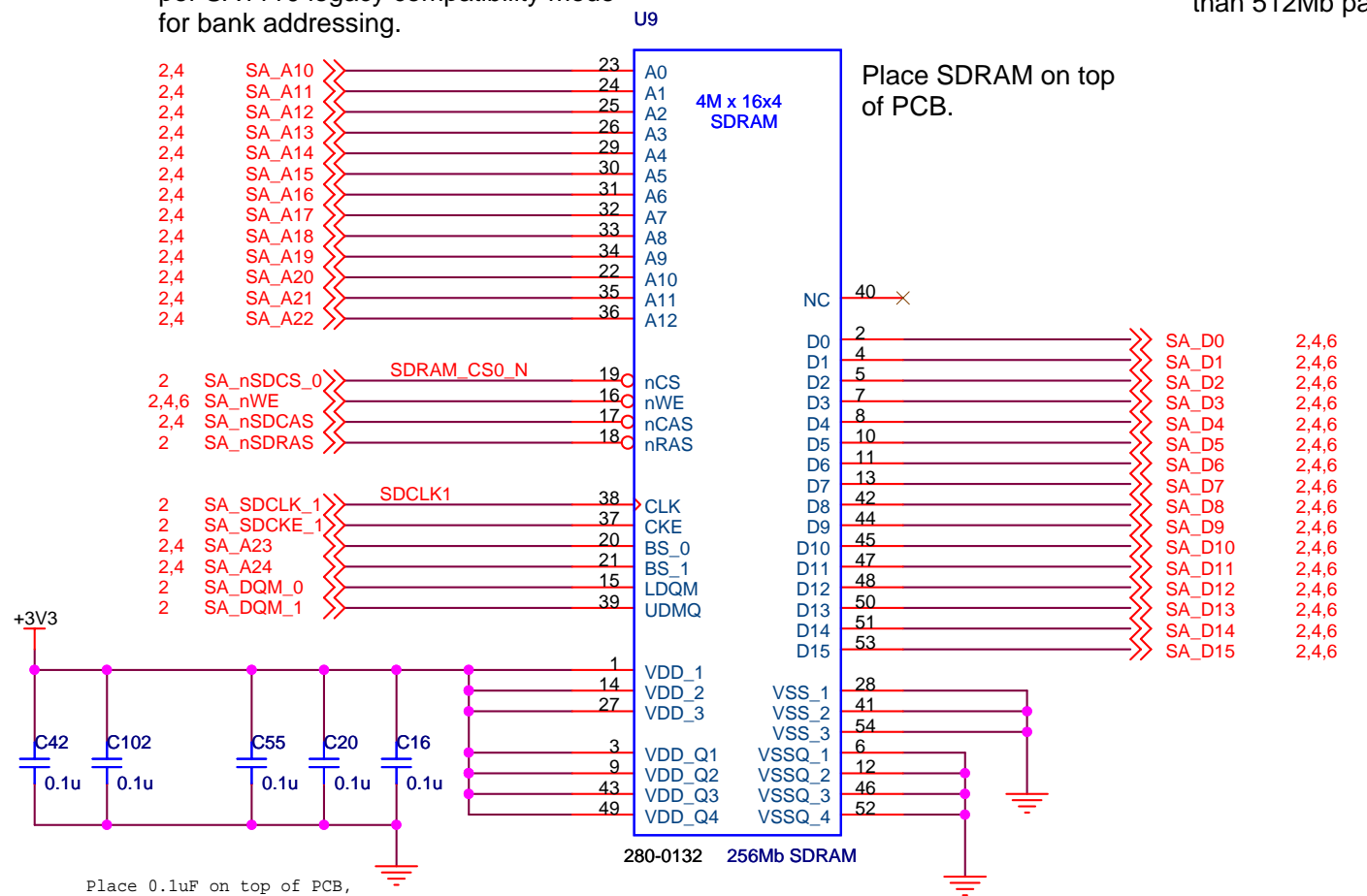
P30 Flash with PXA255 gets discount.  
Thus, P30 will be cheaper than Spansion.  
M-Systems is hard to get and  
support is bad. Programming  
is complicated.



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Flash			
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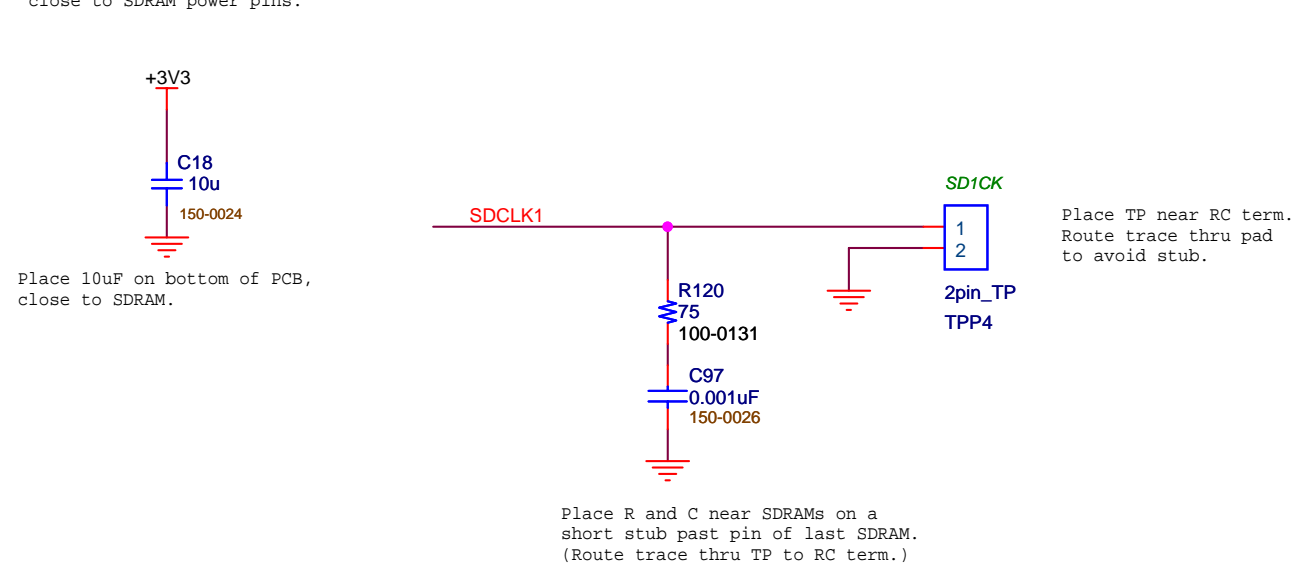
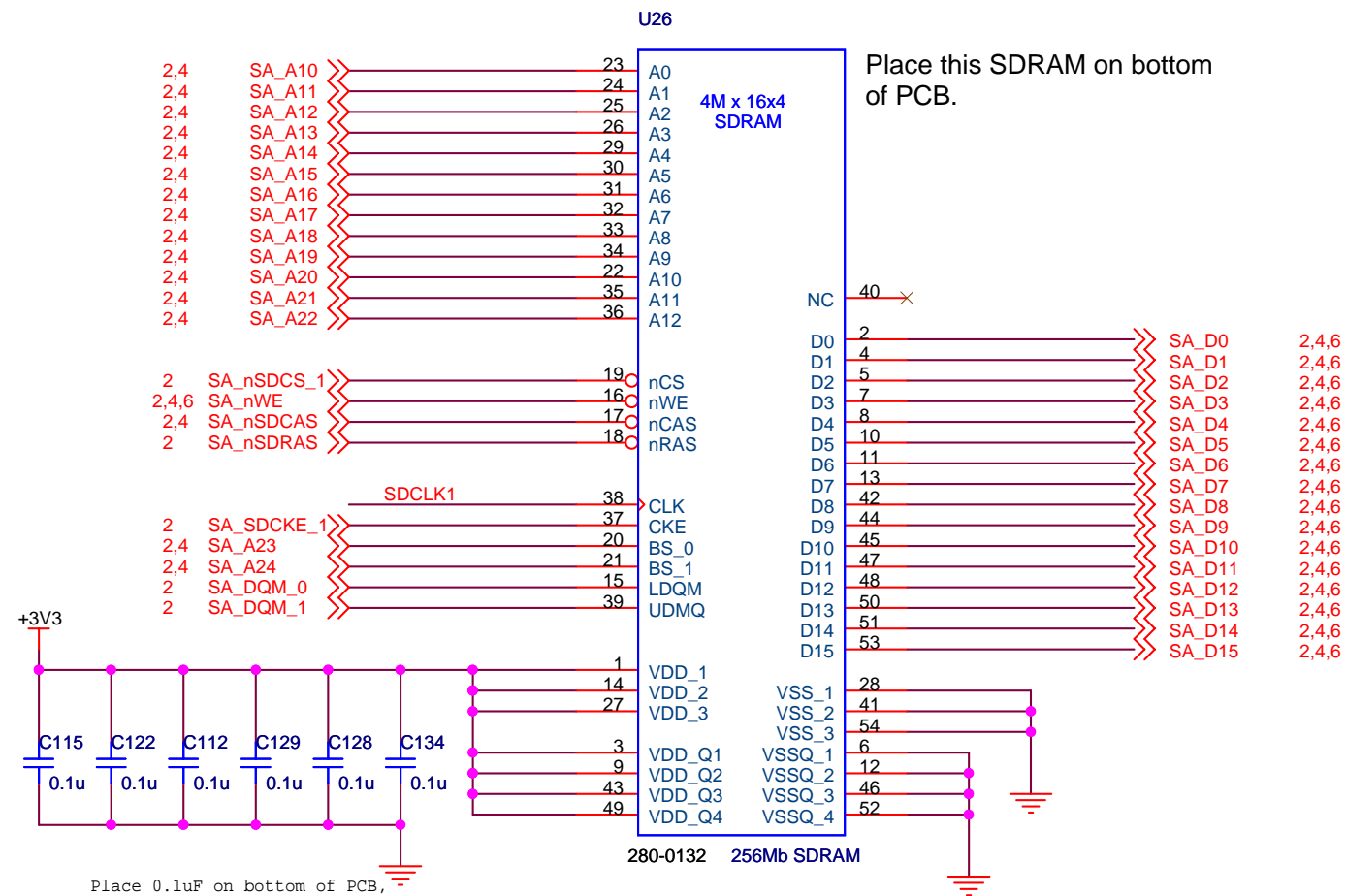
Note that addressing is connected per SA1110 legacy compatibility mode for bank addressing.

256Mb parts are more cost effective (by 50%) than 512Mb parts.



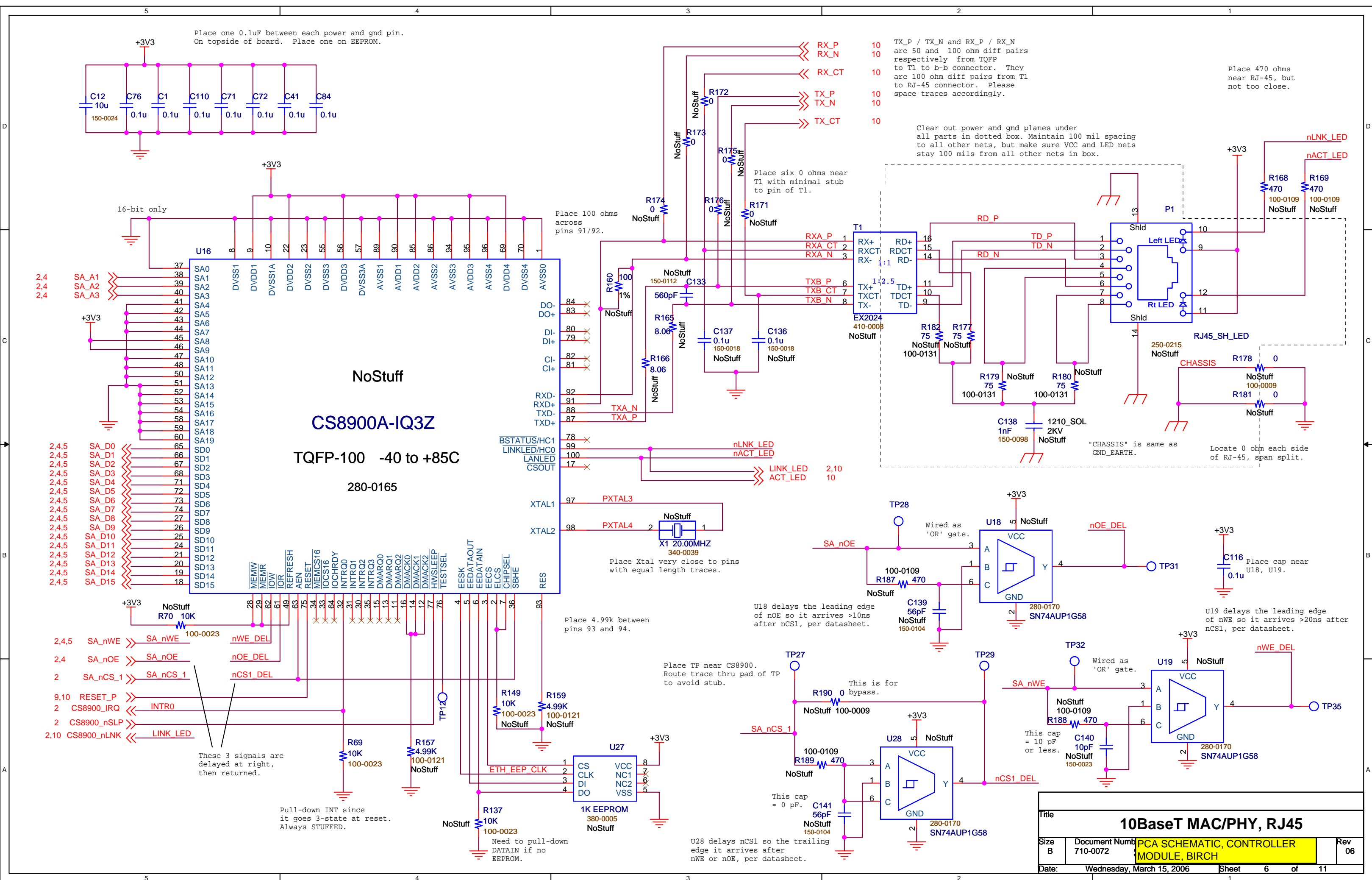
Note: Both SDRAM are loaded for 64MB. It is 2 x 256Mb for 64MB of x16 RAM. If we only need 32MB, then the one of the right is NOSTUFF, and we have 32MB of x16 SDRAM. SDRAM on left is Partition 0. SDRAM on right is Parition 1.

Note: For 0-70C, Samsung SDRAMs are more cost effective (about \$5 instead of \$7).



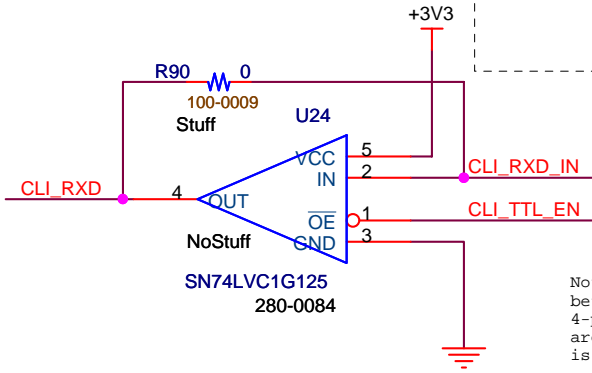
Title			
SDRAM			
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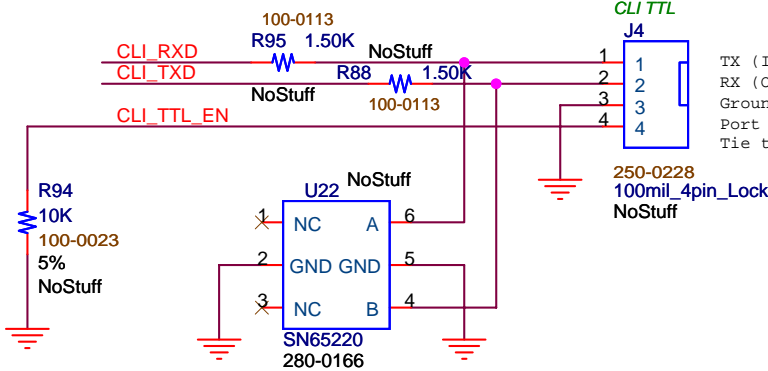


Note: When the PM1200 is mounted on a motherboard, then everything on this sheet is NOSTUFF, because RS-232 Xcvr's will be on motherboard.

2,10 SA\_FF\_TXD >> CLI\_TXD  
2,10 SA\_FF\_RXD << CLI\_RXD  
2,10 SA\_FF\_RTS >> CLI\_RTS  
2,10 SA\_FF\_CTS << CLI\_CTS



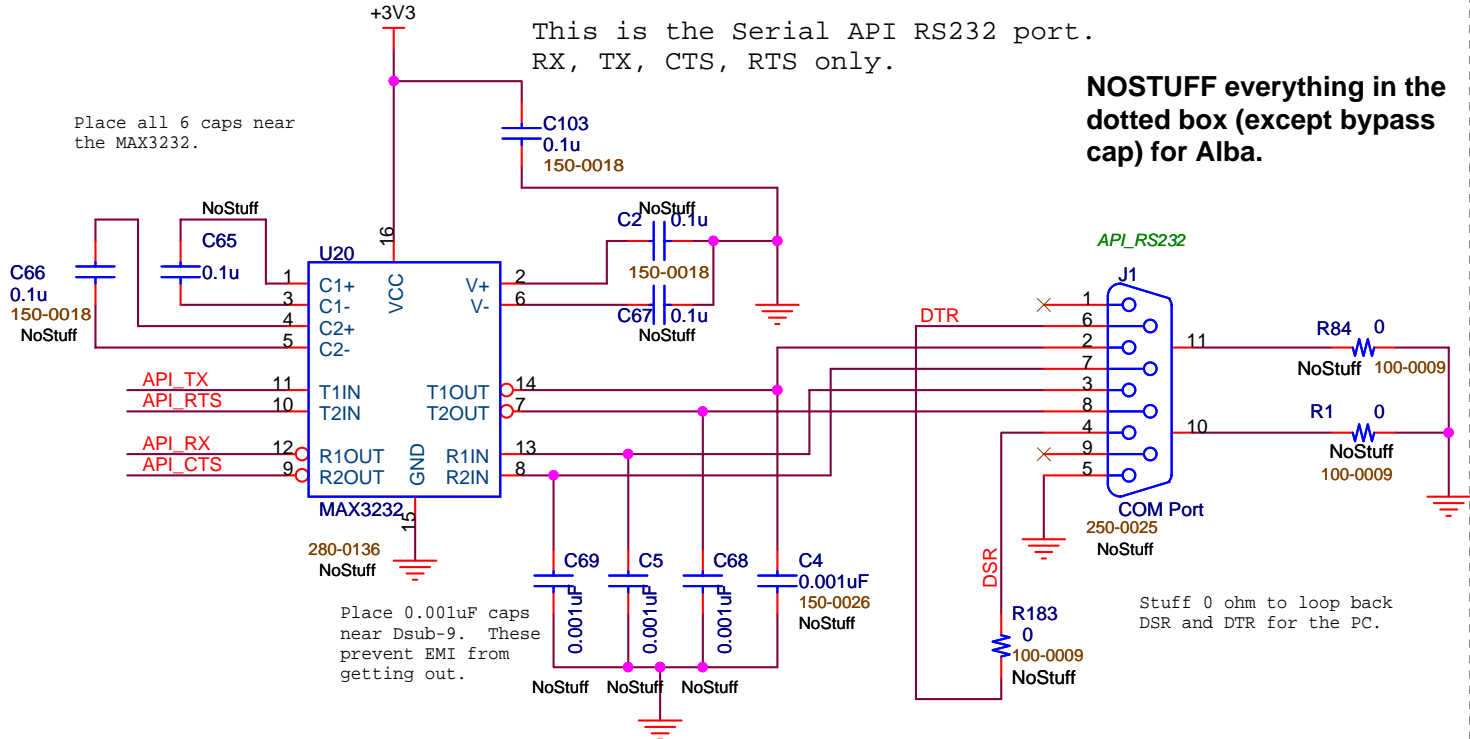
Note: Buffer prevents contention between MAX3232 RX output and 4-pin header. It can be jumper-ed around with 0 ohm resistor if MAX3232 is not stuffed.



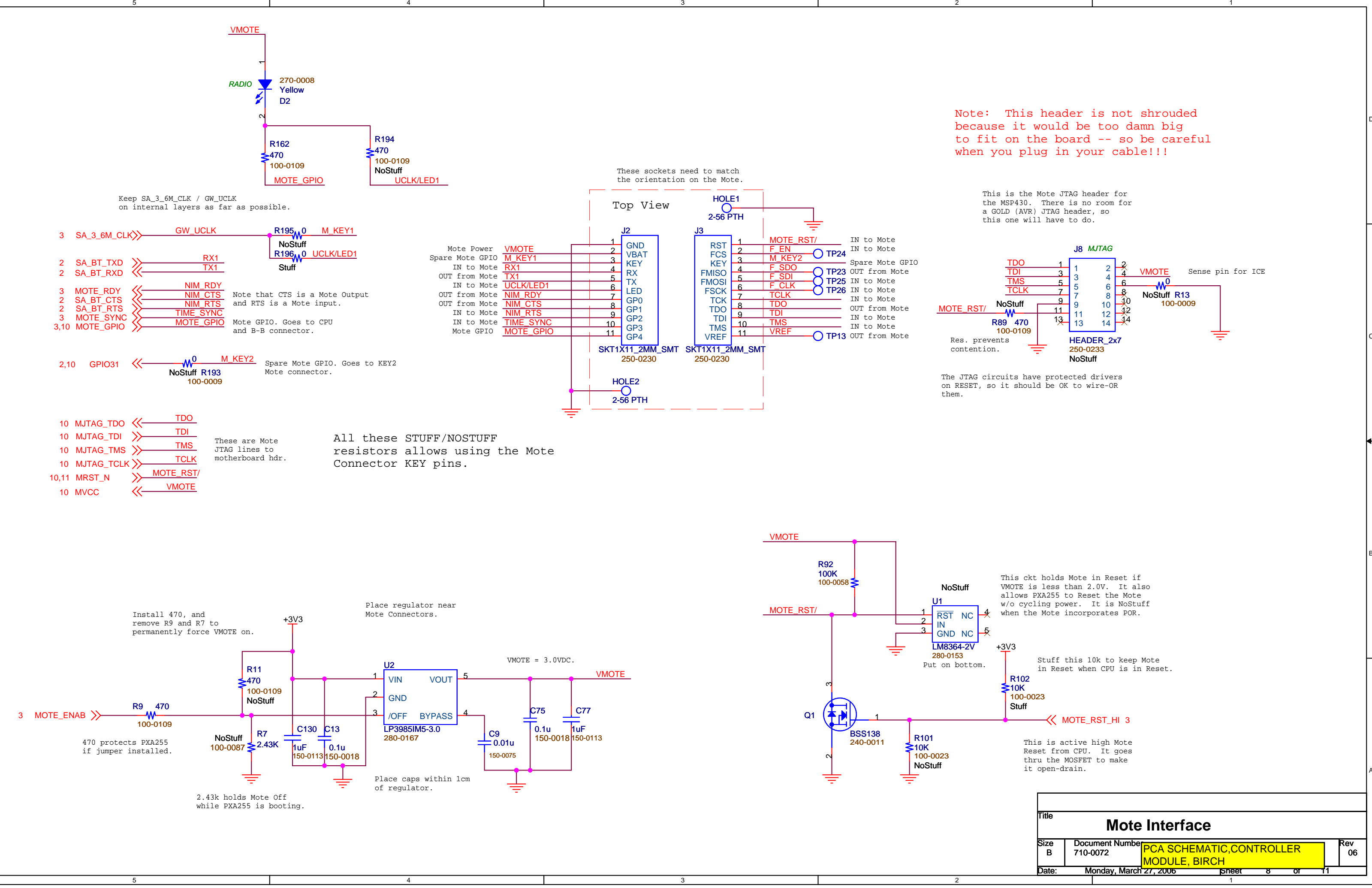
NOSTUFF this TTL test port for Alba.

2,10 SA\_HW\_TXD >> API\_TX  
2,10 SA\_HW\_RXD << API\_RX  
2,10 SA\_HW\_RTS >> API\_RTS  
2,10 SA\_HW\_CTS << API\_CTS

These 4 signals go to the Alba connector on sheet 9) also.

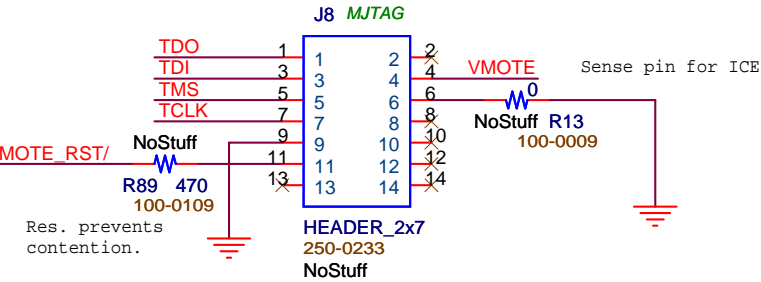


Title			
RS-232 Ports			
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Note: This header is not shrouded because it would be too damn big to fit on the board -- so be careful when you plug in your cable!!!

This is the Mote JTAG header for the MSP430. There is no room for a GOLD (AVR) JTAG header, so this one will have to do.



The JTAG circuits have protected drivers on RESET, so it should be OK to wire-OR them.

All these STUFF/NOSTUFF resistors allows using the Mote Connector KEY pins.

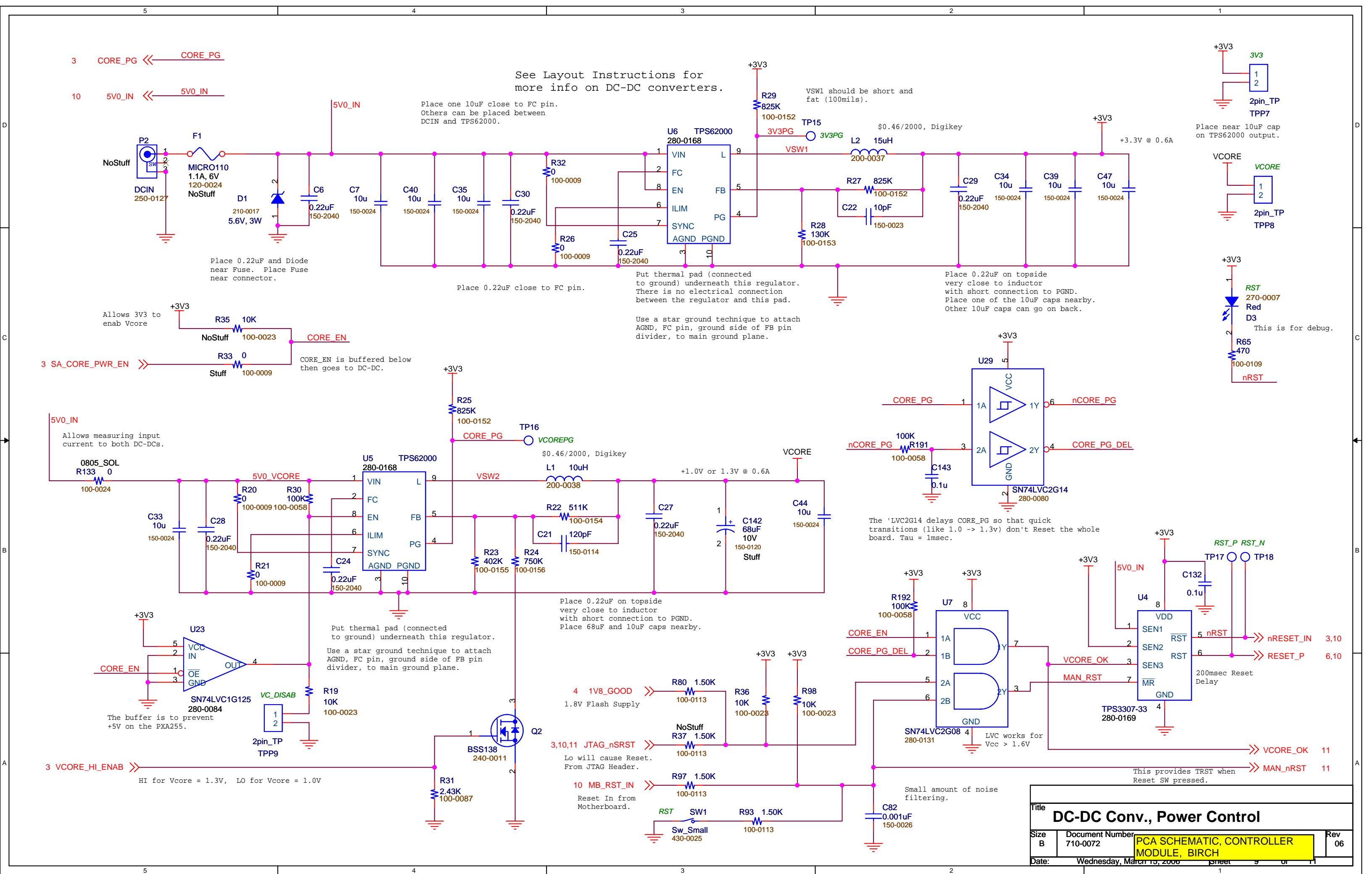
This ckt holds Mote in Reset if VMOTE is less than 2.0V. It also allows PXA255 to Reset the Mote w/o cycling power. It is NoStuff when the Mote incorporates POR.

Stuff this 10k to keep Mote in Reset when CPU is in Reset.

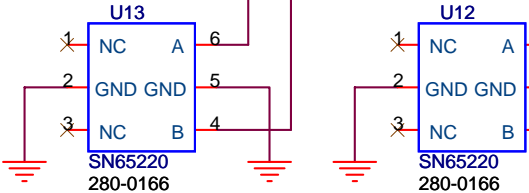
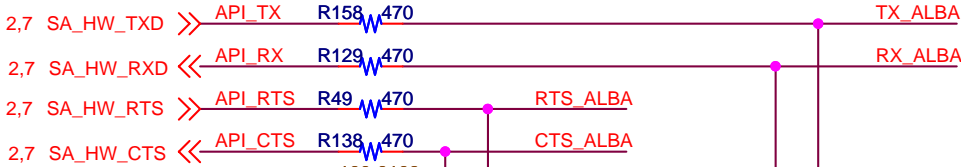
This is active high Mote Reset from CPU. It goes thru the MOSFET to make it open-drain.

Title			
Mote Interface			
Size B	Document Number 710-0072	PCA SCHEMATIC;CONTROLLER MODULE, BIRCH	Rev 06
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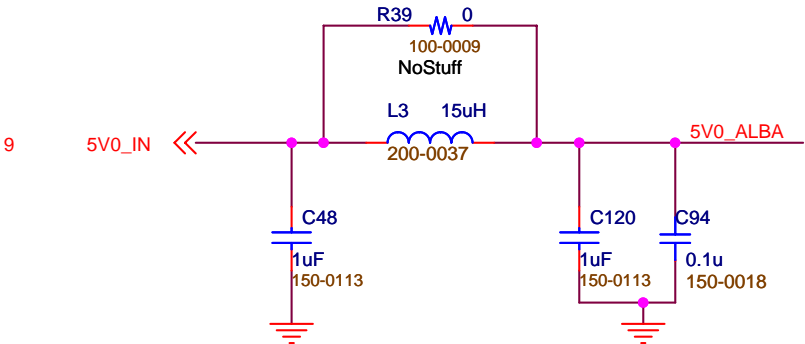
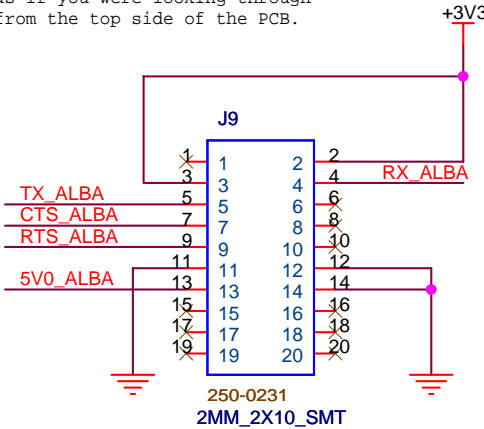


These 4 lines go directly to the CPU and to a NOSTUFF (usually) RS232 Xcvr. The 470ohms prevents damage if the RS232 Xcvr is STUFFED. The Transient Suppressors (and 470 ohm) protect this board.



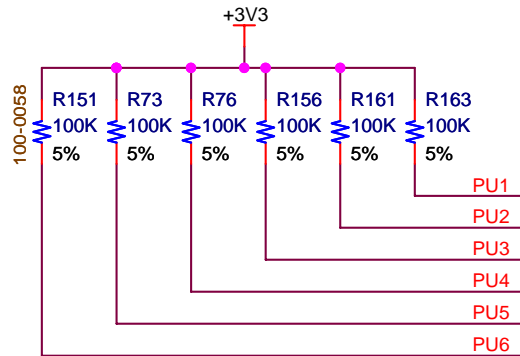
Place these parts near the 20-pin socket. They can be NoStuff if protection is not a concern -- which may be a good assumption since the socket leads to isolators that are powered by this board.

This is the Alba 20-pin socket on the bottom of the PCB. Pin 1 on this sheet is oriented as if you were looking through from the top side of the PCB.



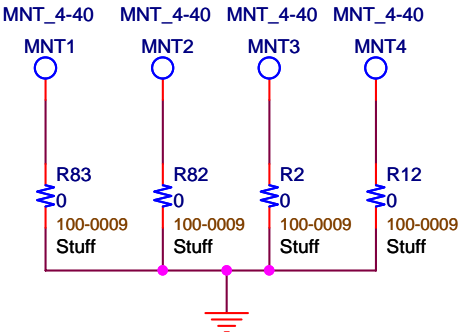
Place these parts near the 20-pin socket. Nets "5V0\_IN" and "5V0\_ALBA" should be 50mils wide.

This filter keeps hi-freq noise where it came from.



These pull-ups are 0402.

Mounting Hole is plated-thru, 0.125" diameter hole with 0.250" pads on both sides.

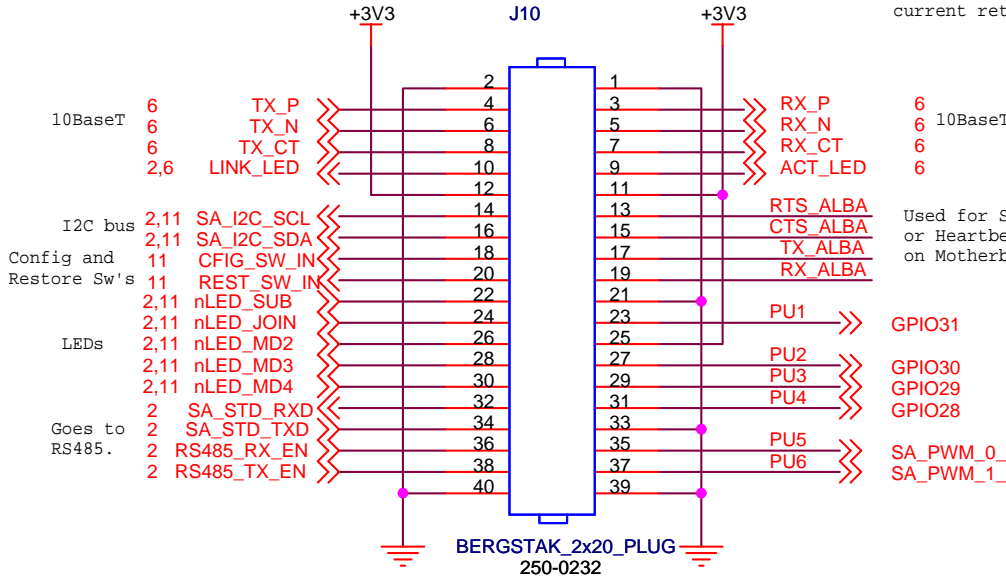


Place 0 ohm at each Mounting Hole.

Non-plated thru Tooling Holes, 0.125" diameter. Locate per Placement Drawing.



Board-to-Board connector near CPU. NOSTUFF for Alba.



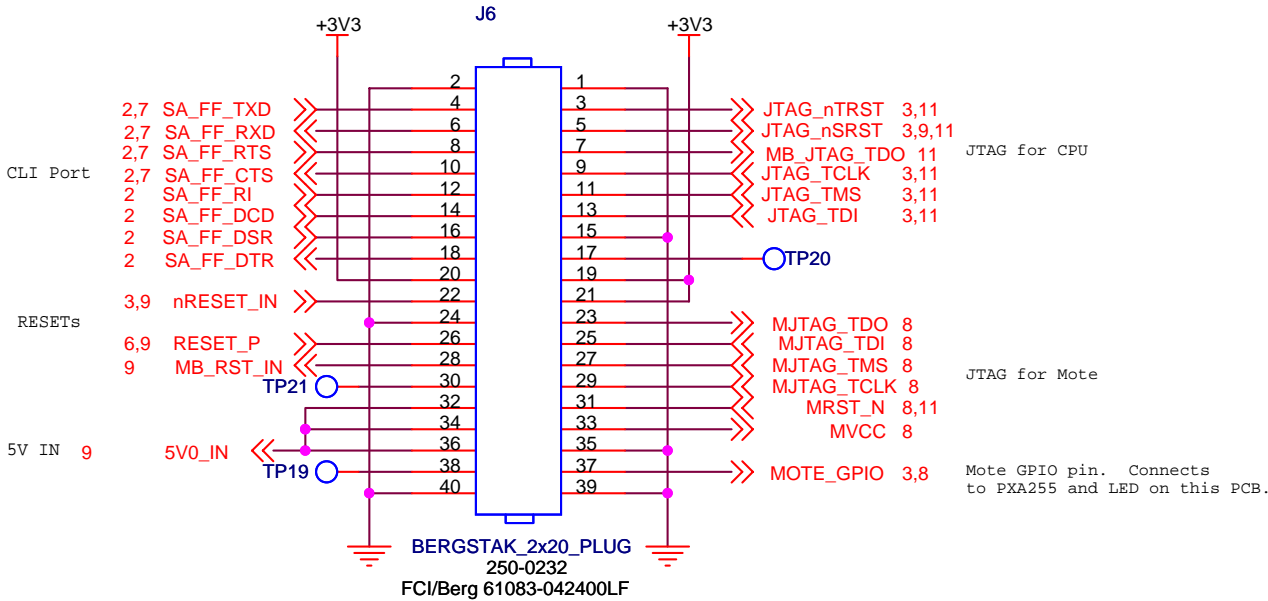
Note: Put GND pins near fast signals for good image current return.

Used for Serial SPI or Heartbeat Port on Motherboard.

These are spare I/O. Pulled-up in case they stay inputs w/o drive.

These are 5.7mm tall connectors that mates with a connector on the motherboard to achieve a 6mm board-board spacing.

Board-to-Board connector near Mote. NOSTUFF for Alba.



JTAG for CPU

JTAG for Mote

Mote GPIO pin. Connects to PXA255 and LED on this PCB.

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Board to Board Connectors			
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Note: Dont forget to stuff R87 with J7 or the JTAG interface with JFlash\_MM won't work!!

Note: This header is not shrouded because it would be too damn big to fit on the board -- so be careful when you plug in your cable!!!

Stuff Horizontal battery (BT1) if Ethernet magnetics are not stuffed.

