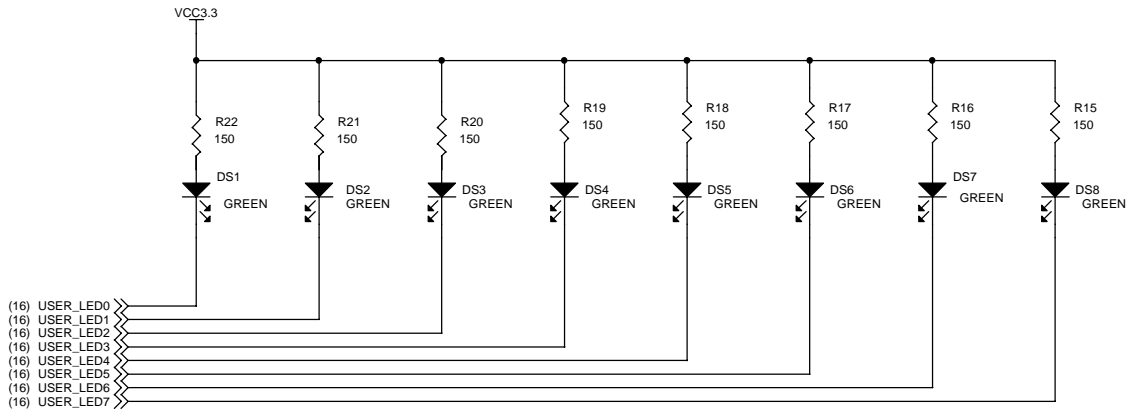
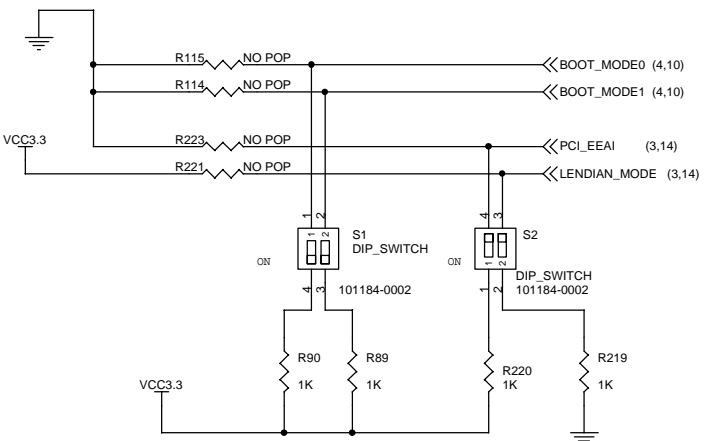


| EMIF_ECLKINSEL[1:0] |        |                         |
|---------------------|--------|-------------------------|
| R42                 | R40    | MODE SELECTED           |
| NO POP              | NO POP | ECLKIN( DEFAULT)        |
| NO POP              | 1K OHM | CPU CLOCK /4 EMIF CLOCK |
| 1K OHM              | NO POP | CPU CLOCK /6 EMIF CLOCK |
| 1K OHM              | 1K OHM | ECLKIN                  |



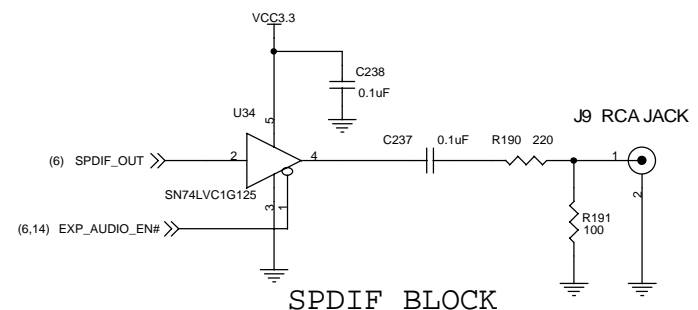
USER LEDS



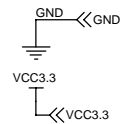
| BOOT_MODE[1:0] |      |                     |
|----------------|------|---------------------|
| S1-2           | S1-1 | MODE SELECTED       |
| OFF            | OFF  | NO BOOT (DEFAULT)   |
| OFF            | ON   | HPI/PCI BOOT MODE   |
| ON             | OFF  | RESERVED            |
| ON             | ON   | EMIF 8 BIT ROM BOOT |

| PCI MODE CONFIGURATION |                             |
|------------------------|-----------------------------|
| S2-1(PCI ROM)          | MODE SELECTED               |
| OFF                    | PCI EPROM DISABLED(DEFAULT) |
| ON                     | PCI ROM ENABLED             |

| ENDIAN MODE CONFIGURATION |                              |
|---------------------------|------------------------------|
| S2-2(ENDIAN)              | MODE SELECTED                |
| OFF                       | LITTLE ENDIAN MODE (DEFAULT) |
| ON                        | BIG ENDIAN MODE              |

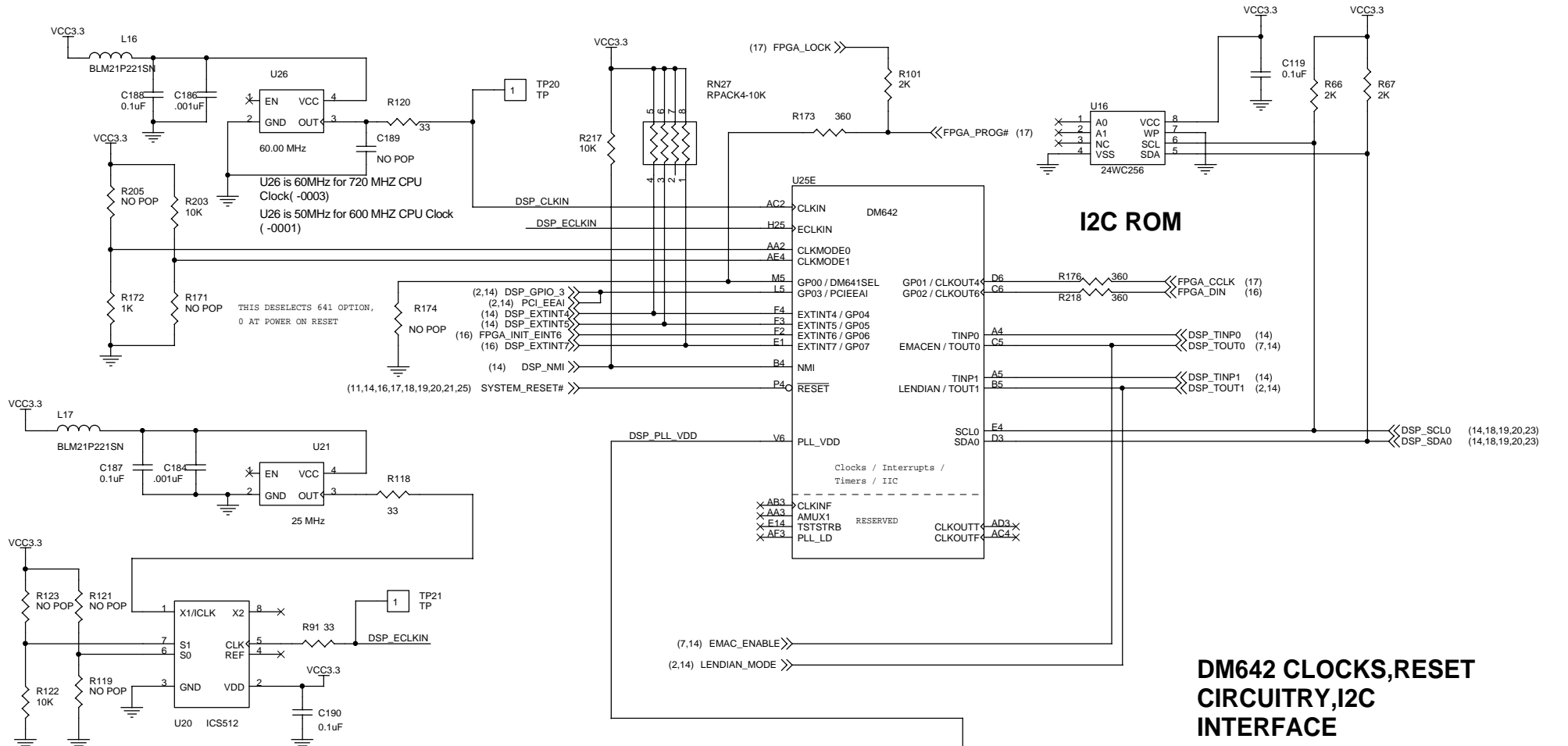


SPDIF BLOCK



**LEDS/SWITCHES/CONFIGURATION INPUTS**

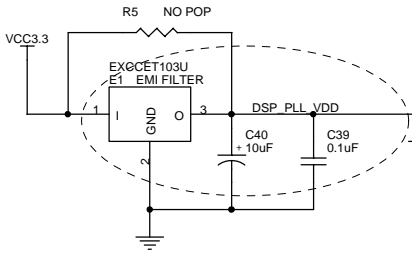
|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
| SPECTRUM DIGITAL, INCORPORATED      |                           |          |
| Title<br>DM642 EVALUATION MODULE    |                           |          |
| Size<br>B                           | Document Number<br>506842 | Rev<br>C |
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## I2C ROM

## DM642 CLOCKS, RESET CIRCUITRY, I2C INTERFACE

| S1   | S0   | MULTIPLY | OUTPUT     |
|------|------|----------|------------|
| 0    | 0    | 4X       | 100 MHz    |
| 0    | OPEN | 5.33X    | 133.25 MHz |
| 0    | 1    | 5X       | 125 MHz    |
| OPEN | 0    | 2.5X     | 62.5 MHz   |
| OPEN | OPEN | 2X       | 50 MHz     |
| OPEN | 1    | 3.33X    | 83.25 MHz  |
| 1    | 0    | 6X       | 150 MHz    |
| 1    | OPEN | 3X       | 75 MHz     |
| 1    | 1    | 8X       | 200 MHz    |

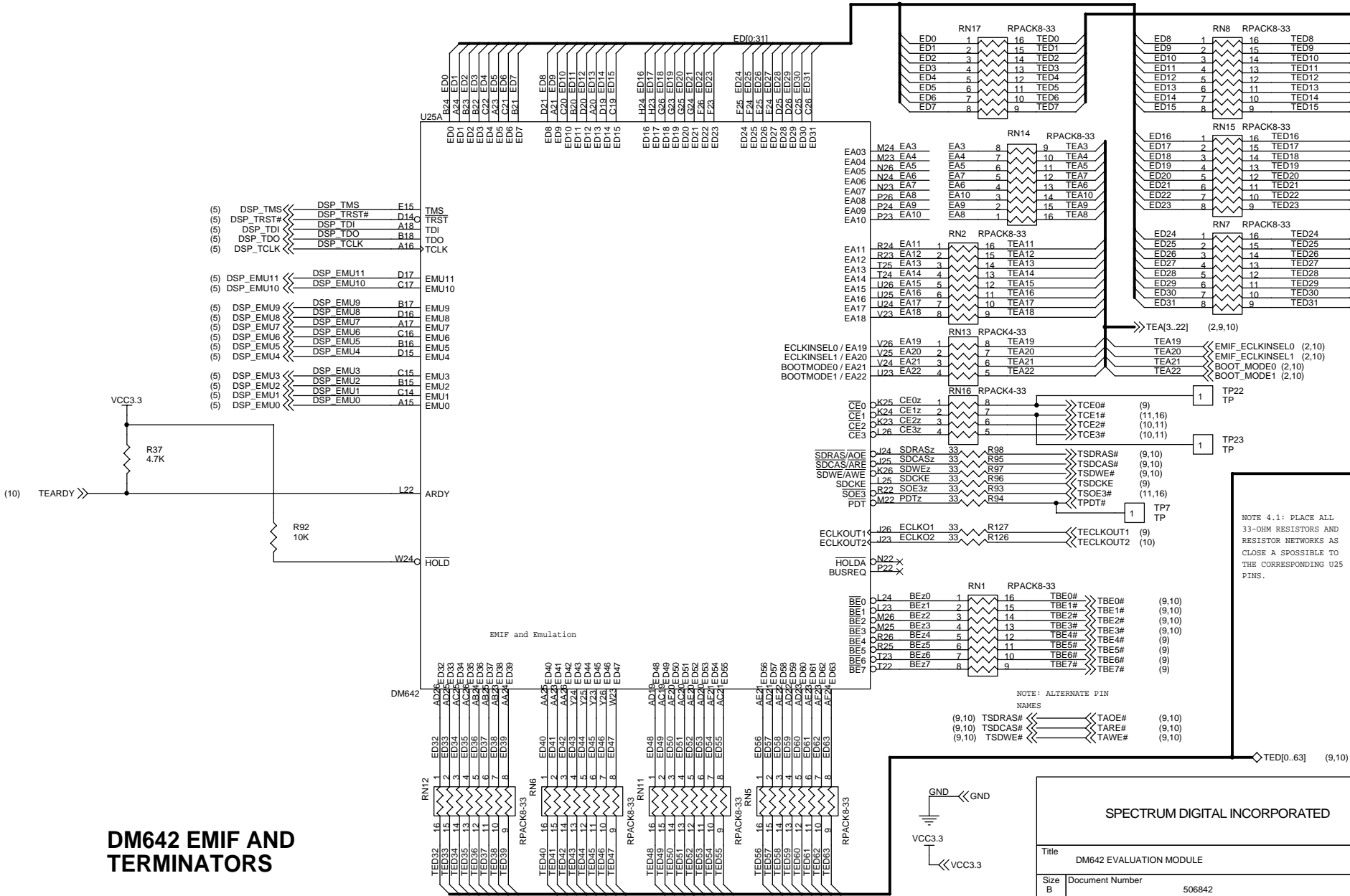


Place all PLL external components as close to the DSP. All PLL external components must be on a single side of the board.

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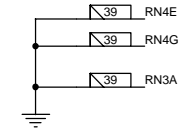
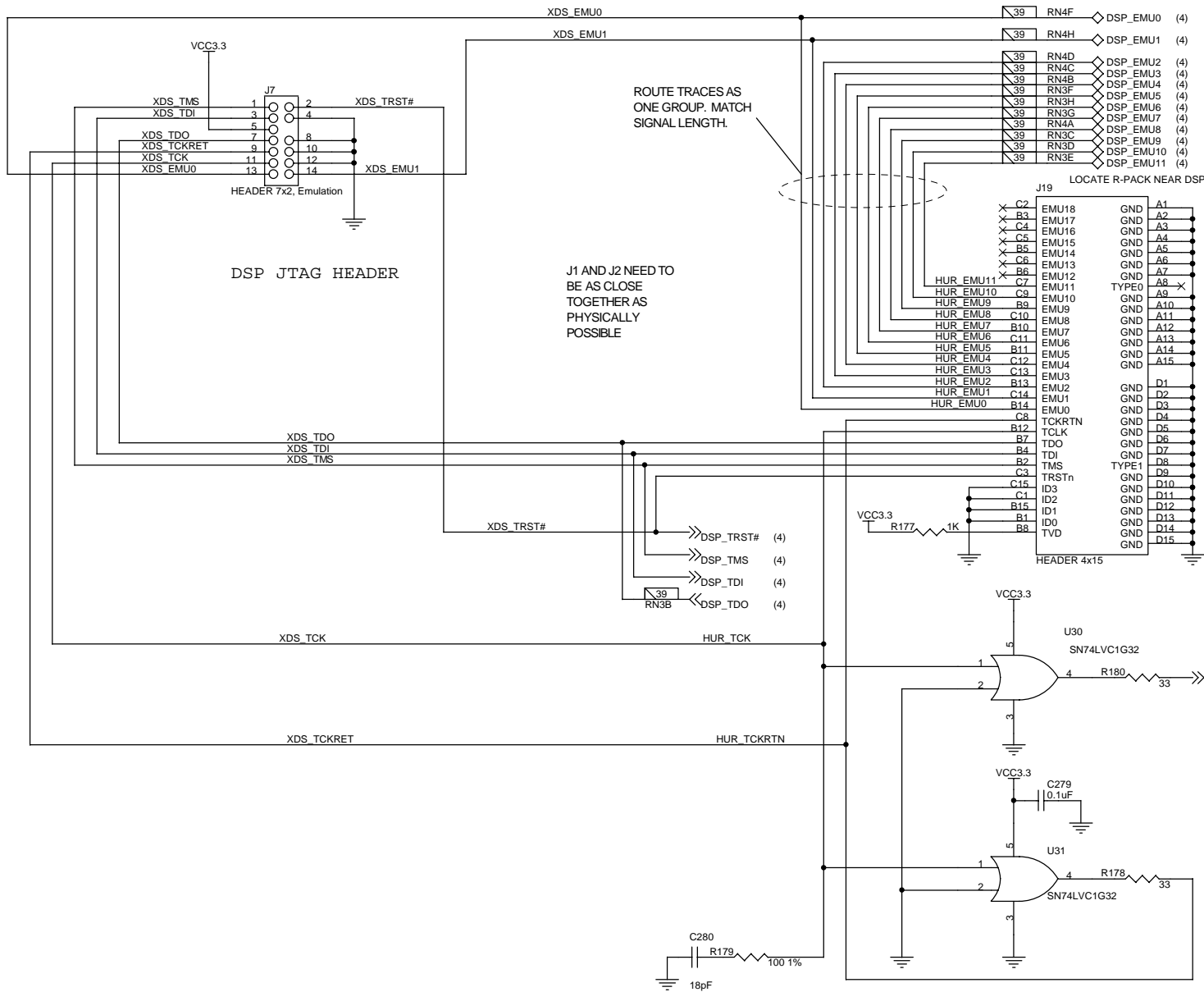
|                                     |                           |       |
|-------------------------------------|---------------------------|-------|
| Title<br>DM642 EVALUATION MODULE    |                           |       |
| Size B                              | Document Number<br>506842 | Rev D |
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# DM642 EMIF AND TERMINATORS



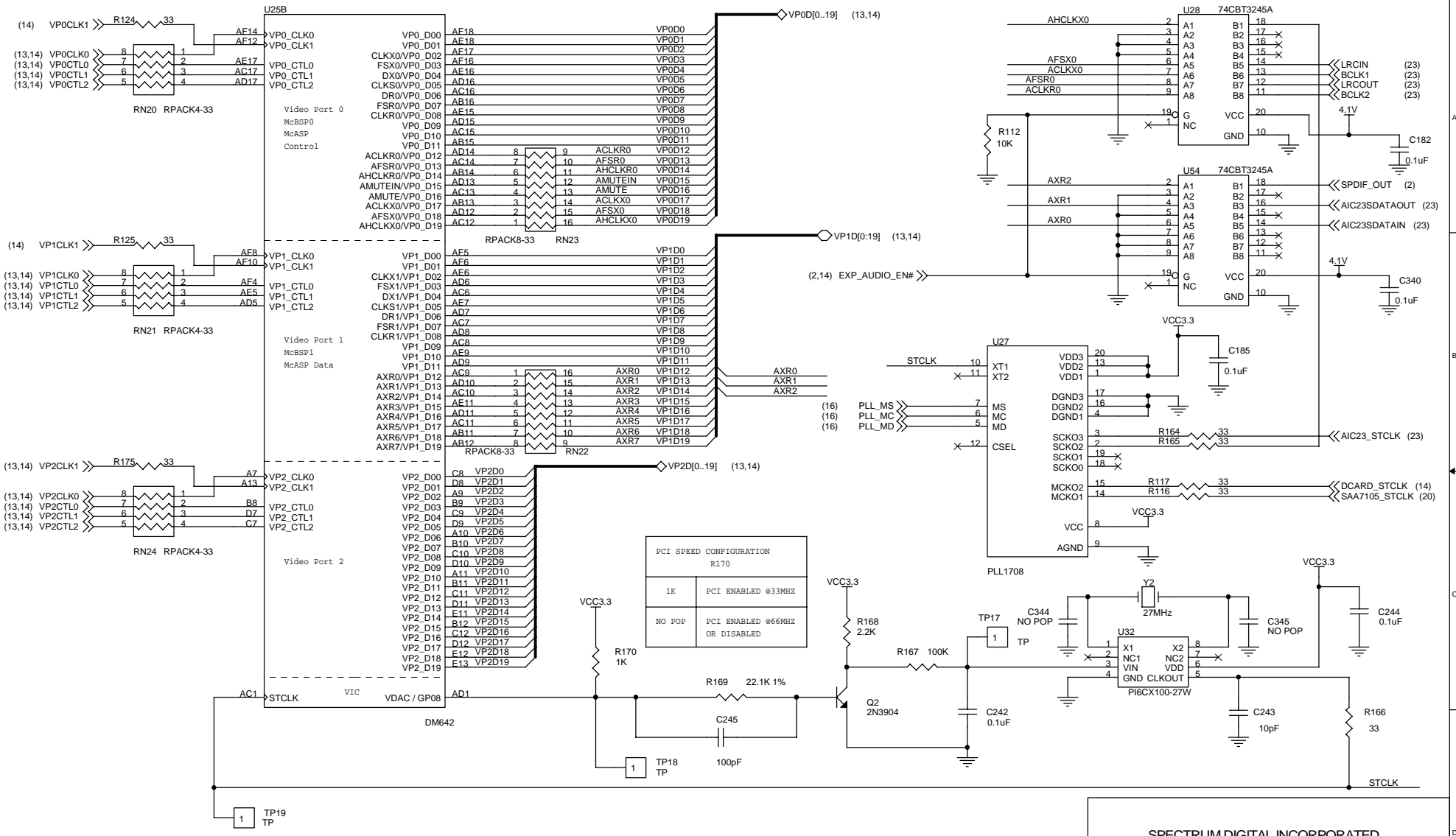
SPECTRUM DIGITAL INCORPORATED

|       |                            |                         |         |
|-------|----------------------------|-------------------------|---------|
| Title |                            | DM642 EVALUATION MODULE |         |
| Size  | Document Number            | Rev                     |         |
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# EMULATION

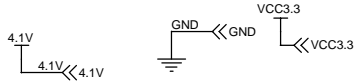
|                                  |                        |       |
|----------------------------------|------------------------|-------|
| SPECTRUM DIGITAL INCORPORATED    |                        |       |
| Title DM642 EVALUATION MODULE    |                        |       |
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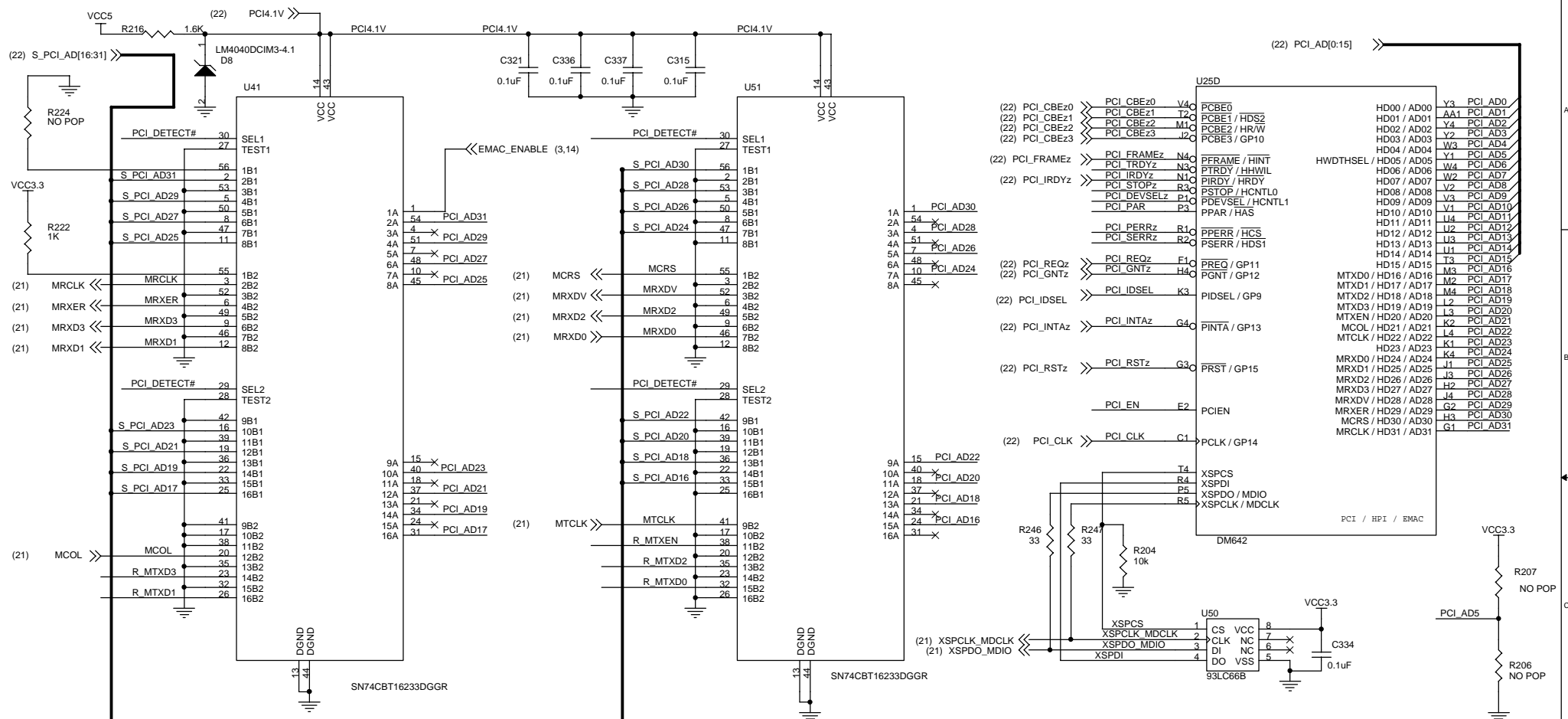


# DM642 VIDEO PORTS

**SPECTRUM DIGITAL INCORPORATED**

|       |                            |                         |         |
|-------|----------------------------|-------------------------|---------|
| Title |                            | DM642 EVALUATION MODULE |         |
| Size  | Document Number            | 506842                  | Rev     |
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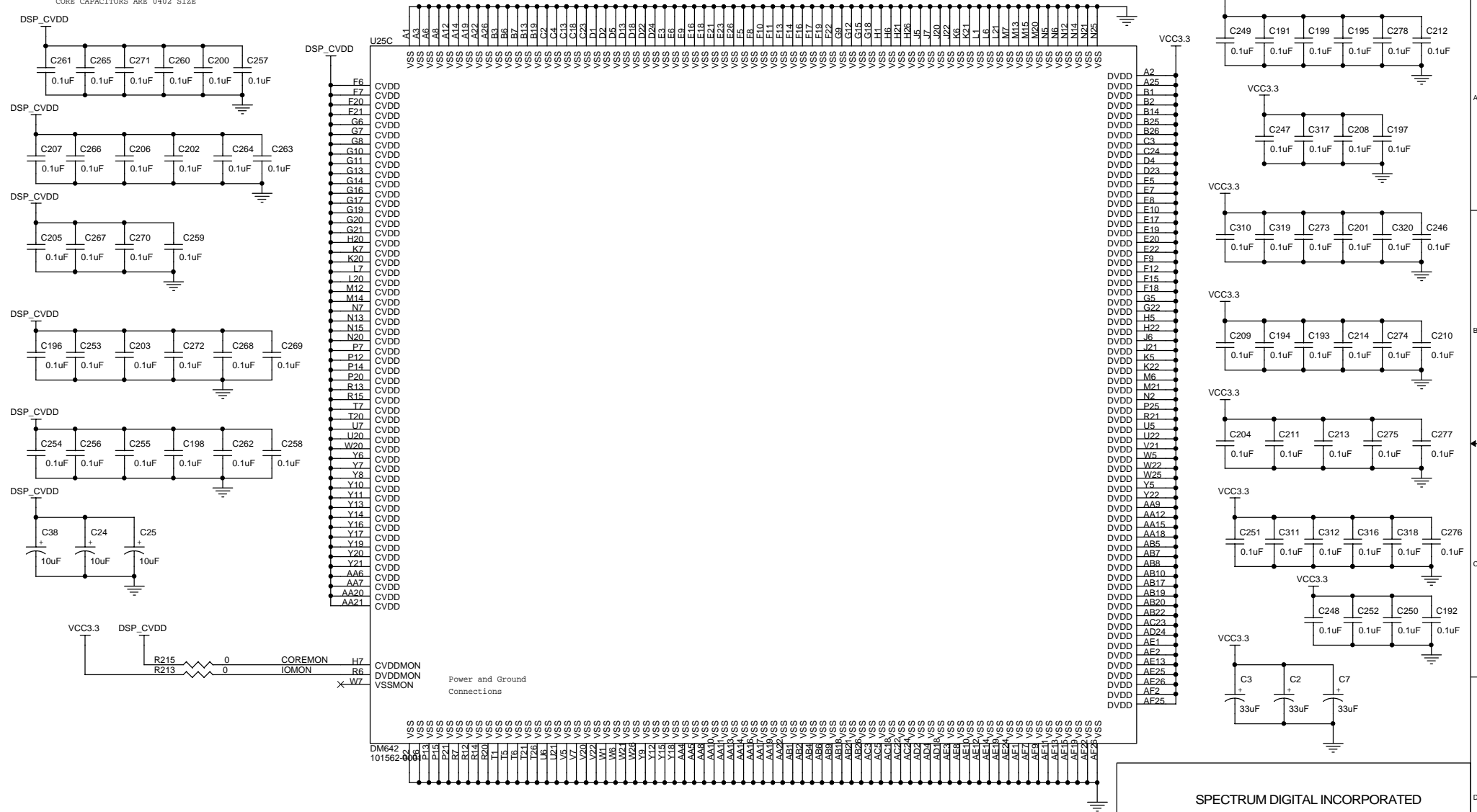
## DM642 PCI/HPI/EMAC INTERFACES

SPECTRUM DIGITAL INCORPORATED

|                         |                            |        |         |
|-------------------------|----------------------------|--------|---------|
| Title                   |                            |        |         |
| DM642 EVALUATION MODULE |                            |        |         |
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R206 AND R207 ARE USED TO CONFIGURE THE HPI WIDTH

CORE CAPACITORS ARE 0402 SIZE



Power and Ground Connections

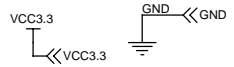
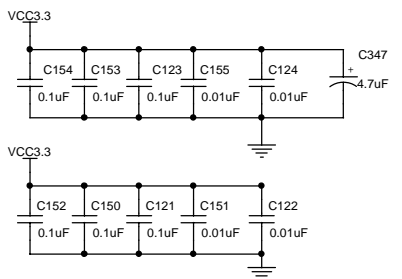
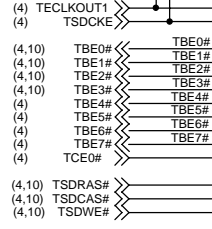
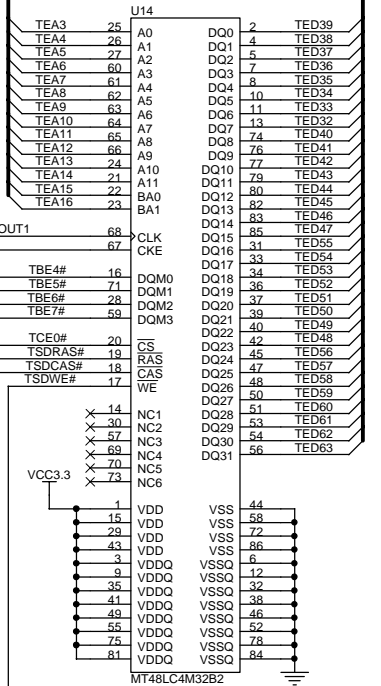
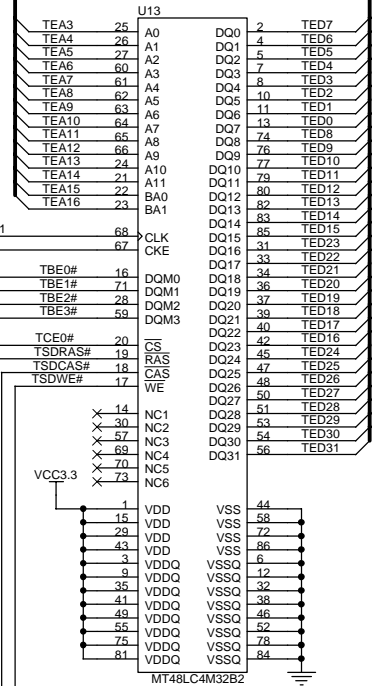
|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
| SPECTRUM DIGITAL INCORPORATED       |                           |          |
| Title<br>DM642 EVALUATION MODULE    |                           |          |
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## DM642 POWER PINS

(2,4,10) TEA[3..22] <<<

(4,10) TED[0..63] <<<

TED[0:63]



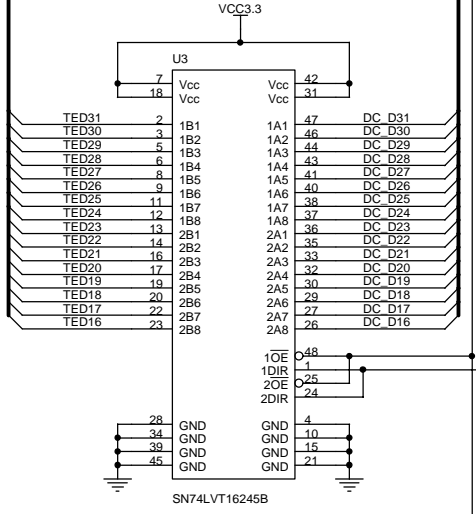
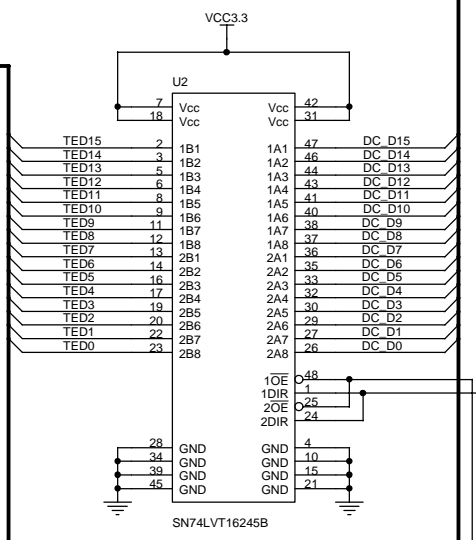
# SDRAM MEMORY

|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
| SPECTRUM DIGITAL, INCORPORATED      |                           |          |
| Title<br>DM642 EVALUATION MODULE    |                           |          |
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(2,4,9) TEA[3..22]

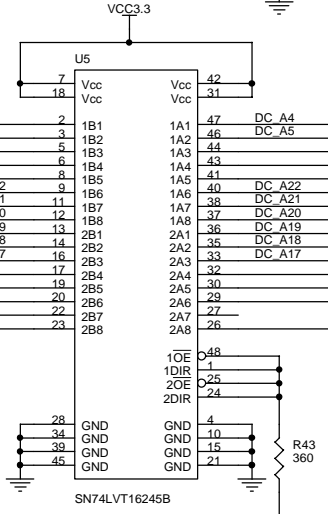
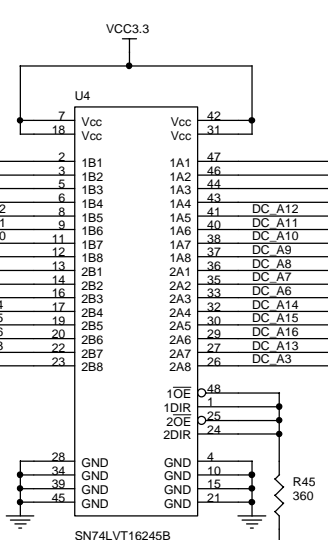
(4,9) TED[0..63]

DC\_D[31..0] (11,15,16)  
DC\_A[22..3] (11,15,16)



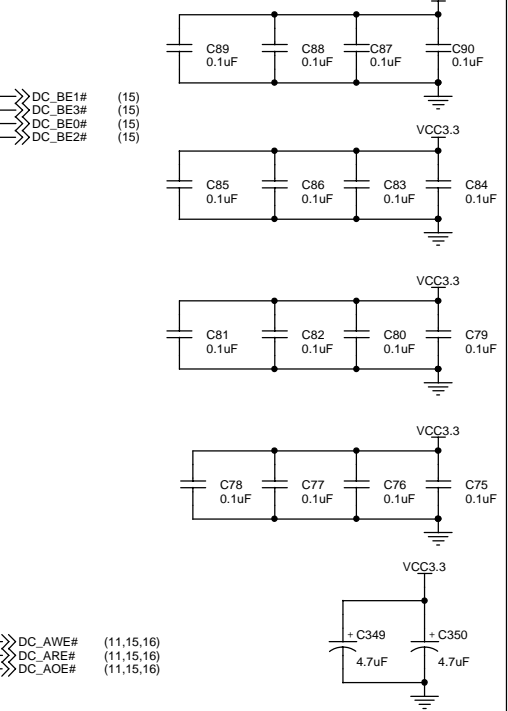
#OE DIR OPERATION  
 L L A<-B  
 L H A->B  
 H X ISOLATION

(4,9) TBE1#  
 (4,9) TBE3#  
 (4,9) TBE0#  
 (4,9) TBE2#

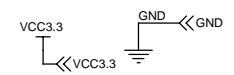


(4,9) TSDWE#  
 (4,9) TSDCAS#  
 (4,9) TSDRAS#

(4,11) TCE3#  
 (4,11) TCE2#  
 (15) DC\_ARDY  
 (4) TECLKOUT2

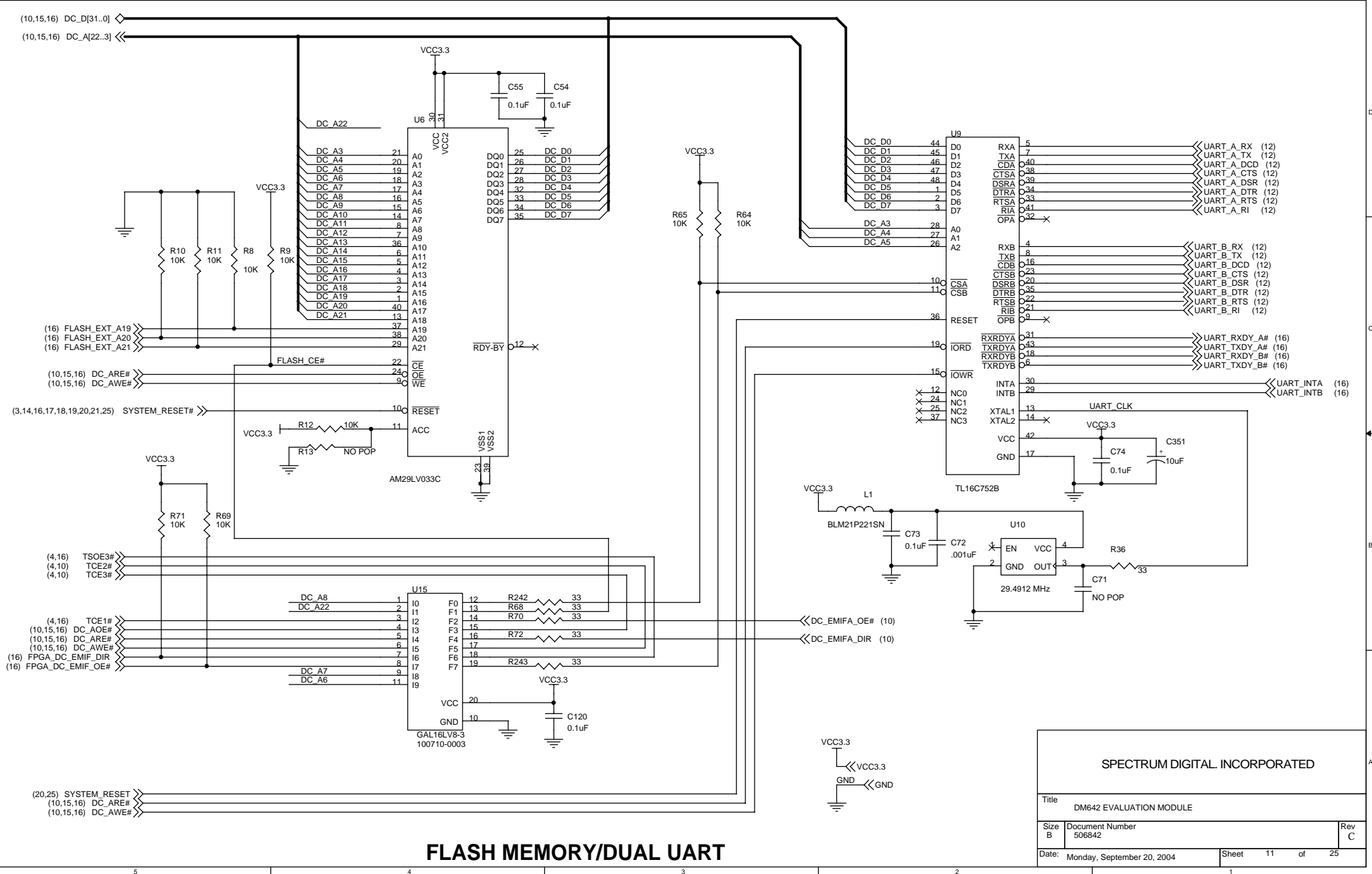


(11) DC\_EMIFA\_OE#  
 (11) DC\_EMIFA\_DIR



|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
| SPECTRUM DIGITAL, INCORPORATED      |                           |          |
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## DAUGHTER CARD BUFFERING



# FLASH MEMORY/DUAL UART

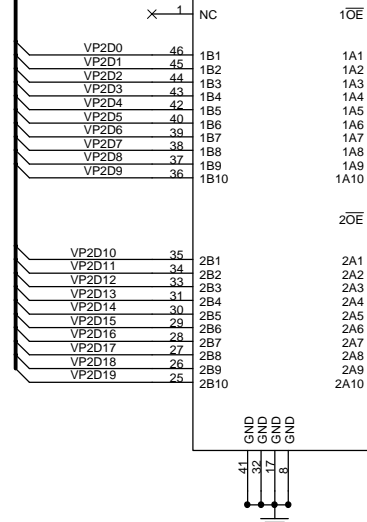
|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
| SPECTRUM DIGITAL, INCORPORATED      |                           |          |
| Title<br>DM642 EVALUATION MODULE    |                           |          |
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(6,14) VP2D[0..19]

VP2D[0..19]

U47  
CBTD16210DGGR\_3  
101115-0001



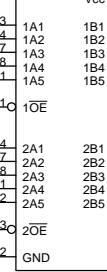
(14) EXP\_DISPLAY\_EN#

VDATA[0..19] << VDATA[0..19] (16)

(6,14) VP2CLK1  
(6,14) VP2CTL0  
(6,14) VP2CTL1  
(6,14) VP2CTL2  
(6,14) VP2CLK0

EXP\_DISPLAY\_EN#

U46



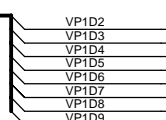
SN74CBTS3384

(6,14) SW\_VP2CLK1 (16)  
(6,14) SW\_VP2CTL0 (16)  
(6,14) SW\_VP2CTL1 (16)  
(6,14) SW\_VP2CTL2 (16)  
(6,14) SW\_VP2CLK0 (16)

15 X  
16 X  
19 X  
20 X  
23 X

(14) EXP\_DISPLAY\_EN#

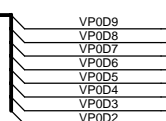
(6,14) VP1D[0..19]



EXP\_CAPTURE2\_EN#

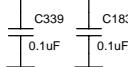
(14) EXP\_CAPTURE2\_EN#

(6,14) VP0D[0..19]



EXP\_CAPTURE1\_EN#

(14) EXP\_CAPTURE1\_EN#



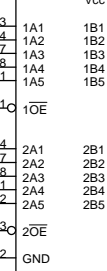
(6,14) VP0CTL0  
(6,14) VP0CTL1  
(6,14) VP0CTL2  
(6,14) VP0CLK0

EXP\_CAPTURE1\_EN#

(6,14) VP1CTL0  
(6,14) VP1CTL1  
(6,14) VP1CTL2  
(6,14) VP1CLK0

EXP\_CAPTURE2\_EN#

U48



SN74CBTS3384

(6,14) XHSYNC\_IDQ\_A (18)  
(6,14) IXVSYNC\_A (18)  
(6,14) RTS1\_IGP0\_A (18)  
(6,14) IXCLK\_A (18)

(6,14) XHSYNC\_IDQ\_B (19)  
(6,14) IXVSYNC\_B (19)  
(6,14) RTS1\_IGP0\_B (19)  
(6,14) IXCLK\_B (19)

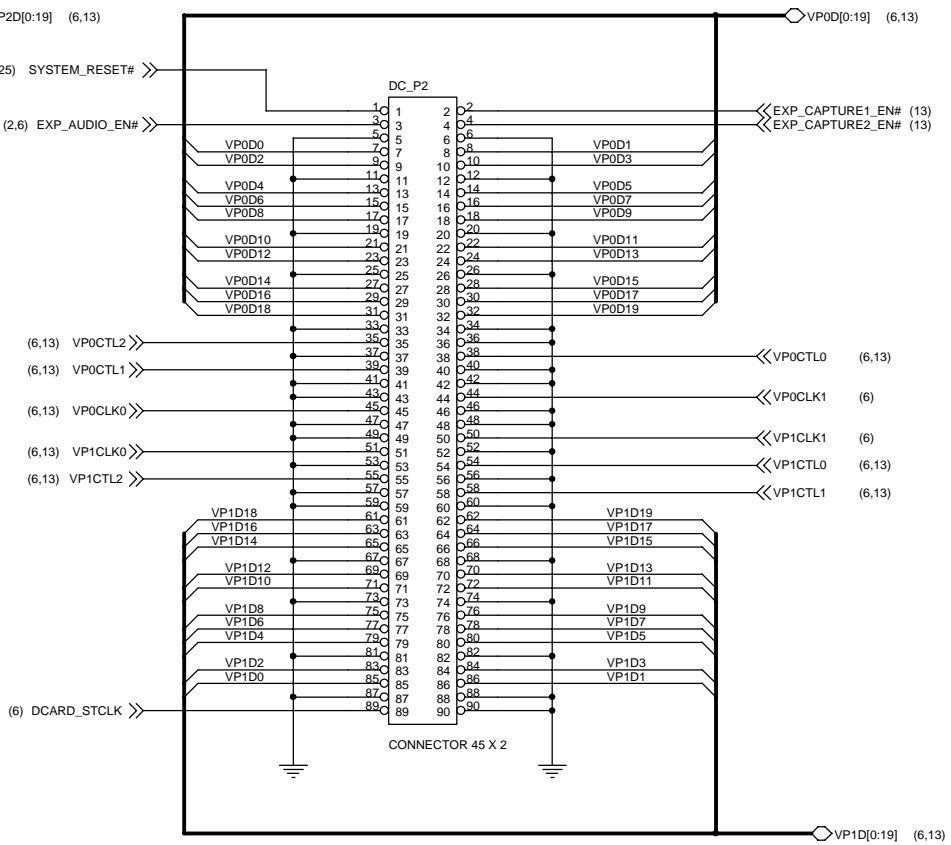
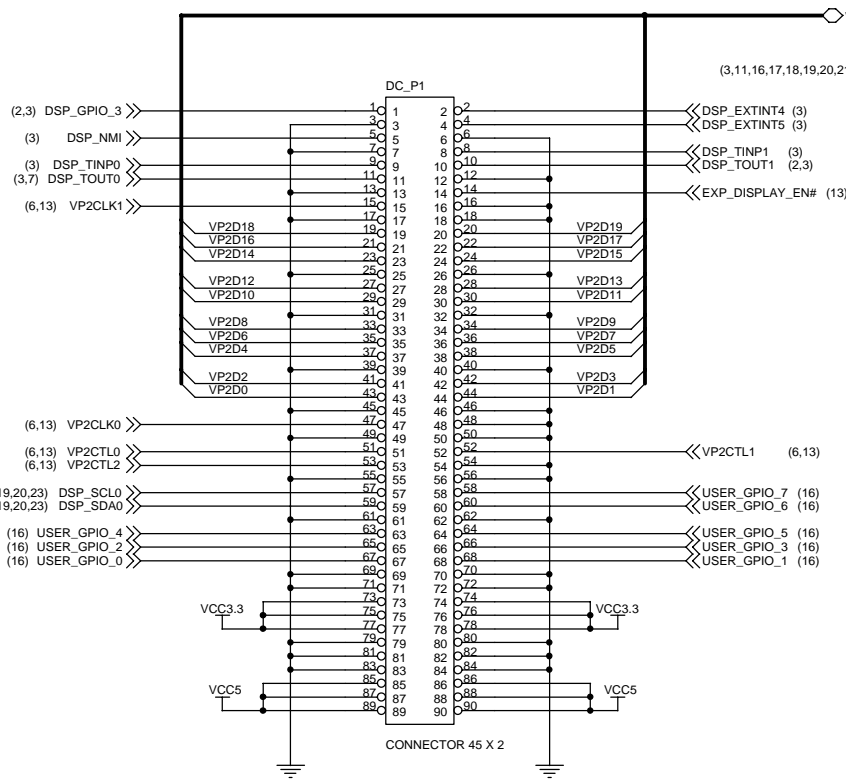
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Title  
DM642 EVALUATION MODULE

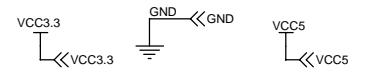
Size B Document Number 506842 Rev B

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# VIDEO PORT SWITCHES



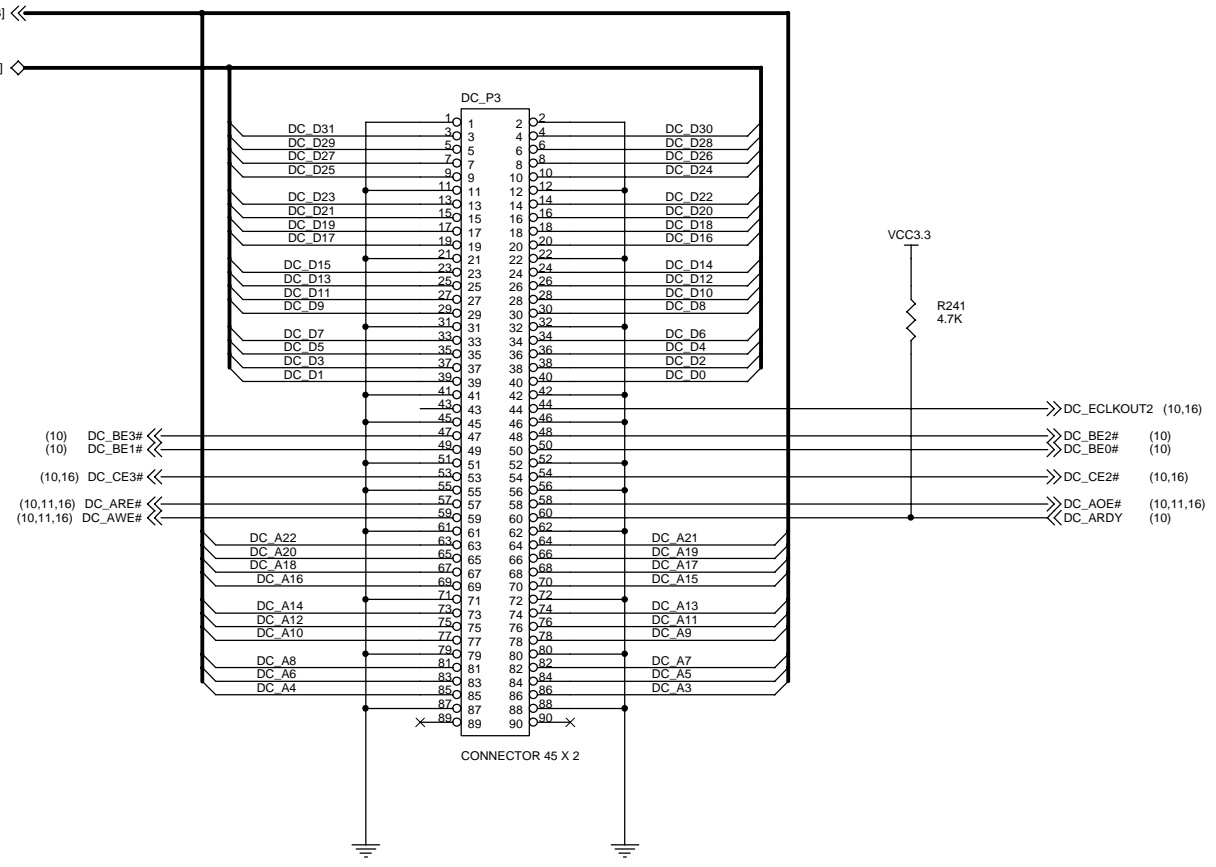
# VIDEO PORTS DAUGHTER CARD CONNECTIONS



|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
| SPECTRUM DIGITAL, INCORPORATED      |                           |          |
| Title<br>DM642 EVALUATION MODULE    |                           |          |
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(10,11,16) DC\_A[22..3] <<

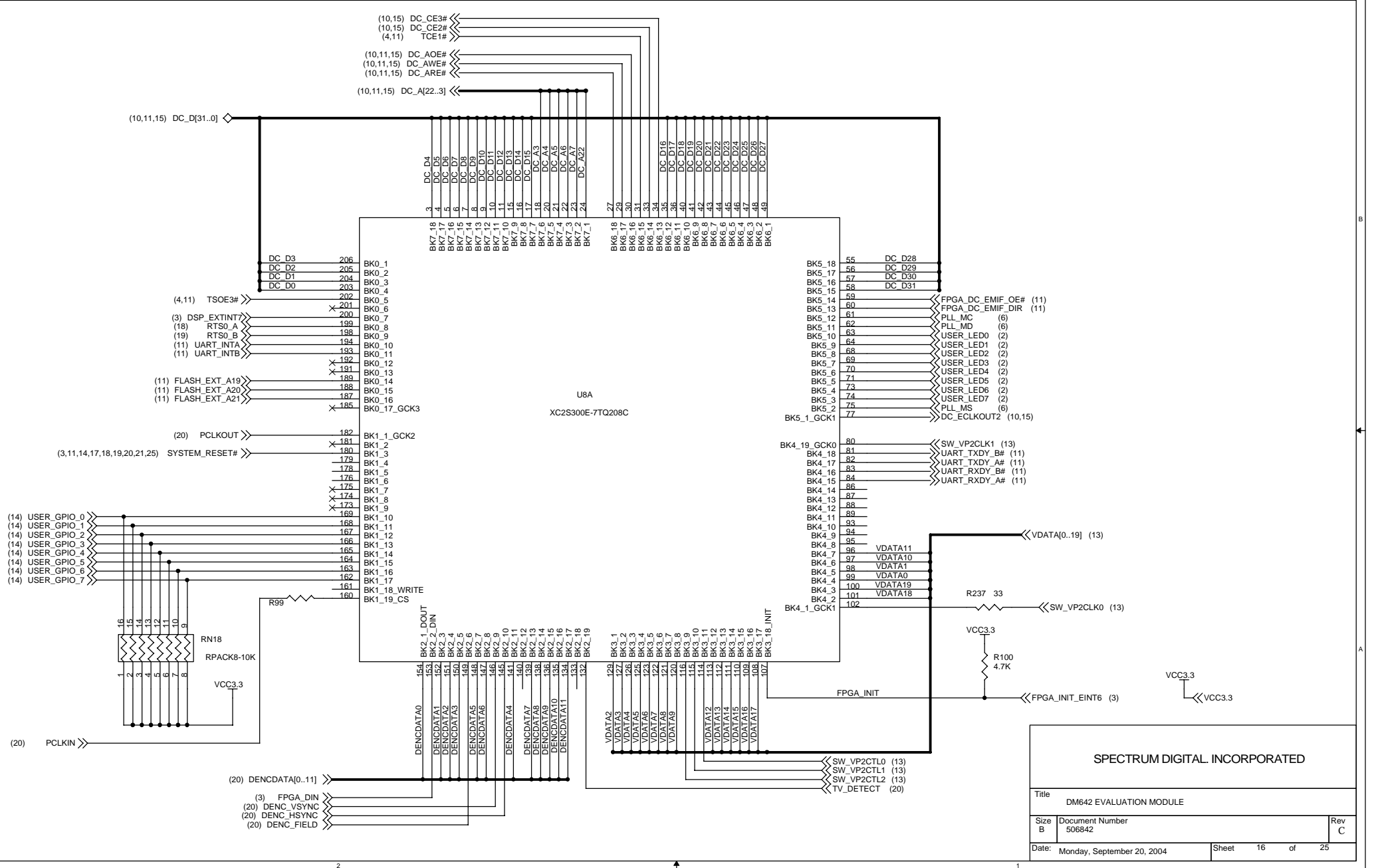
(10,11,16) DC\_D[31..0] <<



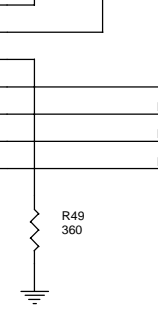
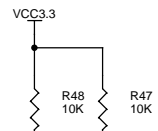
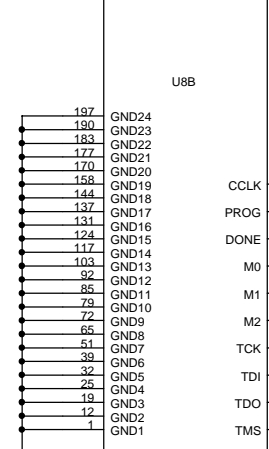
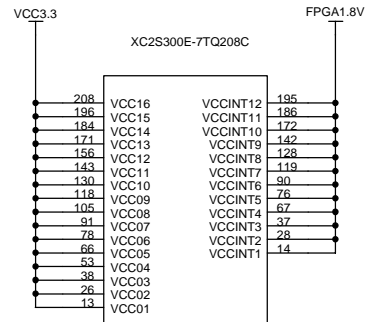
## EXTERNAL MEMORY INTERFACE DAUGHTER CARD CONNECTIONS



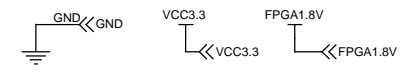
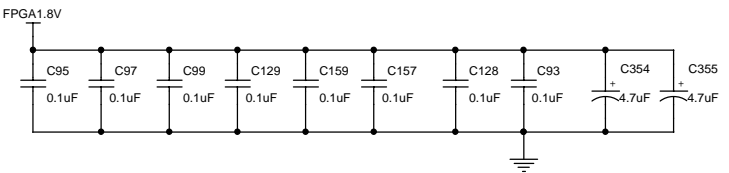
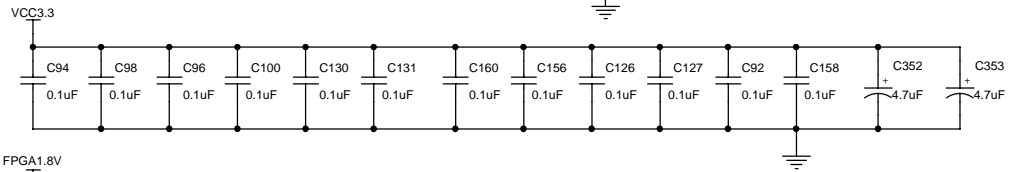
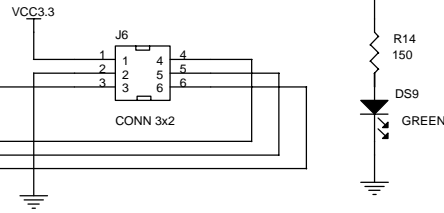
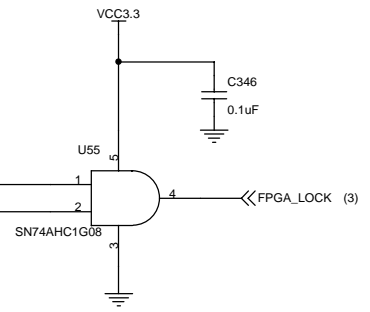
|                                  |                        |       |
|----------------------------------|------------------------|-------|
| SPECTRUM DIGITAL, INCORPORATED   |                        |       |
| Title: DM642 EVALUATION MODULE   |                        |       |
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|                                       |                           |          |
|---------------------------------------|---------------------------|----------|
| <b>SPECTRUM DIGITAL, INCORPORATED</b> |                           |          |
| Title<br>DM642 EVALUATION MODULE      |                           |          |
| Size<br>B                             | Document Number<br>506842 | Rev<br>C |
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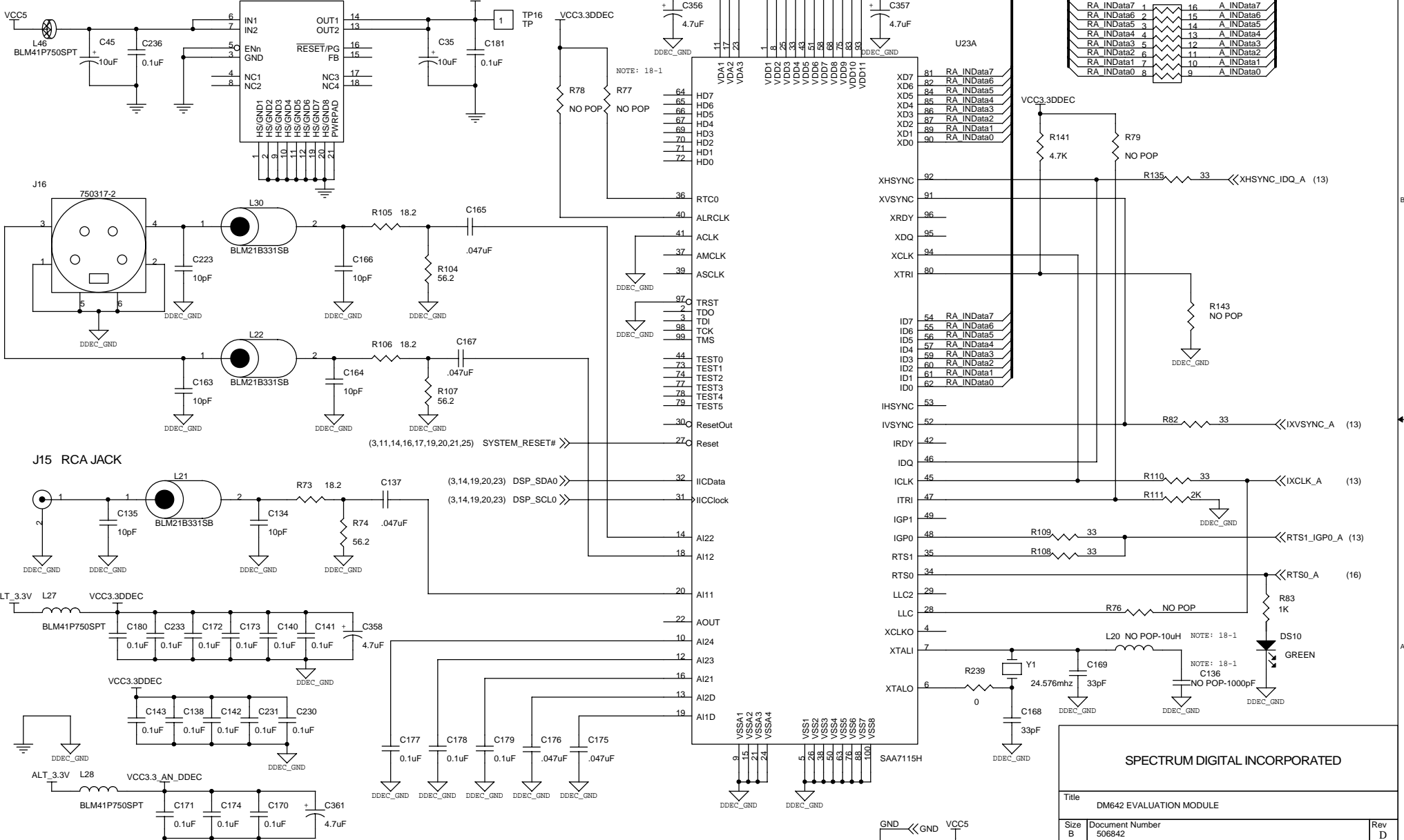
(3,11,14,16,18,19,20,21,25) SYSTEM\_RESET# >>



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|        |                            |                         |          |
|--------|----------------------------|-------------------------|----------|
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|        |                            | Rev                     | B        |

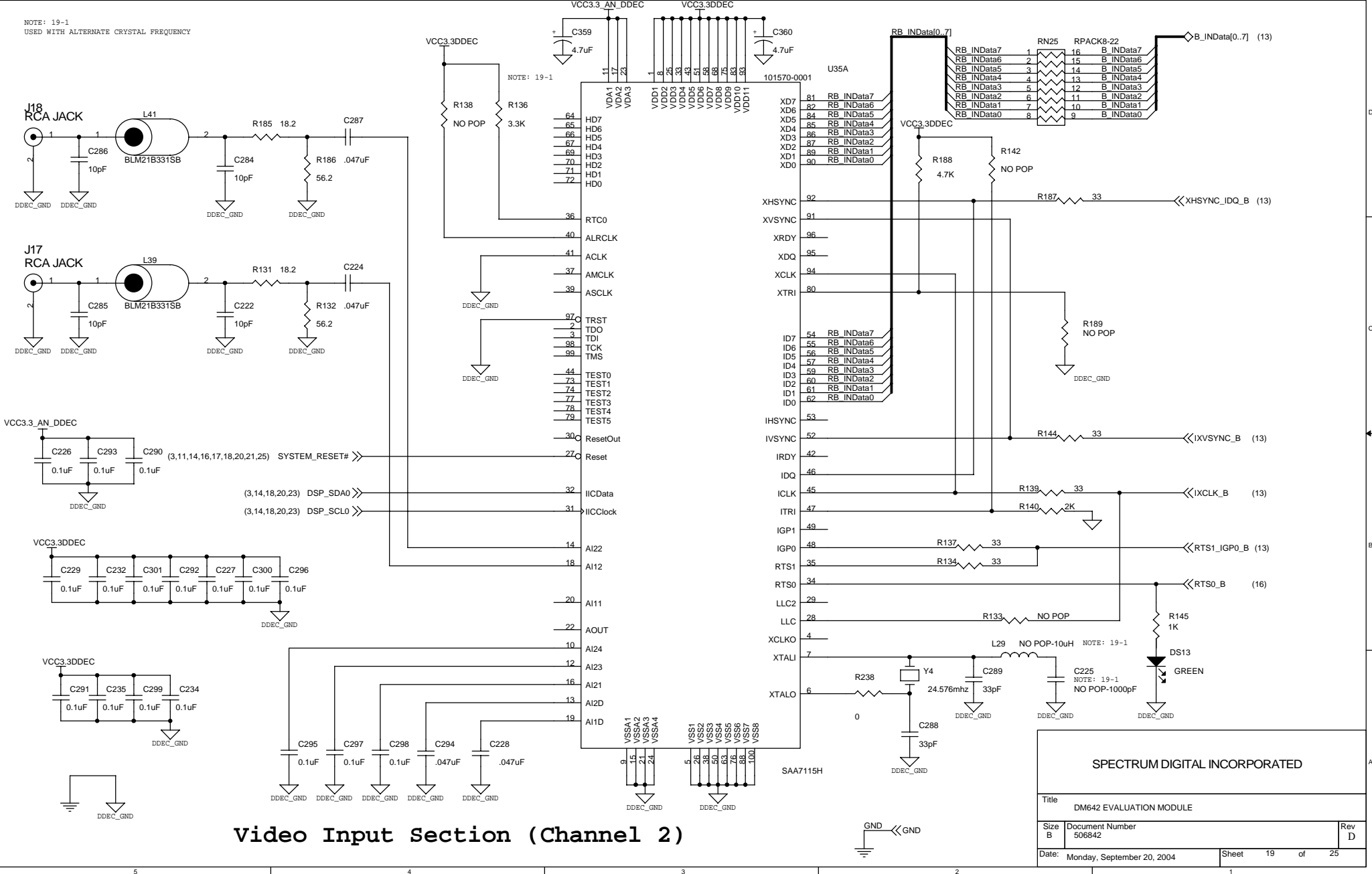
NOTE: 18-1  
USED WITH ALTERNATE CRYSTAL FREQUENCY



**Video Input Section (Channel 1)**

|                                      |                           |          |
|--------------------------------------|---------------------------|----------|
| <b>SPECTRUM DIGITAL INCORPORATED</b> |                           |          |
| Title<br>DM642 EVALUATION MODULE     |                           |          |
| Size<br>B                            | Document Number<br>506842 | Rev<br>D |
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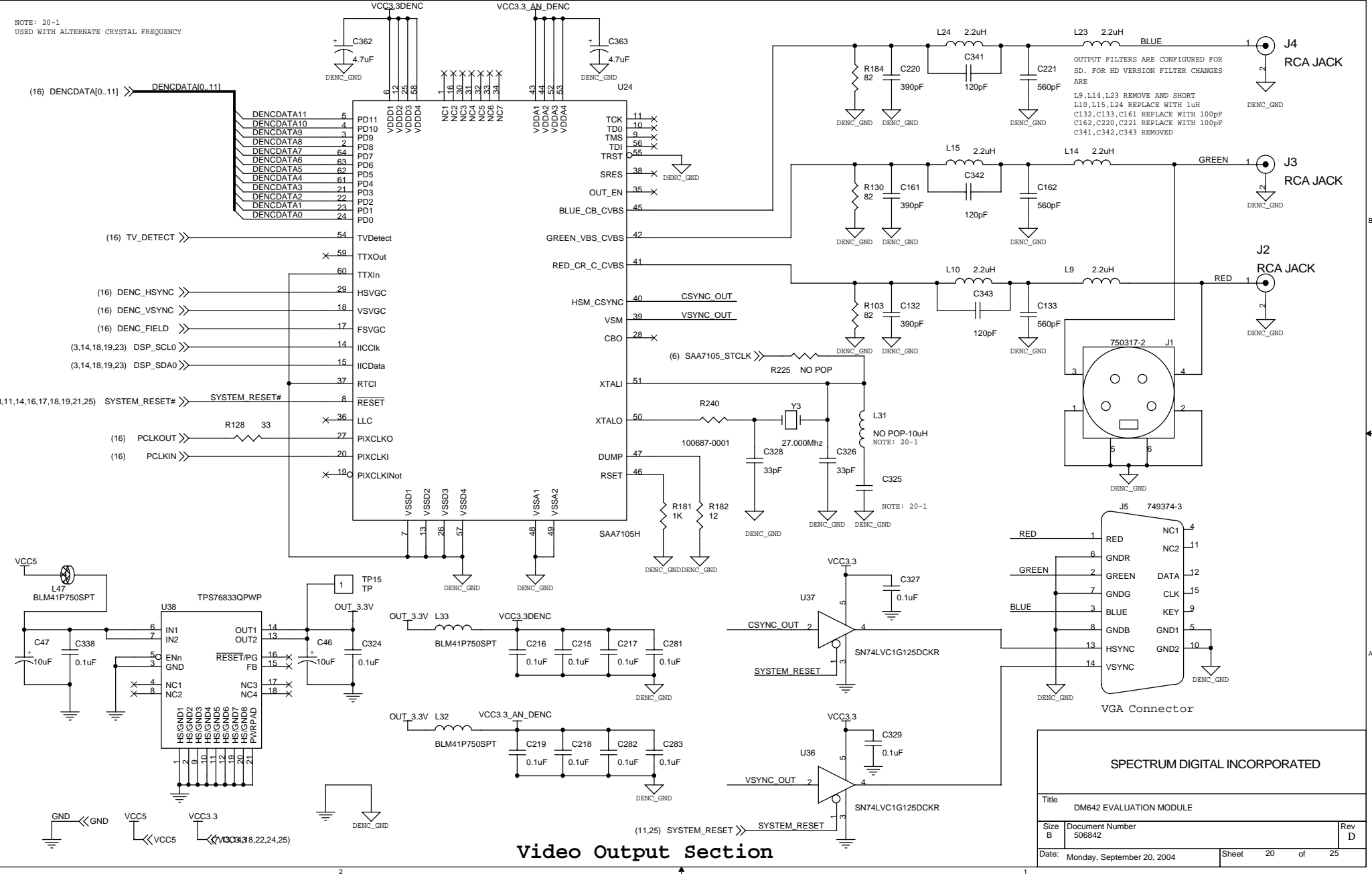
NOTE: 19-1  
USED WITH ALTERNATE CRYSTAL FREQUENCY



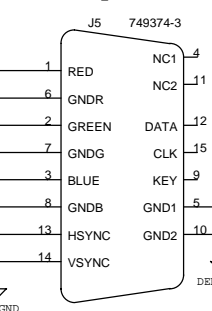
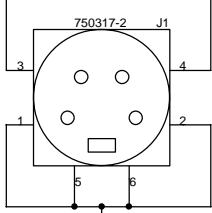
## Video Input Section (Channel 2)

|                                      |                            |                |
|--------------------------------------|----------------------------|----------------|
| <b>SPECTRUM DIGITAL INCORPORATED</b> |                            |                |
| Title<br>DM642 EVALUATION MODULE     |                            |                |
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NOTE: 20-1  
USED WITH ALTERNATE CRYSTAL FREQUENCY



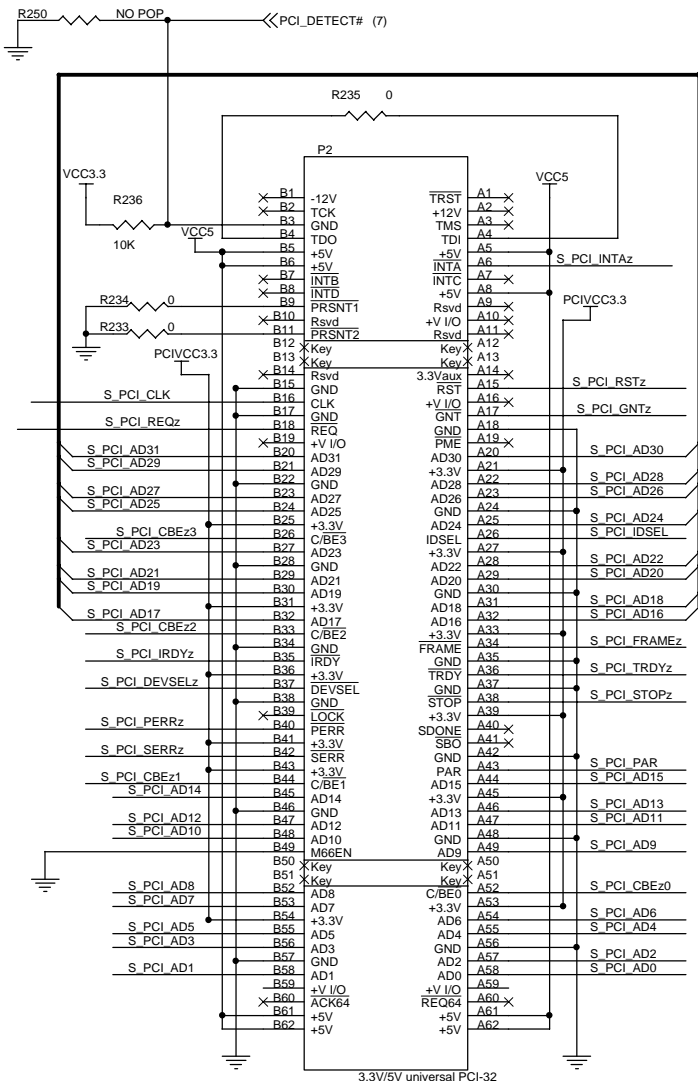
OUTPUT FILTERS ARE CONFIGURED FOR SD. FOR HD VERSION FILTER CHANGES ARE  
L9, L14, L23 REMOVE AND SHORT  
L10, L15, L24 REPLACE WITH 1uH  
C132, C133, C161 REPLACE WITH 100pF  
C162, C220, C221 REPLACE WITH 100pF  
C341, C342, C343 REMOVED



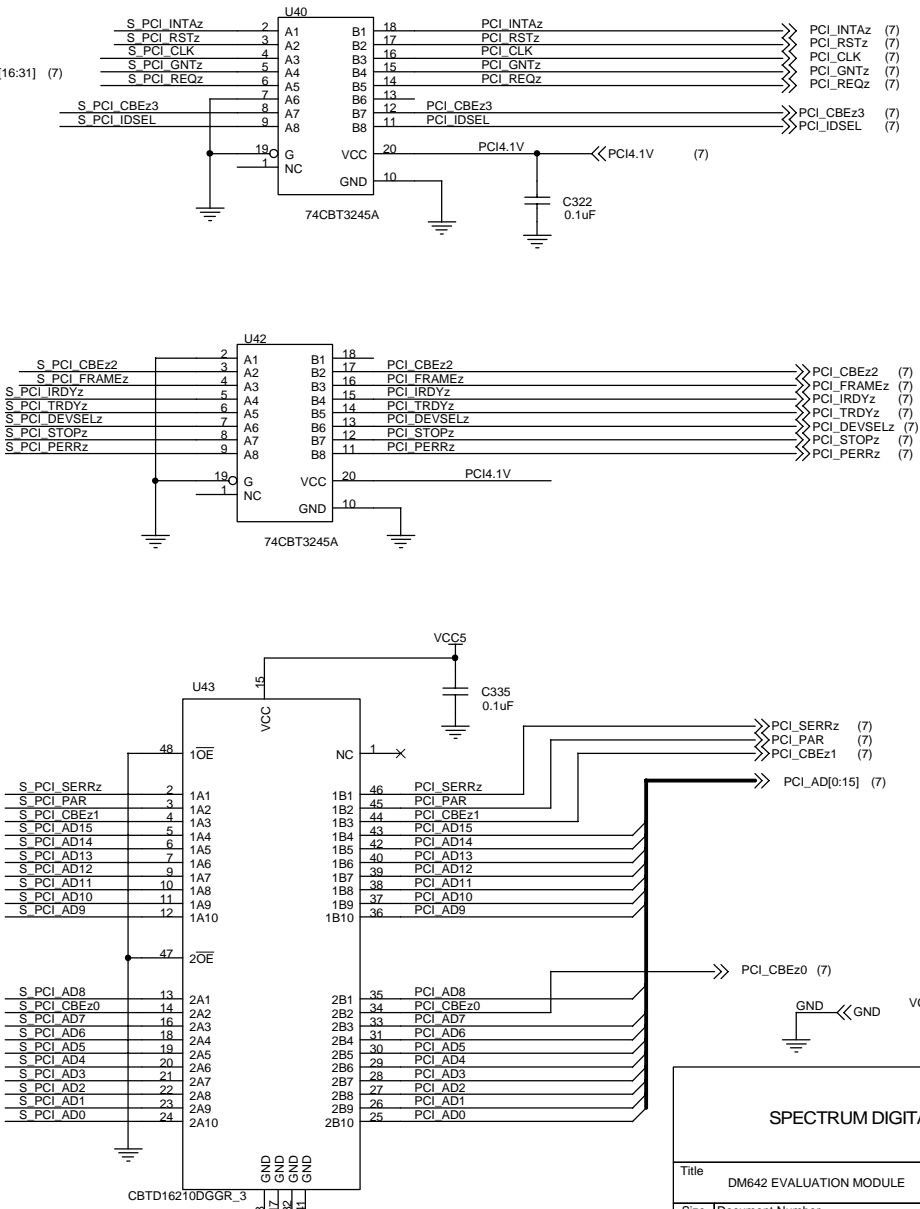
|                                      |                           |          |
|--------------------------------------|---------------------------|----------|
| <b>SPECTRUM DIGITAL INCORPORATED</b> |                           |          |
| Title<br>DM642 EVALUATION MODULE     |                           |          |
| Size<br>B                            | Document Number<br>506842 | Rev<br>D |
| Date:<br>Monday, September 20, 2004  | Sheet<br>20               | of<br>25 |

**Video Output Section**





### PCI INTERFACE



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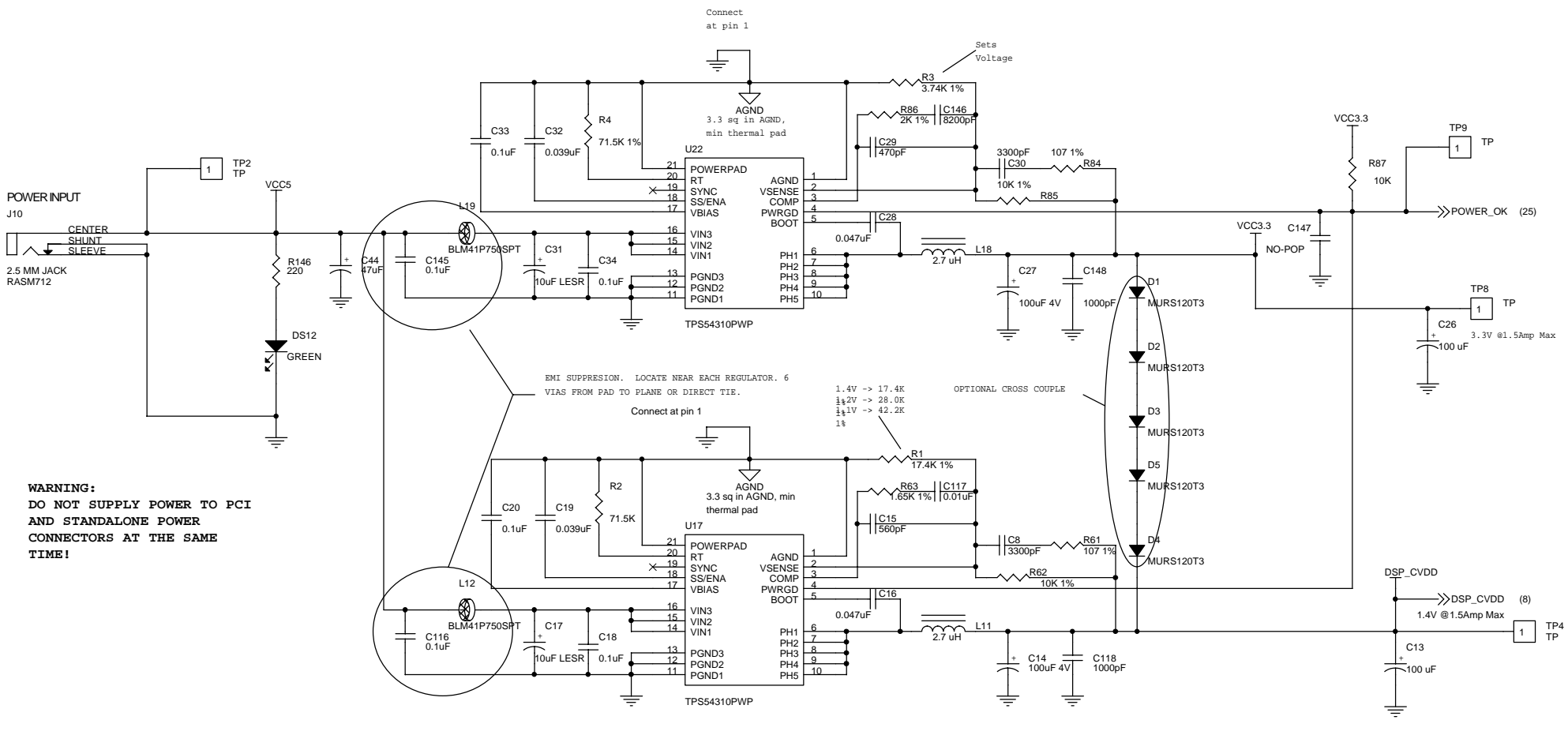
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Title  
DM642 EVALUATION MODULE

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|        |                            |                |
|--------|----------------------------|----------------|
| Size B | Document Number<br>506842  | Rev<br>C       |
| Date:  | Monday, September 20, 2004 | Sheet 22 of 25 |



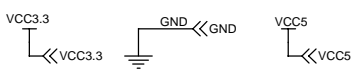


**WARNING:**  
DO NOT SUPPLY POWER TO PCI  
AND STANDALONE POWER  
CONNECTORS AT THE SAME  
TIME!

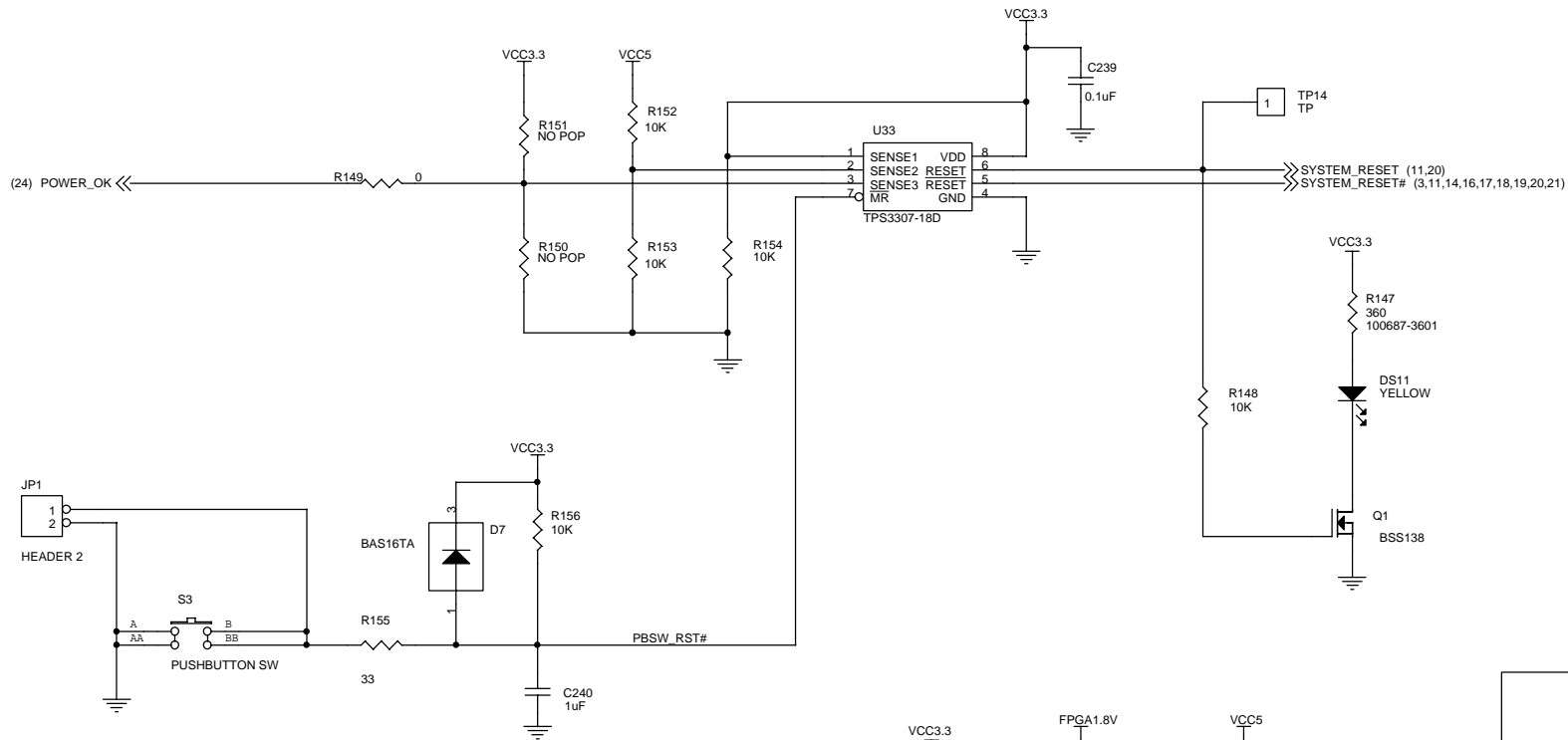
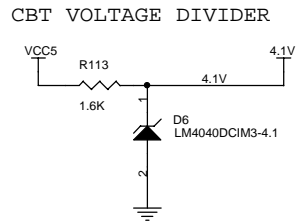
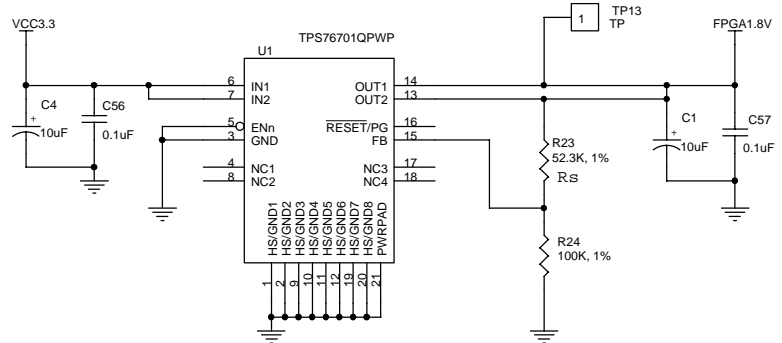
POWER ESTIMATES BASED ON SPRU190  
 1.4V@600MHz 1.09 W 0.778A  
 3.3V@600MHz 0.52 W 0.157A ( no emif clk)  
 MEASURED CURRENT ON C6416TEB, ~0.7A@5V

EACH REGULATOR CAN SUPPLY UP TO 3A OF  
 CURRENT. HOWEVER COMPONENT VALUES HAVE  
 BEEN SELECTED FOR 1.5A OPERATION.  
 VALUES CALCULATED WITH SWIFT DESIGN TOOL 2.0.  
 FOLLOW TPS54310 EVM LAYOUT

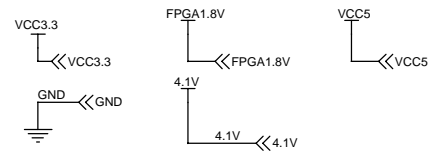
## POWER



|                                  |                        |       |
|----------------------------------|------------------------|-------|
| SPECTRUM DIGITAL INCORPORATED    |                        |       |
| Title DM642 EVALUATION MODULE    |                        |       |
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### FPGA POWER AND RESET CIRCUITRY



|                                     |                           |          |
|-------------------------------------|---------------------------|----------|
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