

# PC-EMA

## EMA Interface PCB/ Extension Module Assembly

REVISION : 2.17

DOCUMENT ID : PCEMA0056

|         |    |                                              |  |                       |  |                                                                                       |  |
|---------|----|----------------------------------------------|--|-----------------------|--|---------------------------------------------------------------------------------------|--|
| Project |    | PC-EMA                                       |  | TECHNOLOGIES DIVISION |  |  |  |
| Title   |    | EMA Interface PCB/ Extension Module Assembly |  |                       |  | PART NUMBER = 731004                                                                  |  |
| Size    | A3 | Sheet Name                                   |  |                       |  | Rev                                                                                   |  |
|         |    | FACING SHEET                                 |  |                       |  | 2.17                                                                                  |  |
| Date:   |    | Tuesday, January 22, 2013                    |  | Sheet                 |  | 1 of 14                                                                               |  |

## REVISION HISTORY

| REV  | DATE        | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.1  | 16-SEP-2011 | Initial Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.0  | 23-SEP-2011 | Updated as per the Review Record EMA_SCH_R1.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.1  | 30-SEP-2011 | Updated as per the Review Record EMA_SCH_R2.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.2  | 04-OCT-2011 | Updated as per the Review Record EMA_SCH_R3.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.3  | 13-OCT-2011 | Updated as per the Review Record EMA_SCH_R4.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.4  | 14-OCT-2011 | RTC BATTERY CONNECTOR J1 REMOVED AND SDIO INTERFACE PIN OF WIFI MODULE IS CHANGED FOR ROUTING CONSTRAIN.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1.5  | 18-OCT-2011 | POWER LED CONNECTOR REMOVED(J16) AND LED PIPE IS ADDED FOR THE SAME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 1.6  | 25-OCT-2011 | 1) U8 SWITCH IS ADDED FOR 5V DTR OUTPUT.THIS IS FOR OPTIONAL,D48,D49 AND TEST POINT IS REMOVED IN SDIO SIGNALS.<br>2) THE FOLLOWING 0E RESISTOR IS ADDED IN FAN I2C BUS.                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2.0  | 28-DEC-2011 | Updated as per the Review Record EMA_SCH_R5.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2.1  | 03-FEB-2012 | Updated as per the Review Record EMA_SCH_R6.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2.2  | 03-FEB-2012 | Updated for J4 and J5 connectors (6pin connectors).<br>Changed to 4pin connector.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2.3  | 01-MAR-2012 | 1. Changed three TDK parts with new component<br>2. J14 and J2 connectors and associated components removed.<br>A J6 connector is added for FAN I2C line and marked as DNP.<br>3. USB earth lug part number is changed.                                                                                                                                                                                                                                                                                                                                                              |
| 2.4  | 20-MAR-2012 | <u>Following Changes Made As Per Internal Defect :</u><br><br>1) □"T" Type EMI Filter Inserted on all COM I/O interface like GPIO, SDIO, I2C, UART and USB to avoid RE Emission from COM Module and also LC EMI Filter added toward Connector End to avoid Emission from External interface.<br>2)□ Power EMI filter inserted on all power input like 15V (INPUT), Battery Input, 5V (FAN), 3.3V for Wi-Fi, COM and CAPNO.<br>3)□ J12 USB Port is removed From Schematic.<br>4)□ (U15 and U16) Isolation Circuit is added in LP20 interface Section to meet 500 uA leakages current. |
| 2.5  | 21-MAR-2012 | Updated as per the Review Record EMA_SCH_R7.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2.6  | 30-MAR-2012 | Updated as per the Review Record EMA_SCH_R8.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2.7  | 09-APR-2012 | Updated as per the Review Record EMA_SCH_R9.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2.8  | 11-APR-2012 | Updated as per the Review Record EMA_SCH_R10.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2.9  | 08-May-2012 | Updated as per the Review Record EMA_SCH_R11.xls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2.10 | 30-May-2012 | 1) USB PORT IS REPLACED WITH OTG PORT IN SHEET8 and C177,C178,C179 and C180 IS CHANGED INTO DNP.<br>2) R120,R121,R122 AND R123 10K RESISTOR IS ADDED FOR HW ID IMPLEMENTATION.<br>3) R124,R125,R125 AND R127 (0E) RESISTOR IS ADDED AS DNP FOR HW ID IMPLEMENTATION.                                                                                                                                                                                                                                                                                                                 |
| 2.11 | 01-Aug-2012 | R51 and R81 Resistor is populated to resolve COM Module booting and Wi-Fi reset issue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2.12 | 31-Aug-2012 | Assembled Interface PCB part number is added in Title blocks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|      |             |                                                                     |
|------|-------------|---------------------------------------------------------------------|
| 2.13 | 4-Sep-2012  | Updated as per the Review Record EMA_SCH_R12.xls                    |
| 2.14 | 02-Nov-2012 | COM Module component V1 is removed                                  |
| 2.15 | 02-Nov-2012 | COM Module mounting screw Z1,Z2,Z3,Z4 is removed                    |
| 2.16 | 06-Nov-2012 | Updated as per the Review Record EMA_SCH_R14.xls                    |
| 2.17 | 22-Jan-2013 | U23 part number is updated as SI1869DH-T1-GE3 for Halogen free part |

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|         |                           |                                                                   |                                                                                       |
|---------|---------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Project |                           | TECHNOLOGIES DIVISION                                             |                                                                                       |
| PC-EMA  |                           | DOCUMENT ID = PCEMA0056                                           |  |
| Title   |                           | EMA Interface PCB/ Extension Module Assembly PART NUMBER = 731004 |                                                                                       |
| Size    | Sheet Name                | Rev                                                               |                                                                                       |
| A3      | REVISION HISTORY & TOC    | 2.17                                                              |                                                                                       |
| Date:   | Tuesday, January 22, 2013 | Sheet                                                             | 2 of 14                                                                               |

NAMING CONVENTIONS USED IN EMA Interface PCB

POWER SUPPLY NAMING CONVENTIONS:

- EXT\_15V0 : 15V VOLTAGE USED IN CHARGER MANAGEMENT IC
- VCC\_9\_15V : 9 to 15V VOLTAGE USED IN SWITCHING REGULATOR
- VCC\_3V3 : 3.3V VOLTAGE USED IN THE ENTIRE BOARD
- VCC\_3V3\_COM : 3.3V VOLTAGE USED IN THE ENTIRE BOARD
- WIFI\_3V3 : 3.3V VOLTAGE USED IN WIFI MODULE
- CAPNO\_3V3\_OEM : 3.3V VOLTAGE USED IN CAPNO OEM
- CAPNO\_3V3\_PUMP : 3.3V VOLTAGE USED IN CAPNO PUMP
- WIFI\_3V3\_EXT : 3.3V VOLTAGE USED IN WIFI MODULE
- 3V3\_VMOD : 3.3V USED IN WIFI MODULE
- 3V3\_VREF : 3.3V USED IN WIFI MODULE
- 3V3\_DVDD : 3.3V USED IN WIFI MODULE
- 9\_15V\_DTR\_LDA : EMA Input (9V\_15V) VOLTAGE USED IN LP20e to TEST SYSTEM CONNECTOR
- 5V0\_LDA\_RI : 5V VOLTAGE USED IN LP20e to TEST SYSTEM CONNECTOR
- GND : GROUND REFERENCE FOR THE ENTIRE BOARD (0 V)
- PR\_GND : SHIELD GROUND

|         |                         |                                                                   |                                                                                       |
|---------|-------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Project |                         | TECHNOLOGIES DIVISION                                             |                                                                                       |
| PC-EMA  |                         | DOCUMENT ID = PCEMA0056                                           |  |
| Title   |                         | EMA Interface PCB/ Extension Module Assembly PART NUMBER = 731004 |                                                                                       |
| Size    | Sheet Name              | Rev                                                               |                                                                                       |
| A3      | NAMING CONVENTIONS USED | 2.17                                                              |                                                                                       |
| Date:   |                         | Tuesday, January 22, 2013                                         | Sheet 3 of 14                                                                         |

# PCB STACK-UP INFORMATION FOR EMA Interface PCB

| Layer Number | signal / plane | Copper Weight (oz) | Copper Thickness (mil) | Dielectric Thickness (mil) | copper area % | Dielectric material | PP thickness before press | structure | SE Impedance Reqmt | Line with Design | Estimate | Differential Impedance Reqmt | Trace Width Design | Estimate | Edge to Edge Spacing Design | Estimate | Reference Plane |
|--------------|----------------|--------------------|------------------------|----------------------------|---------------|---------------------|---------------------------|-----------|--------------------|------------------|----------|------------------------------|--------------------|----------|-----------------------------|----------|-----------------|
| 1            | Top            | 0.5                | 0.8                    | Plating 1.2                | 100           | FOIL                |                           |           | 50+/-10%           | 9.25             | 9.20     | 90 ohm +/-10%                | 9.00               | 8.80     | 9.00                        | 9.20     | L2              |
| 2            | Plane          | 1.0                | 1.2                    | 5.5                        | 73            | B-STAGE             | 5.8                       | 1080X2    |                    |                  |          |                              |                    |          |                             |          |                 |
| 3            | Signal         | 1.0                | 1.2                    | 5.0                        | 40            | CORE                |                           |           | 50+/-10%           | 8.00             | 5.70     | 90 ohm +/-10%                | 8.00               | 5.90     | 9.00                        | 9.10     | L2, L4          |
| 4            | Plane          | 1.0                | 1.2                    | 12.4                       | 73            | B-STAGE             | 13.4                      | 1508x2    |                    |                  |          |                              |                    |          |                             |          |                 |
| 5            | Plane          | 1.0                | 1.2                    | 5.0                        | 73            | CORE                |                           |           |                    |                  |          |                              |                    |          |                             |          |                 |
| 6            | Signal         | 1.0                | 1.2                    | 12.4                       | 40            | B-STAGE             | 13.4                      | 1508x2    | 50+/-10%           | 8.00             | 5.70     | 90 ohm +/-10%                | 8.00               | 5.90     | 9.00                        | 9.10     | L5, L7          |
| 7            | Plane          | 1.0                | 1.2                    | 5.0                        | 73            | CORE                |                           |           |                    |                  |          |                              |                    |          |                             |          |                 |
| 8            | Bottom         | 0.5                | 0.8                    | 5.5                        | 100           | B-STAGE             | 5.8                       | 1080X2    | 50+/-10%           | 9.25             | 9.20     | 90 ohm +/-10%                | 9.00               | 8.80     | 9.00                        | 9.20     | L7              |
|              | Plating        |                    | 1.2                    |                            |               |                     |                           |           |                    |                  |          |                              |                    |          |                             |          |                 |

|                                       |      |
|---------------------------------------|------|
| Thickness at Lamination (mil):        | 59.1 |
| Thickness over plated copper          | 61.5 |
| Thickness with Plating (EX SM) (mil): | 62.1 |

1.561 mm

|         |                           |                                                                   |         |
|---------|---------------------------|-------------------------------------------------------------------|---------|
| Project |                           | TECHNOLOGIES DIVISION                                             |         |
| PC-EMA  |                           | DOCUMENT ID = PCEMA0056                                           |         |
| Title   |                           | EMA Interface PCB/ Extension Module Assembly PART NUMBER = 731004 |         |
| Size    | Sheet Name                | Rev                                                               |         |
| A3      | PCB STACK-UP INFORMATION  | 2.17                                                              |         |
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## LAYOUT NOTES FOR EMA Interface PCB SCHEMATICS

|    |                                 |                          |
|----|---------------------------------|--------------------------|
| 1  | MINIMUM TRACK WIDTH             | 6 mils                   |
| 2  | MINIMUM TRACK TO TRACK DISTANCE | 6 mils                   |
| 3  | MINIMUM PAD TO PAD DISTANCE     | 6 mils                   |
| 4  | MINIMUM PAD TO TRACK DISTANCE   | 6 mils                   |
| 5  | VIA SIZE USED IN THE PCB        | 10 mils hole             |
| 6  | MINIMUM DRILL SIZE              | 10 mils                  |
| 7  | NUMBER OF LAYERS                | 8                        |
| 8  | NUMBER OF POWER LAYERS          | 1                        |
| 9  | VCC PLANES                      | LAYER 5                  |
| 10 | GND PLANES                      | LAYER 2,4 and 7          |
| 11 | SPLIT POWER PLANE               | Reference Table2         |
| 12 | PCB SIZE                        | Refer " Board Dimension" |
| 13 | NUMBER OF IC'S                  | 15                       |
| 14 | NUMBER OF OTHER COMPONENTS      | 441                      |
| 15 | NUMBER OF SIGNAL CONNECTIONS    | Refer Table1             |
| 16 | NUMBER OF IC'S PER SQUARE INCH  | N/A                      |

Table 1

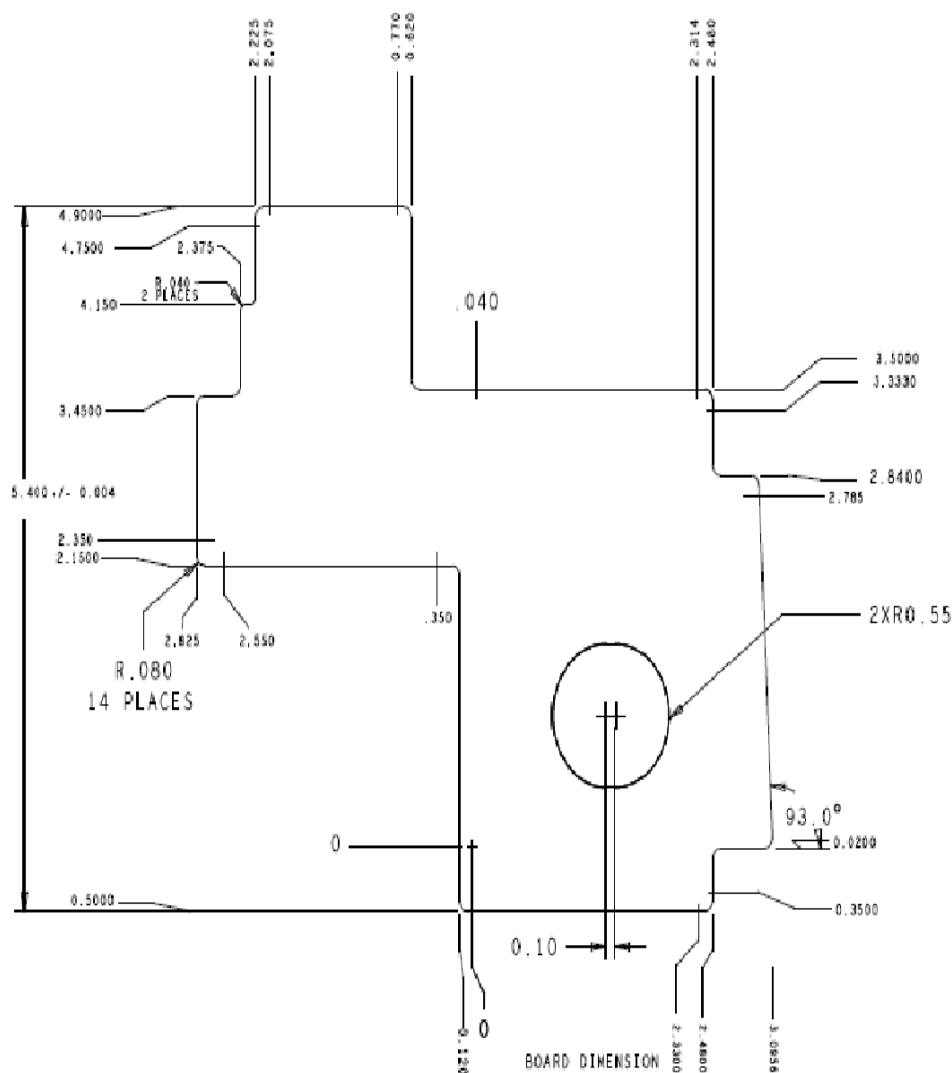
| Layer # | Layer Name      | Signals to be routed                                                                                                                                                                                                                  |
|---------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Signal 1 Top    | other signals                                                                                                                                                                                                                         |
| 2       | Ground Plane    | Ground                                                                                                                                                                                                                                |
| 3       | Signal 2        | SDIO_DATA1_IN, SDIO_CMD_IN, SDIO_CLK_IN, SDIO_DATA3_IN, SDIO_DATA0_IN, SDIO_DATA2_IN, FAN_I2C_SDI, FAN_I2C_SCLK, TMP_FAN_I2C_SCLK, TMP_FAN_I2C_SDI, BAT_CHRG_I2C_DATA, BAT_CHRG_I2C_CLK,                                              |
| 4       | Ground Plane    | Ground                                                                                                                                                                                                                                |
| 5       | Power Plane     | 3.3V Power rail                                                                                                                                                                                                                       |
| 6       | Signal 3        | CAPNO_COM_RxD, CAPNO_COM_TxD, TESTSYS_COM_CTS, TESTSYS_COM_RTS, TESTSYS_COM_RXD, TESTSYS_COM_TXD, TESTSYS_COM_DTR, LP20_COM_TXD, LP20_COM_RXD, LP20_COM_RTS, LP20_COM_CTS, LP20_COM_DTR, DEBUG_TXD_COM, DEBUG_RXD_COM, USB_DP, USB_DN |
| 7       | Ground Plane    | Ground                                                                                                                                                                                                                                |
| 8       | Signal 4 Bottom | other signals                                                                                                                                                                                                                         |

Table 2: Power Splits

VCC\_3V3, VCC\_3V3\_COM, WIFI\_3V3, 3V3\_VMOD, VBAT\_9\_15V, EXT\_15V0, VCC\_9\_15V

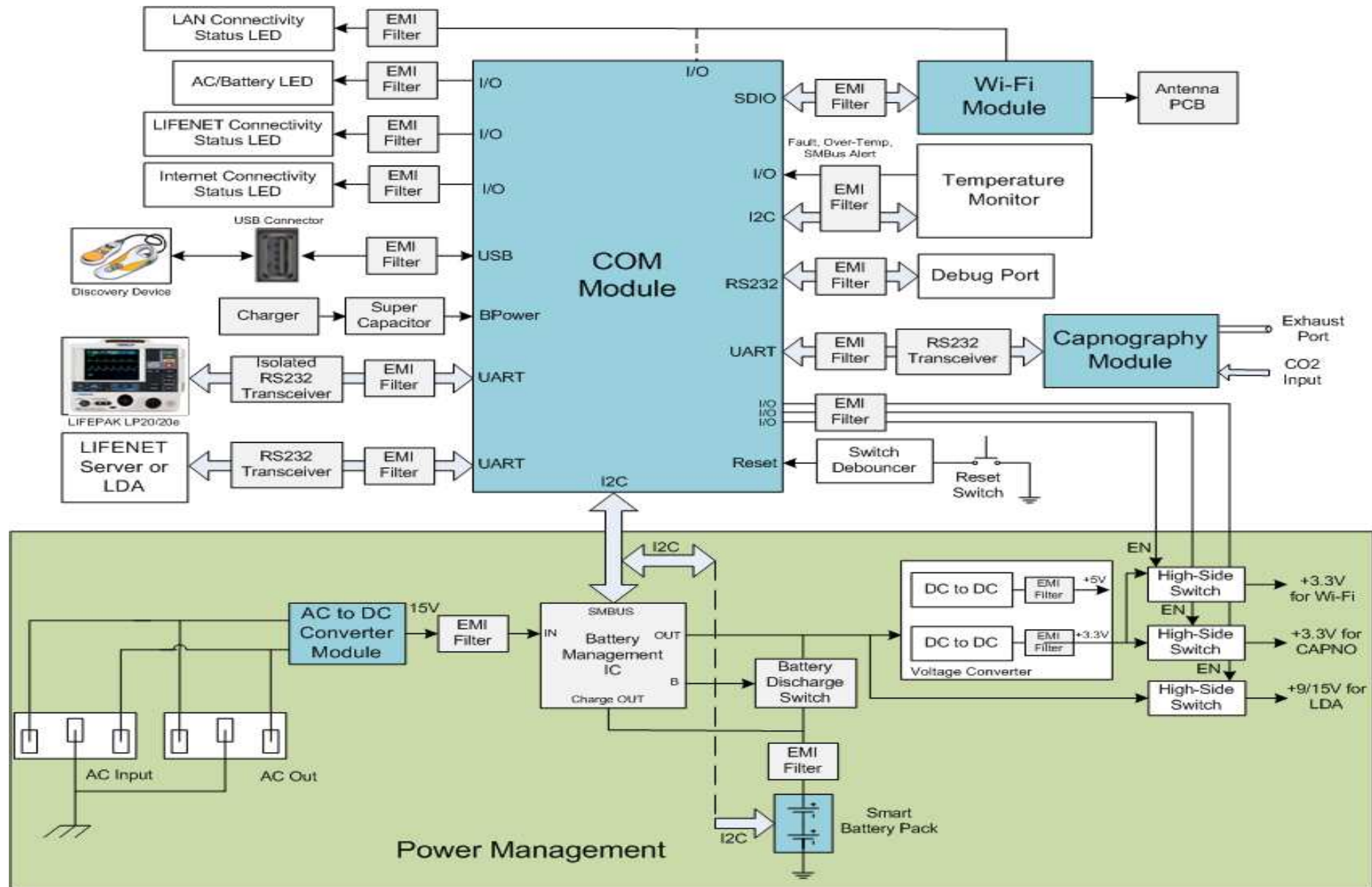
## Board Dimension

TOTAL BOARD THICKNESS 63 MIL +/- 10 %

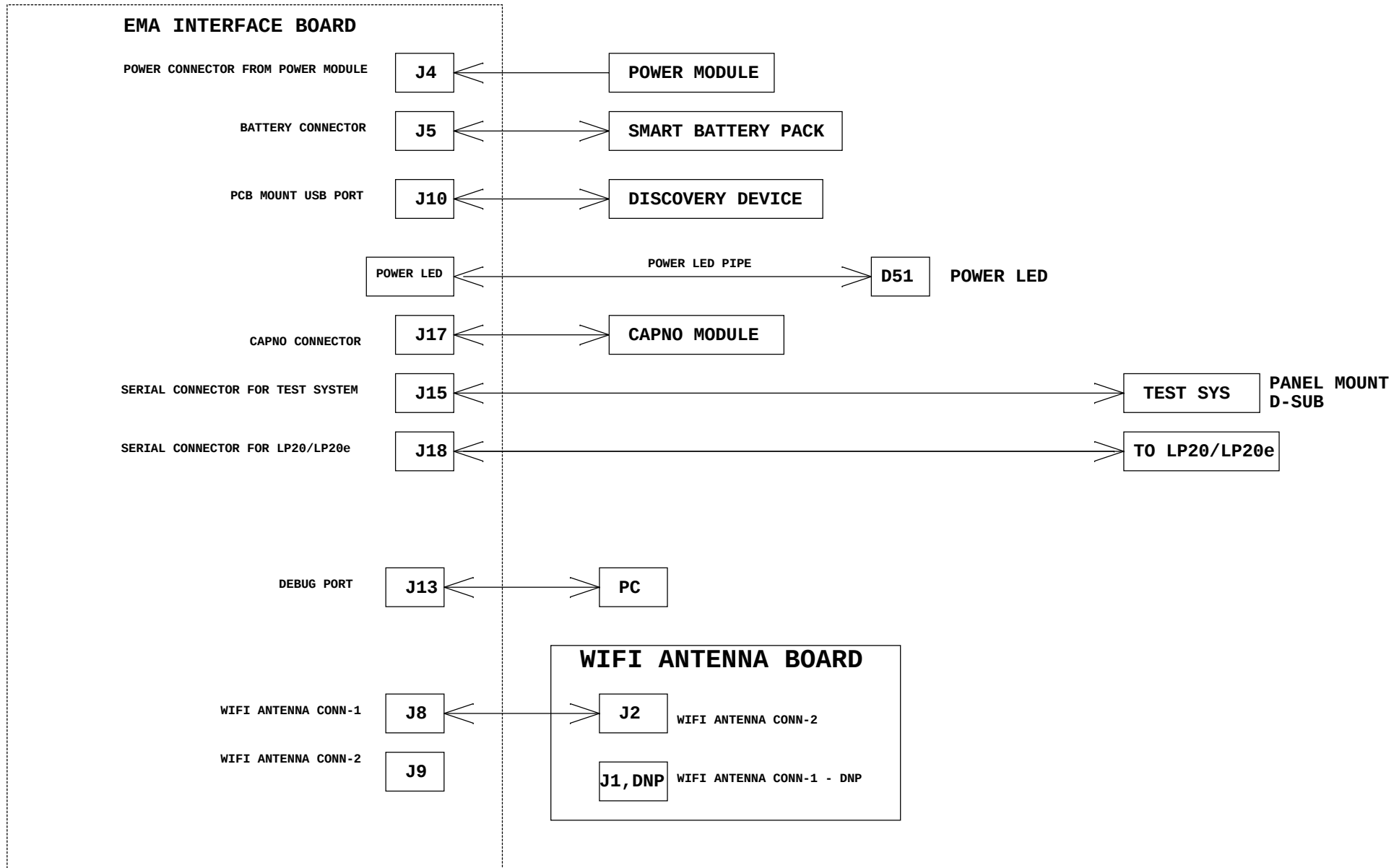


|         |                           |                                                                   |         |
|---------|---------------------------|-------------------------------------------------------------------|---------|
| Project |                           | TECHNOLOGIES DIVISION                                             |         |
| PC-EMA  |                           | DOCUMENT ID = PCEMA0056                                           |         |
| Title   |                           | EMA Interface PCB/ Extension Module Assembly PART NUMBER = 731004 |         |
| Size    | Sheet Name                | Rev                                                               |         |
| A3      | LAYOUT NOTES              | 2.17                                                              |         |
| Date:   | Tuesday, January 22, 2013 | Sheet                                                             | 5 of 14 |

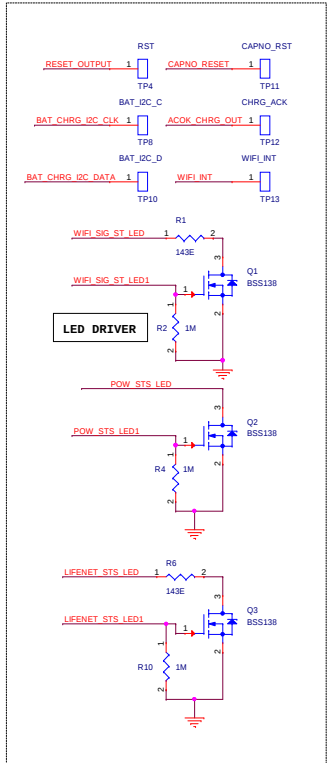
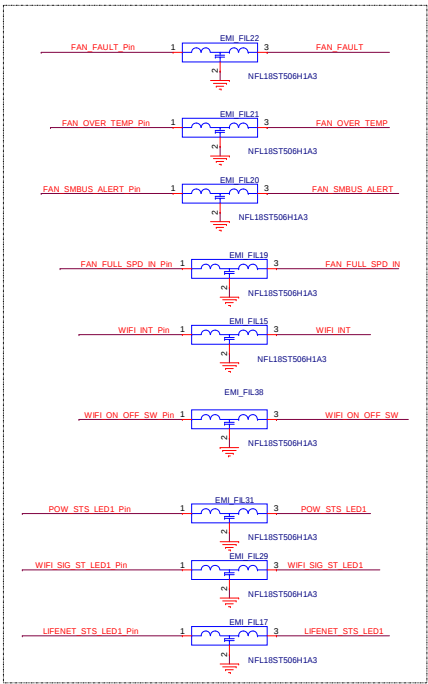
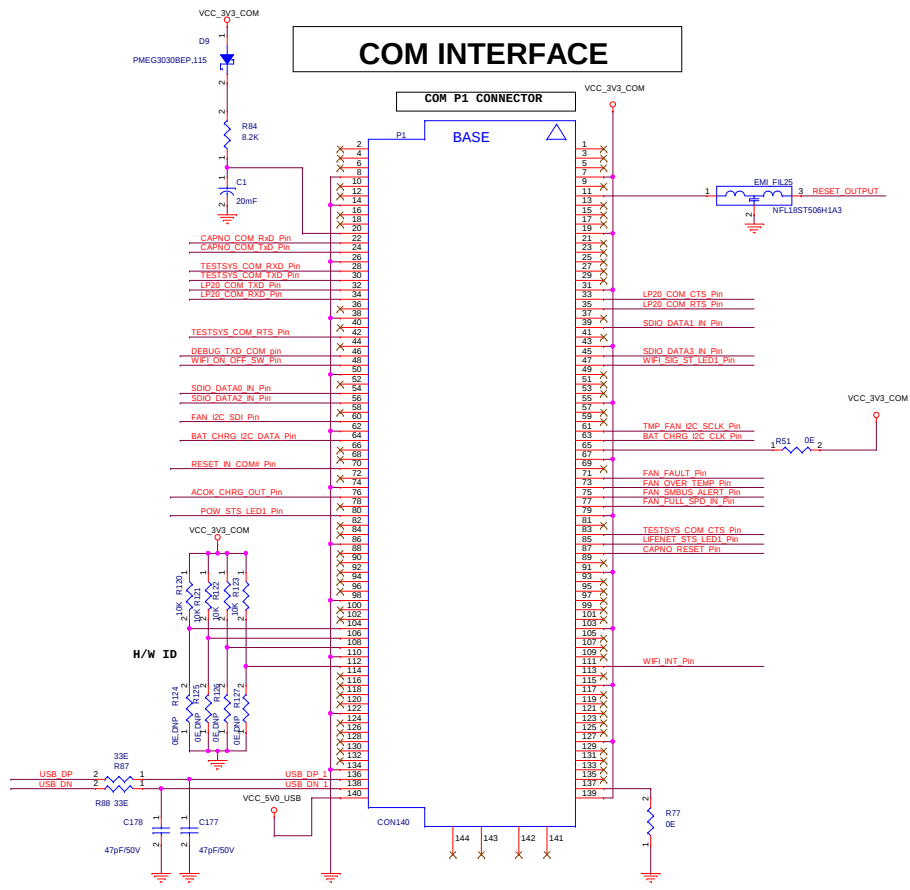
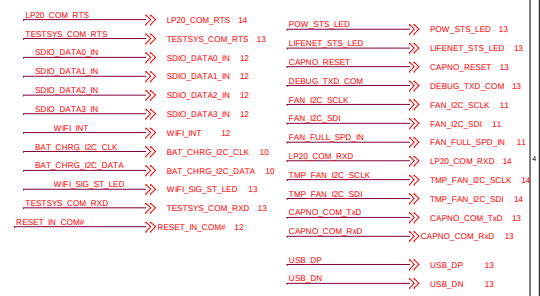
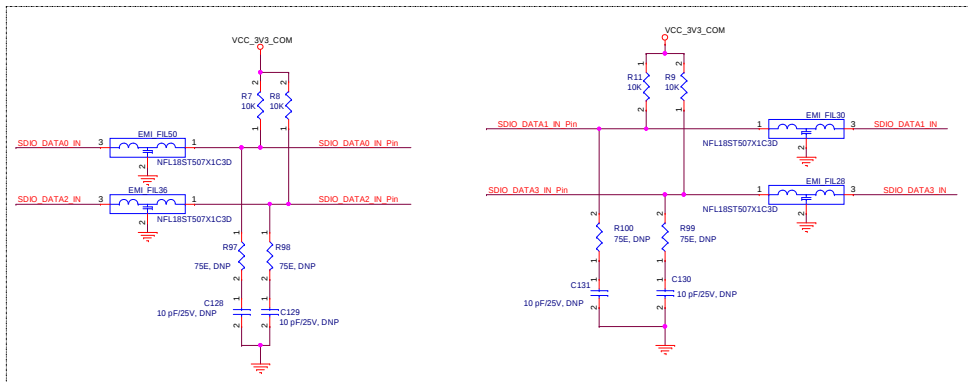
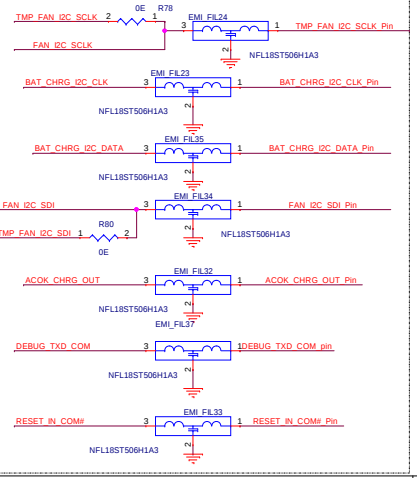
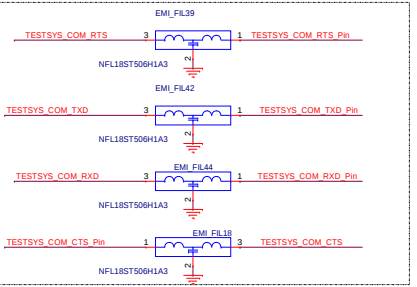
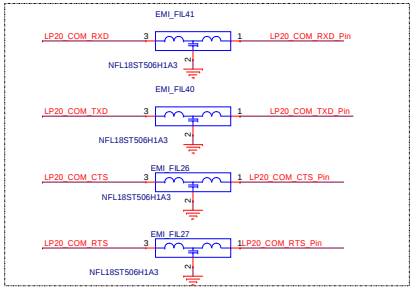
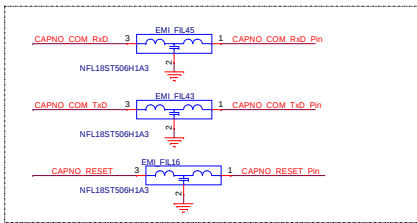
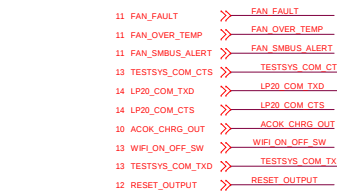
# BLOCK DIAGRAM



# PCB MOUNT EMA CABLE INTERFACING DIAGRAM



|         |                           |                                              |                      |
|---------|---------------------------|----------------------------------------------|----------------------|
| Project |                           | TECHNOLOGIES DIVISION                        |                      |
| PC-EMA  |                           | DOCUMENT ID = PCEMA0056                      |                      |
| Title   |                           | EMA Interface PCB/ Extension Module Assembly | PART NUMBER = 731004 |
| Size    | Sheet Name                | Rev                                          |                      |
| A3      | BOARD MOUNT_INTERFACE     | 2.17                                         |                      |
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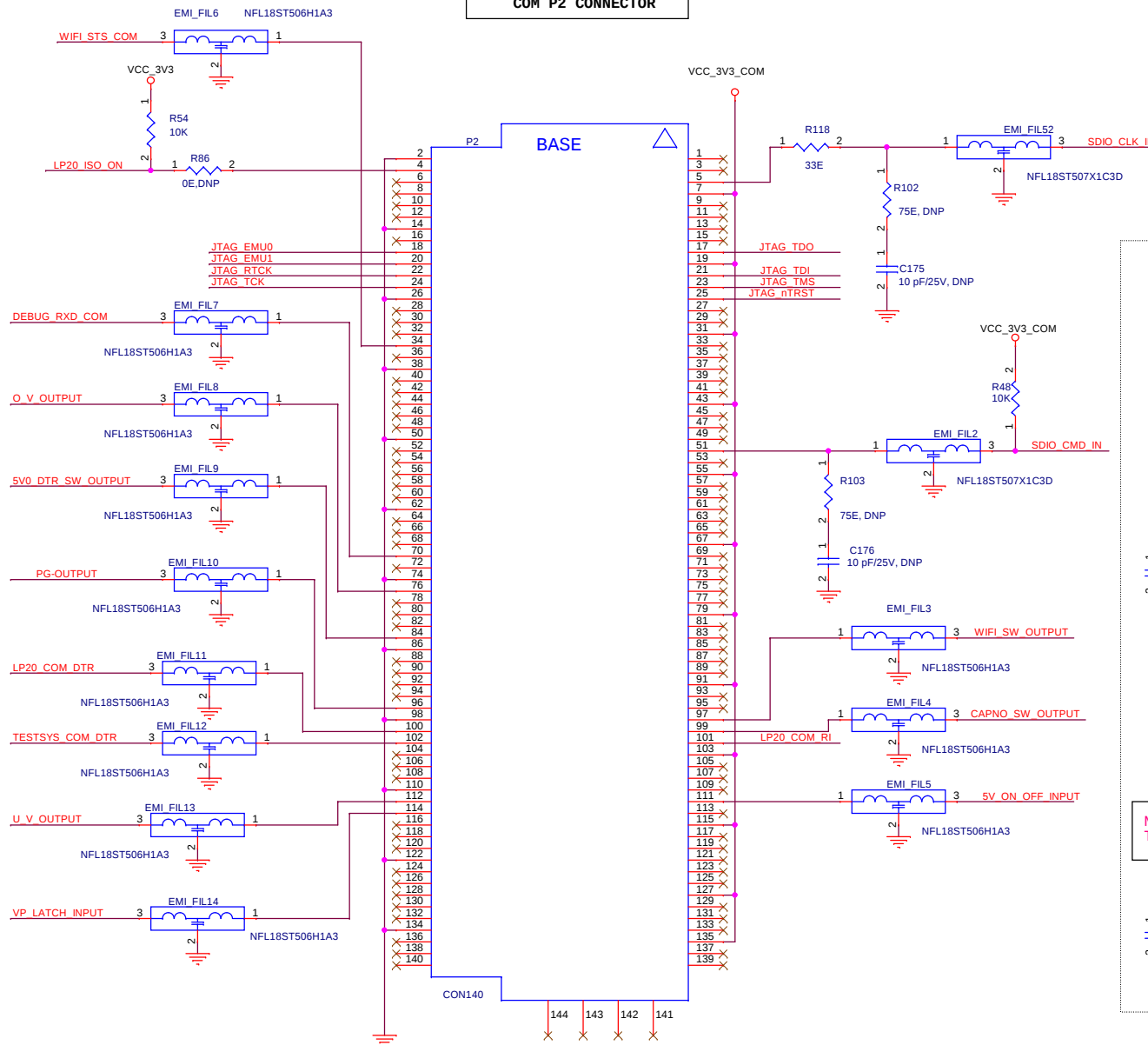
11 PG-OUTPUT >> PG-OUTPUT  
14 LP20\_COM\_DTR >> LP20\_COM\_DTR  
11 TESTSYS\_COM\_DTR >> TESTSYS\_COM\_DTR  
14 LP20\_ISO\_ON >> LP20\_ISO\_ON  
14 LP20\_COM\_RI >> LP20\_COM\_RI

8,14 TMP\_FAN\_I2C\_SCLK >> TMP\_FAN\_I2C\_SCLK  
8,14 TMP\_FAN\_I2C\_SDI >> TMP\_FAN\_I2C\_SDI  
11 O\_V\_OUTPUT >> O\_V\_OUTPUT  
11 U\_V\_OUTPUT >> U\_V\_OUTPUT

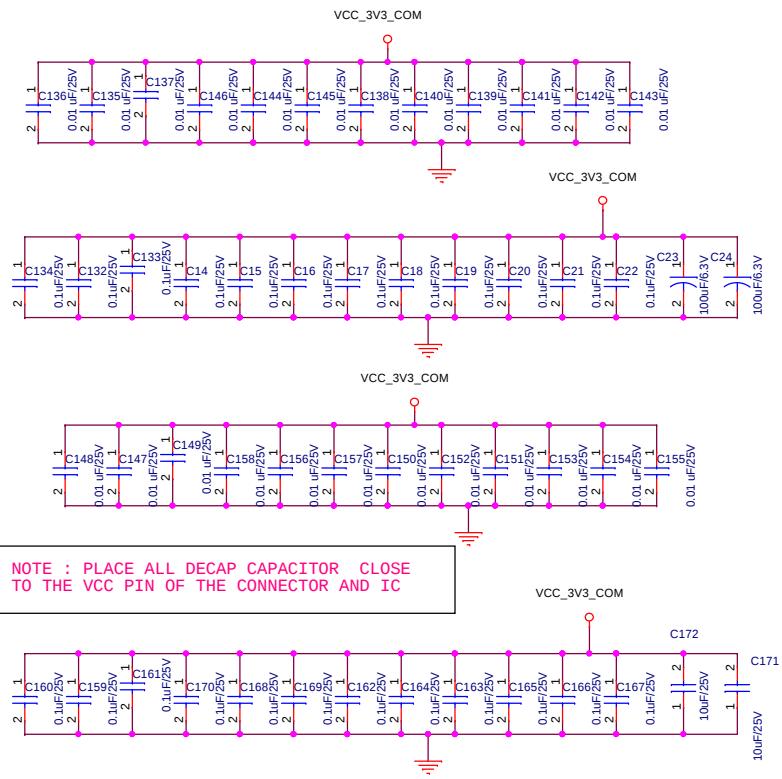
WIFI\_STS\_COM >> WIFI\_STS\_COM 12  
SDIO\_CLK\_IN >> SDIO\_CLK\_IN 12  
SDIO\_CMD\_IN >> SDIO\_CMD\_IN 12  
DEBUG\_RXD\_COM >> DEBUG\_RXD\_COM 13  
SV0\_DTR\_SW\_OUTPUT >> SV0\_DTR\_SW\_OUTPUT 11

WIFI\_SW\_OUTPUT >> WIFI\_SW\_OUTPUT 11  
CAPNO\_SW\_OUTPUT >> CAPNO\_SW\_OUTPUT 11  
5V\_ON\_OFF\_INPUT >> 5V\_ON\_OFF\_INPUT 11  
VP\_LATCH\_INPUT >> VP\_LATCH\_INPUT 11  
JTAG\_EMU0 >> JTAG\_EMU0 14  
JTAG\_EMU1 >> JTAG\_EMU1 14  
JTAG\_TCK >> JTAG\_TCK 14  
JTAG\_TMS >> JTAG\_TMS 14  
JTAG\_TDI >> JTAG\_TDI 14  
JTAG\_TDO >> JTAG\_TDO 14  
JTAG\_nTRST >> JTAG\_nTRST 14  
JTAG\_RTCK >> JTAG\_RTCK 14

### COM P2 CONNECTOR



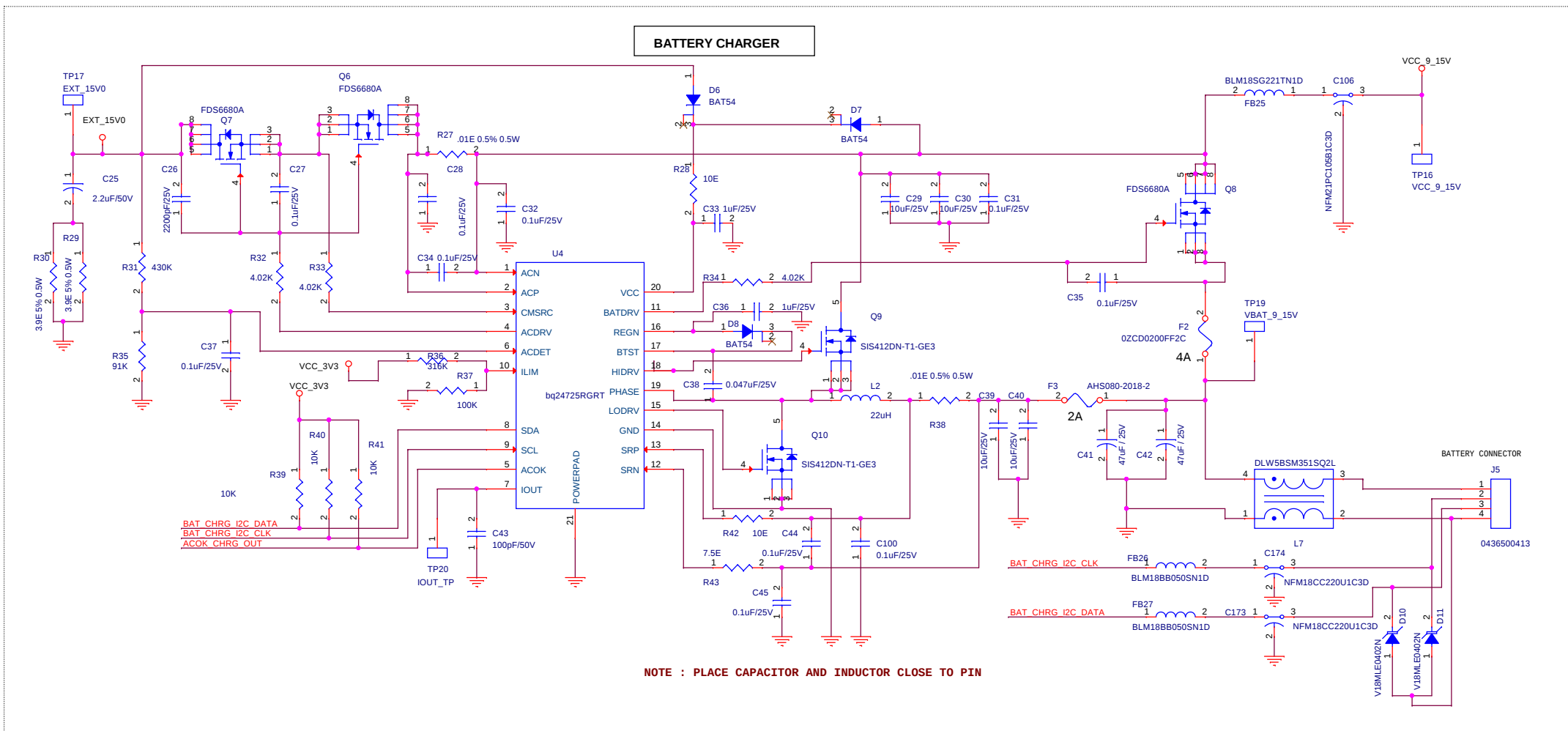
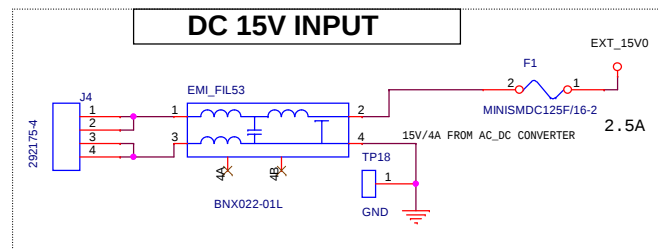
### DECOUPLING CAPS



|         |            |                                              |               |
|---------|------------|----------------------------------------------|---------------|
| Project |            | TECHNOLOGIES DIVISION                        |               |
| PC-EMA  |            | DOCUMENT ID = PCEMA0056                      |               |
| Title   |            | EMA Interface PCB/ Extension Module Assembly |               |
| Size    |            | PART NUMBER = 731004                         |               |
| A3      | Sheet Name | P2_COM INTERFACE                             |               |
| Date:   |            | Tuesday, January 22, 2013                    | Sheet 9 of 14 |
| Rev     |            | 2.17                                         |               |

8 BAT\_CHRG\_I2C\_CLK >>> BAT\_CHRG\_I2C\_CLK  
8 BAT\_CHRG\_I2C\_DATA >>> BAT\_CHRG\_I2C\_DATA

ACOK\_CHRG\_OUT >>> ACOK\_CHRG\_OUT 8



|         |                           |                                                                   |          |
|---------|---------------------------|-------------------------------------------------------------------|----------|
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| PC-EMA  |                           | DOCUMENT ID = PCEMA0056                                           |          |
| Title   |                           | EMA Interface PCB/ Extension Module Assembly PART NUMBER = 731004 |          |
| Size    | Sheet Name                | CHARGER SECTION                                                   |          |
| A3      |                           | Rev 2.17                                                          |          |
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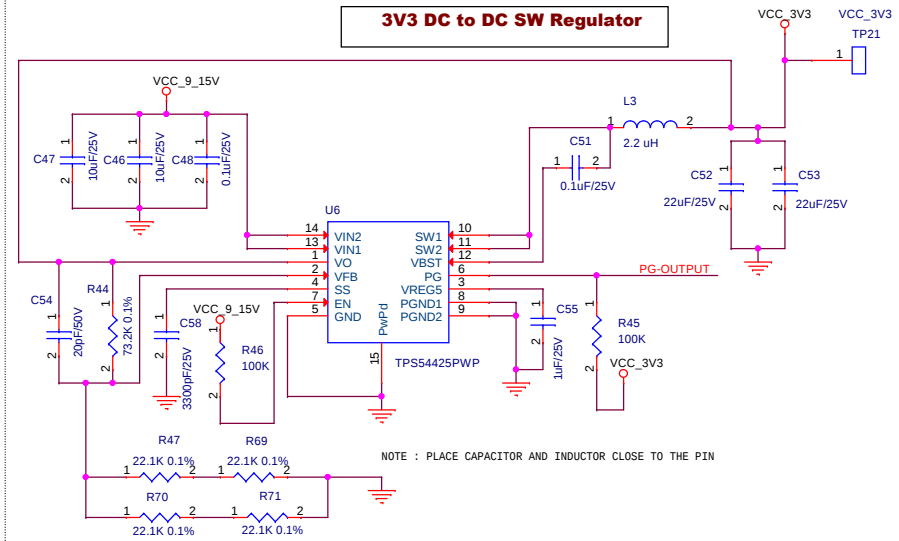
9 WIFI\_SW\_OUTPUT >> WIFI\_SW\_OUTPUT  
 9 CAPNO\_SW\_OUTPUT >> CAPNO\_SW\_OUTPUT  
 9 5V0\_DTR\_SW\_OUTPUT >> 5V0\_DTR\_SW\_OUTPUT  
 9 5V\_ON\_OFF\_INPUT >> 5V\_ON\_OFF\_INPUT  
 9 TESTSYS\_COM\_DTR >> TESTSYS\_COM\_DTR

8 FAN\_I2C\_SCL >> FAN\_I2C\_SCL  
 8 FAN\_I2C\_SDI >> FAN\_I2C\_SDI  
 8 FAN\_FULL\_SPD\_IN >> FAN\_FULL\_SPD\_IN  
 9 VP\_LATCH\_INPUT >> VP\_LATCH\_INPUT

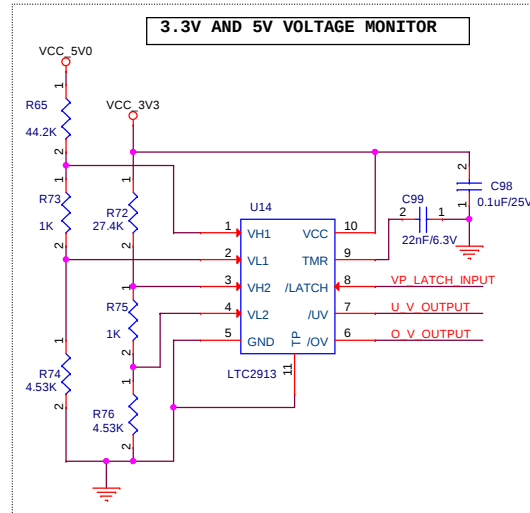
FAN\_SMBUS\_ALERT >> FAN\_SMBUS\_ALERT 8  
 PG-OUTPUT >> PG-OUTPUT 9  
 FAN\_FAULT >> FAN\_FAULT 8  
 TESTSYS\_COM\_DTR >> TESTSYS\_COM\_DTR 9

O\_V\_OUTPUT >> O\_V\_OUTPUT 9  
 U\_V\_OUTPUT >> U\_V\_OUTPUT 9  
 FAN\_OVER\_TEMP >> FAN\_OVER\_TEMP 8

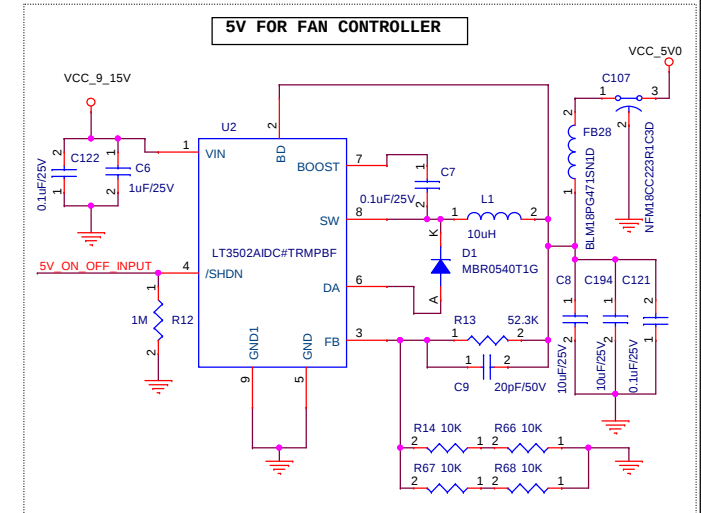
### 3V3 DC to DC SW Regulator



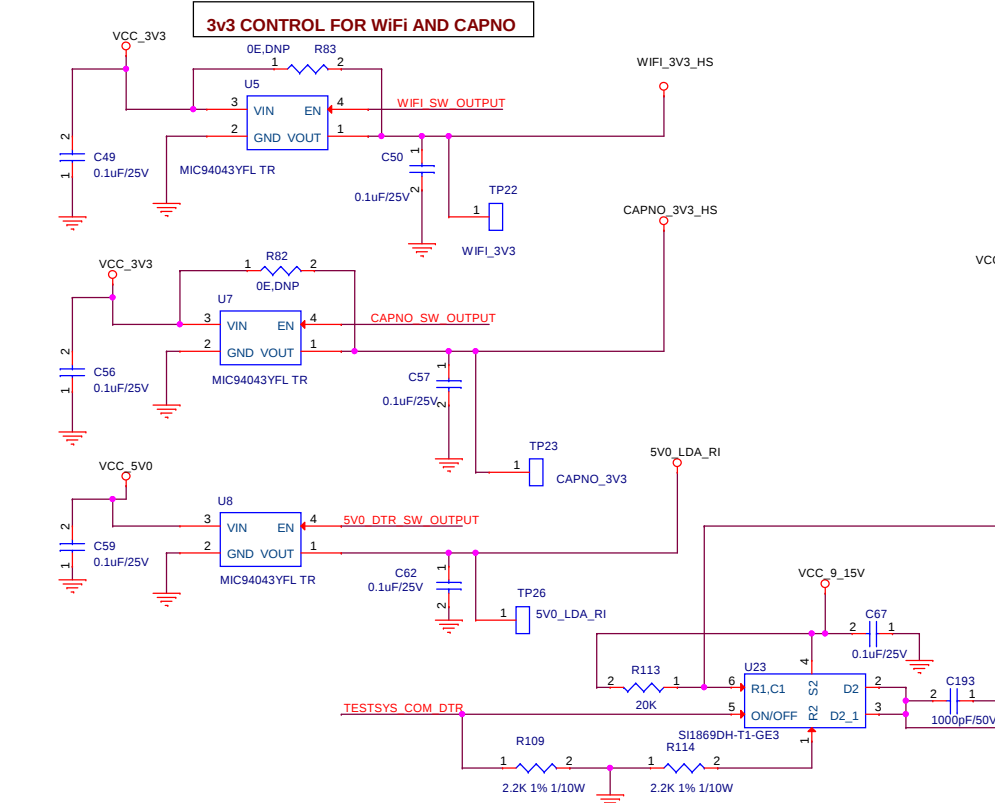
### 3.3V AND 5V VOLTAGE MONITOR



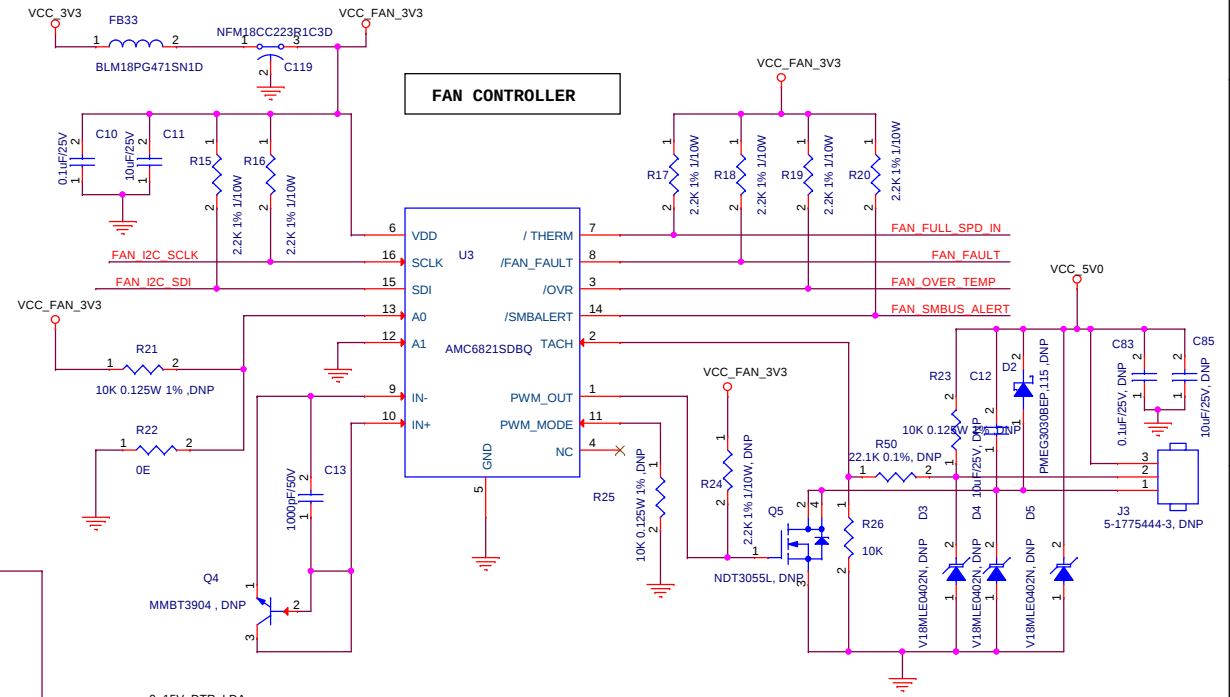
### 5V FOR FAN CONTROLLER



### 3v3 CONTROL FOR WiFi AND CAPNO



### FAN CONTROLLER



NOTE : PLACE ALL DECAP CAPACITOR CLOSE TO THE VCC PIN OF THE IC.

|            |  |                                              |  |
|------------|--|----------------------------------------------|--|
| Project    |  | TECHNOLOGIES DIVISION                        |  |
| PC-EMA     |  | DOCUMENT ID = PC-EMA0056                     |  |
| Title      |  | EMA Interface PCB/ Extension Module Assembly |  |
| Size       |  | PART NUMBER = 731004                         |  |
| Sheet Name |  | POWER SECTION                                |  |
| Date:      |  | Wednesday, January 23, 2013                  |  |
| Sheet      |  | 11 of 14                                     |  |

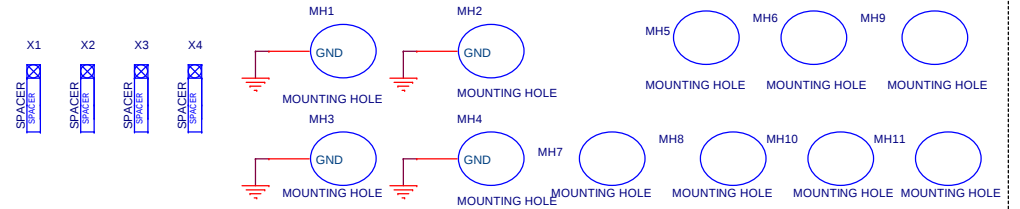
# WiFi\_INTERFACE

8 SDIO\_DATA0\_IN >> SDIO\_DATA0\_IN  
8 SDIO\_DATA1\_IN >> SDIO\_DATA1\_IN  
9 SDIO\_CLK\_IN >> SDIO\_CLK\_IN  
8 SDIO\_DATA2\_IN >> SDIO\_DATA2\_IN  
8 SDIO\_DATA3\_IN >> SDIO\_DATA3\_IN  
9 SDIO\_CMD\_IN >> SDIO\_CMD\_IN

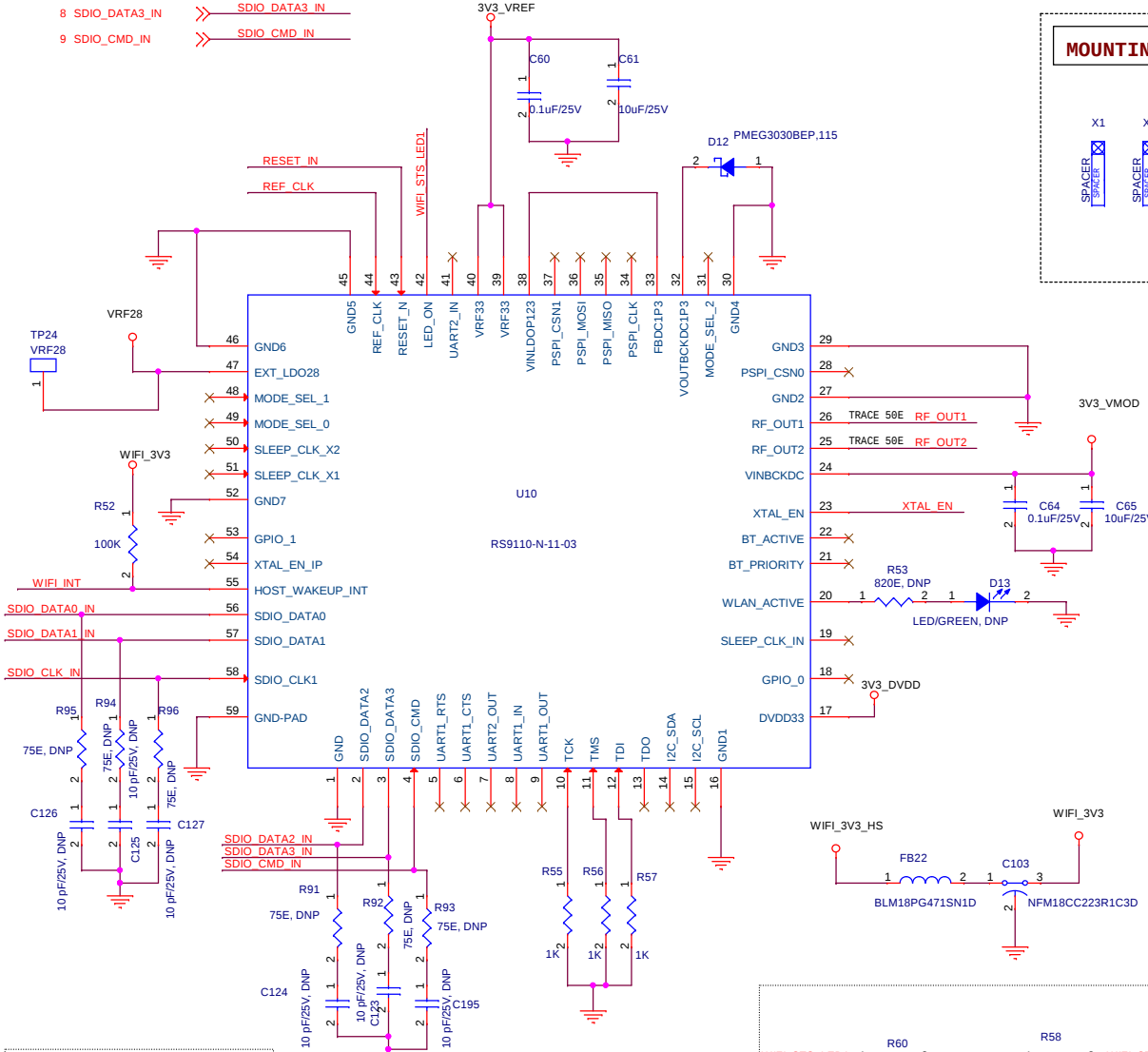
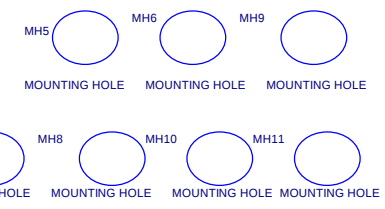
8 WIFI\_INT >> WIFI\_INT  
9 WIFI\_STS\_COM >> WIFI\_STS\_COM  
8 RESET\_IN\_COM# >> RESET\_IN\_COM#

WIFI\_STS\_LED >> WIFI\_STS\_LED 13  
RST\_SWT >> RST\_SWT 13  
RESET\_OUTPUT >> RESET\_OUTPUT 8

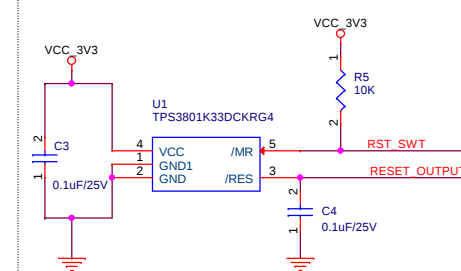
## MOUNTING HOLES and SPACERS FOR COM MODULE



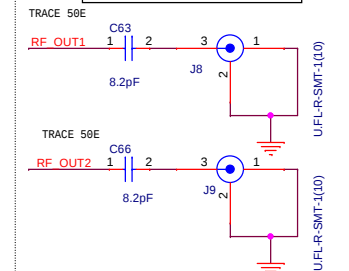
## MOUNTING FOR EMA



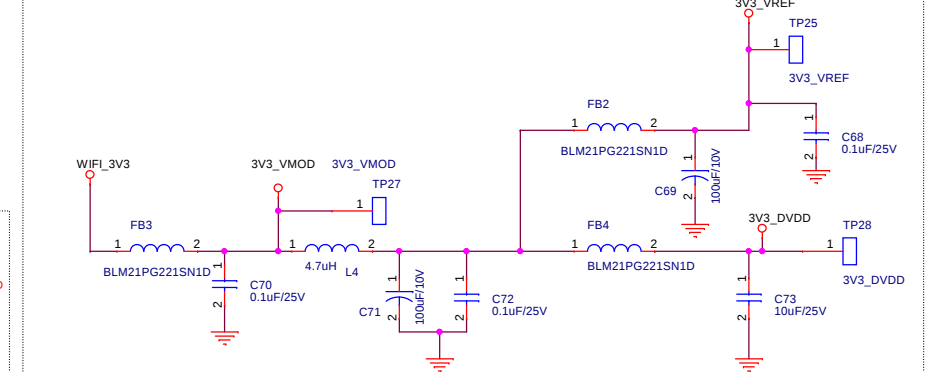
## RESET CIRCUIT



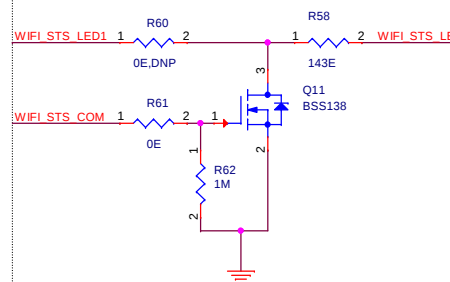
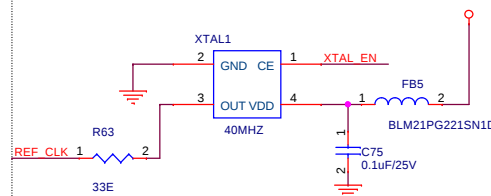
## W1-F1 RF CONNECTOR



## POWER SUPPLY FILTER FOR WiFi MODULE



## OSCILLATOR

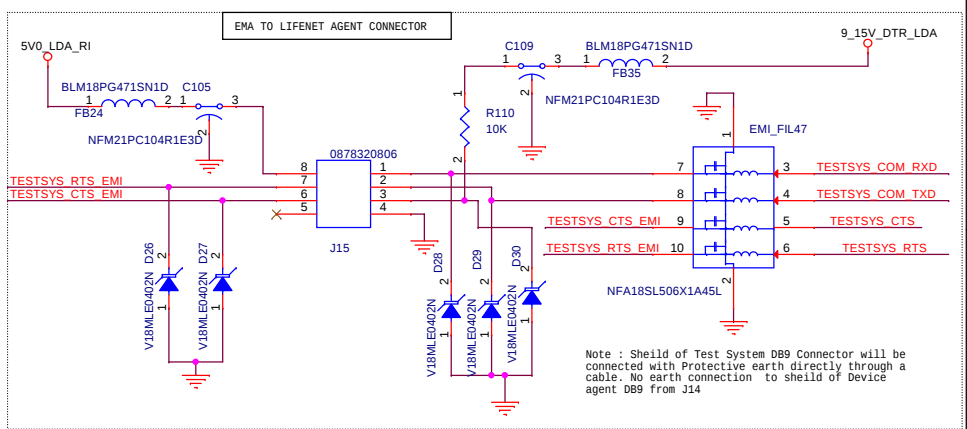
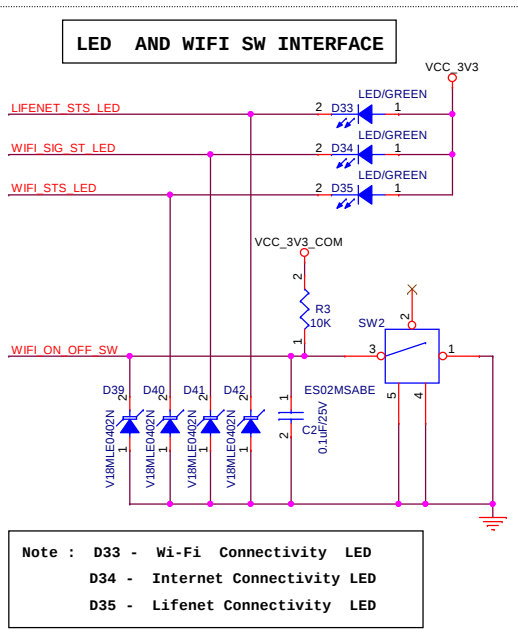
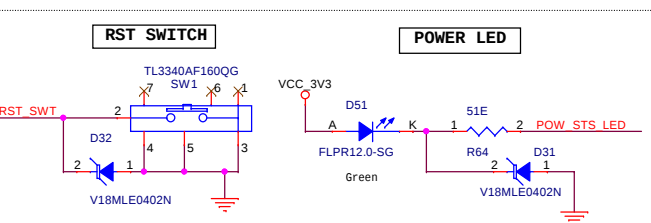
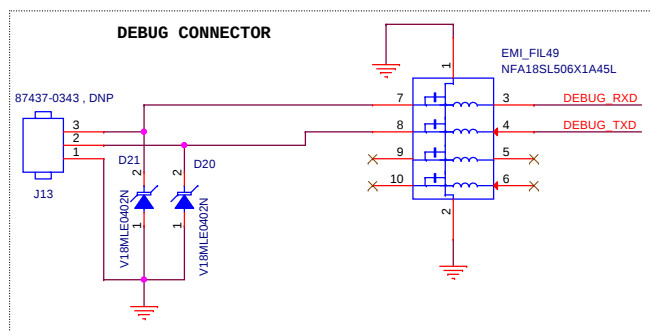
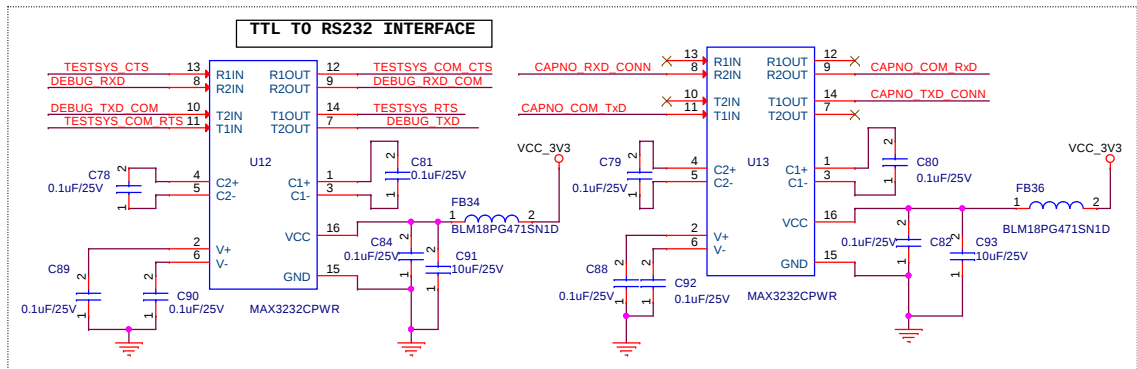
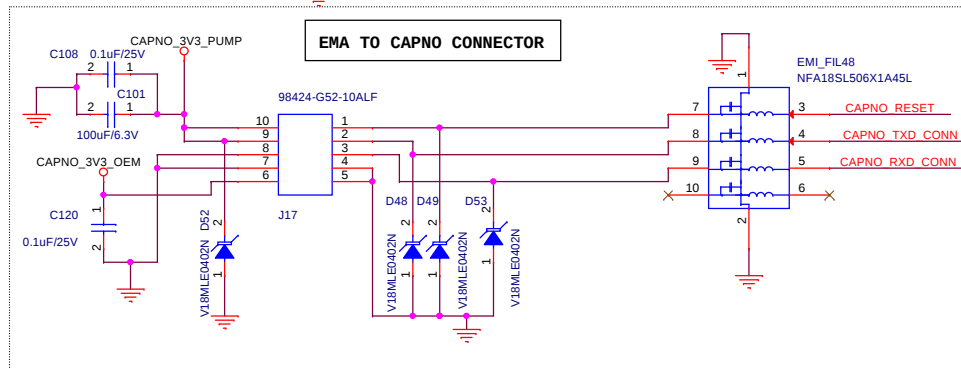
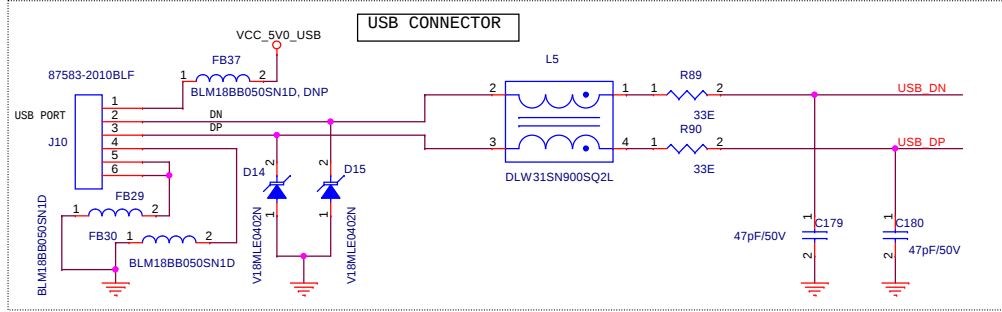
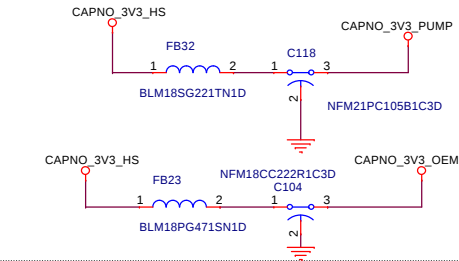


NOTE : PLACE ALL DECAP CAPACITOR CLOSE TO THE VCC PIN OF THE IC.

|         |            |                                              |          |
|---------|------------|----------------------------------------------|----------|
| Project |            | TECHNOLOGIES DIVISION                        |          |
| PC-EMA  |            | DOCUMENT ID = PCEMA0056                      |          |
| Title   |            | EMA Interface PCB/ Extension Module Assembly |          |
| Size    |            | PART NUMBER = 731004                         |          |
| A3      | Sheet Name | WIFI_INTERFACE                               | Rev 2.17 |
| Date:   |            | Tuesday, January 22, 2013                    |          |
|         |            | Sheet 12 of 14                               |          |

|                   |    |                 |                   |    |                 |
|-------------------|----|-----------------|-------------------|----|-----------------|
| 8 USB_DP          | »» | USB_DP          | 8 TESTSYS_COM_RXD | »» | TESTSYS_COM_RXD |
| 8 USB_DN          | »» | USB_DN          | 8 TESTSYS_COM_RTS | »» | TESTSYS_COM_RTS |
| 12 RST_SWT        | »» | RST_SWT         | 9 DEBUG_RXD_COM   | »» | DEBUG_RXD_COM   |
| 8 CAPNO_RESET     | »» | CAPNO_RESET     | 8 DEBUG_TXD_COM   | »» | DEBUG_TXD_COM   |
| 8 LIFENET_STS_LED | »» | LIFENET_STS_LED | 8 CAPNO_COM_RxD   | »» | CAPNO_COM_RxD   |
| 12 WIFI_STS_LED   | »» | WIFI_STS_LED    | 8 WIFI_SIG_ST_LED | »» | WIFI_SIG_ST_LED |
| 8 CAPNO_COM_Tx0   | »» | CAPNO_COM_Tx0   |                   |    |                 |
| 8 POW_STS_LED     | »» | POW_STS_LED     |                   |    |                 |

|                 |    |                 |      |
|-----------------|----|-----------------|------|
| TESTSYS_COM_CTS | »» | TESTSYS_COM_CTS | 8    |
| TESTSYS_RTS_EMI | »» | TESTSYS_RTS_EMI |      |
| TESTSYS_COM_DTR | »» | TESTSYS_COM_DTR | 9,11 |
| WIFI_ON_OFF_SW  | »» | WIFI_ON_OFF_SW  | 8    |
| TESTSYS_COM_TXD | »» | TESTSYS_COM_TXD | 8    |

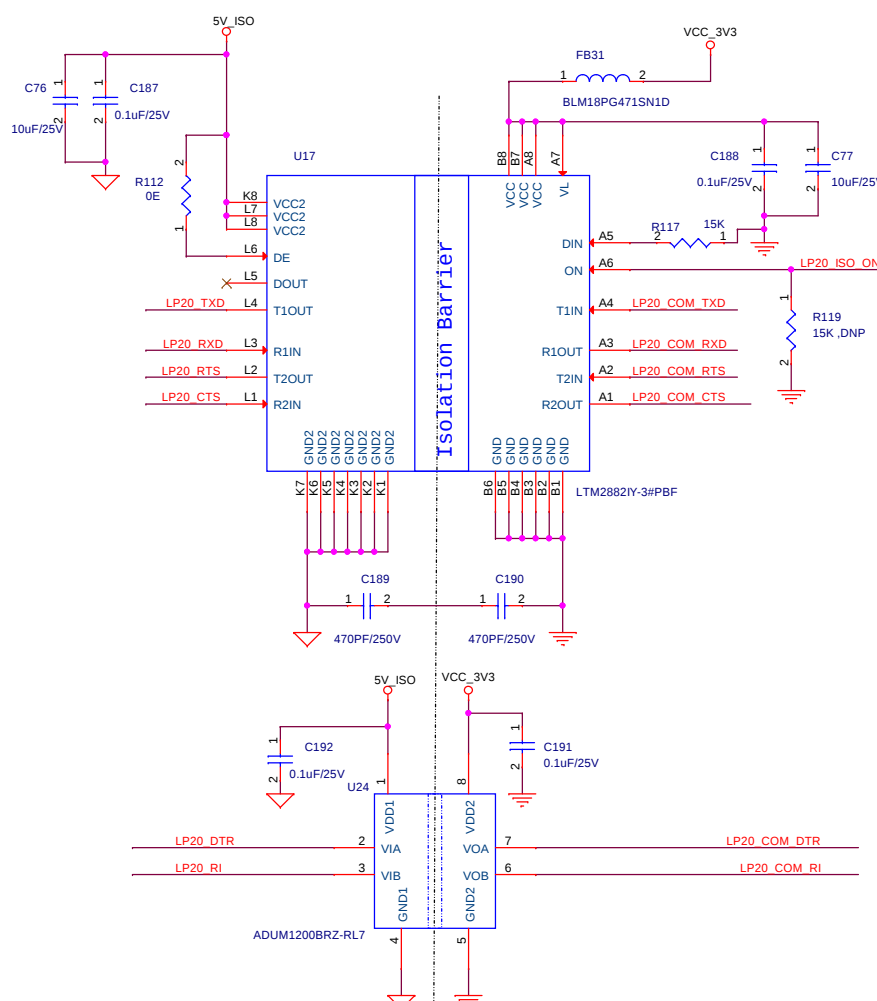
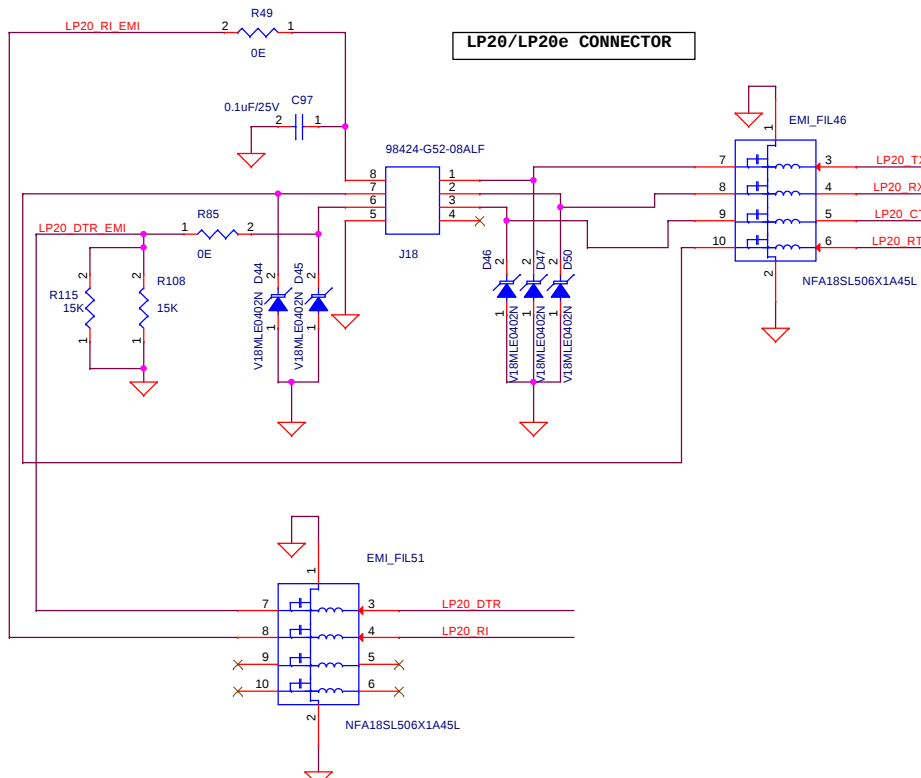


8 LP20\_COM\_RXD >> LP20\_COM\_RXD  
8 LP20\_COM\_RTS >> LP20\_COM\_RTS  
13 TESTSYS\_RTS\_EMI >> TESTSYS\_RTS\_EMI  
9 LP20\_COM\_DTR >> LP20\_COM\_DTR  
9 LP20\_COM\_RI >> LP20\_COM\_RI

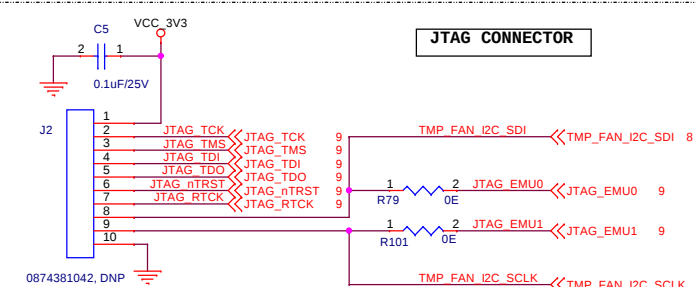
### EMA TO LP20/20e CONNECTOR

LP20\_COM\_TXD >> LP20\_COM\_TXD 8  
LP20\_COM\_CTS >> LP20\_COM\_CTS 8  
LP20\_ISO\_ON >> LP20\_ISO\_ON 9

### LP20/LP20e CONNECTOR



### JTAG CONNECTOR



TMP\_FAN\_I2C\_SDI >> TMP\_FAN\_I2C\_SDI 8  
JTAG\_EMU0 >> JTAG\_EMU0 9  
JTAG\_EMU1 >> JTAG\_EMU1 9  
TMP\_FAN\_I2C\_SCLK >> TMP\_FAN\_I2C\_SCLK 8  
JTAG\_TCK >> JTAG\_TCK 9  
JTAG\_TMS >> JTAG\_TMS 9  
JTAG\_TDI >> JTAG\_TDI 9  
JTAG\_TDO >> JTAG\_TDO 9  
JTAG\_nTRST >> JTAG\_nTRST 9  
JTAG\_RTCK >> JTAG\_RTCK 9