

BUGBASE 2.0 BOARD

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|         |      |
|---------|------|
| REV     | B    |
| VERSION | 2.00 |

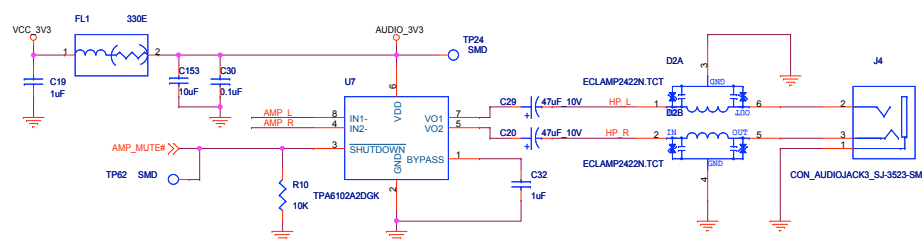
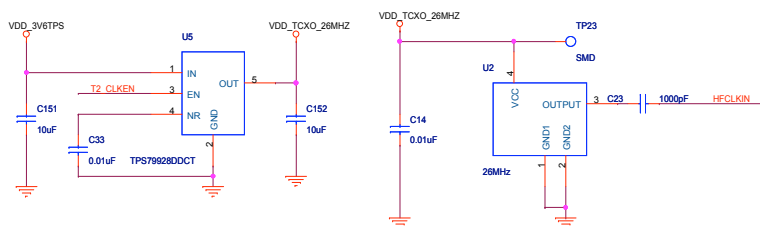
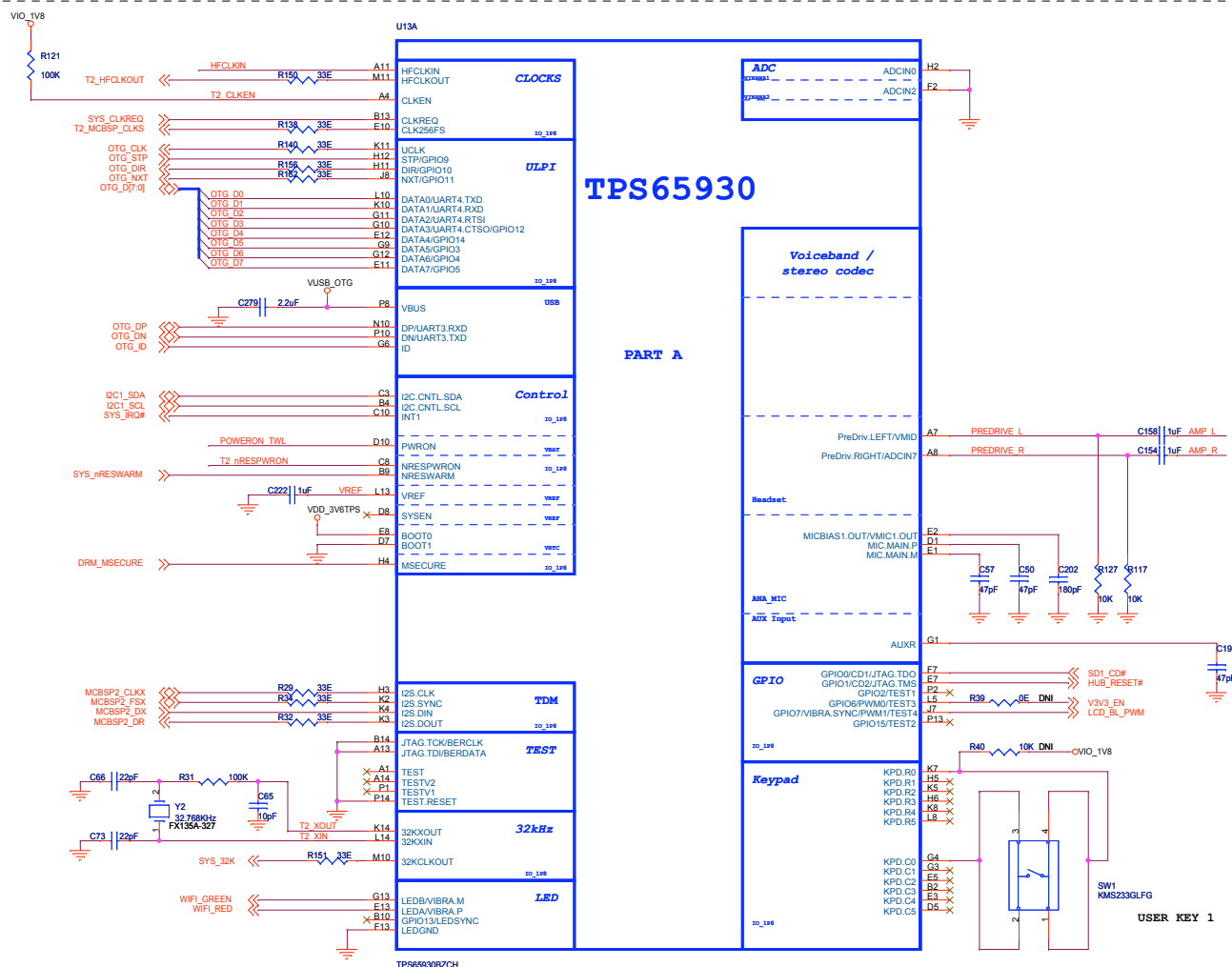
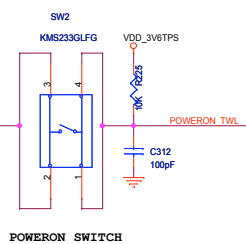
| VER # | DATE         | ACTION                              | VERSION HISTORY<br>DESCRIPTION OF CHANGES                                                                                                                                                                                                                                                                                                                                                                                                                                                                | AUTHOR               | REVIEWED BY | APPROVED BY |
|-------|--------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|-------------|
| 0.10  | 03 JULY 2009 | CREATED                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 0.20  | 30 JULY 2009 | UPDATED                             | LCD PIM updated,<br>updated SDIO2 with direction control for WiFi and SDIO3 with GPIO Direction control for 2nd SD Card                                                                                                                                                                                                                                                                                                                                                                                  | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 0.30  | 7 AUG 2009   | UPDATED                             | PIM BATTERY EN control added to PIM connectors - M2_BAT_EN, M3_BAT_EN, M4_BAT_EN<br>RTC battery removed,<br>Switch between UART3 on Dock and PIM4 removed,<br>USB HUB is fixed to 6 Ports,<br>Uart of PIM 4 is moved to SPI TO UART chip U69,<br>LCD interface level translator removed,<br>Connector_1 page renamed as "connector & switches", Connector_2 renamed as "SPI to Uart Expander",                                                                                                           | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 1.00  | 11 AUG 2009  | BASE-LINED                          | Baseline schematics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 1.10  | 17 AUG 2009  | UPDATED                             | USB Host connector moved to DOCKING Station<br>24MHz and 18.437MHz crystal part number changed<br>WLAN MODULE changed to Murata, added the power switches.                                                                                                                                                                                                                                                                                                                                               | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 1.20  | 25 AUG 2009  | UPDATED                             | One I2C GPIO expander removed.<br>USB HOST 1.8V connected to VAUX2<br>Charger thermistor sense controlled by fuel gauge.                                                                                                                                                                                                                                                                                                                                                                                 | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 1.30  | 31 AUG 2009  | UPDATED                             | All power switches changed to FDC6331L.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 1.40  | 21 SEP 2009  | UPDATED                             | TPS61032 changed to LTC3533.<br>Battery connector changed from 2 pin to 3 pin.<br>PMU TXCO switch replaced with LDO and TCXO changed to 3.2X2.5 size<br>WLAN TXCO changed.<br>Test points added for all power nets                                                                                                                                                                                                                                                                                       | AJIT M B<br>PRASAD A | AVINASH B   | AVINASH B   |
| 1.50  | 27 JAN 2010  | UPDATED                             | Clock Buffer on 26 MHz oscillator removed.<br>Changed pull type on V5V_EN from pull down to pull up.<br>WALL_PRESENT derived from ACPR#.<br>U22 input output reversed.<br>User SD level translator clock out routed back to OMAP. DDR_TEMP_SENSE GPIO changed to GPIO_61.<br>PIM 1, 3 and 4 connectors reversed.<br>U35 changed to Buffer instead of Inverter to keep WiFi and BAT LEDs OFF by default.<br>R37 changed to 470K.<br>BLUE LEDs controlled by PWM. GPIOs swapped.<br>Dock Present net added | AJIT M B             | AVINASH B   | AVINASH B   |
| 1.51  | 22 FEB 2010  | UPDATED                             | Separate GPIO control for HUB reset added from TPS65930.<br>Ferrite bead on cam osc changed to 0402 package due to height constraint.<br>USB hub downstream ports 4 and 5 swapped.                                                                                                                                                                                                                                                                                                                       | AJIT M B             | AVINASH B   | AVINASH B   |
| 1.52  | 05 MAR 2010  | UPDATED                             | Added test points<br>Changed A1 to AH316M245001 based on antenna manufacturer recommendation.                                                                                                                                                                                                                                                                                                                                                                                                            | AJIT M B             | AVINASH B   | AVINASH B   |
| 2.00  | 20 APR 2010  | UPDATED,<br>REVIEWED<br>& BASELINED | Added a 26MHz oscillator option for WLBT module and made 19.2MHz oscillator option DNI.<br>Added a FET switch to control 2.8V power to 26MHz oscillator.<br>Changed the uSD card connector FCN568Z008-G/OM to DM3AT-SF-PEJ.<br>Added DNI pull options on JTAG EMU0, EMU1 and nTRST lines.<br>Block diagram updated.<br>SCHEMATICS BASELINED.                                                                                                                                                             | HARSHITH             | AVINASH B   | AVINASH B   |

| REV NO. | NATURE OF CHANGE | APPROVED BY | DATE |  <b>Mistral Solutions [P] Ltd.</b><br>#60 Adarsh regent,100 Feet Ring Road, Domlur Extension<br>Bangalore 560 071, Ph : +91-80-30912600, Fax :-91-80-2535 6444 | Title <b>VERSION HISTORY</b>                       |
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|         |                  |             |      |                                                                                                                                                                                                                                                     |                                                    |
|         |                  |             |      | Drawn by: MISTRAL<br>Date: Tuesday, June 16, 2009                                                                                                                                                                                                   | Approved by: Avinash<br>Date: Monday, May 03, 2010 |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                   | Title: Monday, May 03, 2010                        |
|         |                  |             |      |                                                                                                                                                                                                                                                     | Sheet 2 of 19                                      |



| Device               | CS#      | Start Address     | End Address       | Size       | Remarks                       |
|----------------------|----------|-------------------|-------------------|------------|-------------------------------|
| <b>GPMC</b>          |          | <b>0x00000000</b> | <b>0x7FFFFFFF</b> | <b>2GB</b> |                               |
| NAND Flash           | gpmc_cs0 | 0x20000000        | 0x23FFFFFF        | 64 MB      | SW Programmable start address |
| <b>Onchip Memory</b> |          |                   |                   |            |                               |
| Boot ROM             |          | 0x40000000        | 0x40013FFF        | 80 KB      | Secure                        |
|                      |          | 0x40014000        | 0x4001BFFF        | 32 KB      | Public                        |
| SRAM Internal        |          | 0x40200000        | 0x4020FFFF        | 64 KB      | Secure/Public                 |
|                      |          |                   |                   |            |                               |
| <b>Memory</b>        |          |                   |                   |            |                               |
| SDRAM                |          | 0x80000000        | 0x8FFFFFFF        | 256 MB     |                               |
| <b>Other Devices</b> |          |                   |                   |            |                               |
|                      |          |                   |                   |            |                               |
| UART                 | UART1    | 0x4806A000        | 0x4806A3FF        | 1 KB       | PIM2                          |
|                      | UART2    | 0x4806C000        | 0x4806C3FF        | 1 KB       | PIM3                          |
|                      | UART3    | 0x49020000        | 0x490203FF        | 1 KB       | PIM4                          |
| I2C                  | I2C1     | 0x48070000        | 0x4807007F        | 128 B      | Power Module                  |
|                      | I2C2     | 0x48072000        | 0x4807207F        | 128 B      | Fuel Gauge, IO expander       |
|                      | I2C3     | 0x48060000        | 0x4806007F        | 128 B      | PIM1, PIM2, PIM3 & PIM4       |
|                      |          |                   |                   |            |                               |
| SPI                  | MCSP11   | 0x48098000        | 0x480980FF        | 4 KB       | PIM2, PIM3 and PIM4           |
| MMC                  | MMC1     | 0x4809C000        | 0x4809C1FF        | 512 B      | Micro SD card                 |
|                      | MMC2     | 0x480B4000        | 0x480B41FF        | 512 B      | WLAN/Bluetooth                |
|                      | MMC3     | 0x480AD000        | 0x480AD1FF        | 512 B      | Micro SD card                 |
|                      |          |                   |                   |            |                               |
| HS USB               | HSUSB0   | 0x480AB000        | 0x480ABFFF        | 4 KB       | USB OTG                       |
|                      | HSUSB2   | 0x48064800        | 0x48064BFF        | 1024 B     | USB Host                      |
| Camera ISP           |          | 0x480BC000        | 0x480BFFFF        | 16 KB      |                               |
| Display              |          | 0x48050000        | 0x480501FF        | 512 B      |                               |
|                      |          |                   |                   |            |                               |

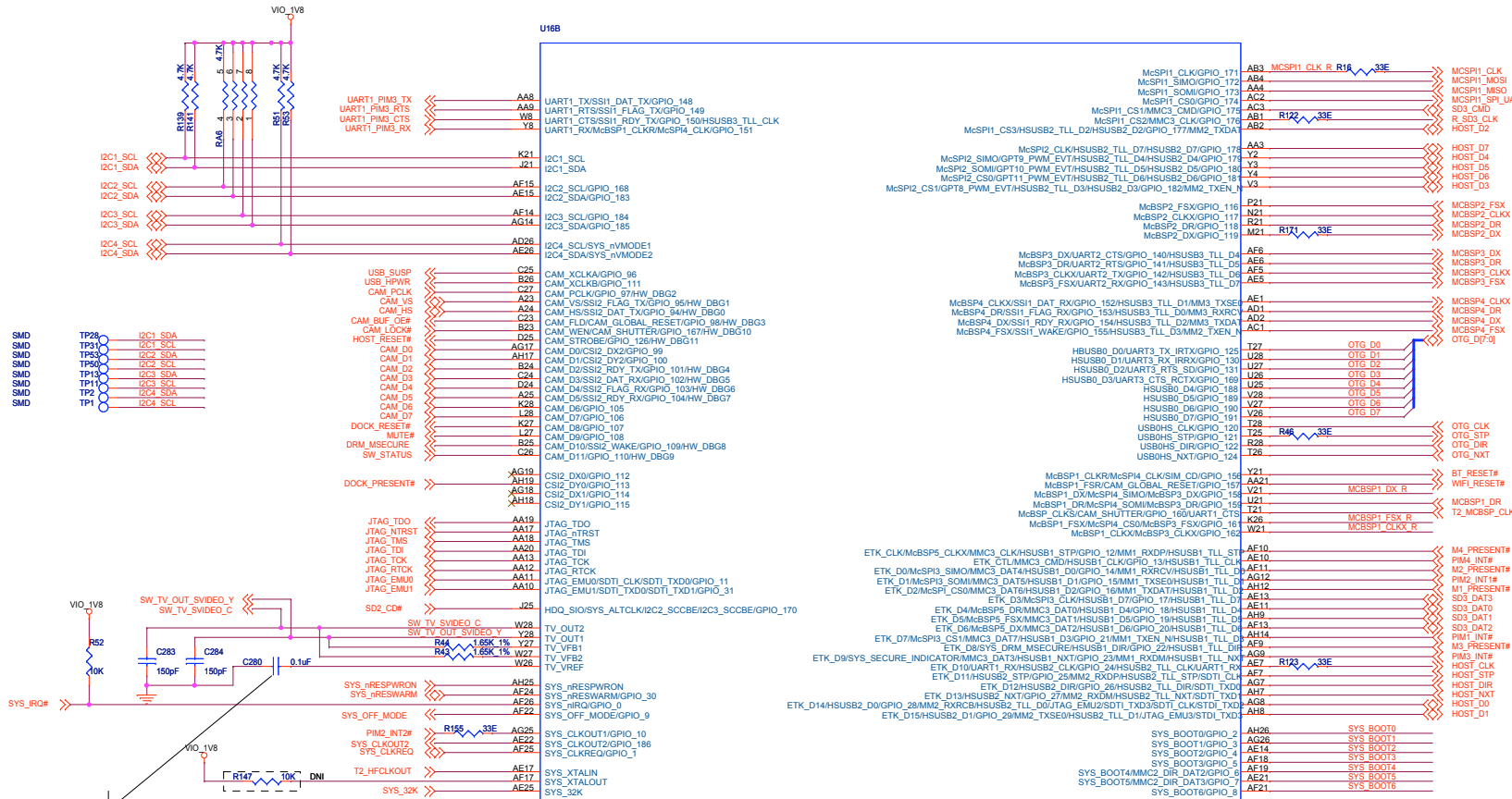
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|---------|------------------|-------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------|
|         |                  |             |      |                                                                                                                                                                                                                                                     | <b>MEMORY MAP</b>                                  |                                                                     |
|         |                  |             |      | Drawn by: MISTRAL<br>Date: Tuesday, June 16, 2009                                                                                                                                                                                                   | Approved by: Avinash<br>Date: Monday, May 03, 2010 | Size: C<br>Document Number: MS_BUGLABS_BUGBASE_2.0_SCH<br>Rev: 2.00 |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                   | Date: Monday, May 03, 2010                         | Sheet: 4 of 19                                                      |



|         |                  |             |      |                                                                                                                                                                                                                                                      |                                                    |                            |                            |      |      |
|---------|------------------|-------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------|----------------------------|------|------|
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|         |                  |             |      |                                                                                                                                                                                                                                                      | Size                                               | Document Number            | MS_BUGLABS_BUGBASE_2.0_SCH |      | Rev  |
|         |                  |             |      |                                                                                                                                                                                                                                                      | C                                                  |                            |                            |      | 2.00 |
|         |                  |             |      | Drawn by: MISTRAL<br>Date: Tuesday, June 16, 2009                                                                                                                                                                                                    | Approved by: Avinash<br>Date: Monday, May 03, 2010 | Date: Monday, May 03, 2010 | Sheet                      | 5 of | 19   |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                    |                                                    |                            |                            |      |      |







OMAP3530

SYSEBOOT TABLE

| BOOT NODE               | SYSEBOOT6 | SYSEBOOT5 | SYSEBOOT4 | SYSEBOOT3 | SYSEBOOT2 | SYSEBOOT1 | SYSEBOOT0 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| USB-UART-MMC1-NAND MODE | 1         | 1         | 0         | 1         | 1         | 1         | 1         |



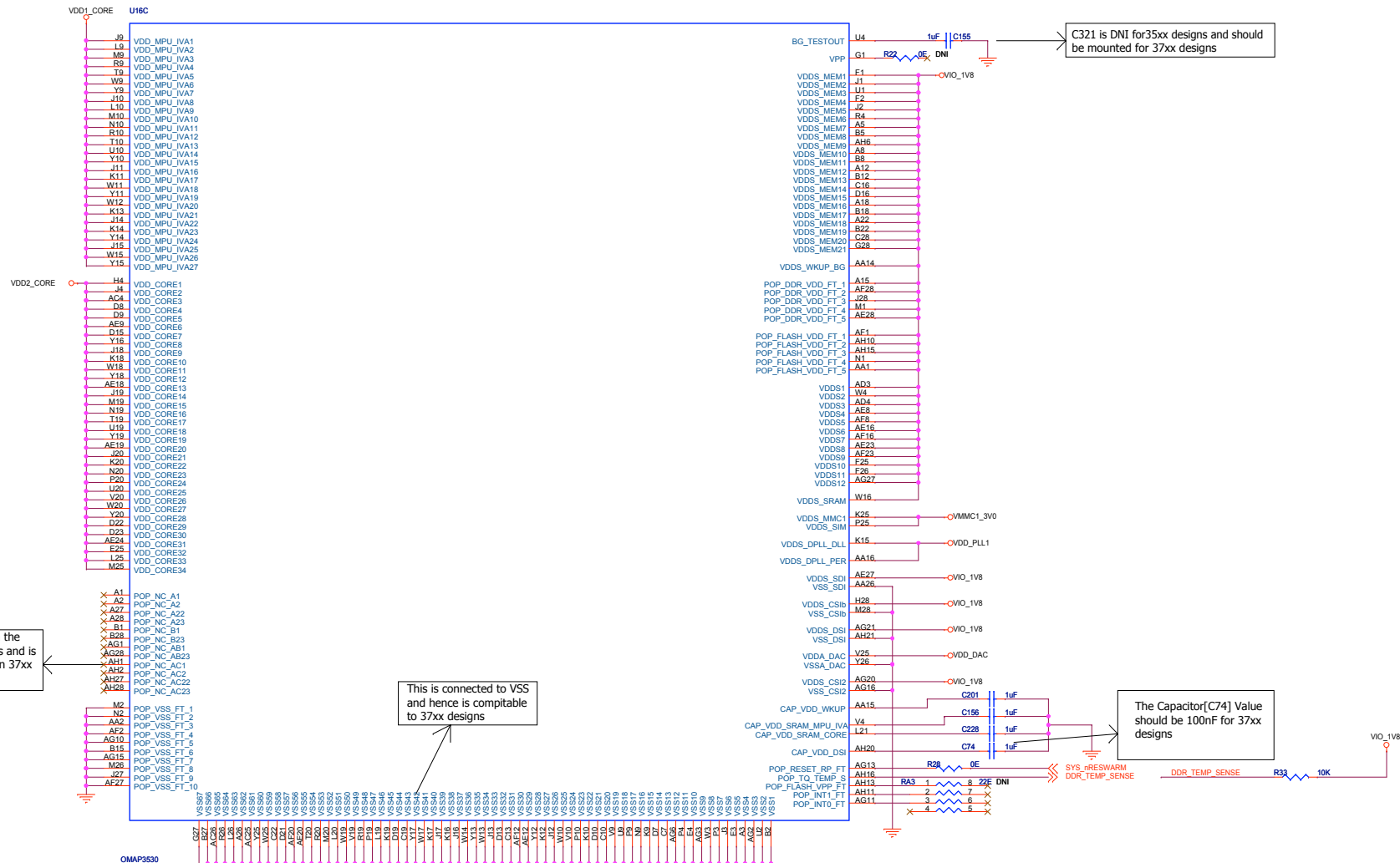
**Mistral Solutions [P] Ltd.**  
#60 Adarsh regent, 100 Feet Ring Road, Domlur Extension  
Bangalore 560 071, Ph : +91-80-30912600, Fax :+91-80-2535 6444

Drawn by: MISTRAL  
Date: Tuesday, June 16, 2009  
Design the path:

Approved by: Avinash  
Date: Monday, May 03, 2010

Title **OMAP B**

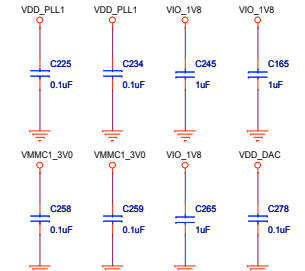
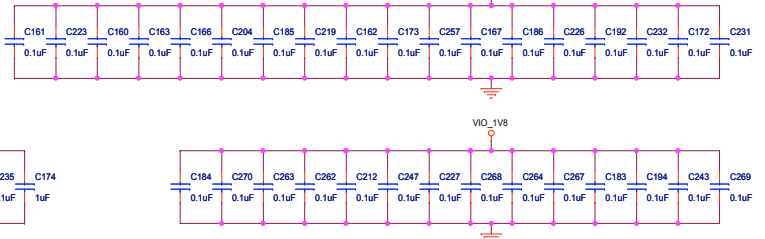
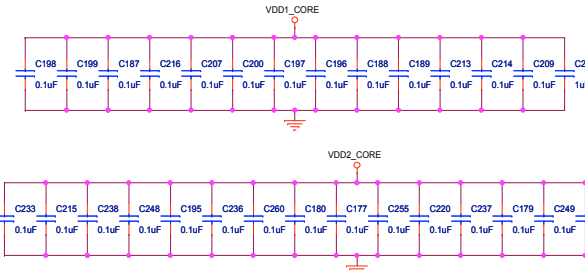
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Date: Monday, May 03, 2010 Sheet: 8 of 19

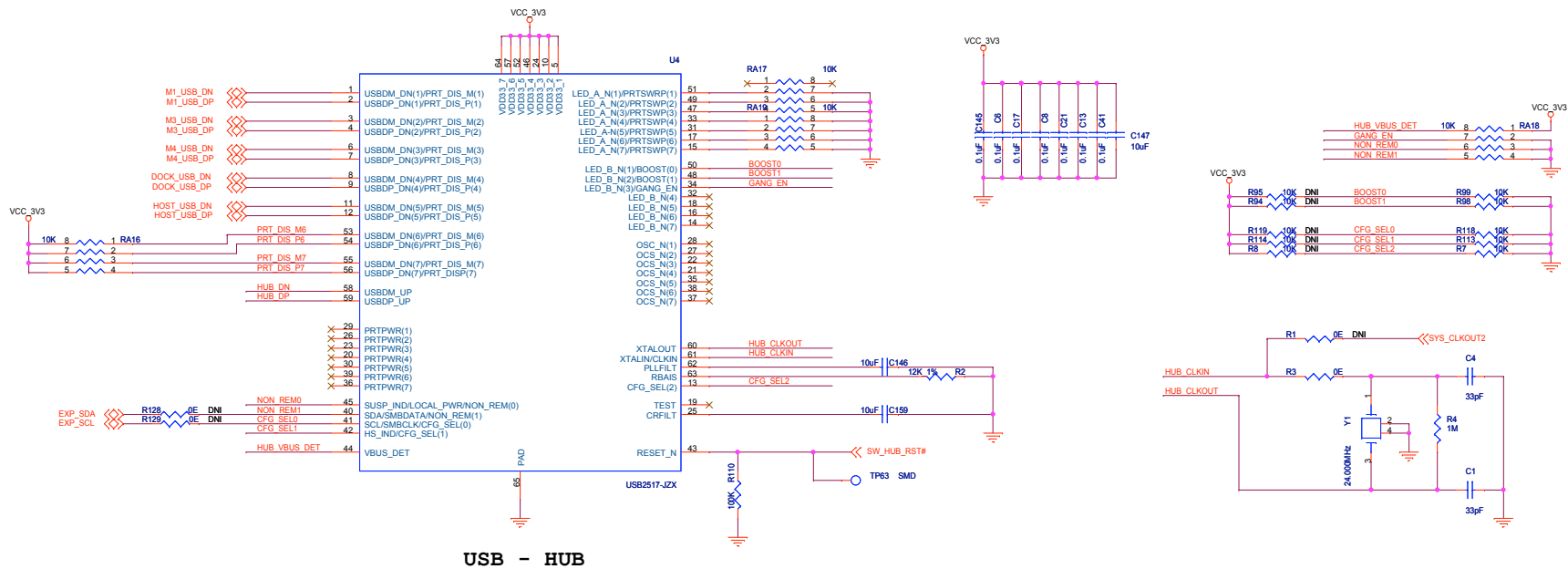


This is NC in the 35xx designs and is compitable in 37xx designs

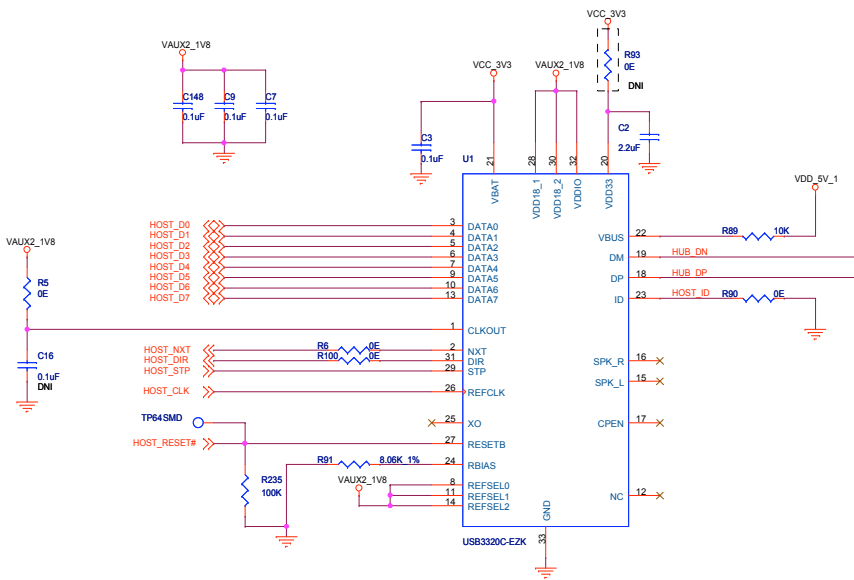
This is connected to VSS and hence is compitable to 37xx designs

The Capacitor[C74] Value should be 100nF for 37xx designs

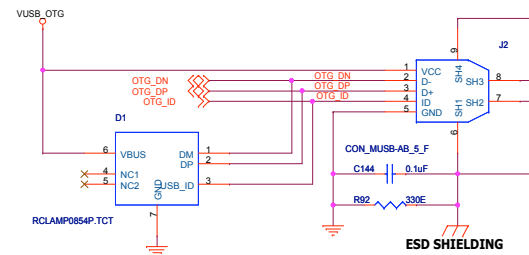




USB - HUB

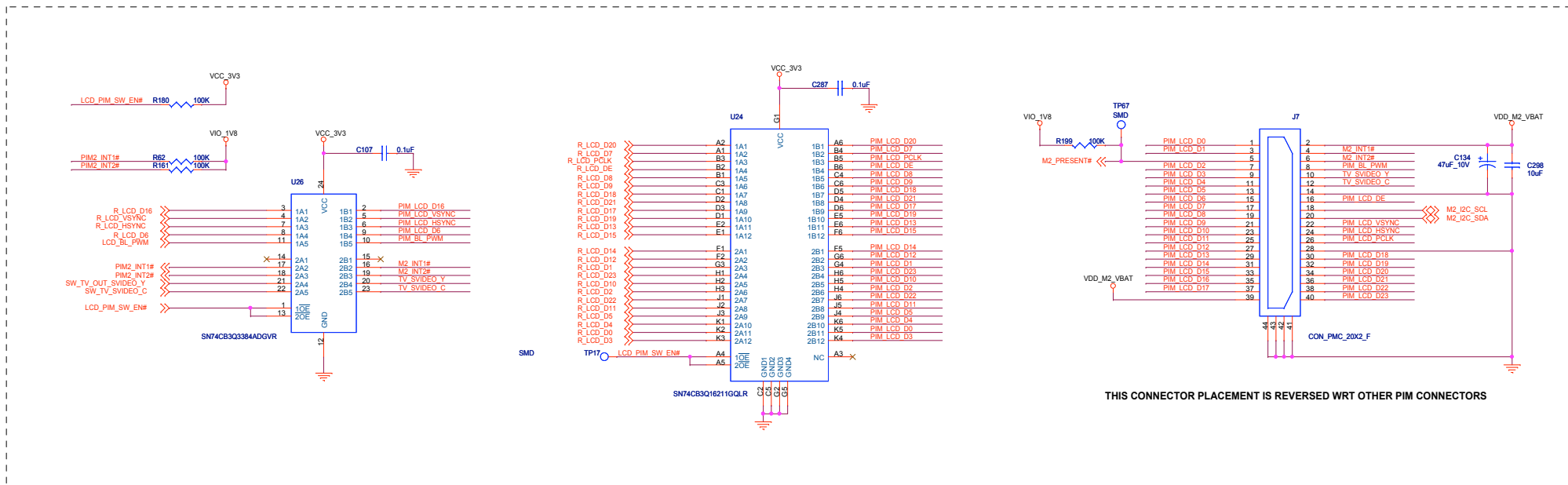
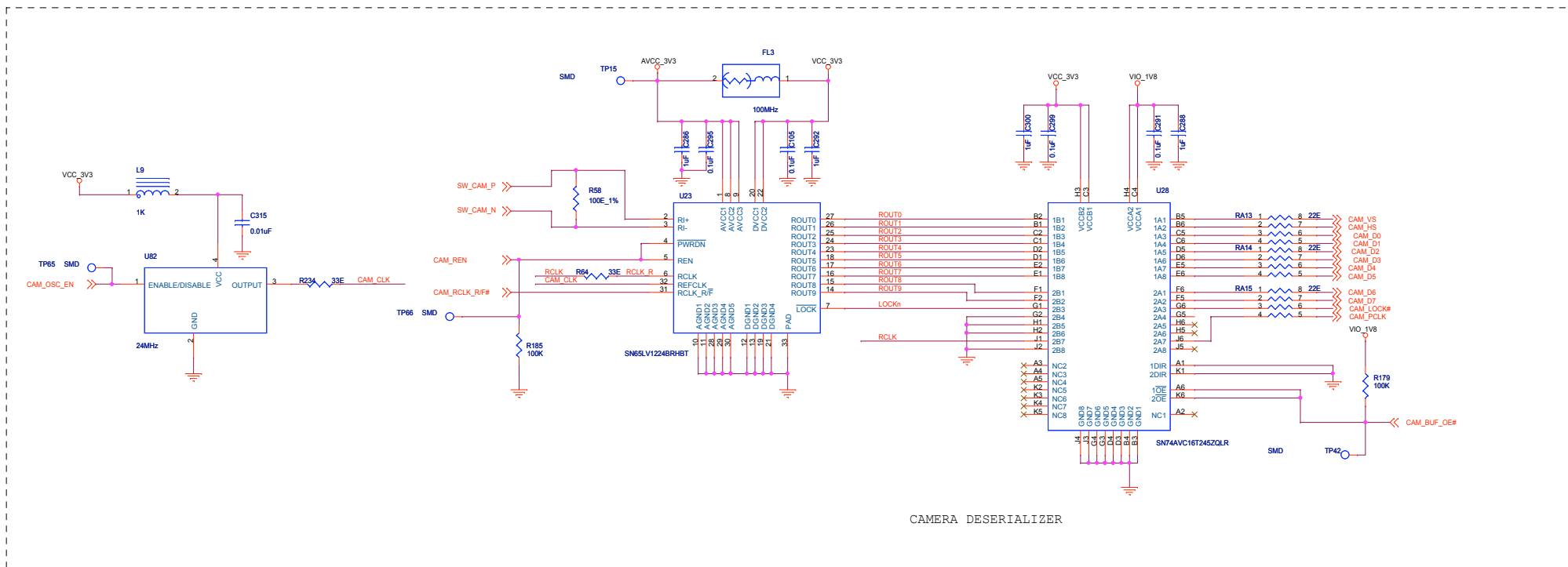


USB - HOST



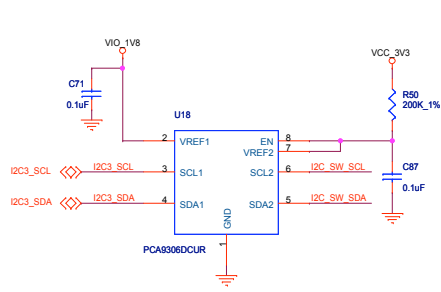
## USB - OTG CONNECTOR

|         |                  |             |      |                                                                                                                                                                                                                                                     |                                                    |                            |                            |      |
|---------|------------------|-------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------|----------------------------|------|
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|         |                  |             |      |                                                                                                                                                                                                                                                     | Size                                               | Document Number            | MS_BUGLABS_BUGBASE_2.0_SCH | Rev  |
|         |                  |             |      |                                                                                                                                                                                                                                                     | C                                                  |                            |                            | 2.00 |
|         |                  |             |      |                                                                                                                                                                                                                                                     | Date: Monday, May 03, 2010                         |                            |                            |      |
|         |                  |             |      | Drawn by: MISTRAL<br>Date: Tuesday, June 16, 2009                                                                                                                                                                                                   | Approved by: Avinash<br>Date: Monday, May 03, 2010 |                            |                            |      |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                   |                                                    | Date: Monday, May 03, 2010 |                            |      |
|         |                  |             |      |                                                                                                                                                                                                                                                     |                                                    | Sheet                      | 10 of 19                   |      |

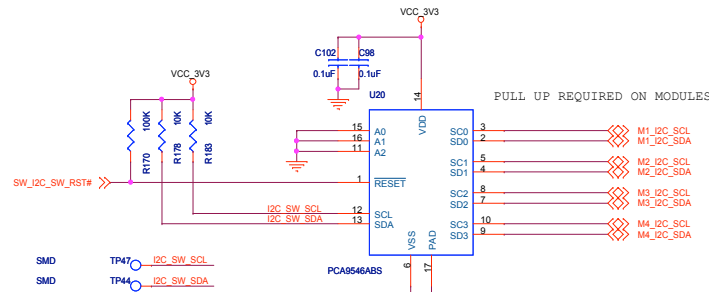


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|---------|------------------|-------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------|----------------------------------------------------|-------|-------|----|
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|         |                  |             |      |                                                                                                                                                                                                                                                     | Size                                              | Document Number            | MS_BUGLABS_BUGBASE_2.0_SCH                         | Rev   |       |    |
|         |                  |             |      |                                                                                                                                                                                                                                                     | C                                                 |                            |                                                    | 2.00  |       |    |
|         |                  |             |      |                                                                                                                                                                                                                                                     | Drawn by: MISTRAL<br>Date: Tuesday, June 16, 2009 |                            | Approved by: Avinash<br>Date: Monday, May 03, 2010 |       |       |    |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                   |                                                   | Date: Monday, May 03, 2010 |                                                    | Sheet | 11 of | 19 |

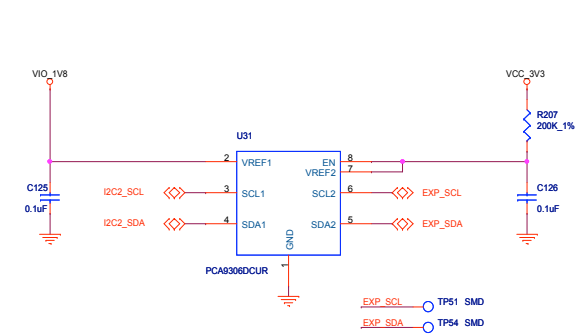




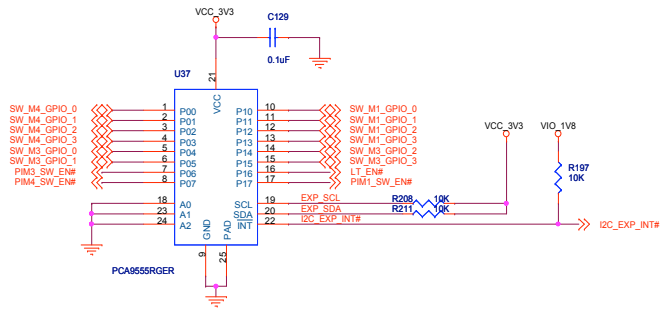
I2C LEVEL TRANSLATOR



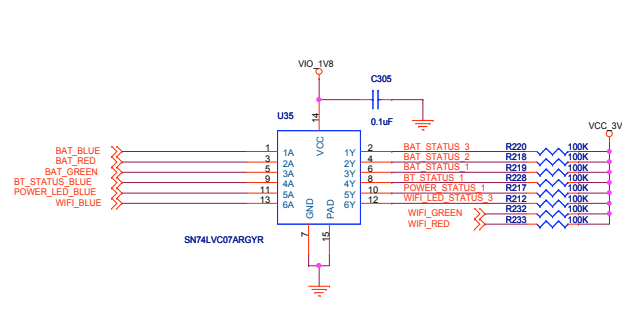
PIM I2C SWITCH



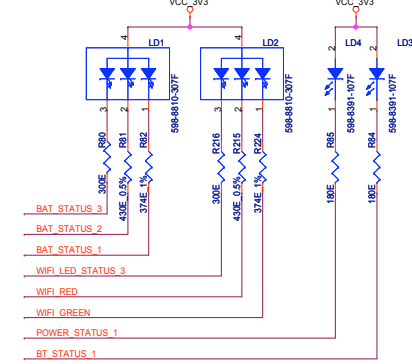
I2C LEVEL TRANSLATOR



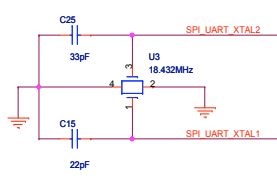
I2C - GPIO EXPANDER



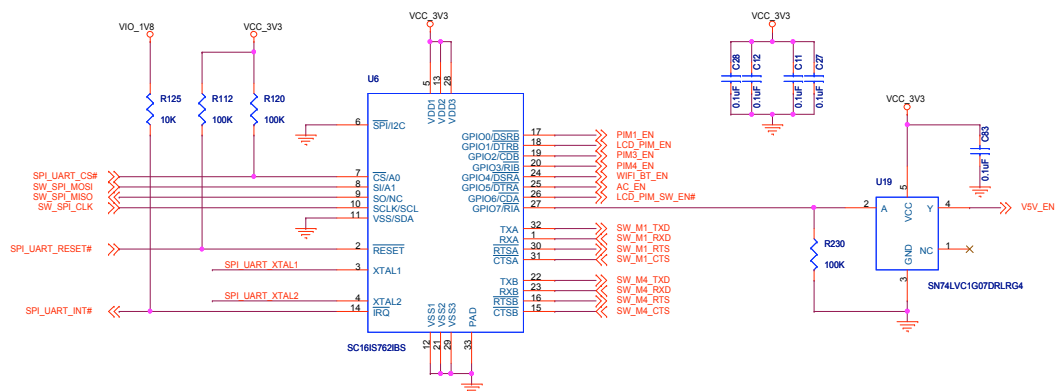
HEX OPEN DRAIN BUFFER



18.432MHz for 115200bps

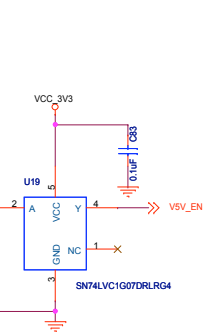


SPI TO UART CRYSTAL



PIM SPI UART EXPANDER

OPEN DRAIN BUFFER

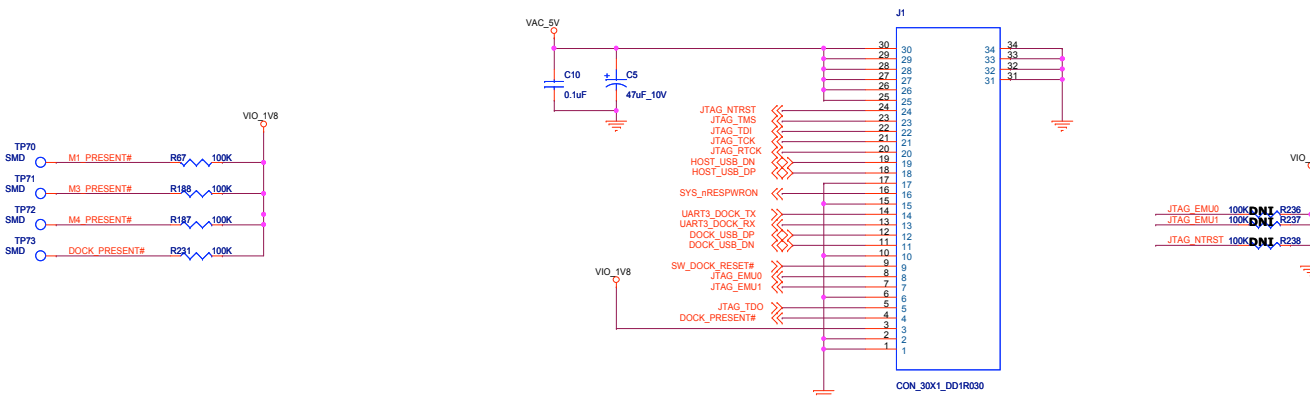


| REV NO. | NATURE OF CHANGE | APPROVED BY | DATE | Mistral Solutions [P] Ltd.                                                                                                 | Title                                            |
|---------|------------------|-------------|------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
|         |                  |             |      | #60 Adarsh regent, 100 Feet Ring Road, Domlur Extension<br>Bangalore 560 071, Ph : +91-80-30912600, Fax : +91-80-2535 6444 | I2C SW IO EXP & SPI_UART                         |
|         |                  |             |      | Design by: MISTRAL<br>Date: Tuesday, June 16, 2009                                                                         | Size: Document Number MS_BUGLABS_BUGBASE_2.0_SCH |
|         |                  |             |      | Approved by: Avinash<br>Date: Monday, May 03, 2010                                                                         | Rev: 2.00                                        |
|         |                  |             |      | Design file path:                                                                                                          | Date: Monday, May 03, 2010 Sheet 13 of 19        |

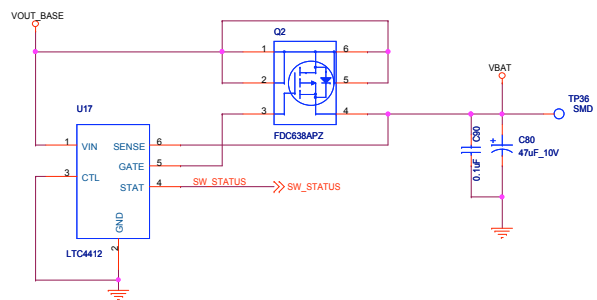
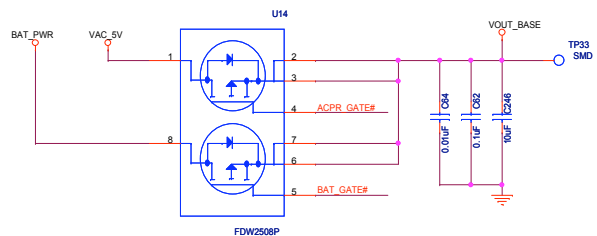
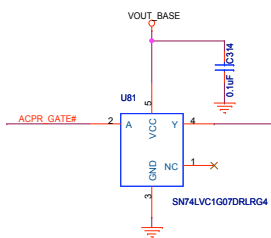
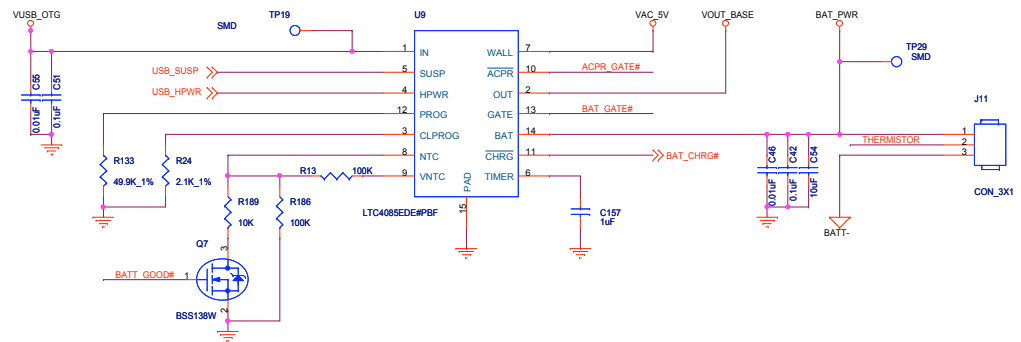
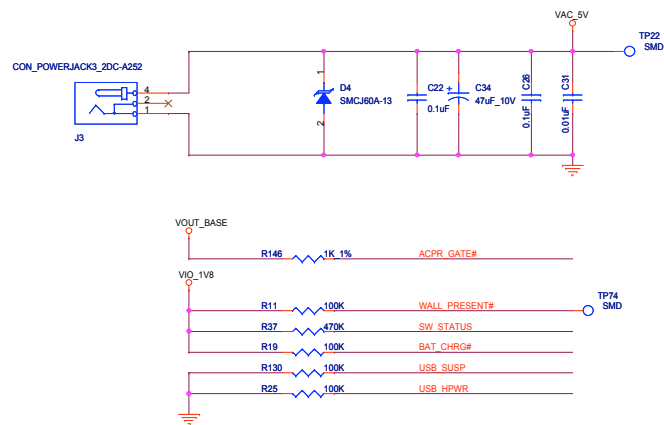
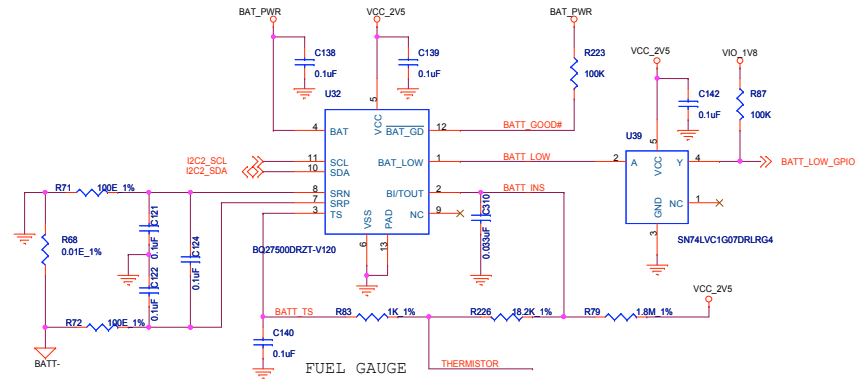
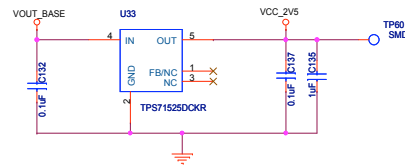


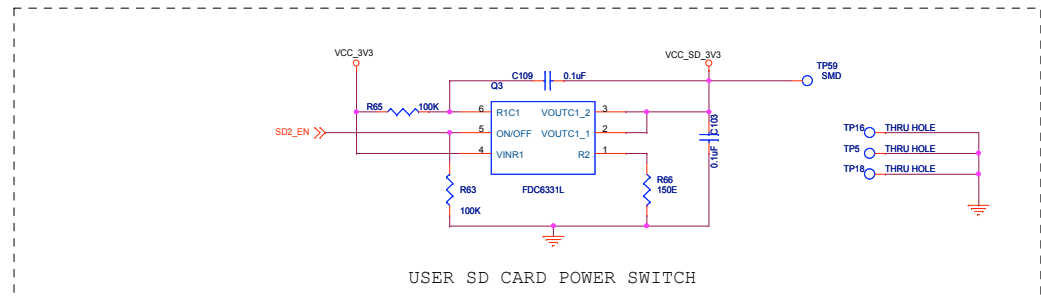
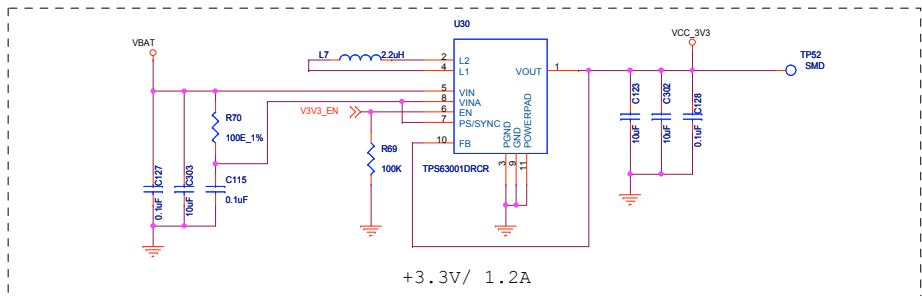
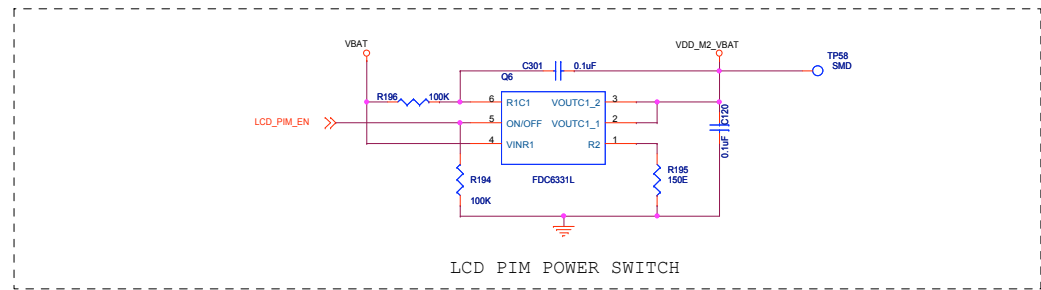
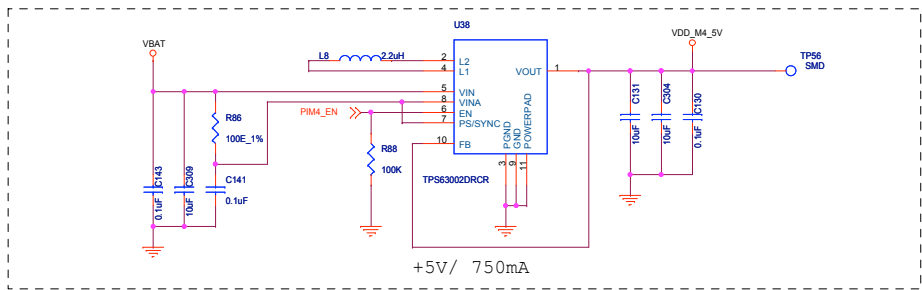
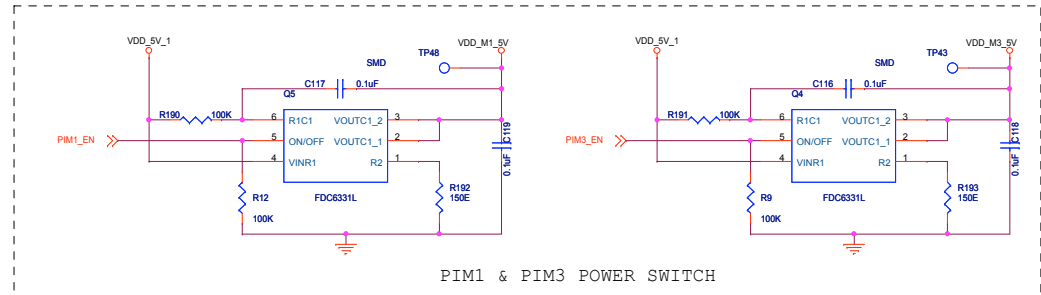
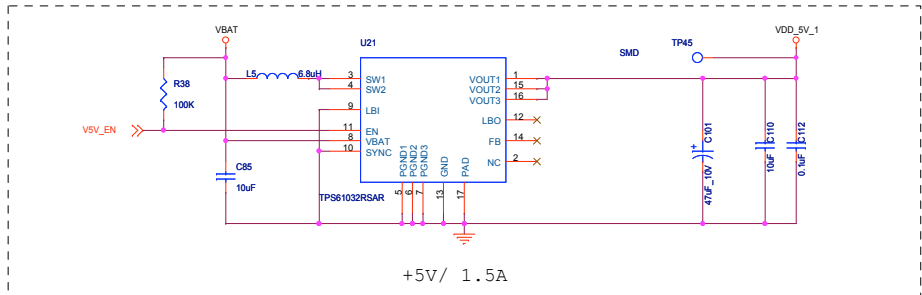
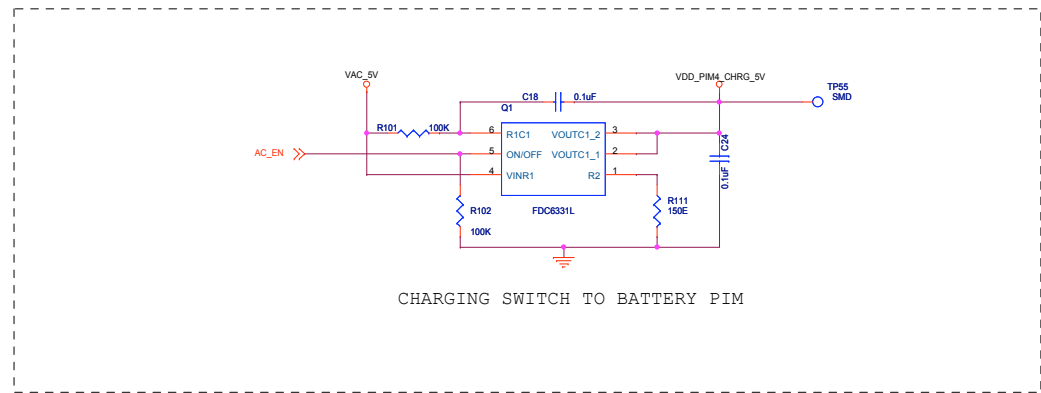
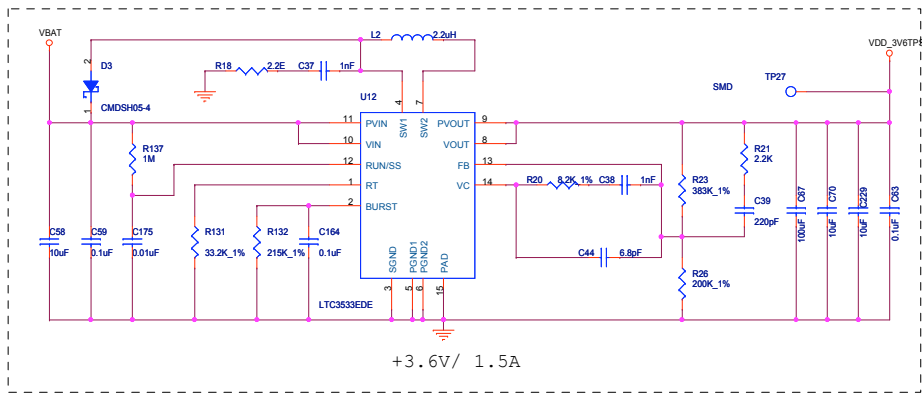


## DOCKING CONNECTOR

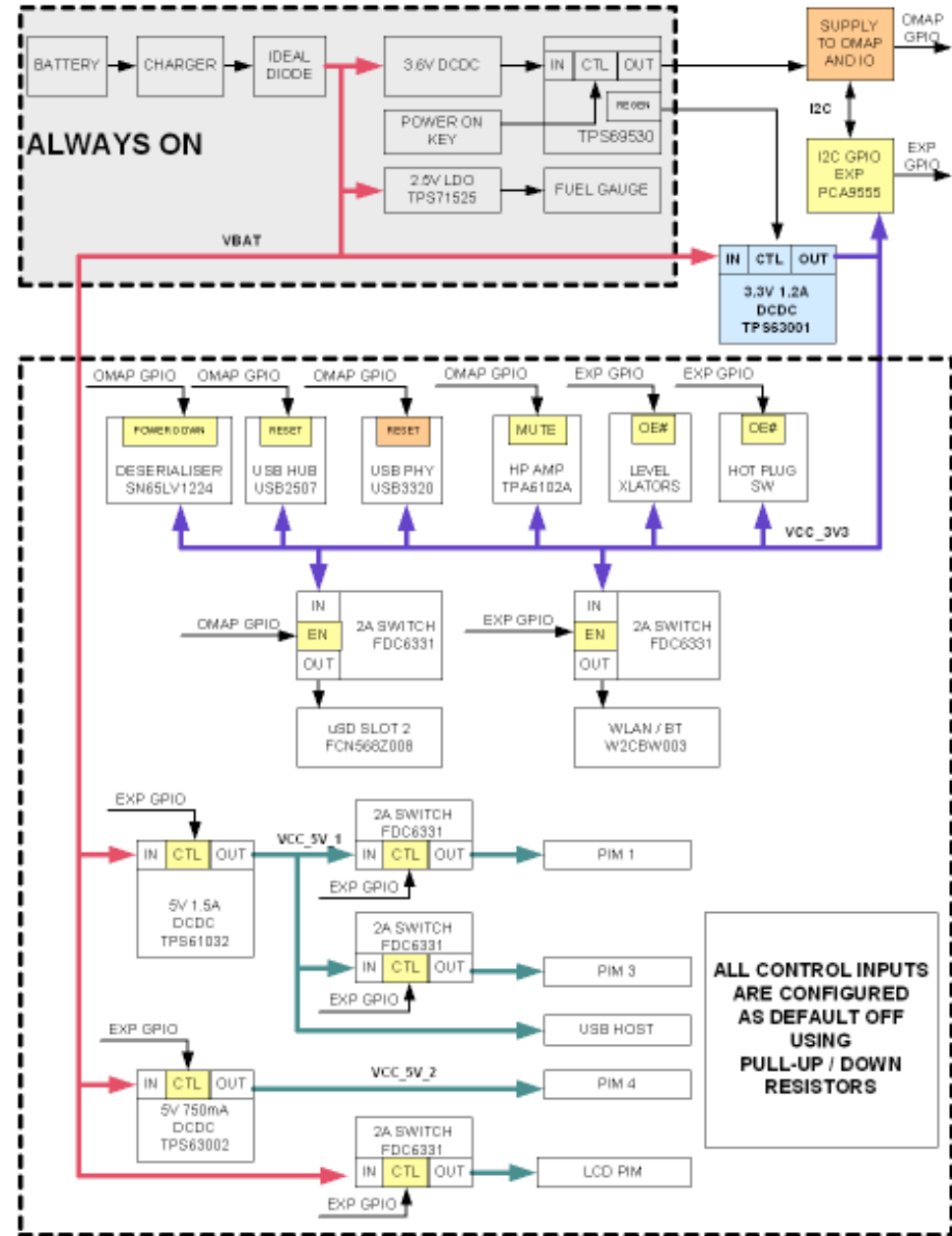
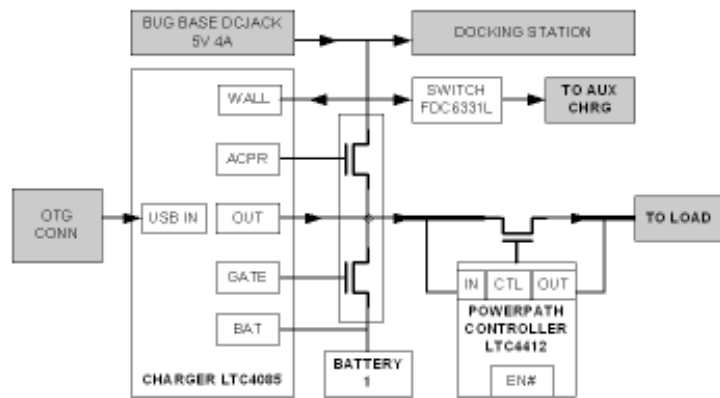


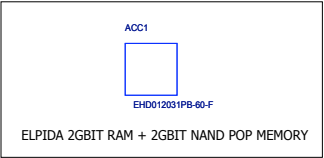
|         |                  |             |      |                                                                                                                                                                                                                                                                  |                                       |                            |                            |      |
|---------|------------------|-------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------|----------------------------|------|
| REV NO. | NATURE OF CHANGE | APPROVED BY | DATE |  <div><b>Mistral Solutions [P] Ltd.</b><br/>#60 Adarsh regent,100 Feet Ring Road, Domlur Extension<br/>Bangalore 560 071, Ph : +91-80-30912600, Fax :+91-80-2535 6444</div> | Title <b>PIM &amp; DOCK CONNECTOR</b> |                            |                            |      |
|         |                  |             |      |                                                                                                                                                                                                                                                                  | Size                                  | Document Number            | MS_BUGLABS_BUGBASE_2.0_SCH | Rev  |
|         |                  |             |      |                                                                                                                                                                                                                                                                  | C                                     |                            |                            | 2.00 |
|         |                  |             |      |                                                                                                                                                                                                                                                                  | Drawn by: MISTRAL                     | Approved by: Avinash       |                            |      |
|         |                  |             |      |                                                                                                                                                                                                                                                                  | Date: Tuesday, June 16, 2009          | Date Monday, May 03, 2010  |                            |      |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                                |                                       | Date: Monday, May 03, 2010 | Sheet 15 of 19             |      |





| REV NO. | NATURE OF CHANGE | APPROVED BY | DATE |  <b>Mistral Solutions [P] Ltd.</b><br>#60 Adarsh regent, 100 Feet Ring Road, Domlur Extension<br>Bangalore 560 071, Ph : +91-80-30912600, Fax : +91-80-2535 6444 | Title <b>POWER</b>         |                            |
|---------|------------------|-------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------|
|         |                  |             |      |                                                                                                                                                                                                                                                       |                            |                            |
|         |                  |             |      | Drawn by: MISTRAL                                                                                                                                                                                                                                     | Approved by: Avinash       | Size                       |
|         |                  |             |      | Date: Tuesday, June 16, 2009                                                                                                                                                                                                                          | Date: Monday, May 03, 2010 | Document Number            |
|         |                  |             |      | Design file path:                                                                                                                                                                                                                                     |                            | MS_BUGLABS_BUGBASE_2.0_SCH |
|         |                  |             |      |                                                                                                                                                                                                                                                       |                            | Rev                        |
|         |                  |             |      |                                                                                                                                                                                                                                                       |                            | 2.00                       |
|         |                  |             |      |                                                                                                                                                                                                                                                       |                            | Date: Monday, May 03, 2010 |
|         |                  |             |      |                                                                                                                                                                                                                                                       |                            | Sheet 17 of 19             |





| REV NO. | NATURE OF CHANGE | APPROVED BY | DATE | Title             |                 |                            |                |
|---------|------------------|-------------|------|-------------------|-----------------|----------------------------|----------------|
|         |                  |             |      | ACCESSORIES       |                 |                            |                |
|         |                  |             |      | Size              | Document Number | MS_BUGLABS_BUGBASE_2.0_SCH | Rev            |
|         |                  |             |      | C                 |                 |                            | 2.00           |
|         |                  |             |      | Design file path: | Date:           | Monday, May 03, 2010       | Sheet 19 of 19 |