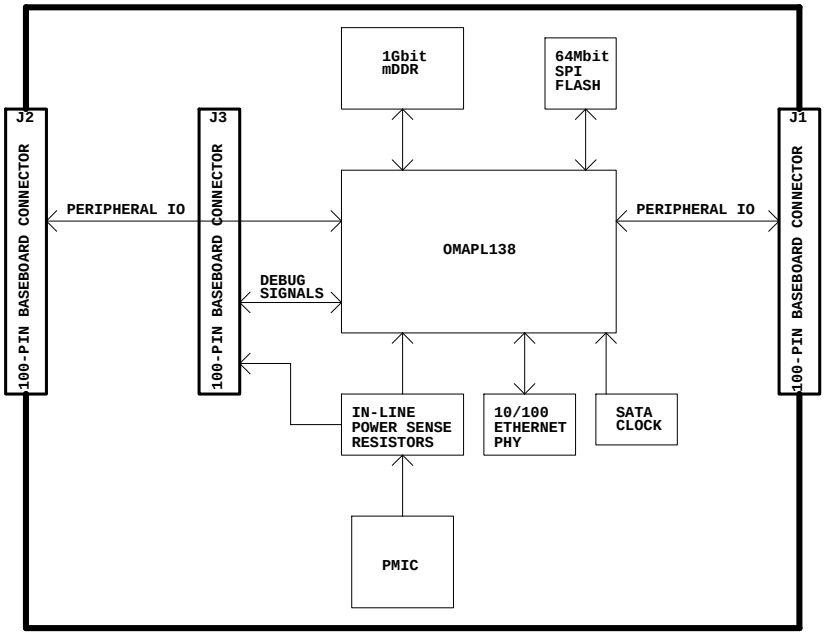
TABLE OF CONTENTS

SYSTEM BLOCK DIAGRAM



I2C ADDRESSING

FUNCTION	DEVICE	ADDRESS	I2C BUS
PMIC	TPS65070	100 1000	PROC I2C0
5V IN	INA219	100 0000	PMDC I2C
PMIC 3.3V SW	INA219	100 0001	PMDC I2C
PMIC 1.8V/3.3V SW	INA219	100 0010	PMDC I2C
PMIC 1.2V SW	INA219	100 0011	PMDC I2C
PMIC 1.2V LDO	INA219	100 0100	PMDC I2C
PMIC 1.8V LDO	INA219	100 0101	PMDC I2C
RTC 1.2V LDO	INA219	100 0110	PMDC I2C

IMPORTANT NOTES ABOUT THIS SCHEMATIC

DESIGN NOTE: Example text for the design note to show the note inside the colored box.

1) DESIGN NOTES in grey are information notes.

DESIGN NOTE: Example text for the design note to show the note inside the colored box.

2) DESIGN NOTES in yellow are notes of caution.

DESIGN NOTE: Example text for the design note to show the note inside the colored box.

3) DESIGN NOTES in red are critical, and must be understood and followed.

IMPORTANT NOTICE:

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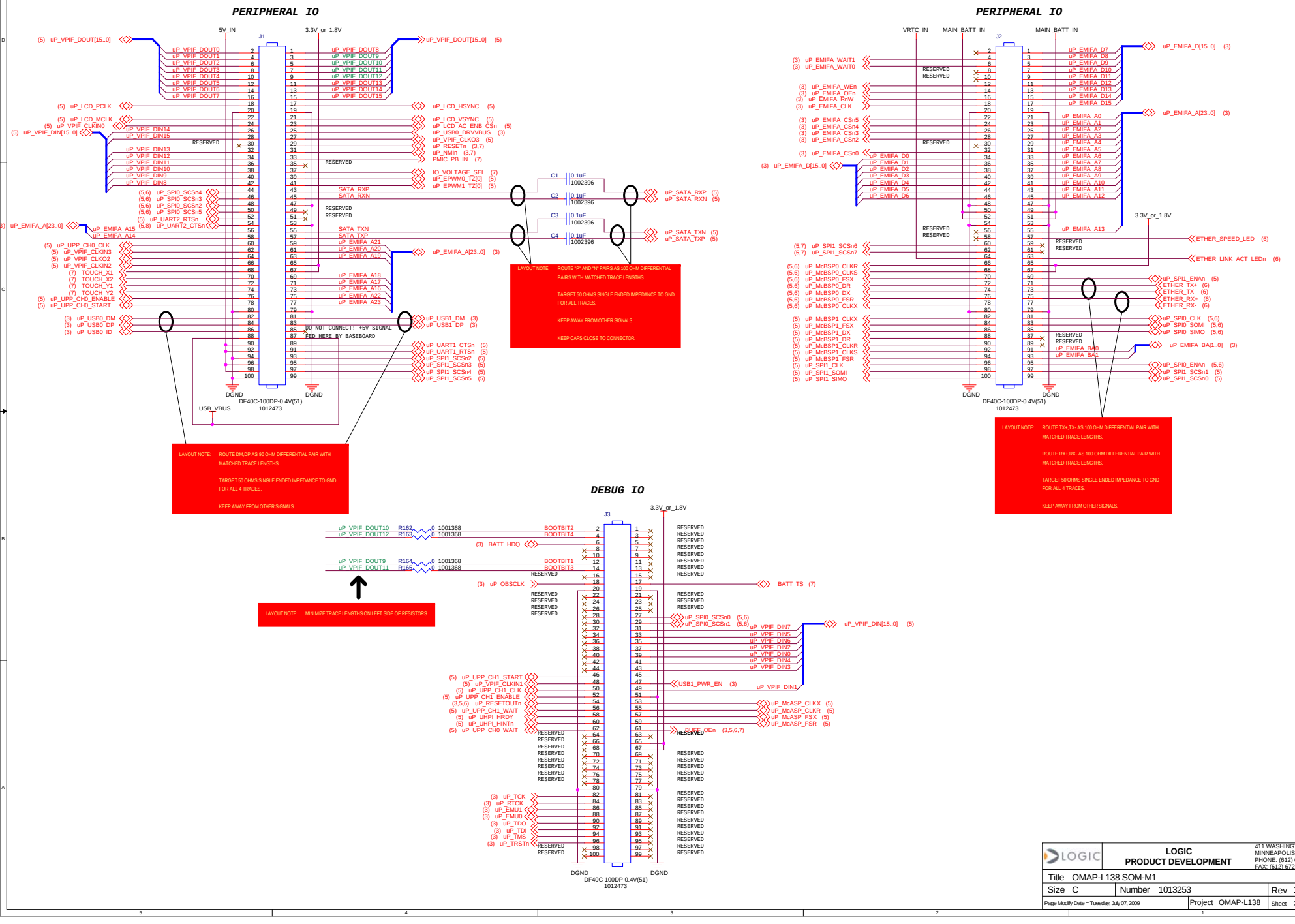
Title OMAP-L138 SOM-M1		
Size C	Number 1013253	Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 1 of 9

02 - BASEBOARD CONNECTORS



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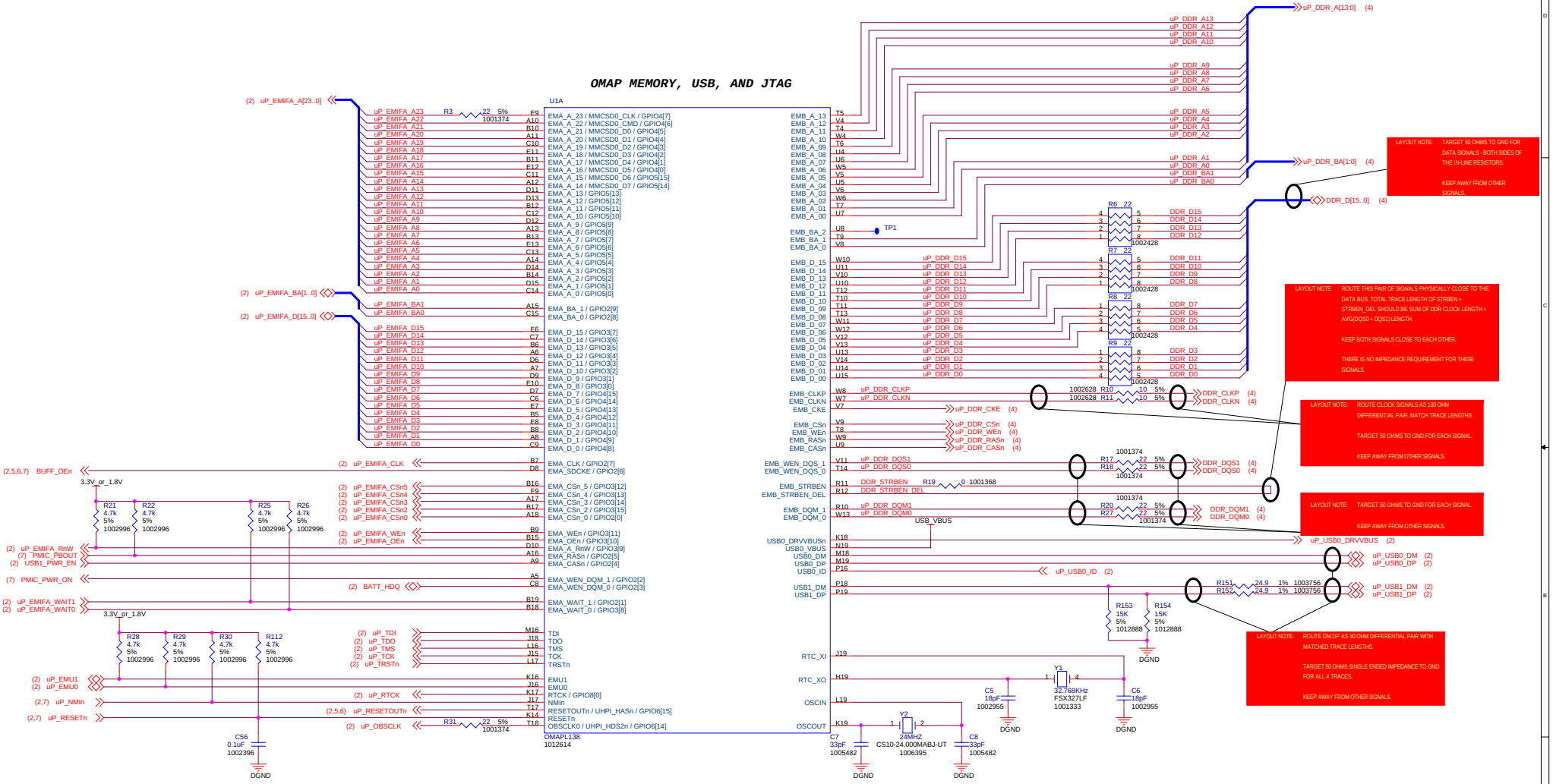
Title	OMAP-L138 SOM-M1		
Size C	Number 1013253		Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138		Sheet 2 of 9

03 - OMAP MEMORY IF



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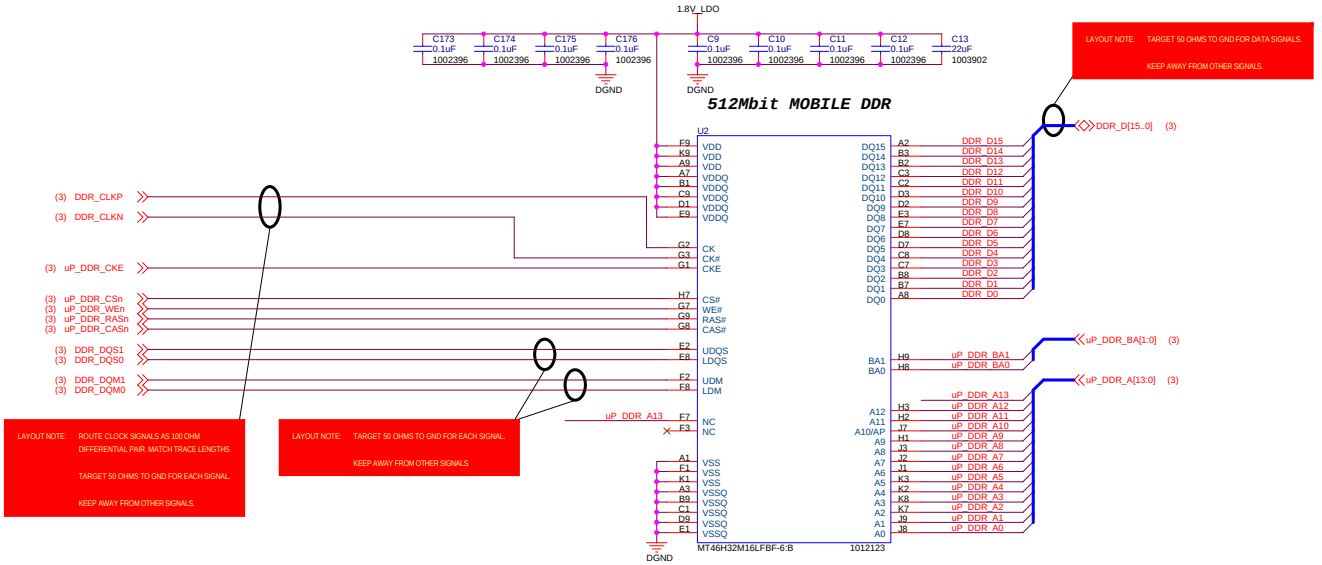
Size C	Number 1013253	Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 3 of 9

04 - DDR



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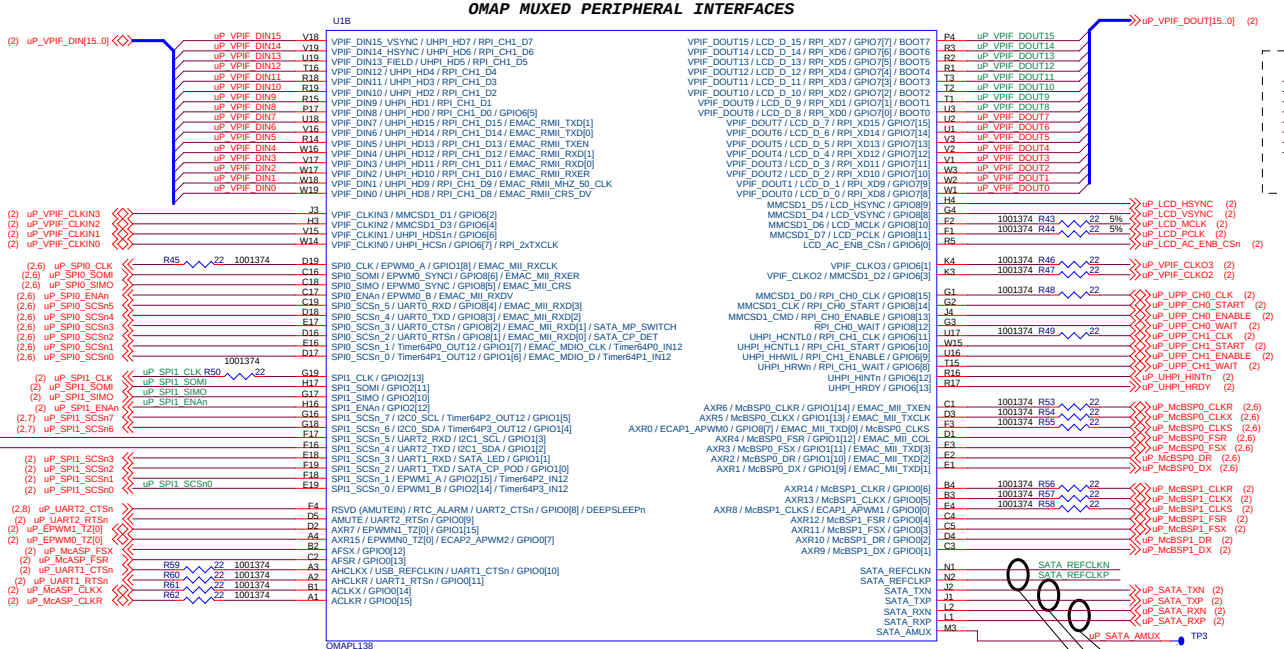
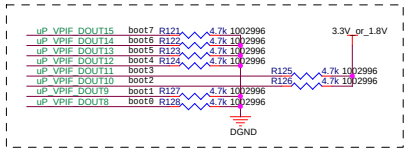
Size C	Number 1013253	Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 4 of 9

05 - OMAP PERIPHERAL IF

OMAP MUXED PERIPHERAL INTERFACES



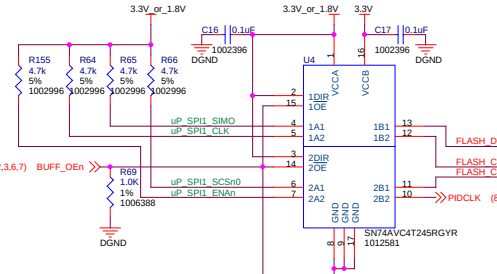
BOOTSTRAPS: DEFAULT IS SPI1



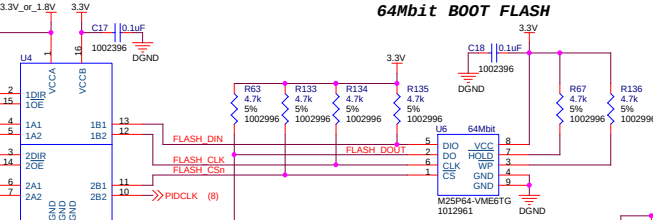
BOOT DEVICE OPTIONS

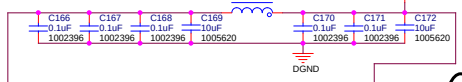
BOOT DEVICE	BOOT BITS[4:1]
NOR EMIFA	0001
NAND-8 EMIFA	0111
SPI0 FLASH	0101
SPI1 FLASH(default)	0110
UART0	1011
EMULATOR DEBUG	1111

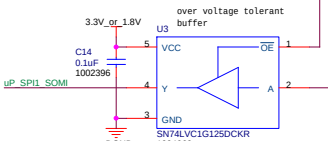
VOLTAGE TRANSLATION

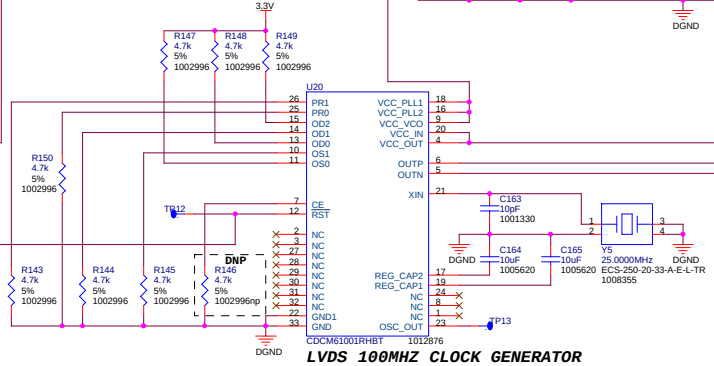


64Mbit BOOT FLASH

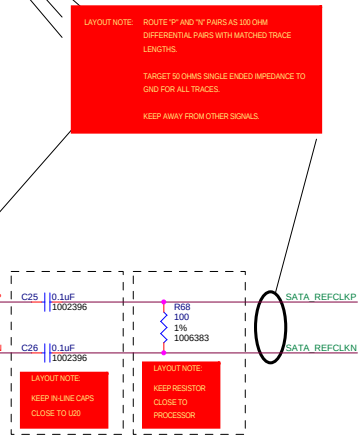








LVDS 100MHZ CLOCK GENERATOR



LAYOUT NOTE: ROUTE "P" AND "N" PAIRS AS 100 OHM DIFFERENTIAL PAIRS WITH MATCHED TRACE LENGTHS.

TARGET 50 OHMS SINGLE ENDED IMPEDANCE TO GND FOR ALL TRACES.

KEEP AWAY FROM OTHER SIGNALS.

OSCILLATOR SETTINGS:

INPUT CRYSTAL: 25MHZ

PRESCALER DIVIDER: 3

FEEDBACK DIVIDER: 24

OUTPUT DIVIDER: 6

OUTPUT FREQUENCY: 100MHZ

OUTPUT TYPE: LVDS

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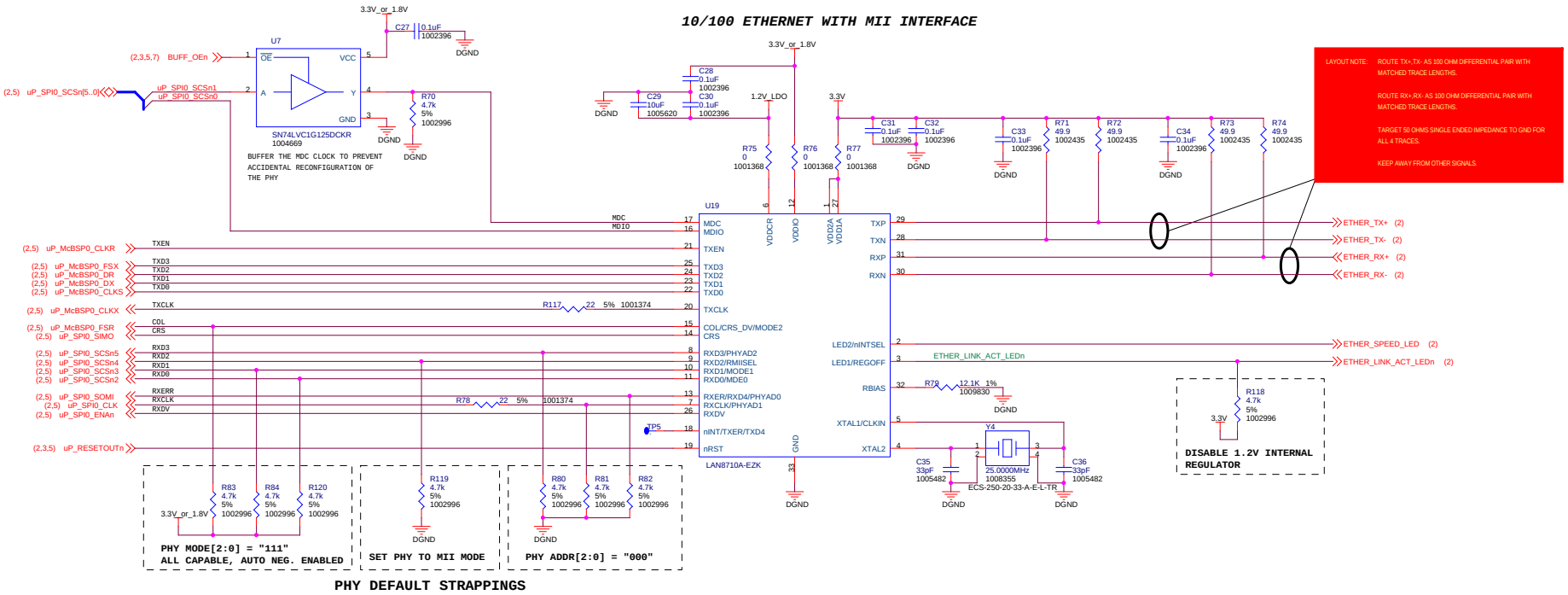
Title	OMAP-L138 SOM-M1		
Size C	Number 1013253		Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 5 of 9	

06 - ETHERNET PHY



PHY MODE CONFIGURATION TABLE

MODE[2:0]	MODE DEFINITION
000	10BASE-T HALF DUPLEX. AUTO-NEGOTIATION DISABLED.
001	10BASE-T FULL DUPLEX. AUTO-NEGOTIATION DISABLED.
010	100BASE-TX HALF DUPLEX. AUTO-NEGOTIATION DISABLED. CRS IS ACTIVE DURING TRANSMIT & RECEIVE.
011	100BASE-TX FULL DUPLEX. AUTO-NEGOTIATION DISABLED.CRS IS ACTIVE DURING RECEIVE.
100	100BASE-TX HALF DUPLEX IS ADVERTISED. AUTONEGOTIATION ENABLED.CRS IS ACTIVE DURING TRANSMIT & RECEIVE.
101	REPEATER MODE. AUTO-NEGOTIATION ENABLED.100BASE-TX HALF DUPLEX IS ADVERTISED.CRS IS ACTIVE DURING RECEIVE.
110	POWER DOWN MODE.
111	ALL CAPABLE. AUTO-NEGOTIATION ENABLED.

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Title OMAP-L138 SOM-M1		
Size C	Number 1013253	Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 6 of 9

07 - PMIC

Applying power to 5V_IN will cause SOM to power up immediately.

For startup, 5V_IN range is:
3.6V < 5V_IN < 5.8V

At runtime, 5V_IN range is:
UVLO < 5V_IN < 5.8V

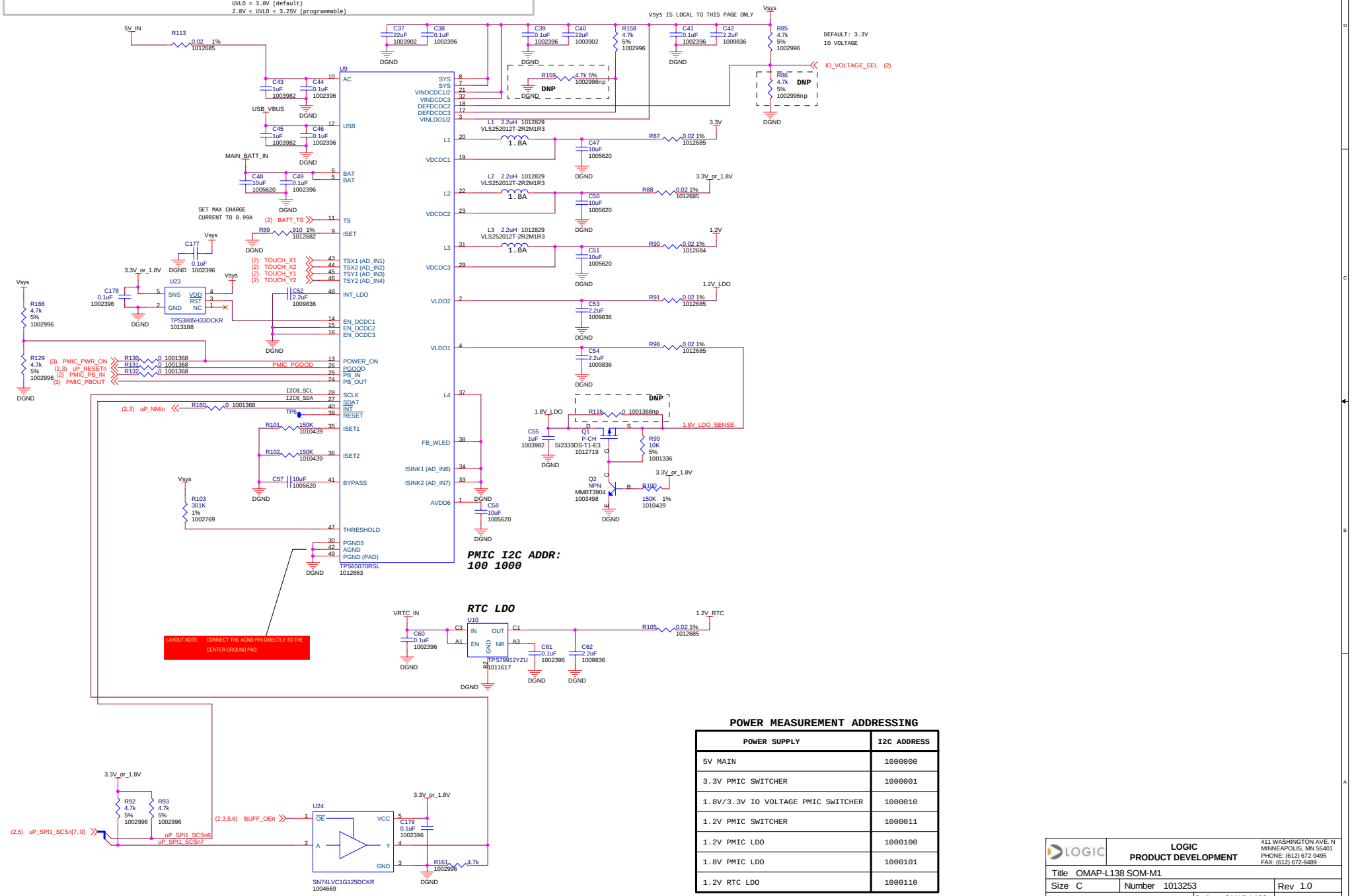
UVLO = UnderVoltage LockOut
UVLO = 3.0V (default)
2.8V < UVLO < 3.25V (programmable)

Applying power to MAIN_BATT_IN will NOT cause SOM to power up immediately. SOM will power up when power is supplied to MAIN_BATT_IN, and then PMIC_PB_IN is pulsed low.
PMIC_PB_IN must be pulsed low AFTER power is applied to MAIN_BATT_IN.

For startup, MAIN_BATT_IN range is:
3.6V < MAIN_BATT_IN < 4.2V

At runtime, MAIN_BATT_IN range is:
UVLO < MAIN_BATT_IN < 4.2V

UVLO = UnderVoltage LockOut
UVLO = 3.0V (default)
2.8V < UVLO < 3.25V (programmable)



POWER MEASUREMENT ADDRESSING

POWER SUPPLY	I2C ADDRESS
5V MAIN	1000000
3.3V PMIC SWITCHER	1000001
1.8V/3.3V IO VOLTAGE PMIC SWITCHER	1000010
1.2V PMIC SWITCHER	1000011
1.2V PMIC LDO	1000100
1.8V PMIC LDO	1000101
1.2V RTC LDO	1000110

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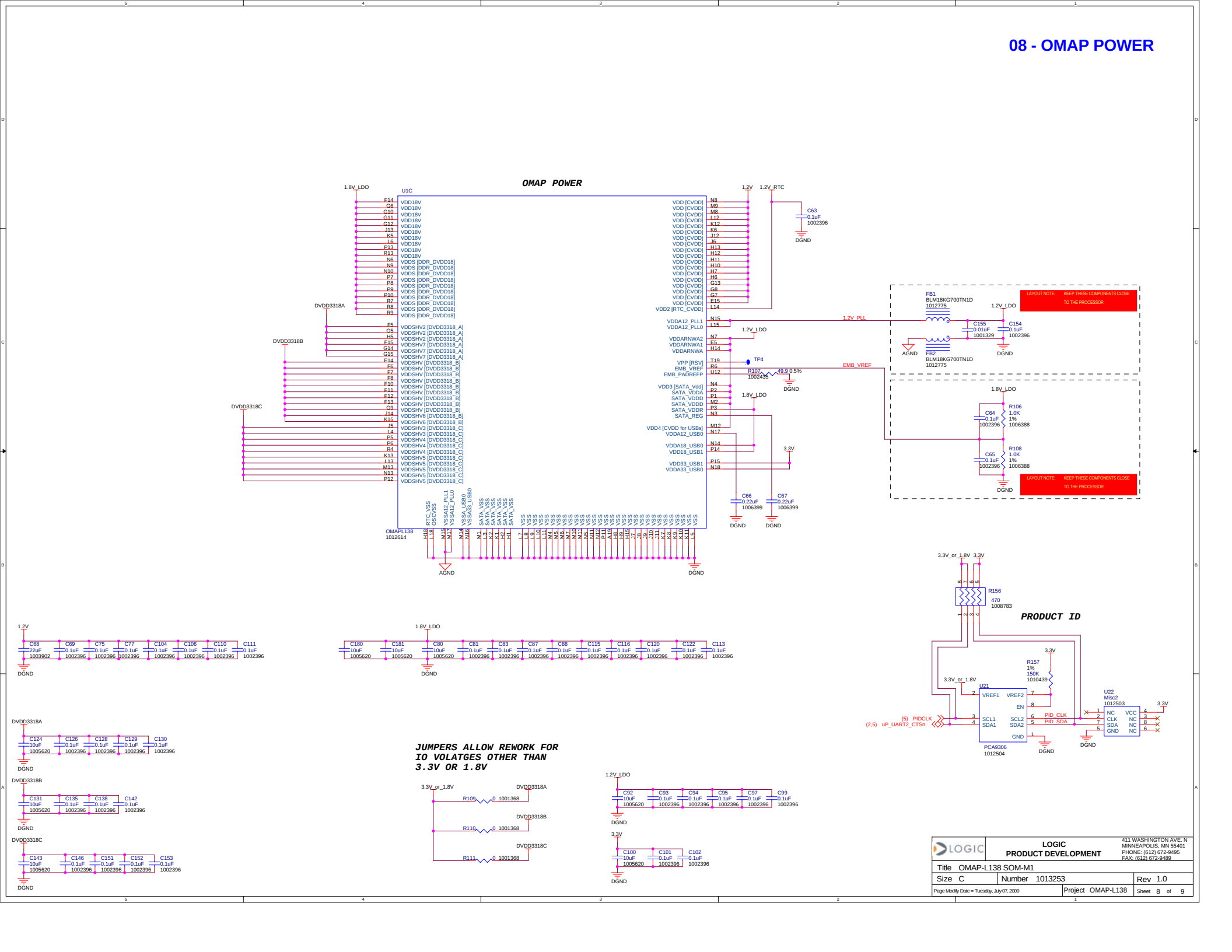
Title	OMAP-L138 SOM-M1	
Size C	Number 1013253	Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 7 of 9

08 - OMAP POWER



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Title	OMAP-L138 SOM-M1	
Size C	Number 1013253	Rev 1.0
Page Modify Date = Tuesday, July 07, 2009	Project OMAP-L138	Sheet 8 of 9

Revision Control

ECO Number	Phase	Rev	Description	Date
	beta	0.1	STARTED FROM ALPHA SCHEMATIC SH:1: Corrected PMIC I2C address in table. Also corrected all I2C addresses to be 7 bits instead of 8. Removed socket and insulator plate symbols. Also changed PCB number. SH:2: Routed off-SOM boot bits to baseboard connector J3 on pins that are common with Shiva off-SOM boot pins. This provides commonality for testing. This shift also caused the testability pin BOFF_OEn to move to a different location on J3. SH:3,4: Removed in-line resistors on DDR address and control lines to ease DDR routing in layout. Removed one in-line resistor on STRBEN, STRBEN_DEL signals. Also changed layout note to indicate correct trace length for these signals. SH:4,8: Changed bulk cap on DDR to 22uF. Changed C80 on 1.8V_LDO to 10uF and added 2 more 10uF bulk caps to that rail. These changes were done to meet TI's DDR routing guidelines. SH:7: Added buffer to PMIC I2C clock signal to prevent accidental access to PMIC. Added TPS3805 for proper power sequencing. Added pullup to VSYS on PMIC DEFDCDC3 pin to generate proper core voltage. Also added no-pop pulldown in case PMIC is improperly programmed again. Tied unused PMIC inputs: L4, FB_WLED, ISINK1, ISINK2 to GND. Changed ISETx resistors to 150K - were 0 ohm. Added zero ohm in-line resistor on NMI to make potential rework easier. Updated PMIC symbol so it has the corrected footprint with center pad offset SH:various: Where appropriate, changed pullups/pulldowns to 4.7K to be consistent. SH:2: Moved uP_SPI0_SCSn0 from J3<45> to J3<27> Moved uP_SPI0_SCSn1 from J3<47> to J3<29> Moved BUFF_OEn from J3<29> to J3<61> SH:3: Changed EMA_CASn / GPIO2[4] function from SW_RST to USB1_PWR_EN. Moved from J1<85> to J3<47> SH:7: Changed POWER_ON pull from pull-down to pull-up w/ divider to protect uP pin from overvoltage	05-15-09
		0.2	SH:3: vertically mirrored rpacks on DDR data to match layout SH:4: removed R41 - 100 ohm resistor across DDR clock signals SH:6,8: changed all 49.9 ohm resistors to 1/2% tolerance. R107 on sheet 8 must be 1/2%, so all 49.9 ohm resistors were changed to 1/2% for commonality. SH:7: removed C59,R104 from PMIC THRESHOLD PIN. THRESHOLD will be pulled up to Vsys, since RESETn output is not used. Changed R161 to be a pulldown. SH:various: changed look of comments and layout notes to match style called out on title page.	06-15-09
		0.3	SH: various: changed all testpoints to no-pop so the don't show up in Agile BOM	06-19-09
		0.4	SH: various: all LPD numbers are now visible	06-21-09

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Size C | Number 1013253 | Rev 1.0

Page Modify Date = Tuesday, July 07, 2009 | Project OMAP-L138 | Sheet 9 of 9