

PROJECT:	MCF5329-10 CARD ENGINE
PART NUMBER:	1001664
ASSEMBLY NAME:	MCF5329-10 CARD ENGINE
SCHEMATICS:	KTL
TABLE OF CONTENTS	
PAGE	DESCRIPTION
1	TITLE PAGE AND BLOCK DIAGRAM
2	CONNECTORS
3	BUFFERS
4	SDRAM
5	FLASH
6	WIRED LAN
7	LOGIC
8	PERIPHERAL CIRCUITS
9	CODEC
10	PROCESSOR
11	TEST POINTS

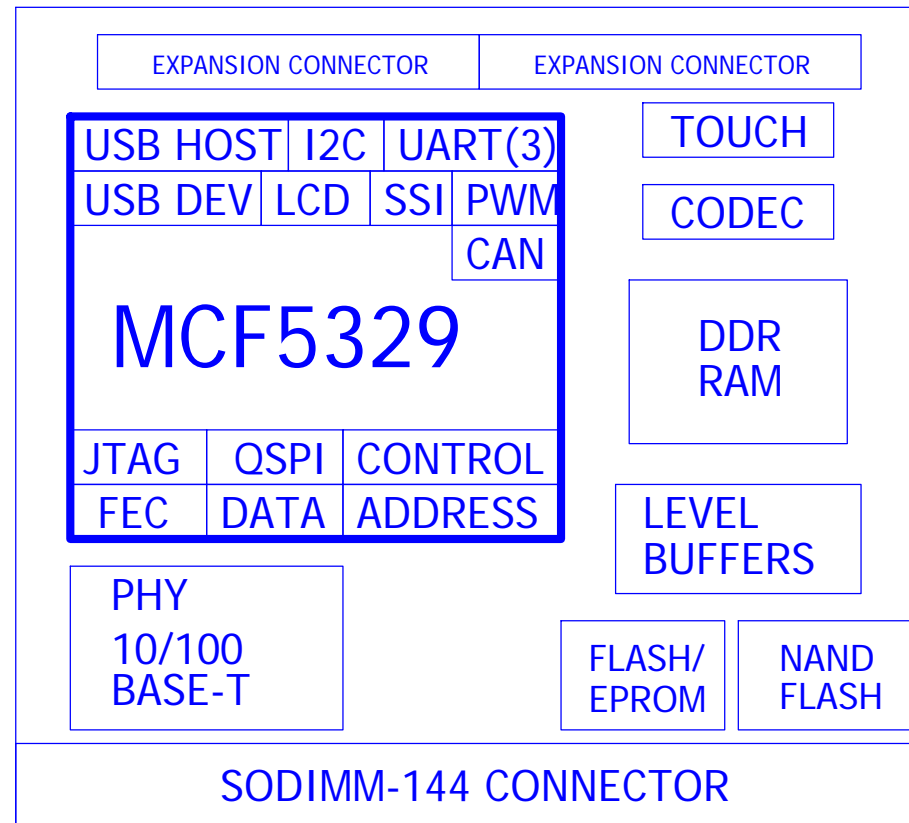
COLOR LEGEND

NOTE:
NOTES IN GREEN TEXT ARE GENERAL DESIGN OR SCHEMATIC NOTES

LAYOUT NOTE:
NOTES IN RED TEXT ARE PCB LAYOUT RECOMMENDATIONS OR GUIDLINES

NET NAMES
NET NAMES IN GREEN TEXT ARE NETS THAT ARE NOT DIRECTLY CONNECTED WITH A VISIBLE WIRE ON SINGLE SCHEMATIC PAGE, BUT USE THIS CONVENTION TO MAKE THE SCHEMATIC EASIER TO READ

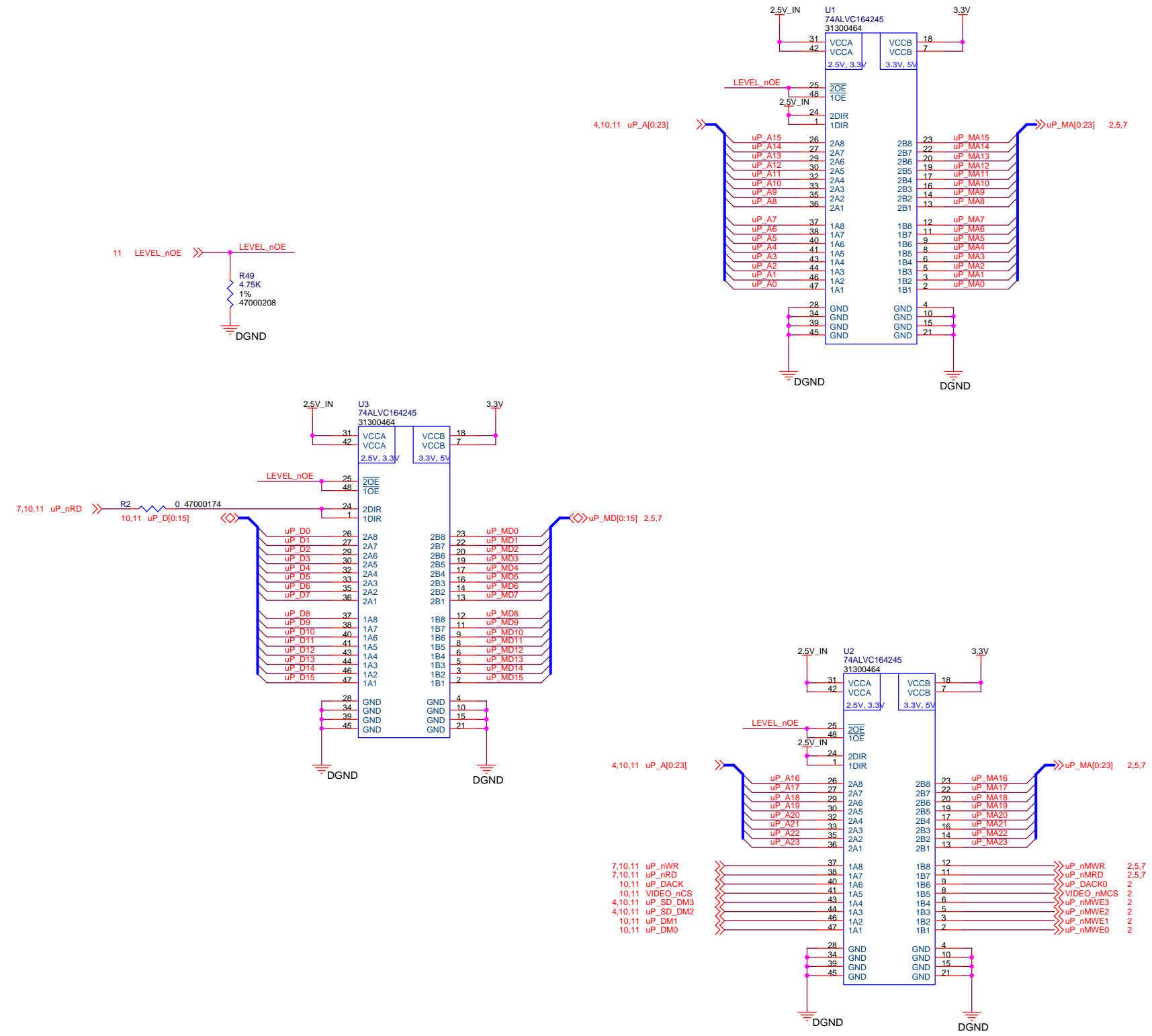
NET NOTE
NET NOTES IN BLACK TEXT INDICATE A PARTICULAR FUNCTIONALITY OF A SPECIFIC NET, IT IS NOT A NET NAME MERELY TEXT AND HAS NO AFFECT ON THE DRC.



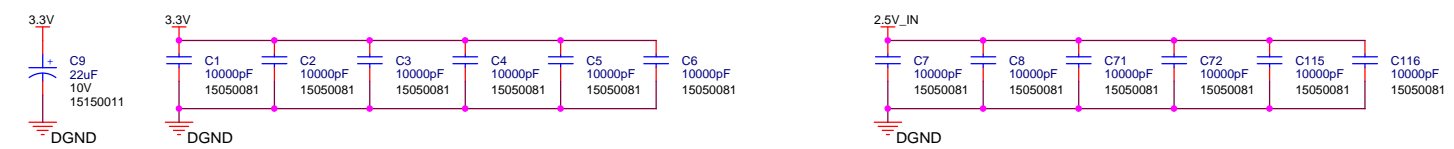
INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH LOGIC PRODUCT DEVELOPMENT. NO LICENSE, EXPRESS OR IMPLIED, BY LOGIC PRODUCT DEVELOPMENT (LPD) OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN LPD'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS. LPD ASSUMES NO LIABILITY WHATSOEVER, AND LPD DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF LPD PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. LPD PRODUCTS ARE NOT INTENDED FOR USE IN MEDICAL, LIFE SAVING, LIFE SUSTAINING APPLICATIONS.

LPD MAY MAKE CHANGES TO SPECIFICATIONS AND PRODUCT DESCRIPTIONS AT ANY TIME, WITHOUT NOTICE. DESIGNERS MUST NOT RELY ON THE ABSENCE OR CHARACTERISTICS OF ANY FEATURES OR INSTRUCTIONS MARKED RESERVED OR UNDEFINED.

03 - BUFFERS



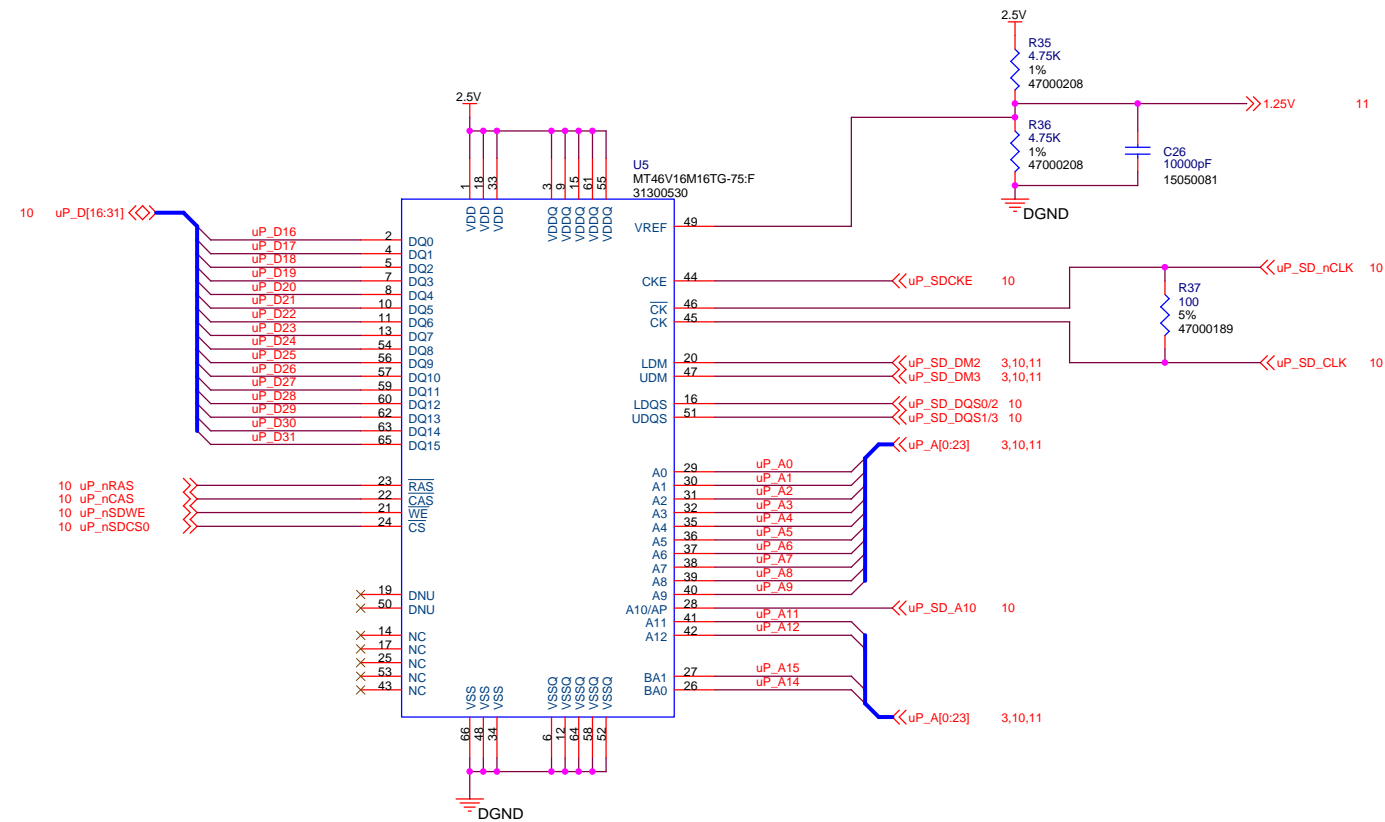
NOTE: 2 CAPACITORS NEAR POWER PINS PER BUFFER, AND THE BULK CAPACITOR SHOULD BE PLACED ON THE BOARD IN THE GENERAL AREA OF THE BUFFERS.



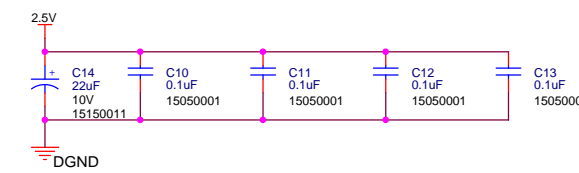
Schematic Modify Date = Tuesday, March 20, 2007
 Design Create Date = Friday, October 18, 2002

		LOGIC PRODUCT DEVELOPMENT		411 WASHINGTON AVE. N MINNEAPOLIS, MN 55401 PHONE: (612) 672-9495 FAX: (612) 672-9489	
				Title MCF5329-10 CARD ENGINE	
Size	C	Number	1001664	Project	MCF5329-10
Date	Wednesday, October 23, 2002	Sheet	3	Of	12

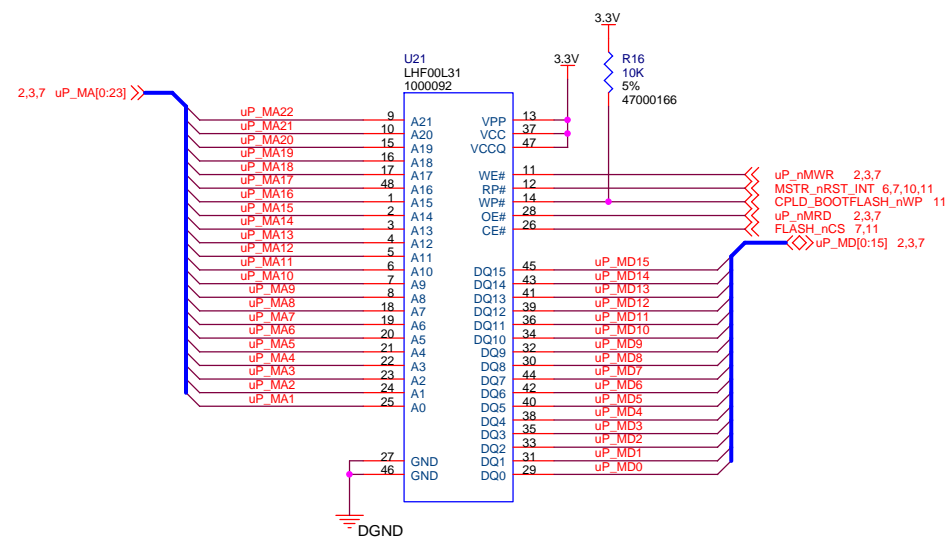
04 - DDR RAM



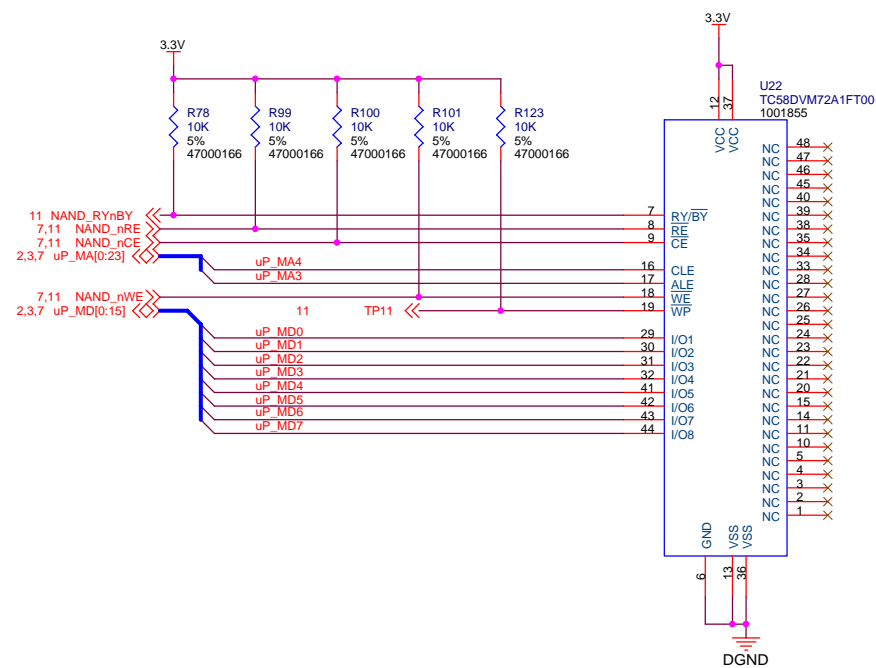
ENGINE DENSITY	CONFIG	PART #
16 MByte		MT46V8M16TG-75
32 MByte	STANDARD	MT46V16M16TG-75:F
64 MByte		MT46V32M16P-75



05 - FLASH

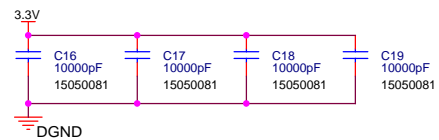


NOR DENSITY	CONFIG	PART #
1 MByte		TE28F800C3BA90
2 MByte	STANDARD	LHF00L31 TE28F160C3BD70
4 MByte		TE28F320C3BC70



NAND DENSITY	CONFIG	PART #
16 MByte	STANDARD	NAND128W3A0AN6 TC58DVM72A1FT00
32 MByte		NAND256W3A0AN6 TC58DVM82A1FT00
64 MByte		NAND512W3A0AN6 TC58DVM92A1FT00

NOTE: PLACE TWO .01uF DECOUPLING CAPS PER CHIP NEAR THE FLASH ON THE PCB.



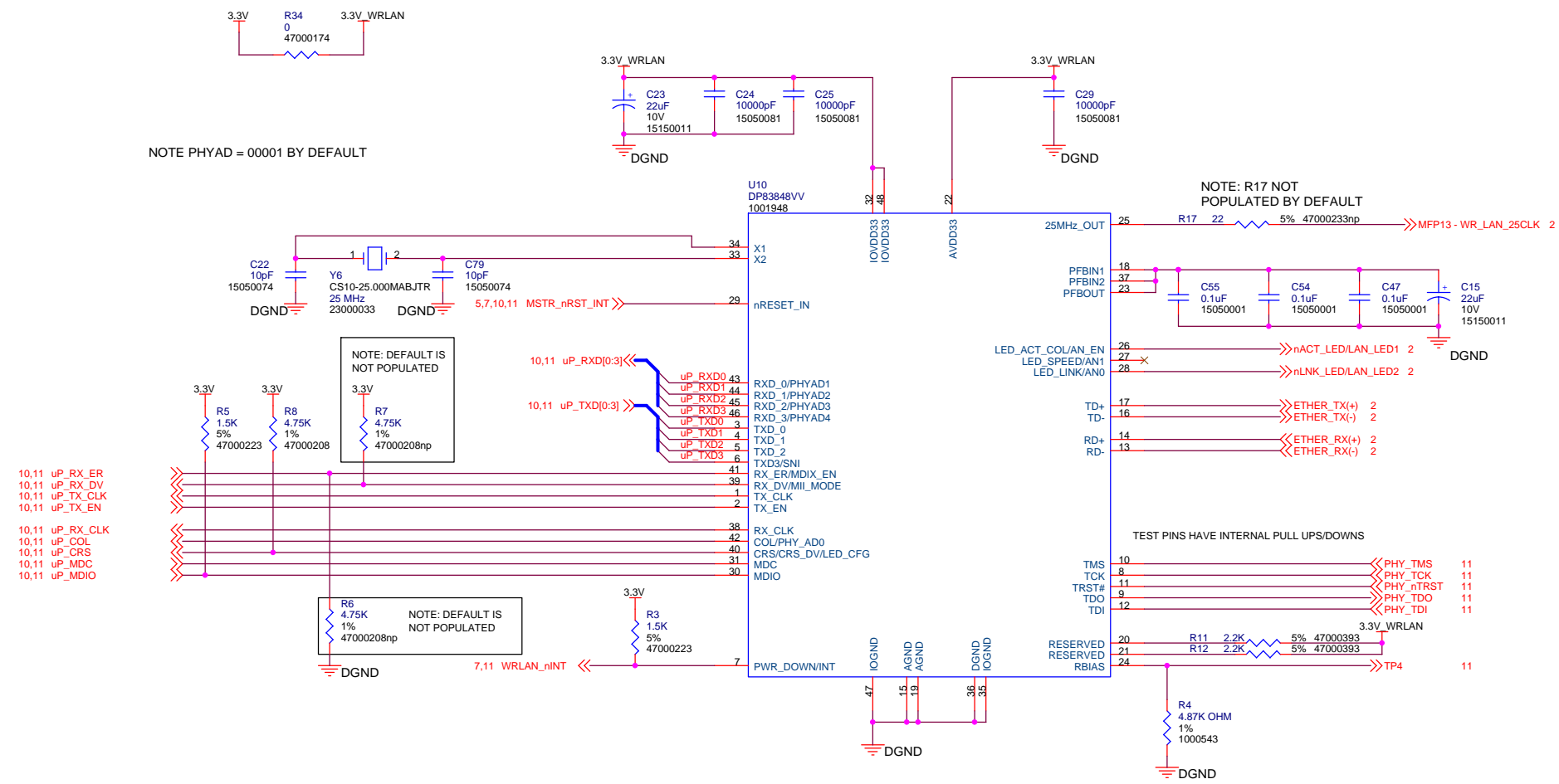
REV A -> B
1) REMOVED 8MB POPULATION OPTION

Schematic Modify Date = Tuesday, March 20, 2007
Design Create Date = Friday, October 18, 2002

	411 WASHINGTON AVE. N MINNEAPOLIS, MN 55401 PHONE: (612) 672-9495 FAX: (612) 672-9489	
	Title MCF5329-10 CARD ENGINE	

Size	C	Number	1001664	Rev	B
Date	Wednesday, October 23, 2002	Project	MCF5329-10	Sheet	5 Of 12

06 - WIRED LAN

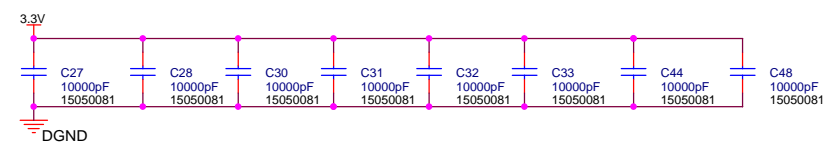


REV 3 -> 4
 1) CHANGED R3 TO 1.5K

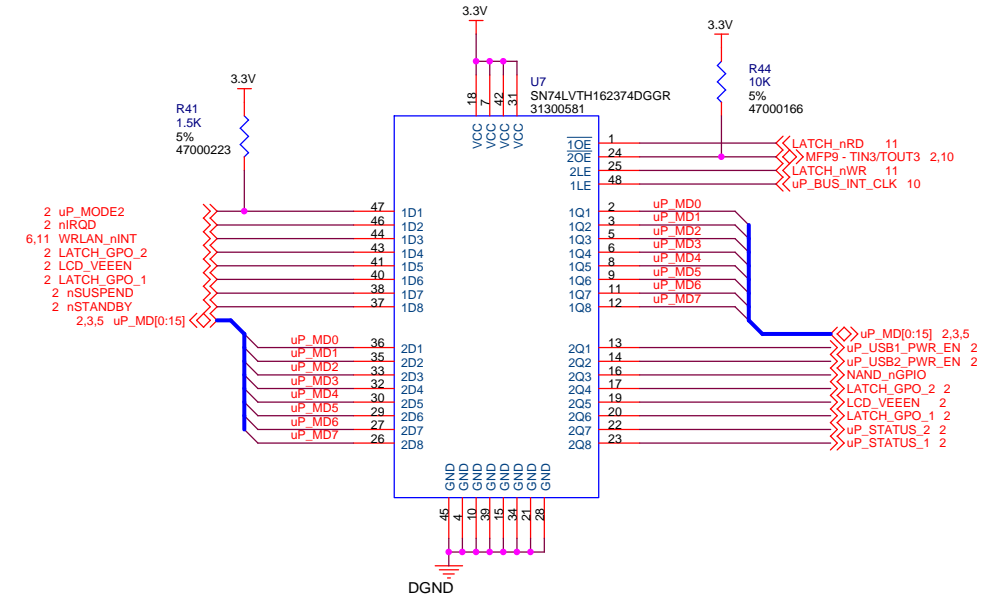
Schematic Modify Date = Tuesday, March 20, 2007
 Design Create Date = Friday, October 18, 2002

		LOGIC PRODUCT DEVELOPMENT		411 WASHINGTON AVE. N MINNEAPOLIS, MN 55401 PHONE: (612) 672-9495 FAX: (612) 672-9489	
				Title MCF5329-10 CARD ENGINE	
Size	C	Number	1001664	Rev	B
Date	Wednesday, October 23, 2002	Project	MCF5329-10	Sheet	6 Of 12

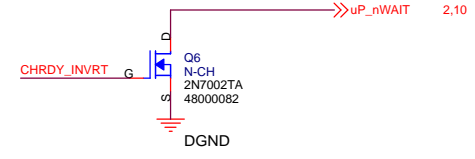
NOTE: PLACE ONE .01uF DECOUPLING CAPS PER CHIP NEAR THE FLASH ON THE PCB.



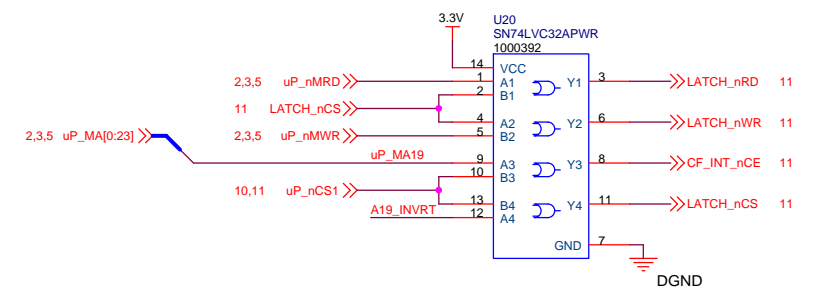
LATCH U7 IS USED AS A MEMORY MAPPED INPUT/OUTPUT REGISTER BASED ON READS AND WRITES TO AREA 1 + OFFSET. THE PHYSICAL ADDRESS IS nCS1 + 0X00080000 (nCS1 LOW AND A19 HIGH)



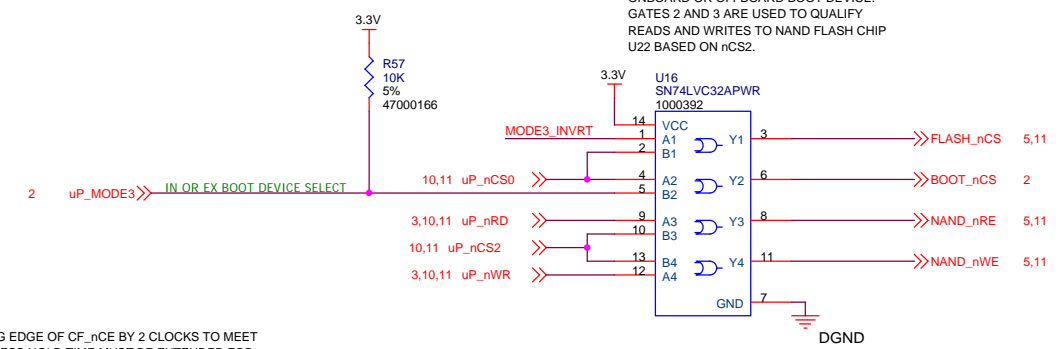
THIS MOSFET ALLOWS FOR COMPACT FLASH CARDS THAT HAVE PUSH/PULL OUTPUTS ON THE nCHRDY PINS TO MAINTAIN OPEN DRAIN ASSERTION OF THE nWAIT SIGNAL.



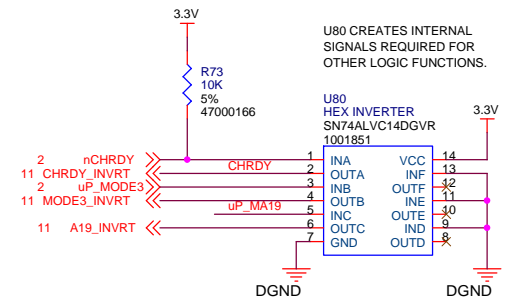
U20 QUALIFIES READS AND WRITES TO LATCH U7 AND THE CF CARD USING nCS1 AND A19.



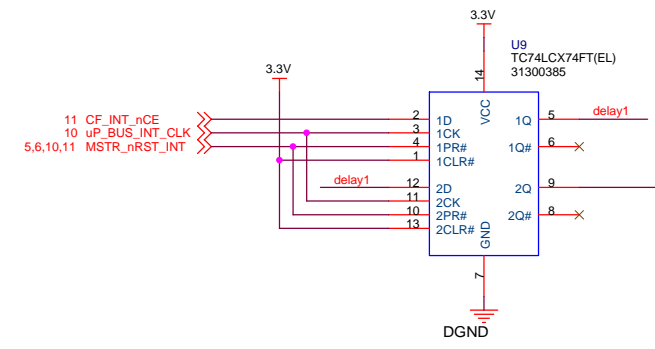
U16 GATES 1 AND 2 ROUTE nCS0 TO ONBOARD OR OFFBOARD BOOT DEVICE. GATES 2 AND 3 ARE USED TO QUALIFY READS AND WRITES TO NAND FLASH CHIP U22 BASED ON nCS2.



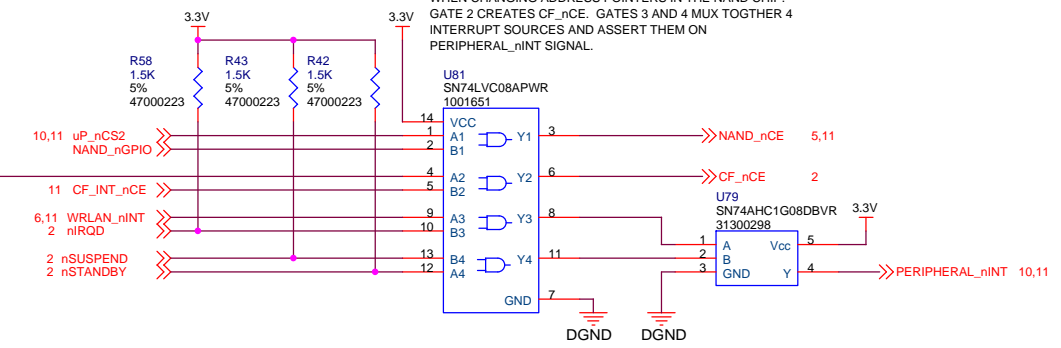
U80 CREATES INTERNAL SIGNALS REQUIRED FOR OTHER LOGIC FUNCTIONS.



U8 DELAYS RISING EDGE OF CF_nCE BY 2 CLOCKS TO MEET CF TIMING. ADDRESS HOLD TIME MUST BE EXTENDED FOR nCS1 FLEX BUS AREA IN SOFTWARE BY 2 CLOCKS BEYOND nCS1 DEASSERTION TO PREVENT BUS CONFLICTS.



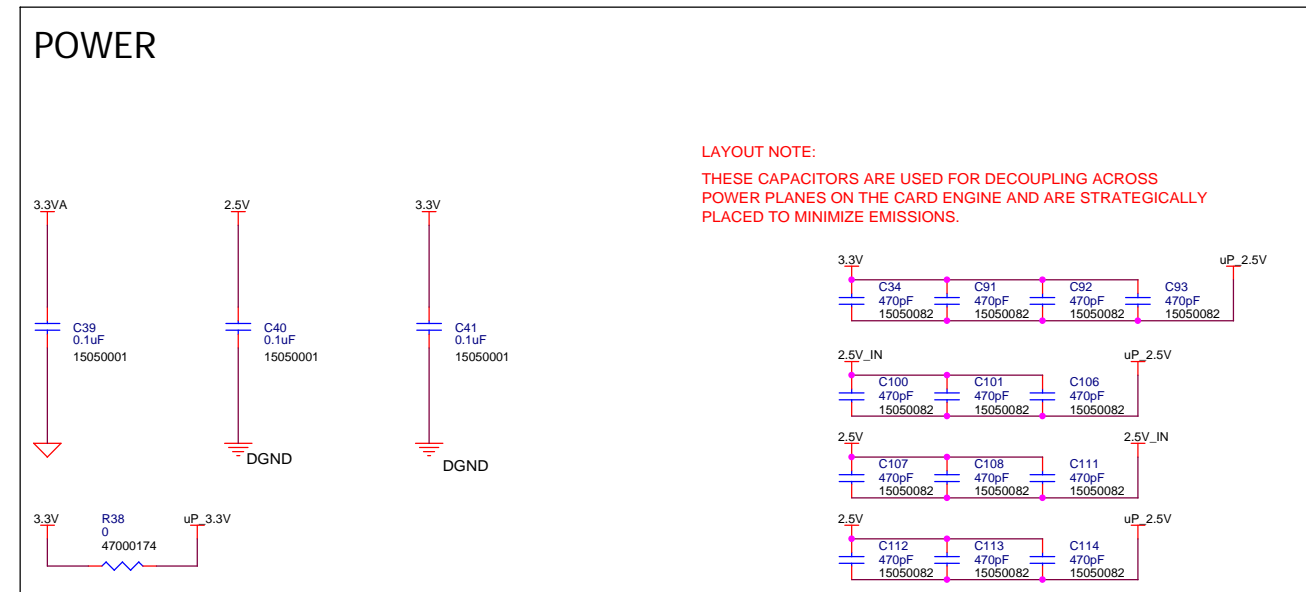
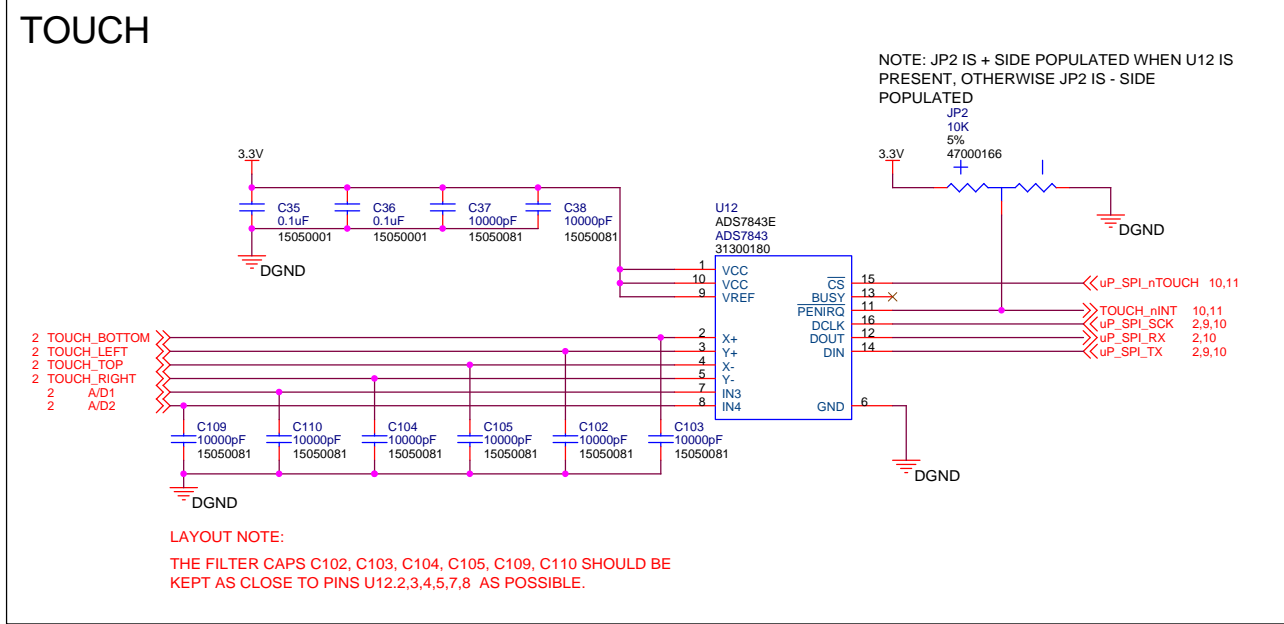
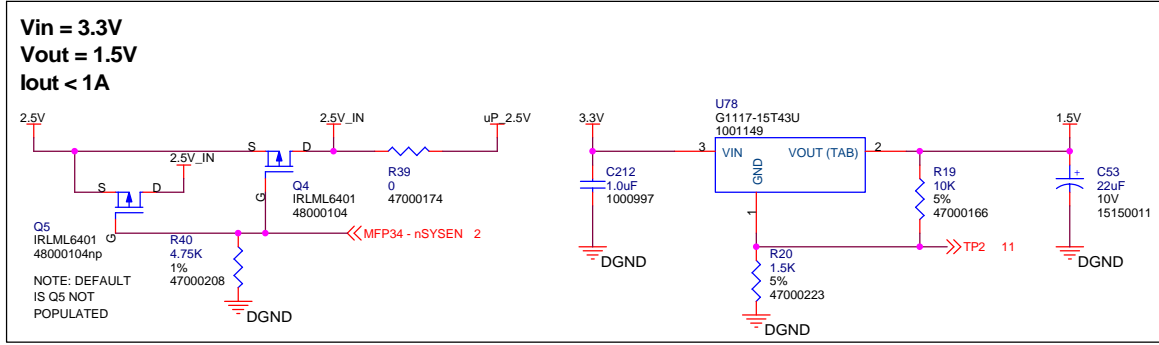
U81 GATE 1 HOLDS ASSERTION OF NAND_nCE WHEN NAND_nGPIO IS DRIVEN LOW WHICH SHOULD BE ASSERTED WHEN CHANGING ADDRESS POINTERS IN THE NAND CHIP. GATE 2 CREATES CF_nCE. GATES 3 AND 4 MUX TOGETHER 4 INTERRUPT SOURCES AND ASSERT THEM ON PERIPHERAL_nINT SIGNAL.



REV 3 -> 4
1) CHANGED R41, R42, R43, R58 TO 1.5K

Schematic Modify Date = Tuesday, March 20, 2007
Design Create Date = Friday, October 18, 2002

		411 WASHINGTON AVE. N MINNEAPOLIS, MN 55401 PHONE: (612) 672-9495 FAX: (612) 672-9489			
		Title MCF5329-10 CARD ENGINE			
Size	C	Number	1001664	Rev	B
Date	Wednesday, October 23, 2002	Project	MCF5329-10	Sheet	7 Of 12

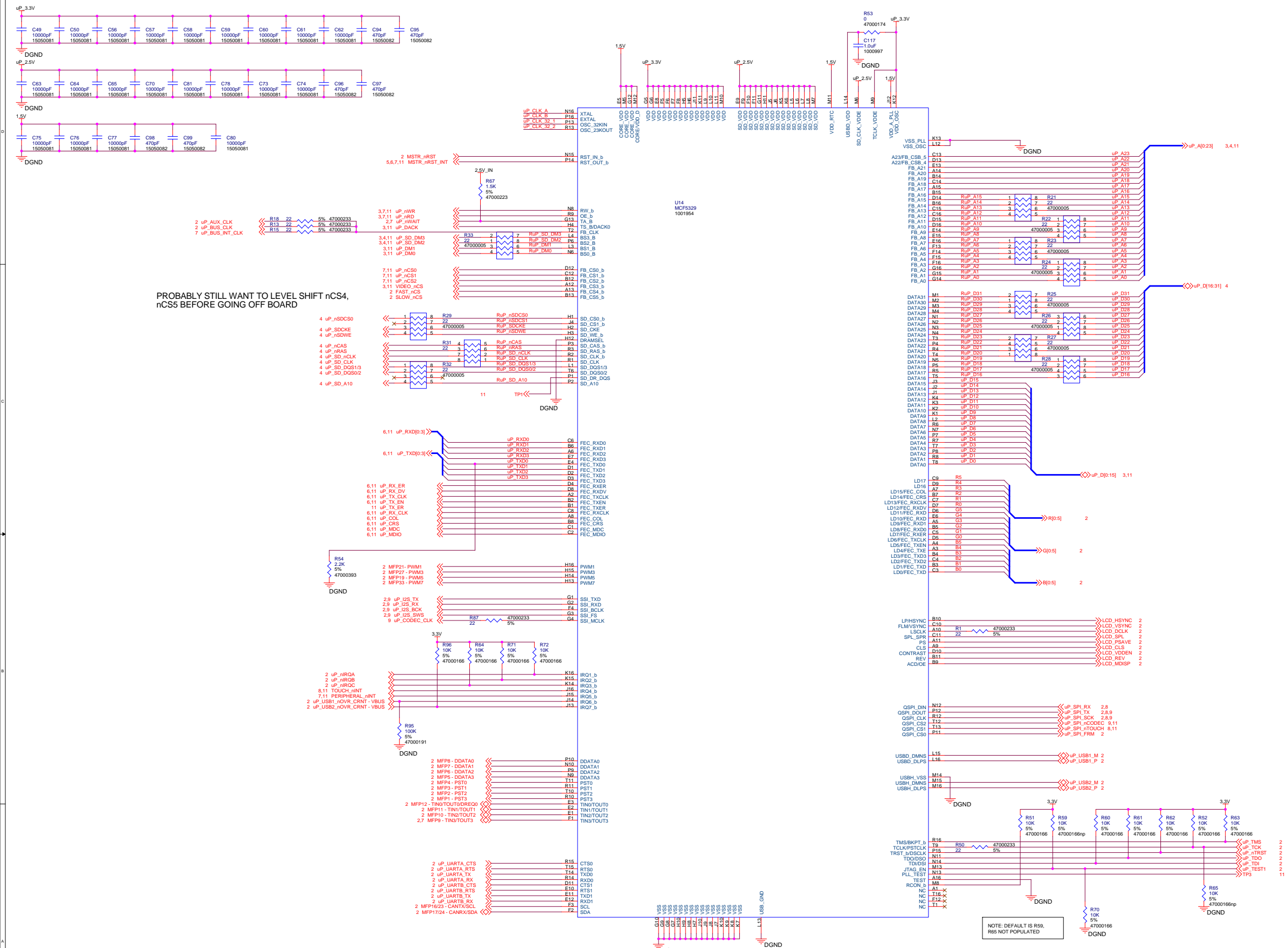


REV 3->4
 1) CHANGED U78 PIN 3 TO 3.3V

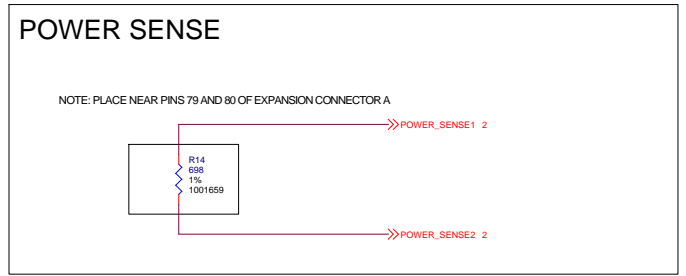
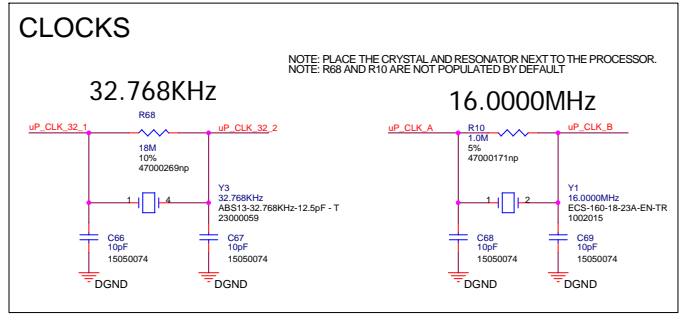
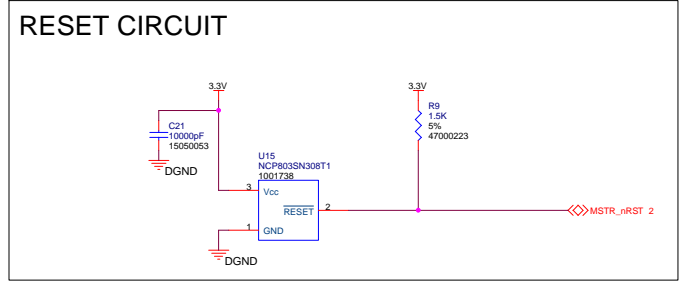
Schematic Modify Date = Tuesday, March 20, 2007
 Design Create Date = Friday, October 18, 2002

	LOGIC		411 WASHINGTON AVE. N
	PRODUCT DEVELOPMENT		MINNEAPOLIS, MN 55401
			PHONE: (612) 672-9495
			FAX: (612) 672-9489

Title MCF5329-10 CARD ENGINE			
Size C	Number 1001664	Rev B	
Date Wednesday, October 23, 2002	Project MCF5329-10	Sheet 8 Of 12	



PROBABLY STILL WANT TO LEVEL SHIFT nCS4, nCS5 BEFORE GOING OFF BOARD



REV 4 -> A
 1) CHANGED CONTRAST TO OUTPUT ON LCD_VDDEN
 2) CHANGED ADDRESS TO OUTPUT ON LCD_MDSP
 3) ADDED R54

REV 3 -> 4
 1) ADDED R50, R52 MADE R65 NO POPULATE
 2) ADDED R53 AND C17

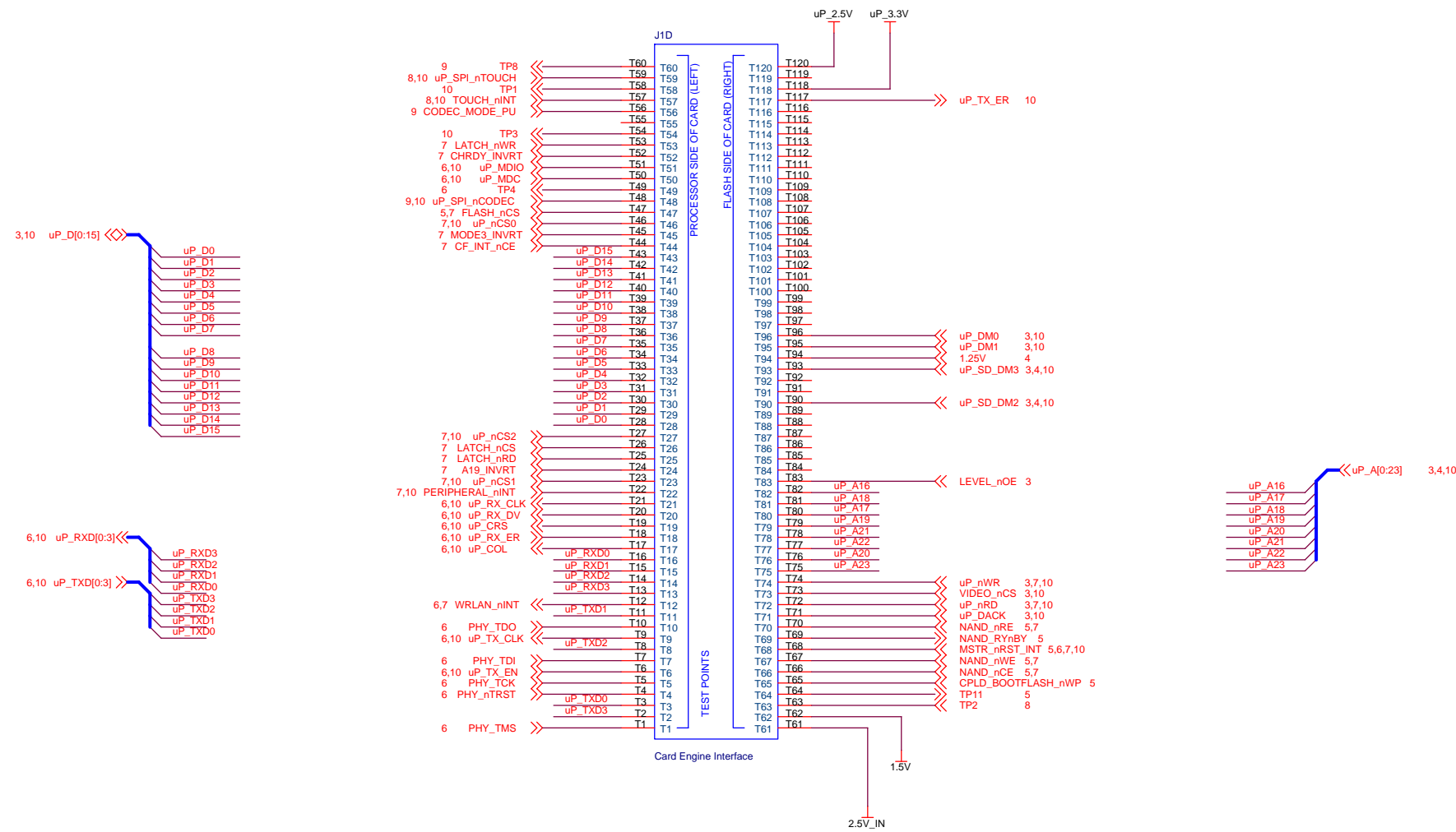
Schematic Modify Date = Tuesday, March 20, 2007
 Design Create Date = Friday, October 18, 2002

411 WASHINGTON AVE. N
 MINNEAPOLIS, MN 55401
 PHONE: (612) 672-9495
 FAX: (612) 672-9499

LOGIC PRODUCT DEVELOPMENT

Title: MCF5329-10 CARD ENGINE
 Size: D Number: 1001664 Rev: B
 Date: Wednesday, October 23, 2002 Project: MCF5329-10 Sheet: 10 Of: 12

NOTE: THIS SYMBOL REPRESENTS THE 60 TEST POINTS LOCATED ON THE RIGHT AND LEFT EDGES OF THE CARD ENGINE.




Schematic Modify Date = Tuesday, March 20, 2007
 Design Create Date = Friday, October 18, 2002

	LOGIC PRODUCT DEVELOPMENT	411 WASHINGTON AVE. N MINNEAPOLIS, MN 55401 PHONE: (612) 672-9495 FAX: (612) 672-9489
	Title MCF5329-10 CARD ENGINE	

Size	C	Number	1001664	Rev	B
Date	Wednesday, October 23, 2002	Project	MCF5329-10	Sheet	11 Of 12

Revision Control			
ECO Number	Rev	Description of Change	Date
	1	Preliminary Schematics	
	2	Design review comments corrected	04/14/05
	3	Processor pinout changed per Freescale	08/22/05
C02020	4	U78 pin 3 changed to 3.3V; R3, R41, R42, R43, R58 changed to 1.5K; J1C.14 changed to uP_nMWE1, ADDED R50, R52, R53, C117	11/10/05
C02625	A	Changed U14 CONTRAST to output on LCD_VDDEN, ACD/OE to output on LCD_MDISP, ADDED R54 2.2K pulldown on FEC_TXD0.	05/15/06
C03532	B	Removed 8MB Flash population option.	03/20/07

Schematic Modify Date = Tuesday, March 20, 2007
 Design Create Date = Friday, October 18, 2002

	LOGIC PRODUCT DEVELOPMENT	411 WASHINGTON AVE. N MINNEAPOLIS, MN 55401 PHONE: (612) 672-9495 FAX: (612) 672-9489
	Title MCF5329-10 CARD ENGINE	

Size C	Number 1001664	Rev B
Date Friday, May 16, 2003	Project MCF5329-10	Sheet 12 Of 12