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Nike-17-QC

CPU : IvyBridge BGA QC

Chip Set : Intel Panther Point

GFX : NVIDIA N13P-GT
INTEL HD 3000

Remarks : ChiefRiver Platform

Model Name : NIKE-17

PBA Name : MAIN

PCB Code : BA41-01941A (GCE)
BA41-01942A (NY)

Dev. Step : MP

Revision : 1.0

T.R. Date : 2012.02.06

Design	CHECK	APPROVAL

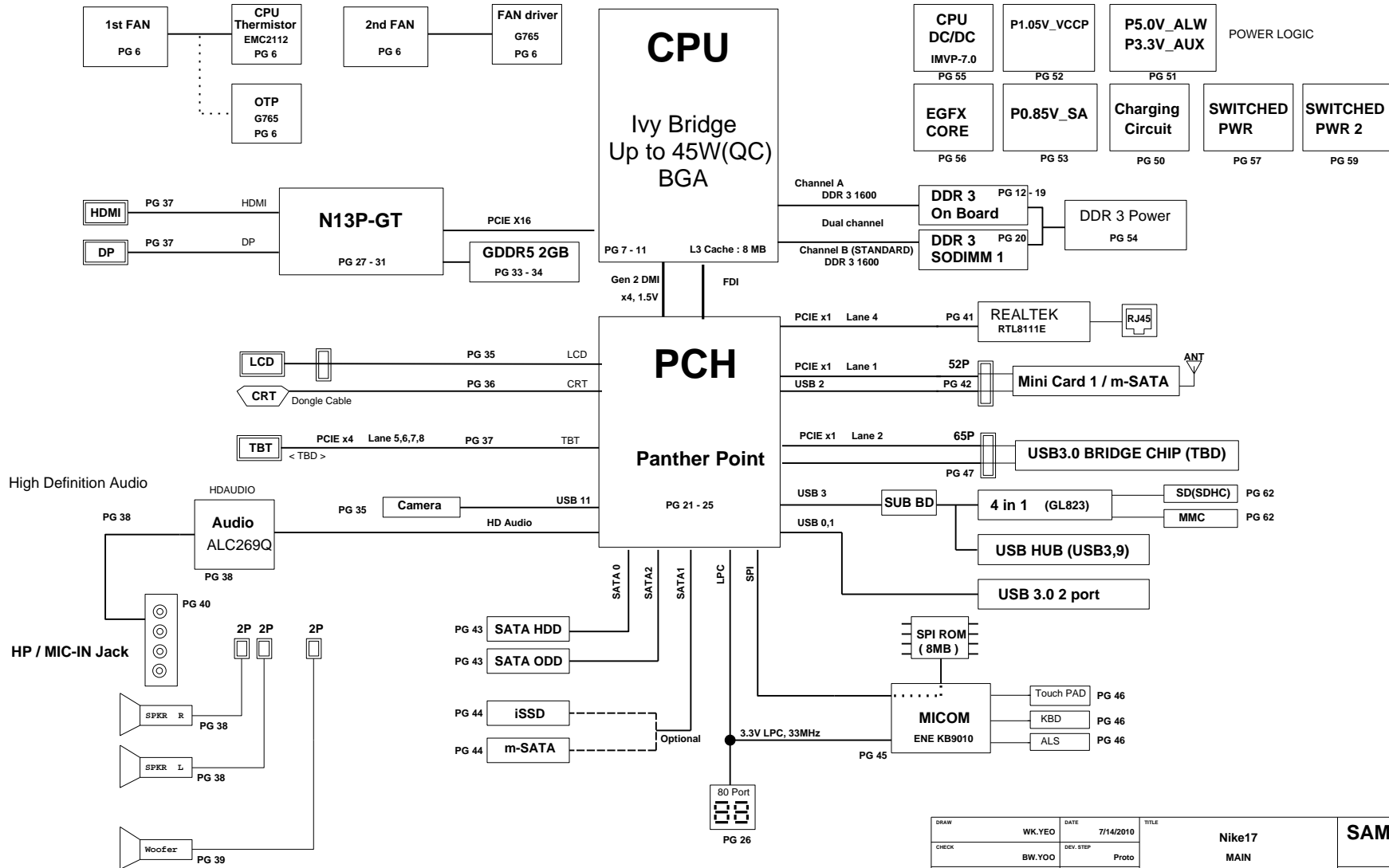
Owner : SEC Mobile R & D Signature : X

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DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV.STEP	Proto	MAIN		ELECTRONICS
APPROVAL	SH.LEE	REV	REV 0.8	COVER		PART NO. BA41-####A
MODULE CODE		LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	1	OF 77

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BLOCK DIAGRAM



DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17 MAIN	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto			
APPROVAL	SH.LEE	REV	REV 0.8		BLOCK DIAGRAM	PART NO. BA41-####A
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	2	OF 77

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails	Active in
VDC P3.3V_MICOM P5.0V_ALW P5.0V_STB	Primary DC system power supply (7 to 21V) 3.3V always power rail (for Microm) 5.0V always power rail 5.0V always power rail S4 - S5
P5.0V_AUX P3.3V_AUX P1.5V_AUX	5.0V switched on power rail (off in S4-S5) 3.3V switched on power rail (off in S4-S5) 1.5V power rail for DDR3 (off in S4-S5) S3
P5.0V P3.3V P1.8V P1.5V P0.75V P0.85V	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.8V switched power rail (off in S3-S5) 1.5V switched power rail (off in S3-S5) 0.75V power rail for DDR3 (off in S3-S5) 0.85V switched power rail (off in S3-S5) S0
VCC_CORE EGF_X_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for COUGARPOINT S0

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 1	2	NC
2	Mini PCI Express (WLAN)	3	NC
3	Multi Memory Card Controller	4	LAN CONTROLLER
4	NC	5	USB3.0 BRIDGE
5	NC	6	NC
6	NC (N/A WITH HM65)	7	NC
7	NC (N/A WITH HM65)	8	NC
8	Mini PCI Express (HSPA)		
9	SYSTEM PORT 2		
10	NC		
11	Camera		
12	USIM		
13	NC		

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	SSD
2	ODD
3	
4	
5	

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	COUGAR POINT	Real Time Clock
Crystal	25MHz	LAN	REALTEK
Crystal	25MHz	COUGAR POINT	
Crystal	27MHz	N12P	
Crystal	24MHz	USB3.0 CHIP	


LCD Pannel Detect	(TBD)
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Devices	Resolution	PANNEL_DETECT_0
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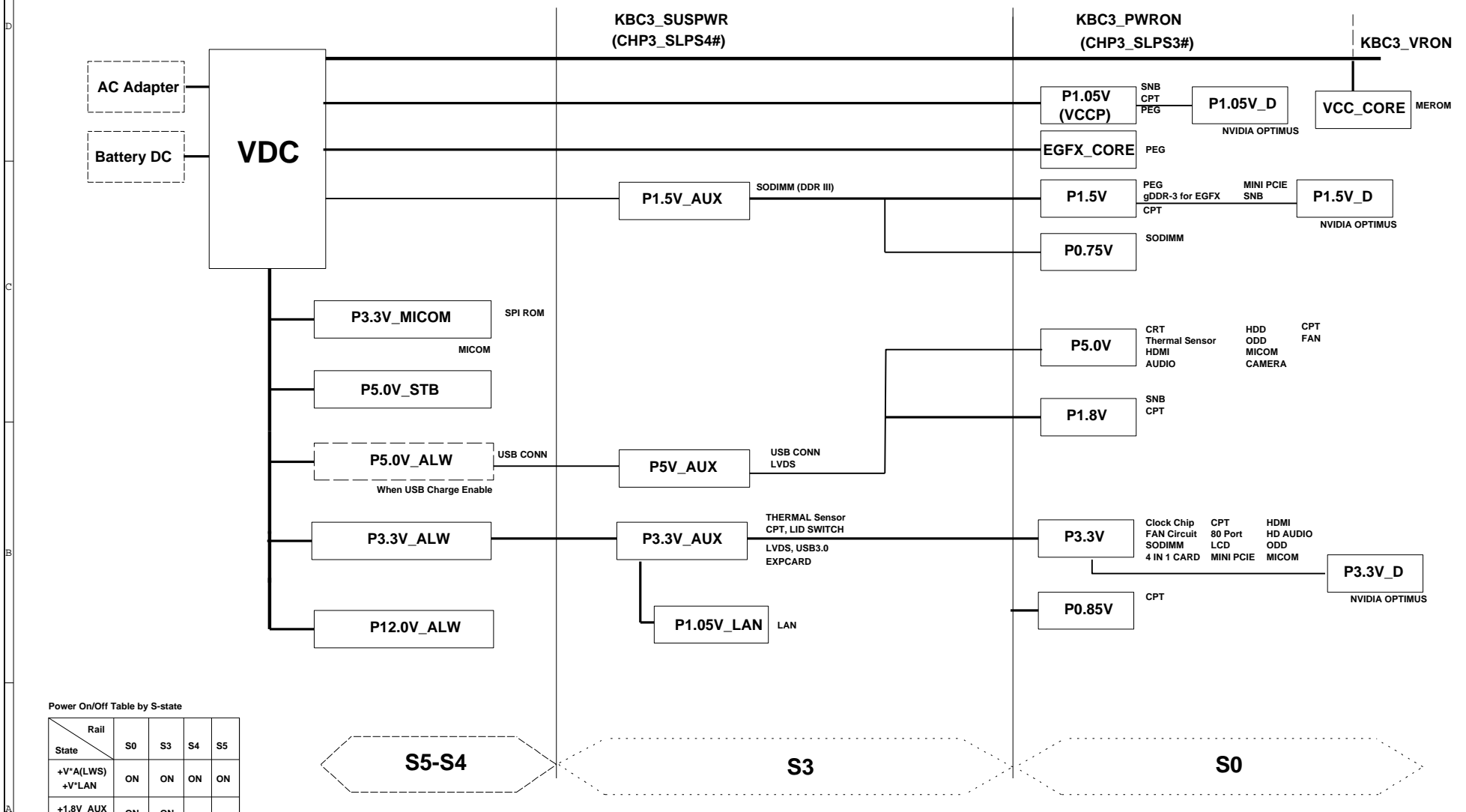
I²C / SMB Address

Devices	Address	Hex	Bus
COUGARPPOINT	Master	-	SMBUS Master
CPU Thermal Sensor	0011 000X	30h	Thermal Sensor
SODIMM0	1010 000x	A0h	-
SODIMM1	1010 010x	A0h	-
Thermal Sensor on SODIMM0	0011 000x	34h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
on board DDR3 thermal Sensor	1001 100x	98h	-
Plant thermal management TS	1001 010x	98h	-

Vinafix.com

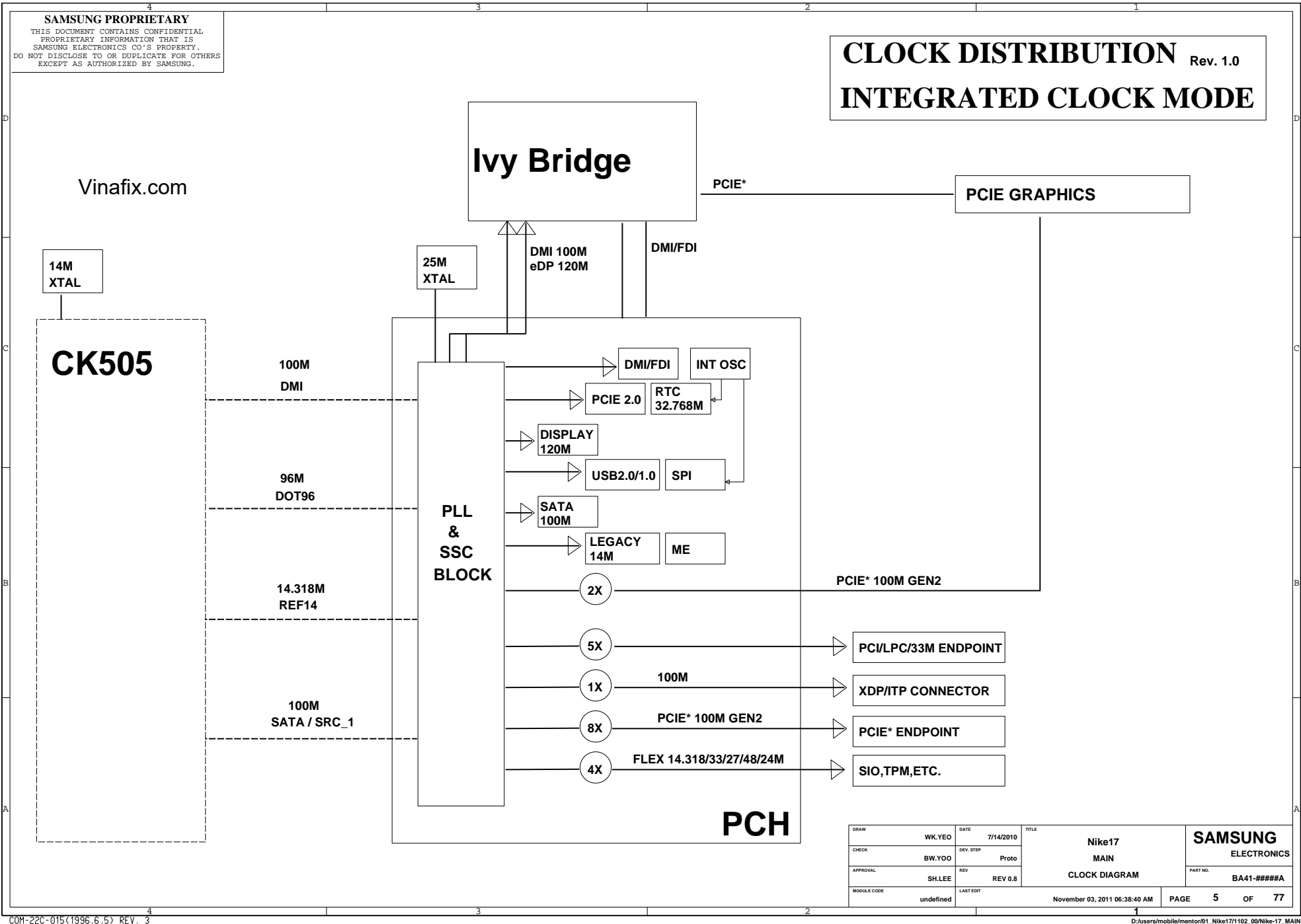
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APPROVAL	SH.LEE	REV	REV 0.8	BOARD INFO		PART NO.	BA41-####A
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM			PAGE	3 OF 77

Rev 0.7



Rail State	S0	S3	S4	S5
+V*A(LWS) +V*LAN	ON	ON	ON	ON
+1.8V_AUX +0.9V	ON	ON	—	—
+V*AUX	ON	ON	—	—
+V	ON	—	—	—
+V* (CORE)	ON	—	—	—

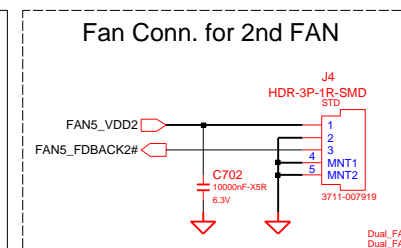
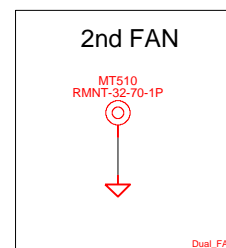
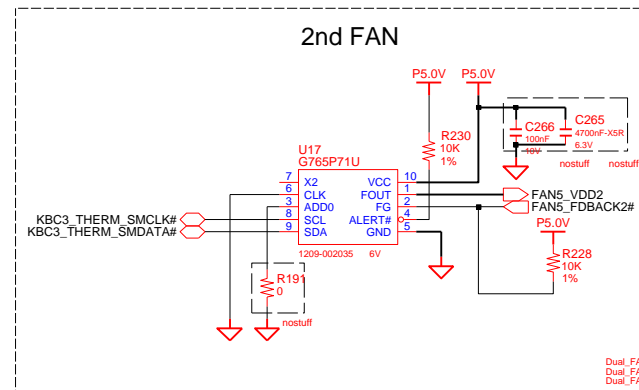
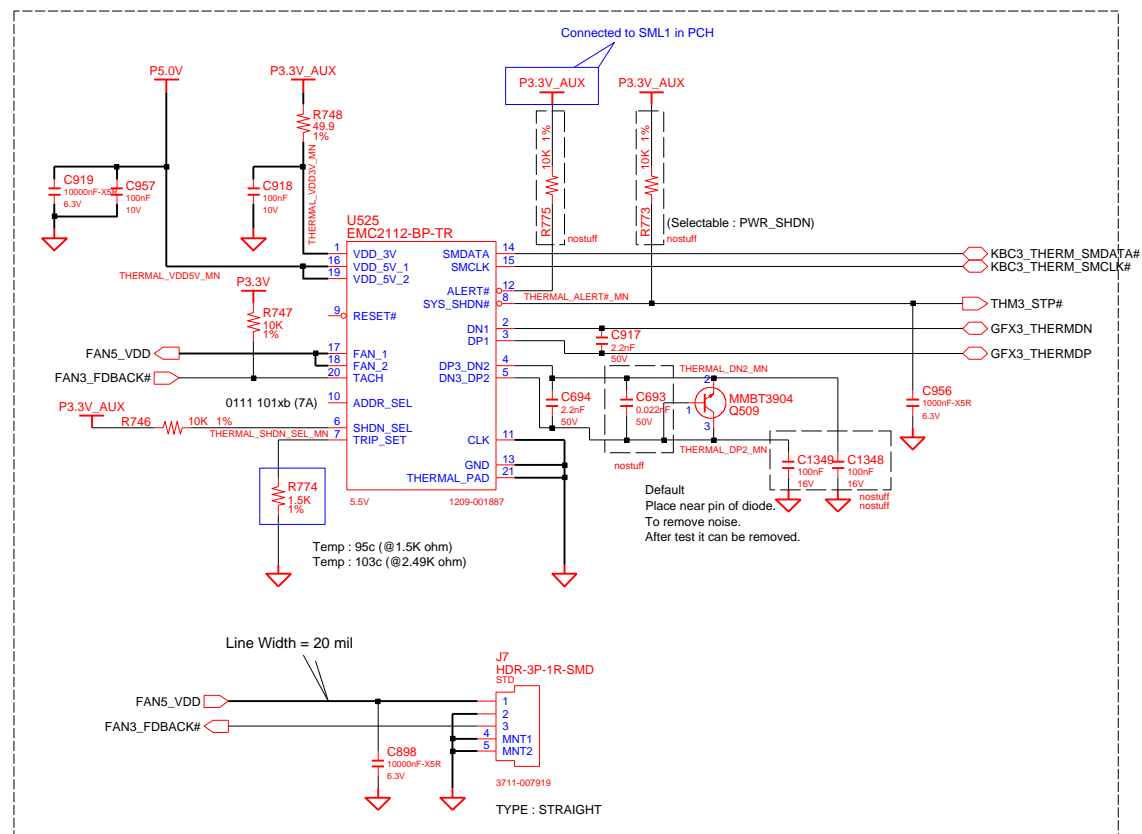
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APPROVAL	SH.LEE	REV	REV 0.8				
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM		PAGE	4 OF 77



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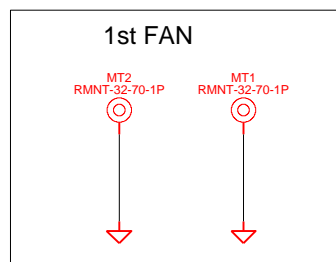
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THERMAL SENSOR & FAN CONTROL



ADDRESSSEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

SHDN_SEL MODE	
0	INTEL TR MODE
HIGH Z	AMD CPU/DIODE MODE
✓ 1	EXT.DIODE 2 MODE



DESIGN	WK.YEO	DATE	7/14/2010	TITLE	Nike17
CHECK	BW.YOO	DEV. STEP	Proto		THERMAL SENSOR
APPROVAL	SH.LEE	REV	REV 0.8		THERMAL SENSOR EMC2112
MODULE CODE		LAST EDIT			
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SAMSUNG
ELECTRONICS
PART NO.
BA41-####A

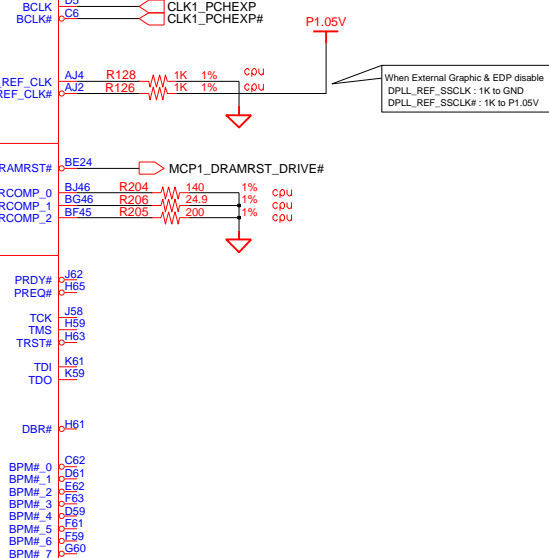
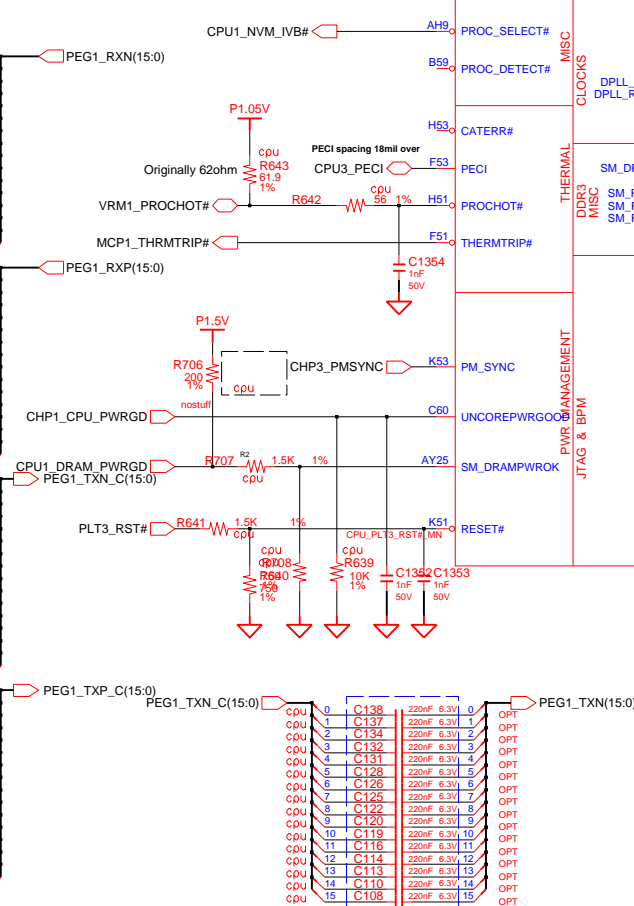
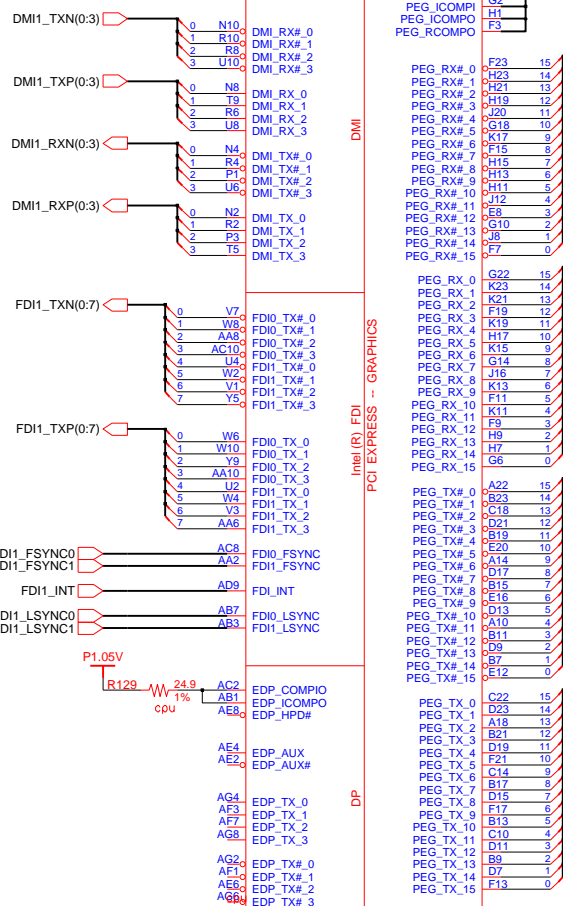
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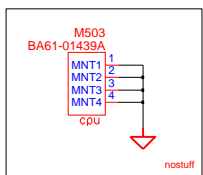
SANDYBRIDGE PROCESSOR (DMI,PEG, FDI)

CPU1-1

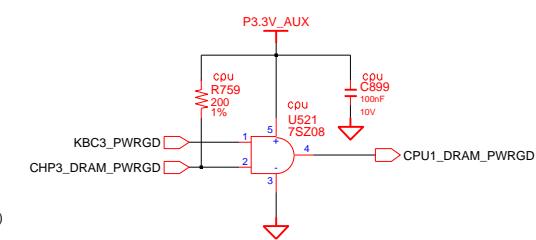
IVY_BRIDGE_VGA1224I / 5



Vinafix.com



CPU mount



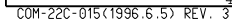
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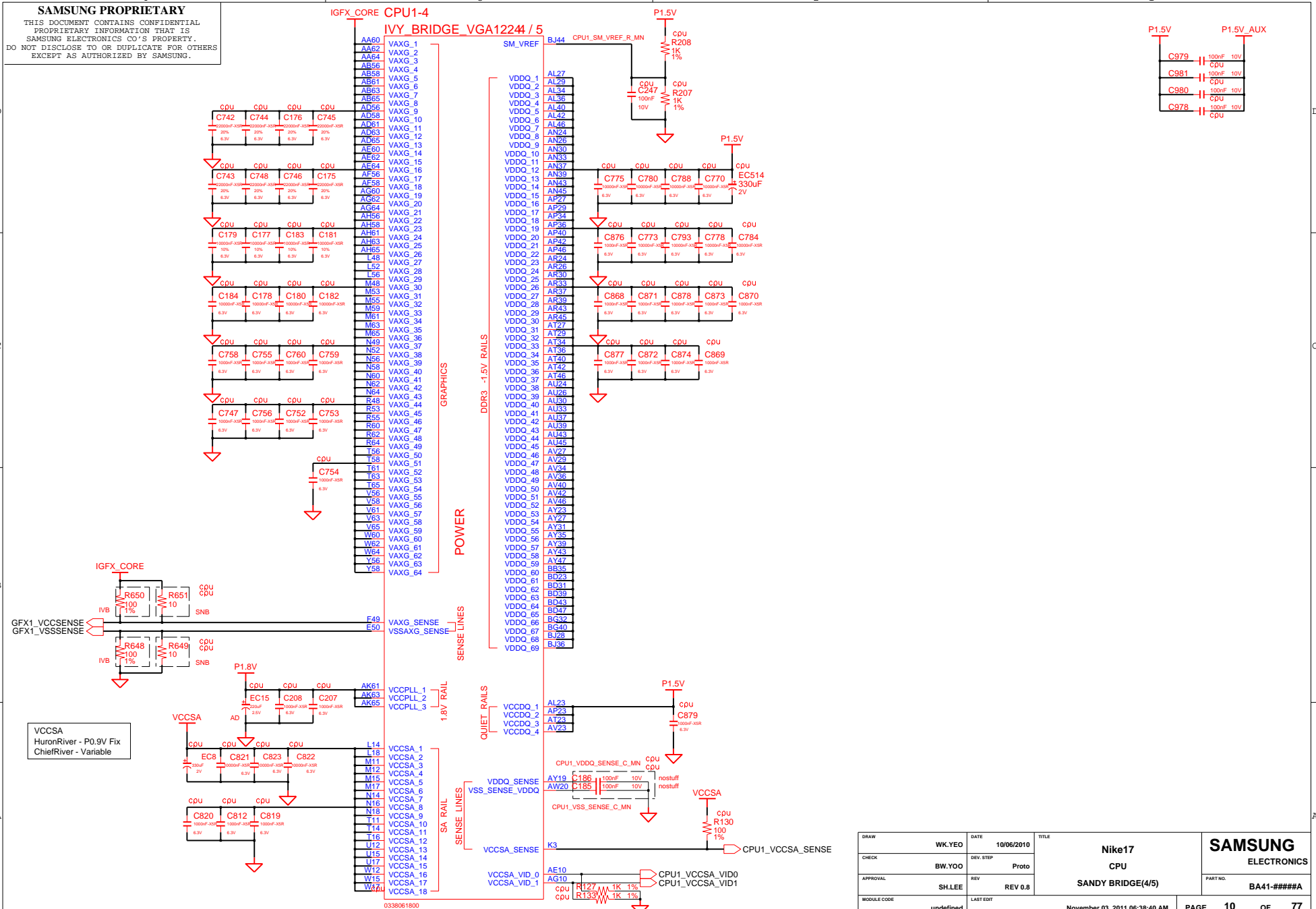
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DRAW	WK.YEO	DATE	10/02/2010	TITLE Nike17 CPU SANDY BRIDGE(2/5)	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM		
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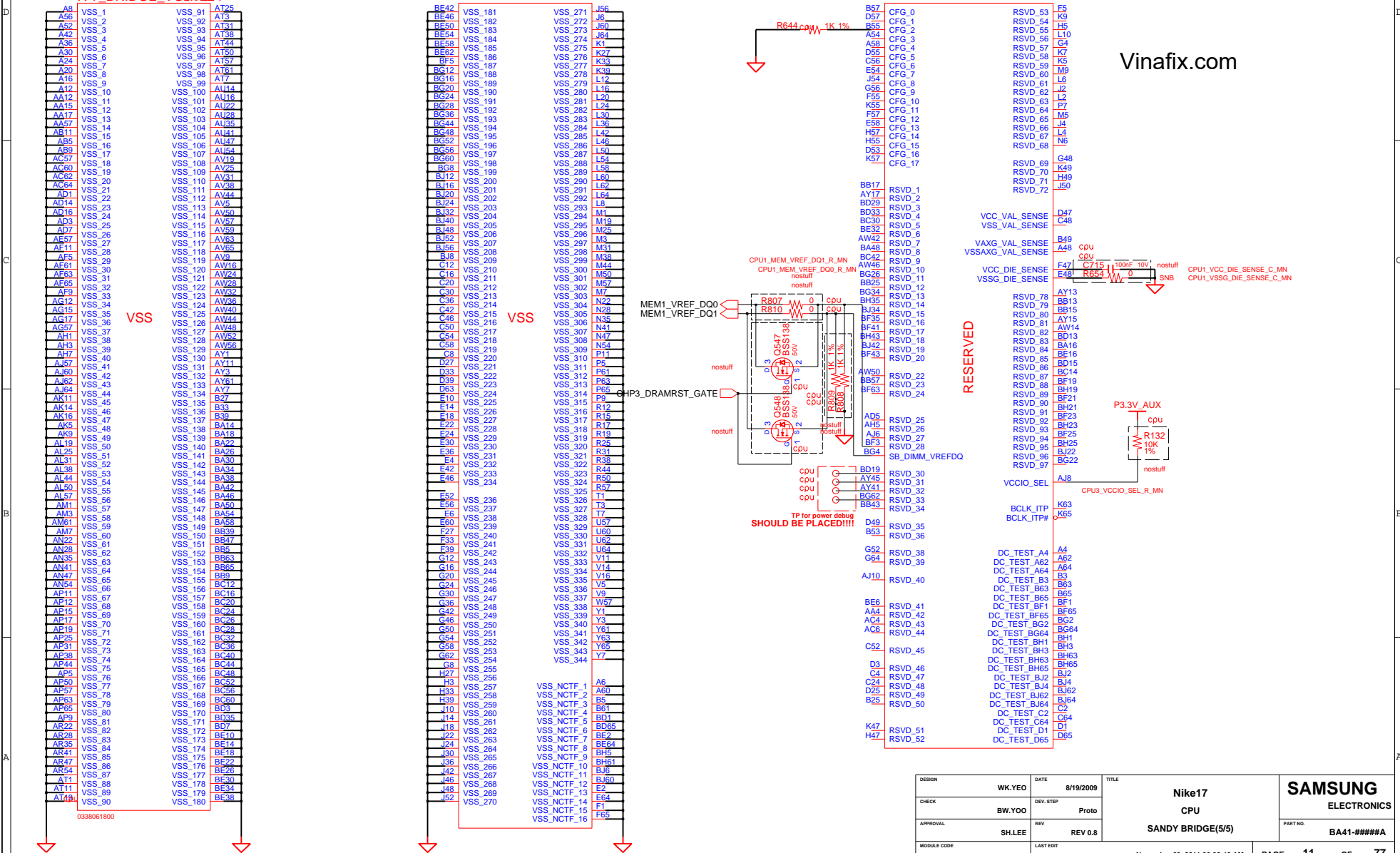


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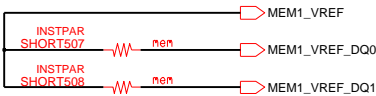
CPU1-5
IVY_BRIDGE_VG81224

PEG STATIC LANE REVERSAL - CFG2 IS FOR THE 16X

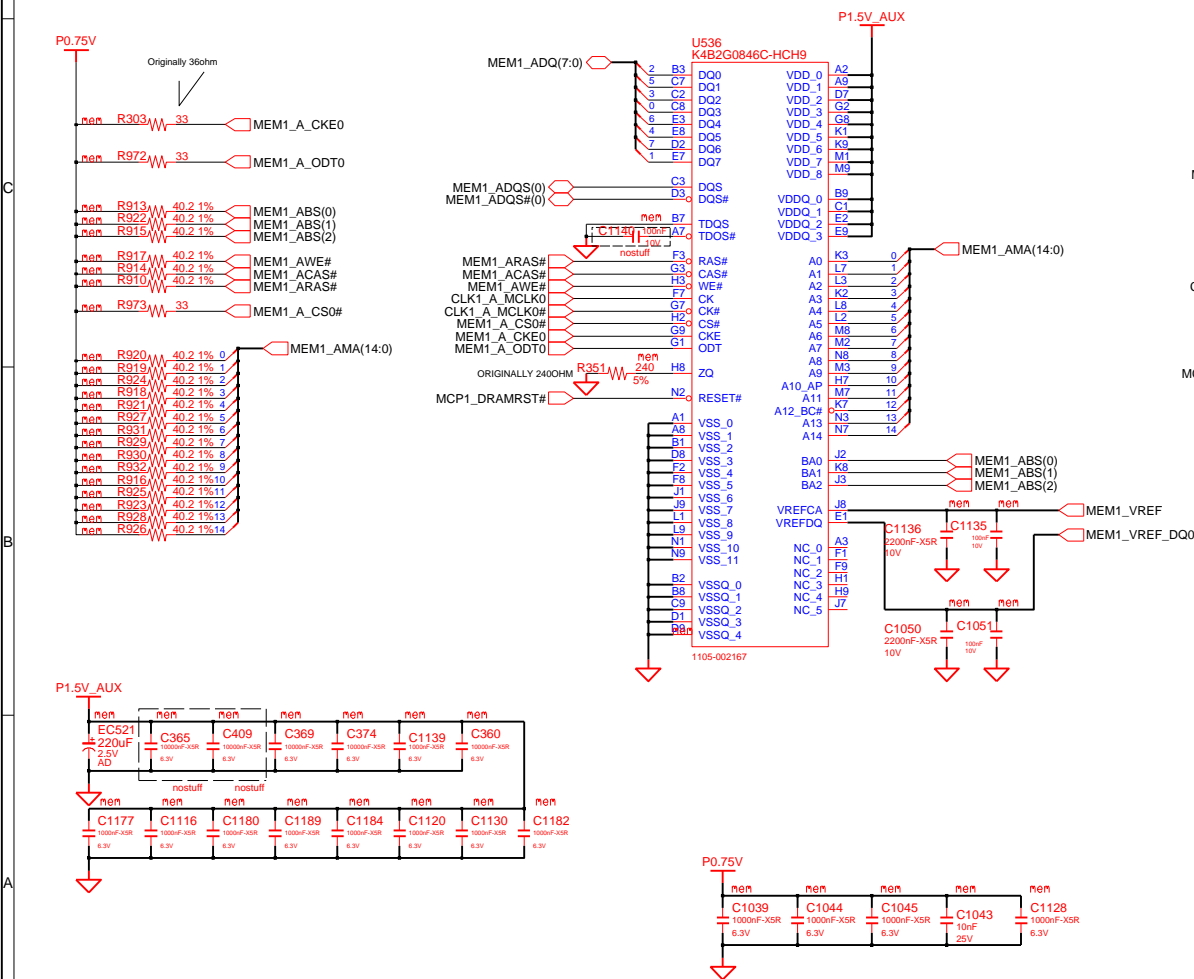
CFG2 1 : (DEFAULT) NORMAL OPERATION
0 : LANE REVERSED

Vinafix.com

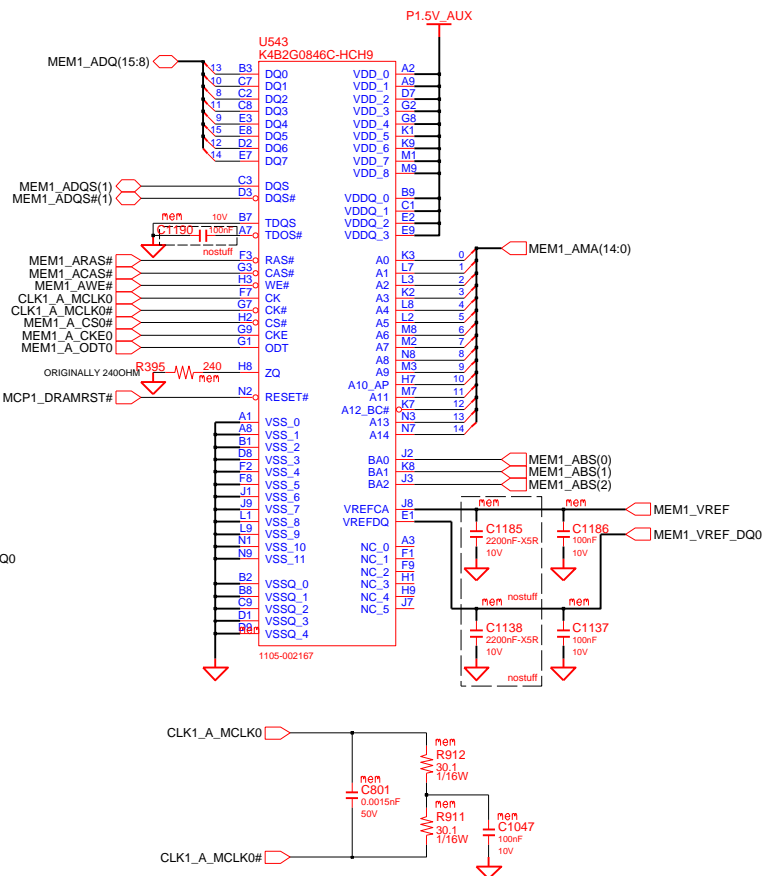
DDR3 on board #0 (1/4)



1 RANK



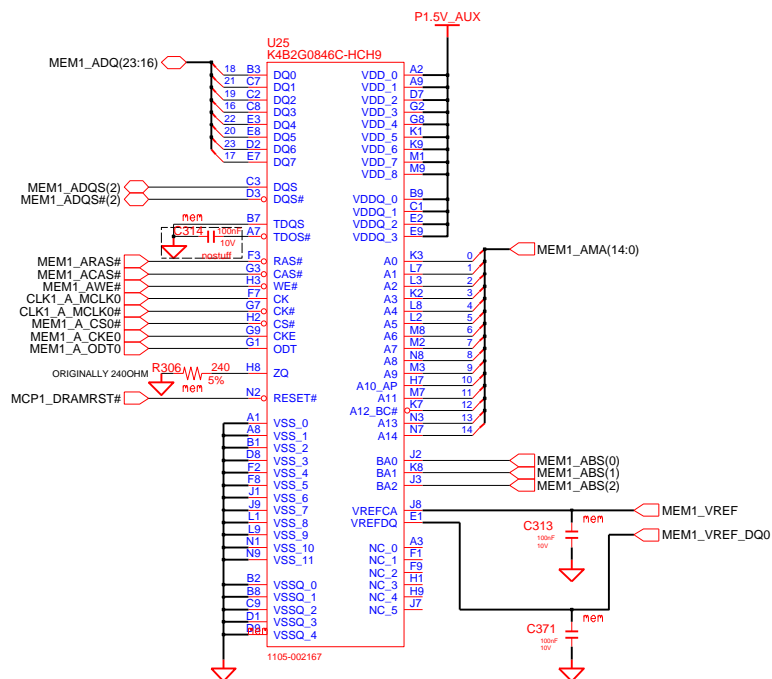
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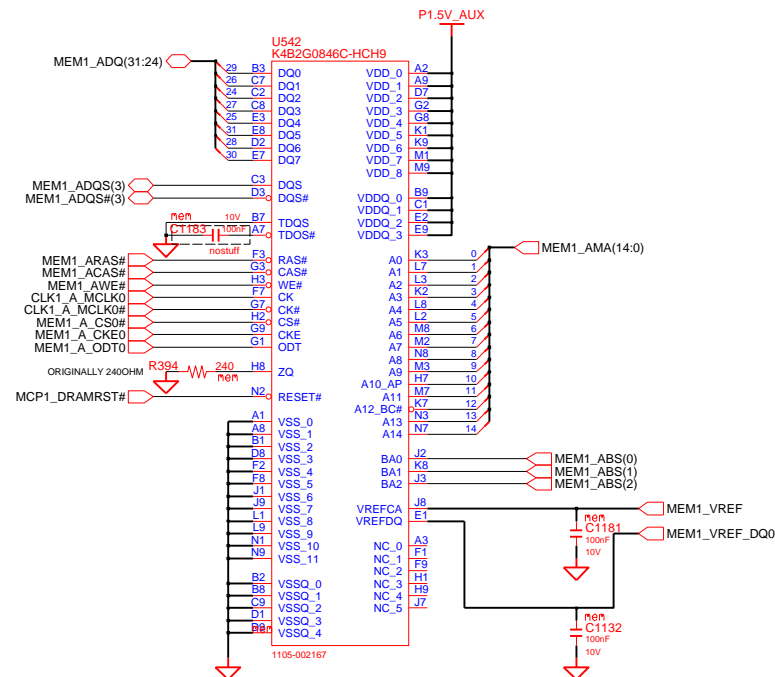
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CHECK	BW.YOO	DEV. STEP	Proto						
APPROVAL	SH.LEE	REV	REV 0.8						
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM		PAGE	12	OF	77

DDR3 on board #0 (2/4)

1 RANK



1 RANK

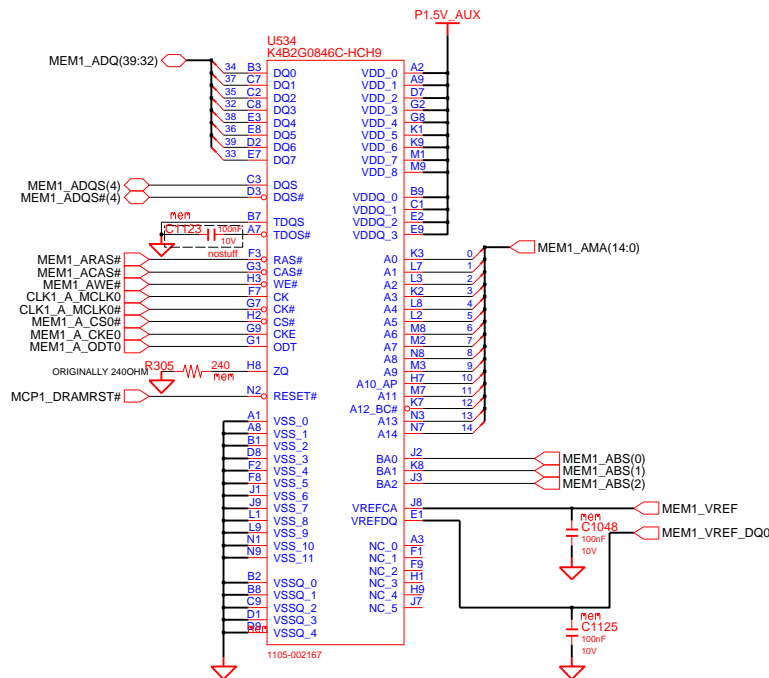


Vinafix.com

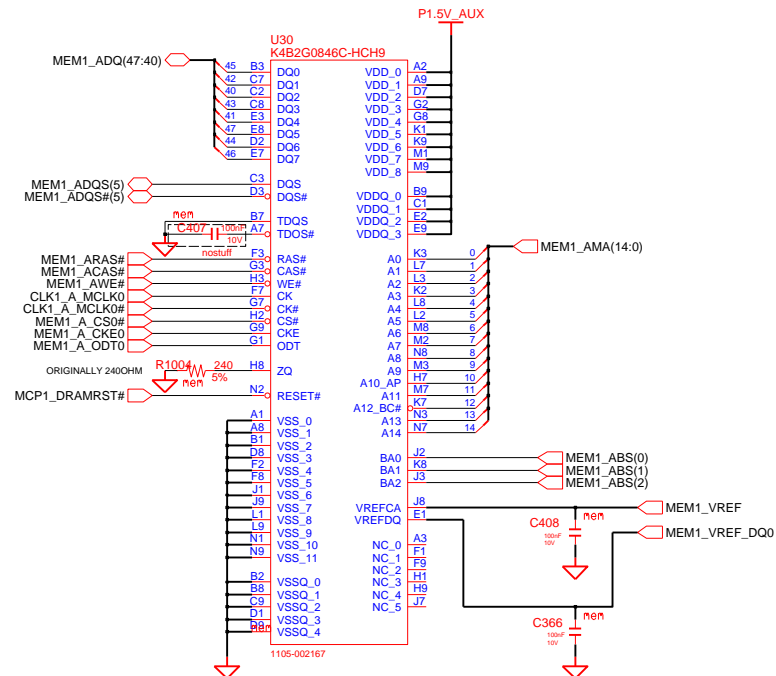
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MODULE CODE	undefined	LAST ENT	November 03, 2011 06:38:40 AM	PAGE	13	OF 77

DDR3 on board #0 (3/4)

1 RANK



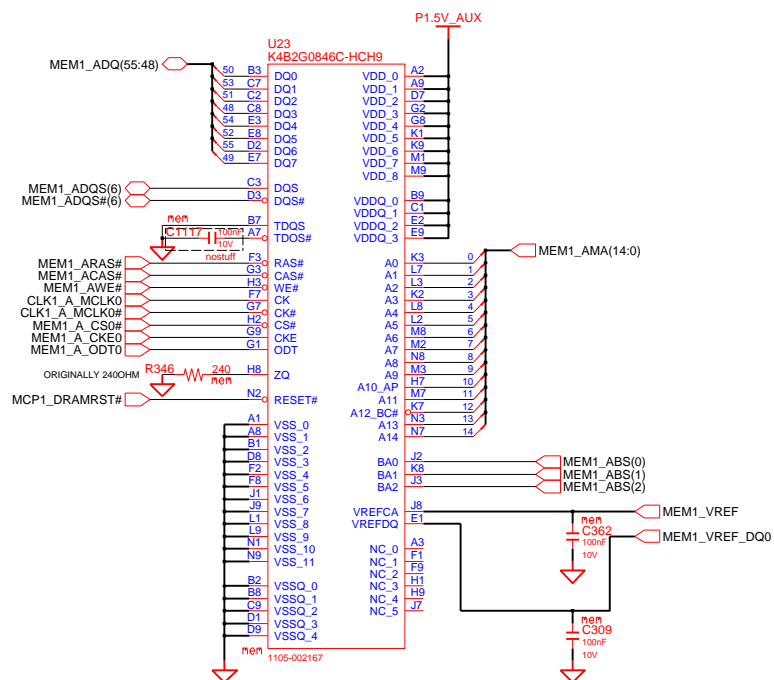
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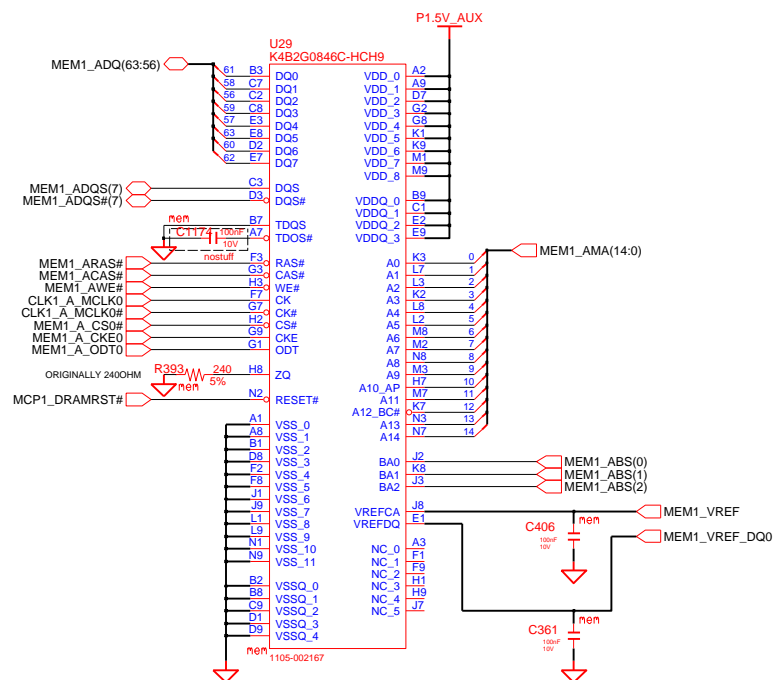
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DDR3 on board #0 (4/4)

1 RANK



1 RANK



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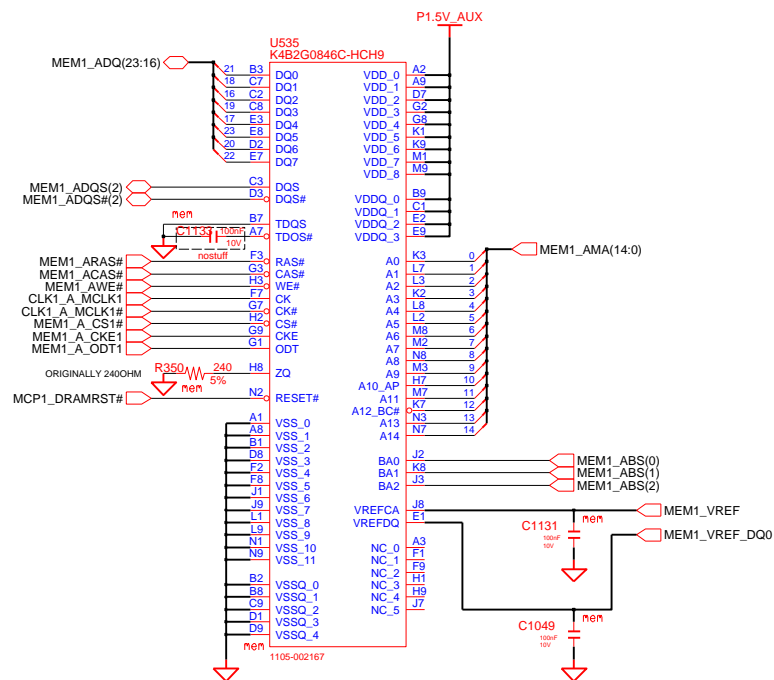
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2 RANK

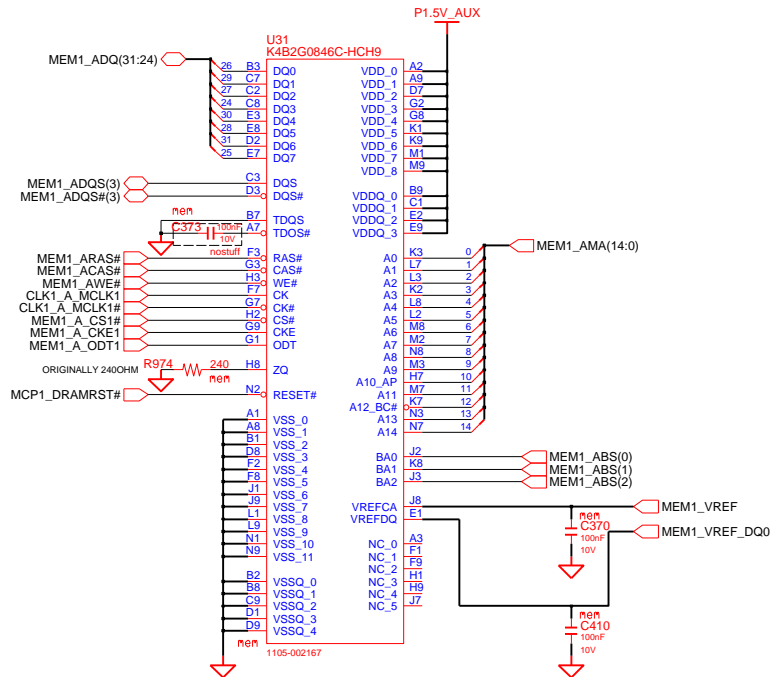


DDR3 on board #0 (2/4)

2 RANK



2 RANK

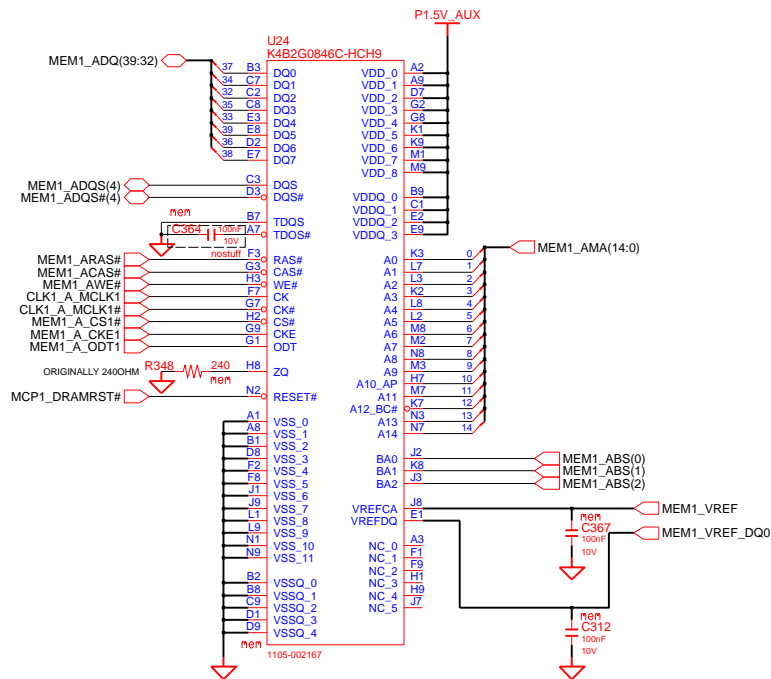


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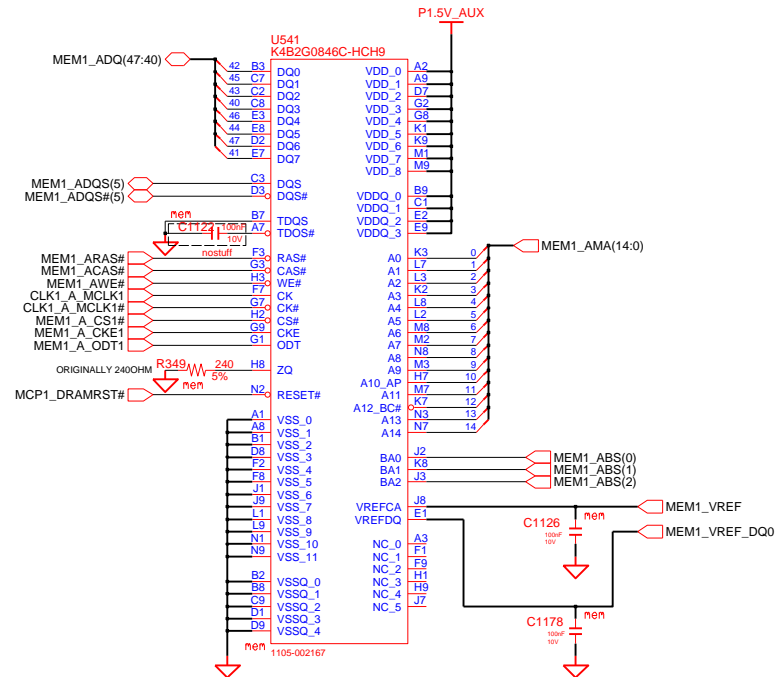
DDR3 on board #0 (3/4)

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2 RANK



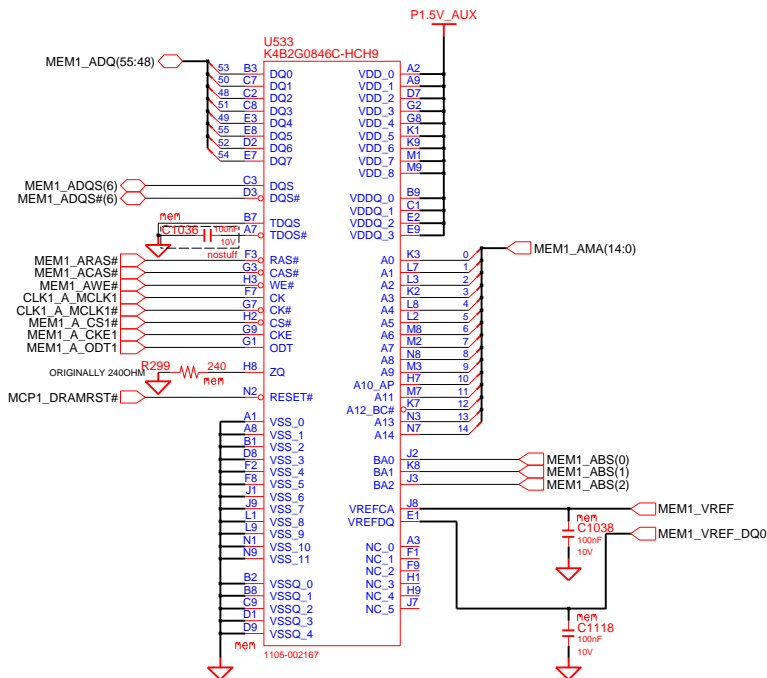
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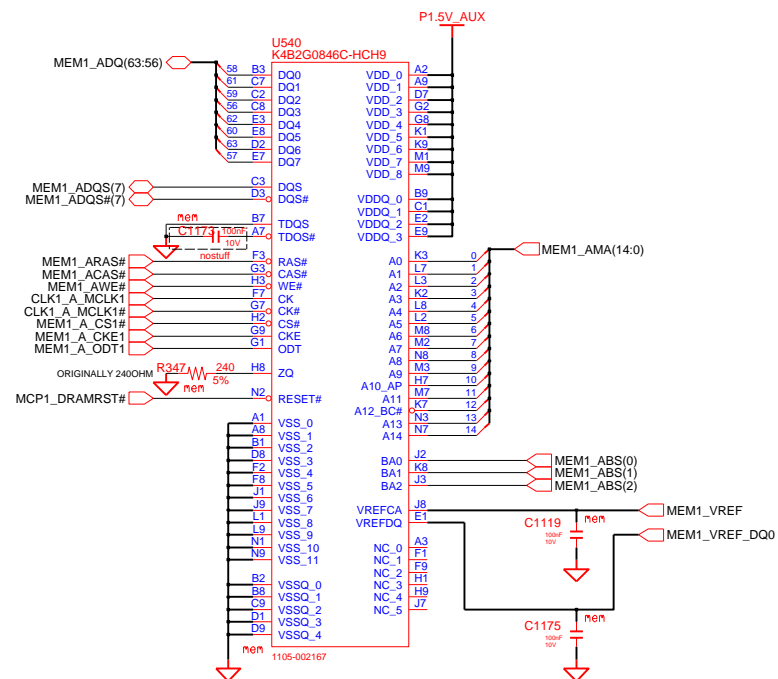
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APPROVAL	SH.LEE	REV	REV 0.8		DDR3 2Gb #0	
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DDR3 on board #0 (4/4)

2 RANK

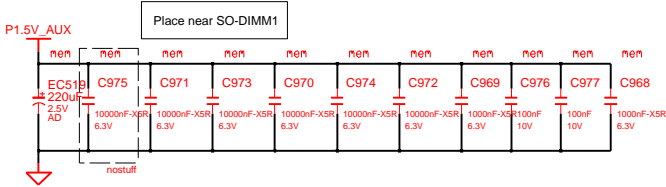


2 RANK



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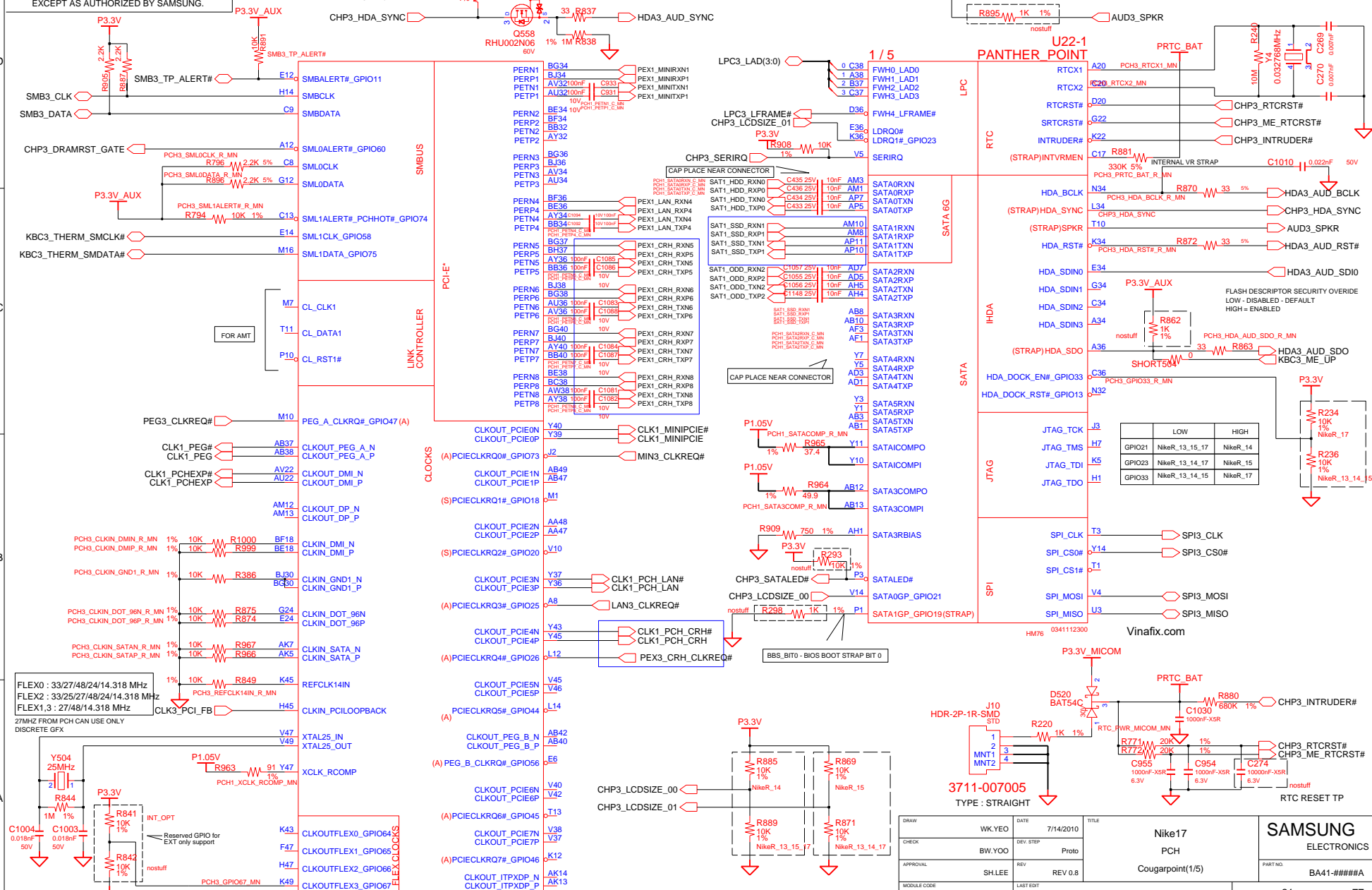
DDR3 SO-DIMM #1

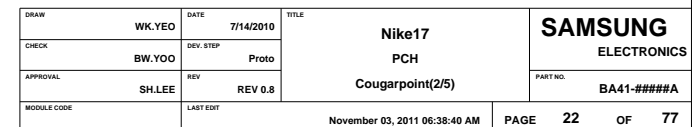


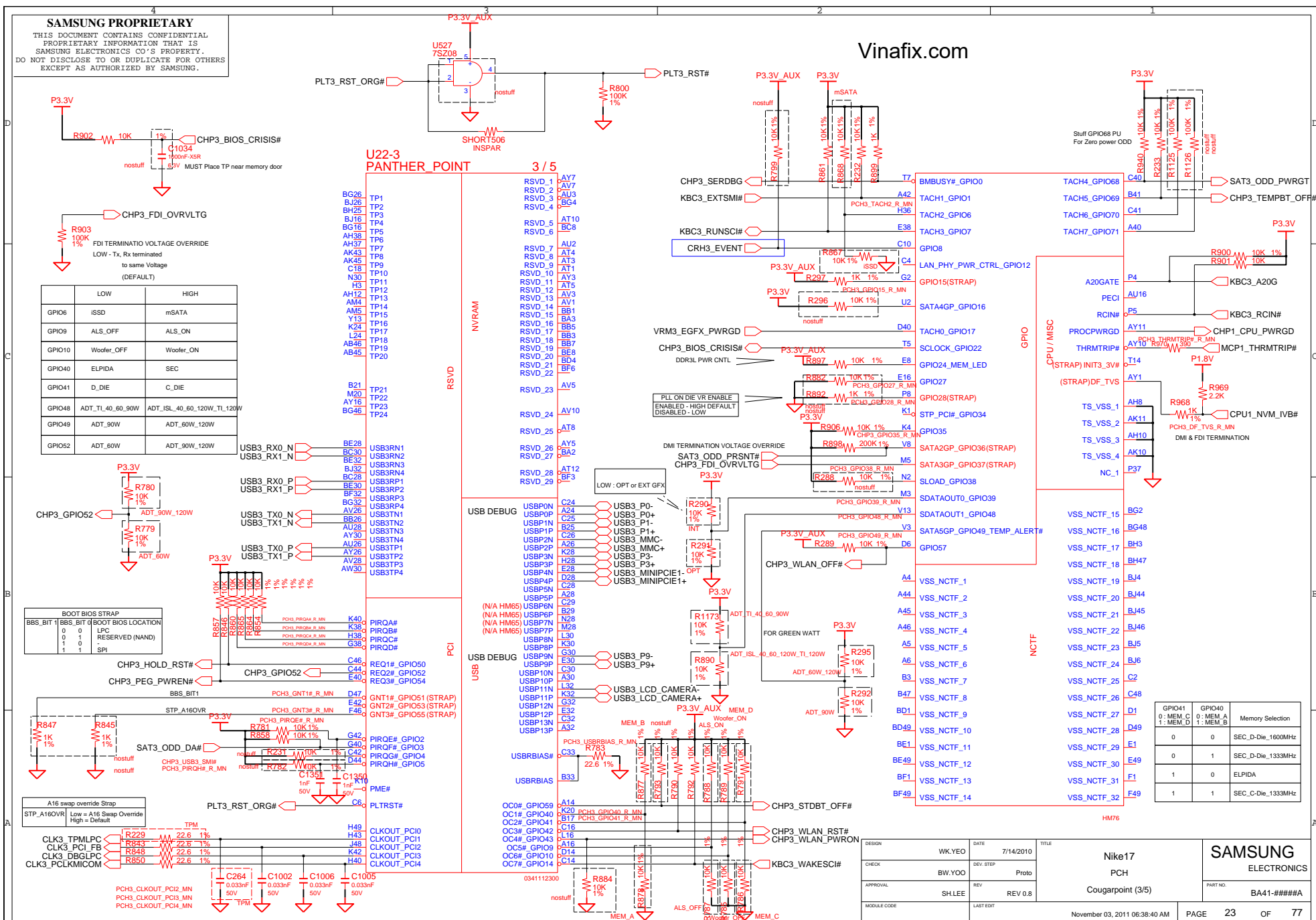
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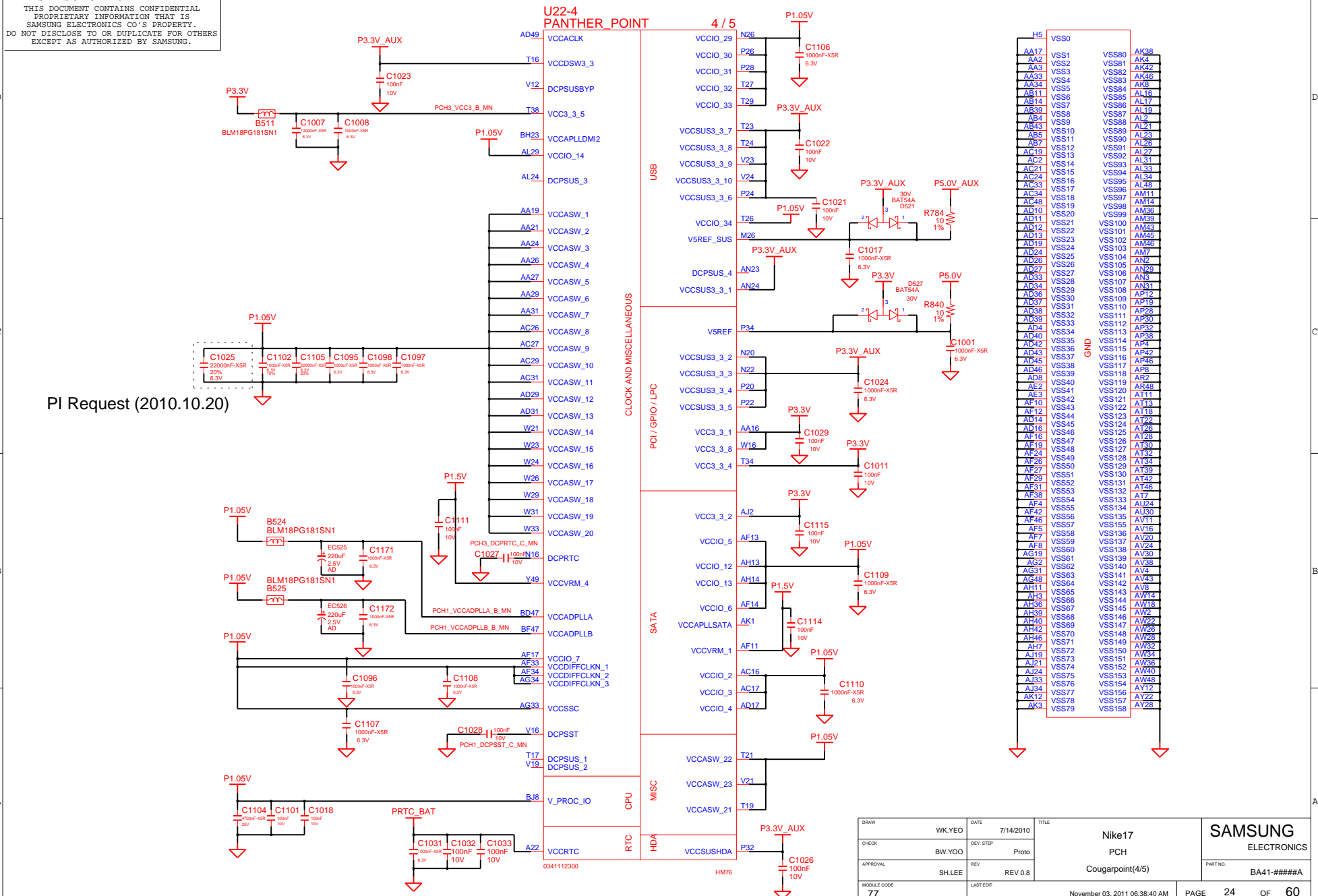
NO REBOOT STRAP







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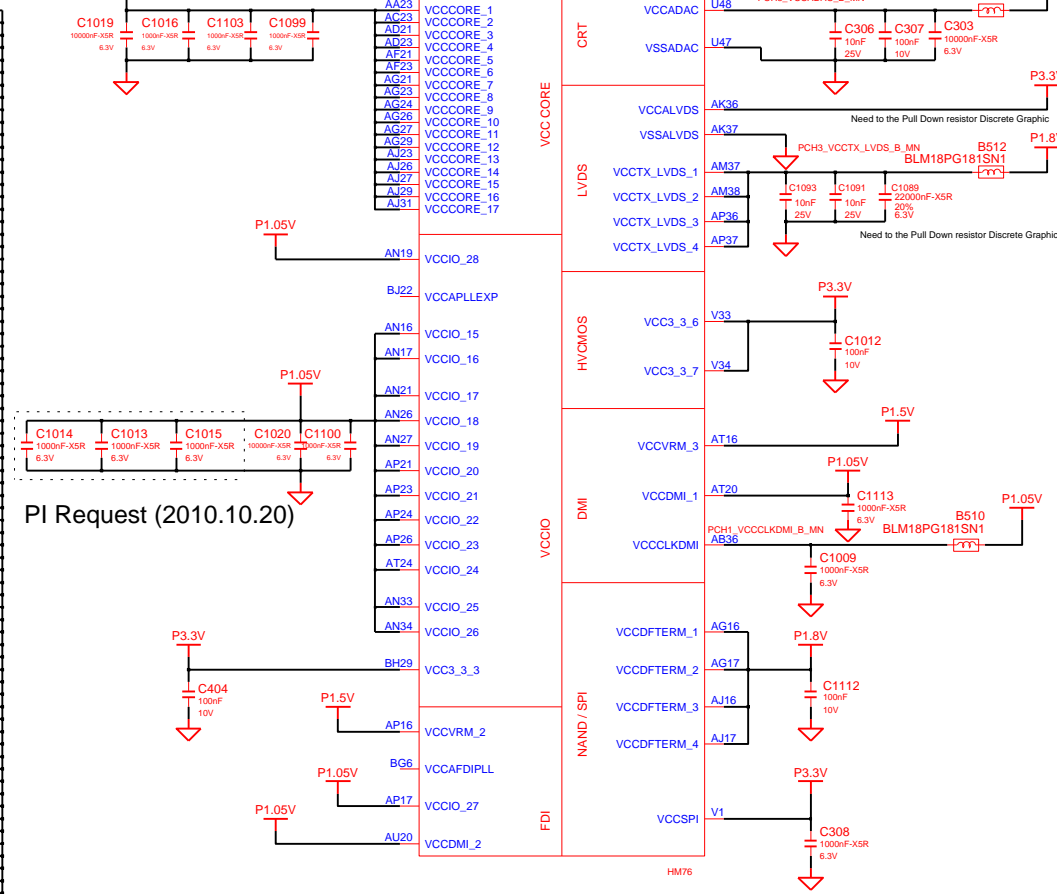
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**U22-5
PANTHER POINT**

This power share with thermal sensor

5 / 5

AY4	VSS159	VSS259	H46
AY2	VSS160	VSS260	K26
AY5	VSS161	VSS261	K39
AY8	VSS162	VSS262	K46
B11	VSS163	VSS263	K7
B15	VSS164	VSS264	L2
B19	VSS165	VSS265	L2
B23	VSS166	VSS266	L20
B27	VSS167	VSS267	L26
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L48
B7	VSS171	VSS271	L48
F45	VSS172	VSS272	M12
BB12	VSS173	VSS273	P16
BB16	VSS174	VSS274	M18
BB20	VSS175	VSS275	M24
BB22	VSS176	VSS276	M24
BB24	VSS177	VSS277	M30
BB28	VSS178	VSS278	M32
BB30	VSS179	VSS279	M34
BB38	VSS180	VSS280	M4
BB4	VSS181	VSS281	M4
BB46	VSS182	VSS282	M42
BB14	VSS183	VSS283	M46
BB18	VSS184	VSS284	M18
BC2	VSS185	VSS285	P30
BC22	VSS186	VSS286	P11
BC26	VSS187	VSS287	P18
BC32	VSS188	VSS288	P18
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC40	VSS191	VSS291	P47
BC42	VSS192	VSS292	P47
BC48	VSS193	VSS293	P7
BD46	VSS194	VSS294	R2
BD5	VSS195	VSS295	R48
BE22	VSS196	VSS296	T17
BE26	VSS197	VSS297	T31
BE40	VSS198	VSS298	T37
BF10	VSS199	VSS299	T4
BF12	VSS200	VSS300	W34
BF16	VSS201	VSS301	T46
BF20	VSS202	VSS302	T47
BF22	VSS203	VSS303	T8
BF24	VSS204	VSS304	V17
BF26	VSS205	VSS305	V26
BF28	VSS206	VSS306	V27
BF30	VSS207	VSS307	V29
BF38	VSS208	VSS308	V36
BF40	VSS209	VSS309	V36
BF8	VSS210	VSS310	V39
BG17	VSS211	VSS311	V43
BG21	VSS212	VSS312	V7
BG33	VSS213	VSS313	W19
BG44	VSS214	VSS314	W2
C38	VSS215	VSS315	W27
BH11	VSS216	VSS316	W48
BH15	VSS217	VSS317	Y12
BH17	VSS218	VSS318	Y12
BH19	VSS219	VSS319	Y4
H10	VSS220	VSS320	Y42
BH27	VSS221	VSS321	Y46
BH31	VSS222	VSS322	Y6
BH33	VSS223	VSS323	BG29
BH35	VSS224	VSS324	N24
BH39	VSS225	VSS325	AJ3
BH43	VSS226	VSS326	AD47
BH7	VSS227	VSS327	B43
D3	VSS228	VSS328	BE10
D12	VSS229	VSS329	BG41
D16	VSS230	VSS330	G14
D18	VSS231	VSS331	H16
D24	VSS232	VSS332	T36
D26	VSS233	VSS333	BG22
D28	VSS234	VSS334	BG24
D30	VSS235	VSS335	C22
D32	VSS236	VSS336	AP13
D34	VSS237	VSS337	M14
D38	VSS238	VSS338	AP3
D42	VSS239	VSS339	AP1
D8	VSS240	VSS340	BE16
E18	VSS241	VSS341	BC16
E26	VSS242	VSS342	BG28
F18	VSS243	VSS343	B428
G20	VSS244	VSS344	
G26	VSS245	VSS345	
G28	VSS246	VSS346	
G36	VSS247	VSS347	
G48	VSS248	VSS348	
H12	VSS249	VSS349	
H18	VSS250	VSS350	
H22	VSS251	VSS351	
H24	VSS252	VSS352	
H26	VSS253		
H30	VSS254		
H32	VSS255		
H34	VSS256		
H36	VSS257		
H38	VSS258		



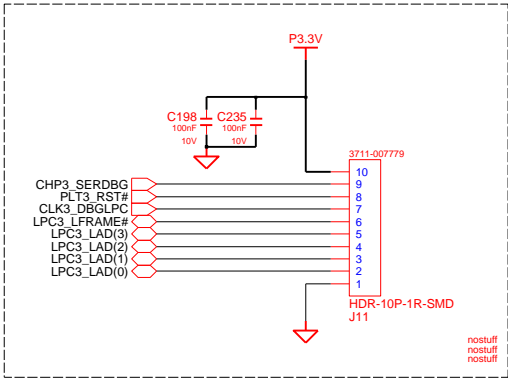
Vinafix.com

DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17
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APPROVAL	SH.LEE	REV	REV 0.8		Cougarpoint(5/5)
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	25 OF 77

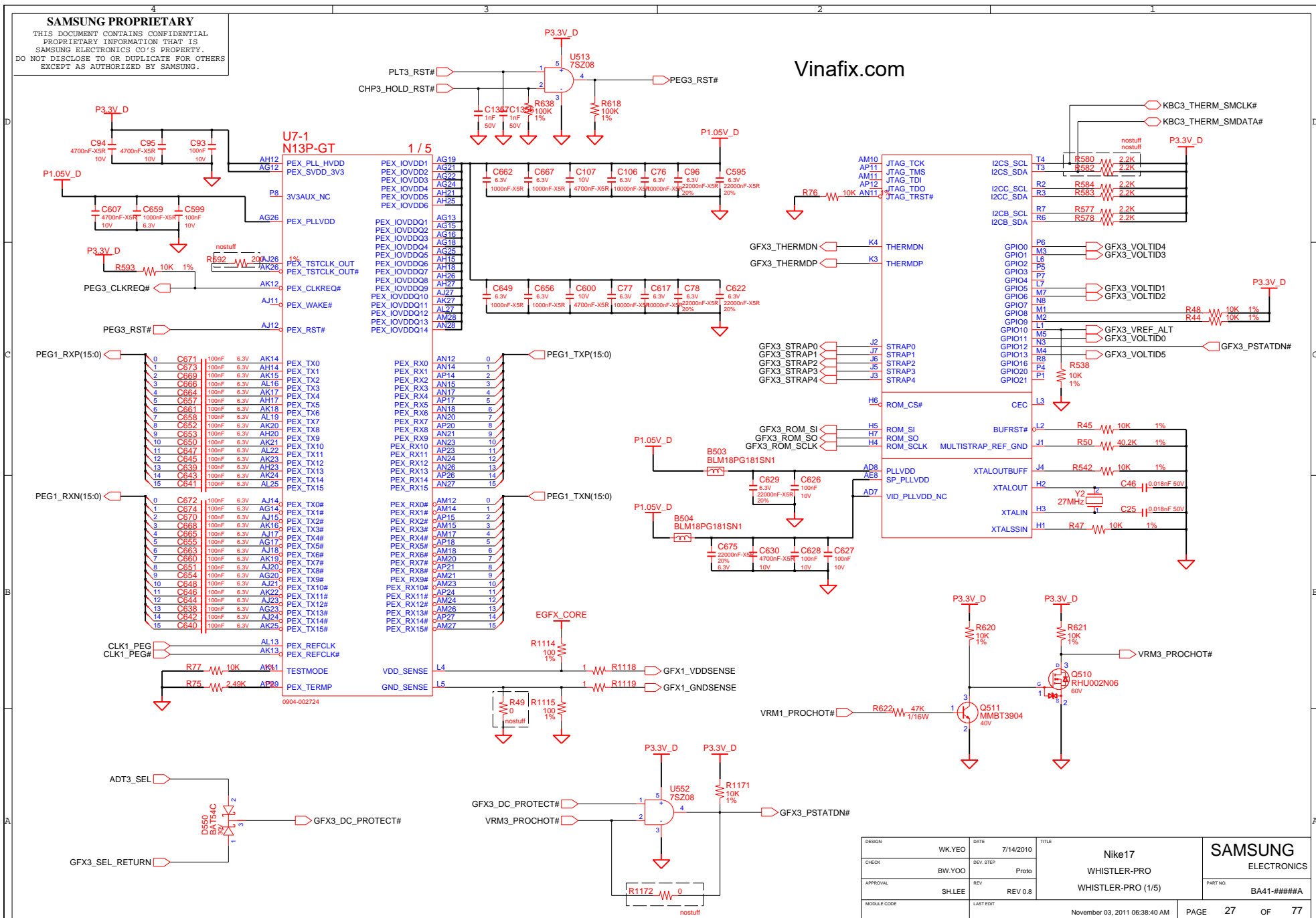
SAMSUNG ELECTRONICS
PART NO. BA41-####A

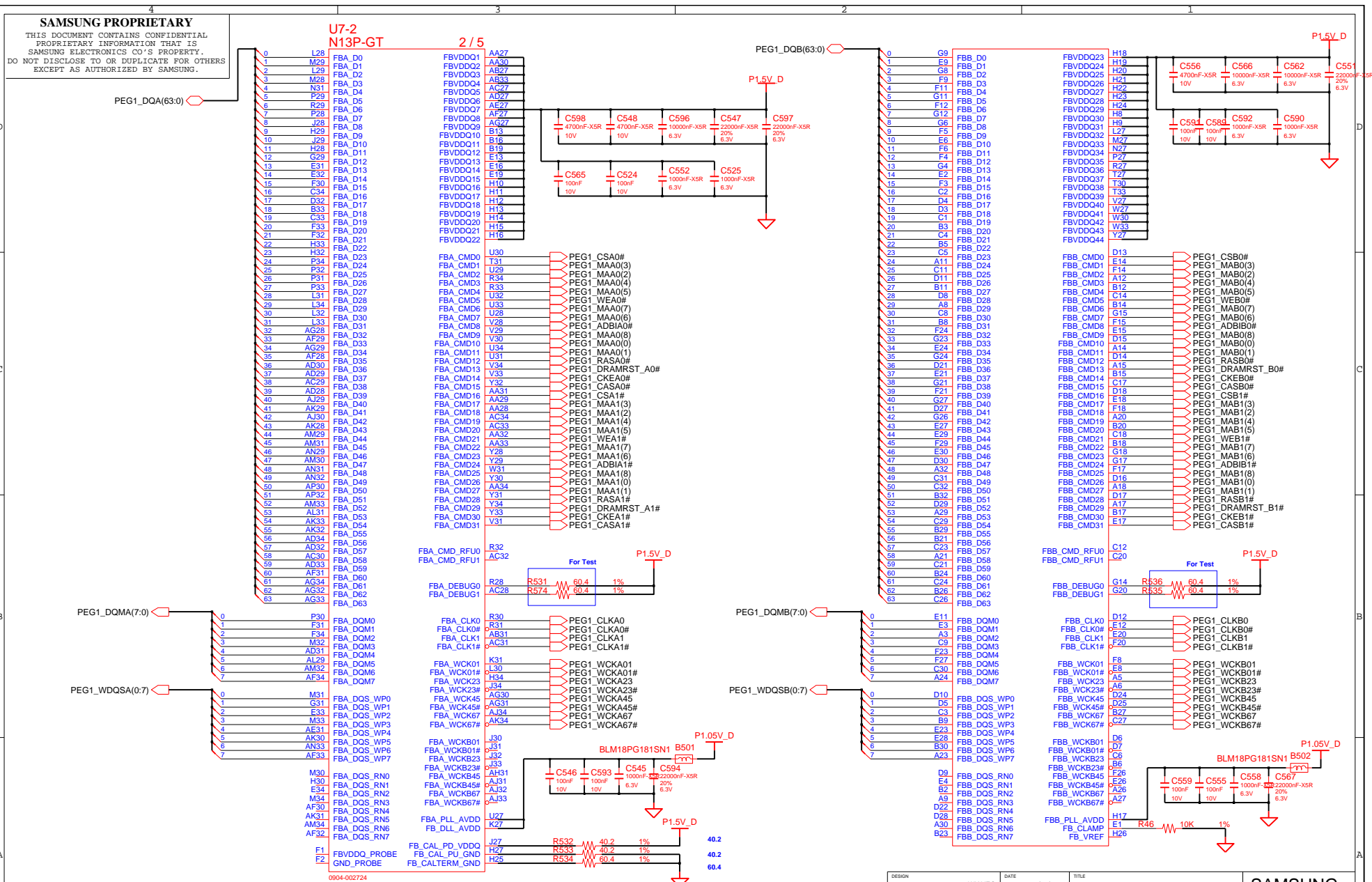
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80H PORT DEBUG



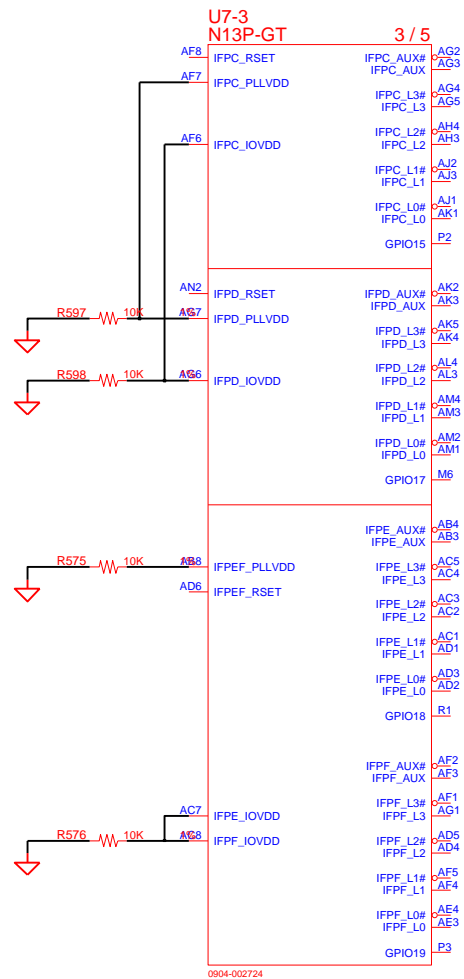
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APPROVAL	SH.LEE	REV	REV 0.8	SPI ROM & 80H DECODER	PART NO.	BA41-####A
MODULE CODE	LAST EDIT				November 03, 2011 06:38:40 AM	PAGE 26 OF 77





DESIGN	WK.YEO	DATE	7/14/2010	Nike17 WHISTLER-PRO WHISTLER-PRO (2/5)	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
MODULE CODE	LAST EDIT				
November 03, 2011 06:38:40 AM				PAGE	28 OF 77

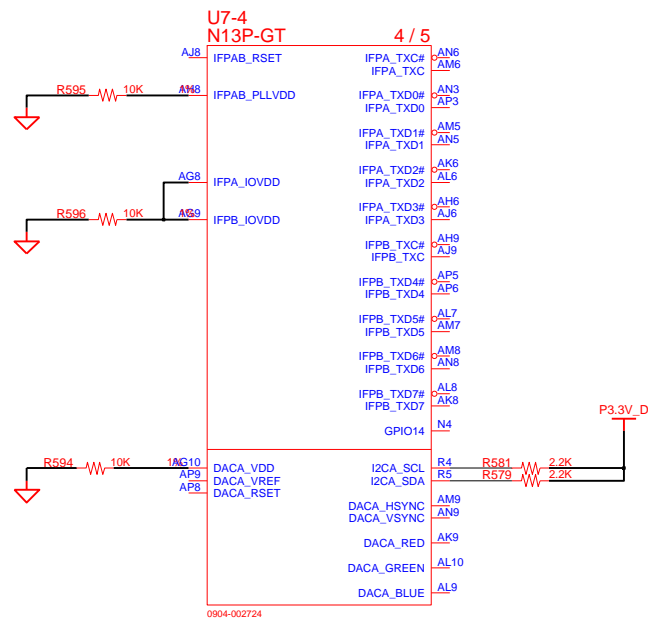
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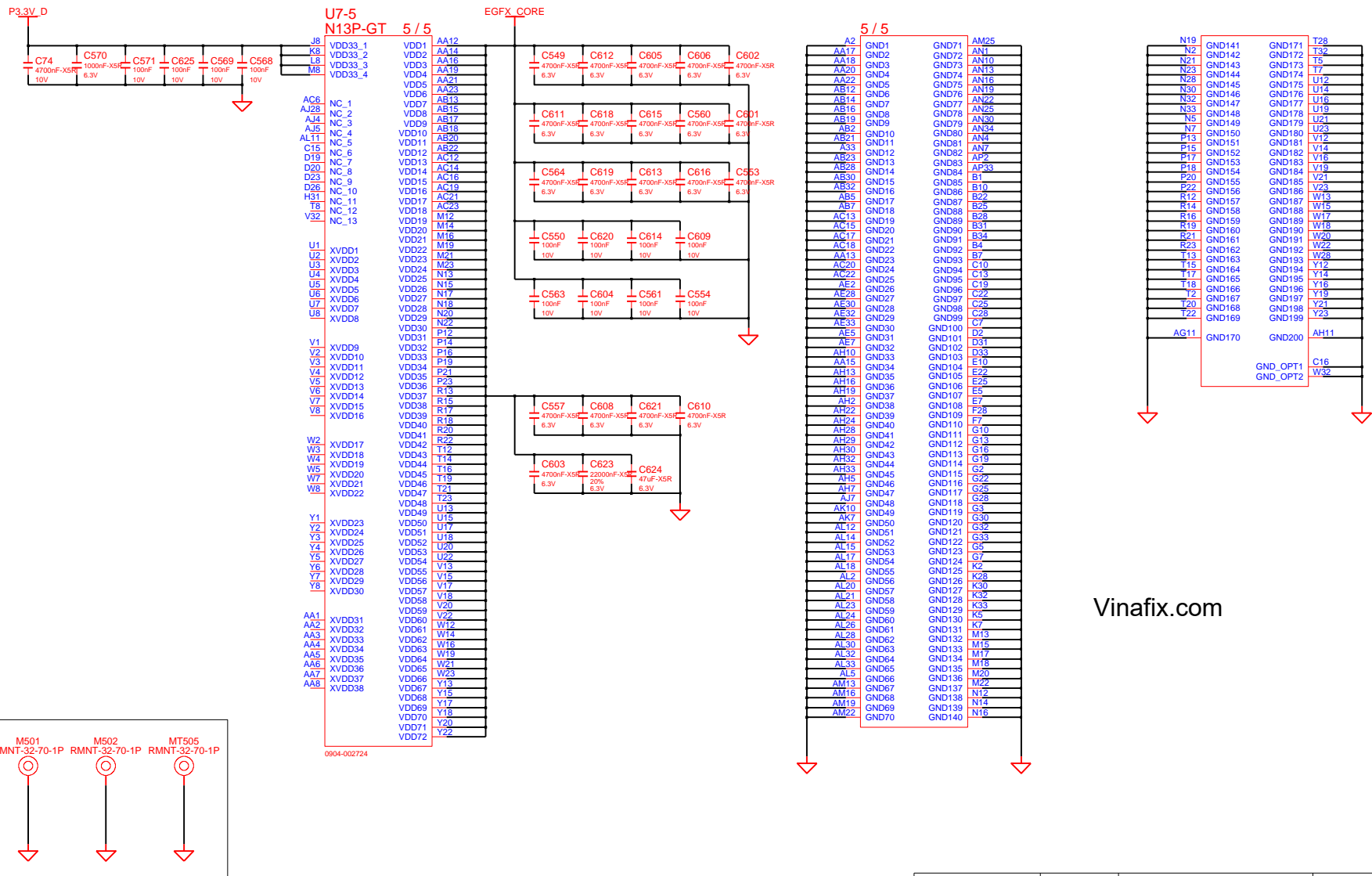
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CHECK	BW.YOO	DEV. STEP	Proto	WHISTLER-PRO	WHISTLER-PRO (3/5)	ELECTRONICS
APPROVAL	SH.LEE	REV	REV 0.8			PART NO. BA41-####A
MODULE CODE		LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	29	OF 77

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DESIGN	WK.YEO	DATE	7/14/2010	TITLE Nike17 WHISTLER-PRO WHISTLER-PRO (4/5)	SAMSUNG ELECTRONICS		
CHECK	BW.YOO	REV. STEP	Proto				
APPROVAL	SH.LEE	REV	REV 0.8		PART NO. BA41-####A		
MODULE CODE		LAST EDIT			November 03, 2011 06:38:40 AM		
				PAGE	30	OF	77

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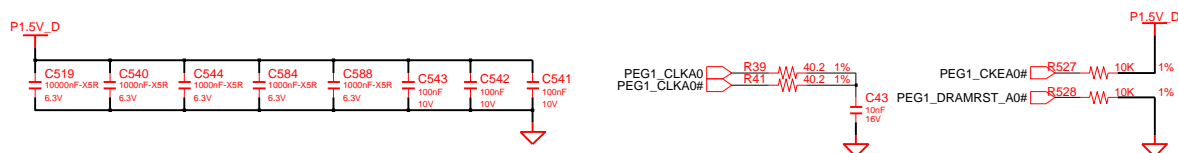
INT GFX and OPT GFX model need.

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CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
MODULE CODE				LAST EDIT November 03, 2011 06:38:40 AM	PART NO. BA41-####A
				PAGE 31	OF 77

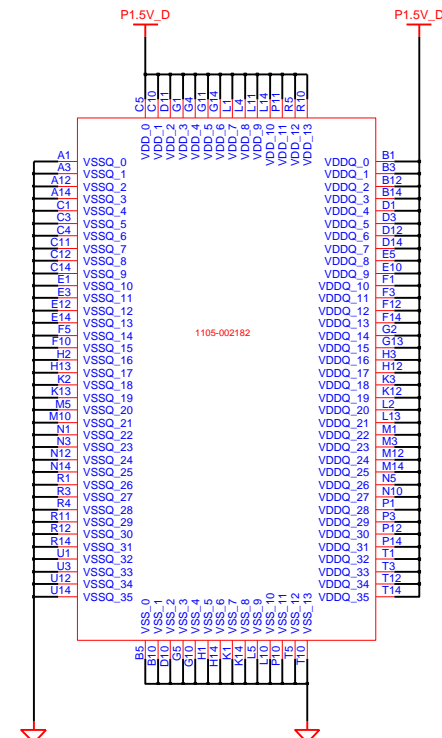
CON-22C-015(1996.6.5) REV. 3

D:/users/mobile/mentor/01_Nike17/1102_00/Nike-17_MAIN

Vinafix.com



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APPROVAL	SH.LEE	REV	REV 0.8		
PART NO. BA41-#####					
MODULE CODE	LAST EDIT			November 03, 2011 06:38:40 AM	PAGE 33 OF 77

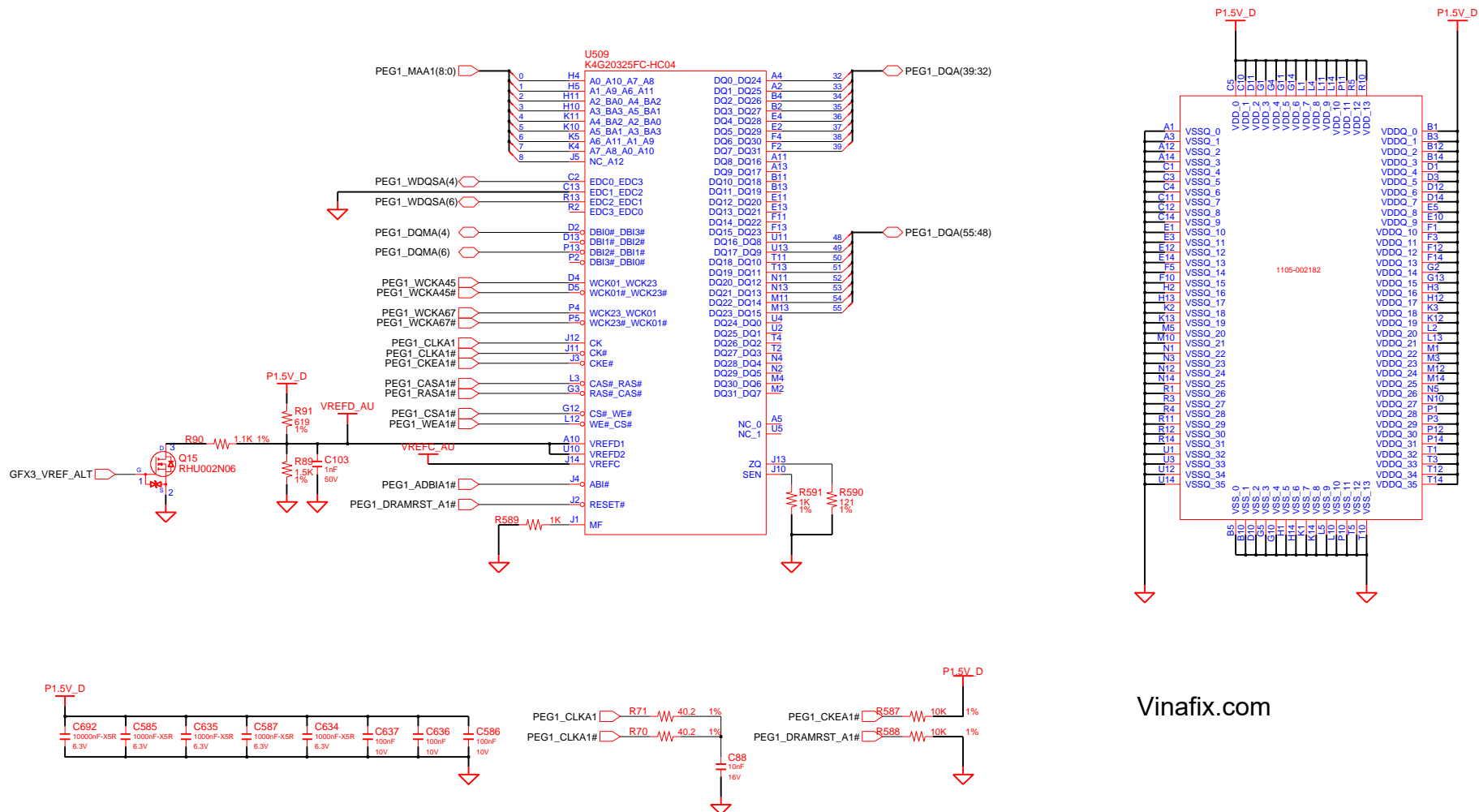
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CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
PART NO.					
MODULE CODE	LAST EDIT			November 03, 2011 06:38:40 AM	PAGE 34 OF 77

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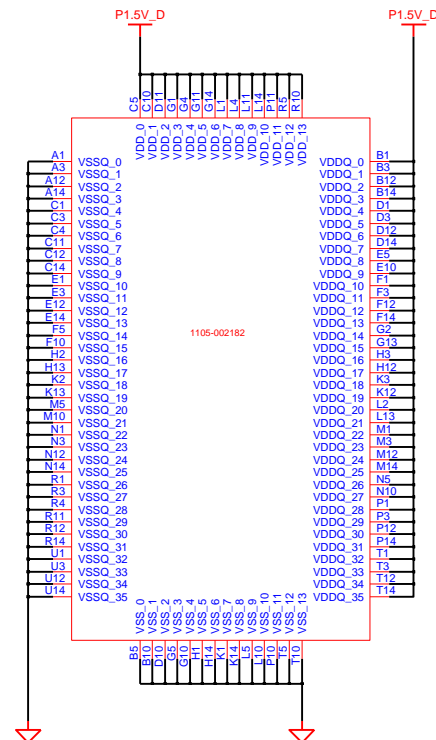
A-channel Upper Data MF=0





Vinafix.com

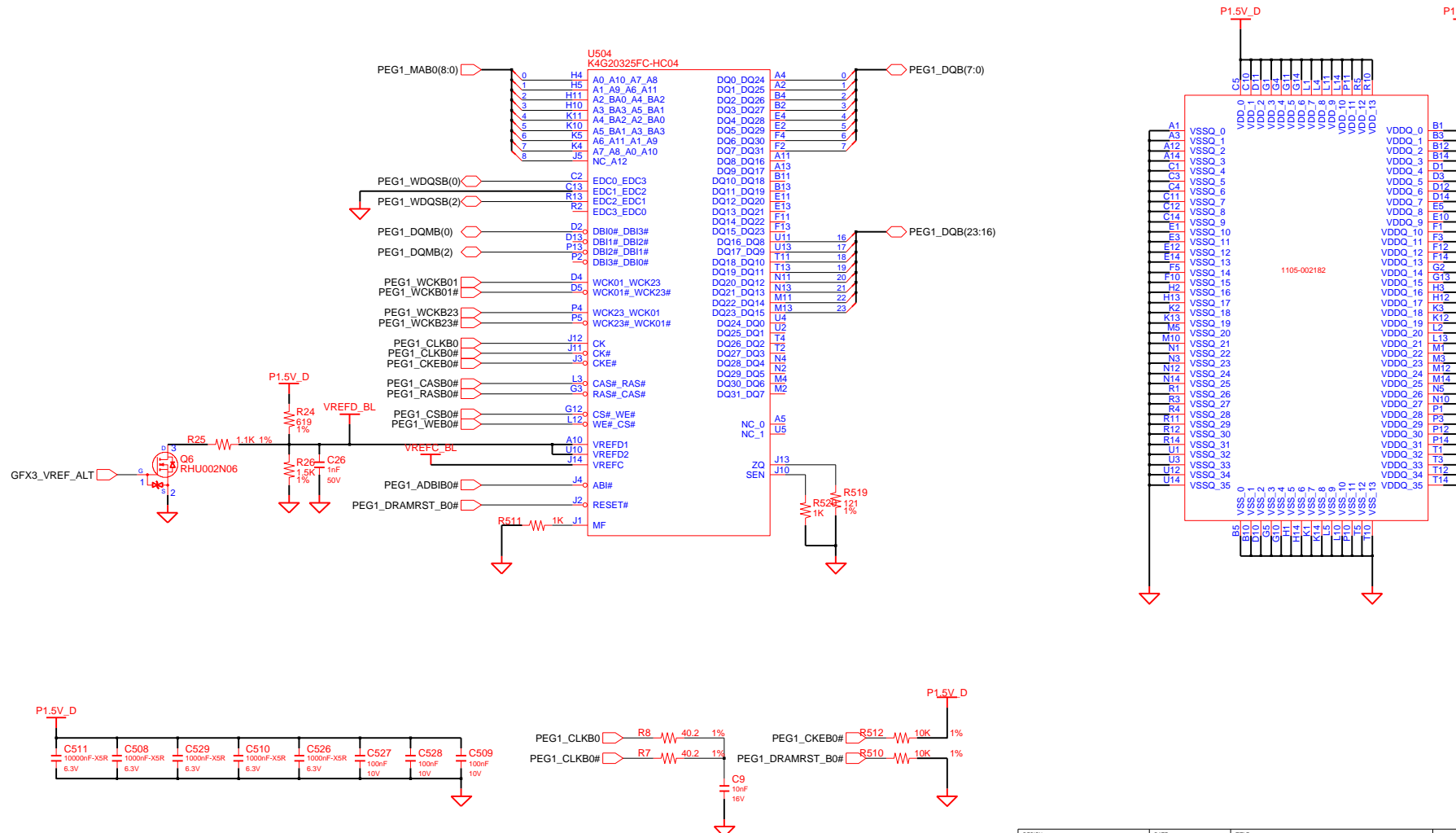
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MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	35	OF 77

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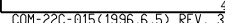
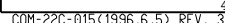
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APPROVAL	SH.LEE	REV	REV 0.8		PART NO.	BA41-####A				
MODULE CODE	undefined		LAST EDIT		November 03, 2011 06:38:40 AM		PAGE	36	OF	77

B-channel Lower Data
MF=0



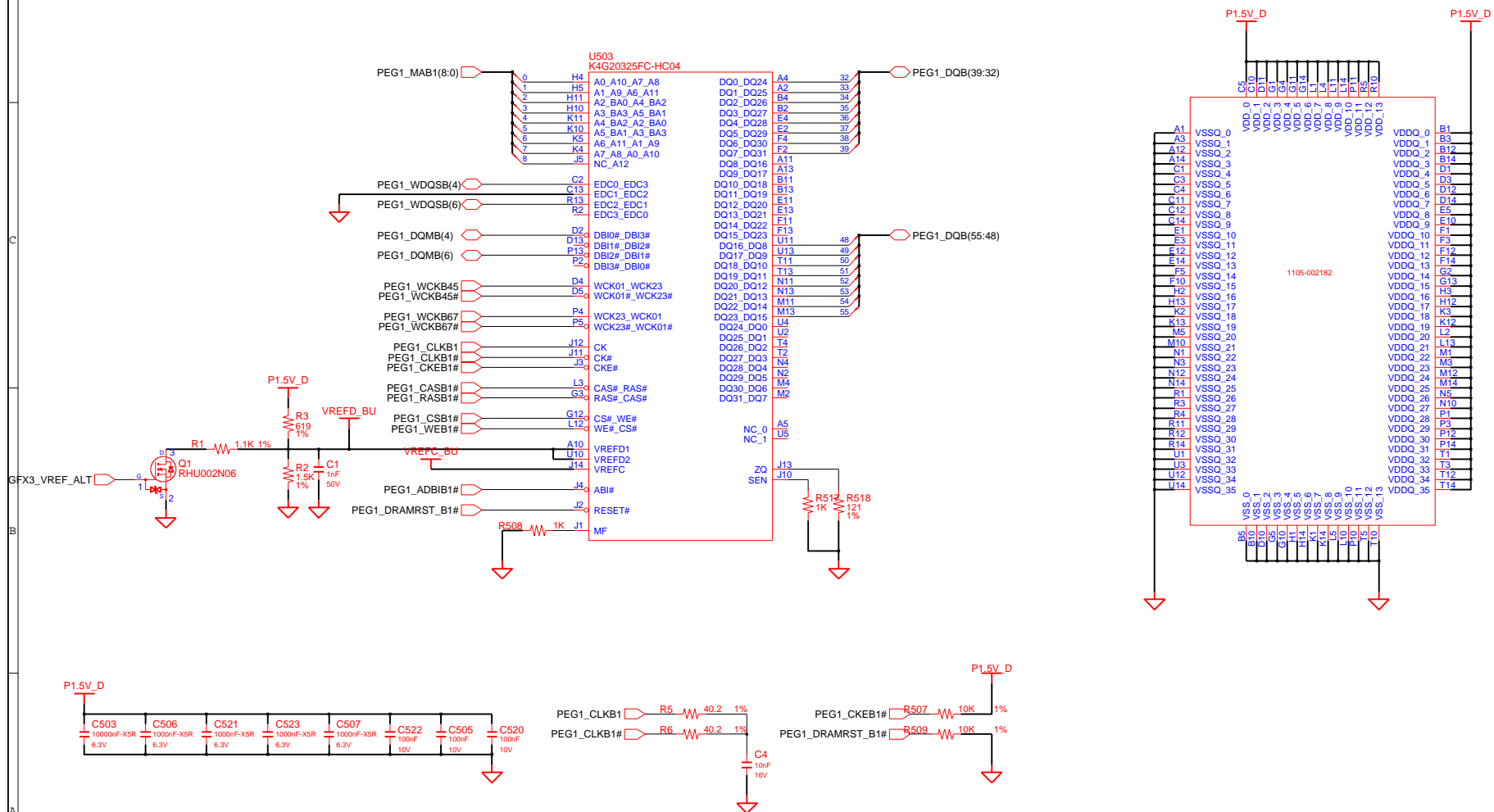
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CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
MODULE CODE		undefined	LAST EDIT		November 03, 2011 06:38:40 AM
					PAGE 37 OF 77



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B-channel Upper Data
MF=0



DESIGN	WK.YEO	DATE	3/9/2010	TITLE Nike17 GRAPHIC_MEM B#1	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
PART NO.					
MODULE CODE	undefined	LAST EDIT November 03, 2011 06:38:40 AM			PAGE 39 OF 77

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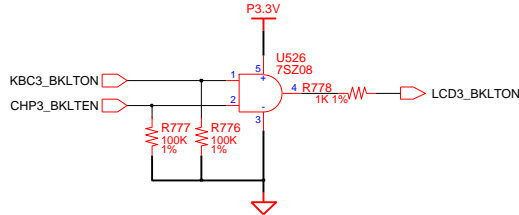
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LVDS LOGIC

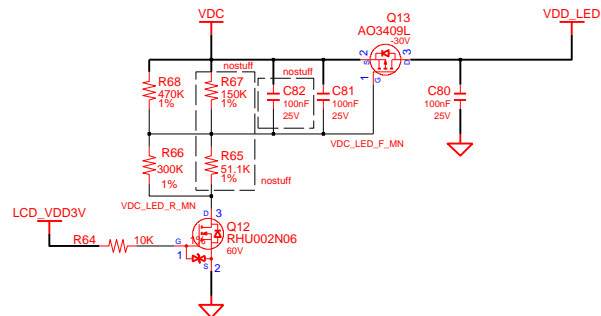
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Backlight On

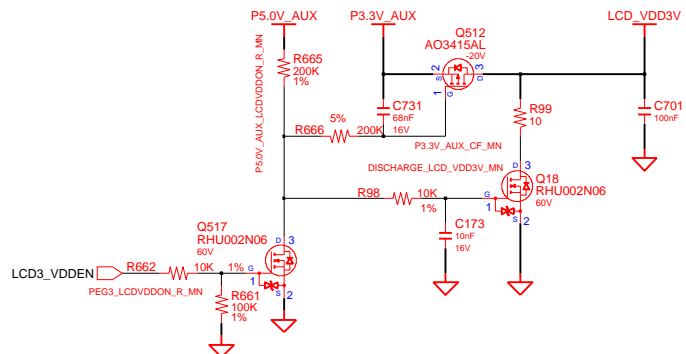


LED Power

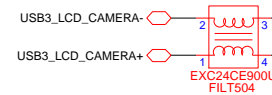
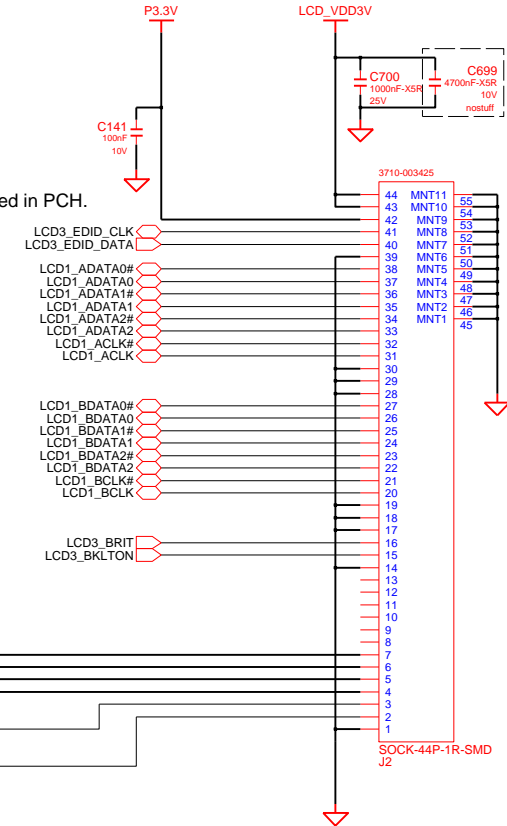


LCD Power

EBL Purpose



LCD EDID Pull up Resistors are located in PCH.



DESIGN	WK.YEO	DATE	7/14/2010	TITLE	Nike17 GRAPHICS_IF LVDS / CAMERA	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto			PART NO. BA41-####A
APPROVAL	SH.LEE	REV	REV 0.8			
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM	PAGE 41 OF 77	

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STANDARD NET NAME

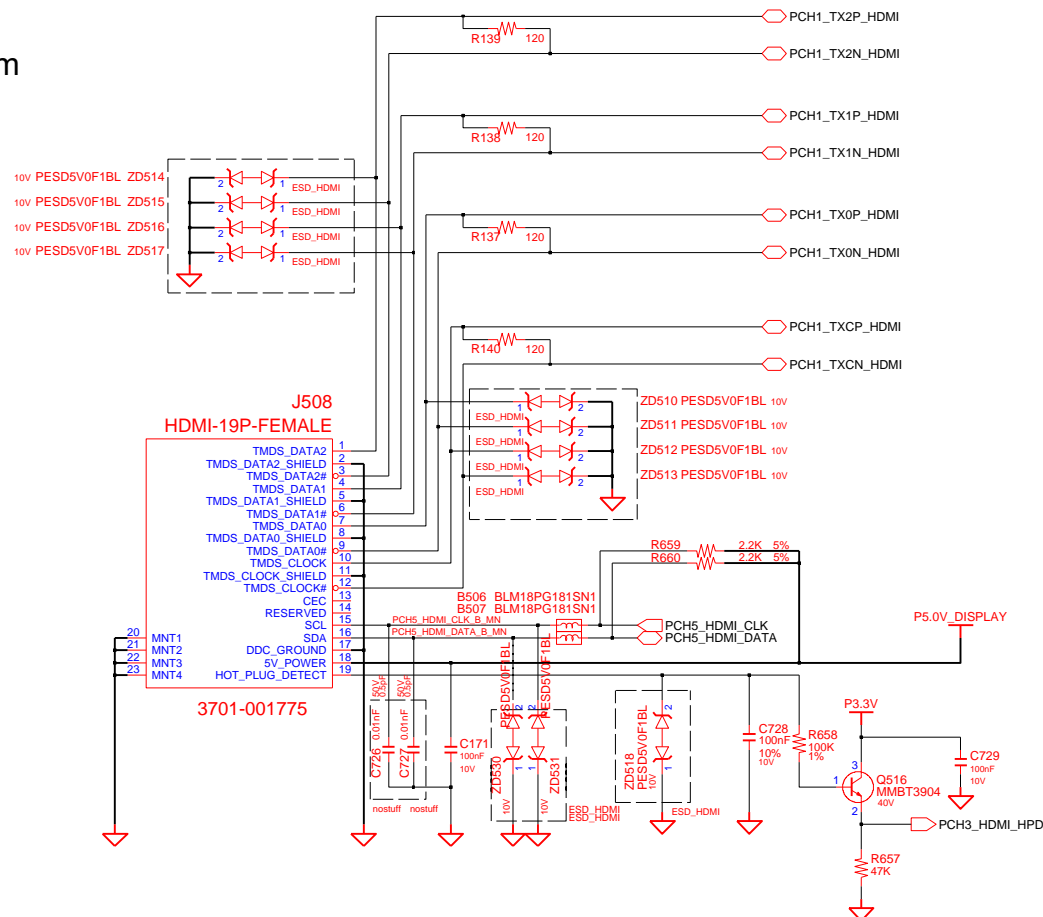
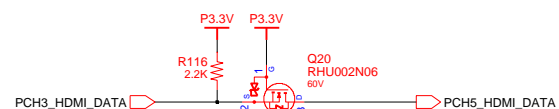
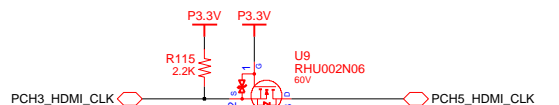
Display from PCH	Display from GPU
PCH3_HDMI_XXX	PEG3_HDMI_XXX
PCH1_XXXX_HDMI	PEG3_XXXX_HDMI

HDMI Graphic

After checking, Houston need to use CMC for each signal.
(EMC request at 2010.04.15)

Vinafix.com

FOR HDMI VERIFICATION TEST



DESIGN	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto	GRAPHICS_IF		
APPROVAL	SH.LEE	REV	REV 0.8	HDMI		
MODULE CODE		LAST EDIT				PART NO. BA41-####A
November 03, 2011 06:38:40 AM						PAGE 43 OF 77

HD AUDIO

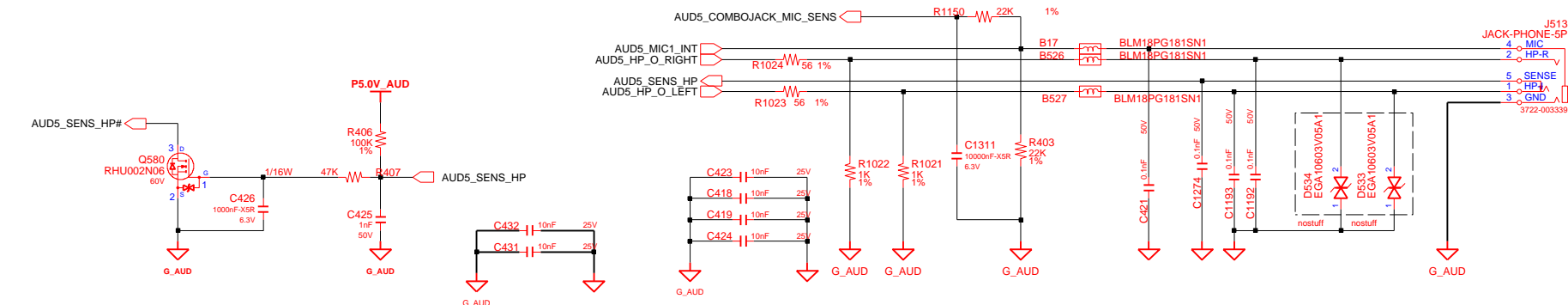
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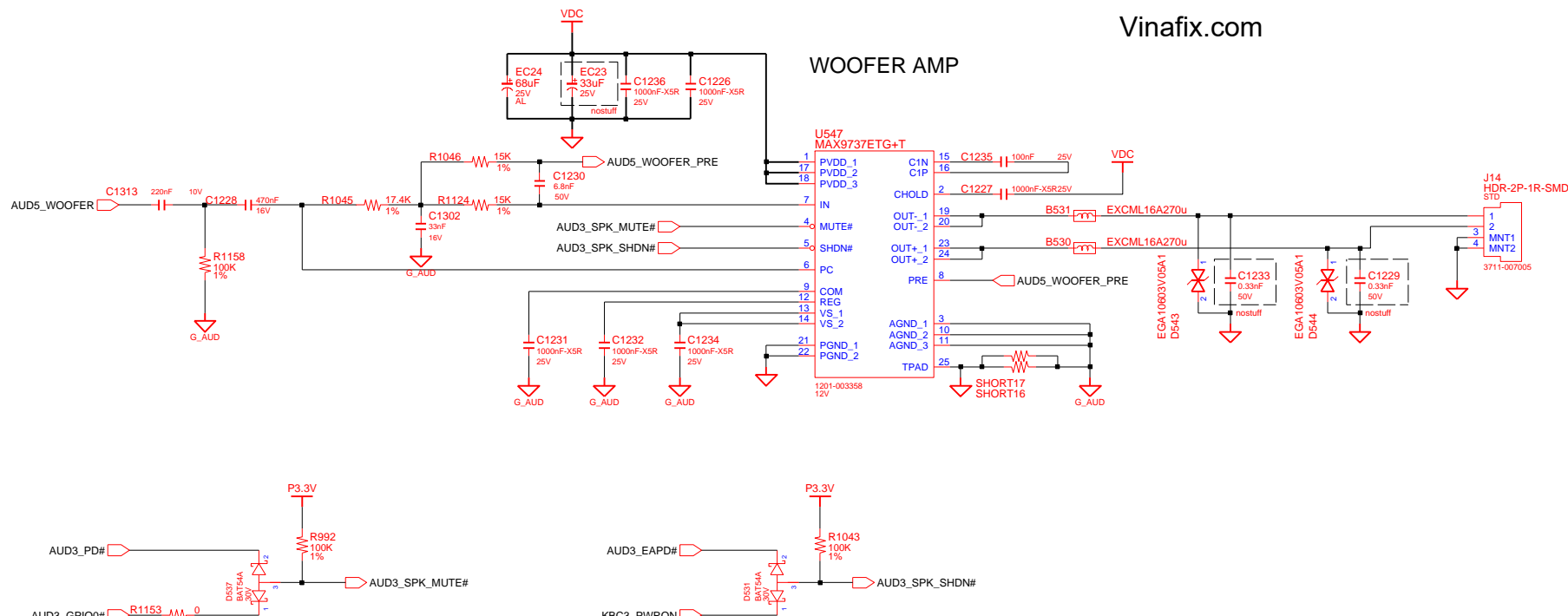
HD AUDIO

COMBOJ JACK



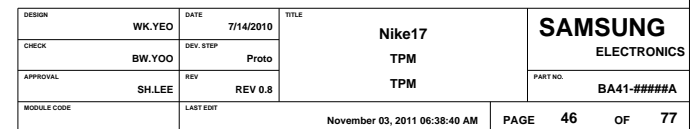
Vinafix.com

WOOFER AMP



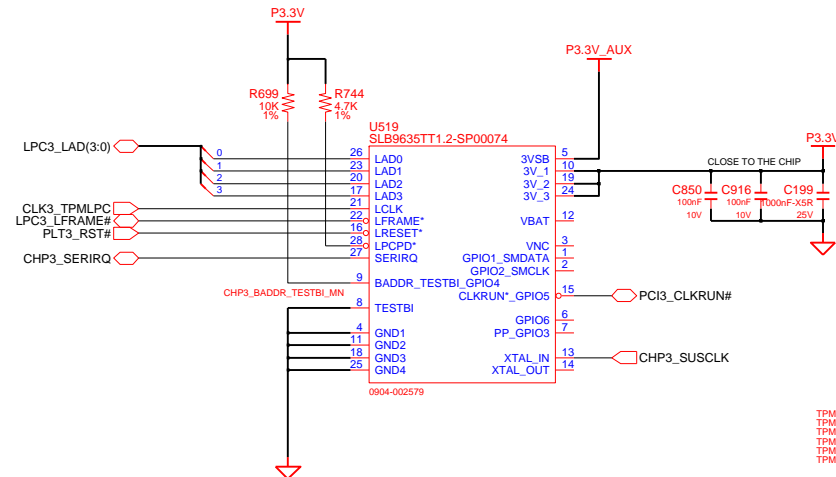
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APPROVAL	SH.LEE	REV	REV 0.8			
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM	PAGE 45 OF 77	

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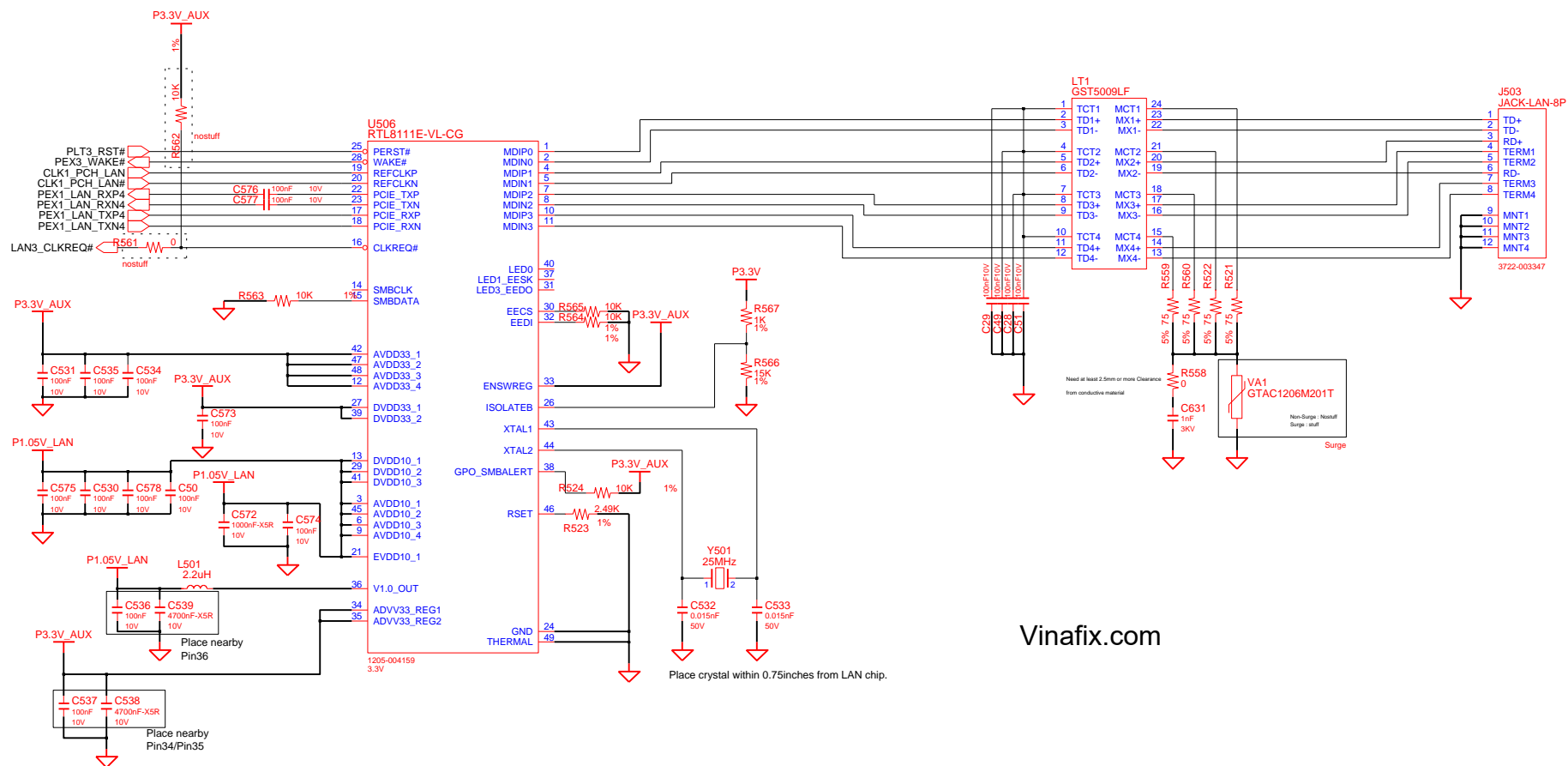
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TPM1.2



DESIGN	WK.YEO	DATE	7/14/2010	TITLE	Nike17 LAN	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto			PART NO. BA41-####A
APPROVAL	SH.LEE	REV	REV 0.8		LAN_Realtek_RTL8111E)	
MODULE CODE		LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	47	OF 77

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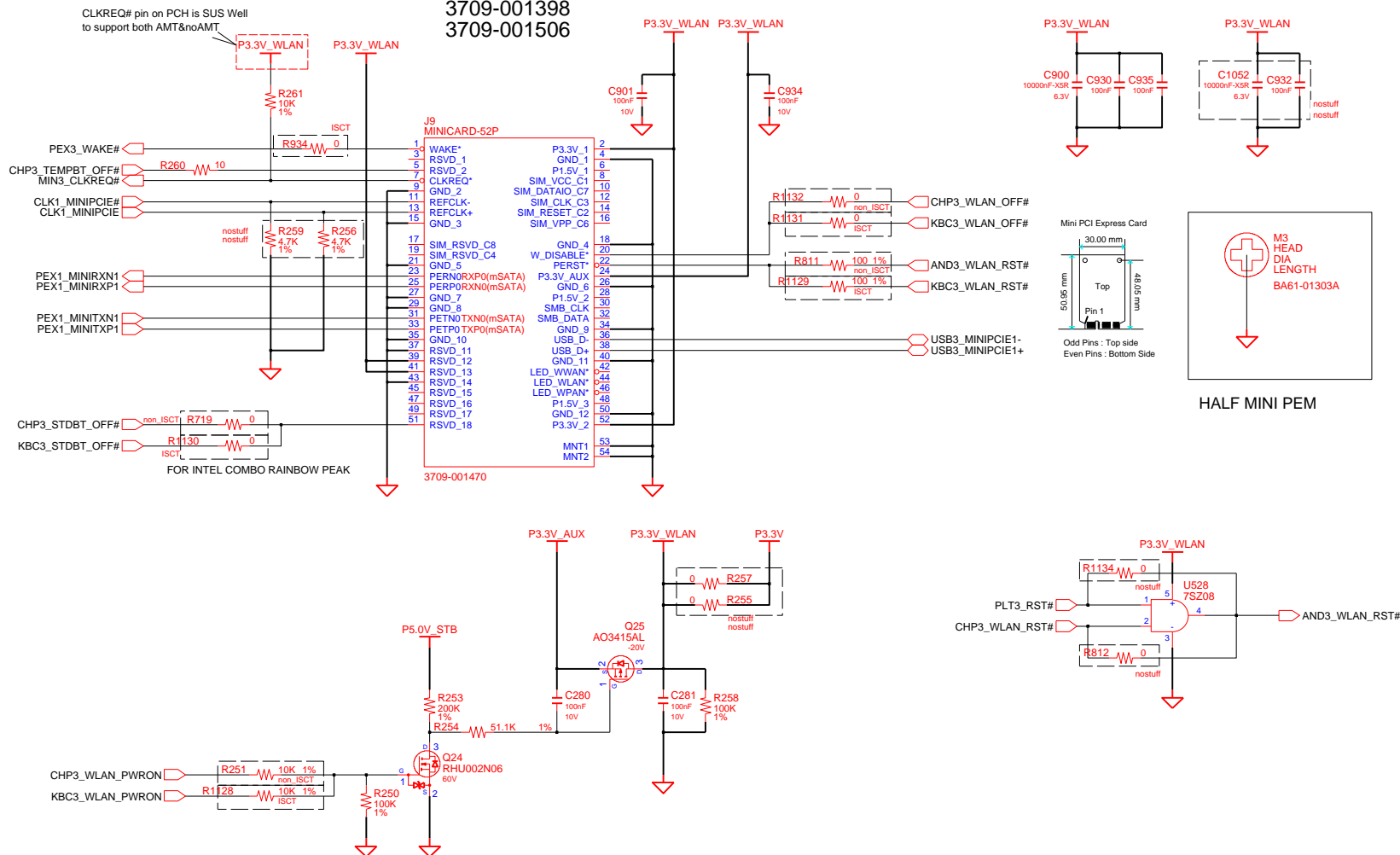
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CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		PART NO.
MODULE CODE	LAST EDIT			November 03, 2011 06:38:40 AM	PAGE 48 OF 77

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WLAN Height : 7.0mm

3709-001398
3709-001506



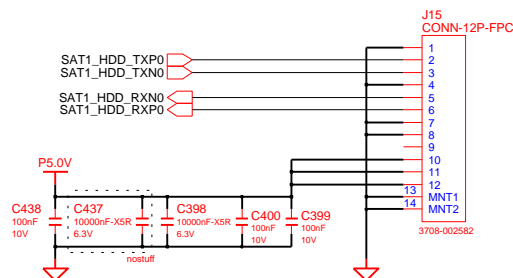
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CHECK	BW.YOO	DEV. STEP	Proto		SATA I/F	
APPROVAL	SH.LEE	REV	REV 0.8		SATA I/F	
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM	PAGE 49 OF 77	PART NO. BA41-####A

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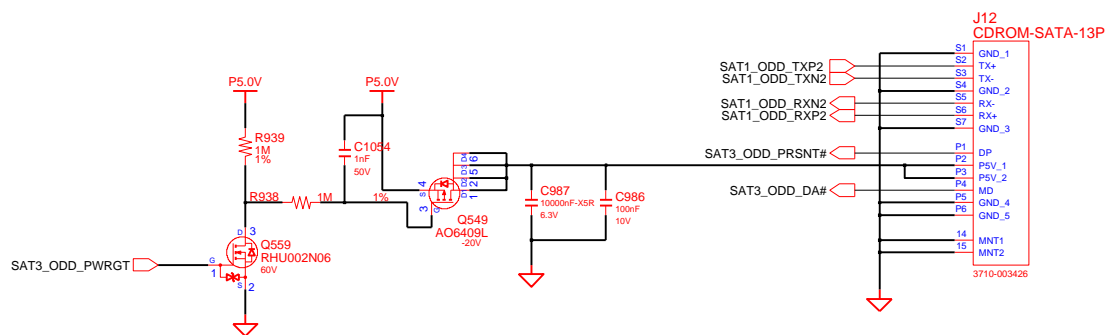
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SATA I/F CONN

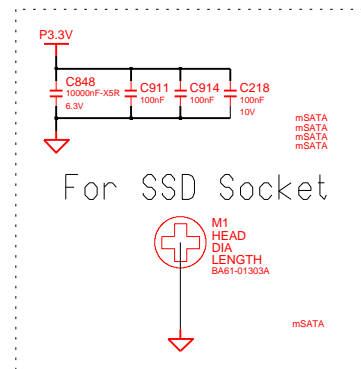
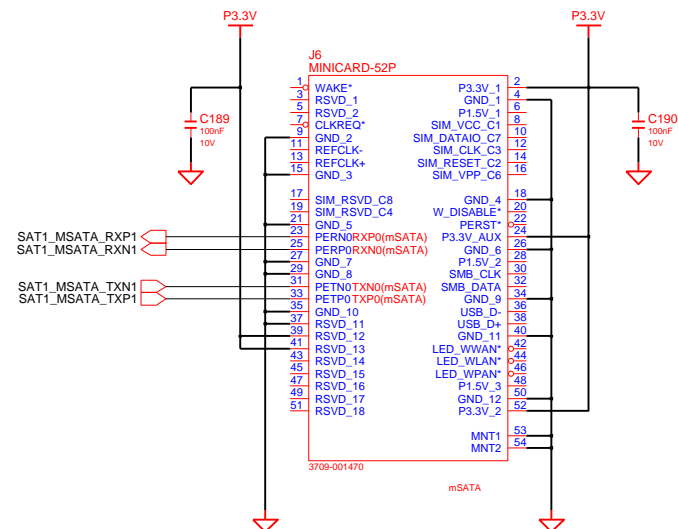
SATA HDD CONN



SATA ODD



SSD CONN



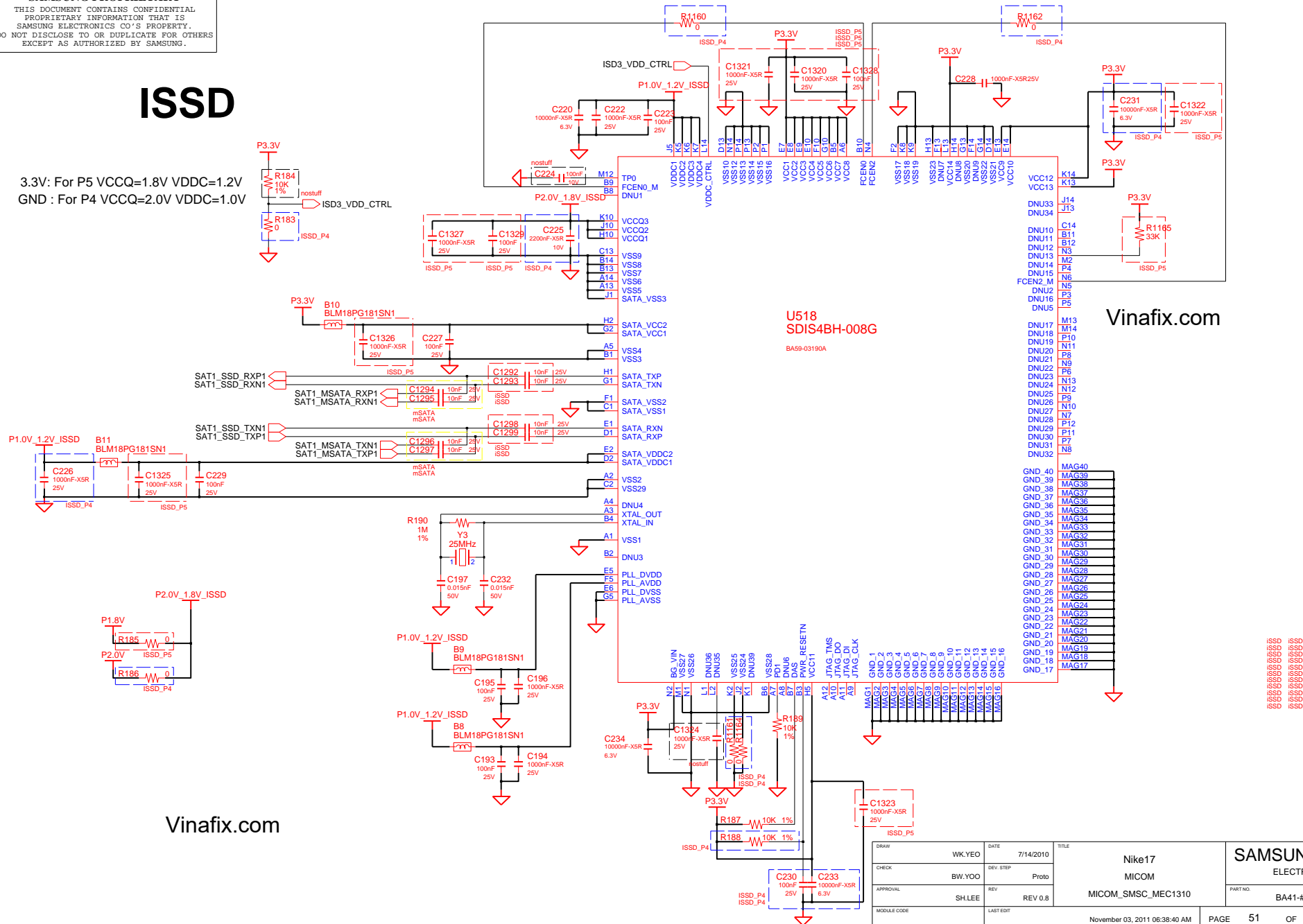
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APPROVAL	SH.LEE	REV	REV 0.8	ISSD	
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM	
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ISSD

3.3V: For P5 VCCQ=1.8V VDDC=1.2V
 GND : For P4 VCCQ=2.0V VDDC=1.0V



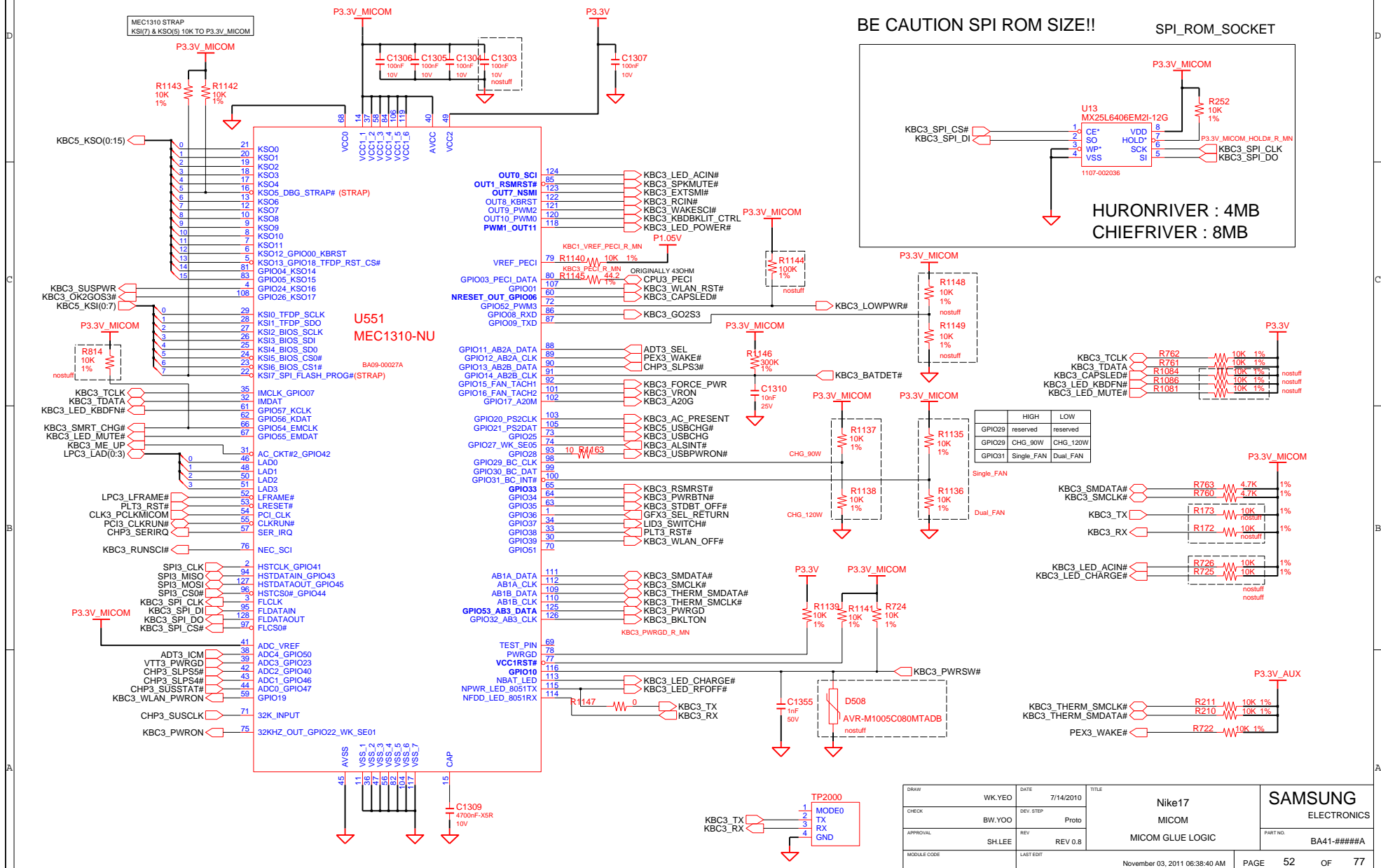
Vinafix.com

U518
 SDIS4BH-008G
 BA59-03190A

Vinafix.com

DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV. STEP	Proto	MICOM	ELECTRONICS	
APPROVAL	SH.LEE	REV	REV 0.8	MICOM_SMSC_MEC1310	PART NO.	BA41-####A
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM	PAGE	51 OF 77

MAIN BOARD (MICOM)

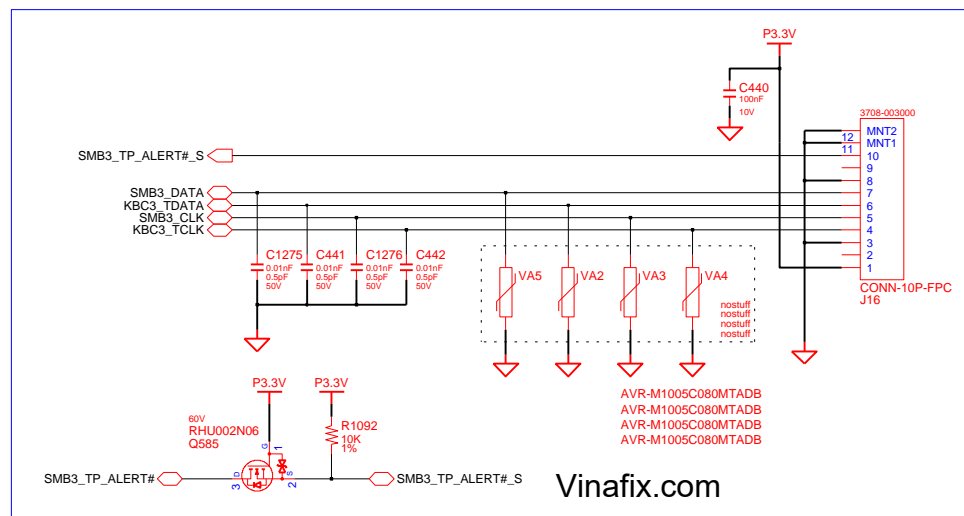


SAMSUNG PROPRIETARY

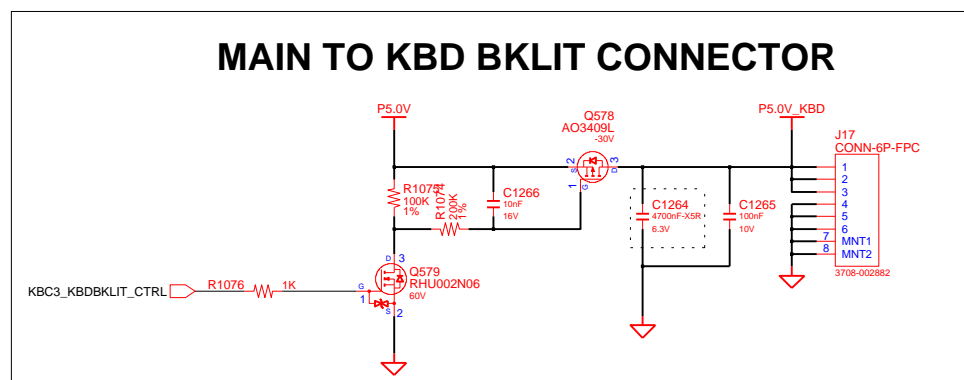
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Micom Glue Logic MAIN TO SUB

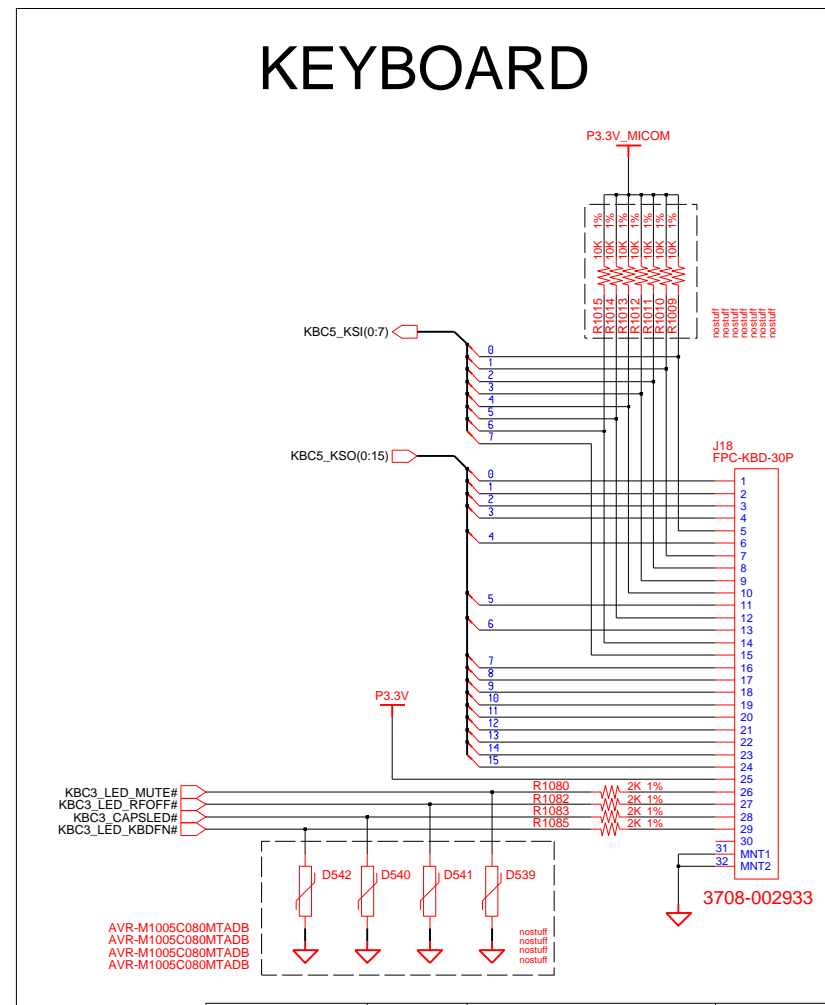
FOR IMAGE SENSOR TOUCHPAD



MAIN TO KBD BKLT CONNECTOR



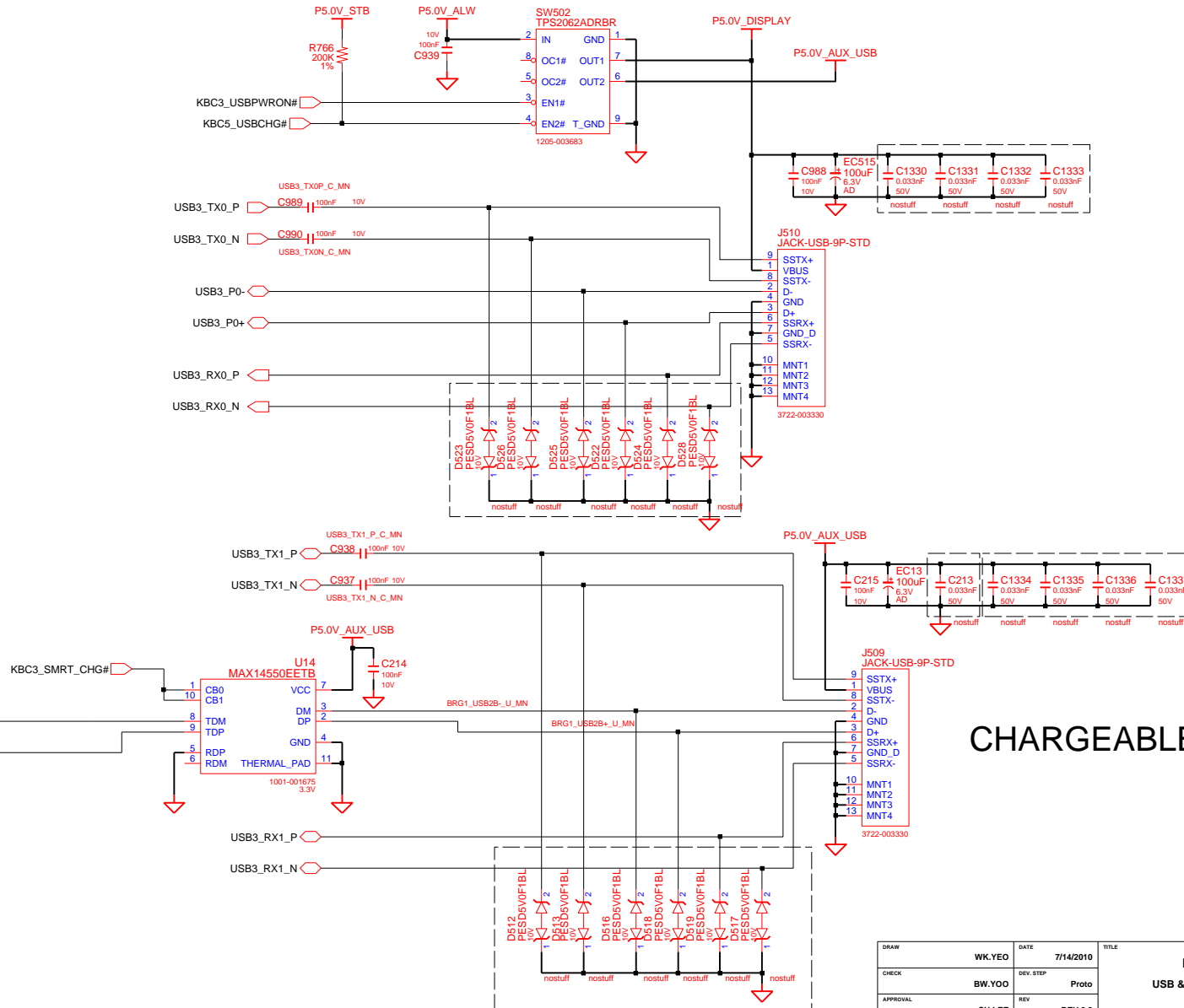
KEYBOARD



DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV. STEP	Proto	USB 3.0 BRIDGE	USB 3.0 BRIDGE	ELECTRONICS
APPROVAL	SH.LEE	REV	REV 0.8	USB 3.0 BRIDGE		PART NO.
MODULE CODE		LAST EDIT				BA41-####A
November 03, 2011 06:38:40 AM						PAGE 53 OF 77

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USB 3.0 CONNECTOR

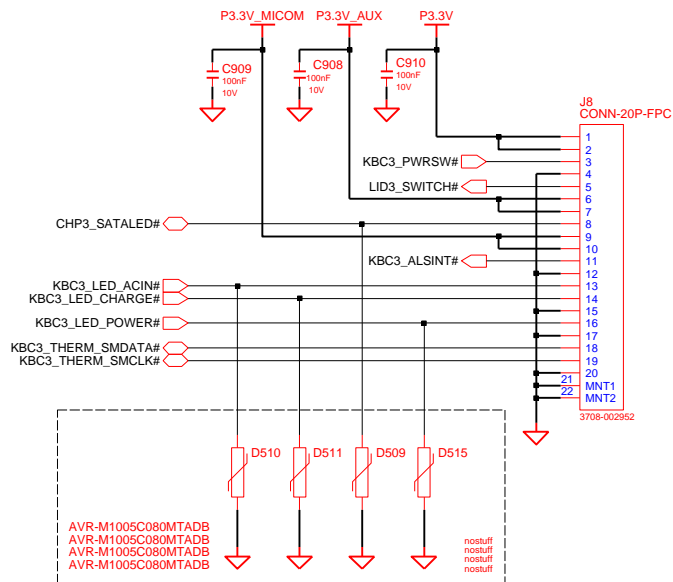


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CHECK	BW.YOO	DEV. STEP	Proto			PART NO. BA41-####A
APPROVAL	SH.LEE	REV	REV 0.8			
MODULE CODE		LAST EDIT				
November 03, 2011 06:38:40 AM						PAGE 54 OF 77

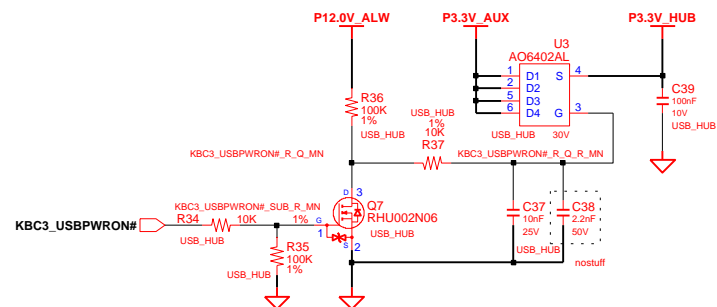
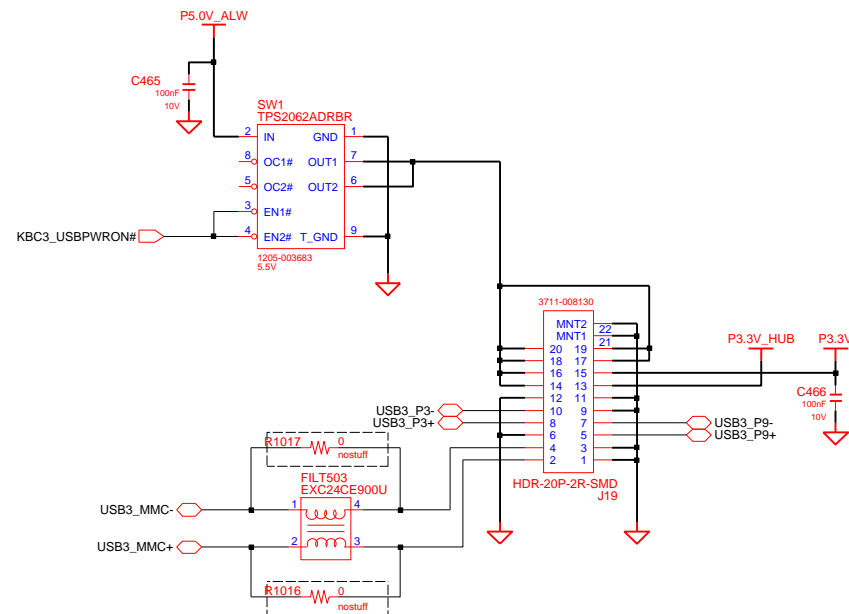
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PWR SW MAIN TO SUB



4IN1 & USB MAIN TO SUB

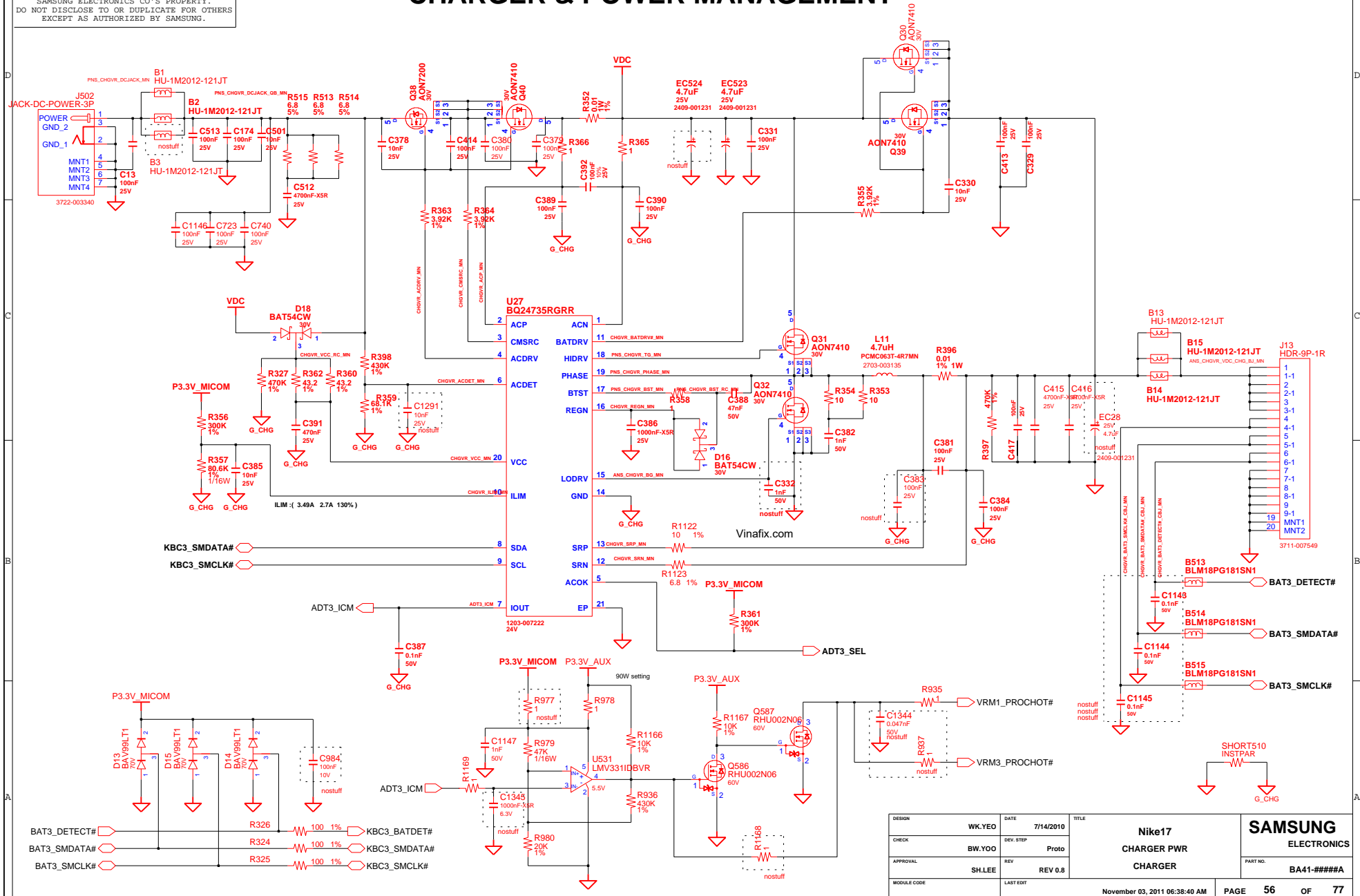


DESIGN	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV. STEP	Proto	SUB BOARD CONNECTOR	ELECTRONICS	
APPROVAL	SH.LEE	REV	REV 0.8	MAIN TO SUB	PART NO.	BA41-####A
MODULE CODE		LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	55	OF 77

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CHARGER & POWER MANAGEMENT

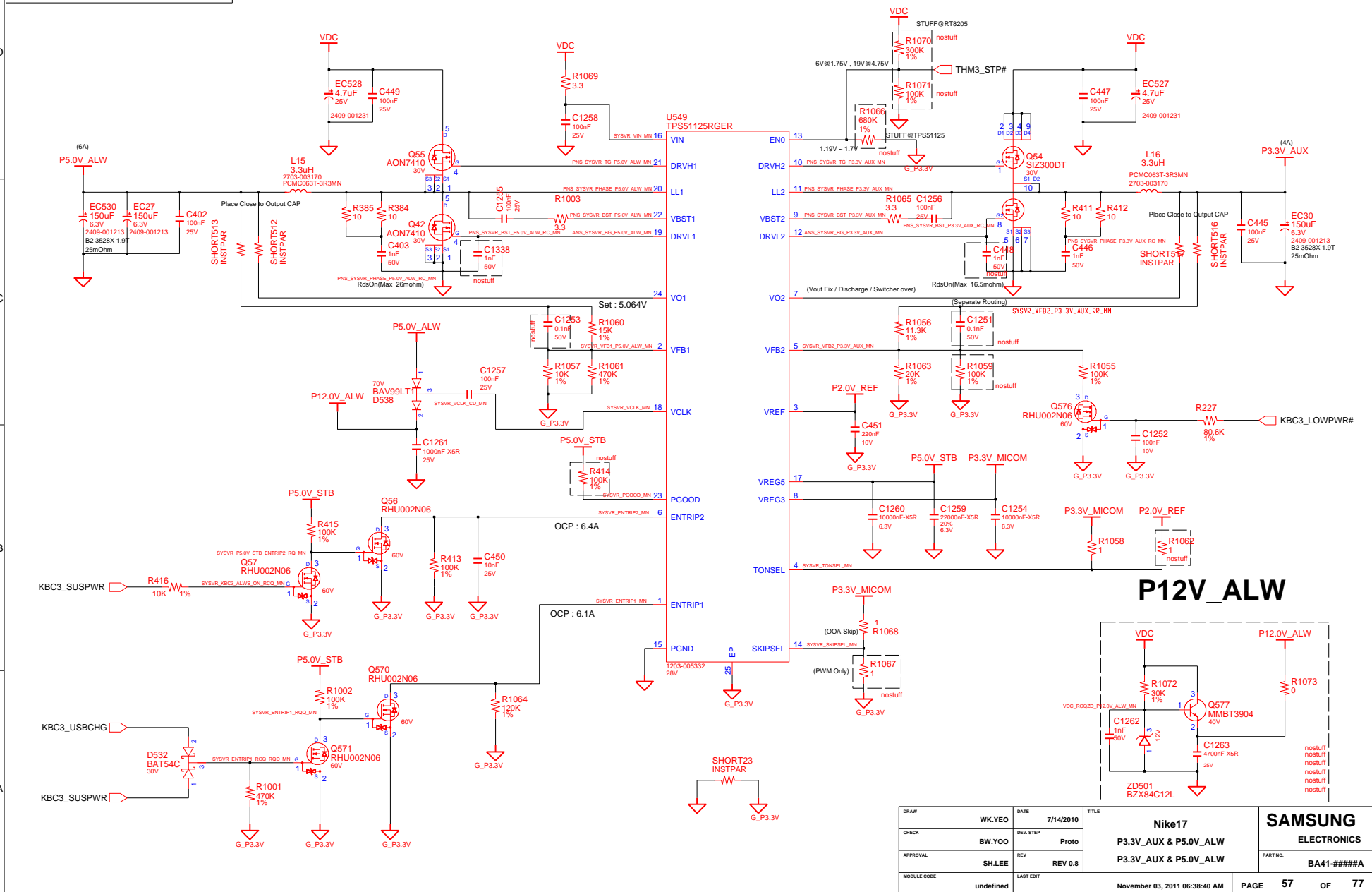


DESIGN	WK.YEO	DATE	7/14/2010	TITLE	Nike17
CHECK	BW.YOO	DEV. STEP	Proto		CHARGER PWR
APPROVAL	SH.LEE	REV	REV 0.8		CHARGER
MODULE CODE		LAST EDIT			
November 03, 2011 06:38:40 AM					PAGE 56 OF 77
SAMSUNG ELECTRONICS					PART NO. BA41-####A

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P3.3V_AUX & P5.0V_ALW

Vinafix.com



DRAW	WK.YEO	DATE	7/14/2010	TITLE Nike17		SAMSUNG ELECTRONICS			
CHECK	BW.YOO	DEV. STEP	Proto					P3.3V_AUX & P5.0V_ALW	
APPROVAL	SH.LEE	REV	REV 0.8	P3.3V_AUX & P5.0V_ALW					
				PART NO. BA41-####A					
MODULE CODE		LAST EDIT		November 03, 2011 06:38:40 AM		PAGE	57	OF	77
undefined									

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[illegible]

DESIGN	WK.YEO	DATE	7/14/2010	<div>Nike17</div> <div>CHIPSET PWR</div> <div>P1.05V</div>		<div>SAMSUNG</div> <div>ELECTRONICS</div>	
CHECK	BW.YOO	DEV. STEP	Proto				
APPROVAL	SH.LEE	REV	REV 0.8			PART NO.	BA41-#####A
MODULE CODE	LAST EDIT			November 03, 2011 06:38:40 AM		PAGE	58 OF 77

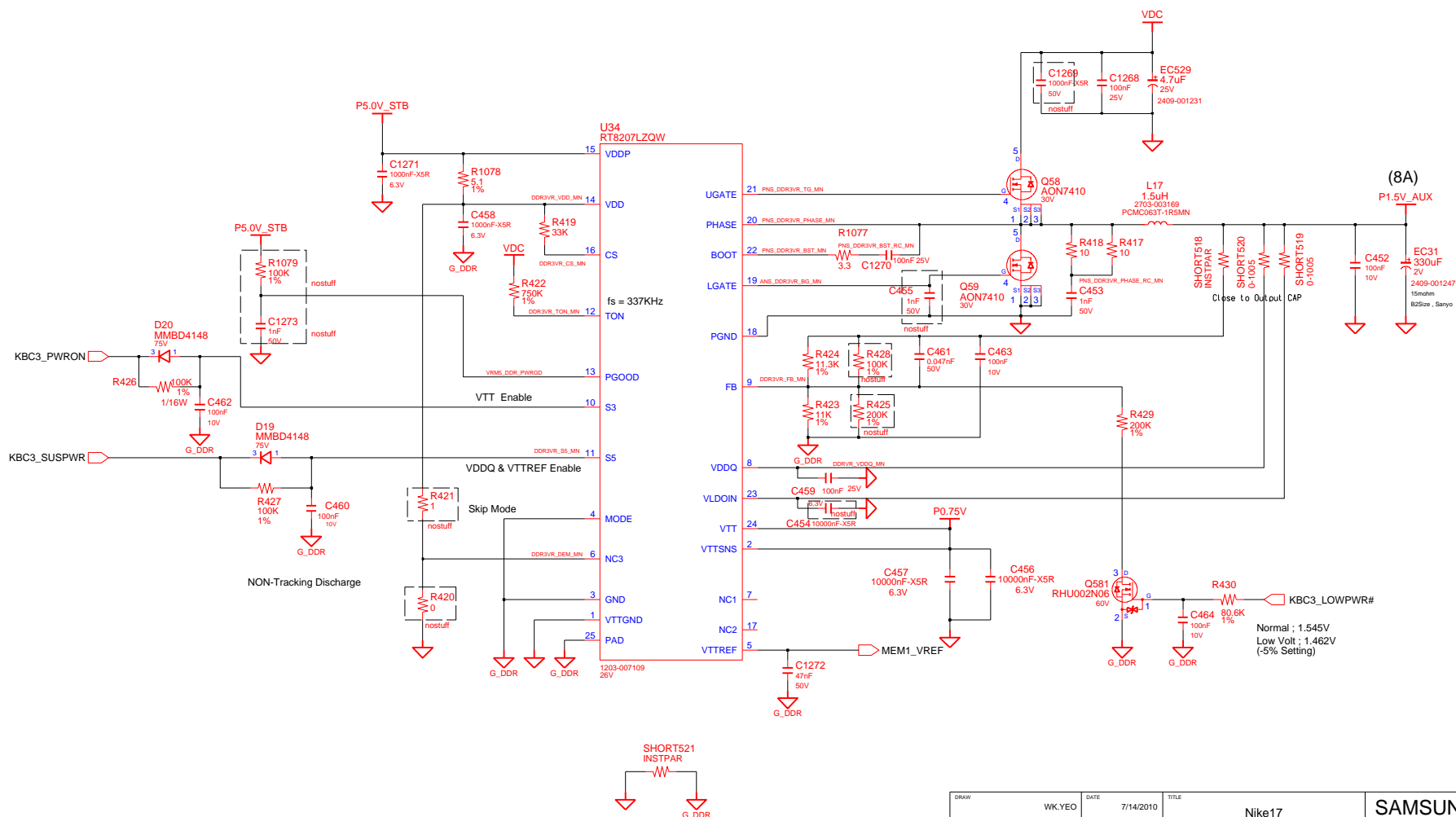
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DDR3 Power



DRAW	WK.YEO	DATE	7/14/2010	Nike17 DDR3 POWER		SAMSUNG ELECTRONICS	
CHECK	BW.YOO	DEV. STEP	Proto				
APPROVAL	SH.LEE	REV	REV 0.8	DDR3 POWER		PART NO.	BA41-####A
MODULE CODE		undefined				November 03, 2011 06:38:40 AM	

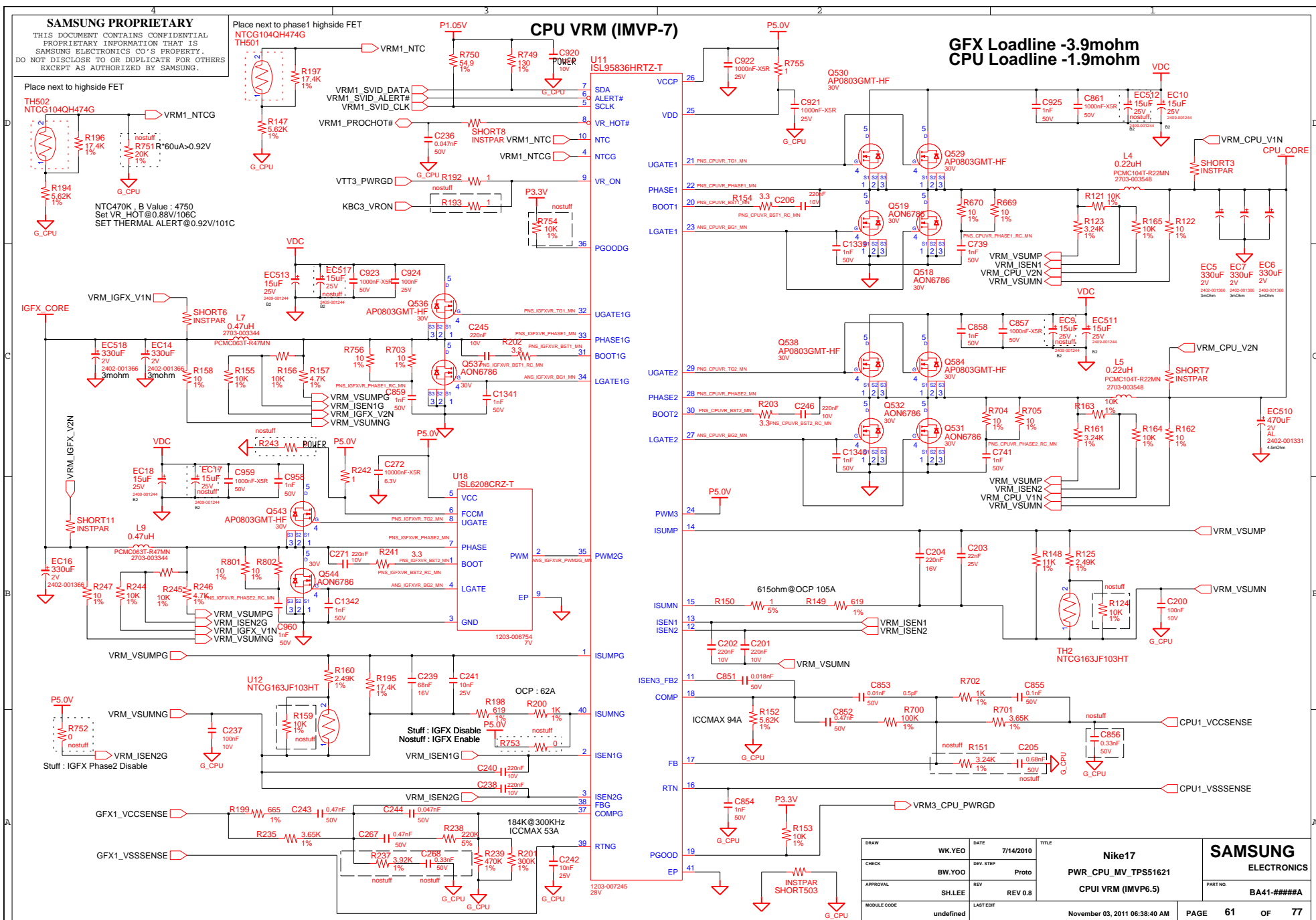
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NTCG104QH474G VRM1 NTCG

```
NTC470K , B Value : 4750
Set VR_HOT@0.88V/106C
SET THERMAL ALERT@0.92V/101C
```

NTCG104QH474G
TH501

GFX Loadline -3.9mohm
CPU Loadline -1.9mohm



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The schematic diagram illustrates the power and signal connections for the PWR_GFX_MV_EXT board. It features a detailed component list, a table of voltage levels, and a design table at the bottom.

Component List:

- R612, R84, R83, R82, R614, R613, R611, R610, R607, R606, R609, R608, R603, R605, R609, R615, R624, R1116, R1117, R106, R105, R107, C150, C151, C152, C1308, C689, C688, C687, C686, C685, C684, C683, C682, C681, C680, C679, C678, C677, C676, C675, C674, C673, C672, C671, C670, C669, C668, C667, C666, C665, C664, C663, C662, C661, C660, C659, C658, C657, C656, C655, C654, C653, C652, C651, C650, C649, C648, C647, C646, C645, C644, C643, C642, C641, C640, C639, C638, C637, C636, C635, C634, C633, C632, C631, C630, C629, C628, C627, C626, C625, C624, C623, C622, C621, C620, C619, C618, C617, C616, C615, C614, C613, C612, C611, C610, C609, C608, C607, C606, C605, C604, C603, C602, C601, C600, C599, C598, C597, C596, C595, C594, C593, C592, C591, C590, C589, C588, C587, C586, C585, C584, C583, C582, C581, C580, C579, C578, C577, C576, C575, C574, C573, C572, C571, C570, C569, C568, C567, C566, C565, C564, C563, C562, C561, C560, C559, C558, C557, C556, C555, C554, C553, C552, C551, C550, C549, C548, C547, C546, C545, C544, C543, C542, C541, C540, C539, C538, C537, C536, C535, C534, C533, C532, C531, C530, C529, C528, C527, C526, C525, C524, C523, C522, C521, C520, C519, C518, C517, C516, C515, C514, C513, C512, C511, C510, C509, C508, C507, C506, C505, C504, C503, C502, C501, C500, C499, C498, C497, C496, C495, C494, C493, C492, C491, C490, C489, C488, C487, C486, C485, C484, C483, C482, C481, C480, C479, C478, C477, C476, C475, C474, C473, C472, C471, C470, C469, C468, C467, C466, C465, C464, C463, C462, C461, C460, C459, C458, C457, C456, C455, C454, C453, C452, C451, C450, C449, C448, C447, C446, C445, C444, C443, C442, C441, C440, C439, C438, C437, C436, C435, C434, C433, C432, C431, C430, C429, C428, C427, C426, C425, C424, C423, C422, C421, C420, C419, C418, C417, C416, C415, C414, C413, C412, C411, C410, C409, C408, C407, C406, C405, C404, C403, C402, C401, C400, C399, C398, C397, C396, C395, C394, C393, C392, C391, C390, C389, C388, C387, C386, C385, C384, C383, C382, C381, C380, C379, C378, C377, C376, C375, C374, C373, C372, C371, C370, C369, C368, C367, C366, C365, C364, C363, C362, C361, C360, C359, C358, C357, C356, C355, C354, C353, C352, C351, C350, C349, C348, C347, C346, C345, C344, C343, C342, C341, C340, C339, C338, C337, C336, C335, C334, C333, C332, C331, C330, C329, C328, C327, C326, C325, C324, C323, C322, C321, C320, C319, C318, C317, C316, C315, C314, C313, C312, C311, C310, C309, C308, C307, C306, C305, C304, C303, C302, C301, C300, C299, C298, C297, C296, C295, C294, C293, C292, C291, C290, C289, C288, C287, C286, C285, C284, C283, C282, C281, C280, C279, C278, C277, C276, C275, C274, C273, C272, C271, C270, C269, C268, C267, C266, C265, C264, C263, C262, C261, C260, C259, C258, C257, C256, C255, C254, C253, C252, C251, C250, C249, C248, C247, C246, C245, C244, C243, C242, C241, C240, C239, C238, C237, C236, C235, C234, C233, C232, C231, C230, C229, C228, C227, C226, C225, C224, C223, C222, C221, C220, C219, C218, C217, C216, C215, C214, C213, C212, C211, C210, C209, C208, C207, C206, C205, C204, C203, C202, C201, C200, C199, C198, C197, C196, C195, C194, C193, C192, C191, C190, C189, C188, C187, C186, C185, C184, C183, C182, C181, C180, C179, C178, C177, C176, C175, C174, C173, C172, C171, C170, C169, C168, C167, C166, C165, C164, C163, C162, C161, C160, C159, C158, C157, C156, C155, C154, C153, C152, C151, C150, C149, C148, C147, C146, C145, C144, C143, C142, C141, C140, C139, C138, C137, C136, C135, C134, C133, C132, C131, C130, C129, C128, C127, C126, C125, C124, C123, C122, C121, C120, C119, C118, C117, C116, C115, C114, C113, C112, C111, C110, C109, C108, C107, C106, C105, C104, C103, C102, C101, C100, C99, C98, C97, C96, C95, C94, C93, C92, C91, C90, C89, C88, C87, C86, C85, C84, C83, C82, C81, C80, C79, C78, C77, C76, C75, C74, C73, C72, C71, C70, C69, C68, C67, C66, C65, C64, C63, C62, C61, C60, C59, C58, C57, C56, C55, C54, C53, C52, C51, C50, C49, C48, C47, C46, C45, C44, C43, C42, C41, C40, C39, C38, C37, C36, C35, C34, C33, C32, C31, C30, C29, C28, C27, C26, C25, C24, C23, C22, C21, C20, C19, C18, C17, C16, C15, C14, C13, C12, C11, C10, C9, C8, C7, C6, C5, C4, C3, C2, C1, C0.

Voltage Level Table:

VOLTID2	VOLTID1	VOLTID0	VOUT
VID4	VID3	VID2	
1	0	1	0.85V
1	0	0	0.9V
0	1	0	1.0V
0	0	1	1.05V

Design Table:

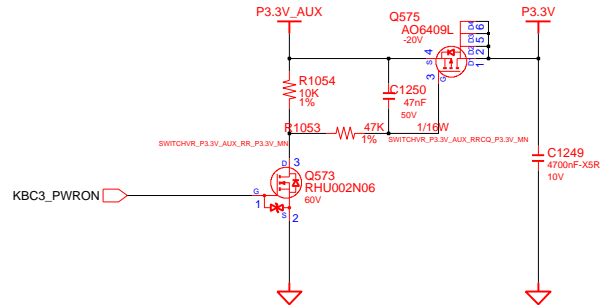
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CHECK	BW.YOO	DEV. STEP	Proto		PWR_GFX_MV_EXT
APPROVAL	SH.LEE	REV	REV 0.8		External Graphic Power
MODULE CODE		LAST EDIT			

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Switched Power

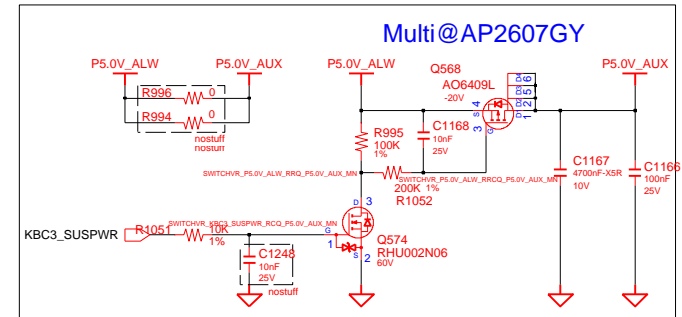
Switched Power On (P3.3V)

Multi@AP2607GY



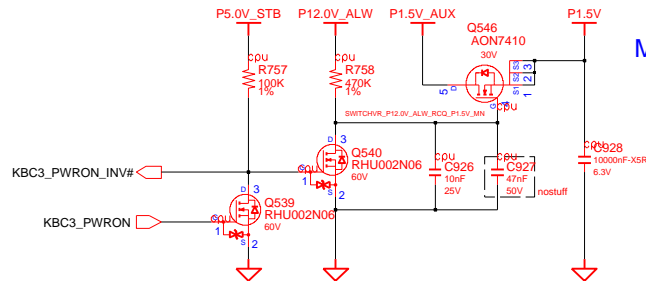
P5.0V_AUX

Multi@AP2607GY



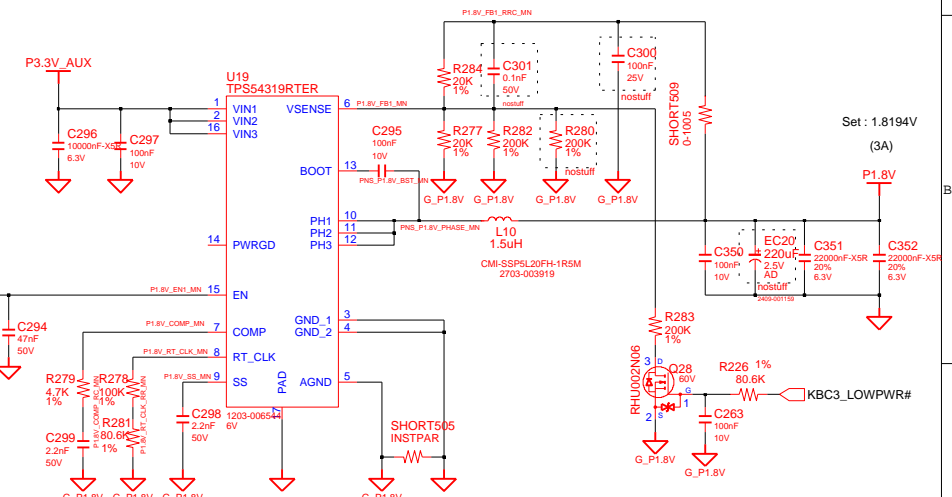
Switched Power On (P1.5V)

Multi@AP9402GYT



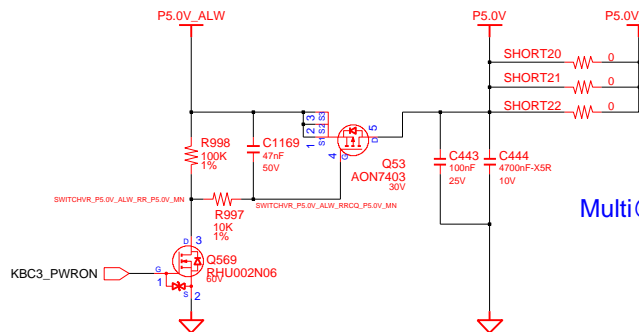
P1.8V (LVDS,PCH Core,LAN , ME IO)

Multi@G5173R41D(1203-006777)



Switched Power On (P5.0V)

Multi@AP4435GYT

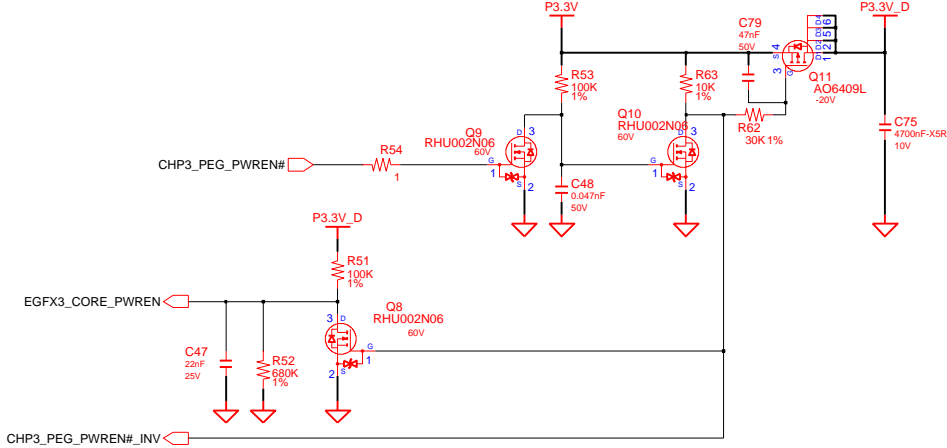


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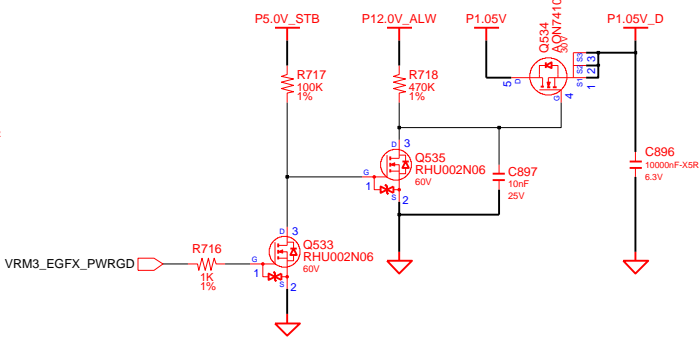
DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV. STEP	Proto	PWR_MV_SWITCHED		ELECTRONICS
APPROVAL	SH.LEE	REV	REV 0.8	SWITCHED POWER		PART NO.
MODULE CODE		LAST EDIT				BA41-####A
				November 03, 2011 06:38:40 AM	PAGE	63 OF 77

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Discrete Switched Power (D3.3V : Max_1.2A)
Multi@AP2607GY



Discrete Switched Power (P1.05V_D : Max 3A)

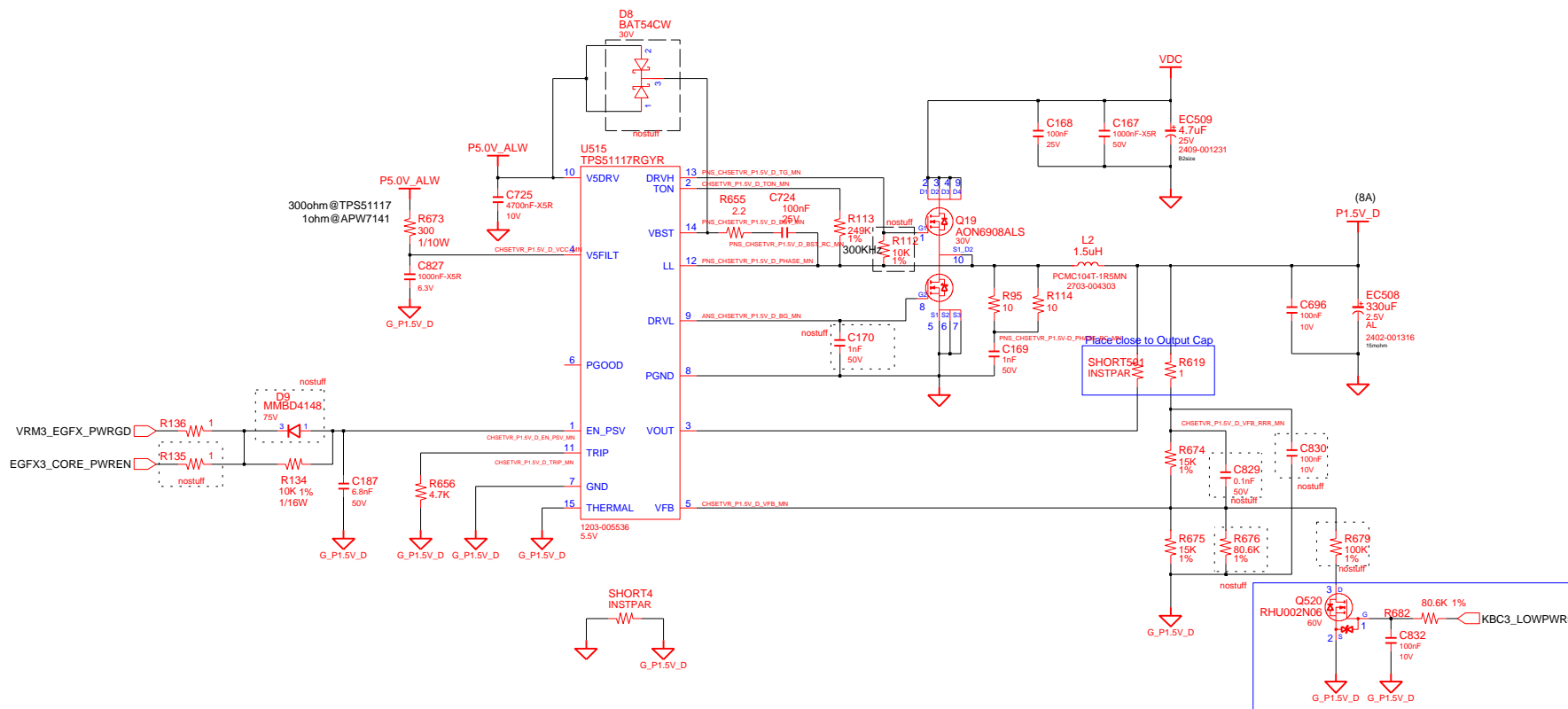


DRAW	WK.YEO	DATE	3/11/2011	Nike17 Switched PWR 2 FOR OPTIMUS PWR		SAMSUNG ELECTRONICS			
CHECK	BW.YOO	DEV. STEP	Proto						
APPROVAL	SH.LEE	REV	REV 0.8						
MODULE CODE	LAST EDIT			November 03, 2011 06:38:40 AM		PAGE	64	OF	77

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P1.5V_D

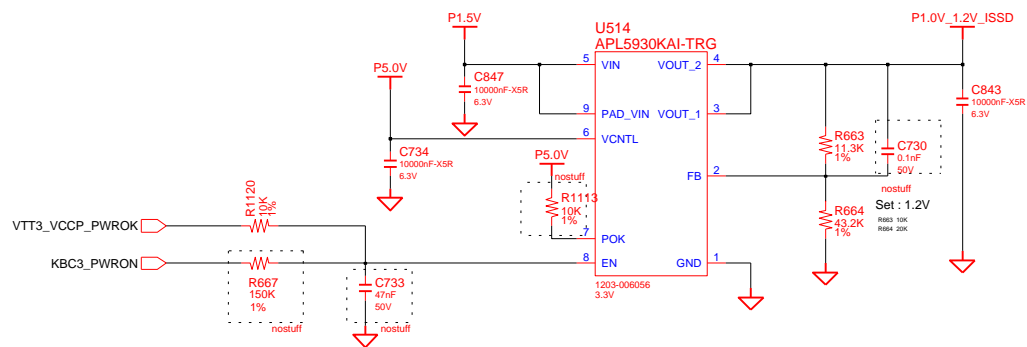


DRAW	WK.YE0	DATE	3/11/2011	TITLE	Nike17	SAMSUNG ELECTRONICS
CHECK	BW.Y00	DEV. STEP	Proto		P1.05V	
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MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	65	OF 77

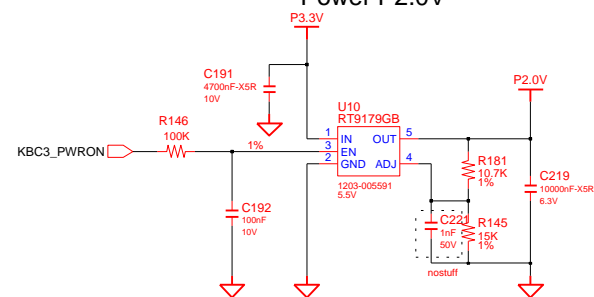
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Power P1.0V_P1.2V



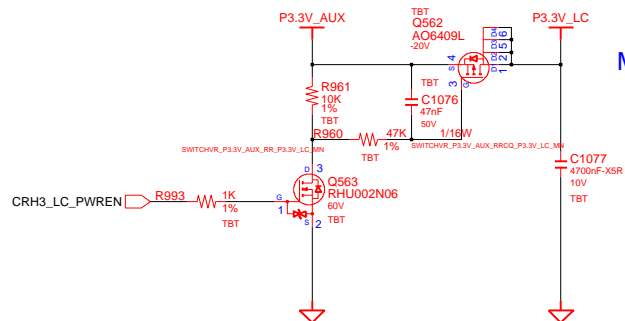
Power P2.0V



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DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto	Switched PWR 2		
APPROVAL	SH.LEE	REV	REV 0.8	FOT POWER XPRESS & USB3.0 PWR	PART NO.	BA41-####A
MODULE CODE		LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	66	OF 77

Switched Power On (P3.3V_LC)



Multi@AP2607GY

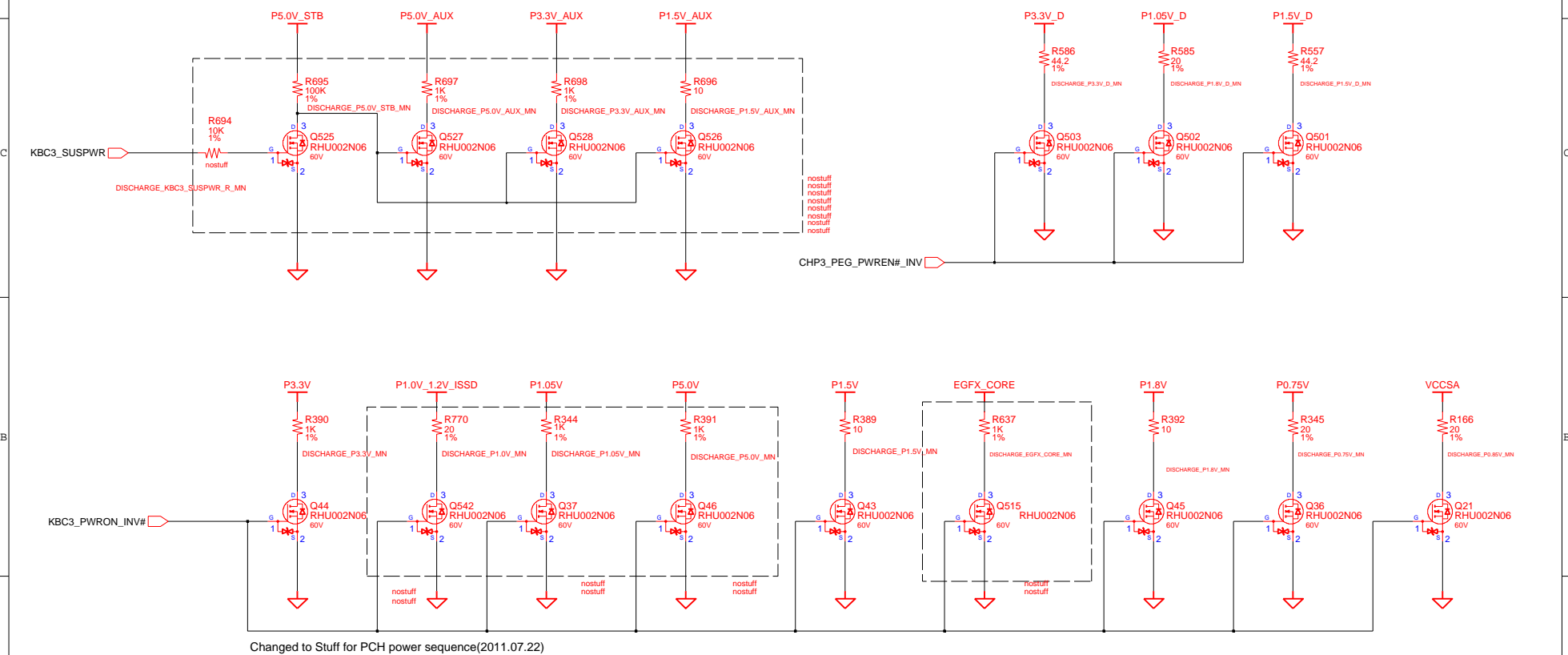
The schematic diagram illustrates the power supply section of the CRH3 train control system. It shows the connection of various power rails: P5.0V_STB, P12.0V_ALW, P1.05V, and P1.05V_LC. Key components include resistors R954 (100K), R955 (300K), R953 (1K), and R956 (1K); capacitors C1071 (5.6nF) and C1072 (10000uF); and MOSFETs Q564 (RHU002N06) and Q566 (AON7410). The diagram illustrates the power distribution and control logic for the CRH3 train control system.

[illegible]

DRAW	WK.YEO	DATE	1/03/2011	Nike17 PWR_MV DISCHARGER SWITCHED POWER	SAMSUNG ELECTRONICS		
CHECK	BW.YOO	DEV_STEP	Proto				
APPROVAL	SH.LEE	REV	REV 0.8				
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM				
				PAGE	67	OF	77
				PART NO. BA41-####A			

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POWER DISCHARGER



DRAW	WK.YEO	DATE	7/14/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV. STEP	Proto	PWR_MV_DISCHARGER		ELECTRONICS
APPROVAL	SH.LEE	REV	REV 0.8	DISCHARGING LOGIC	PART NO.	BA41-####A
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	68	OF 77

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MT502
RMNT-25-70-1P

MT508
RMNT-25-70-1P

MT513
RMNT-25-70-1P

MT501
RMNT-25-70-1P

MT514
RMNT-25-70-1P

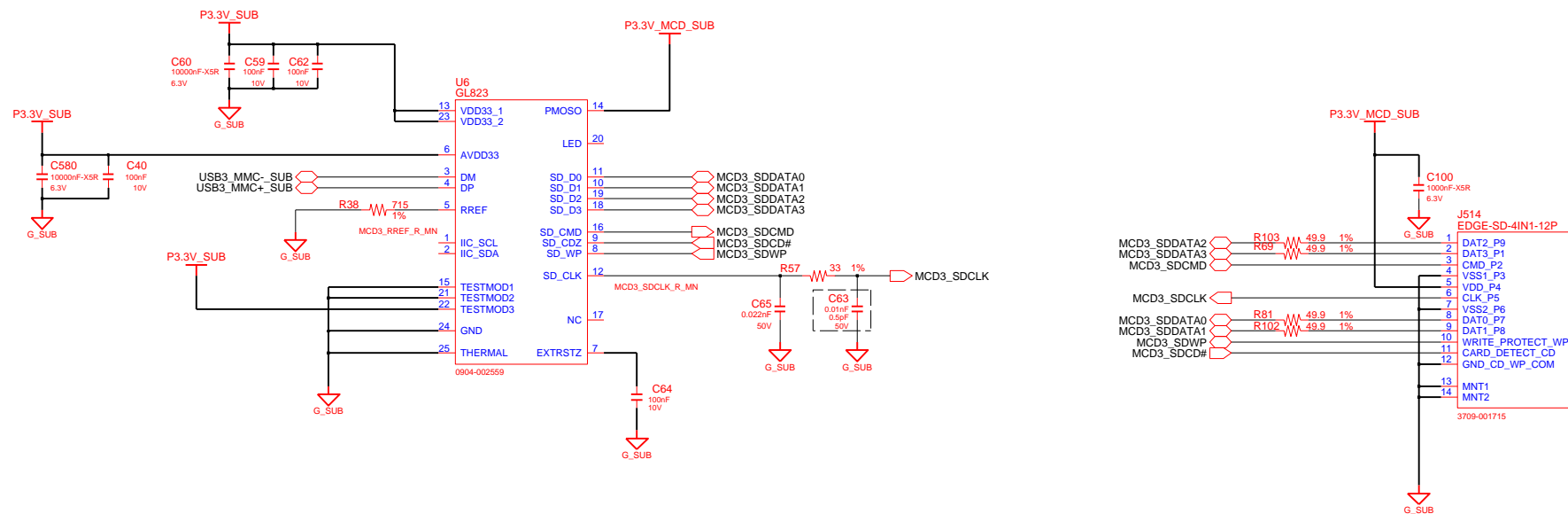
MT511
RMNT-25-70-1P

MT512
RMNT-32-70-1P

The diagram illustrates a multi-channel power supply system. At the top, a single VDC input is connected to a network of three capacitors: C102 (100nF, 25V), C860 (100nF, 25V), and C273 (100nF, 25V). These capacitors are connected in parallel to a common ground. Below this network, the power is distributed into eight individual channels. Each channel consists of a VDC input connected to a capacitor (C1267, C1142, C929, C849, C1239, C1053, C695, C83) which is then connected to a ground symbol. The capacitors in each channel are all 100nF and 25V.

DESIGN	WK.YEO	DATE	7/14/2010	<div style="text-align: center;"> Nike17 SUB BOARD1 MOUNT HOLE </div>	<div style="text-align: center;"> SAMSUNG ELECTRONICS </div>		
CHECK	BW.YOO	DEV. STEP	Proto				
APPROVAL	SH.LEE	REV	REV 0.8		PART NO.	BA41-####A	
MODULE CODE	LAST EDIT				November 03, 2011 06:38:40 AM	PAGE	69 OF 77

Vinafix.com



DESIGN	WK.YEO	DATE	10/02/2010	TITLE Nike17 SUB BOARD 3 IN 1	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto		
APPROVAL	SH.LEE	REV	REV 0.8		
MODULE CODE	LAST EDIT				
November 03, 2011 06:38:40 AM				PAGE	71 OF 77

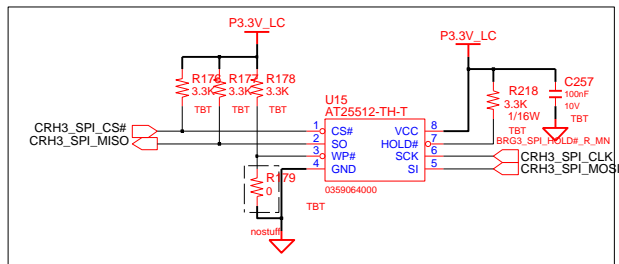
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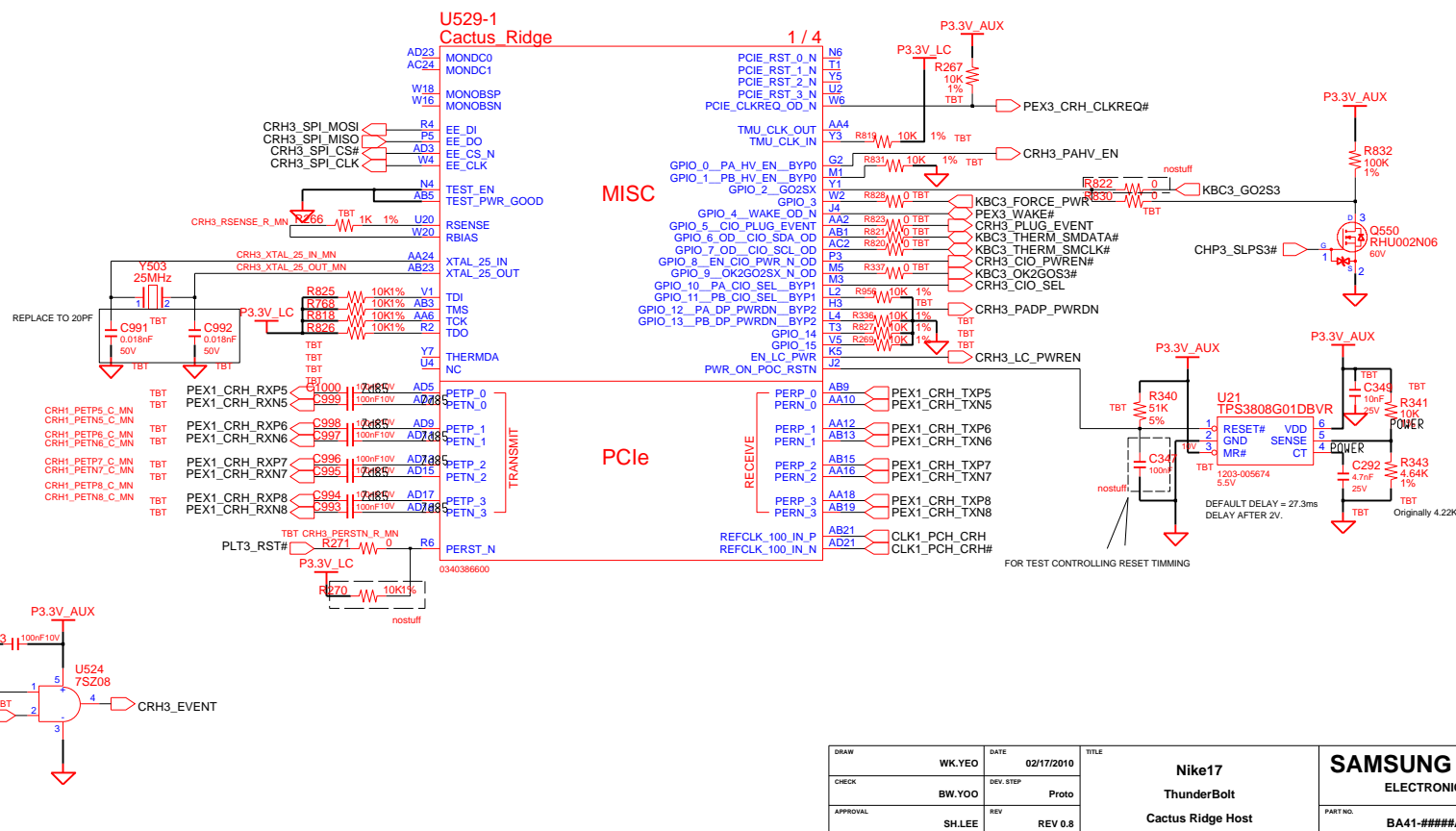
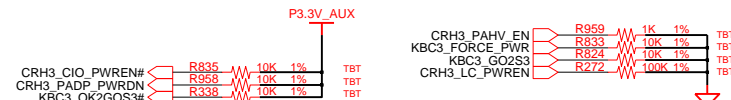
CACTUS RIDGE

INTEL REF REV1.16

SPI_ROM_SOCKET



Recommended EEPROM :
AT25512 (64KB)
AT25256A (32KB)

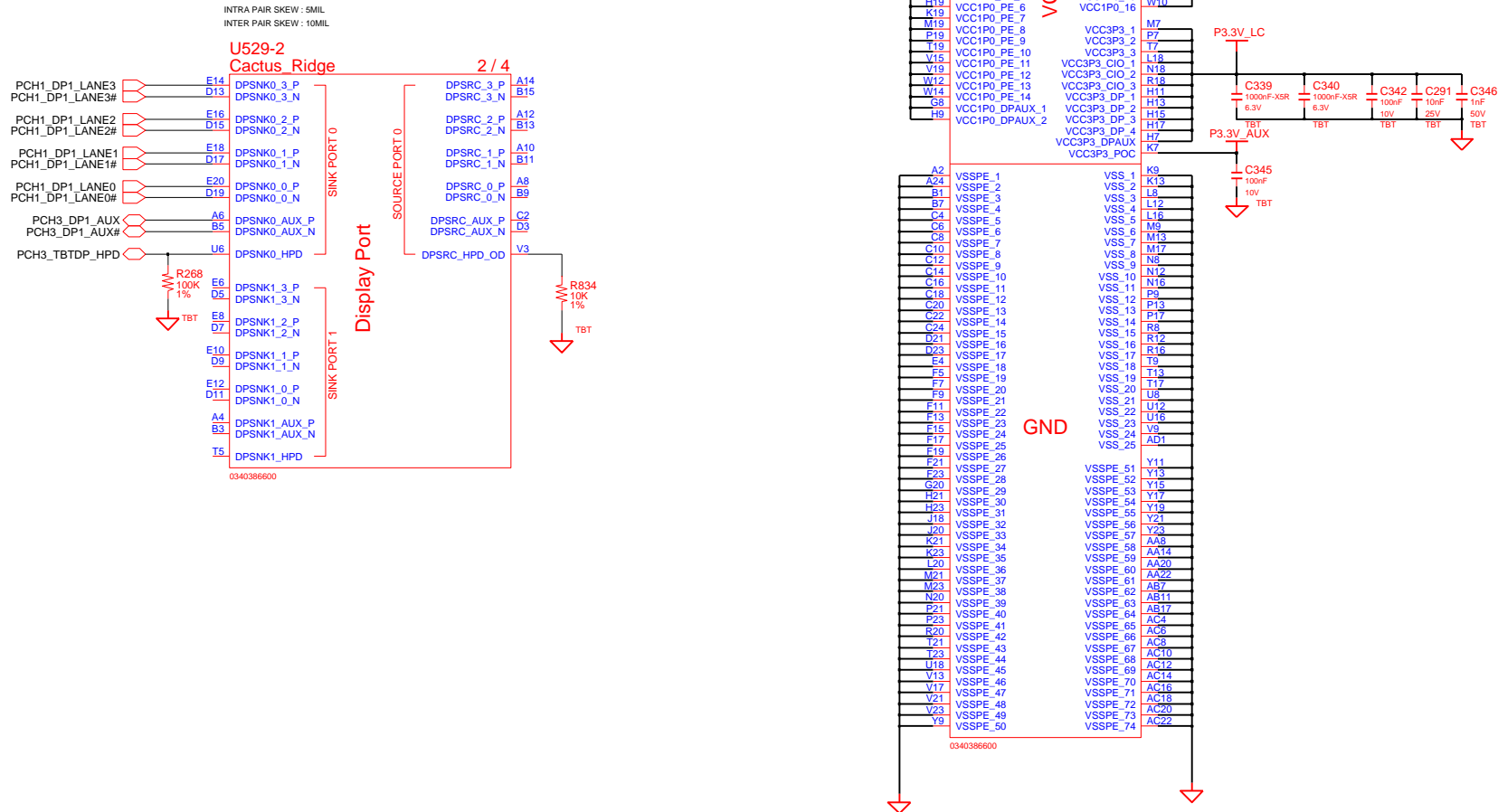


DRAW	WK.YEO	DATE	02/17/2010	TITLE	Nike17	SAMSUNG
CHECK	BW.YOO	DEV. STEP	Proto	ThunderBolt	ThunderBolt	ELECTRONICS
APPROVAL	SH.LEE	REV	REV 0.8	Cactus Ridge Host	BA41-####A	PART NO.
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	72	OF 77

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CACTUS RIDGE



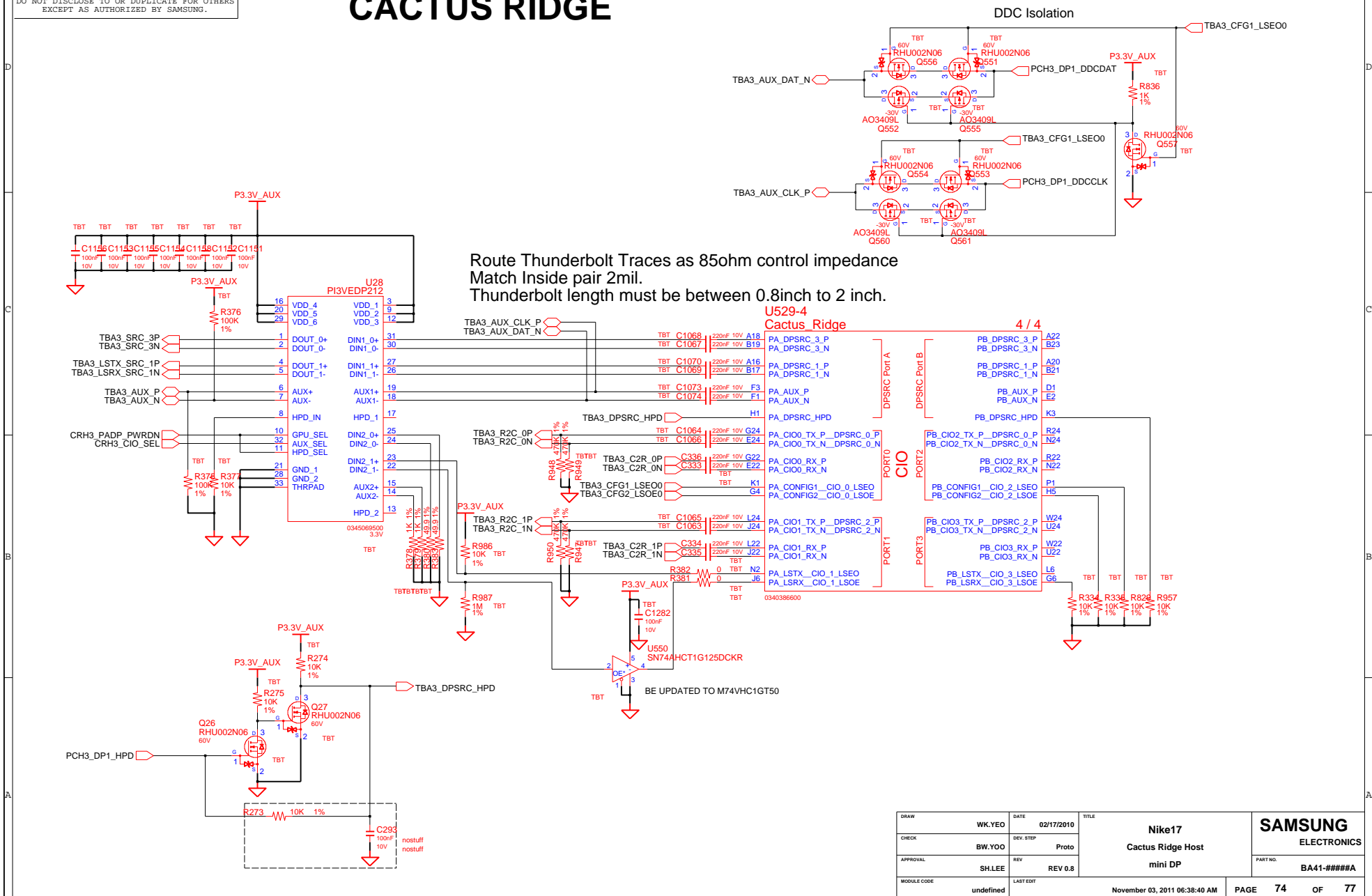
DRAW	WK.YEO	DATE	02/17/2010	TITLE	Nike17 Thunder Bolt Cactus Ridge Host	SAMSUNG ELECTRONICS
CHECK	BW.YOO	DEV. STEP	Proto			PART NO. BA41-####A
APPROVAL	SH.LEE	REV	REV 0.8			
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	73	OF 77

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CACTUS RIDGE

Route Thunderbolt Traces as 85ohm control impedance
Match Inside pair 2mil.
Thunderbolt length must be between 0.8inch to 2 inch.



DRAW	WK.YEO	DATE	02/17/2010	TITLE	Nike17
CHECK	BW.YOO	DEV. STEP	Proto		Cactus Ridge Host
APPROVAL	SH.LEE	REV	REV 0.8		mini DP
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	74 OF 77

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ELECTRONICS
PART NO.
BA41-####A

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CACTUS RIDGE DP CONNECTOR

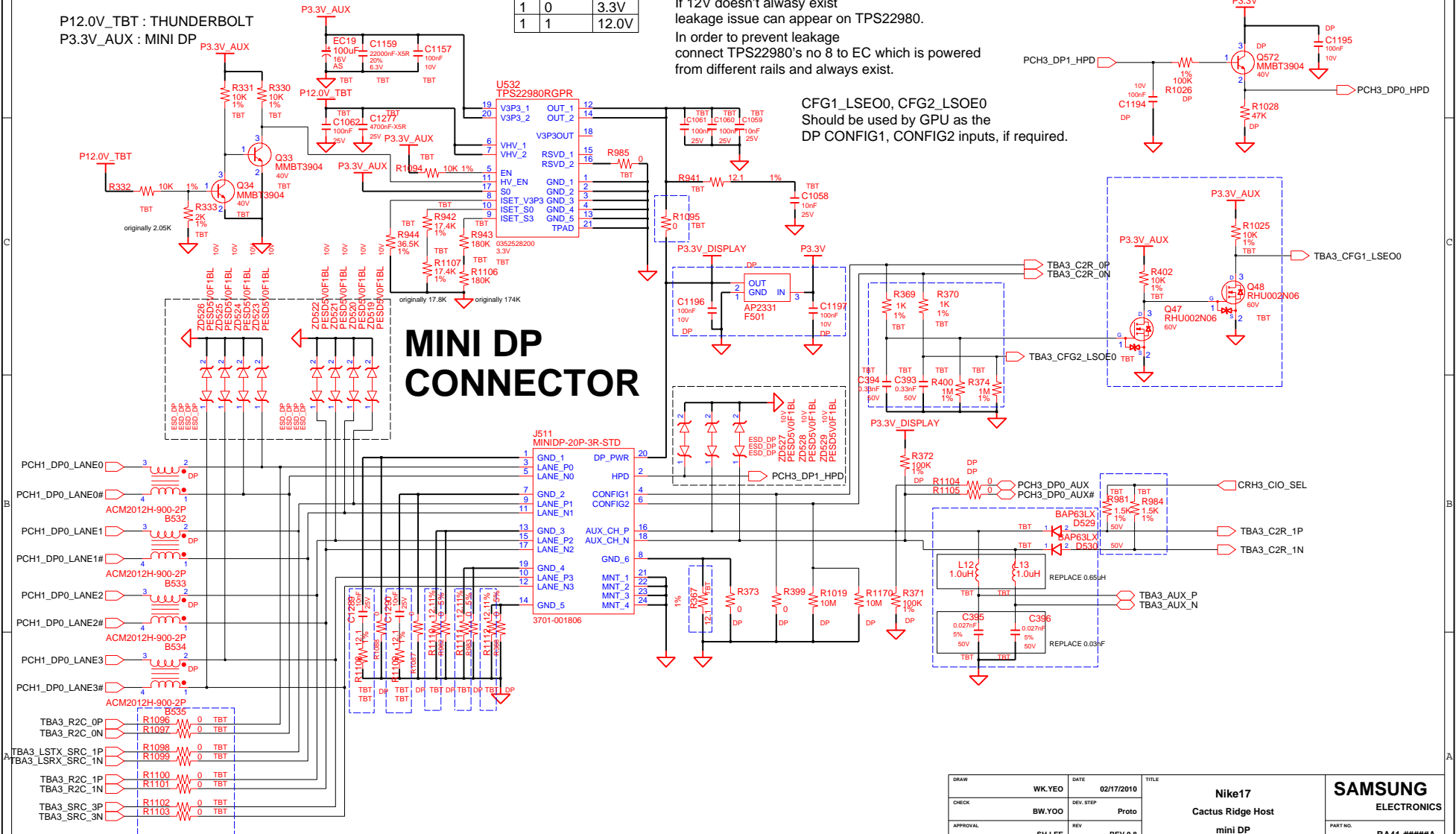
EN	HV_EN	OUT
0	0	0V
0	1	0V
1	0	3.3V
1	1	12.0V

If 12V doesn't always exist
leakage issue can appear on TPS22980.

In order to prevent leakage
connect TPS22980's no 8 to EC which is powered
from different rails and always exist.

CFG1_LSE00, CFG2_LSE00
Should be used by GPU as the
DP CONFIG1, CONFIG2 inputs, if required.

P12.0V_TBT : THUNDERBOLT
P3.3V_AUX : MINI DP

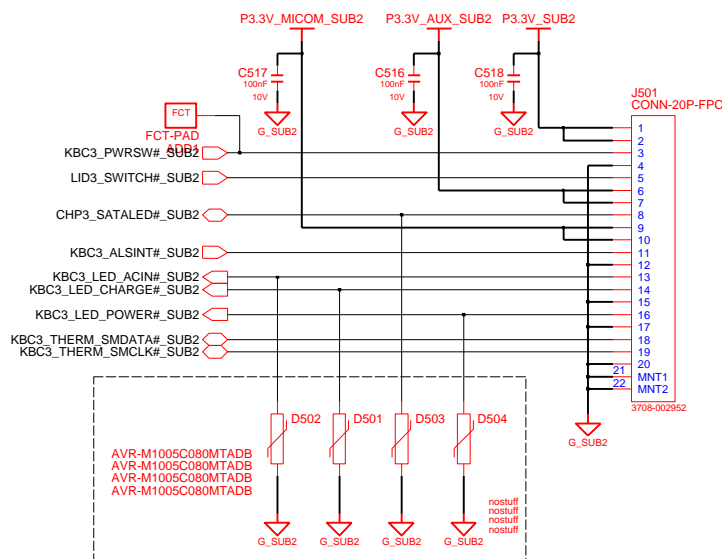


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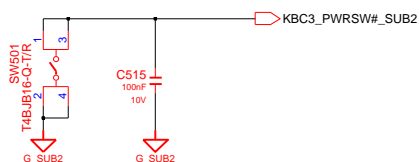
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POWER S/W & LID S/W & ALS & LEDSUB B'D2

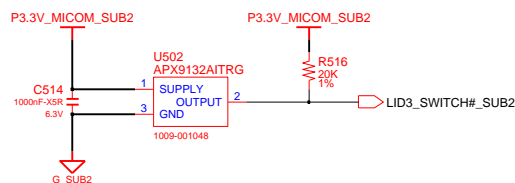
POWER S/W SUB TO MAIN



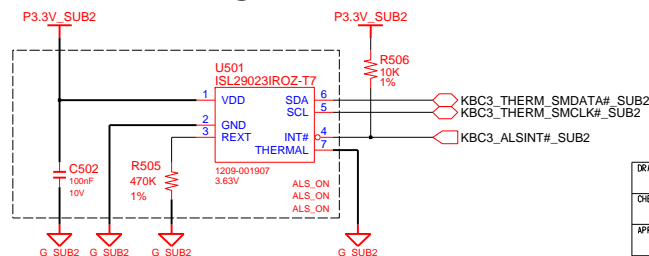
Power Switch Button



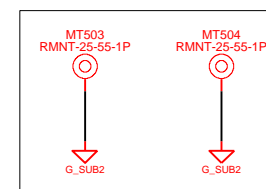
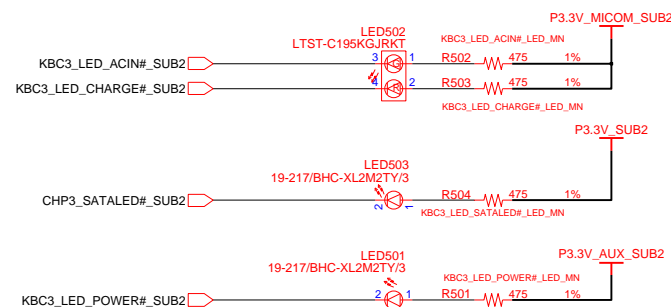
LID3_SWITCH



ALS



ADAPTERIN/CHARGING LED SUB



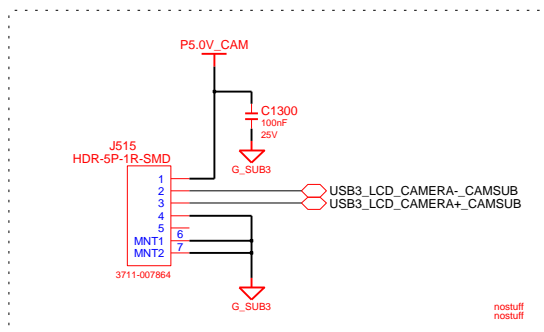
DRAW	WK.YEO	DATE	3/11/2011	TITLE	Nike17	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK	BW.YOO	DEV. STEP	Proto		P1.05V	
APPROVAL	SH.LEE	REV	REV 0.8		TI TPS51125	
MODULE CODE	undefined	LAST EDIT	November 03, 2011 06:38:40 AM	PAGE	76 OF 77	

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CAMERA FFC SUB B'D3

LCD CABLE SIDE



CAMERA FPC SIDE

