

Nike15-R-QC

CPU	: Ivybridge BGA QC
chip set	: Intel Panther Point
GFX	: NVIDIA N13P-GS INTEL HD 3000
Remarks	: ChiefRiver Platform

Model Name	:	NIKE15-R-QC
PBA Name	:	MAIN
PCB Code	:	BA41-0XXXXXA (GCE)
		BA41-0XXXXXA (NY)
		BA41-0XXXXXA (HAN)
Dev. Step	:	PVR
Revision	:	0.9
T.R. Date	:	2012.01.04

Design	CHECK	APPROVAL

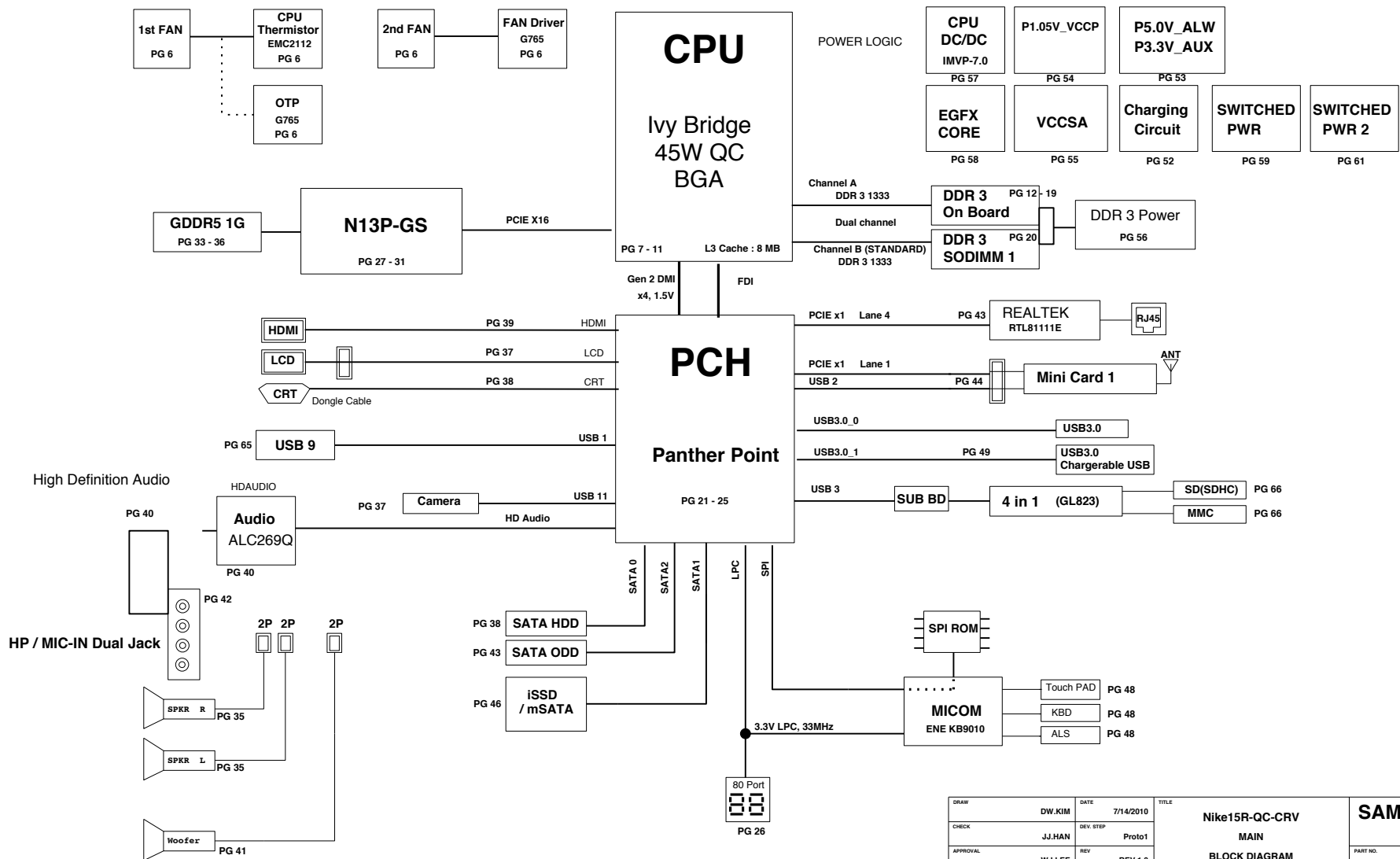
Owner: SEC Mobile R & D

Signature: X

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NAME	DATE	TIME	SAMSUNG		
CHK#	DW/KIM	7/14/2010	ELECTRONICS		
CHK#	EXP. REP.	Proto1	MAIN		
APPROVAL	REV	REV 1.0	COVER		
MODULE CODE	LAB EDIT		PART NO. BA41-####A		
November 30, 2011 2:21:17 PM			PAGE	1	OF 66

BLOCK DIAGRAM



DRAW	DW.KIM	DATE	7/14/2010	TITLE	Nike15R-QC-CRV	SAMSUNG ELECTRONICS
CHECK	JJ.HAN	DEV. STEP	Proto1	MAIN		
APPROVAL	WJ.LEE	REV	REV 1.0	BLOCK DIAGRAM		PART NO. BA41-####A
MODULE CODE	undefined	LAST EDIT	November 30, 2011 22:21:17 PM	PAGE	2	OF 66

BOARD INFORMATION

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 Micom) 5.0V always power rail 5.0V always power rail
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)
P5.0V P3.3V P1.8V P1.5V P0.75V	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)
VCC_CORE VCC_CORE2 P1.05V_VDDCP	Core Voltage for CPU Core Voltage for GPU VCC for CDS/SENSOR
	S0

USB PORT Assign	PCI Express Assign
PORT #	PORT #
0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	NC
9	NC
10	NC
11	NC
12	NC
13	NC

SATA PORT Assign
PORT #
0
1
2
3
4
5

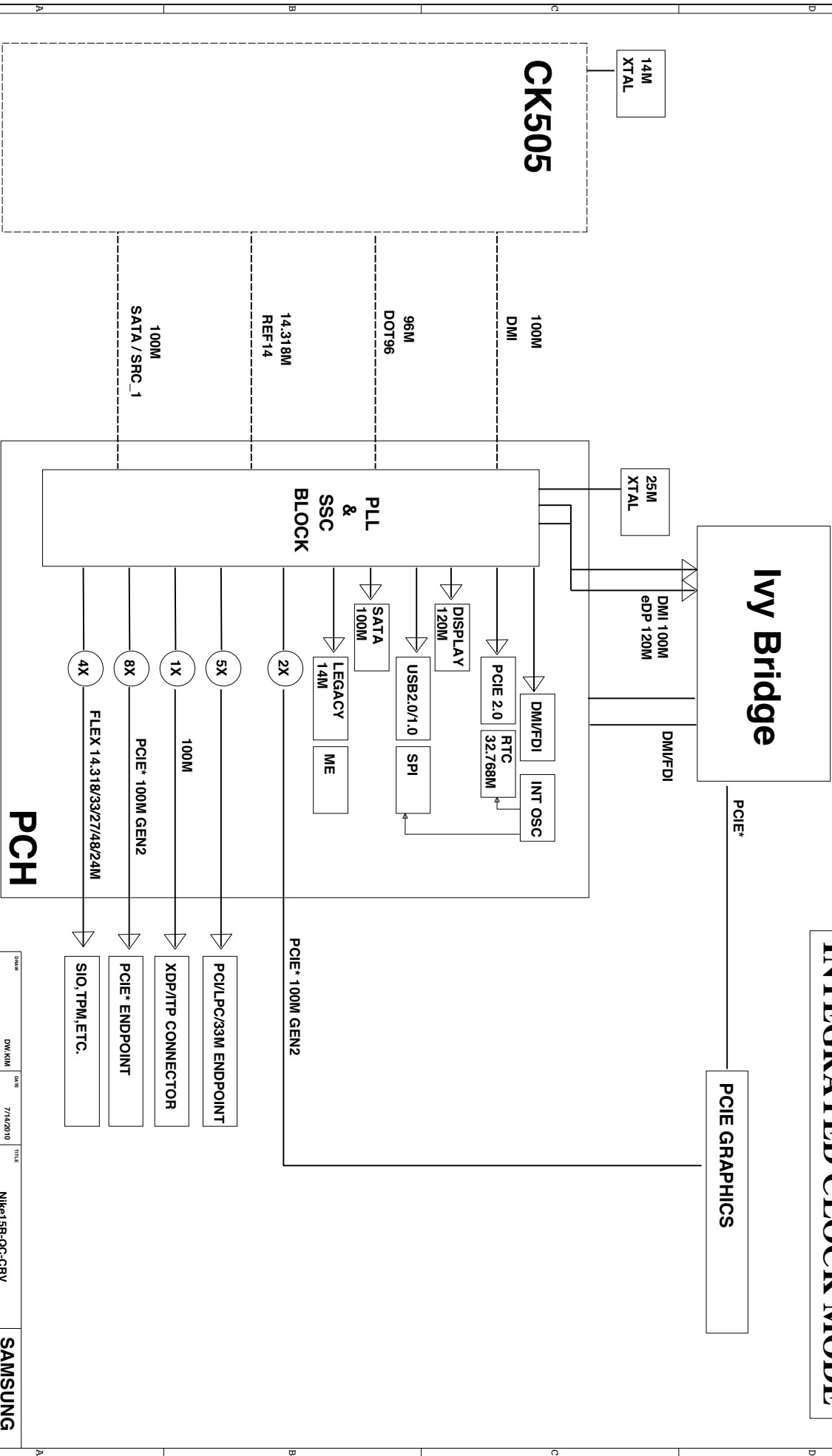
Crystal / Oscillator
TYPE
FREQUENCY
DEVICE
USAGE
Crystal
32.768KHz
Crystal
25MHz
Crystal
27MHz
PANTHER POINT
LAN
PANTHER POINT
CHELSEA
Real Time Clock
REALTEK

LCD Pannel Detect (TBD)
Devices
Resolution
PANNEL_DETECT_0

I ² C / SMB Address
Devices
Address
Hex
Bus
PANTHER POINT
Master
CPU Thermal Sensor
0011 000X
30h
SMBUS Master
Thermal Sensor
1010 000X
AAh
SODIMM
1010 010X
AAh
Thermal Sensor on SODIMM
1011 010X
30h
Thermal Sensor on board
1001 100X
98h
Platform thermal management TS
1001 011X
96h

DATE	DATE	TITLE	
7/14/2010	7/14/2010	Nike15R-OC-CHV	SAMSUNG
CHK	ENG STEP	MAIN	ELECTRONICS
APPROVAL	REV	BOARD INFO	
WALLEE	REV 1.0		BA41-####A
MOBILE CODE	LAST EDIT	November 30, 2011 22:21:17 PM	PAGE 3 OF 66



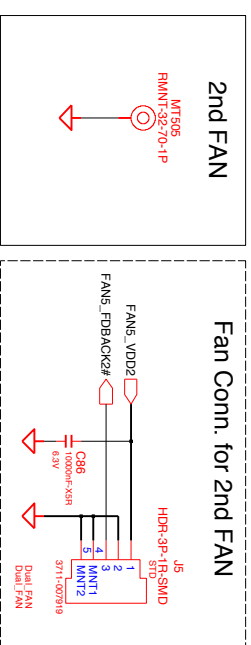
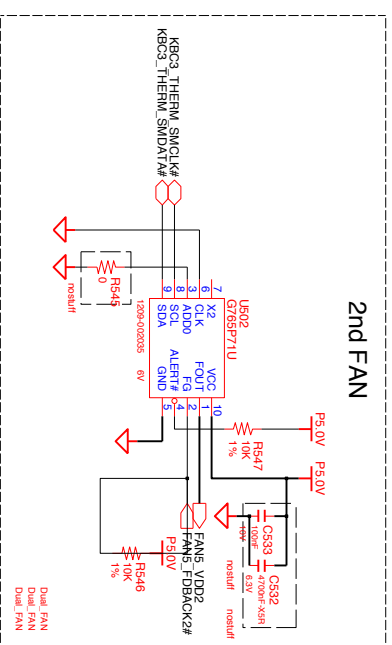


CLOCK DISTRIBUTION INTEGRATED CLOCK MODE

Rev. 1.0

DATE	DATE	TITLE	DATE	DATE
7/11/2010	7/11/2010	NIKE15R-OC-CRV	7/11/2010	7/11/2010
7/11/2010	7/11/2010	MAIN	7/11/2010	7/11/2010
7/11/2010	7/11/2010	CLOCK DIAGRAM	7/11/2010	7/11/2010
7/11/2010	7/11/2010	November 30, 2011 22:21:17 PM	7/11/2010	7/11/2010
7/11/2010	7/11/2010	PAGE	7/11/2010	7/11/2010
7/11/2010	7/11/2010	5	7/11/2010	7/11/2010
7/11/2010	7/11/2010	OF	7/11/2010	7/11/2010
7/11/2010	7/11/2010	66	7/11/2010	7/11/2010

THERMAL SENSOR & FAN CONTROL




1st FAN

MT1
RMNT-32-70-1P

MT2
RMNT-32-70-1P

K...armot...del...

DESIGN	DATE		
DW/KIM	7/14/2010		
CHECK	REV. STEP		
JJH/M	Proto1		
APPROVAL			
W/LLEE	REV. 1.0	THERMAL SENSOR EMC2112 PART NO. BAA1-####A	
WORK CODE	LAST EDIT	November 30, 2011 22:21:17 PM PAGE 6 OF 66	



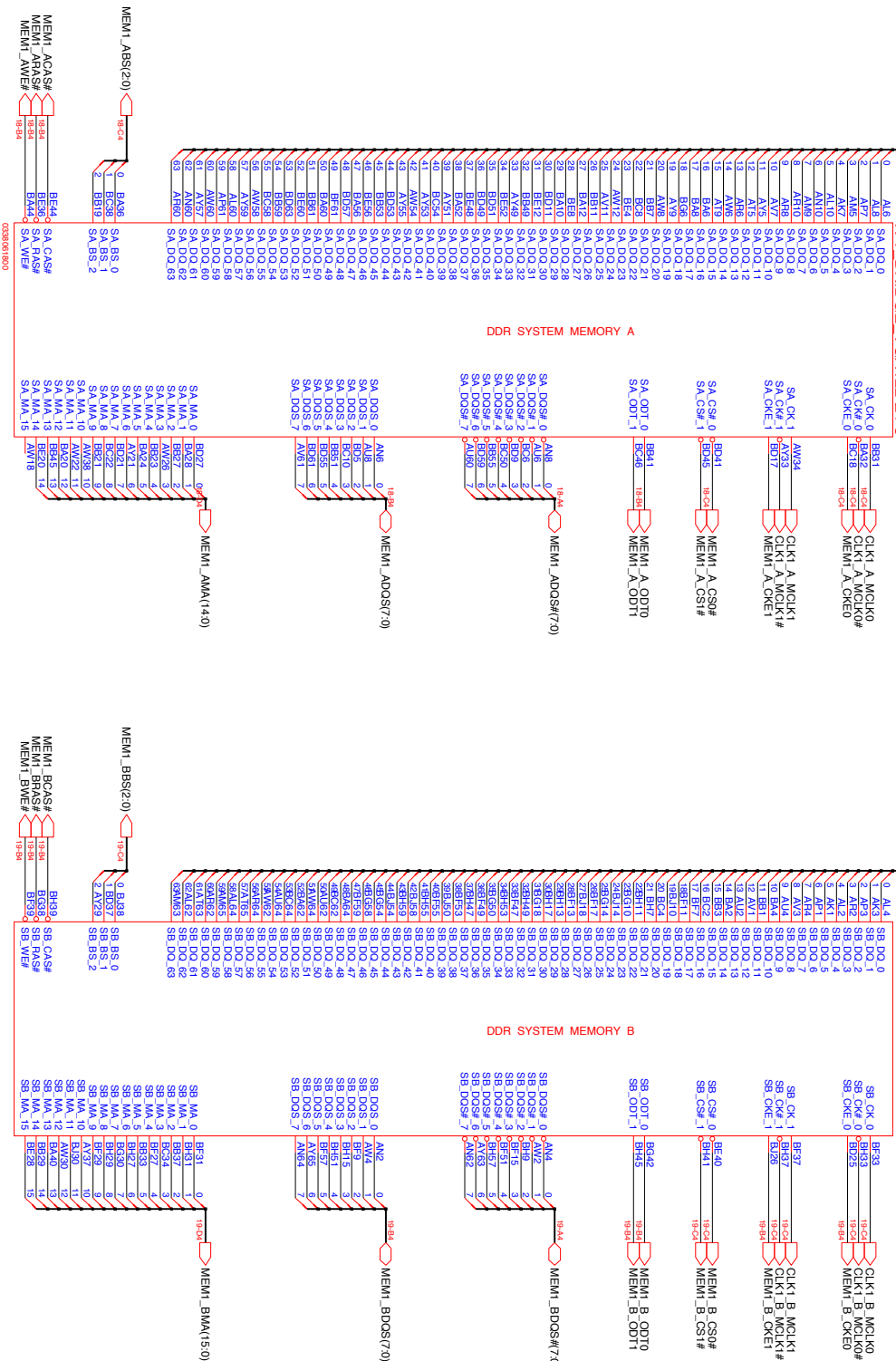
MEM1_ADQ(63:0) 18-C4

CPU1-2
IVY BRIDGE VGA1224/5

MEM1_BDQ(63:0) 19-34

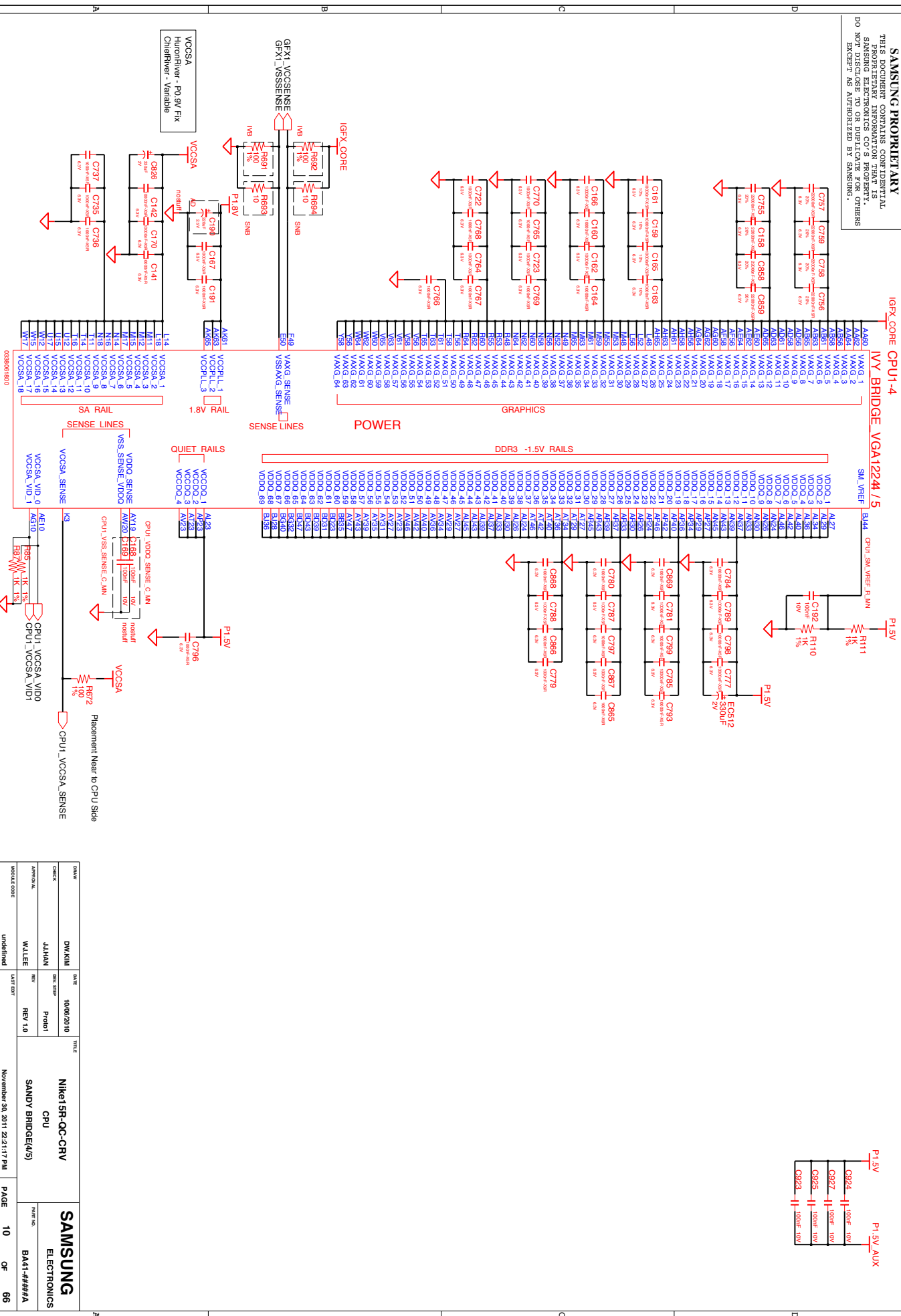
DDR SYSTEM MEMORY A

DDR SYSTEM MEMORY B

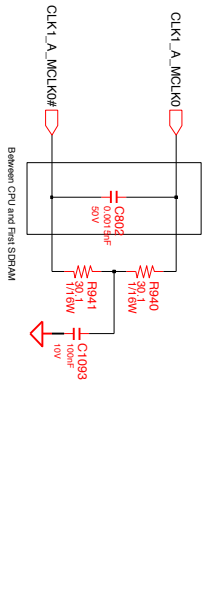
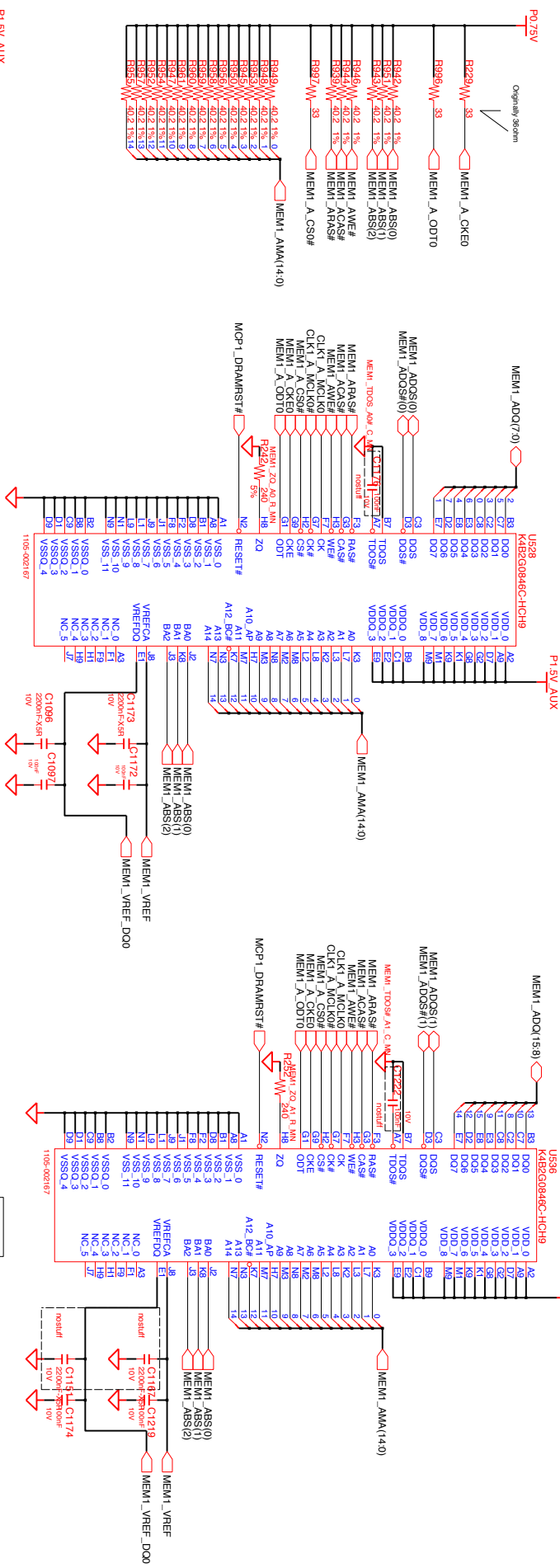




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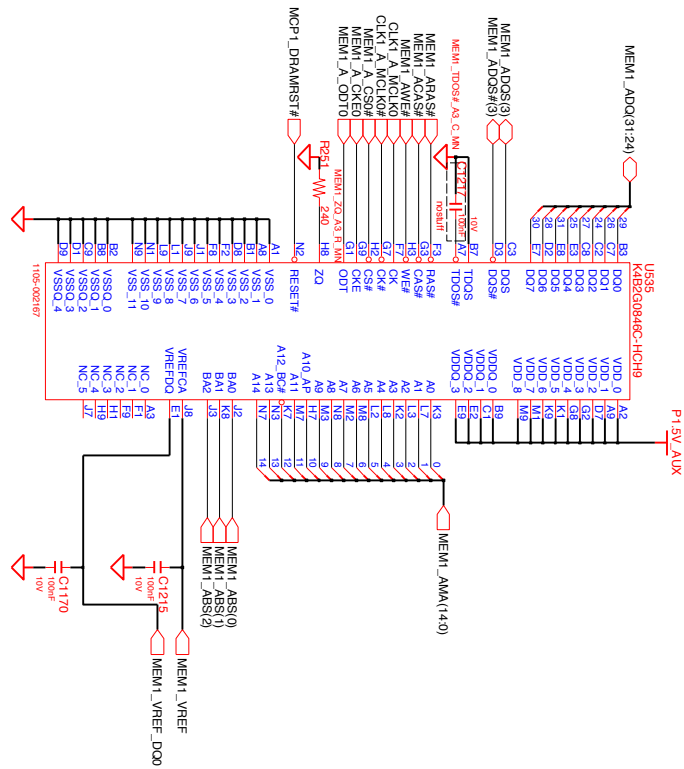


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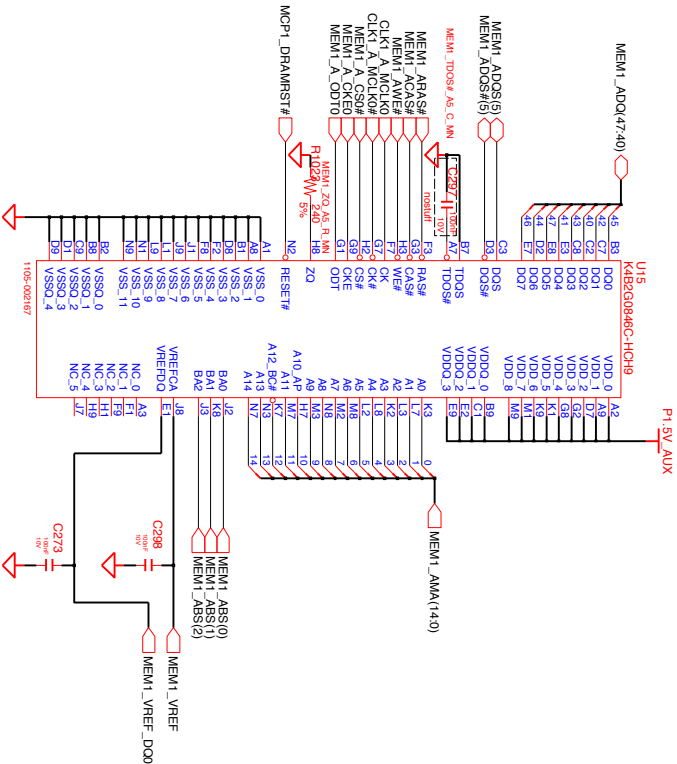
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DW/AM	100220 10	Nike15R-OC-CRV	
CHICK	REV. #101	MEMORY #0 (1/4)	
APPROX.	PROB	DDR8 2GB #0	
MODEL CODE	REV 1.0		
underlined	LAST EDIT	November 30, 2011 12:22:17 PM	PART NO. BA41-####A
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1 RANK



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1 RANK



DRAM	DATE	TITLE
DW-KIM	10022610	
CHICK	DRY GRIP	
ARMCHA	Prd01	
MOOD CODE	REV 1.0	
unfilled	14 OCT 2011	

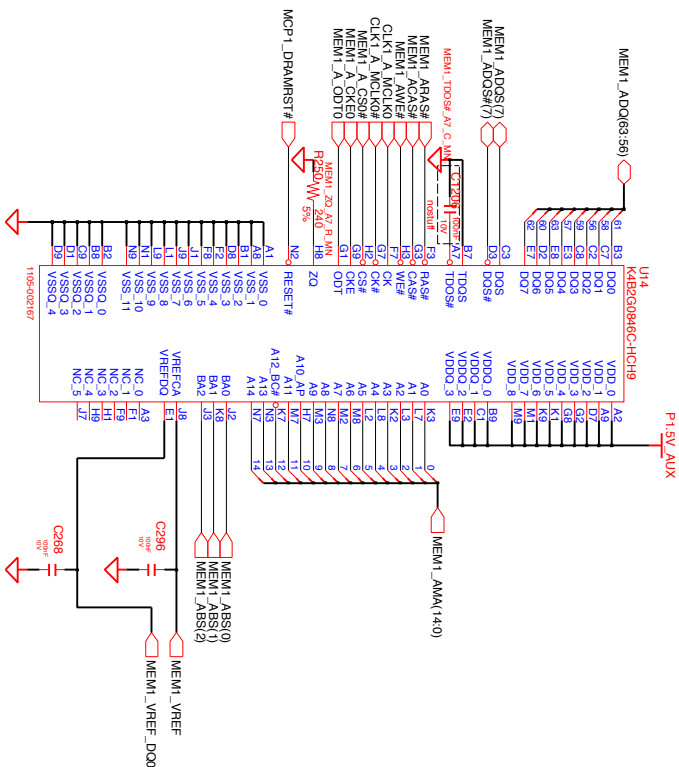
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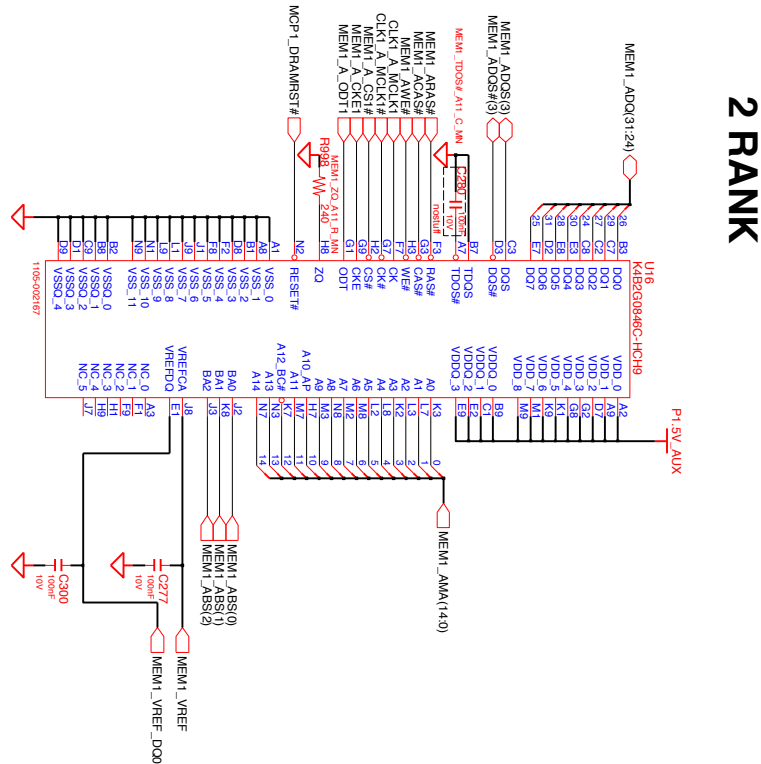
SAMSUNG
ELECTRONICS

MEMORY #0 (3/4)
DDR3 ZCB #0
BA41-####A

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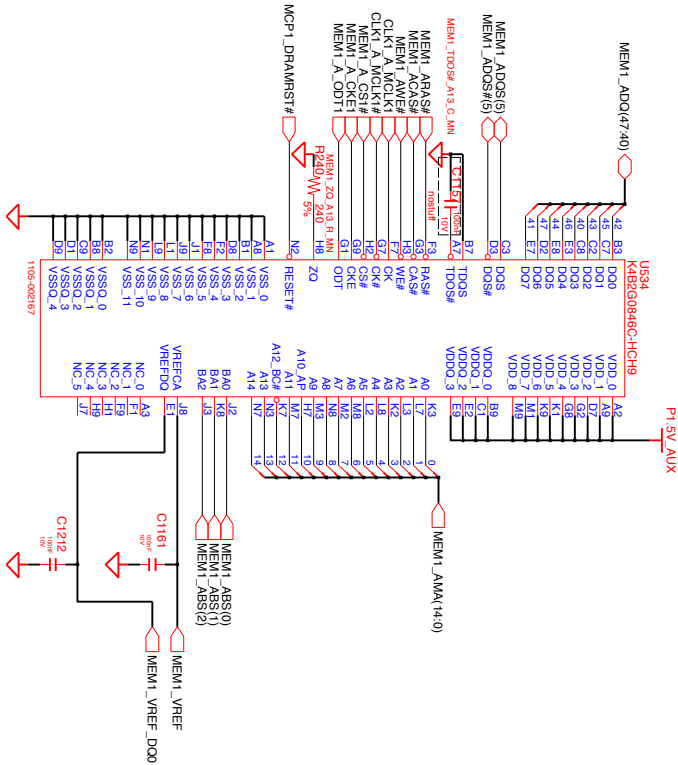
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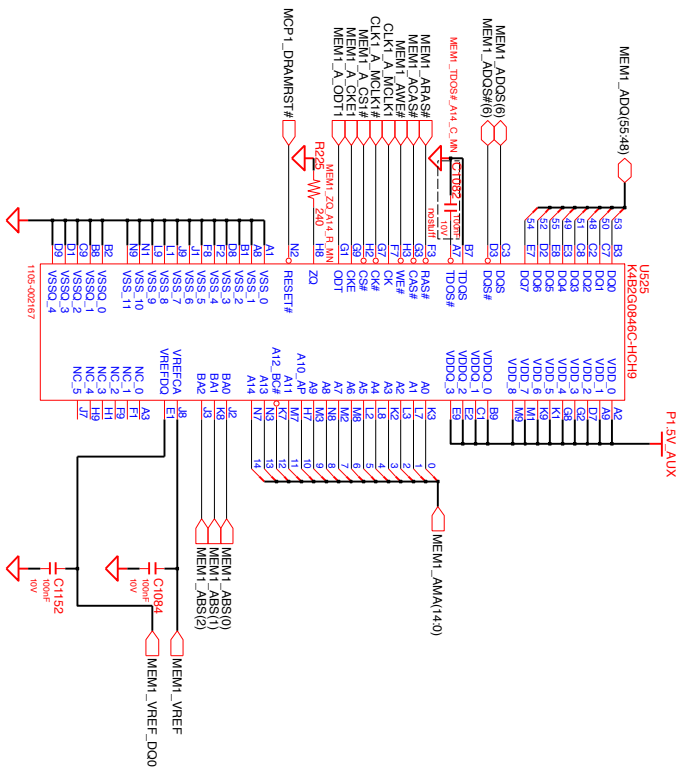
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DW/KM	1002920		
CHICK	DRY REP	P-001	
APPROVAL	REV	REV 1.0	
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		November 30, 2011 22:21:17 PM	PAGE 17 OF 66

2 RANK

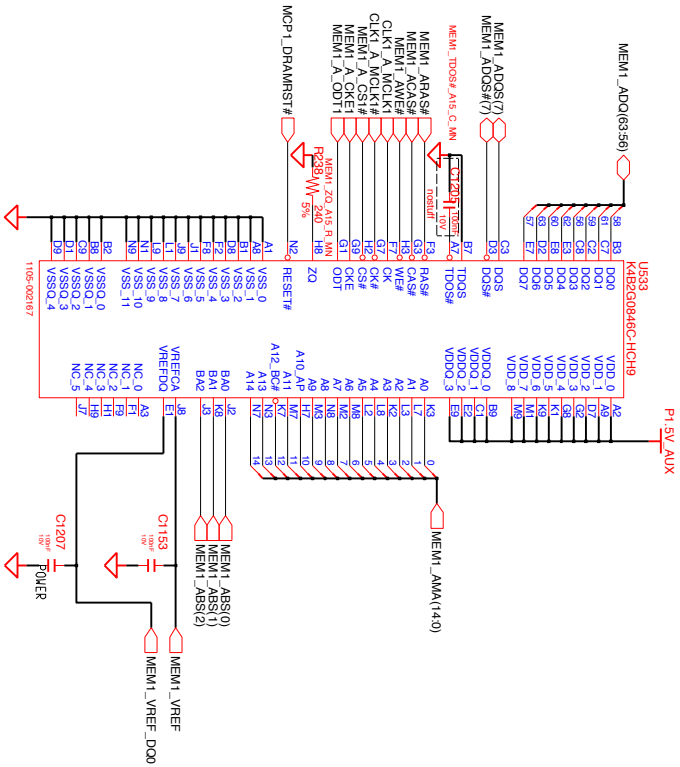


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DESIGN	DW/KIM	10029210	
CHECK	DRY/IMP	P-001	
APPROVAL	J.H.KIM	MEMORY #0 2FAK(S)4	
MODEL CODE	WJLEE	DDH3 ZGB #0	
	REV. 1.0		
UNFILED	LAST EDIT	November 30, 2011 22:21:17 PM	PAGE 18 OF 66
		PART NO.	BAA1-####A

2 RANK



2 RANK



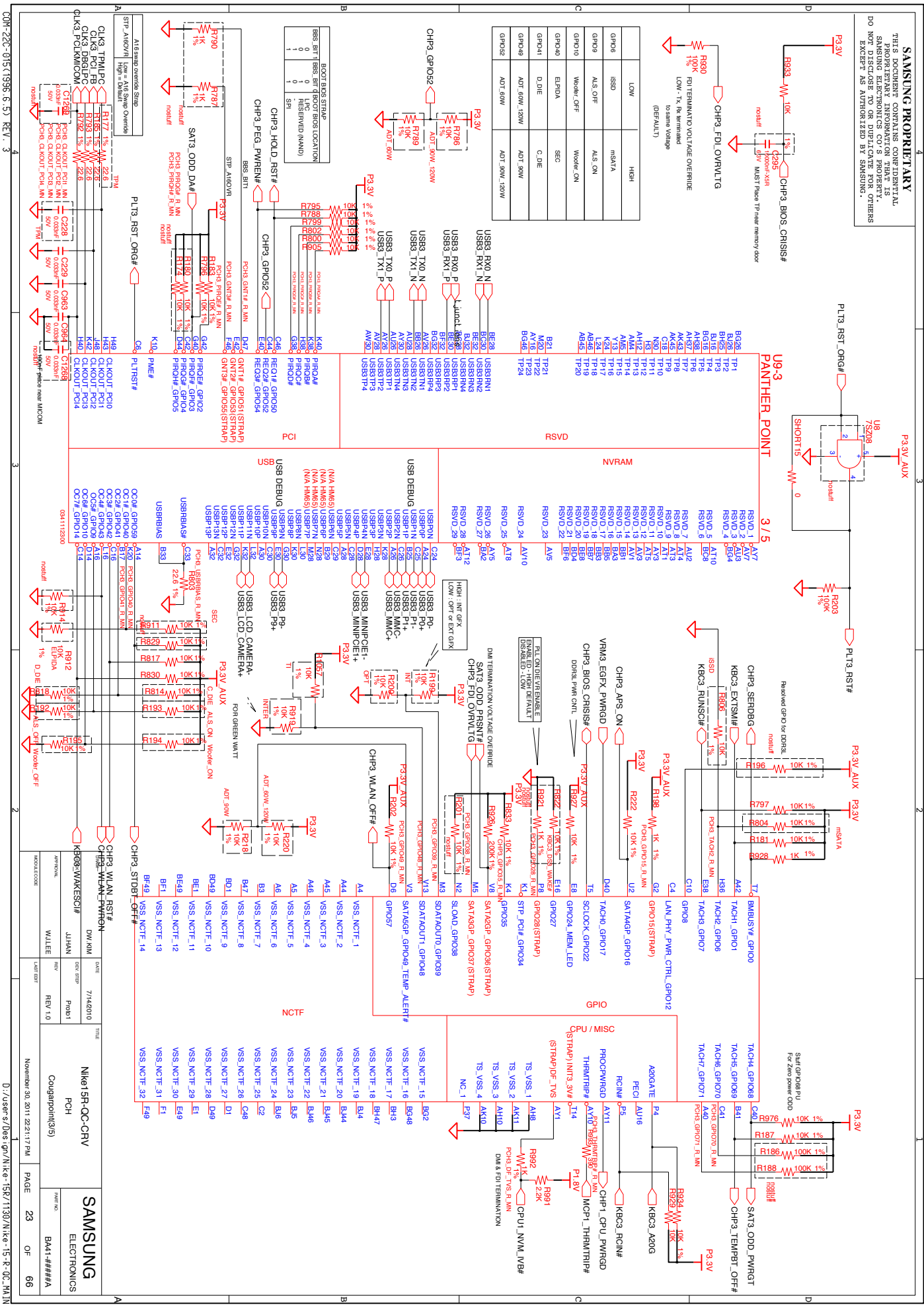
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DM KM	DM KM	10022010		
CHICK	DM KM	P001	MEMORY #0 2 BANK(44)	
APPROVA	REV	REV 1.0	DDR3 ZCB #0	
MODEL CODE	LAST BIRT		PAGE	19 OF 66
unfilled	unfilled	November 30, 2011 22:21:17 PM		



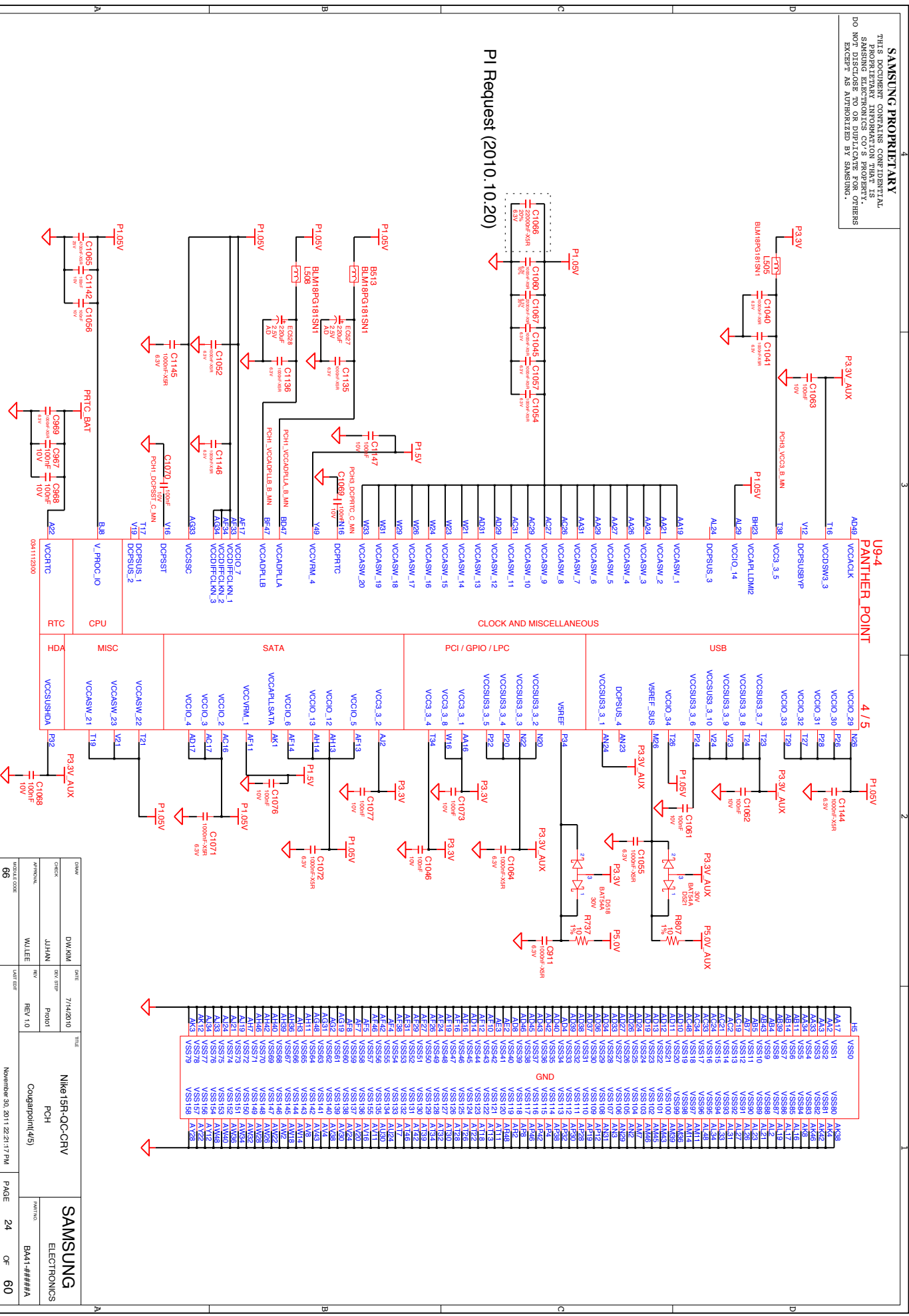
POI

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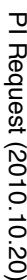


P1 Request (2010.10.20)



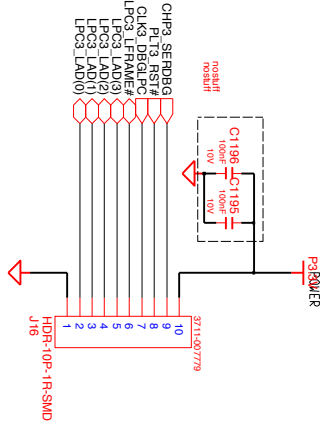
U9-5

This power share with thermal sensor

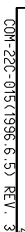


NAME	TITLE	
DW.KIM	DATE 7/14/2010	Nike15R-QC-CRV
		SAMSUNG

80H PORT DEBUG



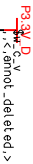
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CHECK	J.HAN	REV STEP	Proto1		DEBUG PORT	ELECTRONICS
APPROVAL	W.LEE	REV	REV 1.0		SPI ROM & 80H DECODER	BA41-####A
MOBILE CODE		LAST EDIT	November 30, 2011 2:21:17 PM	PAGE	26	OF 66



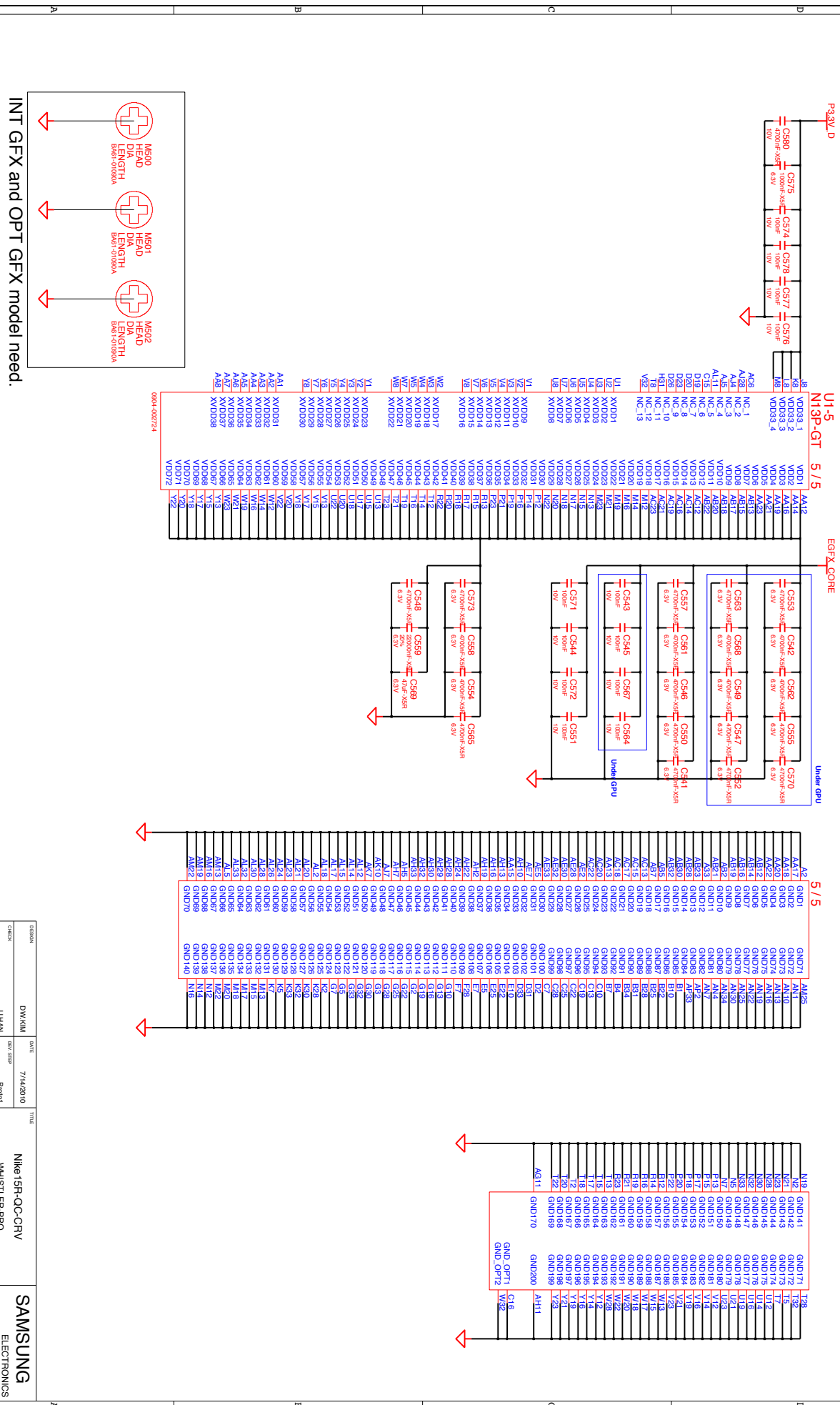




PERSON	TITLE		SAMSUNG	
DESIGN	DW/KIM	DATE	7/14/2010	Ni615R-QC-CRY
CHECK	REV	STEP		WHISTLER-PRO
APPROVAL	JJHAN	PROJ		WHISTLER-PRO (3/5)
	WALLE	REV 1.0		
PROJECT CODE	DATE SENT	PAGE		OF
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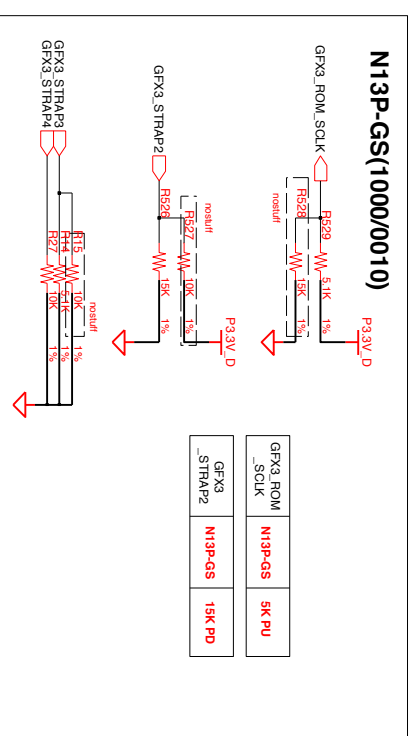
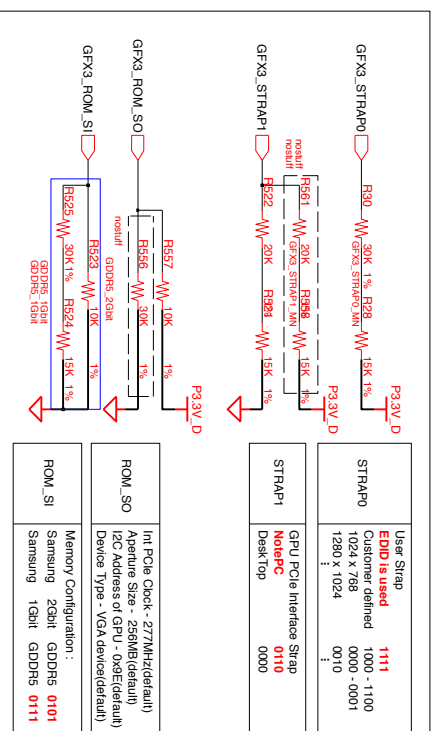
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ENV. STEP	PROT01		Nile615R-QC-CRV WHISTLER-PRO			
ENV.			PART NO BAA1-####A			
REV	REV 1.0		WHISTLER-PRO (4/5)			
LAST EDIT	November 30, 2011 5:21:17 PM		PAGE	30	OF	66



REVISION		DATE	TITLE	SAMSUNG	
CHECK	DW/KIM	7/14/2010	Nike15R-OC-GRV	ELECTRONICS	
APPROVAL	J.HAN	Prod1	WHISTLER-PRO		
REV	WLEE	REV 1.0	WHISTLER-PRO (S5)	BA41####A	
MOBILE CODE		LAST EDIT	November 30, 2011 2:21:17 PM	PAGE	31 OF 66

N13x STRAP

Function Straps



RESISTOR		PULL UP	PULL DOWN	STRAP PIN				BIT 0
				BIT 3	BIT 2	BIT 1		
5K	1000	0000	STRAP0	USER[3]	USER[2]	USER[1]	USER[0]	
10K	1001	0001	STRAP1	3G0_PADCFG[3]	3G0_PADCFG[2]	3G0_PADCFG[1]	3G0_PADCFG[0]	
15K	1010	0010						
20K	1011	0011	ROM_S0	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE	
25K	1100	0100	ROM_S1	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]	
30K	1101	0101	STRAP2	PCI_DEV[3]	PCI_DEV[2]	PCI_DEV[1]	PCI_DEV[0]	
35K	1110	0110						
45K	1111	0111	ROM_SCLK	PCI_DEV[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PULL_EN_TERM	

BRAND	DATE	TITLE	SAMSUNG	
DW/MAN	7/14/2010	NIN615R-QC-CRV	ELECTRONICS	
CHICK	REV. #00	GRAPHIC STRAP	PART NO.	
APPROVAL	JJHAN	PROTOT	BA41####A	
WJLEE	REV. 1.0	GRAPHIC STRAP		
MODEL CODE	LAST EDIT	November 30, 2011 2:21:17 PM	PAGE	32 OF 66



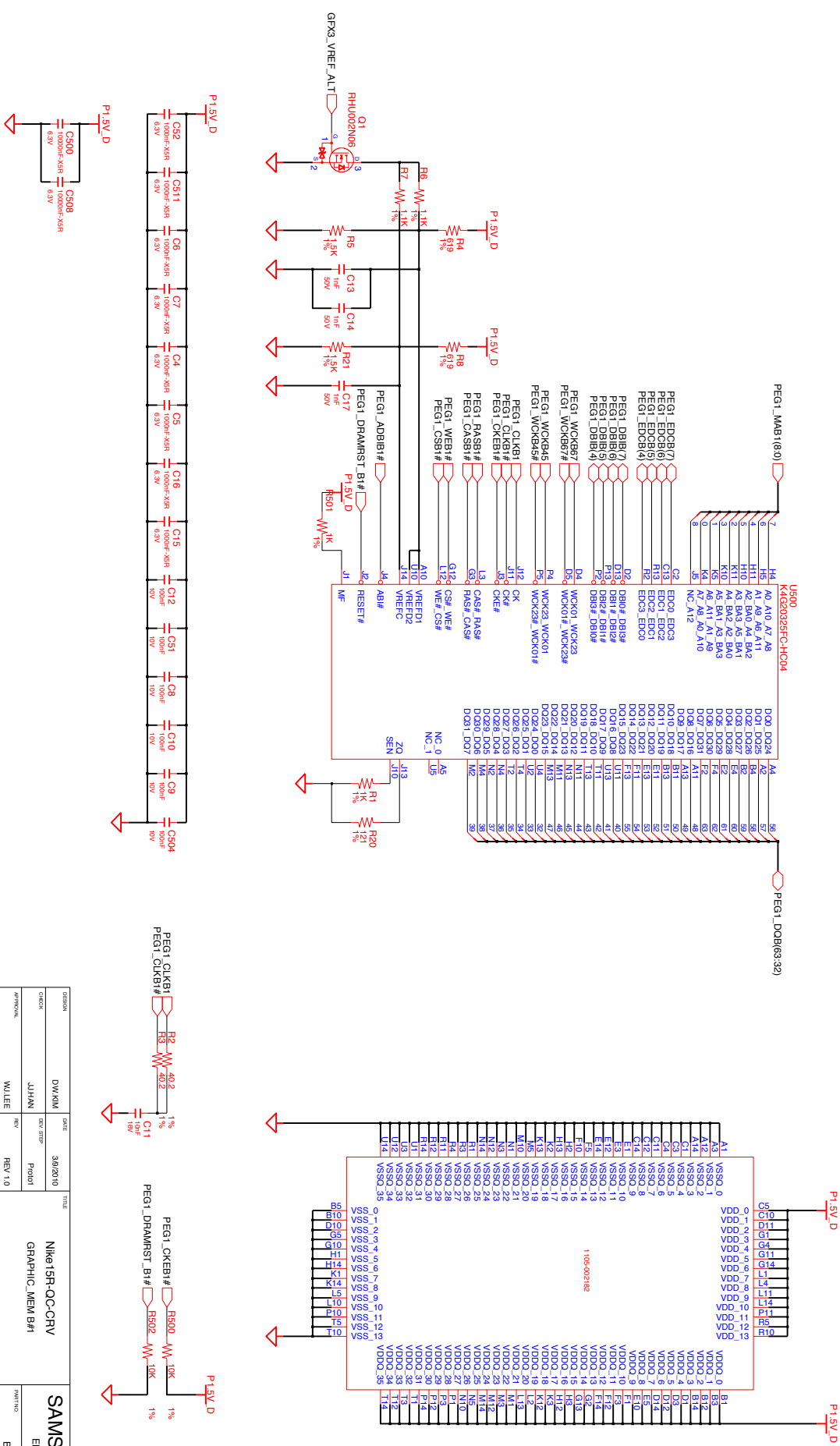


COM-22C-015(1996.6.5) REV. 3

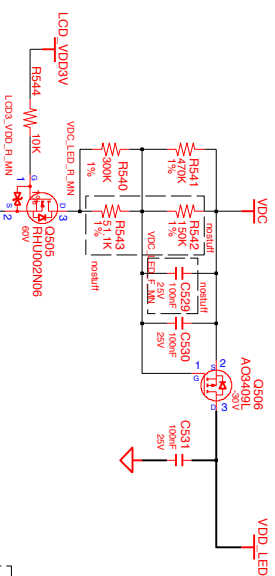


B-channel Upper Data

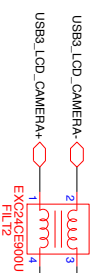
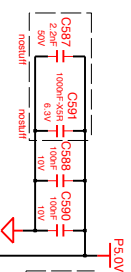
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LED Power

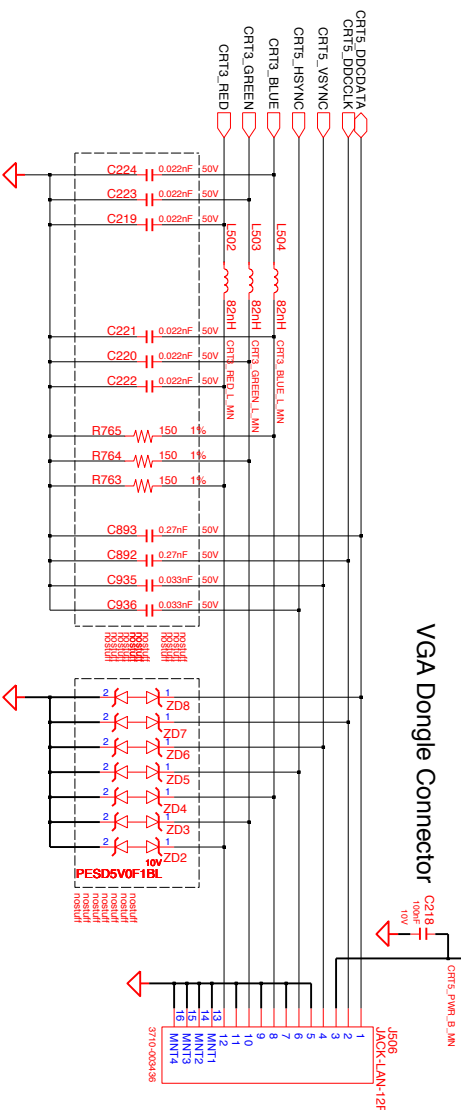
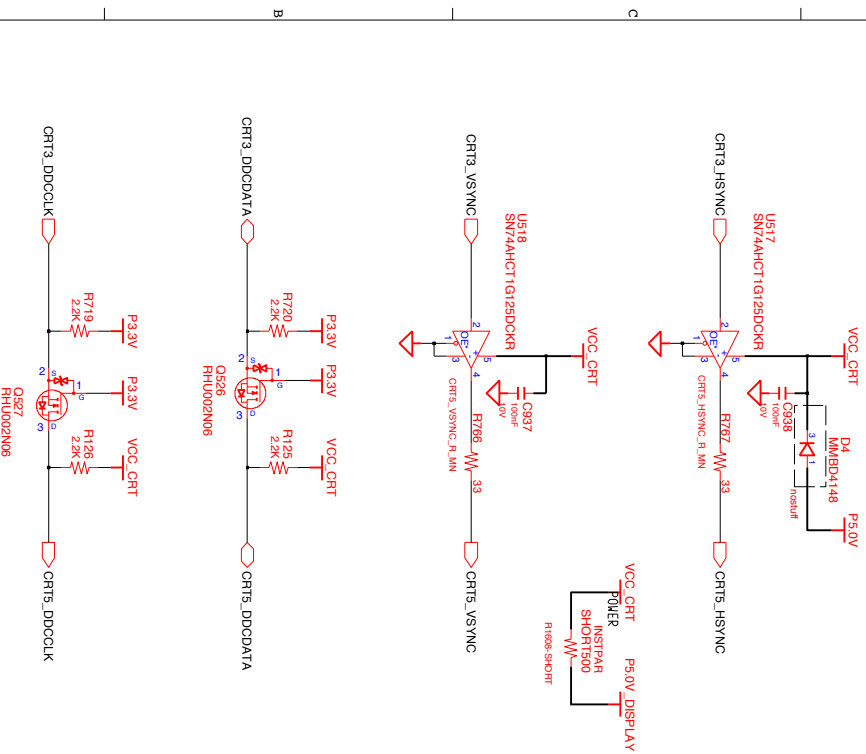


EBL Purpose



DESIGN	DWG NAME	TITLE
CHECK	REV STEP	Nike15R-OC-CRV GRAPHICS_I/F
APPROVALS	REV	LVD'S CAMERA
WALLEE	REV 1.0	PART NO.
WORKLOG CODE	LATEST	BAA1-####A
	November 30, 2011 12:21:17 PM	PAGE 37 OF 66

VGA Dongle Conn.



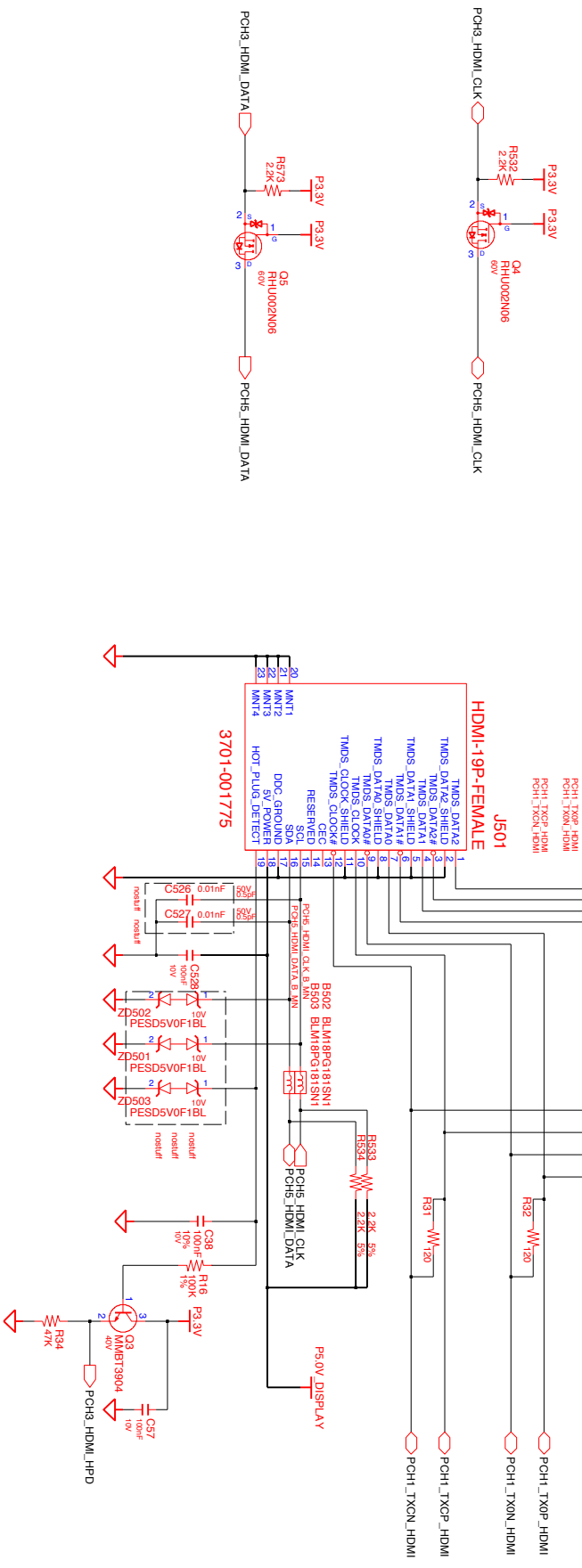
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DWKIM		7/11/2010		Nikel15R-OC-CRV		ELECTRONICS	
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WALLEE		REV 1.0		VGA Dongle			
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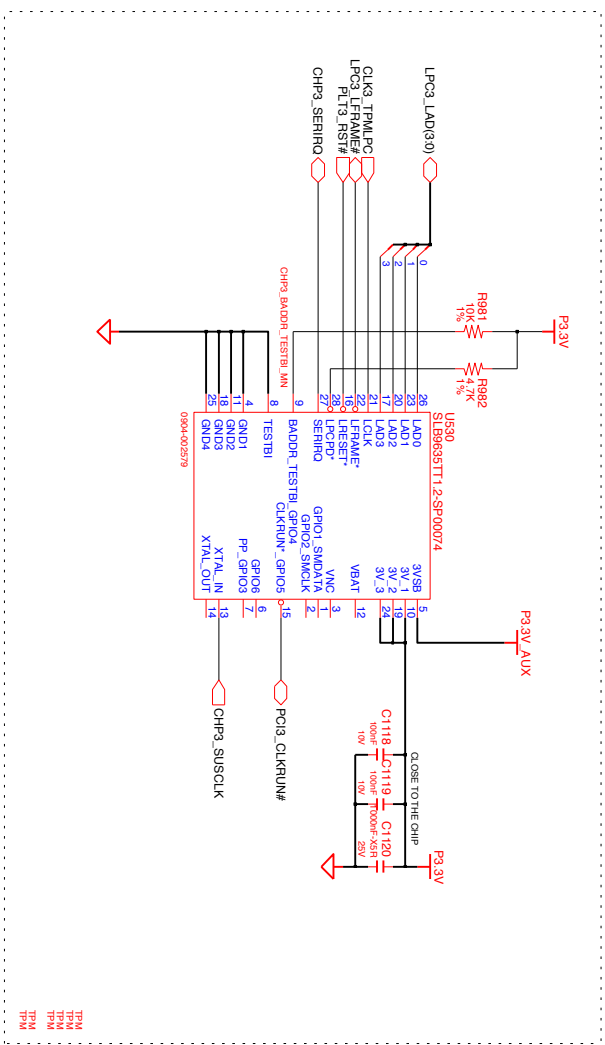
(EMC request at 2010.04.15)

STANDARD NET NAME	
Display from PCH	Display from GPU
PCH3_HDMI_XXX	PEG3_HDMI_XXX
PCH1_XXXX_HDMI	PEG3_XXXX_HDMI

STANDARD NET NAME

FOR HDMI VERIFICATION TEST





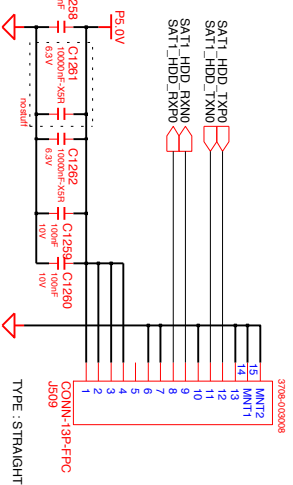
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APPROVAL	W.LEE	REV	REV 1.0	TPM			
MODEL CODE	LAST EDIT			November 30, 2011 22:21:17 PM	PAGE	42 OF 66	



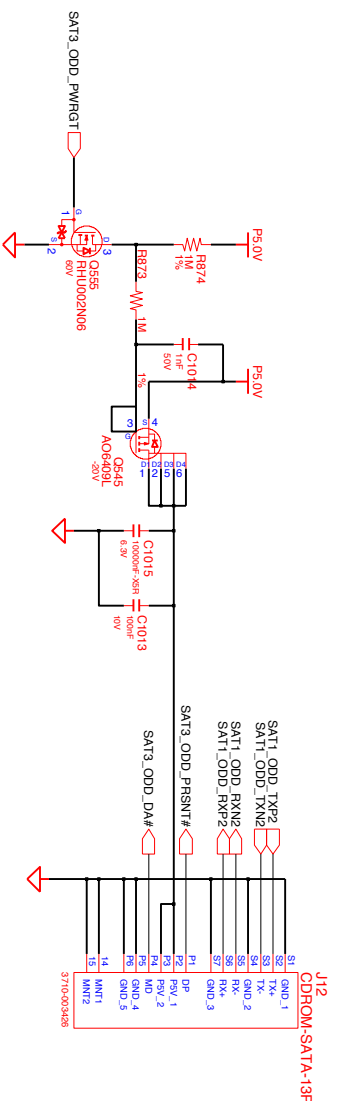
SATA I/F CONN

SATA HDD CONN

Cable Connector Type



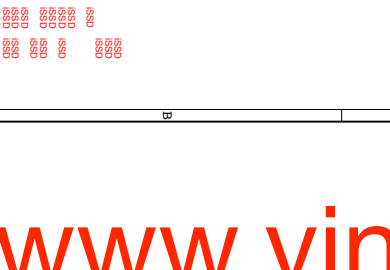
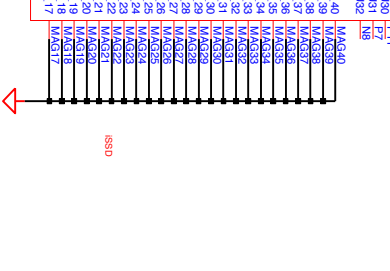
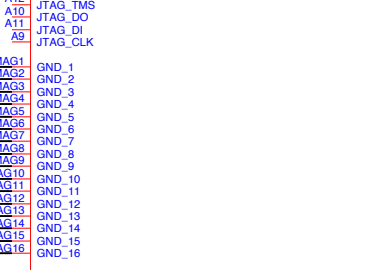
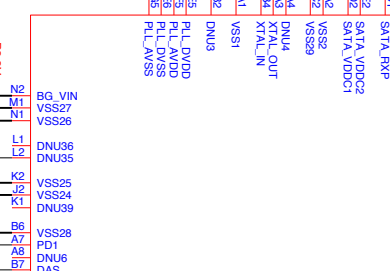
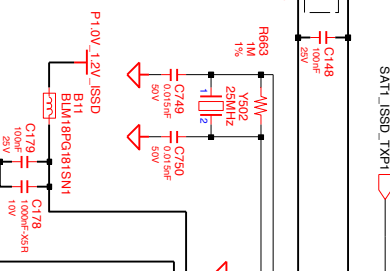
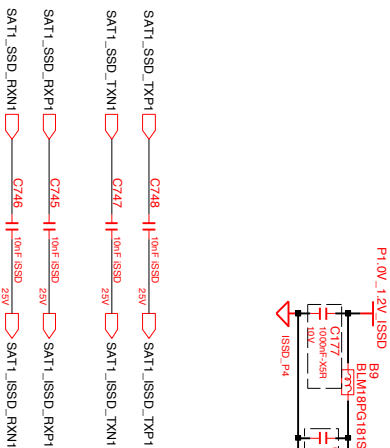
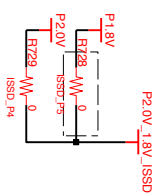
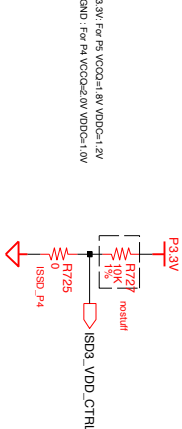
SATA ODD



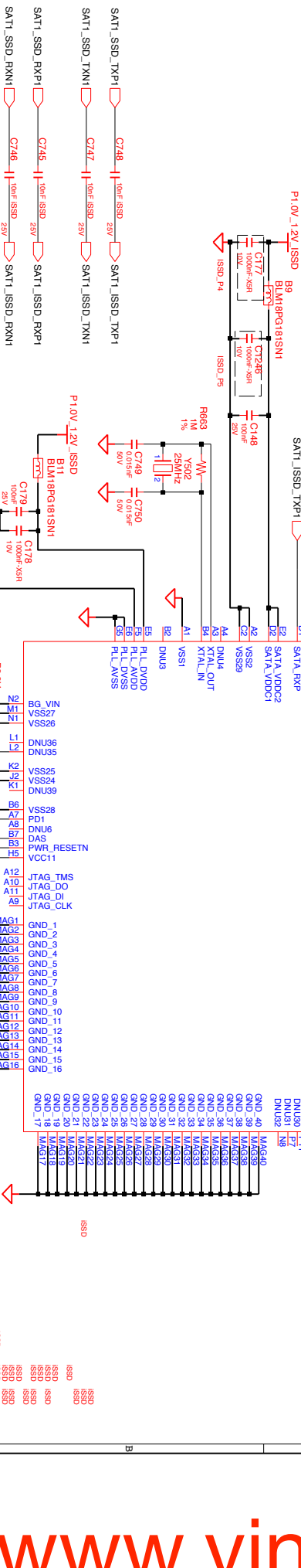
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CHECK	J.JIHAN	REV STEP	Proto1		SATA I/F	ELECTRONICS
APPROVAL	WALLEE	REV	REV 1.0		SATA I/F	BA41-####A
MOBILE CODE		LAST EDIT	November 30, 2011 22:21:17 PM	PAGE	45	OF 66

ISSD

3.3V Pwr P5 VCC0+1.8V VDDC+1.2V
GND Pwr P4 VCC0+2.0V VDDC+1.0V



U508
SDIS4BH-006G
BAG-03190A

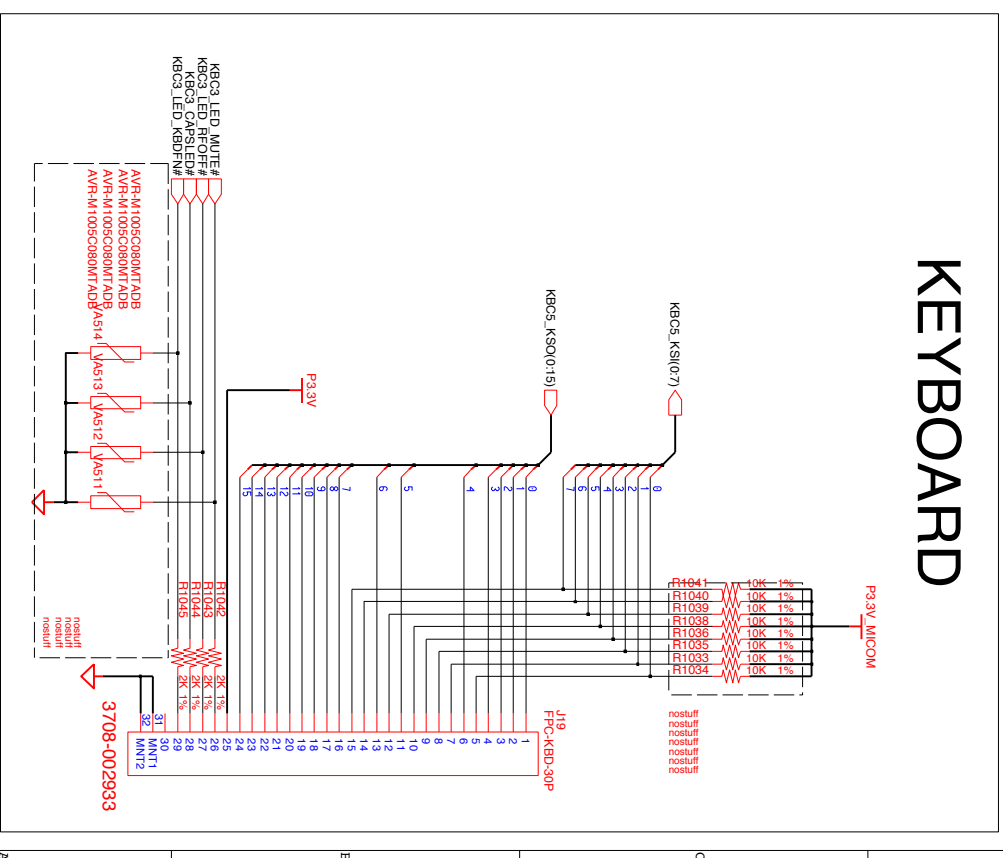


REVISION	DATE	TITLE	DESIGNER	CHECKER	APPROVAL	MOBILE CODE
10/22/2010	10/22/2010	NIKE15R-OC-CRV	DWIKIM	JJHAN	WALLEE	15R-OC-MAN
REV 1.0	REV 1.0	SATA DEVICES	Proot	REV 1.0	REV 1.0	REV 1.0
ISSD	ISSD	ISSD	ISSD	ISSD	ISSD	ISSD
BA41-####A	BA41-####A	BA41-####A	BA41-####A	BA41-####A	BA41-####A	BA41-####A

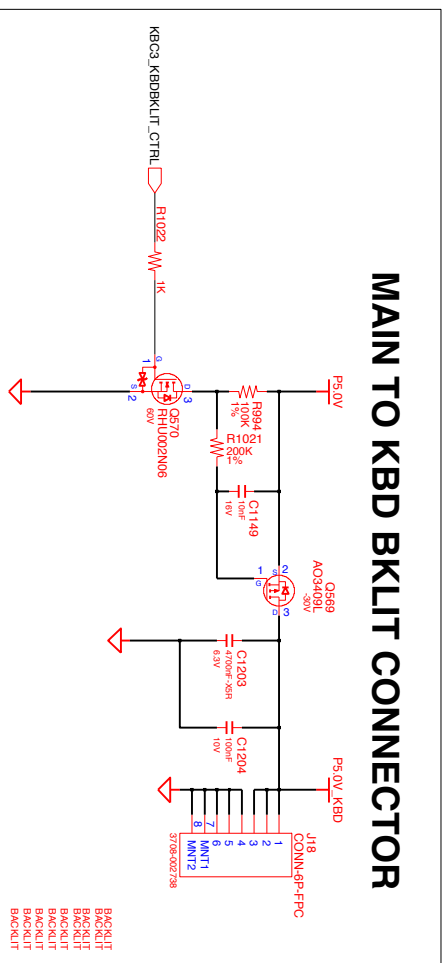


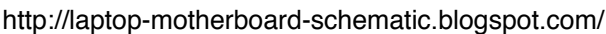
Micom Glue Logic MAIN TO SUB

KEYBOARD

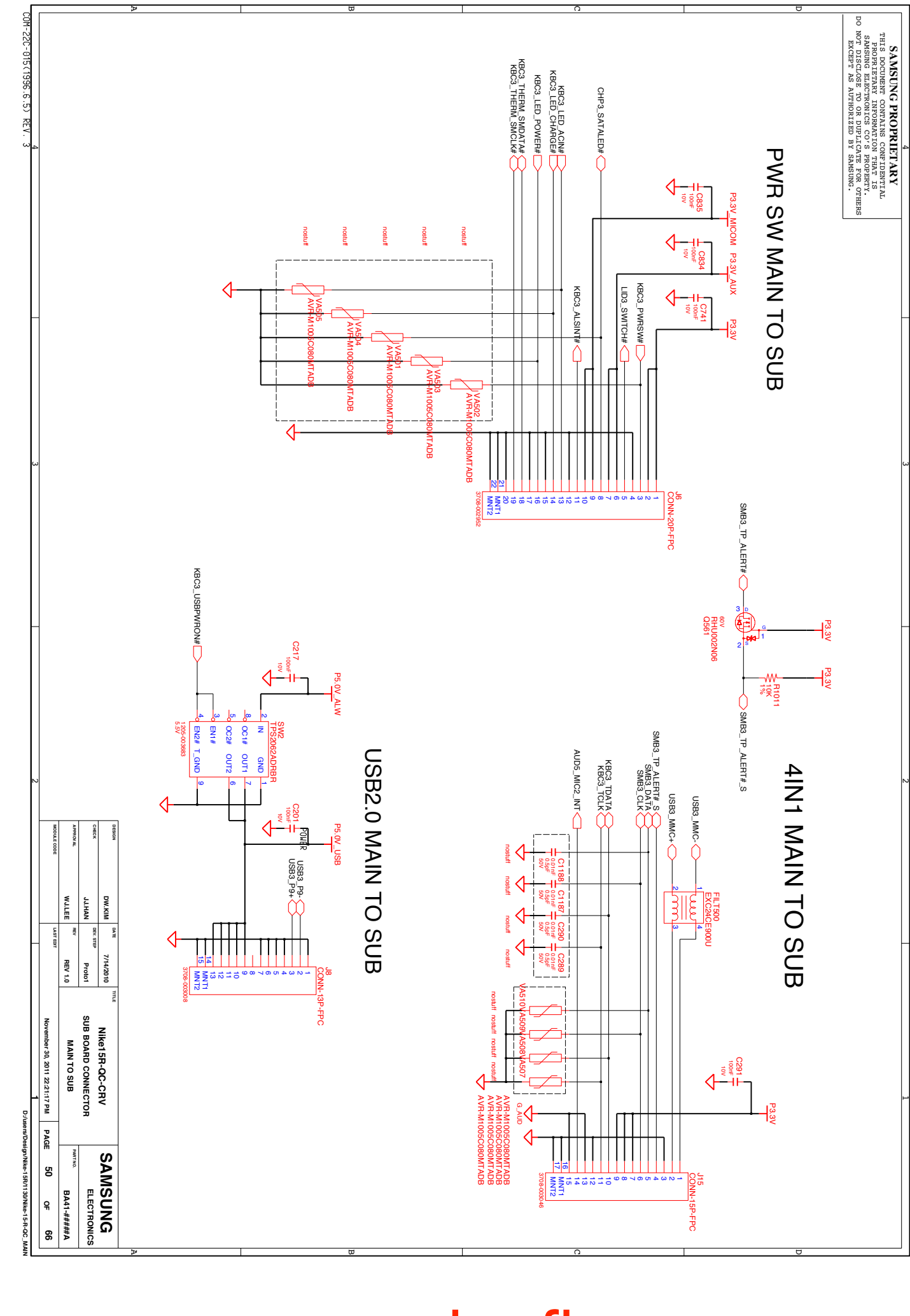


MAIN TO KBD BKLT CONNECTOR

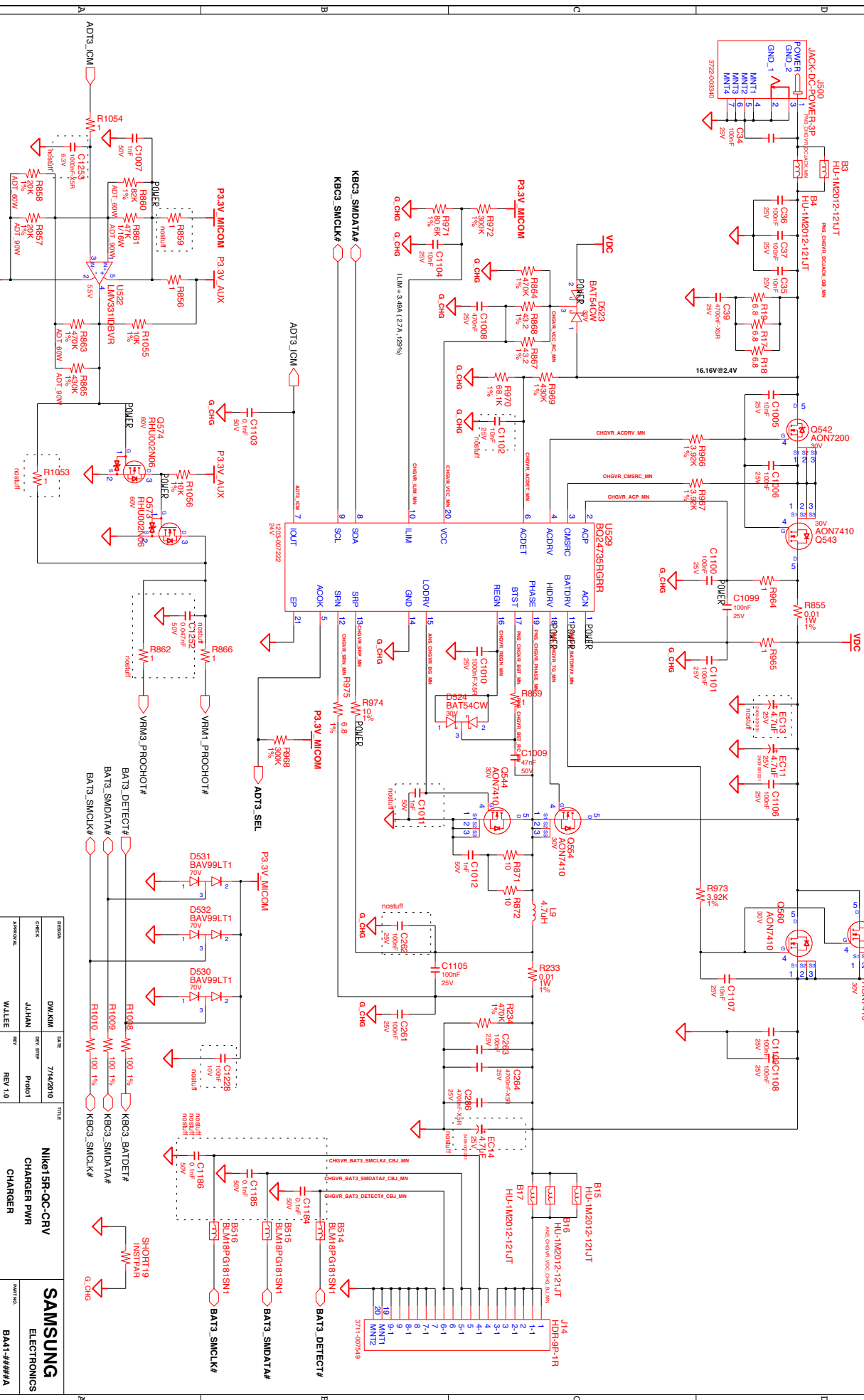




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[illegible][illegible]

CHARGER & POWER MANAGEMENT

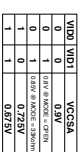




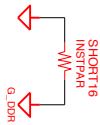


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DESIGN	DATE	TITLE	SAMSUNG
DM.KJM	1/20/2011	Nike15R-QC-CRV	ELECTRONICS
CHECK	REV. STEP	P1.0V	
JU.HAN	Proto1	VCC10	
APPROVAL	REV	REV 1.0	PART NO. BA-41-#####A
WJ.LEE	LSF EDIT	November 30, 2011 22:21:17 PM	PAGE 54 OF 66
ROUTE CODE			



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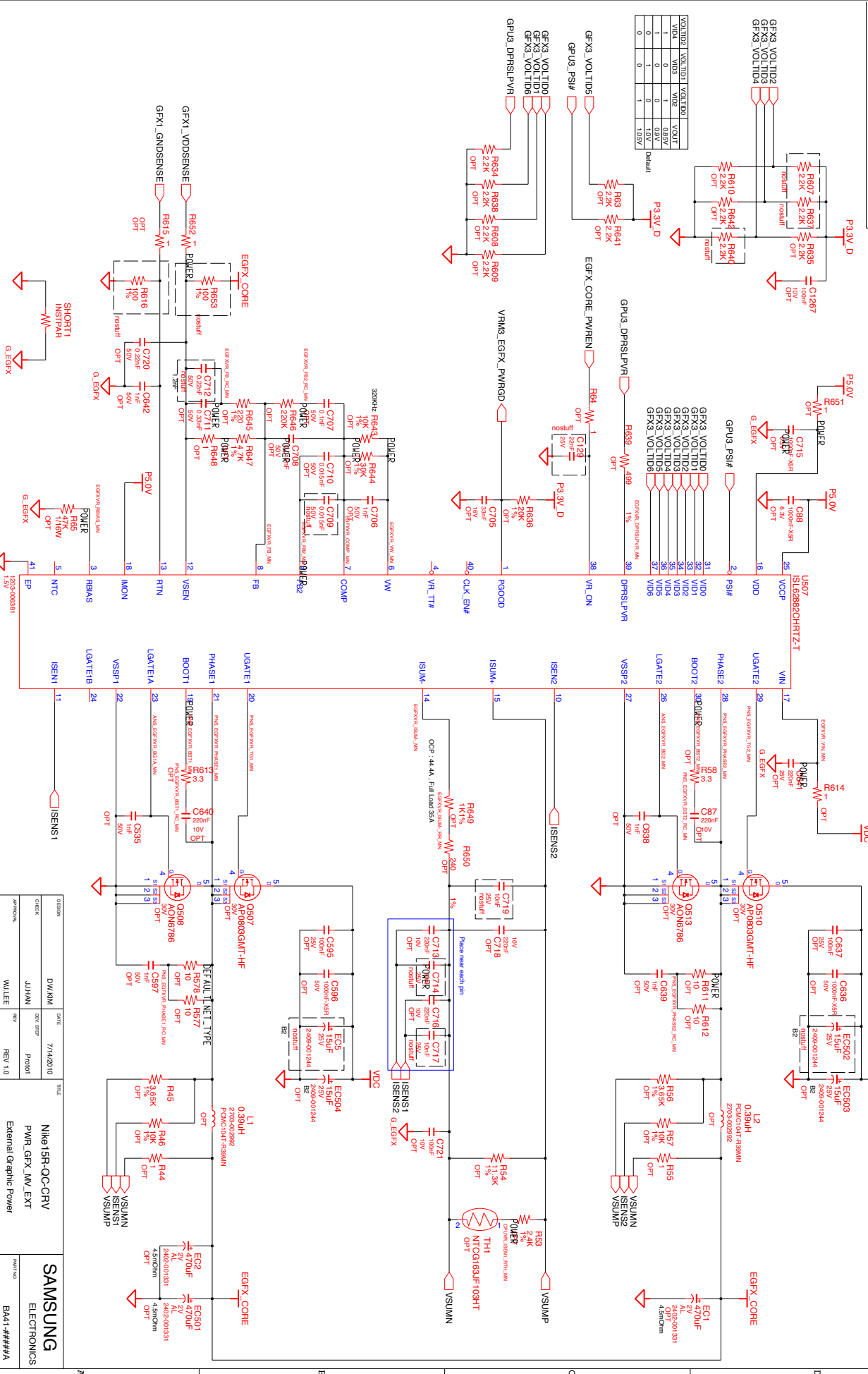
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DESIGN	DATE	TITLE	SAMSUNG
DM.KJM	3/22/2011	Nike15R-QC-CRV	ELECTRONICS
DECK	REV. STEP	P1.5V	PART NO.
JU.HAN	Proto1	VCCIO	BA-41-#####A
APPROVAL	REV	REV 1.0	
WJ.LEE	LSF EDIT	November 30, 2011 22:21:17 PM	PAGE 57 OF 66
ROUTE CODE			

GFX Loadline -3.9mohm
CPU Loadline -1.9mohm
VDC

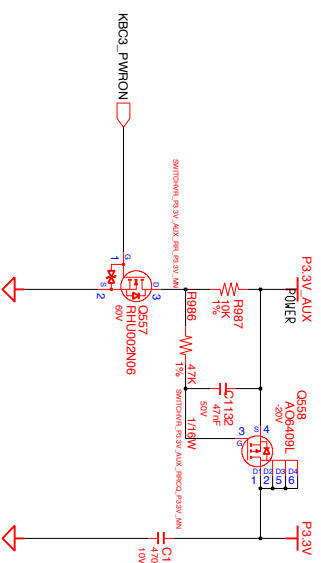


External Graphic Core Power

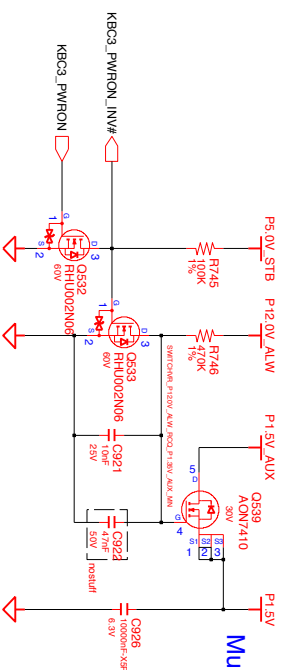


Switched Power On (P3.3V)

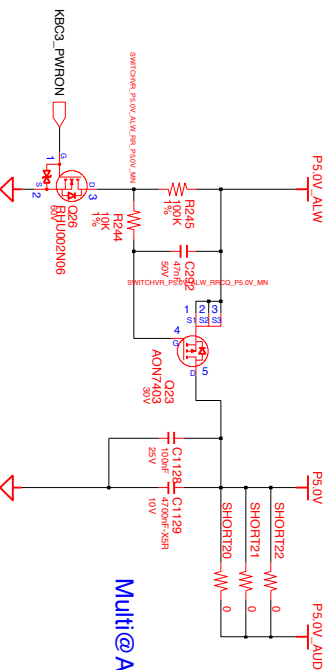
Multi@AP2607GY



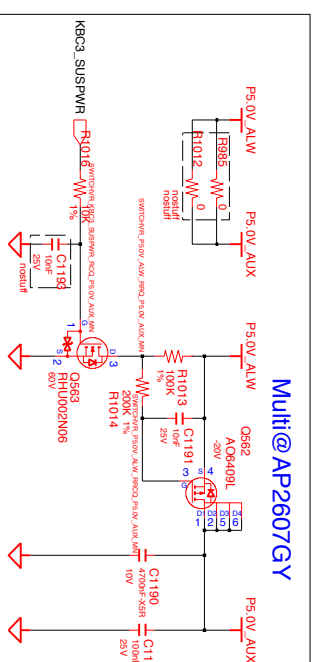
Switched Power On (P1.5V)



Switched Power On (P5.0V)

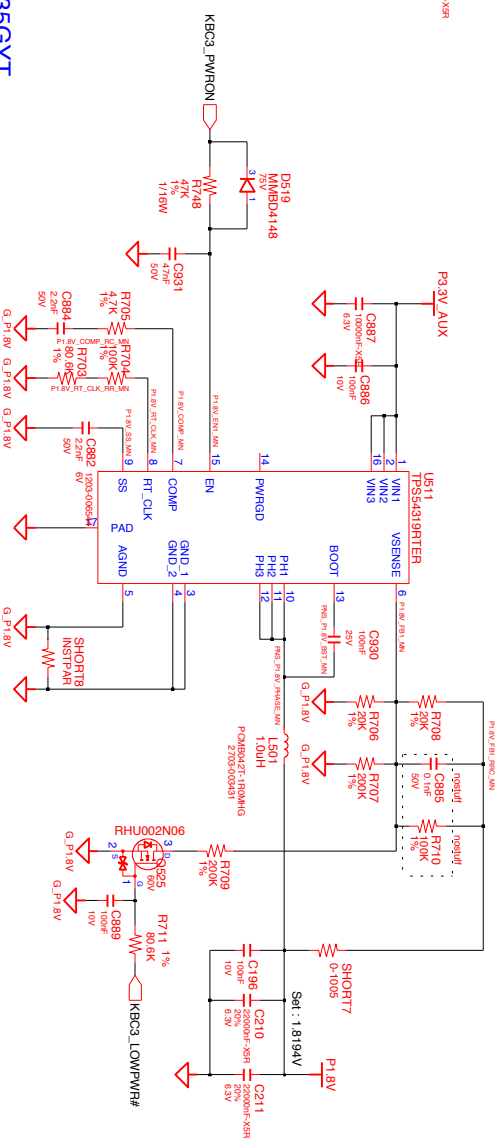


Switched Power

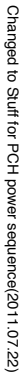


P1.8V
(LVDS,PCH Core,LAN , MEIO)

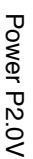
Multi@G5173R41D(1203-006777)



DRAWN	DATE	TITLE
DESIGNED BY	7/14/2010	Nikei SR-QC-CRV
CHECKED	REV. STEP	PWR. MV. SWITCHD
APPROVED	Proto1	SWITCHED POWER
WALLEE	REV. 1.0	
WORK CODE	LAST REV	November 30, 2011 2:23:17 PM
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DRAWN	DATE	TITLE	SAMSUNG ELECTRONICS	
CHIEF	7/14/2010	NI615R-OC-CRV		
DESIGN	REV: 000	PWM, JW, DISCHARGE		
APPROVAL	PROJ	DISCHARGING LOGIC		
REVISION CODE	REV: 10			
UNFILED	LAST EDIT	NOVEMBER 30, 2011 22:21:17 PM	PAGE	61 OF 66

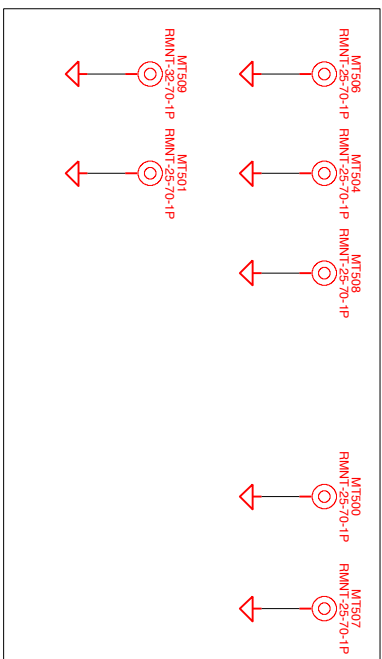


DATE	DATE	TITLE	SAMSUNG ELECTRONICS	
CHICK	DEV. STEP			
AMOUNT	REV	P0001 FOT POWER XPRESS & USB3.0 PWR	PART NO.	BA41-####A
WORLD CODE	LAST DATE	November 30, 2011 22:31:17 PM	PAGE	62 OF 66

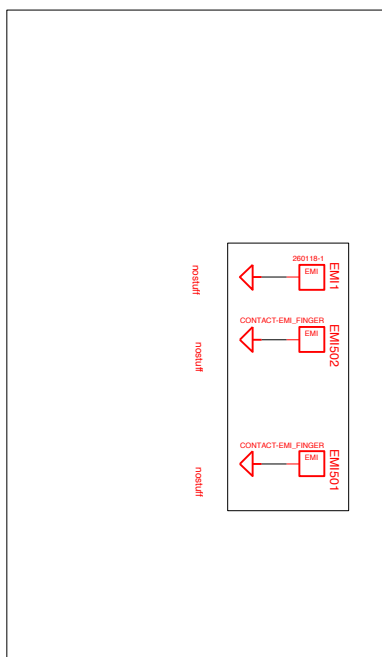
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DESIGN	DW/KIM	DATE	7/11/2010	TITLE	Nike15R-QC-CRV	SAMSUNG
CHECK	J.J.HAN	REV. STEP	Proto1		DEEP S3 POWER	ELECTRONICS
APPROVAL	WALLEE	REV	REV 1.0		DEEP S3 POWER	BA41-####A
MOBILE CODE		LAST EDIT	November 30, 2011 22:21:17 PM	PAGE	63	OF 66

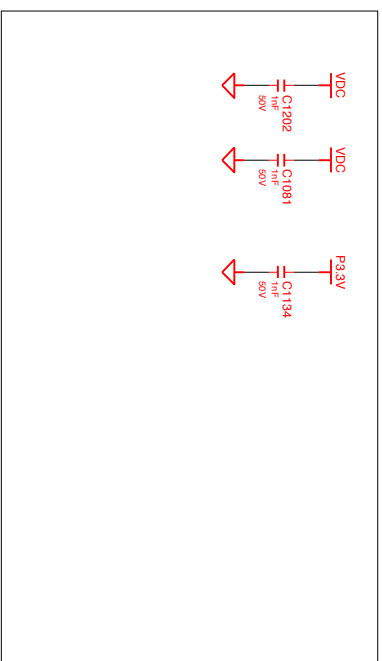
Mainboard Mount ((25-70)X8EA)



EMI FINGER



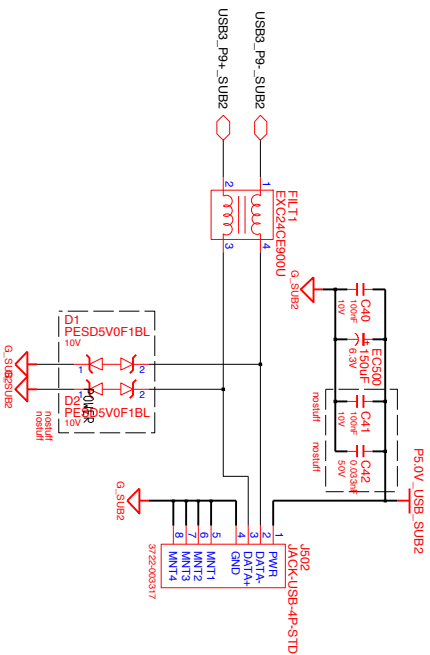
EMI Request (2011.07.01)



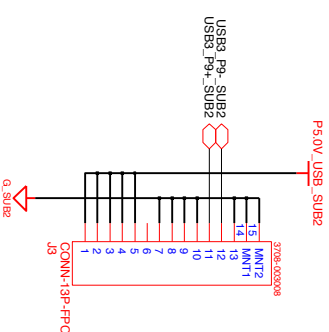
REVISION	DATE	TITLE	SAMSUNG ELECTRONICS
DW/KIM	7/14/2010	Nike15R-OC-CHV SUB BOARD1	BA41-####A
CHICK	J.J.HAN	Proto1	
APPROVAL	WALLEE	REV 1.0	
MOBILE CODE	LAT ENT	November 30, 2011 22:21:17 PM	PAGE 64 OF 66

1 USB PORT SUB B'D 2

USB 1PORT

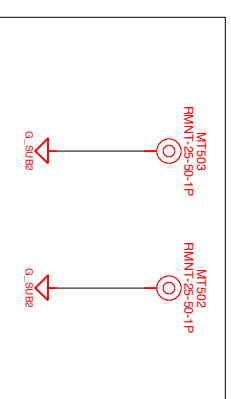


USB SUB TO MAIN



(PIN ASSIGNMENT SHOULD BE OPPOSITE FROM MAIN)

SUB TO MAIN USB



USB sub board mount hole

DATE	7/14/2010	TITLE	Nike15R-OC-CHV	SAMSUNG
CHECK	J.JIHAN	REV STEP	PROT	ELECTRONICS
APPROVAL	WALLEE	REV	REV 1.0	BA41-####A
MOBILE CODE		DATE	November 30, 2011 22:21:17 PM	PAGE 65 OF 66

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DESIGN	DATE	TITLE	SAMSUNG
DM.KJM	6/2/2011	Nike15R-QC-ORV	ELECTRONICS
CHECK	REV. STEP	PWRL EGFX_P0.935	
JU.HAN	Protol		
APPROVAL	REV	EGFX PCIE 9.0	PART NO. BA-41 - #####A
WJ.LEE	REV 1.0		
ROUTE CODE	LAST EDIT	November 30, 2011 22:21:17 PM	PAGE 66 OF 66