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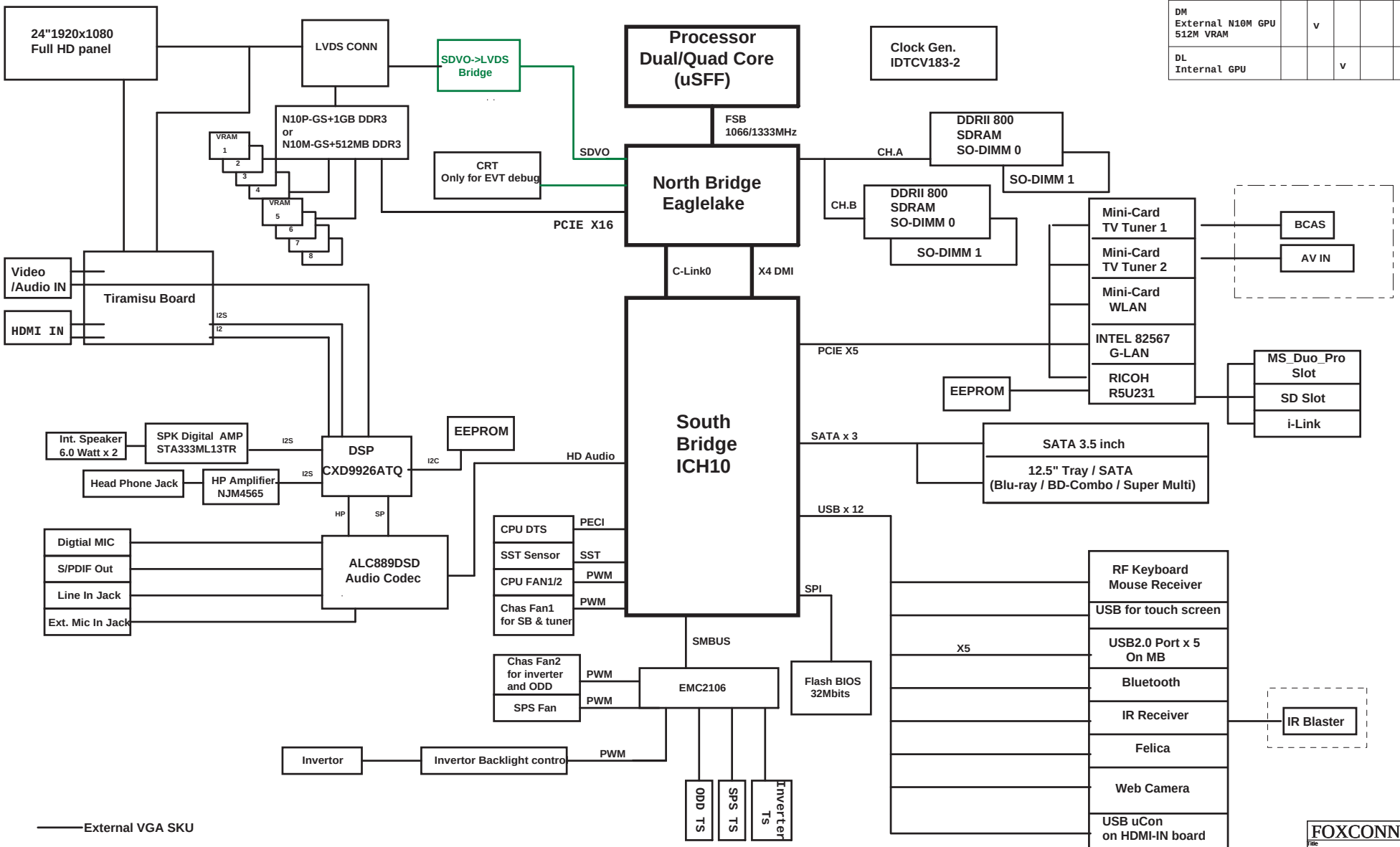
M920 Block Diagram (24" Wide Screen)

SKU \ Ahead-value	NC-	NV-	CA-	NP-	NM-
DH External N10P GPU 1G VRAM		v		v	
DM External N10M GPU 512M VRAM		v			v
DL Internal GPU			v		



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Title: Block Diagram		
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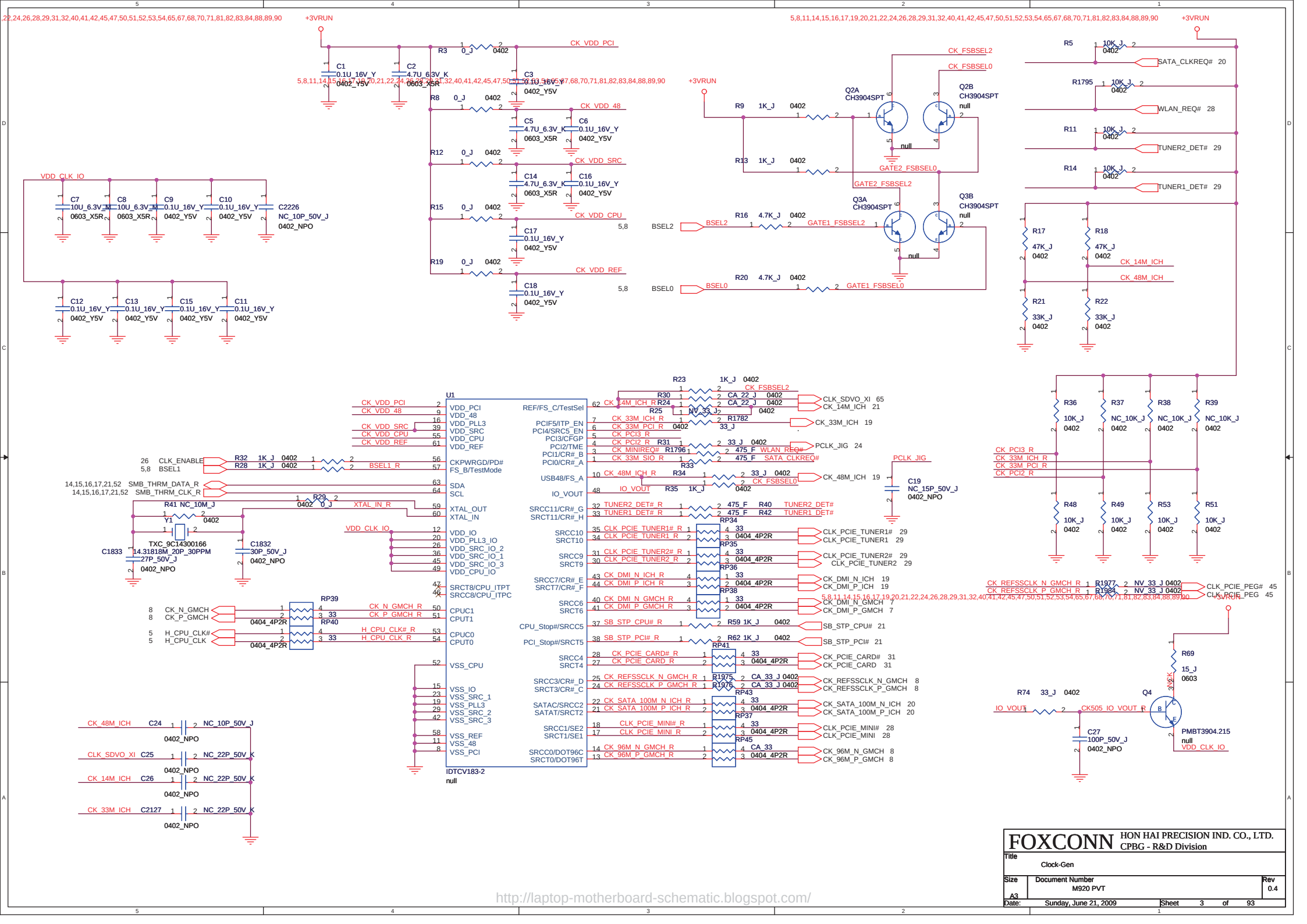

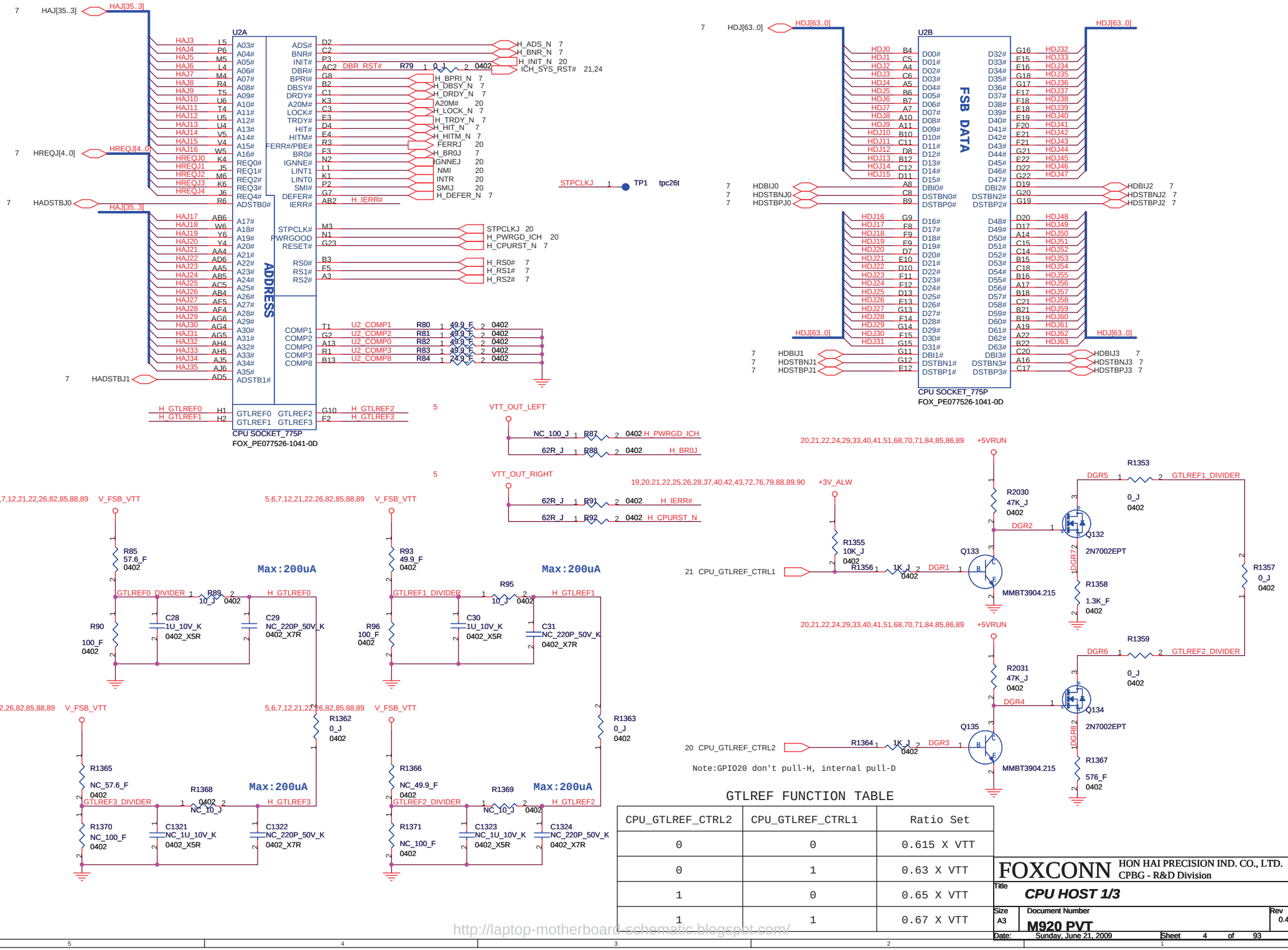

GTLREF FUNCTION TABLE

CPU_GTLREF_CTRL2	CPU_GTLREF_CTRL1	Ratio Set
0	0	0.615 X VTT
0	1	0.63 X VTT
1	0	0.65 X VTT
1	1	0.67 X VTT

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Title: CPU HOST 1/3

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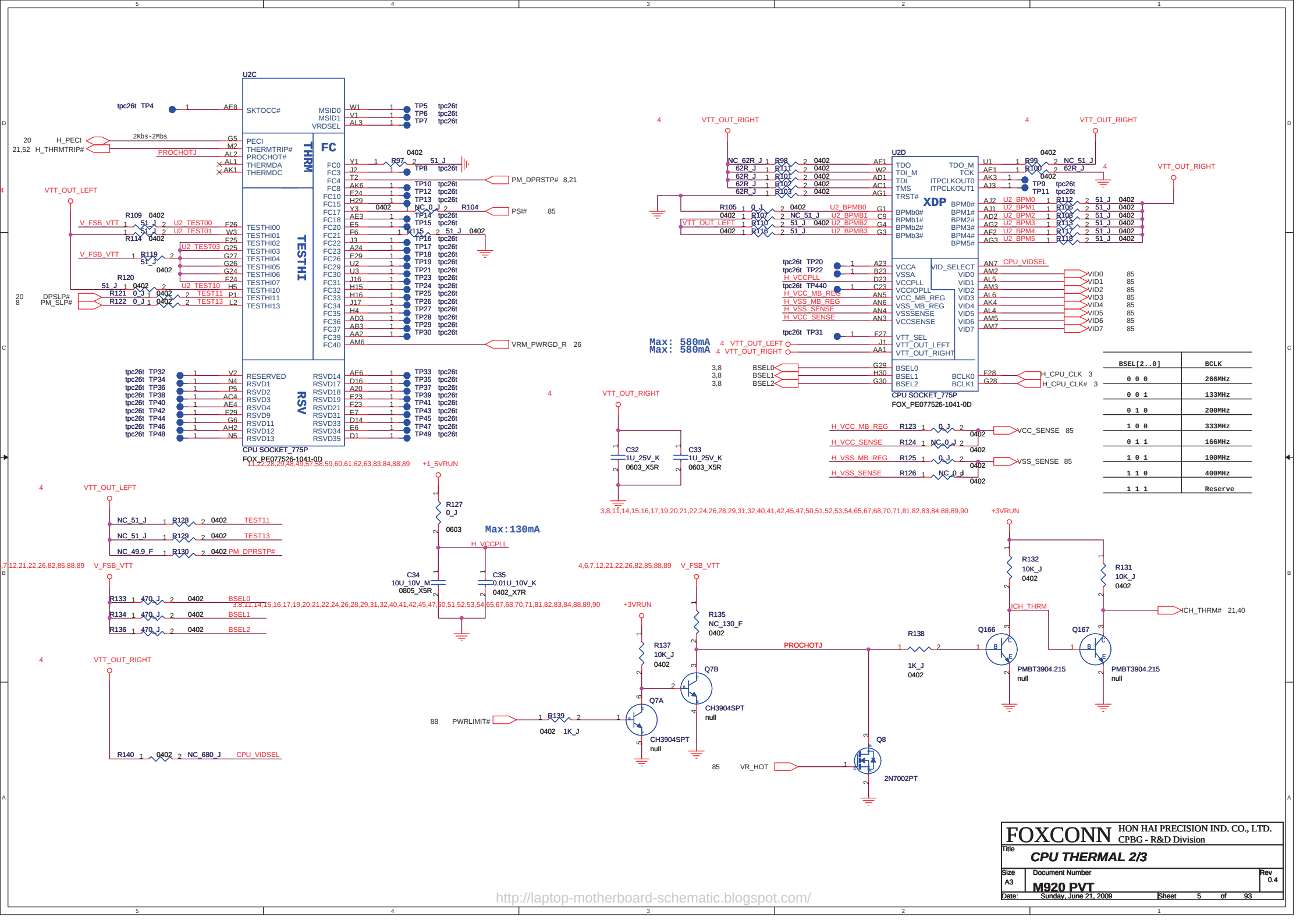

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Title	CPU THERMAL 2/3
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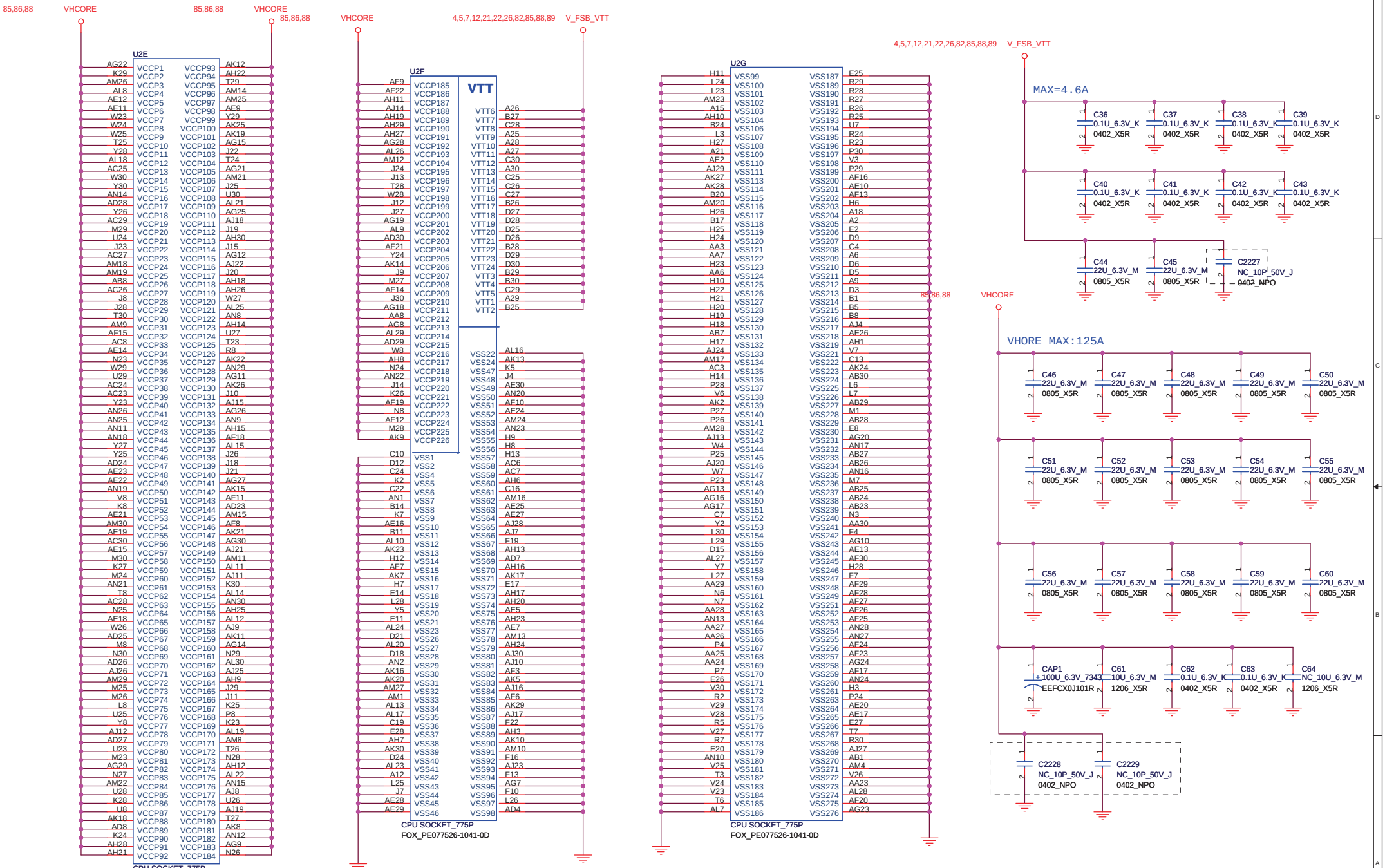

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Title	CPU POWER 3/3		
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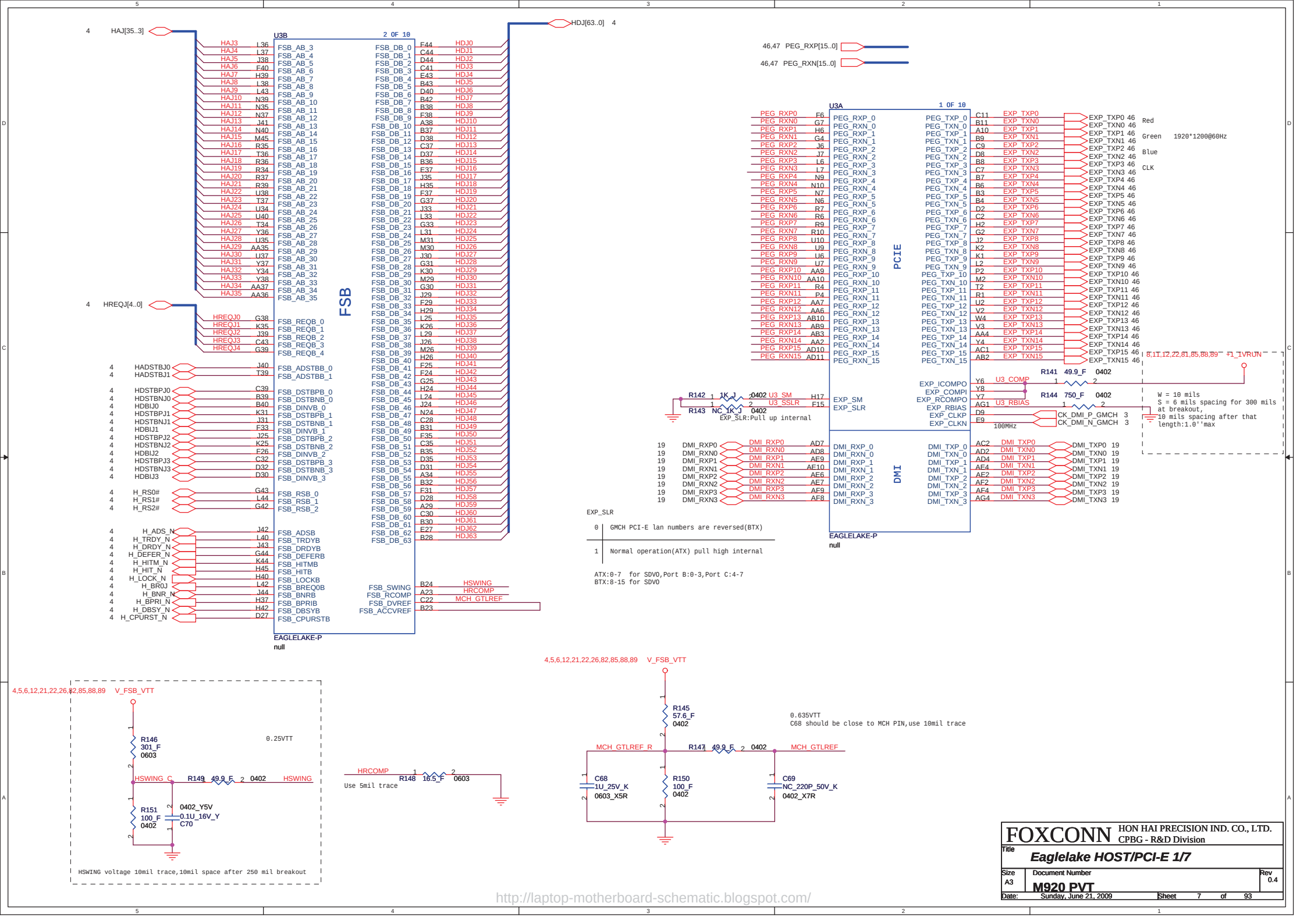

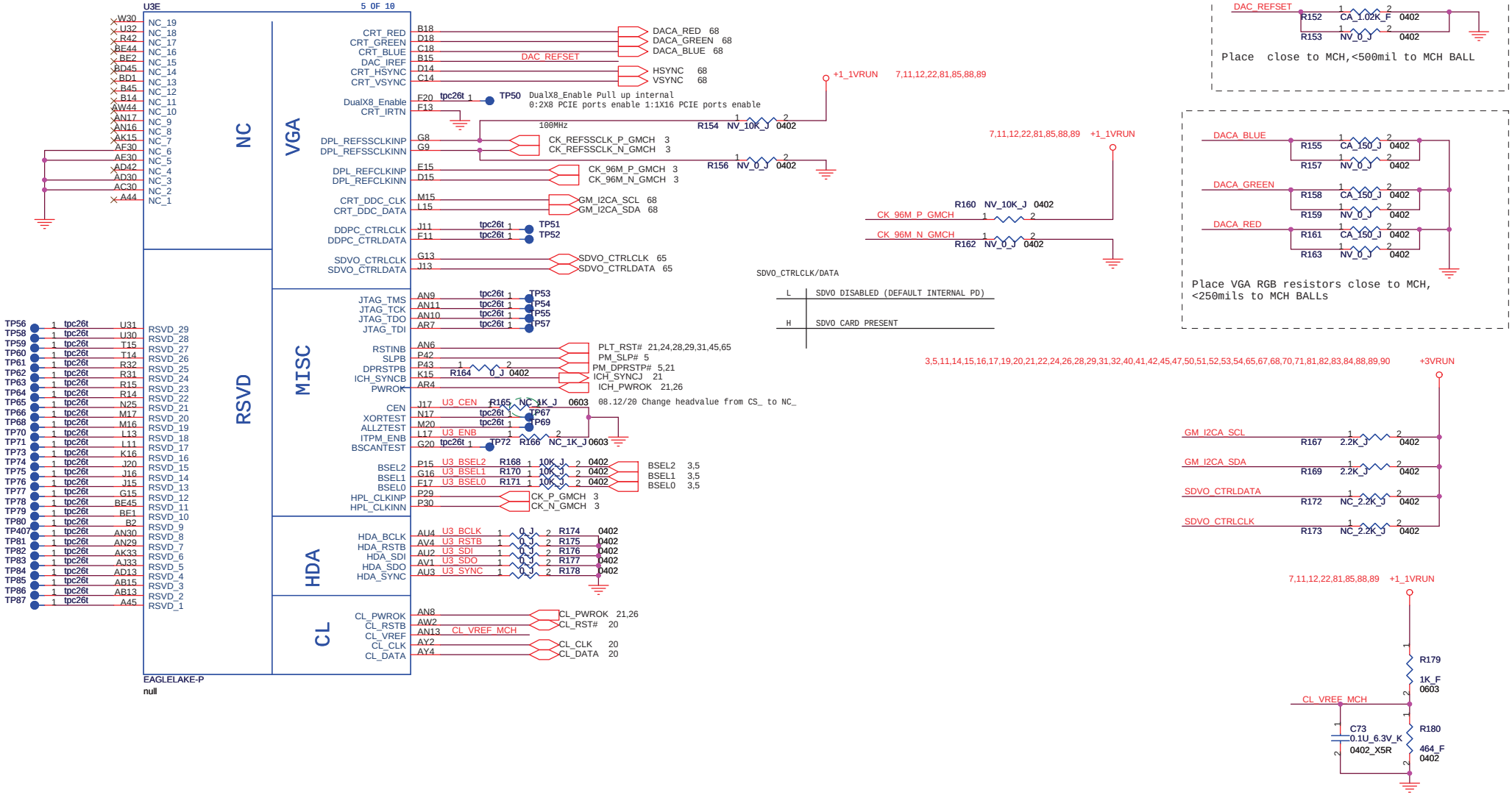

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Title: *Eaglelake VGA/MISC 2/7*

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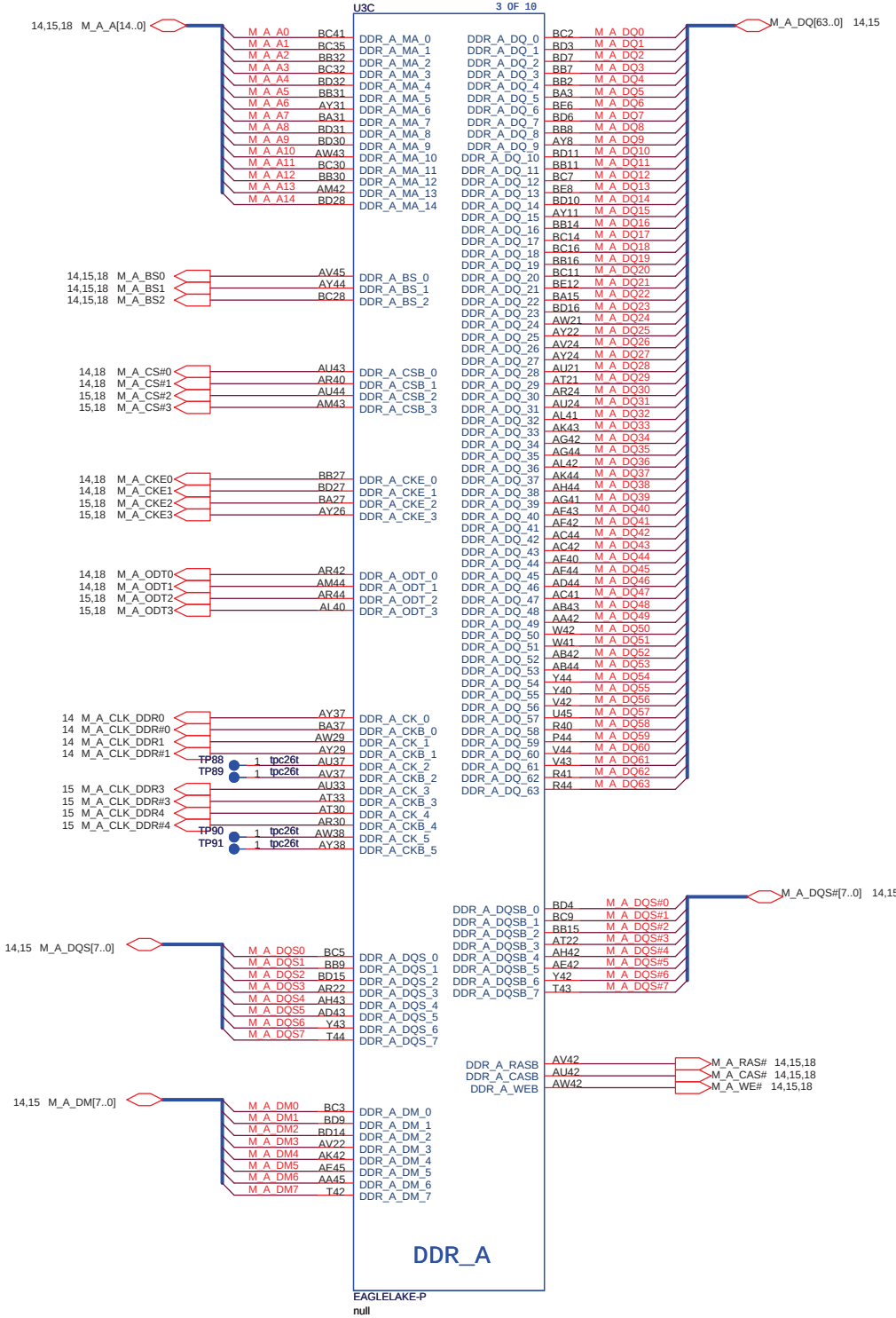

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Title	Eaglelake DDRII CH A 3/7
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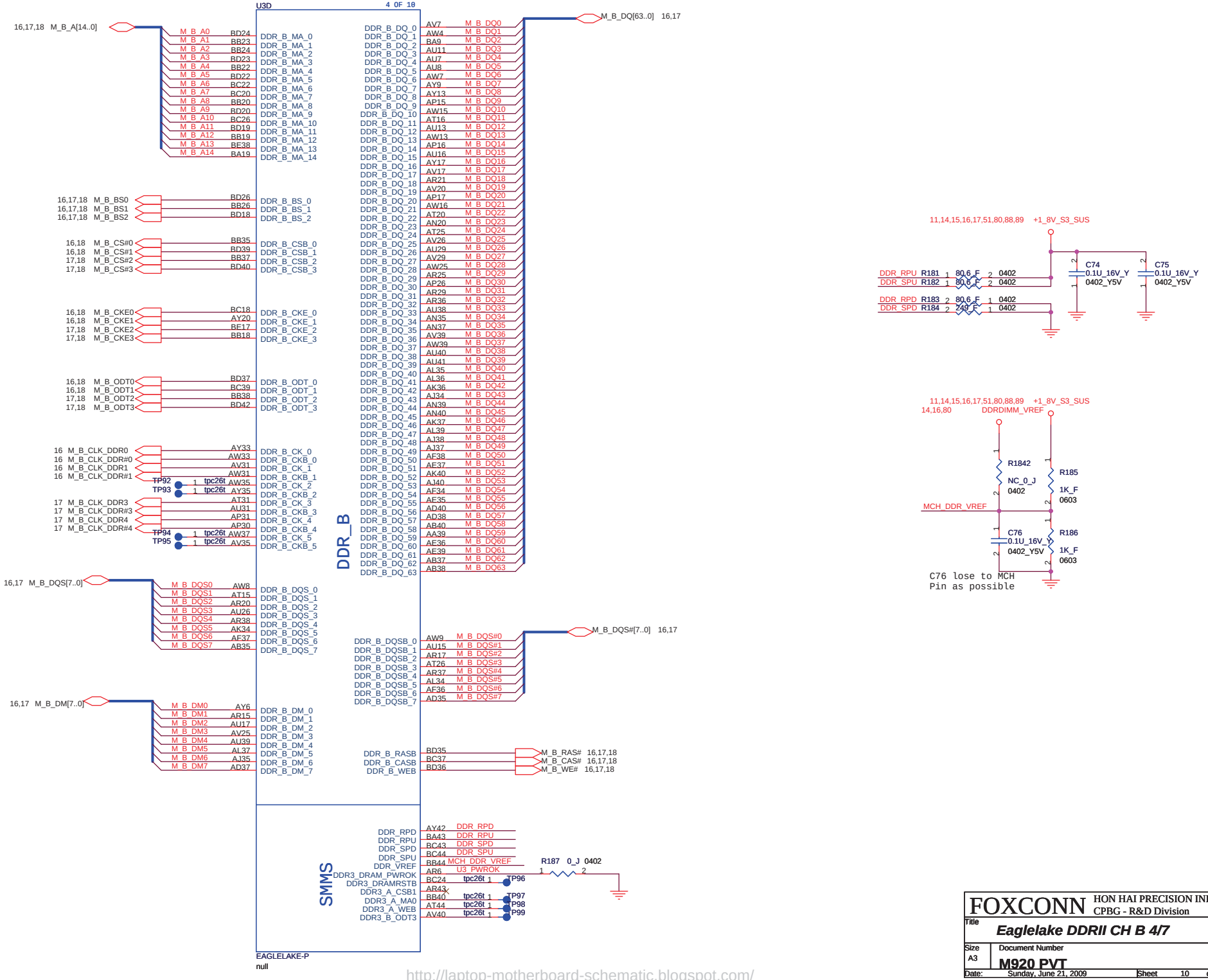

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Title: *Eaglelake DDRII CH B 4/7*

Size	Document Number	Rev
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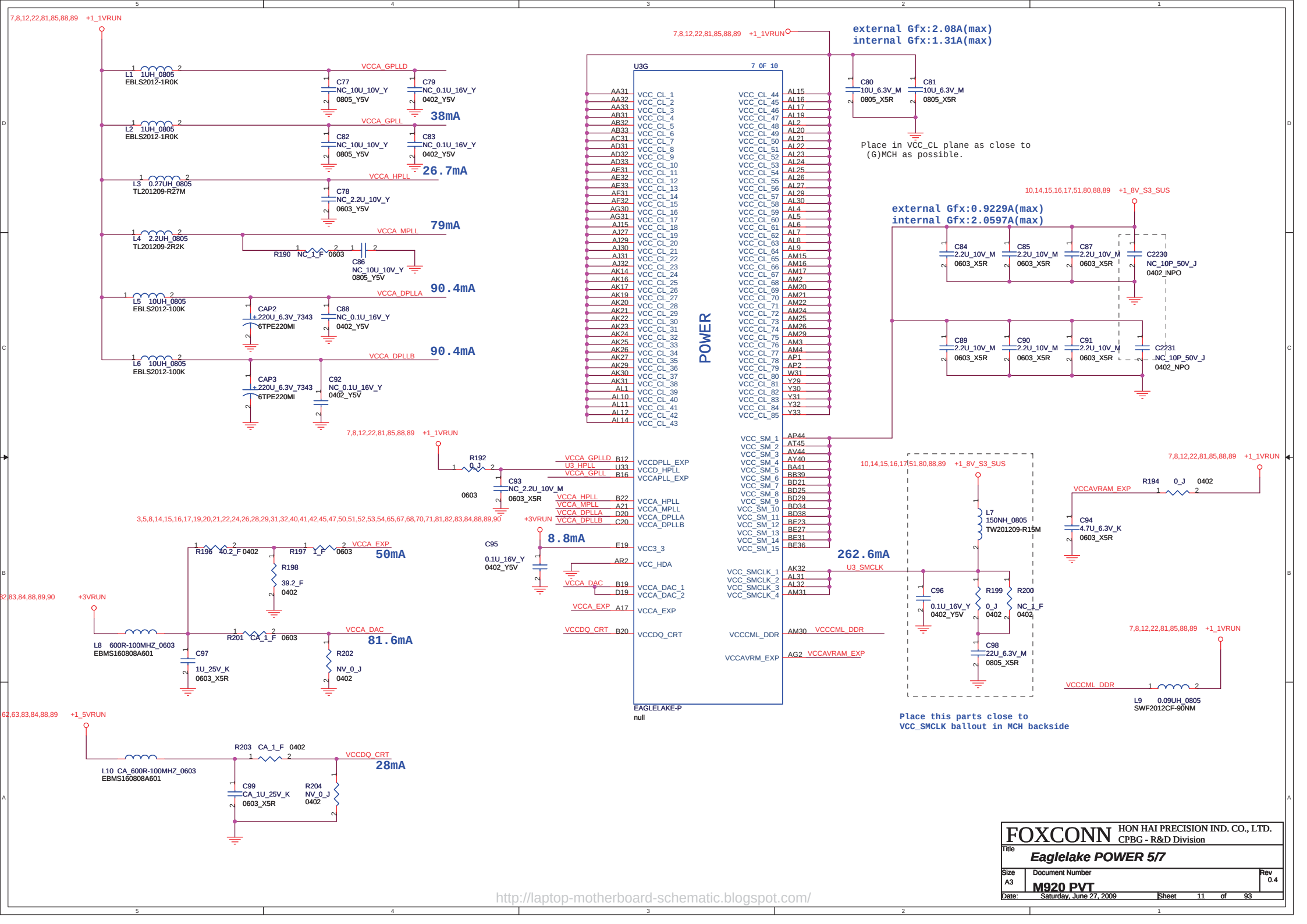

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	Eaglelake POWER 5/7
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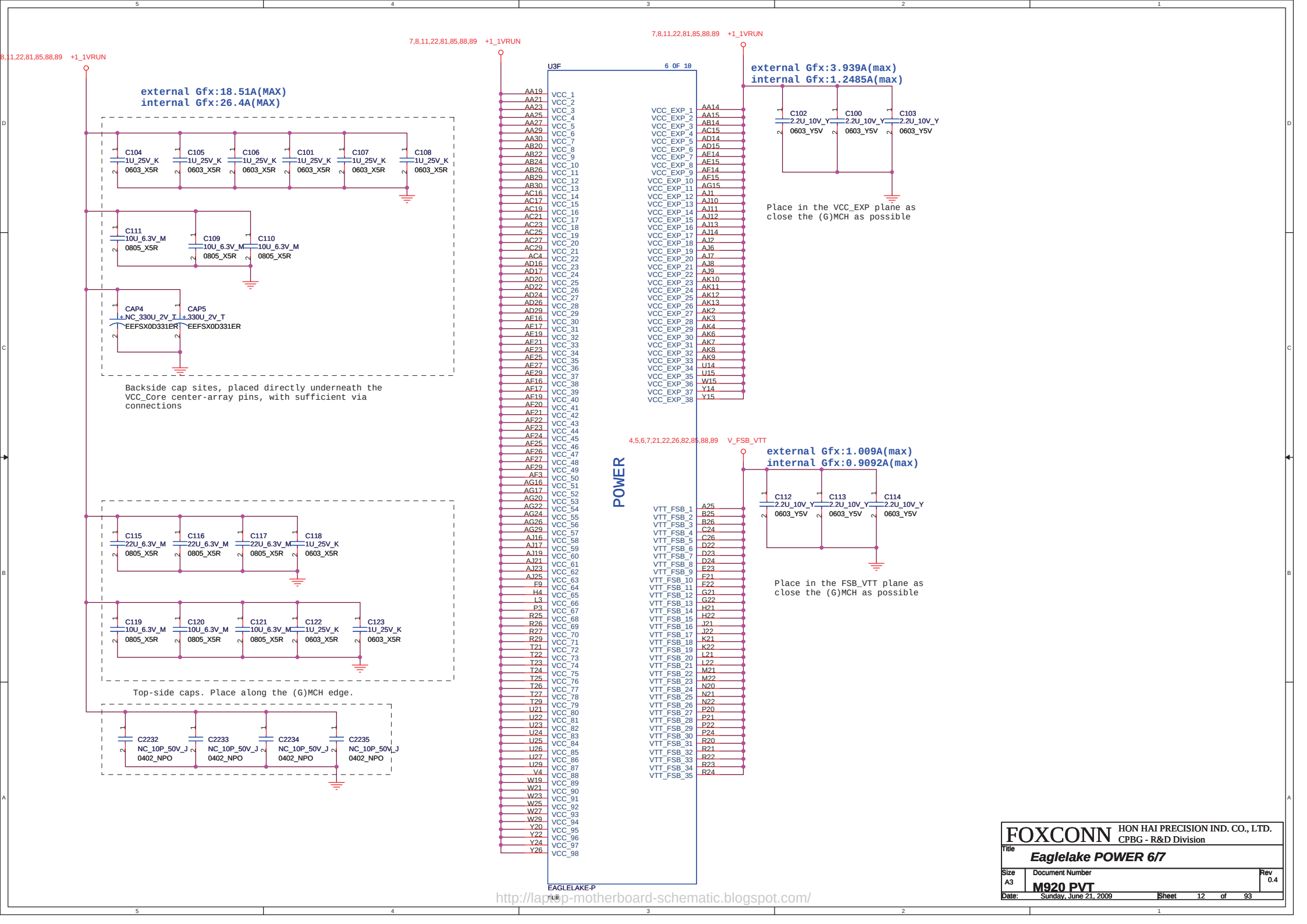

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Title: *Eaglelake POWER 6/7*

Size: A3 | Document Number: M920 PVT | Rev: 0.4

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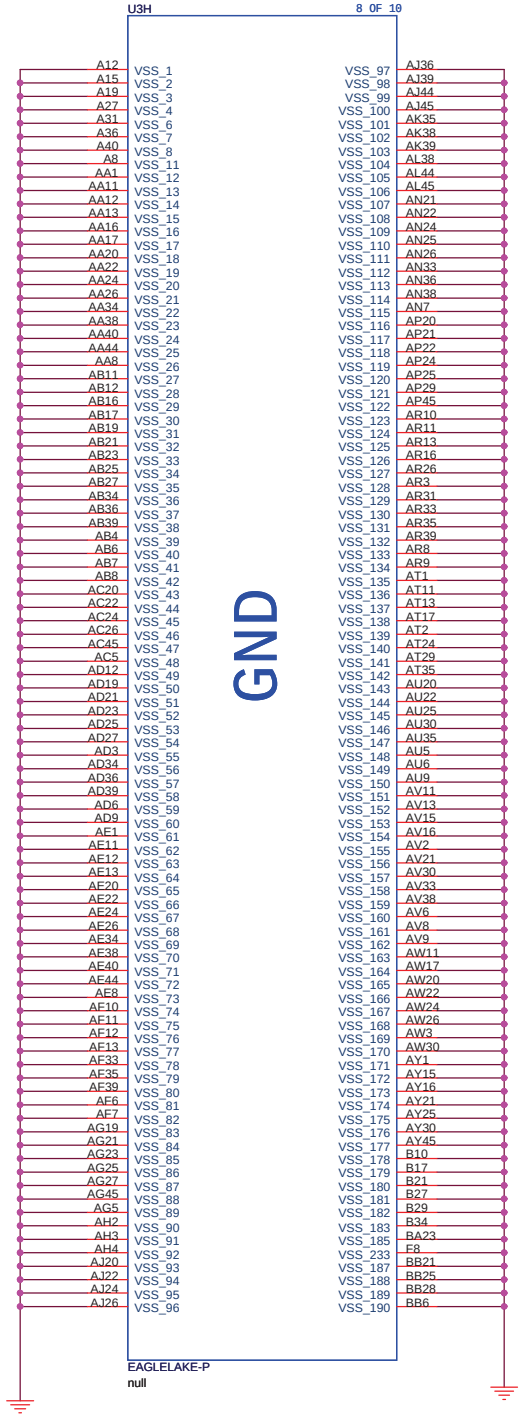

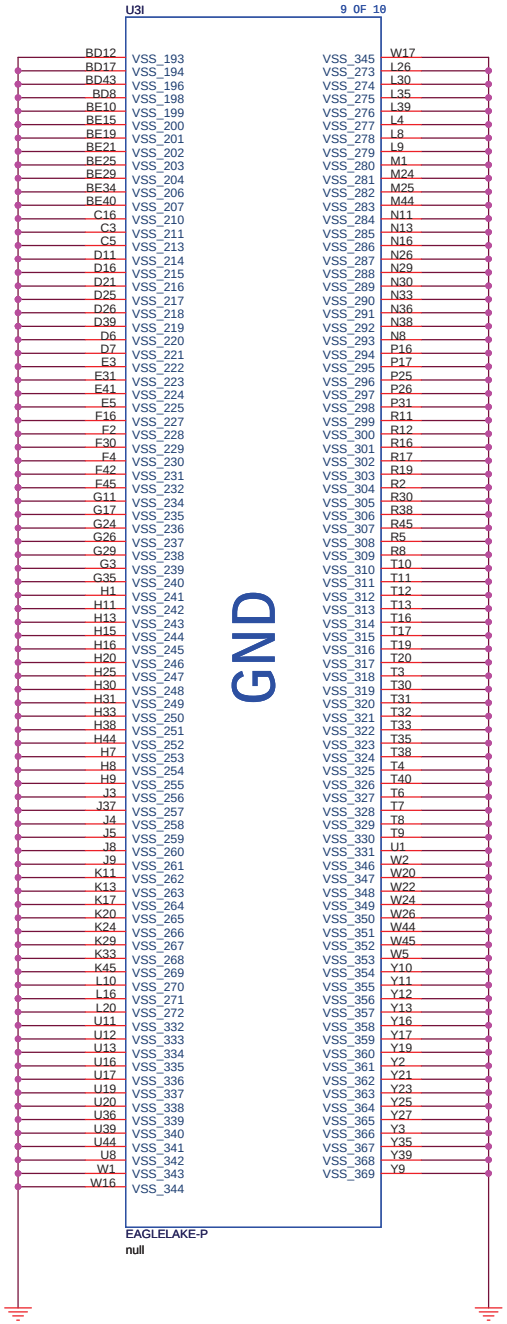

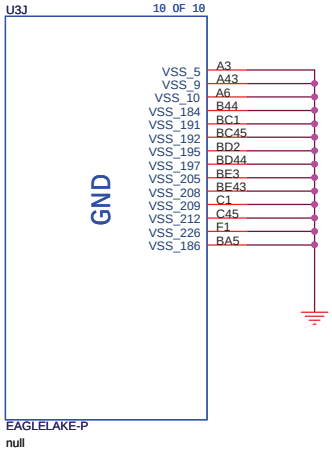

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	*Eaglelake GND 7/7*	
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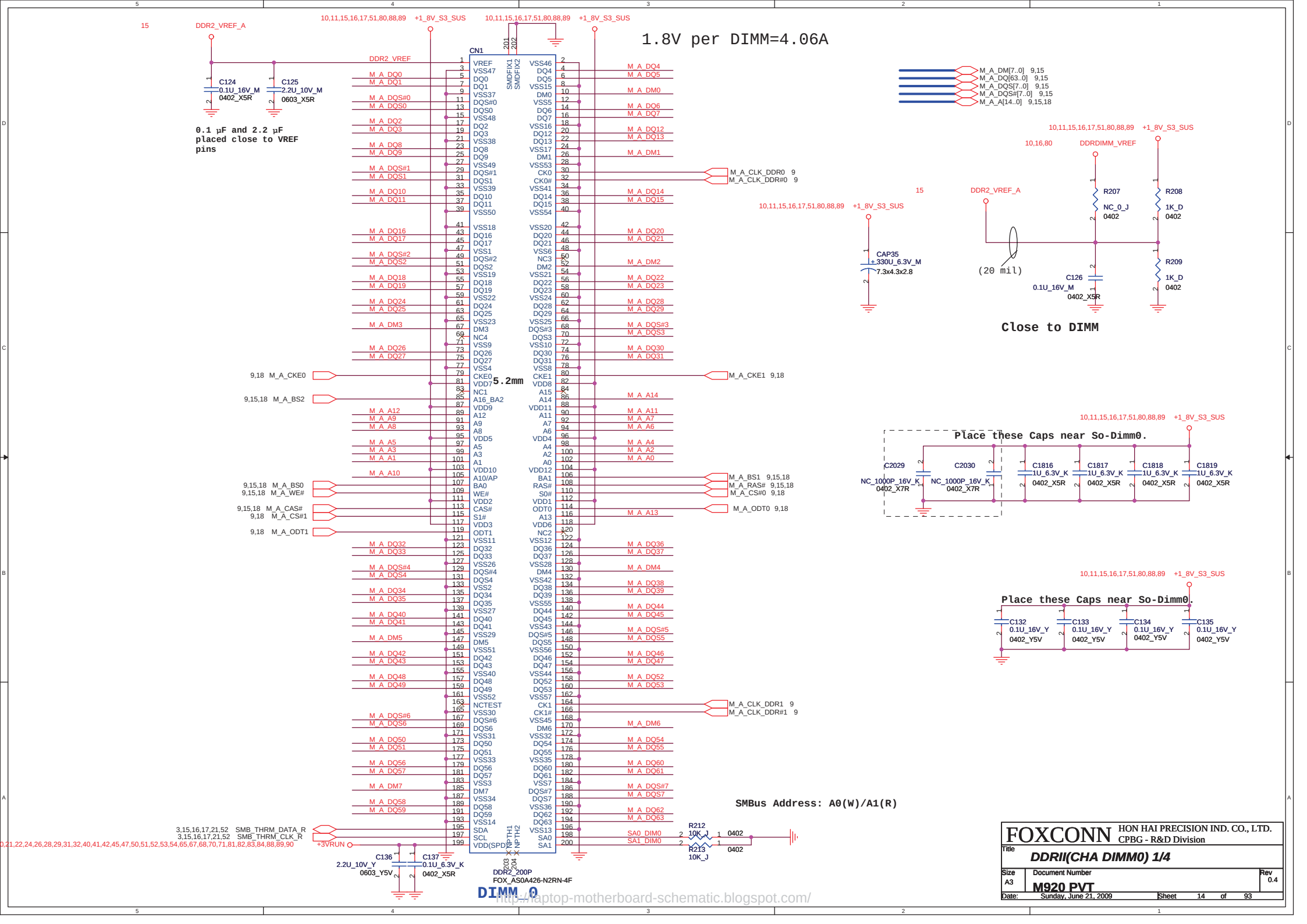

14

DDR2_VREF_A

10,11,14,16,17,51,80,88,89 +1_8V_S3_SUS

10,11,14,16,17,51,80,88,89 +1_8V_S3_SUS

1.8V per DIMM=4.06A

C138 0.1U_16V_M 0402_X5R

C139 2.2U_10V_M 0603_X5R

0.1 µF and 2.2 µF placed close to VREF pins

CN2

DDR2 SDRAM SO-DIMM (200P)

5.2mm

DDR2 SO-DIMM_2x100P
FOX_AS0A426-N2SN-4F

DIMM_1

M_A_DM[7..0] 9,14
M_A_DQ[63..0] 9,14
M_A_DQS[7..0] 9,14
M_A_DQS#[7..0] 9,14
M_A_A[14..0] 9,14,18

M_A_CLK_DDR3 9
M_A_CLK_DDR#3 9
M_A_CLK_DDR4 9
M_A_CLK_DDR#4 9

DDR2_EXTTS#1 — TP100 tpc26t

9,18 M_A_CKE2
M_A_CKE3 9,18
9,14,18 M_A_BS2
M_A_A14 9,14,18
M_A_BS1 9,14,18
9,14,18 M_A_BS0
9,14,18 M_A_WE#
M_A_RAS# 9,14,18
9,14,18 M_A_CAS#
9,18 M_A_CS#3
M_A_CS#2 9,18
M_A_ODT2 9,18
9,18 M_A_ODT3
M_A_A13

3,14,16,17,21,52 SMB_THRM_DATA_R
3,14,16,17,21,52 SMB_THRM_CLK_R
+3VRUN

C148 NC_2.2U_10V_Y 0603_Y5V

C149 0.1U_6.3V_K 0402_X5R

SA0_A2 — 10K_J R214 0402

SA1_A2 — 10K_J R215 0402

SMBus Address: A2(W)/A3(R)

10,11,14,16,17,51,80,88,89 +1_8V_S3_SUS

Place these Caps near So-Dimm1.

C140 1U_10V_K 0402_X5R

C141 1U_10V_K 0402_X5R

C142 1U_10V_K 0402_X5R

C143 1U_10V_K 0402_X5R

10,11,14,16,17,51,80,88,89 +1_8V_S3_SUS

Place these Caps near So-Dimm1.

C2031 NC_1000P_16V_K 0402_X7R

C2032 NC_1000P_16V_K 0402_X7R

C144 0.1U_16V_Y 0402_Y5V

C145 0.1U_16V_Y 0402_Y5V

C146 0.1U_16V_Y 0402_Y5V

C147 0.1U_16V_Y 0402_Y5V

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Title	DDRII(CHA DIMM1) 2/4
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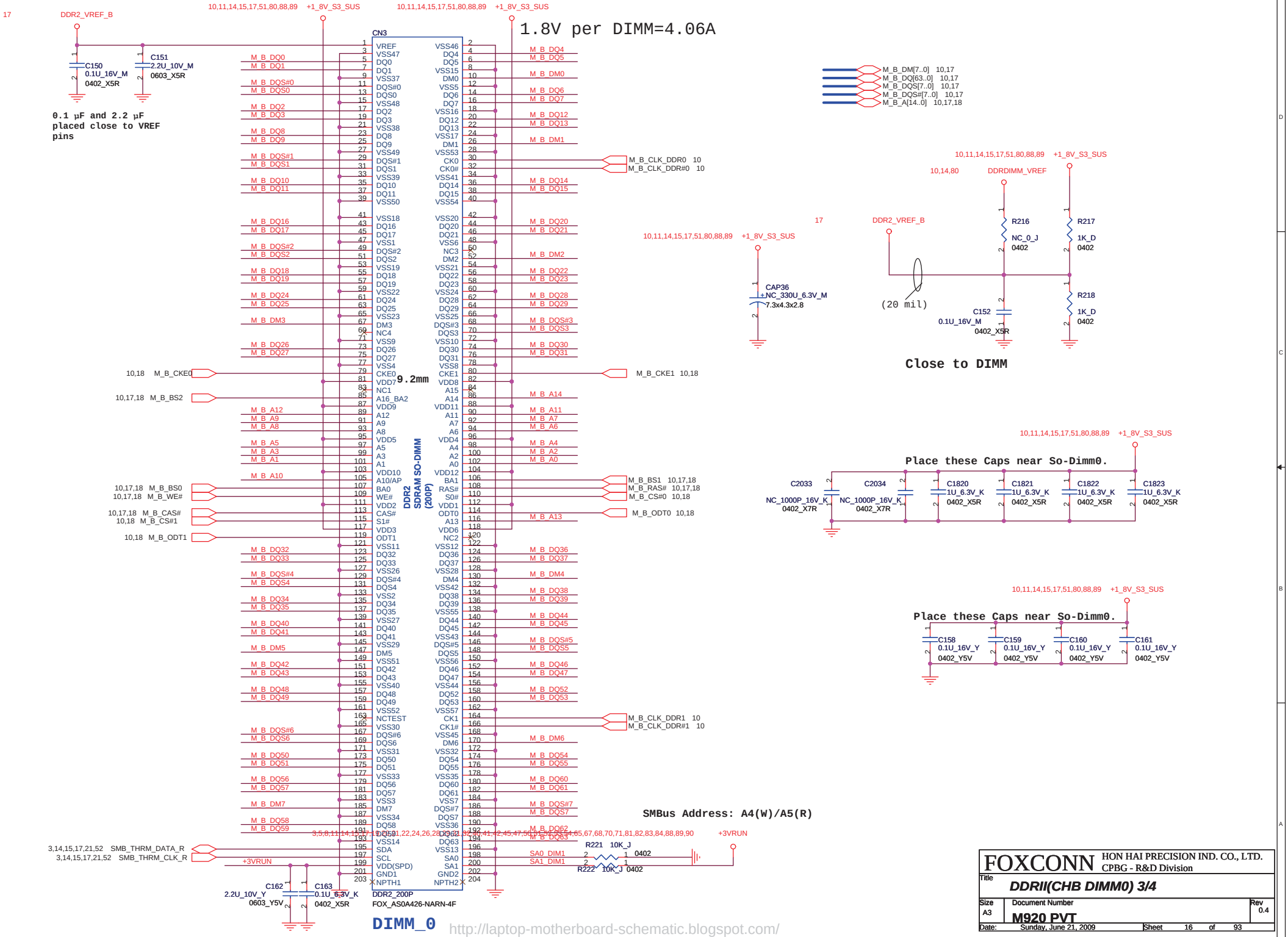

Title	DDRII(CHB DIMM0) 3/4
Company	FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
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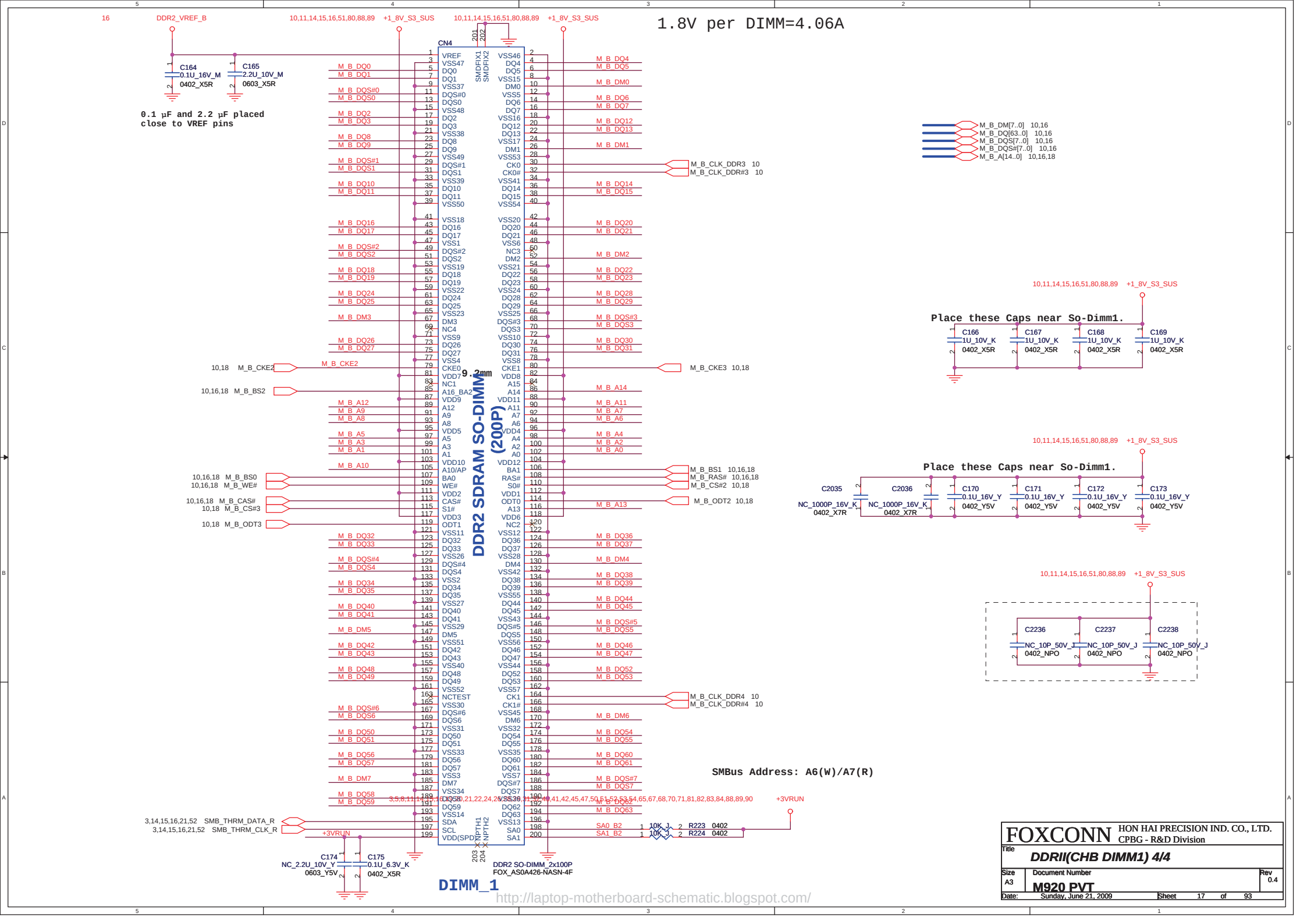

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: DDRII(CHB DIMM1) 4/4

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80,88,89 +0_9VRUN

C176 0.1U_16V_Y 0402_Y5V
C177 0.1U_16V_Y 0402_Y5V
C178 0.1U_16V_Y 0402_Y5V
C179 0.1U_16V_Y 0402_Y5V
C2239 NC_10P_50V_J 0402_NPO
C2240 NC_10P_50V_J 0402_NPO

M_A_A[14..0] 9,14,15
M_B_A[14..0] 10,16,17

80,88,89 +0_9VRUN

C180 C181 C182 C183 C184 C185 C186 C187 C188 C189 C190 C191 0.1U_16V_Y 0402_Y5V

Layout note: Place 1 cap close to every 1 R-pack terminated to +0_9VRUN

80,88,89 +0_9VRUN

C192 C193 C194 C195 0.1U_16V_Y 0402_Y5V

80,88,89 +0_9VRUN

C196 C197 C198 C199 C200 C201 C202 C203 C204 C205 C206 C207 0.1U_16V_Y 0402_Y5V

Layout note: Place 1 cap close to every 1 R-pack terminated to +0_9VRUN

80,88,89 +0_9VRUN

C1824 C1825 C1826 C1827 C1828 C1829 C1830 C1831 4.7U_6.3V_K 0603_X5R

80,88,89 +0_9VRUN

10,16 M_B_ODT0 R247 43_J 0402
10,16 M_B_ODT1 R248 43_J 0402
10,17 M_B_ODT2 R249 43_J 0402
10,17 M_B_ODT3 R250 43_J 0402

10,16 M_B_CKE0 R251 43_J 0402
10,16 M_B_CKE1 R252 43_J 0402
10,17 M_B_CKE2 R253 43_J 0402
10,17 M_B_CKE3 R254 43_J 0402

10,16 M_B_CS#0 R255 43_J 0402
10,16 M_B_CS#1 R256 43_J 0402
10,17 M_B_CS#2 R257 43_J 0402
10,17 M_B_CS#3 R258 43_J 0402

80,88,89 +0_9VRUN

9,14 M_A_ODT0 R225 43_J 0402
9,14 M_A_ODT1 R226 43_J 0402
9,15 M_A_ODT2 R227 43_J 0402
9,15 M_A_ODT3 R228 43_J 0402

9,14 M_A_CKE0 R229 43_J 0402
9,14 M_A_CKE1 R230 43_J 0402
9,15 M_A_CKE2 R231 43_J 0402
9,15 M_A_CKE3 R232 43_J 0402

9,14 M_A_CS#0 R233 43_J 0402
9,14 M_A_CS#1 R234 43_J 0402
9,15 M_A_CS#2 R235 43_J 0402
9,15 M_A_CS#3 R236 43_J 0402

10,16,17 M_B_BS2 R237 33_J 0402

M_A_A14 M_B_A14 R238 R239 33_J 0402

10,16,17 M_B_CAS# R240 33_J 0402

M_B_A12 R241 33_J 0402

RP1 33_J 0804
10,16,17 M_B_WE#
10,16,17 M_B_BS0
M_B_BS0
M_B_A10
M_B_A1

M_B_A13 R242 33_J 0402

RP2 33_J 0804
M_B_A3
M_B_A5
M_B_A8
M_B_A9

RP3 33_J 0804
M_B_A11
M_B_A7
M_B_A6
M_B_A4

RP4 33_J 0804
M_B_A2
M_B_A0
10,16,17 M_B_BS1
10,16,17 M_B_RAS#

M_A_A13 R243 33_J 0402

RP5 33_J 0804
9,14,15 M_A_WE#
9,14,15 M_A_BS0
M_A_WE#
M_A_BS0
M_A_A10
M_A_A1

RP6 33_J 0804
M_A_A3
M_A_A5
M_A_A8
M_A_A9

9,14,15 M_A_CAS# R244 33_J 0402

9,14,15 M_A_BS2 R245 R246 33_J 0402

M_A_A12

RP7 33_J 0804
M_A_A11
M_A_A7
M_A_A6
M_A_A4

RP8 33_J 0804
M_A_A2
M_A_A0
9,14,15 M_A_BS1
9,14,15 M_A_RAS#
M_A_BS1
M_A_RAS#

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	DDRII TERMINATION	
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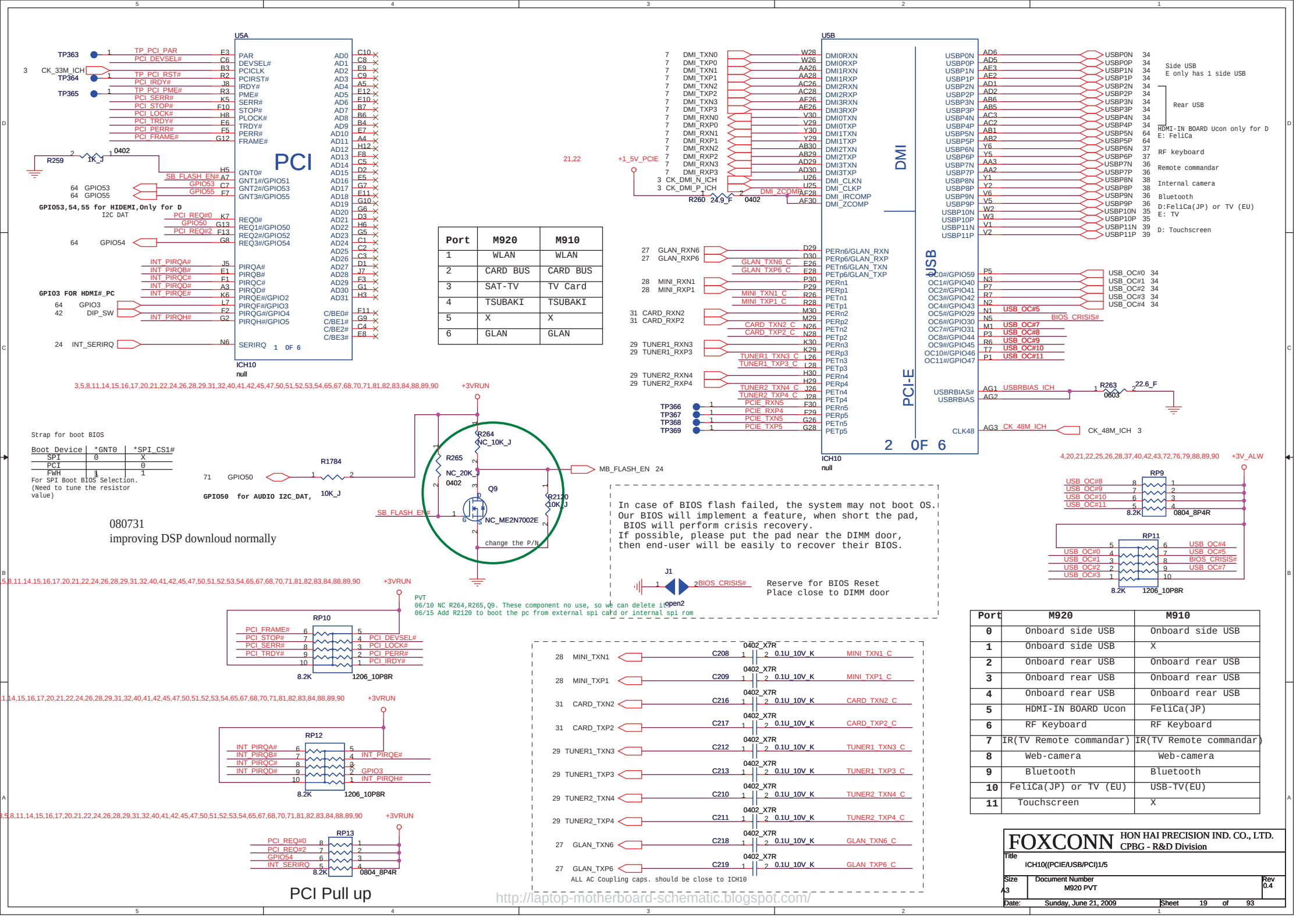
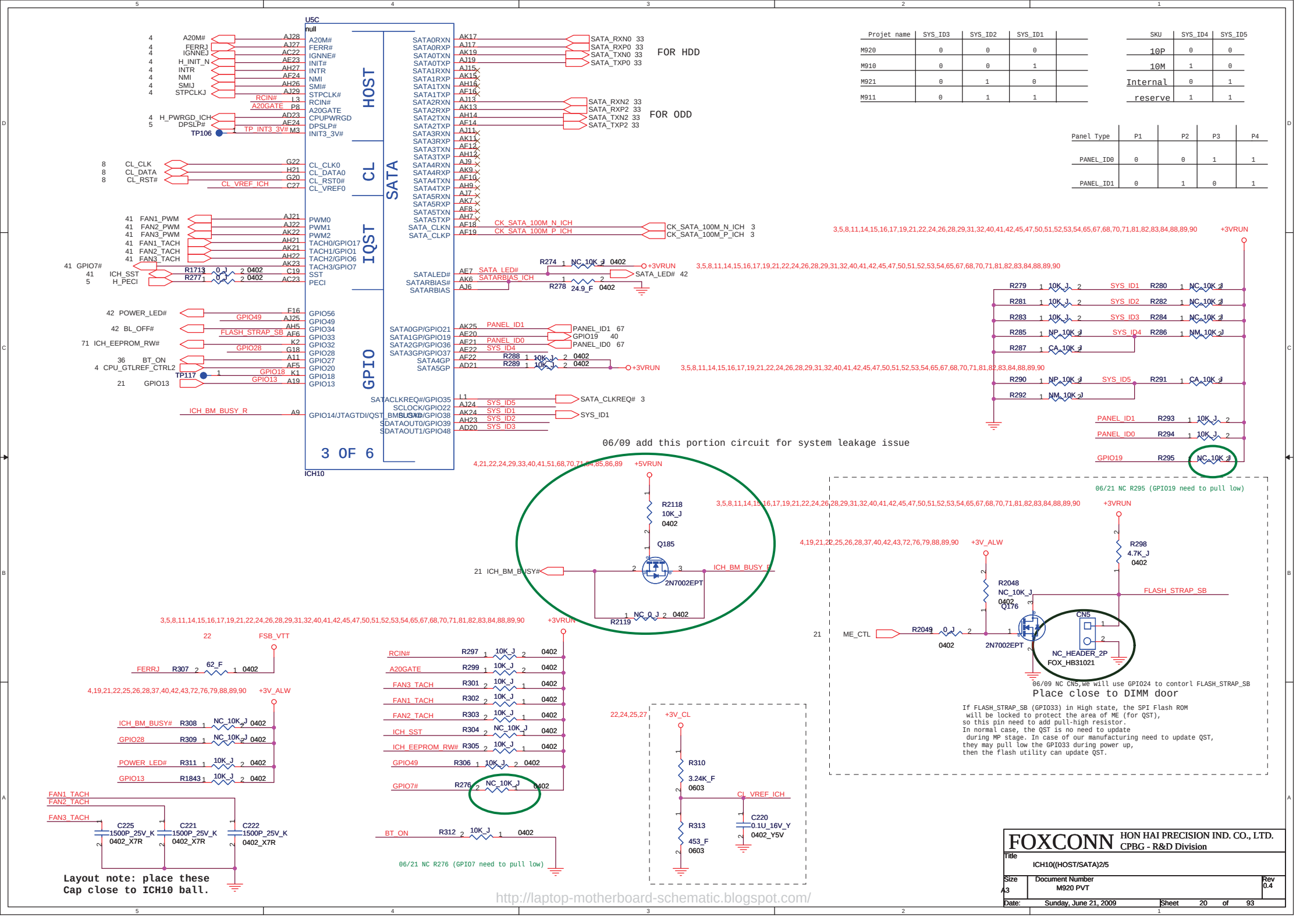


Port	M920	M910
1	WLAN	WLAN
2	CARD BUS	CARD BUS
3	SAT-TV	TV Card
4	TSUBAKI	TSUBAKI
5	X	X
6	GLAN	GLAN

Port	M920	M910
0	Onboard side USB	Onboard side USB
1	Onboard side USB	X
2	Onboard rear USB	Onboard rear USB
3	Onboard rear USB	Onboard rear USB
4	Onboard rear USB	Onboard rear USB
5	HDMI-IN BOARD Ucon	FeliCa(JP)
6	RF Keyboard	RF Keyboard
7	IR(TV Remote commandar)	IR(TV Remote commandar)
8	Web-camera	Web-camera
9	Bluetooth	Bluetooth
10	FeliCa(JP) or TV (EU)	USB-TV(EU)
11	Touchscreen	X



Projet name	SYS_ID3	SYS_ID2	SYS_ID1
M920	0	0	0
M910	0	0	1
M921	0	1	0
M911	0	1	1

SKU	SYS_ID4	SYS_ID5
10P	0	0
10M	1	0
Internal	0	1
reserve	1	1

Panel Type	P1	P2	P3	P4
PANEL_ID0	0	0	1	1
PANEL_ID1	0	1	0	1

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title	ICH10((HOST/SATA)2/5	
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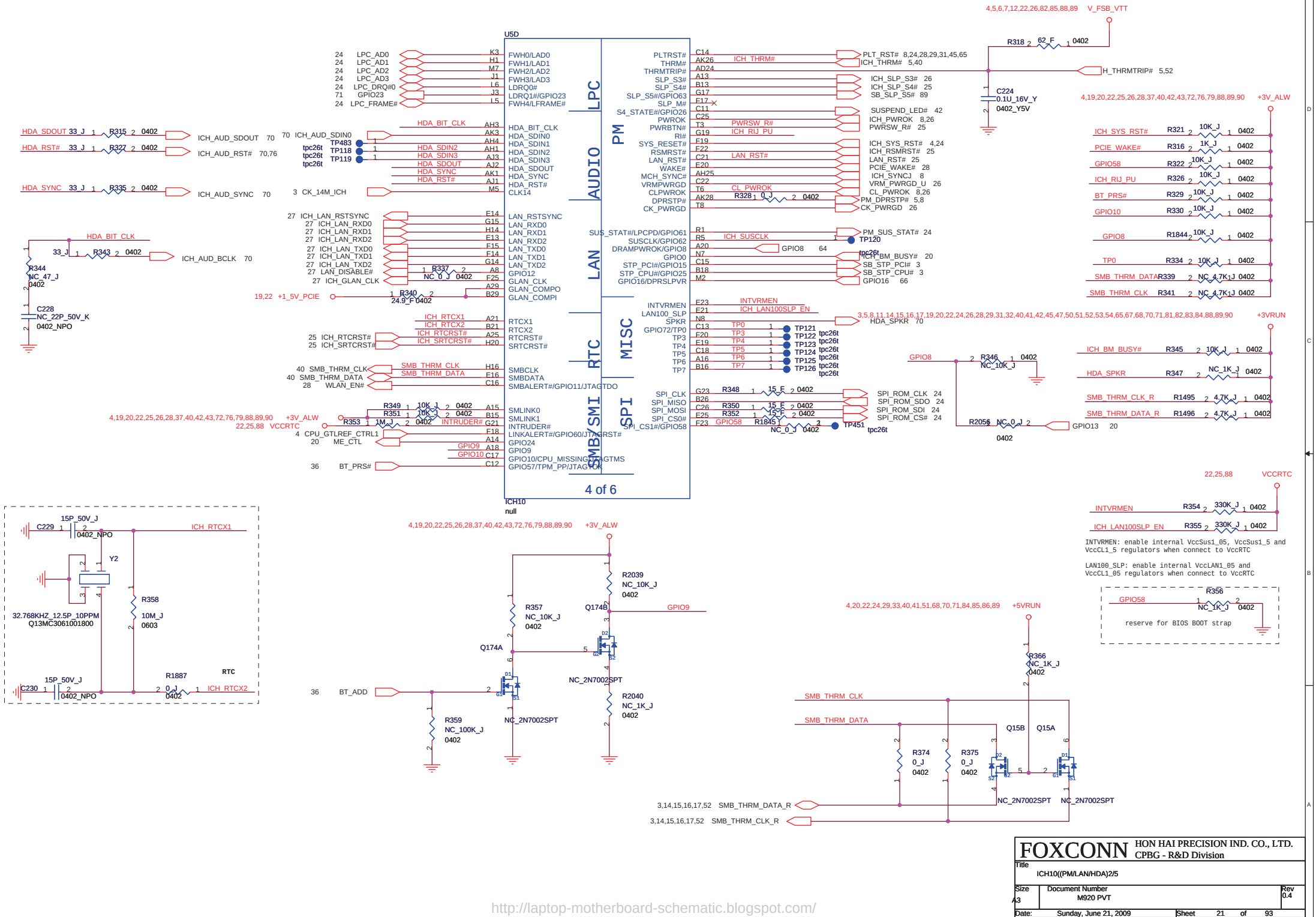

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
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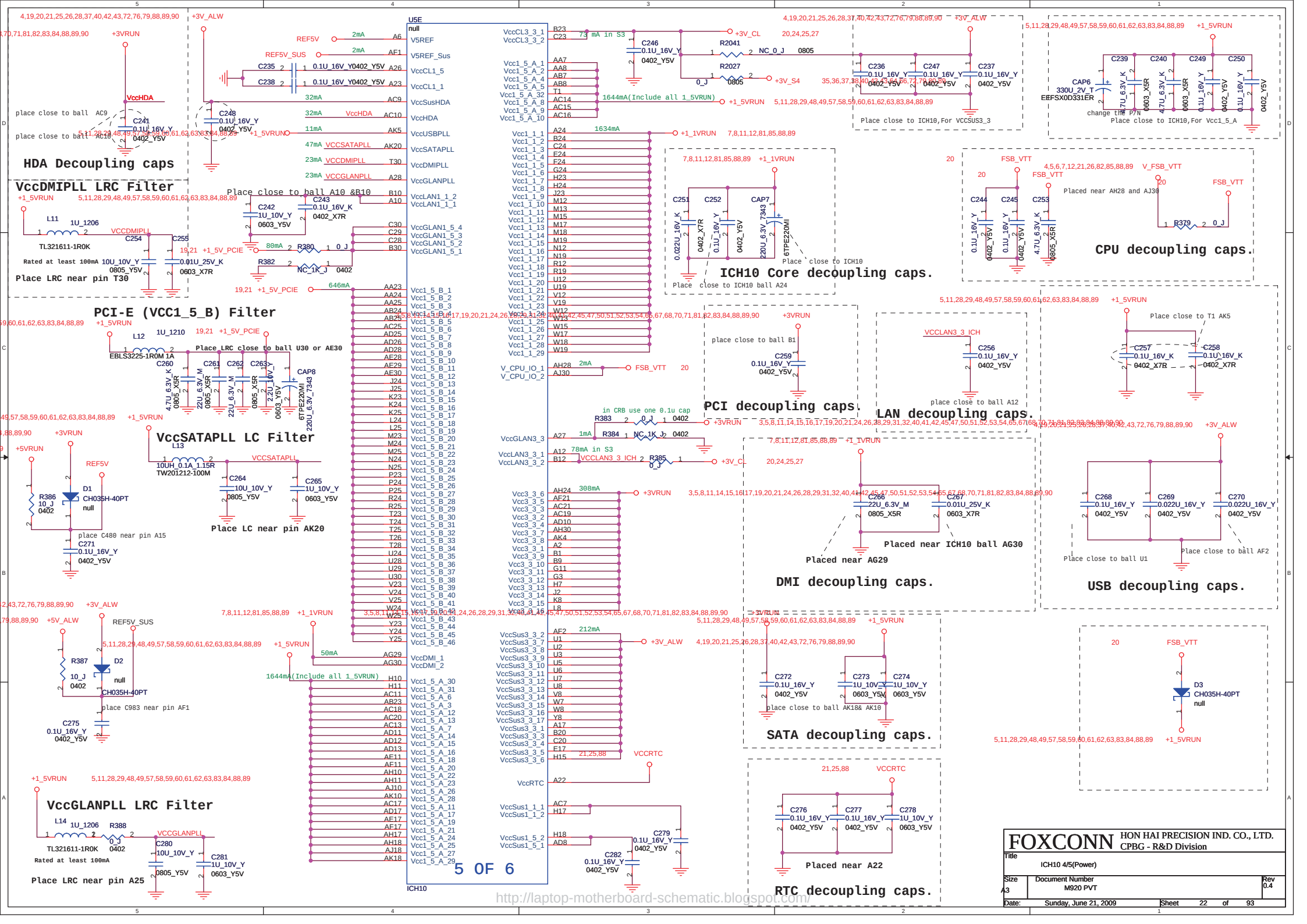
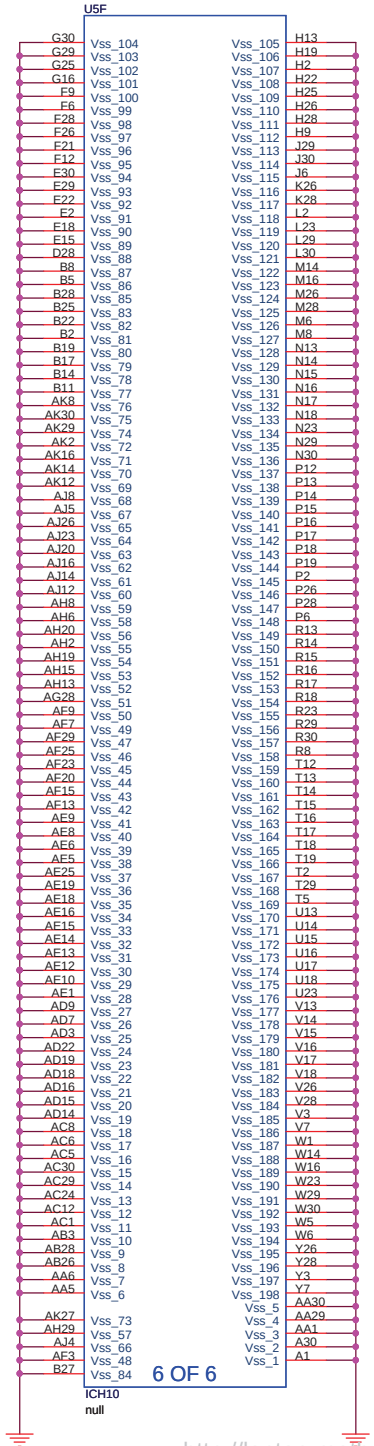
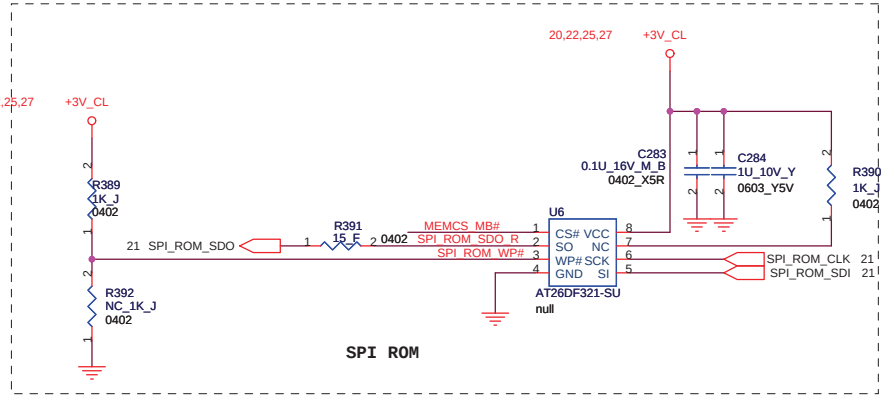
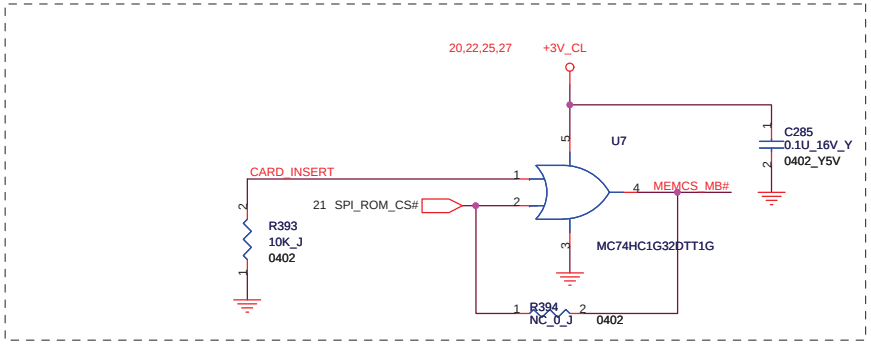

HDA Decoupling caps
VccDMIPLL LRC Filter
Place LRC near pin T30
PCI-E (VCC1_5_B) Filter
Place LC near pin AK20
VccSATAPLL LC Filter
Place LRC near pin A25
VccGLANPLL LRC Filter
ICH10 Core decoupling caps.
CPU decoupling caps.
PCI decoupling caps.
LAN decoupling caps.
DMI decoupling caps.
USB decoupling caps.
SATA decoupling caps.
RTC decoupling caps.
Placed near AG29
Placed near ICH10 ball AG30
Placed near A22
5 OF 6
ICH10
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
ICH10 4/5(Power)
M920 PVT
Sunday, June 21, 2009
http://laptop-motherboard-schematic.blogspot.com/

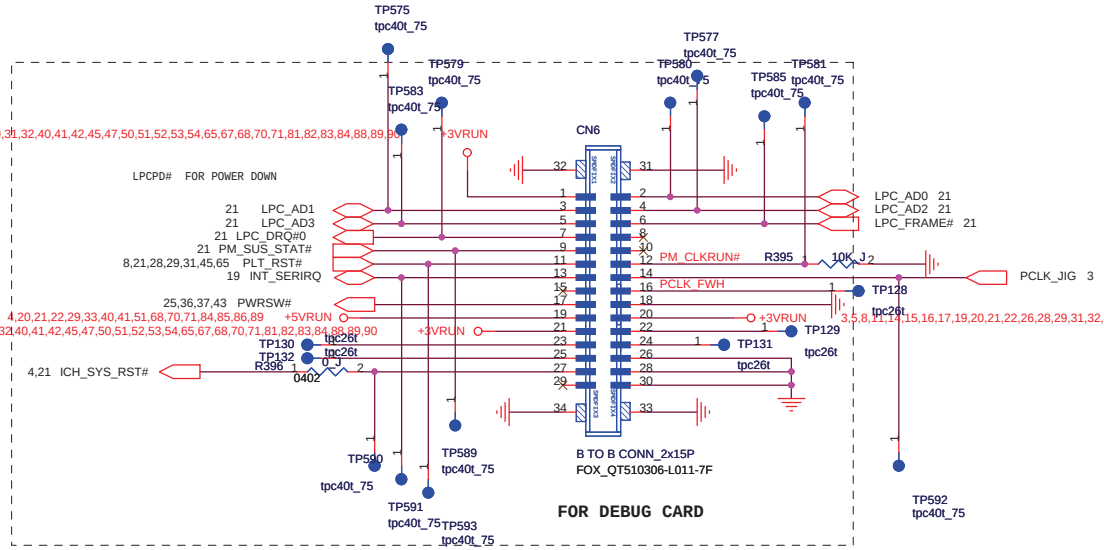


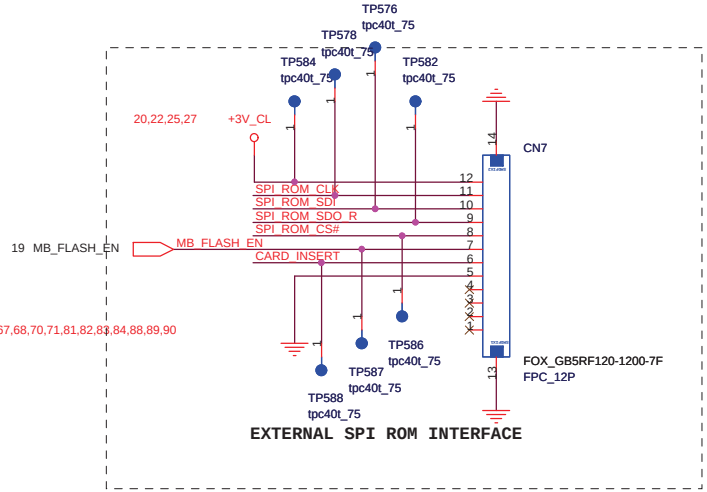
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	ICH10 5/5(Ground)	
Size A3	Document Number M920 PVT	Rev 0.4
Date: Sunday, June 21, 2009	Sheet 23 of 93	





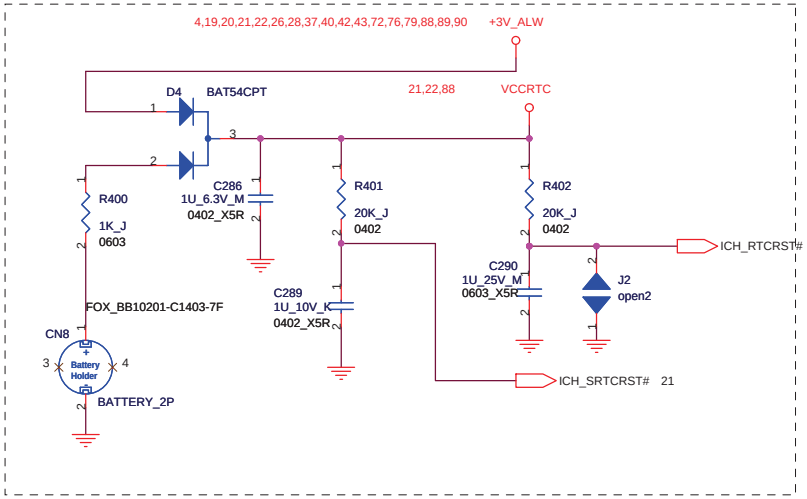


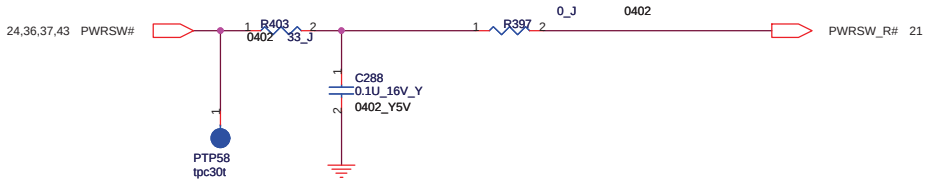


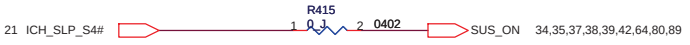
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	Flash ROM& Debug	
Size A3	Document Number M920 PVT	Rev 0.4
Date: Sunday, June 21, 2009	Sheet 24 of 93	

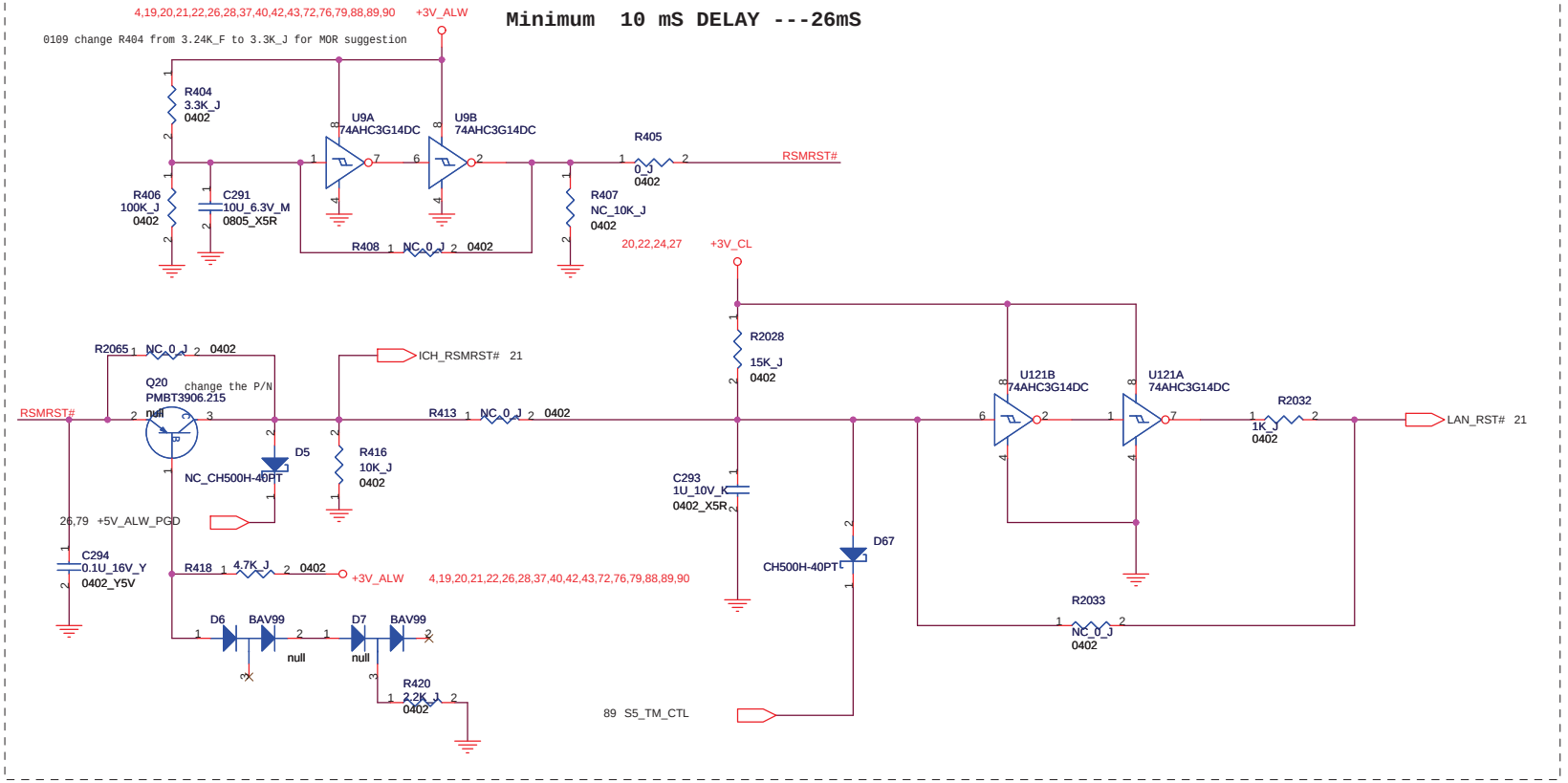
Delay time from VCCRTC high to RTCRST# inactive 18~25mS







Delay time from +3v_alw high to RSMRST# inactive



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: Power Squence 1/2		
Size: A3	Document Number: M920 PVT	Rev: 0.4
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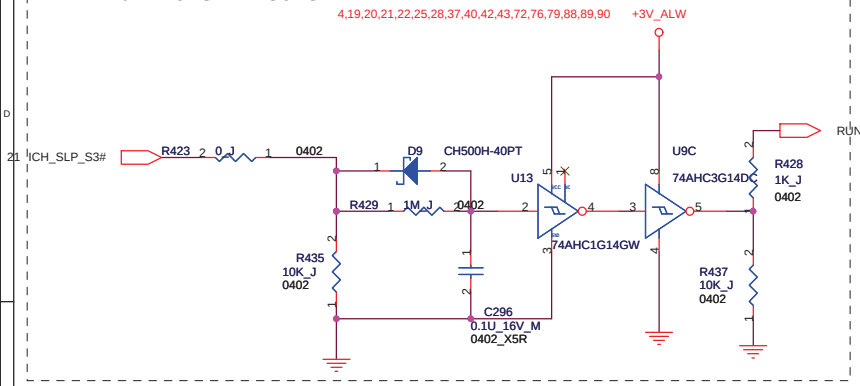
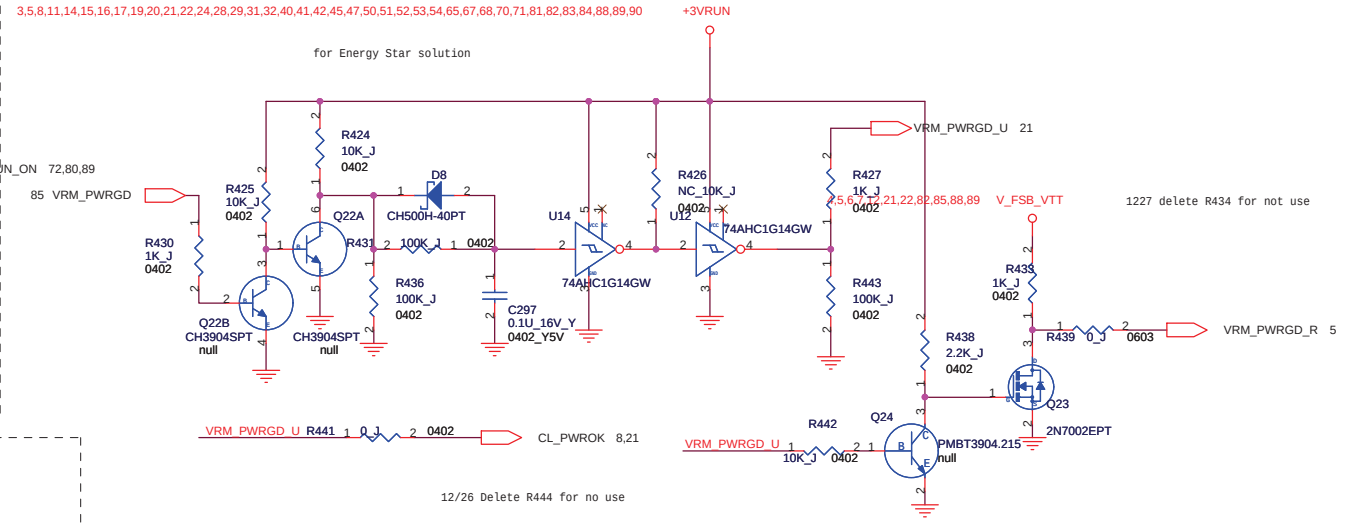
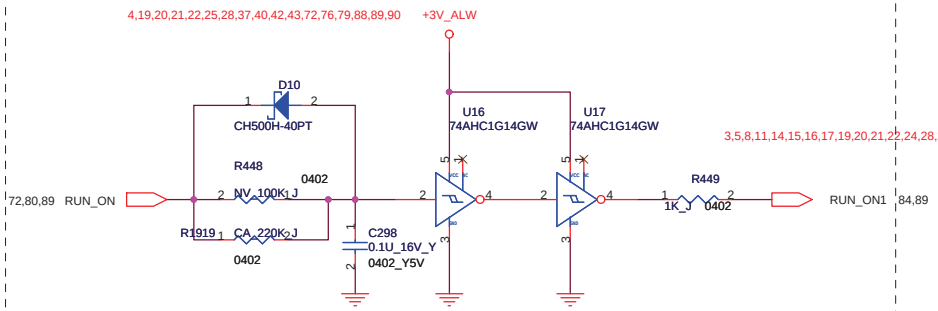
ICH_SLP_S3# inactive to RUN_ON active(3/5VRUN) delay
Minimum 20mS -- 80mS



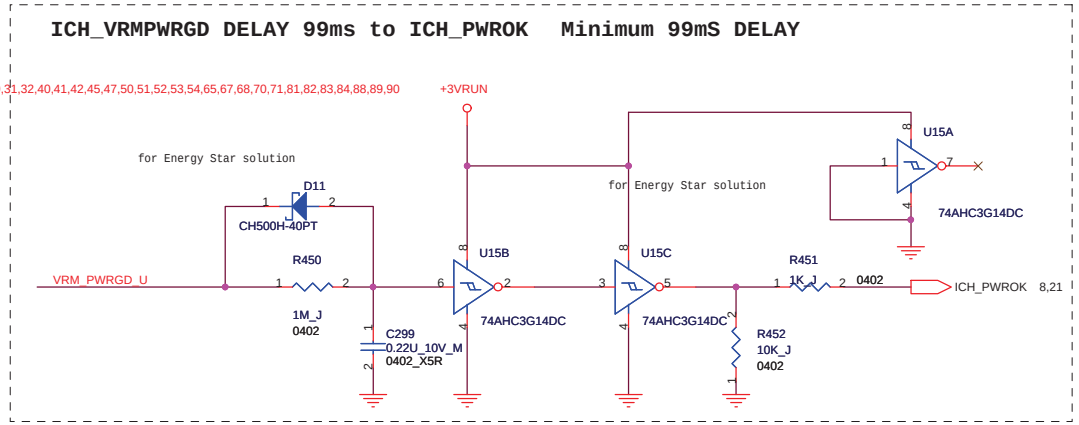
VRM_PWRGD Delay time and level shift



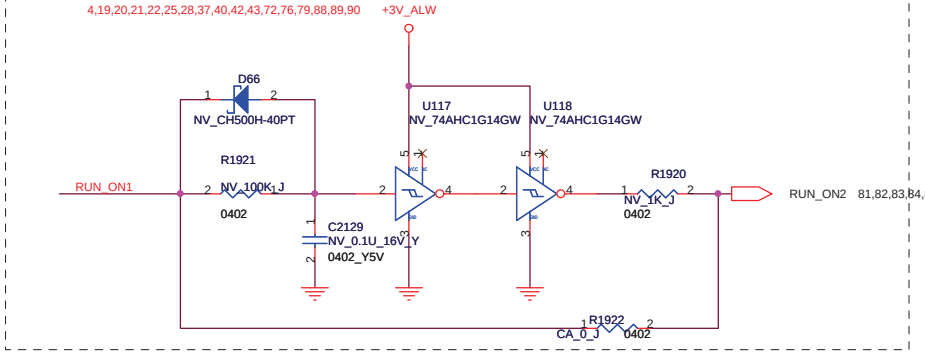
NVVDD POWER LOGIC Minimum 5mS DELAY -- 10mS



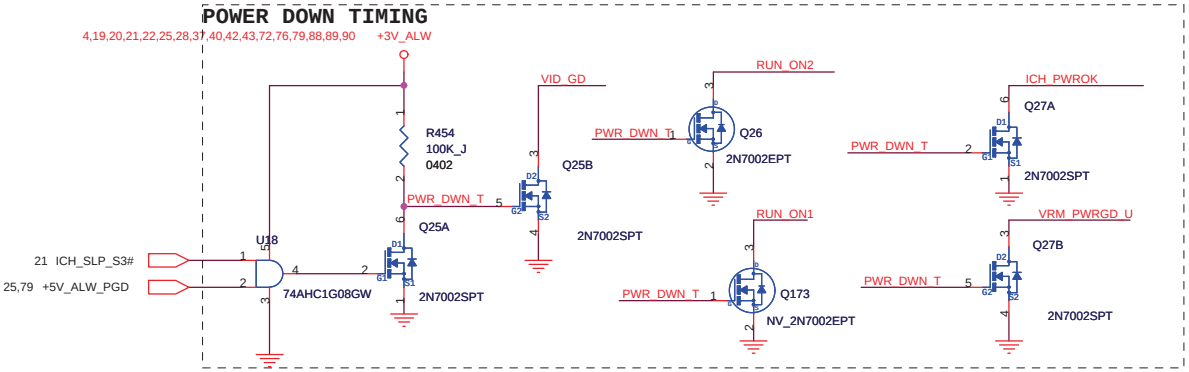
ICH_VRMPWRGD DELAY 99ms to ICH_PWROK Minimum 99mS DELAY

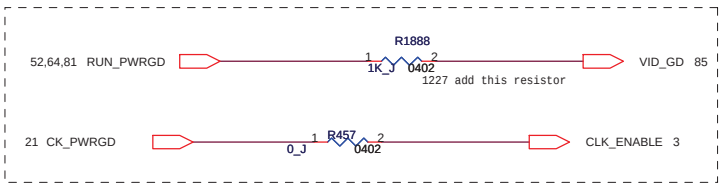


+1_5VRUN/+1_1VRUN/V_FSB_VTT/PEX_VDD
Minimum 5mS DELAY -- 10mS



POWER DOWN TIMING





FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title	Power Squence 2/2	
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In 1000 Mb/s mode, JKCLK frequency is 62.5 MHz.
In 100 Mb/s mode, JKCLK frequency is 50 MHz.
In 10 Mb/s mode, JKCLK frequency is 5 MHz.
In power down mode, JKCLK frequency is 0 MHz.

Layout Notice: C300 C301 near LAN PHY

Layout Notice: R458 near LAN PHY

Layout Notice: R460 near LAN PHY

06/15 PVT Change C2161 From 1C-2B20104-K000 1C-2N20050-D000 for EMI Request

0619 Change C315 and C316 from 1C-2N20150-J000 to 1C-2N20330-J000 for crystal test result

about 730mA

these capitor near to the chip +1v_ Vdd_LAN

these capitor near to the chip +1_8v_LAN

PVT 0610 Change CN9 from 2N-000800F-FKN0 to 2N-0008001-FKN0 for packaging changed

Layout Notice: close to LAN PHY chip

Layout Notice: close to LAN PHY chip

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Title	INTEL GLAN Boazman		
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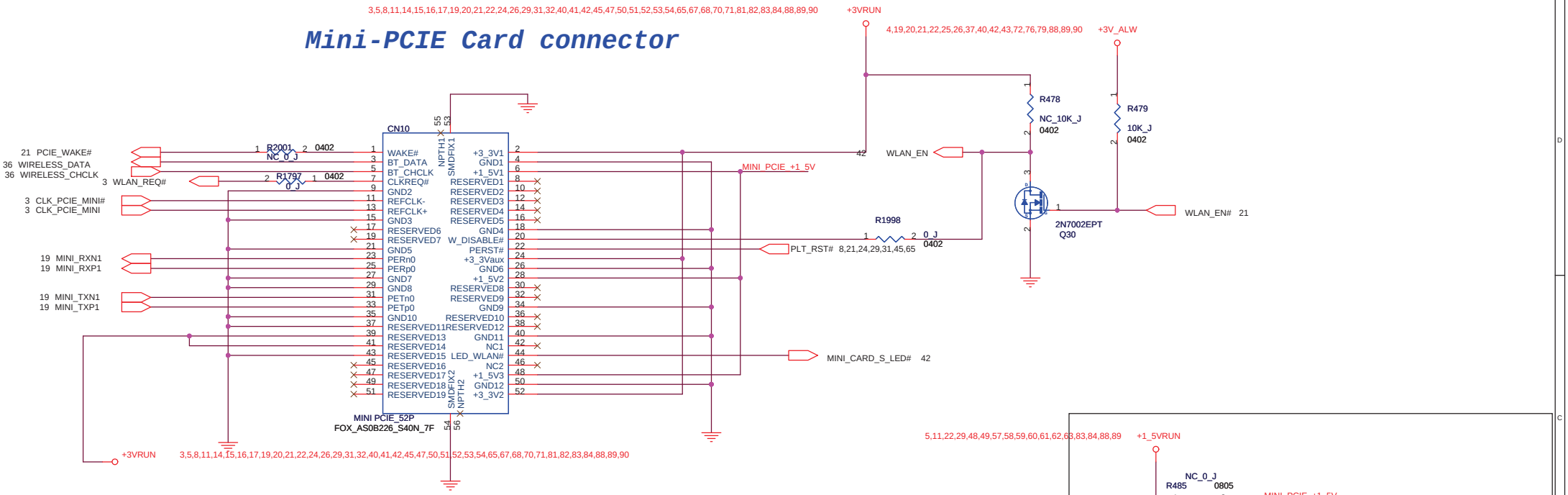
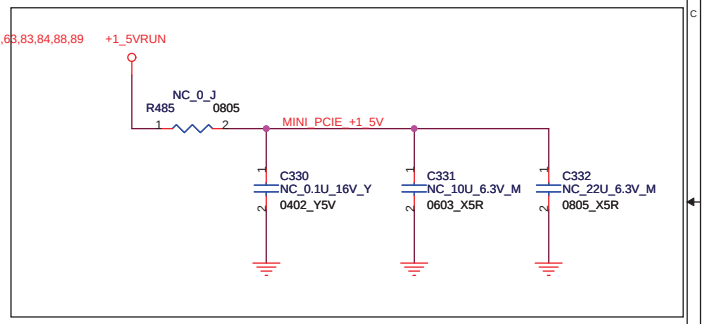
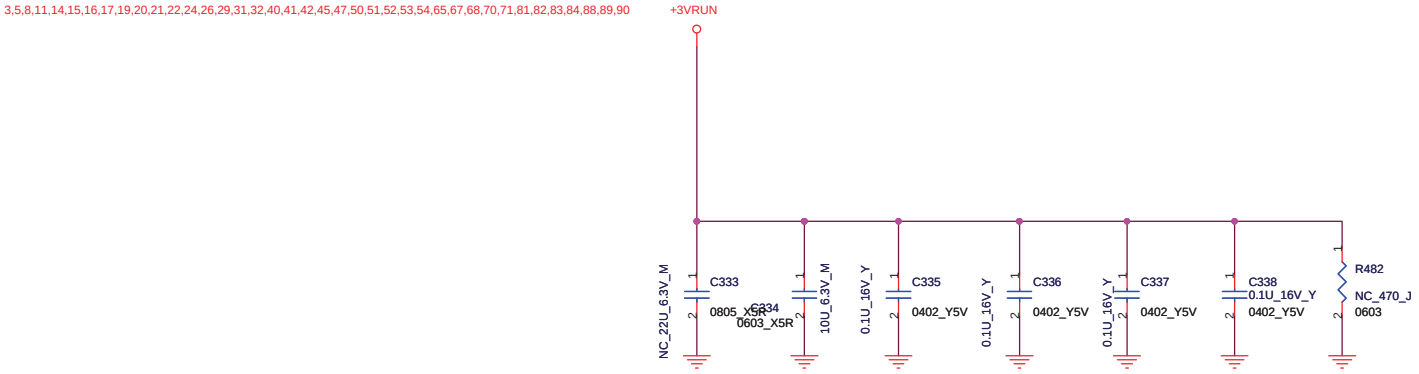
Mini-PCIE Card connector



PCIE 3.3V spec.(Normal 750mA)(MAX 1100mA)





FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: PCIe WLAN		
Size: A3	Document Number: M920 PVT	Rev: 0.4
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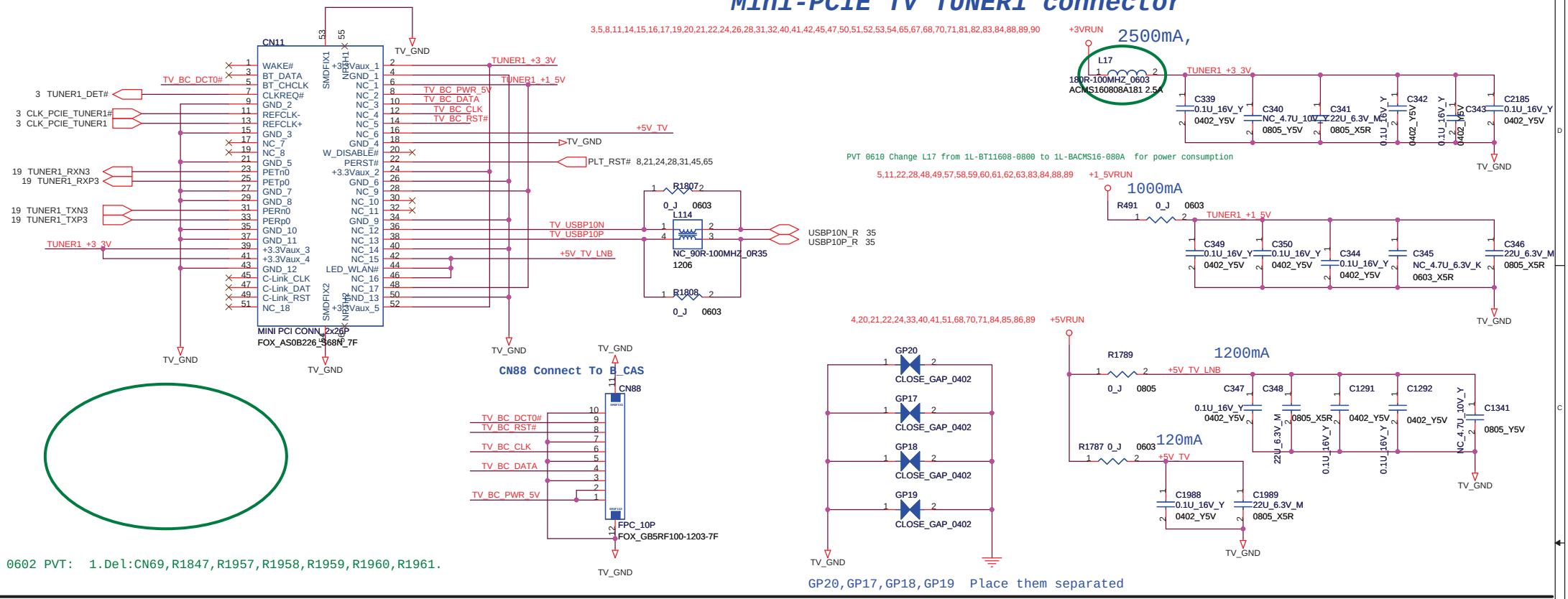
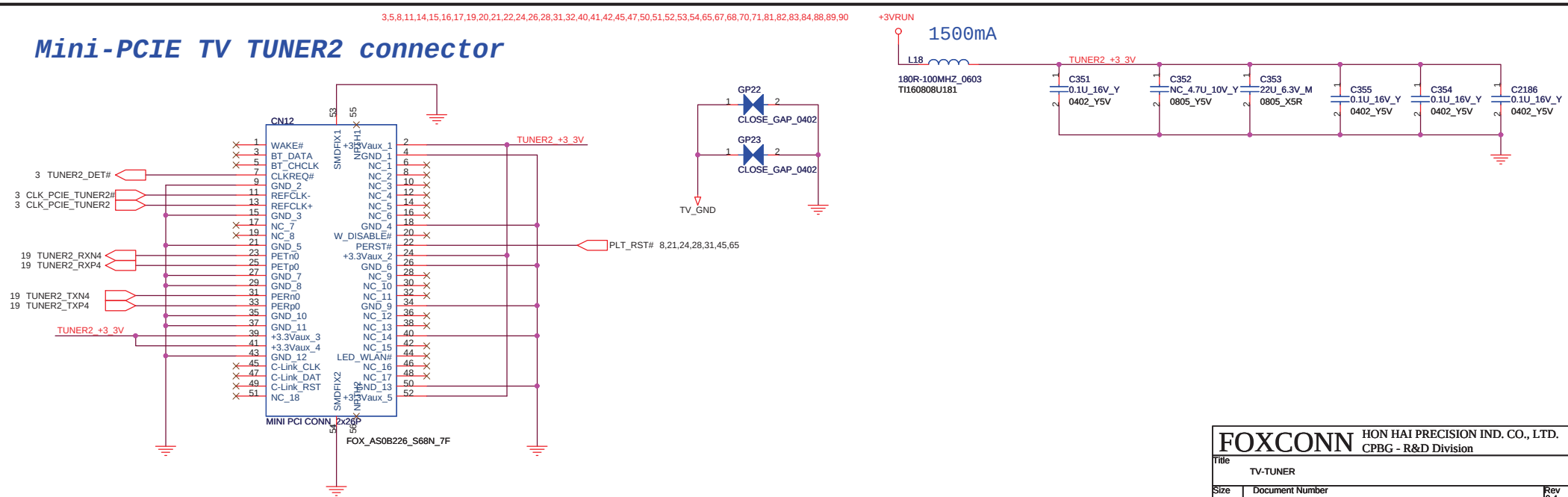
Mini-PCIE TV TUNER1 connector



0602 PVT: 1.Del:CN69,R1847,R1957,R1958,R1959,R1960,R1961.

GP20,GP17,GP18,GP19 Place them separated

Mini-PCIE TV TUNER2 connector



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: TV-TUNER		
Size: A3	Document Number: M920 PVT	Rev: 0.4
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Blank

DVT
04/14 Delete all AV_IN function for MOR request
(Delete CN14,C368,C2131,C2132,C2130,C2039,TP486,TP485,TP484,TP487,TP489,TP491,TP487,TP490 and TP488)

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	AV/IR DB CONN
Size: A3	Document Number: M920 PVT
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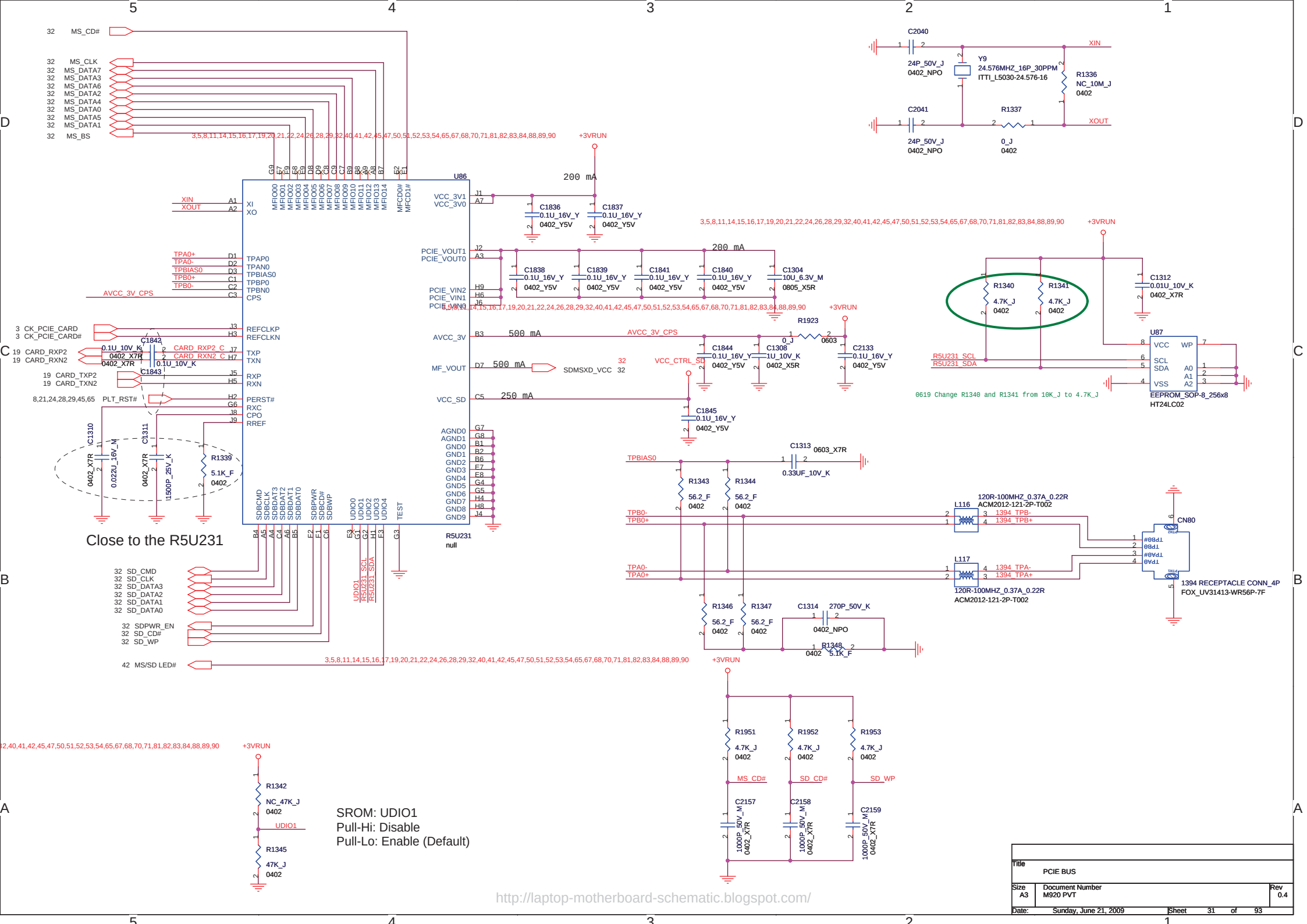
MS_CD#
MS_CLK
MS_DATA7
MS_DATA3
MS_DATA6
MS_DATA2
MS_DATA4
MS_DATA0
MS_DATA5
MS_DATA1
MS_BS
U86
XIN
XOUT
TPA0+
TPA0-
TPBIAS0
TPB0+
TPB0-
AVCC_3V_CPS
CK_PCIE_CARD
CK_PCIE_CARD#
CARD_RXP2
CARD_RXN2
CARD_TXP2
CARD_TXN2
PLT_RST#
C1842
C1843
C1310
C1311
R1339
5.1K_F
0402
Close to the R5U231
R5U231
null
SDBCMD
SDBCLK
SDBDAT3
SDBDAT2
SDBDAT1
SDBDAT0
SDBPWR
SDBCD#
SDBWP
UDIO0
UDIO1
UDIO2
UDIO3
UDIO4
TEST
SD_CMD
SD_CLK
SD_DATA3
SD_DATA2
SD_DATA1
SD_DATA0
SDPWR_EN
SD_CD#
SD_WP
MS/SD LED#
VCC_3V1
VCC_3V0
200 mA
C1836
C1837
0.1U_16V_Y
0402_Y5V
PCIE_VOUT1
PCIE_VOUT0
C1838
C1839
C1841
C1840
C1304
10U_6.3V_M
0805_X5R
PCIE_VIN2
PCIE_VIN1
PCIE_VIN0
AVCC_3V
500 mA
MF_VOUT
SDMSXD_VCC
VCC_SD
250 mA
C1844
C1308
1U_10V_K
0402_X5R
C2133
R1923
0_J
0603
VCC_CTRL_SD
C1845
AGND0
AGND1
GND0
GND1
GND2
GND3
GND4
GND5
GND6
GND7
GND8
GND9
C1313
0603_X7R
0.33UF_10V_K
R1343
R1344
56.2_F
0402
TPB0-
TPB0+
TPA0-
TPA0+
L116
L117
ACM2012-121-2P-T002
120R-100MHZ_0.37A_0.22R
1394_TPB-
1394_TPB+
1394_TPA-
1394_TPA+
CN80
1394 RECEPTACLE CONN_4P
FOX_UV31413-WR56P-7F
R1346
R1347
C1314
270P_50V_K
0402_NPO
R1348
5.1K_F
C2040
24P_50V_J
0402_NPO
Y9
24.576MHZ_16P_30PPM
ITTI_L5030-24.576-16
R1336
NC_10M_J
C2041
R1337
0_J
R1340
R1341
4.7K_J
C1312
0.01U_10V_K
U87
EEPROM_SOP-8_256x8
HT24LC02
R5U231_SCL
R5U231_SDA
0619 Change R1340 and R1341 from 10K_J to 4.7K_J
R1951
R1952
R1953
MS_CD#
SD_CD#
SD_WP
C2157
C2158
C2159
1000P_50V_M
0402_X7R
R1342
NC_47K_J
R1345
47K_J
SROM: UDIO1
Pull-Hi: Disable
Pull-Lo: Enable (Default)
+3VRUN
3,5,8,11,14,15,16,17,19,20,21,22,24,26,28,29,32,40,41,42,45,47,50,51,52,53,54,65,67,68,70,71,81,82,83,84,88,89,90
http://laptop-motherboard-schematic.blogspot.com/
Title
PCIE BUS
Size
A3
Document Number
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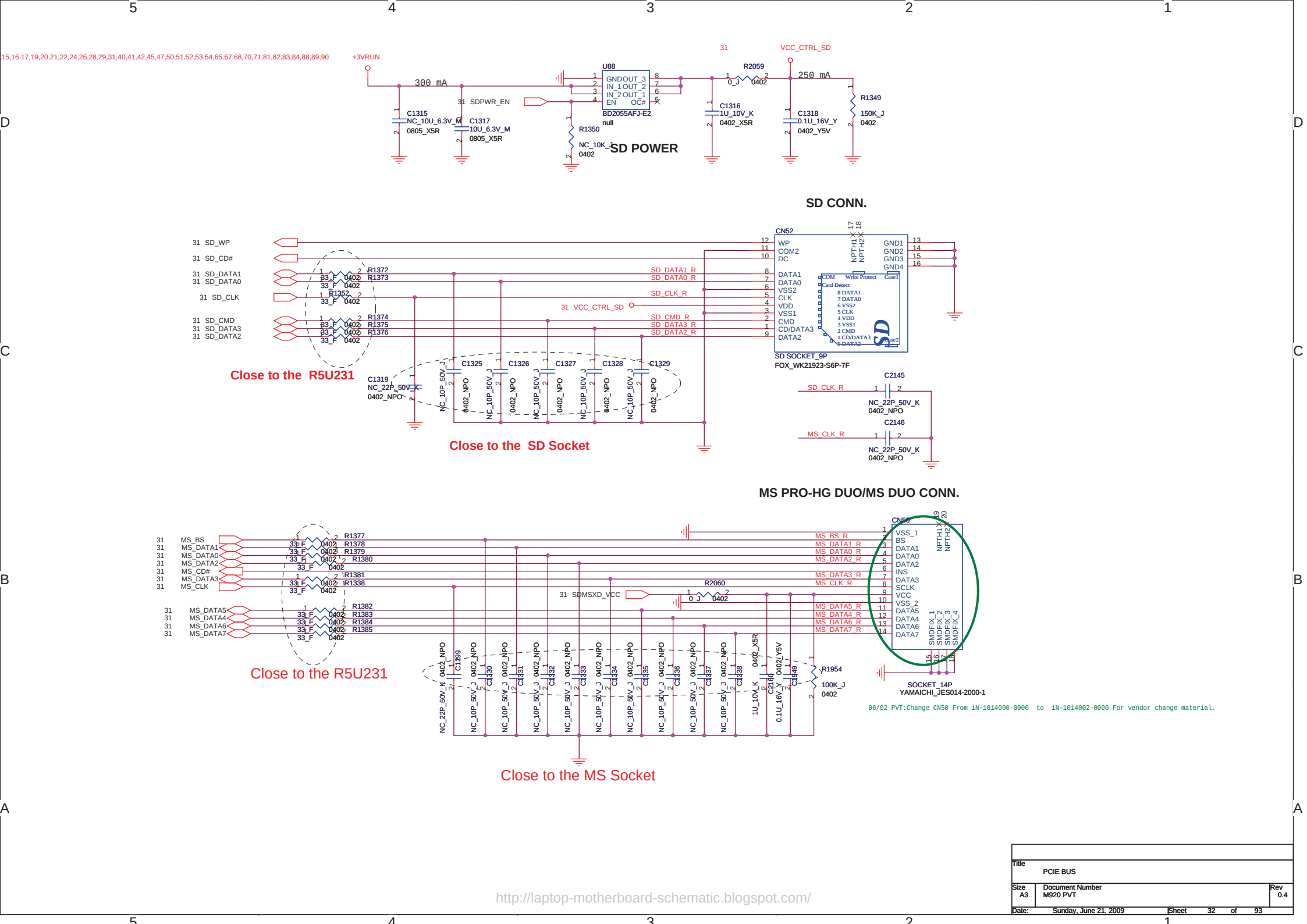

Title	PCIE BUS	
Size A3	Document Number M920 PVT	Rev 0.4
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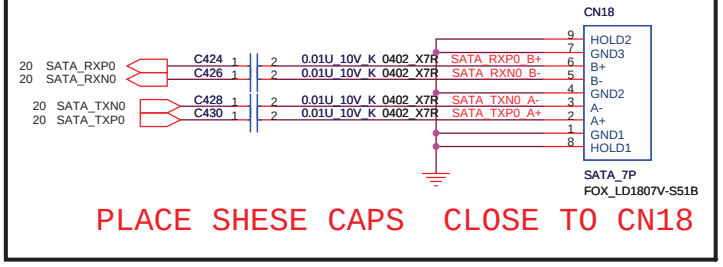
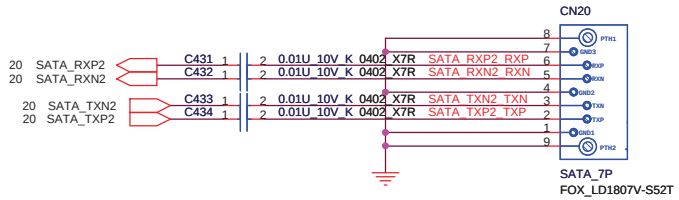
SATA HDD



PLACE SHESE CAPS CLOSE TO CN18

SATA ODD

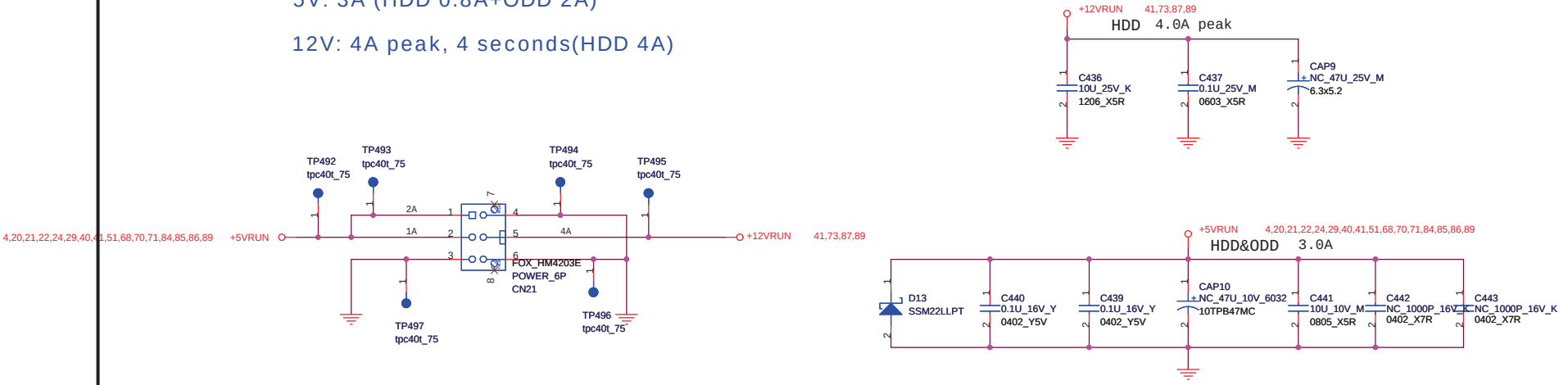


PLACE SHESE CAPS CLOSE TO CN20

HDD&ODD POWER

5V: 3A (HDD 0.8A+ODD 2A)

12V: 4A peak, 4 seconds(HDD 4A)



FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: SATA HDD/ODD		
Size: A3	Document Number: M920 PVT	Rev: 0.4
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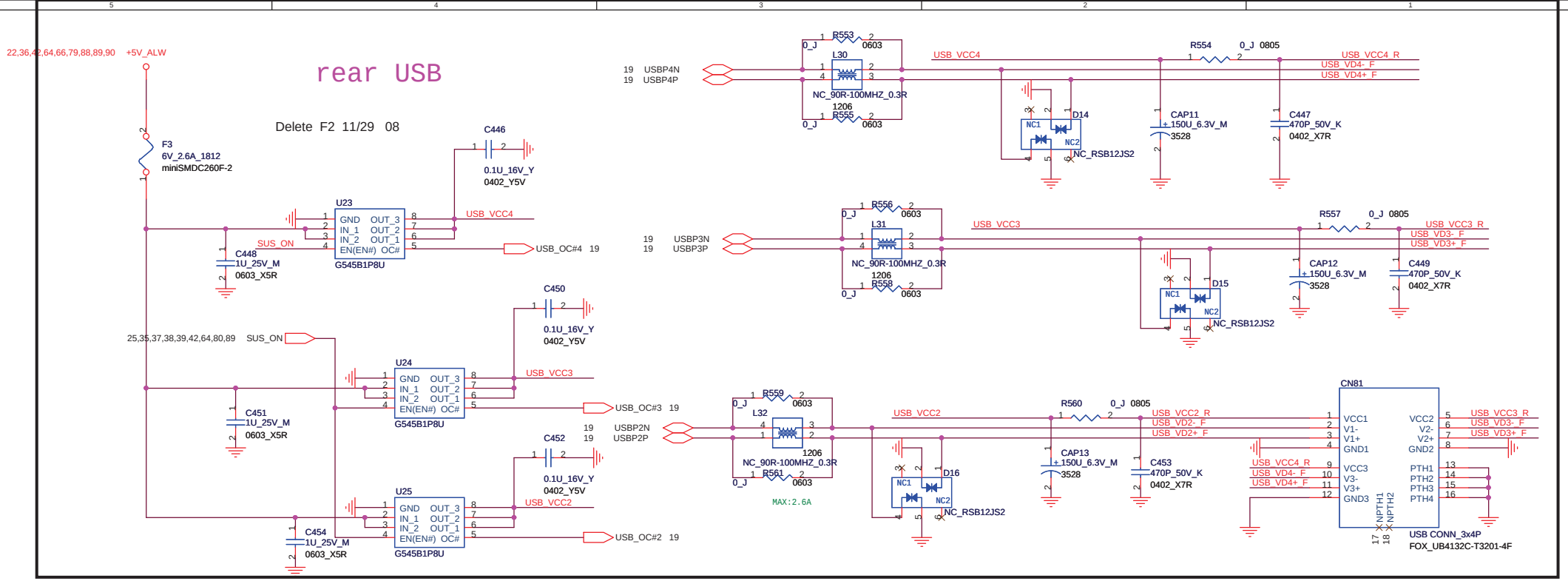
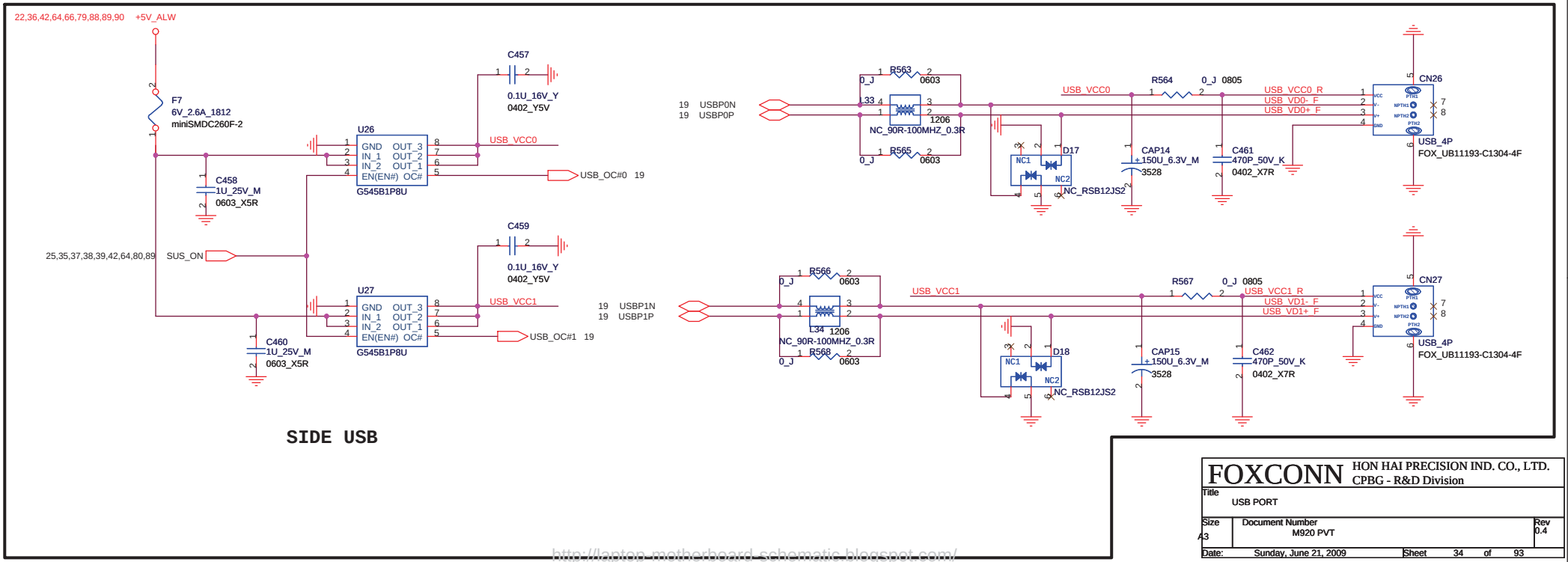
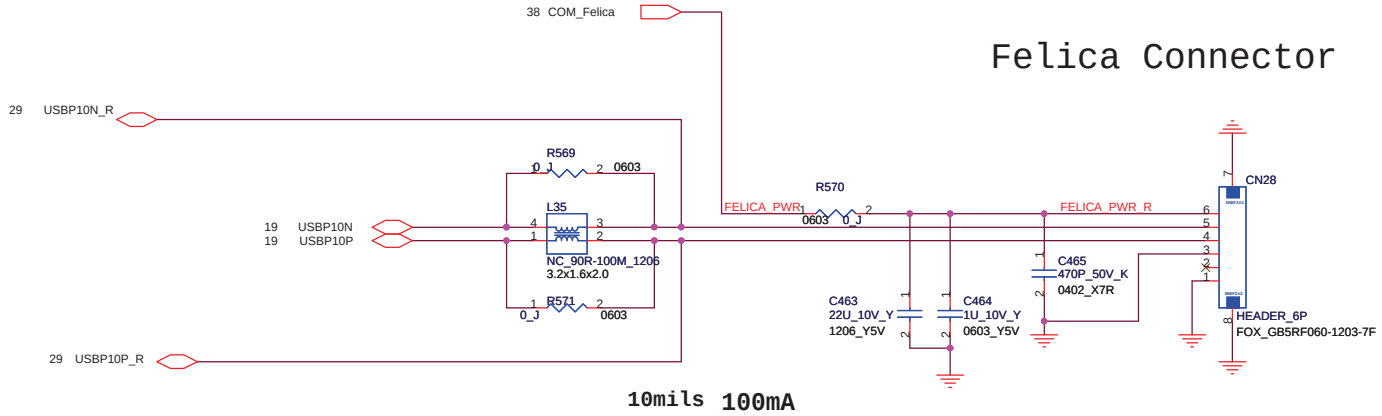
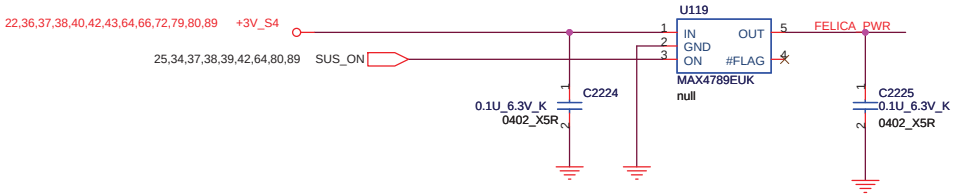




FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: USB PORT		
Size: A3	Document Number: M920 PVT	Rev: 0.4
Date: Sunday, June 21, 2009	Sheet 34 of 93	





FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	FELICA	
Size A3	Document Number M920 PVT	Rev 0.4
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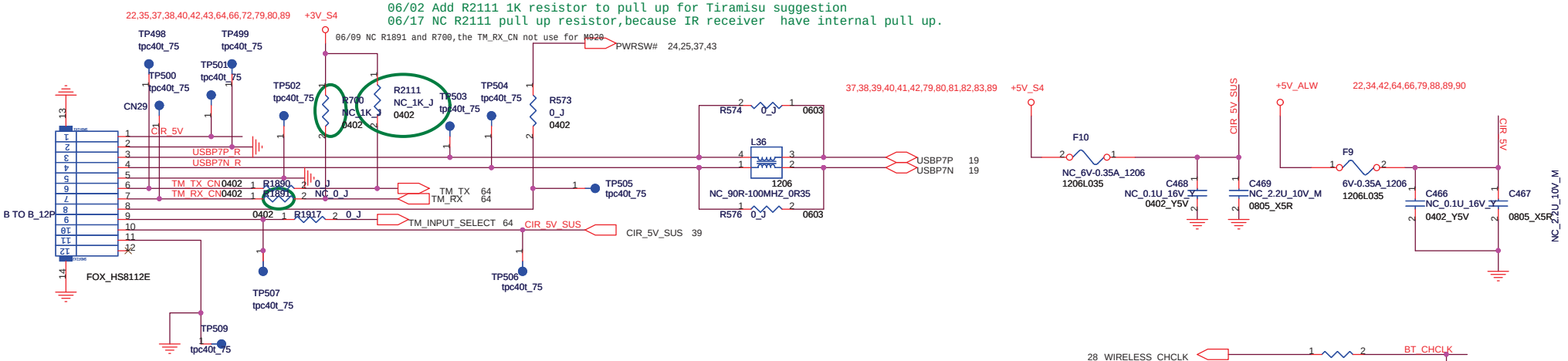
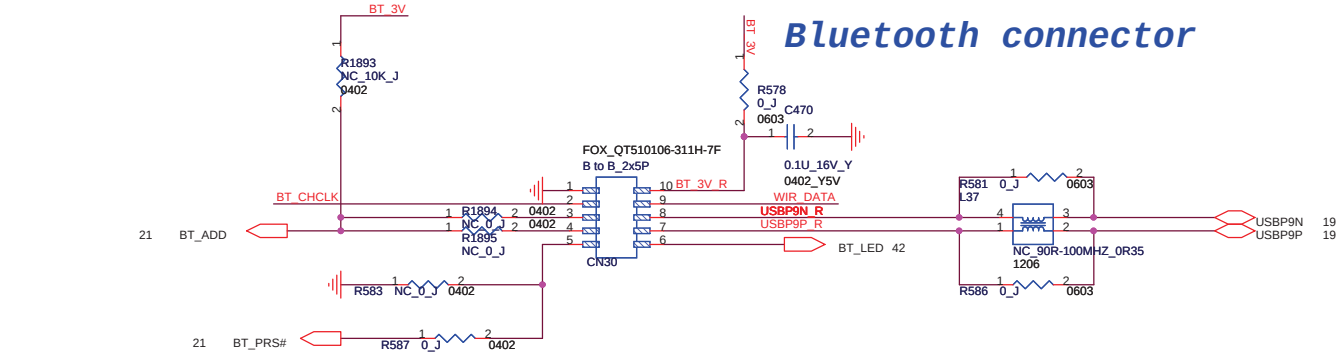
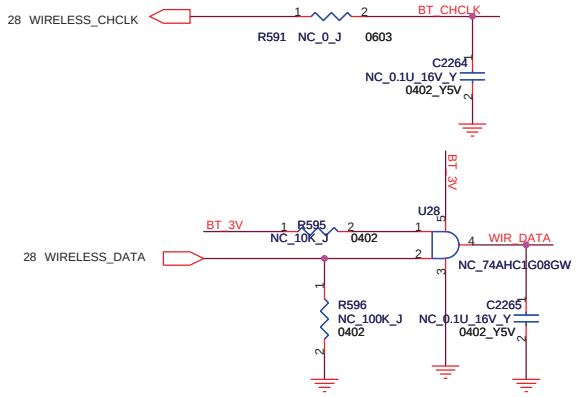
FOR TV Remote commandar

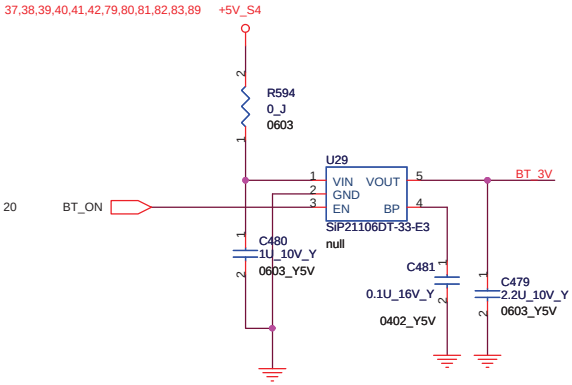
06/02 Add R2111 1K resistor to pull up for Tiramisu suggestion
06/17 NC R2111 pull up resistor,because IR receiver have internal pull up.



Bluetooth connector







FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: CIR&BT		
Size: A3	Document Number: M920 PVT	Rev: 0.4
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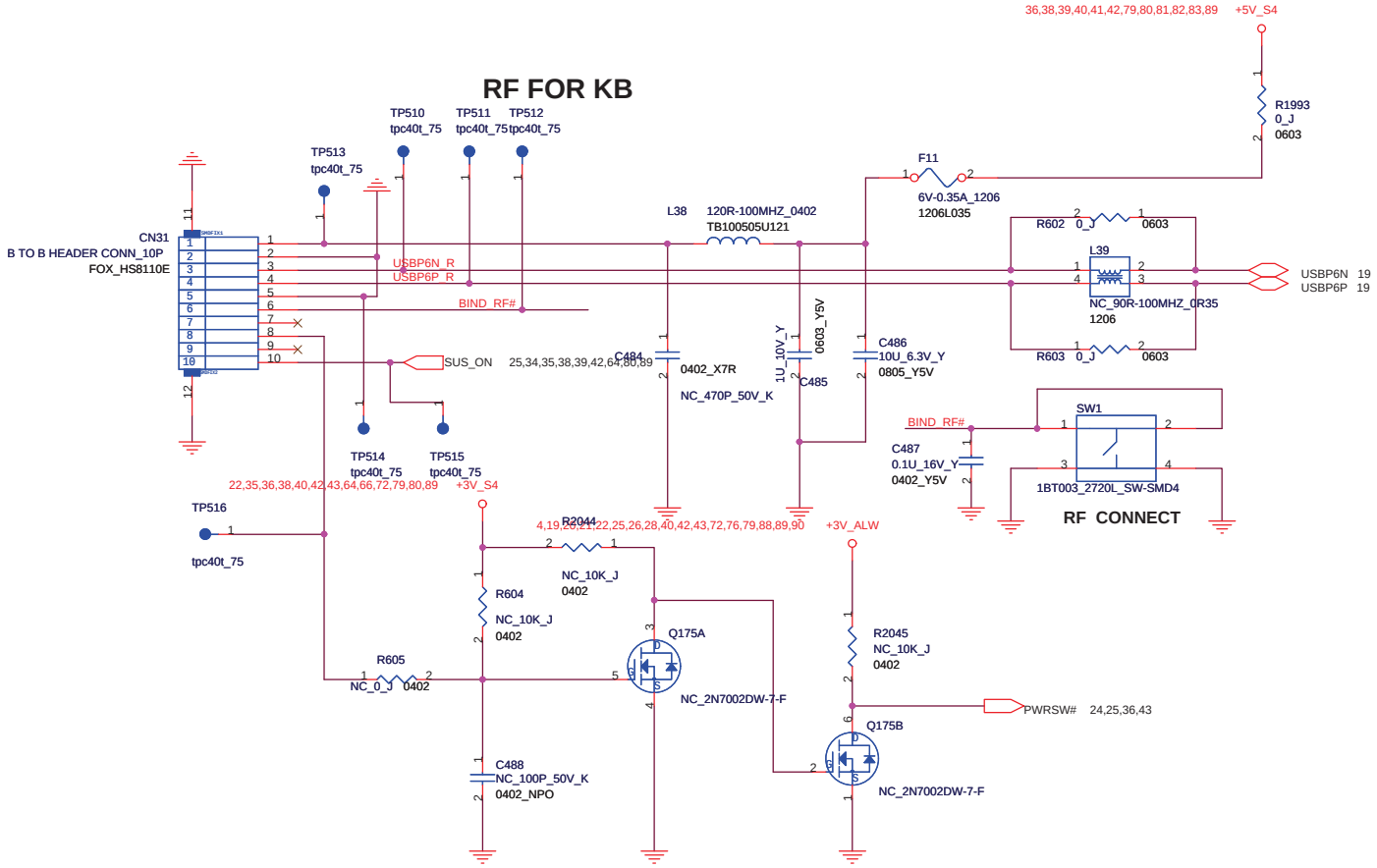
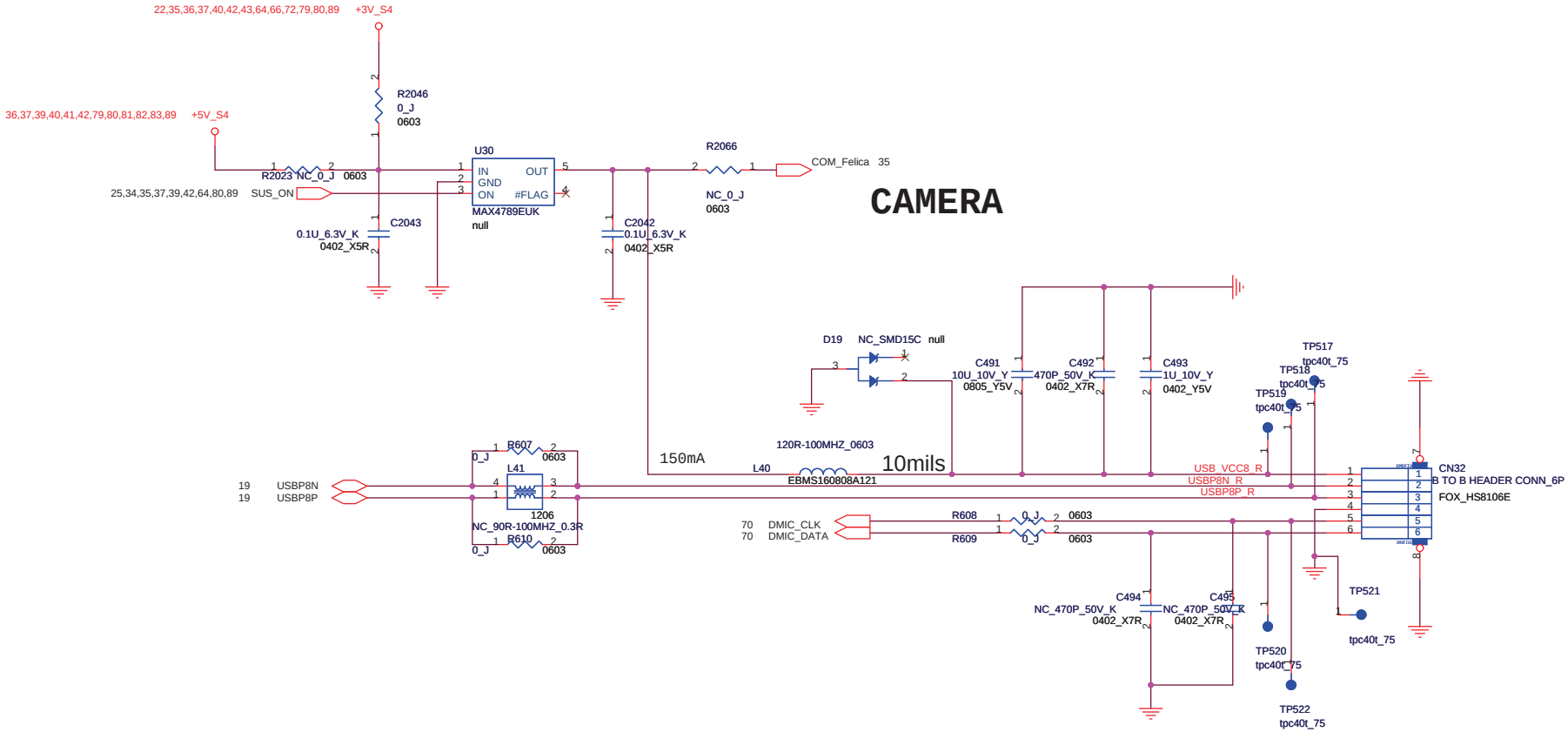
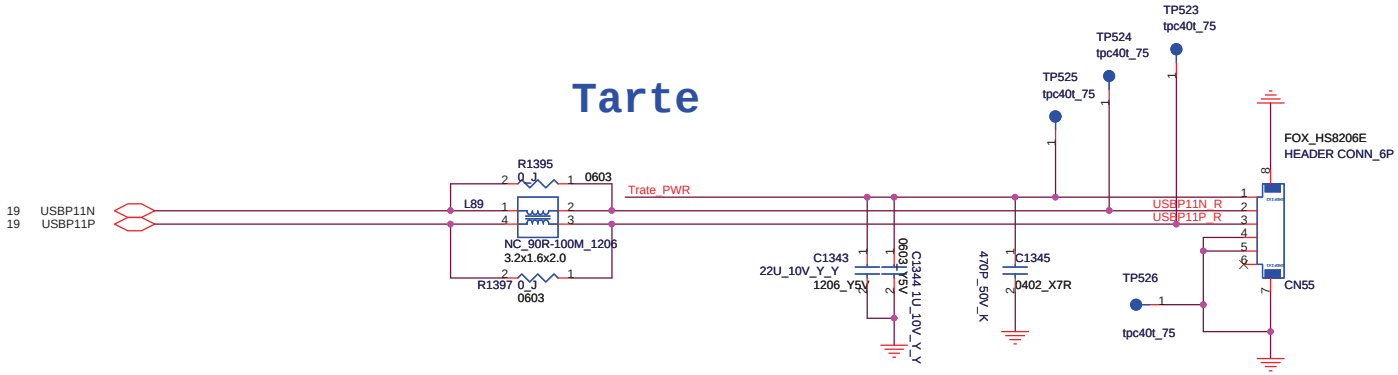
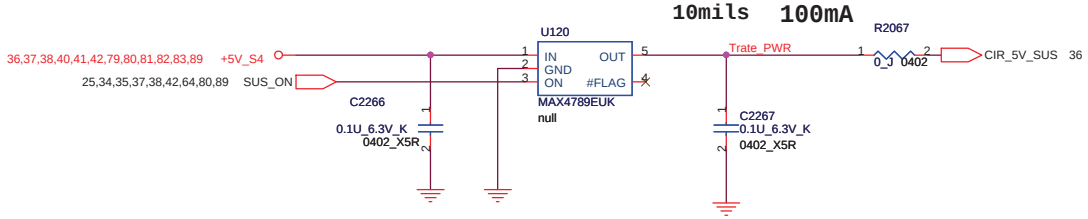


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	RF KB CONN		
Size A3	Document Number M920 PVT		Rev 0.4
Date: Sunday, June 21, 2009	Sheet 37 of 93		



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: CAMERA		
Size: A3	Document Number: M920 PVT	Rev: 0.4
Date: Sunday, June 21, 2009	Sheet 38 of 93	





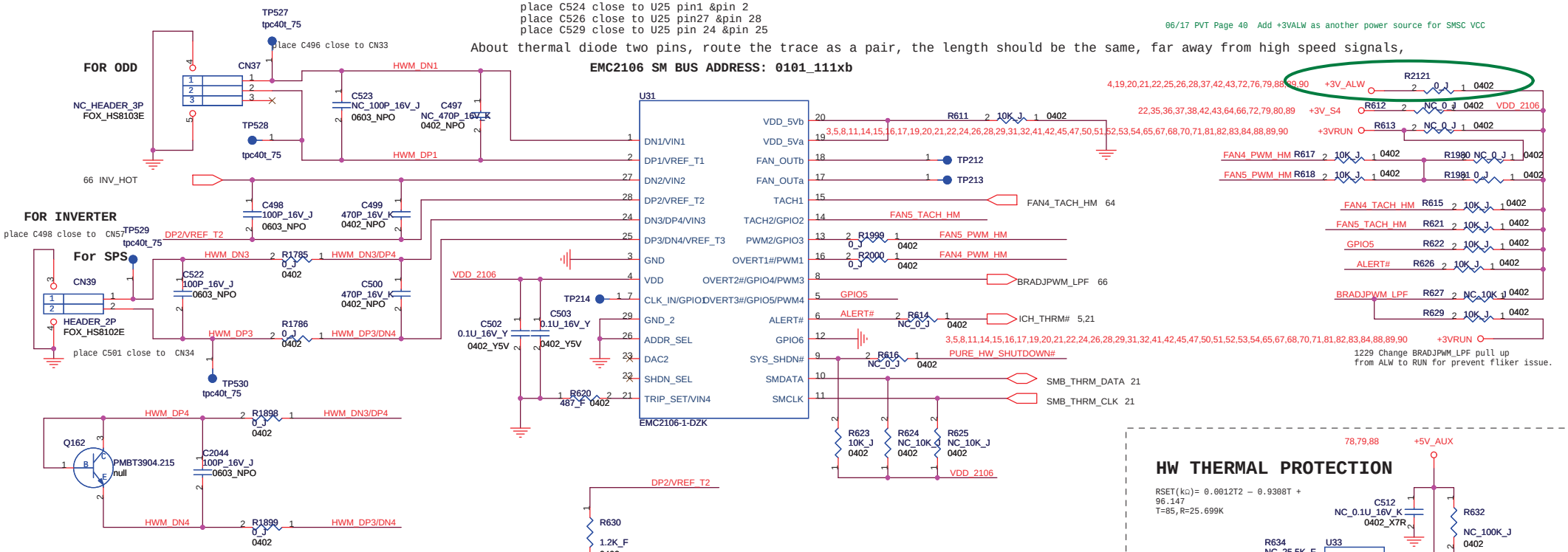
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	<Title>	
Size A3	Document Number M920 PVT	Rev 0.4
Date: Sunday, June 21, 2009	Sheet 39 of 93	

place C524 close to U25 pin1 &pin 2
place C526 close to U25 pin27 &pin 28
place C529 close to U25 pin 24 &pin 25

06/17 PVT Page 40 Add +3VALW as another power source for SMSC VCC

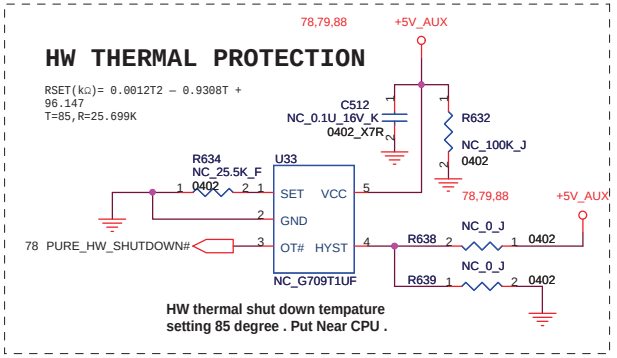
About thermal diode two pins, route the trace as a pair, the length should be the same, far away from high speed signals,

EMC2106 SM BUS ADDRESS: 0101_111xb

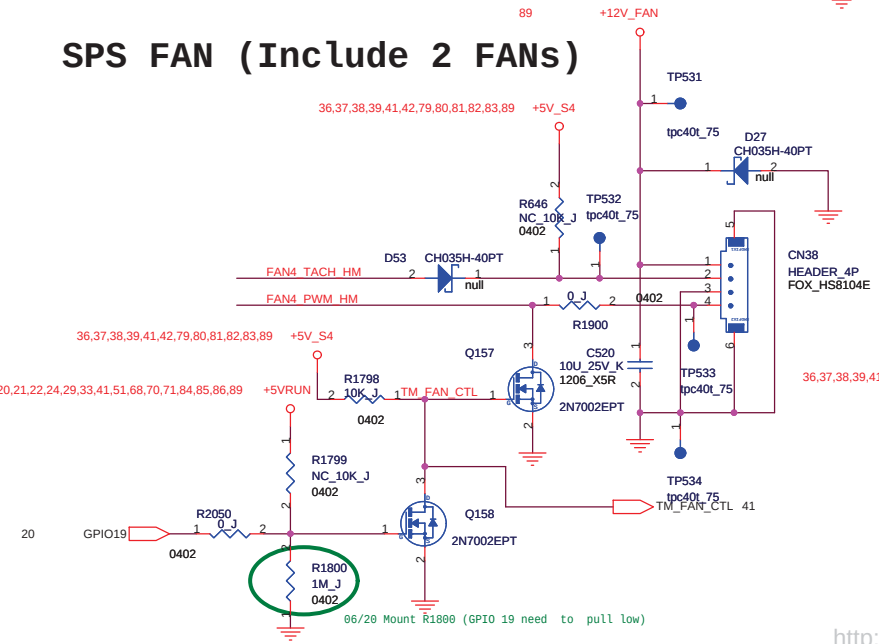


Add this for thermal request, sensor the inlet air temperature
place on the bottom side and close to the underside of the MB.

HW THERMAL PROTECTION

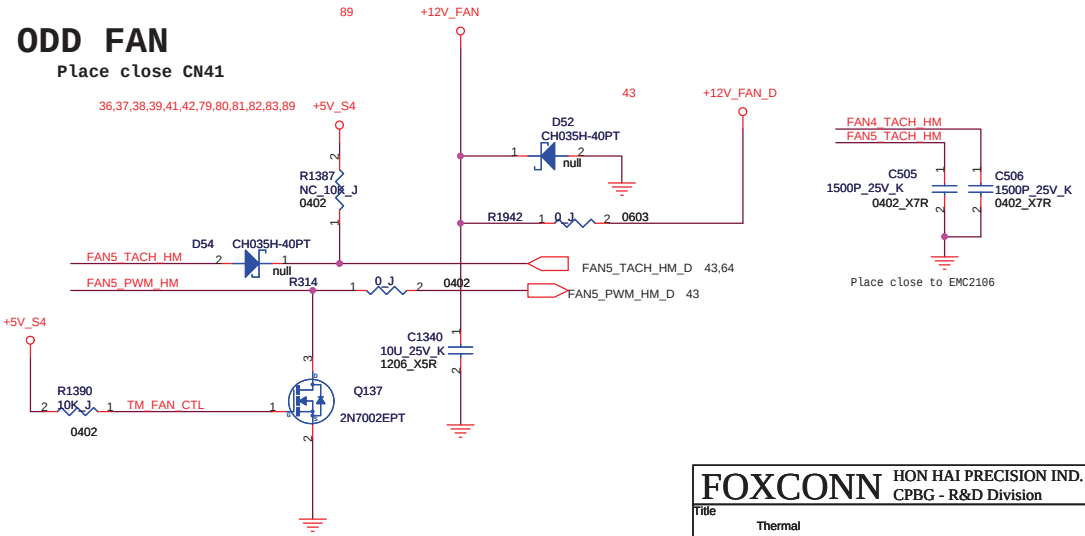


SPS FAN (Include 2 FANs)



ODD FAN

Place close CN41



FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: Thermal		
Size: A3	Document Number: M920 PVT	Rev: 0.4
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Place close to GMCH

D20
CA_CH520S-30PT
NV_THERMDP
NV_THERMDN
C508
CA_100P_16V_J
0603_NPO

03/19 change XQ2 from BJT to diode

3,5,8,11,14,15,16,17,19,20,21,22,24,26,28,29,31,32,40,42,45,47,50,51,52,53,54,65,67,68,70,71,81,82,83,84,88,89,90

+3VRUN

C519
1U_10V_Y
0402_Y5V

Place U54 close to DDR

U38
EMC1103-AIZL-TR
null
VCC SST
GND ADD0
DP1 NC
DN1 ADD1
DP2 DN2

ICH_SST 20

R635
NC_1K_J
0402

R645
NC_1K_J
0402

R647
1K_J
0402

R640
1K_J
0402

52 NV_THERMDP
52 NV_THERMDN

for onboard GPU
when external

C516
NV_100P_16V_J
0603_NPO

C515
470P_16V_K
0402_NPO

TUNNER_DP
TUNNER_DN

R641
0_J
0402

R642
0_J
0402

C518
470P_16V_K
0402_NPO

Q161
PMBT3904.215
null

C504
100P_16V_J
0603_NPO

12/24 change 3904 from DIP to SMD

Place Q161, C504 close to TV-turner

EMC1103 SST Bus address:48h(all GND)

Remote1: External VGA/ Internal NB
Remote2: TV Tuner
Local: DDR

40 TM_FAN_CTL

NC_0_J
TM_FAN_CTL1
R2054 0402

20 GPIO7#

0_J
R2055 0402

R2063
1M_J
0402

Q180
2N7002EPT

06/21 Mount R2063 (GPIO 7 need to pull low)

CPU FAN1

4,20,21,22,24,29,33,40,51,68,70,71,84,85,86,89 +5VRUN

06/02 PVT:Change R644 from NC_10K_J to mount 4.7K_J(1R-0000472-J200)
Change R643 from NC_10K_J to mount 4.7K_J(1R-0000472-J200)

D23
SSM22LLPT
null

TP535
tpc40t_75
TP536
tpc40t_75

R644
4.7K_J
0402

CN35
HEADER_4P
FOX_HS8104E

R271
0_J
0402

20 FAN1_TACH

FAN1_PWM_CON

R268
0_J
0402

36,37,38,39,40,42,79,80,81,82,83,89 +5V_S4

C517
10U_25V_K
1206_X5R

TP541
tpc40t_75

R2052
10K_J
0402

TM_FAN_CTL1

Q177
2N7002EPT

TP544
tpc40t_75

CPU FAN2

4,20,21,22,24,29,33,40,51,68,70,71,84,85,86,89 +5VRUN

D22
SSM22LLPT
null

TP537
tpc40t_75
TP538
tpc40t_75

R643
4.7K_J
0402

CN36
HEADER_4P
FOX_HS8104E

R272
0_J
0402

20 FAN2_TACH

FAN2_PWM_CON

R269
0_J
0402

TM_FAN_CTL1

Q179
2N7002EPT

C514
10U_25V_K
1206_X5R

TP542
tpc40t_75

TP545
tpc40t_75

CHASSIS FAN

33,73,87,89 +12VRUN

0109 delete D65 for no use

4,20,21,22,24,29,33,40,51,68,70,71,84,85,86,89 +5VRUN

D50
CH035H-40PT
null

TP539
tpc40t_75
TP540
tpc40t_75

R1386
NC_10K_J
0402

CN53
HEADER_4P
FOX_HS8104E

20 FAN3_TACH

R273
0_J
0402

FAN3_PWM_CON

R270
0_J
0402

C2295
22P_50V_K
0402_NPO

C1339
10U_25V_K
1206_X5R

TP543
tpc40t_75

TM_FAN_CTL1

Q178
2N7002EPT

6/17 PVT Add EMI solution
place colse to CN53

TP546
tpc40t_75

4,20,21,22,24,29,33,40,51,68,70,71,84,85,86,89 +5VRUN

20 FAN1_PWM

R2072
10K_J
0402

R2070
NC_10K_J
0402

Q183B

R2099

FAN1_PWM_CON

R2075
4.7K_J
0402

2N7002SPT

0_J
0402

Q183A

R2078
NC_0_J
0402

2N7002SPT

R2101
0_J
0402

R2081
100K_J
0402

20 FAN2_PWM

FAN1_PWM

4,20,21,22,24,29,33,40,51,68,70,71,84,85,86,89 +5VRUN

R2073
10K_J
0402

R2071
NC_10K_J
0402

R2076
4.7K_J
0402

Q182B

R2100

FAN2_PWM_CON

2N7002SPT

0_J
0402

Q182A

R2079
NC_0_J
0402

20 FAN3_PWM

2N7002SPT

R2102
0_J
0402

R2082
100K_J
0402

FAN2_PWM

4,20,21,22,24,29,33,40,51,68,70,71,84,85,86,89 +5VRUN

R2069
10K_J
0402

R2068
NC_10K_J
0402

R2074
4.7K_J
0402

Q181B

R2098

FAN3_PWM_CON

0_J
0402

2N7002SPT

Q181A

R2077
NC_0_J
0402

2N7002SPT

R2103
0_J
0402

R2080
100K_J
0402

FAN3_PWM

06/21 Use GPIO solution for OST Fan spin up noise issue

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Title	FAN	
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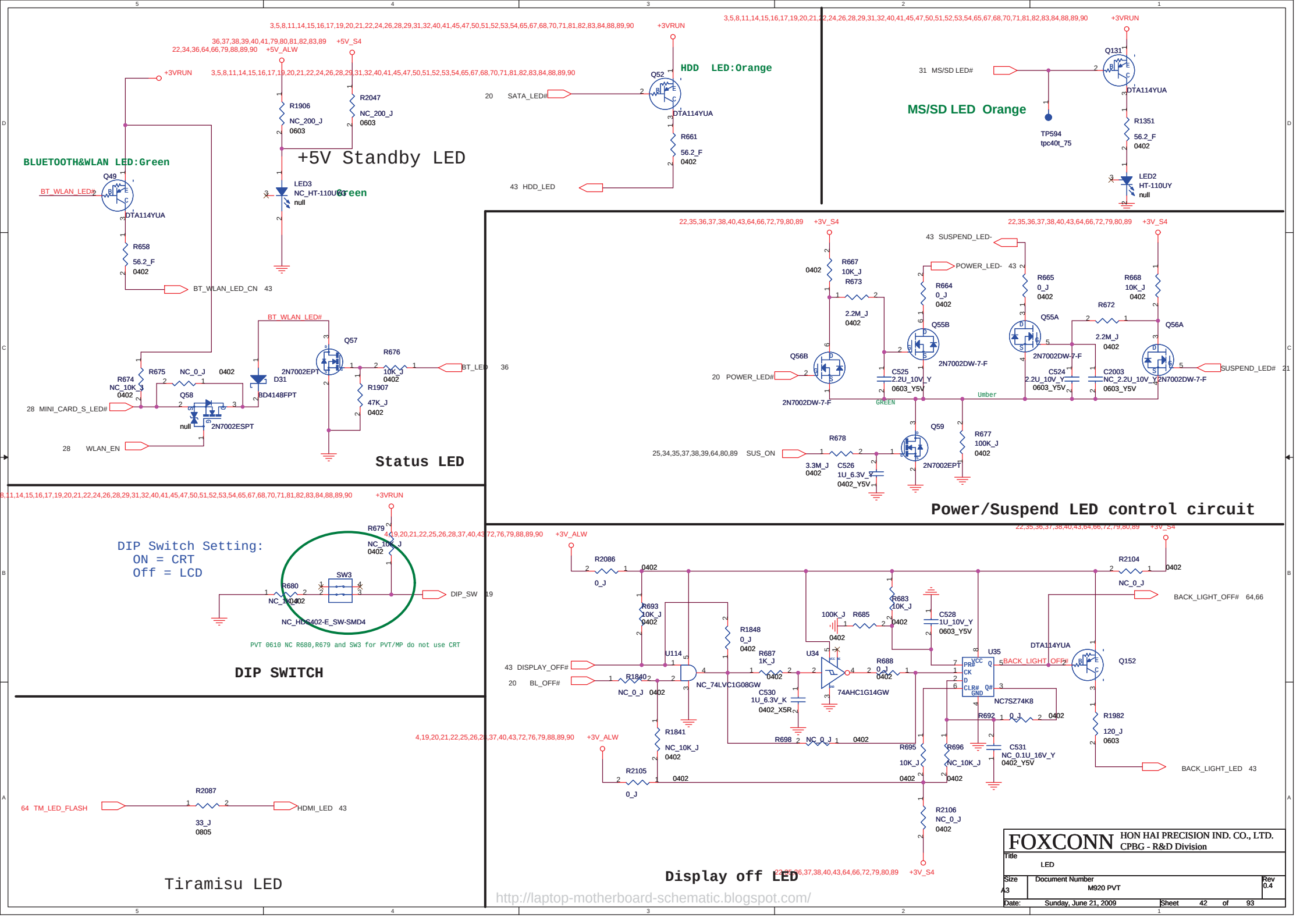
+5V Standby LED
BLUETOOTH&WLAN LED:Green
HDD LED:Orange
MS/SD LED Orange
Status LED
Power/Suspend LED control circuit
DIP Switch Setting:
ON = CRT
Off = LCD
DIP SWITCH
Display off LED
Tiramisu LED
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
LED
Size
A3
Document Number
M920 PVT
Rev
0.4
Date:
Sunday, June 21, 2009
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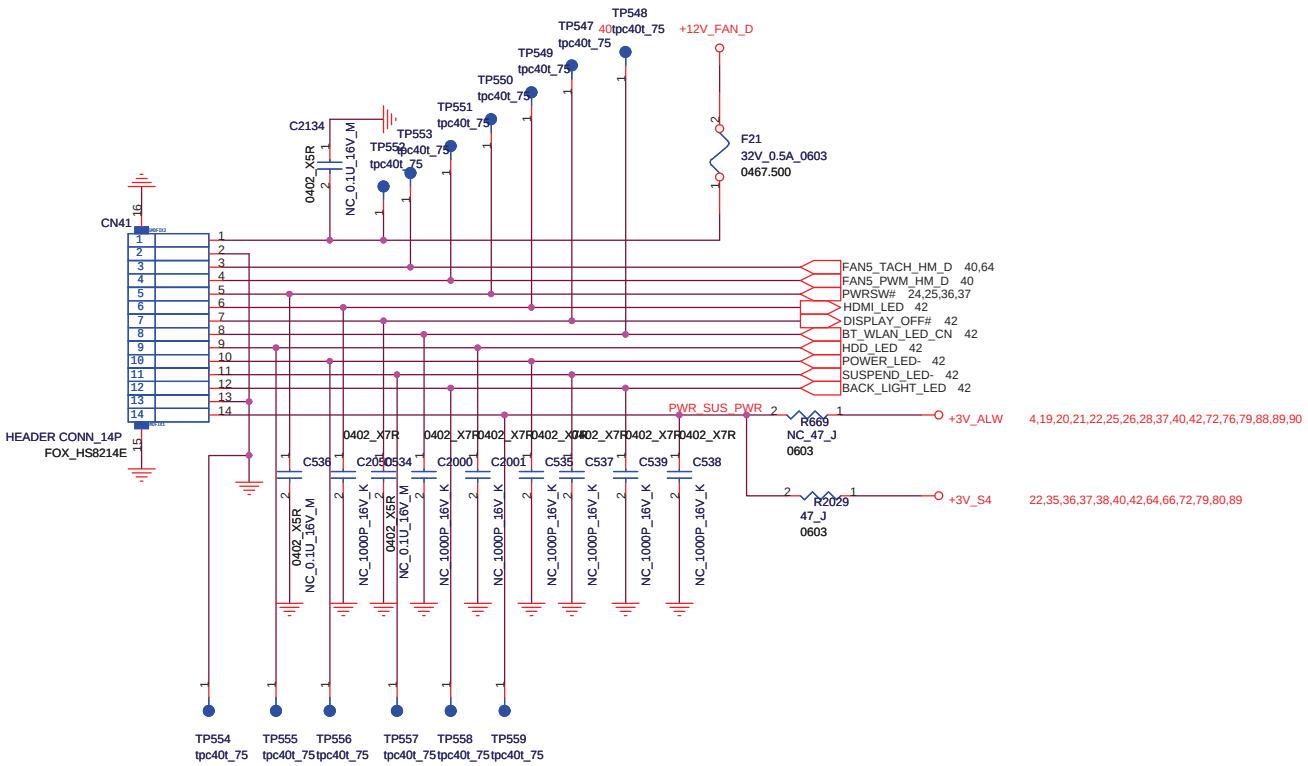
of
93
http://laptop-motherboard-schematic.blogspot.com/



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	<Title>	
Size: A3	Document Number: M920 PVT	Rev: 0.4
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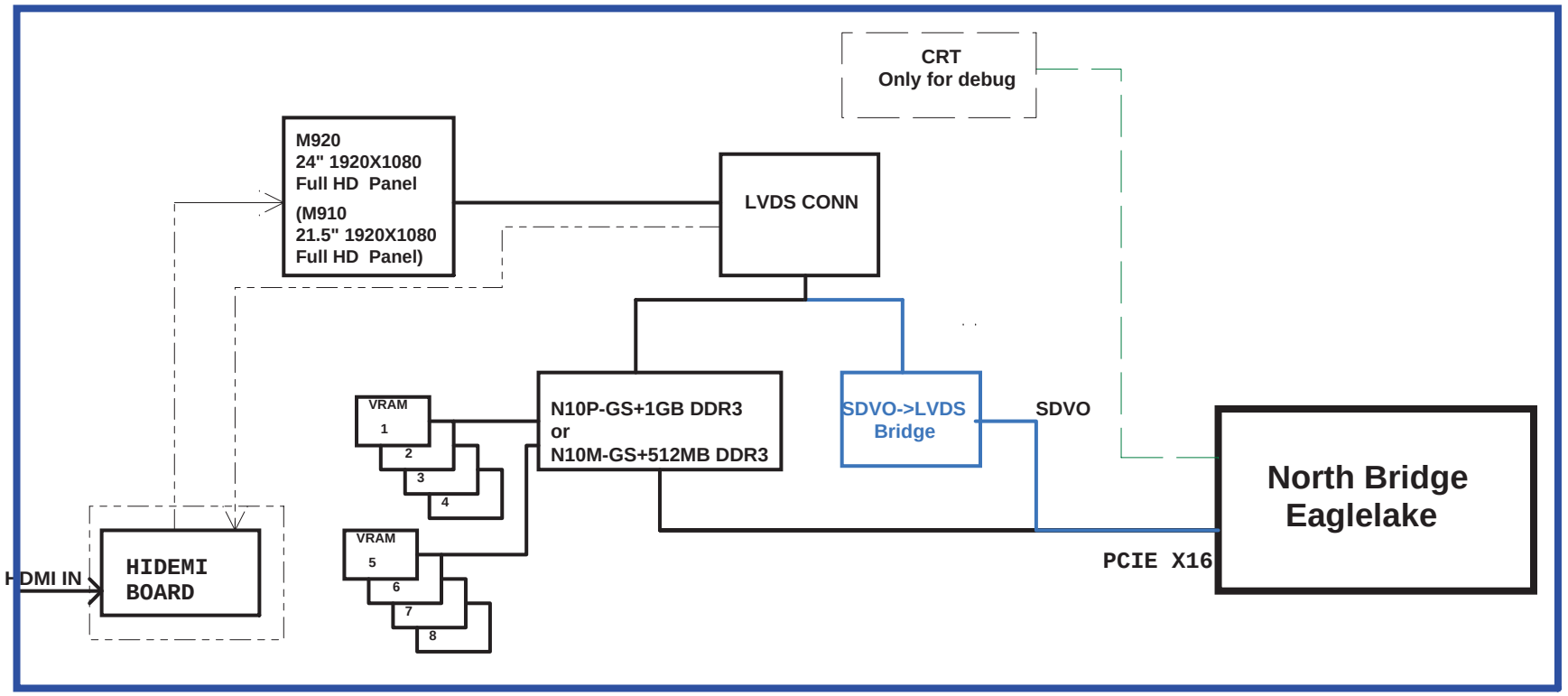
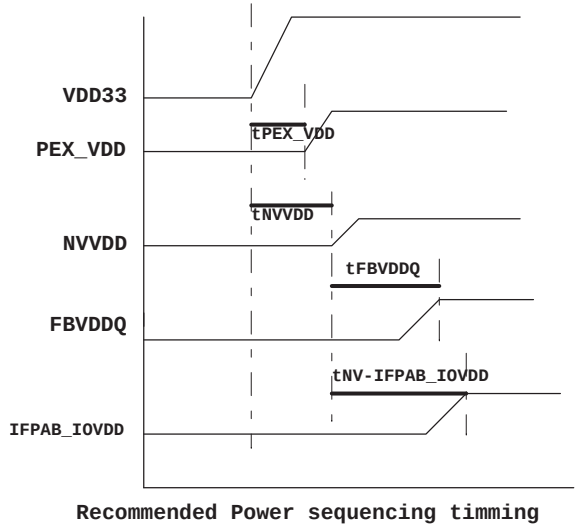




Recommended Power sequencing timming

note:
VDD33 =+3VRUN
NVVDD=NV_VDD
FBVDDQ=FBVDD=+1_5VRUN

tNVVDD>=0
tFBVDDQ>=0
tNV-IFPAB_IOVDD>0
tPEX_VDD>0 NV suggestion

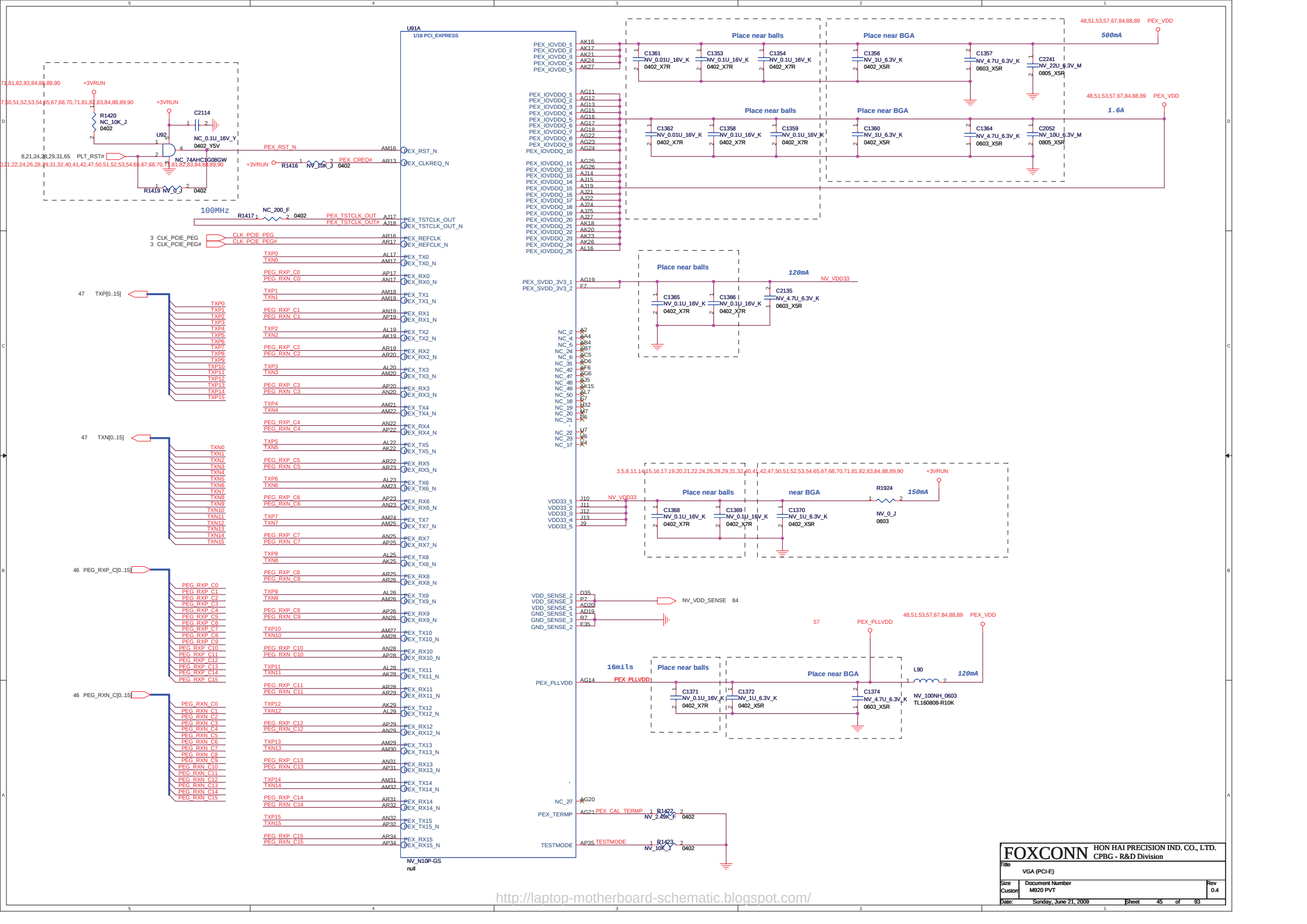
The ramp time for any rail must be more than 40 us

At any time
NVVDD<=VDD33+0.5V
FBVDDQ<=VDD33+0.5V

NOTE:

Head value table	
M920 H	NV_,NP_,
M920 M	NV_,
M920 L	CA_,
M920 MST	NV_,NP_, TM_,

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: VGA Block Diagram		
Size: A3	Document Number: M920 PVT	Rev: 0.4
Date: Sunday, June 21, 2009	Sheet 44 of 93	



7 EXP_TXP[0..15]

EXP_TXP0
EXP_TXP1
EXP_TXP2
EXP_TXP3
EXP_TXP4
EXP_TXP5
EXP_TXP6
EXP_TXP7
EXP_TXP8
EXP_TXP9
EXP_TXP10
EXP_TXP11
EXP_TXP12
EXP_TXP13
EXP_TXP14
EXP_TXP15

7 EXP_TXN[0..15]

EXP_TXN0
EXP_TXN1
EXP_TXN2
EXP_TXN3
EXP_TXN4
EXP_TXN5
EXP_TXN6
EXP_TXN7
EXP_TXN8
EXP_TXN9
EXP_TXN10
EXP_TXN11
EXP_TXN12
EXP_TXN13
EXP_TXN14
EXP_TXN15

EXP_TXP0	2	C1420	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C0
EXP_TXN0	2	C1421	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C0
EXP_TXP1	2	C1422	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C1
EXP_TXN1	2	C1423	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C1
EXP_TXP2	2	C1424	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C2
EXP_TXN2	2	C1425	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C2
EXP_TXP3	2	C1426	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C3
EXP_TXN3	2	C1427	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C3
EXP_TXP4	2	C1428	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C4
EXP_TXN4	2	C1429	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C4
EXP_TXP5	2	C1430	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C5
EXP_TXN5	2	C1431	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C5
EXP_TXP6	2	C1432	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C6
EXP_TXN6	2	C1433	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C6
EXP_TXP7	2	C1434	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C7
EXP_TXN7	2	C1435	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C7
EXP_TXP8	2	C1436	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C8
EXP_TXN8	2	C1437	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C8
EXP_TXP9	2	C1438	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C9
EXP_TXN9	2	C1439	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C9
EXP_TXP10	2	C1440	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C10
EXP_TXN10	2	C1441	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C10
EXP_TXP11	2	C1442	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C11
EXP_TXN11	2	C1443	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C11
EXP_TXP12	2	C1444	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C12
EXP_TXN12	2	C1445	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C12
EXP_TXP13	2	C1446	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C13
EXP_TXN13	2	C1447	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C13
EXP_TXP14	2	C1448	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C14
EXP_TXN14	2	C1449	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C14
EXP_TXP15	2	C1450	0402_X7R	1	NV_0.1U_16V_K	PEG_RXP_C15
EXP_TXN15	2	C1451	0402_X7R	1	NV_0.1U_16V_K	PEG_RXN_C15

PEG_RXP_C[0..15] 45

PEG_RXP_C0
PEG_RXP_C1
PEG_RXP_C2
PEG_RXP_C3
PEG_RXP_C4
PEG_RXP_C5
PEG_RXP_C6
PEG_RXP_C7
PEG_RXP_C8
PEG_RXP_C9
PEG_RXP_C10
PEG_RXP_C11
PEG_RXP_C12
PEG_RXP_C13
PEG_RXP_C14
PEG_RXP_C15

PEG_RXN_C[0..15] 45

PEG_RXN_C0
PEG_RXN_C1
PEG_RXN_C2
PEG_RXN_C3
PEG_RXN_C4
PEG_RXN_C5
PEG_RXN_C6
PEG_RXN_C7
PEG_RXN_C8
PEG_RXN_C9
PEG_RXN_C10
PEG_RXN_C11
PEG_RXN_C12
PEG_RXN_C13
PEG_RXN_C14
PEG_RXN_C15

close to NB

EXP_TXP0	0402_X7R 2	CA_0.1U_16V_K	C1452	SDVOB_RED+	SDVOB_RED+ 65
EXP_TXN0	0402_X7R 2	CA_0.1U_16V_K	C1453	SDVOB_RED-	SDVOB_RED- 65
EXP_TXP1	0402_X7R 2	CA_0.1U_16V_K	C1454	SDVOB_GREEN+	SDVOB_GREEN+ 65
EXP_TXN1	0402_X7R 2	CA_0.1U_16V_K	C1455	SDVOB_GREEN-	SDVOB_GREEN- 65
EXP_TXP2	0402_X7R 2	CA_0.1U_16V_K	C1456	SDVOB_BLUE+	SDVOB_BLUE+ 65
EXP_TXN2	0402_X7R 2	CA_0.1U_16V_K	C1457	SDVOB_BLUE-	SDVOB_BLUE- 65
EXP_TXP3	0402_X7R 2	CA_0.1U_16V_K	C1458	SDVOB_CLK+	SDVOB_CLK+ 65
EXP_TXN3	0402_X7R 2	CA_0.1U_16V_K	C1459	SDVOB_CLK-	SDVOB_CLK- 65
7,47 PEG_RXN2	0402_X7R 2	CA_0.1U_16V_K	C1460	STALL-	STALL- 65
7,47 PEG_RXP2	0402_X7R 2	CA_0.1U_16V_K	C1461	STALL+	STALL+ 65

close to NB

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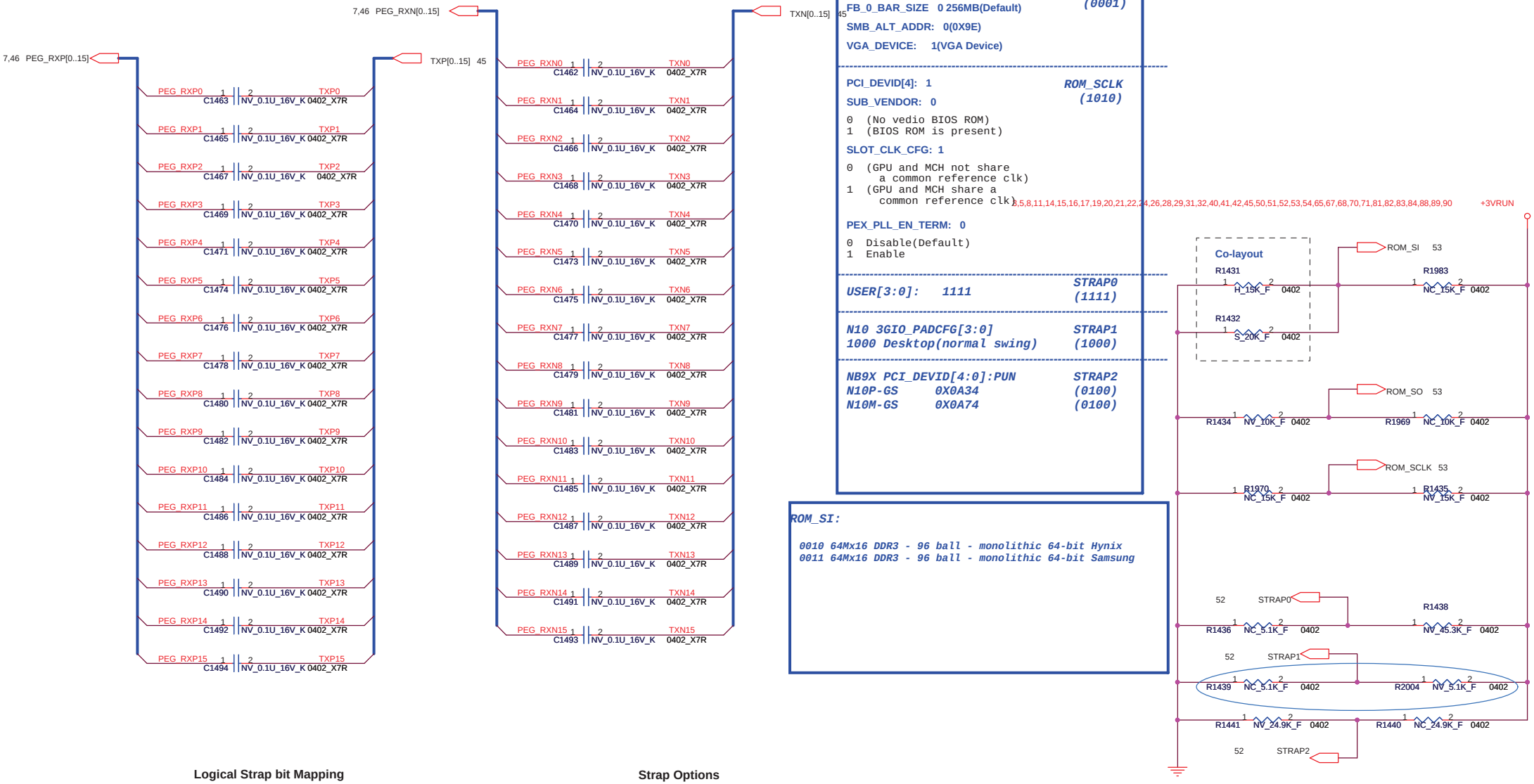
Title: VGA (PCI-E TX)

Size: A3 | Document Number: M920 PVT | Rev: 0.4

Date: Sunday, June 21, 2009 | Sheet 46 of 93



Logical Strap bit Mapping

Resister values	Pull-up to VDD	Pull-down to GND
5KΩ	1000	0000
10KΩ	1001	0001
15KΩ	1010	0010
20KΩ	1011	0011
25KΩ	1100	0100
30KΩ	1101	0101
35KΩ	1110	0110
45KΩ	1111	0111

Strap Options

Physical Strapping pin	Power Rail	Logical Strapping pin3	Logical Strapping pin2	Logical Strapping pin1	Logical Strapping pin0
ROM_SO	+3VRUN	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SCLK	+3VRUN	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM
ROM_SI	+3VRUN	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP0	+3VRUN	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	+3VRUN	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
STRAP2	+3VRUN	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]

Refer to <GB1 Family Design Guide DG-04202-001_v02_secured>

FOXCONN HON HAI PRECISION IND. CO., LTD.
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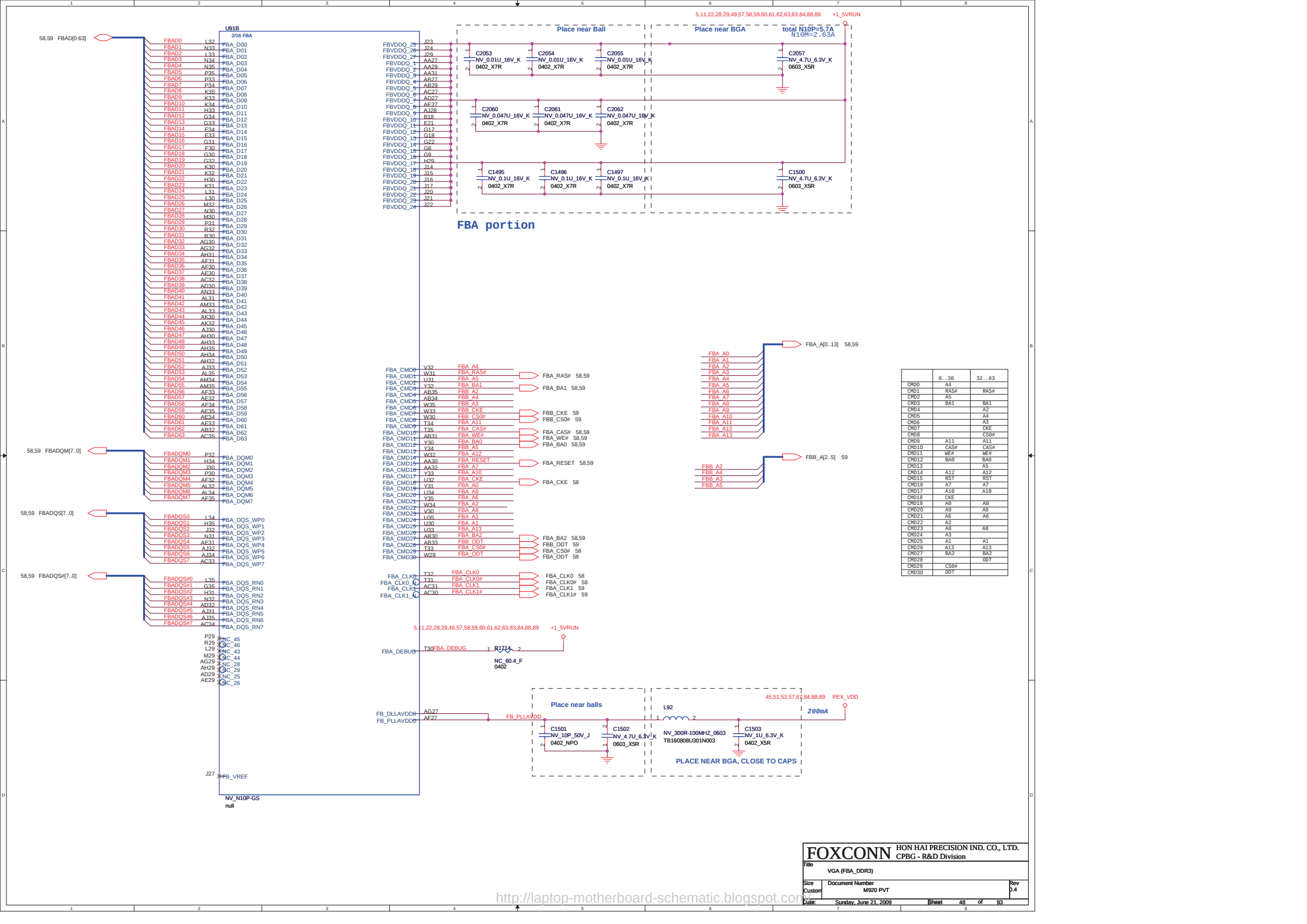
Title: VGA (PCIE RX&STRAP)

Size: A3 | Document Number: M920 PVT | Rev: 0.4

Date: Sunday, June 21, 2009 | Sheet 47 of 93



	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	

Title	VGA (FBA_DDR3)
Size	Custom
Document Number	M920 PVT
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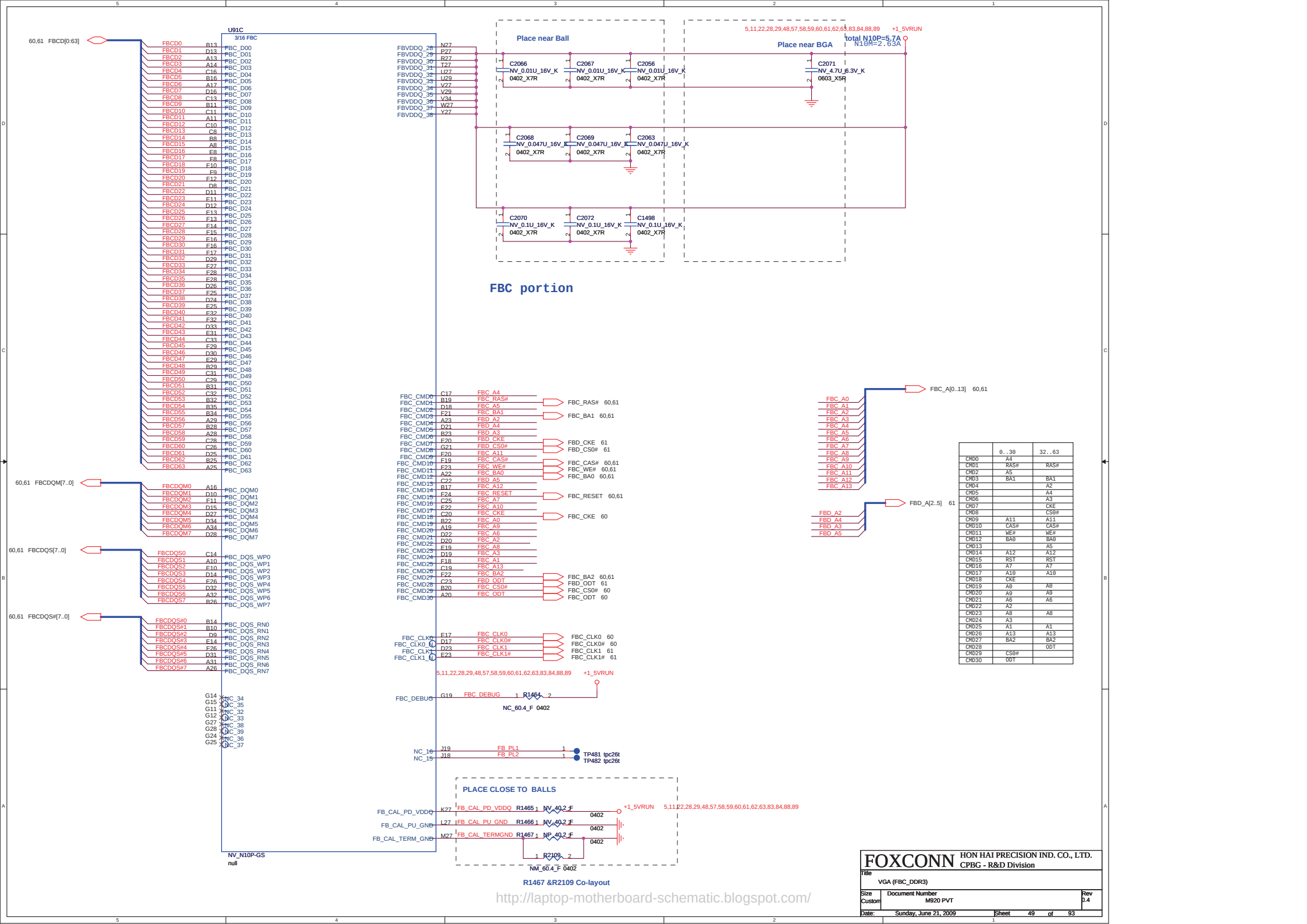
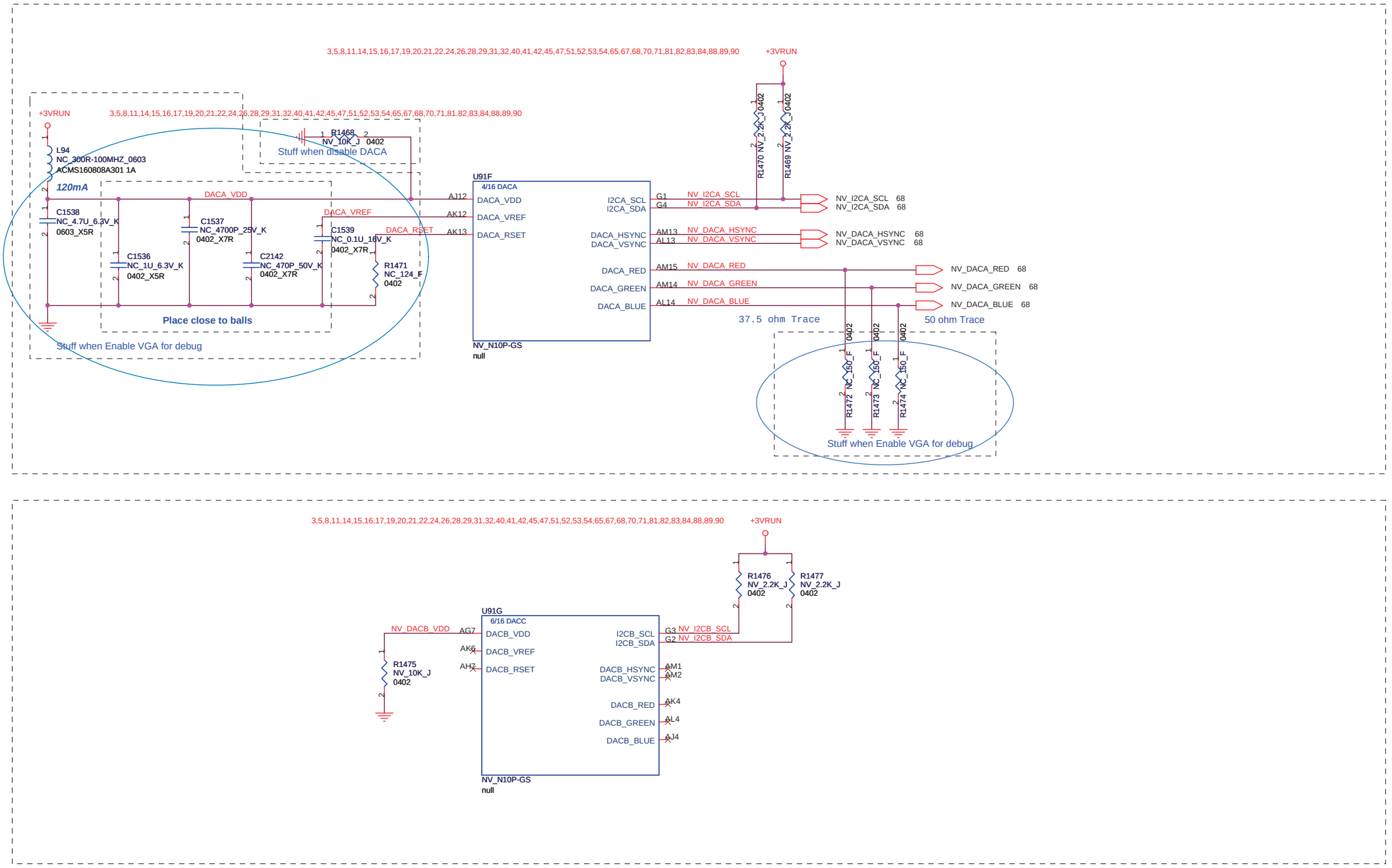
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division



	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A8	A8
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VGA (DACAB)	
Size A3	Document Number M920 PVT	Rev 0.4
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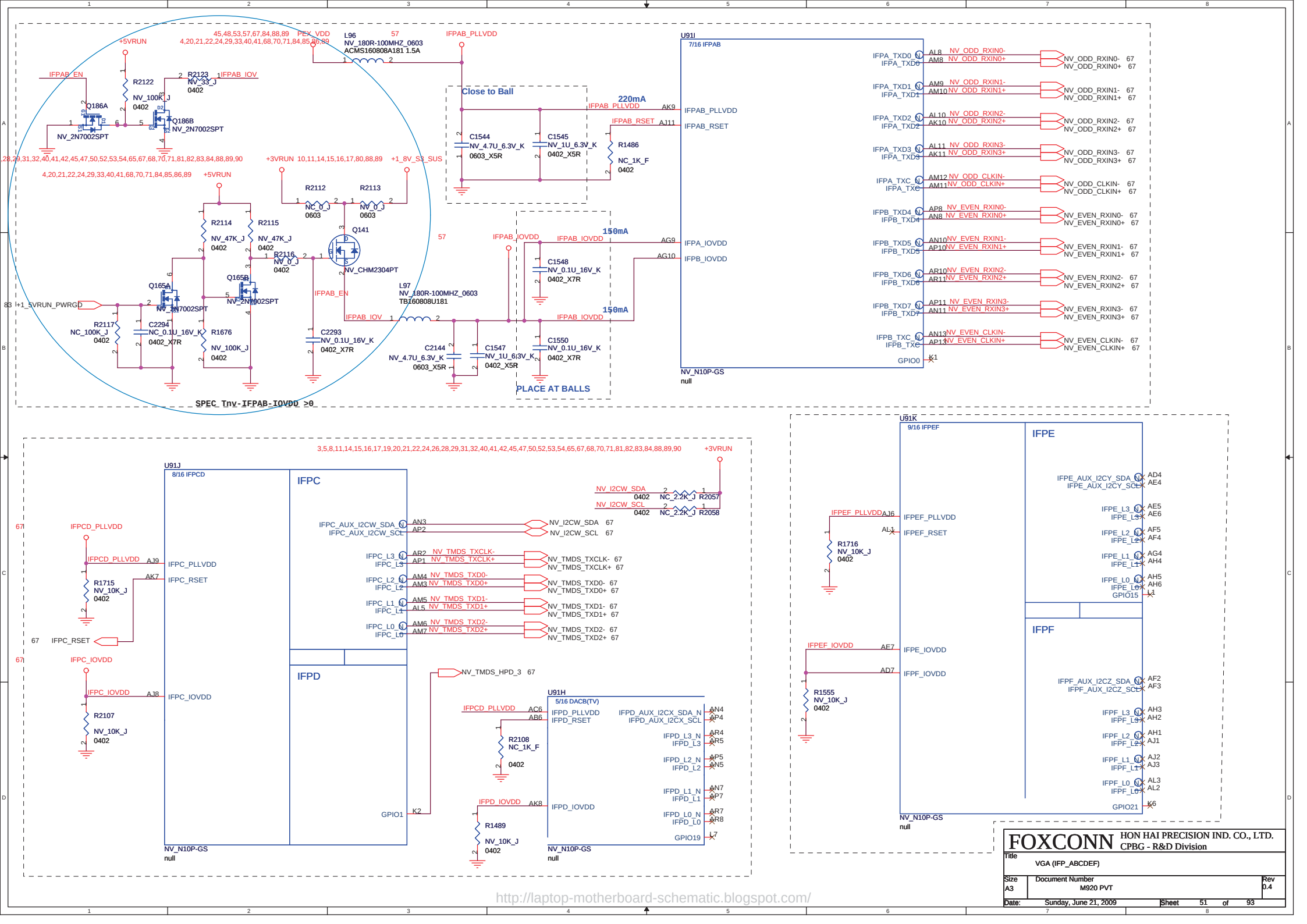

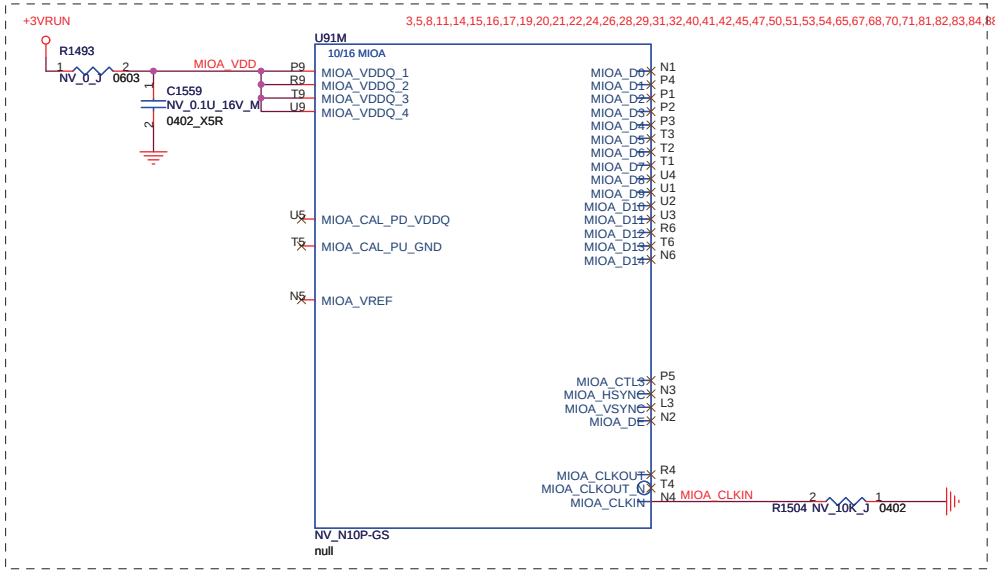

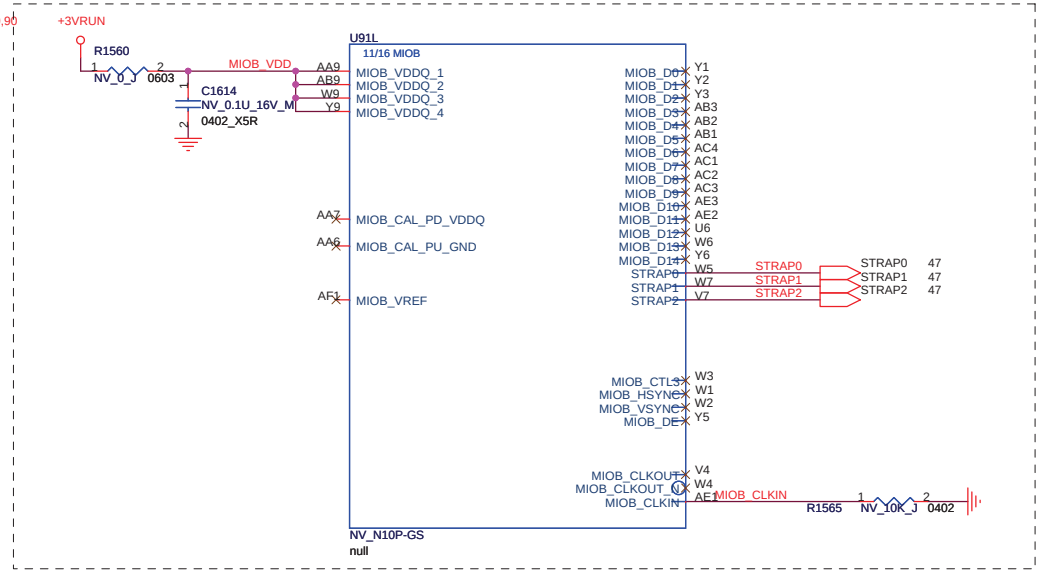

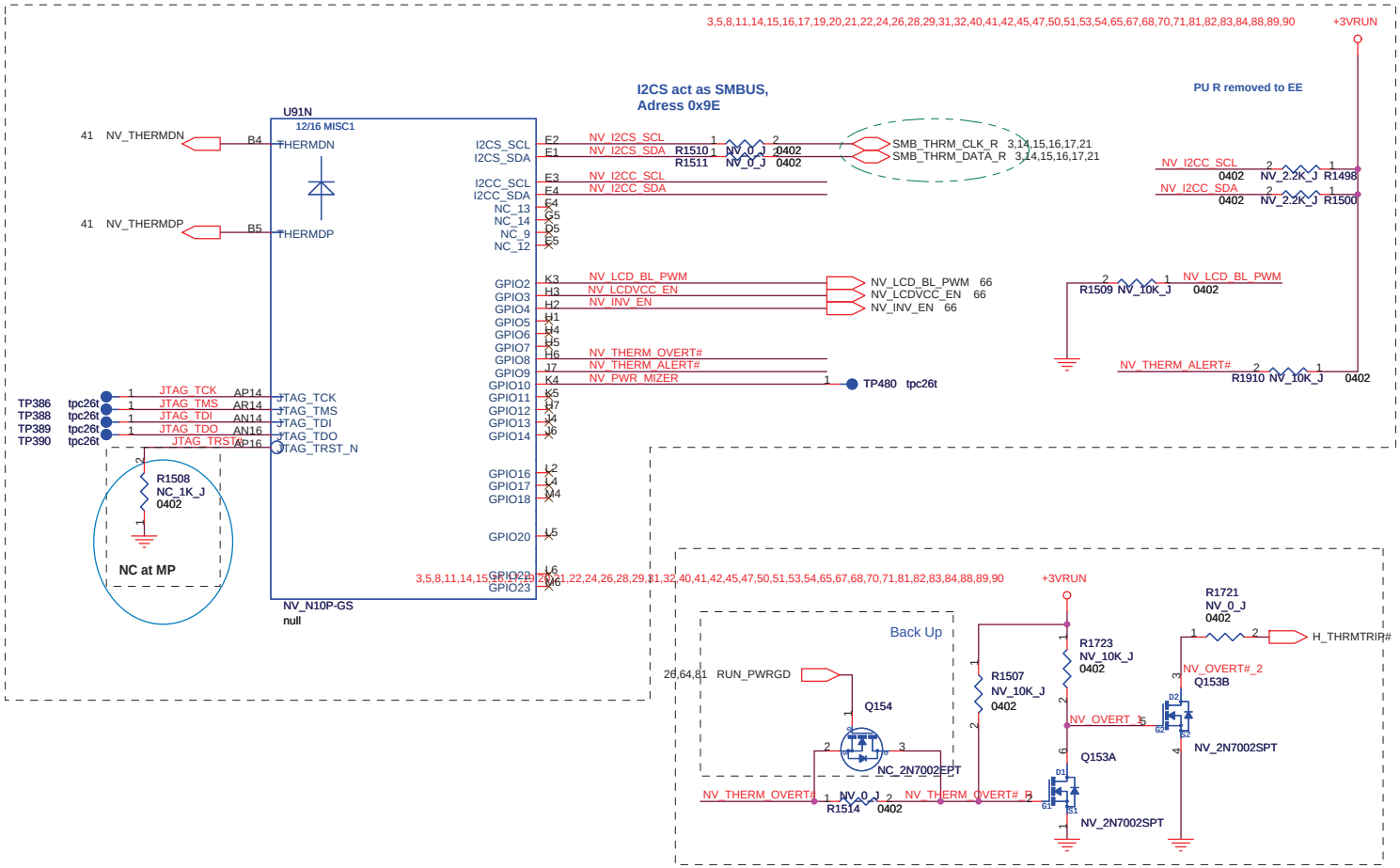

SIGNAL	Application	Type	USED
I2CA_SCL I2CA_SDA	DAC A CRT display interface DDC	Master	YES
I2CB_SCL I2CB_SDA	None use		NO
I2CC_SCL I2CC_SDA	None		NO
I2CS_SCL I2CS_SDA	SMBUS for internal thermal sensor interface	Slave Add:0X9E	YES
I2CH_SCL I2CH_SDA	None use		NO
I2CW_SCL I2CW_SDA	AUX/DDC		NO
I2CX_SCL I2CX_SDA	AUX/DDC		NO
I2CY_SCL I2CY_SDA	AUX/DDC		NO
I2CZ_SCL I2CZ_SDA	AUX/DDC		NO

GPIO	I/O	Internal pull	External pull	GPIO FUNCTION	Active	USED
GPIO0	n/a			gerneral purpose	n/a	NO
GPIO1	I			HPD-C	-	NO
GPIO2	0		PD	LCD0_BL_PWM	HIGH	YES
GPIO3	0		PD	LCD0_VDD	HIGH	YES
GPIO4	0		PD	LCD0_BL_EN	HIGH	YES
GPIO5	0			GPU_VID0	-	NO
GPIO6	0			GPU_VID1	-	NO
GPIO7	0			GPU_VID2	-	NO
GPIO8	0		PU	NV_THERM_OVERT#	LOW	YES
GPIO9	0		PU	NV_THERM_ALERT#	LOW	NO
GPIO10	0				-	NO
	-	-		-	-	

External pull-ups and pull-downs, when needed,must be 5-10Kohm

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Title: VGA (GPIO)		
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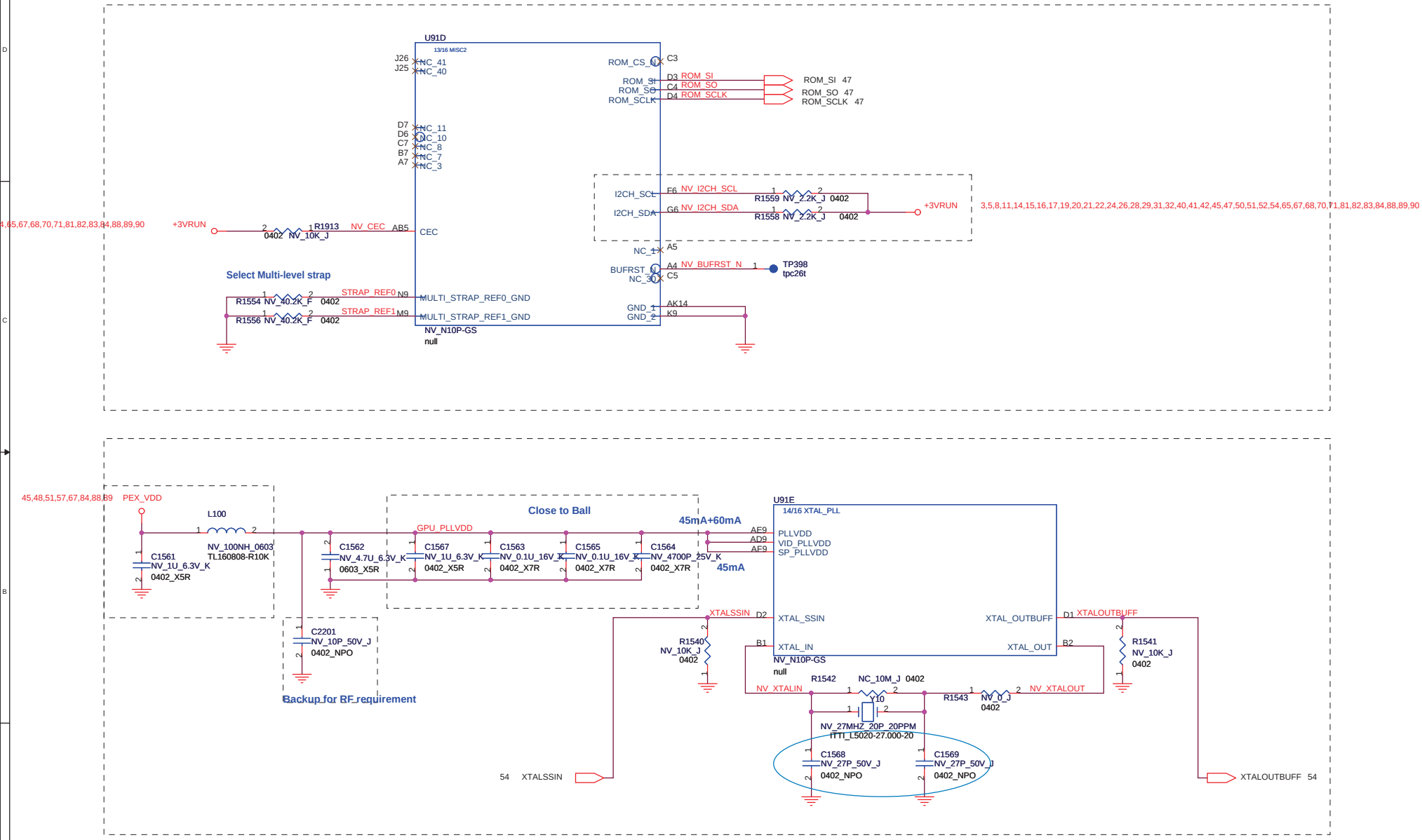
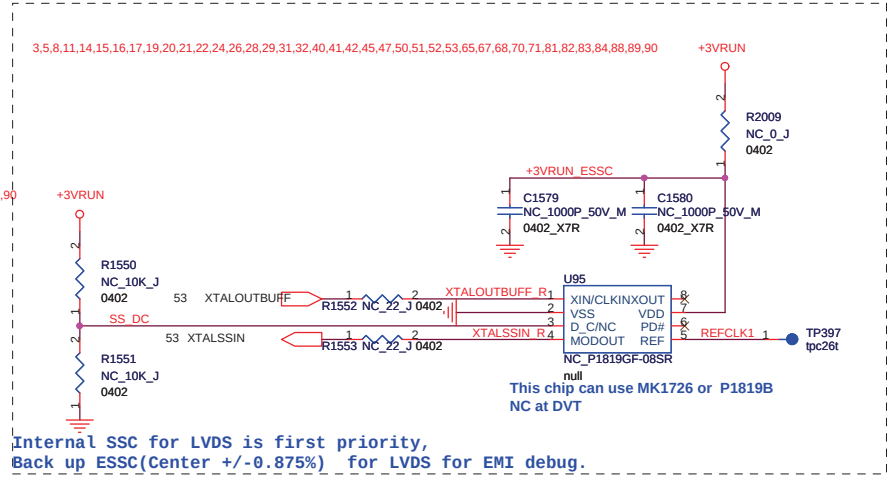


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VGA (CRYSTAL)	
Size A3	Document Number M920 PVT	Rev 0.4
Date: Sunday, June 21, 2009	Sheet 53 of 93	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VGA (SSC)	
Size: A3	Document Number: M920 PVT	Rev: 0.4
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M920 Change History

11/18 Initial release with NB9X v01

12/03 Rough for RFQ V02

12/04 Rough for RFQ V03

12/09 Rough for netin v04

12/15 Rough for netin v05

12/30
1.cancel PCIE lane reverse
2.NC R1417 for PEX_CLK test
3.NC AND gate U92 which for PEX RST
4.Correct GPU VDD_SENSE reverse
5.Change ROM_SO PD 10K
6.Change ROM_SCLK 5K PU
7.Del FB_CKE &CS0#&ODT 0ohm
8.Del FB CKE&ODT PD 10K
9.Del GPU Vref mizer funtion to fix Vref =0.5X
10.Change FB_CAL_TERM_GND PD 40.2ohm to TP
"11.Share none use IFPC_PLLVDD&IFPD_PLLVDD,
IFPC_IOVDD&IFPD_IOVDD,IFPE_IOVDD&IFPF_IOVDD
with a common resistor 10K PD"
12.PU GPIO NV_THERM_ALERT# 10K
13.camcel GPIO10 to TP
14.Stuff R1508 JTAG_TRST_N
15.PU I2CH 10K
16.PU CEC 10K
17.NC ESS

18.Change VRAM CLK term R to 73.2ohm _F
19.Del VRAM Vref _Mizer
20.Add 0.1u cap for Term resistor array
21.update VRAM symbol
22.Update Headvalue to NPD
23.Change TIRAMISU CONN to 50 PIN
24.Change U106 from G546A to G546B
25.Change INVERTOR CONNECTOR to 8PIN
26.Change SW U105 &U101 Sel signal TIRAMISU_EXIST SEL
27.Camcel BL_OFF# function on VGA page
28 add a cap for U102
29.Change LVDS connector to 1N-0040000-FWG0
30.I2C add 10pF
31.GPU Power add 22pF
32.FB DATA SWAP
33.FBVDDQ =+1_5VRAN
34.Change Power decouping follow DG
35 Change L94 Form 240R to 220R follow DG

01/03
1.Add a 0.1uF cap for u92 NC.
2.Change R1417 200_J to 200_F consist with M910
3.Add a 4.7uF cap for PEX_SVDD
4.Add a 0ohm Resistor for VDD33 backup for debug
5.Revise PCIE TX Off-Page name .
6.Revise SDVO AC coupling capacitance headvalue
7.Revise DACA decoupling cap.
8.Revise IFPAB_IOCDD latch.
9.Del GPU GPIO3&4 duplicate PD 10K
10.Revise PLLVDD SP_PLLVDD decoupling capacitance.
11.Del TM_Exist _SEL duplicate PU.

01/07
1.reassign the TIRAMISU 50Pin connector pin assigment.
2.Mirror LVDS RP horizontally for layout requirement.
3.Change GPU strap Pin,re define VRAM head value as Q_,H_,S_.
4.Change LVDS connectoer pin assigment.

01/08
1.Change FBA_CMD term R assignment fro layout requirement.
2.chang I2CH PD 10K to 2.2K,
3.Change CN57 inverter connector to 10pin 1N-0010000-M1T0.
4,Change CN57 Pin assignment.
5.Change R1416 from 0 to 10K for PEX_CLKREQ#
6,add NC PU resistor for GPU strap.
7,PD FB_CAL_TERMGND NC_40.2ohm
8,Delete C1786&L105 for CH7308B LVDD,change L106 to 0603 size.

01/09
1.Del Ch7308 none use NC part R1662,R1651&R1652&R1658,
2.Add c71 c72 for SDVO_Ctrl BUS
4,Revise FB_CAL_TERMGND PD 40.2ohm from NV to NC_
5.TIRAMISU Vedio IN change to A_GND_T

01/13
Add two cap for PEX_VDD
change L97 from 30R to 22R
change PEX SVDD

01/14
Change GPU strap pin
Change Rom-SCLK from 15K PD to 15K PU
Change strap 2 from 10K PU to 25K PD
Add a 0ohm NC resistor for ESSC VCC

01/14
Change INV_CONN pin assignment
Backup 3v3Run for IFPAB_IOVDD

01/19
Back roll from 01/17 to 01/14
Change Q147 part
Add ICH GPIO8 connect to TM_EXIST_SEL ,NC back up

01/21
1.Change R1721 to NC.
2.Change
FBCAL_PU_GND R1466 40.2 -> 40.2ohm
FBCAL_PD_VDDQ R1465 60.4 -> 40.2ohm
FBCAL_TERM_GND R1465 NC -> 40.2ohm
FBCLK Termination = R1568,R1581 73.2 -> 242ohm
3.Change ODT Term &CKE term

EVT2

02/23
1.del VRAM Termination resistor.
2.del excrescent capacitance based on layout to cost down.
3.NC CH7308B reserve pin and Bscan pin

02/25
1.Change +3V_ALW power to +3V_S4 for Tiramisu portion circuit.
2.Add TM_HWS#

02/25
1.add a RC for LCDVCC_EN

03/02
1.Change Headvalue NPD_ to NP_;
2.Stuff R1721 for NV thermal alert.

03/03
1.Modified by Chen QianKun,add TMDS output solution.

03/09
1.update the power filter Cap&Bead&Inductor based on DG v04.
NVVDD two caps 0.01u change to 4700p
PEX_VDD two 0.1u chage to 0.01u
L90 change from 10nH to 100nH
L100 change from 120R/100MHz to 100nH
L92 change from 220R/100MHz to 300R/100MHz
L94 change from 220R/100MHz to 300R/100MHz
L96 change from 120R to 180R
L97 change from 220R to 180R

2.Rivise TMDS output circuit I2CW for DCC
3.del unused NC part R1574,R2015,R1588,R2088,R1602,R2019,R1616 and R2021
4.Del extra caps for VRAM bypass to cost down.

03/12
1.change TMDS DDC resistor to RP
2.change net name HDMI_IN_DETECT to TM_SOURCE_IN_DETECT
3,Change net name HDMI_PC#_SELECT to TM_PC#_SELECT
5.change Q154 latch signal from +3VRUN to RUN_PWRGD
4,Add 0.1u between GND and A_GND

03/16
1. change tiramisu conn pin define
2. change C2108 from 0.1uf to 0.01uf
3. change D68? from 16-RSB12JS-2000 to 16-PESD5V2-S200

03/16_2
1. Change TM_SUS_ON# circuit
2. NC CAP33 and change C1793 from 4.7u to 10u.
3. Change r2025 from 0ohm to 10Kohm
4. NC RF solution caps
5. NC ESSC

03/16_2
1. PD IFPCD power
2. PD IFPCD RSET

DVT

04/08
1. P49, Change FB_CAL_TERMGND resistor for 10M SKU
2. P53, Change the CRYSTAL caps C1568,C1569 from 1C-2N20270-J000 to 1C-2N20200-J600

04/14
1.P51/P67, NC tiramisu MST solution parts：R2057,R2058,R2108,R2034,L118,L119,
C2276,C2277,C2278,C2282,C2283,C2284,RP95,RP96,RP97,RP98,RP99,D68,D70,
R2038,C2269,C2270,C2271,C2272,C2273,C2274,C2279
2.P66, Del C1795,R2025 change to 1K, CAP33 change to 330uF , add discharge circuit
3.P47, Del Qimonda strap resistor R1433
4.P51, Del IFPAB-IOVDD backup +3VRUN circuit R2011

04/15
1.P48/P49/P58/P59/P60/P61,change net name FBA(C)WDQS[7..0] to FBA(C)DQS[7..0],
change FBA(C)RDQS[7..0] to FBA(C)DQS#[7..0].
2,P67,Change RP95,RP96,RP97,RP98,RP99 from 1R-1010000-JP00 to 1R-1010000-JX00.

04/17
1.P64, Change CN56 PIN 1 to +5V_ALW PIN 5 to DC_OUT,Change F18 from 1M-F6V0A25-F000
to 1M-F6V0A75-0000.
2.P66,Change C1793 from 1C-2B70106-M100 to 1C-33R0157-M101.
Change R1669 from 1R-0000471-J300 to 1R-0000101-J300 and stuff it.
3.P51, Change IFPAB-IOVDD from +1_8V_S3_SUS to +3VRUN

04/18
1.P64, Change C2120,C2122 from 1C-2B20471-K000 to 1C-2N20221-K000 and stuff it as audio request.
2.P66, Change R1669 from 1R-0000101-J300 to 1R-0000101-J600 .

04/20
1.P66, Add a 10uF cap C？.

PVT

06/02
1.Page 51 Change IFPAB_ABIOVDD power latch circuit (Q141).
2.Page 47 Change strap 1 from PD 5K to PU 5K according to Nvidia N10x GPU qualification.
3.Nc CRT function for H&M SKU.
4,NC R1508

06/15
1.Change CN56 Pin1 from +5V_ALW to DC_OUT.Change F18 from 1M-F6V0A75-0000 to 1M-F6V0A25-F000.

06/18
1.P67 Change IFPCD_PLLVDD power rail from PEX_VDD to +3VRUN.
2.P53 Change C1568 and C1569 from 1C-2N20200-J600 to 1C-2N20270-J000.

06/19
1.P64 Add one fuse F? between DC_OUT and CN56.

06/20
1.Add dischange ciruit for IFPAB_IOVDD

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Title	VGA (PWR&GND)	
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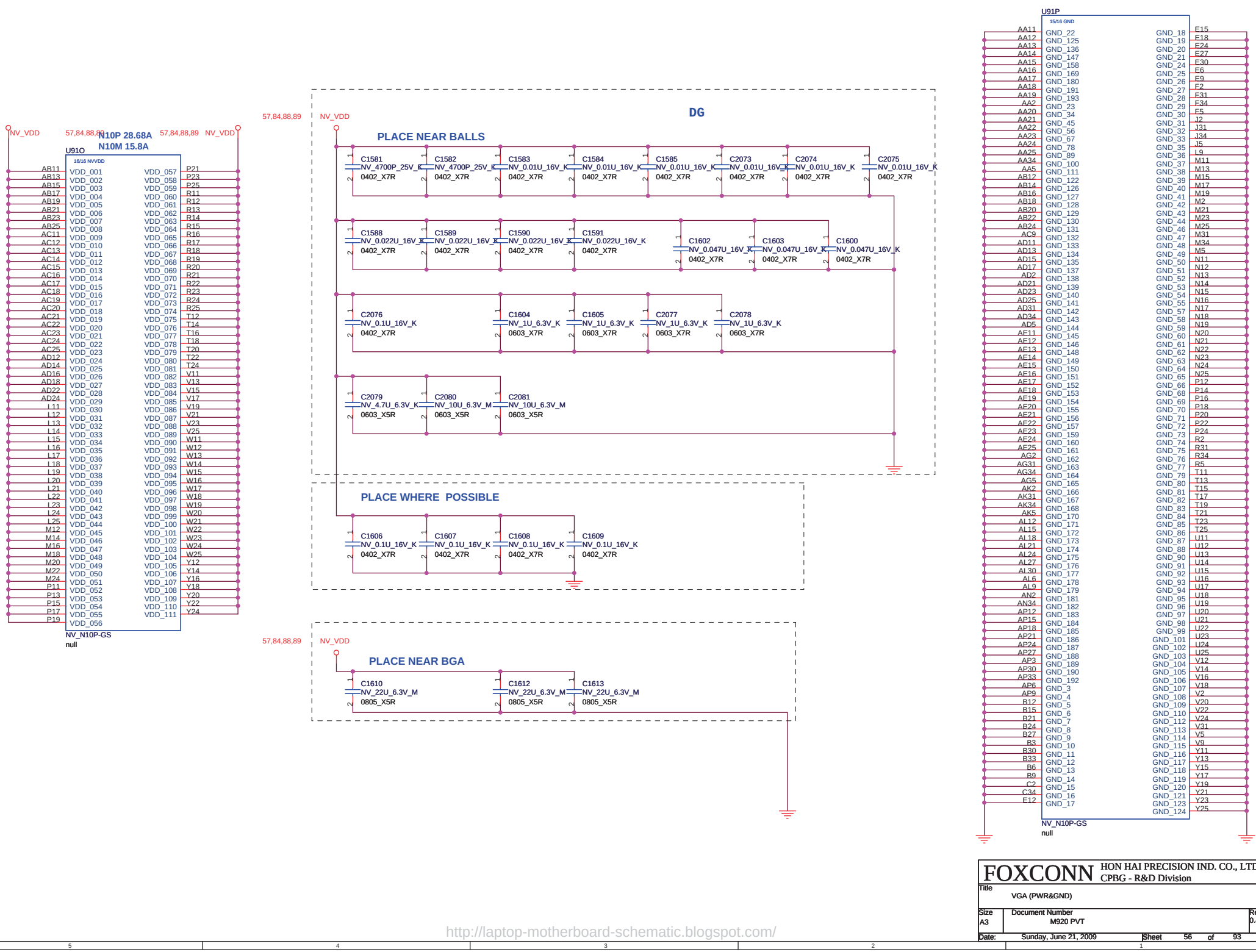

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Title	VGA (PWR&GND)	
Size A3	Document Number M920 PVT	Rev 0.4
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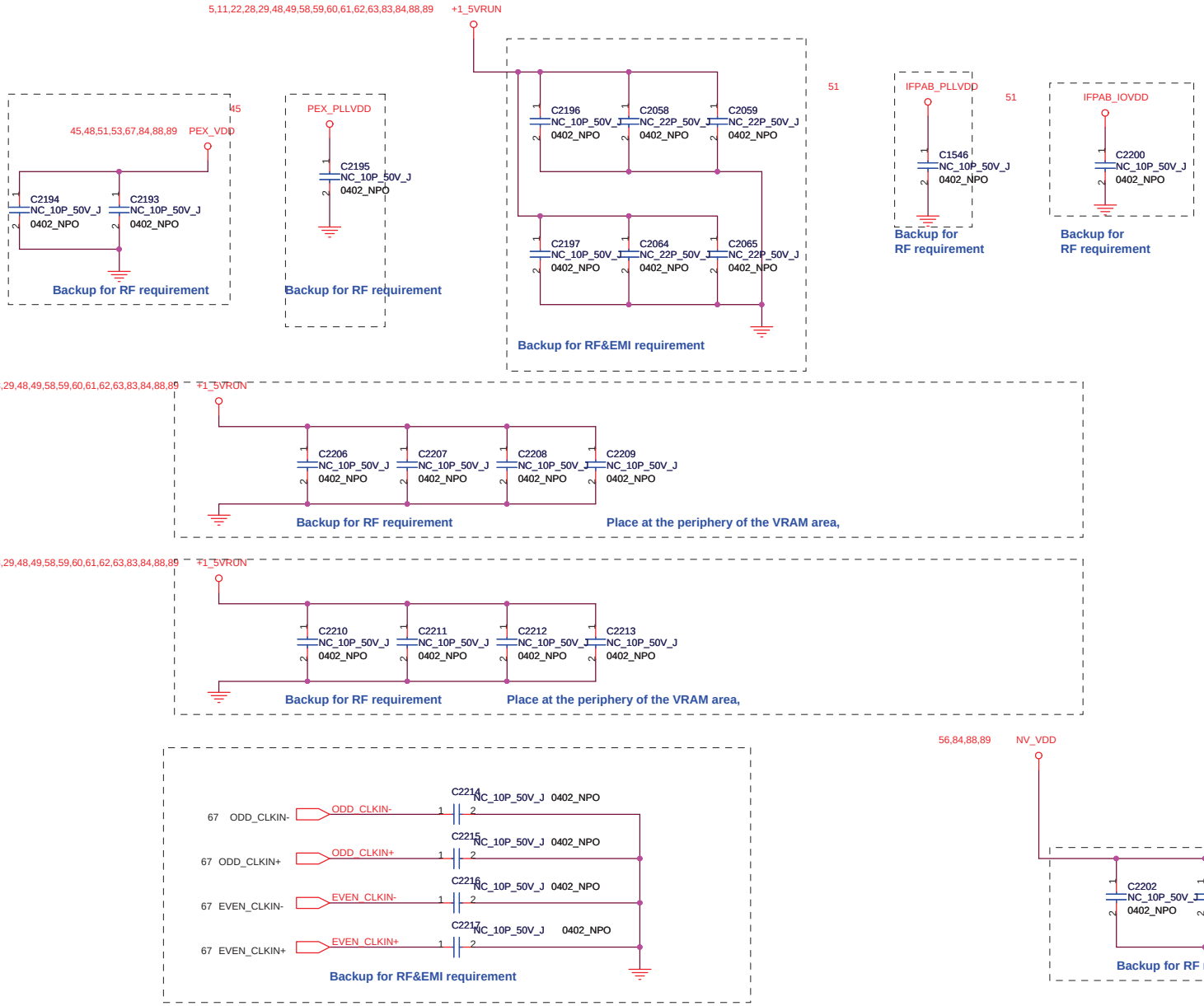
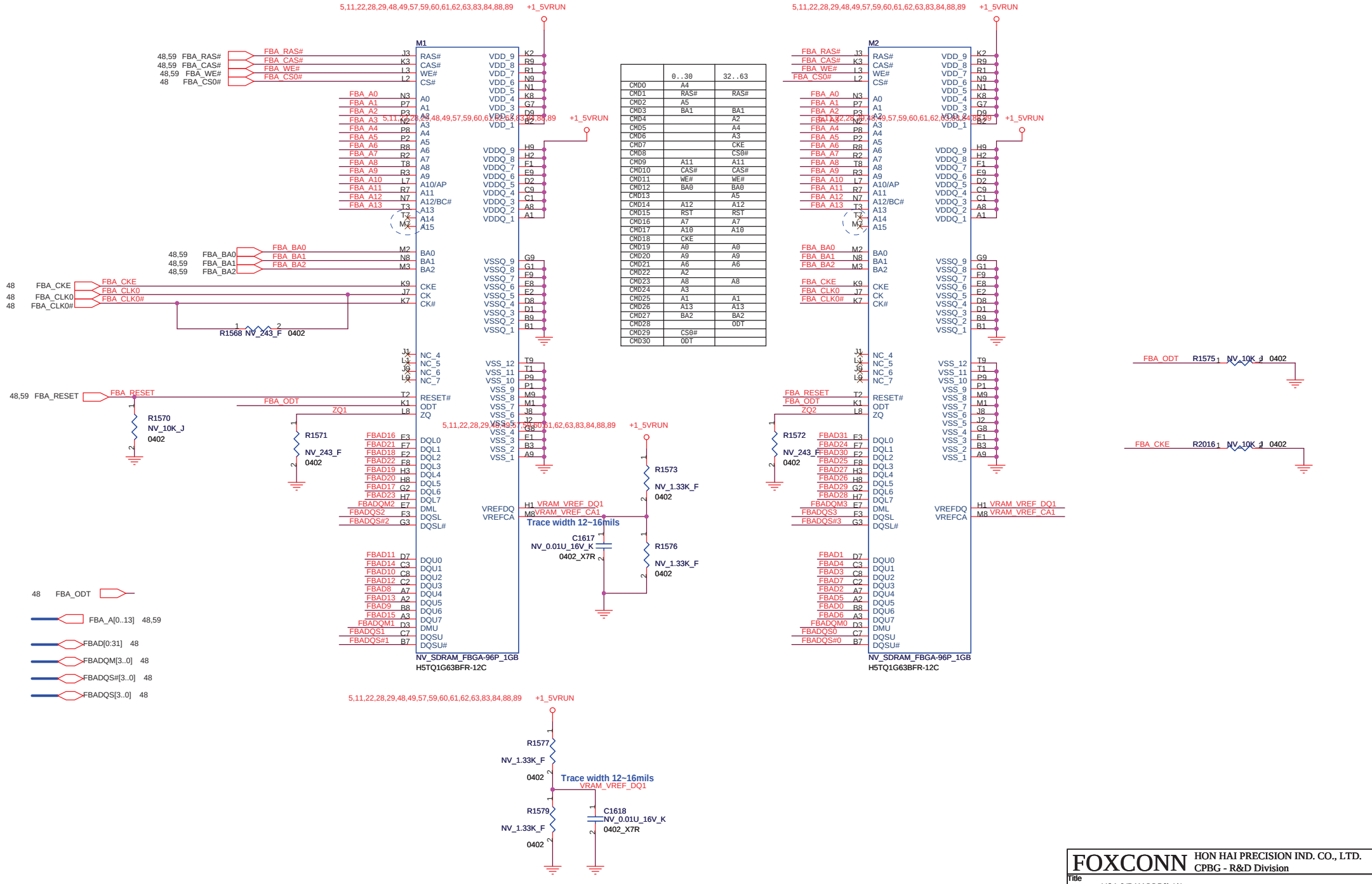


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: VGA (RF solution)		
Size: A3	Document Number: M920 PVT	Rev: 0.4
Date: Sunday, June 21, 2009	Sheet 57 of 93	



	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	

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Title	VGA (VRAM DDR3) 1/4	
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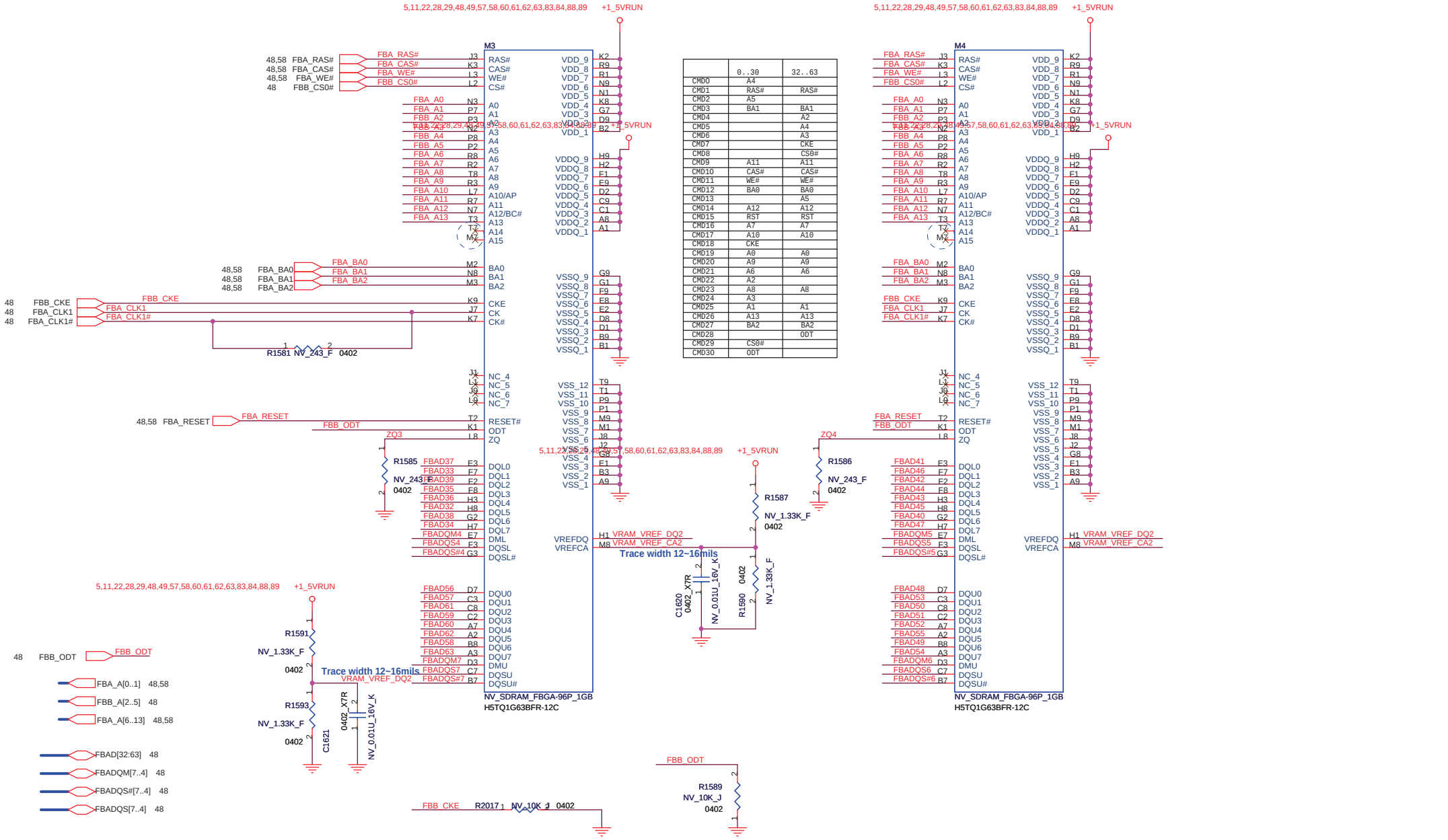

	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VGA (VRAM DDR3) 2/4	
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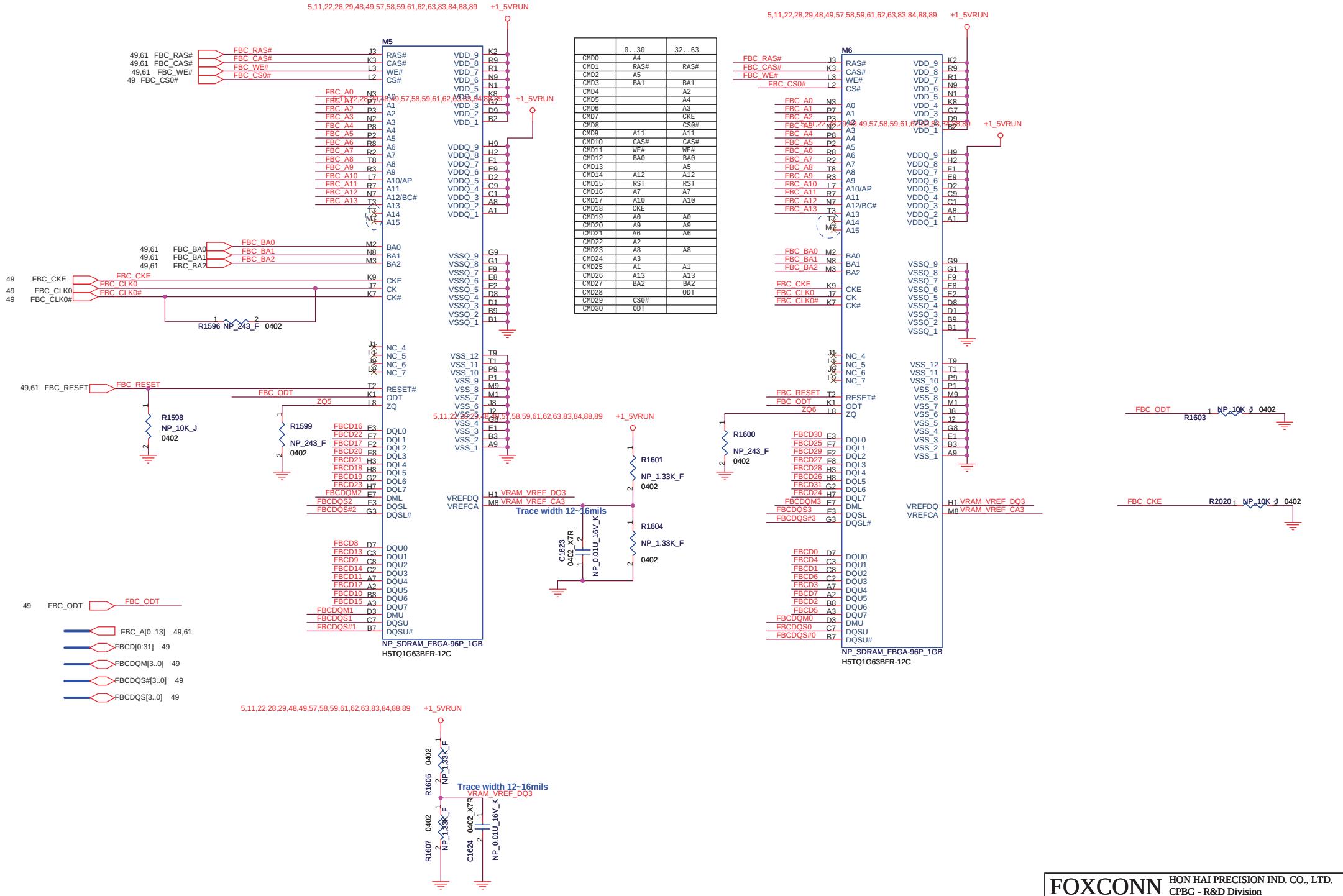

	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	

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Title: VGA (VRAM DDR3) 3/4

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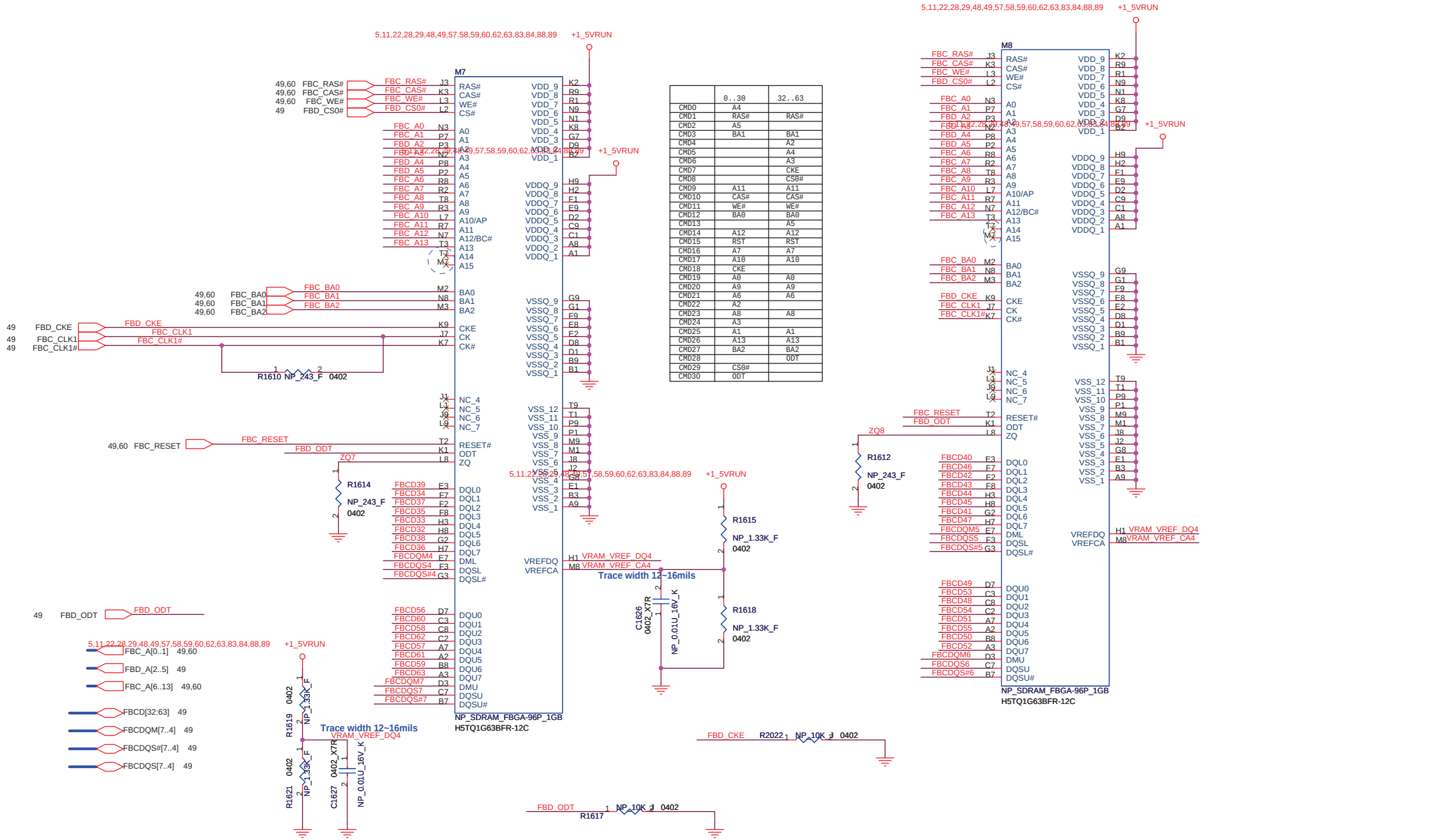

	0..30	32..63
CMD0	A4	
CMD1	RAS#	RAS#
CMD2	A5	
CMD3	BA1	BA1
CMD4		A2
CMD5		A4
CMD6		A3
CMD7		CKE
CMD8		CS0#
CMD9	A11	A11
CMD10	CAS#	CAS#
CMD11	WE#	WE#
CMD12	BA0	BA0
CMD13		A5
CMD14	A12	A12
CMD15	RST	RST
CMD16	A7	A7
CMD17	A10	A10
CMD18	CKE	
CMD19	A0	A0
CMD20	A9	A9
CMD21	A6	A6
CMD22	A2	
CMD23	A8	A8
CMD24	A3	
CMD25	A1	A1
CMD26	A13	A13
CMD27	BA2	BA2
CMD28		ODT
CMD29	CS0#	
CMD30	ODT	

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Title: VGA (VRAM DDR3) 4/4

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Place around the VRAM M1

+1_5VRUN

C1628 NV_0.1U_16V_K 0402_X7R
C1629 NV_0.1U_16V_K 0402_X7R
C1633 NV_0.1U_16V_K 0402_X7R
C1634 NV_0.1U_16V_K 0402_X7R
C1635 NV_0.1U_16V_K 0402_X7R
C1636 NV_0.1U_16V_K 0402_X7R
C1637 NV_0.1U_16V_K 0402_X7R
C1639 NV_0.1U_16V_K 0402_X7R
C1641 NV_1U_6.3V_K 0402_X5R
C1642 NV_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,63,83,84,88,89

+1_5VRUN

Place around the VRAM M1

500mA

C1630 NV_0.1U_16V_K 0402_X7R
C1631 NV_1U_6.3V_K 0402_X5R
C1632 NV_1U_6.3V_K 0402_X5R
C1644 NV_1U_6.3V_K 0402_X5R
C1645 NV_1U_6.3V_K 0402_X5R

Place around the VRAM M2

+1_5VRUN

C1646 NV_0.1U_16V_K 0402_X7R
C1648 NV_0.1U_16V_K 0402_X7R
C1649 NV_0.1U_16V_K 0402_X7R
C1650 NV_0.1U_16V_K 0402_X7R
C1651 NV_0.1U_16V_K 0402_X7R
C1652 NV_0.1U_16V_K 0402_X7R
C1653 NV_0.1U_16V_K 0402_X7R
C1654 NV_0.1U_16V_K 0402_X7R
C1656 NV_1U_6.3V_K 0402_X5R
C1658 NV_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,63,83,84,88,89

+1_5VRUN

Place around the VRAM M2

500mA

C1659 NV_0.1U_16V_K 0402_X7R
C1660 NV_1U_6.3V_K 0402_X5R
C1661 NV_1U_6.3V_K 0402_X5R
C1662 NV_1U_6.3V_K 0402_X5R
C1663 NV_1U_6.3V_K 0402_X5R

Place around the VRAM M3

+1_5VRUN

C1664 NV_0.1U_16V_K 0402_X7R
C1665 NV_0.1U_16V_K 0402_X7R
C1666 NV_0.1U_16V_K 0402_X7R
C1667 NV_0.1U_16V_K 0402_X7R
C1668 NV_0.1U_16V_K 0402_X7R
C1669 NV_0.1U_16V_K 0402_X7R
C1670 NV_0.1U_16V_K 0402_X7R
C1674 NV_0.1U_16V_K 0402_X7R
C1679 NV_1U_6.3V_K 0402_X5R
C1681 NV_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,63,83,84,88,89

+1_5VRUN

Place around the VRAM M3

500mA

C1671 NV_0.1U_16V_K 0402_X7R
C1672 NV_1U_6.3V_K 0402_X5R
C1675 NV_1U_6.3V_K 0402_X5R
C1676 NV_1U_6.3V_K 0402_X5R
C1677 NV_1U_6.3V_K 0402_X5R

Place around the VRAM M4

+1_5VRUN

C1682 NV_0.1U_16V_K 0402_X7R
C1683 NV_0.1U_16V_K 0402_X7R
C1689 NV_0.1U_16V_K 0402_X7R
C1690 NV_0.1U_16V_K 0402_X7R
C1691 NV_0.1U_16V_K 0402_X7R
C1693 NV_0.1U_16V_K 0402_X7R
C1694 NV_0.1U_16V_K 0402_X7R
C1695 NV_0.1U_16V_K 0402_X7R
C1696 NV_1U_6.3V_K 0402_X5R
C1698 NV_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,63,83,84,88,89

+1_5VRUN

Place around the VRAM M4

500mA

C1684 NV_0.1U_16V_K 0402_X7R
C1685 NV_1U_6.3V_K 0402_X5R
C1686 NV_1U_6.3V_K 0402_X5R
C1687 NV_1U_6.3V_K 0402_X5R
C1699 NV_1U_6.3V_K 0402_X5R

PLACE 0.1UF CAPSUNDER THE MEMORY DEVICE.

PLACE 1UF CAPACITORS CLOSE TO THE MEMORY DEVICE.

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CPBG - R&D Division

Title: VGA VRAM BYPASS 1/2

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Place around the VRAM M5

+1_5VRUN

C1700 NP_0.1U_16V_K 0402_X7R
C1702 NP_0.1U_16V_K 0402_X7R
C1703 NP_0.1U_16V_K 0402_X7R
C1704 NP_0.1U_16V_K 0402_X7R
C1705 NP_0.1U_16V_K 0402_X7R
C1706 NP_0.1U_16V_K 0402_X7R
C1713 NP_0.1U_16V_K 0402_X7R
C1714 NP_0.1U_16V_K 0402_X7R
C1715 NP_1U_6.3V_K 0402_X5R
C1716 NP_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,62,83,84,88,89

Place around the VRAM M5

+1_5VRUN

500mA

C1707 NP_0.1U_16V_K 0402_X7R
C1708 NP_1U_6.3V_K 0402_X5R
C1717 NP_1U_6.3V_K 0402_X5R
C1710 NP_1U_6.3V_K 0402_X5R
C1711 NP_1U_6.3V_K 0402_X5R

Place around the VRAM M6

+1_5VRUN

C1719 NP_0.1U_16V_K 0402_X7R
C1721 NP_0.1U_16V_K 0402_X7R
C1722 NP_0.1U_16V_K 0402_X7R
C1723 NP_0.1U_16V_K 0402_X7R
C1724 NP_0.1U_16V_K 0402_X7R
C1725 NP_0.1U_16V_K 0402_X7R
C1726 NP_0.1U_16V_K 0402_X7R
C1727 NP_0.1U_16V_K 0402_X7R
C1731 NP_1U_6.3V_K 0402_X5R
C1732 NP_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,62,83,84,88,89

Place around the VRAM M6

+1_5VRUN

500mA

C1728 NP_0.1U_16V_K 0402_X7R
C1729 NP_1U_6.3V_K 0402_X5R
C1730 NP_1U_6.3V_K 0402_X5R
C1733 NP_1U_6.3V_K 0402_X5R
C1735 NP_1U_6.3V_K 0402_X5R

Place around the VRAM M7

+1_5VRUN

C1736 NP_0.1U_16V_K 0402_X7R
C1738 NP_0.1U_16V_K 0402_X7R
C1739 NP_0.1U_16V_K 0402_X7R
C1740 NP_0.1U_16V_K 0402_X7R
C1741 NP_0.1U_16V_K 0402_X7R
C1742 NP_0.1U_16V_K 0402_X7R
C1743 NP_0.1U_16V_K 0402_X7R
C1744 NP_0.1U_16V_K 0402_X7R
C1745 NP_0.1U_16V_K 0402_X7R
C1748 NP_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,62,83,84,88,89

Place around the VRAM M7

+1_5VRUN

500mA

C1749 NP_0.1U_16V_K 0402_X7R
C1750 NP_1U_6.3V_K 0402_X5R
C1751 NP_1U_6.3V_K 0402_X5R
C1752 NP_1U_6.3V_K 0402_X5R
C1753 NP_1U_6.3V_K 0402_X5R

Place around the VRAM M8

+1_5VRUN

C1759 NP_0.1U_16V_K 0402_X7R
C1761 NP_0.1U_16V_K 0402_X7R
C1763 NP_0.1U_16V_K 0402_X7R
C1764 NP_0.1U_16V_K 0402_X7R
C1765 NP_0.1U_16V_K 0402_X7R
C1766 NP_0.1U_16V_K 0402_X7R
C1767 NP_0.1U_16V_K 0402_X7R
C1768 NP_0.1U_16V_K 0402_X7R
C1769 NP_1U_6.3V_K 0402_X5R
C1770 NP_1U_6.3V_K 0402_X5R
C1771 NP_1U_6.3V_K 0402_X5R

5,11,22,28,29,48,49,57,58,59,60,61,62,83,84,88,89

PLACE 0.1UF CAPSUNDER THE MEMORY DEVICE.

Place around the VRAM M8

+1_5VRUN

500mA

C1754 NP_0.1U_16V_K 0402_X7R
C1755 NP_1U_6.3V_K 0402_X5R
C1756 NP_1U_6.3V_K 0402_X5R
C1757 NP_1U_6.3V_K 0402_X5R
C1758 NP_1U_6.3V_K 0402_X5R

PLACE 1UF CAPACITORS CLOSE TO THE MEMORY DEVICE.

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Title	VGA (VRAM BYPASS) 2/2	
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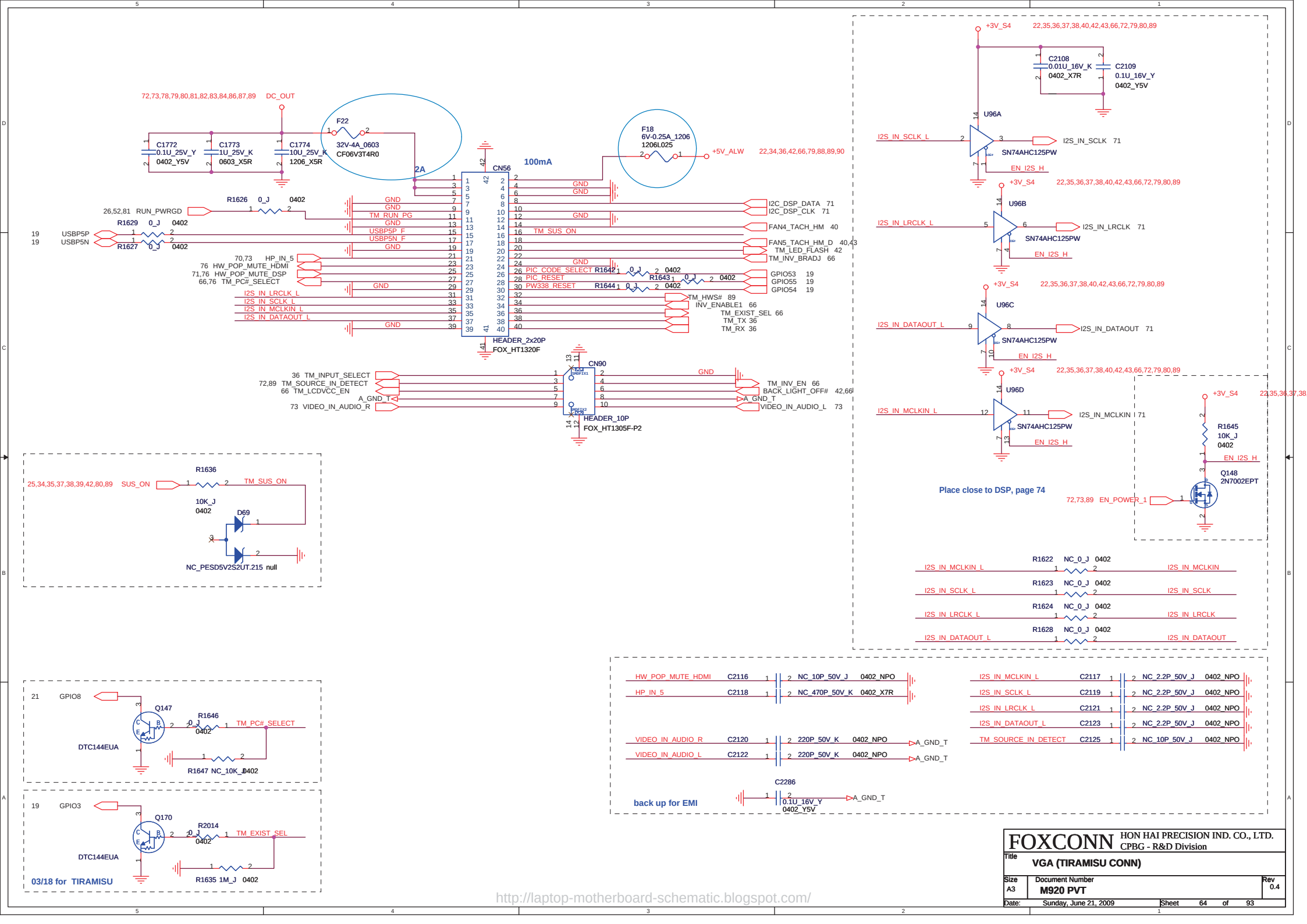
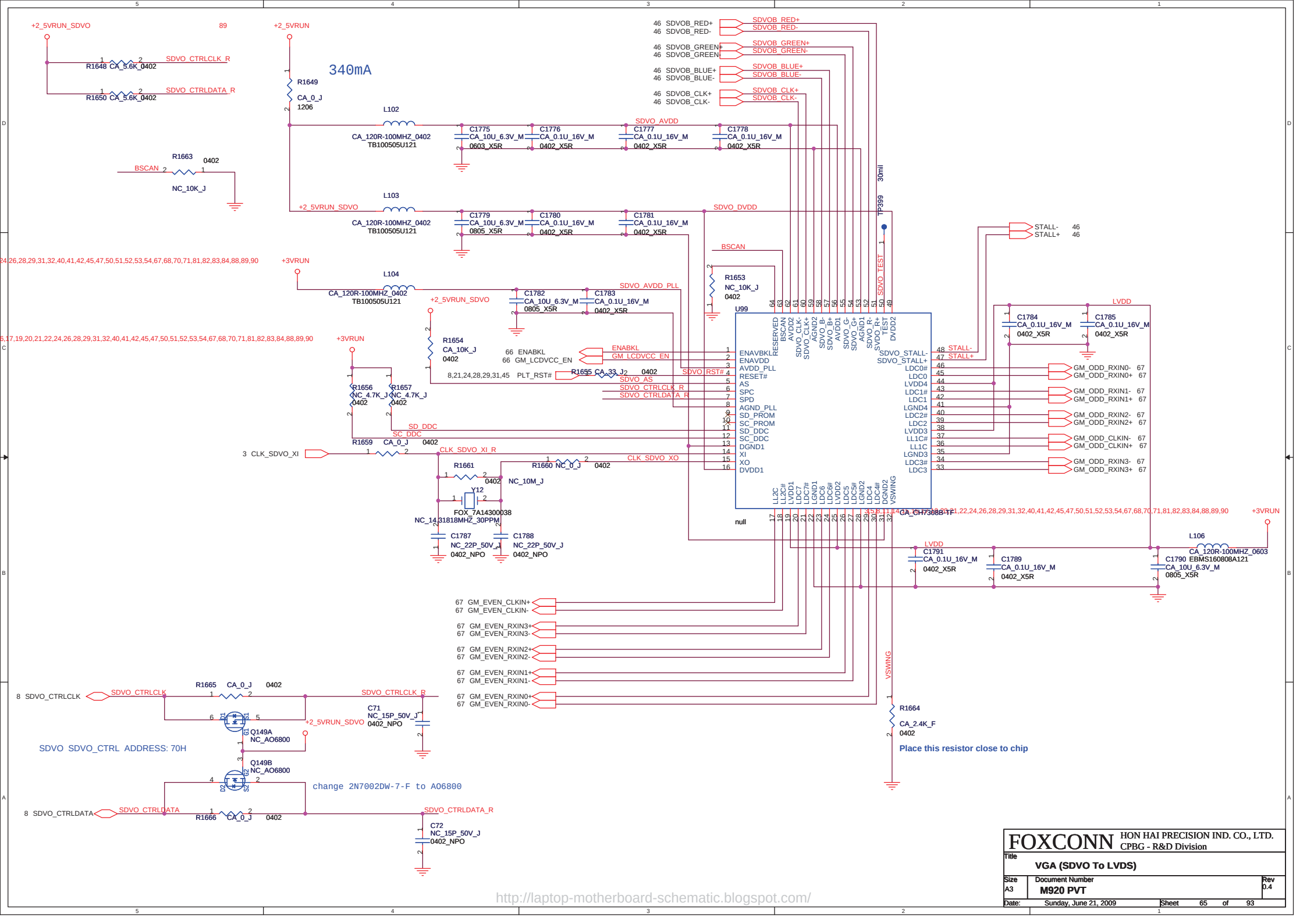
Date: Sunday, June 21, 2009	Sheet 63 of 93	



FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	VGA (TIRAMISU CONN)	
Size A3	Document Number M920 PVT	Rev 0.4
Date: Sunday, June 21, 2009	Sheet 64 of 93	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VGA (SDVO To LVDS)	
Size A3	Document Number M920 PVT	Rev 0.4
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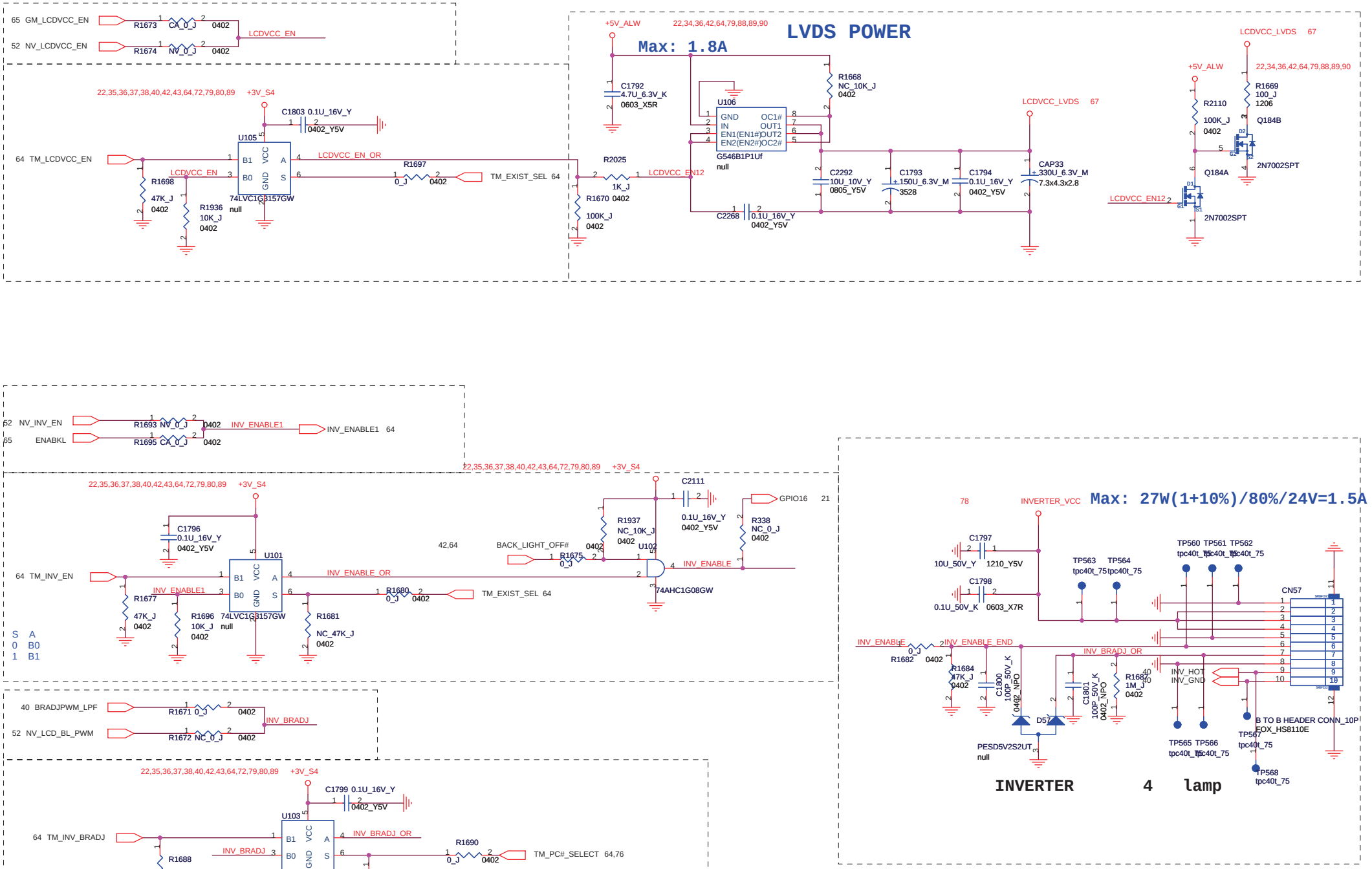

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title	VGA (INVERTER)	
Size A3	Document Number M920 PVT	Rev 0.4
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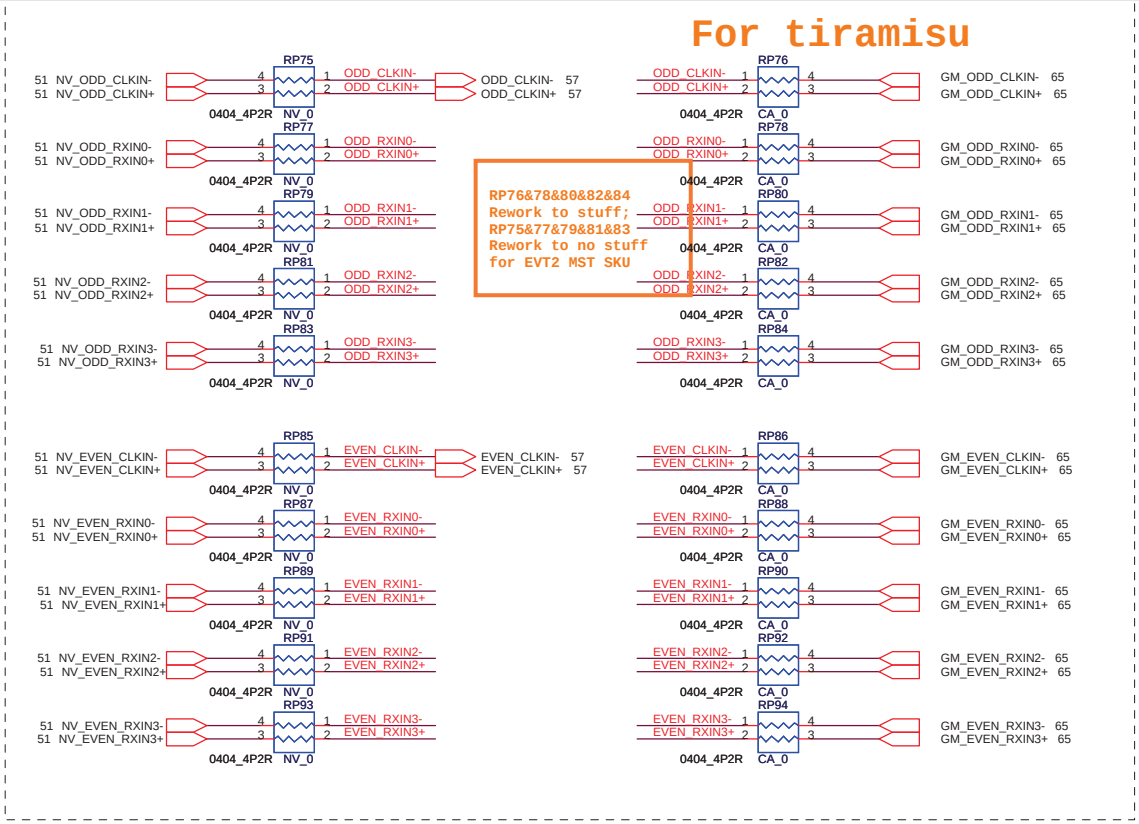
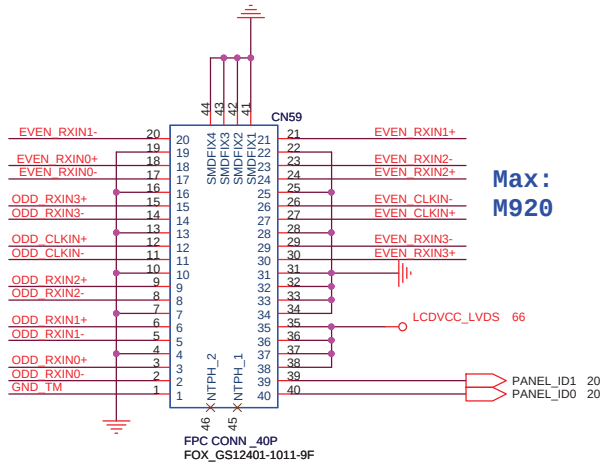
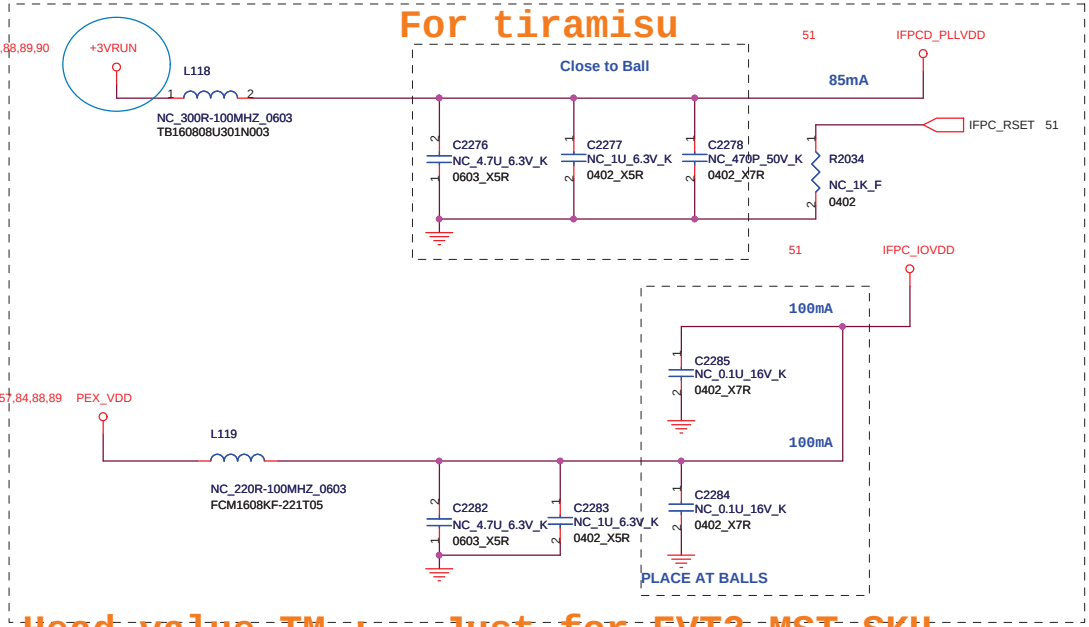
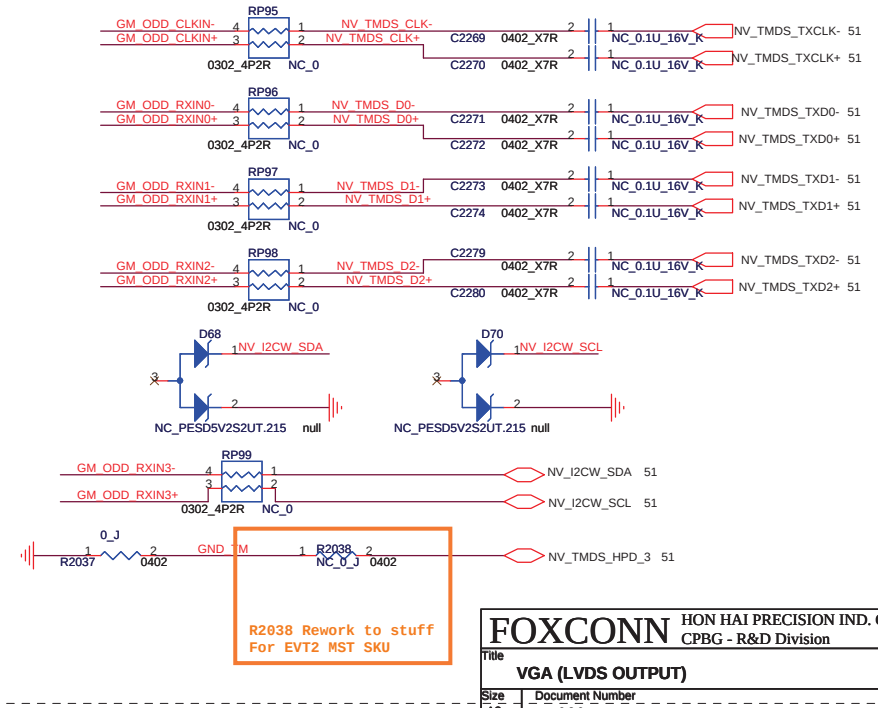




Max:
M920 1.8A

Panel ID		
00	AUO 24" 1920*1080 M240HW01 V0	





Head value TM_: Just for EVT2 MST SKU

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Title: VGA (LVDS OUTPUT)

Size	Document Number	Rev
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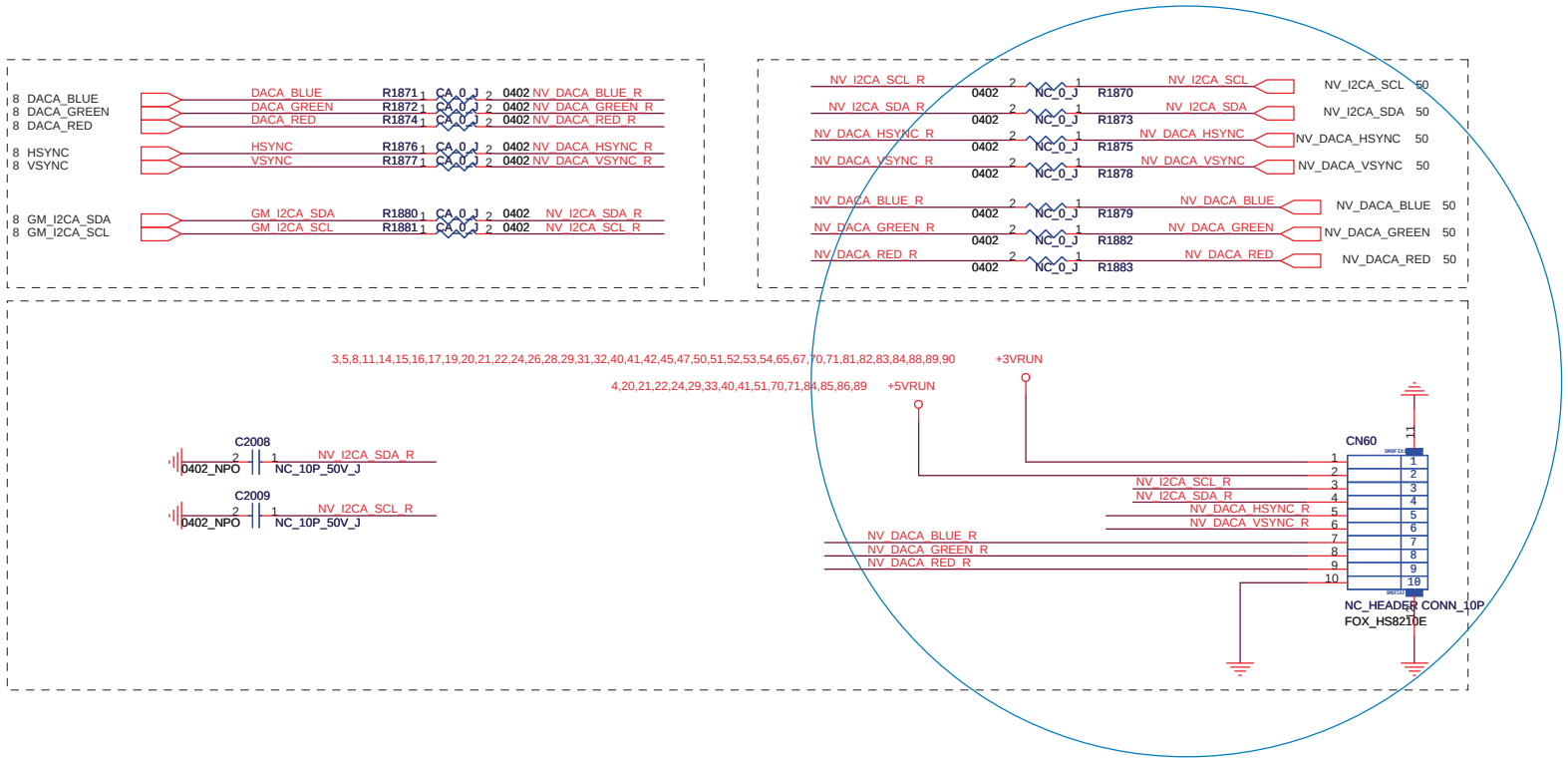

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Title	VGA (CRT for DEBUG)		
Size A3	Document Number M920 PVT		Rev 0.4
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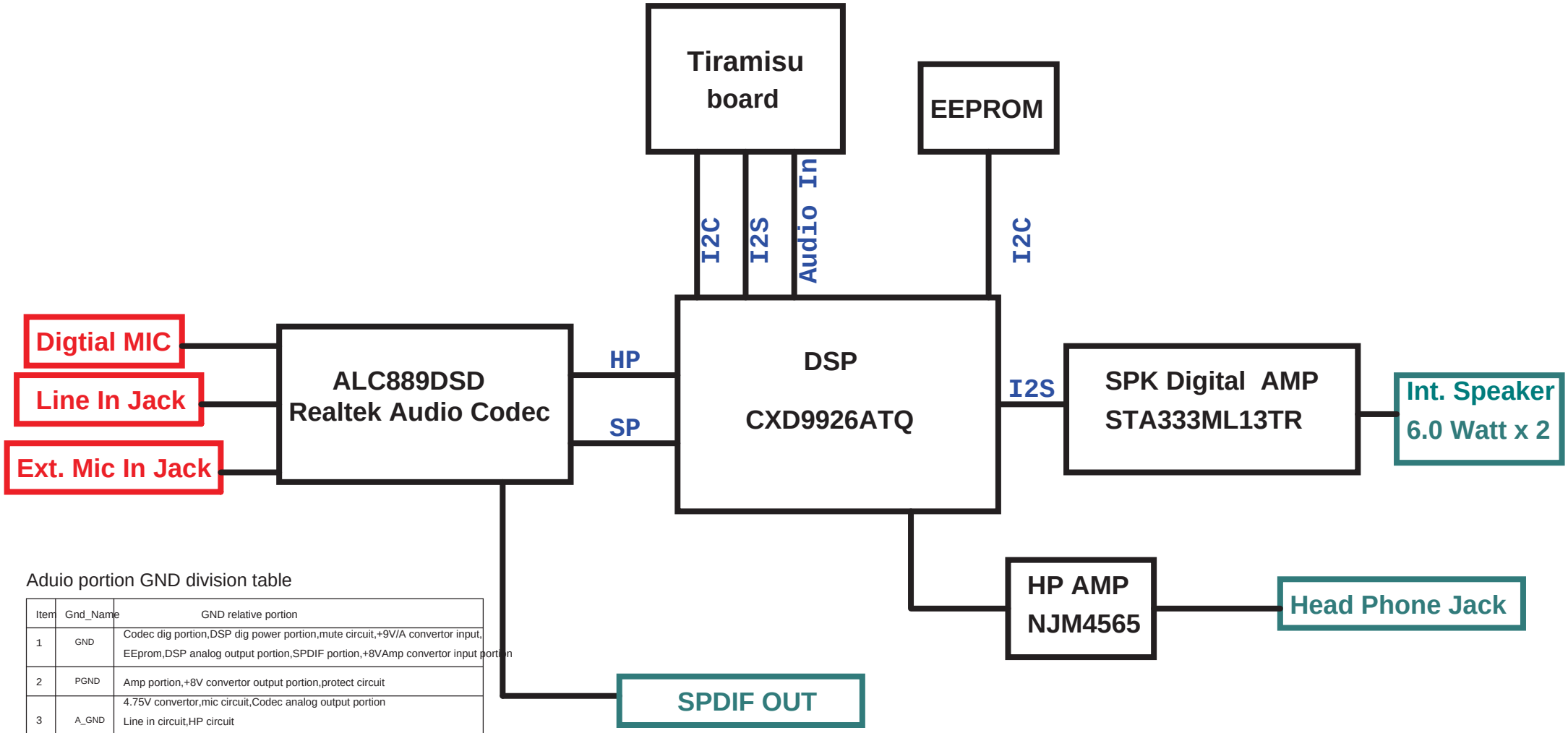
M920 Audio Board Block Diagram



Aduio portion GND division table

Item	Gnd_Name	GND relative portion
1	GND	Codec dig portion,DSP dig power portion,mute circuit,+9V/A convertor input, EEprom,DSP analog output portion,SPDIF portion,+8VAmp convertor input portion
2	PGND	Amp portion,+8V convertor output portion,protect circuit
3	A_GND	4.75V convertor,mic circuit,Codec analog output portion Line in circuit,HP circuit
4	O_GND	DSP osc portion
5	W_GND	DSP PWM power portion

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Title: *AUDIO Block Diagram (All)*

Size: A3 | Document Number: AIO-NEXT EVT 24 | Rev: 0.4

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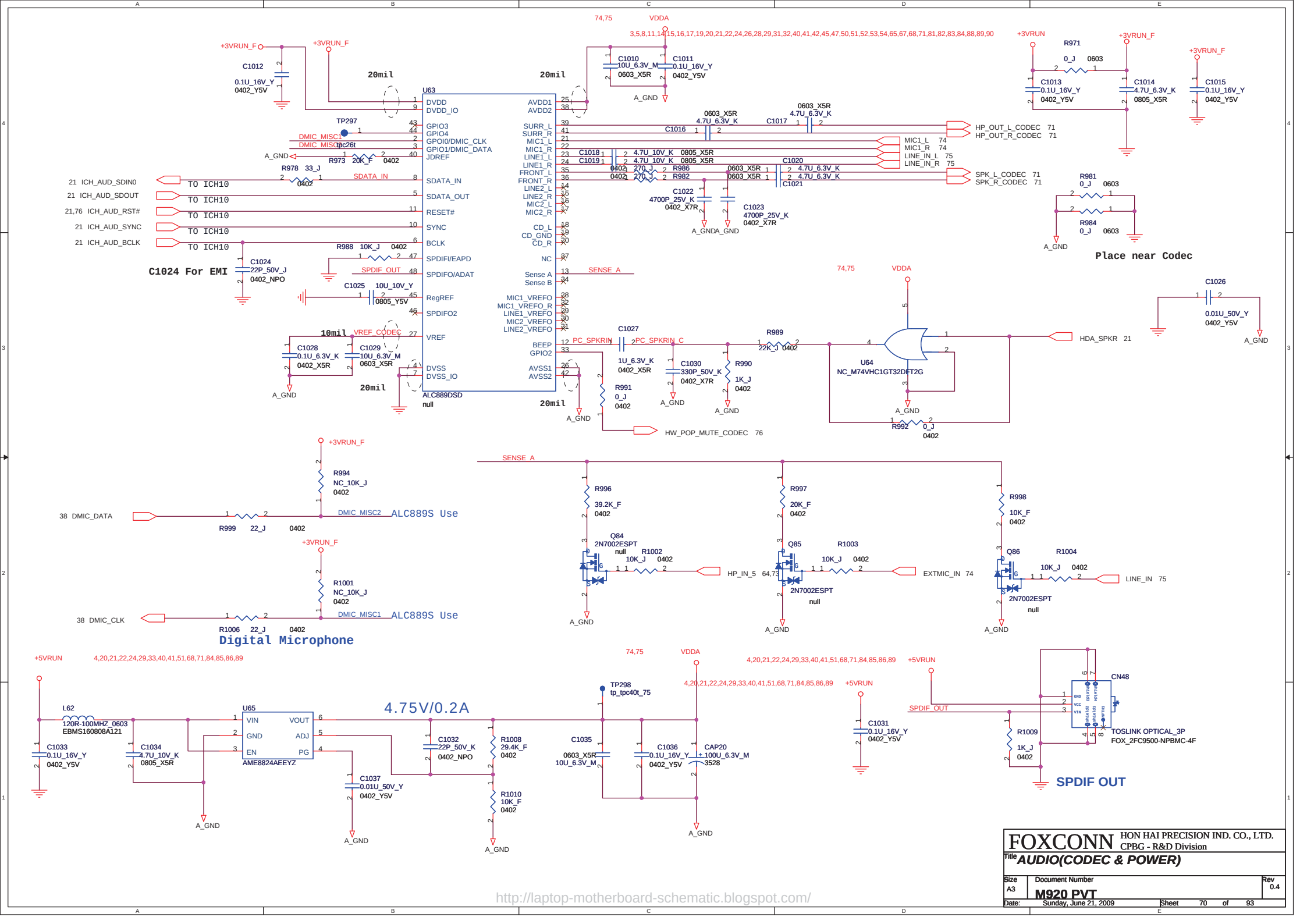
U63
ALC889DSD
null
C1024 For EMI
Place near Codec
Digital Microphone
ALC889S Use
4.75V/0.2A
SPDIF OUT
U64
NC_M74VHC1GT32DFT2G
U65
AME8824AEEYZ
L62
120R-100MHZ_0603
EBMS160808A121
CN48
TOSLINK OPTICAL_3P
FOX_2FC9500-NPBMC-4F
TO ICH10
HP_OUT_L_CODEC 71
HP_OUT_R_CODEC 71
SPK_L_CODEC 71
SPK_R_CODEC 71
HDA_SPKR 21
HW_POP_MUTE_CODEC 76
HP_IN_5 64,73
EXTMIC_IN 74
LINE_IN 75
MIC1_L 74
MIC1_R 74
LINE_IN_L 75
LINE_IN_R 75
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HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
AUDIO(CODEC & POWER)
M920 PVT
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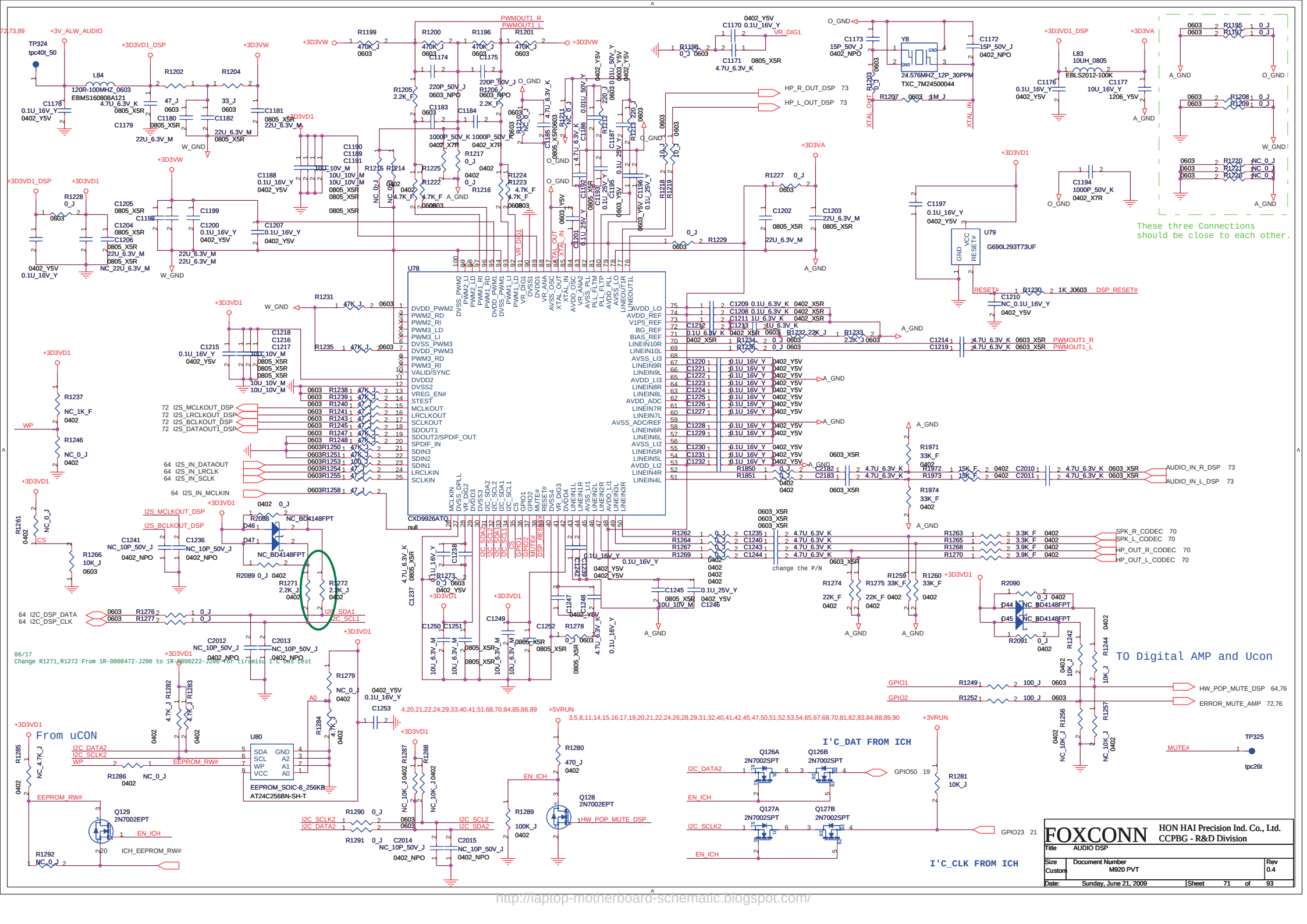
http://laptop-motherboard-schematic.blogspot.com/



FOXCONN	HON HAI Precision Ind. Co., Ltd.
	CCPBG - R&D Division
Title	AUDIO DSP
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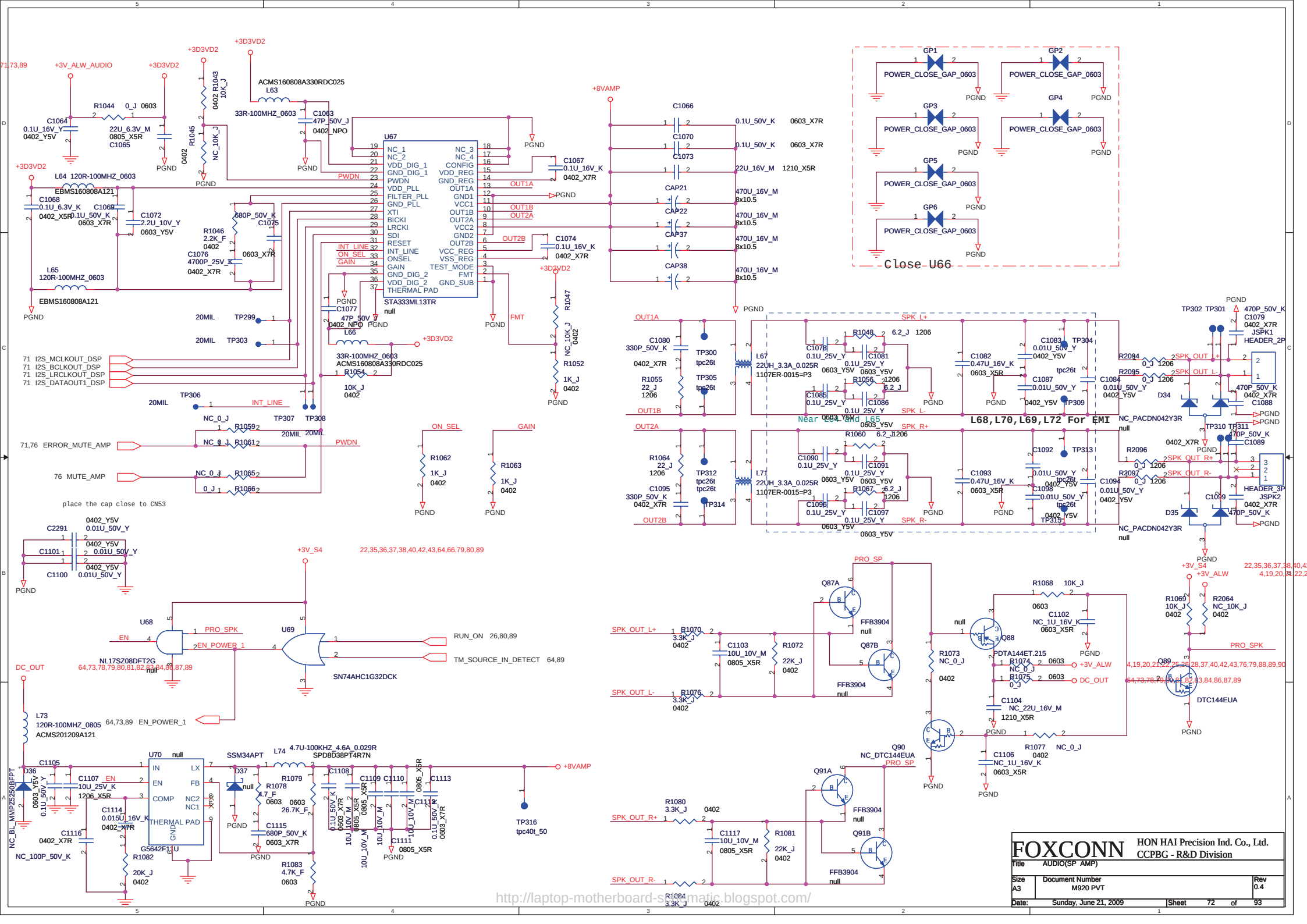
U67
STA333ML13TR
null
NC_1
NC_2
VDD_DIG_1
GND_DIG_1
PWDN
VDD_PLL
FILTER_PLL
GND_PLL
XTI
BICKI
LRCKI
SDI
RESET
INT_LINE
ONSEL
GAIN
GND_DIG_2
VDD_DIG_2
THERMAL PAD
NC_3
NC_4
CONFIG
VDD_REG
GND_REG
OUT1A
GND1
VCC1
OUT1B
OUT2A
VCC2
GND2
OUT2B
VCC_REG
VSS_REG
TEST_MODE
FMT
GND_SUB
+3V_ALW_AUDIO
+3D3VD2
+8VAMP
PGND
PWDN
INT_LINE
ON_SEL
GAIN
FMT
OUT1A
OUT1B
OUT2A
OUT2B
ACMS160808A330RDC025
33R-100MHZ_0603
L64 120R-100MHZ_0603
EBMS160808A121
L65
120R-100MHZ_0603
L66
33R-100MHZ_0603
ACMS160808A330RDC025
L67
22UH_3.3A_0.025R
1107ER-0015=P3
L71
22UH_3.3A_0.025R
1107ER-0015=P3
L73
120R-100MHZ_0805
ACMS201209A121
L74
4.7U-100KHZ_4.6A_0.029R
SPD8D38PT4R7N
C1063 47P_50V_J 0402_NPO
C1064 0.1U_16V_Y 0402_Y5V
C1065 22U_6.3V_M 0805_X5R
C1066 0.1U_50V_K 0603_X7R
C1067 0.1U_16V_K 0402_X7R
C1068 0.1U_6.3V_K 0402_X5R
C1069 0.1U_50V_K 0603_X7R
C1070 0.1U_50V_K 0603_X7R
C1072 2.2U_10V_Y 0603_Y5V
C1073 22U_16V_M 1210_X5R
C1074 0.1U_16V_K 0402_X7R
C1075 680P_50V_K 0603_X7R
C1076 4700P_25V_K 0402_X7R
C1077 47P_50V 0402_NPO
CAP21 470U_16V_M 8x10.5
CAP22 470U_16V_M 8x10.5
CAP37 470U_16V_M 8x10.5
CAP38 470U_16V_M 8x10.5
R1043 10K_J 0402
R1044 0_J 0603
R1045 NC_10K_J 0402
R1046 2.2K_F 0402
R1047 NC_10K_J 0402
R1052 1K_J 0402
R1054 10K_J 0402
TP299 20MIL
TP303 20MIL
TP306 20MIL
TP307 20MIL
TP308 20MIL
I2S_MCLKOUT_DSP
I2S_BCLKOUT_DSP
I2S_LRCLKOUT_DSP
I2S_DATAOUT1_DSP
ERROR_MUTE_AMP
MUTE_AMP
NC_0_J
GP1 POWER_CLOSE_GAP_0603
GP2 POWER_CLOSE_GAP_0603
GP3 POWER_CLOSE_GAP_0603
GP4 POWER_CLOSE_GAP_0603
GP5 POWER_CLOSE_GAP_0603
GP6 POWER_CLOSE_GAP_0603
Close U66
SPK_L+
SPK_L-
SPK_R+
SPK_R-
Near L64 and L65
L68,L70,L69,L72 For EMI
C1078 0.1U_25V_Y 0603_Y5V
C1080 330P_50V_K 0402_X7R
C1081 0.1U_25V_Y 0603_Y5V
C1082 0.47U_16V_K 0603_X5R
C1083 0.01U_50V_Y 0402_Y5V
C1084 0.01U_50V_Y 0402_Y5V
C1085 0.1U_25V_Y 0603_Y5V
C1086 0.1U_25V_Y 0603_Y5V
C1087 0.01U_50V_Y 0402_Y5V
C1088 470P_50V_K 0402_X7R
C1089 470P_50V_K 0402_X7R
C1090 0.1U_25V_Y 0603_Y5V
C1091 0.1U_25V_Y 0603_Y5V
C1092 0.01U_50V_Y 0402_Y5V
C1093 0.47U_16V_K 0603_X5R
C1094 0.01U_50V_Y 0402_Y5V
C1095 330P_50V_K 0402_X7R
C1096 0.1U_25V_Y 0603_Y5V
C1097 0.1U_25V_Y 0603_Y5V
C1098 0.01U_50V_Y 0402_Y5V
C1099 470P_50V_K 0402_X7R
R1048 6.2_J 1206
R1055 22_J 1206
R1056 6.2_J 1206
R1059 NC_0_J
R1060 6.2_J 1206
R1061 NC_0_J
R1062 1K_J 0402
R1063 1K_J 0402
R1064 22_J 1206
R1065 NC_0_J
R1066 0_J
R1067 6.2_J 1206
TP300 tpc26t
TP305 tpc26t
TP309 tpc26t
TP312 tpc26t tpc26t
TP313 tpc26t
TP314 tpc26t
TP315 tpc26t
TP316 tpc40t_50
TP302 TP301
TP310 TP311
NC_PACDN042Y3R
null
JSPK1 HEADER_2P
HEADER_3P JSPK2
D34
D35
R2094 0_J 1206
R2095 0_J 1206
R2096 0_J 1206
R2097 0_J 1206
SPK_OUT_L+
SPK_OUT_L-
SPK_OUT_R+
SPK_OUT_R-
R2064 NC_10K_J 0402
R2069 10K_J 0402
C2064 0.1U_16V_Y 0402_Y5V
C2065 22U_6.3V_M 0805_X5R
C2291 0.01U_50V_Y 0402_Y5V
C1100 0.01U_50V_Y 0402_Y5V
C1101 0.01U_50V_Y 0402_Y5V
place the cap close to CN53
U68
U69
U70
NL17SZ08DFT2G
SN74AHC1G32DCK
G5642F11U
SSM34APT
EN
EN_POWER_1
PRO_SPK
RUN_ON 26,80,89
TM_SOURCE_IN_DETECT 64,89
DC_OUT
Q87A
Q87B
Q88
Q89
Q90
Q91A
Q91B
FFB3904
PDTA144ET.215
DTC144EUA
NC_DTC144EUA
PRO_SP
R1068 10K_J 0603
R1069 10K_J 0402
R1070 3.3K_J 0402
R1072 22K_J 0402
R1073 NC_0_J 0402
R1074 NC_0_J 0603
R1075 0_J 0603
R1076 3.3K_J 0402
R1077 NC_0_J 0402
R1078 4.7_F 0603
R1079 26.7K_F 0603
R1080 3.3K_J 0402
R1081 22K_J 0402
R1082 20K_J 0402
R1083 4.7K_F 0603
R1084 3.3K_J 0402
C1101 0.01U_50V_Y 0402_Y5V
C1102 NC_1U_16V_K 0603_X5R
C1103 10U_10V_M 0805_X5R
C1104 NC_22U_16V_M 1210_X5R
C1105 10U_25V_K 1206_X5R
C1106 NC_1U_16V_K 0603_X5R
C1107 EN 10U_25V_K 1206_X5R
C1108 0.1U_50V_K 0603_X7R
C1109 10U_10V_M 0805_X5R
C1110 10U_10V_M 0805_X5R
C1111 10U_10V_M 0805_X5R
C1112 0.1U_50V_X7R 0603_X7R
C1113 0805_X5R
C1114 0.015U_16V_K 0402_X7R
C1115 680P_50V_K 0603_X7R
C1116 0402_X7R
C1117 10U_10V_M 0805_X5R
NC_BL_MMPZ5250BFPT
NC_100P_50V_K
D36
D37
22,35,36,37,38,40,42,43,64,66,79,80,89
64,73,78,79,80,81,82,83,84,86,87,89
64,89
4,19,20,21,22,25,26,28,37,40,42,43,76,79,88,89,90
64,73,78,79,80,81,82,83,84,86,87,89
71,73,89
71,76
76
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title AUDIO(SP AMP)
Size A3
Document Number M920 PVT
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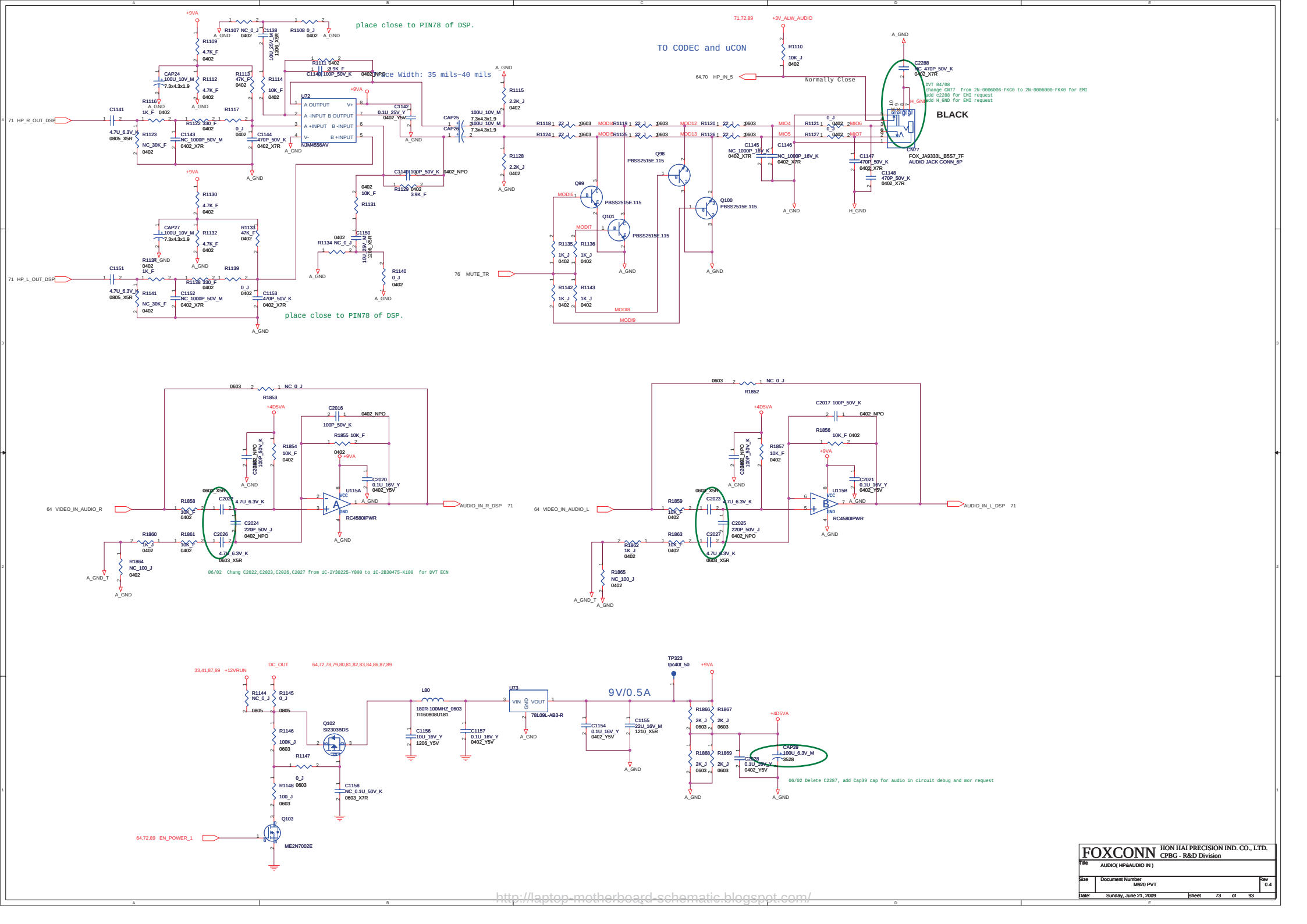

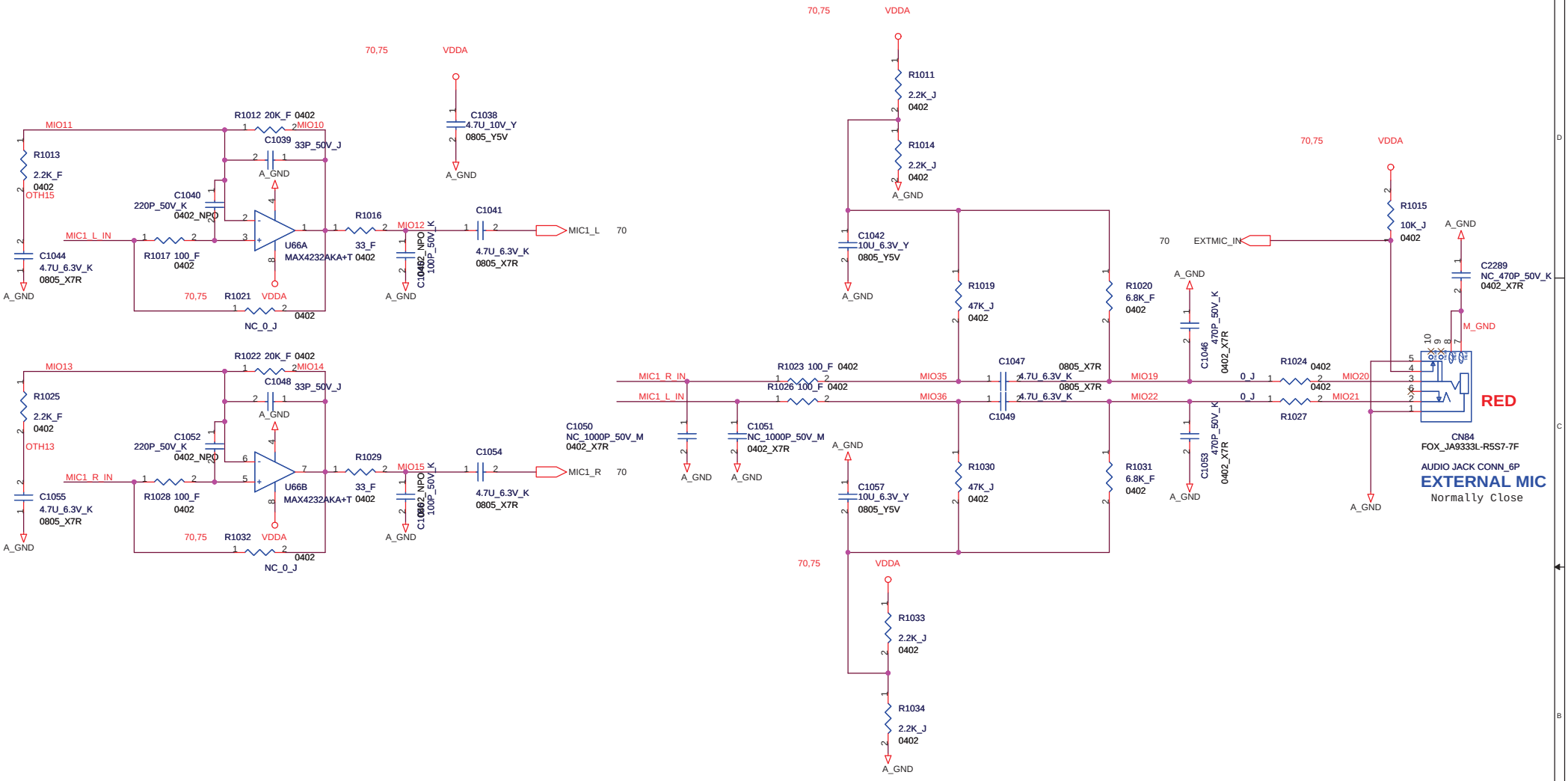

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	AUDIO(EXTMIC)	
Size A3	Document Number M920 PVT	Rev 0.4
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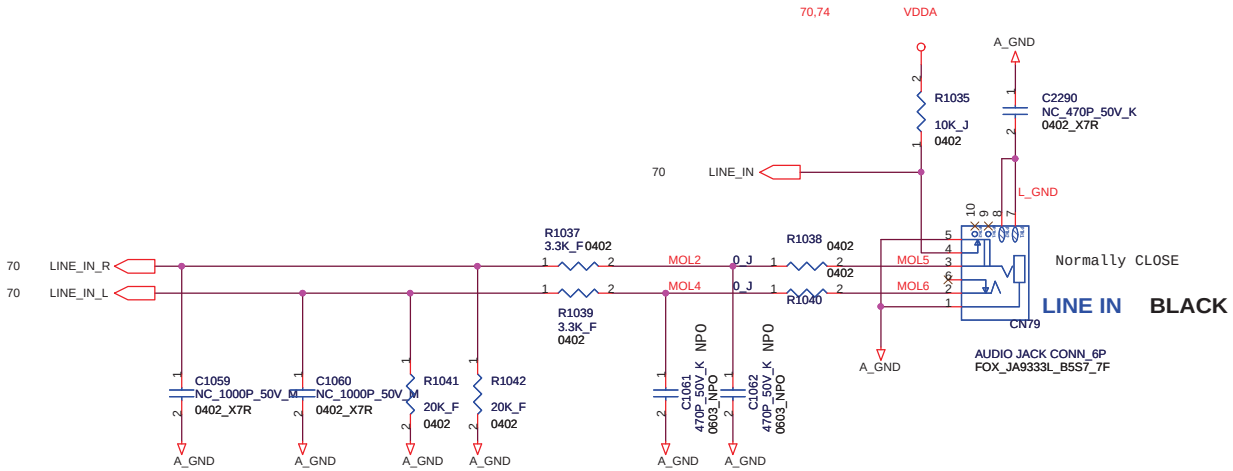

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	AUDIO(LINE IN)	
Size: A3	Document Number: M920 PVT	Rev: 0.4
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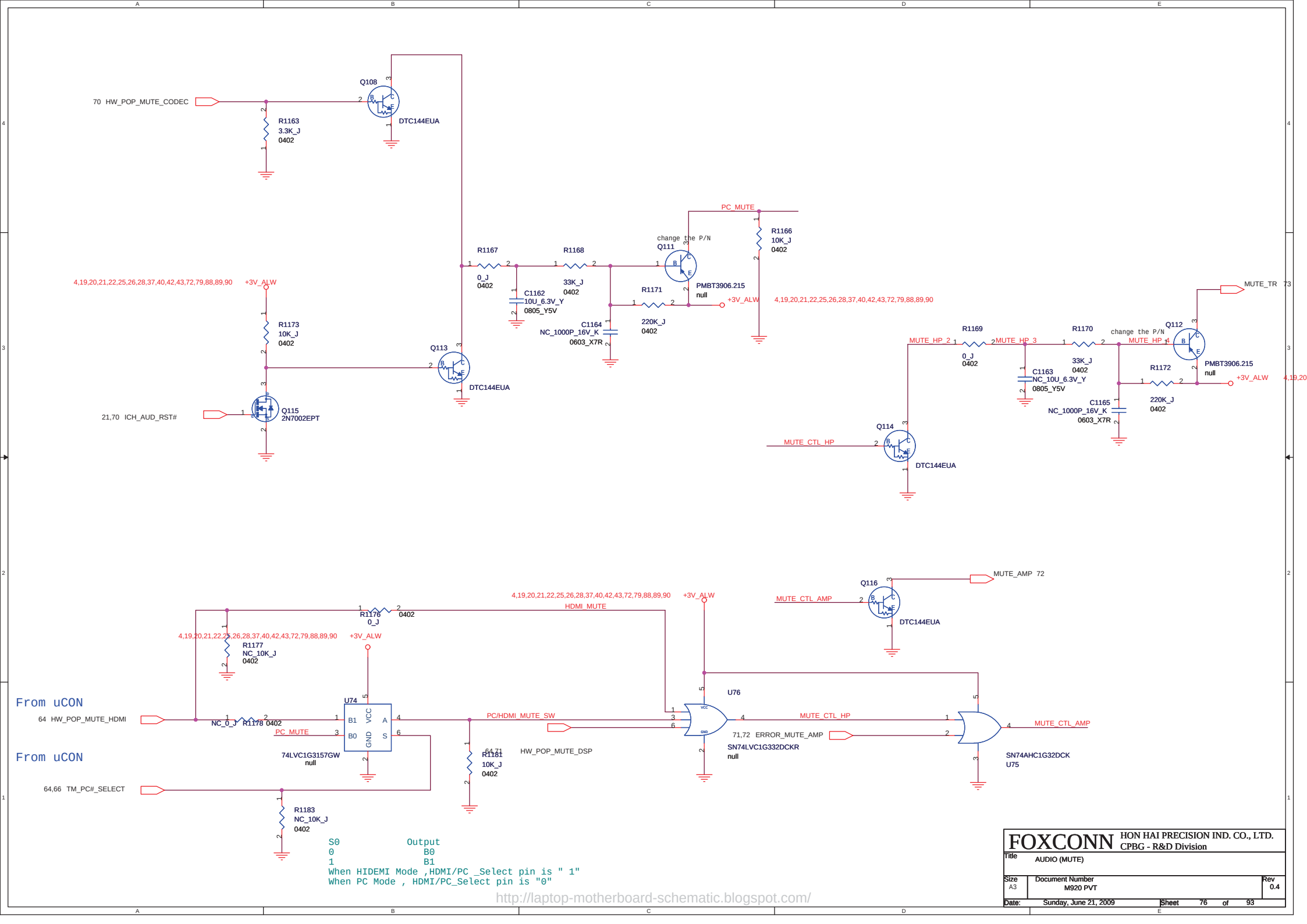

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title	AUDIO (MUTE)	
Size A3	Document Number M920 PVT	Rev 0.4
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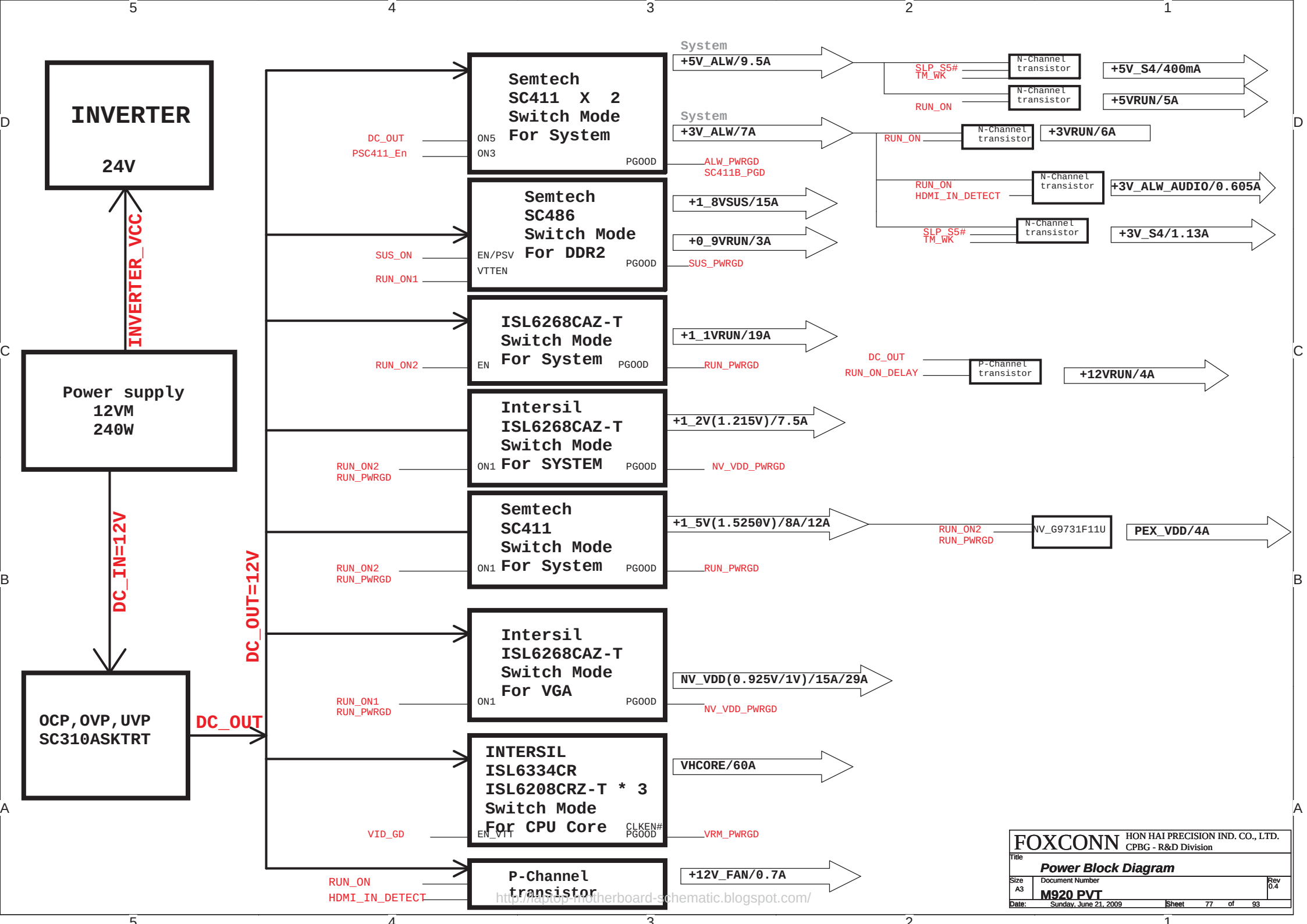

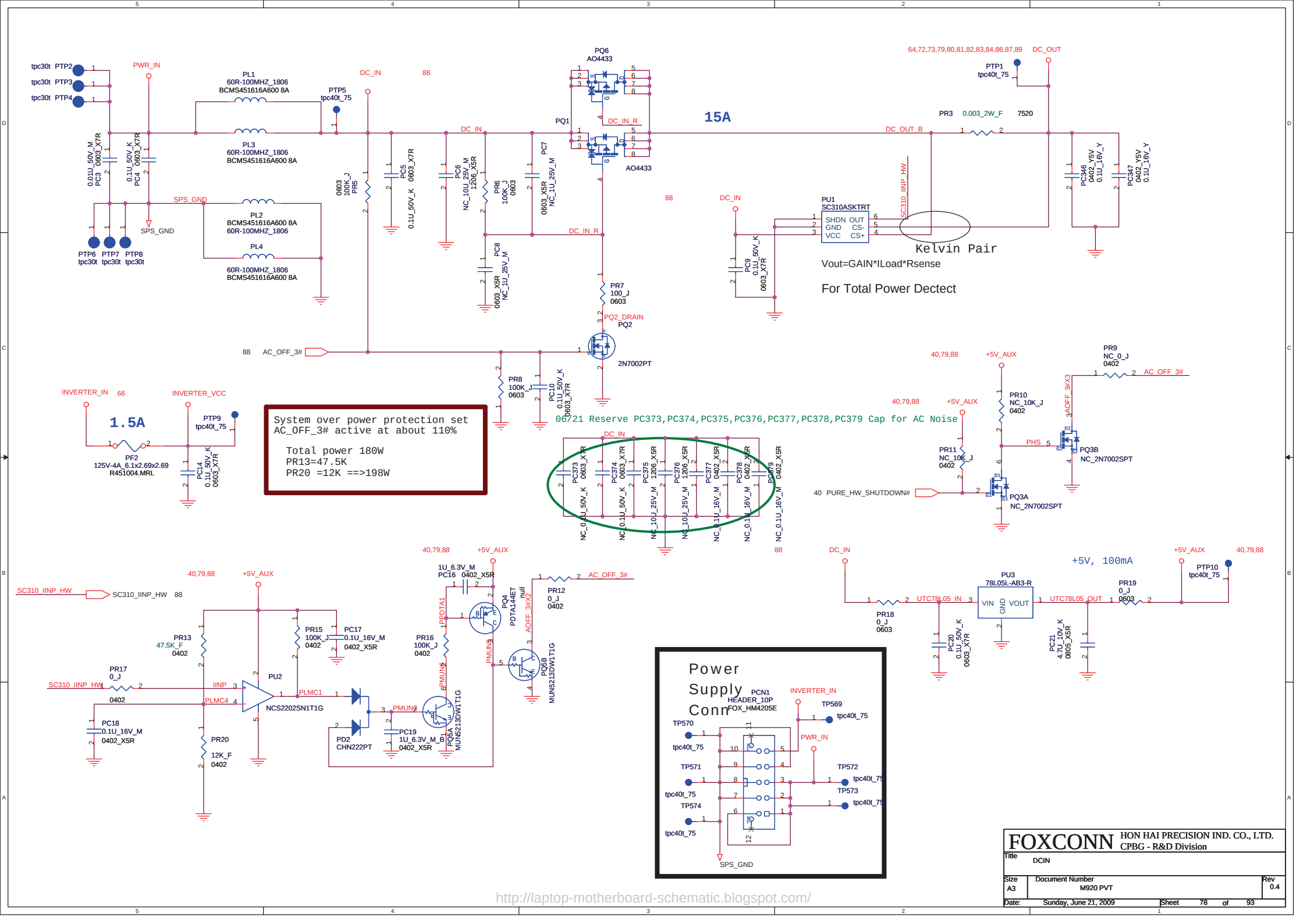

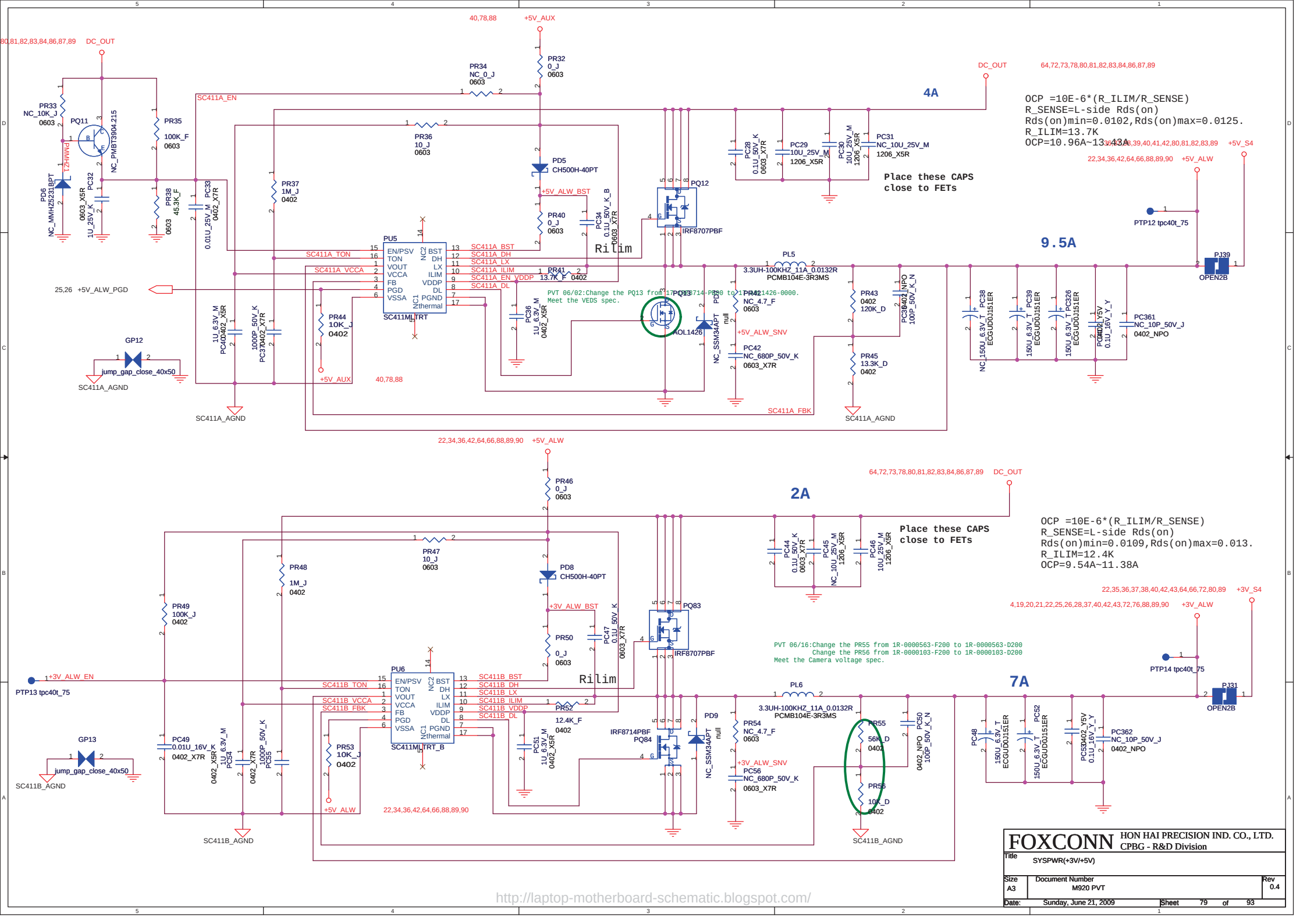

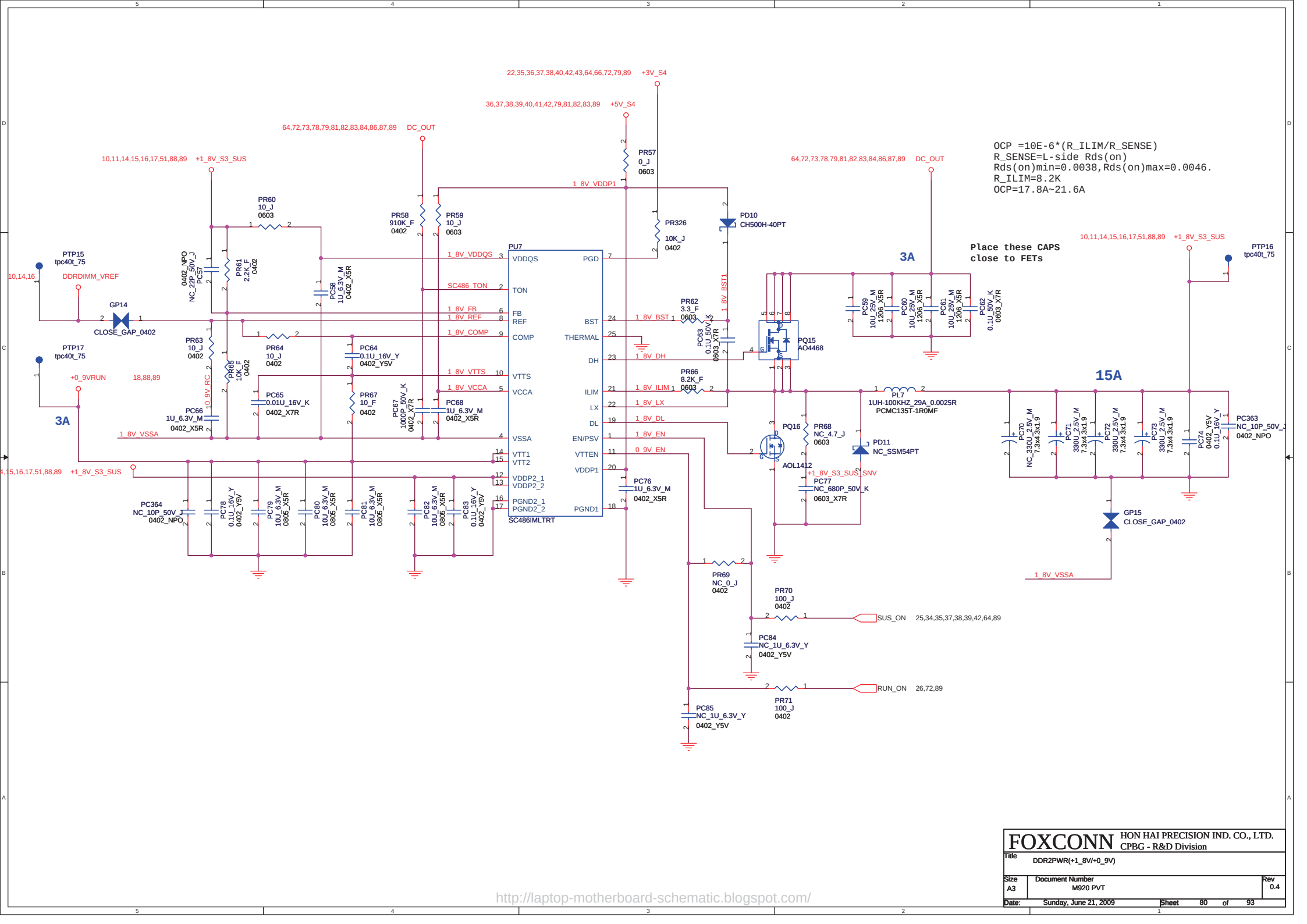

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	DDR2PWR(+1_8V/+0_9V)	
Size A3	Document Number M920 PVT	Rev 0.4
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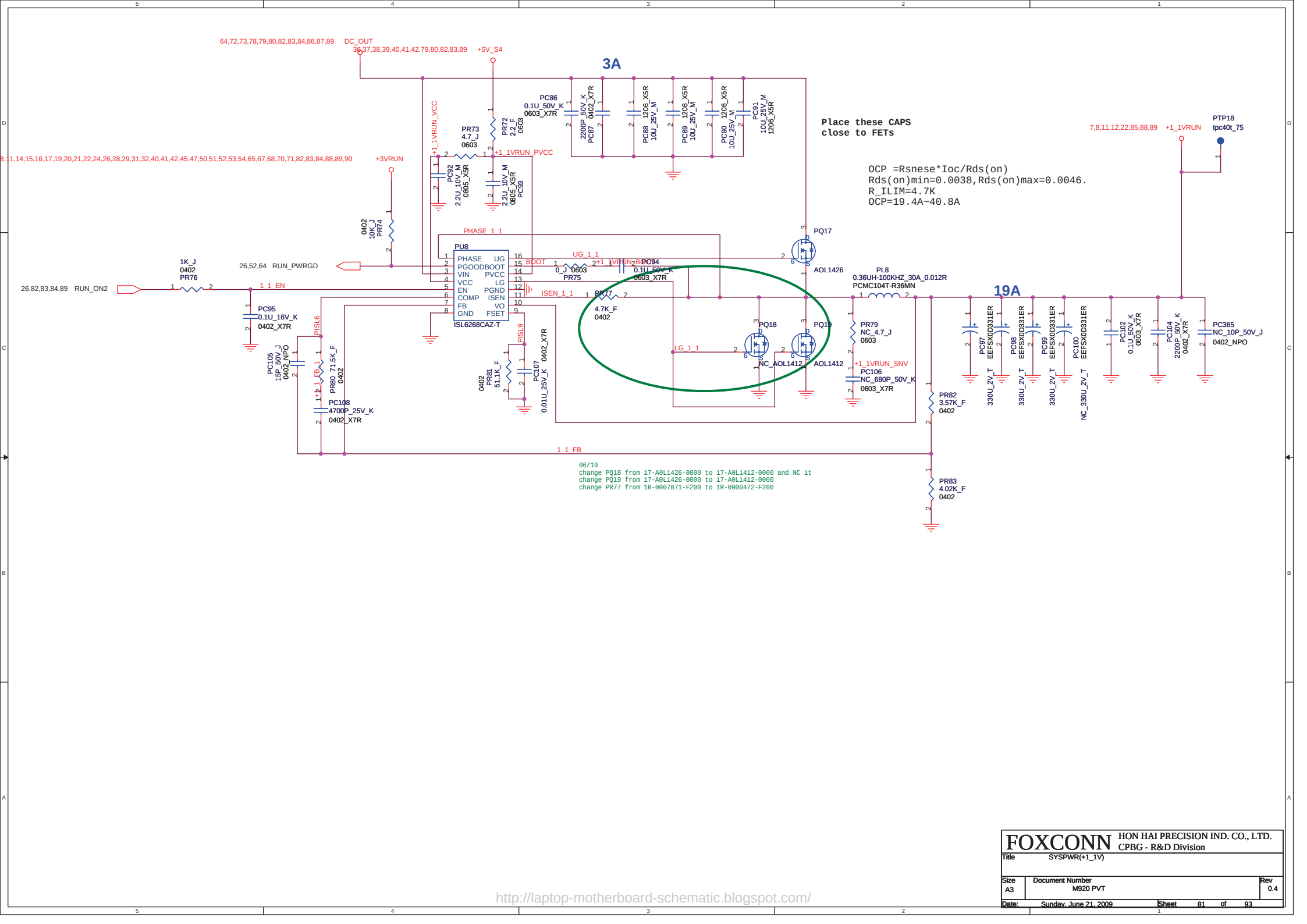

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	SYSPWR(+1_1V)	
Size A3	Document Number M920 PVT	Rev 0.4
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FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title	SYSPWR(+1_2V)	
Size A3	Document Number M920 PVT	Rev 0.4
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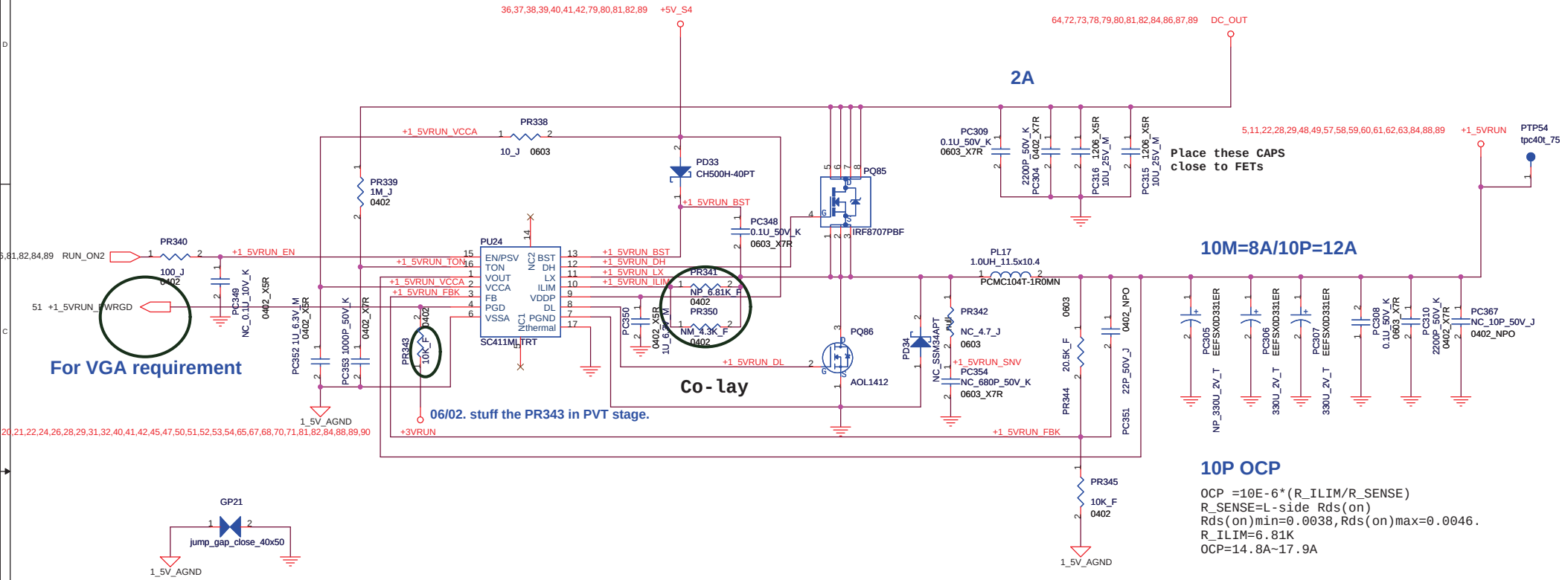

10P OCP

OCP =10E-6*(R_ILIM/R_SENSE)
R_SENSE=L-side Rds(on)
Rds(on)min=0.0038,Rds(on)max=0.0046.
R_ILIM=6.81K
OCP=14.8A~17.9A

10M OCP

OCP =10E-6*(R_ILIM/R_SENSE)
R_SENSE=L-side Rds(on)
Rds(on)min=0.0038,Rds(on)max=0.0046.
R_ILIM=4.3K
OCP=9.35A~11.32A

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	SYSPWR(+1_5V)	
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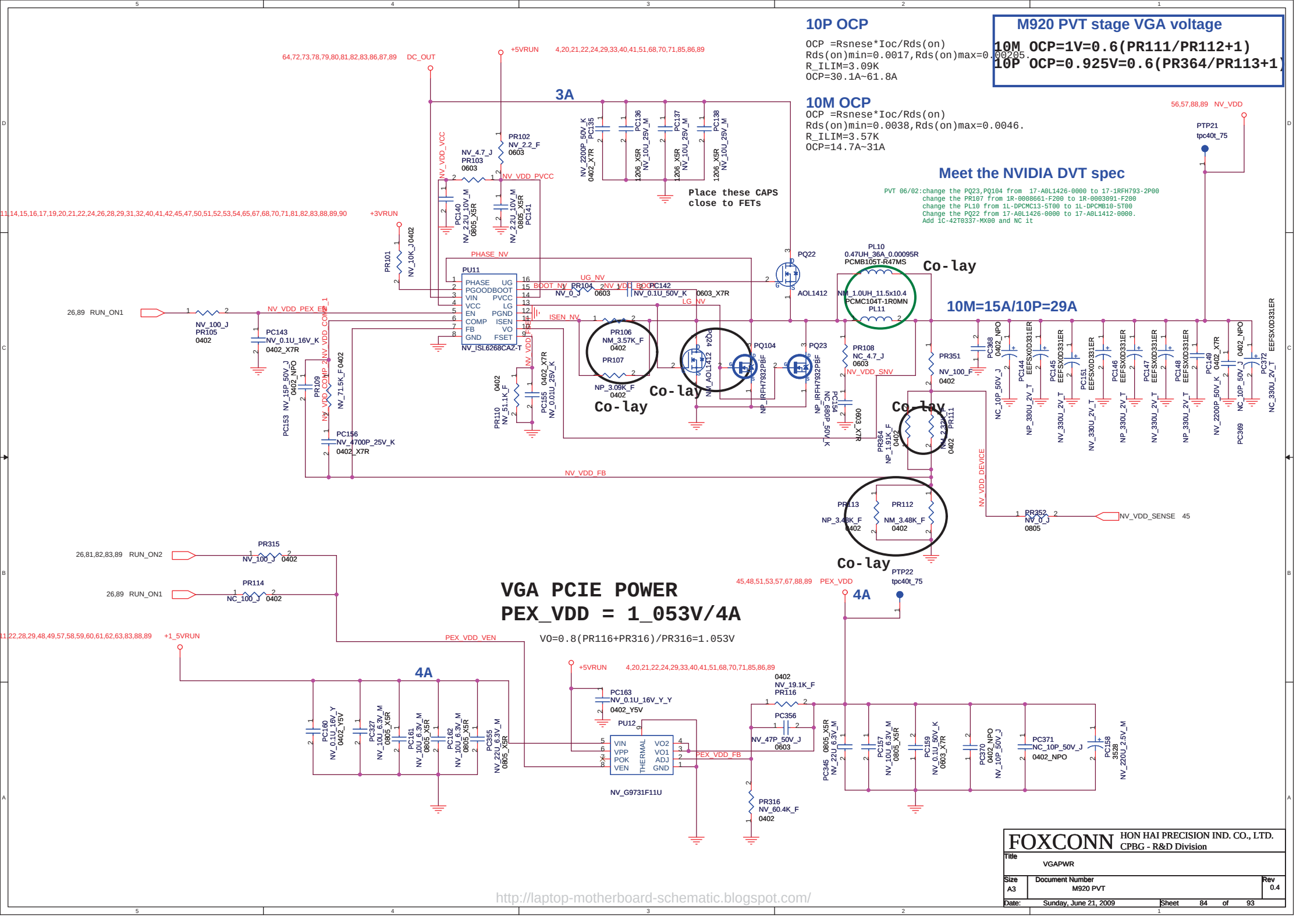
10P OCP
OCP =Rsnese*Ioc/Rds(on)
Rds(on)min=0.0017,Rds(on)max=0.00205.
R_ILIM=3.09K
OCP=30.1A~61.8A
M920 PVT stage VGA voltage
10M OCP=1V=0.6(PR111/PR112+1)
10P OCP=0.925V=0.6(PR364/PR113+1)
10M OCP
OCP =Rsnese*Ioc/Rds(on)
Rds(on)min=0.0038,Rds(on)max=0.0046.
R_ILIM=3.57K
OCP=14.7A~31A
Meet the NVIDIA DVT spec
PVT 06/02:change the PQ23,PQ104 from 17-A0L1426-0000 to 17-1RFH793-2P00
change the PR107 from 1R-0008661-F200 to 1R-0003091-F200
change the PL10 from 1L-DPCMC13-5T00 to 1L-DPCMB10-5T00
Change the PQ22 from 17-A0L1426-0000 to 17-A0L1412-0000.
Add 1C-42T0337-MX00 and NC it
Place these CAPS close to FETs
3A
4A
4A
10M=15A/10P=29A
Co-lay
Co-lay
Co-lay
Co-lay
Co-lay
VGA PCIE POWER
PEX_VDD = 1_053V/4A
VO=0.8(PR116+PR316)/PR316=1.053V
DC_OUT
+5VRUN
+3VRUN
+1_5VRUN
PEX_VDD
NV_VDD
NV_VDD_SNV
NV_VDD_DEVICE
NV_VDD_FB
NV_VDD_PEX_EN
NV_VDD_COMP
NV_VDD_PVCC
NV_VDD_VCC
NV_VDD_PEX_VEN
NV_VDD_SENSE
PHASE_NV
UG_NV
LG_NV
ISEN_NV
BOOT_NV
RUN_ON1
RUN_ON2
PU11
NV_ISL6268CAZ-T
PU12
NV_G9731F11U
PQ22
PQ23
PQ104
AOL1412
NP_IRFH7932PBF
PL10
0.47UH_36A_0.00095R
PCMB105T-R47MS
PL11
NM_1.0UH_11.5x10.4
PCMC104T-1R0MN
PTP21
tpc40t_75
PTP22
tpc40t_75
PR102
NV_2.2_F
0603
PR103
NV_4.7_J
0603
PR101
NV_10K_J 0402
PR105
NV_100_J
0402
PR106
NM_3.57K_F
0402
PR107
NP_3.09K_F
0402
PR108
NC_4.7_J
0603
PR109
NV_71.5K_F 0402
PR110
NV_51.1K_F
0402
PR111
PR112
NM_3.48K_F
0402
PR113
NP_3.48K_F
0402
PR114
NC_100_J 0402
PR315
NV_100_J 0402
PR316
NV_60.4K_F
0402
PR351
NV_100_F
0402
PR352
NV_0_J
0805
PR364
NP_1.91K_F
0402
PR116
NV_19.1K_F
0402
PC135
NV_2200P_50V_K
0402_X7R
PC136
NV_10U_25V_M
1206_X5R
PC137
NV_10U_25V_M
1206_X5R
PC138
NV_10U_25V_M
1206_X5R
PC140
NV_2.2U_10V_M
0805_X5R
PC141
NV_2.2U_10V_M
0805_X5R
PC142
NV_0.1U_50V_K
0603_X7R
PC143
NV_0.1U_16V_K
0402_X7R
PC144
EEFSXOD331ER
PC145
EEFSXOD331ER
PC146
EEFSXOD331ER
PC147
EEFSXOD331ER
PC148
EEFSXOD331ER
PC149
0402_X7R
PC151
EEFSXOD331ER
PC153
NV_15P_50V_J
0402_NPO
PC154
NC_680P_50V_K
0603_X7R
PC155
NV_0.01U_25V_K
0402_X7R
PC156
NV_4700P_25V_K
0402_X7R
PC160
NV_0.1U_16V_Y
0402_Y5V
PC161
NV_10U_6.3V_M
0805_X5R
PC162
NV_10U_6.3V_M
0805_X5R
PC163
NV_0.1U_16V_Y_Y
0402_Y5V
PC327
NV_10U_6.3V_M
0805_X5R
PC335
NV_22U_6.3V_M
0805_X5R
PC345
NV_22U_6.3V_M
0805_X5R
PC356
NV_47P_50V_J
0603
PC368
NC_10P_50V_J
0402_NPO
PC369
NC_10P_50V_J
0402_NPO
PC370
NV_10P_50V_J
0402_NPO
PC371
NC_10P_50V_J
0402_NPO
PC372
NC_330U_2V_T
EEFSXOD331ER
PC157
NV_10U_6.3V_M
0805_X5R
PC158
3528
NV_220U_2.5V_M
PC159
NV_0.1U_50V_K
0603_X7R
NP_330U_2V_T
NV_330U_2V_T
NV_2200P_50V_K
0402_X7R
VIN
VPP
POK
VEN
THERMAL
VO2
VO1
ADJ
GND
PEX_VDD_FB
PEX_VDD_VEN
64,72,73,78,79,80,81,82,83,86,87,89
4,20,21,22,24,29,33,40,41,51,68,70,71,85,86,89
11,14,15,16,17,19,20,21,22,24,26,28,29,31,32,40,41,42,45,47,50,51,52,53,54,65,67,68,70,71,81,82,83,88,89,90
56,57,88,89
26,89
26,81,82,83,89
11,22,28,29,48,49,57,58,59,60,61,62,63,83,88,89
45,48,51,53,57,67,88,89
NV_VDD_SENSE 45
FOXCONN
HON HAI PRECISION IND. CO., LTD.
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Title
VGAPWR
Size
A3
Document Number
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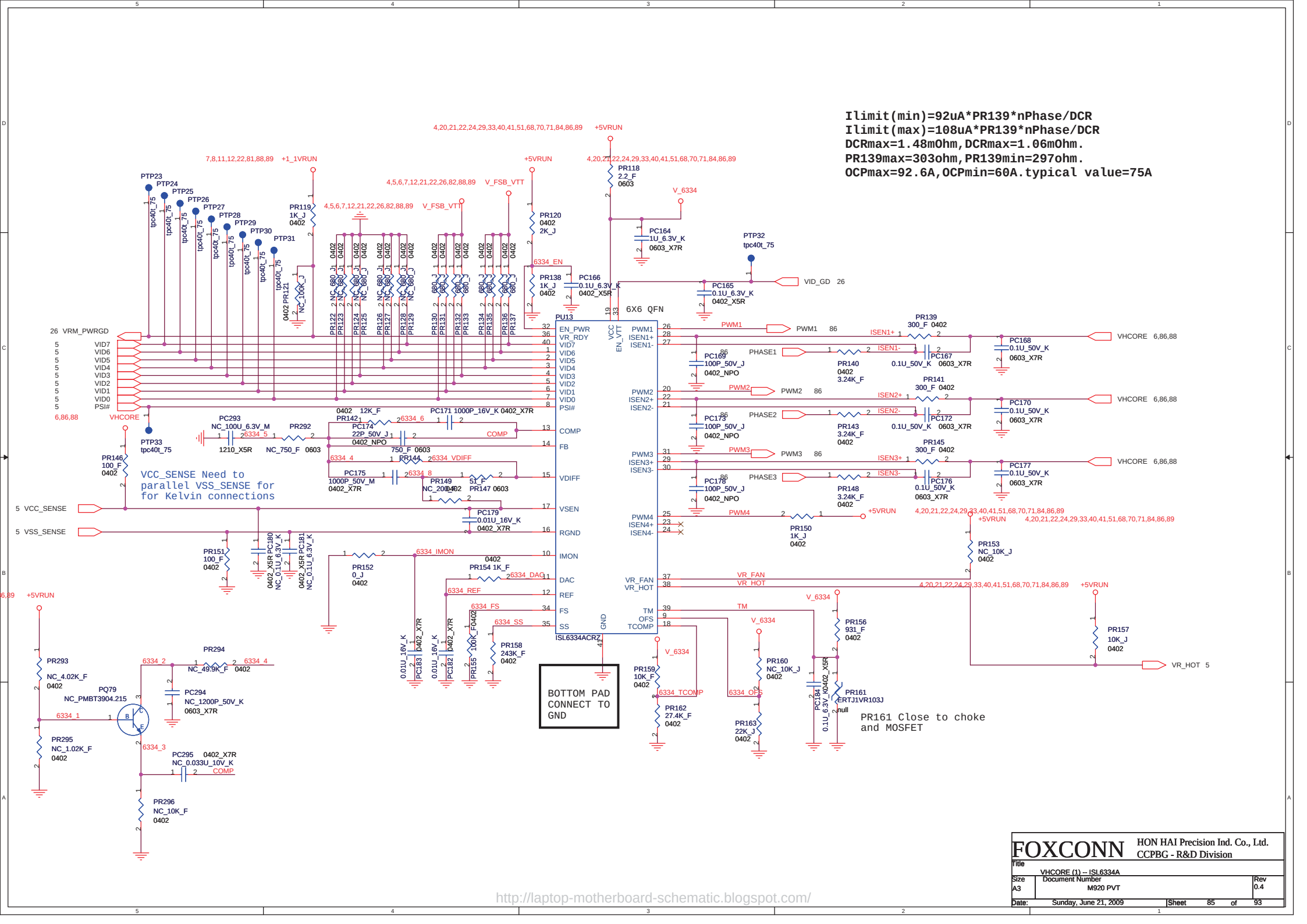
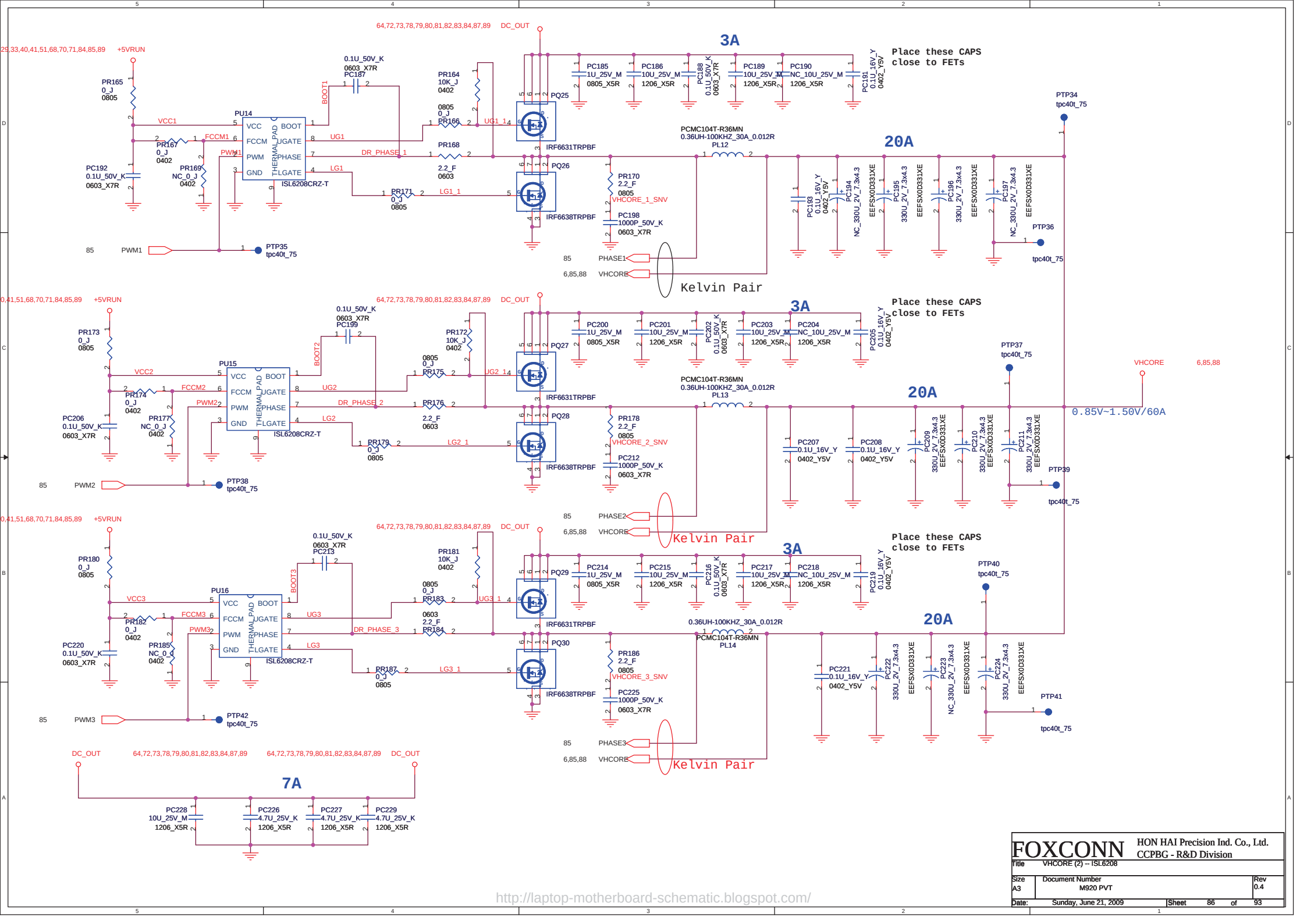
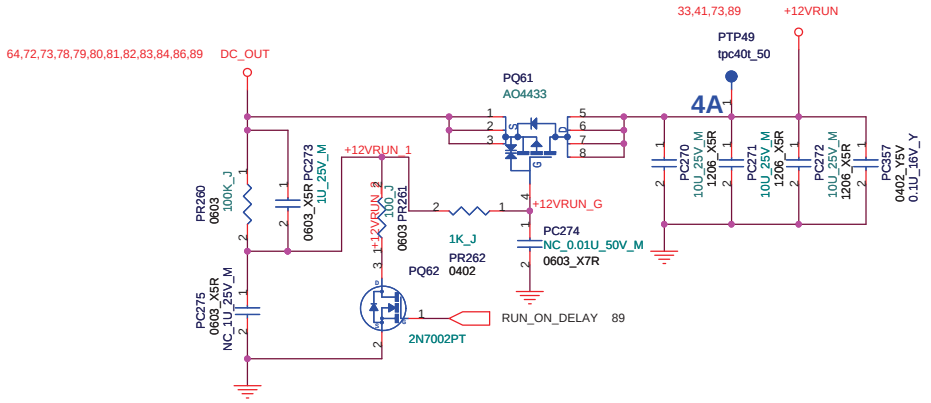

Ilimit(min)=92uA*PR139*nPhase/DCR
Ilimit(max)=108uA*PR139*nPhase/DCR
DCRmax=1.48mOhm,DCRmax=1.06mOhm.
PR139max=303ohm,PR139min=297ohm.
OCPmax=92.6A,OCPmin=60A.typical value=75A
6X6 QFN
ISL6334ACRZ
VCC_SENSE Need to parallel VSS_SENSE for for Kelvin connections
BOTTOM PAD CONNECT TO GND
PR161 Close to choke and MOSFET
VHCORE (1) -- ISL6334A
M920 PVT
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Sunday, June 21, 2009
http://laptop-motherboard-schematic.blogspot.com/





FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	HDD PWR(+12V)	
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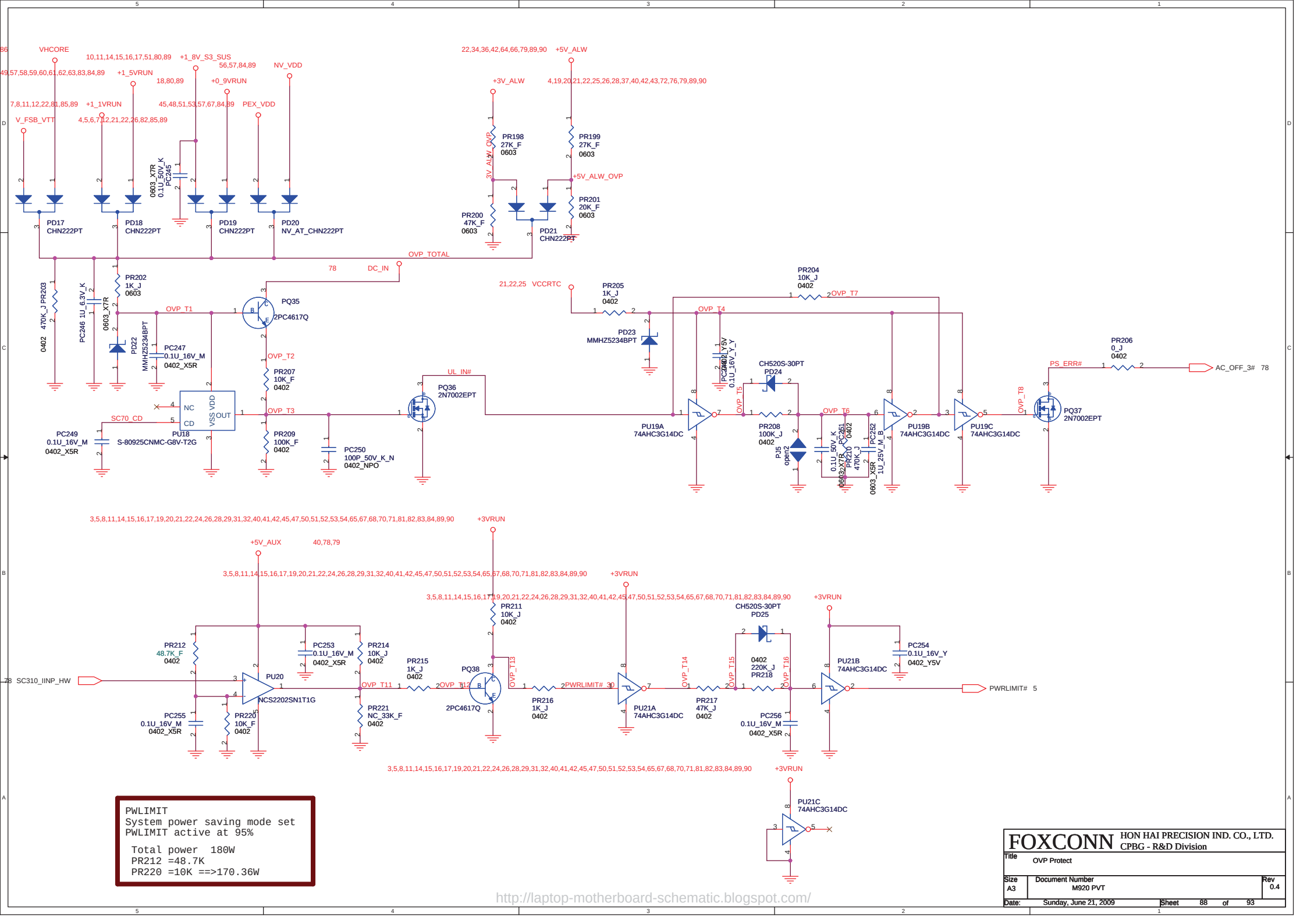
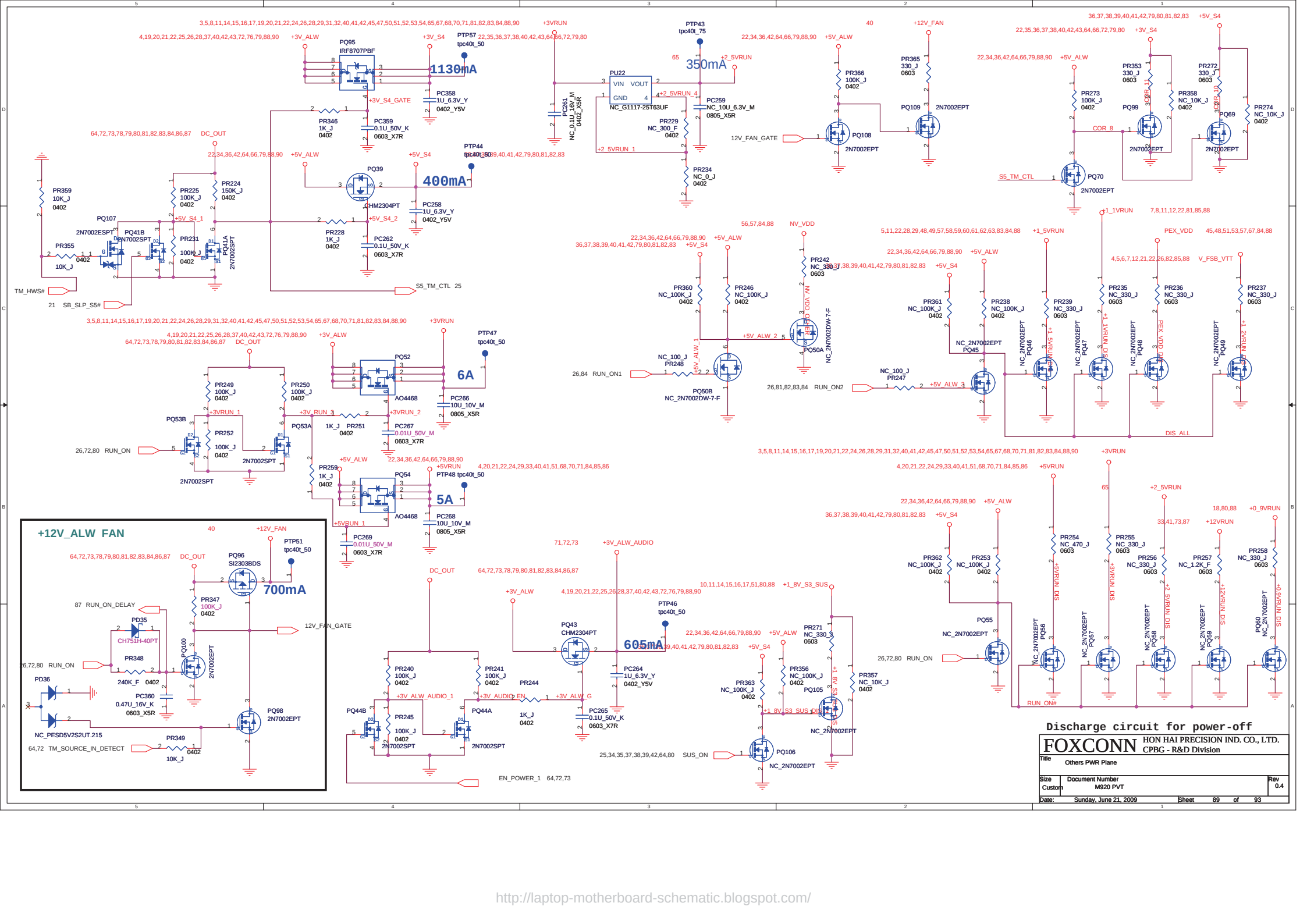
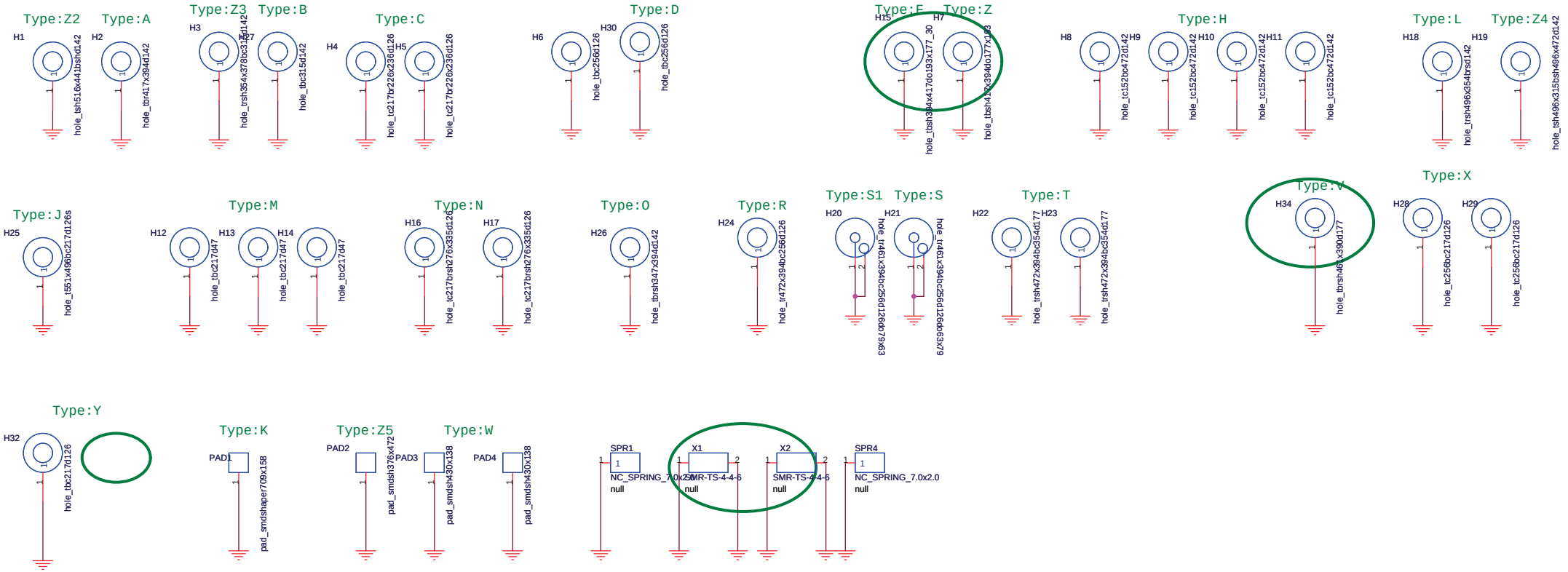
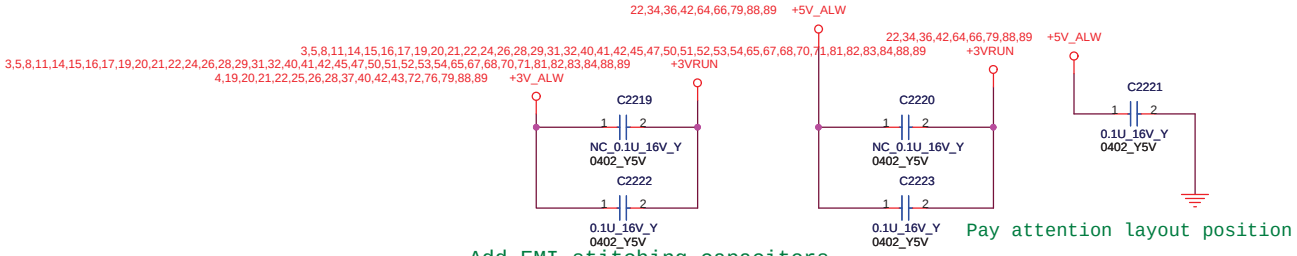






06/17 Change H15,H34 and H7 PAD Type for ME request
ADD X1,X2 and Delete SPR2 and SPR3 for EMI and ME Request
06/20 Delete H35 for ME Request.



Add EMI stitching capacitors

Pay attention layout position

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Title: HOLE&BOSS&EMI

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M920 Change History
DVT stage

04/08
EE Portion:
Page 3, Change C1832 from 27pf to 30pf according to crystall match test
Page 19, Stuff external SPI BIOS MB_FLASH_EN circuit for MOR request, this circuit will delete from PVT stage.
Page 25, Change RSMRST# timing circuit the same as EVT1 circuit for MOR suggest.
Page 29 Delete Debug component R492,R1994,C356,C357,C358,C359,C360,C361,C1342,
Page 26, Change VRMPWRGD delay circuit ,change net ' ICH_VRMPWRGD' to ' VRM_PWRGD_U' for EVT2 schematic mistake
Audio Portion:
Page 72 Change cap21,cap22 from 1000u to 470u, Add CAP37,CAP38 470u at Power +8vAMP , Del NC_R1057,NC_R1058 and connected net
Page 73 and Page 75 change CN77 and CN79 from 2N-0006006-FKG0 to 2N-0006000-FKX0
Page 74 change CN84 from 2N-0006002-FRG0 to 2N-0006000-FRX0
Page 73&74&75 Add H_GND,M_GND and L_GND for EMI request
Page 73&74&75 Add C2288,C2289,C2290 470p CAP between H_GND and A_GND,M_GND and A_GND,L_GND and A_GND for EMI request
Power Portion:
Page 81 change the PQ17 from 17-A044680-0000 to 17-A0L1426-0000. for costdown failure item.
Page 84 change the PQ22 from 17-A044680-0000 to 17-A0L1426-0000. for costdown failure item.
Page 79 change the PR41 from 1R-0001432-F200 to 1R-0001372-F200. Meet the VEDS spec.

04/13
EE Portion:
Page 39 Delete R1396
Page 34 ME reqest change USB connector CN26,CN27 color from gary to black,change PN from 2N-0004009-FEG0 to 2N-0004008-FEG0
Page 90 For EMI Request,Mount SPR2 and SPR3
Page 29 For EMI Request add GP22,GP23 between TV_GND and GND

Audio Portion:
Page 76 Delete NC_R1175 for no use
Page 72 Add 1 pcs 0.1U cap and mount C1088,C1079 cap for EMI request.

04/15
EE Portion:
Page 14 Change R209,R208 from 1R-0000102-F200 to 1R-0000102-D200 for improve the VREF margin
Page 16 Change R217,R218 from 1R-0000102-F200 to 1R-0000102-D200 for improve the VREF margin
Page 42 NC R2047,LED3 For MOR request

04/16
Power Portion:
Page 81 Change the PR77 from 1R-0000822-F200 to 1R-0007871-F200
Page 84 Change the PR112 from 1R-0004641-F200 to 1R-0003481-F200
Change the PR113 from 1R-0004641-F200 to 1R-0003481-F200
Change the PR364 from 1R-0002321-F200 to 1R-0001911-F200
Change the PR106 from 1R-0003091-F200 to 1R-0003571-F200
Page 85 For Vcore intel spec change as below:
Change the PR144 from 1R-0008250-F300 to 1R-0000751-F300
Change the PR140,PR143,PR148 from 1R-0000472-F200 to 1R-0003241-F201
Change the PR142 from 1R-0000203-F200 to 1R-0000123-F200
Change the PC175 from 1C-2B20681-K000 to 1C-2N20102-J600
Change the PR147 from 1R-0000201-F200 to 1R-0000510-F300

Page 86 Change the PC194 from 1C-42T0337-MX02 to NC
Change the PC197 from 1C-42T0337-MX02 to NC
Change the PC223 from 1C-42T0337-MX02 to NC
Change the PR182 from NC to 1R-0000000-J200
Change the PR185 from 1R-0000000-J200 to NC
Change the PR174 from NC to 1R-0000000-J200
Change the PR177 from 1R-0000000-J200 to NC
Change the PR167 from NC to 1R-0000000-J200
Change the PR169 from 1R-0000000-J200 to NC

04/17
EE Portion:
Page 20 Stuff for MOR request ,it will be NC at PVT stage.
Page 35 Delete CN89,R2061,R2062 ,2042,2043for desgin change.This connector and resister is no use .
Page 36 Delete R577,C2128,IR_BLASTER for MOR reconment.
Page 29 Delete R2092 ,R2093 and net VIDEO_COMP1 because AV IN board be canceled
Page 30 Delete all AV_IN function for MOR request
Page 42 Add TP594 For L6 TEST

Audio Portion:
Page 72 change C1100,C1101,C2291 from 0.1U cap to 0.01u cap for MOR request.
change C1088,C1079 ,C1089,C1099 to 470p cap for mor request, and mount C1089,C1099.

04/18
EE Portion:
Page 42 Stuff R2086 and R2105 ,NC R2104 and R2106 for MOR request

04/19
Power Portion:
Page 83 change the PQ86 from 17-1RF8714-PB00 to 17-A0L1412-0000
change the PR341 from 1R-0000183-F200 to 1R-0006811-F200
change the pr350 from 1R-0001372-F200 to 1R-0000432-F200
Page 84.change the pc144 from NC to stuff
change the pc146 from NC to stuff
Page 89 add the 12V_fan discharge circuit.

04/20
EE Portion:
Page 29 Change AV_IN_GND TO TV_GND due to AV_IN/IR Function have been canceled.
Page 40 NC CN37,C523,C497 for thermal suggest

PVT stage
06/02
Power Portion:
Page 79 Change the PQ13 from 17-1RF8714-PB00 to 17-A0L1426-0000. Meet the VEDS spec.
Page 83. Stuff the PR343 (1R-0000103-F200)in PVT stage.for VGA requirement
Page 84 Change the PQ23,PQ104 from 17-A0L1426-0000 to 17-1RFH793-2P00
Change the PR107 from 1R-0008661-F200 to 1R-0003091-F200
Change the PL10 from 1L-DPCMC13-5T00 to 1L-DPCMB10-5T00
Change the PQ22 from 17-A0L1426-0000 to 17-A0L1412-0000.
Add 1C-42T0337-MX00 and NC it .for NVIDIA requirement in PVT stage.

EE Portion:
Page 32 Change CN50 From 1N-1014000-0000 to 1N-1014002-0000 For vendor change material.
Page 36 Add R2111 1K to pull up for Tiramisu suggestion
Page 29 Delete CN69,R1847,R1957,R1958,R1959,R1960,R1961.

Audio Portion:
Page 73 Delete C2287, add Cap39 The cap for audio in circuit debug and mor request
Chang C2022,C2023,C2026,C2027 from 1C-2Y30225-Y000 to 1C-2B30475-K100 for DVT ECN

06/10
EE Portion: Page 20 Add R2118,R2119 and Q185 this portion circuit for system leakgea issue
Page 36 NC R1891 and R700,the TM_RX_CN not use
Page 20 NC CN5,we will use GPIO24 to contorl FLASH_STRAP_SB
Page 19 NC R264,R265,Q9 Confirmed with our SW members, we don't use this function, so we can delete it.
Page 42 NC R680,R679 and SW3 for PVT/MP do not use CRT
Page 29 Change L17 from 1L-BT11608-0800 to 1L-BACMS16-080A for power consumption
Page 27 Change CN9 from 2N-000800F-FKN0 to 2N-0008001-FKN0 for package changed

06/15
EE Portion: Page 19 Add R2120 to boot the pc from external spi card or internal spi rom
Page 27 Change C2161 From 1C-2B20104-K000 to 1C-2N20050-D000 for EMI Request

06/17
Audio Portion: Page 71 Change R1271,R1272 From 1R-0000472-J200 to 1R-0000222-J200 for tiramisu I'C bus test
Power Portion:
1.Page 79. Change the PR55 from 1R-0000563-F200 to 1R-0000563-D200
Change the PR56 from 1R-0000103-F200 to 1R-0000103-D200 Meet the Camera voltage spec.
2.Page 81 and Page 84,change the power budget value.

EE Portion: Page 40 Add +3VALW as another power source for SMSC VCC
Page 41 Add C2295 on Fan3 Tach for EMI request.
Page 36 NC R2111 pull up resistor,because IR receiver have internal pull up.
Page 90 Change H15,H34 and H7 PAD Type for ME request
Page 90 ADD X1,X2 and Delete SPR2 and SPR3 for EMI and ME Request

06/19
Power Portion:
Page 81. change PQ18 from 17-A0L1426-0000 to 17-A0L1412-0000 and NC it
change PQ19 from 17-A0L1426-0000 to 17-A0L1412-0000
change PR77 from 1R-0007871-F200 to 1R-0000472-F200

EE Portion: Page 27 Change C315 and C316 from 1C-2N20150-J000 to 1C-2N20330-J000 for crystal test result
Page 31 Change R1340 and R1341 from 10K_J to 4.7K_J for Vendor suggestion
06/21
EE Portion:
Page 41 Use GPIO solution for QST Fan spin-up noise issue(Mount Q177,Q178,Q179,R2101,R2081,R2099, R2102,R2082,R2100,R2103,R2080,R2098, NC R2070,R2078,R2071,R2079,R2077)
Page 41 Mount R2063 (GPIO 7 need to pull low)
Page 40 Mount R1800 (GPIO 19 need to pull low)
Page 20 NC R295,R276 (GPIO19 ,GPIO7 need to pull low)

Power Portion:Page 78 Reserve PC373,PC374,PC375,PC376,PC377,PC378,PC379 for Vcore Noise

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