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43	AUDIO(CODEC & POWER)	1.0	06'07'12
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51	PCI (PCMCIA)	1.0	06'07'12
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59	DDR2 Power(+1_8V/+0_9V)	1.0	06'07'12
60	CPU_Vcore ---MAX8771	1.0	06'07'12
61	Others power plan	1.0	06'07'12
62	OVP protection	1.0	06'07'12
63	VGA POWER(+1_1V/ +1_2V)	1.0	06'07'12
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65	HOLE	1.0	06'07'12
66	History (1)	1.0	06'07'12
67	History (2)	1.0	06'07'12

P. Leader	Check by	Design by

Project Code & Schematics Subject: MS13 Main Board

PCB P/N: 1P-0067100-8M11(FUBAI)
1P-0067200-8M11(NAN YA)
1P-0067500-8M11(HANSTAR)

FOXCONN HON HAI Precision Ind. Co., Ltd.
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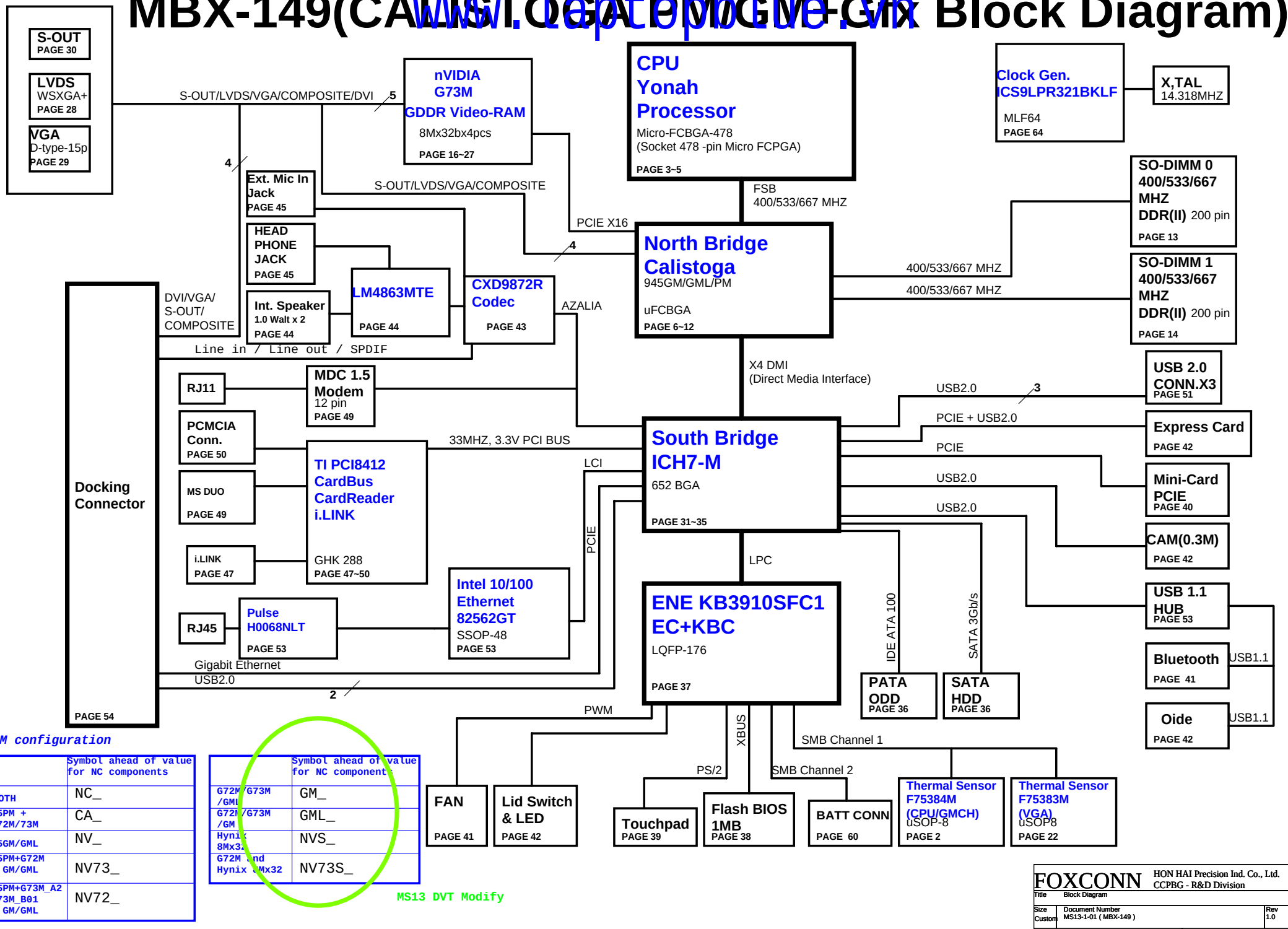
MBX-149(CALISTOGA+M73M-Gfx Block Diagram)



BOM configuration

	Symbol ahead of value for NC components
BOTH	NC_
945PM + NV72M/73M	CA_
945GM/GML	NV_
945PM+G72M or GM/GML	NV73_
945PM+G73M_A2 /G73M_B01 or GM/GML	NV72_

	Symbol ahead of value for NC components
G72M /G73M /GML	GM_
G72M /G73M /GM	GML_
Hynix 8Mx32	NVS_
G72M and Hynix 8Mx32	NV73S_

MS13 DVT Modify

FOXCONN HON HAI Precision Ind. Co., Ltd.
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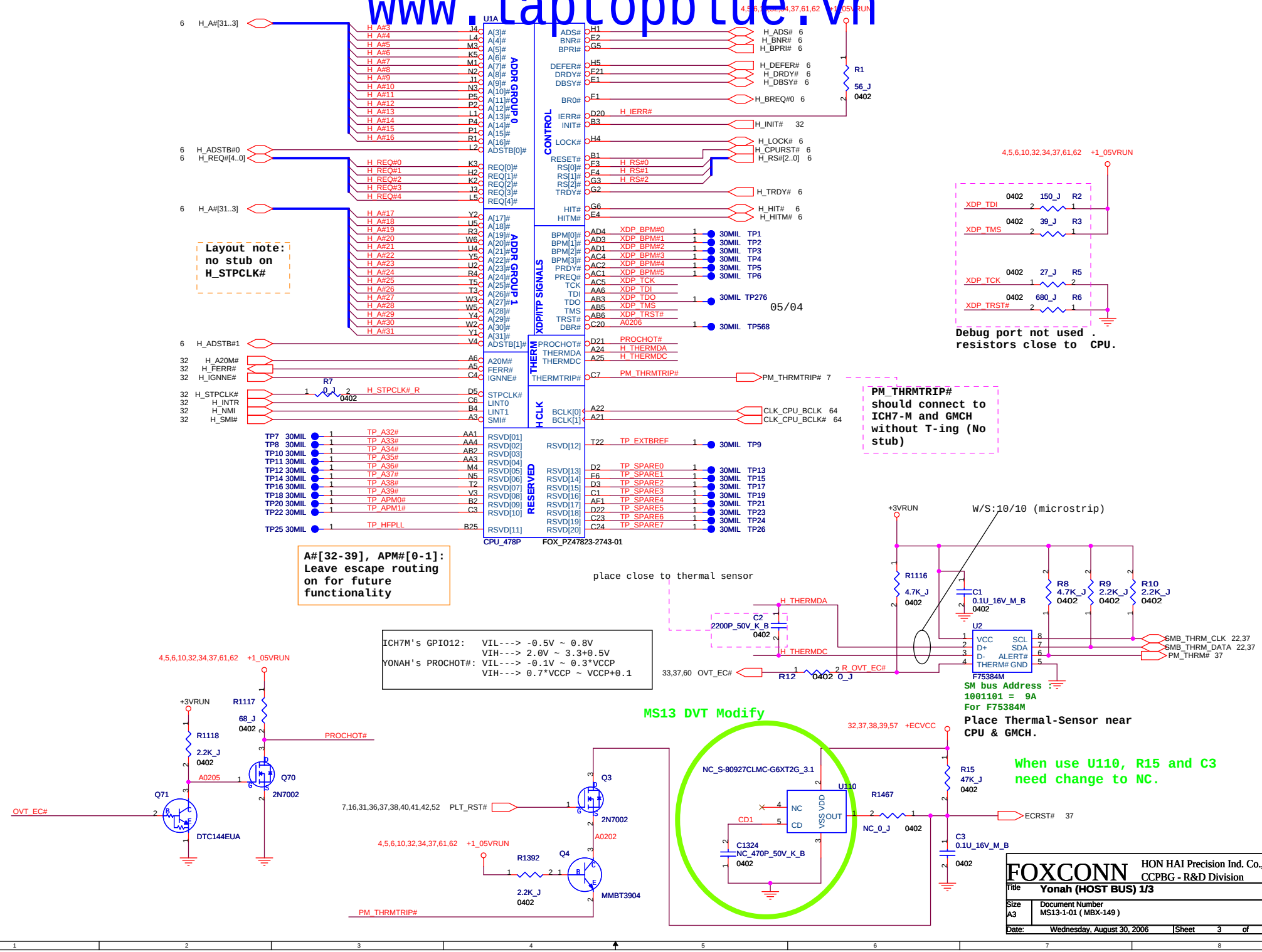

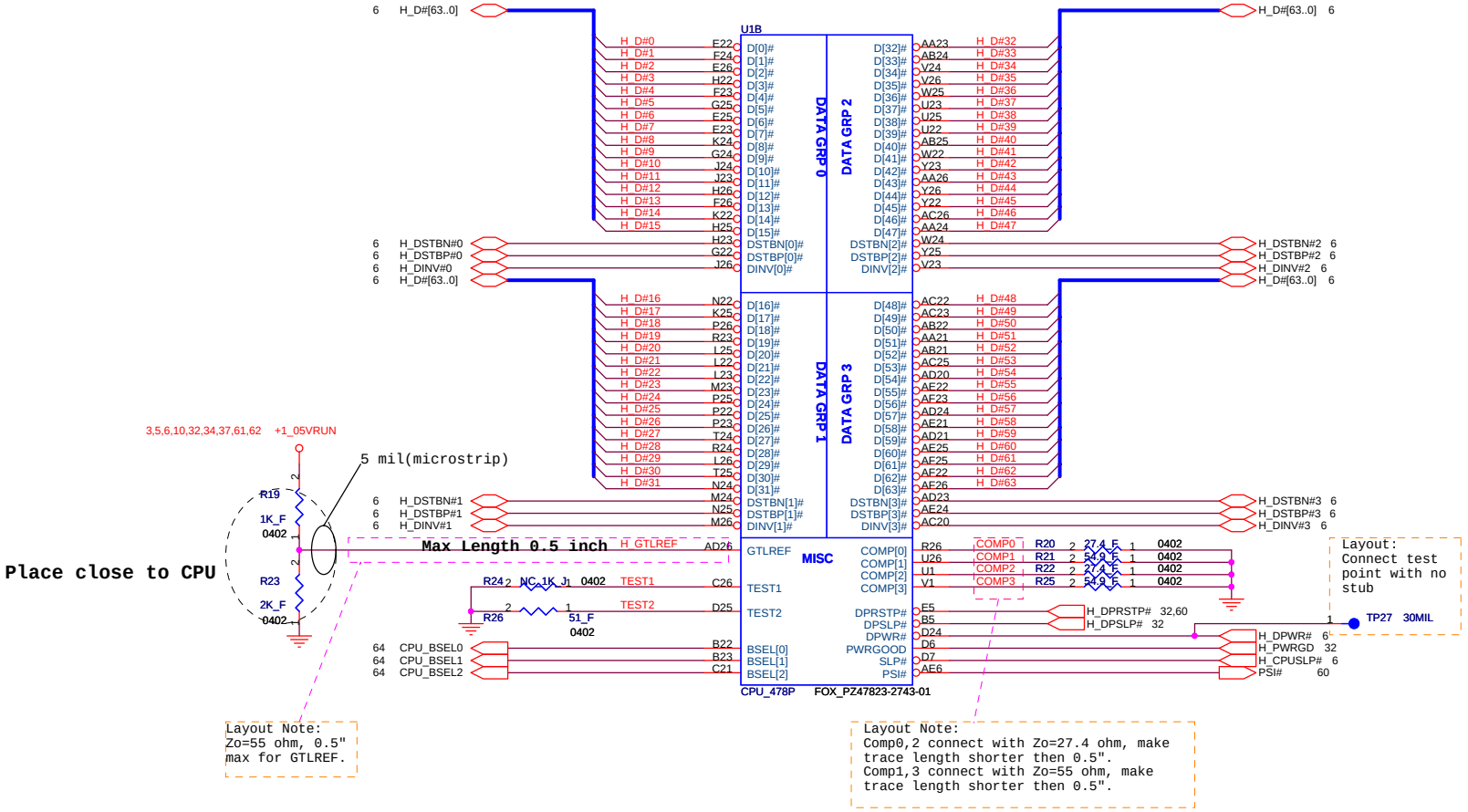

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
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CPU_VCCA---->120mA
CPU_VCCP----->2.5A
CPU_VCC------>44A

MS13 DVT Modify

10uF *32 instead of 22uF*20 for 22uF_6.3V_0805 shortage

Same Length

Layout Note: Route VCCSENSE traces at 27.4 Ohms with 50 mil spacing. Place PU and PD within 1 inch of cpu.

width=18 mil
spacing=7 mil

LAYOUT NOTE: Place 0.01uF near PIN B26

PU & PD avoid to route with stub

100 mil

20 mil

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	Yonah (POWER/GROUND) 3/3		
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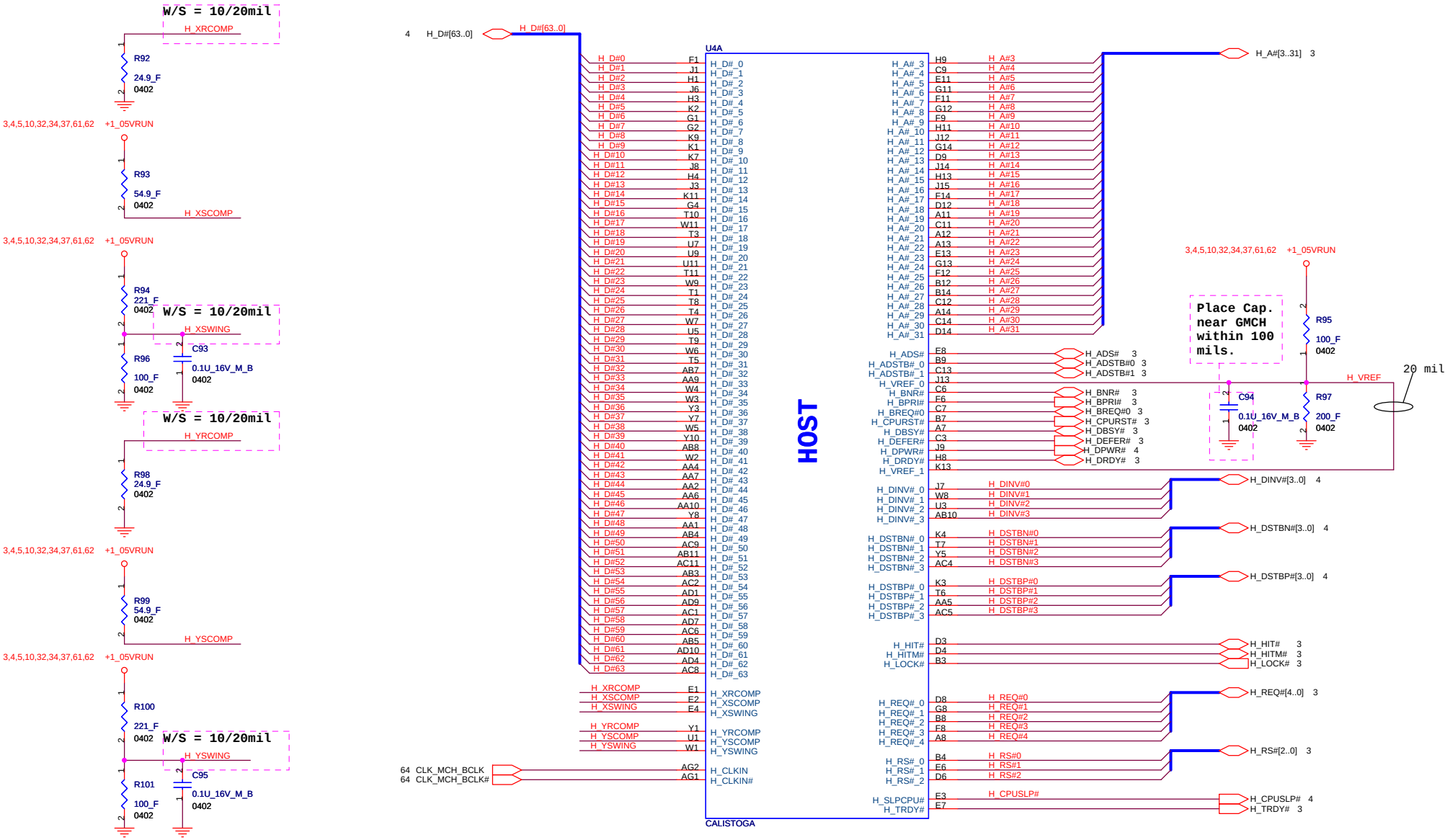

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	CALISTOGA (HOST) 1 of 7		
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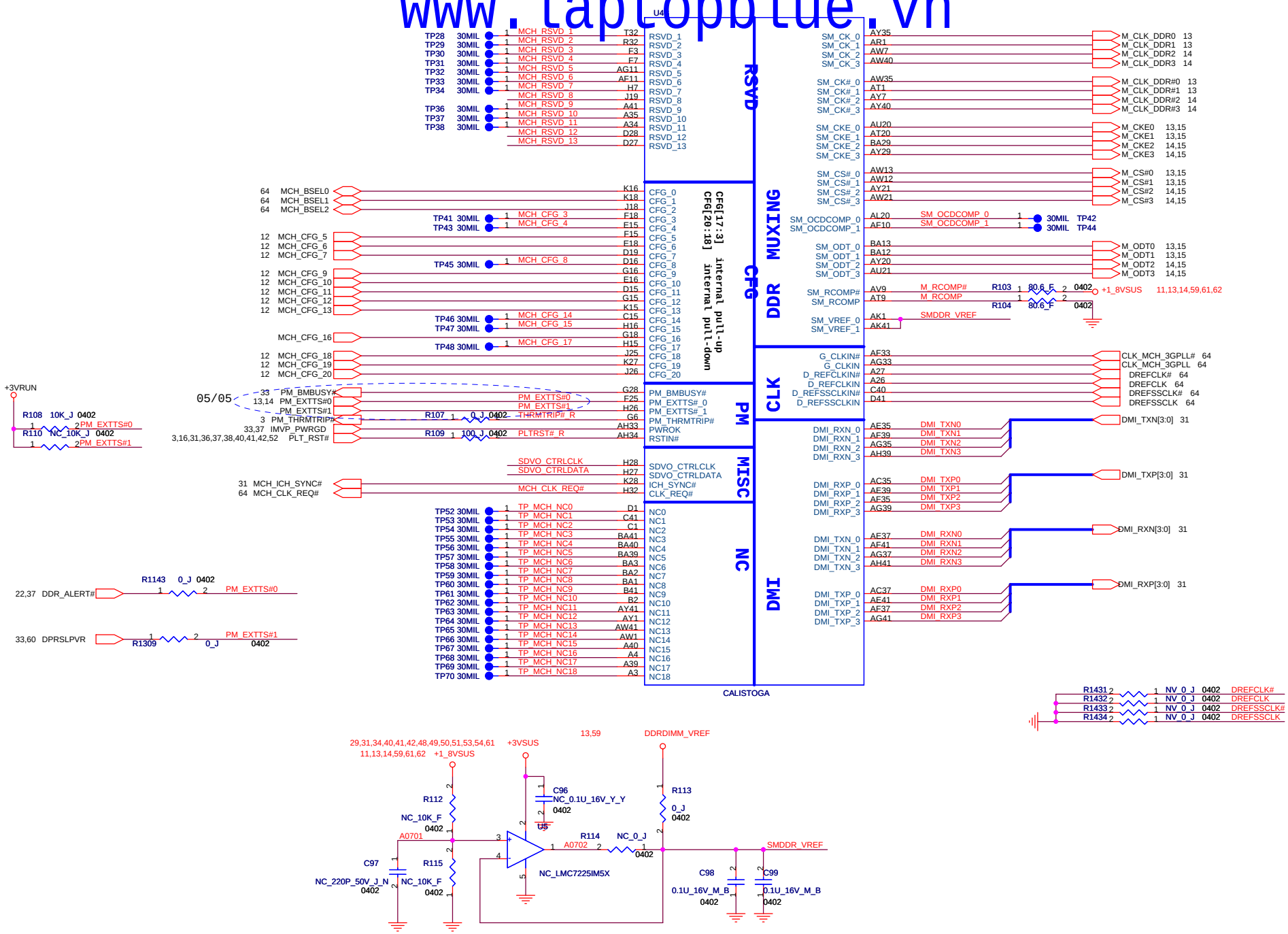

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	CALISTOGA (DMI) 2 of 7	
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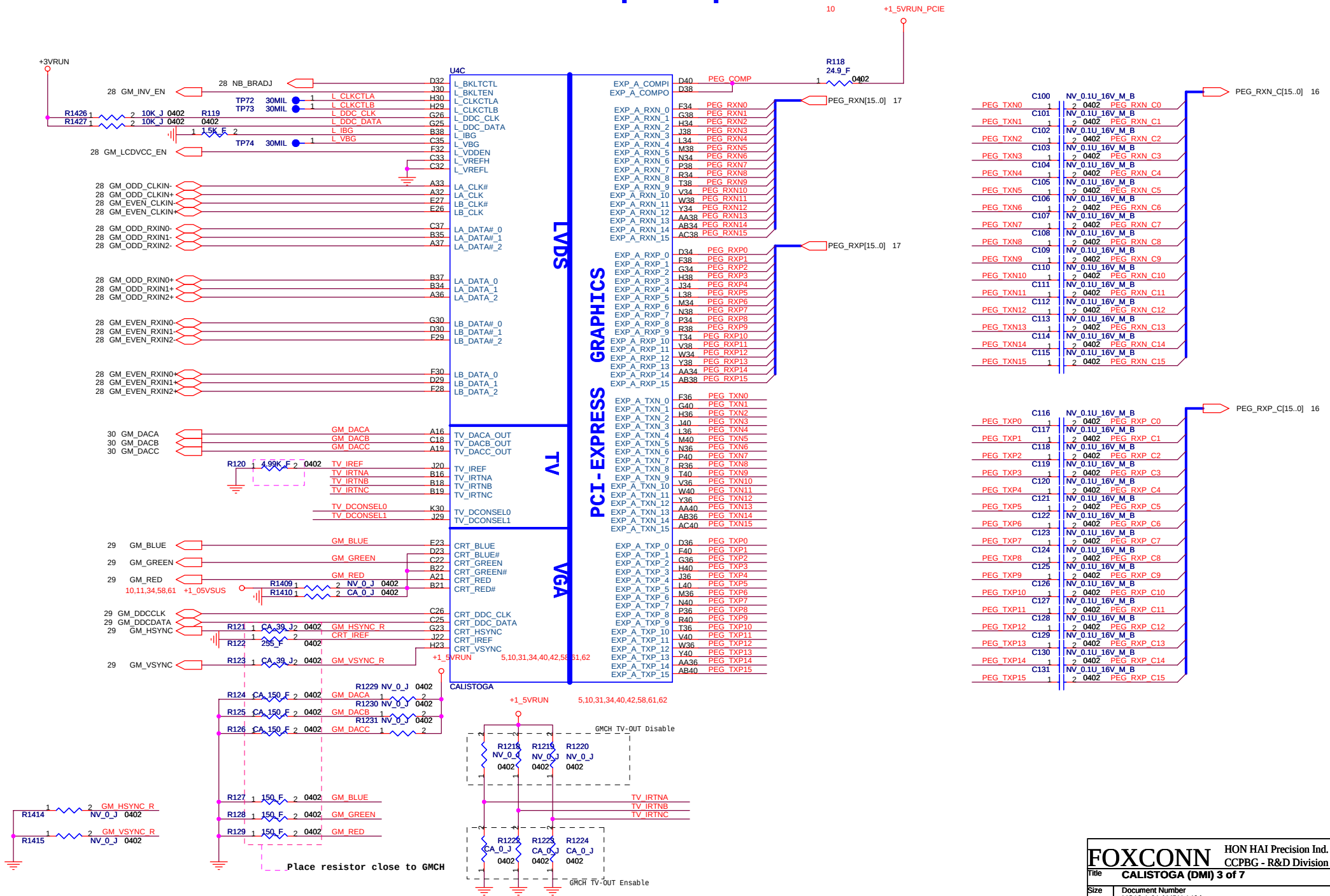

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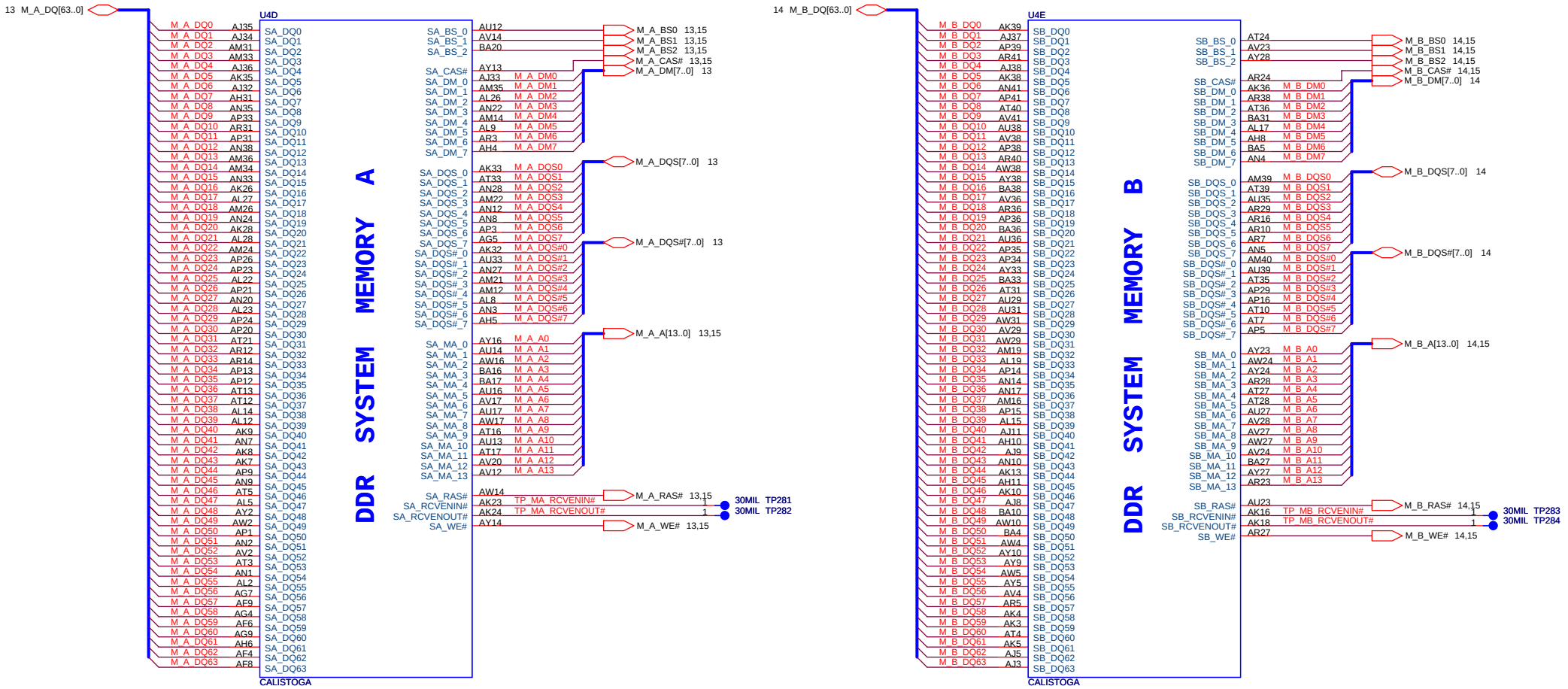

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Title	CALISTOGA (DDRII) 4 of 7	
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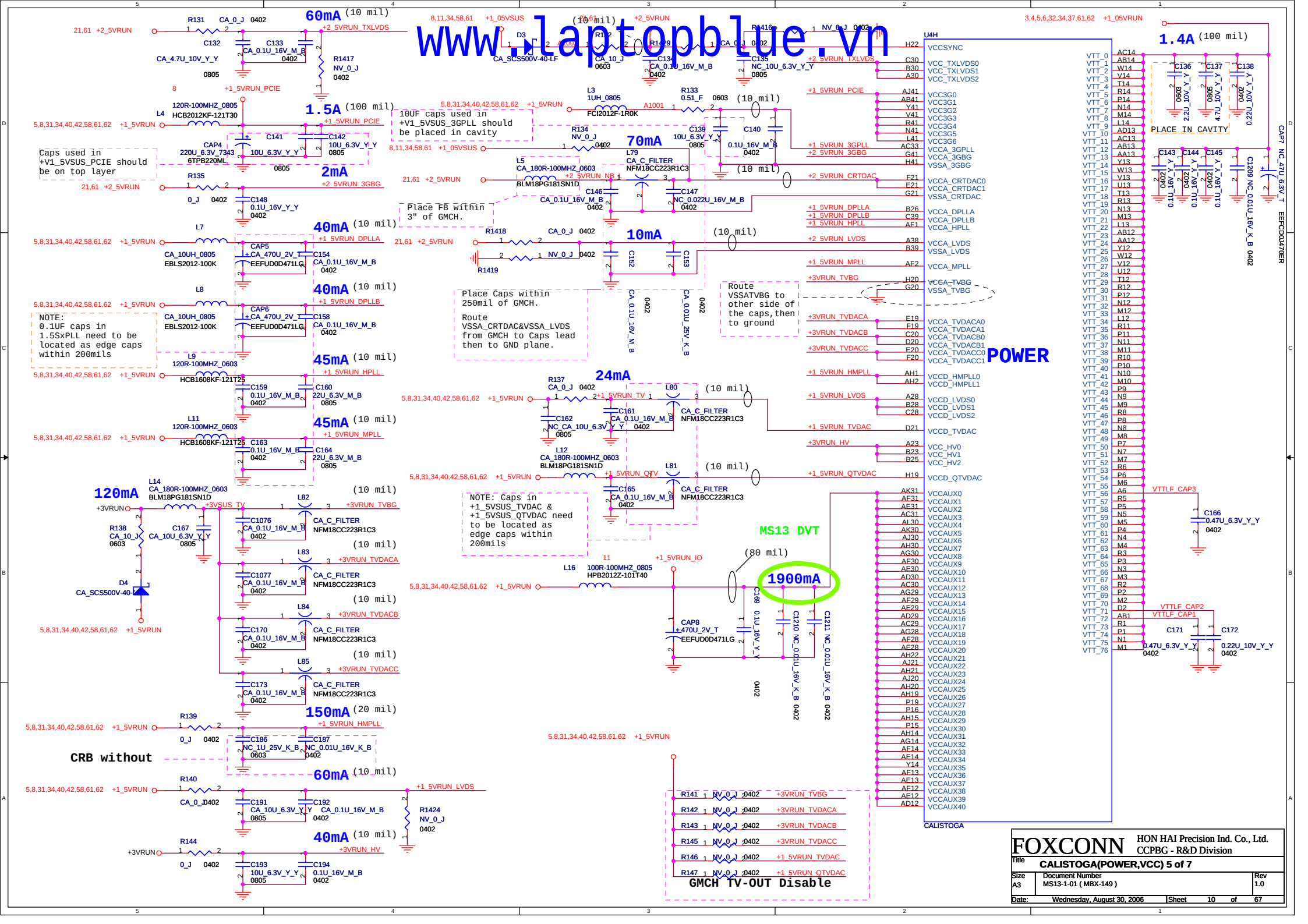
www.laptopblue.vn
60mA (10 mil)
1.5A (100 mil)
2mA
40mA (10 mil)
40mA (10 mil)
45mA (10 mil)
45mA (10 mil)
120mA
150mA (20 mil)
60mA (10 mil)
40mA (10 mil)
70mA
10mA
24mA
1.4A (100 mil)
1900mA
MS13 DVT
CRB without
GMCH TV-OUT Disable
POWER
CALISTOGA
FOXCONN
HON HAI Precision Ind. Co., Ltd.
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CALISTOGA(POWER,VCC) 5 of 7
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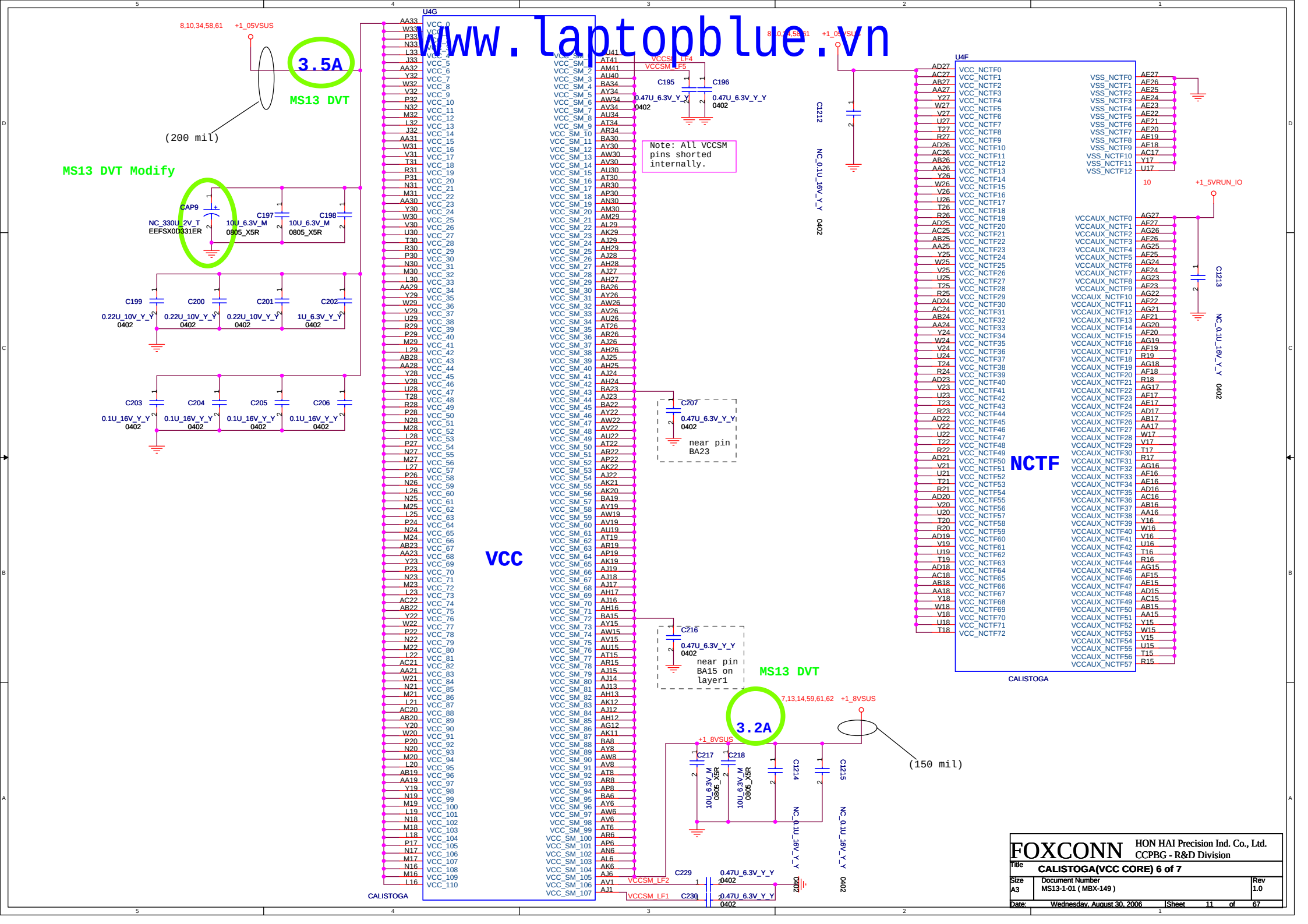

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Title	CALISTOGA(VCC CORE) 6 of 7	
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7 MCH_CFG_5 — 30MIL TP554

MCH_CFG_5	Low = DMIx2 High = DMIx4

7 MCH_CFG_6 — 30MIL TP556

MCH_CFG_6	Low = Moby Dick High = Calistoga

DDR2 select (default high)

7 MCH_CFG_7 — 30MIL TP557

MCH_CFG_7 (CPU Strap)	Low = RSVD High = Mobile Yonah processor

7 MCH_CFG_9 — 30MIL TP559

MCH_CFG_9 (PCIE Graphics Lane)	Low = Reverse Lane High = Normal operation

For layout convenience

7 MCH_CFG_10 — 30MIL TP560

MCH_CFG_10 (HOST PLL VCC SELECT)	Low = RESERVED High = MOBILITY

7 MCH_CFG_11 — R162 NC_2.2K_J 0402

MCH_CFG_11 (PSB 4x CLK ENABLE)	Low = Calistoga High = Reserved

7 MCH_CFG_12 — 30MIL TP562
7 MCH_CFG_13 — 30MIL TP563

MCH_CFG_[13:12] (XOR/ALLZ)	00=Partial Clock Gating Disable 01=XOR Mode Enable 10=All-Z Mode Enable 11=Normal Operation(Default)

7 MCH_CFG_16

MCH_CFG_16 (FSB Dynamic ODT)	Low = Dynamic ODT Disabled High = Dynamic ODT Enable

MCH_CFG_18 (VCC_CORE Select)	Low = 1.05V(default) High = 1.5V

7 MCH_CFG_18 — 30MIL TP555

MCH_CFG_19 (DMI LANE REVERSAL)	Low = Normal(default) High = LANES REVERSED

7 MCH_CFG_19 — 30MIL TP558

MCH_CFG_20 (PCIe Backward Interpoerability mode)	Low = Only SDVO or PCIE x1 is operational (defaults)) High = SDVO and PCIE x1 are operating simultaneously via the PEG port

7 MCH_CFG_20 — 30MIL TP561

Layout Noe:
Location of all MCH_CFG strap resistors needs to be close to trace to minimize stub

U4I

VSS

CALISTOGA

U4J

VSS

CALISTOGA

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	CALISTOGA(VSS) 7 of 7
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1.8V per DIMM=3.03A

7,11,14,59,61,62 +1_8VSUS

+1_8VSUS 7,11,14,59,61,62

C231 0.1U_16V_M_B 0402

C232 2.2U_10V_Y_Y 0603

0.1 µF and 2.2 µF placed close to VREF pins

CN1

DDR2_VREF

M_A_DQ0 M_A_DQ1 M_A_DQS#0 M_A_DQS0 M_A_DQ2 M_A_DQ3 M_A_DQ8 M_A_DQ9 M_A_DQS#1 M_A_DQS1 M_A_DQ10 M_A_DQ11 M_A_DQ16 M_A_DQ17 M_A_DQS#2 M_A_DQS2 M_A_DQ18 M_A_DQ19 M_A_DQ24 M_A_DQ25 M_A_DM3 M_A_DQ26 M_A_DQ27

7,15 M_CKE0

9,15 M_A_BS2

M_A_A12 M_A_A9 M_A_A8 M_A_A5 M_A_A3 M_A_A1 M_A_A10

9,15 M_A_BS0 9,15 M_A_WE#

9,15 M_A_CAS# 7,15 M_CS#1

7,15 M_ODT1

M_A_DQ32 M_A_DQ33 M_A_DQS#4 M_A_DQS4 M_A_DQ34 M_A_DQ35 M_A_DQ40 M_A_DQ41 M_A_DM5 M_A_DQ42 M_A_DQ43 M_A_DQ48 M_A_DQ49 M_A_DQS#6 M_A_DQS6 M_A_DQ50 M_A_DQ51 M_A_DQ56 M_A_DQ57 M_A_DM7 M_A_DQ58 M_A_DQ59

14,33,42,64 SMB_DATA_SUS

14,33,42,64 SMB_CLK_SUS

+3VRUN

C1078 2.2U_10V_Y_Y 0603

C243 0.1U_16V_M_B 0402

VREF VSS47 DQ0 DQ1 VSS37 DQS#0 DQS0 VSS48 DQ2 DQ3 VSS38 DQ8 DQ9 VSS49 DQS#1 DQS1 VSS39 DQ10 DQ11 VSS50 VSS18 DQ16 DQ17 VSS1 DQS#2 DQS2 VSS19 DQ18 DQ19 VSS22 DQ24 DQ25 VSS23 DM3 NC4 VSS9 DQ26 DQ27 VSS4 CKE0 VDD7 NC1 A16_BA2 VDD9 A12 A9 A8 VDD5 A5 A3 A1 VDD10 A10/AP BA0 WE# VDD2 CAS# S1# VDD3 ODT1 VSS11 DQ32 DQ33 VSS26 DQS#4 DQS4 VSS2 DQ34 DQ35 VSS27 DQ40 DQ41 VSS29 DM5 VSS51 DQ42 DQ43 VSS40 DQ48 DQ49 VSS52 NCTEST VSS30 DQS#6 DQS6 VSS31 DQ50 DQ51 VSS33 DQ56 DQ57 VSS3 DM7 VSS34 DQ58 DQ59 VSS14 SDA SCL VDD(SPD)

VSS46 DQ4 DQ5 VSS15 DM0 VSS5 DQ6 DQ7 VSS16 DQ12 DQ13 VSS17 DM1 VSS53 CK0 CK0# VSS41 DQ14 DQ15 VSS54 VSS20 DQ20 DQ21 VSS6 NC3 DM2 VSS21 DQ22 DQ23 VSS24 DQ28 DQ29 VSS25 DQS#3 DQS3 VSS10 VDD30 VDD31 VSS8 CKE1 VDD8 A15 A14 VDD11 A11 A7 A6 VDD4 A4 A2 A0 VDD12 BA1 RAS# S0# VDD1 ODT0 A13 VDD6 NC2 VSS12 DQ36 DQ37 VSS28 DM4 VSS42 DQ38 DQ39 VSS55 DQ44 DQ45 VSS43 DQS#5 DQS5 VSS56 DQ46 DQ47 VSS44 DQ52 DQ53 VSS57 CK1 CK1# VSS45 DM6 VSS32 DQ54 DQ55 VSS35 DQ60 DQ61 VSS7 DQS#7 DQS7 VSS36 DQ62 DQ63 VSS13 SA0 SA1

M_A_DQ4 M_A_DQ5 M_A_DM0 M_A_DQ6 M_A_DQ7 M_A_DQ12 M_A_DQ13 M_A_DM1

M_CLK_DDR0 7

M_CLK_DDR#0 7

M_A_DQ14 M_A_DQ15 M_A_DQ20 M_A_DQ21

DDR2_EXTTS#0 1 R168 NC_0_J 0402 2 PM_EXTTS#0 7,14

M_A_DM2 M_A_DQ22 M_A_DQ23 M_A_DQ28 M_A_DQ29 M_A_DQS#3 M_A_DQS3 M_A_DQ30 M_A_DQ31

M_CKE1 7,15

M_A_A11 M_A_A7 M_A_A6 M_A_A4 M_A_A2 M_A_A0

M_A_BS1 9,15

M_A_RAS# 9,15

M_CS#0 7,15

M_ODT0 7,15

M_A_A13 M_A_DQ36 M_A_DQ37 M_A_DM4 M_A_DQ38 M_A_DQ39 M_A_DQ44 M_A_DQ45 M_A_DQS#5 M_A_DQS5 M_A_DQ46 M_A_DQ47 M_A_DQ52 M_A_DQ53

M_CLK_DDR1 7

M_CLK_DDR#1 7

M_A_DM6 M_A_DQ54 M_A_DQ55 M_A_DQ60 M_A_DQ61 M_A_DQS#7 M_A_DQS7 M_A_DQ62 M_A_DQ63

SA0_DIM0 R174 10K_J 0402

SA1_DIM0 R175 10K_J 0402

DDR2 SO-DIMM_200P

FOX_ASOA426_N4RC_4F

PC4800 DDR2 SDRAM SO-DIMM (200P)

DIMM_0

SMBus Address: A0(W)/A1(R)

Place DIMM_0 near GMCH

M_A_DM[0..7] 9

M_A_DQ[0..63] 9

M_A_DQS[0..7] 9

M_A_DQS#[0..7] 9

M_A_A[0..13] 9,15

7,11,14,59,61,62 +1_8VSUS

7,59 DDRDIMM_VREF

R166 0_J 0402

R167 NC_10K_F 0402

14 DDR2_VREF

DDR2_VREF

(20 mil)

C233 0.1U_16V_M_B 0402

R169 NC_10K_F 0402

7,11,14,59,61,62 +1_8VSUS

Place these Caps near So-Dimm0.

C234 2.2U_10V_Y_Y 0603

C235 2.2U_10V_Y_Y 0603

C236 2.2U_10V_Y_Y 0603

C237 2.2U_10V_Y_Y 0603

C238 2.2U_10V_Y_Y 0603

7,11,14,59,61,62 +1_8VSUS

Place these Caps near So-Dimm0.

C239 0.1U_16V_Y_Y 0402

C240 0.1U_16V_Y_Y 0402

C241 0.1U_16V_Y_Y 0402

C242 0.1U_16V_Y_Y 0402

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Title: DDR(II)SO-DIMM_0

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13 DDR2_VREF

7,11,13,59,61,62 +1_8VSUS

C244 0.1U_16V_M_B 0402

C245 2.2U_10V_Y_Y 0603

0.1 µF and 2.2 µF placed close to VREF pins

+1_8VSUS 7,11,13,59,61,62

1.8V per DIMM=3.08A

CN2

DDR2 SO-DIMM (200P)

PC4800 DDR2 SDRAM SO-DIMM (200P)

1	VREF		2	VSS46			
3	VSS47		4	DQ4	M_B_DQ4		
5	DQ0	M_B_DQ0	6	DQ5	M_B_DQ5		
7	DQ1	M_B_DQ1	8	VSS15			
9	VSS37		10	DM0	M_B_DM0		
11	DQS#0	M_B_DQS#0	12	VSS5			
13	DQS0	M_B_DQS0	14	DQ6	M_B_DQ6		
15	VSS48		16	DQ7	M_B_DQ7		
17	DQ2	M_B_DQ2	18	VSS16			
19	DQ3	M_B_DQ3	20	DQ12	M_B_DQ12		
21	VSS38		22	DQ13	M_B_DQ13		
23	DQ8	M_B_DQ8	24	VSS17			
25	DQ9	M_B_DQ9	26	DM1	M_B_DM1		
27	VSS49		28	VSS53			
29	DQS#1	M_B_DQS#1	30	CK0	M_CLK_DDR3	7	
31	DQS1	M_B_DQS1	32	CK0#	M_CLK_DDR#3	7	
33	VSS39		34	VSS41			
35	DQ10	M_B_DQ10	36	DQ14	M_B_DQ14		
37	DQ11	M_B_DQ11	38	DQ15	M_B_DQ15		
39	VSS50		40	VSS54			
41	VSS18		42	VSS20			
43	DQ16	M_B_DQ16	44	DQ20	M_B_DQ20		
45	DQ17	M_B_DQ17	46	DQ21	M_B_DQ21		
47	VSS1		48	VSS6			
49	DQS#2	M_B_DQS#2	50	NC3	DDR2_EXTTS#1	R176 NC_0_J 0402	PM_EXTTS#0 7,13
51	DQS2	M_B_DQS2	52	DM2	M_B_DM2		
53	VSS19		54	VSS21			
55	DQ18	M_B_DQ18	56	DQ22	M_B_DQ22		
57	DQ19	M_B_DQ19	58	DQ23	M_B_DQ23		
59	VSS22		60	VSS24			
61	DQ24	M_B_DQ24	62	DQ28	M_B_DQ28		
63	DQ25	M_B_DQ25	64	DQ29	M_B_DQ29		
65	VSS23		66	VSS25			
67	DM3	M_B_DM3	68	DQS#3	M_B_DQS#3		
69	NC4		70	DQS3	M_B_DQS3		
71	VSS9		72	VSS10			
73	DQ26	M_B_DQ26	74	DQ30	M_B_DQ30		
75	DQ27	M_B_DQ27	76	DQ31	M_B_DQ31		
77	VSS4		78	VSS8			
79	CKE0	7,15 M_CKE2	80	CKE1	M_CKE3	7,15	
81	VDD7		82	VDD8			
83	NC1		84	VSS15			
85	A16_BA2	9,15 M_B_BS2	86	VSS14			
87	VDD9		88	VSS11			
89	A12	M_B_A12	90	VSS11	M_B_A11		
91	A9	M_B_A9	92	VSS7	M_B_A7		
93	A8	M_B_A8	94	VSS6	M_B_A6		
95	VDD5		96	VDD4			
97	A5	M_B_A5	98	A4	M_B_A4		
99	A3	M_B_A3	100	A2	M_B_A2		
101	A1	M_B_A1	102	A0	M_B_A0		
103	VDD10		104	VDD12			
105	A10/AP	M_B_A10	106	BA1	M_B_BS1	9,15	
107	BA0	9,15 M_B_BS0	108	RAS#	M_B_RAS#	9,15	
109	WE#	9,15 M_B_WE#	110	S0#	M_CS#2	7,15	
111	VDD2		112	VDD1			
113	CAS#	9,15 M_B_CAS#	114	ODT0	M_ODT2	7,15	
115	S1#	7,15 M_CS#3	116	A13	M_B_A13		
117	VDD3		118	VDD6			
119	ODT1	7,15 M_ODT3	120	NC2			
121	VSS11		122	VSS12			
123	DQ32	M_B_DQ32	124	DQ36	M_B_DQ36		
125	DQ33	M_B_DQ33	126	DQ37	M_B_DQ37		
127	VSS26		128	VSS28			
129	DQS#4	M_B_DQS#4	130	DM4	M_B_DM4		
131	DQS4	M_B_DQS4	132	VSS42			
133	VSS2		134	DQ38	M_B_DQ38		
135	DQ34	M_B_DQ34	136	DQ39	M_B_DQ39		
137	DQ35	M_B_DQ35	138	VSS55			
139	VSS27		140	DQ44	M_B_DQ44		
141	DQ40	M_B_DQ40	142	DQ45	M_B_DQ45		
143	DQ41	M_B_DQ41	144	VSS43			
145	VSS29		146	DQS#5	M_B_DQS#5		
147	DM5	M_B_DM5	148	DQS5	M_B_DQS5		
149	VSS51		150	VSS56			
151	DQ42	M_B_DQ42	152	DQ46	M_B_DQ46		
153	DQ43	M_B_DQ43	154	DQ47	M_B_DQ47		
155	VSS40		156	VSS44			
157	DQ48	M_B_DQ48	158	DQ52	M_B_DQ52		
159	DQ49	M_B_DQ49	160	DQ53	M_B_DQ53		
161	VSS52		162	VSS57			
163	NCTEST		164	CK1	M_CLK_DDR2	7	
165	VSS30		166	CK1#	M_CLK_DDR#2	7	
167	DQS#6	M_B_DQS#6	168	VSS45			
169	DQS6	M_B_DQS6	170	DM6	M_B_DM6		
171	VSS31		172	VSS32			
173	DQ50	M_B_DQ50	174	DQ54	M_B_DQ54		
175	DQ51	M_B_DQ51	176	DQ55	M_B_DQ55		
177	VSS33		178	VSS35			
179	DQ56	M_B_DQ56	180	DQ60	M_B_DQ60		
181	DQ57	M_B_DQ57	182	DQ61	M_B_DQ61		
183	VSS3		184	VSS7			
185	DM7	M_B_DM7	186	DQS#7	M_B_DQS#7		
187	VSS34		188	DQS7	M_B_DQS7		
189	DQ58	M_B_DQ58	190	VSS36			
191	DQ59	M_B_DQ59	192	DQ62	M_B_DQ62		
193	VSS14		194	DQ63	M_B_DQ63		
195	SDA	13,33,42,64 SMB_DATA_SUS	196	VSS13			
197	SCL	13,33,42,64 SMB_CLK_SUS	198	SA0	SA0_DIM1	R177 10K_J 0402	
199	VDD(SPD)	+3VRUN	200	SA1	SA1_DIM1	R178 10K_J 0402	+3VRUN

DDR2 S0-DIMM_200P

FOX_ASOA426_N4SC_4F

C1079 2.2U_10V_Y_Y 0603

C255 0.1U_16V_M_B 0402

DIMM_1

SMBus Address: A4(W)/A5(R)

DIMM_1 is placed farther from the GMCH than DIMM_0

M_B_DM[0..7] 9
M_B_DQ[0..63] 9
M_B_DQS[0..7] 9
M_B_DQS#[0..7] 9
M_B_A[0..13] 9,15

7,11,13,59,61,62 +1_8VSUS

Place these Caps near So-Dimm1.

C246 2.2U_10V_Y_Y 0603
C247 2.2U_10V_Y_Y 0603
C248 2.2U_10V_Y_Y 0603
C249 2.2U_10V_Y_Y 0603
C250 2.2U_10V_Y_Y 0603

7,11,13,59,61,62 +1_8VSUS

Place these Caps near So-Dimm1.

C251 0.1U_16V_Y_Y 0402
C252 0.1U_16V_Y_Y 0402
C253 0.1U_16V_Y_Y 0402
C254 0.1U_16V_Y_Y 0402

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Title: DDR(II)SO-DIMM_1

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9,13 M_A_A[0..13]

9,14 M_B_A[0..13]

59,62 +0_9VSUS

C257 C258 C259 C260 C261 C262 C263 C264 C265 C266 C267 C268 C269
0.1U_16V_Y_X
0402

Layout note: Place 1 cap close to every 1 R-pack terminated to +0_9VSUS

59,62 +0_9VSUS

C270 C271 C272 C273 C274 C275 C276 C277 C278 C279 C280 C281 C282
0.1U_16V_Y_X
0402

Layout note: Place 1 cap close to every 1 R-pack terminated to +0_9VSUS

9,14 M_B_RAS#
9,14 M_B_BS1
RP12 4 3 1 2 56 0404_4P2R
M_B_A12 M_B_A9 RP13 0404_4P2R
M_B_A8 M_B_A5 RP14 0404_4P2R

M_B_A3 M_B_A1 RP15 0404_4P2R
M_B_A10 RP16 0404_4P2R
9,14 M_B_BS0
9,14 M_B_WE#
9,14 M_B_CAS#
RP17 0404_4P2R
M_B_A7 M_B_A11 RP18 0404_4P2R

M_B_A4 M_B_A6 RP19 0404_4P2R
M_B_A0 M_B_A2 RP20 0404_4P2R
7,14 M_ODT2
M_B_A13 RP21 0404_4P2R

M_A_A7 M_A_A11 RP22 0404_4P2R
M_A_A4 M_A_A6 RP23 0404_4P2R
9,13 M_A_RAS#
9,13 M_A_BS1
RP24 0404_4P2R

7,13 M_ODT0
9,13 M_A_BS2
M_A_A13 RP25 0404_4P2R
RP26 0404_4P2R
M_A_A12
M_A_A9 M_A_A8 RP27 0404_4P2R
M_A_A5 M_A_A3 RP28 0404_4P2R

9,13 M_A_BS0
M_A_A10 RP29 0404_4P2R
9,13 M_A_WE#
9,13 M_A_CAS#
RP30 0404_4P2R
M_A_A0 M_A_A2 RP31 0404_4P2R

7,13 M_CKE0 R183 0402 56_J
7,13 M_CKE1 R186 0402 56_J
7,14 M_CKE2 R189 0402 56_J
7,14 M_CKE3 R192 0402 56_J

7,13 M_CS#0 R181 0402 56_J
7,13 M_CS#1 R184 0402 56_J
7,14 M_CS#2 R187 0402 56_J
7,14 M_CS#3 R190 0402 56_J

7,13 M_ODT1 R182 0402 56_J
7,14 M_ODT3 R185 0402 56_J
M_A_A1 R188 0402 56_J
9,14 M_B_BS2 R191 0402 56_J

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Title	DDR(II)Termination	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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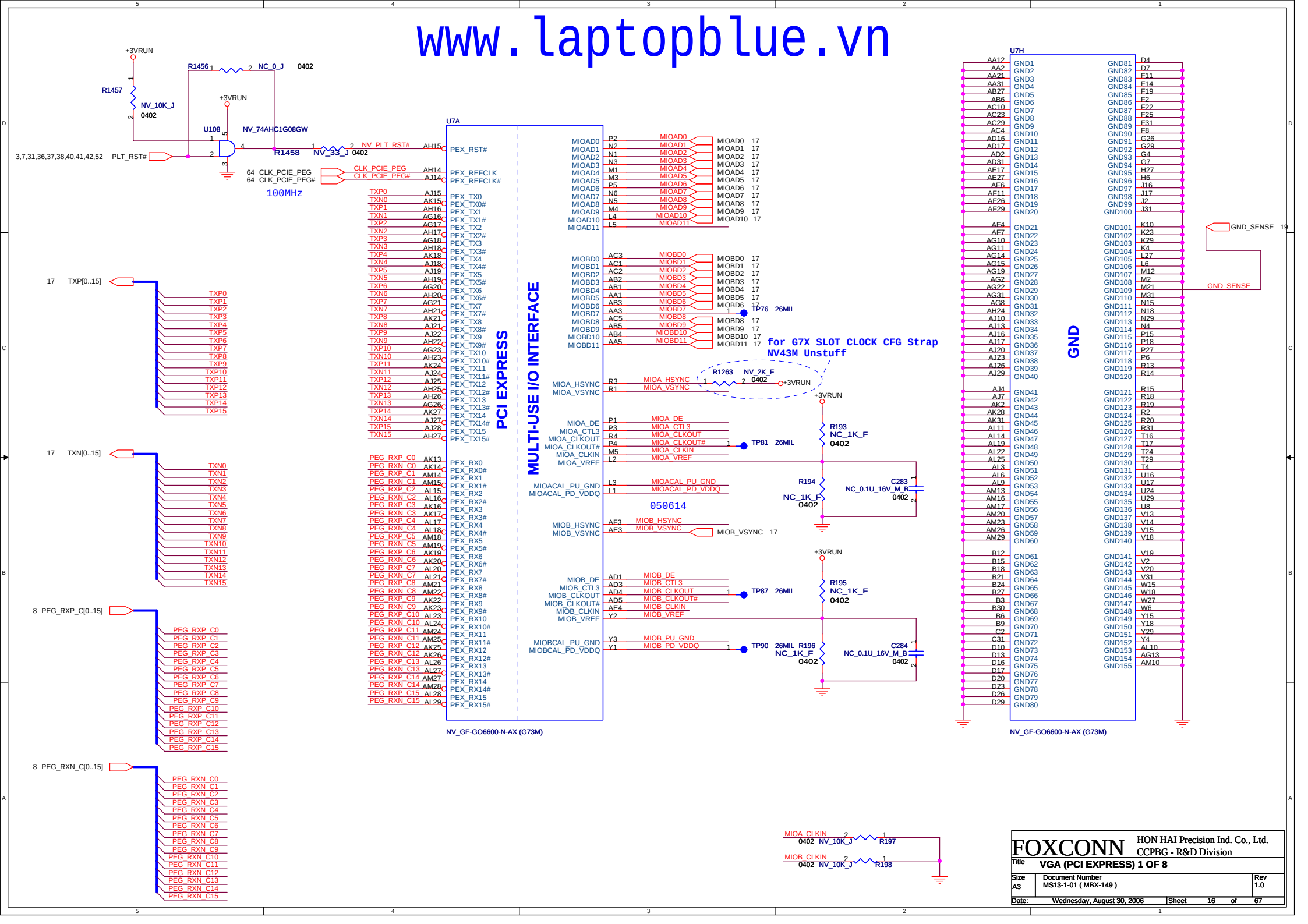

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	CCPBG - R&D Division
Title	VGA (PCI EXPRESS) 1 OF 8
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8 PEG_RXP[0..15]

PEG_RXP0	C285	NV_0.1U_16V_M_B 0402	TXP0
PEG_RXP1	C287	NV_0.1U_16V_M_B 0402	TXP1
PEG_RXP2	C289	NV_0.1U_16V_M_B 0402	TXP2
PEG_RXP3	C291	NV_0.1U_16V_M_B 0402	TXP3
PEG_RXP4	C293	NV_0.1U_16V_M_B 0402	TXP4
PEG_RXP5	C295	NV_0.1U_16V_M_B 0402	TXP5
PEG_RXP6	C297	NV_0.1U_16V_M_B 0402	TXP6
PEG_RXP7	C299	NV_0.1U_16V_M_B 0402	TXP7
PEG_RXP8	C301	NV_0.1U_16V_M_B 0402	TXP8
PEG_RXP9	C303	NV_0.1U_16V_M_B 0402	TXP9
PEG_RXP10	C305	NV_0.1U_16V_M_B 0402	TXP10
PEG_RXP11	C307	NV_0.1U_16V_M_B 0402	TXP11
PEG_RXP12	C309	NV_0.1U_16V_M_B 0402	TXP12
PEG_RXP13	C311	NV_0.1U_16V_M_B 0402	TXP13
PEG_RXP14	C313	NV_0.1U_16V_M_B 0402	TXP14
PEG_RXP15	C315	NV_0.1U_16V_M_B 0402	TXP15

TXP[0..15] 16

8 PEG_RXN[0..15]

PEG_RXN0	C286	NV_0.1U_16V_M_B 0402	TXN0
PEG_RXN1	C288	NV_0.1U_16V_M_B 0402	TXN1
PEG_RXN2	C290	NV_0.1U_16V_M_B 0402	TXN2
PEG_RXN3	C292	NV_0.1U_16V_M_B 0402	TXN3
PEG_RXN4	C294	NV_0.1U_16V_M_B 0402	TXN4
PEG_RXN5	C296	NV_0.1U_16V_M_B 0402	TXN5
PEG_RXN6	C298	NV_0.1U_16V_M_B 0402	TXN6
PEG_RXN7	C300	NV_0.1U_16V_M_B 0402	TXN7
PEG_RXN8	C302	NV_0.1U_16V_M_B 0402	TXN8
PEG_RXN9	C304	NV_0.1U_16V_M_B 0402	TXN9
PEG_RXN10	C306	NV_0.1U_16V_M_B 0402	TXN10
PEG_RXN11	C308	NV_0.1U_16V_M_B 0402	TXN11
PEG_RXN12	C310	NV_0.1U_16V_M_B 0402	TXN12
PEG_RXN13	C312	NV_0.1U_16V_M_B 0402	TXN13
PEG_RXN14	C314	NV_0.1U_16V_M_B 0402	TXN14
PEG_RXN15	C316	NV_0.1U_16V_M_B 0402	TXN15

TXN[0..15] 16

TVMODE(NV43M)
NTSC (01)

MIOAD10	MIOAD7	TVMODE
0	0	SECAM
0	1	NTSC <--current setting
1	0	PAL
1	1	CRT

G72M/G73M/NV43M
RAM_CFG(3..0)
*0001 8MX32bit 1.8V
0100 4MX32bit 1.8V Samsung
0101 4MX32bit 1.8V Hynix

SUBVENDOR
*0 (USE SYSTEM BIOS)
1 (USE EXTERNAL ROM)

PANEL ID CONFIG
NC

MIOAD0 is used to set the PCI Express PLL termination enable.
DEFAULT "0"

3GIO_PADCFG[2:0]
*001 for NV43/NV44
010 for G7X/NV42

G72M/G73M/NV43M
PCI_DEVID[3:0]="1000"->8

CRYSTAL(NV43M)
10 (27M Hz)

MIOBD6	MIOBD2	Crystal
1	0	27MHz <--current setting
0	1	14.318MHz
0	0	13.5MHz
1	1	Preserved

ROM_TYPE(NV43M) NC

00 PARALLEL
01 SERIAL_AT25F
10 SERIAL_SST45VF
11 LPC

+3VRUN

MIOAD7	R199 NC_2K_J 0402	R200 NV_2K_J 0402	
MIOAD10	R201 NV_2K_J 0402	R202 NC_2K_J 0402	
RAM_CFG0	MIOBD0	R203 NC_2K_J 0402	R204 NV_2K_J 0402
RAM_CFG1	MIOBD1	R205 NV_2K_J 0402	R206 NC_2K_J 0402
RAM_CFG2	MIOBD8	R207 NV_2K_J 0402	R208 NC_2K_J 0402
RAM_CFG3	MIOBD9	R209 NV_2K_J 0402	R210 NC_2K_J 0402
SUBVENDOR	MIOAD1	R211 NV_2K_J 0402	R212 NC_2K_J 0402
USER0	MIOAD2	R215 NC_10K_J 0402	R216 NC_10K_J 0402
USER1	MIOAD3	R217 NC_10K_J 0402	R218 NC_10K_J 0402
USER2	MIOAD4	R219 NC_10K_J 0402	R220 NC_10K_J 0402
USER3	MIOAD5	R221 NC_10K_J 0402	R222 NC_10K_J 0402
PEX_PLL_EN_TERM	MIOAD0	R223 NV_2K_J 0402	R224 NC_2K_J 0402
3GIO_PADCFG0	MIOAD6	R225 NC_2K_J 0402	R226 NV_2K_J 0402
3GIO_PADCFG1	MIOAD8	R227 NV_2K_J 0402	R228 NC_2K_J 0402
3GIO_PADCFG2	MIOAD9	R229 NV_2K_J 0402	R230 NC_2K_J 0402
PCI_DEVID 0	MIOBD4	R231 NV_2K_J 0402	R232 NC_2K_J 0402
PCI_DEVID 1	MIOBD5	R233 NV_2K_J 0402	R234 NC_2K_J 0402
PCI_DEVID 2	MIOBD3	R235 NV_2K_J 0402	R236 NC_2K_J 0402
PCI_DEVID 3	MIOBD11	R237 NC_2K_J 0402	R238 NV_2K_J 0402
CRYSTAL 0	MIOBD2	R241 NV_2K_J 0402	R242 NC_2K_J 0402
CRYSTAL 1	MIOBD6	R243 NC_2K_J 0402	R244 NV_2K_J 0402
ROM_TYPE 0	MIOBD10	R245 NC_2K_J 0402	R246 NC_2K_J 0402
ROM_TYPE 1	MIOB_VSYNC	R247 NC_2K_J 0402	R248 NC_2K_J 0402

STRAP PIN for NV43M

MIOAD0 MIOAD1 MIOAD2 MIOAD3 MIOAD4 MIOAD5 MIOAD6 MIOAD7 MIOAD8 MIOAD9 MIOAD10 → MIOAD0 16 … MIOAD10 16

MIOBD0 MIOBD1 MIOBD2 MIOBD3 MIOBD4 MIOBD5 MIOBD6 MIOBD8 MIOBD9 MIOBD10 MIOBD11 → MIOBD0 16 … MIOBD11 16

MIOB_VSYNC → MIOB_VSYNC 16

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Title: VGA (PCI-EXPRESS/STRAP) 2 OF 8

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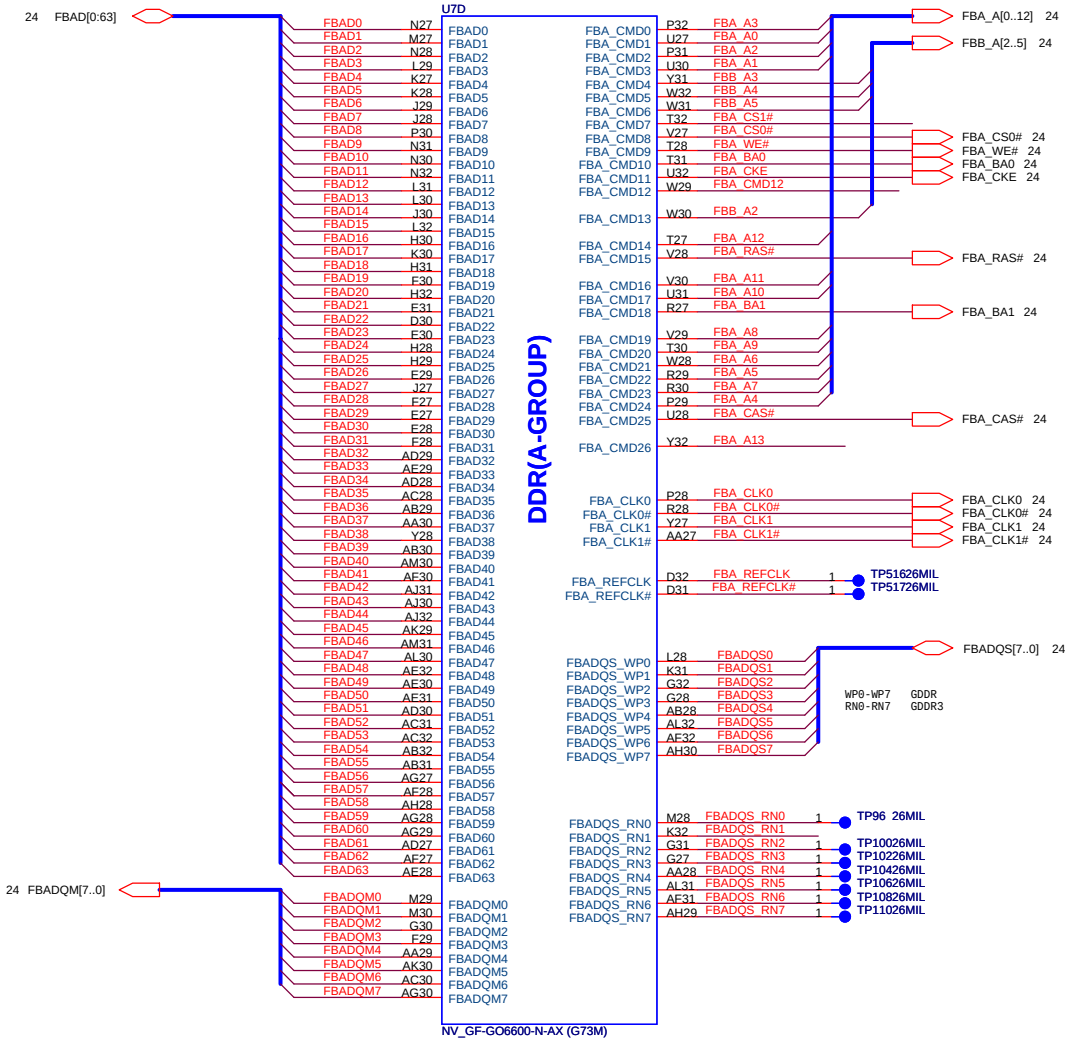

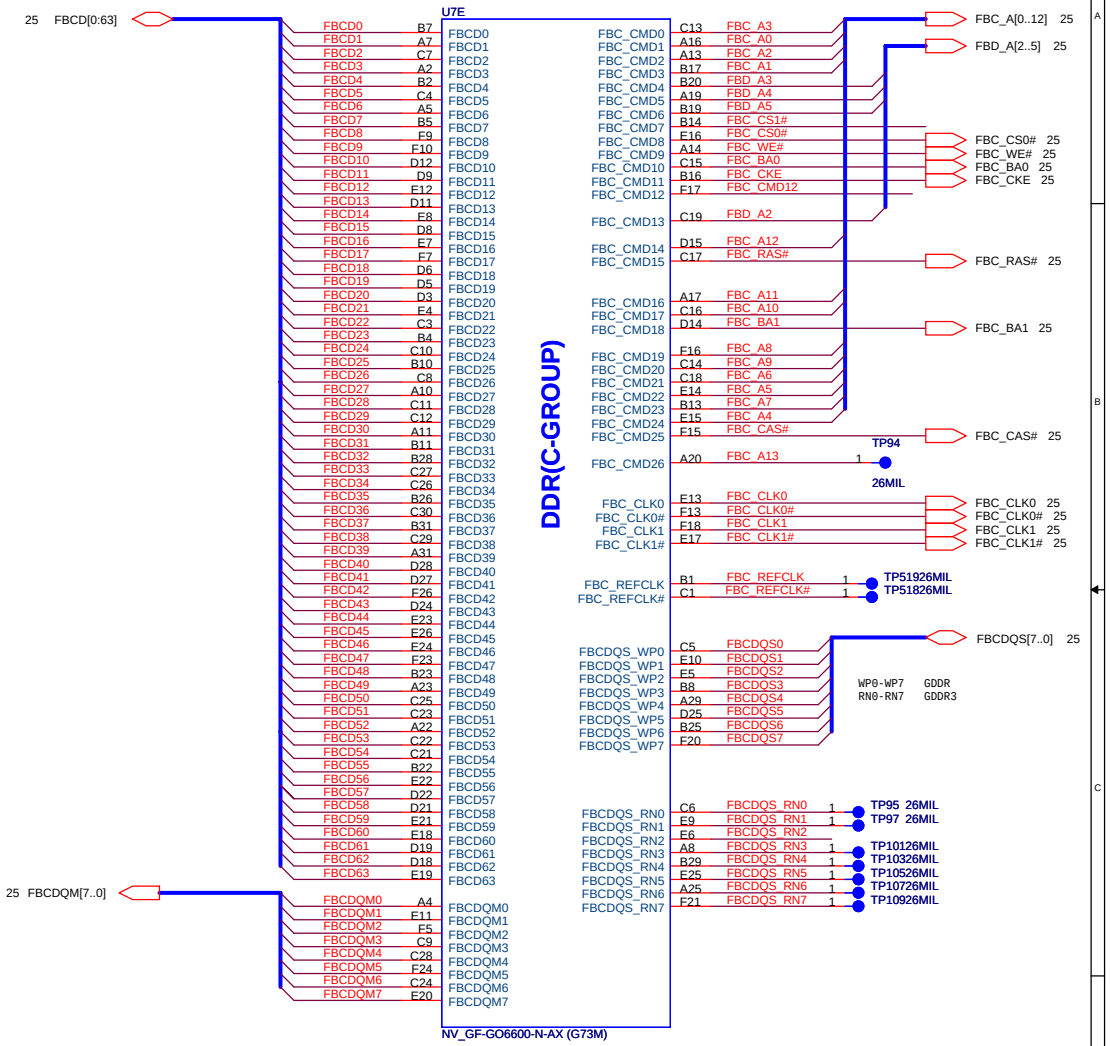

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	VGA (GDDR) 3 OF 8		
Size A3	Document Number MS13-1-01 (MBX-149)		Rev 1.0
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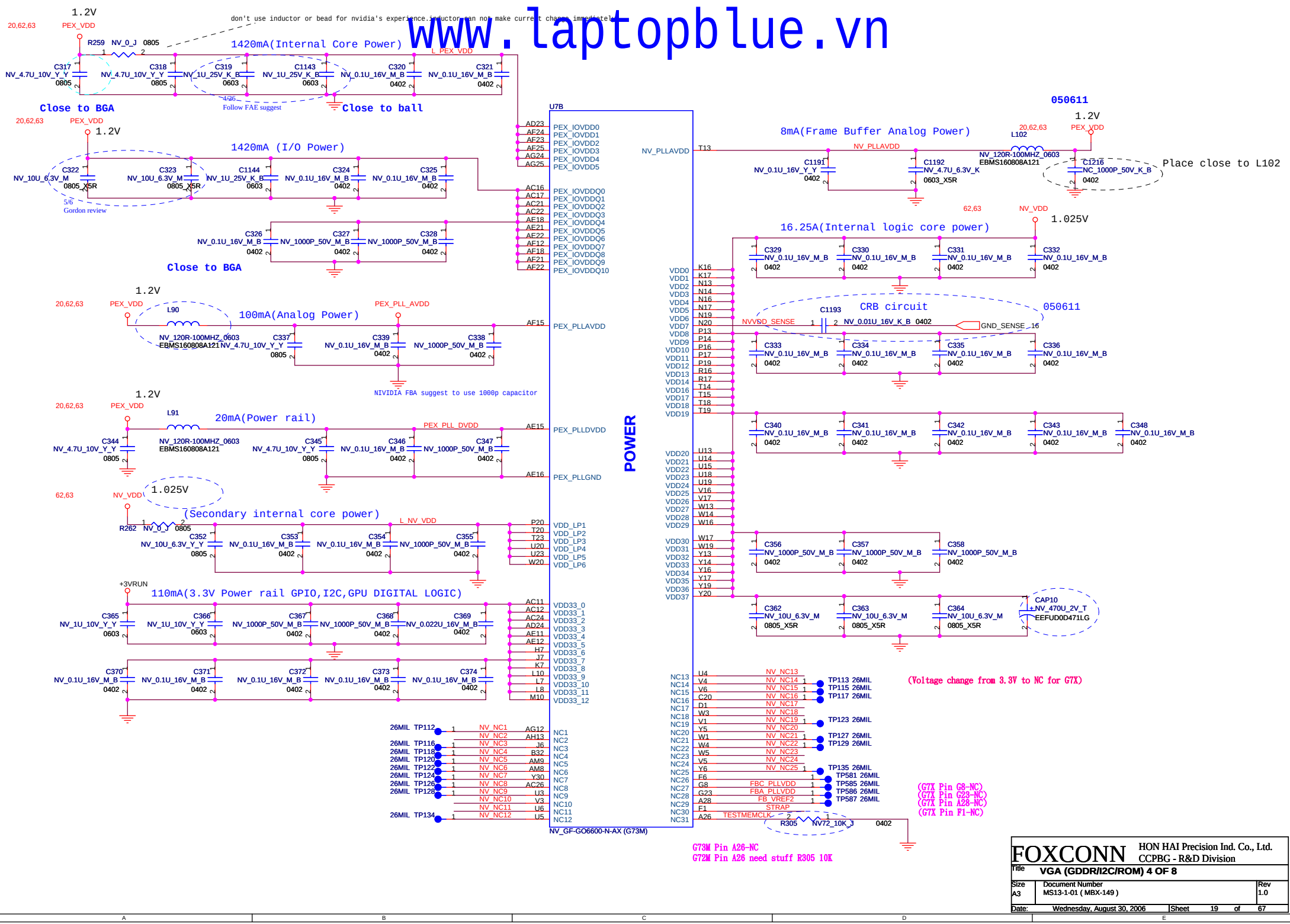

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (GDDR/I2C/ROM) 4 OF 8	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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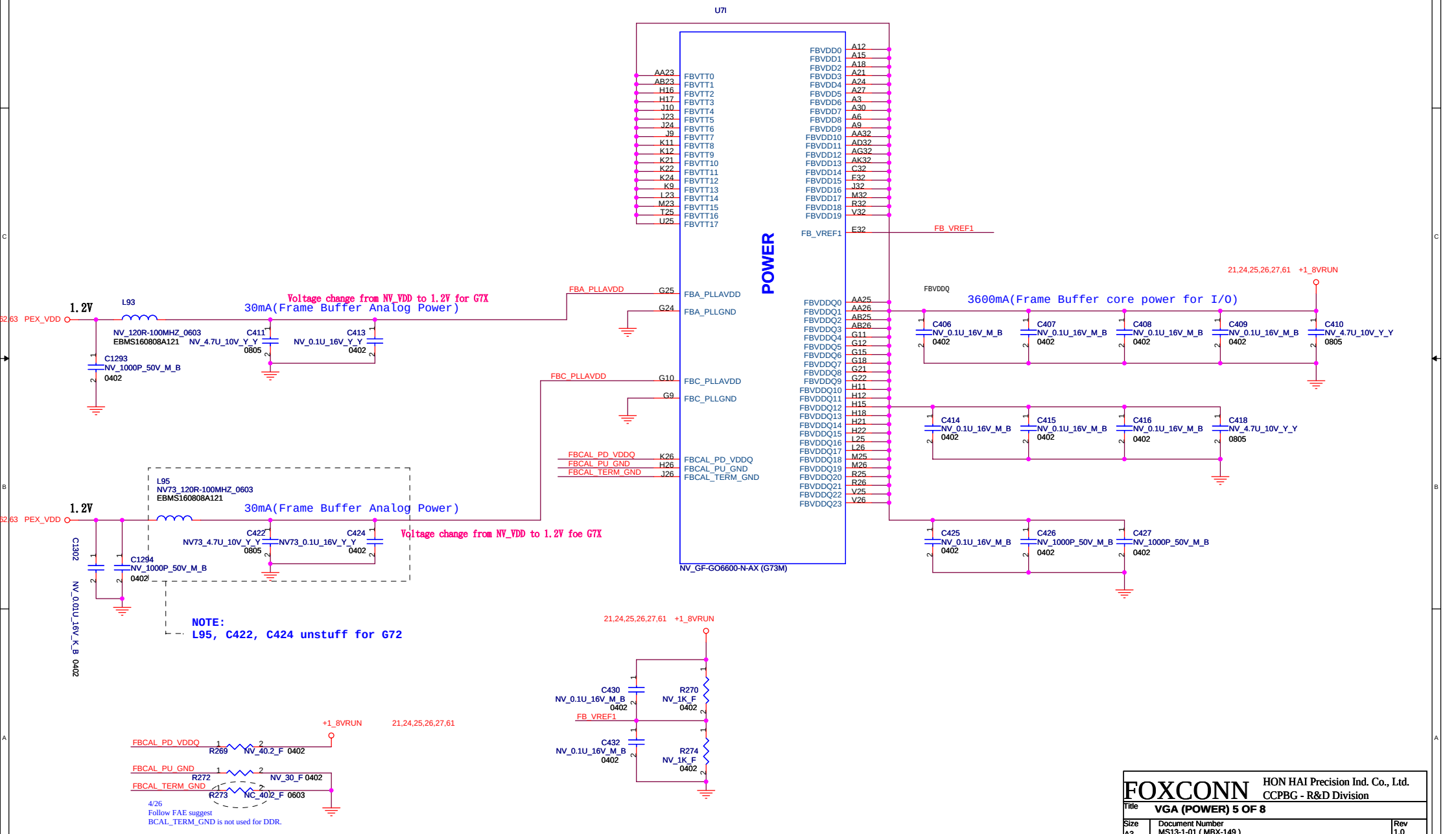

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (POWER) 5 OF 8	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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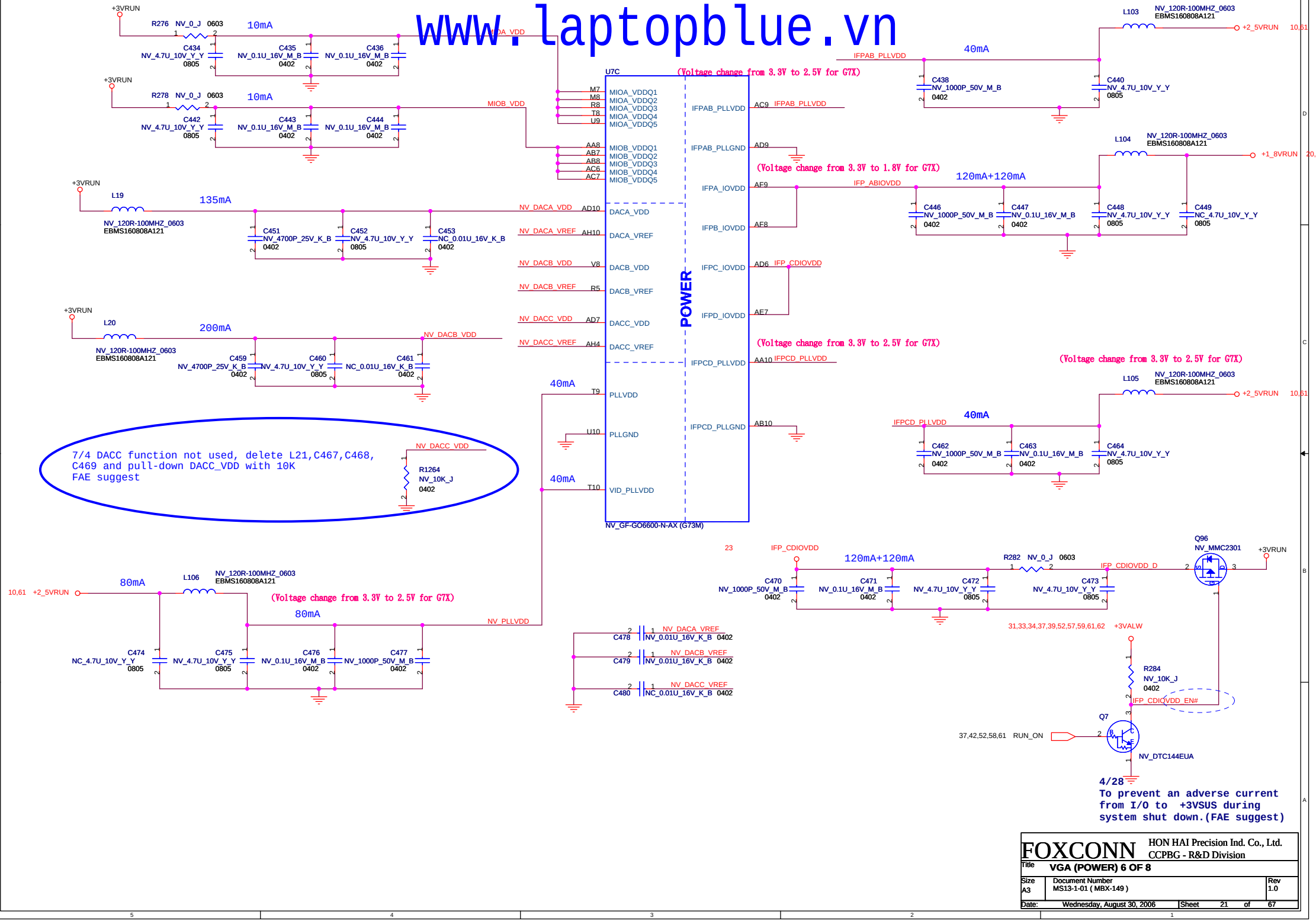

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	VGA (POWER) 6 OF 8
Size A3	Document Number MS13-1-01 (MBX-149) Rev 1.0
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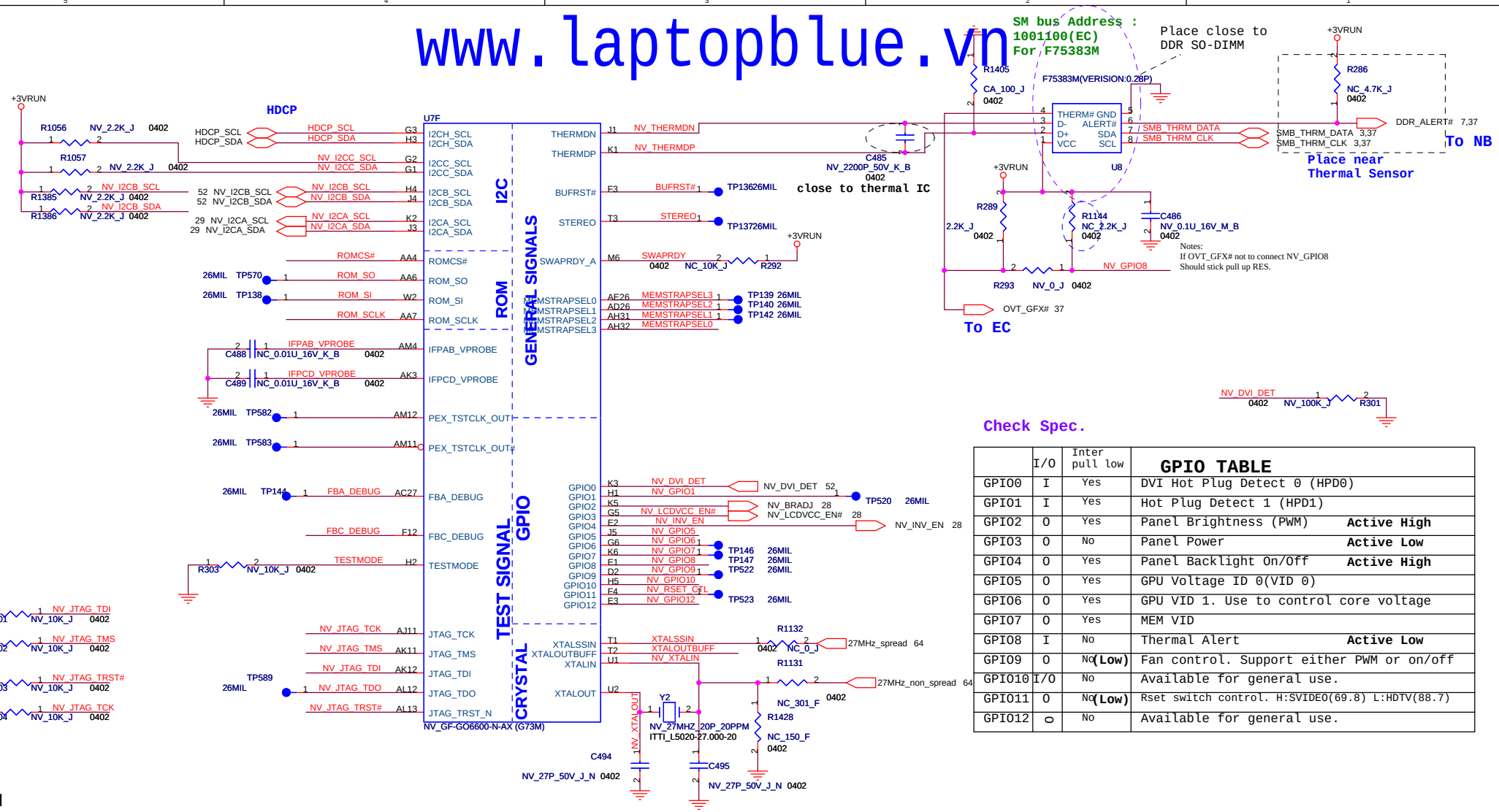

	I/O	Inter pull low	GPIO TABLE
GPIO0	I	Yes	DVI Hot Plug Detect 0 (HPD0)
GPIO1	I	Yes	Hot Plug Detect 1 (HPD1)
GPIO2	O	Yes	Panel Brightness (PWM) **Active High**
GPIO3	O	No	Panel Power **Active Low**
GPIO4	O	Yes	Panel Backlight On/Off **Active High**
GPIO5	O	Yes	GPU Voltage ID 0(VID 0)
GPIO6	O	Yes	GPU VID 1. Use to control core voltage
GPIO7	O	Yes	MEM VID
GPIO8	I	No	Thermal Alert **Active Low**
GPIO9	O	No(Low)	Fan control. Support either PWM or on/off
GPIO10	I/O	No	Available for general use.
GPIO11	O	No(Low)	Rset switch control. H:SVIDEO(69.8) L:HDTV(88.7)
GPIO12	O	No	Available for general use.

FREQ0	FREQ1	
L	L	20-40 MHz
L	H	66-134 MHz
H	L	33-67 MHz
H	H	40-80 MHz

FOXCONN HON HAI Precision Ind. Co., Ltd.
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Title: VGA (POWER) 7 OF 8

Size: A3 | Document Number: MS13-1-01 (MBX-149) | Rev: 1.0

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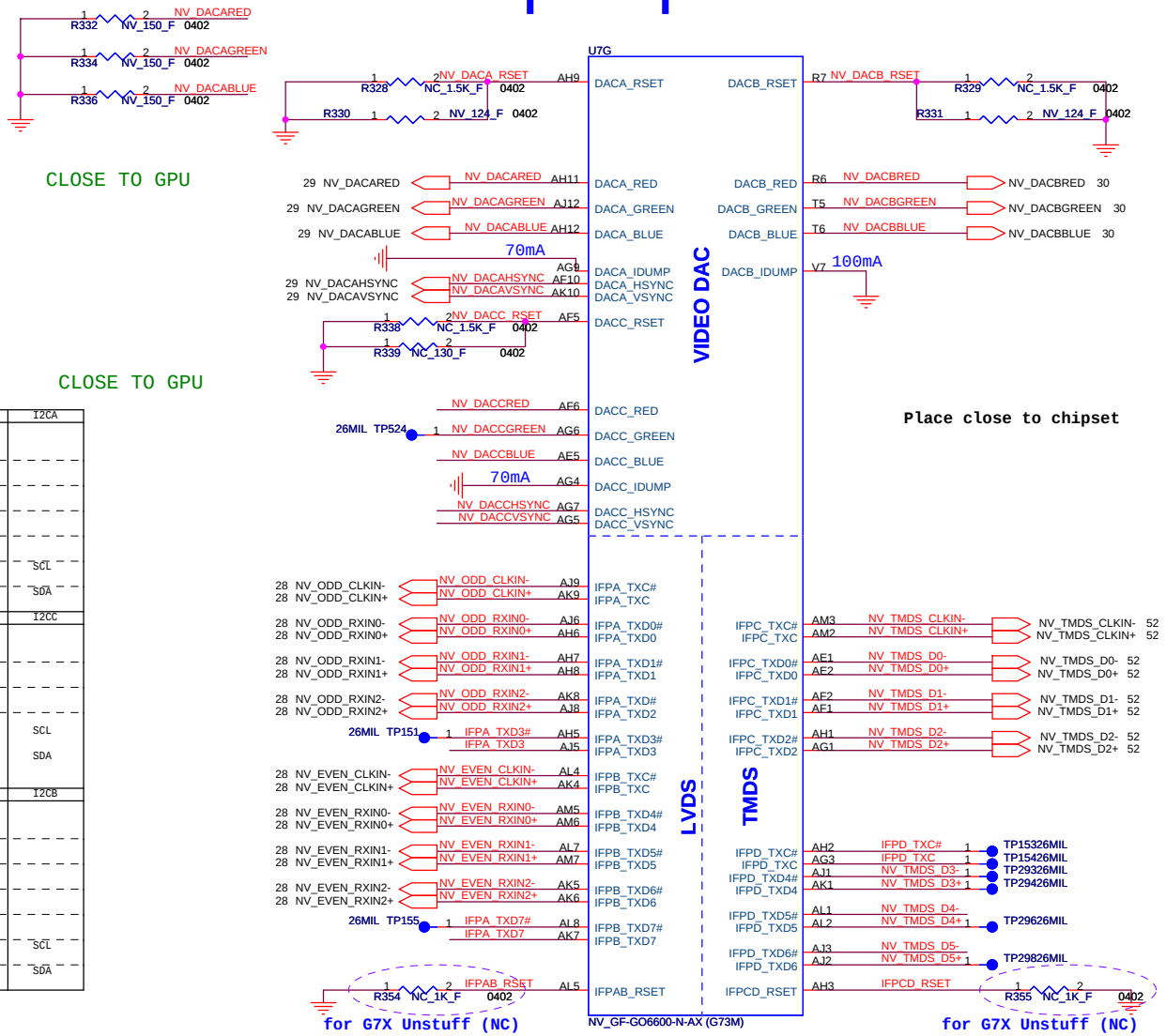

DACA	VGA-CRT			I2CA
DACA-RED	R			
DACA-GREEN	G			
DACA-BLUE	B			
DACA-HSYNC	HSYNC			
DACA-VSYNC	VSYNC			
	VGA-DDCCLK			SCL
	VGA-DDCDATA			SDA
DACB	**S-VIDEO**	**COMPOSITE**	**D-CONNECTOR**	**I2CC**
DACB-RED	C		PR	
DACB-GREEN	Y		Y	
DACB-BLUE		COMPOSITE		
			LINE1	SCL
			LINE2	SDA
			LINE3	
DACC	**DVI-I**			**I2CB**
DACC-RED	R			
DACC-GREEN	G			
DACC-BLUE	B			
DACC-HSYNC	HSYNC			
DACC-VSYNC	VSYNC			
	DVI-DDCCLK			SCL
	DVI-DDCDATA			SDA

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (POWER) 8 OF 8	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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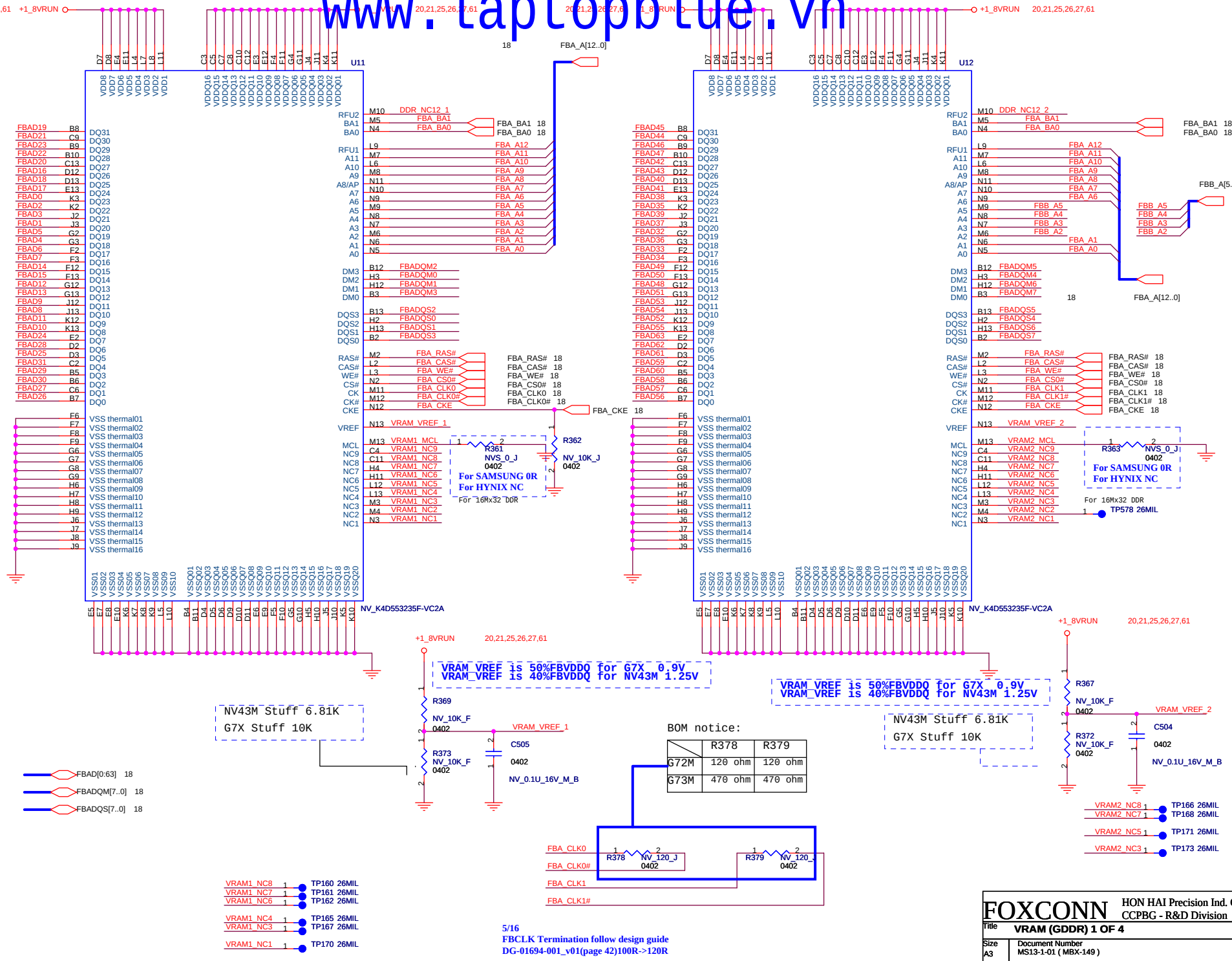

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	VRAM (GDDR) 1 OF 4
Size A3	Document Number MS13-1-01 (MBX-149) Rev 1.0
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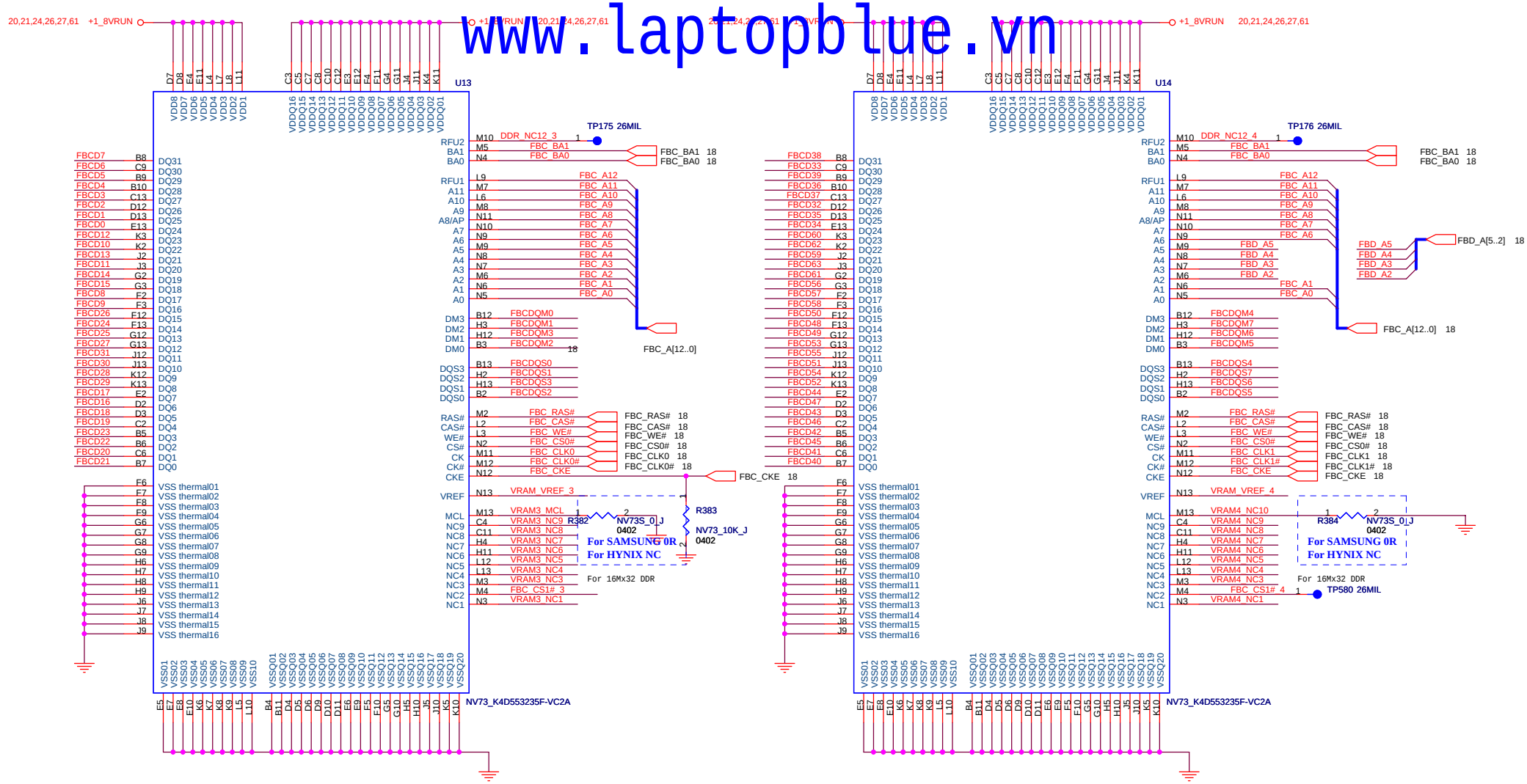

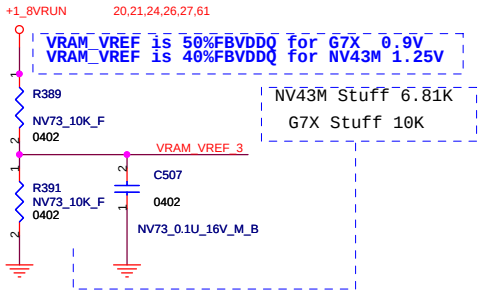

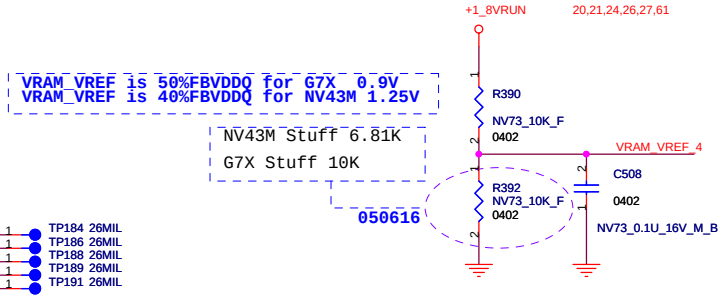

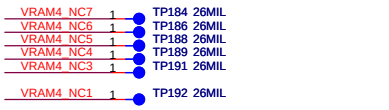

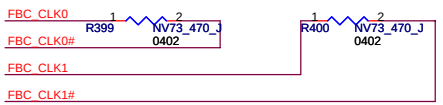

If use G72M, please unstuff U13, U14 and their related circuit

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VRAM (GDDR) 2 OF 4	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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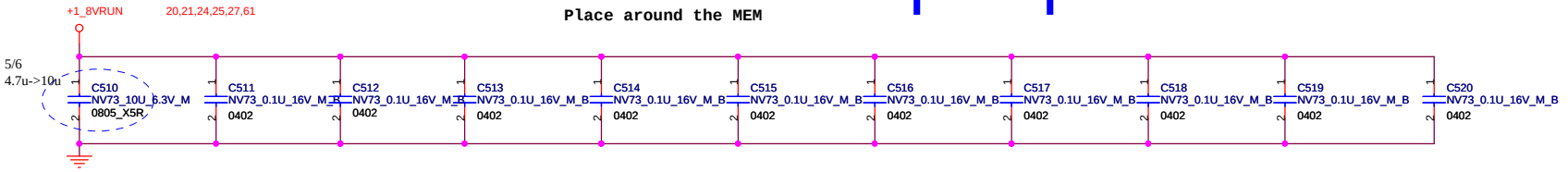
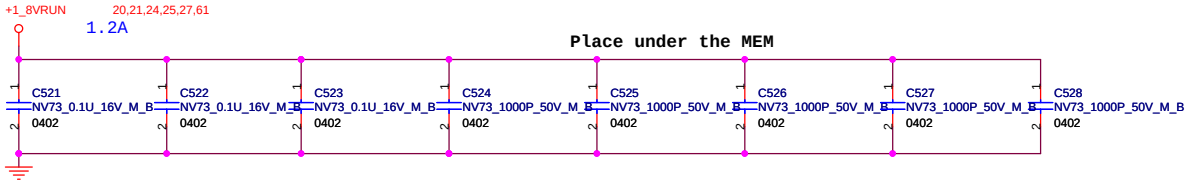
Decoupling for right MEMORY

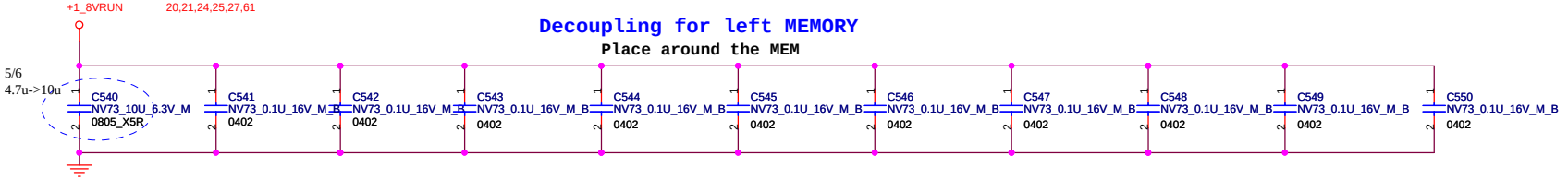
Place around the MEM

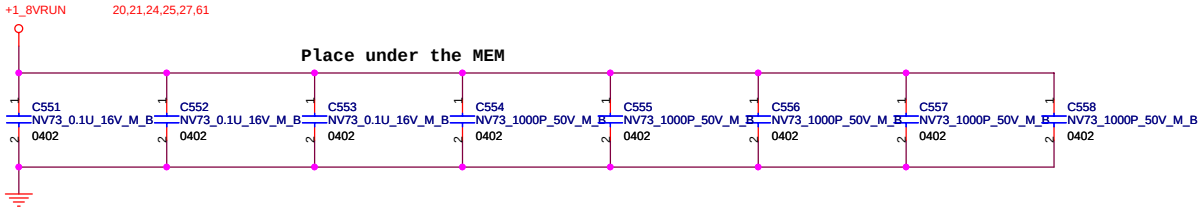




Decoupling for left MEMORY

Place around the MEM





FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: VRAM (GDDR) 3 OF 4		
Size: A3	Document Number: MS13-1-01 (MBX-149)	Rev: 1.0
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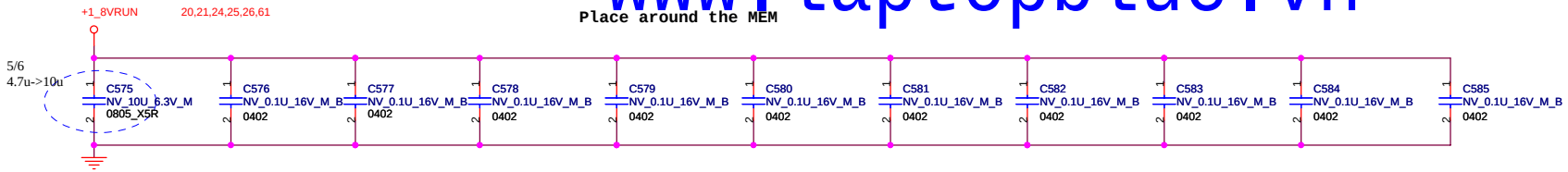
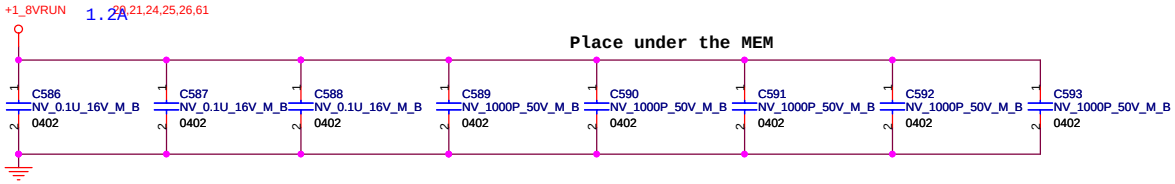
Decoupling for right MEMORY

Place around the MEM

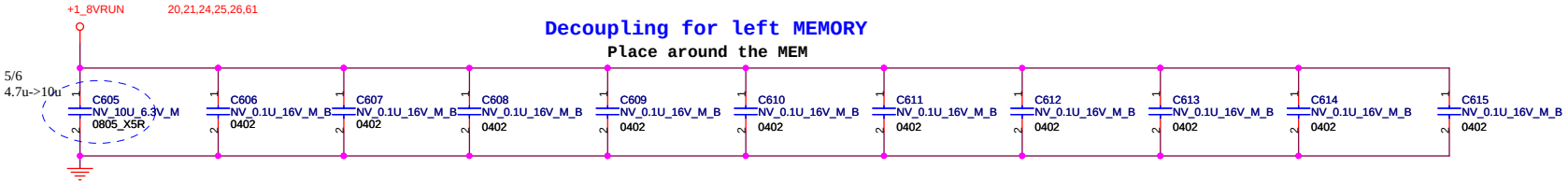


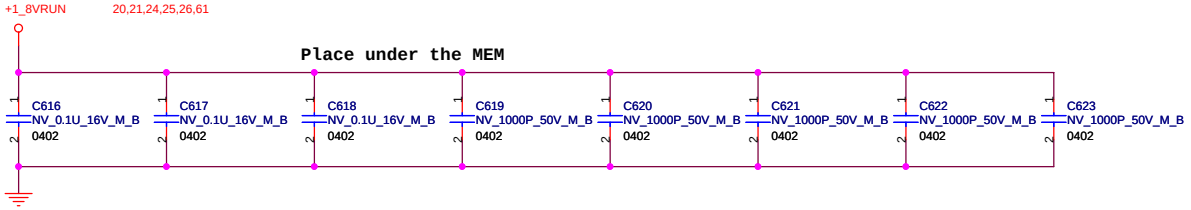


NO USE

Decoupling for left MEMORY

Place around the MEM





FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VRAM (POWERBYPASS) 4 OF 4	
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LVDS

Group1,Group1 should be close

Group1 / Group2

23 NV_ODD_CLKIN- / NV_ODD_CLKIN+ — 0404_4P2R NV_0 RP76 / CA_0 RP77 — ODD_CLKIN- / ODD_CLKIN+ — GM_ODD_CLKIN- 8 / GM_ODD_CLKIN+ 8

23 NV_ODD_RXIN0- / NV_ODD_RXIN0+ — 0404_4P2R NV_0 RP78 / CA_0 RP79 — ODD_RXIN0- / ODD_RXIN0+ — GM_ODD_RXIN0- 8 / GM_ODD_RXIN0+ 8

23 NV_ODD_RXIN1- / NV_ODD_RXIN1+ — 0404_4P2R NV_0 RP80 / CA_0 RP81 — ODD_RXIN1- / ODD_RXIN1+ — GM_ODD_RXIN1- 8 / GM_ODD_RXIN1+ 8

23 NV_ODD_RXIN2- / NV_ODD_RXIN2+ — 0404_4P2R NV_0 RP82 / CA_0 RP83 — ODD_RXIN2- / ODD_RXIN2+ — GM_ODD_RXIN2- 8 / GM_ODD_RXIN2+ 8

23 NV_EVEN_CLKIN- / NV_EVEN_CLKIN+ — 0404_4P2R NV_0 RP84 / CA_0 RP85 — EVEN_CLKIN- / EVEN_CLKIN+ — GM_EVEN_CLKIN- 8 / GM_EVEN_CLKIN+ 8

23 NV_EVEN_RXIN0- / NV_EVEN_RXIN0+ — 0404_4P2R NV_0 RP86 / CA_0 RP87 — EVEN_RXIN0- / EVEN_RXIN0+ — GM_EVEN_RXIN0- 8 / GM_EVEN_RXIN0+ 8

23 NV_EVEN_RXIN1- / NV_EVEN_RXIN1+ — 0404_4P2R NV_0 RP88 / CA_0 RP89 — EVEN_RXIN1- / EVEN_RXIN1+ — GM_EVEN_RXIN1- 8 / GM_EVEN_RXIN1+ 8

23 NV_EVEN_RXIN2- / NV_EVEN_RXIN2+ — 0404_4P2R NV_0 RP90 / CA_0 RP91 — EVEN_RXIN2- / EVEN_RXIN2+ — GM_EVEN_RXIN2- 8 / GM_EVEN_RXIN2+ 8

LVDS CONNECTOR

CN3 — FPC RECEPTCAL CONN_30P — FOX_GS12301-1011A-9F

LCDVCC

37 LVDS_GPIO

EVEN_RXIN0+ / EVEN_RXIN0-

EVEN_RXIN1+ / EVEN_RXIN1-

EVEN_RXIN2- / EVEN_RXIN2+

EVEN_CLKIN+ / EVEN_CLKIN-

ODD_CLKIN+ / ODD_CLKIN-

ODD_RXIN2+ / ODD_RXIN2-

ODD_RXIN1+ / ODD_RXIN1-

ODD_RXIN0+ / ODD_RXIN0-

INVERTER CONNECTOR

56,57,58,59,60,61,63 DCBATOUT

C640 0.1U_50V_K_B 0603

2A

CN49 — B TO B HEADER CONN_6P — FOX_HS8106E

8 NB_BRADJ — 0402 CA_0_J R1268

INV_ENABLE

INV_BRADJ

+3VRUN

U106 NV_74AHC1G08GW

37 INV_EN_EC

22 NV_BRADJ — 0402 NV_0_J R1269 — BRADJPWM_LPF

R1393 10K_J 0402

U15 +3VRUN 74AHC1G08GW

37 INV_EN_EC

INV_ENABLE

R1394 10K_J 0402

INV_ENABLE_1

U16 +3VRUN 74AHC1G08GW

37,39 LIDIN#

22 NV_INV_EN

(3.3V tolerant)

8 GM_INV_EN — R457 CA_0_J 0402

R458 CA_100K_J 0402

LCDVCC

+3VRUN

R459 10K_J 0402

Q10 — CA_PDTC144EU

8 GM_LCDVCC_EN

22 NV_LCDVCC_EN#

U17 — G548B2P1U

C647 4.7U_6.3V_K 0805_X5R

C649 4.7U_10V_Y_Y 0805

C650 0.1U_16V_Y_Y 0402

R461 200_J 0603

C1151 0402 NV_0.1U_16V_Y_Y

C641 NC_10P_50V_J_N ODD_CLKIN- 0402

C643 NC_10P_50V_J_N ODD_CLKIN+ 0402

C644 NC_10P_50V_J_N EVEN_CLKIN- 0402

C645 NC_10P_50V_J_N EVEN_CLKIN+ 0402

For EMI

PANEL ID

SW1 — HDS404-E_SW-SLIDE

LCDID0 33 / LCDID1 33 / LCDID2 33 / LCDID3 33

ON=0

Type	WXGA	WXGA-HC	WSXGA+
Size	15.4" wide	15.4" wide	15.4" wide
Vender	Hitach	Hitachi	Hitachi
Device Name	TX39D81VC1AAA	TX39D80VC1GAA	TX39D90VC1GAA
Panel ID Check[3..0]	1000	1000	1100

DISCHARGE

The R461 will consume about 0.054 Watt (3.3x3.3/200 = 0.054W). We changed resistor to 0603 size (1/8 Watt)

FOXCONN — HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division

Title: LVDS

Size: A3 — Document Number: MS13-1-01 (MBX-149) — Rev: 1.0

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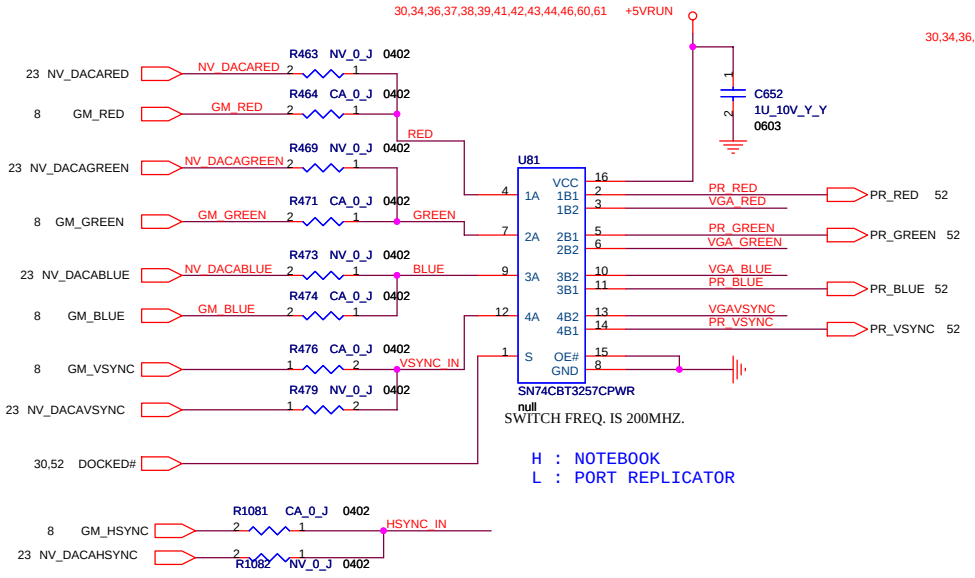
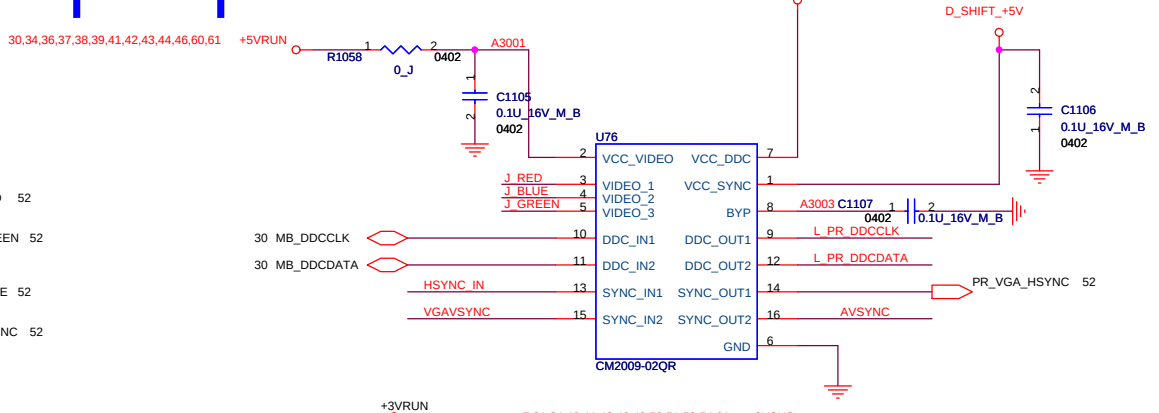
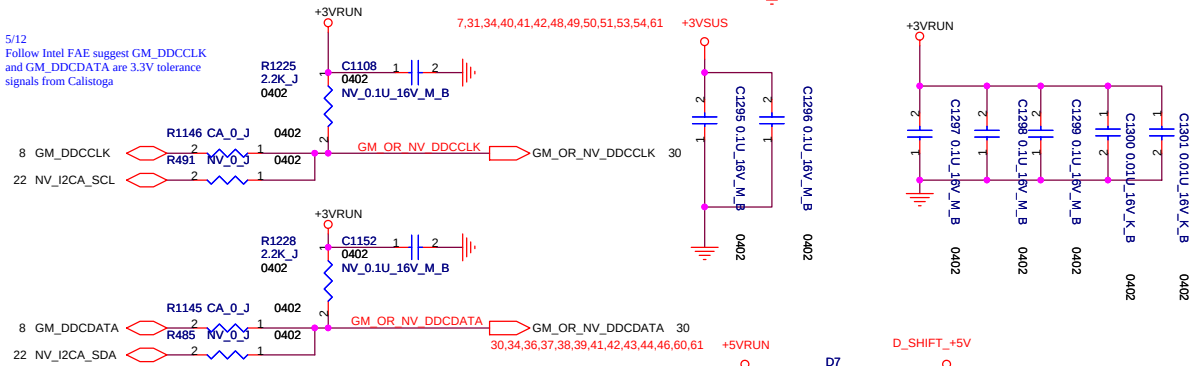
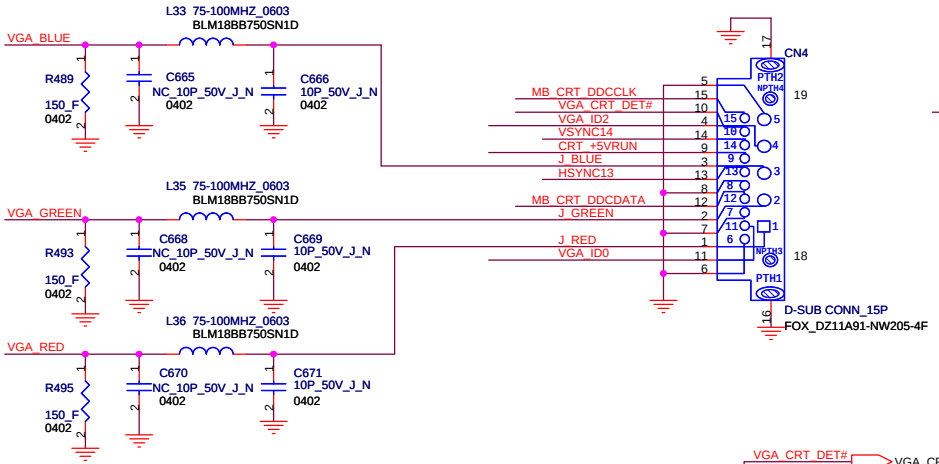
CRT ANALOG SWITCH

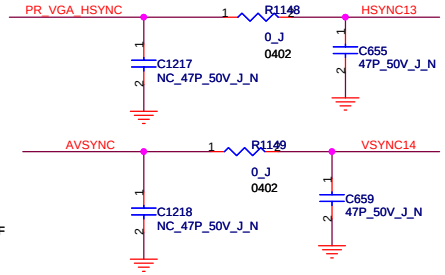


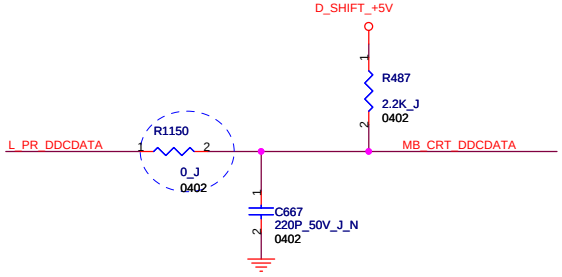


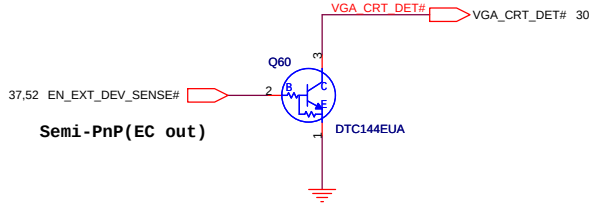


CRT CONNECTOR









FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: CRT		
Size: A3	Document Number: MS13-1-01 (MBX-149)	Rev: 1.0
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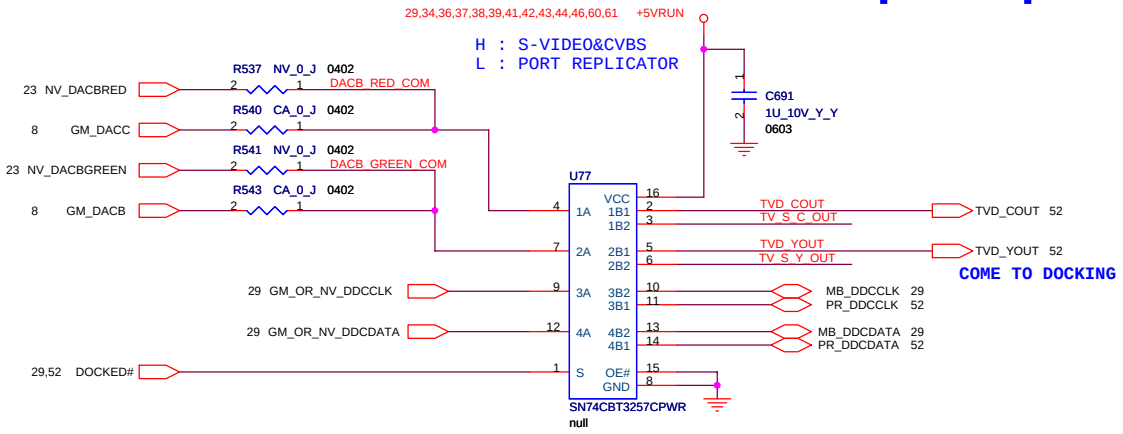
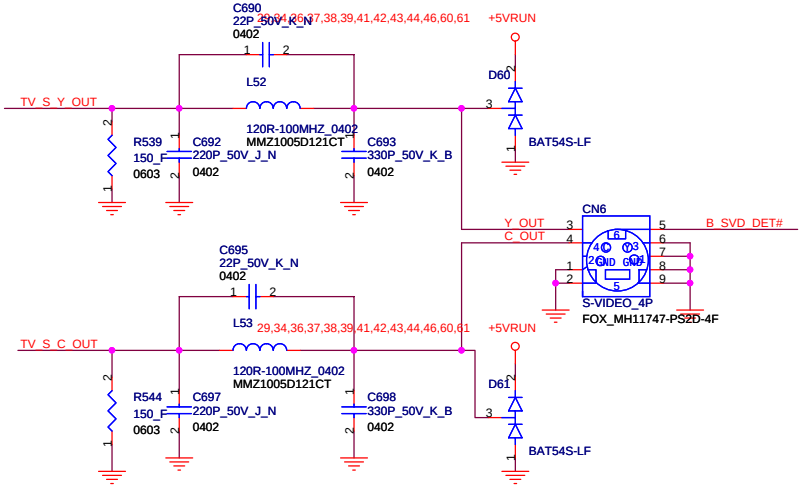
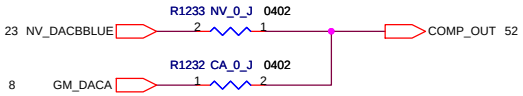
S-VIDEO

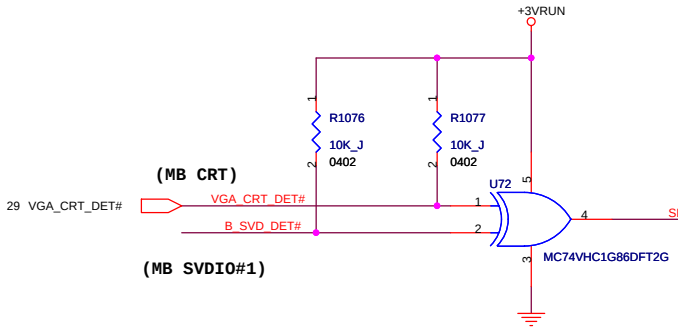
These compoent close to S-Video connector within 700 mil

S-VIDEO ANALOG SWITCH

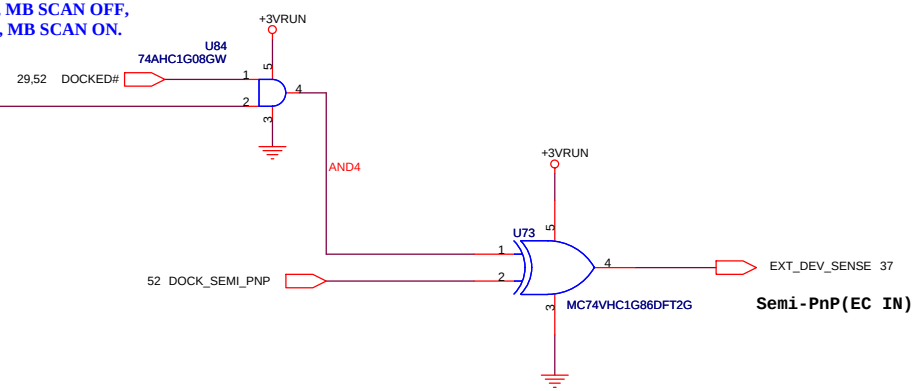








When DOCKED# L , MB SCAN OFF,
When DOCKED# H , MB SCAN ON.



Semi-PnP

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: S-VIDEO/Semi-PnP		
Size: A3	Document Number: MS13-1-01 (MBX-149)	Rev: 1.0
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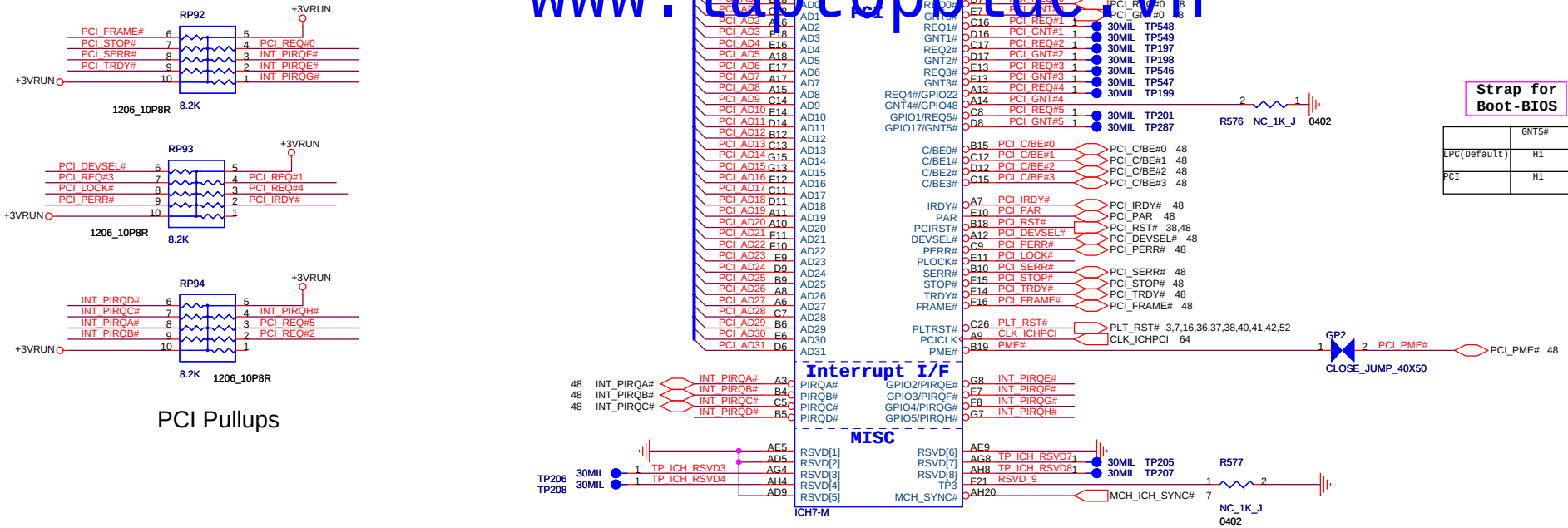

Title	ICH7-M(PCI/DMI/USB/PCIE) 1/5	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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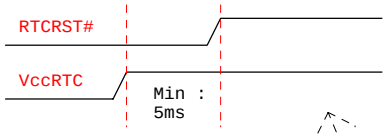
FOXCONN — HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division



The traces inside this block should be wider.
No digital signals routed under XTAL

Check resistor value

Pull-up to enable internal VccSus1_05 regular
Pull-Low to disable

Distance between the ICH-7M and C on the "P" signal should be identical distance between the ICH-7M and C on the "N" signal for same pair

Place close to ICH7

U29A
ICH7-M

RTC
LPC
LAN
CPU
AC-97/AZALIA
SATA
IDE

Title	ICH7-M(LPC,IDE,SATA) 2/5	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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FOXCONN — HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division

Stuff for No-reboot

RP96 10K 0804_8P4R: PM_RI# SMB_LINK_ALERT# SMLINK1 SMLINK0

R615 NC_1K_J 0402: +3VRUN — AC_SPKR

U29C ICH7-M

SMB: SMBCLK SMBDATA LINKALERT# SMLINK0 SMLINK1 — 13,14,42,64 SMB_CLK_SUS; 13,14,42,64 SMB_DATA_SUS

SATA GPIO: GPIO21/SATA0GP GPIO19/SATA1GP GPIO36/SATA2GP GPIO37/SATA3GP

Clocks: CLK14 CLK48 SUSCLK — CLK_ICH14 64; CLK_USB48 64; SUS_CLK 30MIL TP240

Power MGT: RI# SPKR SUS_STAT# SYS_RST# GPIO0/BM_BUSY# GPIO11/SMBALERT# GPIO18/STPPCI# GPIO20/STPCPU# GPIO26 GPIO27 GPIO28 GPIO32/CLKRUN# GPIO33/AZ_DOCK_EN# GPIO34/AZ_DOCK_RST# WAKE# SERIRQ THRM# VRMPWRGD — PM_RI# AC_SPKR PM_SUS_STAT# PM_SYSRST# PM_BMBUSY# SMB_ALERT# PM_STPPCI# STP_CPU# TP_GPIO26 TP_GPIO27 TP_GPIO28 PM_CLKRUN# TP_GPIO33 TP_GPIO34 PCIE_WAKE# INT_SERIRQ SB_THRM# VRMPWRGD

GPIO: GPIO6 GPIO7 GPIO8 — ID_LPC_PCI# RUNTIME_SCI# EXTSMI#

GPIO21/SATA0GP GPIO19/SATA1GP GPIO36/SATA2GP GPIO37/SATA3GP — TP_GPI21 LCDID1

GPIO10 GPIO12 GPIO13 GPIO14 GPIO15 GPIO24 GPIO25 GPIO35 GPIO38 GPIO39 — SB_RST# IMVP_PHASEGD 60; OVT_EC# 3,37,60; TP_GPIO13 TP246; WAKE_SCI# 37; TP_GPIO15 TP247; TP_GPIO24 TP509; TP_GPIO25 TP248; SATACLKREQ# 64; LCDID2 28; LCDID3 28

PWROK — IMVP_PWRGD 7,37

GPIO16/DPRSLPVR — A3601 R626 0 J 0402 — DPRSLPVR 7,60

TP0/BATLOW# — BATLOW#

PWRBTN# — PWRBTN# 37

LAN_RST# — SUS_PWRGD_10MS 37,42,48,51,52,53

RSMRST# — PM_RSMRST_SB R633 1K_J 0402 PM_RSMRST# — PM_RSMRST# 37,52

MS13 DVT Modify

R1168 10K_J 0402; R1167 10K_J 0402; R616 10K_J 0402; R1256 0_J 0402 — LCDID0 28; DK_BAY_ID# 37,52; LCDID1 28

R630 NC_100K_J 0402

SLP_S3# R619 100_J 0402 — PM_SLP_S3# 37

SLP_S4# R622 100_J 0402 — PM_SLP_S4# 37

SLP_S5# R623 0_J 0402 — PM_SLP_S5# 37

R1120 0_J 0402: +3VRUN

R638 R640 10K_J 0402: +3VRUN

D75 SCS500V-40-LF: PM_RSMRST_SB — ALW_PWRGD 37,57

MS13 DVT Modify

80 Port I/F:
H: LPC bus
L: PCI bus

Q100 NC_2N7002; GP14 CLOSE_JUMP_40X50: 41,42,51,52,58,61,63 +5VSUS — 42 PCIE_EXPRESS_WAKE# — 40,52 PCIE_WAKE#

Q107 2N7002: +3VRUN — RUNTIME_SCI# — EC_RUNTIME_SCI# 37; R1454 NC_0_J 0402

R1435 2K_J 0402; U30 SN74AHC1G14DCK: 37,60,64 EC_CLK_EN# — VRMPWRGD

U31 EEPROM_SOP-8_256x8 HT24LC02: Adds.AEH; SMB_CLK_SUS SMB_DATA_SUS; C744 0.1U_16V_M_B 0402; C742 NC_10P_50V_J_N 0402; R643 NC_10_J 0402; CLK_USB48

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	ICH7-M(GPIO) 3/5	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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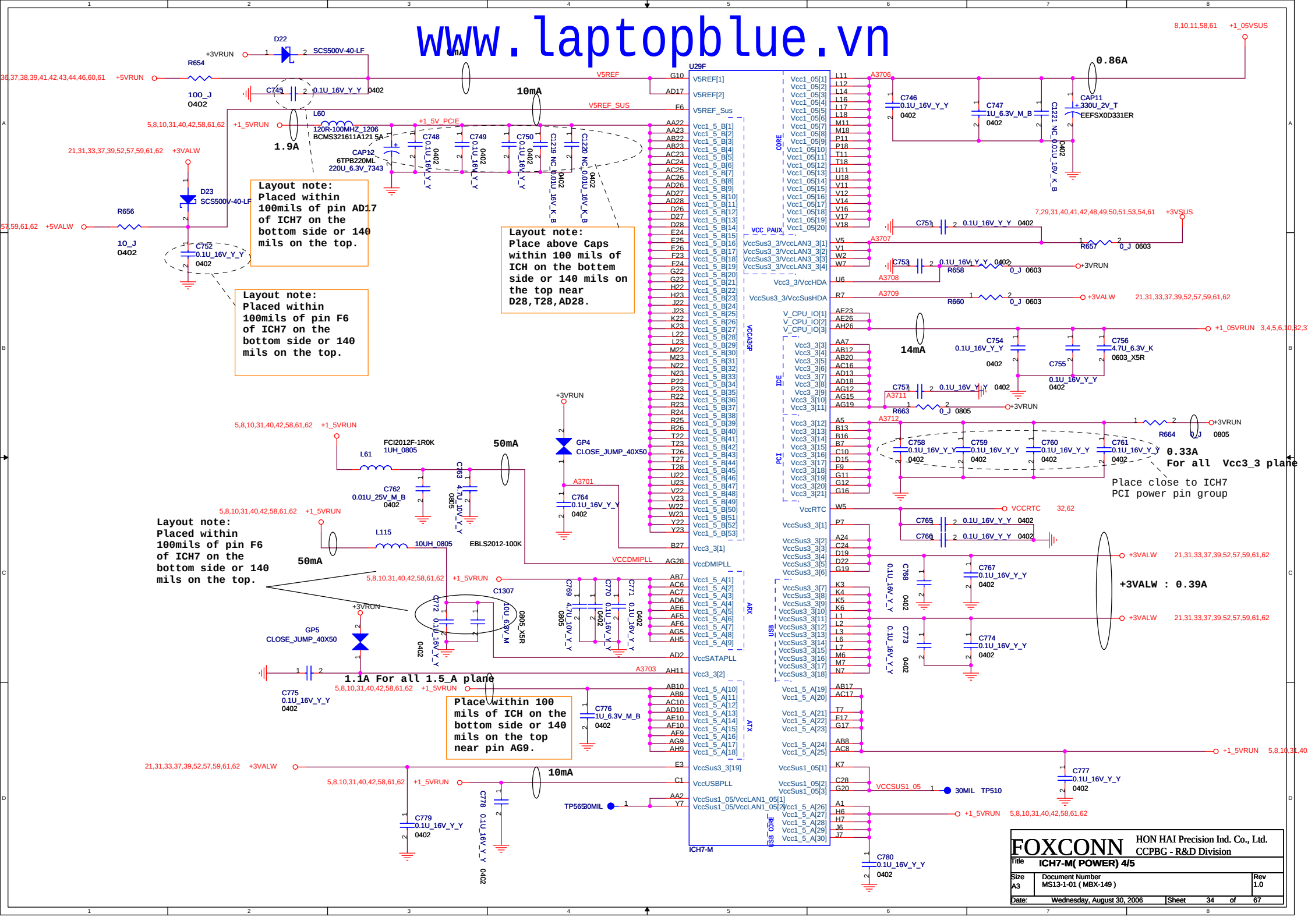
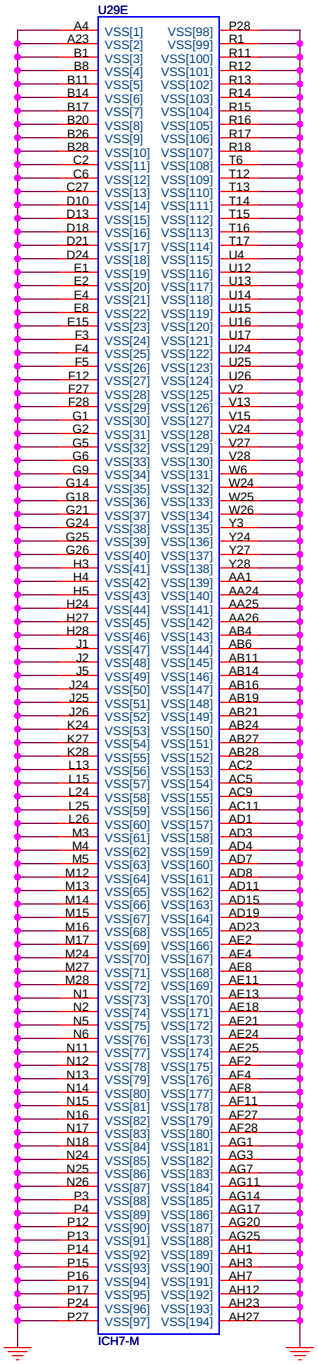
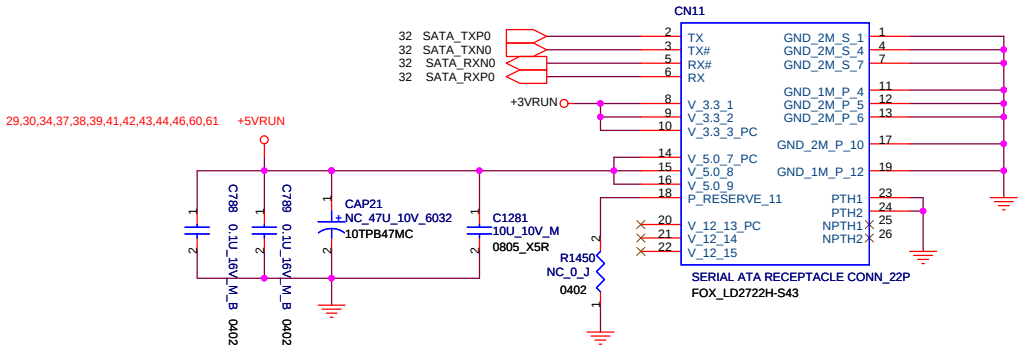
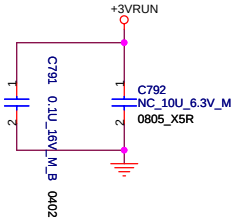
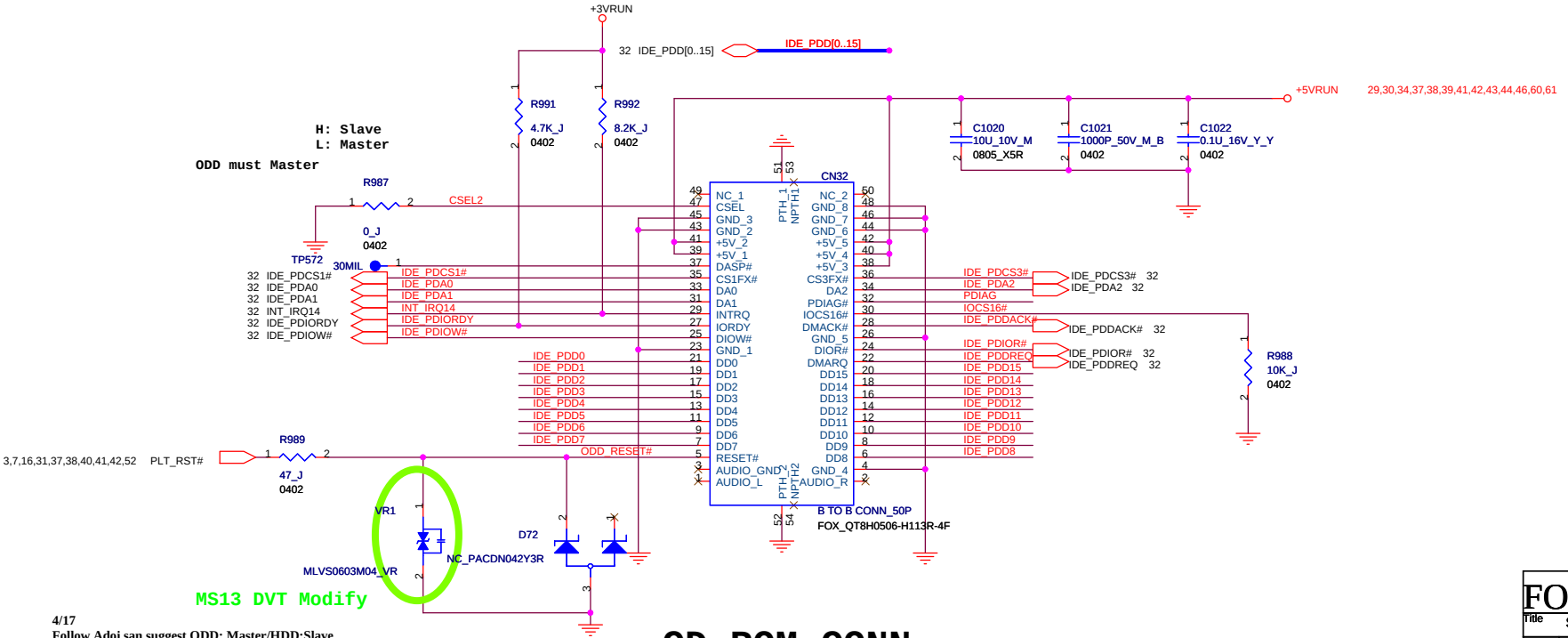




FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	ICH7-M(GND) 5/5	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 35 of 67	







CD-ROM CONN

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	SATA HDD/CD-ROM	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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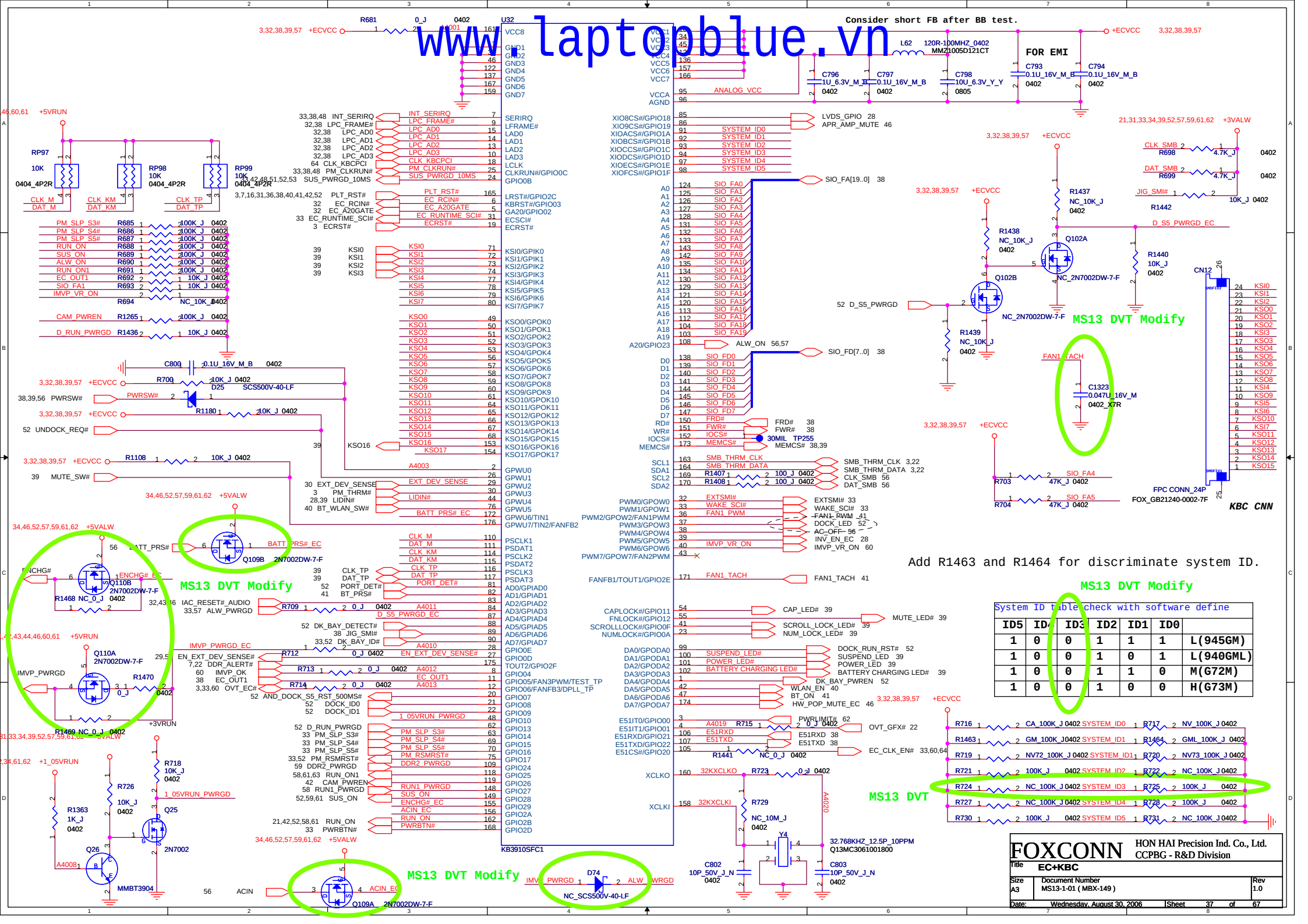
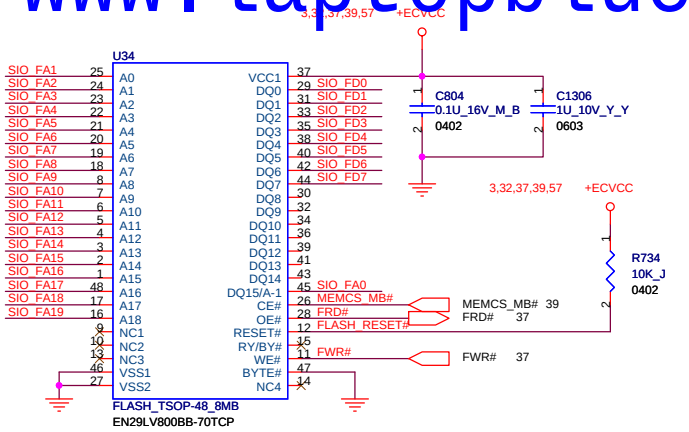
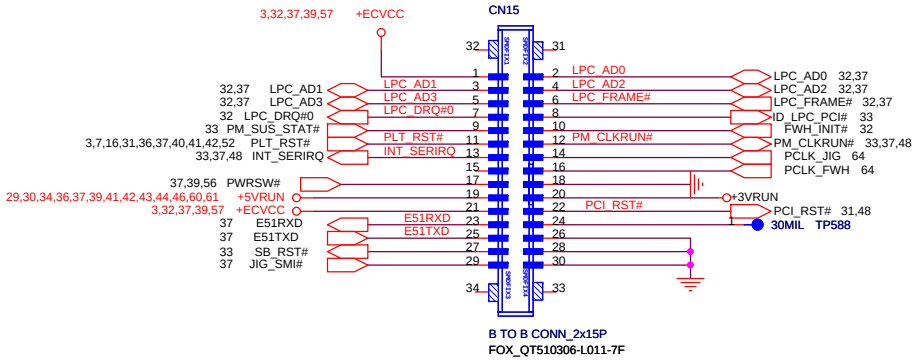


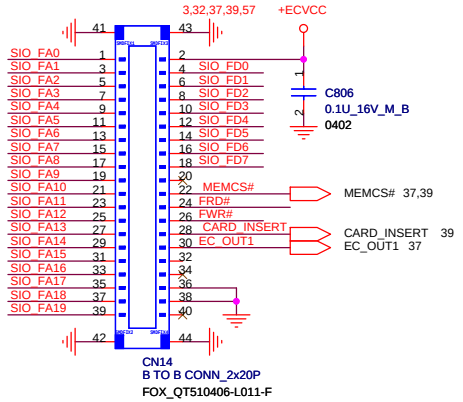
37 SIO_FA[19..0]
37 SIO_FD[7..0]



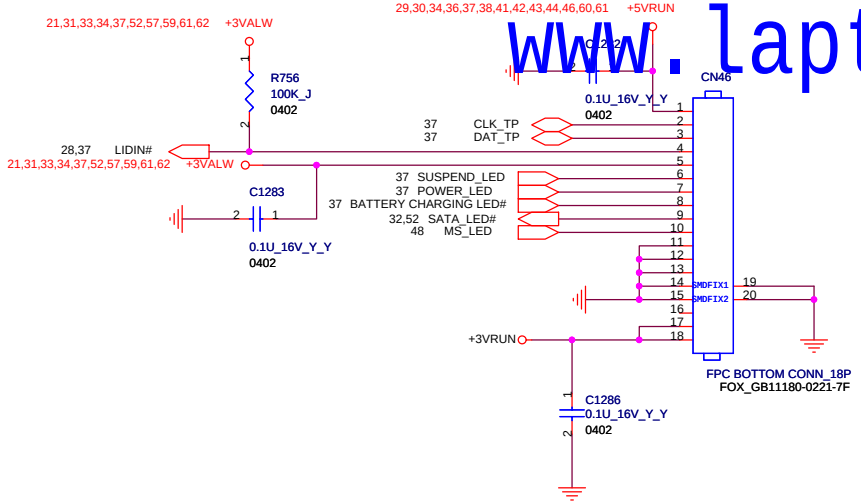
FLASH BIOS

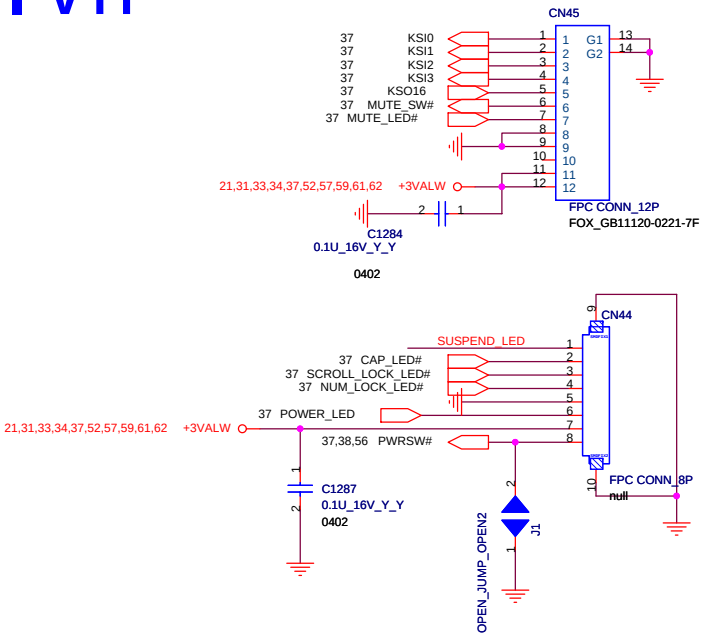
JIG-120

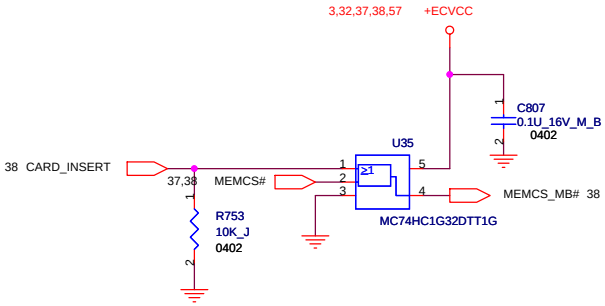


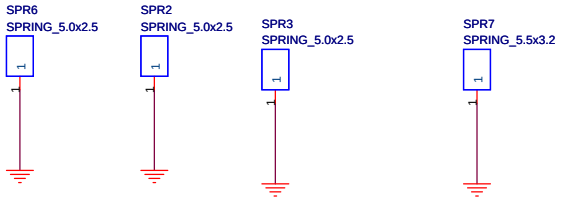


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Flash ROM/X-Bus CONN	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 38 of 67	

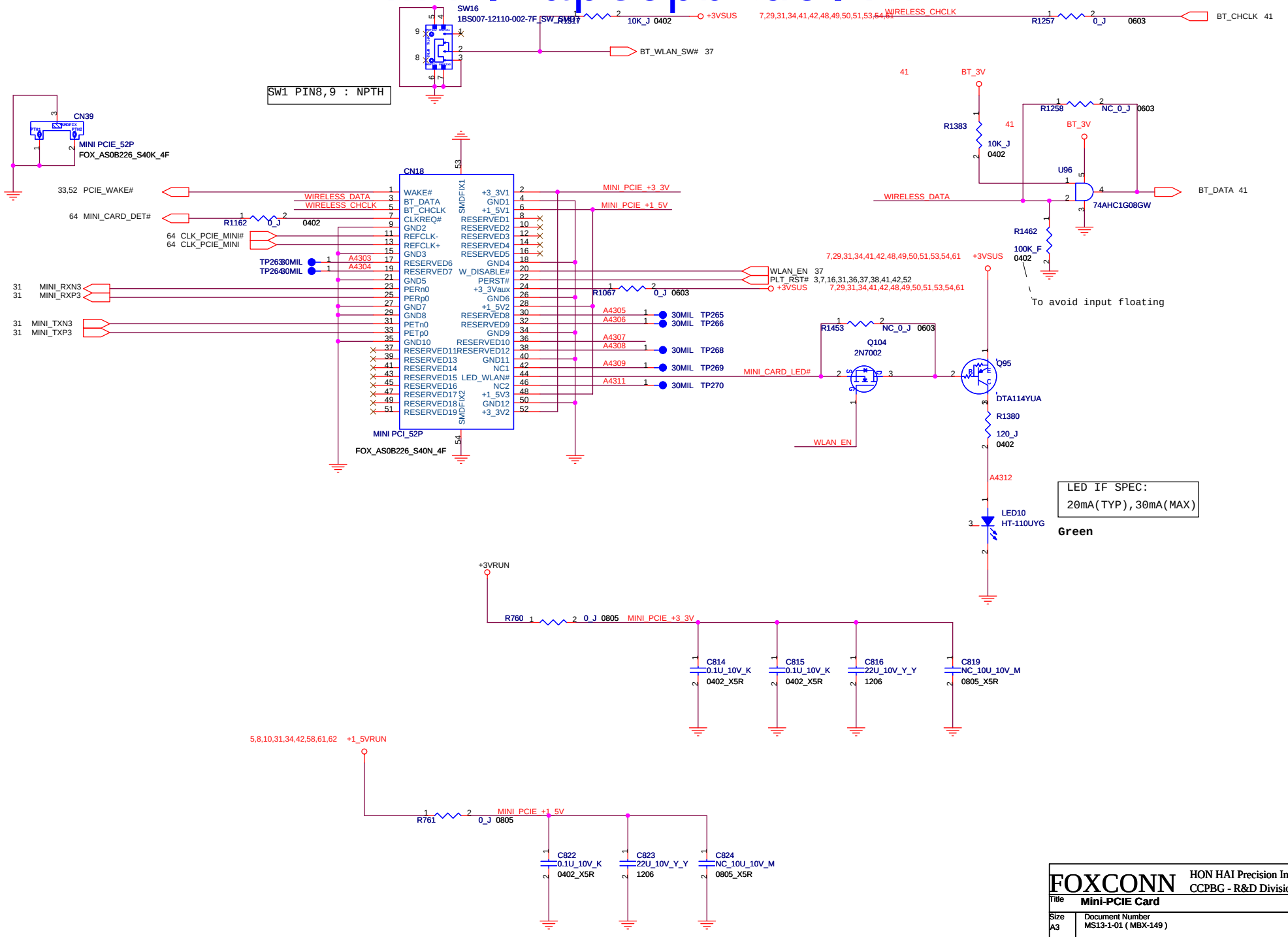






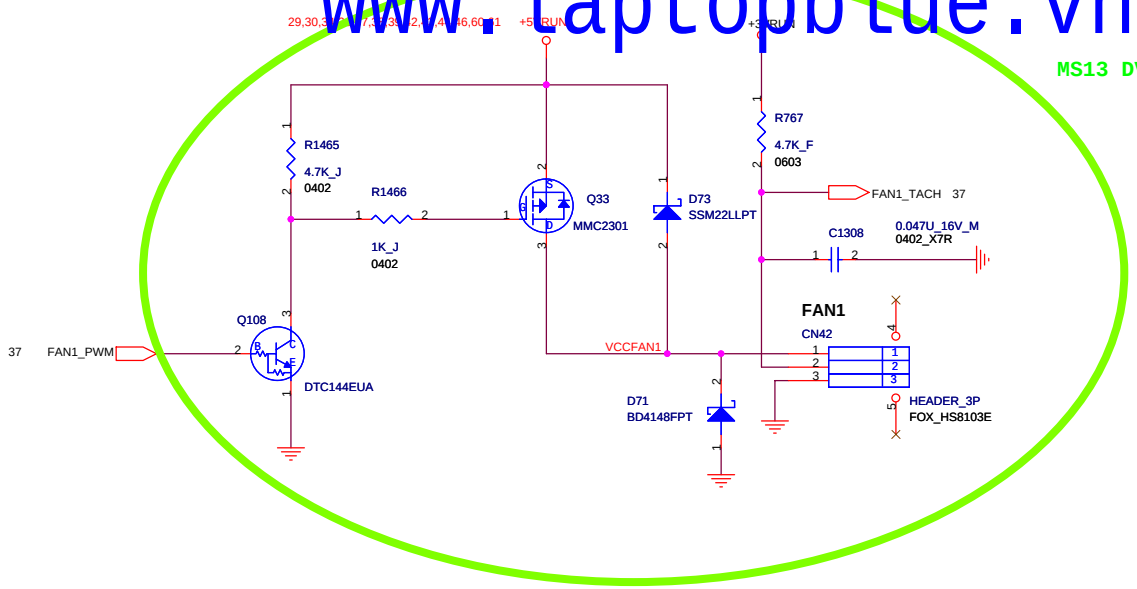


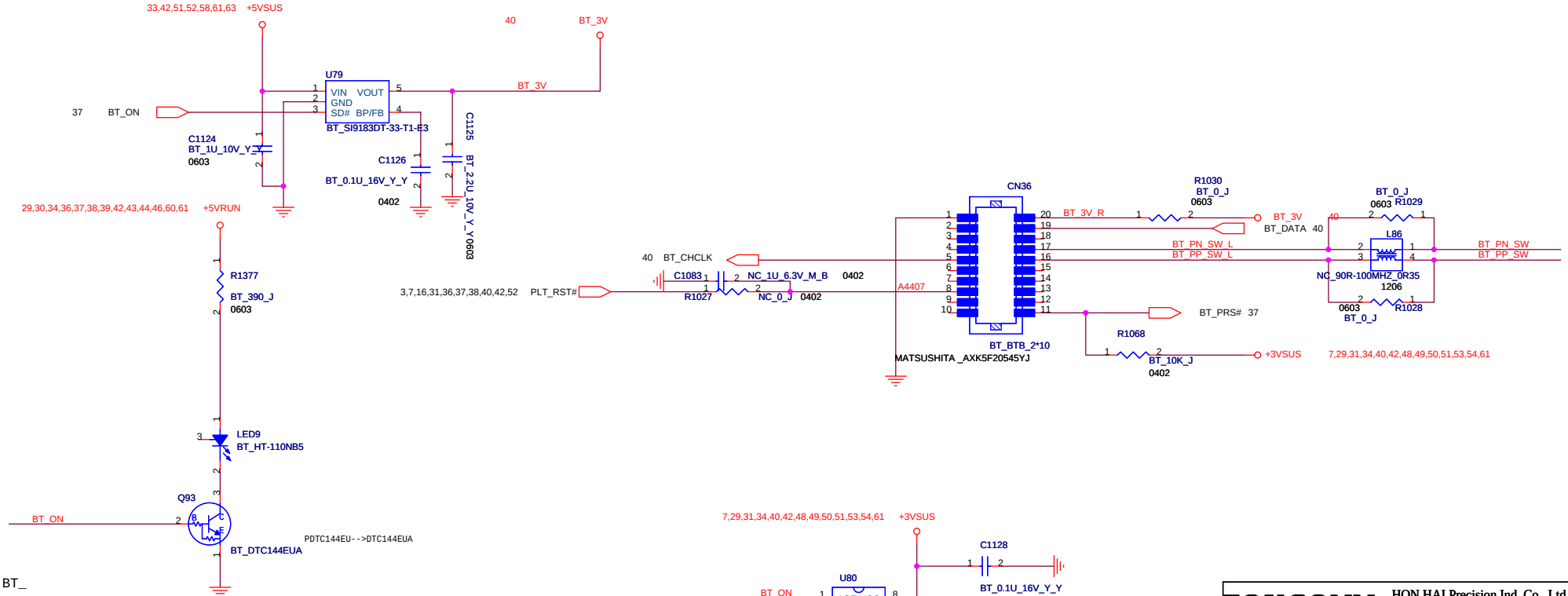
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	LED/LID SW#/Touch PAD		
Size A3	Document Number MS13-1-01 (MBX-149)		Rev 1.0
Date: Wednesday, August 30, 2006		Sheet 39 of 67	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Mini-PCIE Card	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 40 of 67	

MS13 DVT Modify





BOM Notice: BT_

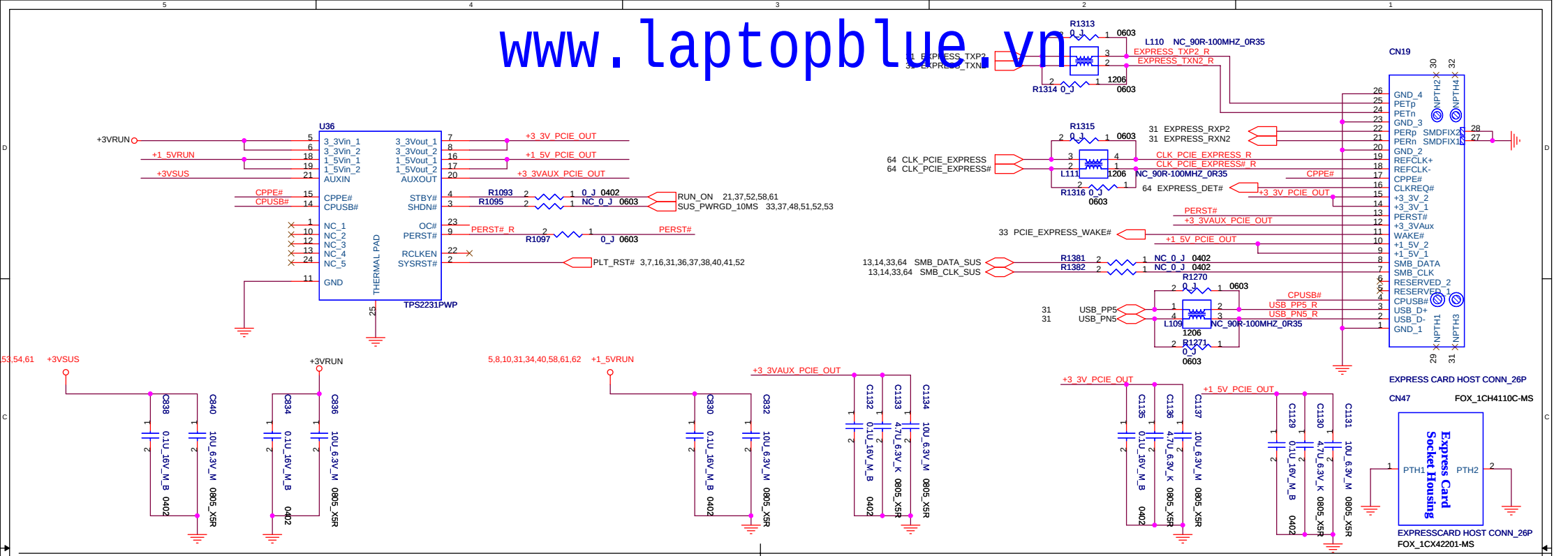
W/ BT SKU	Q93,LEDE9,R1377,U79,C1124,C1125,C1126, C1128,U80,R1068,R1028,R1029,R1030,CN36	stuff
W/O BT SKU	Q93,LEDE9,R1377,U79,C1124,C1125,C1126, C1128,U80,R1068,R1028,R1029,R1030,CN36	no stuff

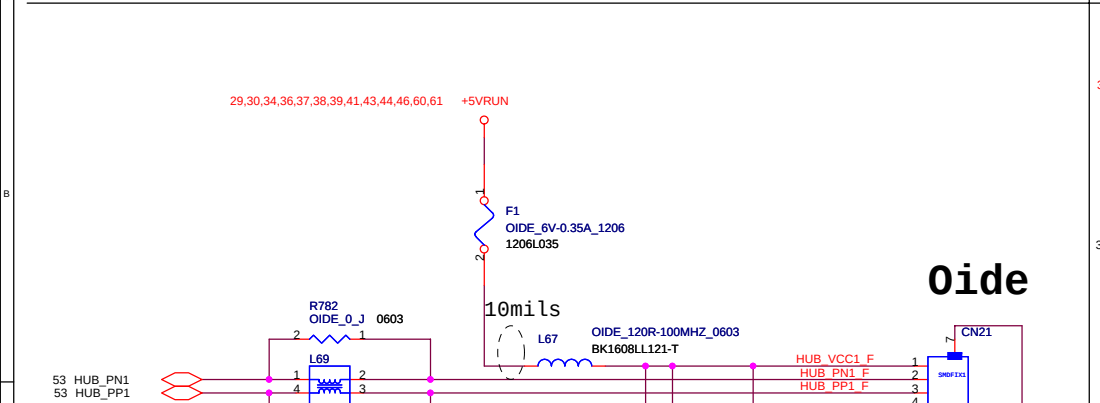
FOXCONN — HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

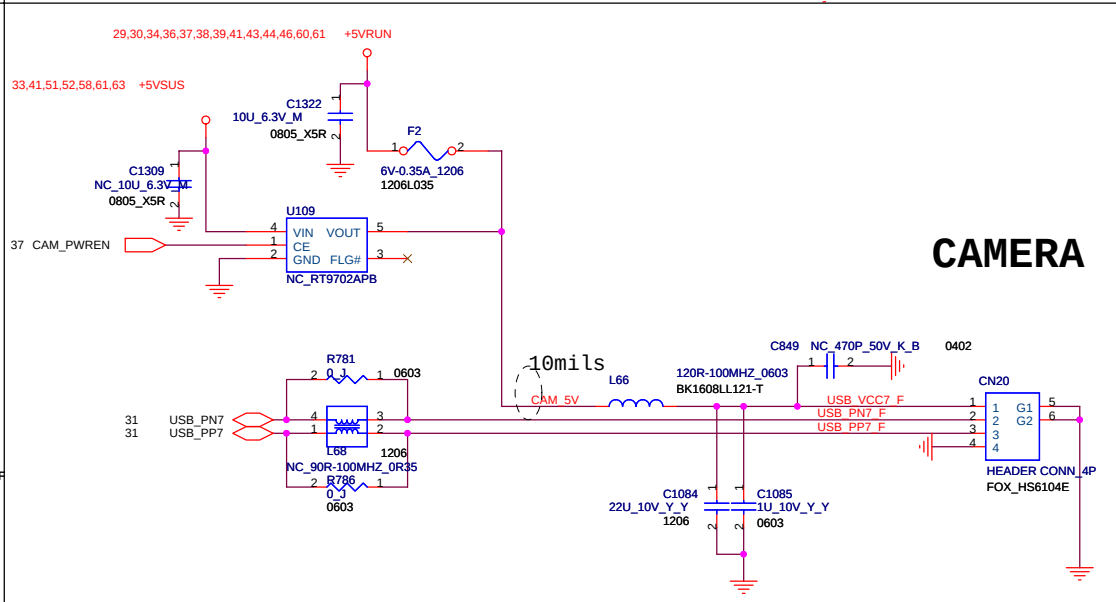
Title: FAN/Bluetooth

Size: A3 | Document Number: MS13-1-01 (MBX-149) | Rev: 1.0

Date: Wednesday, August 30, 2006 | Sheet 41 of 67





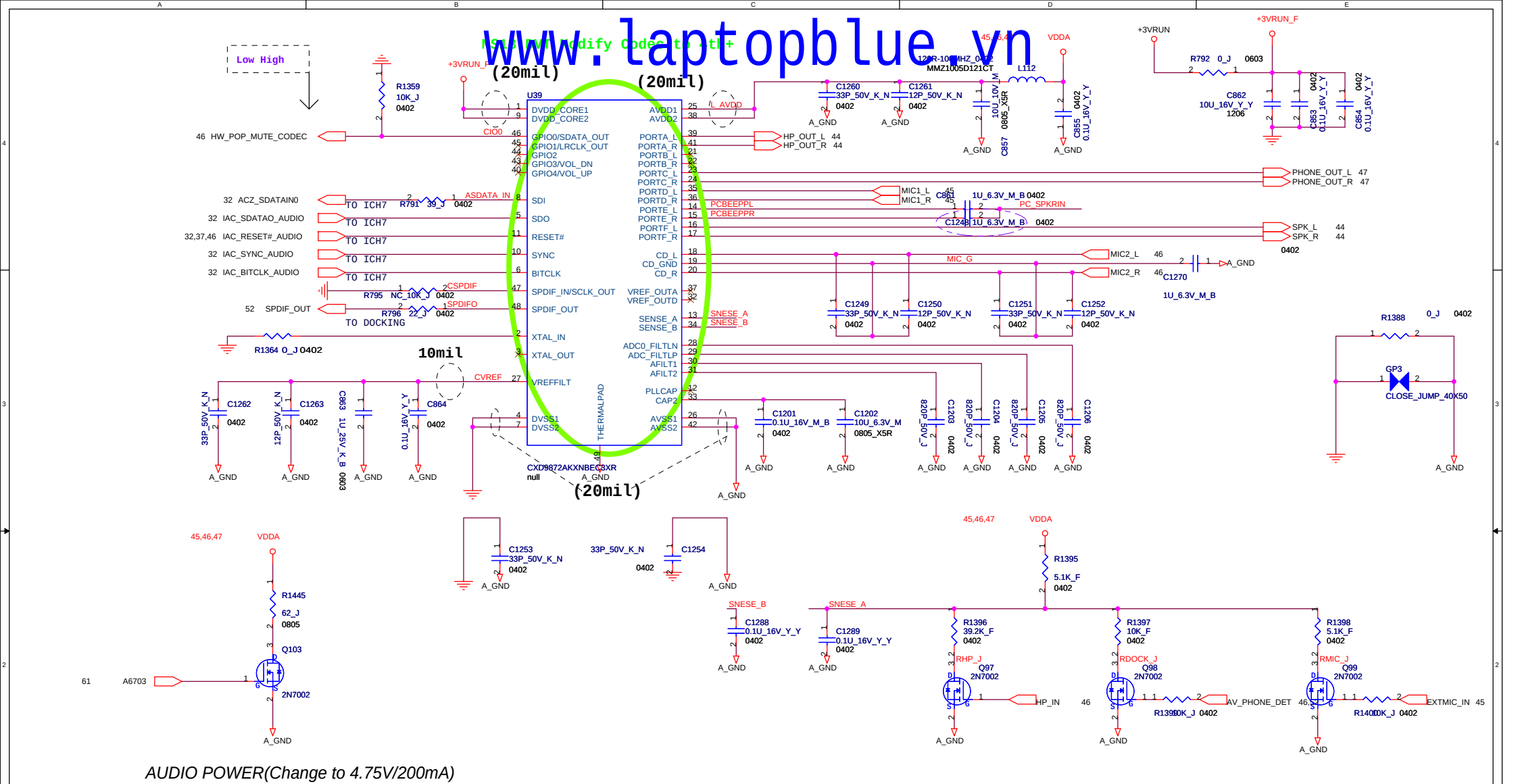


BOM Notice: OIDE_

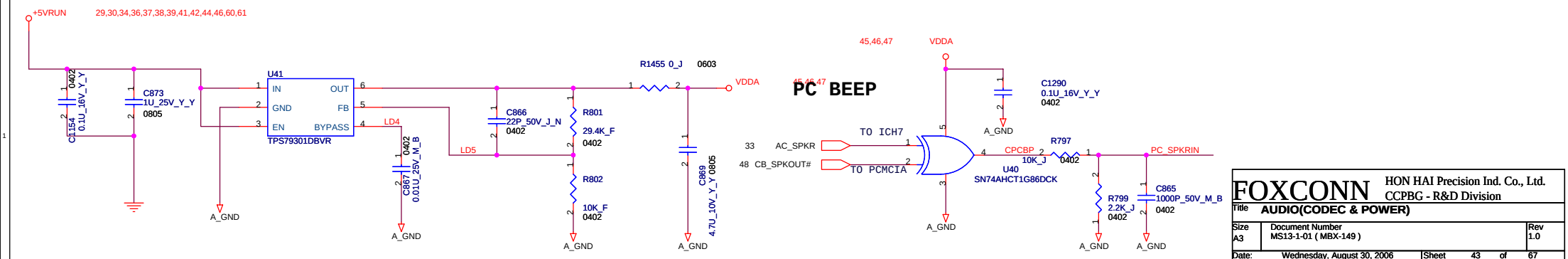
W/ Oide SKU	R782,R787,L67,C1086,C1087,C848,CN21	stuff
W/O Oide SKU	R782,R787,L67,C1086,C1087,C848,CN21	no stuff

FOXCONN — HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title	EXPRESS/CAM/OIDE	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 42 of 67	



AUDIO POWER(Change to 4.75V/200mA)



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO(CODEC & POWER)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 43 of 67	

SE0J101-3B_100uF change
to ECGUD0J101ER_100uF

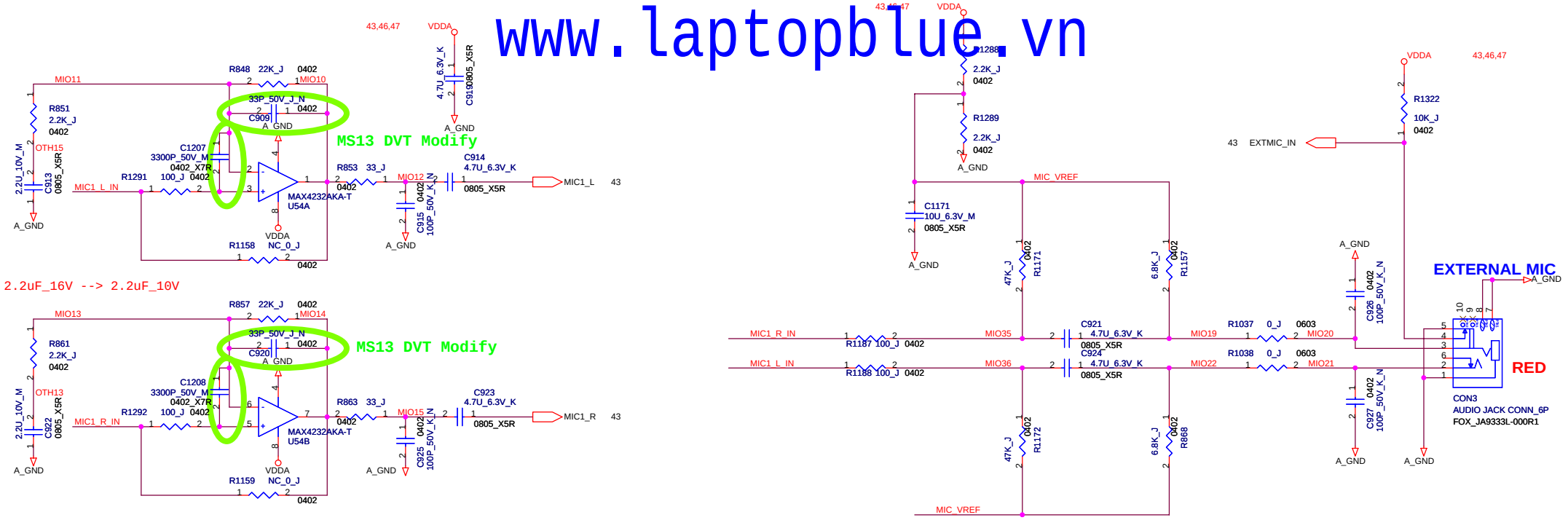
Max 1.5A

MS13 DVT Modify

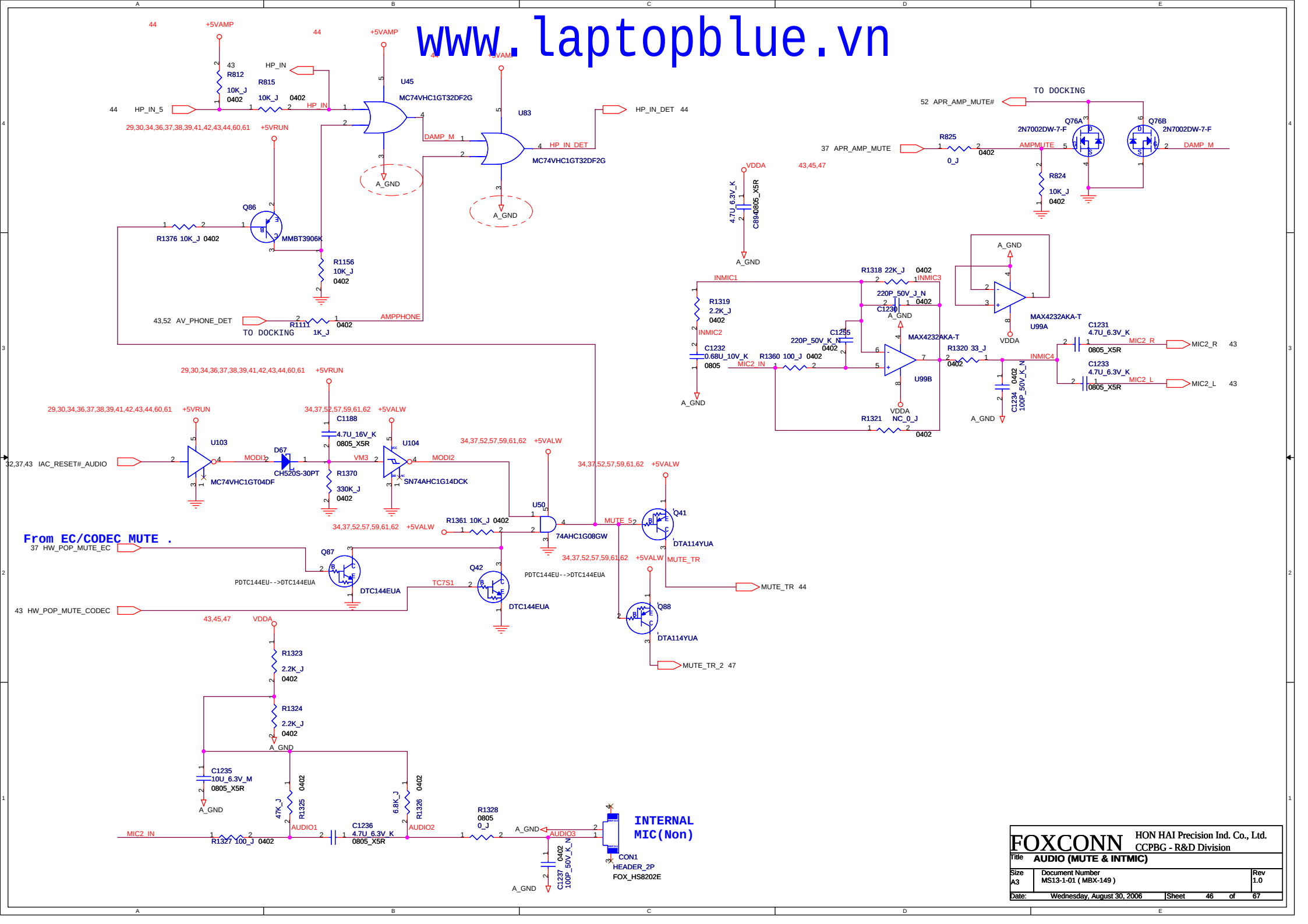
PBSS2515F.115 change to PBSS2515E.115

INTERNAL SPEAKER

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO(AMP & HP & SPK)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 44 of 67	

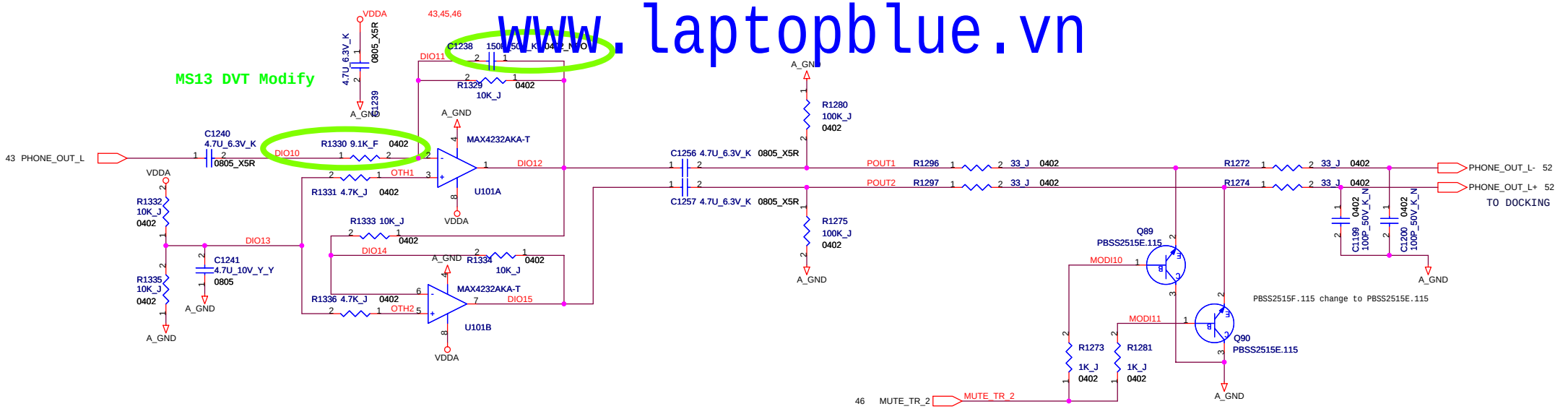


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO(EXT MIC & PHONE OUT)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 45 of 67	

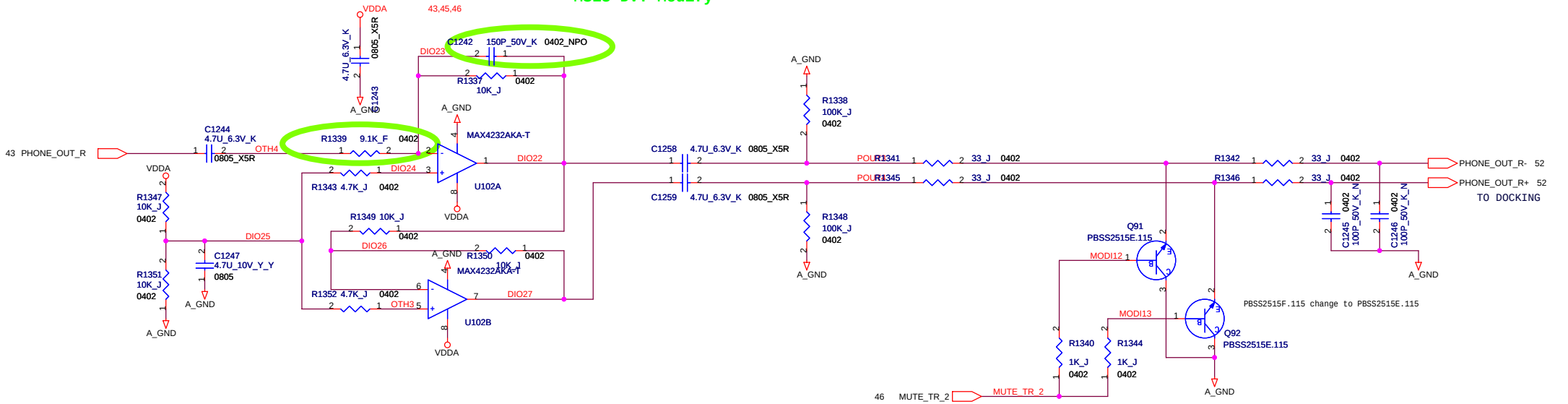


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	AUDIO (MUTE & INTMIC)
Size A3	Document Number MS13-1-01 (MBX-149) Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 46 of 67

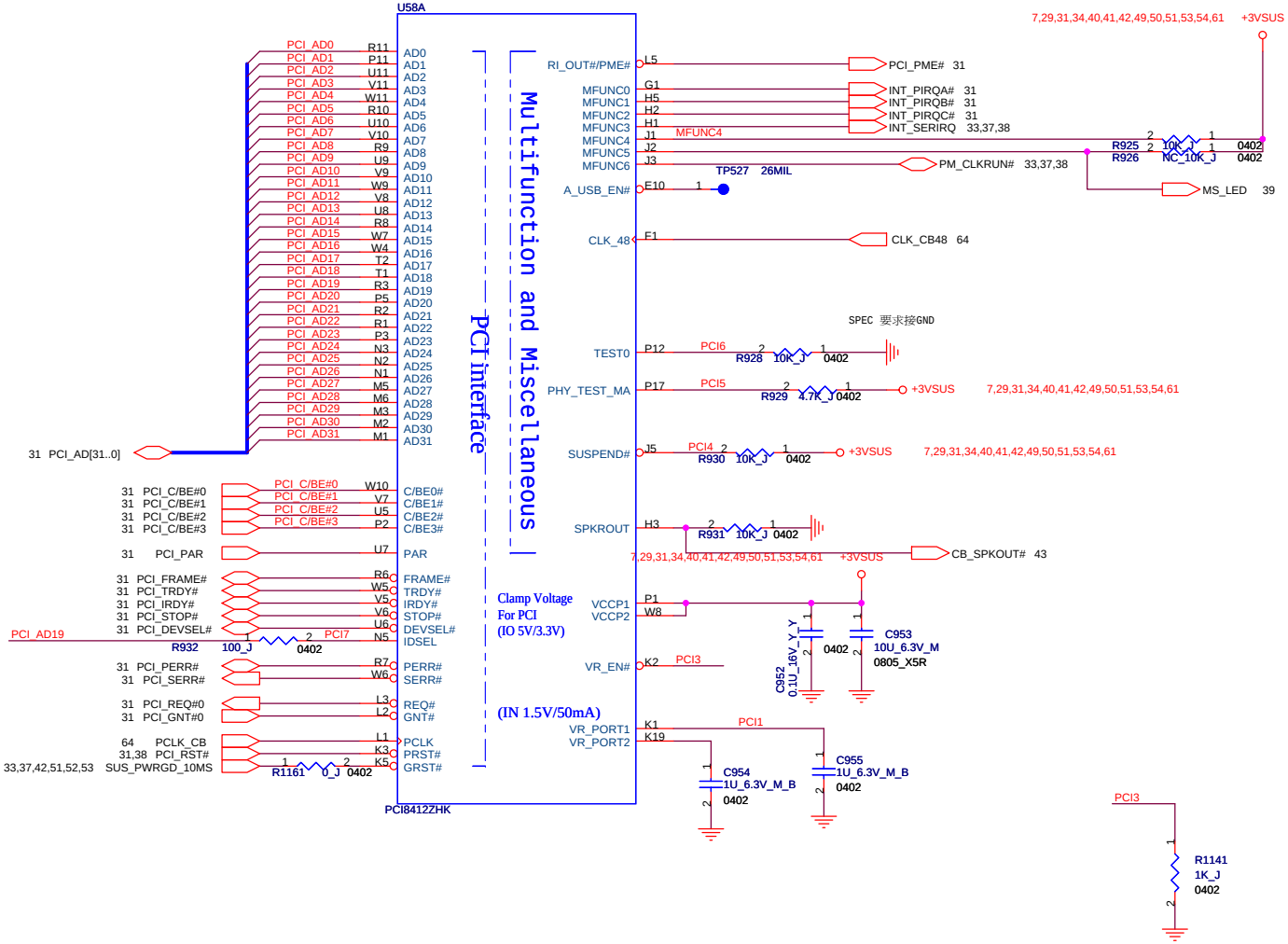
MS13 DVT Modify



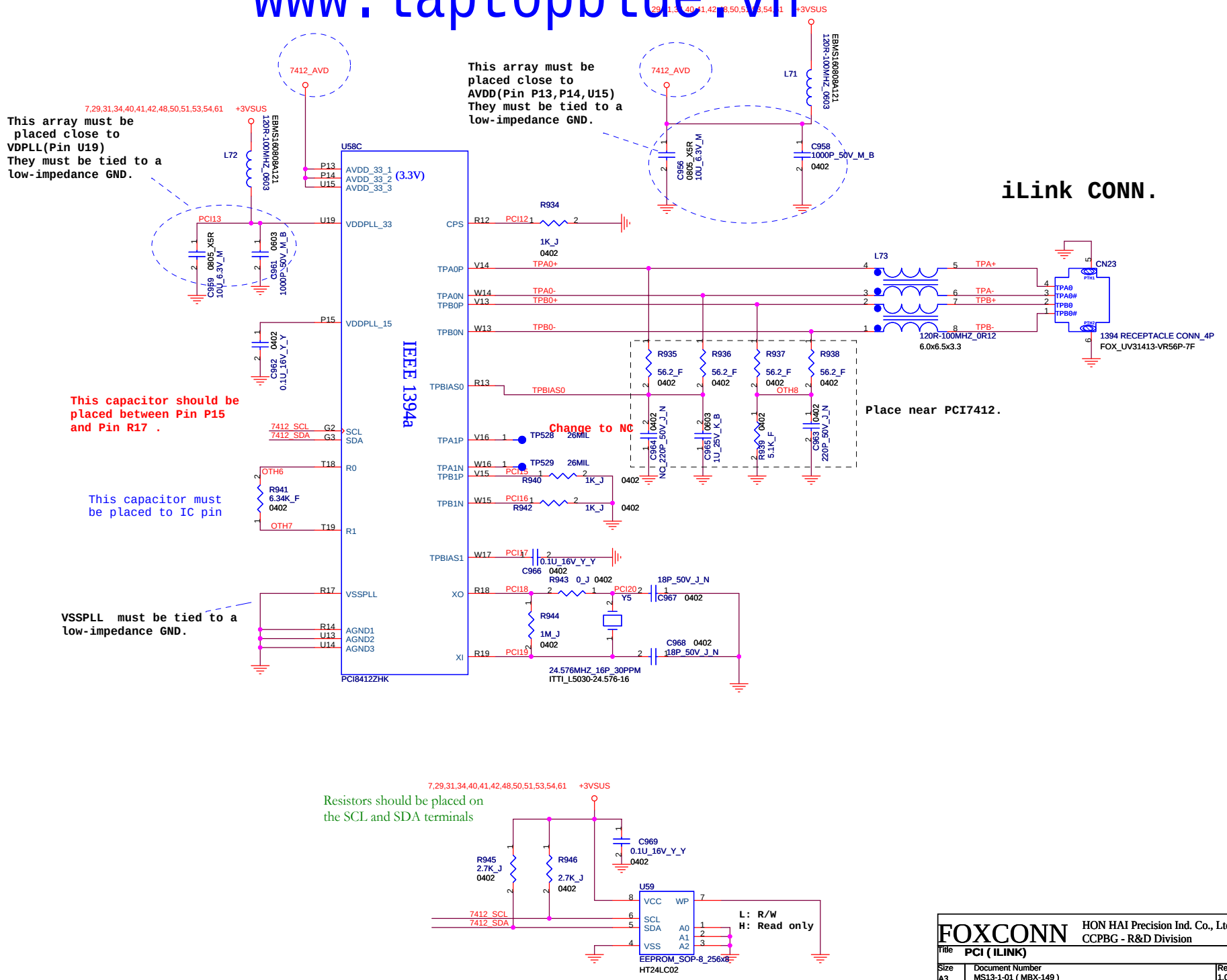
MS13 DVT Modify



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO (PHONE OUT)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 47 of 67	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	PCI (PCI BUS)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 48 of 67	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	PCI (ILINK)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 49 of 67	

PLACE IT BOT

These capacitors should be closed to socket pin

Q101 PMBT2907A

C980 0805_X5R 10U_6.3V_M

C981 0402 0.1U_16V_Y_Y

C982 4.7U_6.3V_K 0603_X5R

R1425 1M_J 0402

R1047 1.5K_J 0402

Q56 DTC144EUA

U58D PCI8412ZHK

SD/MMC/Memory Stick/PRO/Smart Media/XD

POWER SUPPLY (3.3V)

VCC1 VCC2 VCC3 VCC4 VCC5 VCC6 VCC7 VCC8 VCC9 VCC10 VCC11

GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9 GND10 GND11

RSVD10 RSVD9 RSVD8 RSVD7 RSVD6 RSVD5 RSVD4 RSVD3 RSVD2

MC_PWR_CTRL_0 — MC_PWR_CTRL_0

MC_PWR_CTRL_1/SM_R/B# — MC_PWR_CTRL_SD — TP592 26MIL

SD_CD# — SD_CD#

SD_CLK/SM_RE# — FIN1

MS_CLK/SD_CLK/SM_EL_WP# — FIN2 — R955 47_J 0402 — MS_CLK

SD_CMD/SM_ALE — SD_CMD

SD_DAT0/SM_D4 — SD_DATA0

SD_DAT1/SM_D5 — SD_DATA1

SD_DAT2/SM_D6 — SD_DATA2

SD_DAT3/SM_D7 — SD_DATA3

MS_SDIO(DATA0)/SD_DAT0/SM_D0 — MS_SDIO_DATA0

MS_DATA1/SD_DAT1/SM_D1 — MS_DATA1

MS_DATA2/SD_DAT2/SM_D2 — MS_DATA2

MS_DATA3/SD_DAT3/SM_D3 — MS_DATA3

SD_WP/SM_CE# — SD_WP

SM_CD# — TP530 26MIL

SM_CLE — TP531 26MIL

XD_CD#/SM_PHYS_WP# — TP532 26MIL

MS_CD# — MS_CD#

MS_BS/SD_CMD/SM_WE# — MS_BS

C970 0.1U_16V_Y_Y 0402

C971 1000P_50V_K_B 0402

C972 0.1U_16V_Y_Y 0402

C973 1000P_50V_K_B 0402

C974 0.1U_16V_Y_Y 0402

C978 10U_6.3V_M 0805_X5R

MS DUO CONN.

CN25

VCC_CTRLMS

MS_CLK MS_DATA3 MS_CD# MS_DATA2 MS_SDIO_DATA0 MS_DATA1 MS_BS

VSS2 VCC CLK DATA3 INS DATA2 DATA0 DATA1 BS VSS1

MEMORY STICK DUO CONN_10P
500951-1093

MDC CONN.

CN26

32 ACZ_SDATAOUT
32 ACZ_SYNC
32 ACZ_MDC_SDATAIN1
32 ACZ_RST#

GND5 GND6 GND1 SDATA_OUT GND2 SYNC SDATA_IN RST# GND8 GND9 GND7 RES1 RES2 +3.3V GND3 GND4 BITCLK GND10

+3VSUS

ACZ_BITCLK 32

B TO B PLUG CONN_12P
FOX_QT8A0121-1011-8F

7,29,31,34,40,41,42,48,49,51,53,54,61 +3VSUS

R961 4.7K_J 0402 MS_CD#

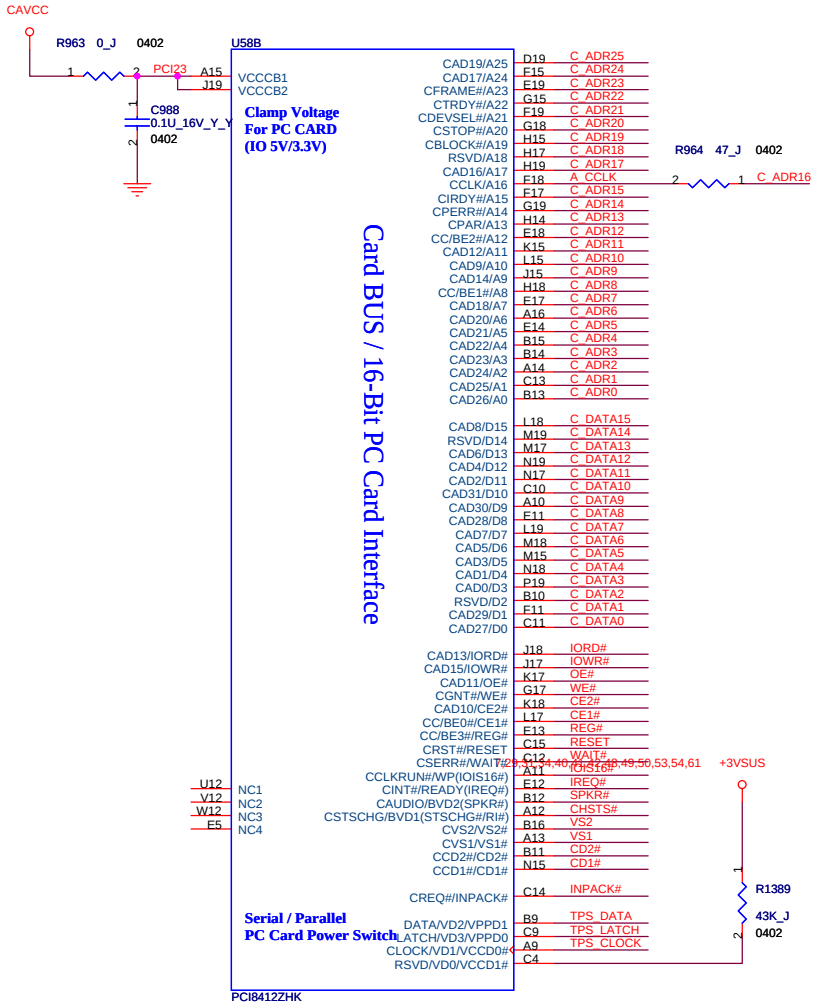
R962 4.7K_J 0402 SD_CD#

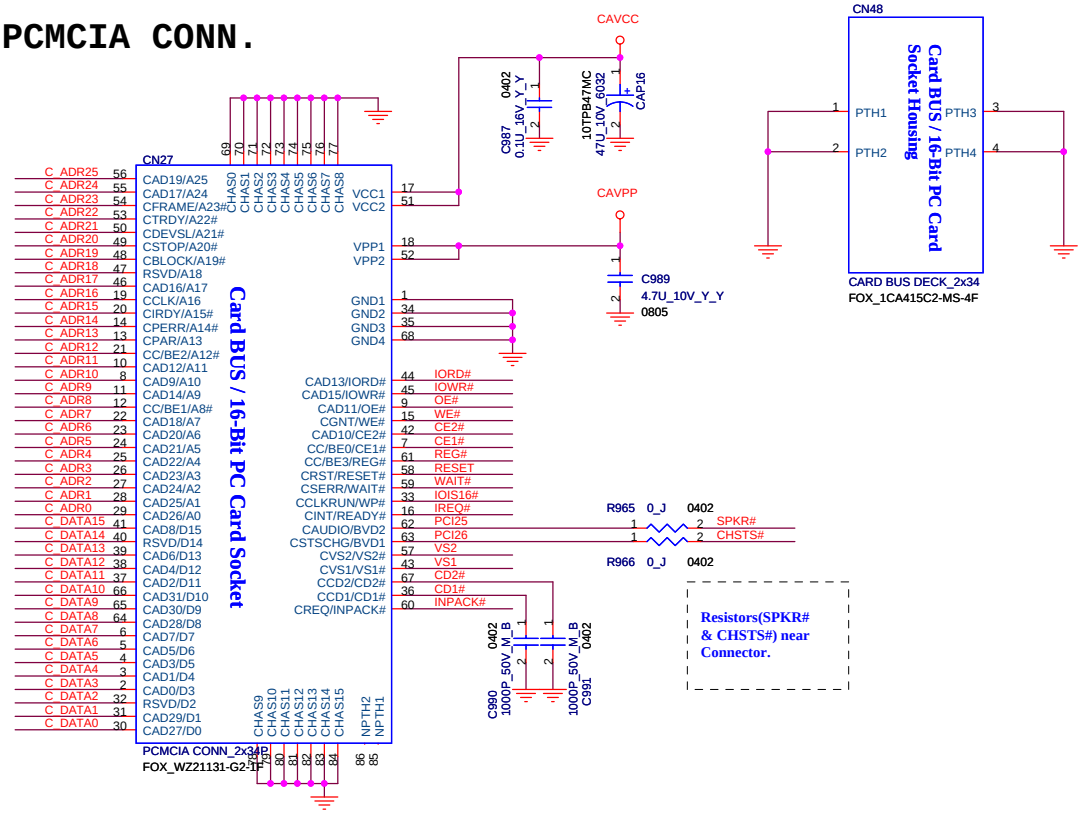
C983 1000P_50V_K_B 0402

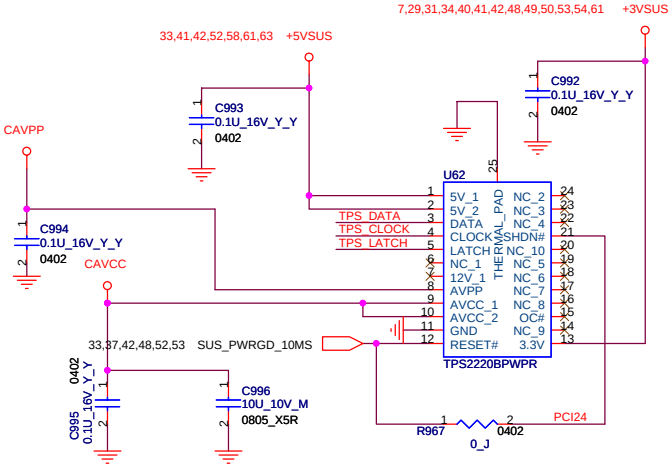
C984 1000P_50V_K_B 0402

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	PCI (MS-DUO/MDC)
Size A3	Document Number MS13-1-01 (MBX-149) Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 50 of 67

PCMCIA CONN.

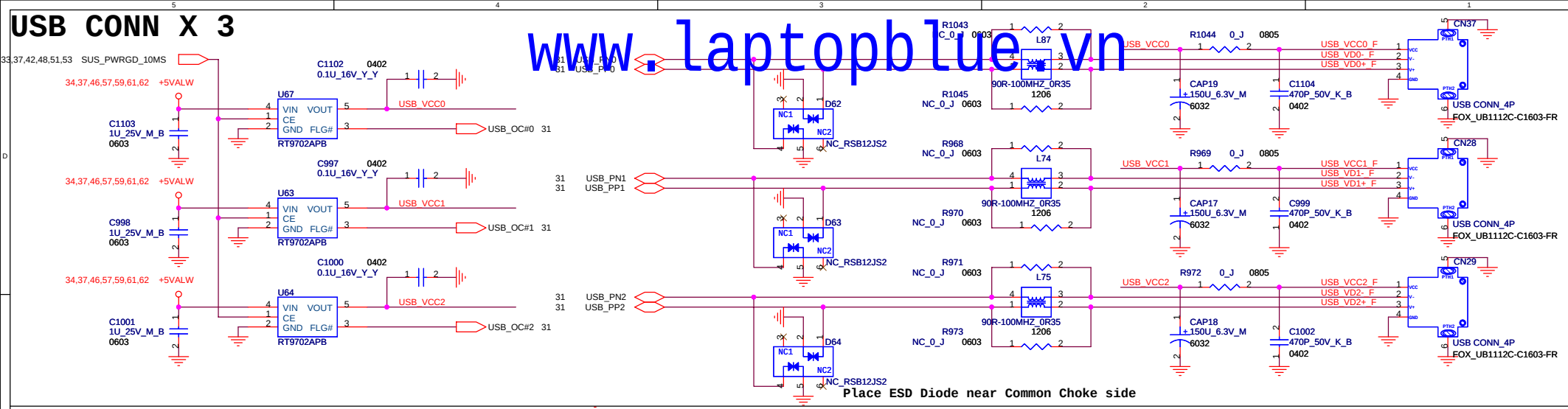




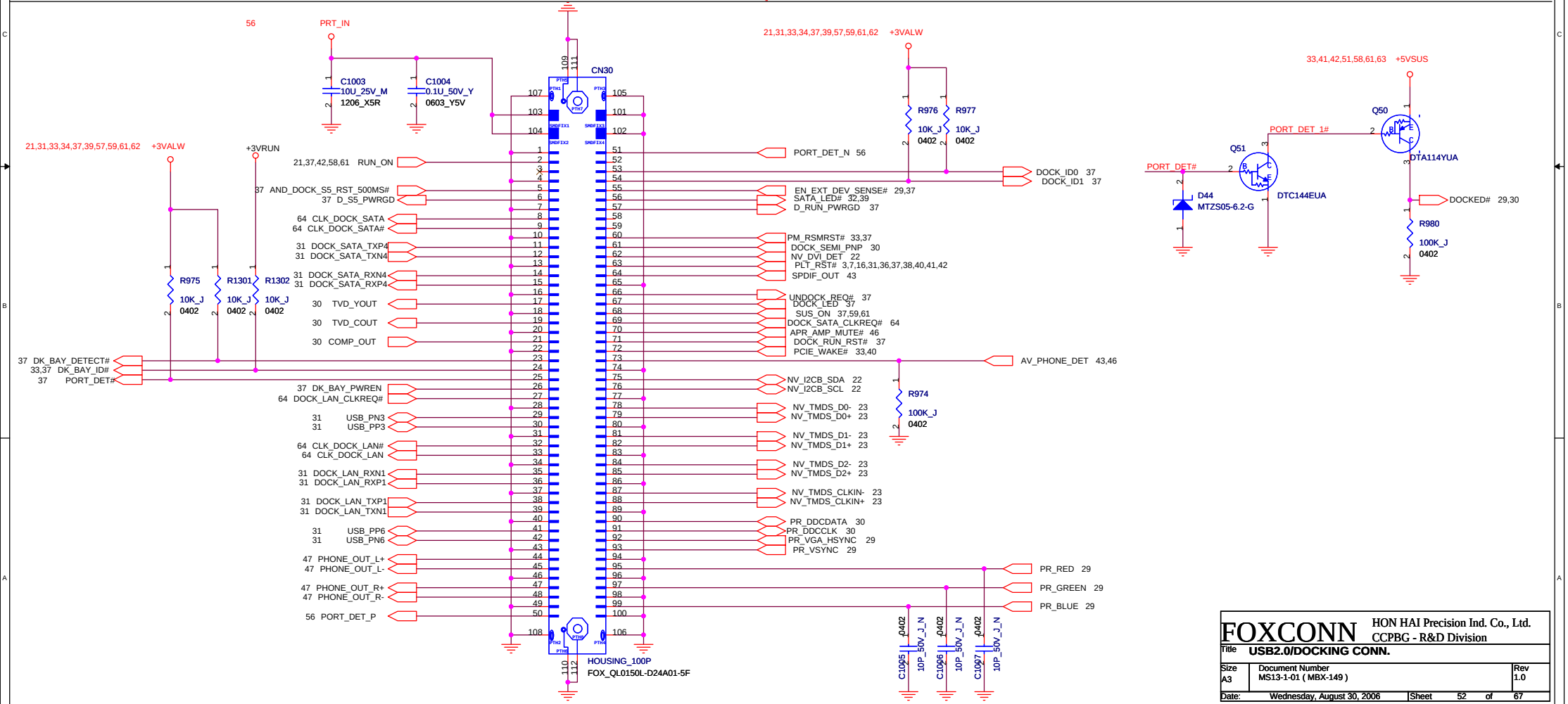


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	PCI (PCMCIA)	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 51 of 67	

USB CONN X 3



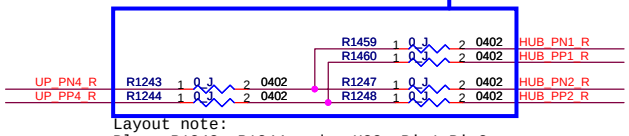
Place ESD Diode near Common Choke side



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	USB2.0/DOCKING CONN.	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 52 of 67	

BOM notice:

	R1243	R1244	R1247	R1248	R1459	R1460
BT + OIDE SKU	NC	NC	NC	NC	NC	NC
BT SKU	0 ohm	0 ohm	0 ohm	0 ohm	NC	NC
OIDE SKU	0 ohm	0 ohm	NC	NC	0 ohm	0 ohm



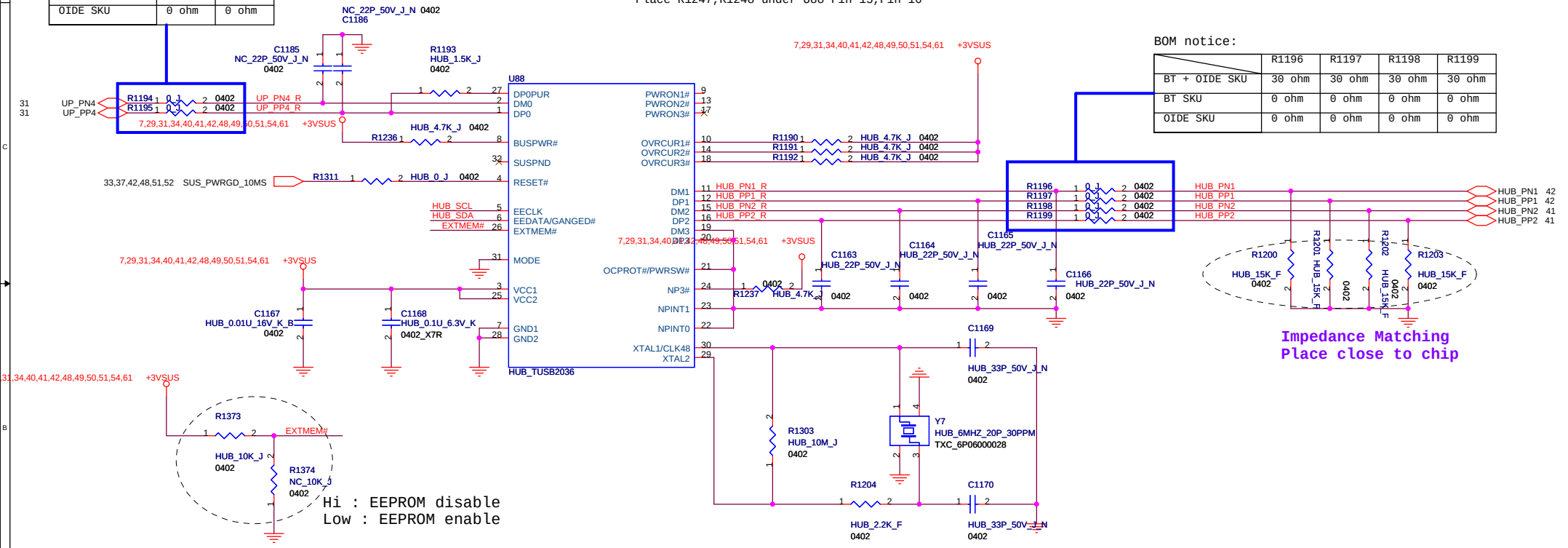
Layout note:
Place R1243 ,R1244 under U88 Pin1,Pin2
Place R1459,R1460 under U88 Pin 11,Pin 12
Place R1247,R1248 under U88 Pin 15,Pin 16

BOM notice:

	R1194	R1195
BT + OIDE SKU	30 ohm	30 ohm
BT SKU	0 ohm	0 ohm
OIDE SKU	0 ohm	0 ohm

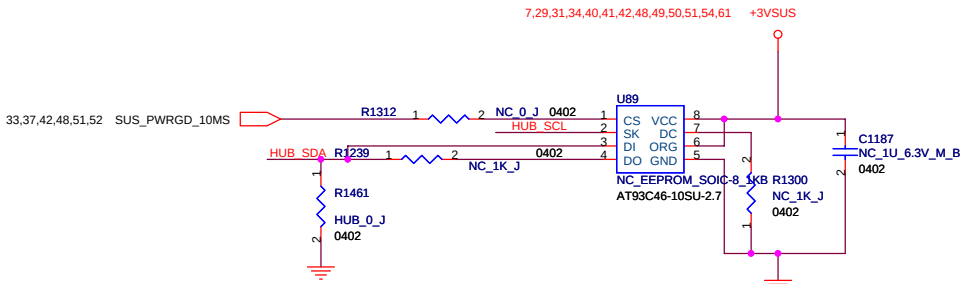
BOM notice:

	R1196	R1197	R1198	R1199
BT + OIDE SKU	30 ohm	30 ohm	30 ohm	30 ohm
BT SKU	0 ohm	0 ohm	0 ohm	0 ohm
OIDE SKU	0 ohm	0 ohm	0 ohm	0 ohm



Impedance Matching
Place close to chip

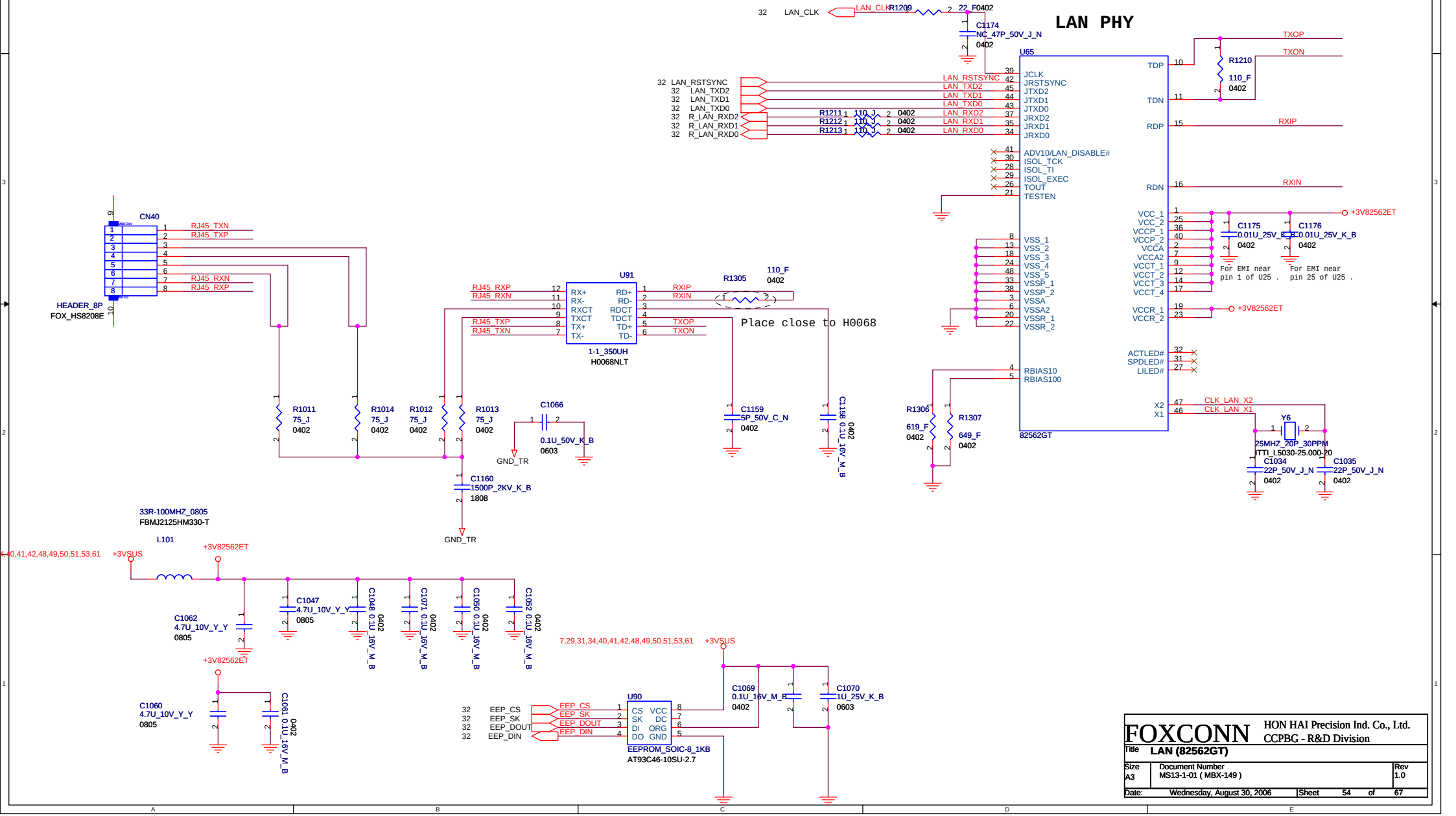
Hi : EEPROM disable
Low : EEPROM enable



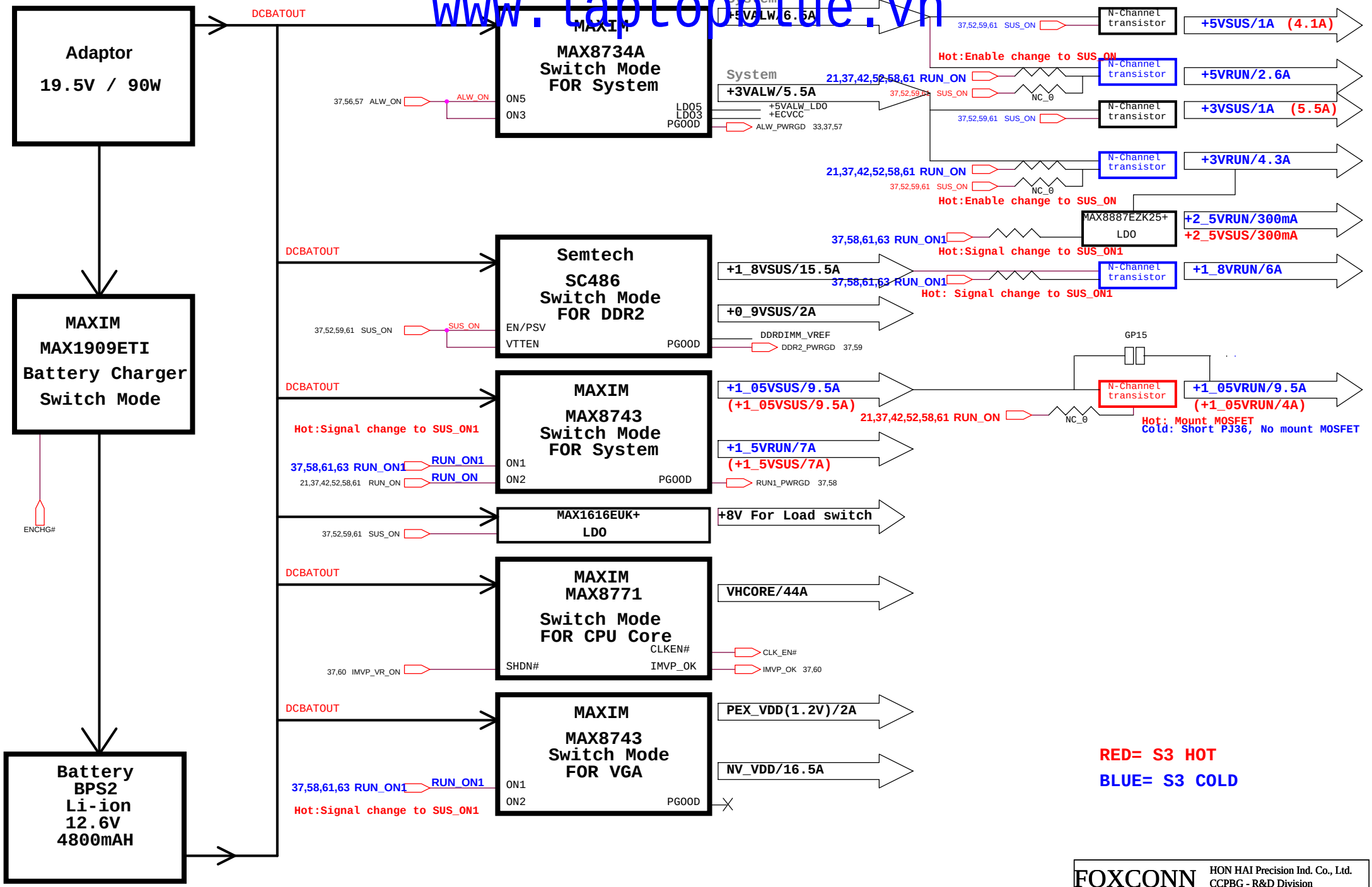
Follow MS20:
Add R1461 0 ohm to GND when EEPROM not in use
to make sure GANGED# is not left floating
When EEPROM is used,R1461 is NC

FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

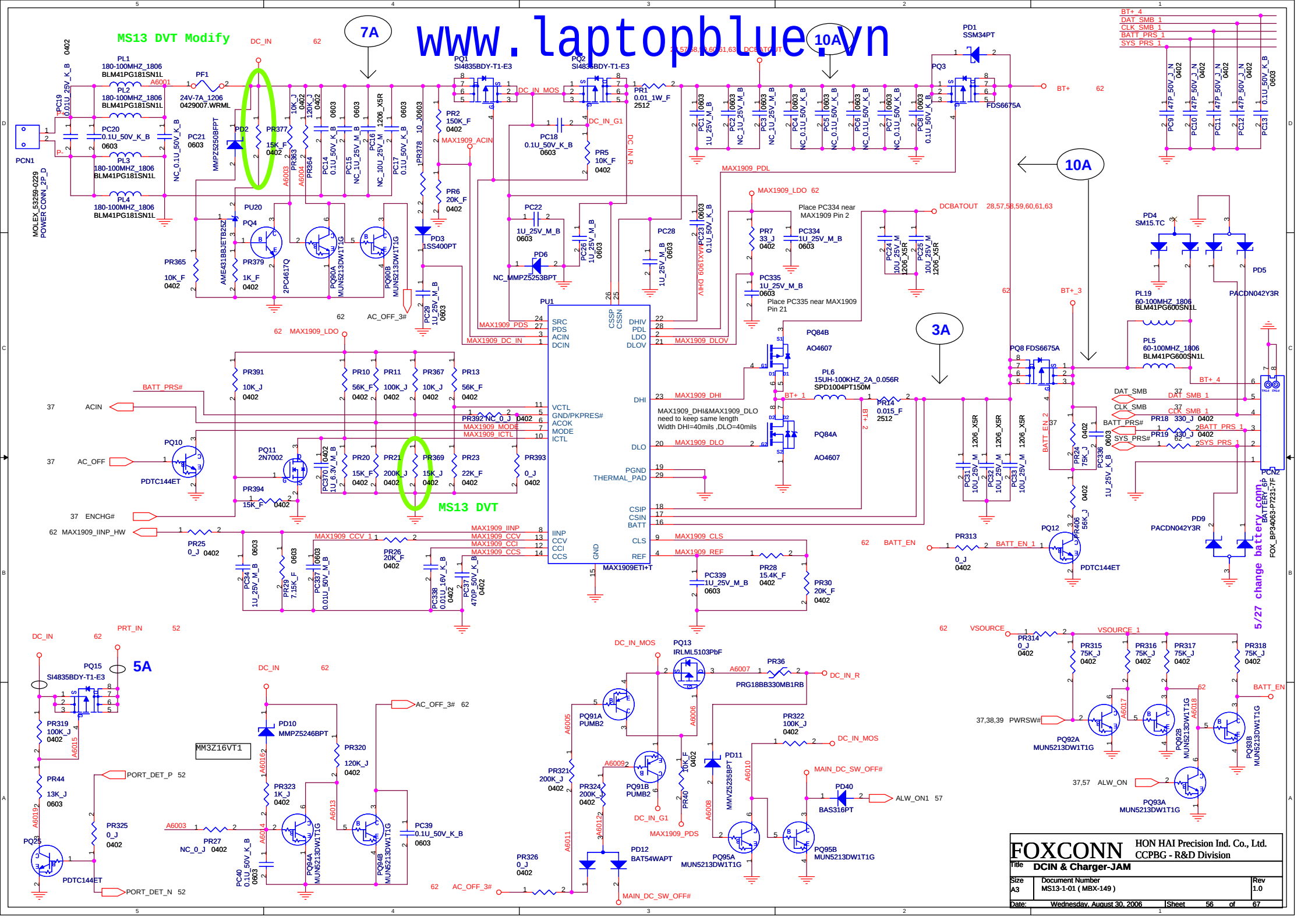
Title	USB HUB	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 53 of 67	

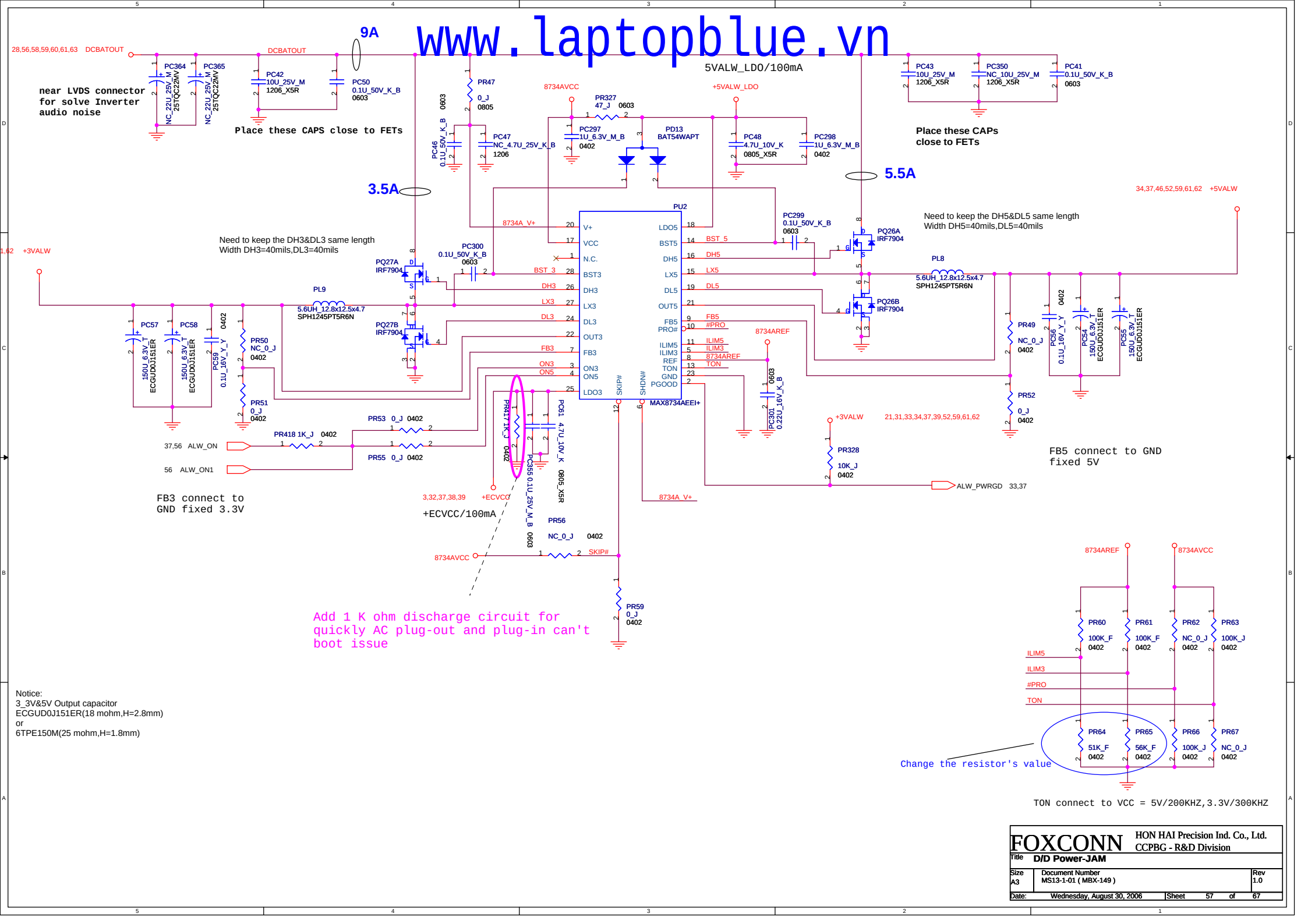


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	LAN (82562GT)		
Size A3	Document Number MS13-1-01 (MBX-149)		Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 54 of 67		



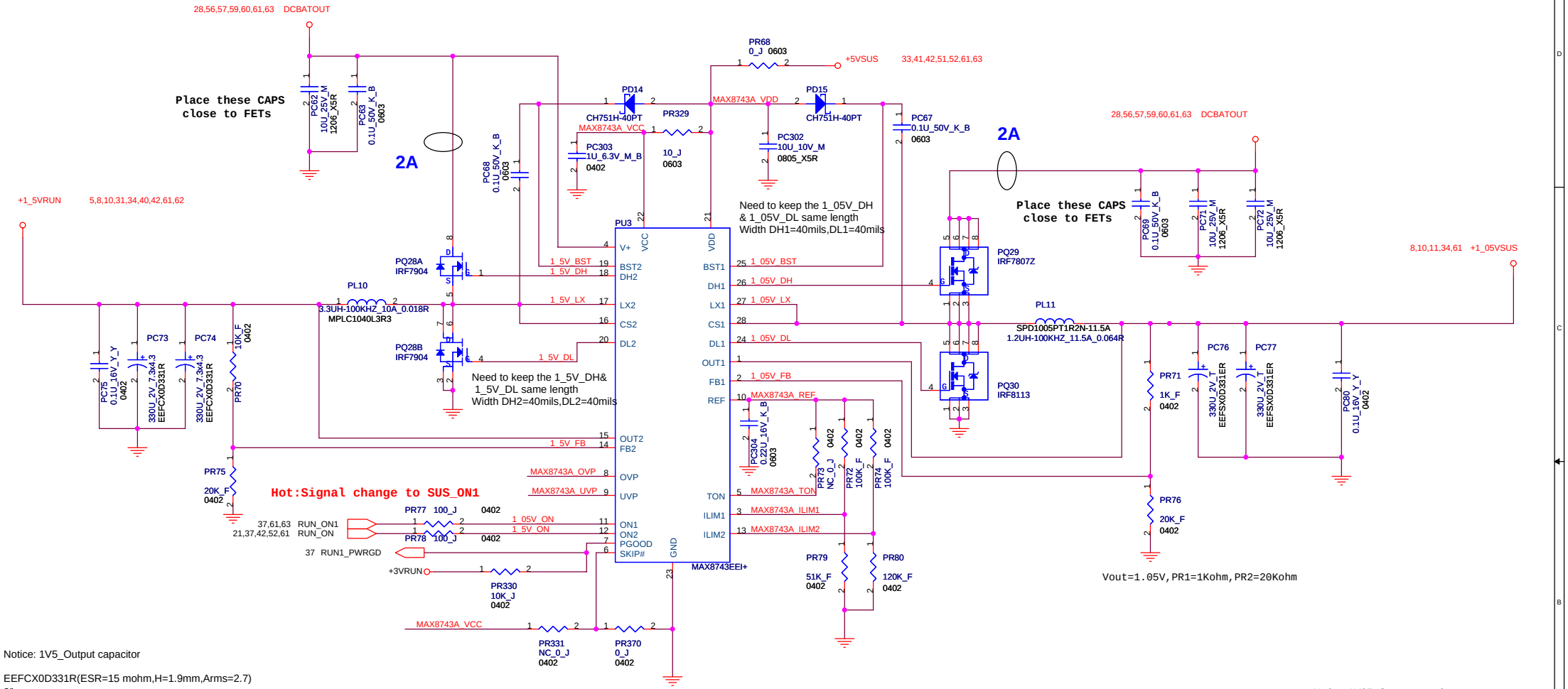
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Power Design Diagram-ZG	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 55 of 67	


MS13 DVT Modify
www.laptopblue.vn
DC_IN
7A
10A
3A
5A
MAX1909_DHI&MAX1909_DLO need to keep same length Width DHI=40mils ,DLO=40mils
Place PC334 near MAX1909 Pin 2
Place PC335 near MAX1909 Pin 21
MS13 DVT
5/27 change battery conn.
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
DCIN & Charger-JAM
Size A3
Document Number MS13-1-01 (MBX-149)
Rev 1.0
Date: Wednesday, August 30, 2006
Sheet 56 of 67



Notice:
3_3V&5V Output capacitor
ECGUD0J151ER(18 mohm,H=2.8mm)
or
6TPE150M(25 mohm,H=1.8mm)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	D/D Power-JAM	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
Date: Wednesday, August 30, 2006	Sheet 57 of 67	



Notice: 1V5_Output capacitor

EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7)
or
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1)

Notice: 1V05_Output capacitor usage

POWER side*2 pcs,Device side*3pcs

EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)
or
2R5TPE330M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	1.5V/1.05V-JAM	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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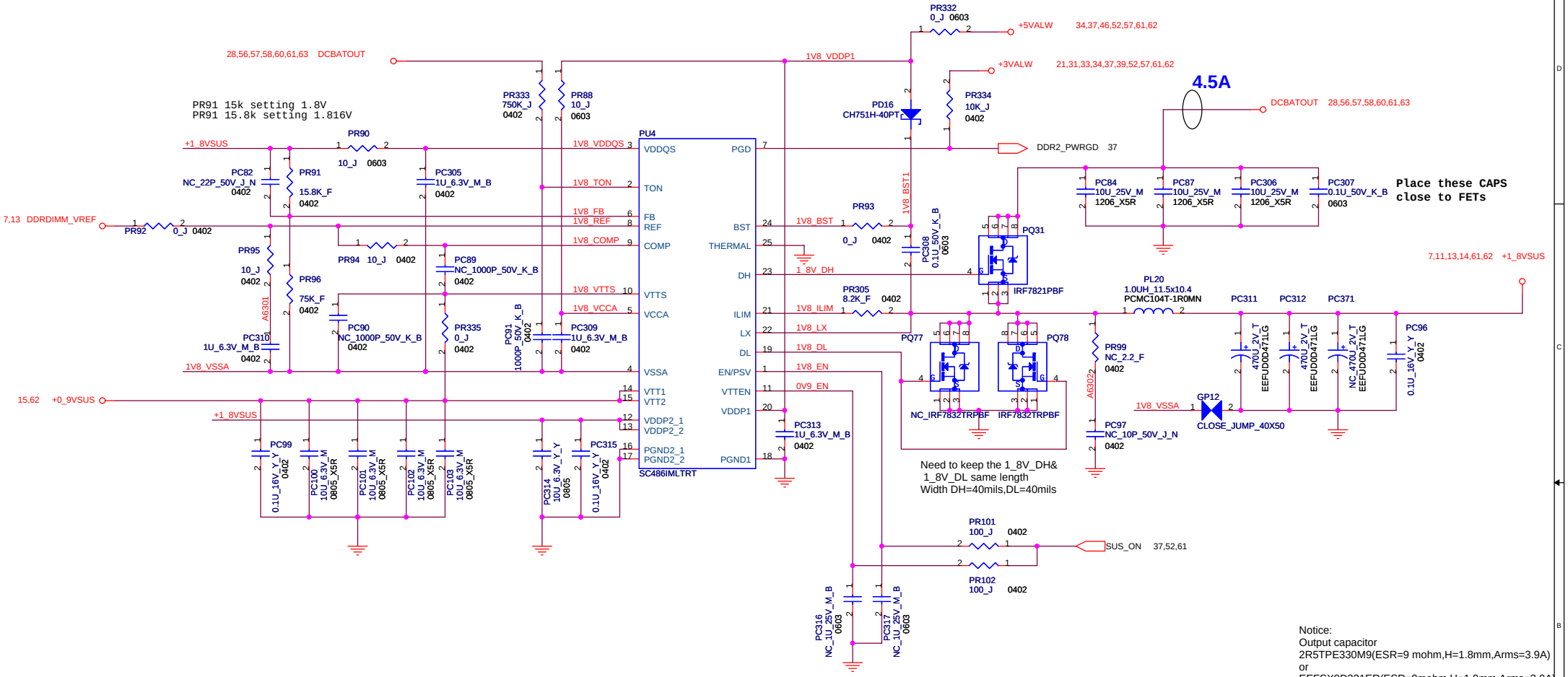

Notice:
Output capacitor
2R5TPE330M9(ESR=9 mohm,H=1.8mm,Arms=3.9A)
or
EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)

Bottom side MOSFET
IRF7832*1 pcs(4 mohm/pcs)
or
IRF7811*2 pcs(14 mohm/pcs)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	1.8V/0.9V-CWK	
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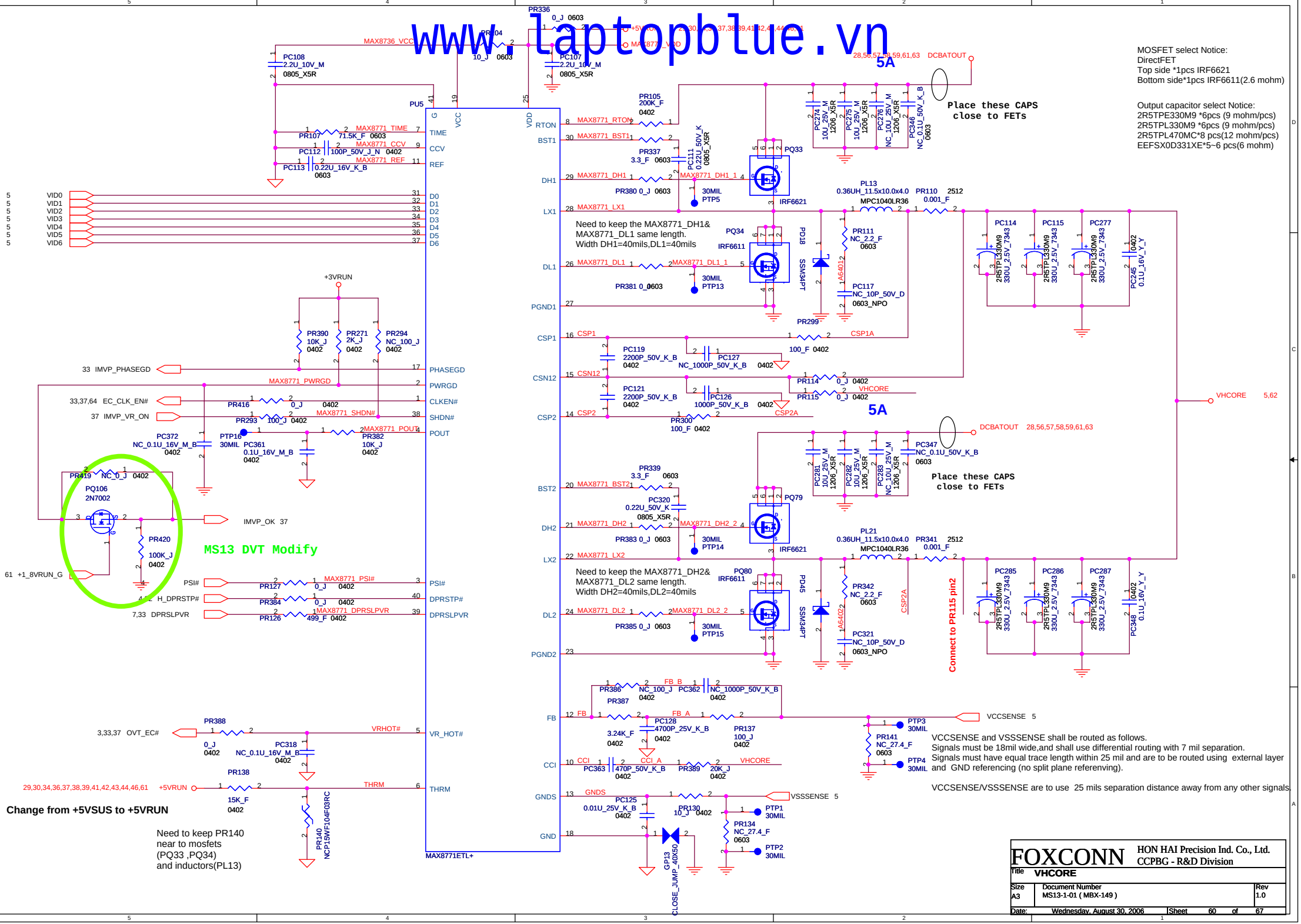

MOSFET select Notice:
DirectFET
Top side *1pcs IRF6621
Bottom side*1pcs IRF6611(2.6 mohm)

Output capacitor select Notice:
2R5TPE330M9 *6pcs (9 mohm/pcs)
2R5TPL330M9 *6pcs (9 mohm/pcs)
2R5TPL470MC*8 pcs(12 mohm/pcs)
EEFSX0D331XE*5~6 pcs(6 mohm)

VCCSENSE and VSSSENSE shall be routed as follows.
Signals must be 18mil wide,and shall use differential routing with 7 mil separation.
Signals must have equal trace length within 25 mil and are to be routed using external layer and GND referencing (no split plane referenving).

VCCSENSE/VSSSENSE are to use 25 mils separation distance away from any other signals.

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VHCORE	
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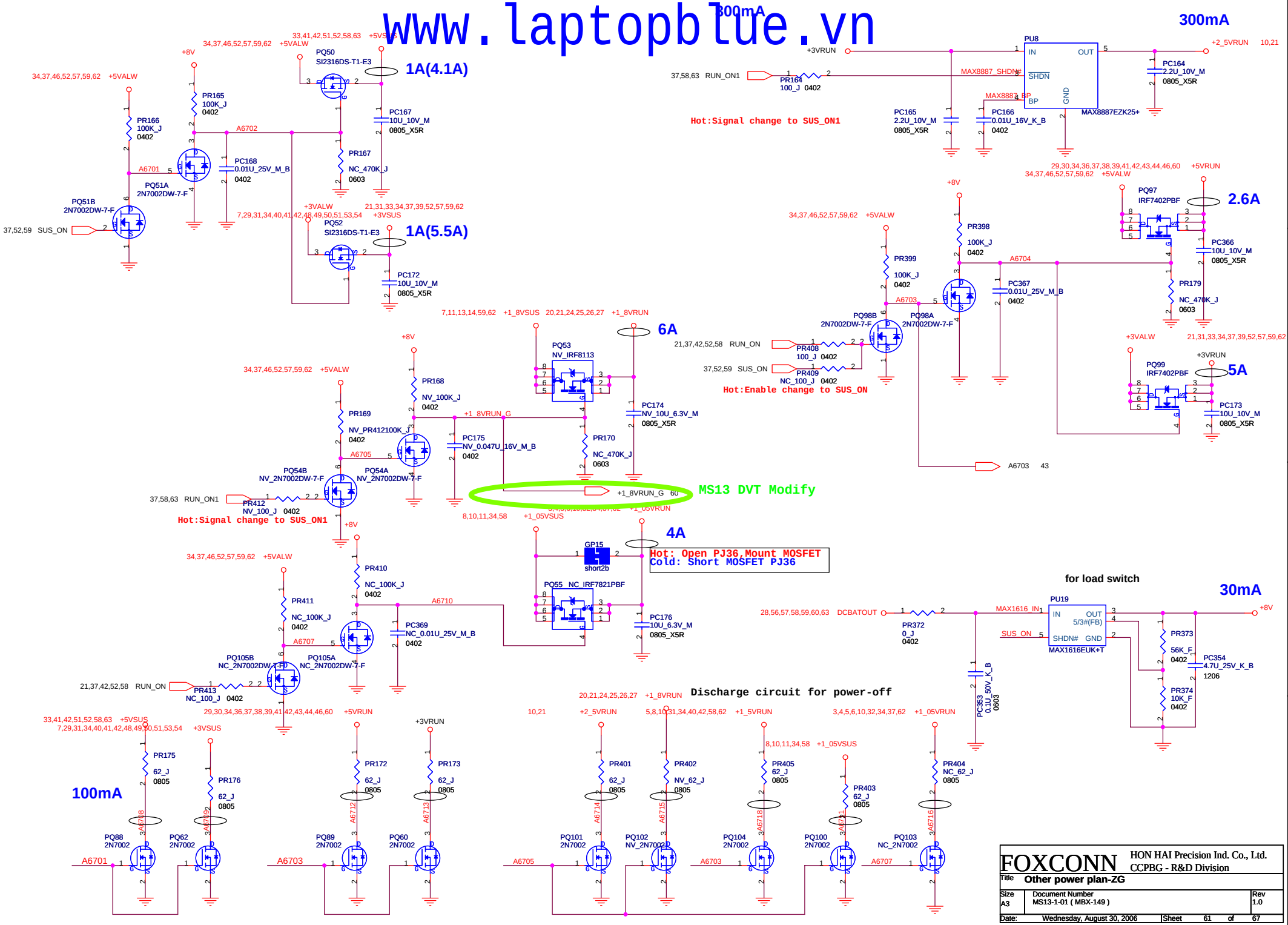

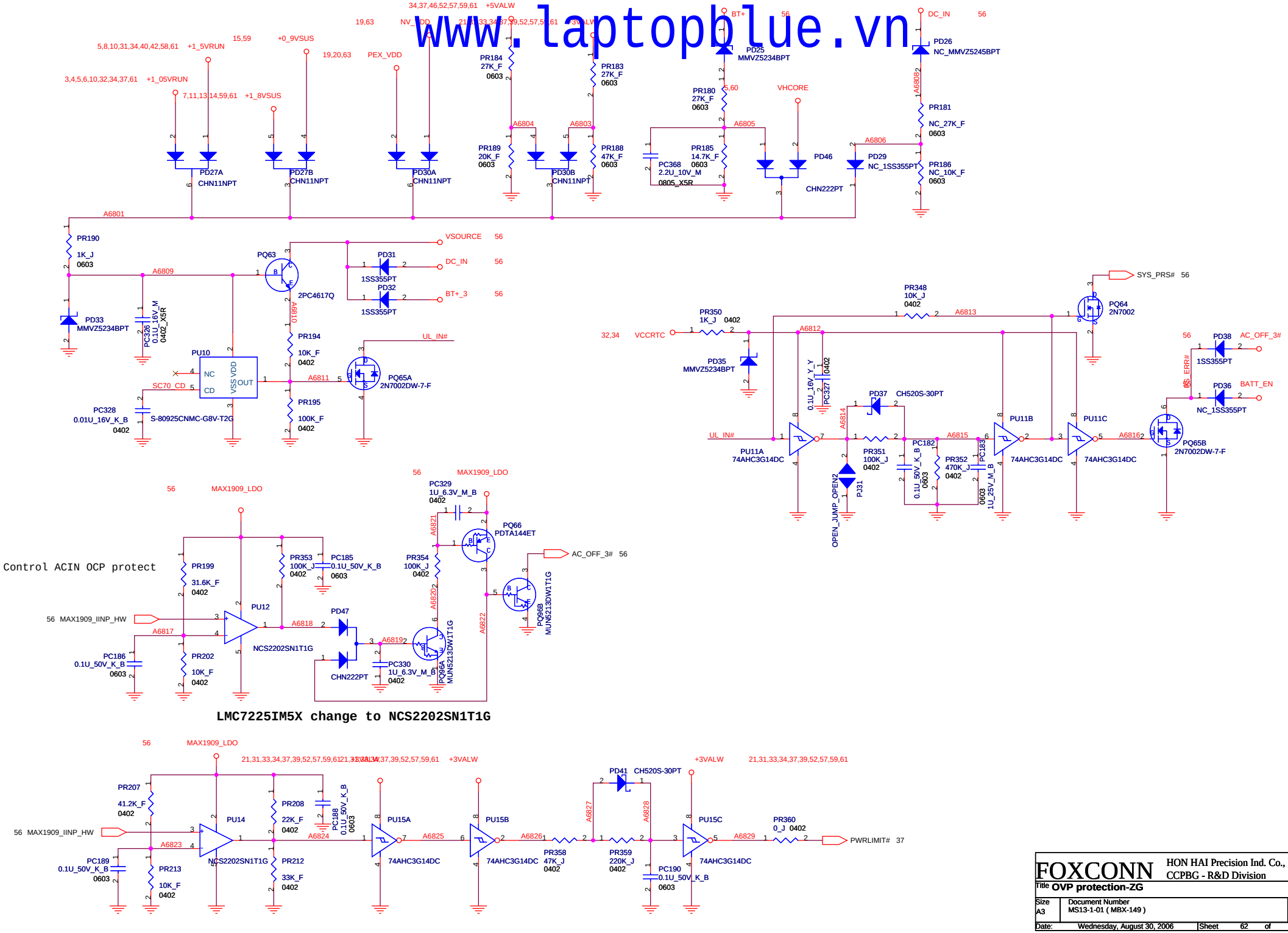

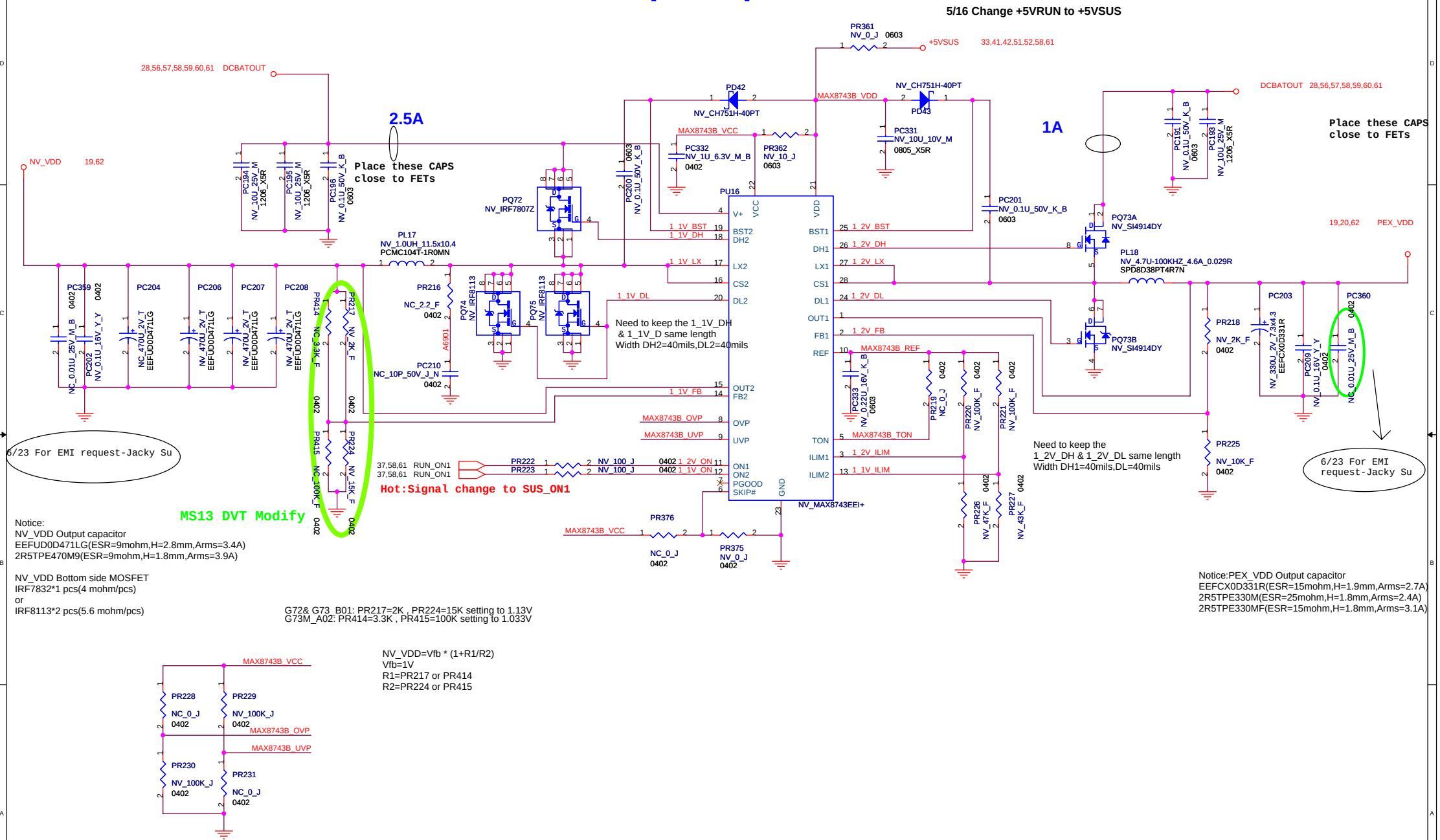

Notice:
NV_VDD Output capacitor
EEFUD0D471LG(ESR=9mohm,H=2.8mm,Arms=3.4A)
2R5TPE470M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

NV_VDD Bottom side MOSFET
IRF7832*1 pcs(4 mohm/pcs)
or
IRF8113*2 pcs(5.6 mohm/pcs)

G72& G73_B01: PR217=2K , PR224=15K setting to 1.13V
G73M_A02: PR414=3.3K , PR415=100K setting to 1.033V

NV_VDD=Vfb * (1+R1/R2)
Vfb=1V
R1=PR217 or PR414
R2=PR224 or PR415

Notice:PEX_VDD Output capacitor
EEFCX0D331R(ESR=15mohm,H=1.9mm,Arms=2.7A)
2R5TPE330M(ESR=25mohm,H=1.8mm,Arms=2.4A)
2R5TPE330MF(ESR=15mohm,H=1.8mm,Arms=3.1A)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	+1_2VRUN&+1_1VRUN-LYH	
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close to clk gen (For EMI)

06/17
DEL 0 ohm resistor R38,R47,R50,
0.1u Cap C71 C64
10u Cap C72
Cap C78 changed to 0.1u

6/17
Layout note:
Place 1 cap close
to each pin

30 mil

Pin Straps Pin 53/59/60/64 100K ohm pull-up	
pin53	pin 11/12
0	SRCCLK0
1	27MHz (v)
pin59	pin 15/16
0	SRCCLK0
1	SATA (v)
pin60	pin 37/38
0	SRCCLK8 (v)
1	CPU_2_ITP
pin64	pin 13/14
0	LCDCLK_SS (CA)
1	SRCCLK1 (NV)

Length as short as possible.

CALISTOGA Chip
HOST
CPU

06/16
pin53/59/60/64 with internal pull-up resistor
No Stuff Pull-up Resistor (R1125,R1124,R49)
If EVT ok, del them in DVT
R1021/R48 changed to 2.2Kohm

06/09
CLKREQ with internal pull-up resistor
No Stuff Pull-up Resistor
(R69,R40,R41,R70,R1126,R1127)
If EVT ok, del them in DVT

ICH7M SATA

Nvidia Graphic

CALISTOGA DOT96

ICH7 DMI

06/17
CLK_PCIE_ICH changed to SRCCLK7
CLK_DOCK_LAN changed to SRCCLK8
SW Note: datasheet page13 Byte8.1 => SRCCLK7 should be configured as "Not Controlled"

SM bus Address
1101001 (ICH7)
For clock generator

06/09
DEL pull-up resistor R80~82
pull-down resistor R85,R88
Del R84,R87,R90

06/16
ICS have recognized, FSLA/FSLB setting is different from CK410M spec.But MS10 will not use 100MHz, For test purpose, please move R91 from MCH_BSEL2 to MCH_BSEL0, and mount R89.

CALISTOGA SSCK

Nvidia Graphic

FSB Frequency Table:

FSLB	FSLA	CPU	SRC[7:0]	PCI
0	0	100	100	33
0	1	133	100	33
1	0	200	100	33
1	1	166	100	33

FOXCONN — HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title: CLOCK GEN
Size: A3 | Document Number: MS13-1-01 (MBX-149) | Rev: 1.0
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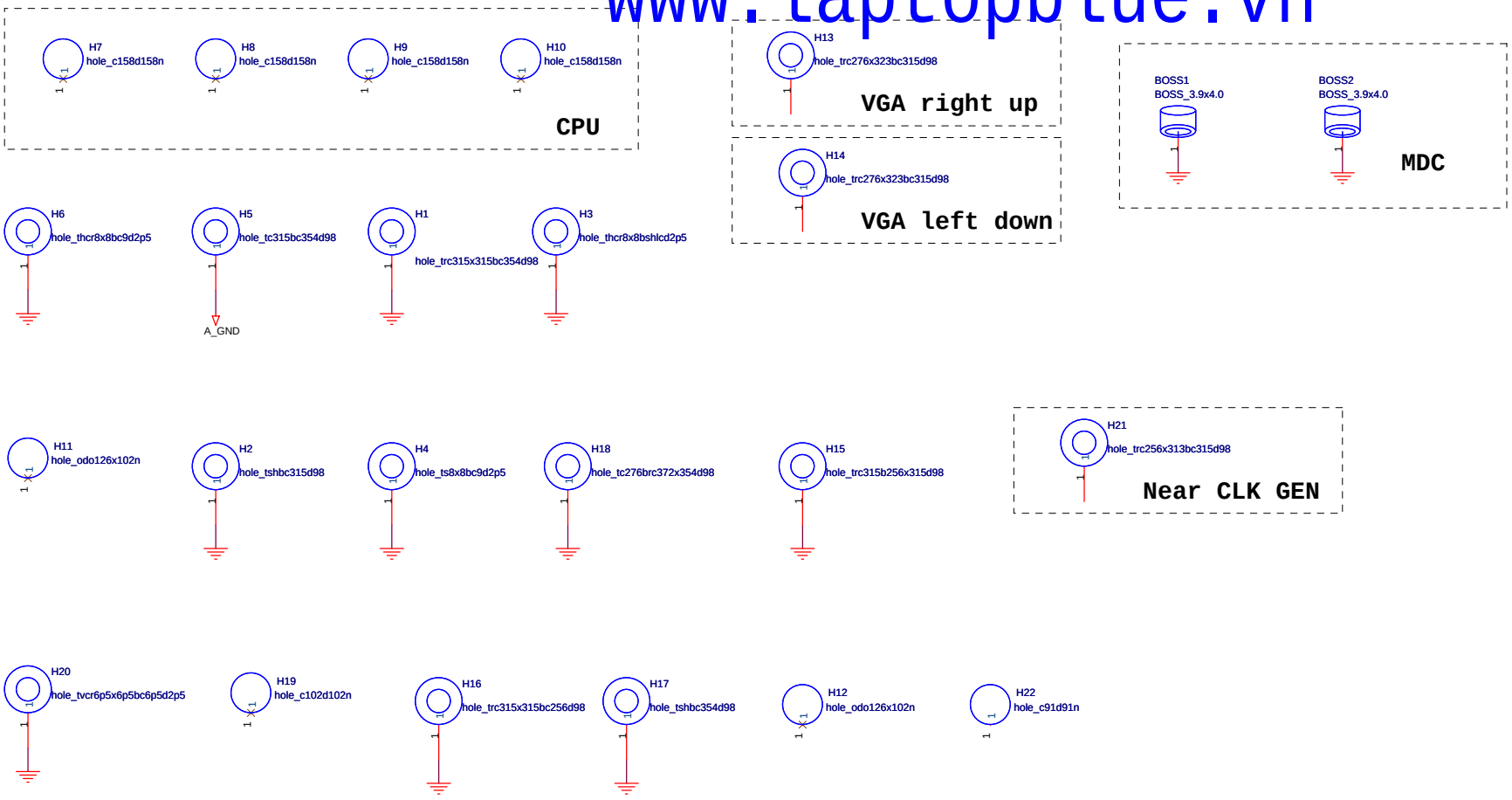

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	HOLE	
Size A3	Document Number MS13-1-01 (MBX-149)	Rev 1.0
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HISTORY

(2006/08/16 Initail REV 1.0)

P.02 Because MS13 only use G73B01 version, since we delete head value of NV7273B01_ and NV73A02_.

P.63 Change head value as below: PR217(NV7273B01_2K_F-->NV_2K_F) PR224(NV7273B01_15K_F-->NV_15K_F)
PR414(NV73A02_3.3K_F-->NC_3.3K_F) PR415(NV73A02_100K_F-->NC_100K_F)

P.45 Change C909,C920 from 220P_50V_J_N to 100P_50V_K_N. The change will make Frequency Response pass VISTA requirement.

P.43 Change U39 from CXD9872KXXNBEB2XR to CXD9872AKDNBEC3XR(4th+).

P.56 Change PR377 from 1K_F to 15K_F to avoid resistor damage when OVP occur.

P.60 Add PQ106, PR420 to prevent glitch occur on the IMVP_OK signal.

P.41 Change fan control circuit as same as MS20.

P.03 Reserve U110,R1467,C1324 for RTC stop issue.

P.37 Add Q110 for RTC stop issue.

P.37 Reserve D74 for RTC stop issue.

P.44 Change C910, C911 from 0.033uF to 0.015uF and modify the size from 1206 to 0402 for co-layout. And we also add
C1326,C1327 to keep 1206 size.

P.47 Change R1330, R1339 from 10K to 9.1K and Change C1238, C1242 from 270pf to 150pf then the phone out D/A will pass.

P.37 Add Q109, Q110 to prevent ACIN, BATT_PRS# and ENCHG# is faster than ECVCC.

(2006/08/18)

P.33 Change R633 from 100_J to 1K_J and add D75 for PM_RSMRST# falling timing fail issue.

P.56 Change PR369 from NC_0_J to 15K_J to make BATT_PRS# signal high level from 5V to 3.3V.

P.10 Correct +1_5VRUN maximum current description from 1885mA to 1900mA.

P.11 Correct +1_05VSUS maximum current description from 4.6A to 3.5A.

P.11 Correct +1_8VSUS maximum current description from 3.1A to 3.2A.

(2006/08/22)

P.33 Correct D75 from NC_CA_SCS500V-40-LF to SCS500V-40-LF.

P.41 Correct C1308 from NC_0.01U_25V_K_B to 0.047U_16V_M.

(2006/08/23)

P.45 Change C909,C920 from 100pF to 33pF and change C1207, C1208 from 220pF to 3300pF.
The Magnitude Response of Microphone(A-D) will be pass.

P.37 Correct D74 from NC_CA_SCS500V-40-LF to NC_SCS500V-40-LF.

(2006/08/24)

P.43 Change U39 from CXD9872AKDNBEC3XR(4th+ with dolby) to CXD9872AKXNBEC3XR(4th+ without dolby).

P.05 Change Cap1 from 330U_2V_T to NC_330U_2V_T.

P.11 Change Cap9 from 330U_2V_T to NC_330U_2V_T.

(2006/08/28)

P.36 Add VR1 for PACDN042Y3R shortage issue.

(2006/08/29)

P.37 For system ID change, since change R724 from 100K_J to NC_100K_J and change R725 from NC_100K_J to 100K_J.

(2006/08/30)

P.36 Change VR1 from NC_MS06A05T1V1_VR to MLVS0603M04_VR. And change D72 from PACDN042Y3R to NC_PACDN042Y3R.

P.37 Add R1470 for MS13 DVT combine list.

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: History (1)		
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