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67	SYS Power (+3_3V/+5V)	1.1	2006/08/10
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69	DDR2 Power(+1_8V/+0_9V)	1.1	2006/08/10
70	CPU_Vcore ---MAX8771	1.1	2006/08/10
71	Others power plan	1.1	2006/08/10
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74	Logo LED Circuit	1.1	2006/08/10
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P. Leader	Check by	Design by

Project Code & Schematics Subject: MS21 MP Main Board (TYPE 2)

PCB P/N: 1P-0068100-8011 (FUBAI)
1P-0068500-8011 (Hannstar)

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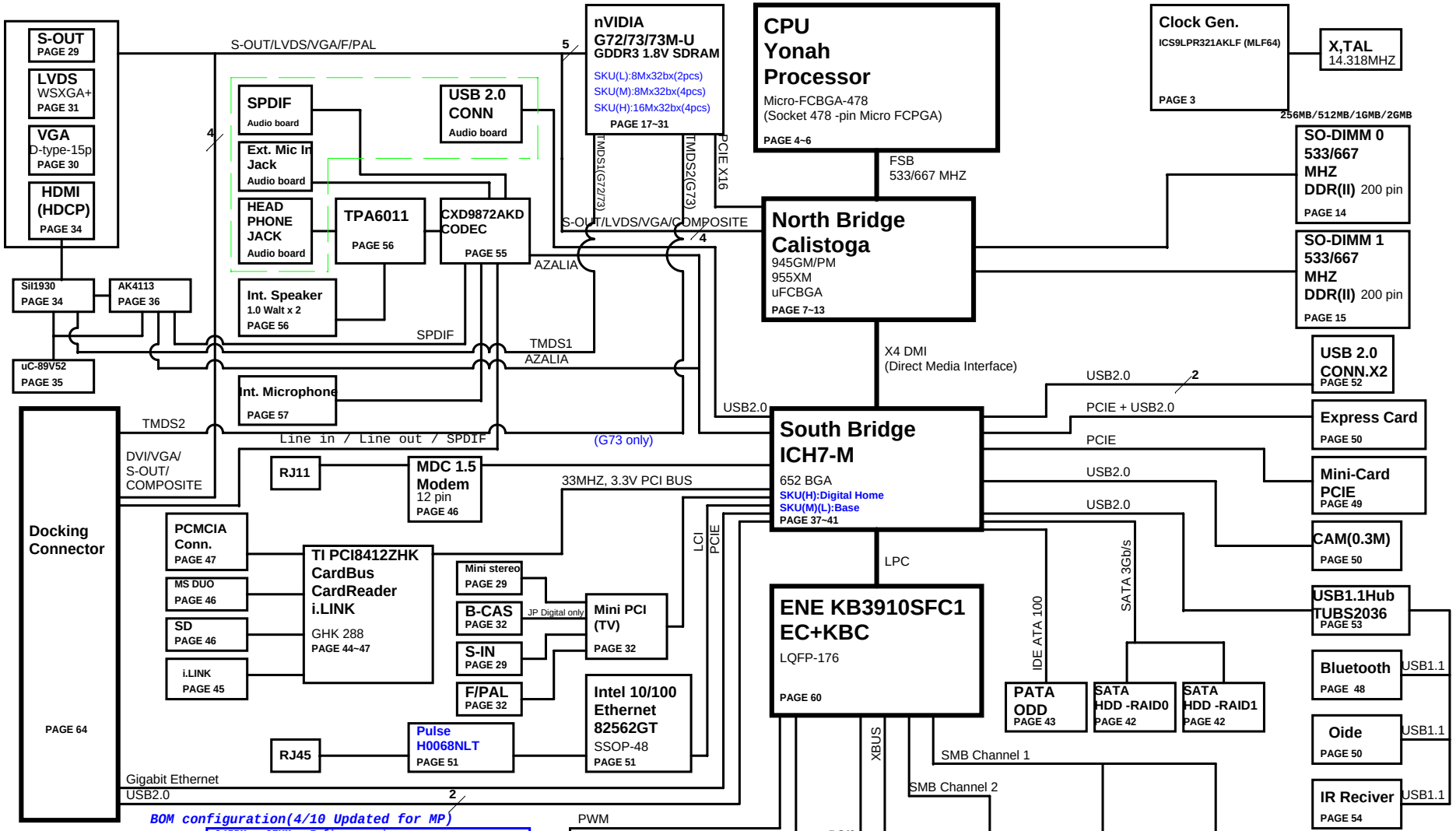
MS21(CALISTOGA PM+Gfx Block Diagram)

Red texts:
New modified



BOM configuration(4/10 Updated for MP)

Remove CA_ configuration

	Symbol ahead of value for NC components
BOTH	NC_
945GM	NV_
945PM + G72M	NV73_
945PM + G73M	NV72_
945PM + G72M or G73M-U	NV730nly_

945PM + G7XM + Infineon or Samsung VRAM	NVH_
945PM + G7XM + Hynix or Samsung VRAM	NVI_
945PM + G7XM + Hynix VRAM	NVIS_
945PM + G7XM + Infineon VRAM	NVHS_
945PM + G72M or G73M	NV16M_, NV73U_
945PM + G73M-U	NV8M_, NV7273_
*JP Digital TV Tuner SKU & No Tuner SKU not stick	JDTVNC_

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Title	Block Diagram	
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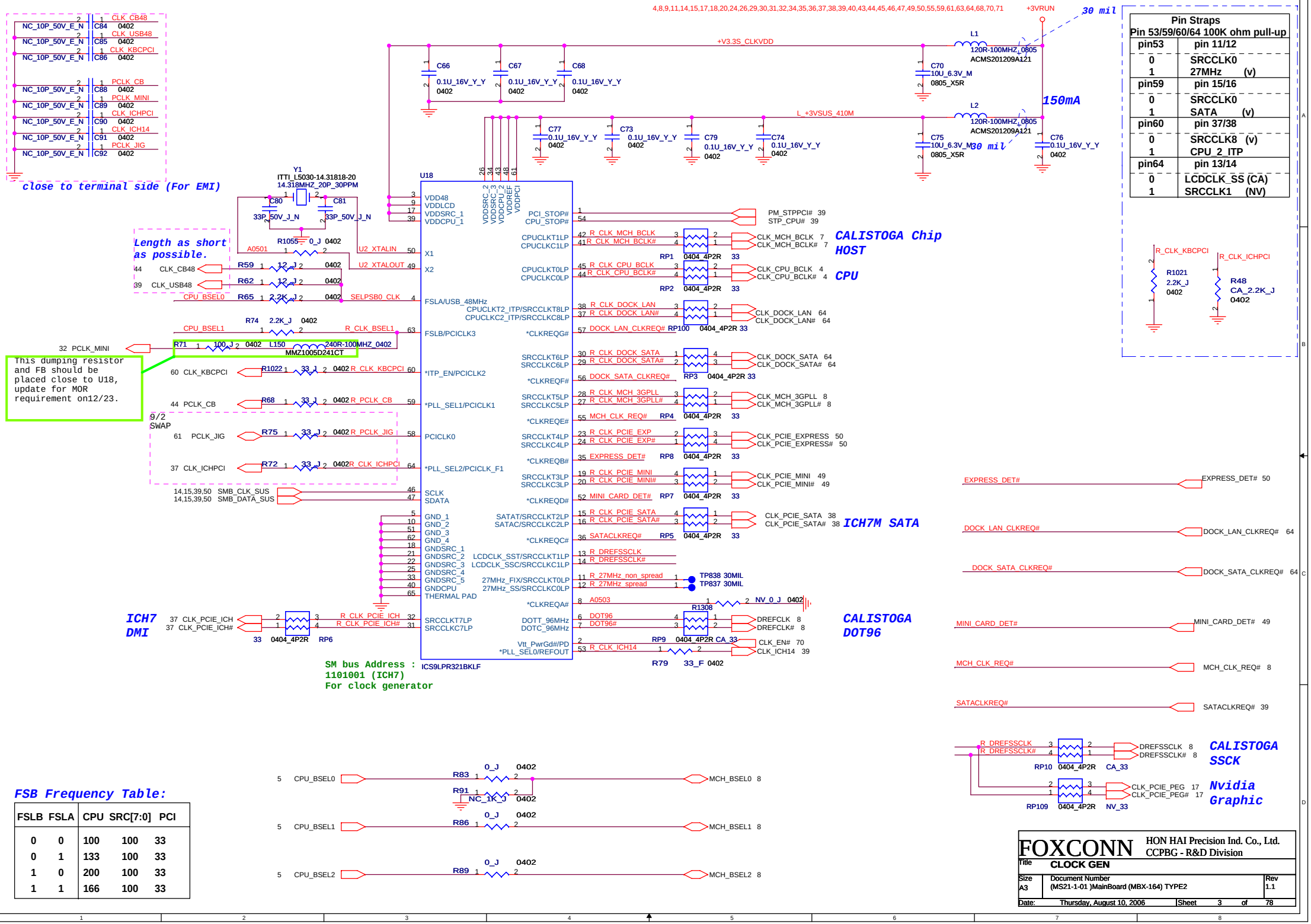
close to terminal side (For EMI)
Length as short as possible.
This dumping resistor and FB should be placed close to U18, update for MOR requirement on12/23.
SM bus Address : 1101001 (ICH7)
For clock generator
ICS9LPR321BKLF
CALISTOGA Chip HOST
CPU
ICH7M SATA
CALISTOGA DOT96
ICH7 DMI
CALISTOGA SSCK
Nvidia Graphic
150mA
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)
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
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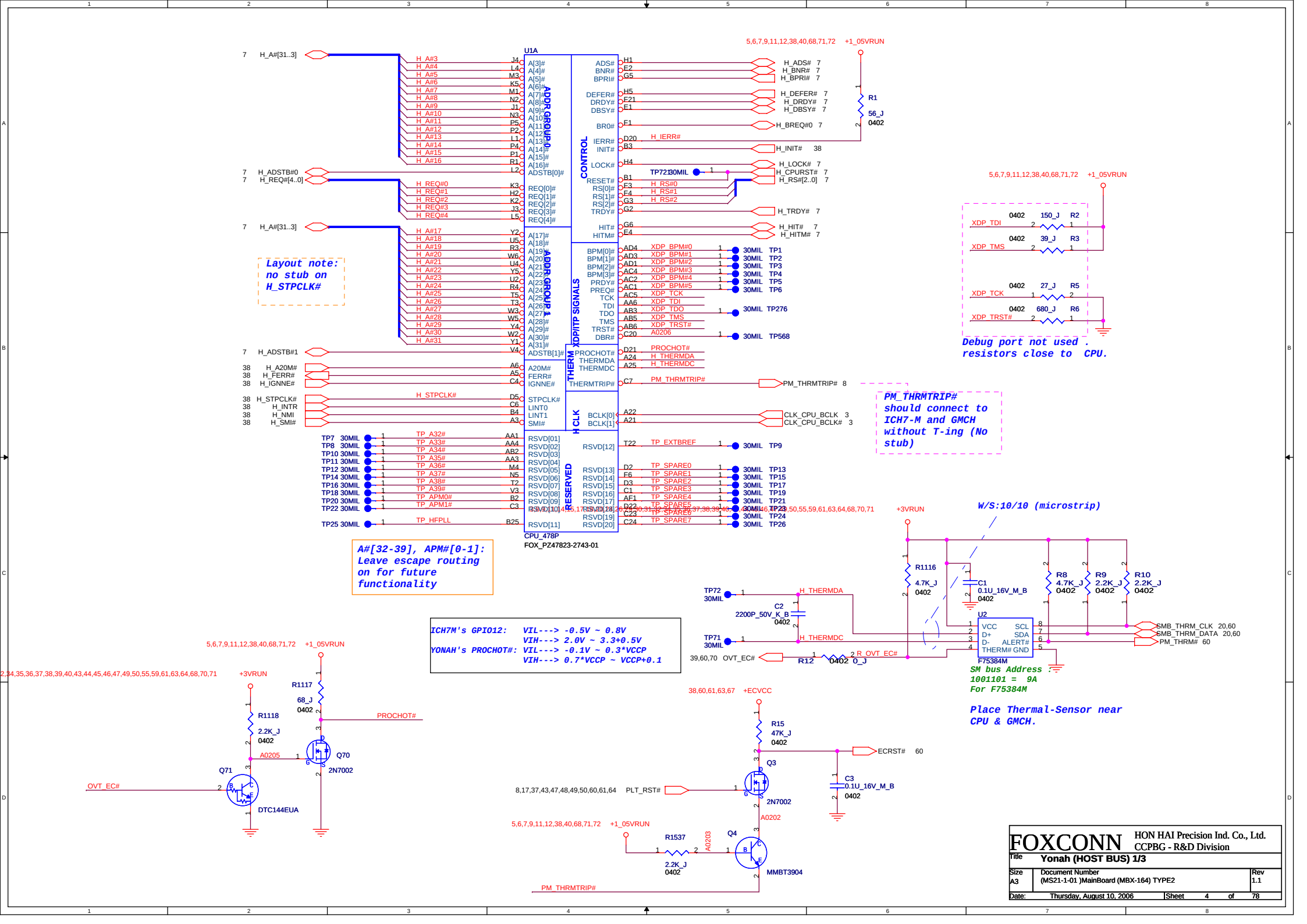
U1A
ADDR GROUP 0
ADDR GROUP 1
CONTROL
XDP/ITP SIGNALS
THERM
H CLK
RESERVED
CPU_478P
FOX_PZ47823-2743-01
Layout note:
no stub on
H_STPCLK#
A#[32-39], APM#[0-1]:
Leave escape routing
on for future
functionality
Debug port not used .
resistors close to CPU.
PM_THRMTRIP#
should connect to
ICH7-M and GMCH
without T-ing (No
stub)
W/S:10/10 (microstrip)
ICH7M's GPIO12: VIL---> -0.5V ~ 0.8V
VIH---> 2.0V ~ 3.3+0.5V
YONAH's PROCHOT#: VIL---> -0.1V ~ 0.3*VCCP
VIH---> 0.7*VCCP ~ VCCP+0.1
SM bus Address :
1001101 = 9A
For F75384M
Place Thermal-Sensor near
CPU & GMCH.
F75384M
DTC144EUA
2N7002
MMBT3904
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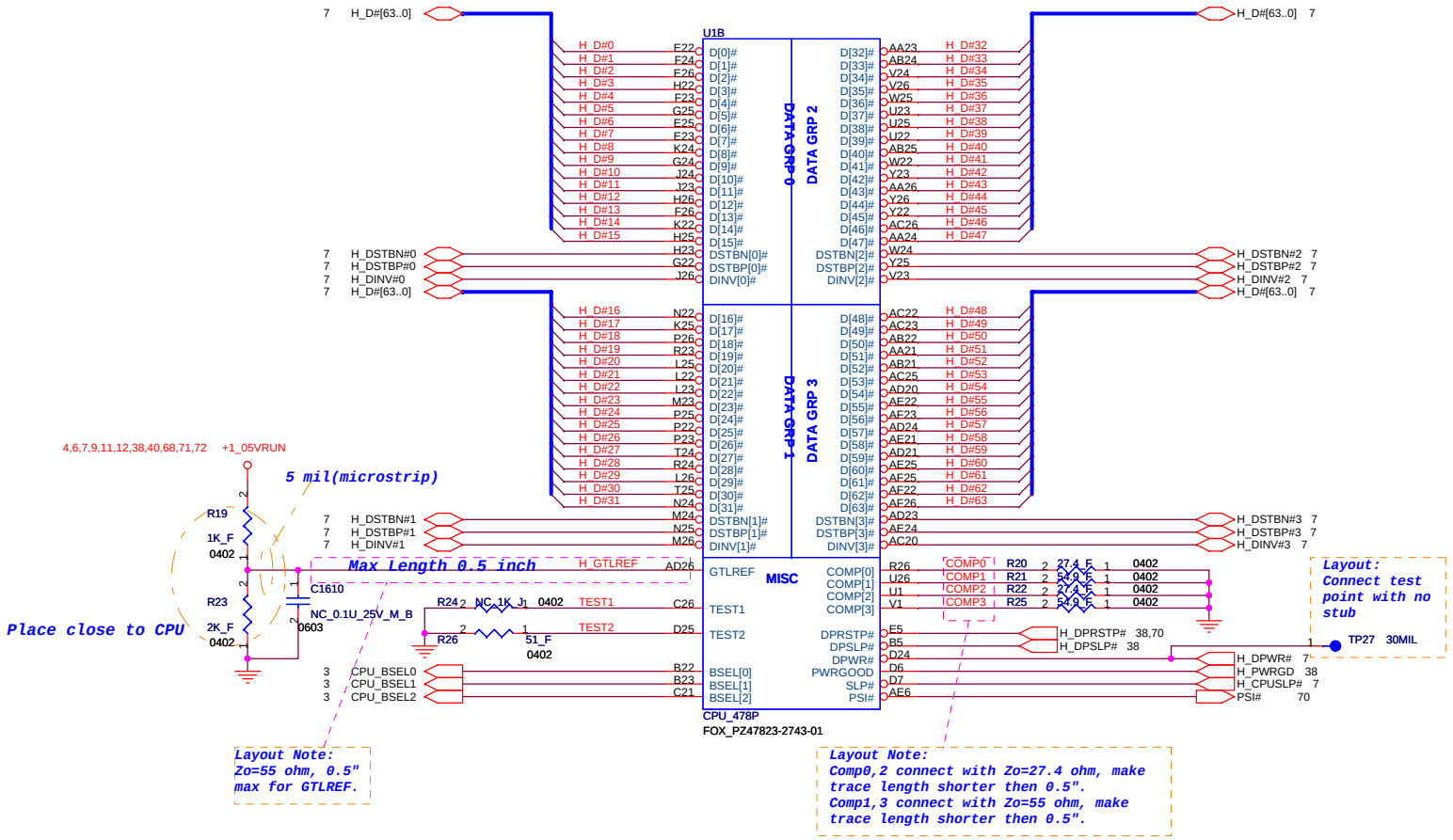

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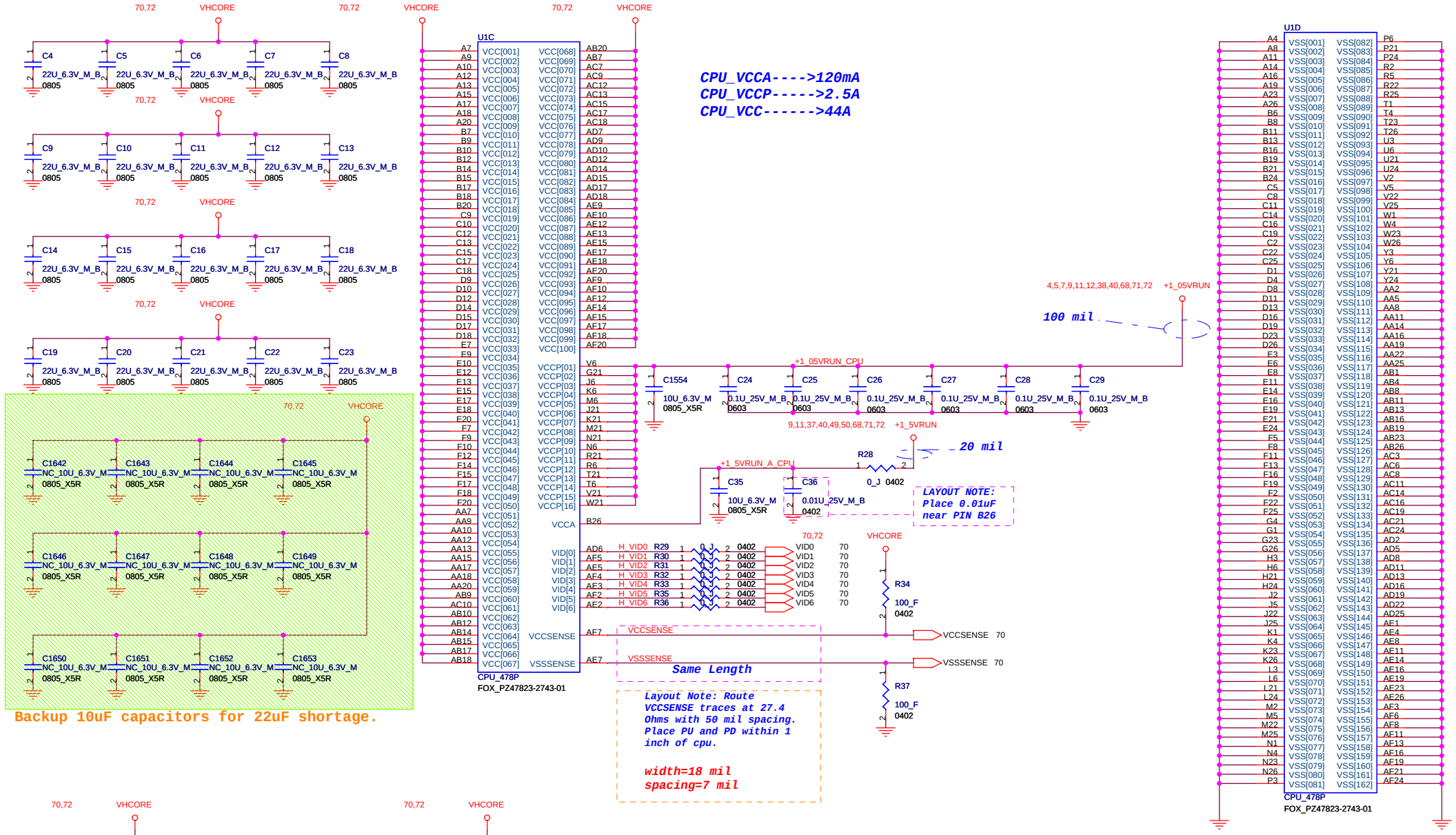

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	Yonah (POWER/GROUND) 3/3		
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2		Rev 1.1
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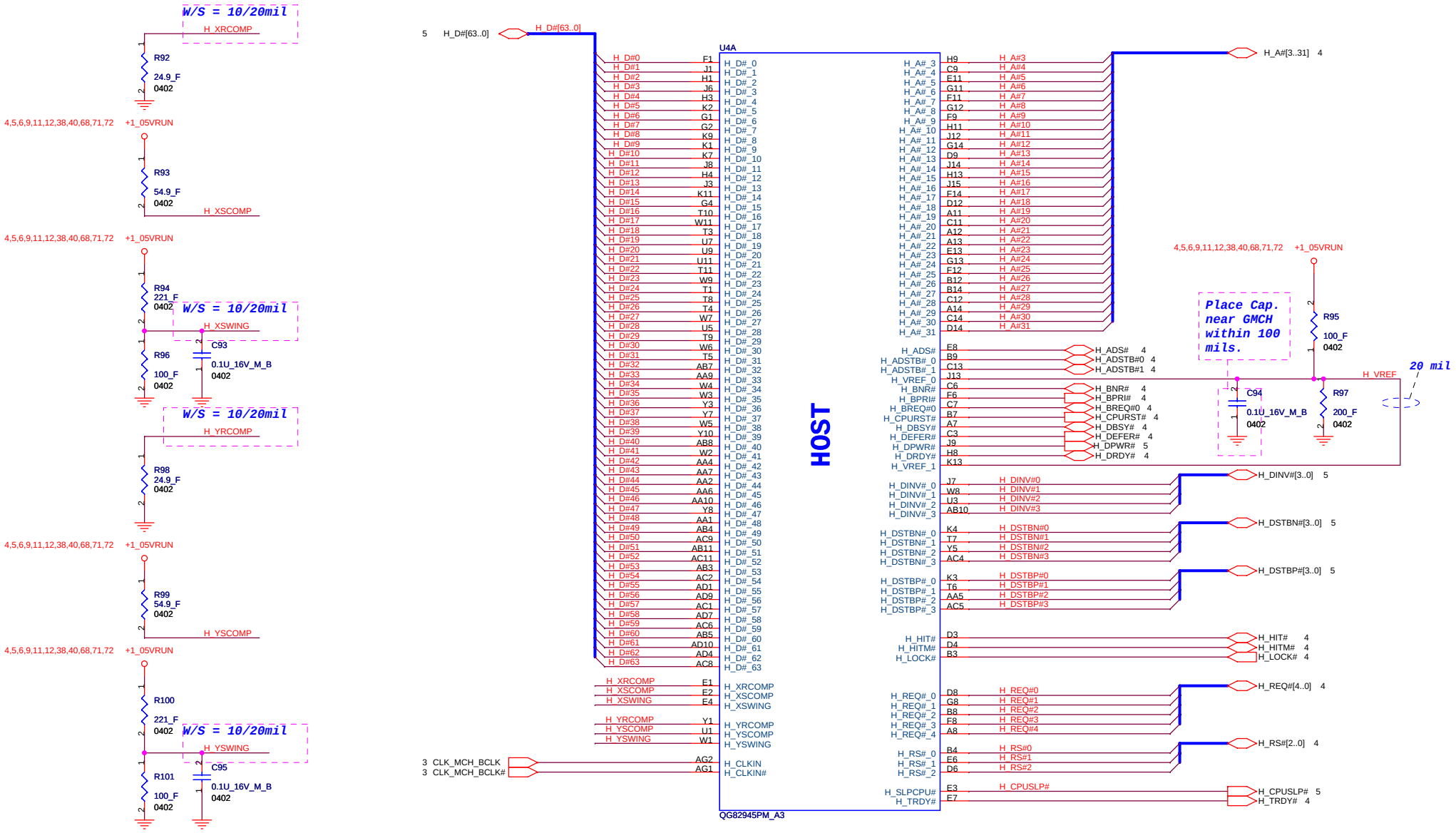

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Title	CALISTOGA (HOST) 1 of 7	
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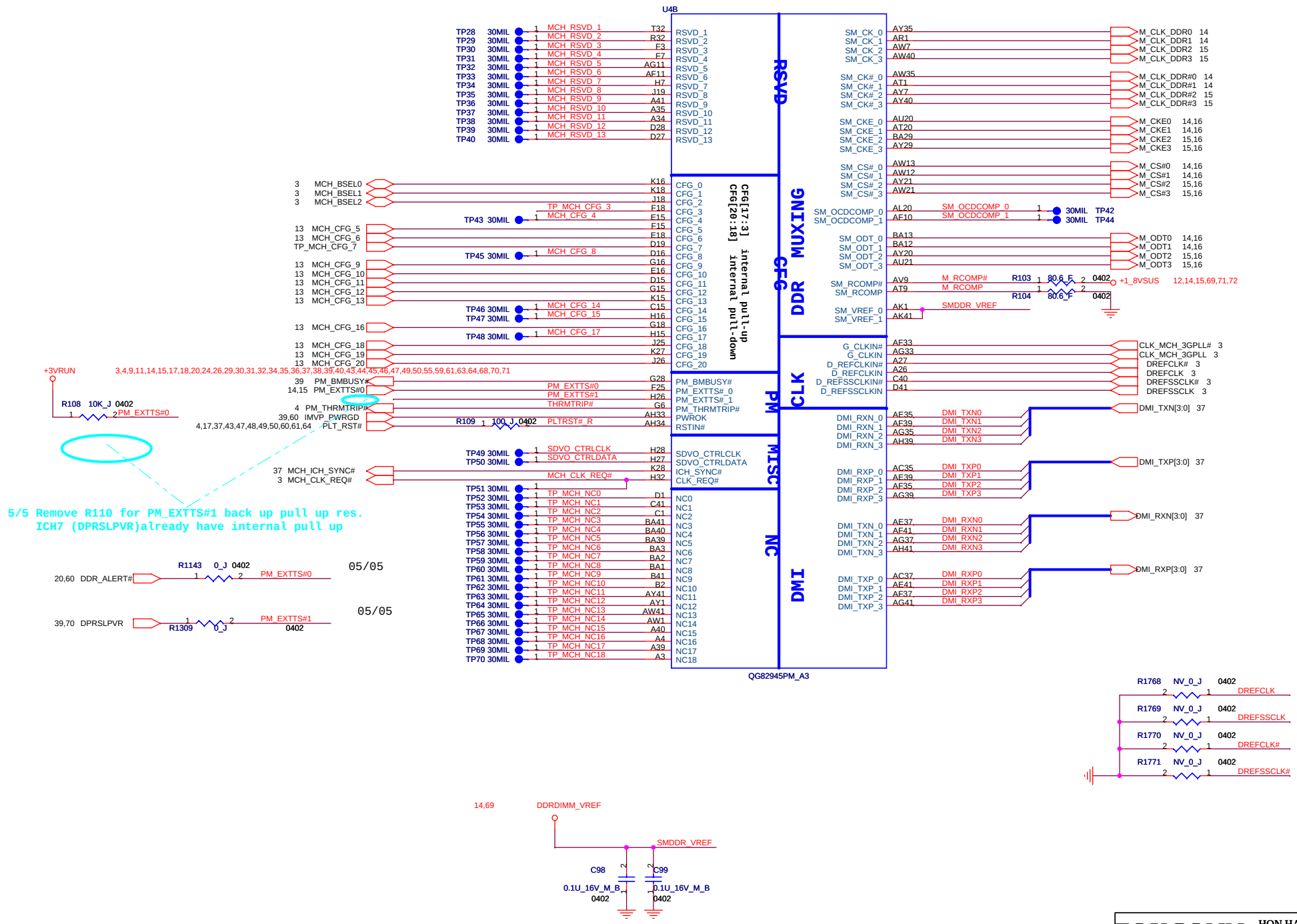

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
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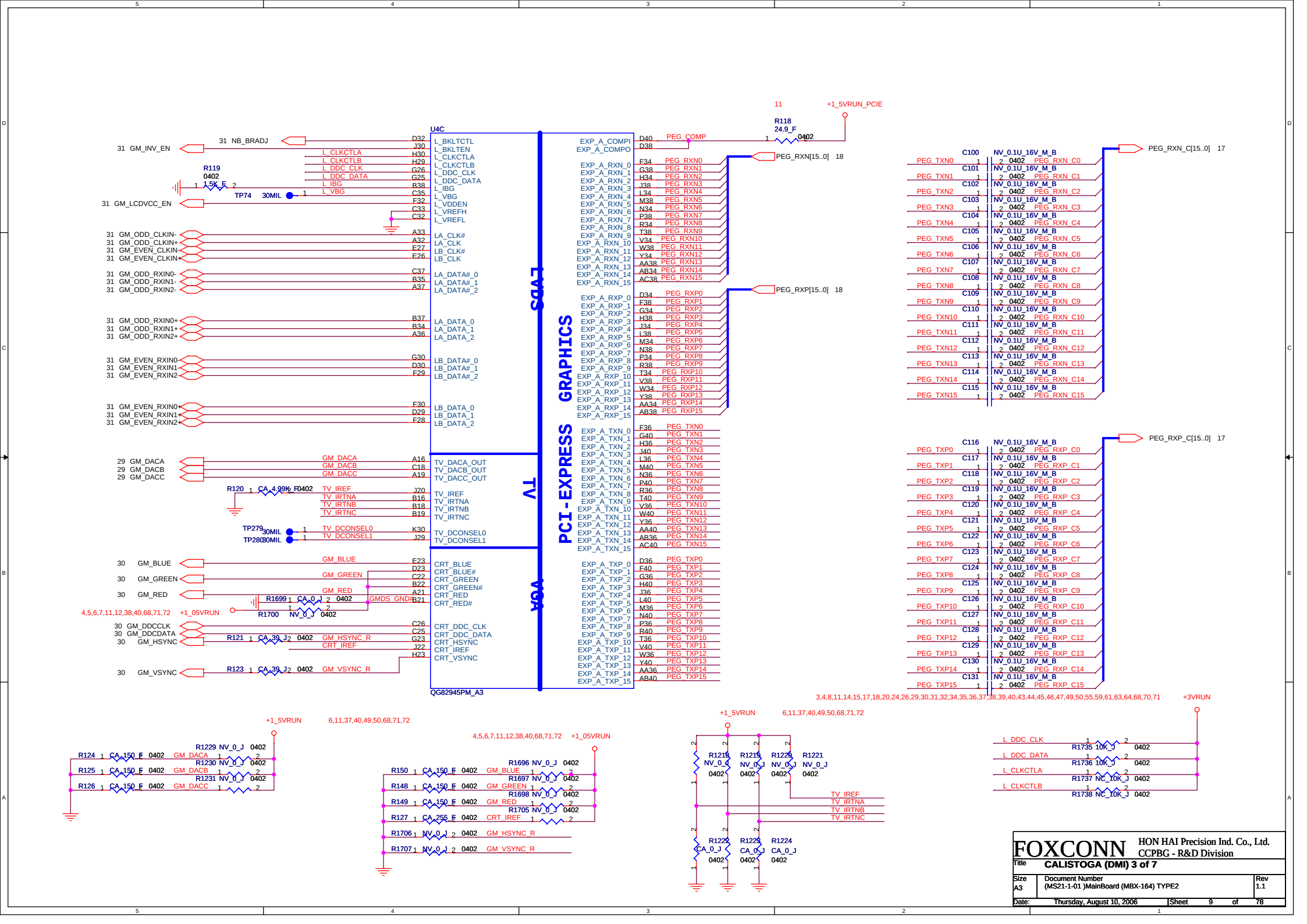
U4C
LVDS
TV
VGA
PCI-EXPRESS GRAPHICS
QG82945PM_A3
L_BKLTCTL
L_BKLTEN
L_CLKCTLA
L_CLKCTLB
L_DDC_CLK
L_DDC_DATA
L_IBG
L_VBG
L_VDDEN
L_VREFH
L_VREFL
LA_CLK#
LA_CLK
LB_CLK#
LB_CLK
LA_DATA#_0
LA_DATA#_1
LA_DATA#_2
LA_DATA_0
LA_DATA_1
LA_DATA_2
LB_DATA#_0
LB_DATA#_1
LB_DATA#_2
LB_DATA_0
LB_DATA_1
LB_DATA_2
TV_DACA_OUT
TV_DACB_OUT
TV_DACC_OUT
TV_IREF
TV_IRTNA
TV_IRTNB
TV_IRTNC
TV_DCONSEL0
TV_DCONSEL1
CRT_BLUE
CRT_BLUE#
CRT_GREEN
CRT_GREEN#
CRT_RED
CRT_RED#
CRT_DDC_CLK
CRT_DDC_DATA
CRT_HSYNC
CRT_IREF
CRT_VSYNC
EXP_A_COMPI
EXP_A_COMPO
PEG_COMP
PEG_RXN[15..0]
PEG_RXP[15..0]
PEG_TXN[15..0]
PEG_TXP[15..0]
R118 24.9_F 0402
+1_5VRUN_PCIE
PEG_RXN_C[15..0]
PEG_RXP_C[15..0]
NV_0.1U_16V_M_B
+3VRUN
+1_5VRUN
+1_05VRUN
GM_INV_EN
GM_LCDVCC_EN
GM_ODD_CLKIN-
GM_ODD_CLKIN+
GM_EVEN_CLKIN-
GM_EVEN_CLKIN+
GM_ODD_RXIN0-
GM_ODD_RXIN1-
GM_ODD_RXIN2-
GM_ODD_RXIN0+
GM_ODD_RXIN1+
GM_ODD_RXIN2+
GM_EVEN_RXIN0-
GM_EVEN_RXIN1-
GM_EVEN_RXIN2-
GM_EVEN_RXIN0+
GM_EVEN_RXIN1+
GM_EVEN_RXIN2+
GM_DACA
GM_DACB
GM_DACC
GM_BLUE
GM_GREEN
GM_RED
GM_DDCCLK
GM_DDCDATA
GM_HSYNC
GM_VSYNC
NB_BRADJ
GMDS_GND
TP74 30MIL
TP279 30MIL
TP280 30MIL
R119 1.5K_F 0402
R120 4.99K_F 0402
R121 CA_39_J 0402
R123 CA_39_J 0402
R1699 CA_0_J 0402
R1700 NV_0_J 0402
GM_HSYNC_R
GM_VSYNC_R
CRT_IREF
TV_IREF
TV_IRTNA
TV_IRTNB
TV_IRTNC
L_DDC_CLK
L_DDC_DATA
L_CLKCTLA
L_CLKCTLB
R1735 10K_J 0402
R1736 10K_J 0402
R1737 NC_10K_J 0402
R1738 NC_10K_J 0402
R1229 NV_0_J 0402
R1230 NV_0_J 0402
R1231 NV_0_J 0402
R124 CA_150_F 0402
R125 CA_150_F 0402
R126 CA_150_F 0402
R1696 NV_0_J 0402
R1697 NV_0_J 0402
R1698 NV_0_J 0402
R1705 NV_0_J 0402
R150 CA_150_F 0402
R148 CA_150_F 0402
R149 CA_150_F 0402
R127 CA_255_F 0402
R1706 NV_0_J 0402
R1707 NV_0_J 0402
R1218 NV_0_J 0402
R1219 NV_0_J 0402
R1220 NV_0_J 0402
R1221 NV_0_J 0402
R1222 CA_0_J 0402
R1223 CA_0_J 0402
R1224 CA_0_J 0402
4,5,6,7,11,12,38,40,68,71,72
6,11,37,40,49,50,68,71,72
3,4,8,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71
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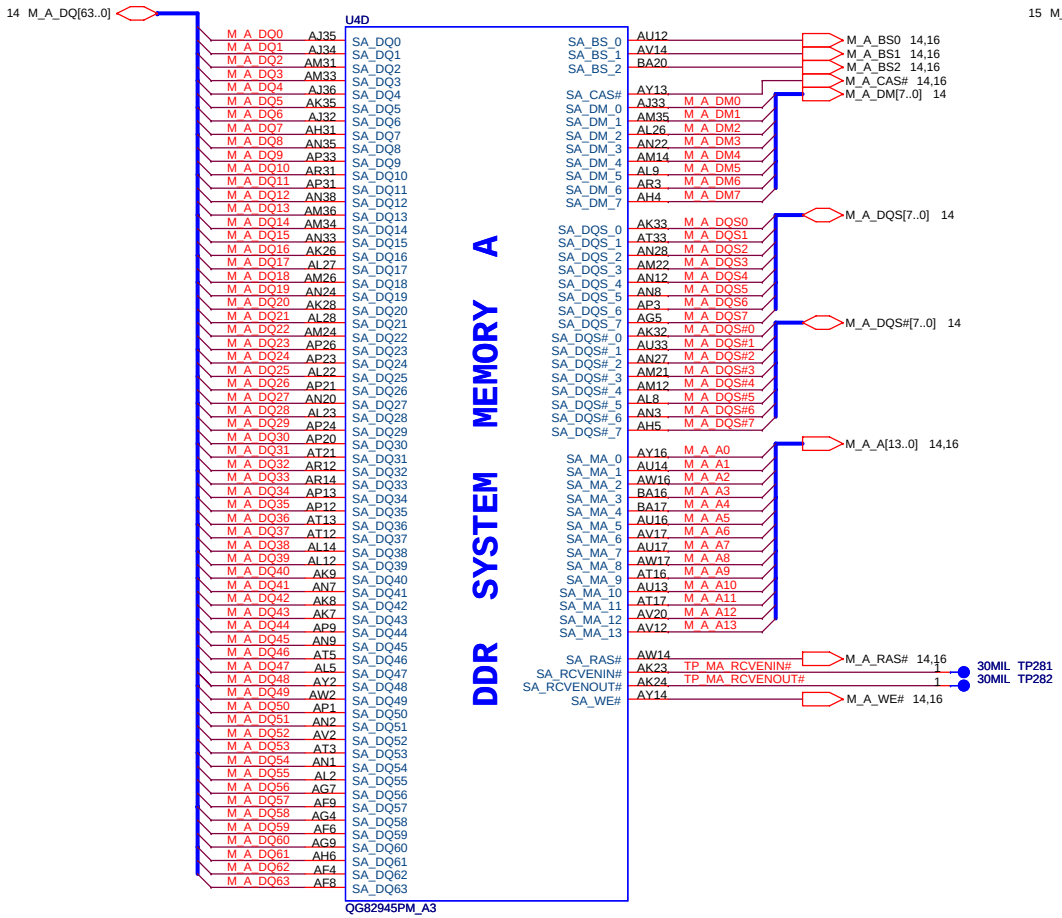

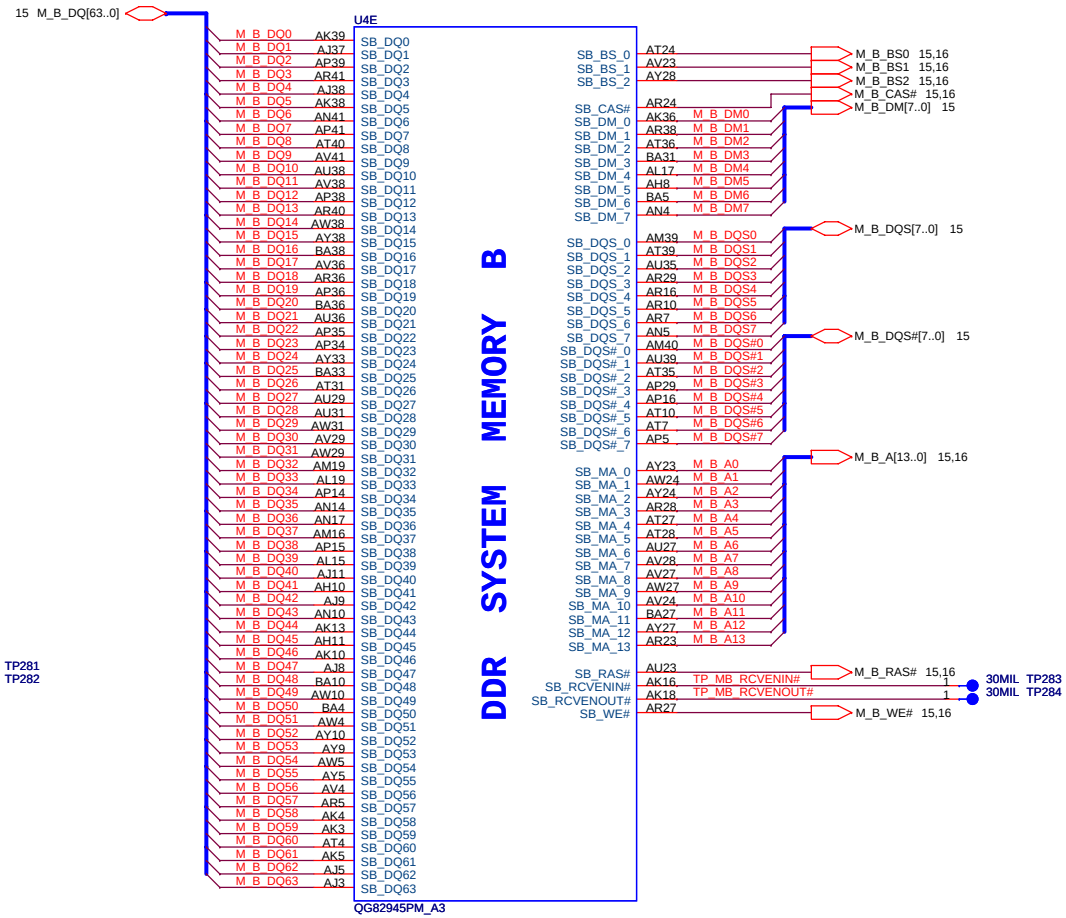

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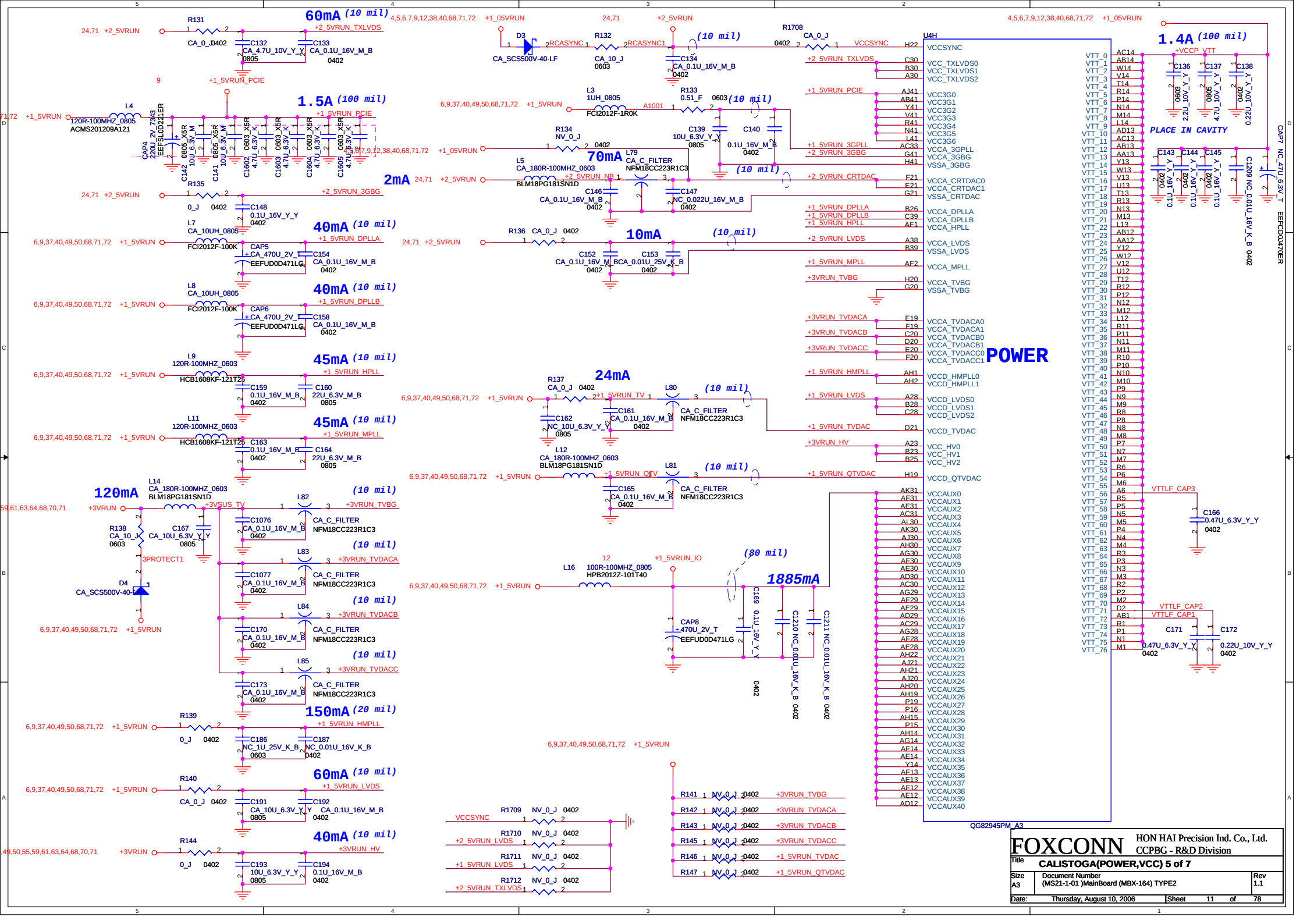

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Title	CALISTOGA(POWER,VCC) 5 of 7	
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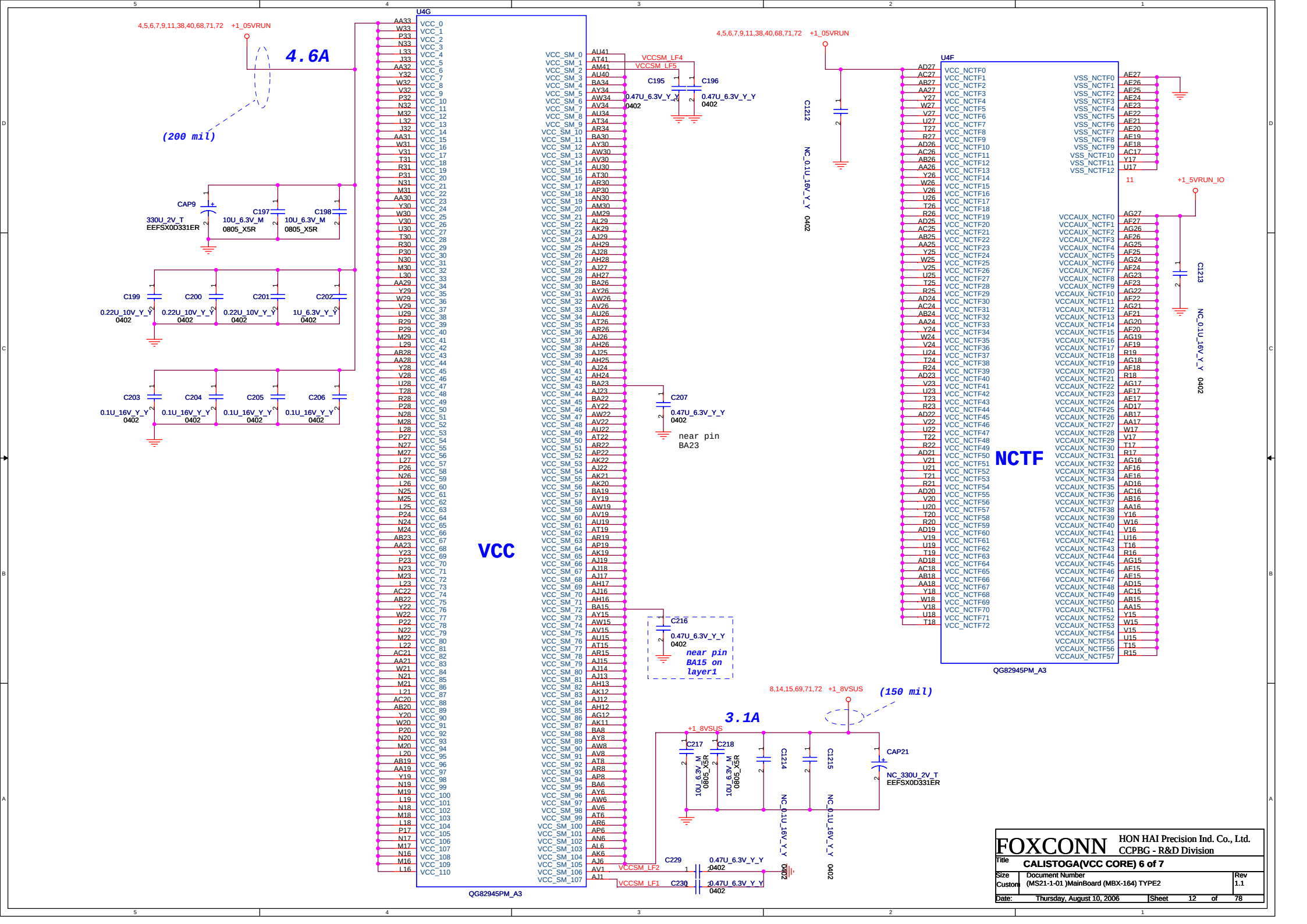

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Title	CALISTOGA(VCC CORE) 6 of 7	
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8 MCH_CFG_5 — 1 — 30MIL TP554

MCH_CFG_5	Low = DMIx2 High = DMIx4

8 MCH_CFG_6 — 1 — 30MIL TP556

MCH_CFG_6	Low = Moby Dick High = Calistoga

DDR2 select (default high)

8 TP_MCH_CFG_7 — TP_MCH_CFG_7

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

8 MCH_CFG_9 — 1 — 30MIL TP559

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

For layout convenience

8 MCH_CFG_10 — 1 — 30MIL TP560

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

8 MCH_CFG_11

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

R162 NC_2.2K_J 0402

8 MCH_CFG_12 — 1 — 30MIL TP562
8 MCH_CFG_13 — 1 — 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)

8 MCH_CFG_16 — 1 — 30MIL TP564

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

8 MCH_CFG_18 — 1 — 30MIL TP555

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

8 MCH_CFG_19 — 1 — 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

8 MCH_CFG_20 — 1 — 30MIL TP561

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

U4I

VSS

QG82945PM_A3

U4J

VSS

QG82945PM_A3

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8,12,15,69,71,72 +1_8VSUS

+1_8VSUS 8,12,15,69,71,72

1.8V per DIMM=3.08A

DDR2_VREF

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

PC4800 DDR2 SDRAM SO-DIMM (200P)

1	VREF	VSS46	2				
3	VSS47	DQ4	4	M_A_DQ4			
5	DQ0	DQ5	6	M_A_DQ5			
7	DQ1	VSS15	8				
9	VSS37	DM0	10	M_A_DM0			
11	DQS#0	VSS5	12				
13	DQS0	DQ6	14	M_A_DQ6			
15	VSS48	DQ7	16	M_A_DQ7			
17	DQ2	VSS16	18				
19	DQ3	DQ12	20	M_A_DQ12			
21	VSS38	DQ13	22	M_A_DQ13			
23	DQ8	VSS17	24				
25	DQ9	DM1	26	M_A_DM1			
27	VSS49	VSS53	28				
29	DQS#1	CK0	30	M_CLK_DDR0 8			
31	DQS1	CK0#	32	M_CLK_DDR#0 8			
33	VSS39	VSS41	34				
35	DQ10	DQ14	36	M_A_DQ14			
37	DQ11	DQ15	38	M_A_DQ15			
39	VSS50	VSS54	40				
41	VSS18	VSS20	42				
43	DQ16	DQ20	44	M_A_DQ20			
45	DQ17	DQ21	46	M_A_DQ21			
47	VSS1	VSS6	48				
49	DQS#2	NC3	50	DDR2_EXTTS#0	R168 NC_0_J 0402	PM_EXTTS#0 8,15	
51	DQS2	DM2	52	M_A_DM2			
53	VSS19	VSS21	54				
55	DQ18	DQ22	56	M_A_DQ22			
57	DQ19	DQ23	58	M_A_DQ23			
59	VSS22	VSS24	60				
61	DQ24	DQ28	62	M_A_DQ28			
63	DQ25	DQ29	64	M_A_DQ29			
65	VSS23	VSS25	66				
67	DM3	DQS#3	68	M_A_DQS#3			
69	NC4	VSS3	70	M_A_DQS3			
71	VSS9	VSS10	72				
73	DQ26	VSS30	74	M_A_DQ30			
75	DQ27	VSS31	76	M_A_DQ31			
77	VSS4	VSS8	78				
79	CKE0	CKE1	80	M_CKE1 8,16			
81	VDD7	VDD8	82				
83	NC1	A15	84				
85	A16_BA2	A14	86				
87	VDD9	VDD11	88				
89	A12	A11	90	M_A_A11			
91	A9	A7	92	M_A_A7			
93	A8	A6	94	M_A_A6			
95	VDD5	VDD4	96				
97	A5	A4	98	M_A_A4			
99	A3	A2	100	M_A_A2			
101	A1	A0	102	M_A_A0			
103	VDD10	VDD12	104				
105	A10/AP	BA1	106	M_A_BS1 10,16			
107	BA0	RAS#	108	M_A_RAS# 10,16			
109	WE#	S0#	110	M_CS#0 8,16			
111	VDD2	VDD1	112				
113	CAS#	ODT0	114	M_ODT0 8,16			
115	S1#	A13	116	M_A_A13			
117	VDD3	VDD6	118				
119	ODT1	NC2	120				
121	VSS11	VSS12	122				
123	DQ32	DQ36	124	M_A_DQ36			
125	DQ33	DQ37	126	M_A_DQ37			
127	VSS26	VSS28	128				
129	DQS#4	DM4	130	M_A_DM4			
131	DQS4	VSS42	132				
133	VSS2	DQ38	134	M_A_DQ38			
135	DQ34	DQ39	136	M_A_DQ39			
137	DQ35	VSS55	138				
139	VSS27	DQ44	140	M_A_DQ44			
141	DQ40	DQ45	142	M_A_DQ45			
143	DQ41	VSS43	144				
145	VSS29	DQS#5	146	M_A_DQS#5			
147	DM5	DQS5	148	M_A_DQS5			
149	VSS51	VSS56	150				
151	DQ42	DQ46	152	M_A_DQ46			
153	DQ43	DQ47	154	M_A_DQ47			
155	VSS40	VSS44	156				
157	DQ48	DQ52	158	M_A_DQ52			
159	DQ49	DQ53	160	M_A_DQ53			
161	VSS52	VSS57	162				
163	NCTEST	CK1	164	M_CLK_DDR1 8			
165	VSS30	CK1#	166	M_CLK_DDR#1 8			
167	DQS#6	VSS45	168				
169	DQS6	DM6	170	M_A_DM6			
171	VSS31	VSS32	172				
173	DQ50	DQ54	174	M_A_DQ54			
175	DQ51	DQ55	176	M_A_DQ55			
177	VSS33	VSS35	178				
179	DQ56	DQ60	180	M_A_DQ60			
181	DQ57	DQ61	182	M_A_DQ61			
183	VSS3	VSS7	184				
185	DM7	DQS#7	186	M_A_DQS#7			
187	VSS34	DQS7	188	M_A_DQS7			
189	DQ58	VSS36	190				
191	DQ59	DQ62	192	M_A_DQ62			
193	VSS14	DQ63	194	M_A_DQ63			
195	SDA	VSS13	196				
197	SCL	SA0	198	SA0_DIMM0	R174 10K_J 0402		
199	VDD(SPD)	SA1	200	SA1_DIMM0	R175 10K_J 0402		

SMDFIX1 SMDFIX2 201 202 NPTH1 NPTH2 203 204

DDR2 SO-DIMM_200P
FOX_AS0A426_N4RC_4F

M_A_DM[0..7] 10
M_A_DQ[0..63] 10
M_A_DQS[0..7] 10
M_A_DQS#[0..7] 10
M_A_A[0..13] 10,16

8,69 DDRDIMM_VREF

15 DDR2_VREF

R166 0_J 0402

DDR2_VREF

(20 mil)

C233 0.1U_16V_M_B 0402

8,16 M_CKE0

10,16 M_A_BS2

10,16 M_A_BS0
10,16 M_A_WE#

10,16 M_A_CAS#
8,16 M_CS#1

8,16 M_ODT1

3,15,39,50 SMB_DATA_SUS
3,15,39,50 SMB_CLK_SUS
7,49,50,55,59,61,63,64,68,70,71 +3VRUN

C1078 2.2U_10V_Y_Y 0603

C243 0.1U_16V_M_B 0402

DIMM_0

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

Place DIMM_0 near GMCH

8,12,15,69,71,72 +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

8,12,15,69,71,72 +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

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

Title	DDR(II)SO-DIMM_0	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 14 of 78	

14 DDR2_VREF

8,12,14,69,71,72 +1_8VSUS

+1_8VSUS 8,12,14,69,71,72

1.8V per DIMM=3.08A

C1661 0.1U_16V_M_B 0402
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

CN2

PC4800 DDR2 SDRAM SO-DIMM (200P)

1	VREF	VSS46	2				
3	VSS47	DQ4	4	M_B_DQ0	M_B_DQ4		
5	DQ0	DQ5	6	M_B_DQ1	M_B_DQ5		
7	DQ1	VSS15	8				
9	VSS37	DM0	10		M_B_DM0		
11	DQS#0	VSS5	12	M_B_DQS#0			
13	DQS0	DQ6	14	M_B_DQS0	M_B_DQ6		
15	VSS48	DQ7	16		M_B_DQ7		
17	DQ2	VSS16	18	M_B_DQ2			
19	DQ3	DQ12	20	M_B_DQ3	M_B_DQ12		
21	VSS38	DQ13	22		M_B_DQ13		
23	DQ8	VSS17	24	M_B_DQ8			
25	DQ9	DM1	26	M_B_DQ9	M_B_DM1		
27	VSS49	VSS53	28				
29	DQS#1	CK0	30	M_B_DQS#1		M_CLK_DDR3	8
31	DQS1	CK0#	32	M_B_DQS1		M_CLK_DDR#3	8
33	VSS39	VSS41	34				
35	DQ10	DQ14	36	M_B_DQ10	M_B_DQ14		
37	DQ11	DQ15	38	M_B_DQ11	M_B_DQ15		
39	VSS50	VSS54	40				
41	VSS18	VSS20	42				
43	DQ16	DQ20	44	M_B_DQ16	M_B_DQ20		
45	DQ17	DQ21	46	M_B_DQ17	M_B_DQ21		
47	VSS1	VSS6	48				
49	DQS#2	NC3	50	M_B_DQS#2	PM_EXTTS#_L		
51	DQS2	DM2	52	M_B_DQS2	M_B_DM2		
53	VSS19	VSS21	54				
55	DQ18	DQ22	56	M_B_DQ18	M_B_DQ22		
57	DQ19	DQ23	58	M_B_DQ19	M_B_DQ23		
59	VSS22	VSS24	60				
61	DQ24	DQ28	62	M_B_DQ24	M_B_DQ28		
63	DQ25	DQ29	64	M_B_DQ25	M_B_DQ29		
65	VSS23	VSS25	66				
67	DM3	DQS#3	68	M_B_DM3	M_B_DQS#3		
69	NC4	DQS3	70		M_B_DQS3		
71	VSS9	VSS10	72				
73	DQ26	DQ30	74	M_B_DQ26	M_B_DQ30		
75	DQ27	VSS31	76	M_B_DQ27	M_B_DQ31		
77	VSS4	VSS8	78				
79	CKE0	CKE1	80	8,16 M_CKE2		M_CKE3	8,16
81	VDD7	VDD8	82				
83	NC1	A15	84				
85	A16_BA2	A14	86	10,16 M_B_BS2			
87	VDD9	A11	88				
89	A12	A11	90	M_B_A12	M_B_A11		
91	A9	A7	92	M_B_A9	M_B_A7		
93	A8	A6	94	M_B_A8	M_B_A6		
95	VDD5	VDD4	96				
97	A5	A4	98	M_B_A5	M_B_A4		
99	A3	A2	100	M_B_A3	M_B_A2		
101	A1	A0	102	M_B_A1	M_B_A0		
103	VDD10	VDD12	104				
105	A10/AP	BA1	106	M_B_A10		M_B_BS1	10,16
107	BA0	RAS#	108	10,16 M_B_BS0		M_B_RAS#	10,16
109	WE#	S0#	110	10,16 M_B_WE#		M_CS#2	8,16
111	VDD2	VDD1	112				
113	CAS#	ODT0	114	10,16 M_B_CAS#		M_ODT2	8,16
115	S1#	A13	116	8,16 M_CS#3	M_B_A13		
117	VDD3	VDD6	118				
119	ODT1	NC2	120	8,16 M_ODT3			
121	VSS11	VSS12	122				
123	DQ32	DQ36	124	M_B_DQ32	M_B_DQ36		
125	DQ33	DQ37	126	M_B_DQ33	M_B_DQ37		
127	VSS26	VSS28	128				
129	DQS#4	DM4	130	M_B_DQS#4	M_B_DM4		
131	DQS4	VSS42	132	M_B_DQS4			
133	VSS2	DQ38	134		M_B_DQ38		
135	DQ34	DQ39	136	M_B_DQ34	M_B_DQ39		
137	DQ35	VSS55	138	M_B_DQ35			
139	VSS27	DQ44	140		M_B_DQ44		
141	DQ40	DQ45	142	M_B_DQ40	M_B_DQ45		
143	DQ41	VSS43	144	M_B_DQ41			
145	VSS29	DQS5	146		M_B_DQS5		
147	DM5	VSS56	148	M_B_DM5			
149	VSS51	DQ46	150		M_B_DQ46		
151	DQ42	DQ47	152	M_B_DQ42	M_B_DQ47		
153	DQ43	VSS44	154	M_B_DQ43			
155	VSS40	DQ52	156				
157	DQ48	DQ53	158	M_B_DQ48	M_B_DQ52		
159	DQ49	VSS57	160	M_B_DQ49	M_B_DQ53		
161	VSS52	CK1	162				
163	NCTEST	CK1#	164			M_CLK_DDR2	8
165	VSS30	VSS45	166			M_CLK_DDR#2	8
167	DQS#6	DM6	168	M_B_DQS#6	M_B_DM6		
169	DQS6	VSS32	170	M_B_DQS6			
171	VSS31	DQ54	172		M_B_DQ54		
173	DQ50	DQ55	174	M_B_DQ50	M_B_DQ55		
175	DQ51	VSS35	176	M_B_DQ51			
177	VSS33	DQ60	178				
179	DQ56	DQ61	180	M_B_DQ56	M_B_DQ60		
181	DQ57	VSS7	182	M_B_DQ57	M_B_DQ61		
183	VSS3	DQS#7	184				
185	DM7	DQS7	186	M_B_DM7	M_B_DQS#7		
187	VSS34	VSS36	188		M_B_DQS7		
189	DQ58	DQ62	190	M_B_DQ58	M_B_DQ62		
191	DQ59	DQ63	192	M_B_DQ59	M_B_DQ63		
193	VSS14	VSS13	194				
195	SDA	SA0	196	3,14,39,50 SMB_DATA_SUS		R177 10K_J	
197	SCL	SA1	198	3,14,39,50 SMB_CLK_SUS	SA0_DIM1	2 1 0402	
199	VDD(SPD)		200	9,61,63,64,68,70,71 +3VRUN	SA1_DIM1	2 1 0402 +3VRUN	

SMDFIX1 SMDFIX2 NPTH1 NPTH2 201 202 203 204

DDR2 S0-DIMM_200P
FOX_AS0A426_N4SC_4F

R178 10K_J

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

R1627 1 NC_0_J 2 0402 PM_EXTTS#0 8,14

5/5 (basis on MS20 MP ECR)
Remove backup DIMM thermal senser
Change R1627 from stuff to NC

M_B_DM[0..7] 10
M_B_DQ[0..63] 10
M_B_DQS[0..7] 10
M_B_DQS#[0..7] 10
M_B_A[0..13] 10,16

8,12,14,69,71,72 +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

8,12,14,69,71,72 +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

3,4,8,9,11,14,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,51,54,61,63,64,68,70,71

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

Title: DDR(II)SO-DIMM_1
Size: A3
Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev: 1.1
Date: Thursday, August 10, 2006
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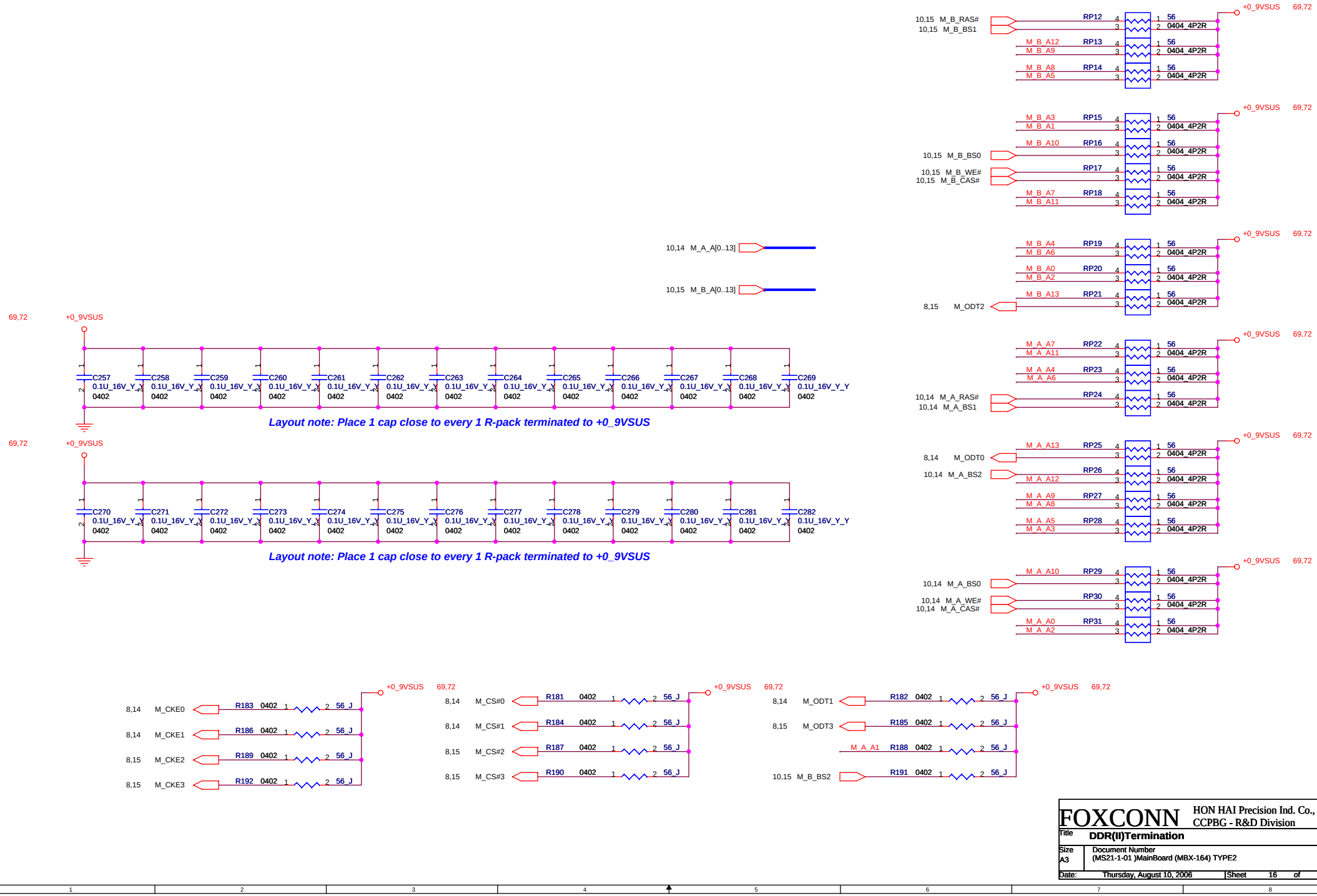
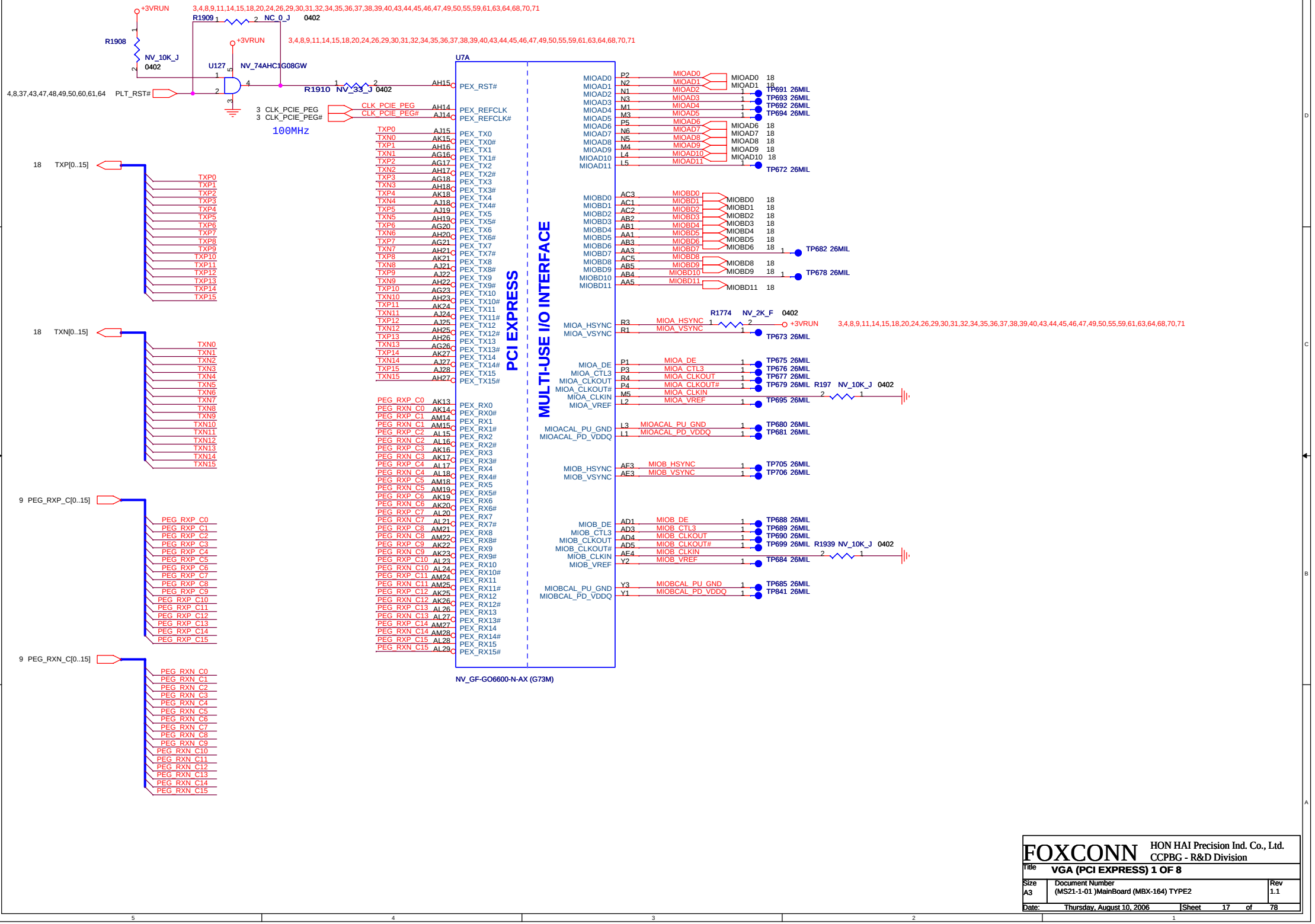
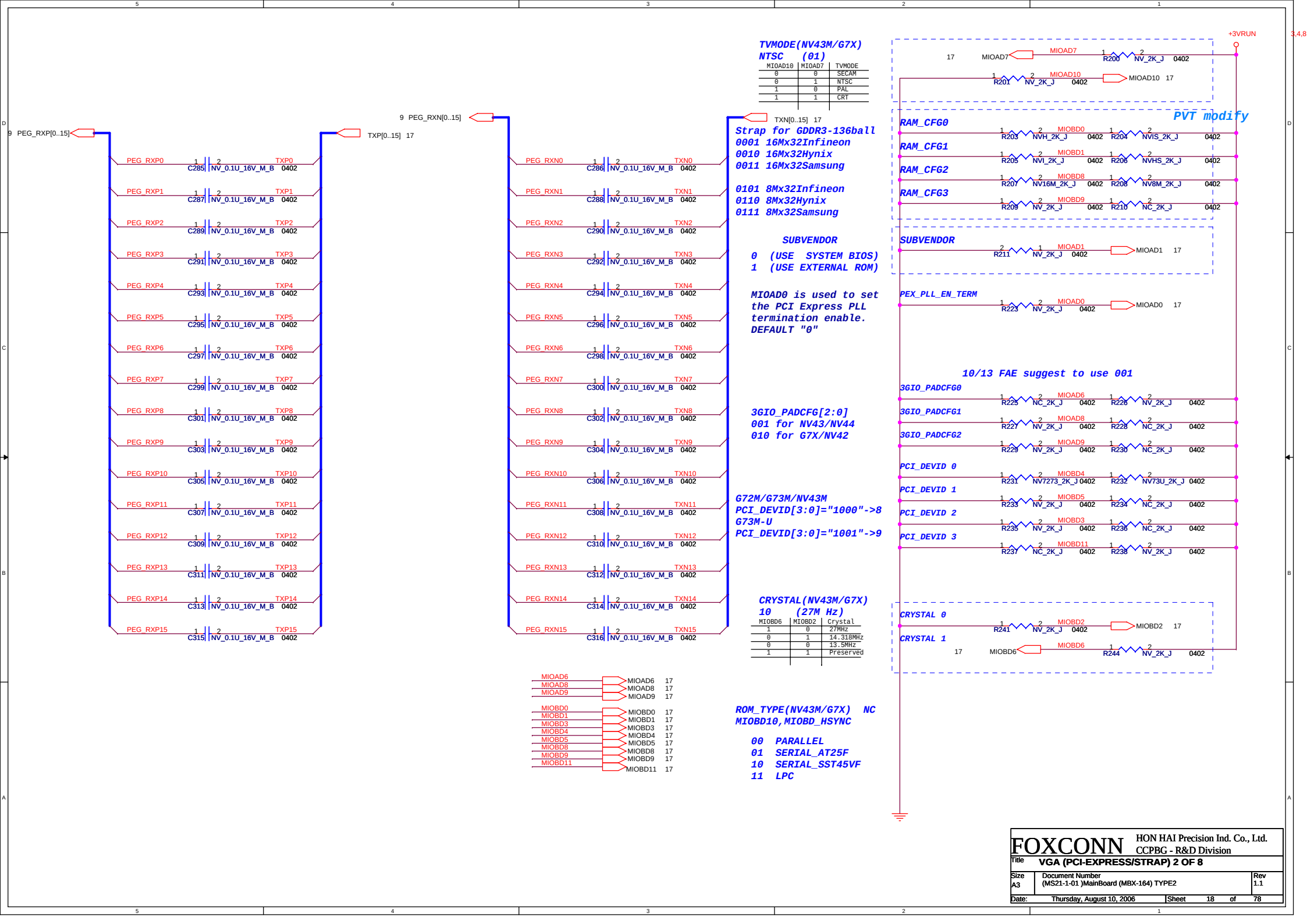


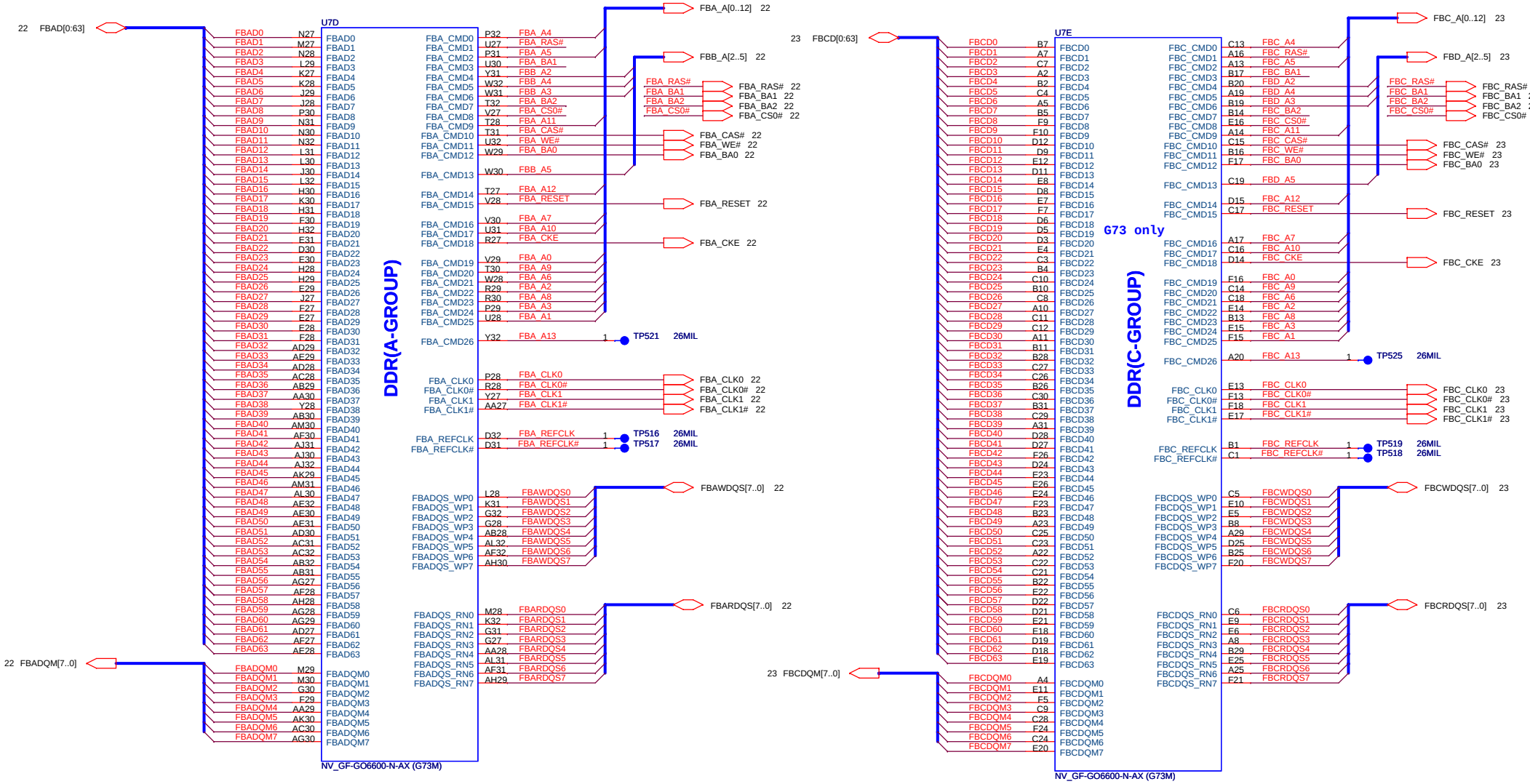
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: DDR(II)Termination		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 16 of 78	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (PCI EXPRESS) 1 OF 8	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 17 of 78	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (PCI-EXPRESS/STRAP) 2 OF 8	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 18 of 78	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (GDDR) 3 OF 8	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 19 of 78	

SM bus Address :
1001100(EC)
For F75383M

HDCP

U7F

I2C

ROM

GENERAL SIGNALS

TEST SIGNAL

GPIO

CRYSTAL

NV_GF-GO6600-N-AX (G73M)

F75383M(VERISION:0.28P)

U8

From EC

	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.

7/28
change Y2 Value
from Normal to NV

HDCP ROM

Tis chip can use MK1726 or P1819B

R316 place near GPU
R317 place near spectrum chip

SPREAD SPECTRUM SETTING FOR MK

S0	SPREAD DIRECTION	Spread Percentage(%)
0	DOWN	-1.8
M	DOWN	-0.6
1	DOWN	-2.5

0 = connect to GND
M= unconnected
1 = connect directly to VDD

SPREAD SPECTRUM SETTING FOR P1819B

SRS PIN3	SPREAD DIRECTION	Spread Percentage(%)
0	DOWN	-1.25
1	DOWN	-1.75

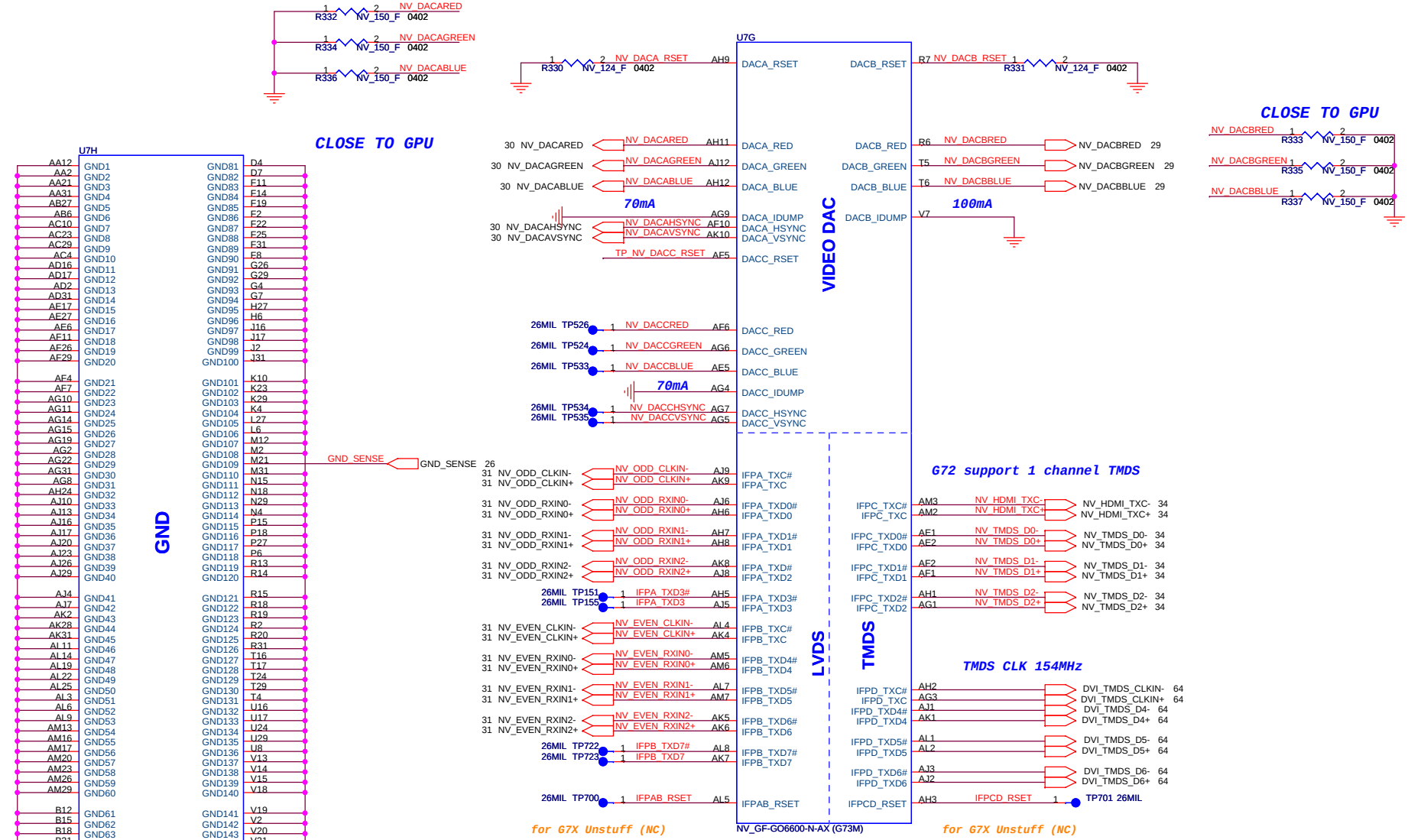
nVidia support Down -1.25%

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

Title: VGA (POWER) 7 OF 8

Size: A3 | Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 20 of 78


U7G
U7H
VIDEO DAC
LVDS
TMDS
GND
NV_GF-GO6600-N-AX (G73M)
CLOSE TO GPU
70mA
100mA
G72 support 1 channel TMDS
TMDS CLK 154MHz
for G7X Unstuff (NC)
for G7X Unstuff (NC)
GND_SENSE
NV_DACARED
NV_DACAGREEN
NV_DACABLUE
NV_DACA_RSET
NV_DACB_RSET
NV_DACBRED
NV_DACBGREEN
NV_DACBBLUE
NV_DACAHSYNC
NV_DACAVSYNC
TP_NV_DACC_RSET
NV_DACCRED
NV_DACCGREEN
NV_DACCBLUE
NV_DACCHSYNC
NV_DACCVSYNC
IFPA_TXC#
IFPA_TXC
IFPA_TXD0#
IFPA_TXD0
IFPA_TXD1#
IFPA_TXD1
IFPA_TXD2#
IFPA_TXD2
IFPA_TXD3#
IFPA_TXD3
IFPB_TXC#
IFPB_TXC
IFPB_TXD4#
IFPB_TXD4
IFPB_TXD5#
IFPB_TXD5
IFPB_TXD6#
IFPB_TXD6
IFPB_TXD7#
IFPB_TXD7
IFPAB_RSET
IFPC_TXC#
IFPC_TXC
IFPC_TXD0#
IFPC_TXD0
IFPC_TXD1#
IFPC_TXD1
IFPC_TXD2#
IFPC_TXD2
IFPD_TXC#
IFPD_TXC
IFPD_TXD4#
IFPD_TXD4
IFPD_TXD5#
IFPD_TXD5
IFPD_TXD6#
IFPD_TXD6
IFPCD_RSET
NV_HDMI_TXC-
NV_HDMI_TXC+
NV_TMDS_D0-
NV_TMDS_D0+
NV_TMDS_D1-
NV_TMDS_D1+
NV_TMDS_D2-
NV_TMDS_D2+
DVI_TMDS_CLKIN-
DVI_TMDS_CLKIN+
DVI_TMDS_D4-
DVI_TMDS_D4+
DVI_TMDS_D5-
DVI_TMDS_D5+
DVI_TMDS_D6-
DVI_TMDS_D6+
TP701 26MIL
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 PB
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 (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Date: Thursday, August 10, 2006
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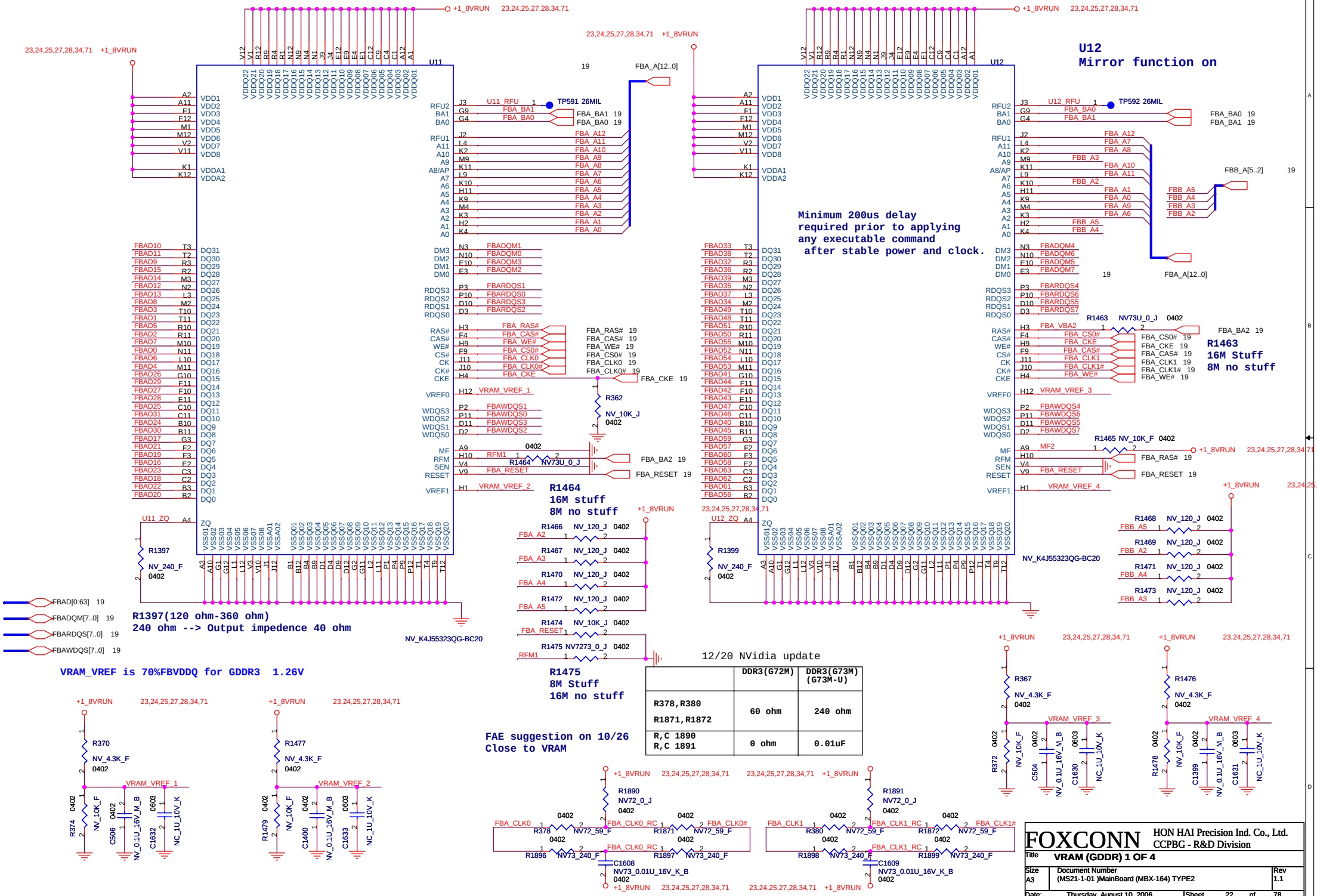

	DDR3(G72M)	DDR3(G73M) (G73M-U)
R378,R380 R1871,R1872	60 ohm	240 ohm
R,C 1890 R,C 1891	0 ohm	0.01uF

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

Title	VRAM (GDDR) 1 OF 4	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
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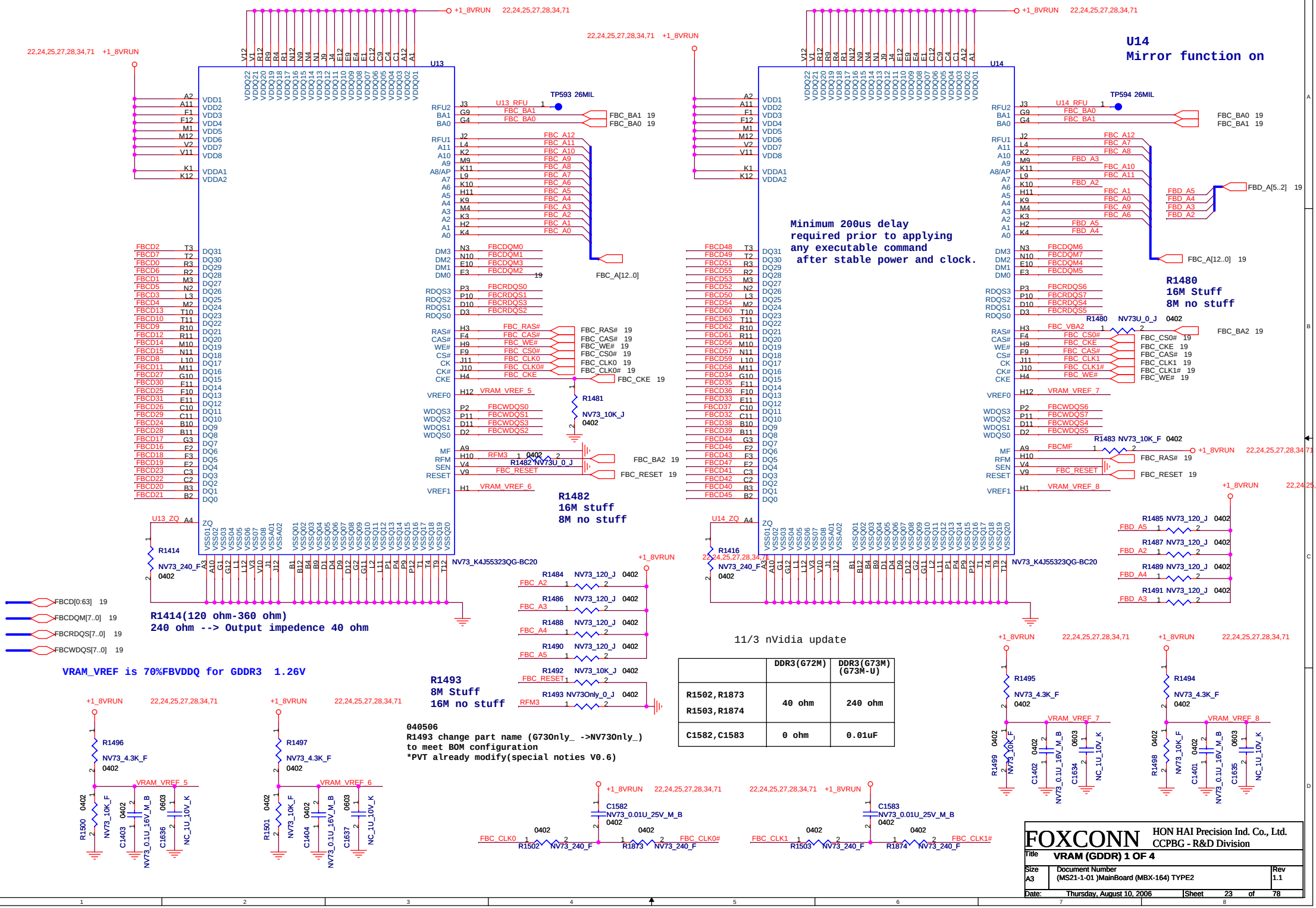
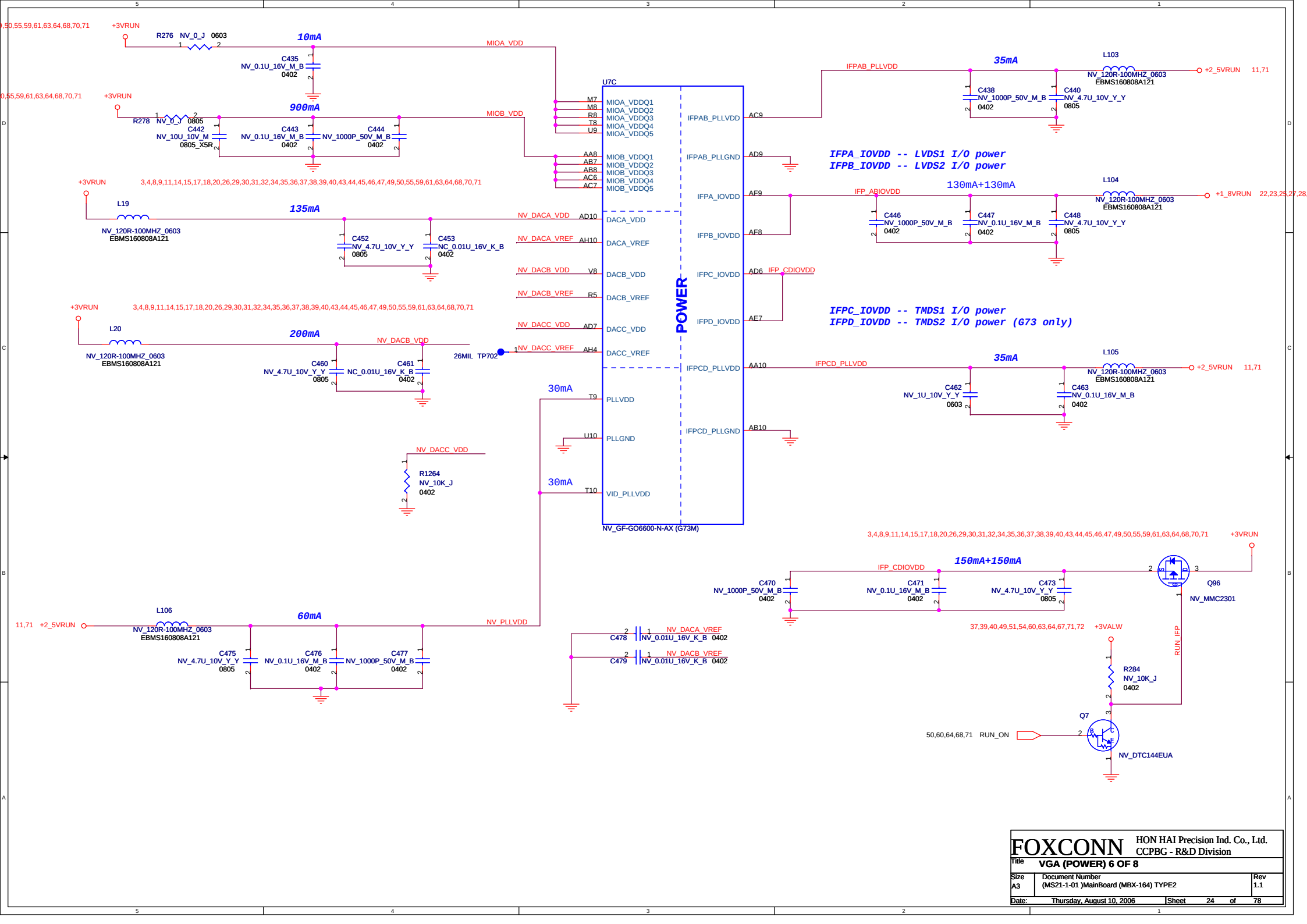


	DDR3(G72M)	DDR3(G73M) (G73M-U)
R1502,R1873 R1503,R1874	40 ohm	240 ohm
C1582,C1583	0 ohm	0.01uF



FOXCONN	HON HAI Precision Ind. Co., Ltd.
	CCPBG - R&D Division
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For GDDR3 FBVTT require decoupling capacitor,FBVDD don't require them.

U7I

+1_8VRUN 22,23,24,27,28,34,71

C1390 NV_4.7U_10V_Y_Y 0805
C1391 NV_0.1U_16V_M_B 0402
C1386 NV_0.1U_16V_M_B 0402
C1387 NV_0.1U_16V_M_B 0402
C1392 NV_0.1U_16V_M_B 0402
C1393 NV_1000P_50V_M_B 0402
C1388 NV_1000P_50V_M_B 0402

FBVTT0 AA23
FBVTT1 AB23
FBVTT2 H16
FBVTT3 H17
FBVTT4 J10
FBVTT5 J23
FBVTT6 J24
FBVTT7 J9
FBVTT8 K11
FBVTT9 K12
FBVTT10 K21
FBVTT11 K22
FBVTT12 K24
FBVTT13 K9
FBVTT14 L23
FBVTT15 M23
FBVTT16 T25
FBVTT17 U25

POWER

FBVDD0 A12
FBVDD1 A15
FBVDD2 A18
FBVDD3 A21
FBVDD4 A24
FBVDD5 A27
FBVDD6 A3
FBVDD7 A30
FBVDD8 A6
FBVDD9 A9
FBVDD10 AA32
FBVDD11 AD32
FBVDD12 AG32
FBVDD13 AK32
FBVDD14 C32
FBVDD15 F32
FBVDD16 J32
FBVDD17 M32
FBVDD18 R32
FBVDD19 V32
FB_VREF1 E32

22,23,24,27,28,34,71 +1_8VRUN

R270 NV72_4.3K_F 0402
FB_VREF1
C432 NV72_0.1U_16V_M_B 0402
R274 NV72_10K_F 0402

1.2V

L93 NV_120R-100MHZ_0603 EBMS160808A121

26,72,73 PEX_VDD

30mA(Frame Buffer Analog Power)

C411 NV_4.7U_10V_Y_Y 0805
C413 NV_0.1U_16V_Y_Y 0402
C1420 NV_1000P_50V_M_B 0402

FBA_PLLAVDD G25
FBA_PLLGND G24

FBC_PLLAVDD G10
FBC_PLLGND G9

FBCAL_PD_VDDQ K26
FBCAL_PU_GND H26
FBCAL_TERM_GND J26

L95,C422,C424,C1422 should be stuff for G73M , unstuff for G72M.

1.2V

L95 NV73_120R-100MHZ_0603 EBMS160808A121

72,73 PEX_VDD

30mA(Frame Buffer Analog Power)

C422 NV73_4.7U_10V_Y_Y 0805
C424 NV73_0.1U_16V_Y_Y 0402
C1422 NV73_1000P_50V_M_B 0402

NV_GF-GO6600-N-AX (G73M)

G73M-U 3800mA
G73M 3600mA
G72M/G72M-U 1550mA
(Frame Buffer core power for I/O)

FBVDDQ

FBVDDQ0 AA25
FBVDDQ1 AA26
FBVDDQ2 AB25
FBVDDQ3 AB26
FBVDDQ4 G11
FBVDDQ5 G12
FBVDDQ6 G15
FBVDDQ7 G18
FBVDDQ8 G21
FBVDDQ9 G22
FBVDDQ10 H11
FBVDDQ11 H12
FBVDDQ12 H15
FBVDDQ13 H18
FBVDDQ14 H21
FBVDDQ15 H22
FBVDDQ16 L25
FBVDDQ17 L26
FBVDDQ18 M25
FBVDDQ19 M26
FBVDDQ20 R25
FBVDDQ21 R26
FBVDDQ22 V25
FBVDDQ23 V26

+1_8VRUN 22,23,24,27,28,34,71

C406 NV_0.1U_16V_M_B 0402
C407 NV_0.1U_16V_M_B 0402
C427 NV_1000P_50V_M_B 0402
C426 NV_1000P_50V_M_B 0402

C414 NV_0.1U_16V_M_B 0402
C415 NV_0.1U_16V_M_B 0402
C416 NV_0.1U_16V_M_B 0402
C418 NV_4.7U_10V_Y_Y 0805
CAP20 150U_6.3V_T ECGUD0J151ER

+1_8VRUN 22,23,24,27,28,34,71

FBCAL_PD_VDDQ R1900 NV73_49.9_F 0402
FBCAL_PD_VDDQ R269 NV72_59_F 0402
FBCAL_PU_GND R272 NV_40.2_F 0402
FBCAL_TERM_GND R273 NV_40.2_F 0603

11/3 nVidia update

	DDR1	DDR3(G72M)	DDR3(G73M)
FBCAL_PD_VDDQ	40 ohm	60 ohm	50 ohm
FBCAL_PU_GND	30 ohm	40 ohm	40 ohm
FBCAL_TERM_GND	NC	40 ohm	40 ohm

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G3 design guide require that PEX_IOVDD/Q directly connect to PEX_VDD on page 16.

1.2V
25,72,73 PEX_VDD
250mA
C317 4.7U_10V_Y_Y 0805
C1143 NV_1U_25V_K_B 0603
C320 NV_0.1U_16V_M_B 0402
C1564 NC_1U_25V_K_B 0603
C1565 NC_0.1U_16V_M_B 0402

1.2V
25,72,73 PEX_VDD
1420mA (I/O Power)
C322 NV_10U_6.3V_M 0805_X5R
C323 NV_10U_6.3V_M 0805_X5R
C1144 NV_1U_25V_K_B 0603
C324 NV_0.1U_16V_M_B 0402
C325 NV_0.1U_16V_M_B 0402
C1548 NV_1U_25V_K_B 0603
C326 NV_0.1U_16V_M_B 0402
C327 NV_1000P_50V_M_B 0402
C328 NV_1000P_50V_M_B 0402

1.2V
25,72,73 PEX_VDD
L90 NV_120R-100MHZ_0603 EBMS160808A121
100mA(Analog Power)
PEX_PLL_AVDD
C337 NV_4.7U_10V_Y_Y 0805
C339 NV_0.1U_16V_M_B 0402
C338 NV_1000P_50V_M_B 0402
NIVIDIA FBA suggest to use 1000p capacitor

1.2V
25,72,73 PEX_VDD
L91 NV_120R-100MHZ_0603 EBMS160808A121
20mA(Power rail)
PEX_PLL_DVDD
C345 NV_1U_25V_K_B 0603
C346 NV_0.1U_16V_M_B 0402

1.025V
72,73 NV_VDD
(Secondary internal core power)
R262 NV_0_J 0805
L_NV_VDD
C352 NV_22U_6.3V_M_B 0805
C353 NV_0.1U_16V_M_B 0402
C354 NV_0.1U_16V_M_B 0402
C355 NV_1000P_50V_M_B 0402

27,49,50,55,59,61,63,64,68,70,71 +3VRUN
110mA(3.3V Power rail GPIO,I2C,GPU DIGITAL LOGIC)
C365 NV_1U_10V_Y_Y 0603
C367 NV_1000P_50V_M_B 0402
C373 NV_0.1U_16V_M_B 0402
C370 NV_0.1U_16V_M_B 0402
C371 NV_0.1U_16V_M_B 0402
C372 NV_0.1U_16V_M_B 0402

U7B
POWER
PEX_IOVDD0 AD23
PEX_IOVDD1 AF24
PEX_IOVDD2 AF23
PEX_IOVDD3 AF25
PEX_IOVDD4 AG24
PEX_IOVDD5 AG25
PEX_IOVDDQ0 AC16
PEX_IOVDDQ1 AC17
PEX_IOVDDQ2 AC21
PEX_IOVDDQ3 AC22
PEX_IOVDDQ4 AE18
PEX_IOVDDQ5 AE21
PEX_IOVDDQ6 AE22
PEX_IOVDDQ7 AE12
PEX_IOVDDQ8 AF18
PEX_IOVDDQ9 AF21
PEX_IOVDDQ10 AF22
PEX_PLLAVDD AE15
PEX_PLLDVDD AE15
PEX_PLLGND AE16
VDD_LP1 P20
VDD_LP2 T20
VDD_LP3 T23
VDD_LP4 U20
VDD_LP5 U23
VDD_LP6 W20
VDD33_0 AC11
VDD33_1 AC12
VDD33_2 AC24
VDD33_3 AD24
VDD33_4 AE11
VDD33_5 AE12
VDD33_6 H7
VDD33_7 J7
VDD33_8 K7
VDD33_9 L10
VDD33_10 L7
VDD33_11 L8
VDD33_12 M10
NC1 TP_NFNC1 AG12
NC2 TP_NFNC2 AH13
NC3 HSPDIF J6
NC4 NFNC4 B32
NC5 NFNC5 AM9
NC6 NFNC6 AM8
NC7 NFNC7 Y30
NC8 TP_NFNC8 AC26
NC9 NFNC9 U3
NC10 NFNC10 V3
NC11 NFNC11 U6
NC12 NFNC12 U5
NV_GF-GO6600-N-AX (G73M)

55 HSPDIF
26MIL TP624 NFNC4
26MIL TP626 NFNC5
26MIL TP628 NFNC6
26MIL TP629 NFNC7
26MIL TP635 NFNC9
26MIL TP634 NFNC10
26MIL TP636 NFNC11
26MIL TP637 NFNC12

8mA(Frame Buffer Analog Power)
NV_PLLAVDD T13
C1191 NV_0.1U_16V_Y_Y 0402
C1192 NV_4.7U_10V_Y_Y 0805
25,72,73 PEX_VDD
L102 NV_120R-100MHZ_0603 EBMS160808A121
C1216 NC_1000P_50V_K_B 0402
1.2V
Place close to L102

72,73 NV_VDD
16.25A(Internal logic core power)
C329 NV_0.1U_16V_M_B 0402
C330 NV_0.1U_16V_M_B 0402
C331 NV_0.1U_16V_M_B 0402
CRB circuit 050611
C1193 NV_0.01U_16V_K_B 0402
NVVDD_SENSE
GND_SENSE 21
C333 NV_0.1U_16V_M_B 0402
C334 NV_0.1U_16V_M_B 0402
C335 NV_0.1U_16V_M_B 0402
C340 NV_0.1U_16V_M_B 0402
C341 NV_0.1U_16V_M_B 0402
C342 NV_0.1U_16V_M_B 0402
C356 NV_1000P_50V_M_B 0402
C357 NV_1000P_50V_M_B 0402
C358 NV_1000P_50V_M_B 0402
C362 NV_22U_6.3V_M_B 0805
C363 NV_22U_6.3V_M_B 0805
C364 NV_22U_6.3V_M_B 0805

VDD0 K16
VDD1 K17
VDD2 N13
VDD3 N14
VDD4 N16
VDD5 N17
VDD6 N19
VDD7 N20
VDD8 P13
VDD9 P14
VDD10 P16
VDD11 P17
VDD12 P19
VDD13 R16
VDD14 R17
VDD16 T14
VDD17 T15
VDD18 T18
VDD19 T19
VDD20 U13
VDD21 U14
VDD22 U15
VDD23 U18
VDD24 U19
VDD25 V16
VDD26 V17
VDD27 W13
VDD28 W14
VDD29 W16
VDD30 W17
VDD31 W19
VDD32 Y13
VDD33 Y14
VDD34 Y16
VDD35 Y17
VDD36 Y19
VDD37 Y20

NC13 U4 NFNC13 TP614 26MIL
NC14 V4 NFNC14 TP613 26MIL
NC15 V6 NFNC15 TP616 26MIL
NC16 C20 NFNC16 TP615 26MIL
NC17 D1 NFNC17 TP618 26MIL
NC18 W3 NFNC18 TP617 26MIL
NC19 V1 NFNC19 TP620 26MIL
NC20 Y5 NFNC20 TP622 26MIL
NC21 W1 NFNC21 TP623 26MIL
NC22 W4 NFNC22 TP625 26MIL
NC23 W5 NFNC23 TP627 26MIL
NC24 V5 NFNC24 TP631 26MIL
NC25 Y6 NFNC25 TP630 26MIL
NC26 F6 NFNC26 TP633 26MIL
NC27 G8 TP_FBC_PLLVDD
NC28 G23 FBA_PLLVDD TP586 26MIL
NC29 A28 FB_VREF2 TP587 26MIL
NC30 F1 STRAP TP590 26MIL
NC31 A26 TESTMEMCLK
R1544 NV72_10K_J 0402

G73M Pin A26-NC
G72M Pin A26 need stuff R305 10K

G72M 1.1V
G73M 1.1V
G73M-U 1.2V

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Decoupling for Tright MEMORY

Place around the MEM

+1_8VRUN 22,23,24,25,28,34,71

C510 NV_10U_6.3V_M 0805_X5R
C511 NV_0.1U_16V_M_B 0402
C512 NV_0.1U_16V_M_B 0402
C513 NV_0.1U_16V_M_B 0402
C514 NV_0.1U_16V_M_B 0402
C515 NV_0.1U_16V_M_B 0402
C516 NV_0.1U_16V_M_B 0402
C517 NV_0.1U_16V_M_B 0402
C518 NV_0.1U_16V_M_B 0402
C1590 NV_0.1U_16V_M_B 0402
C1591 NV_0.1U_16V_M_B 0402
C1592 NV_1000P_50V_M_B 0402

+1_8VRUN 22,23,24,25,28,34,71

1.2A

C524 NV_1000P_50V_M_B 0402
C525 NV_1000P_50V_M_B 0402

Decoupling for Tleft MEMORY

Place around the MEM

+1_8VRUN 22,23,24,25,28,34,71

C540 NV_10U_6.3V_M 0805_X5R
C541 NV_0.1U_16V_M_B 0402
C542 NV_0.1U_16V_M_B 0402
C543 NV_0.1U_16V_M_B 0402
C544 NV_0.1U_16V_M_B 0402
C545 NV_0.1U_16V_M_B 0402
C546 NV_0.1U_16V_M_B 0402
C547 NV_0.1U_16V_M_B 0402
C548 NV_0.1U_16V_M_B 0402
C1593 NV_0.1U_16V_M_B 0402
C1594 NV_0.1U_16V_M_B 0402
C1595 NV_1000P_50V_M_B 0402

+1_8VRUN 22,23,24,25,28,34,71

C554 NV_1000P_50V_M_B 0402
C555 NV_1000P_50V_M_B 0402

FOXCONN HON HAI Precision Ind. Co., Ltd.
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Decoupling for Bright MEMORY

Place around the MEM

+1_8VRUN 22,23,24,25,27,34,71

C575 NV73_10U_6.3V_M 0805_X5R
C576 NV73_0.1U_16V_M_B 0402
C577 NV73_0.1U_16V_M_B 0402
C578 NV73_0.1U_16V_M_B 0402
C579 NV73_0.1U_16V_M_B 0402
C580 NV73_0.1U_16V_M_B 0402
C581 NV73_0.1U_16V_M_B 0402
C582 NV73_0.1U_16V_M_B 0402
C583 NV73_0.1U_16V_M_B 0402
C1596 NV_0.1U_16V_M_B 0402
C1597 NV_0.1U_16V_M_B 0402
C1598 NV73_1000P_50V_M_B 0402

+1_8VRUN 22,23,24,25,27,34,71

1.2A

C589 NV73_1000P_50V_M_B 0402
C590 NV73_1000P_50V_M_B 0402

Decoupling for Bleft MEMORY

Place around the MEM

+1_8VRUN 22,23,24,25,27,34,71

C605 NV73_10U_6.3V_M 0805_X5R
C606 NV73_0.1U_16V_M_B 0402
C607 NV73_0.1U_16V_M_B 0402
C608 NV73_0.1U_16V_M_B 0402
C609 NV73_0.1U_16V_M_B 0402
C610 NV73_0.1U_16V_M_B 0402
C611 NV73_0.1U_16V_M_B 0402
C612 NV73_0.1U_16V_M_B 0402
C613 NV73_0.1U_16V_M_B 0402
C1599 NV_0.1U_16V_M_B 0402
C1600 NV_0.1U_16V_M_B 0402
C1601 NV73_1000P_50V_M_B 0402

+1_8VRUN 22,23,24,25,27,34,71

C619 NV73_1000P_50V_M_B 0402
C620 NV73_1000P_50V_M_B 0402

FOXCONN HON HAI Precision Ind. Co., Ltd.
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Title: VRAM (POWERBYPASS) 4 OF 4

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S-VIDEO ANALOG SWITCH

H : S-VIDEO&CVBS
L : PORT REPLICATOR

30,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73,74 +5VRUN

C691 1U_10V_Y_Y 0603

21 NV_DACBRED — R537 NV_0_J 0402 — DACB_RED_COM
9 GM_DACC — R540 CA_0_J 0402 — DACB_RED_COM
21 NV_DACBGREEN — R541 NV_0_J 0402 — DACB_GREEN_COM
9 GM_DACB — R543 CA_0_J 0402 — DACB_GREEN_COM

U77 SN74CBT3257PW

DACB_RED_COM	1A	1B1	2	TVD_COUT
		1B2	3	TV_S_C_OUT
DACB_GREEN_COM	2A	2B1	5	TVD_YOUT
		2B2	6	TV_S_Y_OUT
30 GM_OR_NV_DDCCLK	3A	3B2	10	MB_DDCCLK 30
		3B1	11	PR_DDCCLK 64
30 GM_OR_NV_DDCDATA	4A	4B2	13	MB_DDCDATA 30
		4B1	14	PR_DDCDATA 64
30,64 DOCKED#	S	OE#	15	
		GND	8	
		VCC	16	

TVD_COUT 64
TVD_YOUT 64

COME TO DOCKING

21 NV_DACBBLUE — R1233 NV_0_J 0402 — COMP_OUT 64
9 GM_DACA — R1232 CA_0_J 0402

2006/8/7
change D60,D61,D81 Value from NV to Normal

D81 SM05.TCT: B_SVD_DET#
D61 SM05.TCT: C_OUT
D60 SM05.TCT: Y_OUT

S-VIDEO

These compoent close to S-Video connector within 700 mil

C690 22P_50V_K_N 0402
L52 120R-100MHZ_0402 MMZ1005D121CT
TV_S_Y_OUT — R539 150_F 0402 — C692 220P_50V_J_N 0402 — C693 330P_50V_K_B 0402

C695 22P_50V_K_N 0402
L53 120R-100MHZ_0402 MMZ1005D121CT
TV_S_C_OUT — R544 150_F 0402 — C697 220P_50V_J_N 0402 — C698 330P_50V_K_B 0402

Y_OUT
C_OUT

CN6 S-VIDEO REEPTACLE CONN_4P FOX_MH11747-BS2D-4F
B_SVD_DET#

3,4,8,9,11,14,15,17,18,20,24,26,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

30,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73,74 +5VRUN

R1546 NV_2.2K_J 0402 — NV_HDMI_DET_3 34
R1545 NV_2.2K_J 0402
Q115 NV_DTC144EUA
Q116 NV_DTC144EUA
34,35 NV_HDMI_DET_5

3,4,8,9,11,14,15,17,18,20,24,26,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

64 DOCK_SEMI_PNP

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

Semi-PnP

NC_MC74VHC1G86DFT2G
U108 — NV_HDMI_DET_3 — AND5 — AND4
R1911 10K_J 0402
U73 MC74VHC1G86DFT2G
EXT_DEV_SENSE 60
Semi-PnP(EC IN)
R1548 10K_J 0402

3,4,8,9,11,14,15,17,18,20,24,26,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

U84 74AHC1G08GW
30,64 DOCKED#
R1952 0_J 0402

3,4,8,9,11,14,15,17,18,20,24,26,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R1076 10K_J 0402
R1077 10K_J 0402
SEMI5
(CRT)
30 VGA_CRT_DET#
VGA_CRT_DET#
B_SVD_DET#
(SVDIO)
U72 MC74VHC1G86DFT2G

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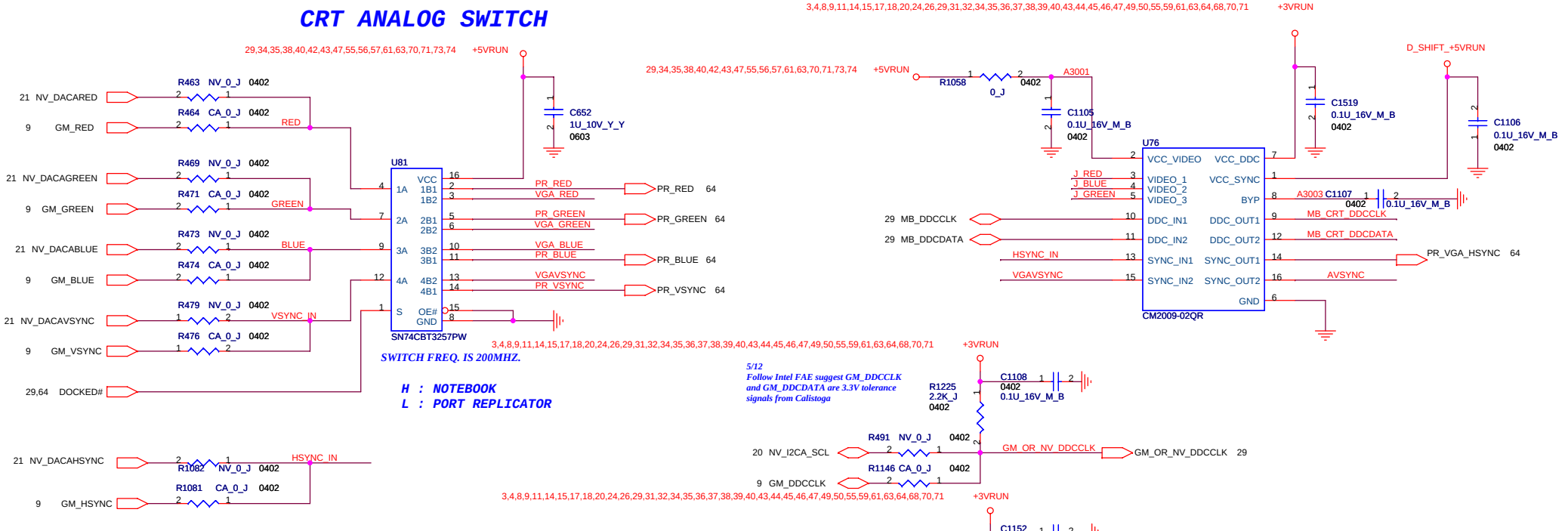
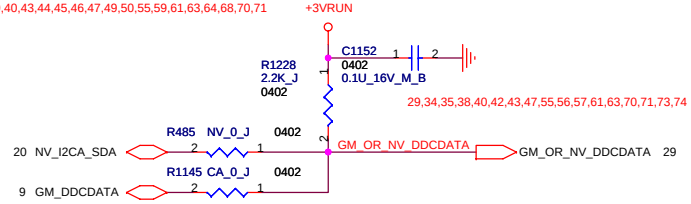
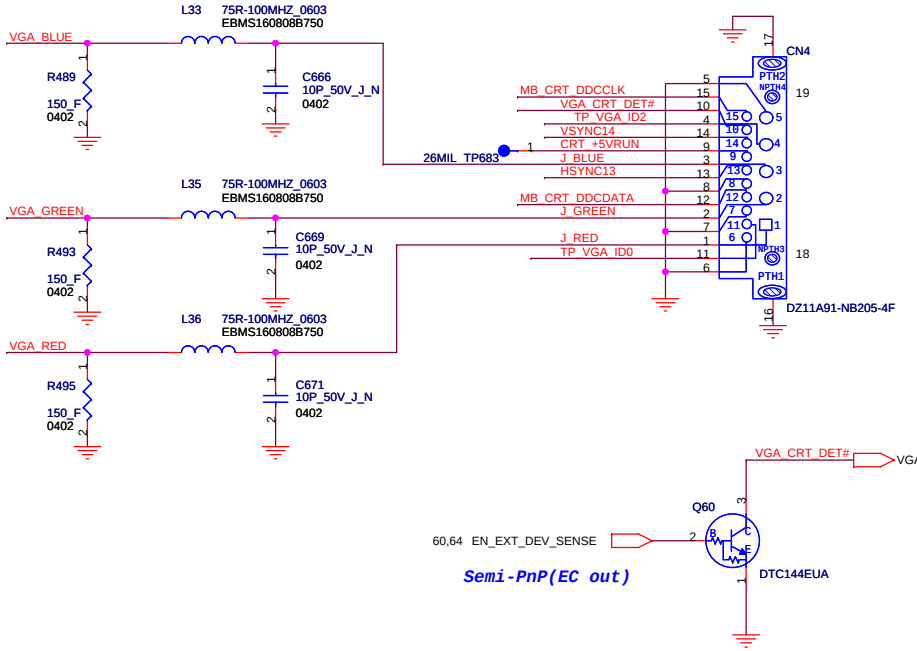
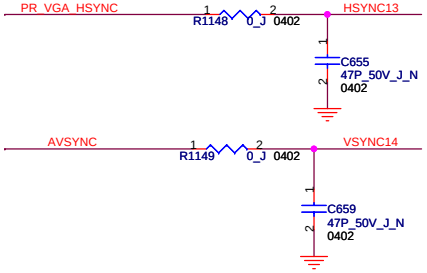
CRT ANALOG SWITCH

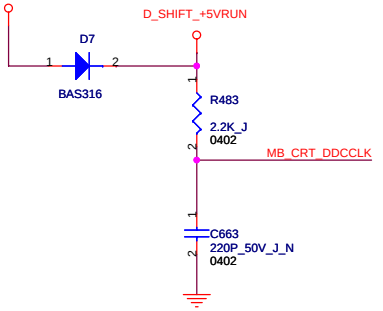


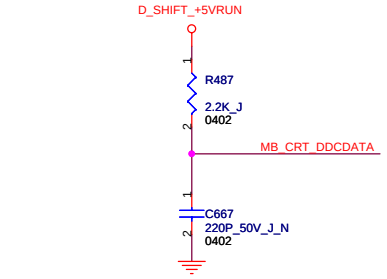


CRT CONNECTOR









FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: CRT		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 30 of 78	

LVDS

Group1 / Group2

0404_4P2R

21 NV_ODD_CLKIN-	ODD_CLKIN-	NV_0 RP76	CA_0 RP77	GM_ODD_CLKIN- 9
21 NV_ODD_CLKIN+	ODD_CLKIN+			GM_ODD_CLKIN+ 9
21 NV_ODD_RXIN0-	ODD_RXIN0-	NV_0 RP78	CA_0 RP79	GM_ODD_RXIN0- 9
21 NV_ODD_RXIN0+	ODD_RXIN0+			GM_ODD_RXIN0+ 9
21 NV_ODD_RXIN1-	ODD_RXIN1-	NV_0 RP80	CA_0 RP81	GM_ODD_RXIN1- 9
21 NV_ODD_RXIN1+	ODD_RXIN1+			GM_ODD_RXIN1+ 9
21 NV_ODD_RXIN2-	ODD_RXIN2-	NV_0 RP82	CA_0 RP83	GM_ODD_RXIN2- 9
21 NV_ODD_RXIN2+	ODD_RXIN2+			GM_ODD_RXIN2+ 9
21 NV_EVEN_CLKIN-	EVEN_CLKIN-	NV_0 RP84	CA_0 RP85	GM_EVEN_CLKIN- 9
21 NV_EVEN_CLKIN+	EVEN_CLKIN+			GM_EVEN_CLKIN+ 9
21 NV_EVEN_RXIN0-	EVEN_RXIN0-	NV_0 RP86	CA_0 RP87	GM_EVEN_RXIN0- 9
21 NV_EVEN_RXIN0+	EVEN_RXIN0+			GM_EVEN_RXIN0+ 9
21 NV_EVEN_RXIN1-	EVEN_RXIN1-	NV_0 RP88	CA_0 RP89	GM_EVEN_RXIN1- 9
21 NV_EVEN_RXIN1+	EVEN_RXIN1+			GM_EVEN_RXIN1+ 9
21 NV_EVEN_RXIN2-	EVEN_RXIN2-	NV_0 RP90	CA_0 RP91	GM_EVEN_RXIN2- 9
21 NV_EVEN_RXIN2+	EVEN_RXIN2+			GM_EVEN_RXIN2+ 9

2006/6/26
(Del inverter boost circuit , after change , the inverter circuit is the same with MS20 MP)
Detail change list
Delete PR426&PR427 and change
C604-1,C1557-1,C1558-1,CN49pin1,pin2
net name INVERTER_VCC to net DCBATOUT.

66,67,68,69,70,71,72,73 DCBATOUT

C1557 NC_0.1U_50V_K_B 0603
C1558 1U_25V_Y 0805_Y5V
C640 0.1U_50V_K_B 0603

Place C640 and C1558 close to CN49.

LVDS CONNECTOR

LCDVCC
37 LVDS_GPIO
GAMMA_CTRL
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-

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

66,67,68,69,70,71,72,73 DCBATOUT

2A

CN49 — B TO B HEADER CONN_6P FOX_HS8106E

INV_ENABLE
INV_BRADJ

3,4,8,9,11,14,15,17,18,20,24,26,29,30,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

U106 74AHC1G08GW

39 INV_EN_EC — INV_EN_EC — BRADJPWM_LPF
NB_BRADJ — R1268 CA_0_J 0402
20 NV_BRADJ — R1269 NV_0_J 0402
R1549 10K_J 0402

U106,U15,U16 can use ON (MC74VHC1G08DFT2G)
H.H. PN:14-MC74VHC-1604

INVERTER CONNECTOR

LCDVCC
R1937 NC_0_J 0402
GAMMA_CTRL
R1938 0_J 0402

3,4,8,9,11,14,15,17,18,20,24,26,29,30,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

U16 74AHC1G08GW

60,63 LIDIN#
20 NV_INV_EN
9 GM_INV_EN
(3.3V tolerant)
R1724
R458 CA_100K_J 0402
CA_0_J 0402

U15 74AHC1G08GW

39 INV_EN_EC — INV_EN_EC — INV_ENABLE — INV_ENABLE 60,74
R1550 10K_J 0402

LCDVCC
C649 4.7U_10V_Y_Y 0805
C650 0.1U_16V_Y_Y 0402
C1614 0.1U_16V_Y_Y 0402

Place C650 close to CN3

3,4,8,9,11,14,15,17,18,20,24,26,29,30,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R459 2K_J 0402

Current limit is from 1.1A to 2.1A.

Q10 CA_DTC144EUA
9 GM_LCDVCC_EN
20 NV_LCDVCC_EN#

U17 G548B2P1U
C647 0.1U_16V_M_B 0402
C1151 0402 NV_0.1U_16V_Y_Y

LCDVCC
R461 62_J 0805

DISCHARGE

Q135 MMC2301
R1857 47K_J 0402
R1856 4.7K_J 0402
Q141 MMBT3904
R1892 0402 10K_J
NV_LCDVCC_EN# 20

PANEL ID

SW1 HDS404-E_SW-SLIDE

LCDID0	39
LCDID1	39
LCDID2	39
FAN_SEL	60

FAN_SEL:
H: Foxconn FAN
L: MOR cooling unit

Type	WXGA+	WXGA+	WUXGA
Size	17" wide	17" wide	17" wide
Vender	LG.PHILIPS	LG.PHILIPS	SHARP
	LP171WP7-TLA1	LP171WX2-A4K3	LQ170M1LA04
Device Name	2 Lamps	1 Lamps	2 Lamps
Panel ID Check[3..0]	0001	0010	0100

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

Title: LVDS		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 31 of 78	

Special mini stereo jack

TV TUNER CONN

S-VIDEO IN

040406 Modify BOM roul
(1)Mini PCI socket circuit group change part neam from TV_ to normal.
(2)Special mini stereo jack and S-VIDEO in group change part name from TV_ to JDTVNC_
(JP digital tuner sku & No tuner SKU NOT stuff)

AUDIO FC = 7.23MHz
VIDEO FC = 9.65MHz

TV-TUNER not support CLKRUN

B-CAS connentor
(Close to TV Tuner)

FFC CONNECT TO TV TUNER BOARD
(FOR JP DIAGITAL)

BFT Test Pad

CN56,CN67 Change from MOLEX to FOXCONN

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	MINI-PCI CONN.
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev	1.1
Date:	Thursday, August 10, 2006
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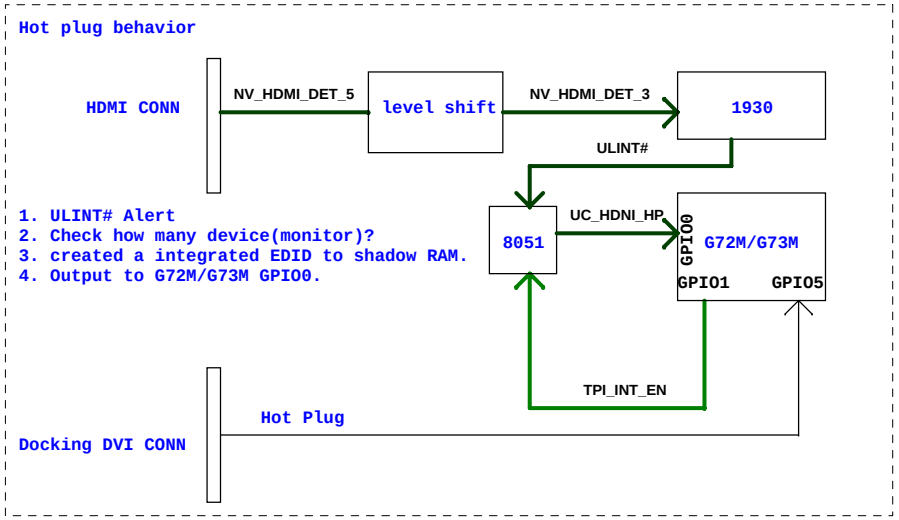
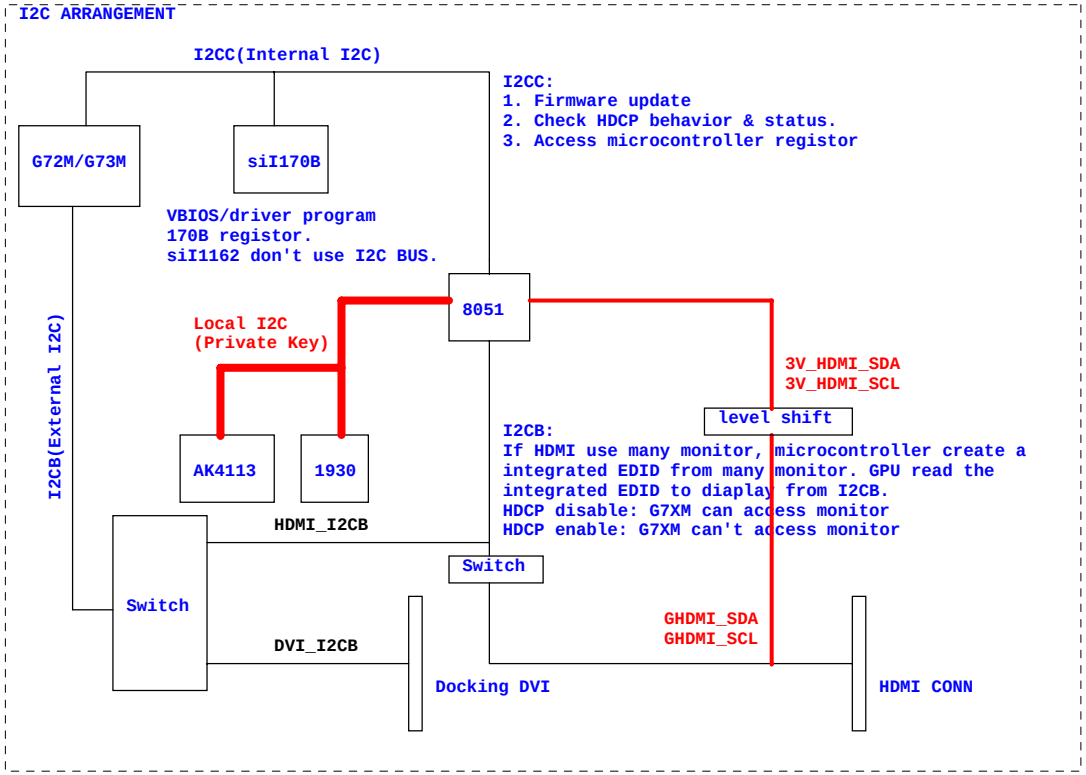
Hot plug behavior & I2C ARRANGEMENT block diagram





Title: Hot plug behavior & I2C ARRANGEMENT block diagram		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 33 of 78	

VCC: 150mA

AVCC: 2mA

SPVCC: 35mA

SVCC: 300mA

PVCC1: 70mA
PVCC2: 15mA
OVCC: 20mA

EXT_SWING: Fine tune HDMI data output swing.
EXT_RES: Fine tune TMDS eye diagram waveform.

U117

Silicon Image
Sil1930

S1I1930CTU
null

CN60
HDMI CONN_19P
FOX_QJ51193_ESB3_7F

U128
NC_RClamp0514M

5/14
US Silicon Image ATC test HDMI DDC capacitance fail(>50pF)change U128 no stuff
Basis on MS20 MP ECR
U128 VCC add back up res.(R1962)no stuff

Close to sii1930

package 0603
For special layout.

Data line to GND capacitor need less than 10pF.
FAE suggest to use TDK common chock.

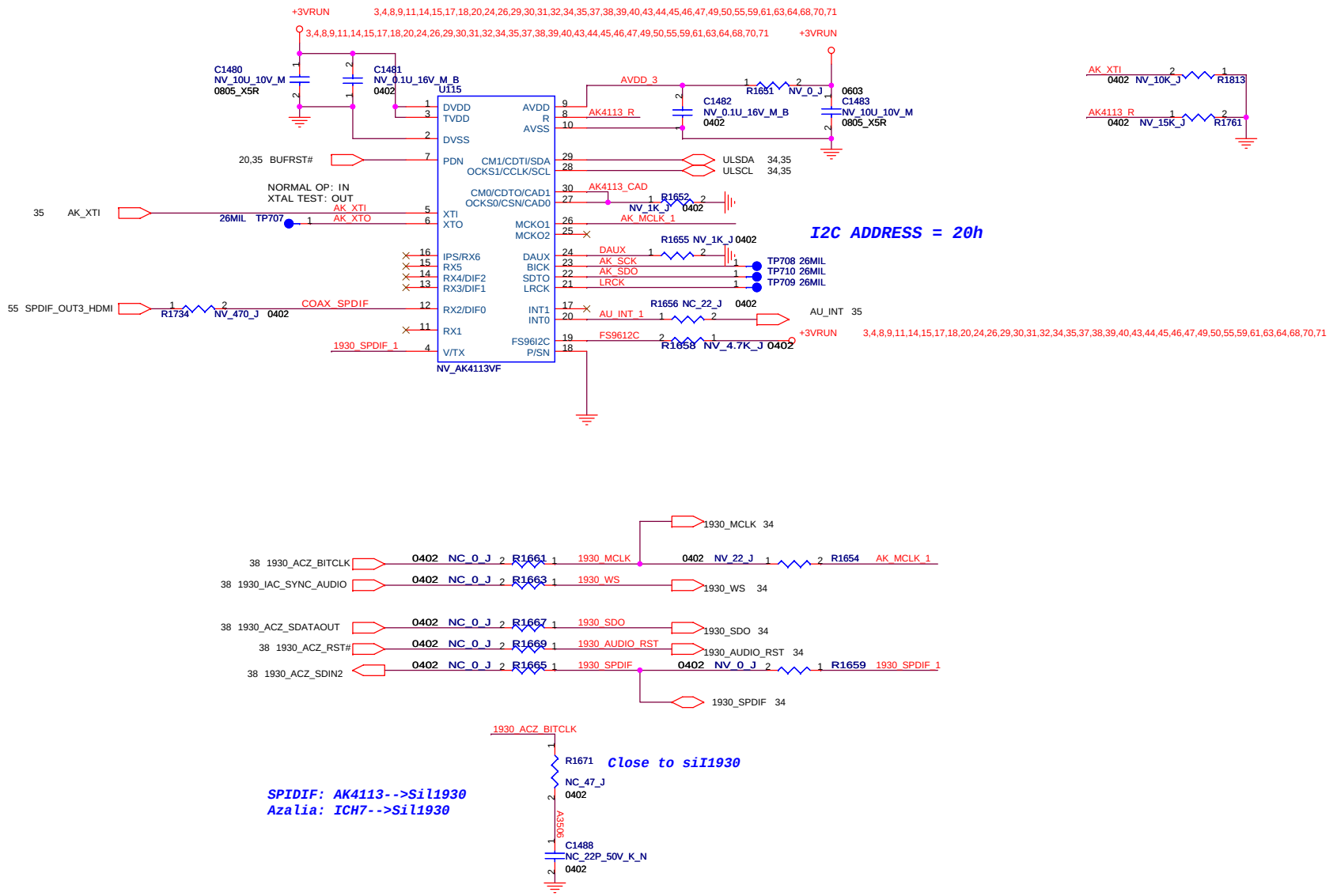
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	HDMI Sil1930
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev	1.1
Date: Thursday, August 10, 2006	Sheet 34 of 78

ATMEL:
Normal PSEN# is an output pin.
When uC RST=High, PSEN# is input .
If uC RST go LOW, the PSEN=low ,
then it will enter firmware update mode.
load firmware from COM port, until another RST=High .

040706 Desable HDMI connentor SEMI PNP Hot plug detect function(MOR request)
change part name:
(1)NV73_->NV_:U136,Q155,Q156,R1940,R1941,C1616
(2)NV72_->NC:R1946,R1947
*PVT already modify(special noties V0.4)

Hot plug

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	MINI-PCI CONN.		
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2		Rev 1.1
Date: Thursday, August 10, 2006	Sheet 35 of 78		

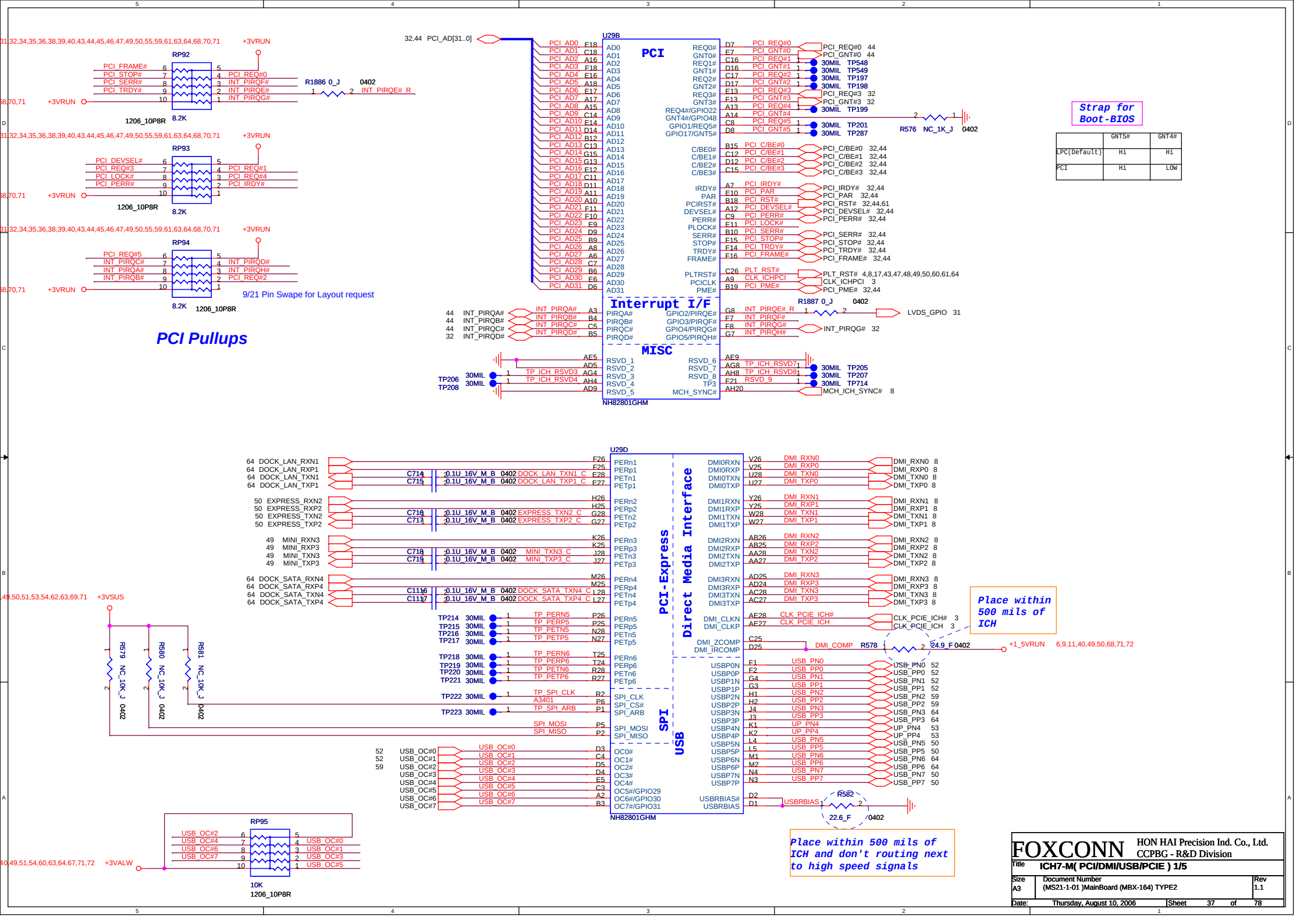


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: HDMI UCODEC

Size	Document Number	Rev
A3	(MS21-1-01)MainBoard (MBX-164) TYPE2	1.1

Date: Thursday, August 10, 2006 Sheet 36 of 78


PCI Pullups
9/21 Pin Swape for Layout request
RP92
RP93
RP94
RP95
1206_10P8R
8.2K
10K
R1886 0_J 0402
R1887 0_J 0402
R576 NC_1K_J 0402
R578 24.9_F 0402
R582 22.6_F 0402
R579 NC_10K_J 0402
R580 NC_10K_J 0402
R581 NC_10K_J 0402
U29B
PCI
Interrupt I/F
MISC
U29D
PCI-Express
Direct Media Interface
SPI
USB
NH82801GHM
Strap for Boot-BIOS
GNT5# GNT4#
LPC(Default) H1 H1
PCI H1 LOW
Place within 500 mils of ICH
Place within 500 mils of ICH and don't routing next to high speed signals
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title ICH7-M(PCI/DMI/USB/PCIE) 1/5
Size A3
Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Date: Thursday, August 10, 2006
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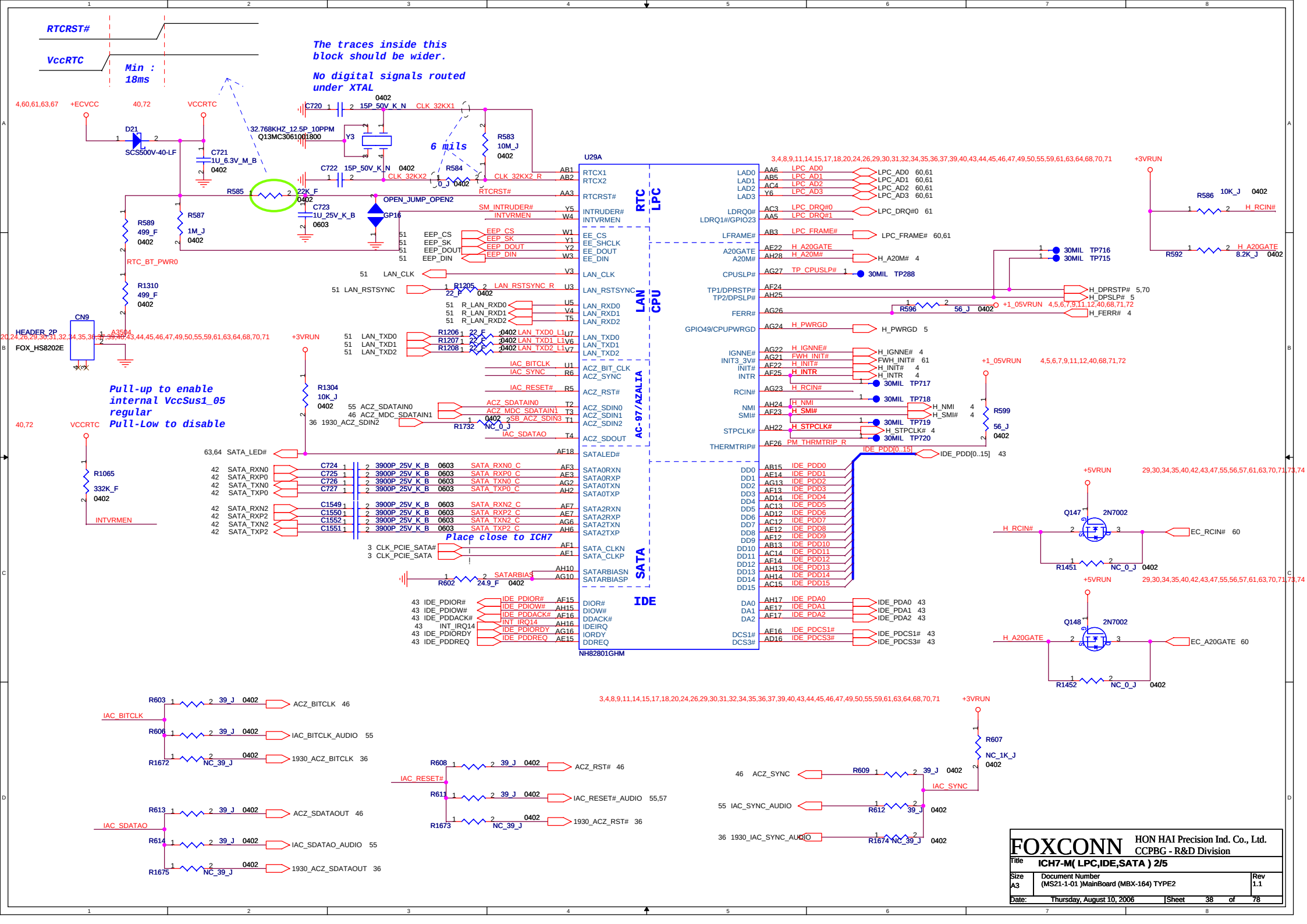
RTCRST#
VccRTC
Min : 18ms
The traces inside this block should be wider.
No digital signals routed under XTAL
6 mils
Pull-up to enable internal VccSus1_05 regular
Pull-Low to disable
Place close to ICH7
U29A
NH82801GHM
RTC
LPC
LAN
CPU
AC-97/AZALIA
SATA
IDE
+ECVCC
VCCRTC
+3VRUN
+1_05VRUN
+5VRUN
32.768KHZ_12.5P_10PPM
Q13MC3061001800
SCS500V-40-LF
FOX_HS8202E
HEADER_2P
2N7002
Q147
Q148
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
ICH7-M(LPC,IDE,SATA) 2/5
Document Number
(MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Thursday, August 10, 2006
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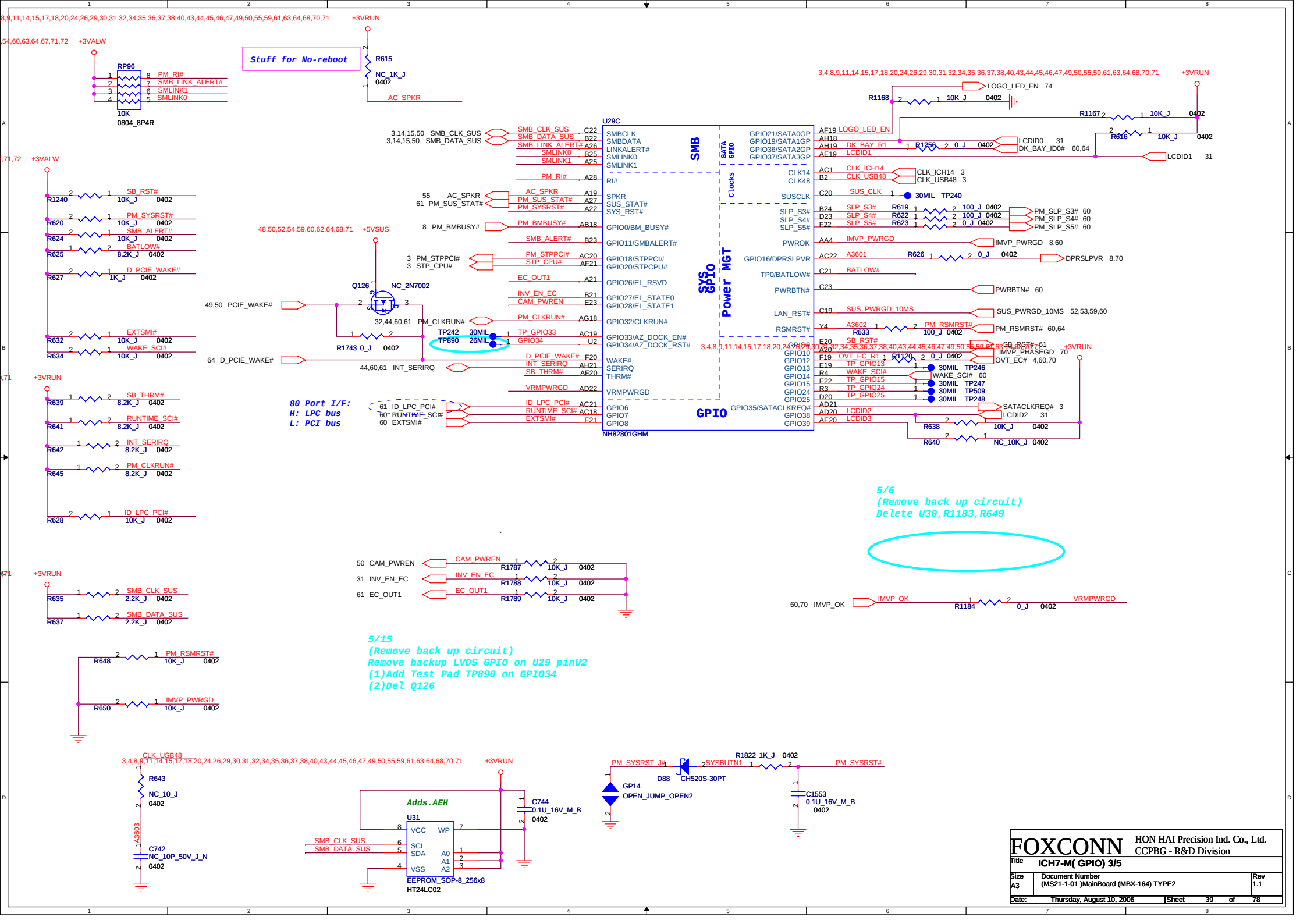
Stuff for No-reboot
R615
NC_1K_J
0402
AC_SPKR
RP96
PM_RI#
SMB_LINK_ALERT#
SMLINK1
SMLINK0
10K
0804_8P4R
U29C
SMBCLK
SMBDATA
LINKALERT#
SMLINK0
SMLINK1
SMB
SATA GPIO
Clocks
GPIO21/SATA0GP
GPIO19/SATA1GP
GPIO36/SATA2GP
GPIO37/SATA3GP
RI#
SPKR
SUS_STAT#
SYS_RST#
GPIO0/BM_BUSY#
GPIO11/SMBALERT#
GPIO18/STPPCI#
GPIO20/STPCPU#
GPIO26/EL_RSVD
GPIO27/EL_STATE0
GPIO28/EL_STATE1
GPIO32/CLKRUN#
GPIO33/AZ_DOCK_EN#
GPIO34/AZ_DOCK_RST#
WAKE#
SERIRQ
THRM#
VRMPWRGD
GPIO6
GPIO7
GPIO8
SYS GPIO
Power MGT
GPIO
CLK14
CLK48
SUSCLK
SLP_S3#
SLP_S4#
SLP_S5#
PWROK
GPIO16/DPRSLPVR
TP0/BATLOW#
PWRBTN#
LAN_RST#
RSMRST#
GPIO10
GPIO12
GPIO13
GPIO14
GPIO15
GPIO24
GPIO25
GPIO35/SATACLKREQ#
GPIO38
GPIO39
NH82801GHM
Q126
NC_2N7002
TP242
TP890
30MIL
26MIL
GPIO34
R1743 0_J 0402
80 Port I/F:
H: LPC bus
L: PCI bus
R1168
R1167
R616
R1256
R619
R622
R623
R626
R633
R1120
R638
R640
LOGO_LED_EN
DK_BAY_R1
DK_BAY_ID0#
LCDID0
LCDID1
CLK_ICH14
CLK_USB48
SUS_CLK
SLP_S3#
SLP_S4#
SLP_S5#
IMVP_PWRGD
A3601
BATLOW#
PWRBTN#
SUS_PWRGD_10MS
A3602
PM_RSMRST#
SB_RST#
OVT_EC_R1
TP_GPIO13
WAKE_SCI#
TP_GPIO15
TP_GPIO24
TP_GPIO25
LCDID2
LCDID3
SATACLKREQ#
NC_10K_J
5/6
(Remove back up circuit)
Delete U30,R1183,R649
R1787
R1788
R1789
CAM_PWREN
INV_EN_EC
EC_OUT1
IMVP_OK
R1184
5/15
(Remove back up circuit)
Remove backup LVDS GPIO on U29 pinU2
(1)Add Test Pad TP890 on GPIO34
(2)Del Q126
R1240
R620
R624
R625
R627
R632
R634
R639
R641
R642
R645
R628
R635
R637
R648
R650
SB_RST#
PM_SYSRST#
SMB_ALERT#
BATLOW#
D_PCIE_WAKE#
EXTSMI#
WAKE_SCI#
SB_THRM#
RUNTIME_SCI#
INT_SERIRQ
PM_CLKRUN#
ID_LPC_PCI#
SMB_CLK_SUS
SMB_DATA_SUS
PM_RSMRST#
IMVP_PWRGD
R643
NC_10_J
C742
NC_10P_50V_J_N
A3603
Adds.AEH
U31
VCC
WP
SCL
SDA
A0
A1
A2
VSS
EEPROM_SOP-8_256x8
HT24LC02
C744
0.1U_16V_M_B
PM_SYSRST_J#
SYSBUTN1
D88
CH520S-30PT
GP14
OPEN_JUMP_OPEN2
R1822 1K_J 0402
C1553
PM_SYSRST#
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title
ICH7-M(GPIO) 3/5
Size
A3
Document Number
(MS21-1-01)MainBoard (MBX-164) TYPE2
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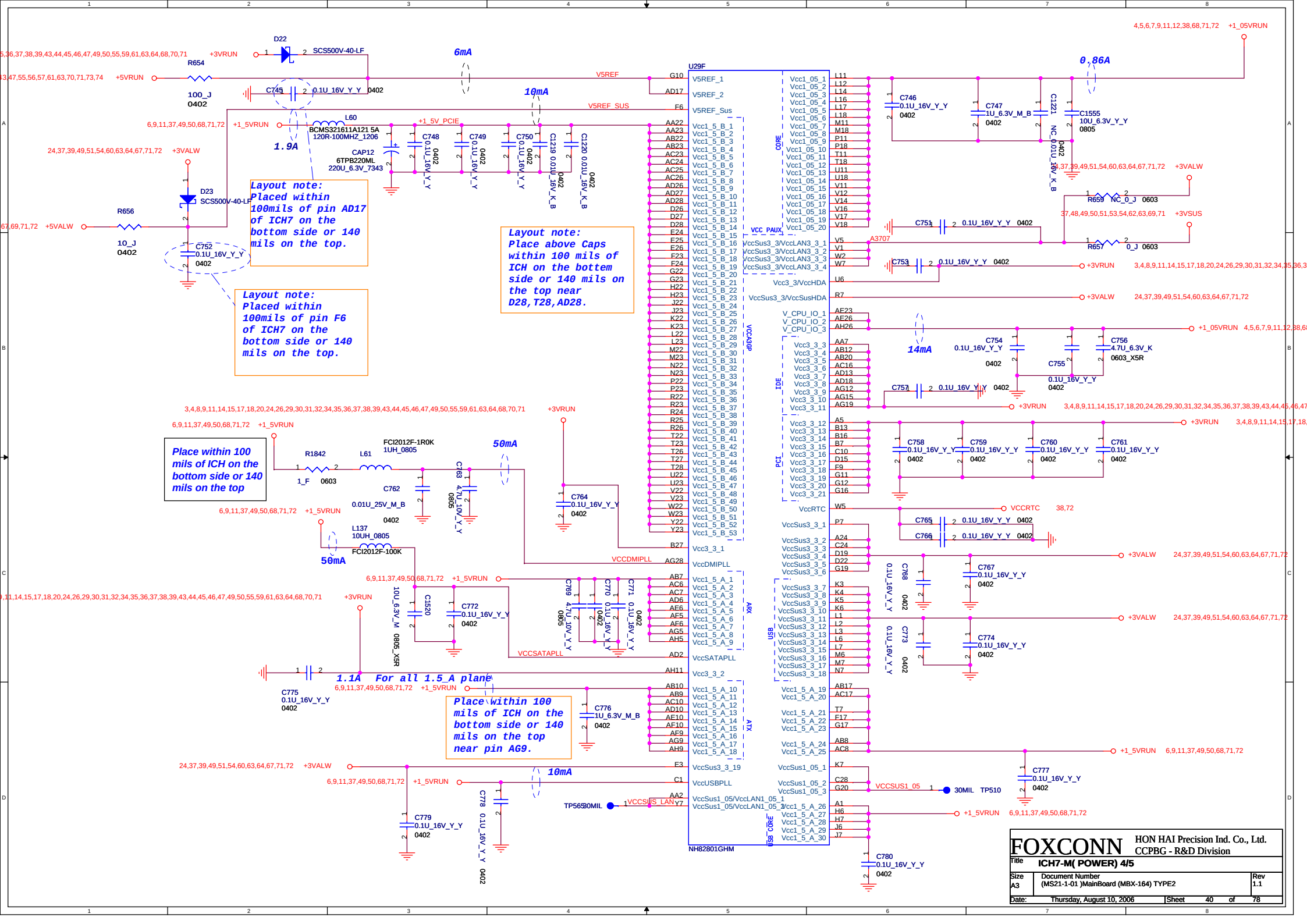
U29F
NH82801GHM
Layout note: Placed within 100mils of pin AD17 of ICH7 on the bottom side or 140 mils on the top.
Layout note: Placed within 100mils of pin F6 of ICH7 on the bottom side or 140 mils on the top.
Layout note: Place above Caps within 100 mils of ICH on the bottem side or 140 mils on the top near D28,T28,AD28.
Place within 100 mils of ICH on the bottom side or 140 mils on the top
Place within 100 mils of ICH on the bottom side or 140 mils on the top near pin AG9.
1.1A For all 1.5_A plane
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title ICH7-M(POWER) 4/5
Size A3
Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Date: Thursday, August 10, 2006
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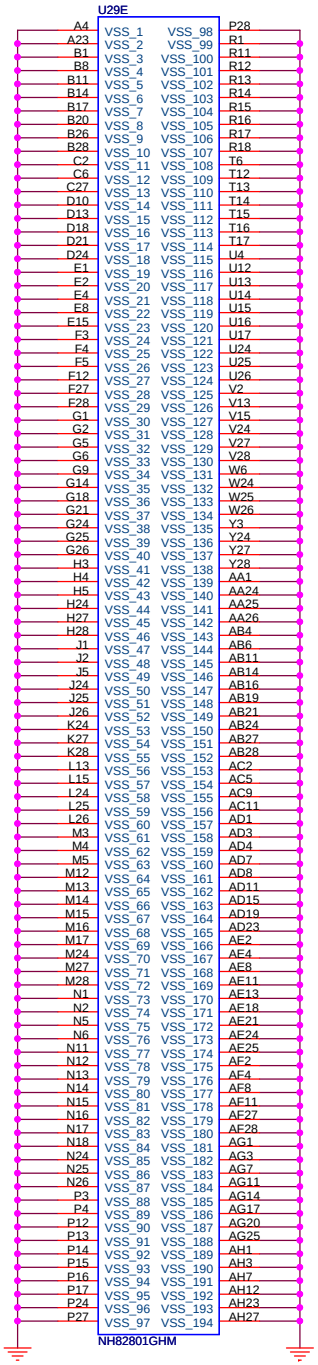

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	ICH7-M(GND) 5/5	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
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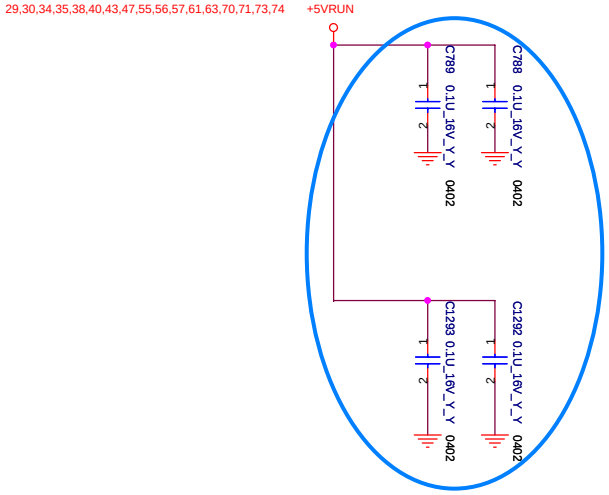
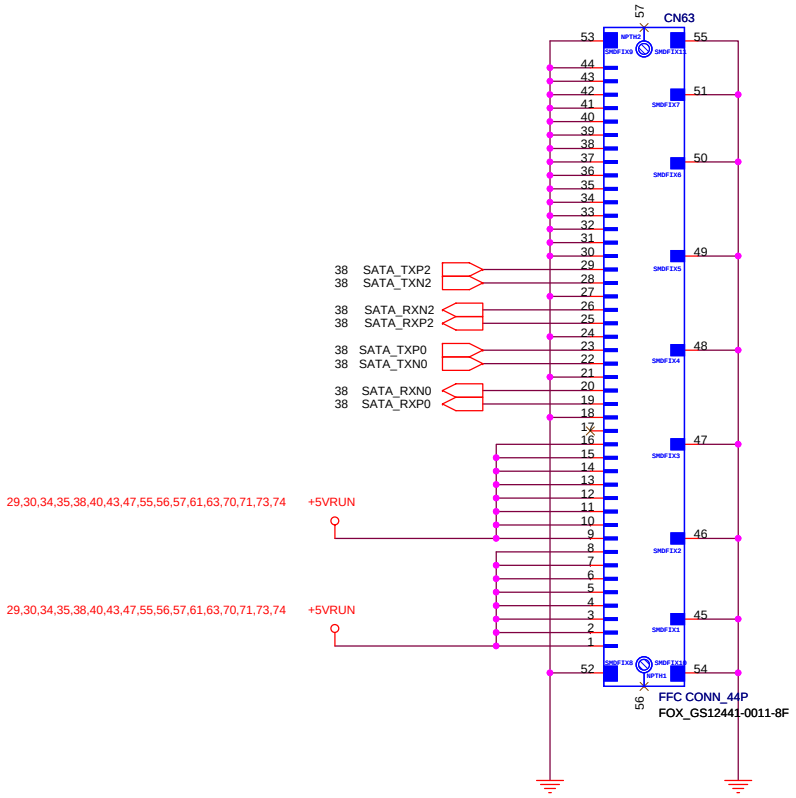
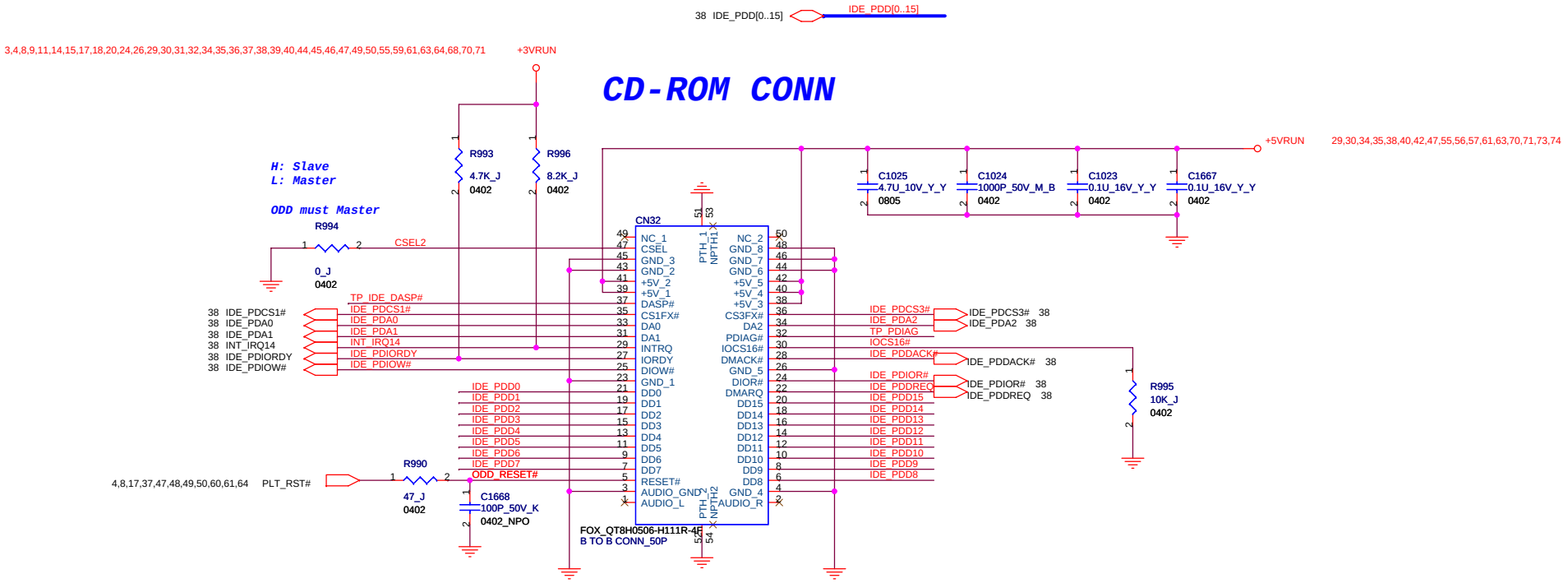
5/6
For power droup cause 0.16V voltage loss Issue
(1)F7,F8,F19,F20 no stuff
(2)Co-layout normal open gap GP17~GP18 with fuse
5/27 Delete SATA HDD Fuse backup circuit
(1)Remove F7,F8,F19,F20 Pad
(2)Remove GP17~GP18 open gap

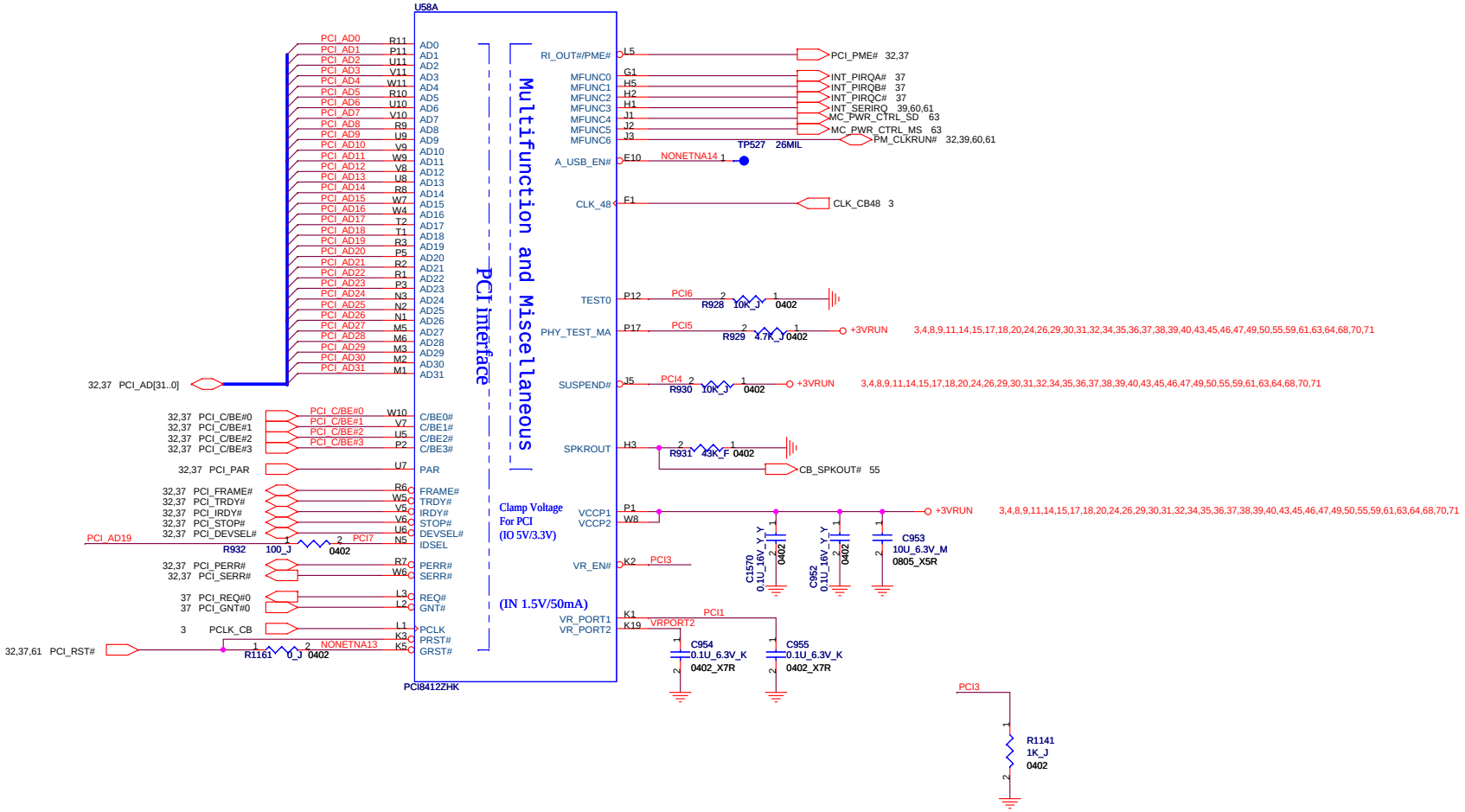




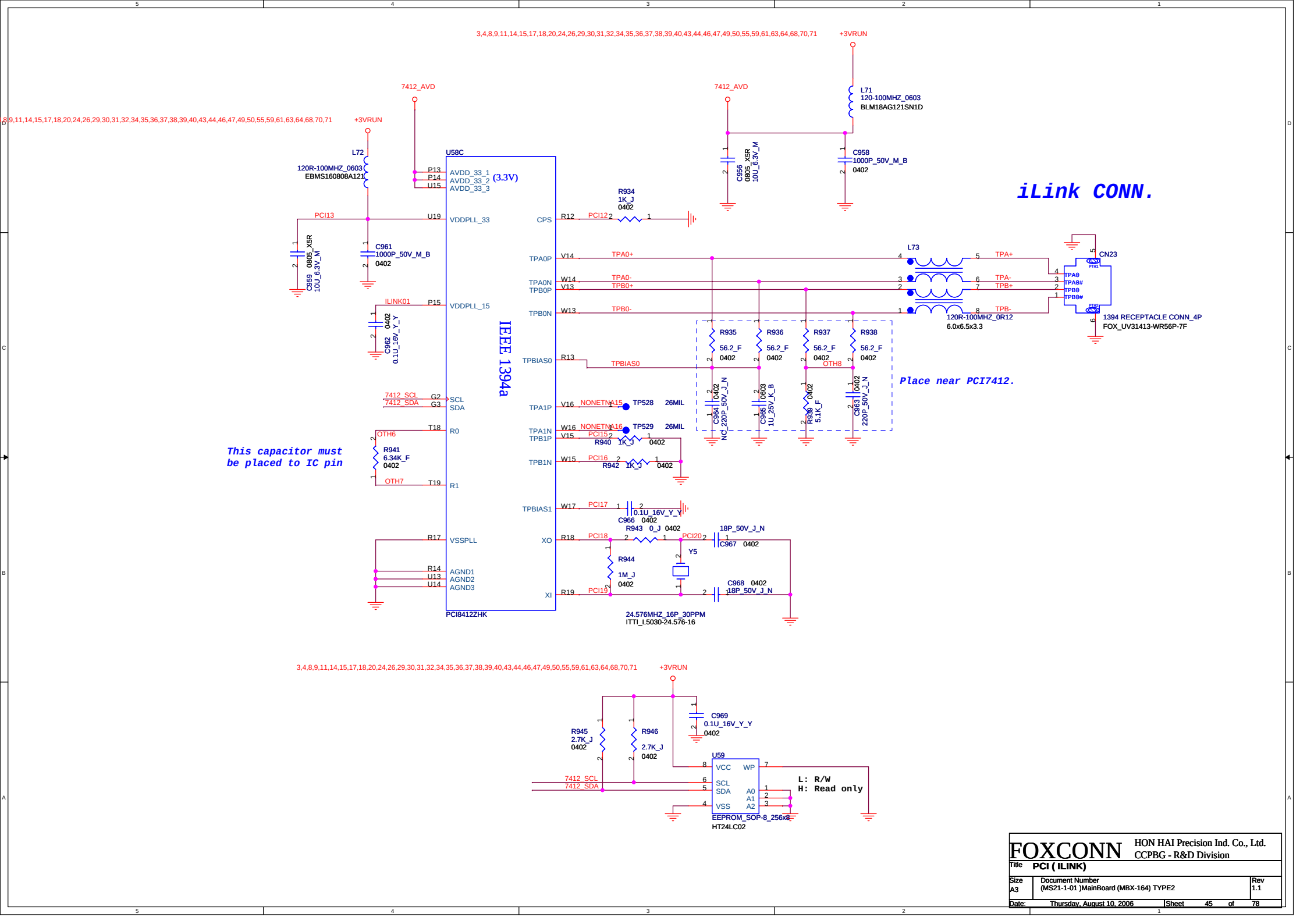
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: SATA HDD RAID		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 42 of 78	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	PATA CD-ROM	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 43 of 78	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	PCI (PCI BUS)	
Size: Custom	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 44 of 78	


3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,46,47,49,50,55,59,61,63,64,68,70,71
+3VRUN
7412_AVD
L71
120-100MHZ_0603
BLM18AG121SN1D
C956
0805_X5R
10U_6.3V_M
C958
1000P_50V_M_B
0402
iLink CONN.
L72
120R-100MHZ_0603
EBMS160808A121
U58C
P13
P14
U15
AVDD_33_1
AVDD_33_2
AVDD_33_3
(3.3V)
PCI13
U19
VDDPLL_33
C959
0805_X5R
10U_6.3V_M
C961
1000P_50V_M_B
0402
ILINK01
P15
VDDPLL_15
C962
0402
0.1U_16V_Y_Y
IEEE 1394a
7412_SCL
7412_SDA
G2
G3
SCL
SDA
T18
R0
OTH6
R941
6.34K_F
0402
OTH7
T19
R1
This capacitor must
be placed to IC pin
R17
VSSPLL
R14
U13
U14
AGND1
AGND2
AGND3
PCI8412ZHK
CPS
R12
PCI12
R934
1K_J
0402
TPA0P
V14
TPA0+
TPA0N
TPB0P
W14
V13
TPA0-
TPB0+
TPB0N
W13
TPB0-
TPBIAS0
R13
TPBIAS0
TPA1P
V16
NONETNA15
TP528
26MIL
TPA1N
TPB1P
W16
V15
NONETNA16
TP529
26MIL
PCI15
R940
1K_J
0402
TPB1N
W15
PCI16
R942
1K_J
0402
TPBIAS1
W17
PCI17
0.1U_16V_Y_Y
C966
0402
XO
R18
PCI18
R943
0_J
0402
PCI20
18P_50V_J_N
C967
0402
Y5
R944
1M_J
0402
XI
R19
PCI19
C968
0402
18P_50V_J_N
24.576MHZ_16P_30PPM
ITTI_L5030-24.576-16
L73
TPA+
TPA-
TPB+
TPB-
120R-100MHZ_0R12
6.0x6.5x3.3
CN23
PTH1
PTH2
TPA0
TPA0#
TPB0
TPB0#
1394 RECEPTACLE CONN_4P
FOX_UV31413-WR56P-7F
R935
R936
R937
R938
56.2_F
0402
OTH8
C964
0402
NC_220P_50V_J_N
C965
0603
1U_25V_K_B
R939
0402
5.1K_F
C963
0402
220P_50V_J_N
Place near PCI7412.
3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,46,47,49,50,55,59,61,63,64,68,70,71
+3VRUN
C969
0.1U_16V_Y_Y
0402
R945
2.7K_J
0402
R946
2.7K_J
0402
U59
VCC
WP
SCL
SDA
A0
A1
A2
VSS
7412_SCL
7412_SDA
L: R/W
H: Read only
EEPROM_SOP-8_256x8
HT24LC02
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title
PCI (ILINK)
Size
A3
Document Number
(MS21-1-01)MainBoard (MBX-164) TYPE2
Rev
1.1
Date:
Thursday, August 10, 2006
Sheet
45
of
78

70,71 +3VRUN

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
C1571 0.1U_16V_Y_Y 0402
C1572 0.1U_16V_Y_Y 0402

U58D

POWER SUPPLY (3.3V)

VCC1 VCC2 VCC3 VCC4 VCC5 VCC6 VCC7 VCC8 VCC9 VCC10 VCC11
F6 F9 F12 F14 J6 J14 L6 L14 P6 P8 P10

GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9 GND10 GND11
F7 F10 F13 G14 H6 K6 K14 M14 N6 P7 P9

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

MC_PWR_CTRL_0	C8 MS_PWR_CTRL
MC_PWR_CTRL_1/SM_R/B#	F8 SD_PWR_CTRL
SD_CD#	F9 SD_CD#
SD_CLK/SM_RE#	A4 FIN1 R1449 47_J SD_CLK
MS_CLK/SD_CLK/SM_EL_WP#	A7 FIN2 R955 47_J MS_CLK
SD_CMD/SM_ALE	C5 SD_CMD
SD_DAT0/SM_D4	C6 SD_DATA0
SD_DAT1/SM_D5	A5 SD_DATA1
SD_DAT2/SM_D6	B5 SD_DATA2
SD_DAT3/SM_D7	E6 SD_DATA3
MS_SDIO(DATA0)/SD_DAT0/SM_D0	B7 MS_SDIO_DATA0
MS_DATA1/SD_DAT1/SM_D1	C7 MS_DATA1
MS_DATA2/SD_DAT2/SM_D2	A6 MS_DATA2
MS_DATA3/SD_DAT3/SM_D3	B6 MS_DATA3
SD_WP/SM_CE#	E7 SD_WP
SM_CD#	B8 MSSD01 TP530 26MIL
SM_CLE	B4 MSSD02 TP531 26MIL
XD_CD#/SM_PHYS_WP#	A3 MSSD03 TP532 26MIL
MS_CD#	A8 MS_CD#
MS_BS/SD_CMD/SM_WE#	E8 MS_BS
RSVD10 RSVD9 RSVD8 RSVD7 RSVD6 RSVD5 RSVD4 RSVD3 RSVD2	E3 D1 G6 F5 G5 F2 F1 E2 F3

PCI8412ZHK

SD CONN.

CN57

SD_WP 12
SD_CD# 11
10

SD_DATA1 SD_R1 8
SD_DATA0 0_J R1843 0402 SD_R2 7
0_J 6
SD_CLK SD_R3 5
0_J R1844 0402 4
SD_CMD SD_R4 3
SD_DATA3 0_J R1846 0402 SD_R5 2
SD_DATA2 0_J R1845 0402 SD_R6 1
0_J R1847 0402 9

VCC_CTRLSD

WP COM CD DATA1 DATA0 VSS2 CLK VDD VSS1 CMD CD/DATA3 DATA2

CASE1 13
NPTH1 14
NPTH2 15

COM Write Protect
Card Detect
8 DATA1
7 DATA0
6 VSS2
5 CLK
4 VDD
3 VSS1
2 CMD
1 CD/DATA3
9 DATA2

SD Socket_9P
MOLEX_67913-0009

MS STD/DUO CONN.

CN25

MS_BS 1 2 MS_R6
MS_DATA1 0_J R1854 0402 MS_R5
MS_SDIO_DATA0 0_J R1852 0402 MS_R4
MS_DATA2 0_J R1853 0402 MS_R3
MS_CD# 0_J R1848 0402
MS_DATA3 MS_R2
MS_CLK 0_J R1851 0402 MS_R1
0_J R1850 0402

VCC_CTRLMS

VSS1 BS DATA1 DATA0 DATA2 INS DATA3 CLK VCC VSS2

M1 11
M2 12
M3 13
M4 14
NPTH1 15
NPTH2 16

MS CARD SOC_10P
YAMAICHI_JCS010-2005-1

MDC CONN.

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,47,49,50,55,59,61,63,64,68,70,71

+3VRUN

CN26

GND5 GND6 13 14
NPTH1 19
GND1 SDATA_OUT GND2 SYNC SDATA_IN RST# 1 3 5 7 9 11
GND8 GND9 16 17
NPTH2 20

GND7 15
RES1 2
RES2 4
+3.3V 6
GND3 8
GND4 10
BITCLK 12
GND10 18

38 ACZ_SDATAOUT
38 ACZ_SYNC
38 ACZ_MDC_SDATAIN1
38 ACZ_RST#

C1556 0402
0.1U_16V_Y_Y

ACZ_BITCLK 38

R605 A3505
NC_47_J 0402

C735
NC_22P_50V_K_N 0402

B TO B PLUG CONN_12P
FOX_QT8A0121-1011-8F

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,47,49,50,55,59,61,63,64,68,70,71

+3VRUN

VCC_CTRLMS

PLACE TO Q56/Q57

Q56 PMBT2907A

C1002 0805_X5R 10U_6.3V_M

R1562 1M_J 0402
C981 0.1U_16V_Y_Y 0402
C982 4.7U_6.3V_K 0603_X5R

PWRB_CTL3
R1629 1.5K_J 0402
PWRB_CTL1

Q123 DTC144EUA

MS_PWR_CTRL

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,47,49,50,55,59,61,63,64,68,70,71

+3VRUN

VCC_CTRLSD

Q57 PMBT2907A

C1573 0805_X5R 10U_6.3V_M

R1561 1M_J 0402
C1397 0.1U_16V_Y_Y 0402
C1398 4.7U_6.3V_K 0603_X5R

PWRB_CTL4
R1630 330_J 0402
PWRB_CTL2

Q124 DTC144EUA

SD_PWR_CTRL

+3VRUN

R961 4.7K_J 0402
MS_CD#
C983 1000P_50V_K_B 0402

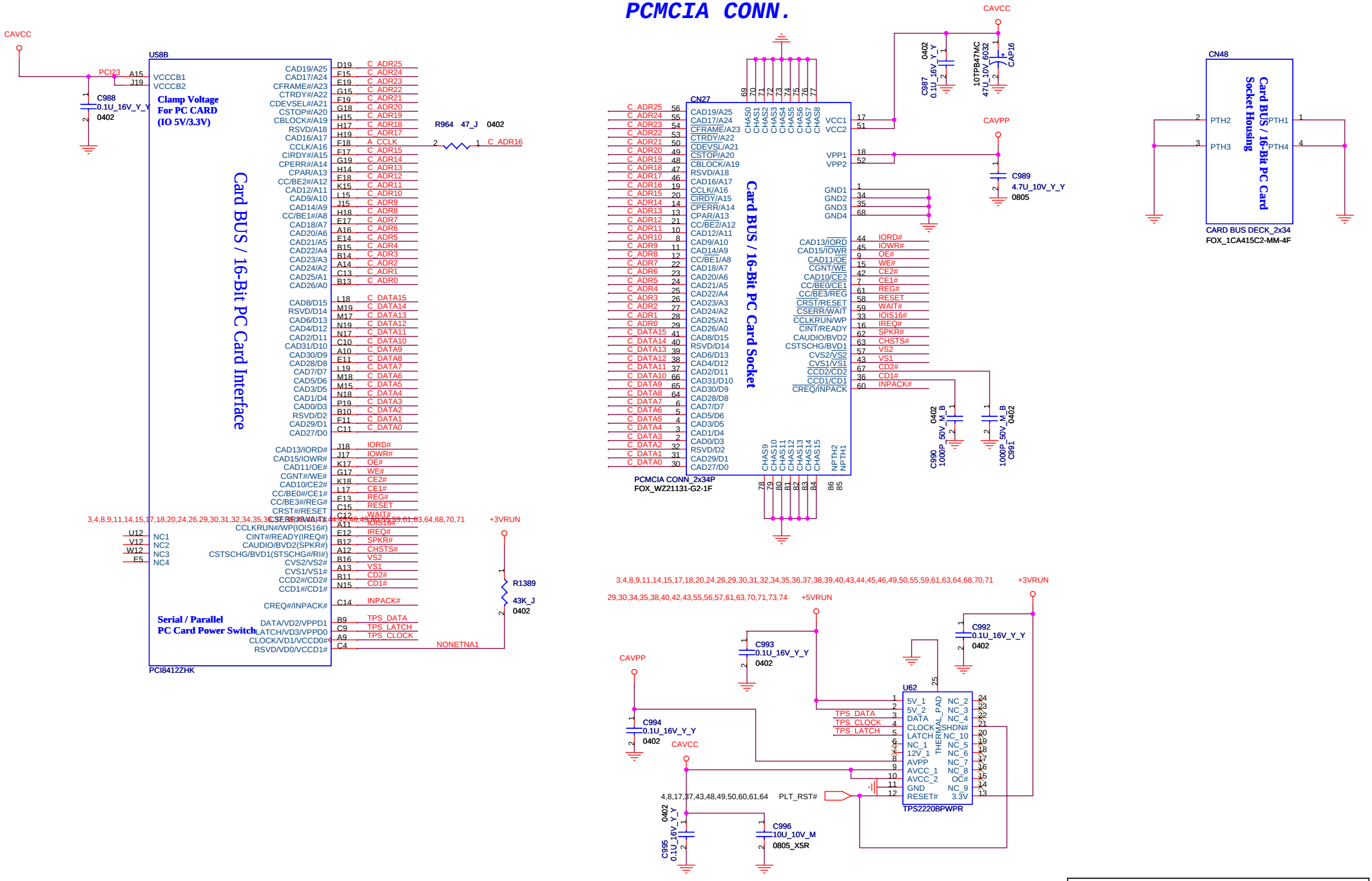
R962 4.7K_J 0402
SD_CD#
C984 1000P_50V_K_B 0402

R1855 4.7K_J 0402
SD_WP
C1574 1000P_50V_K_B 0402

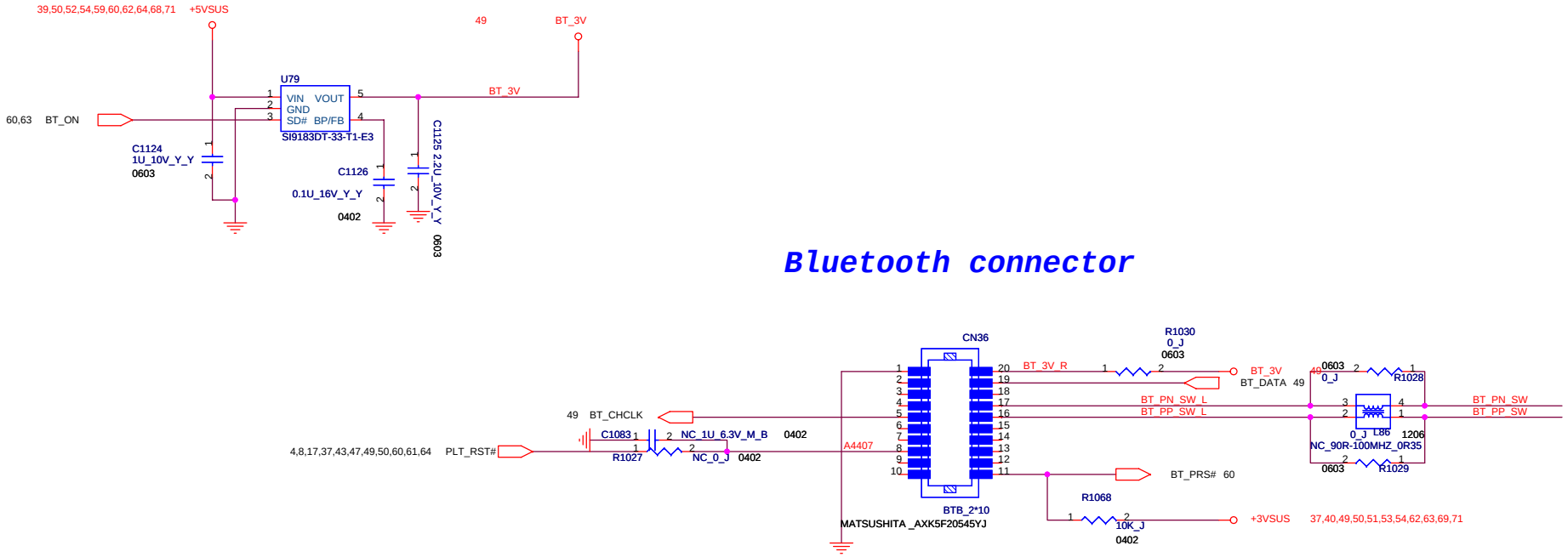
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title	PCI (MS-DUO/MDC)	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 46 of 78	

PCMCIA CONN.

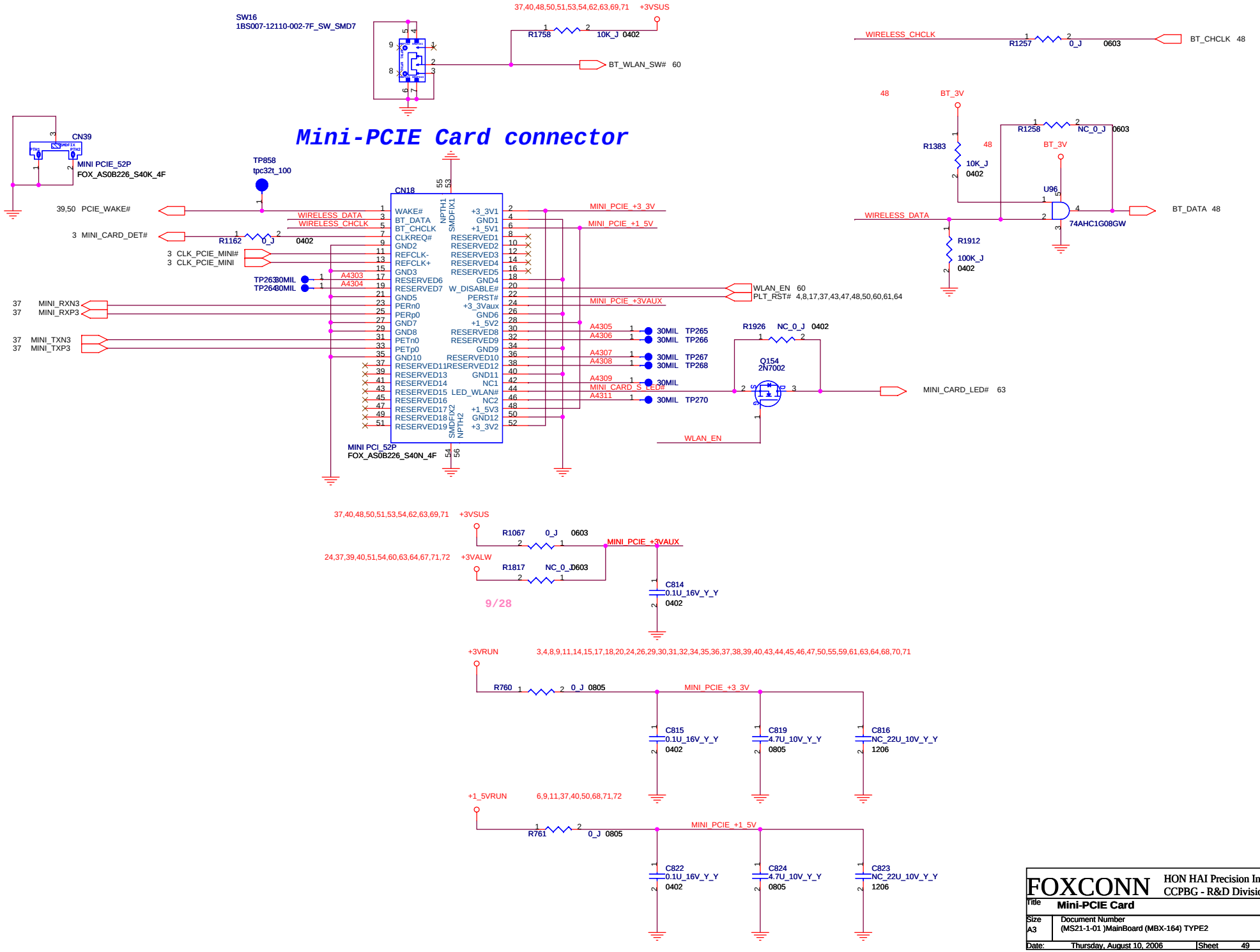


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	PCI (PCMCIA)		
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2		Rev 1.1
Date: Thursday, August 10, 2006	Sheet 47 of 78		



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	FAN/Bluetooth	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 48 of 78	

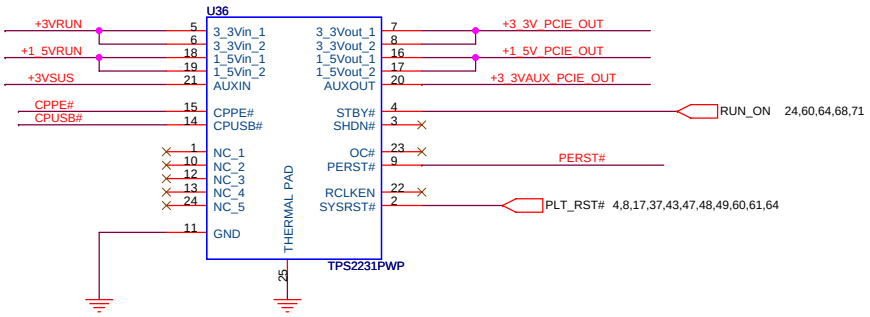
Mini-PCIE Card connector



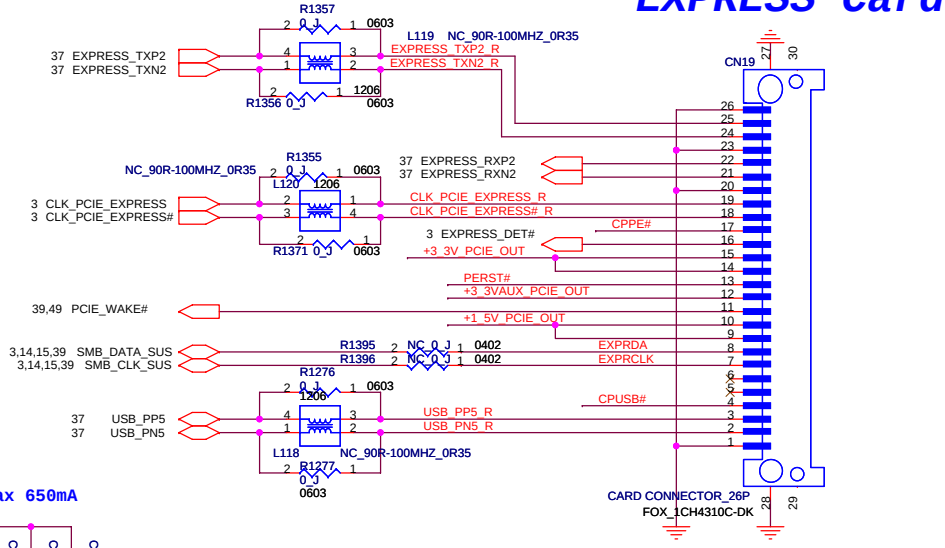
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

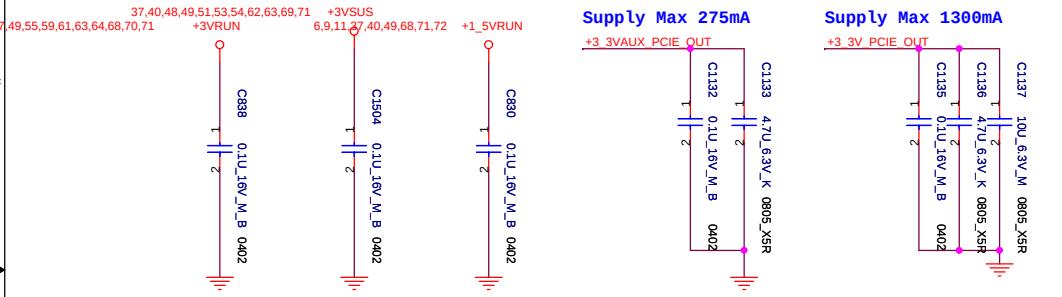
Title	Mini-PCIE Card	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 49 of 78	

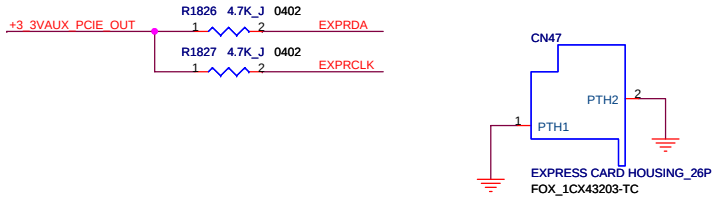
VOLTAGE INPUTS(1)			LOGIC INPUTS			VOLTAGE OUTPUTS(2)			MODE(3)
AUXIN	3.3VIN	1.5VIN	$\overline{SHDN}$	$\overline{STBY}$	$\overline{CF}$ (4)	AUXOUT	3.3VOUT	1.5VOUT	
Off	x	x	x	x	x	Off	Off	Off	OFF
On	x	x	0	x	x	GND	GND	GND	Shutdown
On	x	x	1	x	1	GND	GND	GND	No Card
On	On	On	1	0	0	On	Off	Off	Standby
On	On	On	1	1	0	On	On	On	Card Inserted



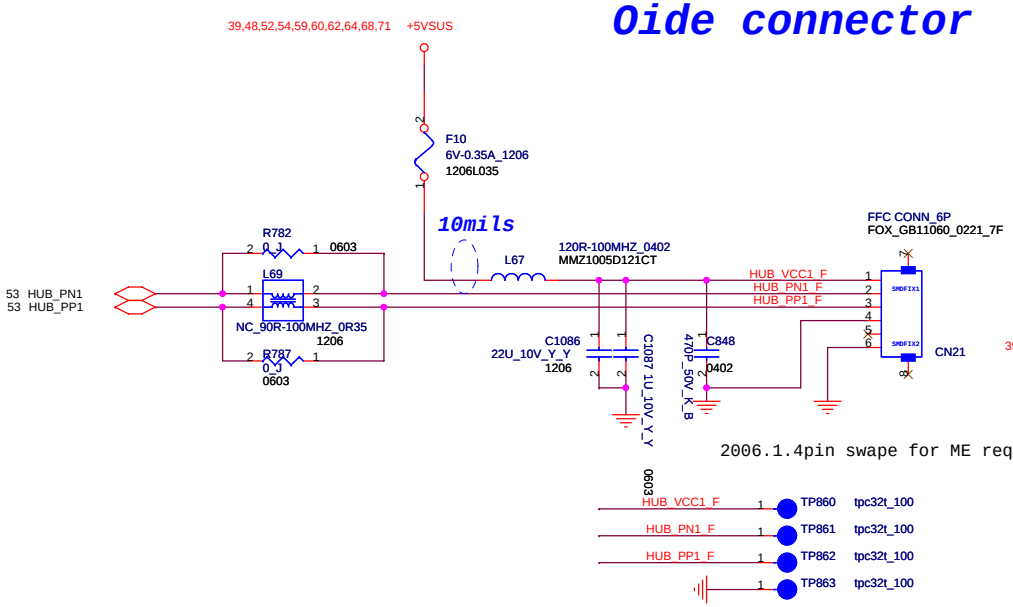
EXPRESS Card



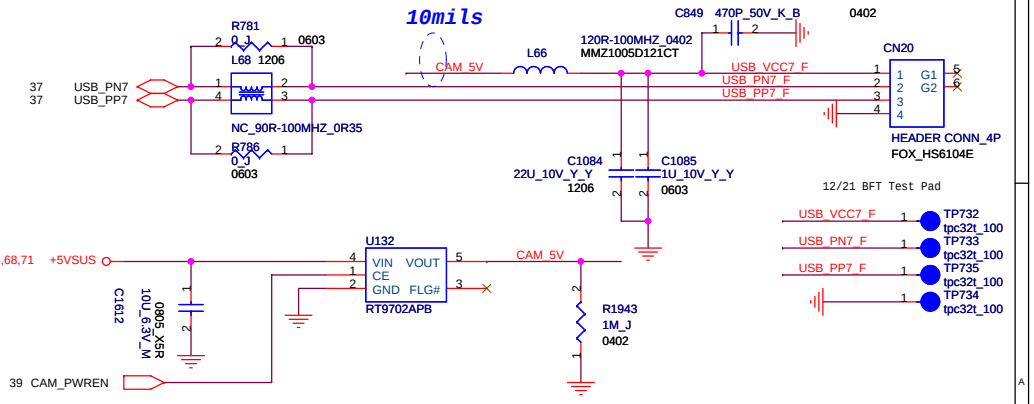




Oide connector

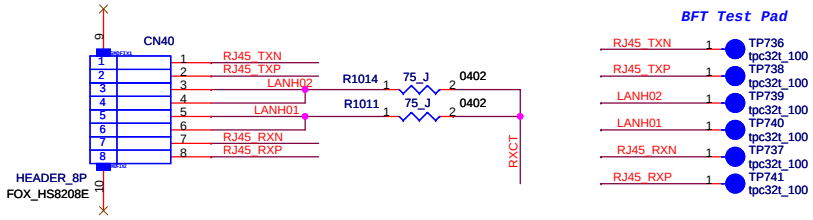


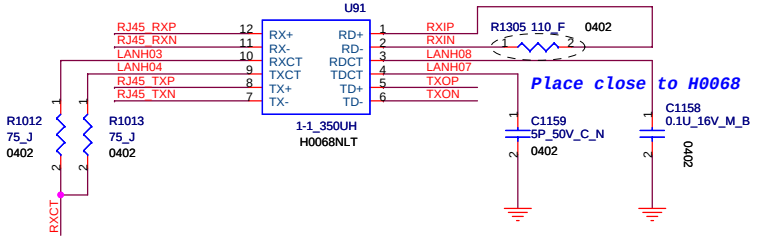
CAMERA connector

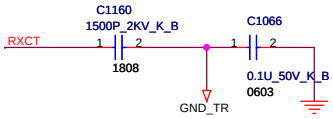


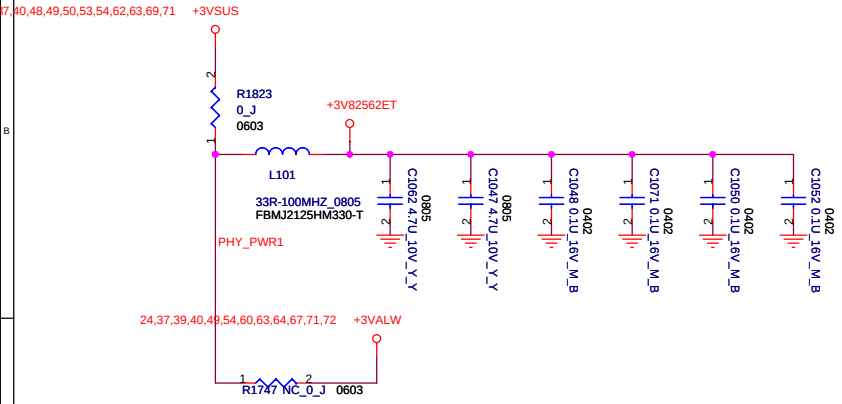
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	EXPRESS/CAM/OIDE	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 50 of 78	

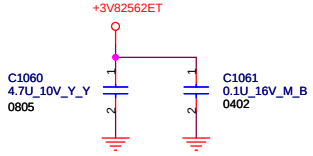
LAN connector



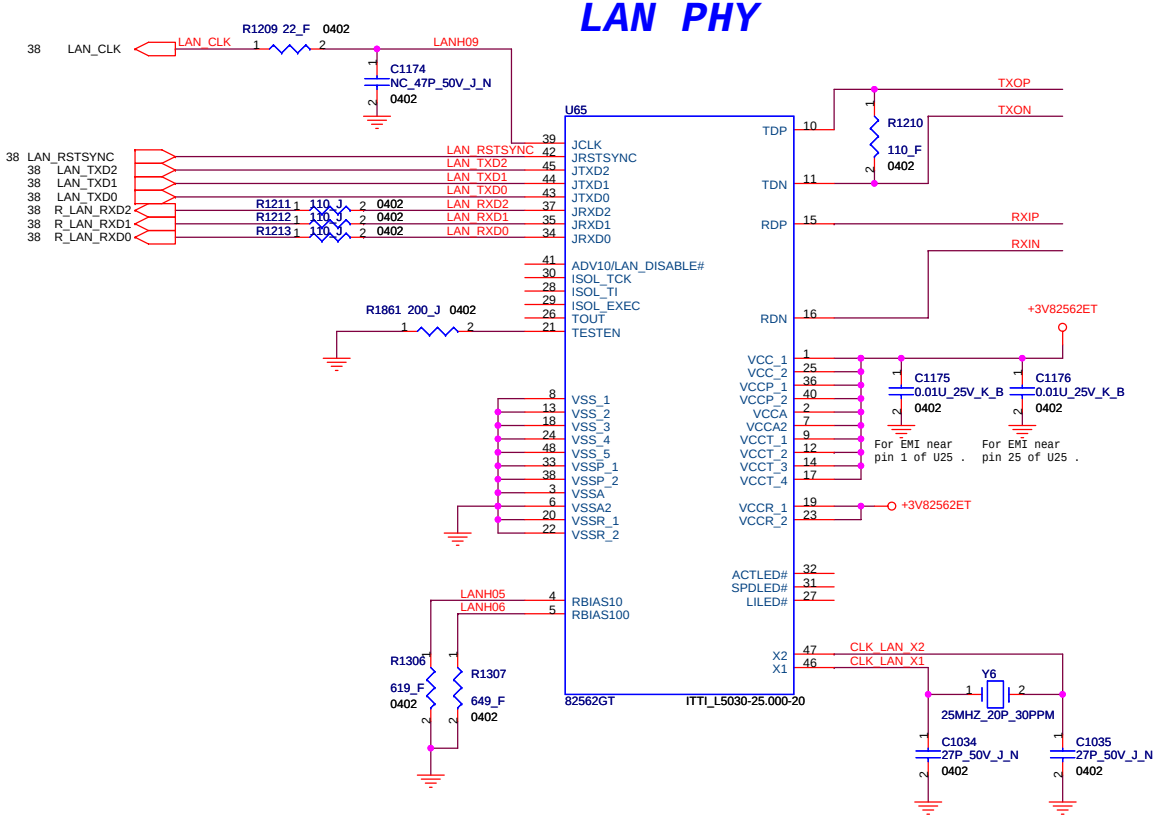


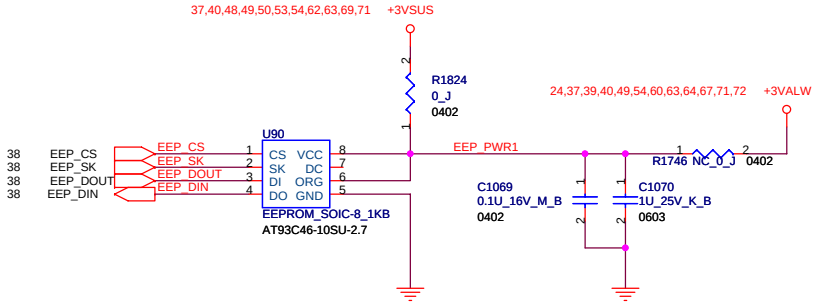






LAN PHY

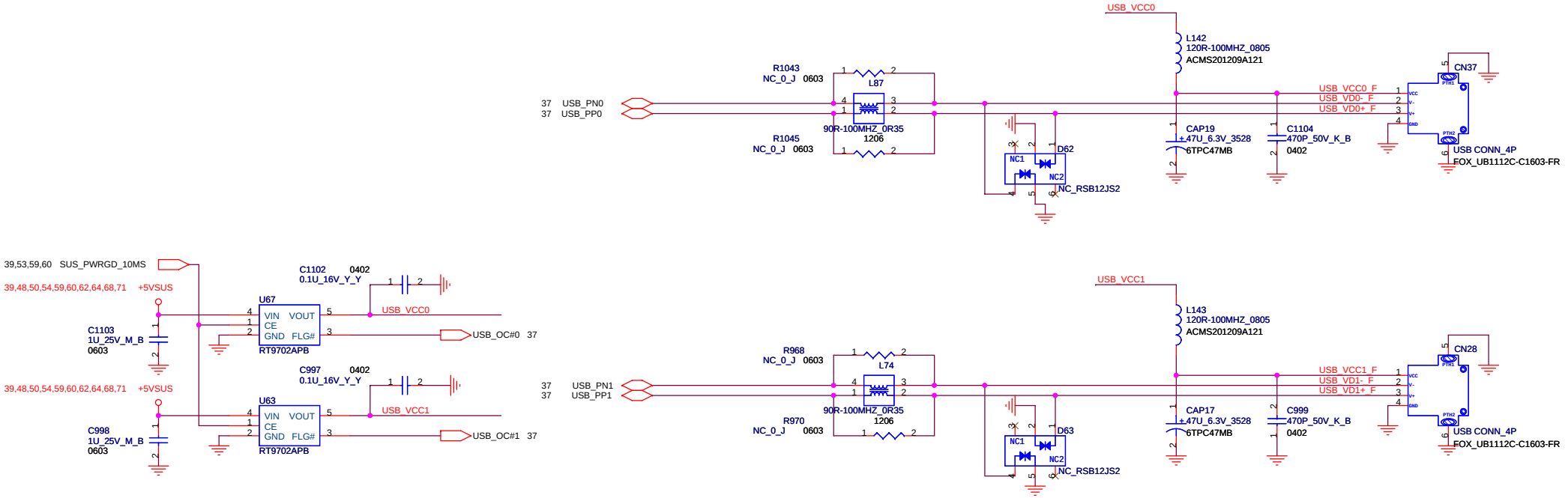




Default for S3 waking up event ,
backup for S4 waking up event

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: LAN		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 51 of 78	

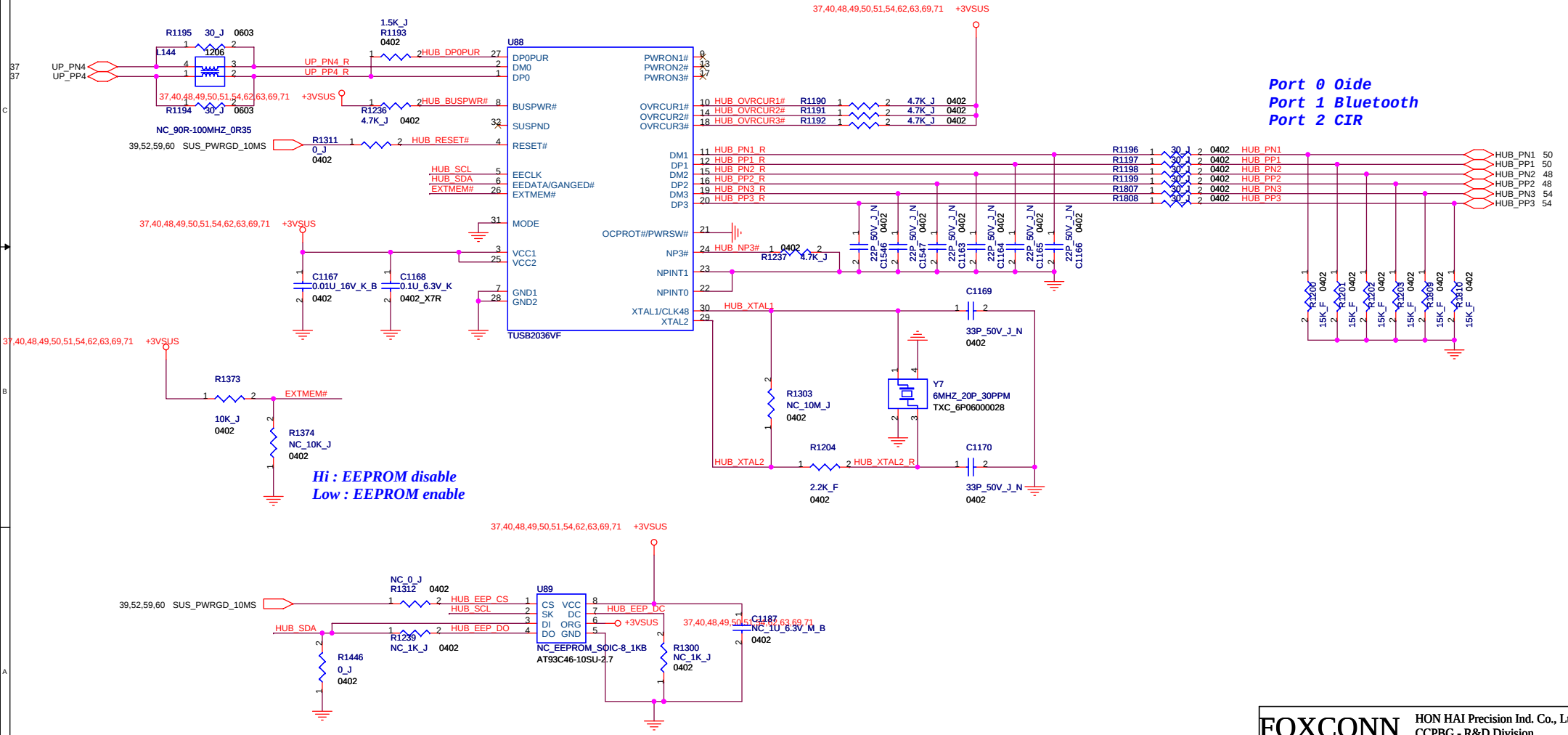
USB connector *2



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	USB2.0/DOCKING CONN.	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 52 of 78	

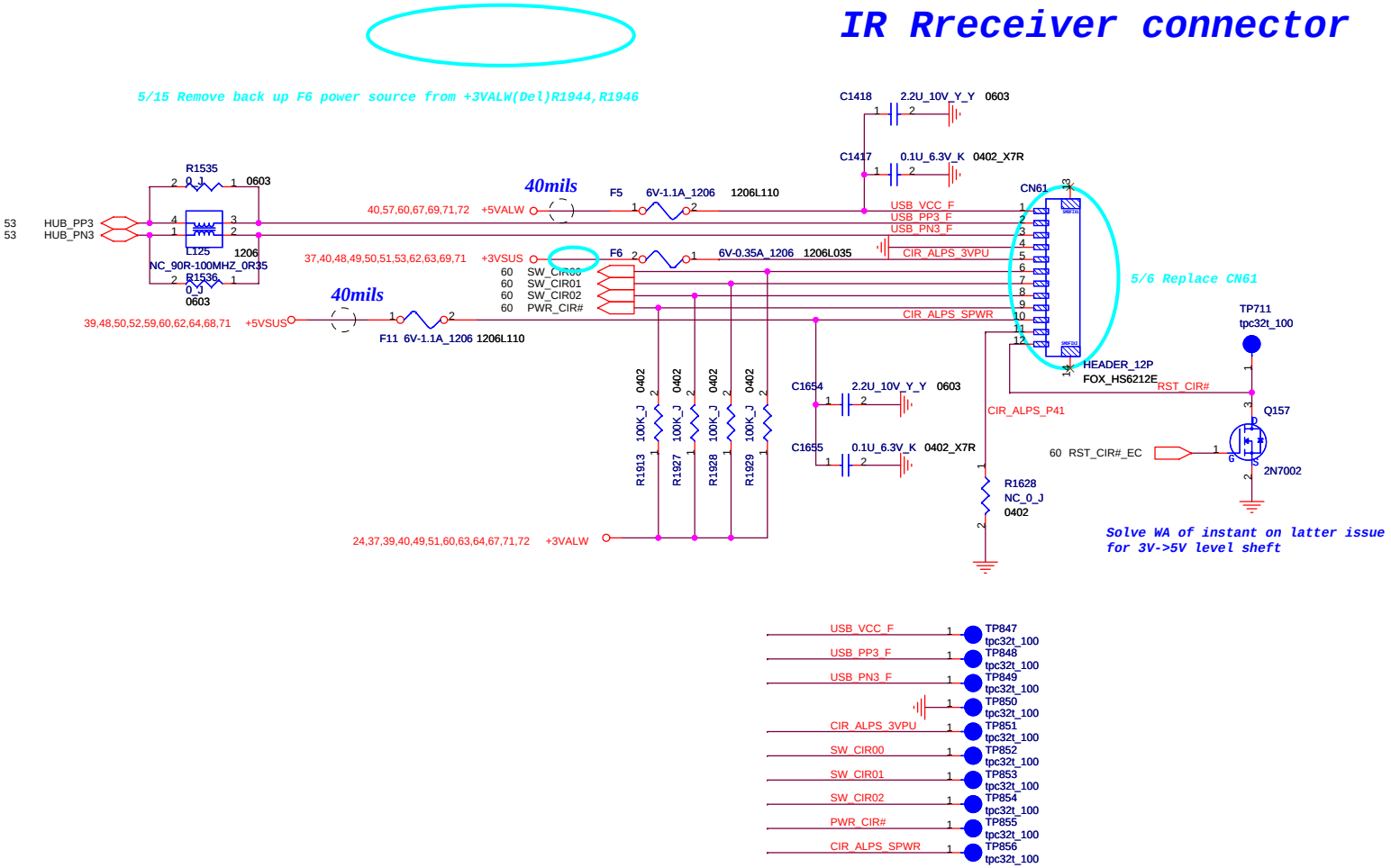
Application design in datasheet 27 ohm;
but 30ohm is also in range of USB Spec.

USB 1.1 HUB

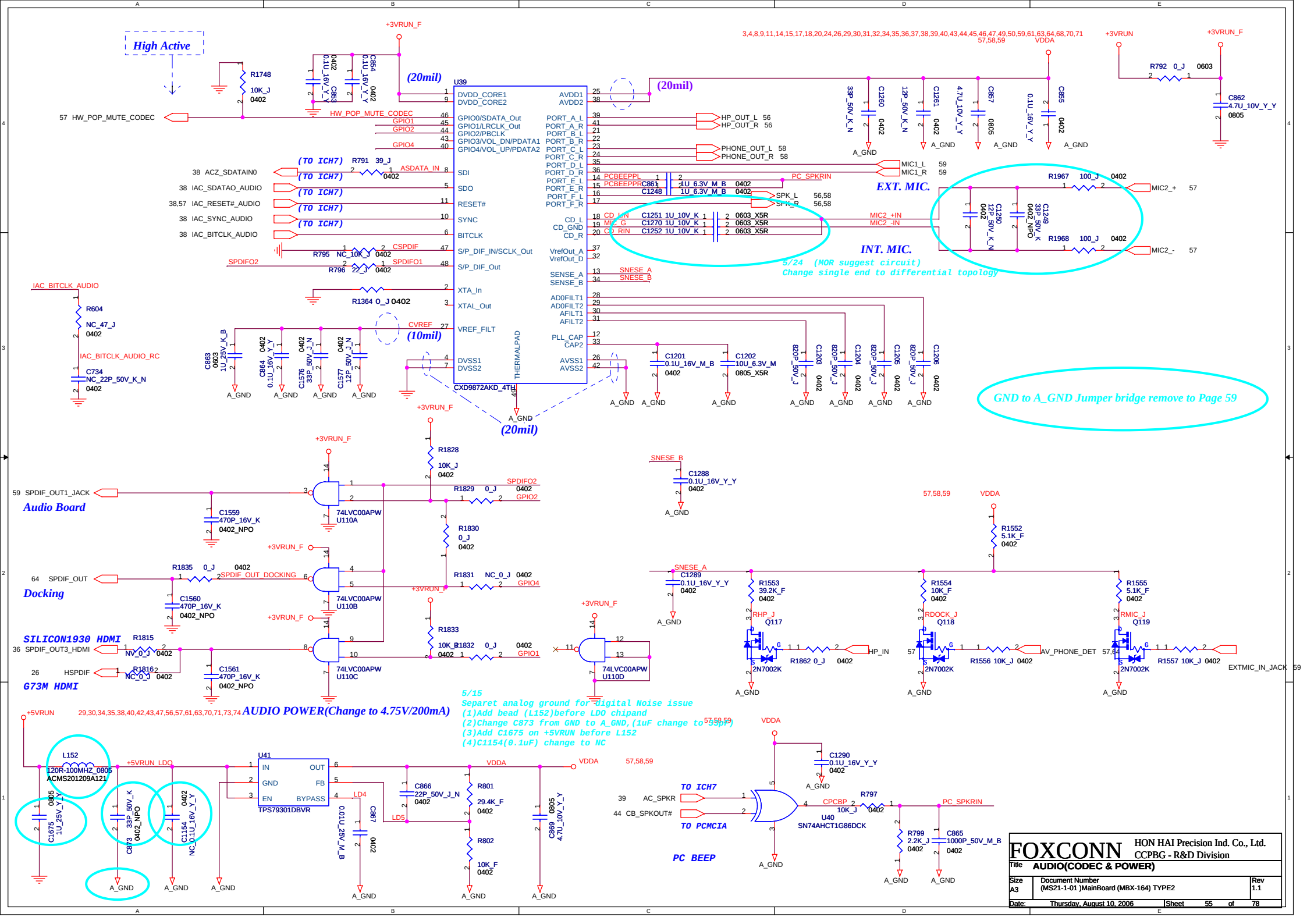


FOXCONN	HON HAI Precision Ind. Co., Ltd.	
	CCPBG - R&D Division	
Title	USB HUB	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 53 of 78	

IR Rreceiver connector



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	LED/LID SW#/Touch PAD	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 54 of 78	


High Active
U39
CXD9872AKD_4TH
(20mil)
(10mil)
EXT. MIC.
INT. MIC.
5/24 (MOR suggest circuit)
Change single end to differential topology
GND to A_GND Jumper bridge remove to Page 59
Audio Board
Docking
SILICON1930 HDMI
G73M HDMI
AUDIO POWER(Change to 4.75V/200mA)
5/15
Separet analog ground for digital Noise issue
(1)Add bead (L152)before LDO chipand
(2)Change C873 from GND to A_GND,(1uF change to 33pF)
(3)Add C1675 on +5VRUN before L152
(4)C1154(0.1uF) change to NC
TO ICH7
TO PCMCIA
PC BEEP
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
AUDIO(CODEC & POWER)
Document Number
(MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Thursday, August 10, 2006
Sheet 55 of 78

050806: Shoei CAP will EOL
CAP24,CAP25(SP CAP) change to Stuff
CAP22,CAP23(Shoei CAP) change to No Stuff

Max 1.7A

55,57,61,63,70,71,73,74 +5VRUN

+5VAMP

L70 120R-100MHZ_1206 BCMS321611A121 5A

C876 10U_6.3V_M 0805_X5R

C1291 NC_10U_6.3V_M 0805_X5R

C878 0.1U_16V_M_B 0402

C879 0.1U_16V_M_B 0402

C880 10U_6.3V_M 0402

C877 10U_6.3V_M 0805_X5R

A_GND

CAP24 100U_6.3V_T ECGUD0J101ER

CAP25 100U_6.3V_T ECGUD0J101ER

CAP22 NC_100U_6.3V_M 9.3*3.6

CAP23 NC_100U_6.3V_M 9.3*3.6

CO-Layout for EOL backup

55 HP_OUT_R

55 HP_OUT_L

HP_OUT_R HP_R

HP_OUT_L HP_L

R847 10K_J 0402

R852 10K_J 0402

R1250 22_J 0402

R1251 22_J 0402

R1284 22_J 0402

R1285 22_J 0402

R1863 22_J 0402

R1864 22_J 0402

HP_R_MU1 HP_L_MU2 HP_R_MU5 HP_L_MU6

HP_R_JACK HP_L_JACK

HP_R_JACK 59

HP_L_JACK 59

To Audio Board

Q77 PBSS2515E.115

Q143 PBSS2515E.115

Q78 PBSS2515E.115

Q144 PBSS2515E.115

MU3 MU4 MU7 MU8

R1252 1K_J 0402

R1253 1K_J 0402

R1866 1K_J 0402

R1865 1K_J 0402

57 MUTE_TR

MUTE_TR

050806: PBSS2515F.115 will EOL
Q77,Q78,Q143,Q144 change to PBSS2515E.115

INTERNAL SPEAKER

050806:(Improve the voice of speaker up to 0.94W).
Add damping Resistors R1953 on AMP_SRIN,R1954 on AMP_SLIN
then speaker amp output won't be distorted.
For speaker loudness issue.

2006/6/26
Modify internal speaker AMP gain setting,change R1953/R1954
from 4.7K (AMP output 1.12W) to 5.1Kohm(AMP output0.98W)
to fit in speaker (1.0W)spec.

+5VAMP

U68

55,58 SPK_R

55,58 SPK_L

C1617 2.2U_10V_Y_Y 0603

C1618 0.1U_16V_Y_Y 0402

C1620 0.1U_16V_Y_Y 0402

C1619 2.2U_10V_Y_Y 0603

R1953 5.1K_F 0402

R1954 5.1K_F 0402

AMP_SRIN_RC AMP_SLIN_RC

AMP_SRIN AMP_RIN AMP_LIN AMP_SLIN AMP_BP AMP_RHP AMP_LHP

RLINEIN RIN LLINEIN LIN BYPASS SHUTDOWN# RHPIN LHPIN

PVDD2 PVDD1 VDD PGND1 PGND2 AGND Thermal Pad

ROUT- ROUT+ LOUT- LOUT+ SE/BTL# HP/LINE# VOLUME SEDIFF SEMAX FADE#

TPA6011A4PWPRG4

(20mil)

INT_SPK_R- INT_SPK_R+ INT_SPK_L- INT_SPK_L+

R1931 0_J 0402 HP_IN_DET 57

AMP_VOL

C1621 NC_33P_50V_K_N

C1622 NC_33P_50V_K_N

C1623 NC_33P_50V_K_N

C1624 NC_33P_50V_K_N

C1625 33P_50V_K_N

C1626 0.47U_6.3V_K_B

C1627 0.01U_16V_K_B

C1628 0.1U_16V_Y_Y

C1629 0.1U_16V_Y_Y

R1930 10K_J 0402

R1932 5.6K_F 0402

R1933 10K_F 0402

050806:(Improve the voice of speaker up to 0.94W).
Change R1932 from 6.8K to 5.6K,then amp gain
change from 8dB to 10dB For speaker loudness issue

050806:(Improve the voice of speaker up to 0.94W).
EMI team confirm whether
it is ok to use 0ohm resistor replacing bead

INT_SPK_L+ INT_SPK_L- INT_SPK_R- INT_SPK_R+

R1963 0_J 0402

R1964 0_J 0402

R1966 0_J 0402

R1965 0_J 0402

(20mil) (20mil)

JSPK1 HEADER_4P FOX_HS8104E

BFT Test Pad

INT_SPK_L+ TP742 tpc32t_100

INT_SPK_L- TP743 tpc32t_100

INT_SPK_R- TP744 tpc32t_100

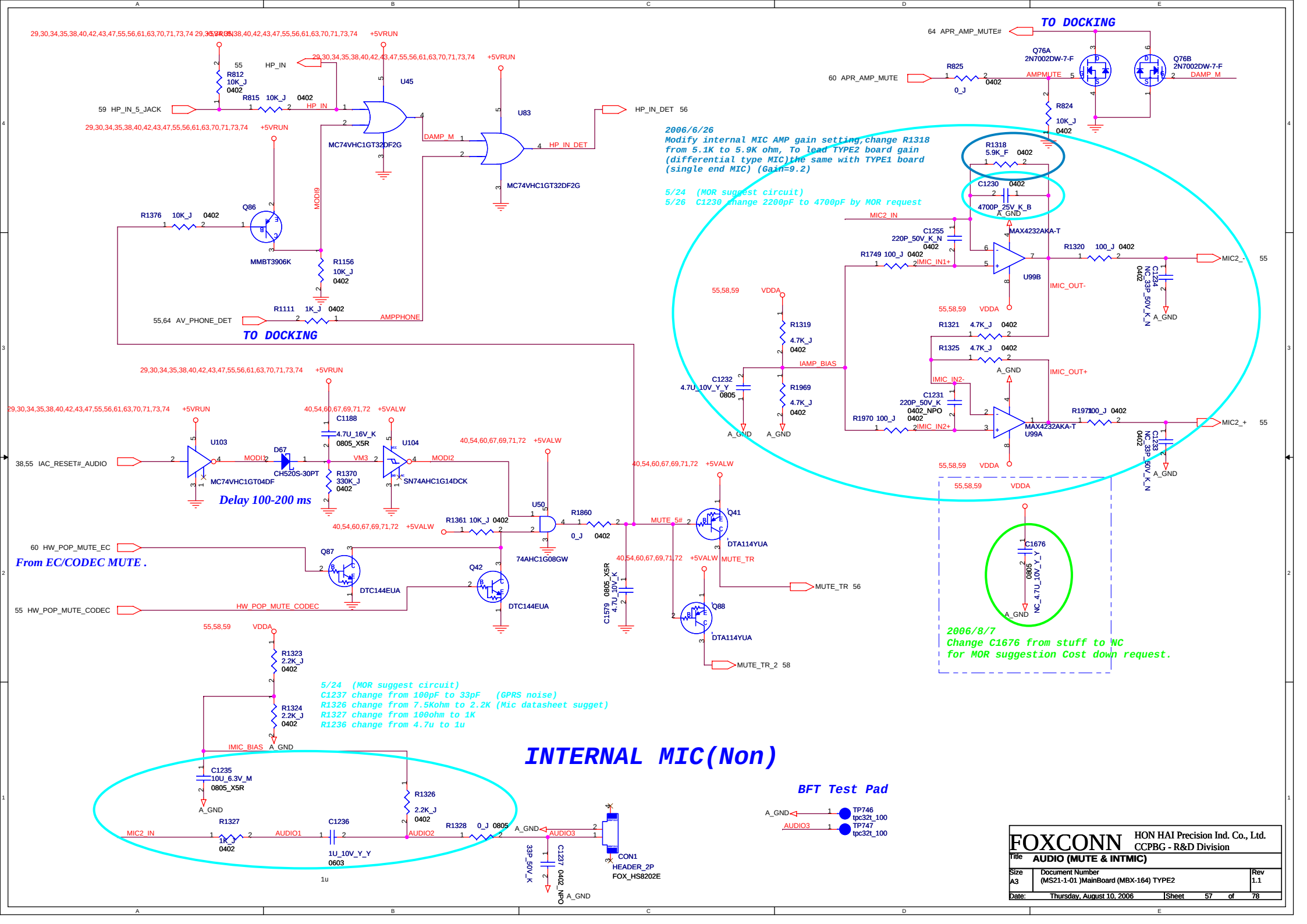
INT_SPK_R+ TP745 tpc32t_100

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

Title AUDIO(AMP & HP & SPK)

Size A3 | Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2 | Rev 1.1

Date: Thursday, August 10, 2006 | Sheet 56 of 78


TO DOCKING
64 APR_AMP_MUTE#
60 APR_AMP_MUTE
R825 0_J 0402
Q76A 2N7002DW-7-F
Q76B 2N7002DW-7-F
AMPMUTE
DAMP_M
R824 10K_J 0402
2006/6/26
Modify internal MIC AMP gain setting,change R1318 from 5.1K to 5.9K ohm, To lead TYPE2 board gain (differential type MIC)the same with TYPE1 board (single end MIC) (Gain=9.2)
5/24 (MOR suggest circuit)
5/26 C1230 change 2200pF to 4700pF by MOR request
R1318 5.9K_F 0402
C1230 0402 4700P_25V_K_B
A_GND
MIC2_IN
C1255 220P_50V_K_N 0402
MAX4232AKA-T
U99B
R1749 100_J 0402
IMIC_IN1+
R1320 100_J 0402
MIC2_- 55
IMIC_OUT-
C1234 NC_33P_50V_K_N 0402
55,58,59 VDDA
R1319 4.7K_J 0402
IAMP_BIAS
C1232 4.7U_10V_Y_Y 0805
R1969 4.7K_J 0402
R1321 4.7K_J 0402
R1325 4.7K_J 0402
IMIC_IN2-
IMIC_OUT+
C1231 220P_50V_K 0402_NPO 0402
R1970 100_J
IMIC_IN2+
R1971 100_J 0402
MAX4232AKA-T U99A
MIC2_+ 55
C1233 NC_33P_50V_K_N 0402
55,58,59 VDDA
C1676 0805 NC_4.7U_10V_Y_Y
2006/8/7
Change C1676 from stuff to NC for MOR suggestion Cost down request.
29,30,34,35,38,40,42,43,47,55,56,61,63,70,71,73,74 +5VRUN
HP_IN
R812 10K_J 0402
R815 10K_J 0402
59 HP_IN_5_JACK
U45
MC74VHC1GT32DF2G
U83
HP_IN_DET 56
DAMP_M
MODI9
Q86
MMBT3906K
R1376 10K_J 0402
R1156 10K_J 0402
R1111 1K_J 0402
55,64 AV_PHONE_DET
AMPPHONE
TO DOCKING
40,54,60,67,69,71,72 +5VALW
C1188 4.7U_16V_K 0805_X5R
U103
U104
D67 CH520S-30PT
MODI2
VM3
38,55 IAC_RESET#_AUDIO
MC74VHC1GT04DF
SN74AHC1G14DCK
R1370 330K_J 0402
Delay 100-200 ms
U50
74AHC1G08GW
R1361 10K_J 0402
R1860 0_J 0402
MUTE_5#
Q41 DTA114YUA
MUTE_TR
MUTE_TR 56
Q88 DTA114YUA
MUTE_TR_2 58
60 HW_POP_MUTE_EC
From EC/CODEC MUTE .
55 HW_POP_MUTE_CODEC
HW_POP_MUTE_CODEC
Q87 DTC144EUA
Q42 DTC144EUA
C1579 0805_X5R 4.7U_10V_K
R1323 2.2K_J 0402
R1324 2.2K_J 0402
5/24 (MOR suggest circuit)
C1237 change from 100pF to 33pF (GPRS noise)
R1326 change from 7.5Kohm to 2.2K (Mic datasheet sugget)
R1327 change from 100ohm to 1K
R1236 change from 4.7u to 1u
INTERNAL MIC(Non)
C1235 10U_6.3V_M 0805_X5R
R1326 2.2K_J 0402
R1327 1K_J 0402
C1236 1U_10V_Y_Y 0603
R1328 0_J 0805
AUDIO1
AUDIO2
AUDIO3
MIC2_IN
33P_50V_K
C1237 0402 NC
CON1 HEADER_2P FOX_HS8202E
BFT Test Pad
TP746 tpc32t_100
TP747 tpc32t_100
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title AUDIO (MUTE & INTMIC)
Size A3
Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Date: Thursday, August 10, 2006
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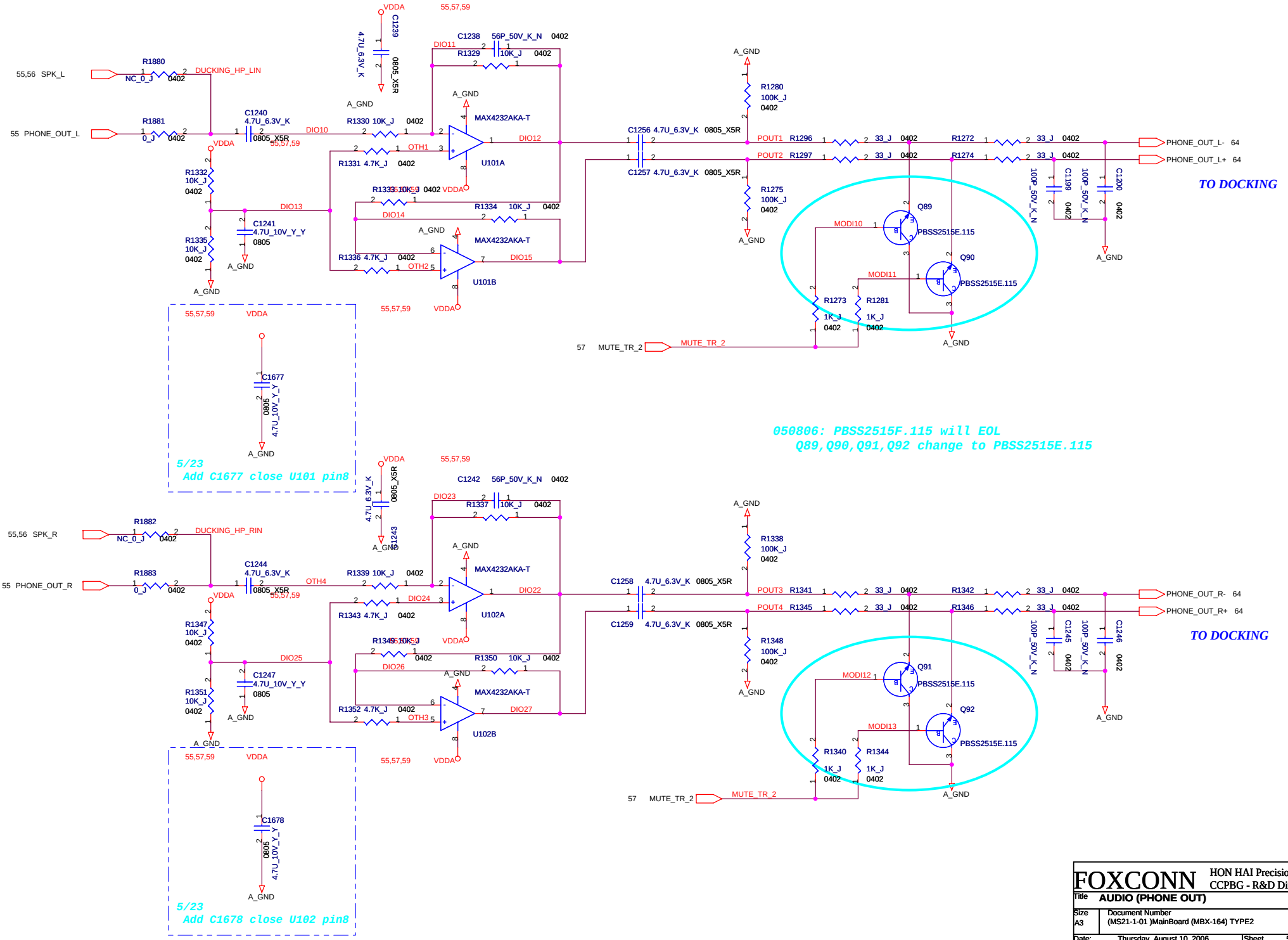
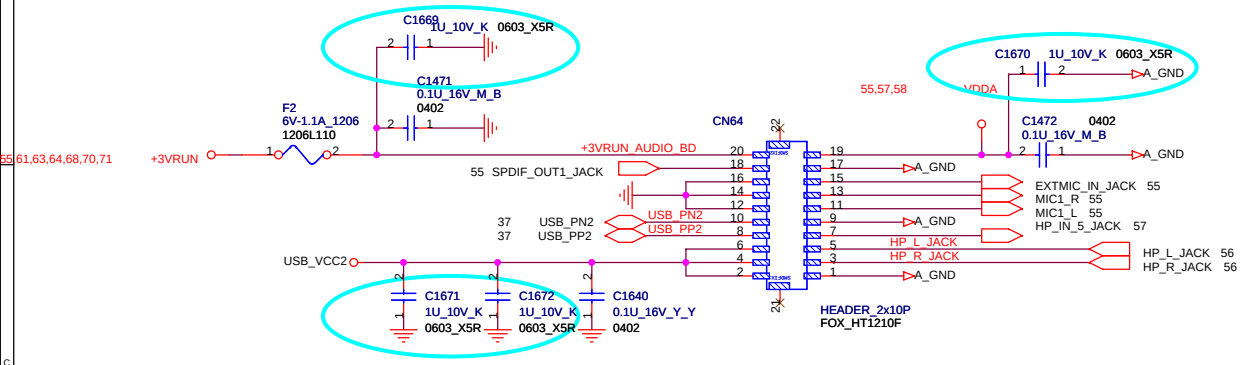
PHONE OUT

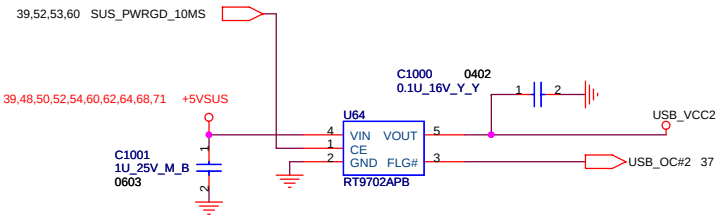


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO (PHONE OUT)	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 58 of 78	

Audio Board connector

050806: (To improve SNR issue)
Add 1uF capacitors close CN64 :C1671,C1672 on USB_VCC2,
C1669 on +3VRUN_AUDIO_BD, and C1670 on VDDA .

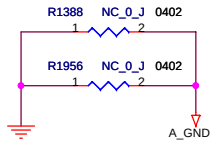




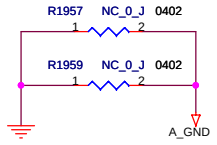
5/6
Separet analog ground for digital Noise issue:
(1)Remove GP3 (Close Jumper)not bridge between GND and A_GND
(2)Backup two jumper resistors for bridge between GND and A_GND
(C1388,C1966 on Screw hole H3,C1957,C1959 on screw hole H5)
(3)Isolate screw hole H4,add 100pF capacitors C1673,C1674 for EMI,Zener diode D100 for ESD
(4)Add jumper resistor for Return patch R1955 close L70(+5VAMP) & R1958 close U41(+5VRUN) &1960 close codec.

Backup two jumper resistors for bridge between GND and A_GND

Close screw hole H3

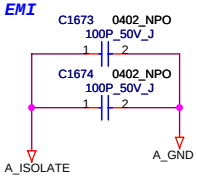


Close screw hole H5

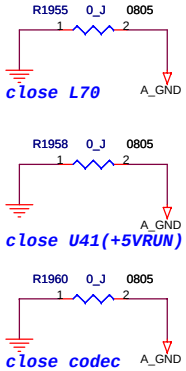


Isolate screw hole H4, and add EMI/ESD solution

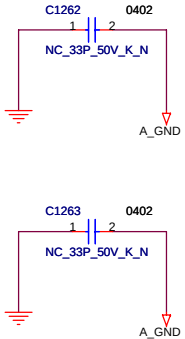
EMI



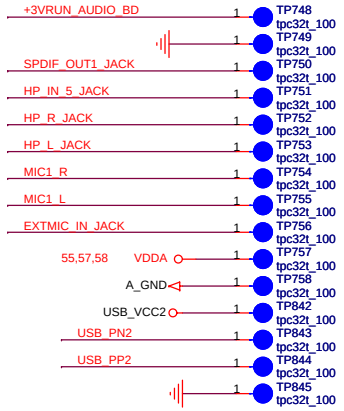
Add jumper resistor for Return patch



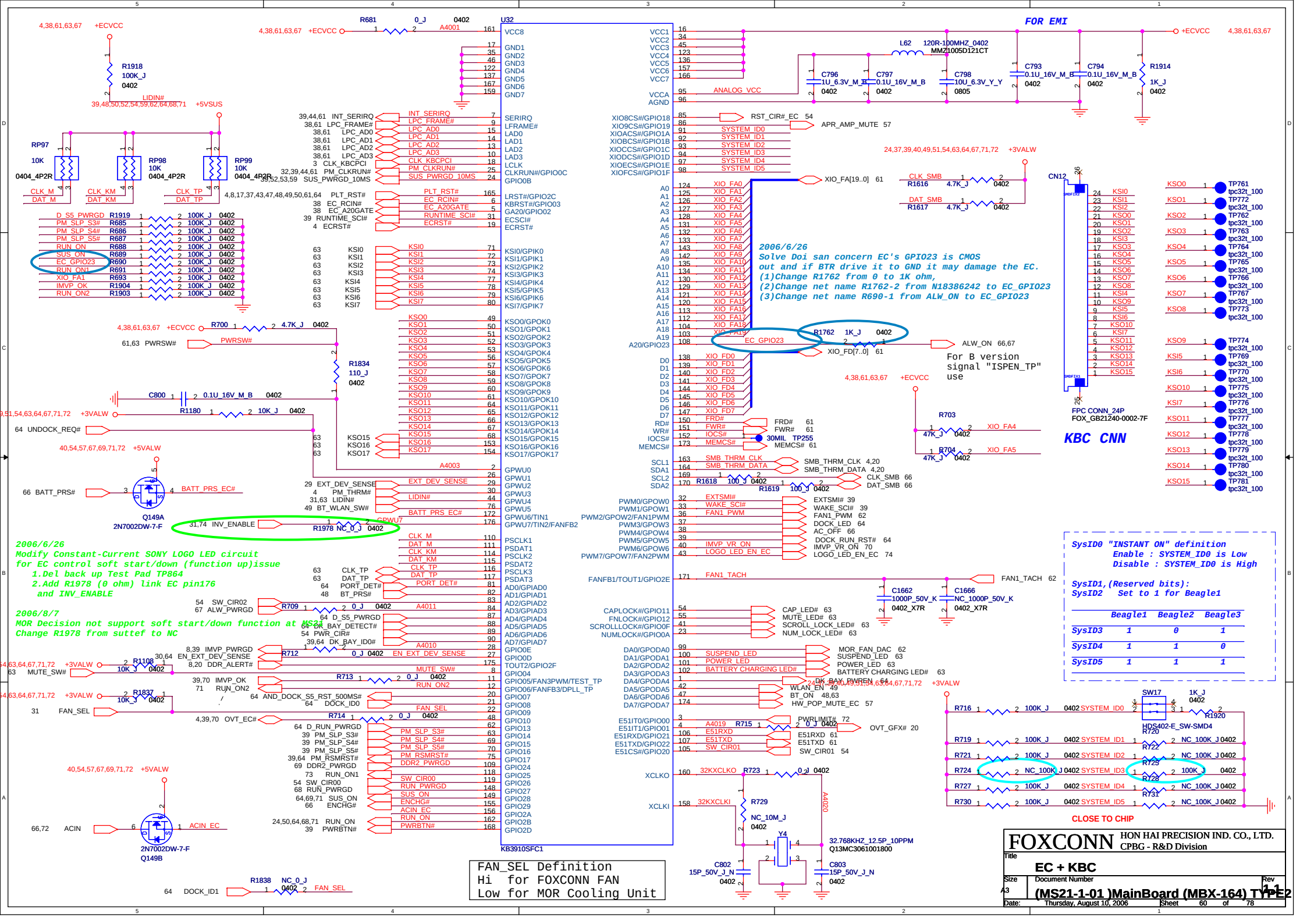
Original EMI back up solution to continue with MS20(bridge between GND and A_GND)



BFT Test Pad



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Touch Pad & LED Board	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 59 of 78	


FOR EMI
2006/6/26
Solve Doi san concern EC's GPIO23 is CMOS
out and if BTR drive it to GND it may damage the EC.
(1)Change R1762 from 0 to 1K ohm,
(2)Change net name R1762-2 from N18386242 to EC_GPIO23
(3)Change net name R690-1 from ALW_ON to EC_GPIO23
For B version
signal "ISPEN_TP"
use
KBC CNN
FPC CONN_24P
FOX_GB21240-0002-7F
SysID0 "INSTANT ON" definition
Enable : SYSTEM_ID0 is Low
Disable : SYSTEM_ID0 is High
SysID1,(Reserved bits):
SysID2 Set to 1 for Beagle1
Beagle1 Beagle2 Beagle3
SysID3 1 0 1
SysID4 1 1 0
SysID5 1 1 1
2006/6/26
Modify Constant-Current SONY LOGO LED circuit
for EC control soft start/down (function up)issue
1.Del back up Test Pad TP864
2.Add R1978 (0 ohm) link EC pin176
and INV_ENABLE
2006/8/7
MOR Decision not support soft start/down function at MS21
Change R1978 from suttef to NC
CLOSE TO CHIP
FAN_SEL Definition
Hi for FOXCONN FAN
Low for MOR Cooling Unit
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
EC + KBC
Size
A3
Document Number
(MS21-1-01)MainBoard (MBX-164) TYPE2
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1.1
Date:
Thursday, August 10, 2006
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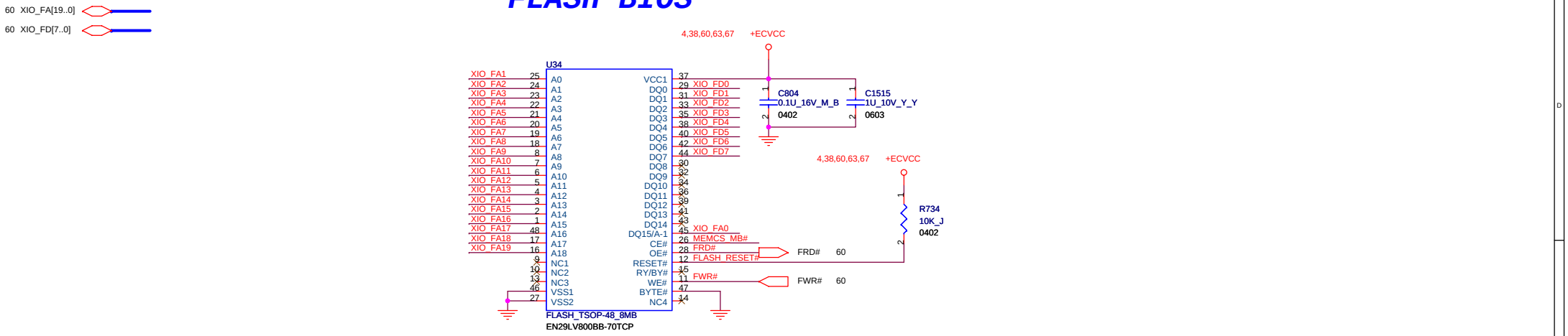
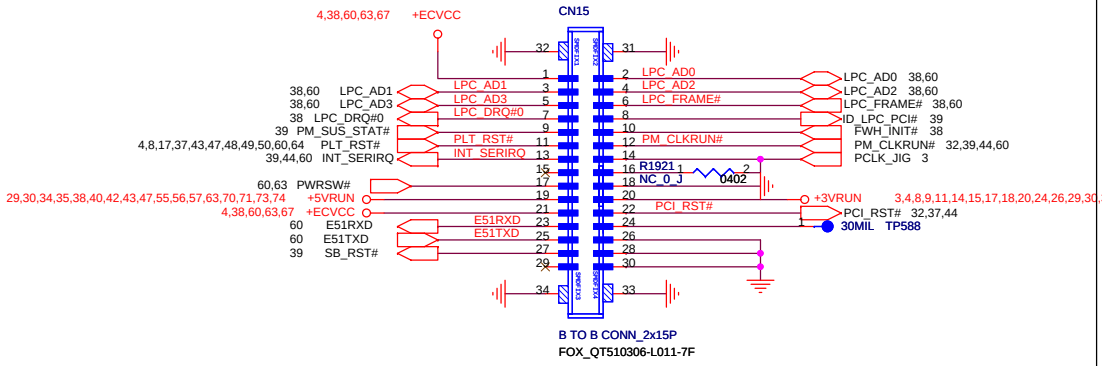
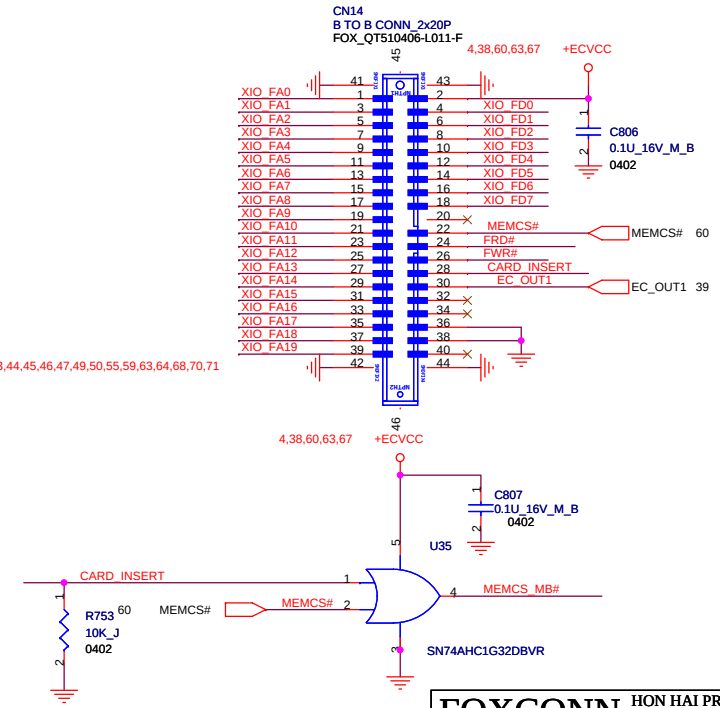
FLASH BIOS



JIG-120



X-BUS



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

Title: **Flash ROM + Jig-120 + XBUS**

Size	Document Number	Rev
A3	(MS21-1-01)MainBoard (MBX-164) TYPE2	1.1

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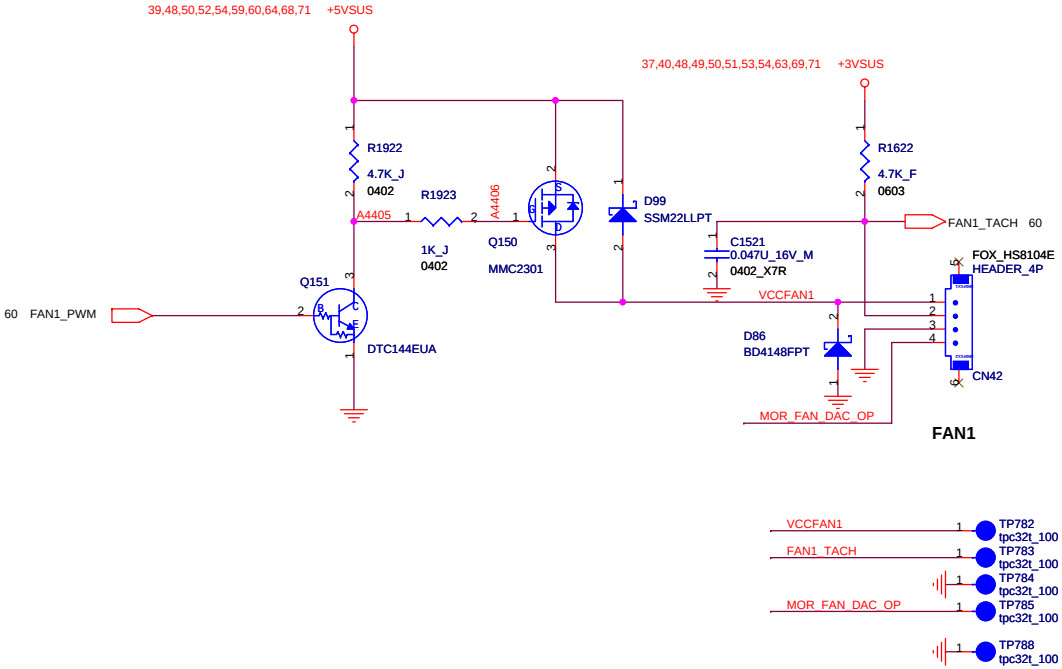
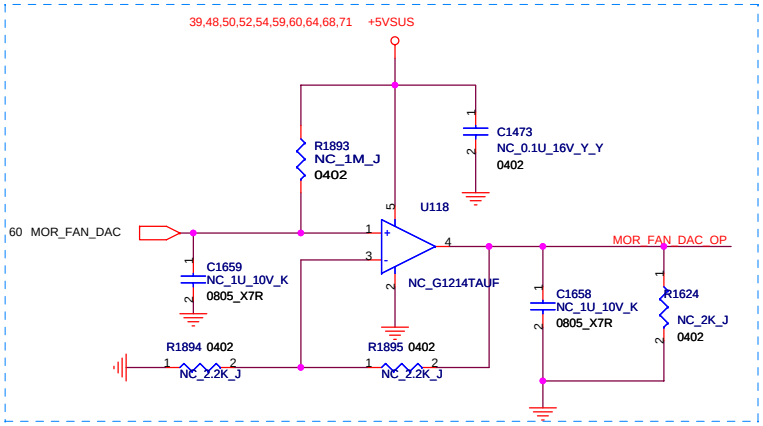
FAN(FAN1+MOR FAN)



FAN1



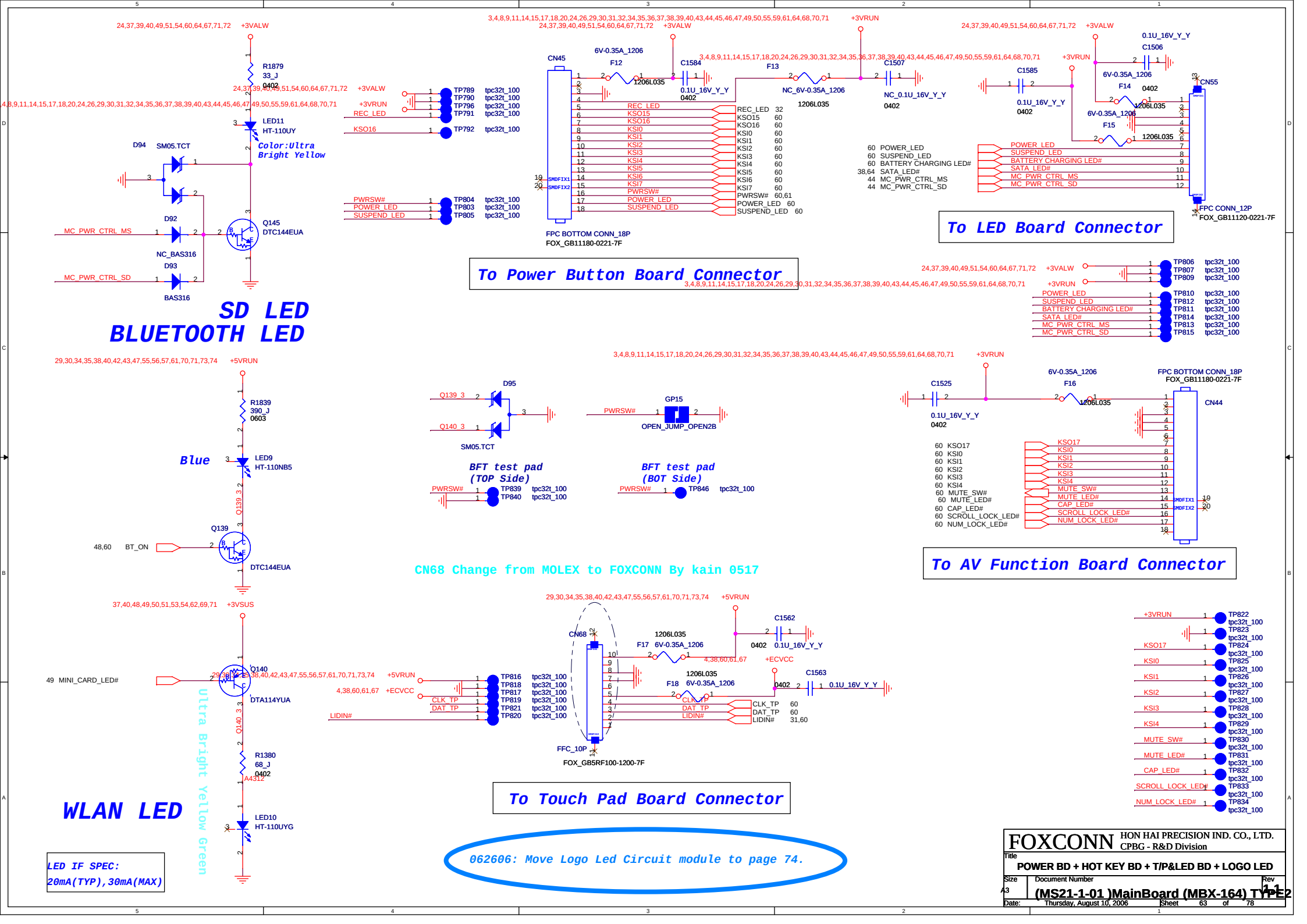
6/28 MOR fan circuit modify to backup
(NC)U118
(NC)R1893
(NC)R1894
(NC)R1895
(NC)R1624
(NC)C1473

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

Title: FAN

Size: A3 | Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 62 of 78


SD LED
BLUETOOTH LED
Color:Ultra Bright Yellow
Blue
WLAN LED
Ultra Bright Yellow Green
LED IF SPEC:
20mA(TYP),30mA(MAX)
To LED Board Connector
To Power Button Board Connector
To AV Function Board Connector
To Touch Pad Board Connector
CN68 Change from MOLEX to FOXCONN By kain 0517
BFT test pad (TOP Side)
BFT test pad (BOT Side)
062606: Move Logo Led Circuit module to page 74.
FPC BOTTOM CONN_18P
FOX_GB11180-0221-7F
FPC CONN_12P
FOX_GB11120-0221-7F
FFC_10P
FOX_GB5RF100-1200-7F
SM05.TCT
OPEN_JUMP_OPEN2B
DTC144EUA
DTA114YUA
NC_BAS316
BAS316
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
POWER BD + HOT KEY BD + T/P&LED BD + LOGO LED
Size
A3
Document Number
(MS21-1-01)MainBoard (MBX-164) TYPE2
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Date:
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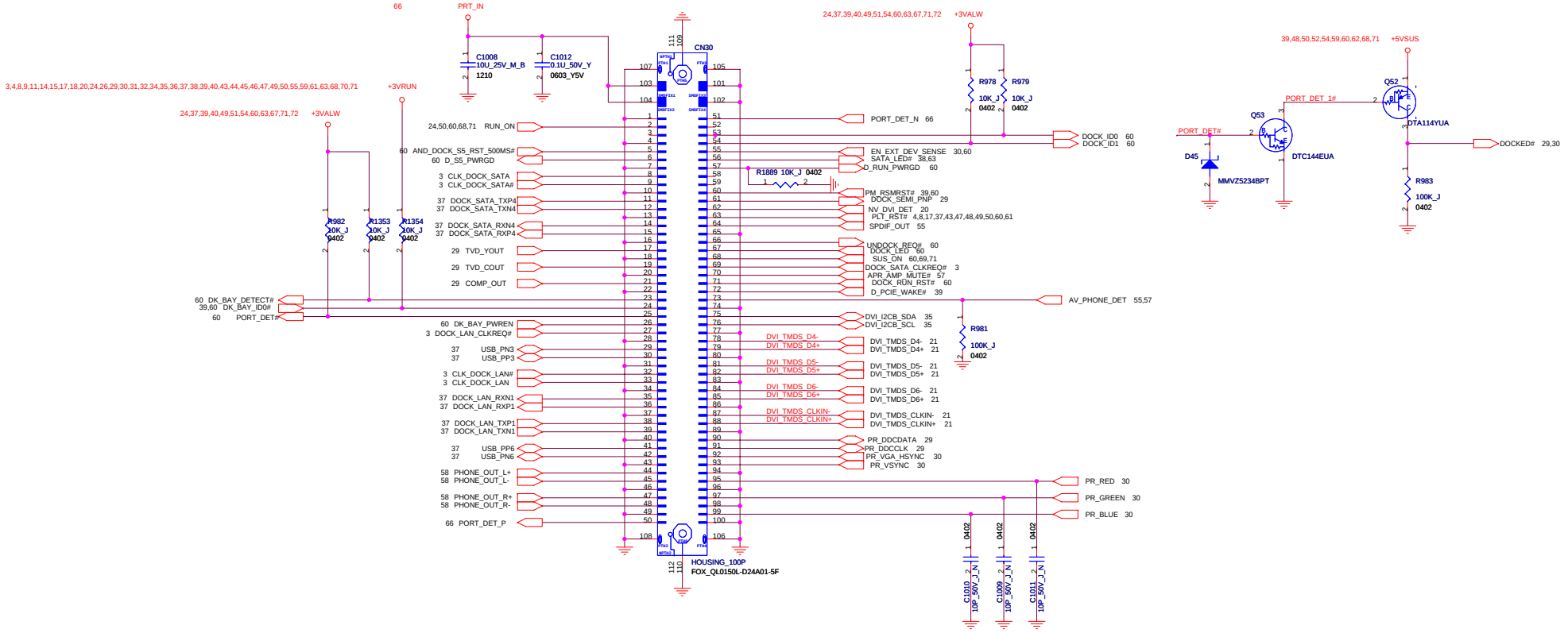
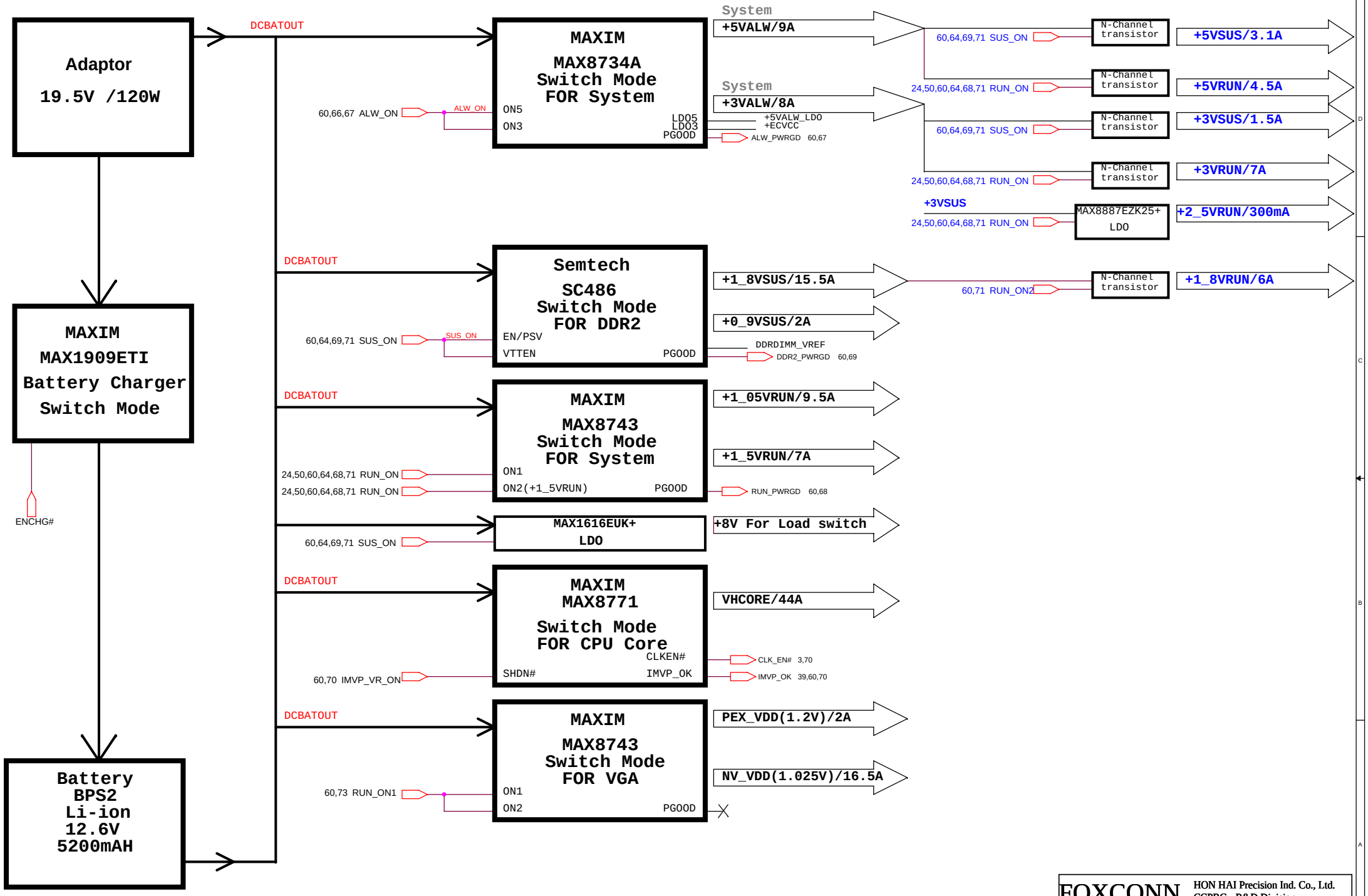
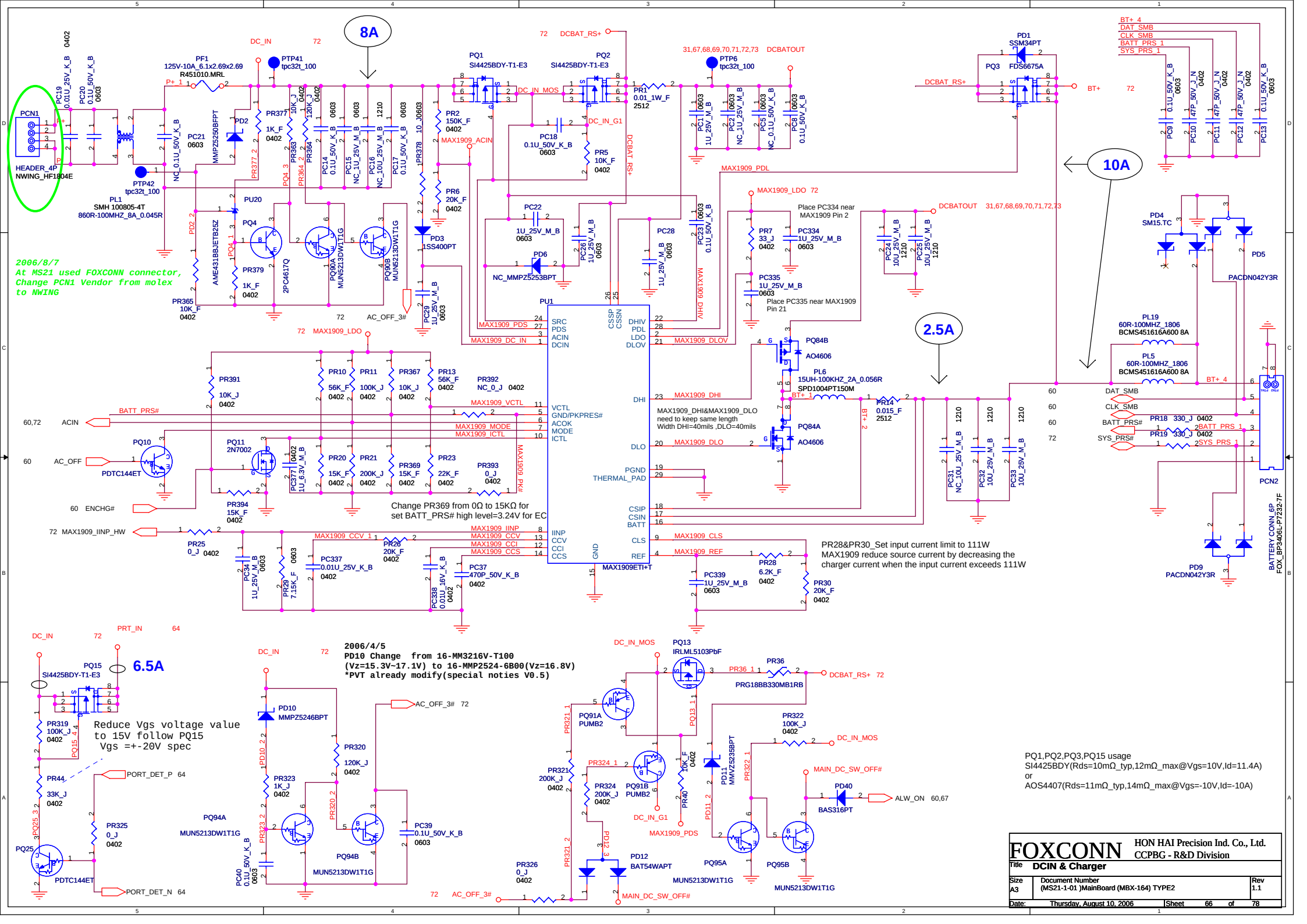
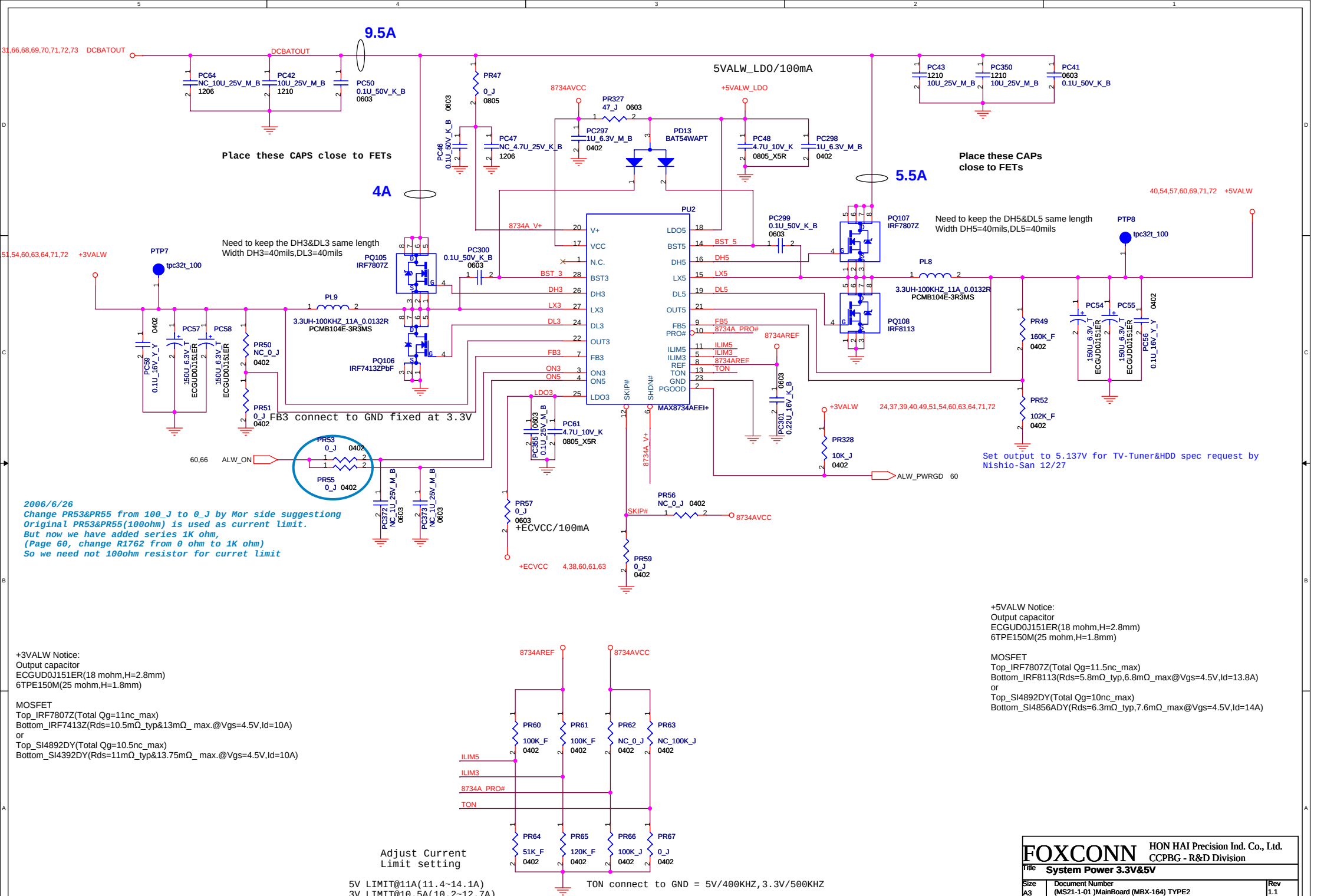


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: DOCKING CONN.		
Size: C	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
Date: Thursday, August 10, 2006	Sheet 64 of 78	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Power Design Diagram-ZG	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 65 of 78	


8A
10A
2.5A
6.5A
PF1
125V-10A_6.1x2.69x2.69
R451010.MRL
PTP41 tpc32t_100
PTP42 tpc32t_100
PTP6 tpc32t_100
PCN1
HEADER_4P
NWING_HF1804E
PL1
SMH 100805-4T
860R-100MHZ_8A_0.045R
PQ1 SI4425BDY-T1-E3
PQ2 SI4425BDY-T1-E3
PQ3 FDS6675A
PD1 SSM34PT
PU1
MAX1909ETI+T
PQ84B AO4606
PQ84A AO4606
PL6
15UH-100KHZ_2A_0.056R
SPD1004PT150M
PL5
60R-100MHZ_1806
BCMS451616A600 8A
PL19
60R-100MHZ_1806
BCMS451616A600 8A
PD4 SM15.TC
PD5 PACDN042Y3R
PD9 PACDN042Y3R
PCN2
BATTERY CONN_6P
FOX_BP3406L-P7232-7F
PQ10 PDTC144ET
PQ11 2N7002
PQ15 SI4425BDY-T1-E3
PQ25 PDTC144ET
PQ94A MUN5213DW1T1G
PQ94B MUN5213DW1T1G
PQ95A MUN5213DW1T1G
PQ95B MUN5213DW1T1G
PQ91A PUMB2
PQ91B PUMB2
PQ13 IRLML5103PbF
PD10 MMPZ5246BPT
PD11 MMVZ5235BPT
PD12 BAT54WAPT
PD40 BAS316PT
PD2 MMPZ5250BFPT
PD3 1SS400PT
PD6 NC_MMPZ5253BPT
PU20 AME431BBJETB25Z
PQ4 2PC4617Q
PR1 0.01_1W_F 2512
PR2 150K_F 0402
PR14 0.015_F 2512
PR25 0_J 0402
PR28 6.2K_F 0402
PR30 20K_F 0402
PR36 PRG18BB330MB1RB
PR44 33K_J 0402
PR325 0_J 0402
PR326 0_J 0402
PR379 1K_F 0402
PR393 0_J 0402
PR394 15K_F 0402
PR7 33_J 0402
PR18 330_J 0402
PR19 330_J 0402
PR322 100K_J 0402
PR324 200K_J 0402
PR5 10K_F 0402
PR6 20K_F 0402
PC18 0.1U_50V_K_B 0603
PC22 1U_25V_M_B 0603
PC28 1U_25V_M_B 0603
PC334 1U_25V_M_B 0603
PC335 1U_25V_M_B 0603
PC339 1U_25V_M_B 0603
PC37 470P_50V_K_B 0402
PC39 0.1U_50V_K_B 0603
PC40 0.1U_50V_K_B 0603
PC337 0.01U_25V_K_B 0402
PC338 0.01U_16V_K_B 0402
PC377 1U_6.3V_M_B 0402
PR377 10K_J 0402
PR378 10_J 0603
PR363 120K_J 0402
PR364 120K_J 0402
PR365 10K_F 0402
PR391 10K_J 0402
PR392 NC_0_J 0402
PR10 56K_F 0402
PR11 100K_J 0402
PR367 10K_J 0402
PR13 56K_F 0402
PR20 15K_F 0402
PR21 200K_J 0402
PR369 15K_F 0402
PR23 22K_F 0402
PR320 120K_J 0402
PR323 1K_J 0402
PR319 100K_J 0402
PR321 200K_J 0402
PR40 10K_F 0402
PC19 0.01U_25V_K_B 0402
PC20 0.1U_50V_K_B 0603
PC21 0603
PC1 1U_25V_M_B 0603
PC2 NC_1U_25V_M_B 0603
PC5 NC_0.1U_50V_K_B 0603
PC8 0.1U_50V_K_B 0603
PC9 0.1U_50V_K_B 0603
PC10 47P_50V_J_N 0402
PC11 47P_50V_J_N 0402
PC12 47P_50V_J_N 0402
PC13 0.1U_50V_K_B 0603
PC14 0.1U_50V_K_B 0603
PC15 NC_1U_25V_M_B 0603
PC16 NC_10U_25V_M_B 1210
PC17 0.1U_50V_K_B 0603
PC24 10U_25V_M_B 1210
PC25 10U_25V_M_B 1210
PC26 1U_25V_M_B 0603
PC29 1U_25V_M_B 0603
PC31 NC_10U_25V_M_B 1210
PC32 10U_25V_M_B 1210
PC33 10U_25V_M_B 1210
PC34 1U_25V_M_B 0603
PC231 0.1U_50V_K_B 0603
MAX1909_ACIN
MAX1909_PDS
MAX1909_PDL
MAX1909_LDO
MAX1909_DC_IN
MAX1909_DHI
MAX1909_DLO
MAX1909_DLOV
MAX1909_VCTL
MAX1909_MODE
MAX1909_ICTL
MAX1909_IINP
MAX1909_CCV
MAX1909_CCI
MAX1909_CCS
MAX1909_CLS
MAX1909_REF
DCBAT_RS+
DCBATOUT
DC_IN
DC_IN_MOS
DC_IN_G1
BT+
ACIN
AC_OFF
ENCHG#
BATT_PRS#
PRT_IN
PORT_DET_P
PORT_DET_N
AC_OFF_3#
MAIN_DC_SW_OFF#
ALW_ON
DAT_SMB
CLK_SMB
SYS_PRS#
2006/8/7
At MS21 used FOXCONN connector,
Change PCN1 Vendor from molex
to NWING
Change PR369 from 0Ω to 15KΩ for
set BATT_PRS# high level=3.24V for EC
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
PR28&PR30_Set input current limit to 111W
MAX1909 reduce source current by decreasing the
charger current when the input current exceeds 111W
2006/4/5
PD10 Change from 16-MM3216V-T100
(Vz=15.3V~17.1V) to 16-MMP2524-6B00(Vz=16.8V)
*PVT already modify(special noties V0.5)
Reduce Vgs voltage value
to 15V follow PQ15
Vgs =+-20V spec
PQ1,PQ2,PQ3,PQ15 usage
SI4425BDY(Rds=10mΩ_typ,12mΩ_max@Vgs=10V,Id=11.4A)
or
AOS4407(Rds=11mΩ_typ,14mΩ_max@Vgs=-10V,Id=-10A)
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title DCIN & Charger
Size A3
Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
Date: Thursday, August 10, 2006
Sheet 66 of 78



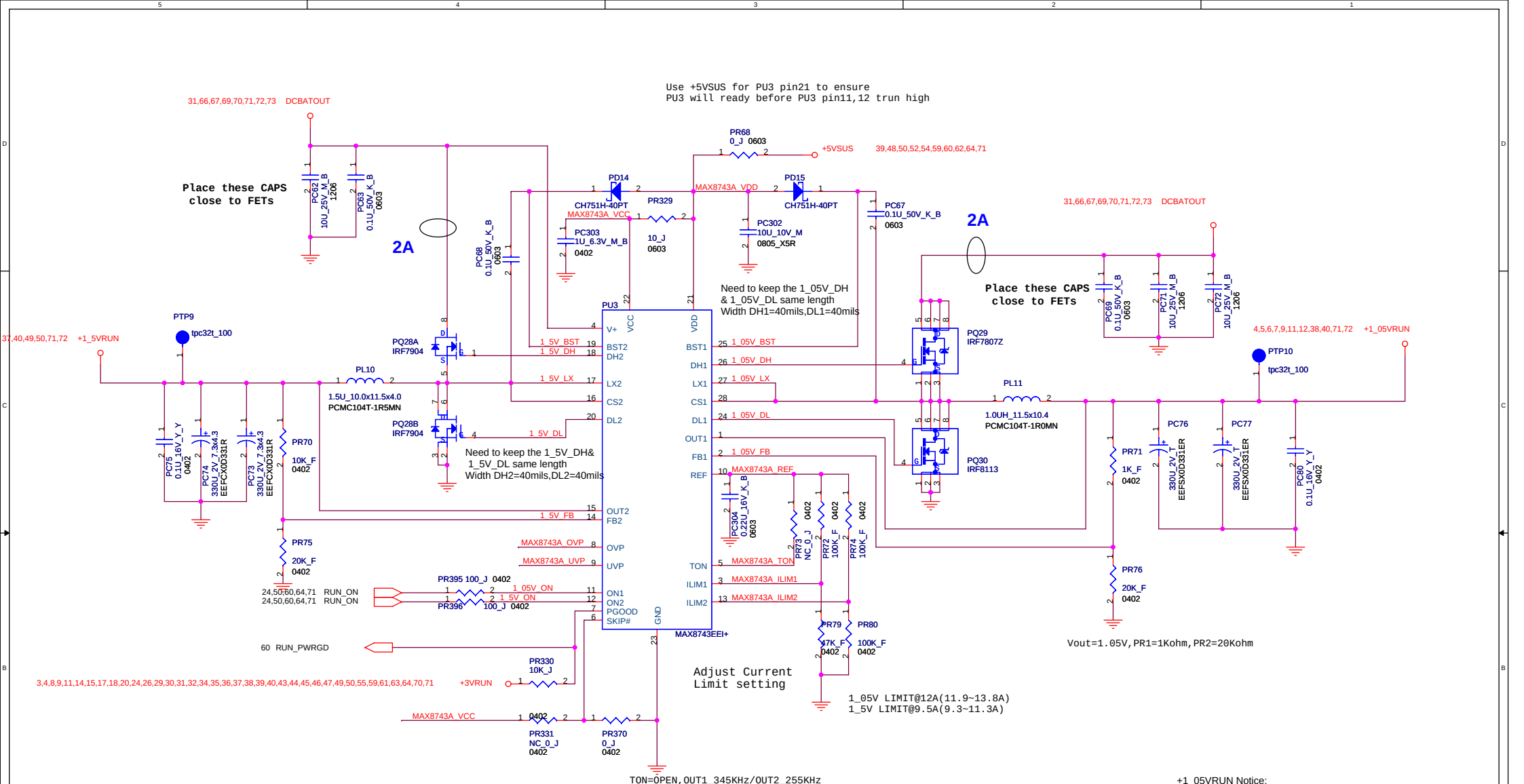
+3VALW Notice:
Output capacitor
ECGUD0J151ER(18 mohm,H=2.8mm)
6TPE150M(25 mohm,H=1.8mm)

MOSFET
Top_IRF7807Z(Total Qg=11nc_max)
Bottom_IRF7413Z(Rds=10.5mΩ_typ&13mΩ_ max.@Vgs=4.5V,Id=10A)
or
Top_SI4892DY(Total Qg=10.5nc_max)
Bottom_SI4392DY(Rds=11mΩ_typ&13.75mΩ_ max.@Vgs=4.5V,Id=10A)

+5VALW Notice:
Output capacitor
ECGUD0J151ER(18 mohm,H=2.8mm)
6TPE150M(25 mohm,H=1.8mm)

MOSFET
Top_IRF7807Z(Total Qg=11.5nc_max)
Bottom_IRF8113(Rds=5.8mΩ_typ,6.8mΩ_max@Vgs=4.5V,Id=13.8A)
or
Top_SI4892DY(Total Qg=10nc_max)
Bottom_SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	System Power 3.3V&5V	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 67 of 78	



+1_5VRUN Notice:
Output capacitor
EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1A)

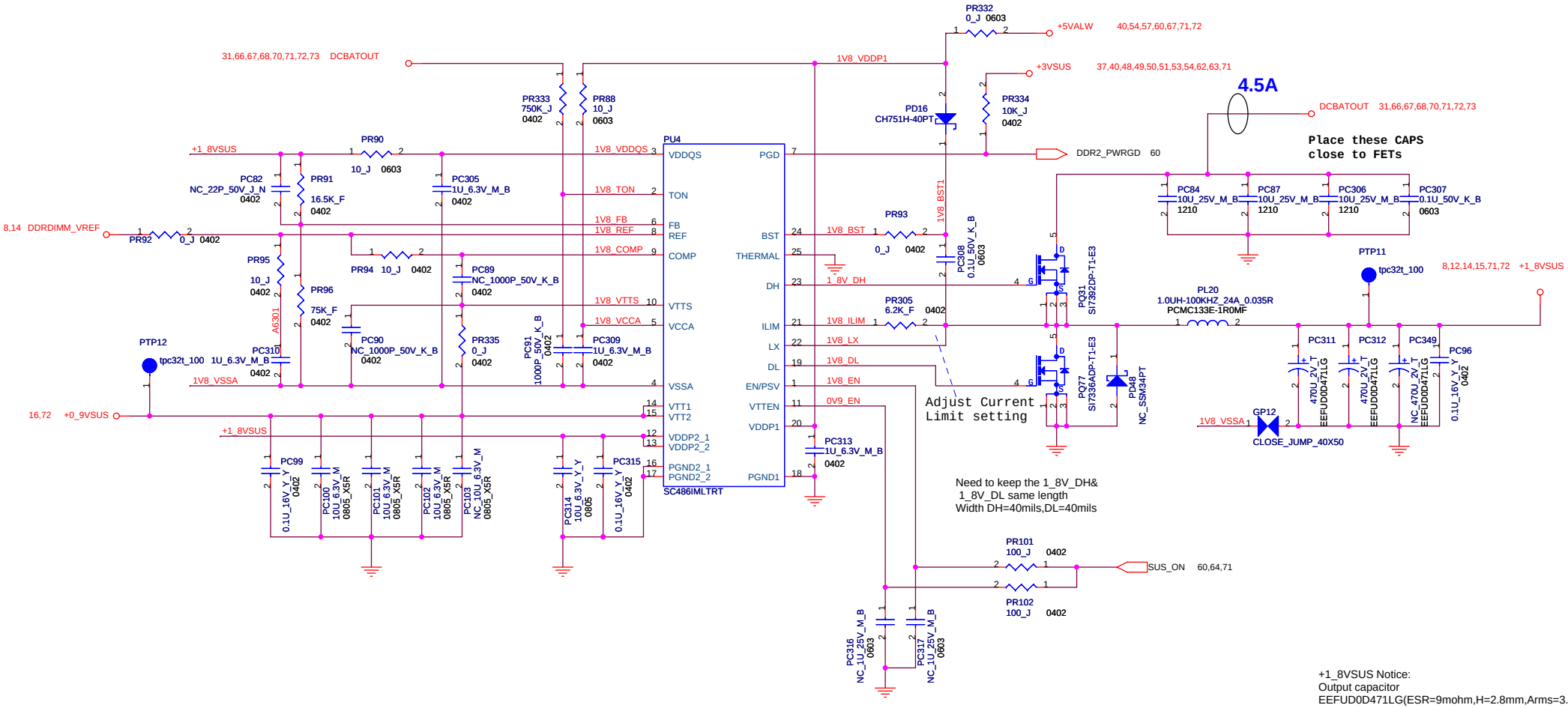
MOSFET(Top+Bottom)
IRF7904(Low side Rds=10.5mΩ_typ,13mΩ_max@Vgs=4.5V,Id=8.9A)

+1_05VRUN Notice:
Output capacitor usage
EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)
2R5TPE330M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

MOSFET
Top_IRF7807Z(Total Qg=11.5nc_max)
Bottom_IRF8113(Rds=5.8mΩ_typ,6.8mΩ_max@Vgs=4.5V,Id=13.8A)
or
Top_SI4892DY(Total Qg=10nc_max)
Bottom_SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)

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

Title	1.5V/1.05V	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
Date: Thursday, August 10, 2006	Sheet 68 of 78	



+1_8VSUS Notice:
Output capacitor
EEFUD0D471LG(ESR=9mohm,H=2.8mm,Arms=3.4A)
2R5TPE470M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

MOSFET
Top_SI7392DP(Total Qg=15nc_max)
Bottom_SI7336ADP(Rds=3.1mΩ_typ,4.0mΩ_max@19A)
or
Top_NTMFS4707N(Total Qg=15nc_max)
Bottom_NTMFS4119N(Rds=3.1mΩ_typ,4.8mΩ_max@25A)

1_8V LIMIT@20A(19.2~24A)

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

Title	DDRII 1.8V/0.9V	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
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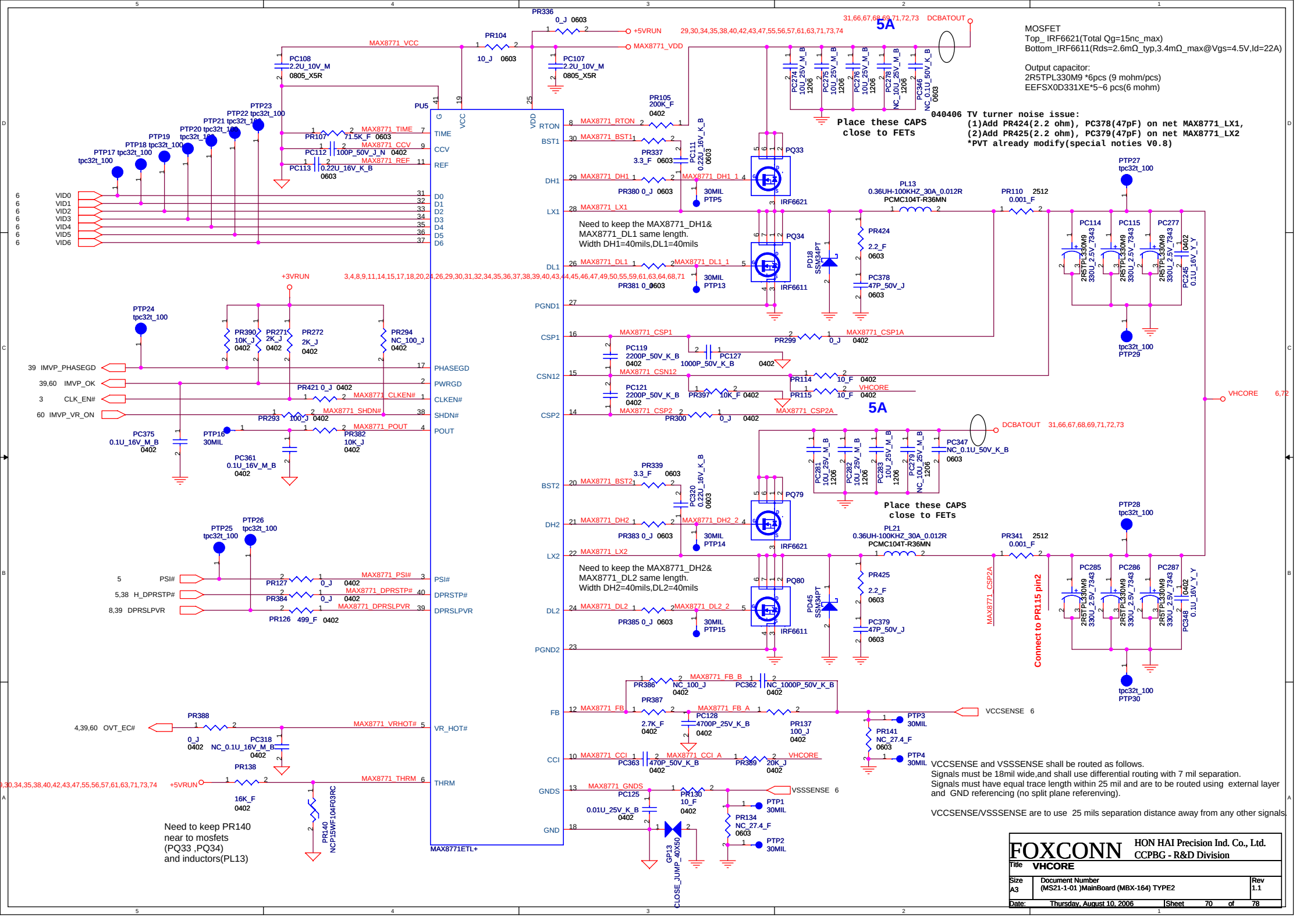
MOSFET
Top_ IRF6621(Total Qg=15nc_max)
Bottom_IRF6611(Rds=2.6mΩ_typ,3.4mΩ_max@Vgs=4.5V,Id=22A)
Output capacitor:
2R5TPL330M9 *6pcs (9 mohm/pcs)
EEFSX0D331XE*5~6 pcs(6 mohm)
040406 TV turner noise issue:
(1)Add PR424(2.2 ohm), PC378(47pF) on net MAX8771_LX1,
(2)Add PR425(2.2 ohm), PC379(47pF) on net MAX8771_LX2
*PVT already modify(special noties V0.8)
Place these CAPS close to FETs
Need to keep the MAX8771_DH1& MAX8771_DL1 same length. Width DH1=40mils,DL1=40mils
Need to keep the MAX8771_DH2& MAX8771_DL2 same length. Width DH2=40mils,DL2=40mils
Connect to PR115 pin2
Need to keep PR140 near to mosfets (PQ33 ,PQ34) and inductors(PL13)
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
Size A3
Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2
Rev 1.1
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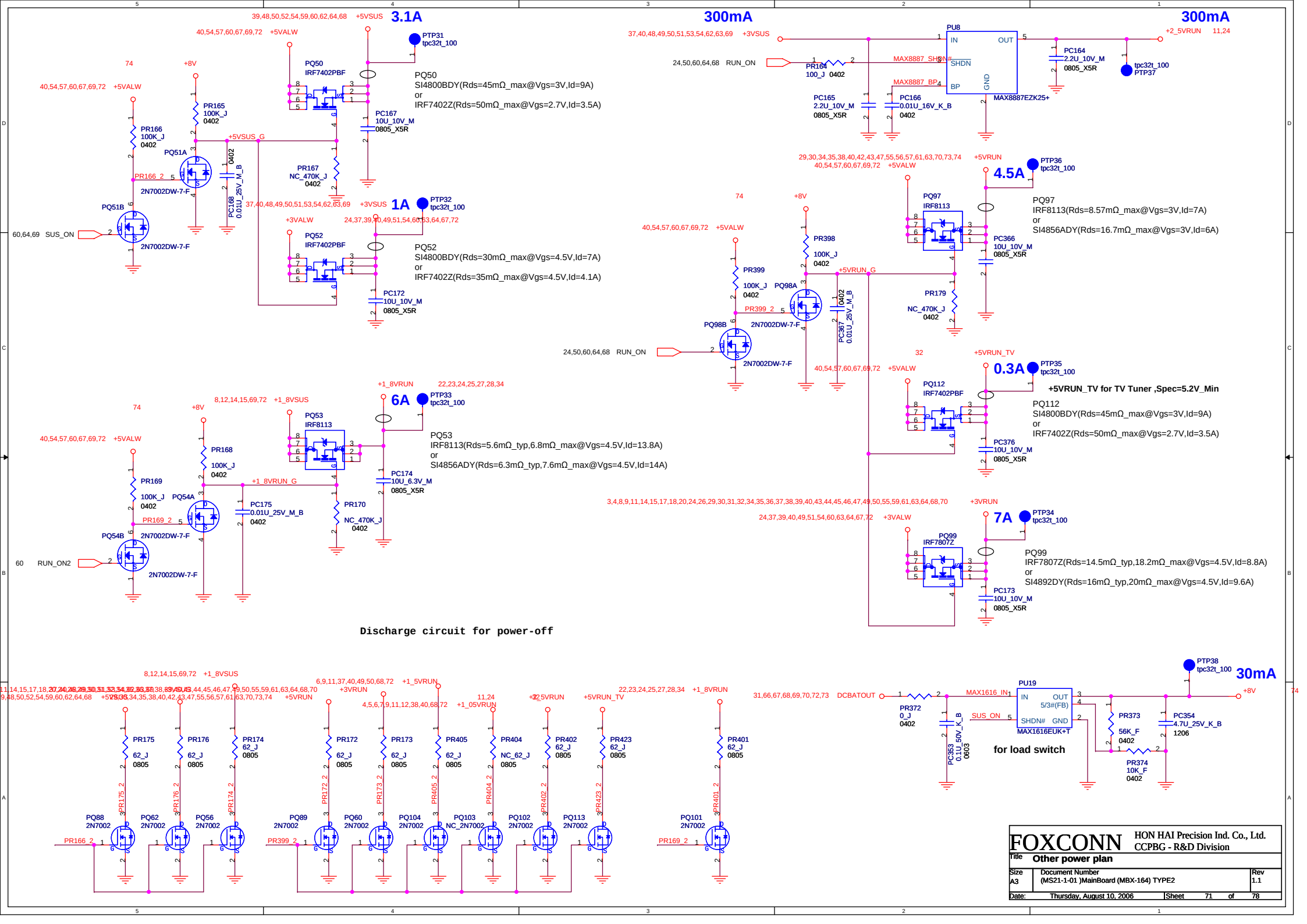
3.1A
PQ50
SI4800BDY(Rds=45mΩ_max@Vgs=3V,Id=9A)
or
IRF7402Z(Rds=50mΩ_max@Vgs=2.7V,Id=3.5A)
1A
PQ52
SI4800BDY(Rds=30mΩ_max@Vgs=4.5V,Id=7A)
or
IRF7402Z(Rds=35mΩ_max@Vgs=4.5V,Id=4.1A)
6A
PQ53
IRF8113(Rds=5.6mΩ_typ,6.8mΩ_max@Vgs=4.5V,Id=13.8A)
or
SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)
300mA
PU8
MAX8887EZK25+
300mA
4.5A
PQ97
IRF8113(Rds=8.57mΩ_max@Vgs=3V,Id=7A)
or
SI4856ADY(Rds=16.7mΩ_max@Vgs=3V,Id=6A)
0.3A
+5VRUN_TV for TV Tuner ,Spec=5.2V_Min
PQ112
SI4800BDY(Rds=45mΩ_max@Vgs=3V,Id=9A)
or
IRF7402Z(Rds=50mΩ_max@Vgs=2.7V,Id=3.5A)
7A
PQ99
IRF7807Z(Rds=14.5mΩ_typ,18.2mΩ_max@Vgs=4.5V,Id=8.8A)
or
SI4892DY(Rds=16mΩ_typ,20mΩ_max@Vgs=4.5V,Id=9.6A)
Discharge circuit for power-off
30mA
PU19
MAX1616EUK+T
for load switch
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title
Other power plan
Size
A3
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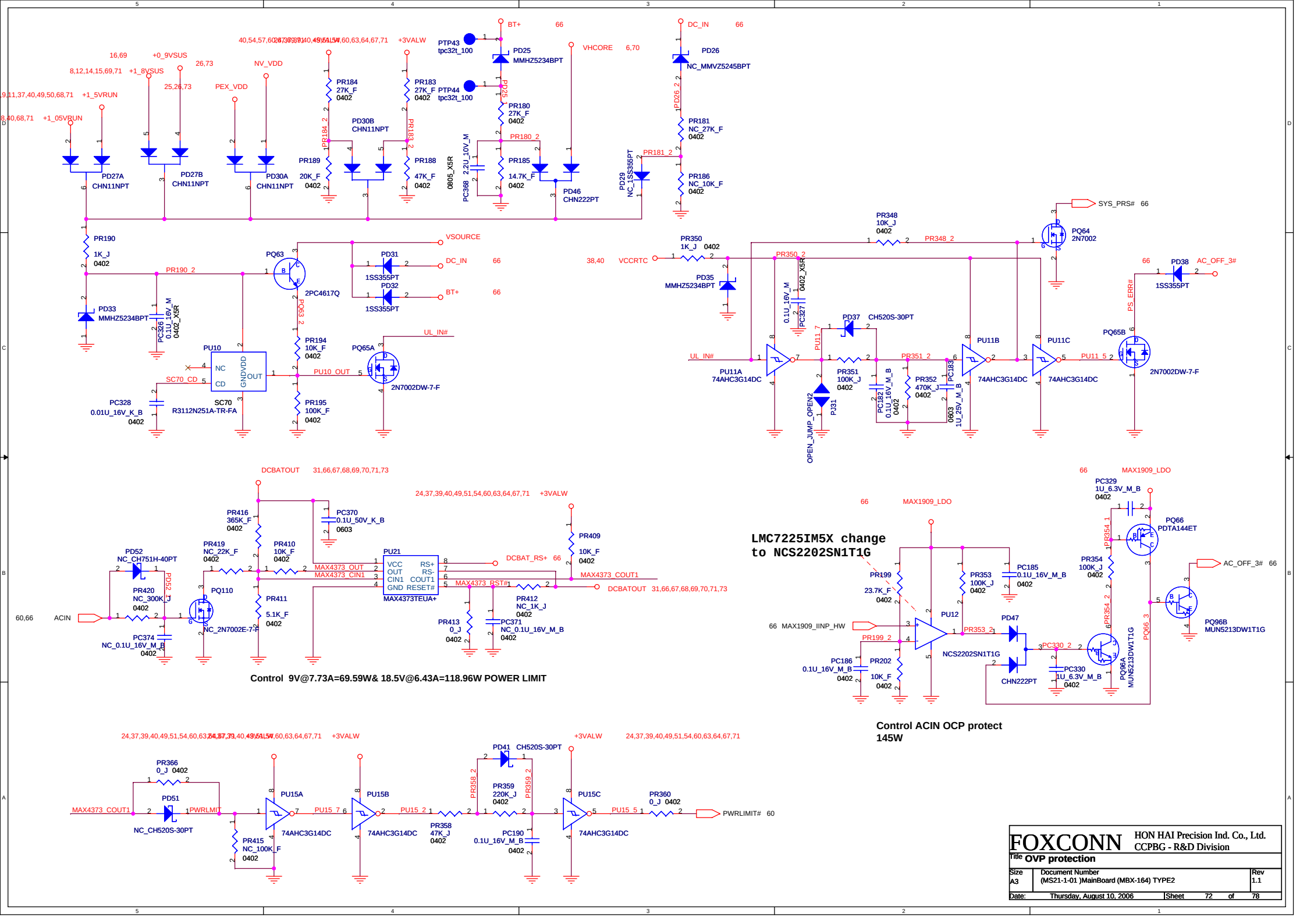

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: OVP protection		
Size: A3	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
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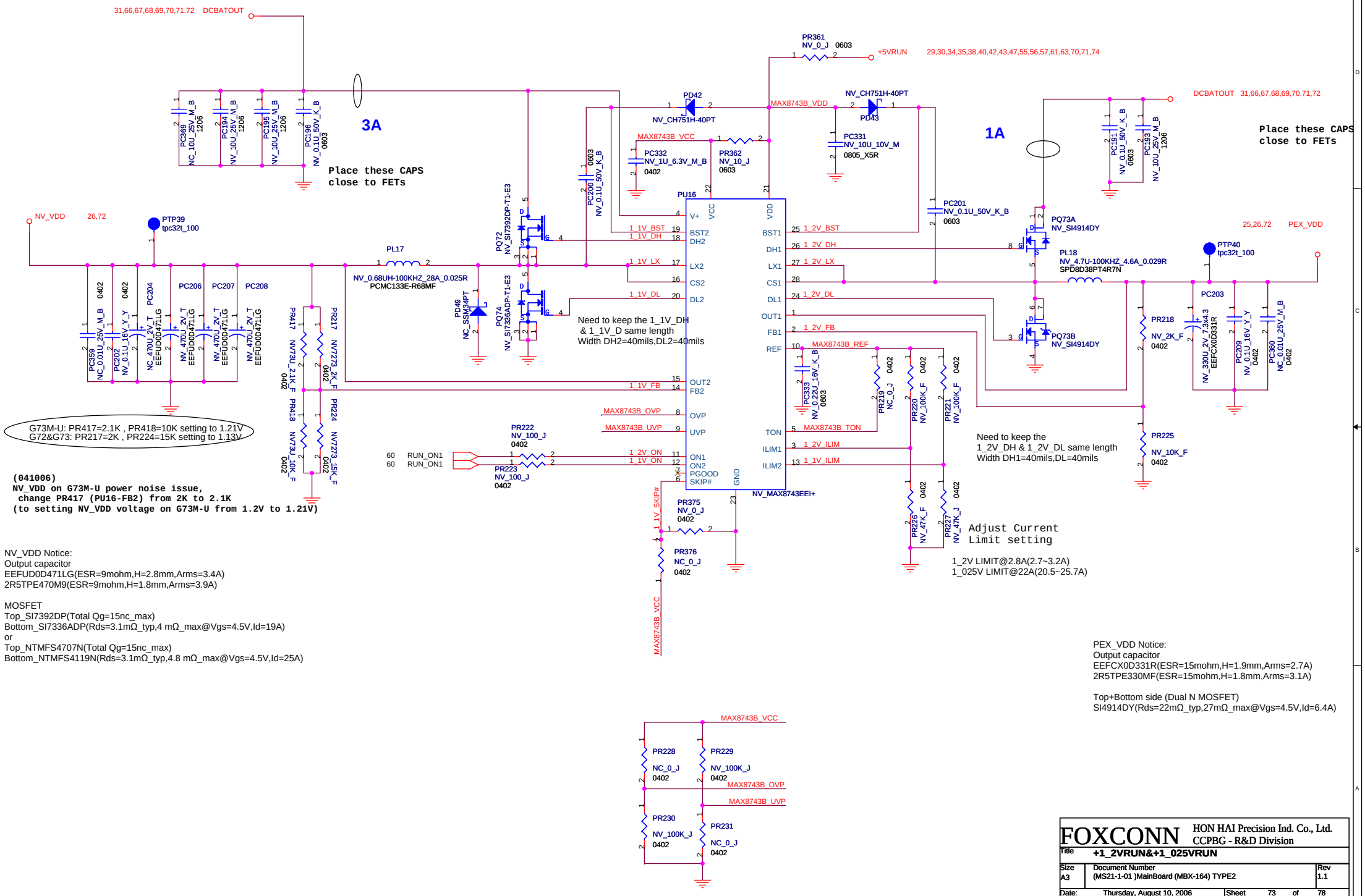

NV_VDD Notice:
Output capacitor
EEFUD0D471LG(ESR=9mohm,H=2.8mm,Arms=3.4A)
2R5TPE470M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

MOSFET
Top_SI7392DP(Total Qg=15nc_max)
Bottom_SI7336ADP(Rds=3.1mΩ_typ,4 mΩ_max@Vgs=4.5V,Id=19A)
or
Top_NTMFS4707N(Total Qg=15nc_max)
Bottom_NTMFS4119N(Rds=3.1mΩ_typ,4.8 mΩ_max@Vgs=4.5V,Id=25A)

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

Top+Bottom side (Dual N MOSFET)
SI4914DY(Rds=22mΩ_typ,27mΩ_max@Vgs=4.5V,Id=6.4A)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	+1_2VRUN&+1_025VRUN		
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2		Rev 1.1
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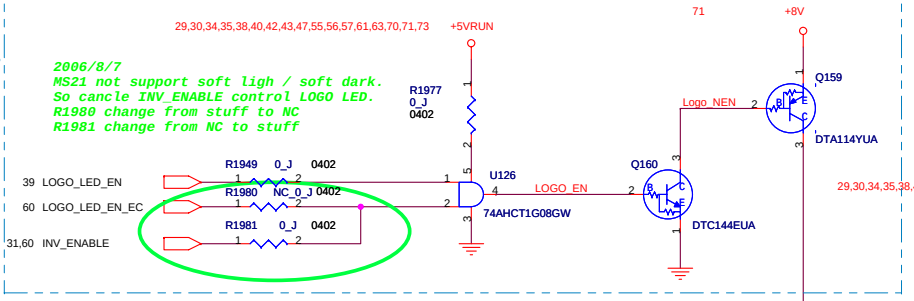
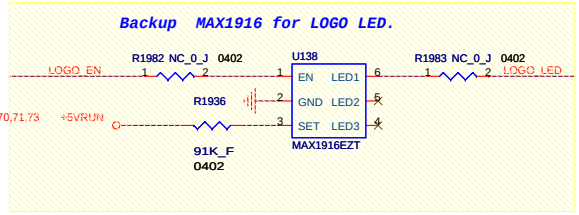
Constant-Current SONY LOGO LED

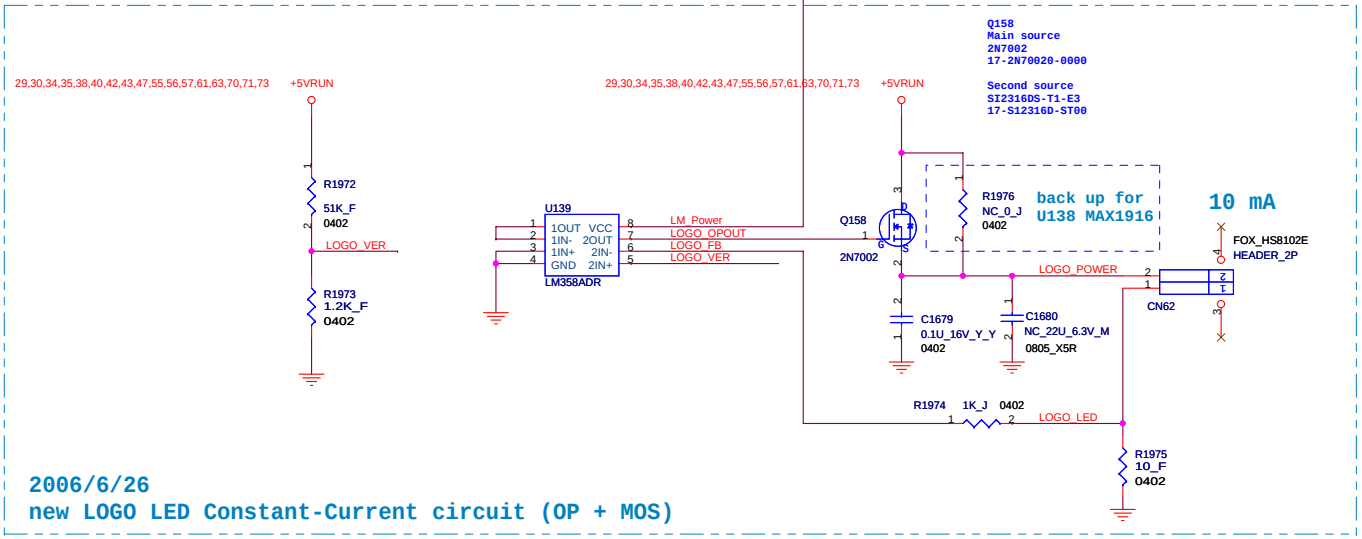
2006/6/26
Modify Constant-Current SONY LOGO LED circuit
A for U138 cost issue
1.Back up:U138(MAX1916EZT),R1936 (91K ohm,0402),R1982(0R,NC),R1983(0R,NC)
2.Remove back up solution U139(GMT,G5920TB1Uf),C1660(0.1u)
3.Add new Constant-Current circuit (OP + MOS)
51K ohm: R1972 ,
1.2K ohm: R1973 ,
1k ohm:R1974 ,
10 ohm: R1975
(NC)0 ohm: R1976(for back up U138 MAX1916)
0.1uF,16V: C1679
(NC)22uF,6.3V: C1680
OP LM358 ADR : U139
N-MOS 2N7002: Q158
N-MOS DTA114YUA:Q159
P-MOS DTC144EUA:Q160

B for EC control soft start/down (function up)issue
1.Del R1948(back up LOGO_LED_EN_EC to U126 pin1)
2.Serial (Back up) R1981 between INV_ENABLE to U126 pin2
3.Move net LOGO_LED_EN_EC from R1948 pin1 to R1980 pin1
4.Add R1977 between +5VRUN to U126 pin5(VCC)
5.Add R1980 between Logo_led_en_ec to U126 pin2

2006/6/26
EC & SB control soft start/down







2006/6/26
new LOGO LED Constant-Current circuit (OP + MOS)

2006/6/26
(1)remove TP835(GND Test Pad)
(2)add TP857(LOGO_POWER)

2006/6/26
(Del inverter boost circuit , after change ,the inverter circuit is the same with MS20 MP)
Detail location
10U_25V_M*9pcs(PC380,PC381,PC382,PC383,PC384,PC385,PC386,PC389,PC390),
0.01U_25V_K*1pcs(PC387),1U_25V_M*1pcs(PC388),0.22U_16V_M*1pcs(PC391),
220P_50V_K*1pcs(PC392),SKS30-04AT-G*1pcs(PD53),8UH-100KHZ_2.5A_0.07R*1pcs(PL22),
2N7002*2pcs(PQ9114,PQ116),FDS6680A*1pcs(PQ117),120K_F*1pcs(PR432),
0.03_F*1pcs(PR434)95.3K_F*1pcs(PR435),10K_F*1pcs(PR436),MAX668EUB+T*1pcs(PU22),

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Logo LED	
Size: Custom	Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev: 1.1
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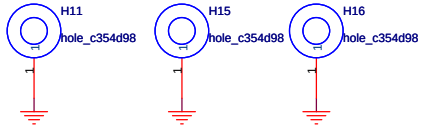
HOLE

Type 1



Type 2

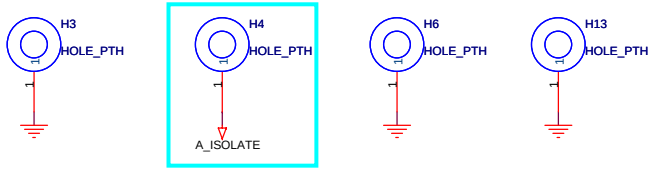
2005/10/24
Remove Screw Hole H2 P/N 1X-HOLE000-0108
beacuse the Hole overlay with CN32 and layout will
modify component screw shipe

Type 3

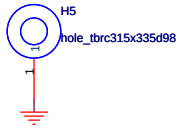
2005/10/24
Remove Screw Hole H1 P/N 1X-HOLE000-0110
beacuse the Hole overlay with CN32 and layout will
modify component screw shipe

2006/5/6
Separet analog ground for digital Noise issue:
Isolate screw hole H4 Change H4 net name from
A_GND to A_ISOLATE

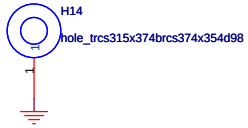
Type 4



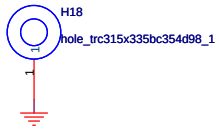
Type 5



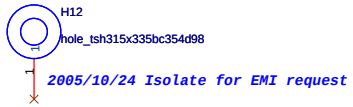
Type 6



Type 7

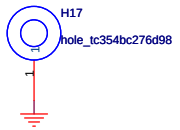


Type 8

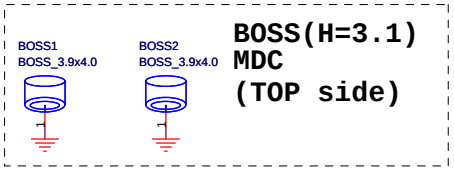


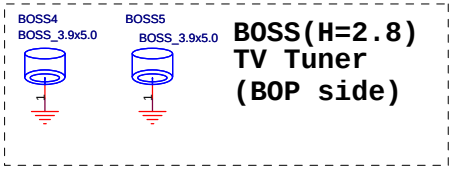
2005/10/24 Isolate for EMI request

Type 9



Type CPU

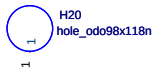




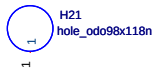
Type NPTH Guide (spherical)HOLD

close H1

Type NPTH Guide (oval-shaped)HOLD



close H6



close H17

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	HOLE & BOSS	
Size A3	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
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MS20 MP to MS21 DVT Change History

(2006/5/23)

(川) 01.(Page08) Remove R110 for PM_EXTTS#1 back up pull up res.ICH7 (DPRSLPVR)already have internal pull up
(川) 02.(Page14) Remove backup DIMM thermal senser Change R168 from stuff to NC(basis on MS20 MP ECR)
(川) 03.(Page15) Remove backup DIMM thermal senser Change R1627 from stuff to NC(basis on MS20 MP ECR)
(閻) 04.(Page34) US Silicon Image ATC test HDMI DDC capacitance fail(>50pF)change U128 no stuff Basis on MS20 MP ECR
add back up res.(R1962)no stuff for U128 VCC
(才) 05.(Page39) Delete U30,R1183,R649 (backup circuit)
(寶) 06.(Page42) For power droup cause 0.16V voltage loss Issue(1)F7,F8,F19,F20 no stuff(2)Co-layout GP17~GP20 with fuse
(葉) 07.(Page55) Separet analog ground for digital Noise issue
(1)Add bead (L152)before LDO chipand
(2)Change C873 from GND to A_GND
(3)Add C1675 on +5VRUN before L152
(葉) 08.(Page56) Shoei CAP will EOL. CAP24,CAP25(SP CAP) change to Stuff; CAP22,CAP23(Shoei CAP) change to No Stuff
(葉) 09.(Page56) PBSS2515F.115 will EOL ,Q77,Q78,Q143,Q144 change to PBSS2515E.115
(葉) 10.(Page56) Improve the voice of speaker up to 0.94W
(1)Add damping Resistors R1953 on SRIN,R1954 on AMP_SLIN then speaker amp output won't be distorted.
(2)Change R1932 from 6.8K to 5.6K, then amp gain change from 8dB to 10dB.
(葉) 11.(Page57) PBSS2515F.115 will EOL Q89,Q90,Q91,Q92 change to PBSS2515E.115
(葉) 12.(Page59) Improve SNR issue,Add 1uF capacitors close CN64 :C1671,C1672 on USB_VCC2,C1669 on +3VRUN_AUDIO_BD,
and C1670 on VDDA .
(葉) 13.(Page59) Separet analog ground for digital Noise issue:
(1)Remove GP3 (Close Jumper)not bridge between GND and A_GND
(2)Backup two jumper resistors for bridge between GND and A_GND
(C1388,C1966 on Screw hole H3,C1957,C1959 on screw hole H5)
(3)Isolate screw hole H4,add 100pF capacitors C1673,C1674 for EMI,Zener diode D100 for ESD
(4)Add jumper resistor for Return patch R1955 close L70(+5VAMP) & R1958 close U41(+5VRUN),& R1960 close codec
(才) 14.(Page39) Remove back up circuit LVDS GPIO on U29 pinU2(1)Add Test Pad TP890 on GPIO34(2)Del Q126
(寶) 15.(Page54) Remove back up F6 power source from +3VALW (Del)R1944,R1946
(青) 16.(Page67) Reserve PC64(10U_25V_M_B 1206) for 1210 size shortage. Change PR57 from 0805 size to 0603 size for 0603 size rated
current is also enough.
(青) 17.(Page70) Add PC375 (0.1uF) to avoid IMVP_OK signal 700mV pulse when power on. Change PC107/PC108 from 2.2U_16V_M to 2.2U_10V_M
for 2.2U_16V_M shortage.
(青) 18.(Page71) Change PC164/PC165 from 2.2U_16V_M to 2.2U_10V_M for 2.2U_16V_M shortage.
(青) 19.(Page71) Change PC368 from 2.2U_16V_M to 2.2U_10V_M for 2.2U_16V_M shortage. Change PU12 from LMC7225IM5X to NCS2202SN1T1G for
LMC7225IM5X shortage.
(才) 20.(Page60) Modify system ID setting. R725 from stuff change to NC,R726 from NC change to stuff
(閻) 21.(Page32) CN66,CN67 Change from MOLEX(1N-0010000-MWG0) to FOXCONN(1N-0010000-F0T0)
(寶) 22.(Page63) CN68 Change from MOLEX(1N-0010000-MWG0) to FOXCONN(1N-0010000-F0T0)
(葉) 23.(Page57) Add C1676 (4.7 uF/bupass cap) close A_ U99 pin8
(葉) 24.(Page58) Add C1677,C1678 (4.7 uF/bupass cap) close A_ U101,U102 pin8
(青) 25.(Page74) Add Inverter Boost Circuit

(2006/5/24)

(葉) 1.(Page55) According to MOR suggest Change Int MIC topology from single end to differential
(1) C1251 change from 33pF 0402 to 1uF 0603
(2) C1252 change from 12pF 0402 to 1uF 0603
(3) C1270 change from 0.1F 0402 to 1uF 0603
(4) Add R1967, R1968 100 ohm 0402
2.(Page57) According to MOR suggest Change Int MIC topology from single end to differential
(1) C1231 change from 4.7uF 0805 to 220pF 0402
(2) C1232 change from 1uF 0805 to 4.7uF 0805
(3) C1233 change from 4.7uF 0805 to NC_33pF 0402
(4) C1234 change from 100pF 0402 to NC_33pF 0402
(5) C1237 change from 100pF 0402 to 33pF 0402
(6) R1318 change from 10Kohm 0402 to 5.1Kohm 0402
(7) R1319 change from 1Kohm 0402 to 4.7Kohm 0402
(8) R1320 change from 33ohm 0402 to 100ohm 0402
(9) R1321 change from NC_0ohm 0402 to 4.7Kohm 0402
(10) R1325 change from 47Kohm 0402 to 4.7Kohm 0402
(11) R1326 change from 7.5Kohm 0402 to 2.2Kohm 0402
(12) R1327 change from 100ohm 0402 to 1Kohm 0402
(13) Add R1970, R1971 100 ohm 0402
(14) Add R1969 4.7 Kohm 0402
(15) R1236 change from 4.7u to 1u

(2006/5/26)

(葉) (1) C1230 change from 2200pF to 4700 pF by MOR request

MS21 DVT to MS21 PVT Change History

(2006/6/26)

(才) 01.(Page60) Solve Doi san concern EC's GPIO23 is CMOS out and if BTR drive it to GND it may damage the EC.
(1)Change R1762 from 0 to 1K ohm,
(2)Change net name R1762-2 from N18386242 to EC_GPIO23
(3)Change net name R690-1 from ALW_ON to EC_GPIO23

(閻) 02.(Page31) Del inverter boost circuit , after change ,the inverter circuit is the same with MS20 MP
(1)Delete PR426&PR427
(2)change C604-1,C1557-1,C1558-1,CN49 pin1,pin2 net name INVERTER_VCC to net DCBATOUT.

(寶) 03.(Page74) Del inverter boost circuit , after change ,the inverter circuit is the same with MS20 MP
Delete 10U_25V_M*9pcs(PC380,PC381,PC382,PC383,PC384,PC385,PC386,PC389,PC390),
0.01U_25V_K*1pcs (PC387),1U_25V_M*1pcs(PC388),0.22U_16V_M*1pcs(PC391),
220P_50V_K*1pcs(PC392),SKS30-04AT-G*1pcs(PD53),8UH-100KHZ_2.5A_0.07R*1pcs(PL22),
2N7002*2pcs(PQ114,PQ116),FDS6680A*1pcs(PQ117),120K_F*1pcs(PR432),
0.03_F*1pcs(PR434)95.3K_F*1pcs(PR435),10K_F*1pcs(PR436),MAX668EUB+T*1pcs(PU22),
100K_J*1pcs (PR428) 100K_J*1pcs (PR429)

(青) 04.(Page67)Change PR53&PR55 from 100_J to 0_J by Mor side suggestiong
Original PR53&PR55(100ohm) is used as current limit.But now we have added series 1K ohm,
(Page 60, change R1762 from 0 ohm to 1K ohm) So we need not 100ohm resistor for curret limit

(葉) 05.(Page56) Modify internal speaker AMP gain setting,change R1953/R1954 from 4.7K (AMP output 1.12W) to
5.1Kohm(AMP output0.98W) to fit in speaker (1.0W)spec.

(葉) 06.(Page57) Modify internal MIC AMP gain setting,change R1318 from 5.1K to 5.9K ohm, To lead TYPE2 board gain
(differential type MIC)the same with TYPE1 board single end MIC) (Gain=9.2)

(才) 07.(Page60) Modify Constant-Current SONY LOGO LED circuit for EC control soft start/down (function up)issue
(1).Del back up Test Pad TP864
(2).Add R1978 (0 ohm) link EC pin176 and INV_ENABLE

(寶) 08.(Page74) Modify Constant-Current SONY LOGO LED circuit
A.for U138 cost issue
1.Back up:U138(MAX1916EZT),R1936 (91K ohm,0402),R1982(0R,NC),R1983(0R,NC)
2.Remove back up solution U139(GMT,G5920TB1UF),C1660(0.1u)
3.Add new Constant-Current circuit (OP + MOS)
51K ohm: R1972 ,
1.2K ohm: R1973 ,
1k ohm:R1974 ,
10 ohm: R1975
(NC)0 ohm: R1976(for back up U138 MAX1916)
0.1uF,16V: C1679
(NC)22uF,6.3V: C1680
OP LM358 ADR : U139
N-MOS 2N7002: Q158
N-MOS DTA114YUA:Q159
P-MOS DTC144EUA:Q160

B.for EC control soft start/down (function up)issue
1.Del R1948(back up LOGO_LED_EN_EC to U126 pin1)
2.Serial (Back up) R1981 between INV_ENABLE to U126 pin2
3.Move net LOGO_LED_EN_EC from R1948 pin1 to R1980 pin1
4.Add R1977 between +5VRUN to U126 pin5(VCC)
5.Add R1980 between Logo_led_en_ec to U126 pin2

(寶) 09.(Page 42) Delete SATA HDD Fuse backup circuit
(1)Remove F7,F8,F19,F20 Pad
(2)Remove GP17~GP18 open gap

(才) 10. (Page 62) MOR fan circuit modify to backup
(NC)U118 (NC)R1893
(NC)R1624 (NC)C1473
(NC)R1894 (NC)R1895

MS21 PVT to MS21 MP Change History

(寶) 01.(Page74) MS21 not support soft ligh / soft dark. So cancle INV_ENABLE control LOGO LED.
R1980 change from stuff to NC
R1981 change from NC to stuff

(才) 02.(Page60) MS21 not support soft ligh / soft dark. So cancle INV_ENABLE control LOGO LED.
R1978 Change from stuff to NC

(葉) 03.(Page57) Change C1676 from stuff to NC for MOR suggestion Cost down request.

(青) 04.(Page66) At MS21 PCN1 used FOXCONN connector, Change PCN1 Vendor from molex to NWING

(良) 05.(Page29) Change D60,D61,D81 Value from NV to Normal

(良) 06.(Page20) Change Y2 Value from Normal to NV

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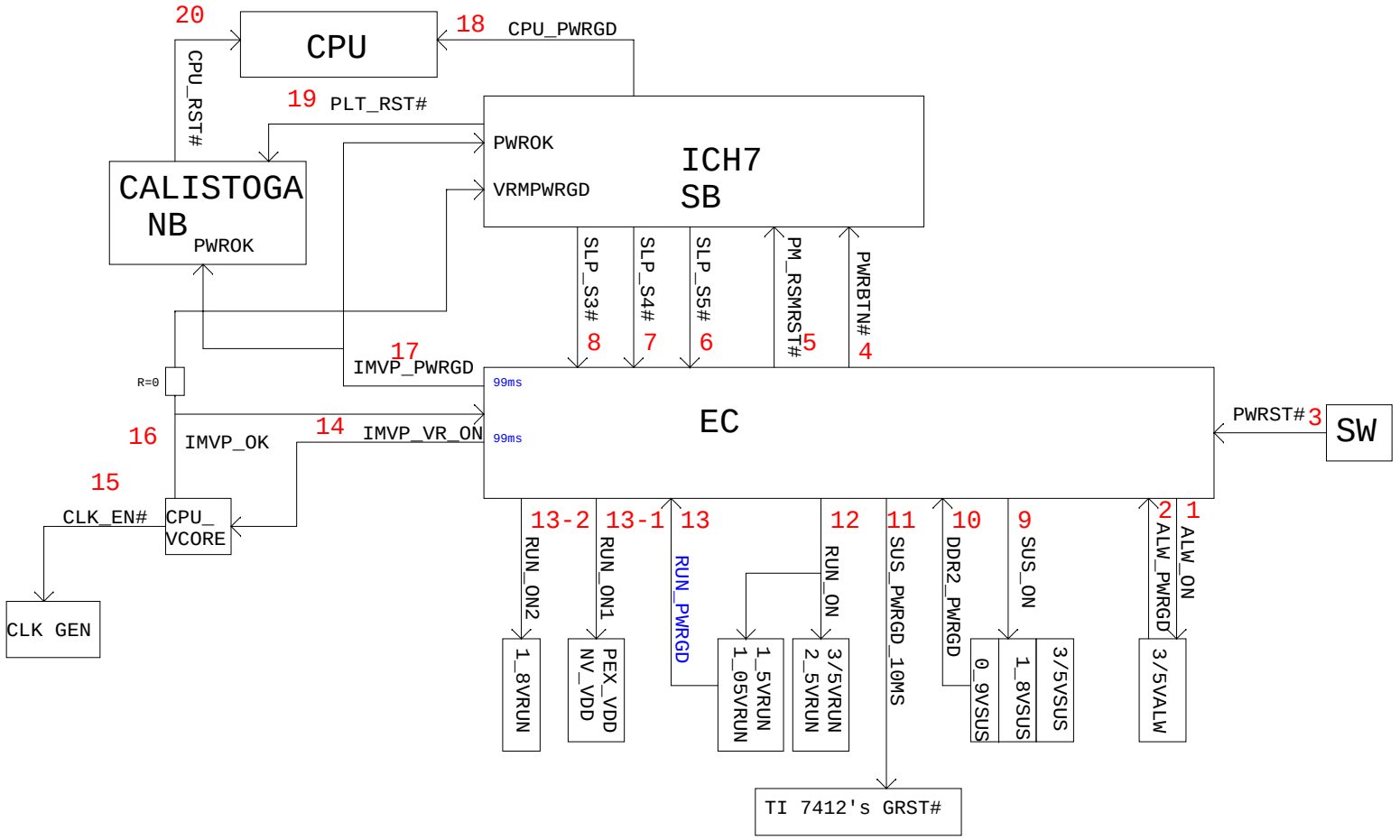
MS21 Power On Sequerce Block Diagram



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	MS21 Power On Sequerce Block Diagram	
Size C	Document Number (MS21-1-01)MainBoard (MBX-164) TYPE2	Rev 1.1
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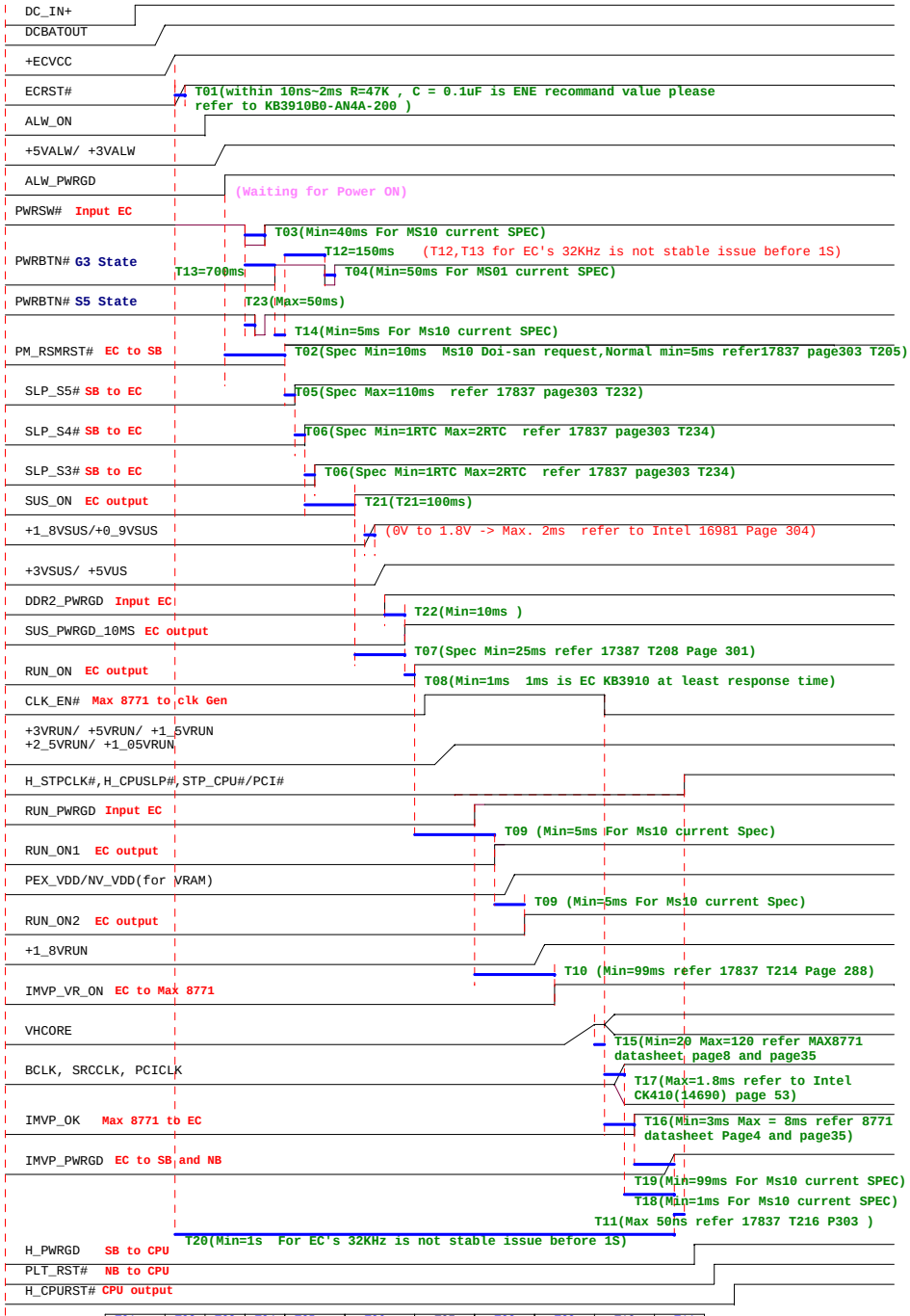
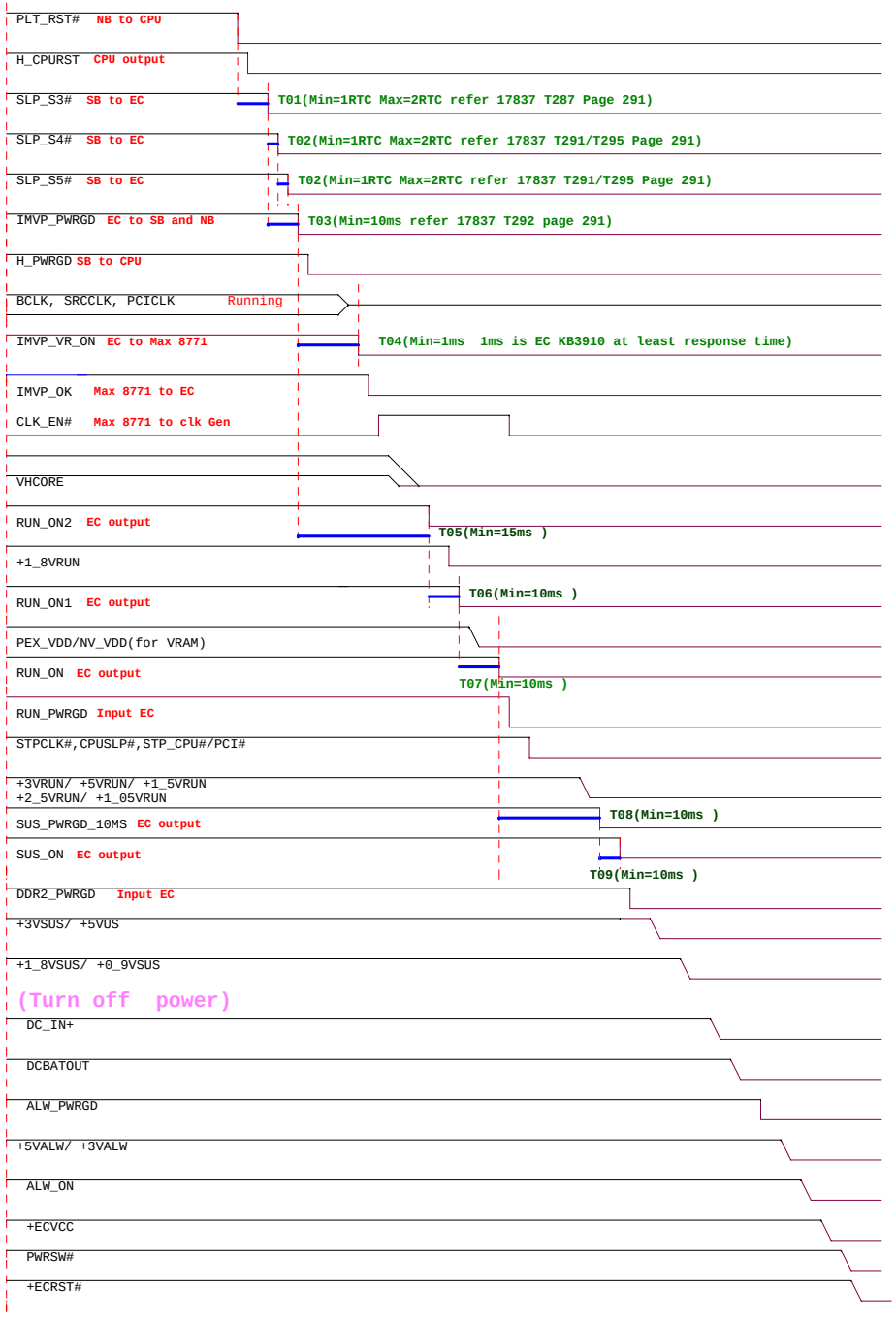
Power On/Off Sequence Specification



T01	T02	T03	T04	T05	T06	T07	T08	T09	T10	T11
within 10ns~2ms	Min. 10 ms	Min. 40ms	Min. 50ms	Max. 110ms	1 - 2 RTCCLK	Min. 25 ms	Min. 1ms	Min. 10ms	Min. 99ms	Max. 50ms

T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23
Min. 150ms	Min 700ms	Min 5ms	Min : 20us Max : 120us	Min : 3ms Max : 8ms	Max 1.8ms	Min 1ms	Min. 99ms	Min. 1s	100ms	Min. 10ms	Max 50ms



T01	T02	T03	T04	T05	T06	T07	T08	T09
1 - 2 RTCCLK	1 - 2 RTCCLK	Min. 10ms	Min. 1ms	Min. 15ms	Min. 10ms	Min. 10ms	Min. 10ms	Min. 10ms

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

Title: MS21 Power On Sequence Timing specification

Size: C | Document Number: (MS21-1-01)MainBoard (MBX-164) TYPE2 | Rev: 1.1

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