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P. Leader	Check by	Design by

Project Code & Schematics Subject: M610 PVT Main Board

PCB P/N: 黃田 1P-0072100-8010
翰宇博德 1P-0072500-8010

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CPBG - R&D Division

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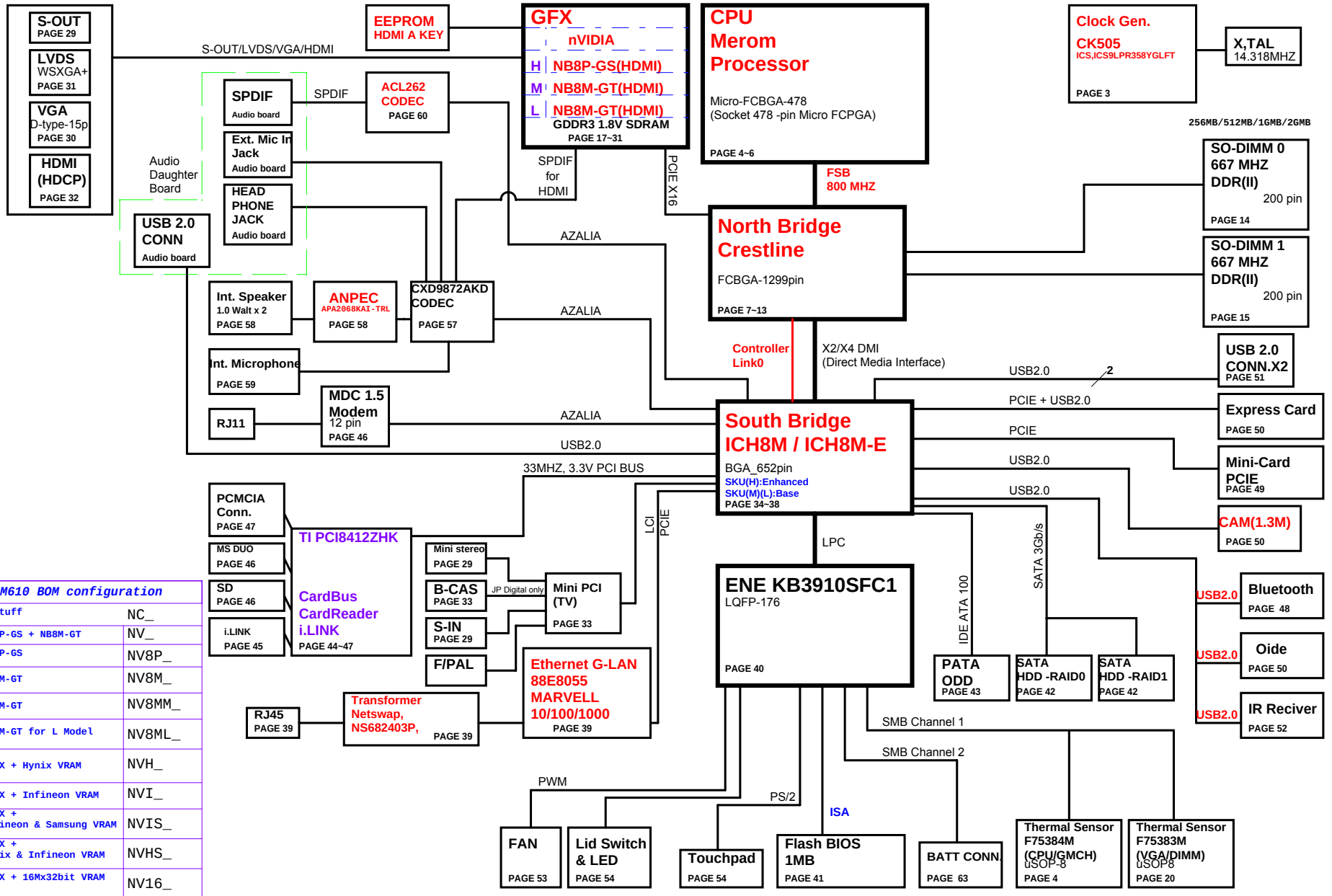
M610(Beagle Santa Rosa)Block Diagram

Red texts:
New modified



M610 BOM configuration	
unstuff	NC_
NB8P-GS + NB8M-GT	NV_
NB8P-GS	NV8P_
NB8M-GT	NV8M_
NB8M-GT	NV8MM_
NB8M-GT for L Model	NV8ML_
NB8X + Hynix VRAM	NVH_
NB8X + Infineon VRAM	NVI_
NB8X + Infineon & Samsung VRAM	NVIS_
NB8X + Hynix & Infineon VRAM	NVHS_
NB8X + 16Mx32bit VRAM	NV16_
NB8X + 8Mx32bit VRAM	NV8_
*JP Digital TV Tuner SKU unstuff	JDTVNC_
Mini PCI CONN,BT CONN, IR CONN,FeliCa CONN unstuff for L Model	LNC_

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Title: Block Diagram

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11/2 backup
for EMI request
close to R46

FSB Frequency Table:

FSLC	FSLB	FSLA	CPU	SRC[7:0]	PCI	FSB
1	0	1	100	100	33	/
0	0	1	133	100	33	/
0	1	1	166	100	33	667
0	1	0	200	100	33	800
0	0	0	266	100	33	/
1	0	0	333	100	33	/
1	1	0	400	100	33	/
1	1	1	(Reserced)			

If 9LP505, populate R47,R1023,C928,Q23 and depopulate R46.
Ig 9LP501, populate R46 and depopulate R47,R1023,C928,Q23.

Length as short as possible.

This dumping resistor and FB should be placed close to U18, update for MOR requirement on12/23.

pin7 setting 0=SRC8,1=ITP for pin 46,47

pin4 setting 0= Overclocking of CPU and SRC Allowed
1= Overclocking of CPU and SRC NOT allowed

pin6 setting 0= LCD_SST 100MHz differential clock.
for pin17,18 1= 27MHz non-spread SE clock,

close to terminal side (For EMI)

33 MHz Port	M610	MS90
PCI0 (pin1)	NC	NC
PCI1 (pin3)	NC	NC
PCI2 (pin4)	Debug card/EC(KBC)	Debug card
PCI3 (pin5)	PCI8402	PCI8402
PCI4 (pin6)	TV tuner	EC(KBC)
PCI5-F (pin7)	ICH8	ICH8

SM bus Address :
1101001 (ICH7)
For clock generator

Connect this pin via a 10 K series resistor to the FSC pin on the processor

Connect this pin via a 2.2 K series resistor to the FSA pin on the processor.

100 MHz Port	M610 setting configuration	*S/W Setting this pin type*	*S/W Setting CLKREQ for this pin*
SRC0 (pin13,14)	GFX PCIE_PEG	*(B2b0=0) for use SRC0*	
SRC1 (pin17,18)	(SRC0 /SRC1 only either one)		
SRC2 (pin21,22)	PCIE SATA		*CR#A (B5b7=1;B5b6=1)*
SRC3 (pin24,25)	PCIE ICH8	*(B4b7=1;B5b3=0,B5b1=0) for use SRC3*	
SRC4 (pin27,28)	PCIE MINI	*(B2b1=0) for use SRC4*	*CR#B (B5b5=1,B5b4=1)*
SRC6(pin40,41)	PCIE G-LAN		*CR#E (not control)*
SRC7(pin43,44)	NC	*(B3b3=1,B6b7=0,B6b6=0) for use SRC7(not control CR#E/F)*	
SRC8(pin46,47)	NC		*CR#F (not control)*
SRC9(pin30,31)	MCH 3GPLL		*CR#G (B6b5=1)*
SRC10(pin34,35)	PCIE EXPRESS		*CR#H (B6b4=1)*
SRC11(pin32,33)	CR#G(MCH)/CR#H(EXPRESS)	*(B3b7=0,B3b6=0 for use CLKREQ G,H)*	

Check List 1.301
*.CFG[2:0] do not have internal pullups or pull downs. Please refer to the latest Crestline EDS volume 1 for configuration options
*.1 k pull-up or pull-down or direct connect from processor.

MS90
only MCH_BSEL[0..2]pull down 1K

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	CLOCK GEN(CK505)		
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4		Rev 2.0
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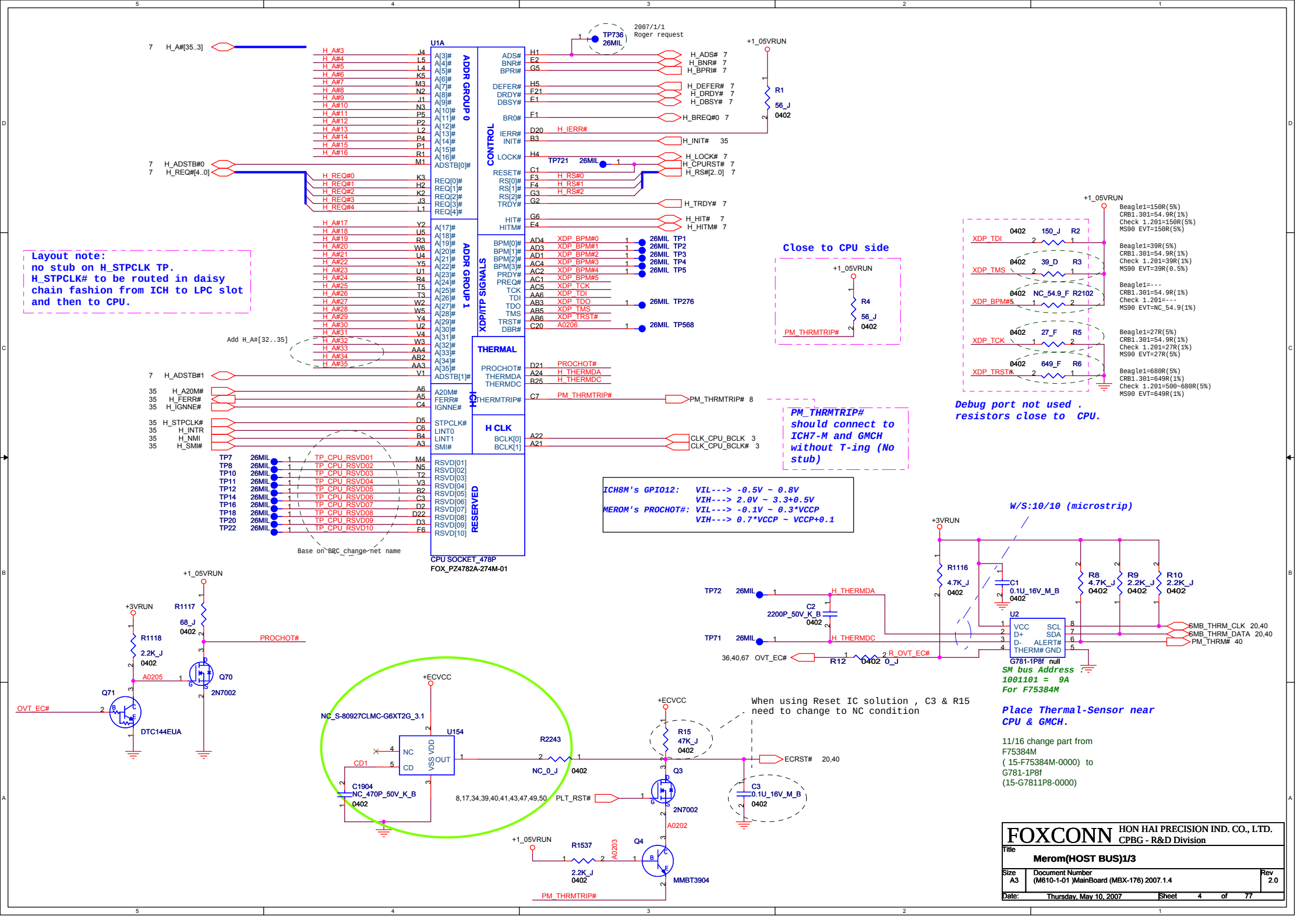
U1A
CPU SOCKET_478P
FOX_PZ4782A-274M-01
ADDR GROUP 0
ADDR GROUP 1
CONTROL
XDP/ITP SIGNALS
THERMAL
H CLK
RESERVED
Layout note:
no stub on H_STPCLK TP.
H_STPCLK# to be routed in daisy chain fashion from ICH to LPC slot and then to CPU.
Close to CPU side
PM_THRMTRIP should connect to ICH7-M and GMCH without T-ing (No stub)
ICH8M's GPIO12: VIL---> -0.5V ~ 0.8V
VIH---> 2.0V ~ 3.3+0.5V
MEROM's PROCHOT#: VIL---> -0.1V ~ 0.3*VCCP
VIH---> 0.7*VCCP ~ VCCP+0.1
Debug port not used . resistors close to CPU.
W/S:10/10 (microstrip)
SM bus Address :
1001101 = 9A
For F75384M
Place Thermal-Sensor near CPU & GMCH.
When using Reset IC solution , C3 & R15 need to change to NC condition
11/16 change part from F75384M
(15-F75384M-0000) to G781-1P8f
(15-G7811P8-0000)
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Merom(HOST BUS)1/3
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
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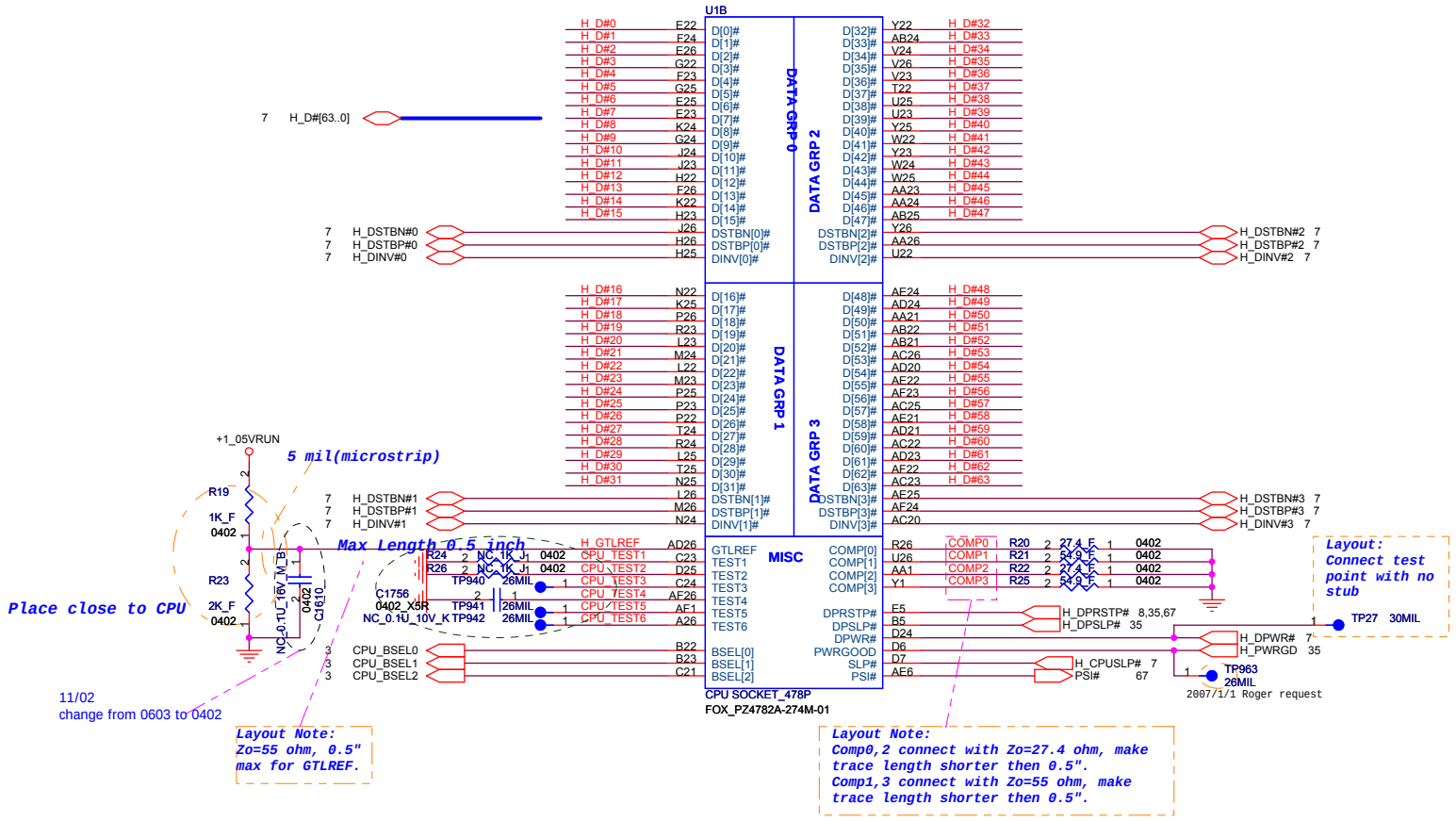

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	Merom(HOST BUS)2/3	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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CPU_VCCA---->130mA
CPU_VCCP----->4.5A
CPU_VCC------>44A

VHCORE

C4 C5 C6 C7 C8
C9 C10 C11 C12 C13
C14 C15 C16 C17 C18
C19 C20 C21 C22 C23
22U_6.3V_M_B 0805

C1642 C1643 C1644 C1645
C1646 C1647 C1648 C1649
C1650 C1651 C1652 C1653
NC_10U_6.3V_M 0805_X5R

Backup 10uF capacitors for 22uF shortage.

C1271 C1272 C1273
NC_0.1U_16V_M_B 0402

C1278 C1279 C1280
1000P_50V_K_B 0402

U1C
CPU SOCKET_478P
FOX_PZ4782A-274M-01

VCC[001]-VCC[068]-AB20
VCC[002]-VCC[069]-AB7
VCC[003]-VCC[070]-AC7
VCC[004]-VCC[071]-AC9
VCC[005]-VCC[072]-AC12
VCC[006]-VCC[073]-AC13
VCC[007]-VCC[074]-AC15
VCC[008]-VCC[075]-AC17
VCC[009]-VCC[076]-AC18
VCC[010]-VCC[077]-AD7
VCC[011]-VCC[078]-AD9
VCC[012]-VCC[079]-AD10
VCC[013]-VCC[080]-AD12
VCC[014]-VCC[081]-AD14
VCC[015]-VCC[082]-AD15
VCC[016]-VCC[083]-AD17
VCC[017]-VCC[084]-AD18
VCC[018]-VCC[085]-AE9
VCC[019]-VCC[086]-AE10
VCC[020]-VCC[087]-AE12
VCC[021]-VCC[088]-AE13
VCC[022]-VCC[089]-AE15
VCC[023]-VCC[090]-AE17
VCC[024]-VCC[091]-AE18
VCC[025]-VCC[092]-AE20
VCC[026]-VCC[093]-AE9
VCC[027]-VCC[094]-AE10
VCC[028]-VCC[095]-AE12
VCC[029]-VCC[096]-AE14
VCC[030]-VCC[097]-AE15
VCC[031]-VCC[098]-AE17
VCC[032]-VCC[099]-AE18
VCC[033]-VCC[100]-AF20
VCC[034]
VCC[035]-VCCP[01]-G21
VCC[036]-VCCP[02]-V6
VCC[037]-VCCP[03]-J6
VCC[038]-VCCP[04]-K6
VCC[039]-VCCP[05]-M6
VCC[040]-VCCP[06]-J21
VCC[041]-VCCP[07]-K21
VCC[042]-VCCP[08]-M21
VCC[043]-VCCP[09]-N21
VCC[044]-VCCP[10]-N6
VCC[045]-VCCP[11]-R21
VCC[046]-VCCP[12]-R6
VCC[047]-VCCP[13]-T21
VCC[048]-VCCP[14]-T6
VCC[049]-VCCP[15]-V21
VCC[050]-VCCP[16]-W21
VCC[051]
VCC[052]-VCCA[01]-B26
VCC[053]-VCCA[02]-C26
VCC[054]
VCC[055]
VCC[056]-VID[0]-AD6
VCC[057]-VID[1]-AF5
VCC[058]-VID[2]-AE5
VCC[059]-VID[3]-AF4
VCC[060]-VID[4]-AE3
VCC[061]-VID[5]-AF3
VCC[062]-VID[6]-AE2
VCC[063]
VCC[064]-VCCSENSE-AF7
VCC[065]
VCC[066]
VCC[067]-VSSSENSE-AE7

Beagle1=10U
CRB1.301=NO
check 1.201=NO
MS90 EVT=NO

C1554 NC_10U_6.3V_M 0805_X5R
C24 C25 C26 C27 C28 C29 0.1U_25V_M_B 0603
CAP26 EEFSX0D331ER 330U_2V_T

+1_05VRUN
100 mil
CAP7 move from page11
fix PAD location,but change
CAP val from NC_47U to 330U

+1_5VRUN
20 mil
R28 0_J 0402
+1_5VRUN_A_CPU
C35 10U_6.3V_M 0805_X5R
C36 0.01U_25V_M_B 0402

LAYOUT NOTE:
Place 0.01uF
near PIN B26

H_VID0 R29 H_VID1 R30 H_VID2 R31 H_VID3 R32 H_VID4 R33 H_VID5 R35 H_VID6 R36 0402
VID0 VID1 VID2 VID3 VID4 VID5 VID6 67

R34 100_F 0402
R37 100_F 0402

VCCSENSE 67
VSSSENSE 67

Same Length

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

width=18 mil
spacing=7 mil

(Design check 1.301) 2006.9.3
No Stuff 27.4 ± 1% pull-down to GND
near Intel MVP 6 controller for testing purposes.

MS90 check

U1D
CPU SOCKET_478P
FOX_PZ4782A-274M-01

A4 A8 A11 A14 A16 A19 A23 AF2 B6 B8 B11 B13 B16 B19 B21 B24 C5 C8 C11 C14 C16 C19 C2 C22 C25 D1 D4 D8 D11 D13 D16 D19 D23 D26 E3 E6 E8 E11 E14 E16 E19 E21 E24 F5 F8 F11 F13 F16 F19 F2 F22 F25 G4 G1 G23 G26 H3 H6 H21 H24 J2 J5 J22 J25 K1 K4 K23 K26 L3 L6 L21 L24 M2 M5 M22 M25 N1 N4 N23 N26 P3
VSS[001]-VSS[082]-P6
VSS[002]-VSS[083]-P21
VSS[003]-VSS[084]-P24
VSS[004]-VSS[085]-R2
VSS[005]-VSS[086]-R5
VSS[006]-VSS[087]-R22
VSS[007]-VSS[088]-R25
VSS[008]-VSS[089]-T1
VSS[009]-VSS[090]-T4
VSS[010]-VSS[091]-T23
VSS[011]-VSS[092]-T26
VSS[012]-VSS[093]-U3
VSS[013]-VSS[094]-U6
VSS[014]-VSS[095]-U21
VSS[015]-VSS[096]-U24
VSS[016]-VSS[097]-V2
VSS[017]-VSS[098]-V5
VSS[018]-VSS[099]-V22
VSS[019]-VSS[100]-V25
VSS[020]-VSS[101]-W1
VSS[021]-VSS[102]-W4
VSS[022]-VSS[103]-W23
VSS[023]-VSS[104]-W26
VSS[024]-VSS[105]-Y3
VSS[025]-VSS[106]-Y6
VSS[026]-VSS[107]-Y21
VSS[027]-VSS[108]-Y24
VSS[028]-VSS[109]-AA2
VSS[029]-VSS[110]-AA5
VSS[030]-VSS[111]-AA8
VSS[031]-VSS[112]-AA11
VSS[032]-VSS[113]-AA14
VSS[033]-VSS[114]-AA16
VSS[034]-VSS[115]-AA19
VSS[035]-VSS[116]-AA22
VSS[036]-VSS[117]-AA25
VSS[037]-VSS[118]-AB1
VSS[038]-VSS[119]-AB4
VSS[039]-VSS[120]-AB8
VSS[040]-VSS[121]-AB11
VSS[041]-VSS[122]-AB13
VSS[042]-VSS[123]-AB16
VSS[043]-VSS[124]-AB19
VSS[044]-VSS[125]-AB23
VSS[045]-VSS[126]-AB26
VSS[046]-VSS[127]-AC3
VSS[047]-VSS[128]-AC6
VSS[048]-VSS[129]-AC8
VSS[049]-VSS[130]-AC11
VSS[050]-VSS[131]-AC14
VSS[051]-VSS[132]-AC16
VSS[052]-VSS[133]-AC19
VSS[053]-VSS[134]-AC21
VSS[054]-VSS[135]-AC24
VSS[055]-VSS[136]-AD2
VSS[056]-VSS[137]-AD5
VSS[057]-VSS[138]-AD8
VSS[058]-VSS[139]-AD11
VSS[059]-VSS[140]-AD13
VSS[060]-VSS[141]-AD16
VSS[061]-VSS[142]-AD19
VSS[062]-VSS[143]-AD22
VSS[063]-VSS[144]-AD25
VSS[064]-VSS[145]-AE1
VSS[065]-VSS[146]-AE4
VSS[066]-VSS[147]-AE8
VSS[067]-VSS[148]-AE11
VSS[068]-VSS[149]-AE14
VSS[069]-VSS[150]-AE16
VSS[070]-VSS[151]-AE19
VSS[071]-VSS[152]-AE23
VSS[072]-VSS[153]-AE26
VSS[073]-VSS[154]-A2
VSS[074]-VSS[155]-AF6
VSS[075]-VSS[156]-AF8
VSS[076]-VSS[157]-AF11
VSS[077]-VSS[158]-AF13
VSS[078]-VSS[159]-AF16
VSS[079]-VSS[160]-AF19
VSS[080]-VSS[161]-AF21
VSS[081]-VSS[162]-A25
VSS[163]-AF25

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Title: Merom(POWER/GND)

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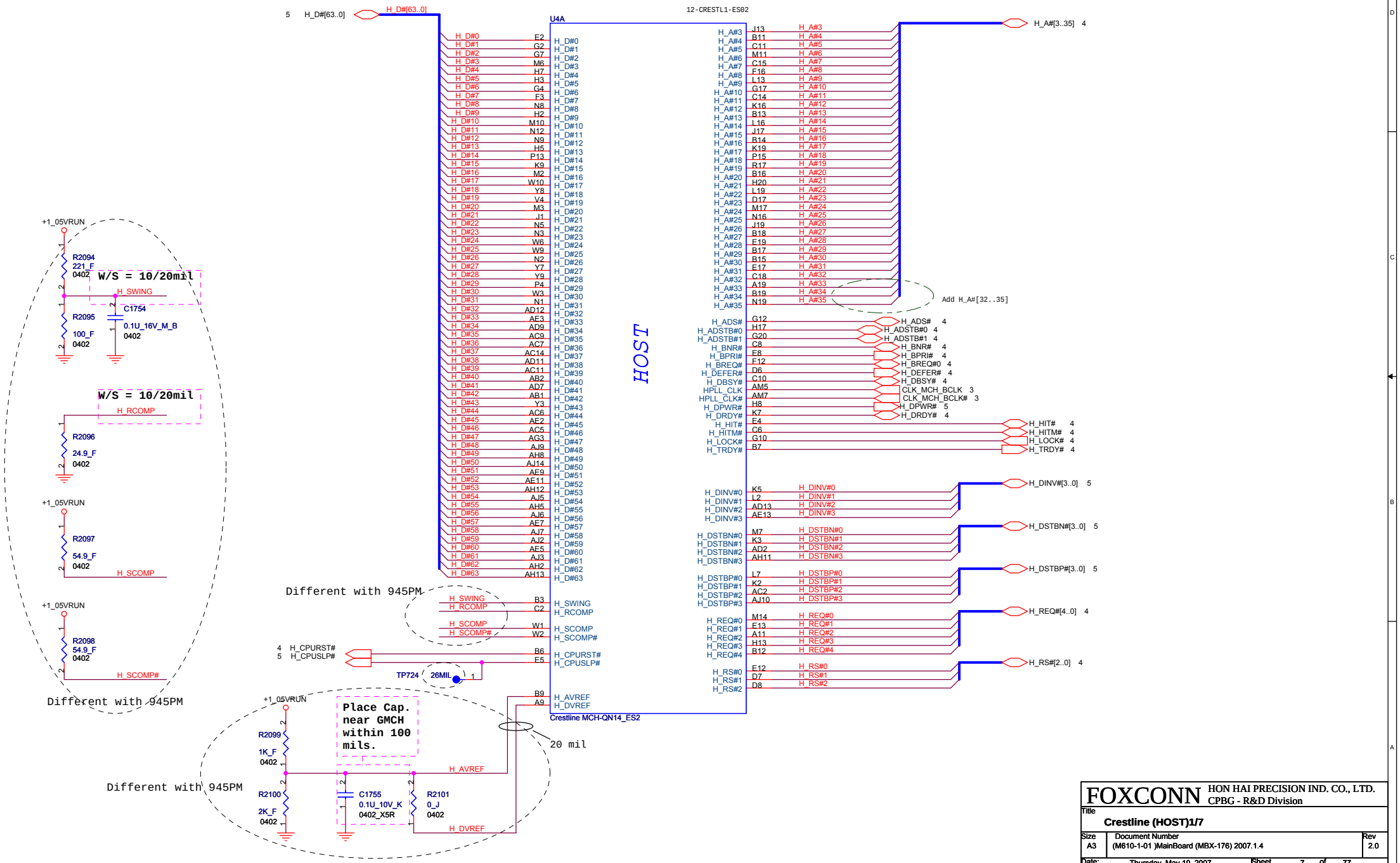

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	Crestline (HOST)1/7		
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4		Rev 2.0
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U4B

RSVD
RSVD1
RSVD2
RSVD3
RSVD4
RSVD5
RSVD6
RSVD7
RSVD8
RSVD9
RSVD10
RSVD11
RSVD12
RSVD13
RSVD14
RSVD20
RSVD21
RSVD22
RSVD23
RSVD24
RSVD25
RSVD26
RSVD27
RSVD28
RSVD29
RSVD30
RSVD31
SA_MA14
SB_MA14
RSVD34
RSVD35
RSVD36
LVDSA_DATA#3
LVDSA_DATA3
RSVD39
RSVD40
RSVD41
RSVD42
RSVD43
RSVD44
RSVD45

DDR MUXING
SM_CK0 AV29 → M_CLK_DDR0 14
SM_CK1 BB23 → M_CLK_DDR1 14
SM_CK3 BA25 → M_CLK_DDR2 15
SM_CK4 AV23 → M_CLK_DDR3 15
SM_CK#0 AW30 → M_CLK_DDR#0 14
SM_CK#1 BA23 → M_CLK_DDR#1 14
SM_CK#3 AW25 → M_CLK_DDR#2 15
SM_CK#4 AW23 → M_CLK_DDR#3 15
SM_CKE0 BE29 → M_CKE0 14,16
SM_CKE1 AY32 → M_CKE1 14,16
SM_CKE3 BD39 → M_CKE2 15,16
SM_CKE4 BG37 → M_CKE3 15,16
SM_CS#0 BG20 → M_CS#0 14,16
SM_CS#1 BK16 → M_CS#1 14,16
SM_CS#2 BG16 → M_CS#2 15,16
SM_CS#3 BE13 → M_CS#3 15,16
SM_ODT0 BH18 → M_ODT0 14,16
SM_ODT1 BJ15 → M_ODT1 14,16
SM_ODT2 BJ14 → M_ODT2 15,16
SM_ODT3 BE16 → M_ODT3 15,16
SM_RCOMP BL15 → SM_RCOMP R2076 1 20_F 2 0402 +1_8VSUS
SM_RCOMP# BK14 → SM_RCOMP# R2077 1 20_F 2 0402
SM_RCOMP_VOH BK31 → SM_RCOMP_VOH
SM_RCOMP_VOL BL31 → SM_RCOMP_VOL
SM_VREF0 AR49 → SMDDR_VREF
SM_VREF1 AW4

CLK
DPLL_REF_CLK B42 → DREFCLK
DPLL_REF_CLK# C42 → DREFCLK#
DPLL_REF_SSCLK H48 → DREFSSCLK
DPLL_REF_SSCLK# H47 → DREFSSCLK#
PEG_CLK K44 → CLK_MCH_3GPLL 3
PEG_CLK# K45 → CLK_MCH_3GPLL# 3

DMI
DMI_RXN0 AN47 → DMI_TXN0
DMI_RXN1 AJ38 → DMI_TXN1
DMI_RXN2 AN42 → DMI_TXN2
DMI_RXN3 AN46 → DMI_TXN3
DMI_TXN[3:0] 34
DMI_RXP0 AM47 → DMI_TXP0
DMI_RXP1 AJ39 → DMI_TXP1
DMI_RXP2 AN41 → DMI_TXP2
DMI_RXP3 AN45 → DMI_TXP3
DMI_TXP[3:0] 34
DMI_TXN0 AJ46 → DMI_RXN0
DMI_TXN1 AJ41 → DMI_RXN1
DMI_TXN2 AM40 → DMI_RXN2
DMI_TXN3 AM44 → DMI_RXN3
DMI_RXN[3:0] 34
DMI_TXP0 AJ47 → DMI_RXP0
DMI_TXP1 AJ42 → DMI_RXP1
DMI_TXP2 AM39 → DMI_RXP2
DMI_TXP3 AM43 → DMI_RXP3
DMI_RXP[3:0] 34

CFG
CFG0
CFG1
CFG2
CFG3
CFG4
CFG5
CFG6
CFG7
CFG8
CFG9
CFG10
CFG11
CFG12
CFG13
CFG14
CFG15
CFG16
CFG17
CFG18
CFG19
CFG20
CFG[17:3] internal pull-up
CFG[20:18] internal pull-down

GRAPHICS VID
GFX_VID0 E35 → DFGT_VID_0 1 26MIL TP971
GFX_VID1 A39 → DFGT_VID_1 1 26MIL TP972
GFX_VID2 C38 → DFGT_VID_2 1 26MIL TP973
GFX_VID3 B39 → DFGT_VID_3 1 26MIL TP974
GFX_VR_EN E36 → DFGT_VR_EN 1 26MIL TP975

PM
PM_BM_BUSY#
PM_DPRSTP#
PM_EXT_TS#0
PM_EXT_TS#1
PWROK
RSTIN#
THERMTRIP#
DPRSLPVR

ME
CL_CLK AM49 → CL_CLK0 36
CL_DATA AK50 → CL_DATA0 36
CL_PWROK AT43 → MPWROK 36
CL_RST# AN49 → CL_RST#0 36
CL_VREF AM50 → MCH_CLVREF

MISC
SDVO_CTRL_CLK H35 → SDVO_CTRLCLK R2089 NV_0_J 1 2 0402
SDVO_CTRL_DATA K36 → SDVO_CTRLDATA R2090 NV_0_J 1 2 0402
CLKREQ# G39 → MCH_CLK_REQ#
ICH_SYNC# G40 → MCH_ICH_SYNC# 36
MCH_CLK_REQ# 1 26MIL TP937
TEST1 A37 → MCH_TEST_1
TEST2 R32 → MCH_TEST_2
R2092 20K_J 0402
R2093 0_J 0402

NC
NC1
NC2
NC3
NC4
NC5
NC6
NC7
NC8
NC9
NC10
NC11
NC12
NC13
NC14
NC15
NC16

Crestline MCH-QN14_ES2

TP881 26MIL 1 MCH_RSVD_1 P36
TP882 26MIL 1 MCH_RSVD_2 P37
TP883 26MIL 1 MCH_RSVD_3 R35
TP884 26MIL 1 MCH_RSVD_4 N35
TP885 26MIL 1 MCH_RSVD_5 AR12
TP902 26MIL 1 MCH_RSVD_6 AR13
TP886 26MIL 1 MCH_RSVD_7 AM12
TP887 26MIL 1 MCH_RSVD_8 AN13
TP888 26MIL 1 MCH_RSVD_9 J12
TP889 26MIL 1 MCH_RSVD_10 AR37
TP890 26MIL 1 MCH_RSVD_11 AM36
TP891 26MIL 1 MCH_RSVD_12 AL36
TP892 26MIL 1 MCH_RSVD_13 AM37
TP893 26MIL 1 MCH_RSVD_14 D20

TP894 26MIL 1 MCH_RSVD_20 H10
TP895 26MIL 1 MCH_RSVD_21 B51
TP896 26MIL 1 MCH_RSVD_22 BJ20
TP897 26MIL 1 MCH_RSVD_23 BK22
TP898 26MIL 1 MCH_RSVD_24 BF19
TP899 26MIL 1 MCH_RSVD_25 BH20
TP900 26MIL 1 MCH_RSVD_26 BK18
TP901 26MIL 1 MCH_RSVD_27 BJ18
TP903 26MIL 1 MCH_RSVD_28 BF23
TP904 26MIL 1 MCH_RSVD_29 BG23
TP905 26MIL 1 MCH_RSVD_30 BC23
TP906 26MIL 1 MCH_RSVD_31 BD24

DDR SYSTEM MEM MS90 /CRB
14,16 M_A_A14 → SA_A14 BJ29
15,16 M_B_A14 → SB_A14 BE24
TP907 26MIL 1 MCH_RSVD_34 BH39
TP908 26MIL 1 MCH_RSVD_35 AW20
TP909 26MIL 1 MCH_RSVD_36 BK20

LVDS MS90 /CRB
TP976 26MIL 1 GM_ODD_RXIN3- C48
TP977 26MIL 1 GM_ODD_RXIN3+ D47
TP910 26MIL 1 MCH_RSVD_39 B44
TP911 26MIL 1 MCH_RSVD_40 C44
TP912 26MIL 1 MCH_RSVD_41 A35
TP913 26MIL 1 MCH_RSVD_42 B37
TP914 26MIL 1 MCH_RSVD_43 B36
TP915 26MIL 1 MCH_RSVD_44 B34
TP916 26MIL 1 MCH_RSVD_45 C34

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

For layout convenience

CFG[2:0]
010 = FSB 800 MHz
011 = FSB 667 MHz

3 MCH_BSEL0 → P27
3 MCH_BSEL1 → N27
3 MCH_BSEL2 → N24

TP978 26MIL 1 MCH_CFG_3 C21
TP979 26MIL 1 MCH_CFG_4 C23
TP980 26MIL 1 MCH_CFG_5 F23
TP981 26MIL 1 MCH_CFG_6 N23
TP982 26MIL 1 MCH_CFG_7 G23
TP983 26MIL 1 MCH_CFG_8 J20
TP984 26MIL 1 MCH_CFG_9 C20
TP985 26MIL 1 MCH_CFG_10 R24
TP986 26MIL 1 MCH_CFG_11 L23
TP987 26MIL 1 MCH_CFG_12 J23
TP988 26MIL 1 MCH_CFG_13 E23
TP989 26MIL 1 MCH_CFG_14 E20
TP990 26MIL 1 MCH_CFG_15 K23
TP991 26MIL 1 MCH_CFG_16 M20
TP992 26MIL 1 MCH_CFG_17 M24
TP993 26MIL 1 MCH_CFG_18 L32
TP994 26MIL 1 MCH_CFG_19 N33
TP995 26MIL 1 MCH_CFG_20 L35

Wait to confirm with Page 13 / CRB

36 PM_BMBUSY# → G41
5,35,67 H_DPRSTP# → L39
14 PM_EXTTS#0 → L36
15 PM_EXTTS#1 → J36
36,40 LMVP_PWRGD → AW49
4,17,34,39,40,41,43,47,49,50 PLT_RST# → R109 1 100_J 0402 PLTRST#_R → AV20
4 PM_THRMTRIP# → PM_THRMTRIP# N20
36,67 DPRSLPVR → G36

Design check 1.201
DDR2 Connect to PM_EXT_TS#0/1 pins of GMCH, pull up with 10K to Vcc3_3

+3VRUN
R2088 10K_J 0402 PM_EXTTS#1
R2091 10K_J 0402 PM_EXTTS#0
20,40 DDR_ALERT# → R1143 1 0_J 2 PM_EXTTS#0 0402

Form (U8)thermal sanser & (EC)

TP923 26MIL 1 MCH_NC1 BJ51
TP924 26MIL 1 MCH_NC2 BK51
TP925 26MIL 1 MCH_NC3 BK50
TP926 26MIL 1 MCH_NC4 BL50
TP927 26MIL 1 MCH_NC5 BL49
TP928 26MIL 1 MCH_NC6 BL3
TP929 26MIL 1 MCH_NC7 BL2
TP930 26MIL 1 MCH_NC8 BK1
TP931 26MIL 1 MCH_NC9 BJ1
TP932 26MIL 1 MCH_NC10 E1
TP933 26MIL 1 MCH_NC11 A5
TP934 26MIL 1 MCH_NC12 C51
TP935 26MIL 1 MCH_NC13 B50
TP936 26MIL 1 MCH_NC14 A50
TP938 26MIL 1 MCH_NC15 A49
TP939 26MIL 1 MCH_NC16 BK2

+1_8VSUS
R2073 1K_F 0402 (waiting change 0.1%)
R2074 3.01K_F 0402
SM_RCOMP_VOH
C1745 0.01U_16V_K_B 0402
C1746 2.2U_10V_Y 0603_Y5V
R2075 1K_F 0402 (waiting change 0.1%)
SM_RCOMP_VOL
C1747 0.01U_16V_K_B 0402
C1748 2.2U_10V_Y 0603_Y5V

Note:If the voltage regulator for the system memory interface already supplies a VREF output and meets the voltage tolerance and current requirements for these pins, then a voltage divider would not be needed.

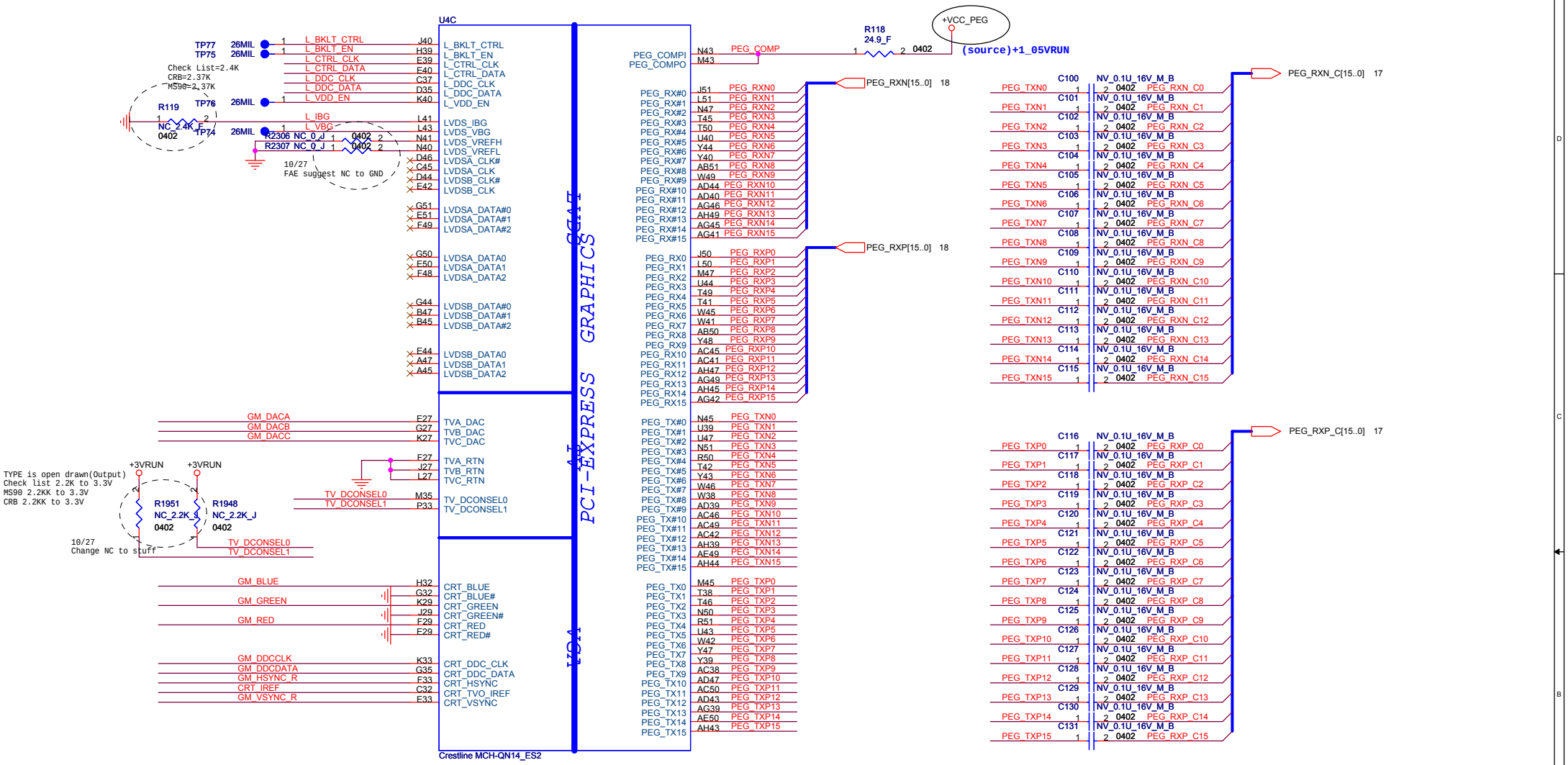
DDRDIMM_VREF
R2079 0_J 0402
SMDDR_VREF
C1751 0.1U_16V_M_B 0402
C1752 0.1U_16V_M_B 0402

External Graphics (GMCH CRT/TVOUT Disable)

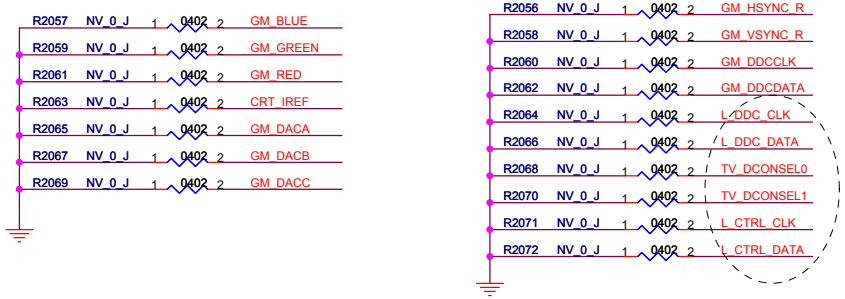
R2082 NV_0_J 1 0402 2 DREFCLK
R2083 NV_0_J 1 0402 2 DREFCLK#
R2084 NV_0_J 1 0402 2 DREFSSCLK
R2085 NV_0_J 1 0402 2 DREFSSCLK#

+1_25VRUN
R2086 1K_F 0402
C1753 0.1U_10V_K 0402_X5R
R2087 392_F 0402

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	Crestline (DMI)2/7
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 Rev 2.0
Date: Thursday, May 10, 2007	Sheet 8 of 77



External Graphics (GMCH CRT/TVOUT Disable)



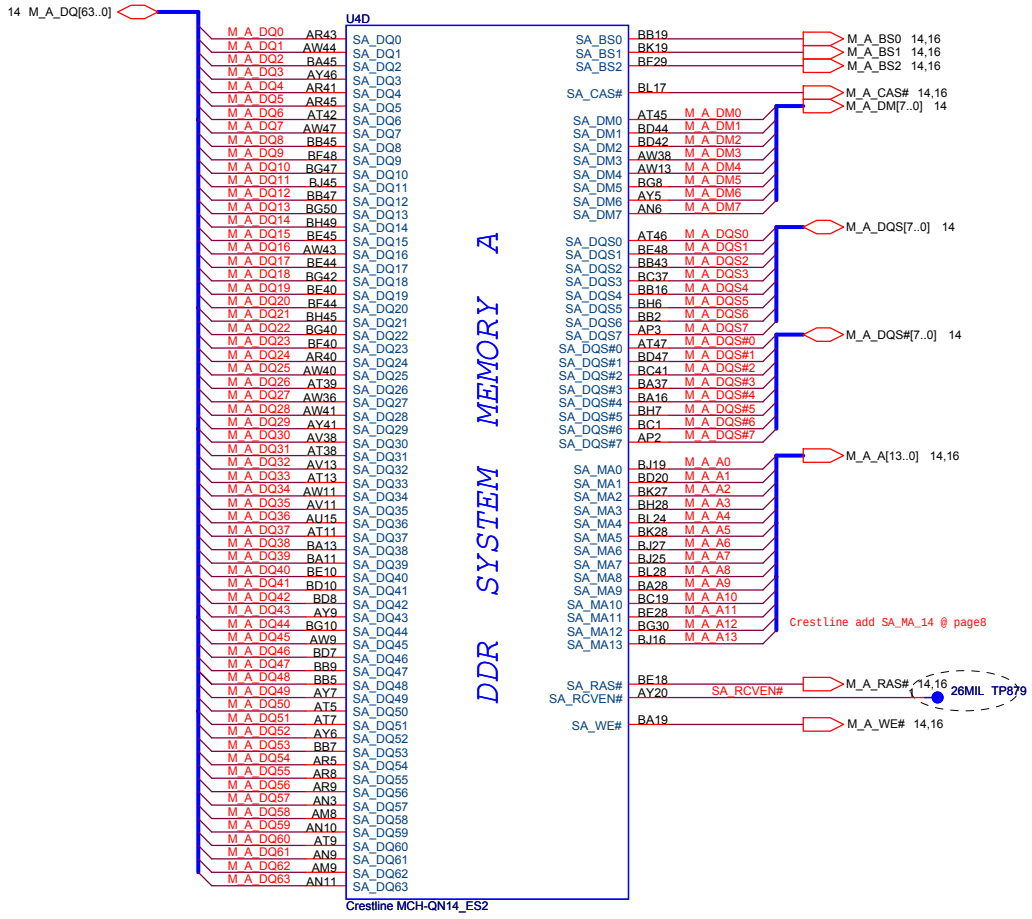
Base on below document:
Mobile Merom Processor and Crestline Chipset
- Santa Rosa Platform Design Guide-21112,1.0
.pvd.pdf (May 2006/ Rev 1.0)page 193
Table 82. External Graphics (GMCH Integrated Graphics Disable)
Connect these signals to GND

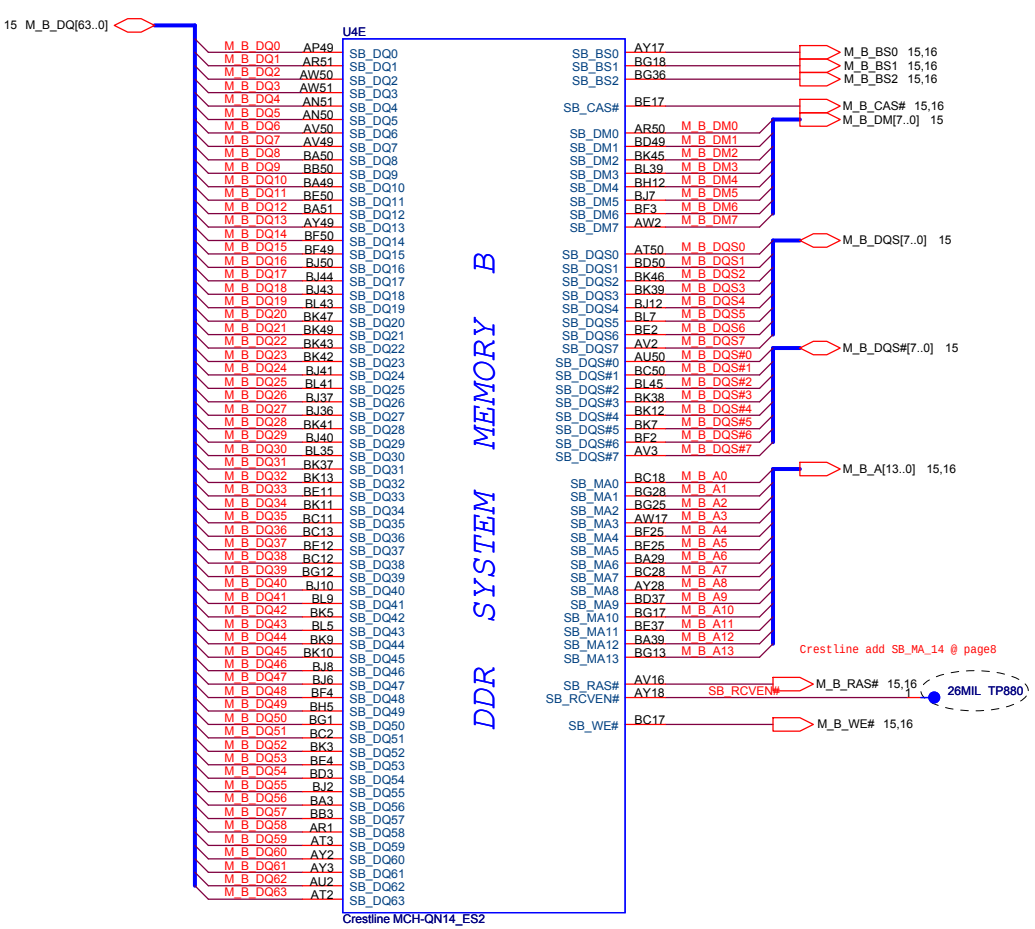
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Crestline(GRAPHIC)3/7

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Thursday, May 10, 2007 | Sheet 9 of 77



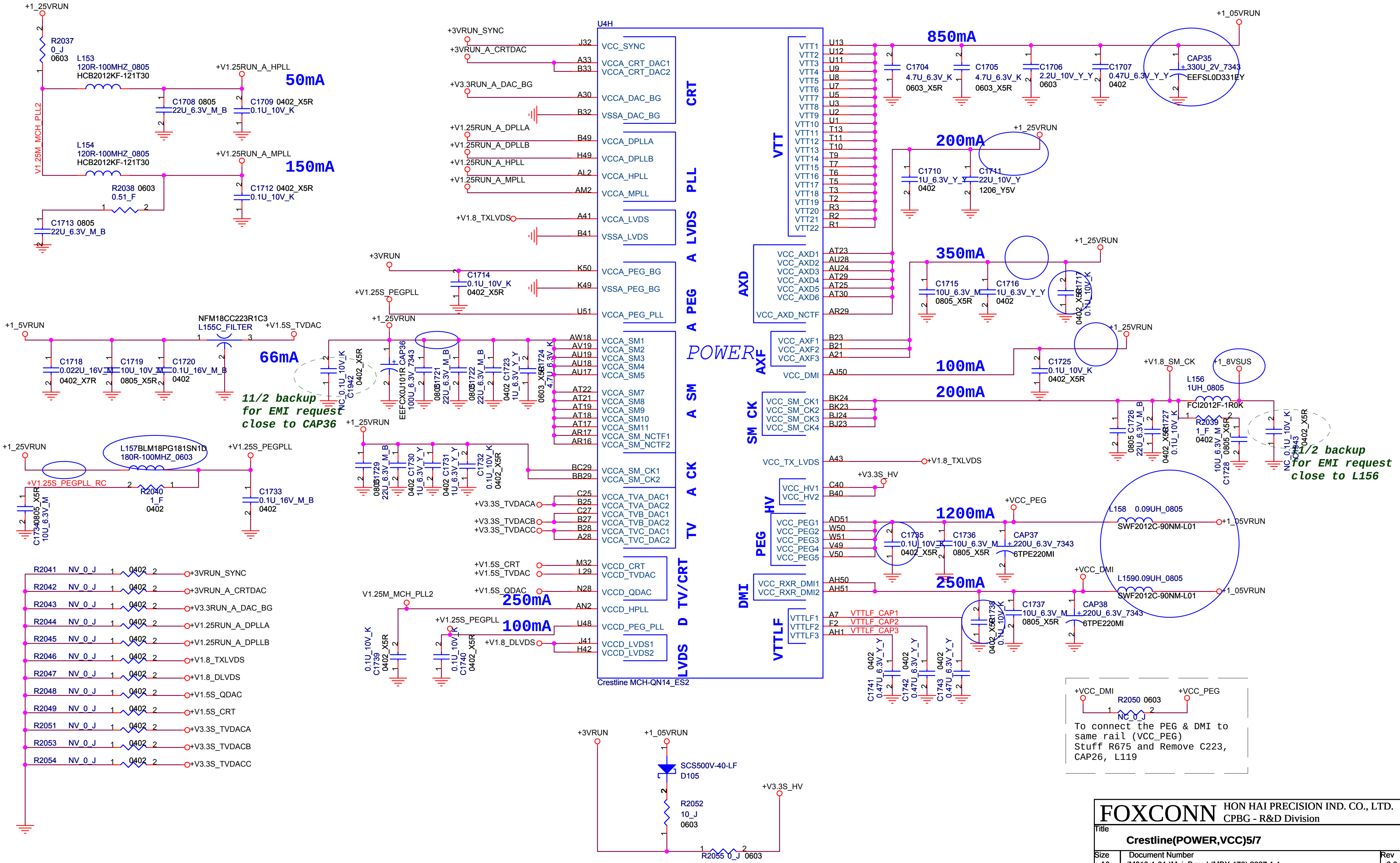


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Crestline(DDRII)4/7

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 10 of 77

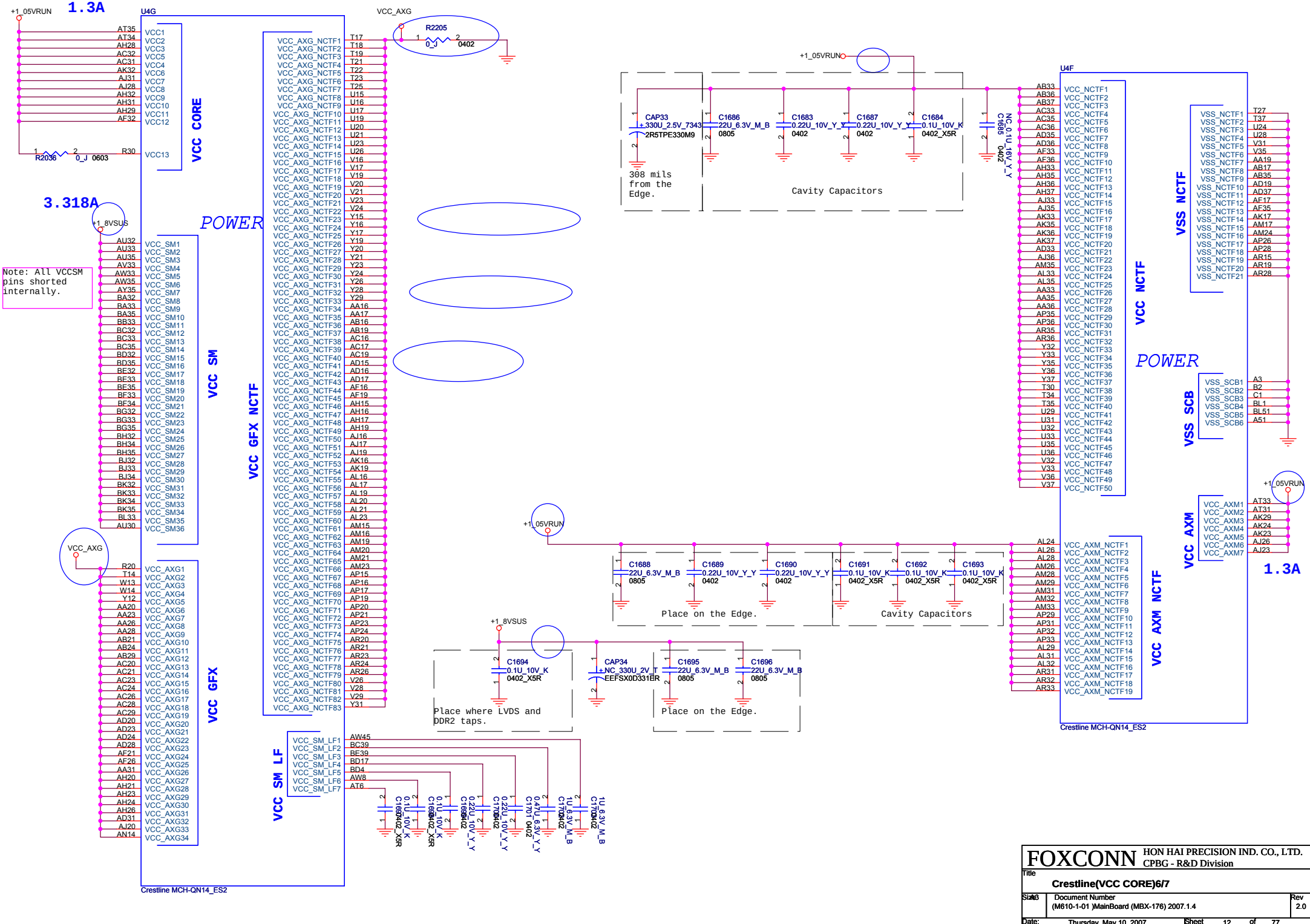


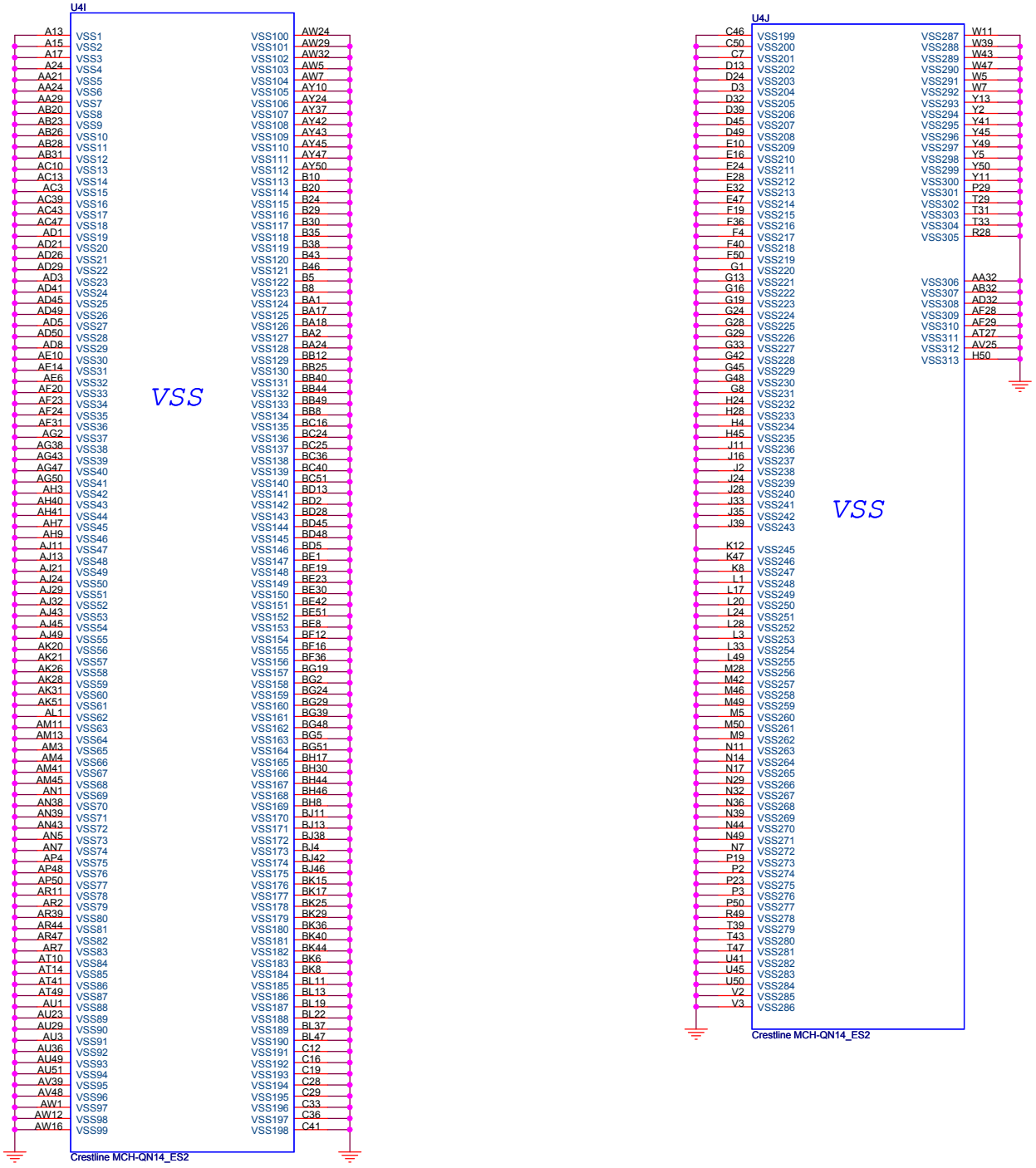
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: **Crestline(POWER,VCC)5/7**

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 11 of 77


1.3A
+1_05VRUN
U4G
VCC_AXG
R2205
0_J
0402
VCC CORE
VCC1
VCC2
VCC3
VCC5
VCC4
VCC6
VCC7
VCC8
VCC9
VCC10
VCC11
VCC12
VCC13
R2036
0_J 0603
R30
3.318A
+1_8VSUS
POWER
Note: All VCCSM pins shorted internally.
VCC SM
VCC_SM1
VCC_SM2
VCC_SM3
VCC_SM4
VCC_SM5
VCC_SM6
VCC_SM7
VCC_SM8
VCC_SM9
VCC_SM10
VCC_SM11
VCC_SM12
VCC_SM13
VCC_SM14
VCC_SM15
VCC_SM16
VCC_SM17
VCC_SM18
VCC_SM19
VCC_SM20
VCC_SM21
VCC_SM22
VCC_SM23
VCC_SM24
VCC_SM25
VCC_SM26
VCC_SM27
VCC_SM28
VCC_SM29
VCC_SM30
VCC_SM31
VCC_SM32
VCC_SM33
VCC_SM34
VCC_SM35
VCC_SM36
VCC GFX NCTF
VCC_AXG_NCTF1
VCC_AXG_NCTF2
VCC_AXG_NCTF3
VCC_AXG_NCTF4
VCC_AXG_NCTF5
VCC_AXG_NCTF6
VCC_AXG_NCTF7
VCC_AXG_NCTF8
VCC_AXG_NCTF9
VCC_AXG_NCTF10
VCC_AXG_NCTF11
VCC_AXG_NCTF12
VCC_AXG_NCTF13
VCC_AXG_NCTF14
VCC_AXG_NCTF15
VCC_AXG_NCTF16
VCC_AXG_NCTF17
VCC_AXG_NCTF18
VCC_AXG_NCTF19
VCC_AXG_NCTF20
VCC_AXG_NCTF21
VCC_AXG_NCTF22
VCC_AXG_NCTF23
VCC_AXG_NCTF24
VCC_AXG_NCTF25
VCC_AXG_NCTF26
VCC_AXG_NCTF27
VCC_AXG_NCTF28
VCC_AXG_NCTF29
VCC_AXG_NCTF30
VCC_AXG_NCTF31
VCC_AXG_NCTF32
VCC_AXG_NCTF33
VCC_AXG_NCTF34
VCC_AXG_NCTF35
VCC_AXG_NCTF36
VCC_AXG_NCTF37
VCC_AXG_NCTF38
VCC_AXG_NCTF39
VCC_AXG_NCTF40
VCC_AXG_NCTF41
VCC_AXG_NCTF42
VCC_AXG_NCTF43
VCC_AXG_NCTF44
VCC_AXG_NCTF45
VCC_AXG_NCTF46
VCC_AXG_NCTF47
VCC_AXG_NCTF48
VCC_AXG_NCTF49
VCC_AXG_NCTF50
VCC_AXG_NCTF51
VCC_AXG_NCTF52
VCC_AXG_NCTF53
VCC_AXG_NCTF54
VCC_AXG_NCTF55
VCC_AXG_NCTF56
VCC_AXG_NCTF57
VCC_AXG_NCTF58
VCC_AXG_NCTF59
VCC_AXG_NCTF60
VCC_AXG_NCTF61
VCC_AXG_NCTF62
VCC_AXG_NCTF63
VCC_AXG_NCTF64
VCC_AXG_NCTF65
VCC_AXG_NCTF66
VCC_AXG_NCTF67
VCC_AXG_NCTF68
VCC_AXG_NCTF69
VCC_AXG_NCTF70
VCC_AXG_NCTF71
VCC_AXG_NCTF72
VCC_AXG_NCTF73
VCC_AXG_NCTF74
VCC_AXG_NCTF75
VCC_AXG_NCTF76
VCC_AXG_NCTF77
VCC_AXG_NCTF78
VCC_AXG_NCTF79
VCC_AXG_NCTF80
VCC_AXG_NCTF81
VCC_AXG_NCTF82
VCC_AXG_NCTF83
VCC GFX
VCC_AXG1
VCC_AXG2
VCC_AXG3
VCC_AXG4
VCC_AXG5
VCC_AXG6
VCC_AXG7
VCC_AXG8
VCC_AXG9
VCC_AXG10
VCC_AXG11
VCC_AXG12
VCC_AXG13
VCC_AXG14
VCC_AXG15
VCC_AXG16
VCC_AXG17
VCC_AXG18
VCC_AXG19
VCC_AXG20
VCC_AXG21
VCC_AXG22
VCC_AXG23
VCC_AXG24
VCC_AXG25
VCC_AXG26
VCC_AXG27
VCC_AXG28
VCC_AXG29
VCC_AXG30
VCC_AXG31
VCC_AXG32
VCC_AXG33
VCC_AXG34
VCC SM LF
VCC_SM_LF1
VCC_SM_LF2
VCC_SM_LF3
VCC_SM_LF4
VCC_SM_LF5
VCC_SM_LF6
VCC_SM_LF7
Crestline MCH-QN14_ES2
+1_05VRUN
CAP33
330U_2.5V_7343
2R5TPE330M9
C1686
22U_6.3V_M_B
0805
C1683
0.22U_10V_Y_Y
0402
C1687
0.22U_10V_Y_Y
0402
C1684
0.1U_10V_K
0402_X5R
NC_0.1U_16V_Y
C1685
0402
308 mils from the Edge.
Cavity Capacitors
U4F
VCC_NCTF1
VCC_NCTF2
VCC_NCTF3
VCC_NCTF4
VCC_NCTF5
VCC_NCTF6
VCC_NCTF7
VCC_NCTF8
VCC_NCTF9
VCC_NCTF10
VCC_NCTF11
VCC_NCTF12
VCC_NCTF13
VCC_NCTF14
VCC_NCTF15
VCC_NCTF16
VCC_NCTF17
VCC_NCTF18
VCC_NCTF19
VCC_NCTF20
VCC_NCTF21
VCC_NCTF22
VCC_NCTF23
VCC_NCTF24
VCC_NCTF25
VCC_NCTF26
VCC_NCTF27
VCC_NCTF28
VCC_NCTF29
VCC_NCTF30
VCC_NCTF31
VCC_NCTF32
VCC_NCTF33
VCC_NCTF34
VCC_NCTF35
VCC_NCTF36
VCC_NCTF37
VCC_NCTF38
VCC_NCTF39
VCC_NCTF40
VCC_NCTF41
VCC_NCTF42
VCC_NCTF43
VCC_NCTF44
VCC_NCTF45
VCC_NCTF46
VCC_NCTF47
VCC_NCTF48
VCC_NCTF49
VCC_NCTF50
VCC NCTF
POWER
VSS NCTF
VSS_NCTF1
VSS_NCTF2
VSS_NCTF3
VSS_NCTF4
VSS_NCTF5
VSS_NCTF6
VSS_NCTF7
VSS_NCTF8
VSS_NCTF9
VSS_NCTF10
VSS_NCTF11
VSS_NCTF12
VSS_NCTF13
VSS_NCTF14
VSS_NCTF15
VSS_NCTF16
VSS_NCTF17
VSS_NCTF18
VSS_NCTF19
VSS_NCTF20
VSS_NCTF21
VSS SCB
VSS_SCB1
VSS_SCB2
VSS_SCB3
VSS_SCB4
VSS_SCB5
VSS_SCB6
+1_05VRUN
C1688
22U_6.3V_M_B
0805
C1689
0.22U_10V_Y_Y
0402
C1690
0.22U_10V_Y_Y
0402
C1691
0.1U_10V_K
0402_X5R
C1692
0.1U_10V_K
0402_X5R
C1693
0.1U_10V_K
0402_X5R
Place on the Edge.
Cavity Capacitors
VCC AXM NCTF
VCC_AXM_NCTF1
VCC_AXM_NCTF2
VCC_AXM_NCTF3
VCC_AXM_NCTF4
VCC_AXM_NCTF5
VCC_AXM_NCTF6
VCC_AXM_NCTF7
VCC_AXM_NCTF8
VCC_AXM_NCTF9
VCC_AXM_NCTF10
VCC_AXM_NCTF11
VCC_AXM_NCTF12
VCC_AXM_NCTF13
VCC_AXM_NCTF14
VCC_AXM_NCTF15
VCC_AXM_NCTF16
VCC_AXM_NCTF17
VCC_AXM_NCTF18
VCC_AXM_NCTF19
VCC AXM
VCC_AXM1
VCC_AXM2
VCC_AXM3
VCC_AXM4
VCC_AXM5
VCC_AXM6
VCC_AXM7
1.3A
+1_8VSUS
C1694
0.1U_10V_K
0402_X5R
CAP34
NC_330U_2V_T
EEFSX0D331ER
C1695
22U_6.3V_M_B
0805
C1696
22U_6.3V_M_B
0805
Place where LVDS and DDR2 taps.
Place on the Edge.
Crestline MCH-QN14_ES2
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
Crestline(VCC CORE)6/7
Size A3
Document Number
(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev
2.0
Date: Thursday, May 10, 2007
Sheet 12 of 77



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	Crestline (VSS)7/7
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4
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Date:	Thursday, May 10, 2007
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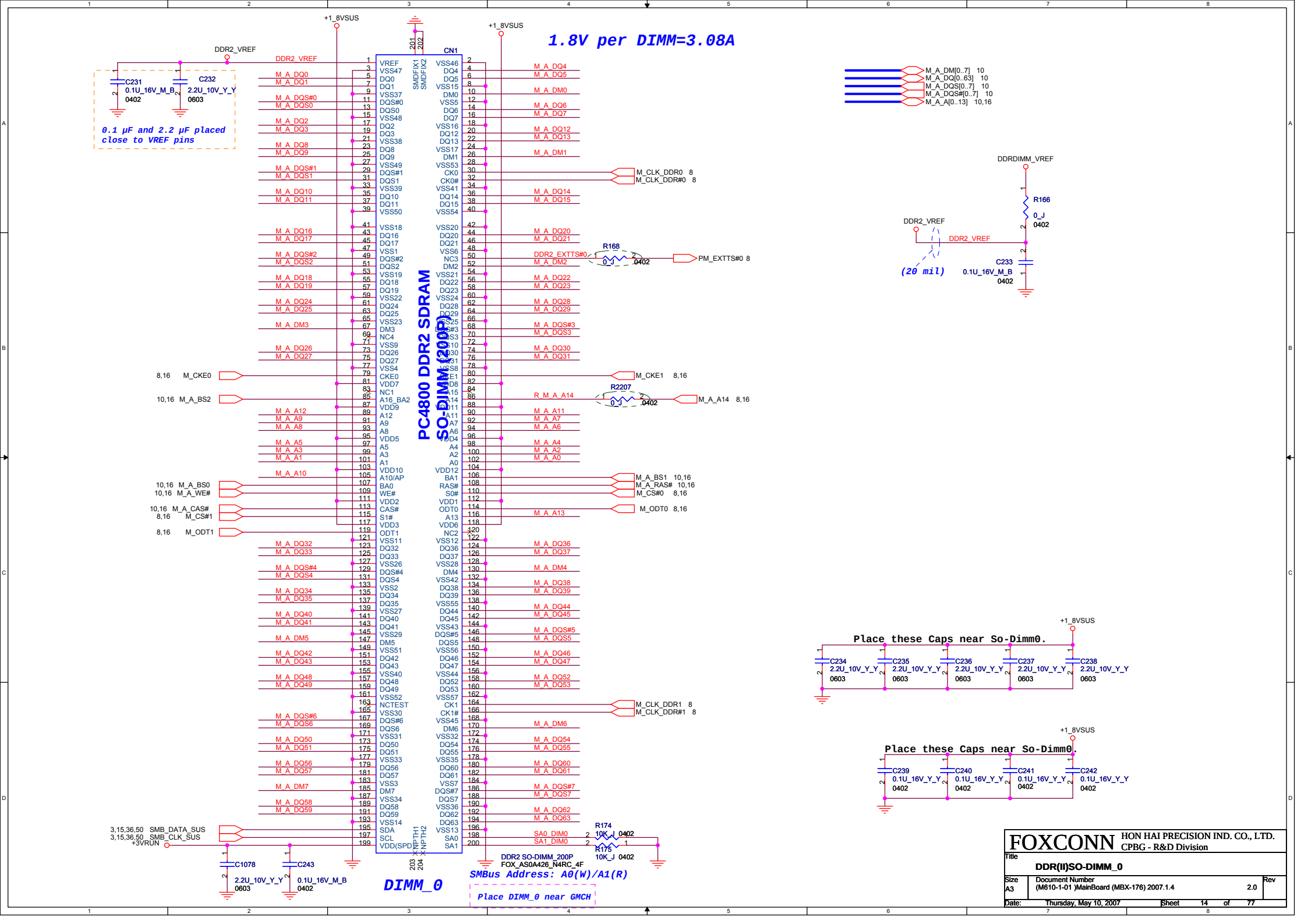
1.8V per DIMM=3.08A
CN1
PC4800 DDR2 SDRAM SO-DIMM (200P)
DIMM_0
DDR2 SO-DIMM_200P
FOX_AS0A426_N4RC_4F
SMBus Address: A0(W)/A1(R)
Place DIMM_0 near GMCH
0.1 µF and 2.2 µF placed close to VREF pins
DDR2_VREF
+1_8VSUS
+3VRUN
C231 0.1U_16V_M_B 0402
C232 2.2U_10V_Y_Y 0603
C1078 2.2U_10V_Y_Y 0603
C243 0.1U_16V_M_B 0402
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
DDRDIMM_VREF
R166 0_J 0402
C233 0.1U_16V_M_B 0402
(20 mil)
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
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
R168 0_J 0402
R2207 0_J 0402
R174 10K_J 0402
R175 10K_J 0402
M_CLK_DDR0 8
M_CLK_DDR#0 8
M_CLK_DDR1 8
M_CLK_DDR#1 8
M_CKE0 8,16
M_CKE1 8,16
M_A_BS2 10,16
M_A_A14 8,16
M_A_BS0 10,16
M_A_WE# 10,16
M_A_CAS# 10,16
M_CS#1 8,16
M_ODT1 8,16
M_A_BS1 10,16
M_A_RAS# 10,16
M_CS#0 8,16
M_ODT0 8,16
PM_EXTTS#0 8
SMB_DATA_SUS 3,15,36,50
SMB_CLK_SUS 3,15,36,50
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
DDR(II)SO-DIMM_0
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Thursday, May 10, 2007
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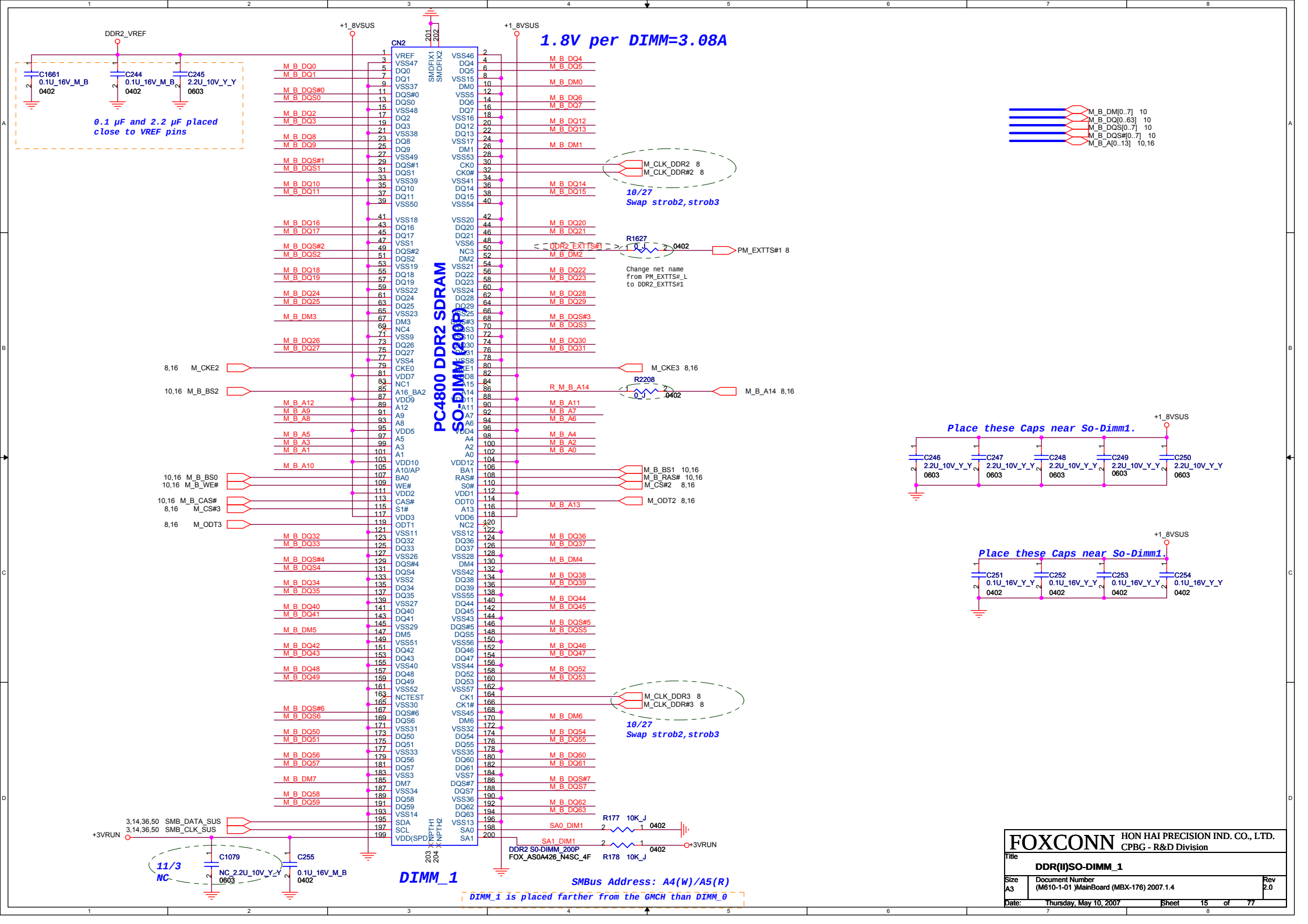

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	DDR(II)SO-DIMM_1
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
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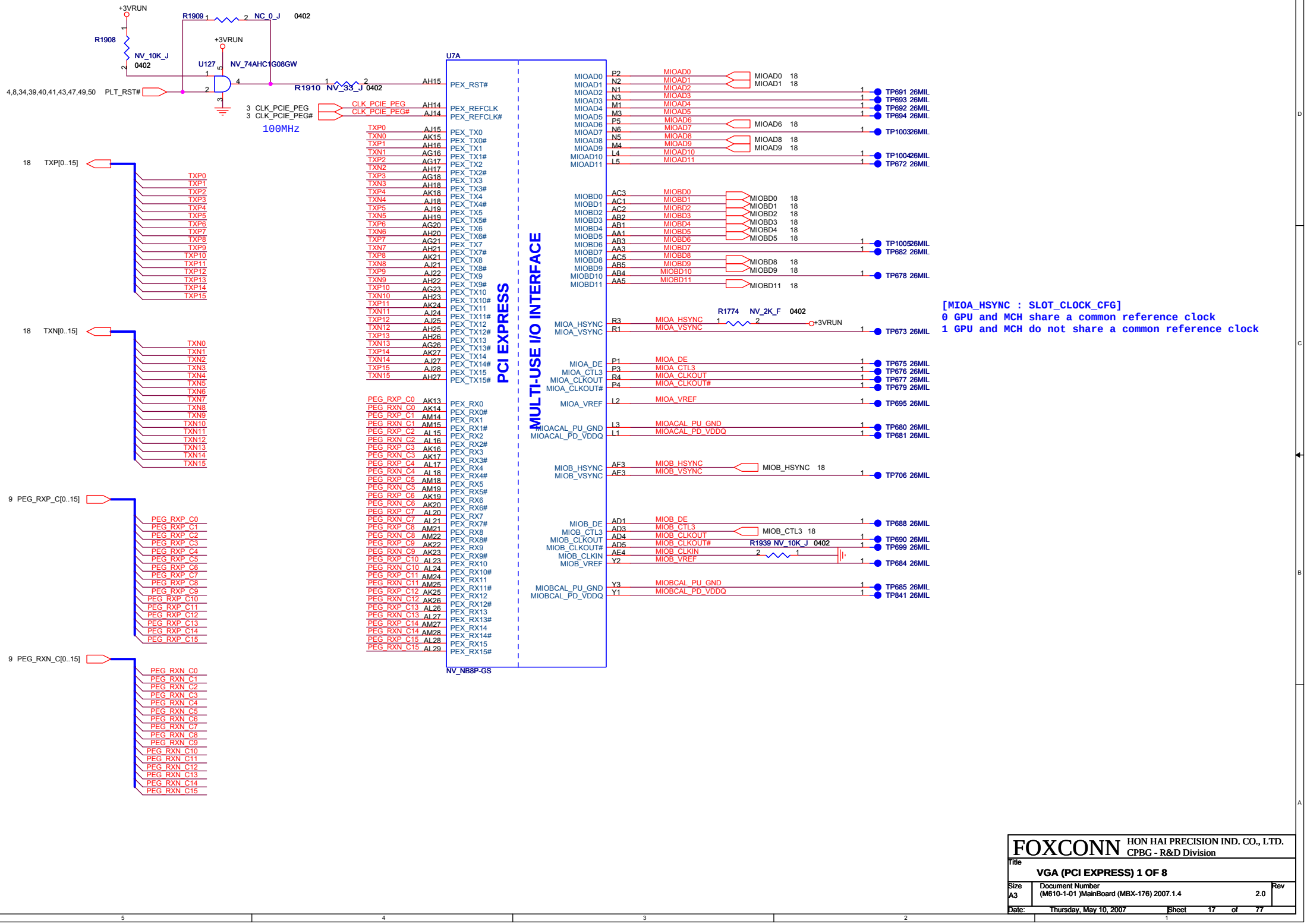
Date: Thursday, May 10, 2007	Sheet 15 of 77

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: DDR(II)Termination		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 16 of 77	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VGA (PCI EXPRESS) 1 OF 8	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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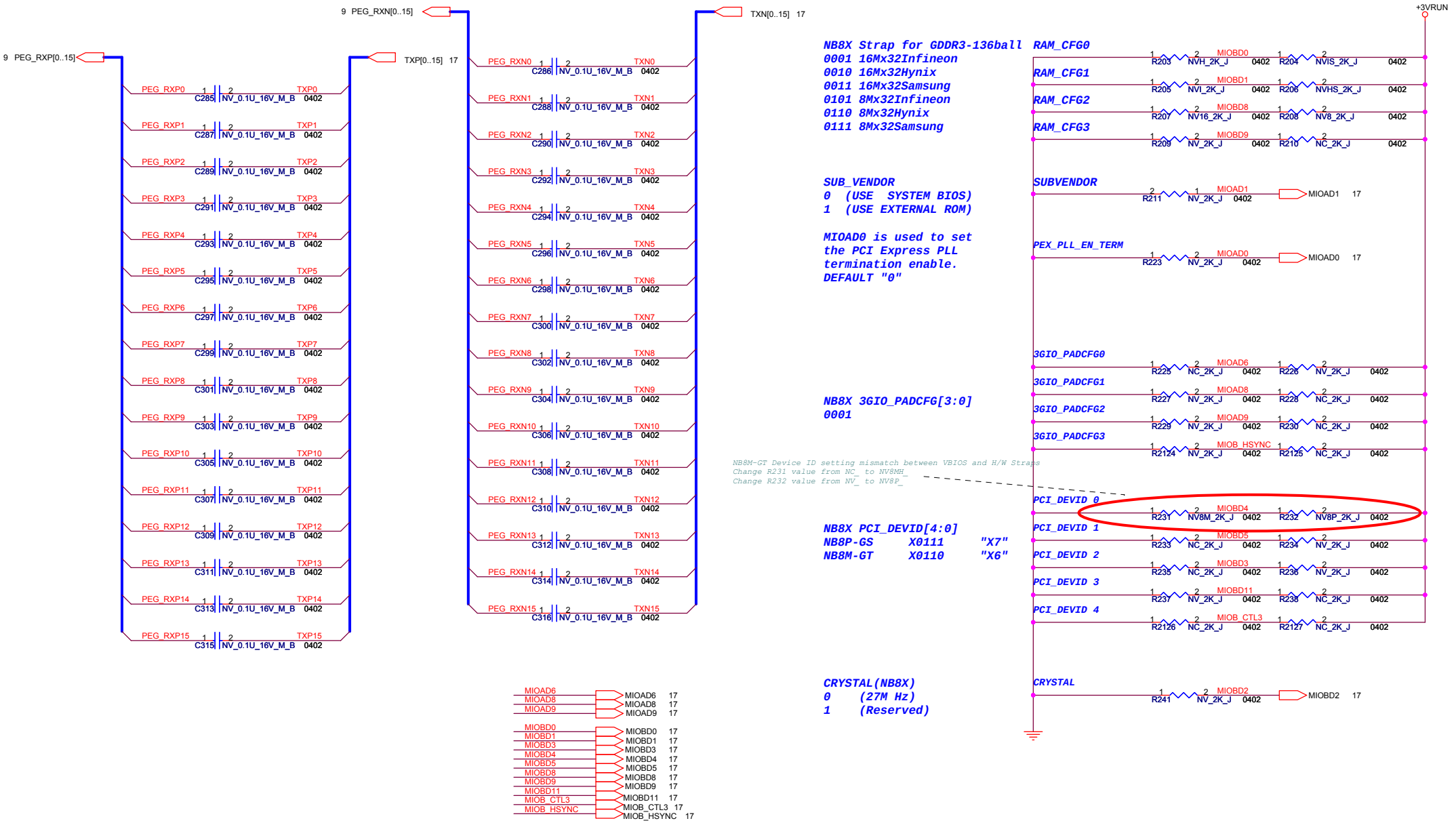

FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

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

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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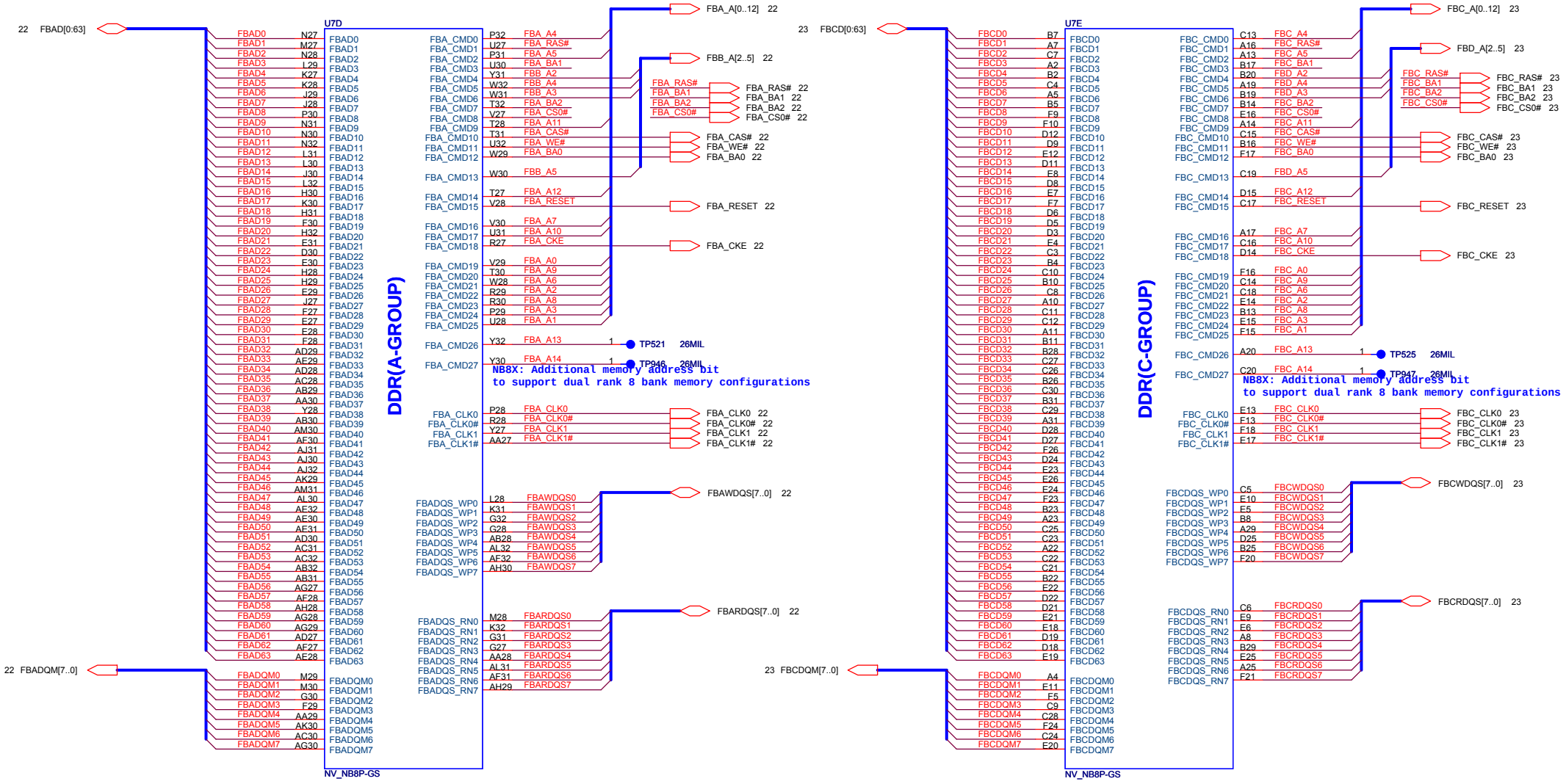

FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: VGA (GDDR) 3 OF 8

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 19 of 77

SM bus Address :
1001100(EC)
For F75383M

Use GPU internal thermal sensor
Change R2328,R2329 form NC to mount

HDCP
Backup
HDMI DDC
CRT DDC

U7F

I2C
GENERAL SIGNALS
ROM
GPIO
TEST SIGNAL
CRYSTAL

U8 G781P8f

11/16 change part from F75383M(VERISION:0.28P) (15-F75383M-1000) to G781P8f (15-G781P80-0000)

To GPU

From EC

Backup GPIO8 for GPU thermal trigger signal
Change R293 from mount to NC for using internal thermal sensor

2007/1/4 Update

GPIO	I/O	Internal pull low	GPIO TABLE	
GPIO0	I	Yes	HDMI Hot Plug Detect 0(HPD0)	Active High
GPIO1	I	Yes	DVI Hot Plug Detect 1(HPD1)	Active High
GPIO2	O	Yes	LCD BL Brightness(LCD0_BL_PWM)	Active High
GPIO3	O	No	Panel Power(LCD0_VDD)	Active Low
GPIO4	O	Yes	LCD Backlight enable(LCD0_BL_EN)	Active High
GPIO5	O	Yes	GPU Power Downgrade for NV_VDD	Active Low
GPIO8	O	No	Thermal Alert Output (>125 Degree)	Active Low
GPIO9	I	No	System Power Limit Alert Input	Active Low
GPIO10	O	No	Memory Vref switch(MEM_VREF)	Active High
GPIO11	I/O	No	HDMI CEC Function Backup	

NVIDIA FAE suggestion:
Change GPU thermal alert signal input from GPIO8 to GPIO9.
Delete TP522 and pull-up GPIO8 (R2332 2.2K to +3VRUN)

Change R2333 from NC to mount for using internal thermal sensor

02/12/07 PVT Change

9/18 FAE suggest If use internal spread function,
U10 and related components can be NC.
10/19 Change R319,R320 from NC_ to NV_ for use internal spread spectrum.

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

SPREAD SPECTRUM SETTING FOR P1819B

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

nVidia support Down -1.25%

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

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Title: VGA (POWER) 7 OF 8

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

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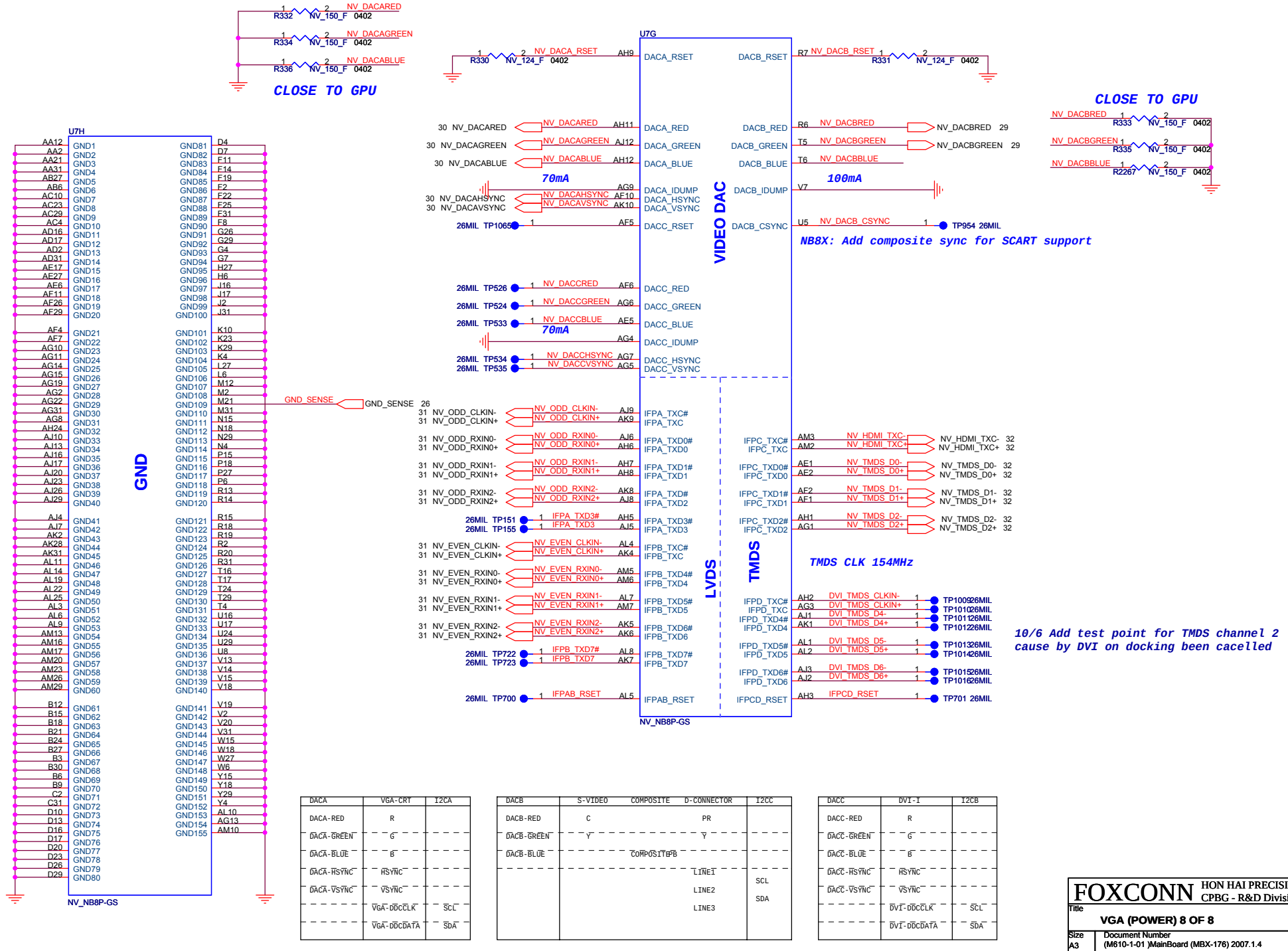
R332 NV_150_F 0402 NV_DACARED
R334 NV_150_F 0402 NV_DACAGREEN
R336 NV_150_F 0402 NV_DACABLUE
CLOSE TO GPU
U7H
GND
NV_NB8P-GS
GND_SENSE
U7G
R330 NV_124_F 0402 NV_DACA_RSET
R331 NV_124_F 0402 NV_DACB_RSET
DACA_RSET
DACB_RSET
DACA_RED
DACA_GREEN
DACA_BLUE
DACA_IDUMP
DACA_HSYNC
DACA_VSYNC
DACC_RSET
DACB_RED
DACB_GREEN
DACB_BLUE
DACB_IDUMP
DACB_CSYNC
VIDEO DAC
70mA
100mA
TP1065
TP954 26MIL
NB8X: Add composite sync for SCART support
R333 NV_150_F 0402 NV_DACBRED
R335 NV_150_F 0402 NV_DACBGREEN
R2267 NV_150_F 0402 NV_DACBBLUE
CLOSE TO GPU
TP526
TP524
TP533
TP534
TP535
DACC_RED
DACC_GREEN
DACC_BLUE
DACC_IDUMP
DACC_HSYNC
DACC_VSYNC
LVDS
TMDS
IFPA_TXC#
IFPA_TXC
IFPA_TXD0#
IFPA_TXD0
IFPA_TXD1#
IFPA_TXD1
IFPA_TXD#
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
TMDS CLK 154MHz
TP701 26MIL
10/6 Add test point for TMDS channel 2 cause by DVI on docking been cacelled
NV_NB8P-GS
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.
CPBG - R&D Division
Title
VGA (POWER) 8 OF 8
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Thursday, May 10, 2007
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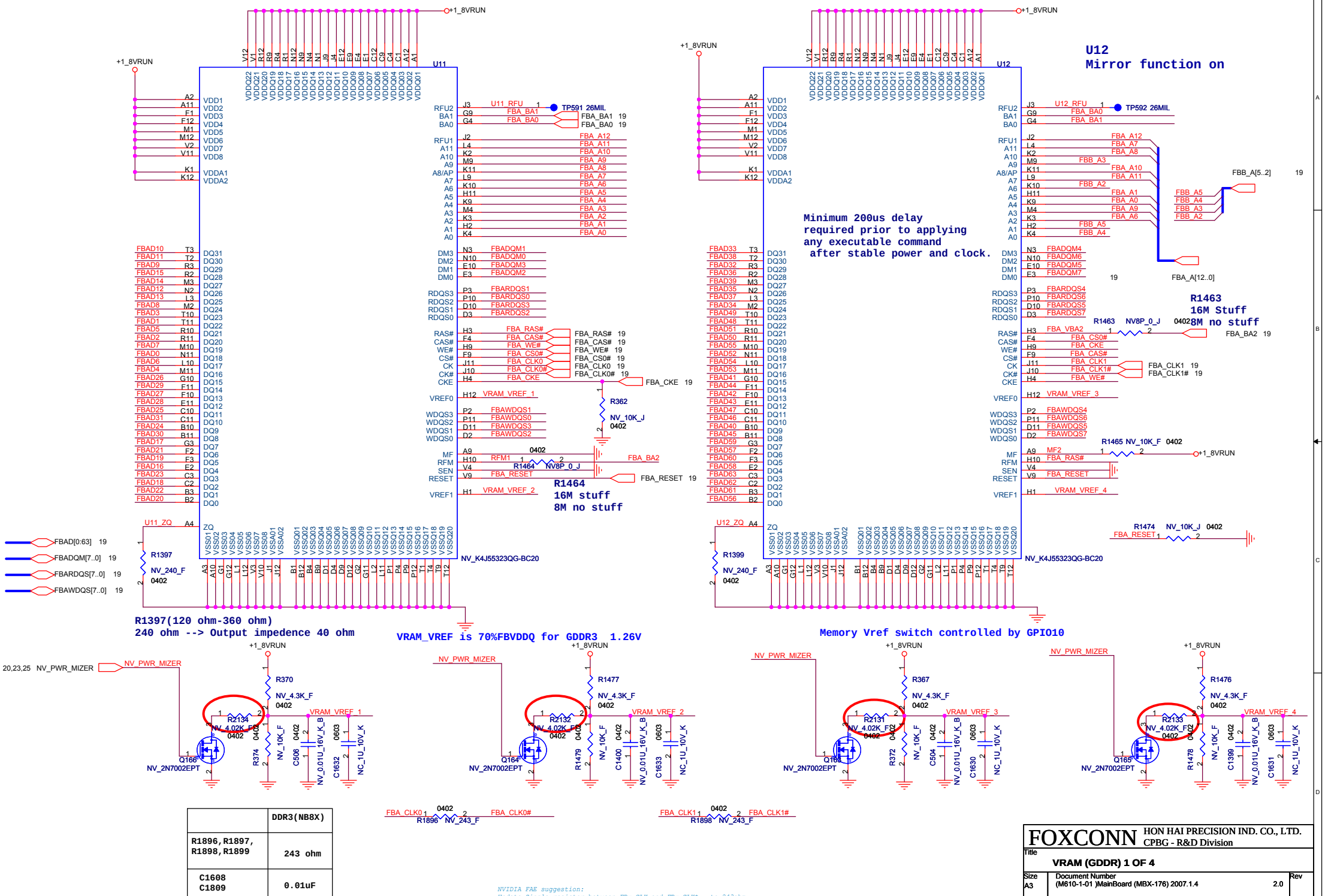

	DDR3(NB8X)
R1896,R1897, R1898,R1899	243 ohm
C1608 C1809	0.01uF

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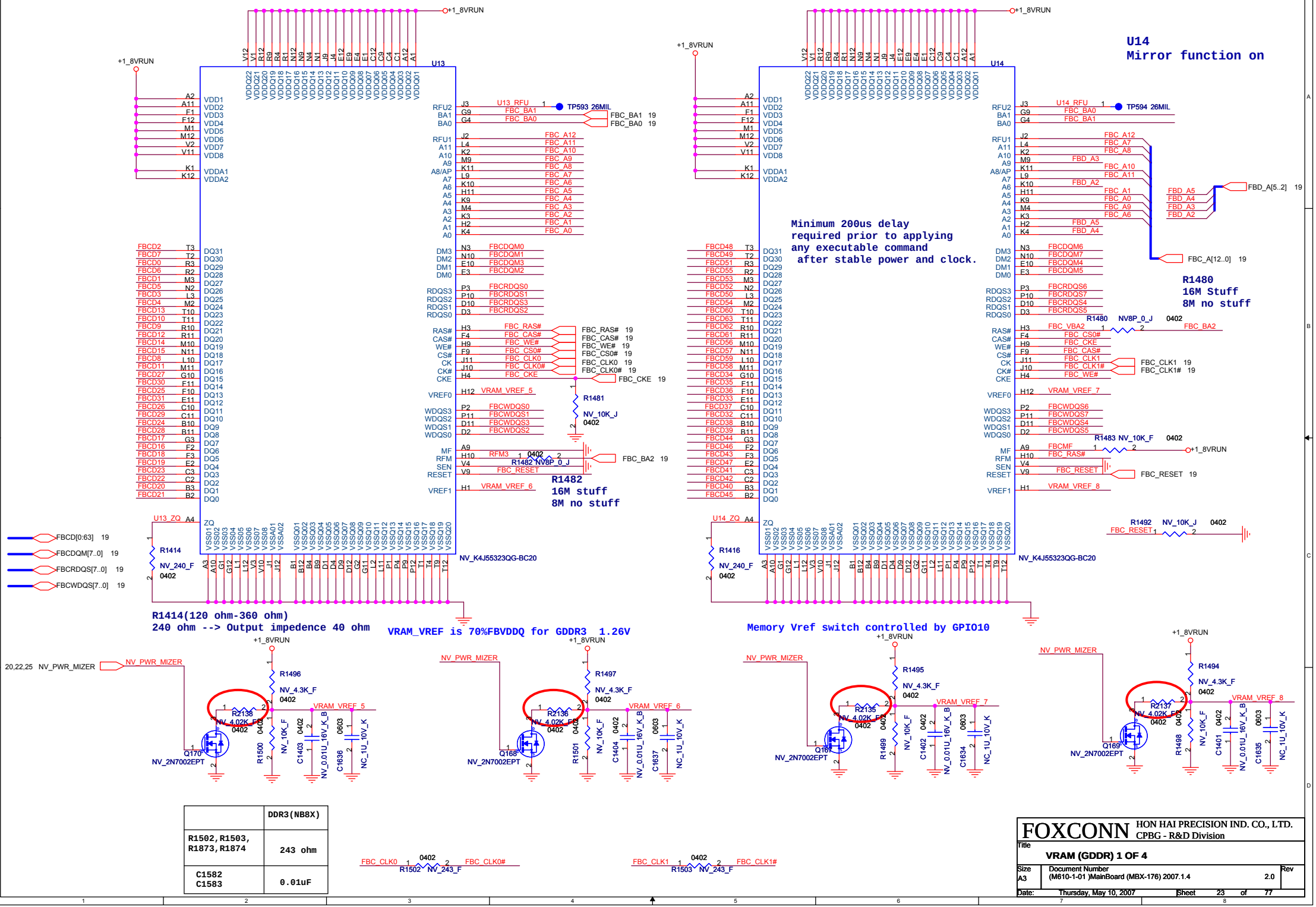
Title: VRAM (GDDR) 1 OF 4

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 22 of 77



	DDR3(NB8X)
R1502, R1503, R1873, R1874	243 ohm
C1582 C1583	0.01uF

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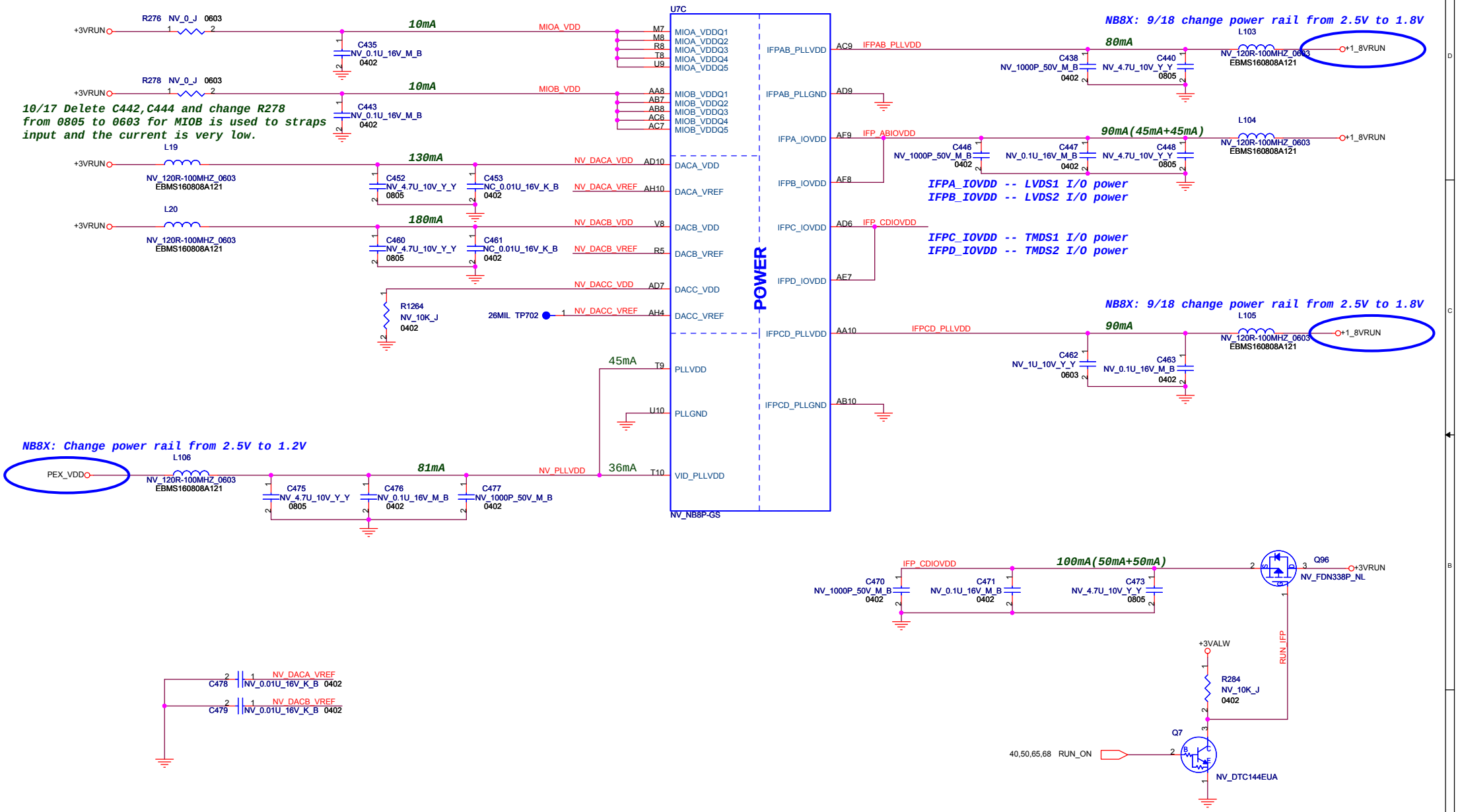
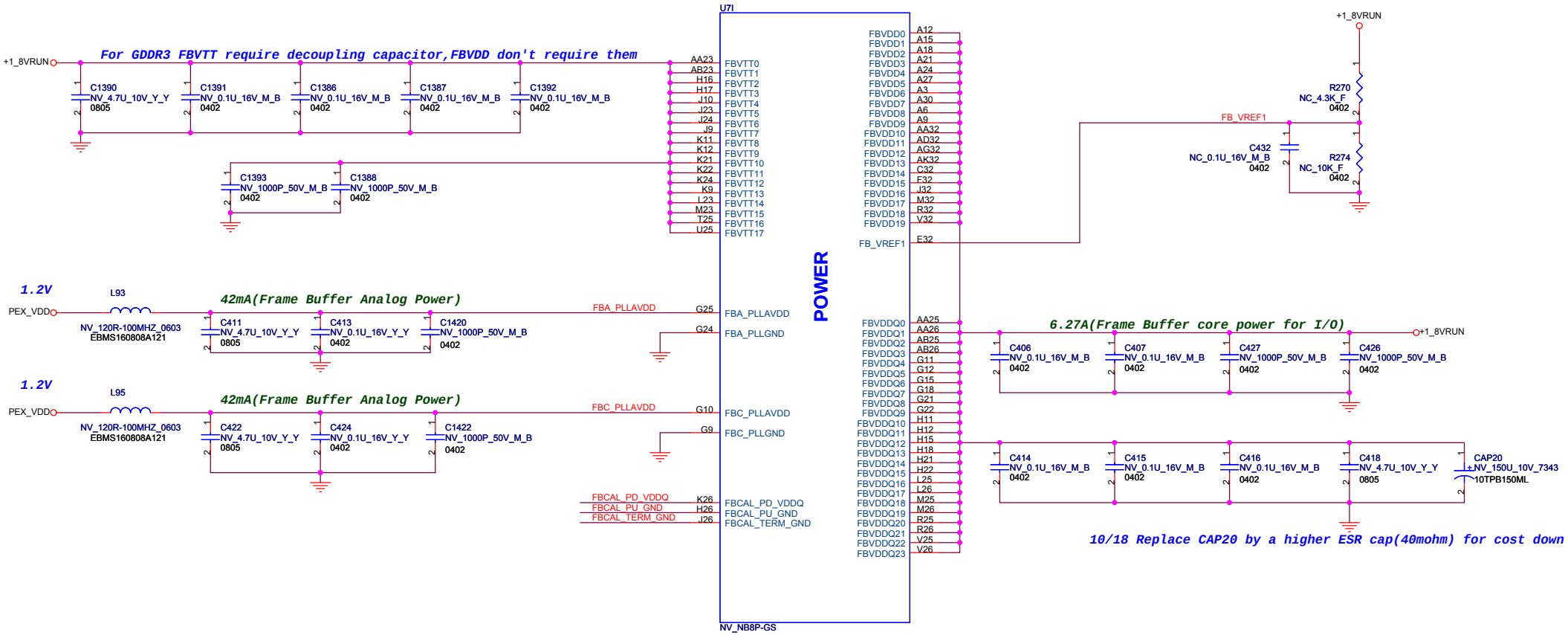
Title: VRAM (GDDR) 1 OF 4

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Thursday, May 10, 2007 | Sheet 23 of 77



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	VGA (POWER) 6 OF 8		
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4		Rev 2.0
Date: Thursday, May 10, 2007	Sheet 24 of 77		



NVIDIA 07/1/5 update

	DDR3(NB8M-GT)	DDR3(NB8P-GS)
FBCAL_PD_VDDQ	45.3 ohm	45.3 ohm
FBCAL_PU_GND	24.9 ohm	24.9 ohm
FBCAL_TERM_GND	40.2 ohm	40.2 ohm

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

Title: VGA (POWER) 5 OF 8

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

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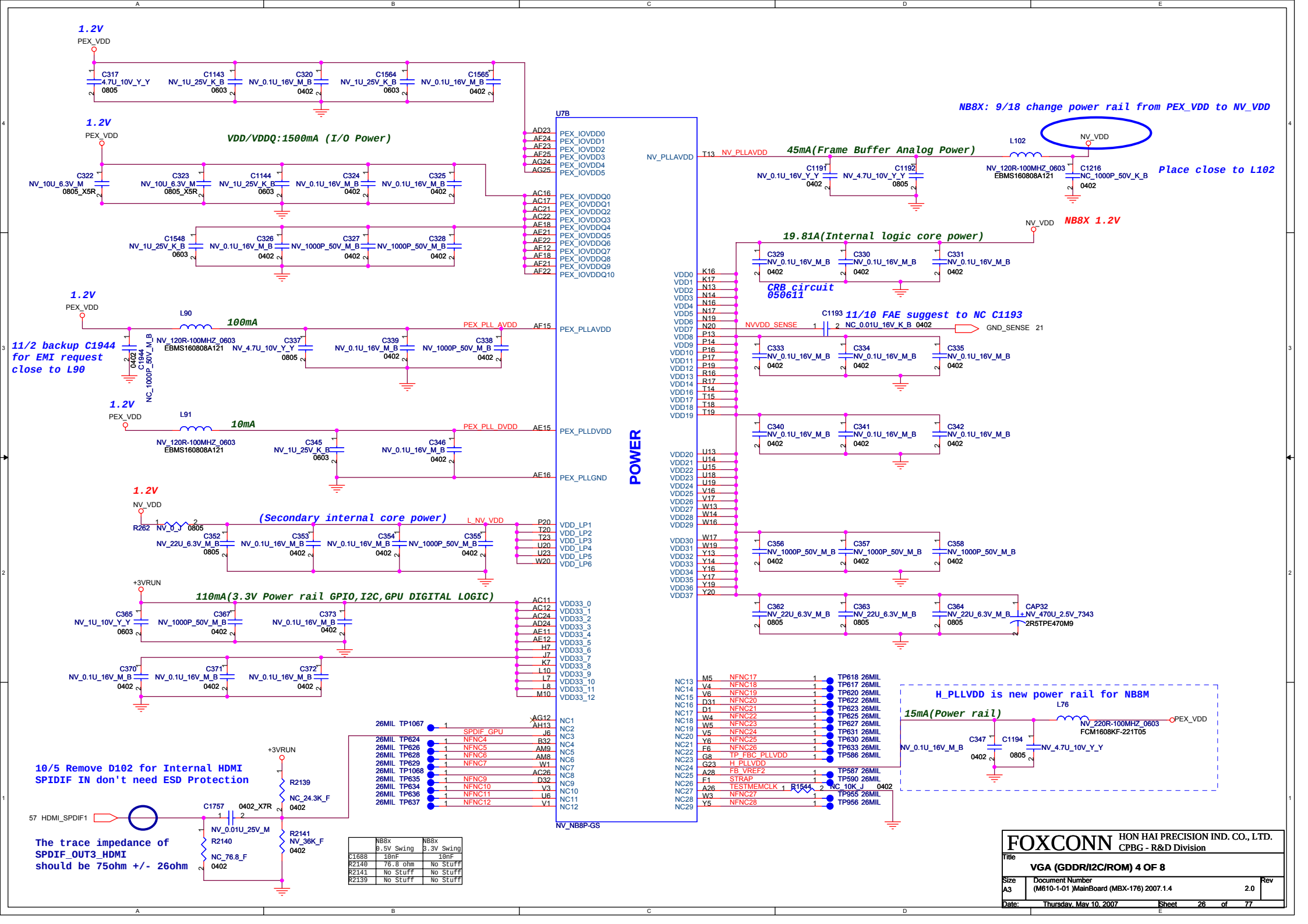
1.2V
PEX_VDD
C317 4.7U_10V_Y_Y 0805
C1143 NV_1U_25V_K_B 0603
C320 NV_0.1U_16V_M_B 0402
C1564 NV_1U_25V_K_B 0603
C1565 NV_0.1U_16V_M_B 0402
VDD/VDDQ:1500mA (I/O Power)
C322 NV_10U_6.3V_M 0805_X5R
C323 NV_10U_6.3V_M 0805_X5R
C1144 NV_1U_25V_K_B 0603
C324 NV_0.1U_16V_M_B 0402
C325 NV_0.1U_16V_M_B 0402
C1548 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
U7B
PEX_IOVDD0
PEX_IOVDD1
PEX_IOVDD2
PEX_IOVDD3
PEX_IOVDD4
PEX_IOVDD5
PEX_IOVDDQ0
PEX_IOVDDQ1
PEX_IOVDDQ2
PEX_IOVDDQ3
PEX_IOVDDQ4
PEX_IOVDDQ5
PEX_IOVDDQ6
PEX_IOVDDQ7
PEX_IOVDDQ8
PEX_IOVDDQ9
PEX_IOVDDQ10
NV_PLLAVDD
PEX_PLLAVDD
PEX_PLLDVDD
PEX_PLLGND
POWER
NV_NB8P-GS
100mA
L90
PEX_PLL_AVDD
NV_120R-100MHZ_0603 EBMS160808A121
C337 NV_4.7U_10V_Y_Y 0805
C339 NV_0.1U_16V_M_B 0402
C338 NV_1000P_50V_M_B 0402
11/2 backup C1944 for EMI request close to L90
C1944 NC_1000P_50V_M_B 0402
10mA
L91
PEX_PLL_DVDD
C345 NV_1U_25V_K_B 0603
C346 NV_0.1U_16V_M_B 0402
(Secondary internal core power)
L_NV_VDD
R262 NV_0_J 0805
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
VDD_LP1
VDD_LP2
VDD_LP3
VDD_LP4
VDD_LP5
VDD_LP6
+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
VDD33_0
VDD33_1
VDD33_2
VDD33_3
VDD33_4
VDD33_5
VDD33_6
VDD33_7
VDD33_8
VDD33_9
VDD33_10
VDD33_11
VDD33_12
26MIL TP1067
SPDIF_GPU
26MIL TP624
NFNC4
26MIL TP626
NFNC5
26MIL TP628
NFNC6
26MIL TP629
NFNC7
26MIL TP1068
26MIL TP635
NFNC9
26MIL TP634
NFNC10
26MIL TP636
NFNC11
26MIL TP637
NFNC12
NC1
NC2
NC3
NC4
NC5
NC6
NC7
NC8
NC9
NC10
NC11
NC12
10/5 Remove D102 for Internal HDMI
SPIDIF IN don't need ESD Protection
57 HDMI_SPDIF1
C1757 NV_0.01U_25V_M 0402_X7R
R2139 NC_24.3K_F 0402
R2140 NC_76.8_F 0402
R2141 NV_36K_F 0402
The trace impedance of
SPDIF_OUT3_HDMI
should be 75ohm +/- 26ohm
NB8x 9.5V Swing
NB8x 8.3V Swing
C1688 10nF 10nF
R2140 76.8 ohm No Stuff
R2141 No Stuff No Stuff
R2139 No Stuff No Stuff
NB8X: 9/18 change power rail from PEX_VDD to NV_VDD
45mA(Frame Buffer Analog Power)
NV_PLLAVDD
L102
NV_VDD
C1191 NV_0.1U_16V_Y_Y 0402
C1192 NV_4.7U_10V_Y_Y 0805
NV_120R-100MHZ_0603 EBMS160808A121
C1216 NC_1000P_50V_K_B 0402
Place close to L102
NB8X 1.2V
19.81A(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 11/10 FAE suggest to NC C1193
NVVDD_SENSE
NC_0.01U_16V_K_B 0402
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
CAP32 NV_470U_2.5V_7343 2R5TPE470M9
H_PLLVDD is new power rail for NB8M
15mA(Power rail)
L76
NV_220R-100MHZ_0603 FCM1608KF-221T05
PEX_VDD
C347 NV_0.1U_16V_M_B 0402
C1194 NV_4.7U_10V_Y_Y 0805
R1544 NC_10K_J 0402
TP618 26MIL
TP617 26MIL
TP620 26MIL
TP622 26MIL
TP623 26MIL
TP625 26MIL
TP627 26MIL
TP631 26MIL
TP630 26MIL
TP633 26MIL
TP586 26MIL
TP587 26MIL
TP590 26MIL
TP955 26MIL
TP956 26MIL
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
VGA (GDDR/I2C/ROM) 4 OF 8
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
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Date: Thursday, May 10, 2007
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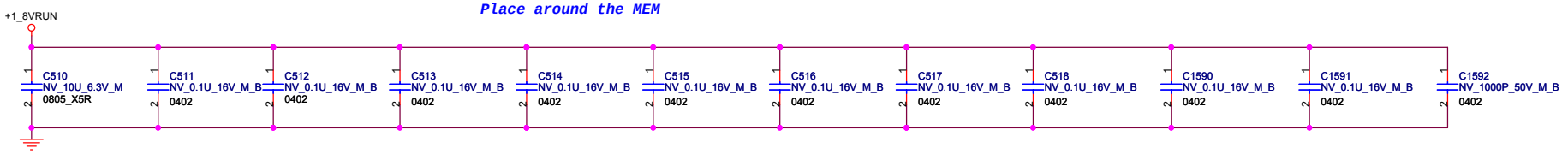
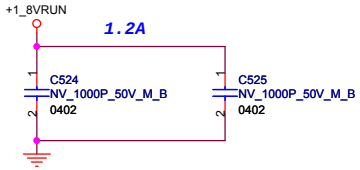
Decoupling for Tright MEMORY

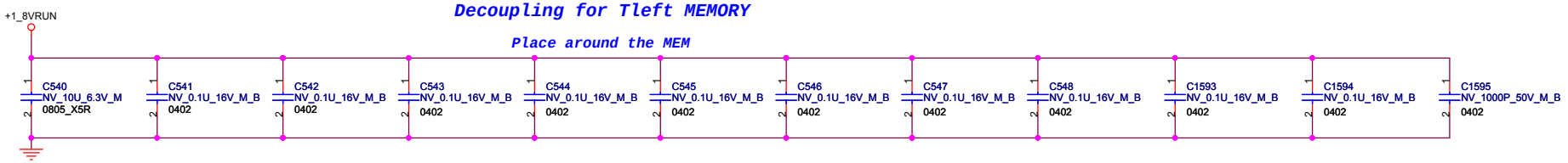
Place around the MEM

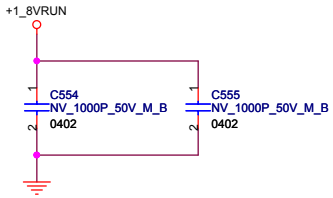




Decoupling for Tleft MEMORY

Place around the MEM





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

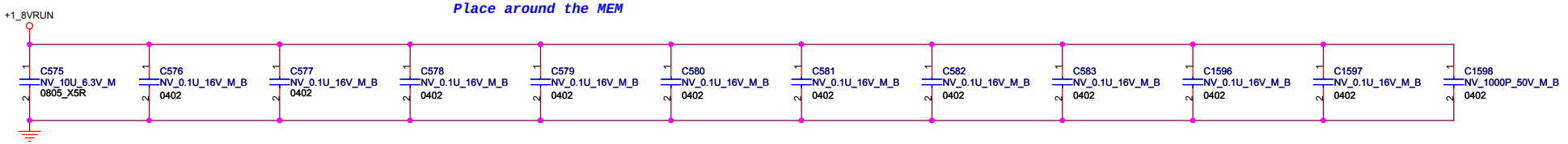
Title: VRAM (GDDR) 3 OF 4

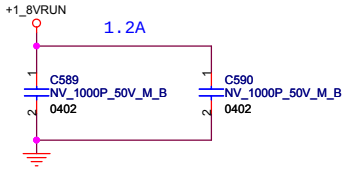
Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Thursday, May 10, 2007 | Sheet 27 of 77

Decoupling for Bright MEMORY

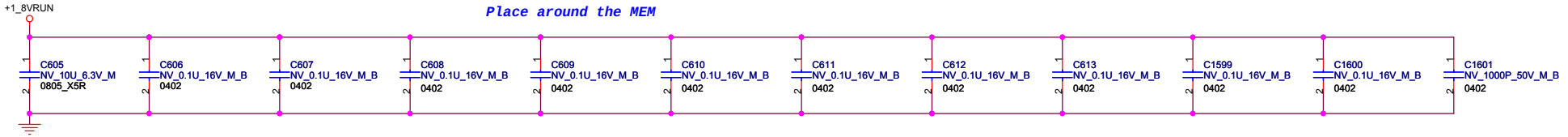
Place around the MEM

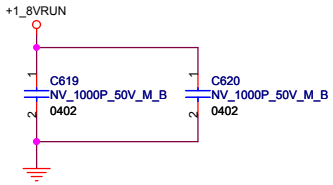




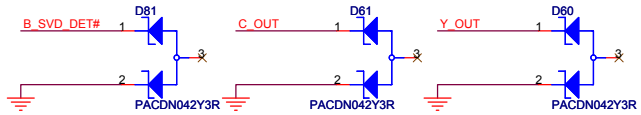
Decoupling for Bleft MEMORY

Place around the MEM

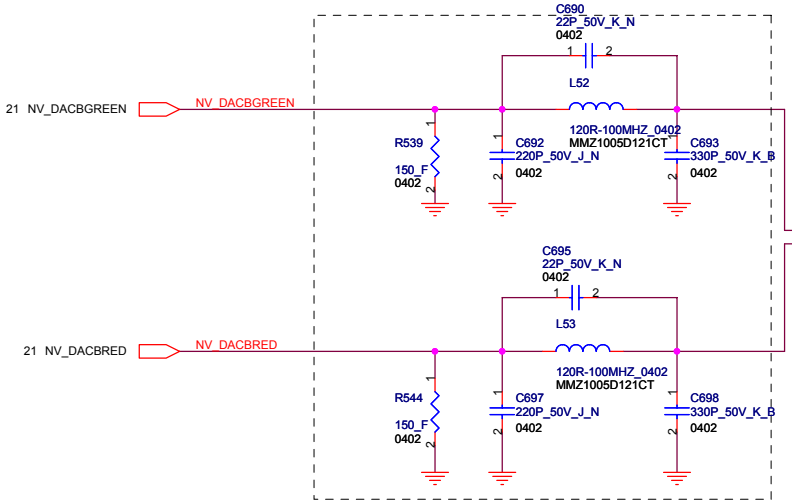




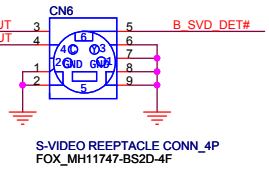
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VRAM (POWERBYPASS) 4 OF 4	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 28 of 77	

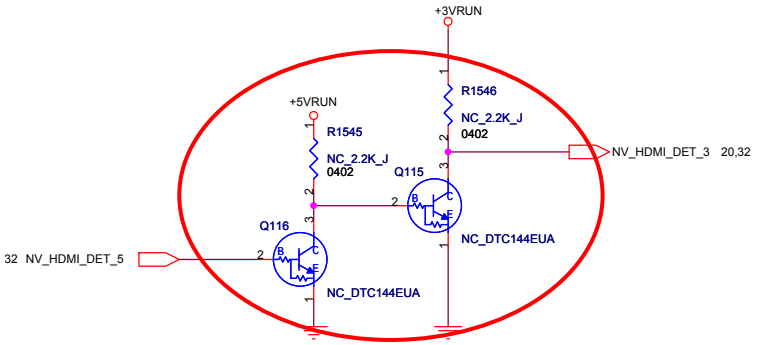


These compoent close to S-Video connector within 700 mil



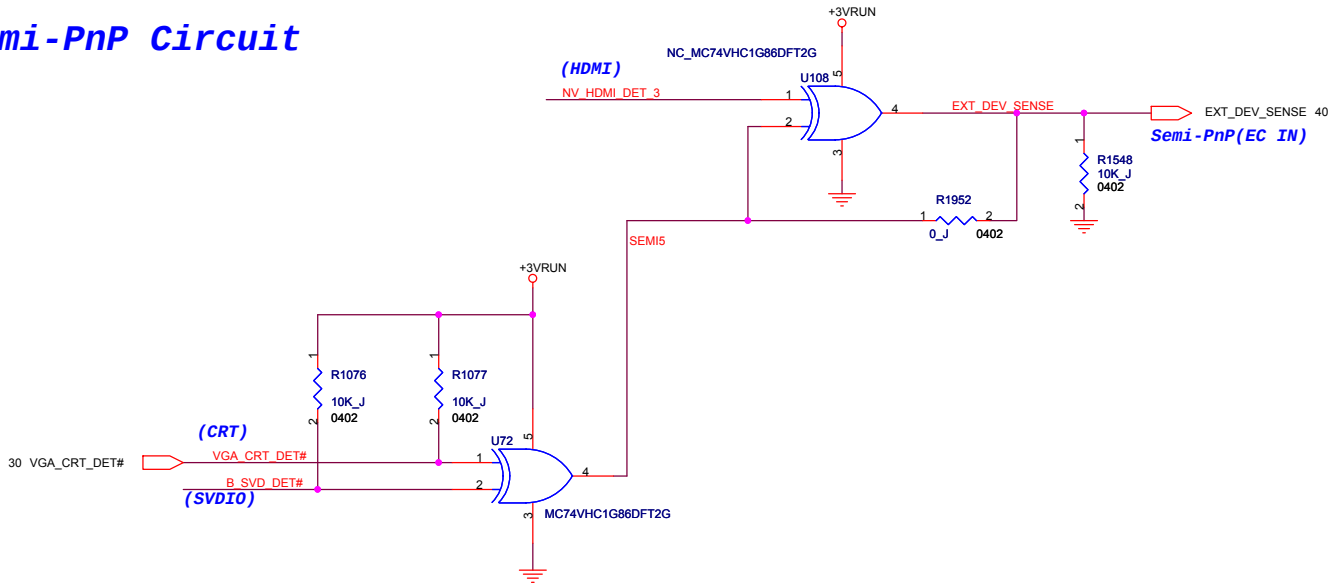
S-VIDEO CONNECTOR





PS101 HPD has level shift function, so backup this circuit
Change Q115,Q116,R1545,R1546 to NC

Semi-PnP Circuit



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	S-VIDEO/Semi-PnP	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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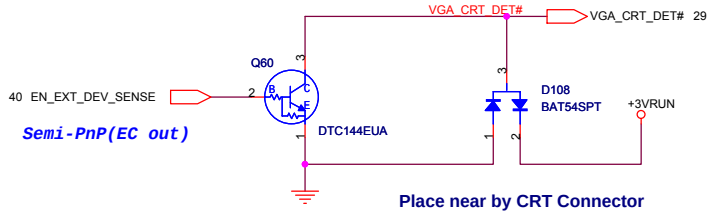
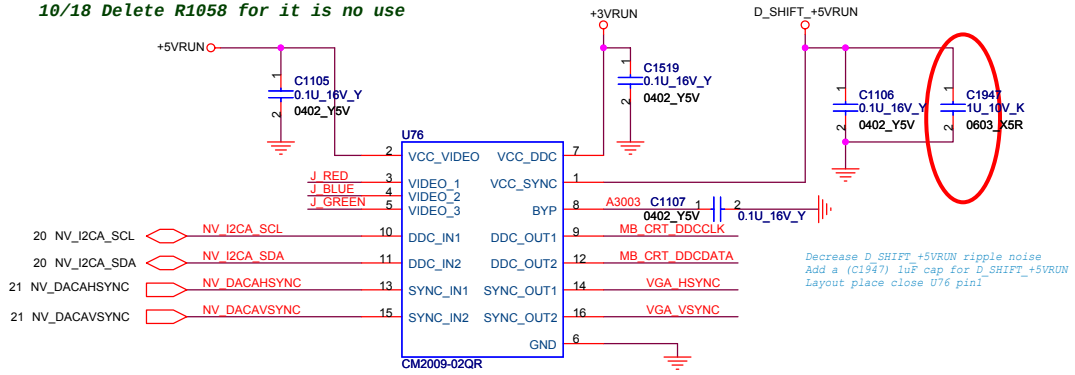
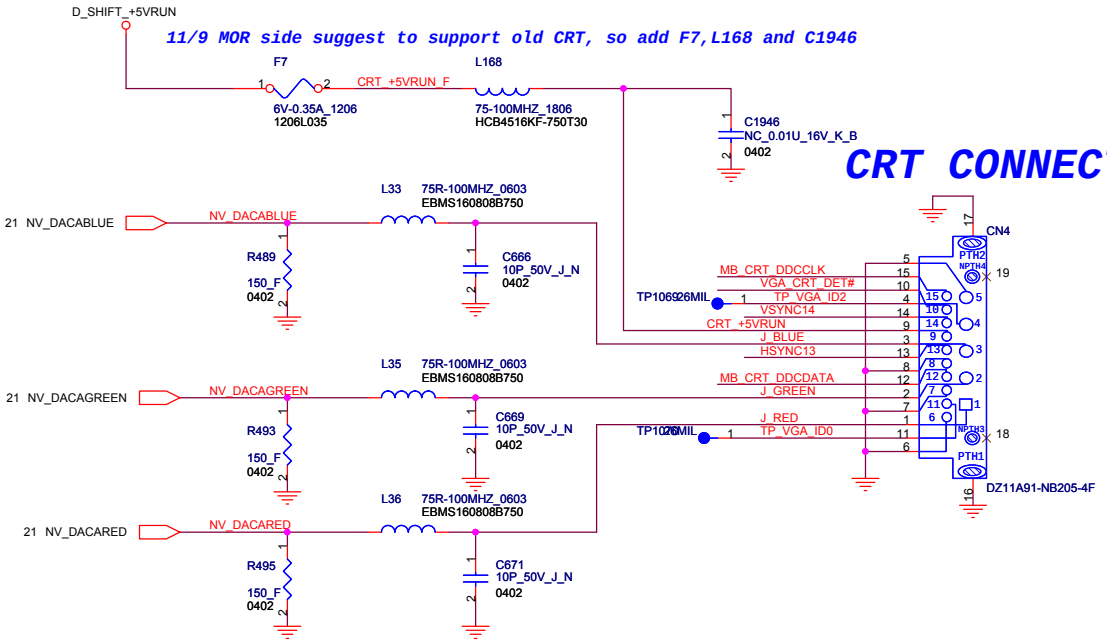
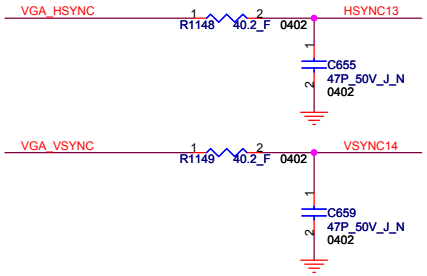


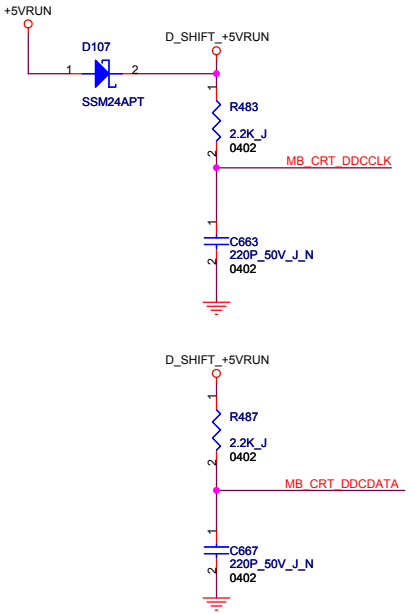
10/18 Delete R1058 for it is no use





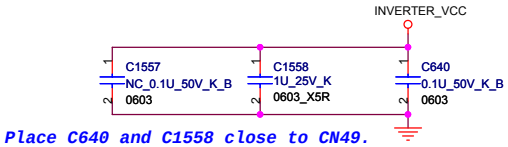


11/8 Change R1148,R1149 from 0ohm to 40ohm
for meet CM2009-02 termination Spec

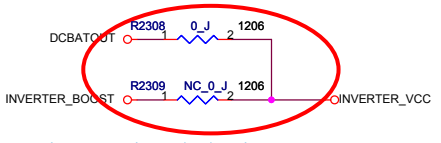


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: CRT		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 30 of 77	

LVDS CONNECTOR

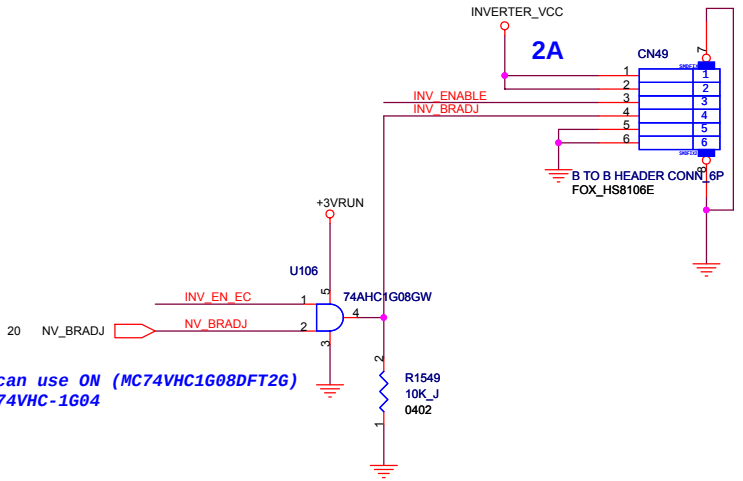


Place C640 and C1558 close to CN49.

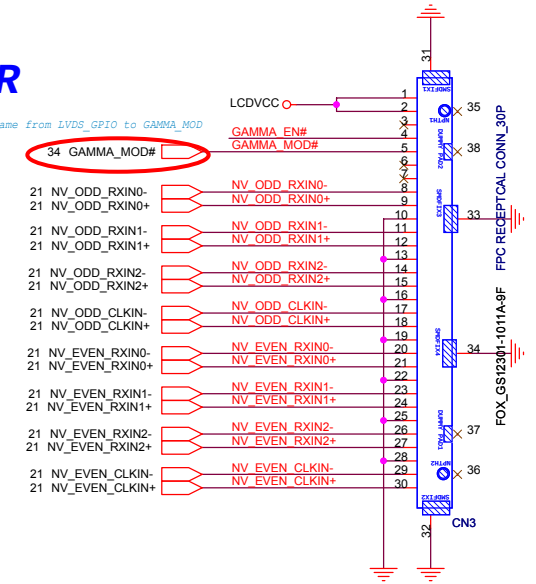


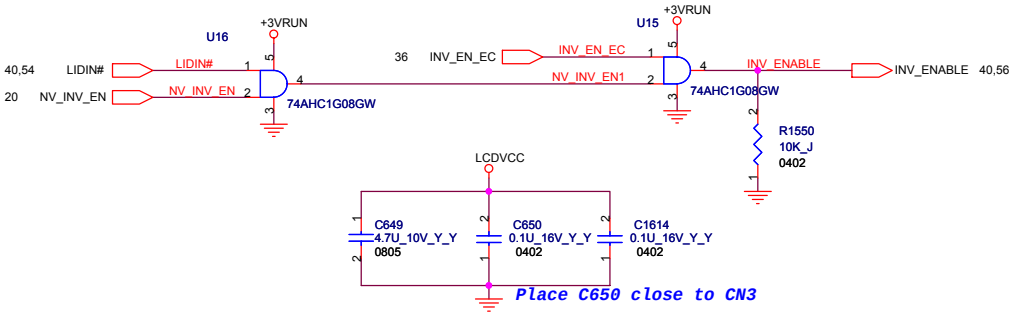
Backup Inverter boost circuit and use DCBATOUT as INVERTER_VCC
Change R2308 from NC to mount
Change R2309 from mount to NC

INVERTER CONNECTOR

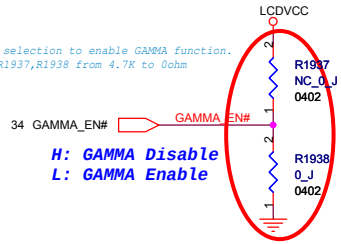


U106,U15,U16 can use ON (MC74VHC1G08DFT2G)
H.H. PN:14-MC74VHC-1G04

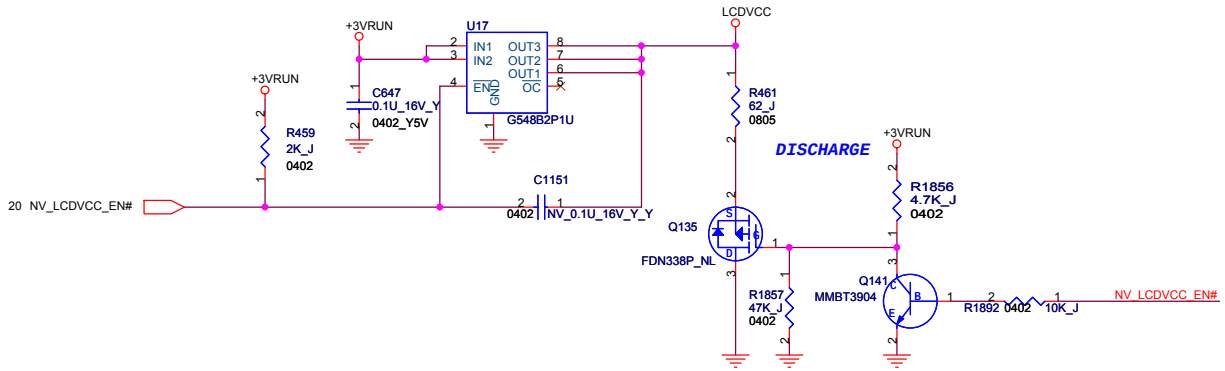




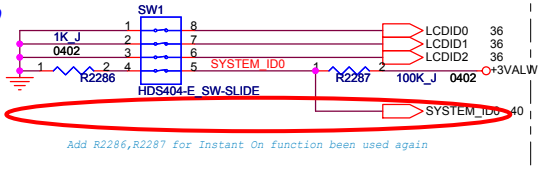
Place C650 close to CN3



Current limit is from 1.1A to 2.1A.



PANEL ID



Add R2286,R2287 for Instant On function been used again

Type	WXGA+	WXGA+	WUXGA	WUXGA
Size	17" wide	17" wide	17" wide	17" wide
Vender	LG.PHILIPS	LG.PHILIPS	SHARP	SHARP
Device Name	LP171WP74-TLA1	LP171WP7-TLA1	LQ170M11LA4G	LQ170M11LA4B
Panel ID Check[2..0]	1 Lamps(New) 010	2 Lamps(New) 001	2 Lamps(New) 100	2 Lamps(Old) 101

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

Title: LVDS

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

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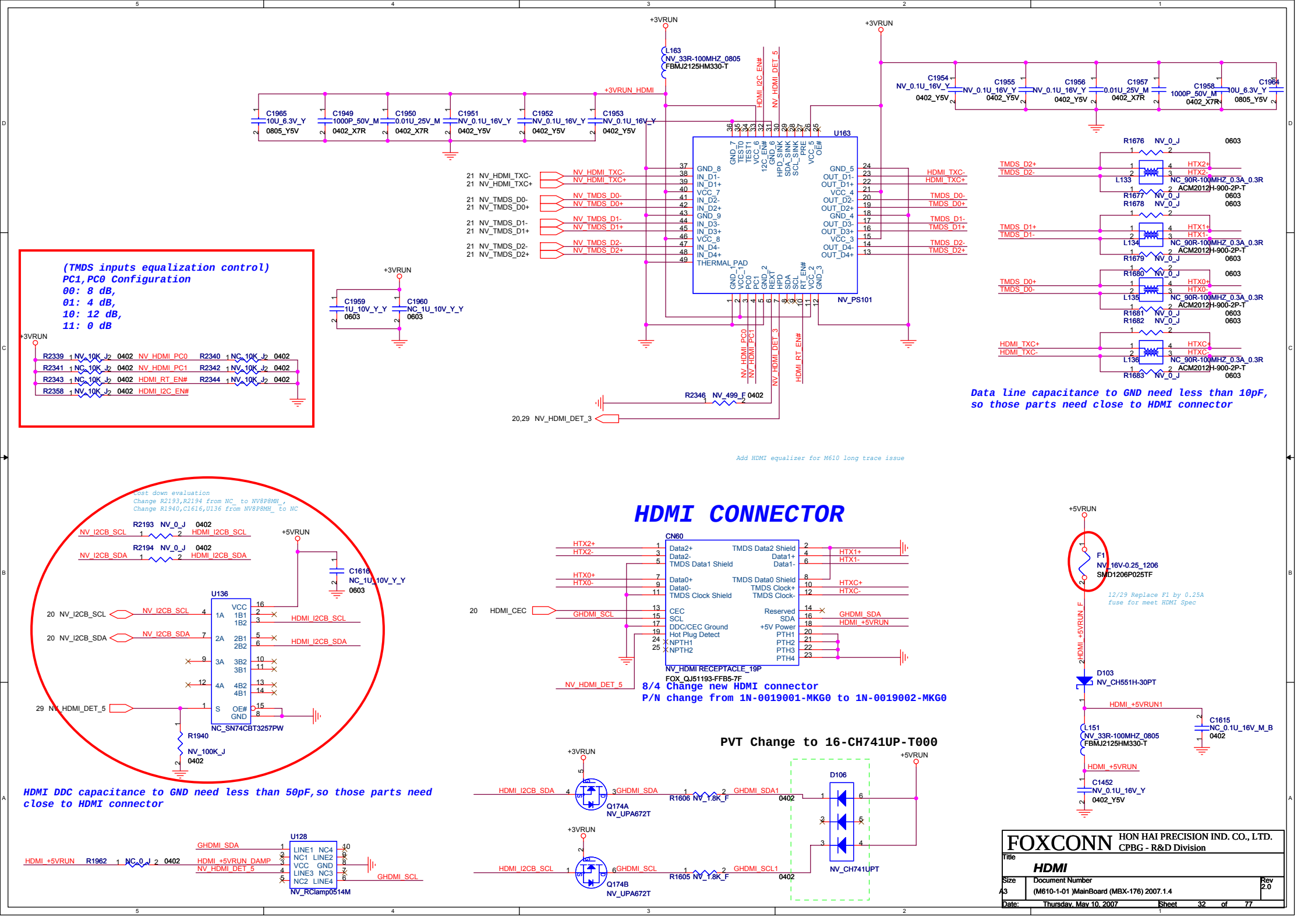
(TMDS inputs equalization control)
PC1,PC0 Configuration
00: 8 dB,
01: 4 dB,
10: 12 dB,
11: 0 dB
Data line capacitance to GND need less than 10pF, so those parts need close to HDMI connector
Add HDMI equalizer for M610 long trace issue
HDMI CONNECTOR
8/4 Change new HDMI connector
P/N change from 1N-0019001-MKG0 to 1N-0019002-MKG0
PVT Change to 16-CH741UP-T000
HDMI DDC capacitance to GND need less than 50pF,so those parts need close to HDMI connector
Cost down evaluation
Change R2193,R2194 from NC_ to NV8P8MH_,
Change R1940,C1616,U136 from NV8P8MH_ to NC
12/29 Replace F1 by 0.25A fuse for meet HDMI Spec
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
HDMI
Size
A3
Document Number
(M610-1-01)MainBoard (MBX-176) 2007.1.4
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2.0
Date:
Thursday, May 10, 2007
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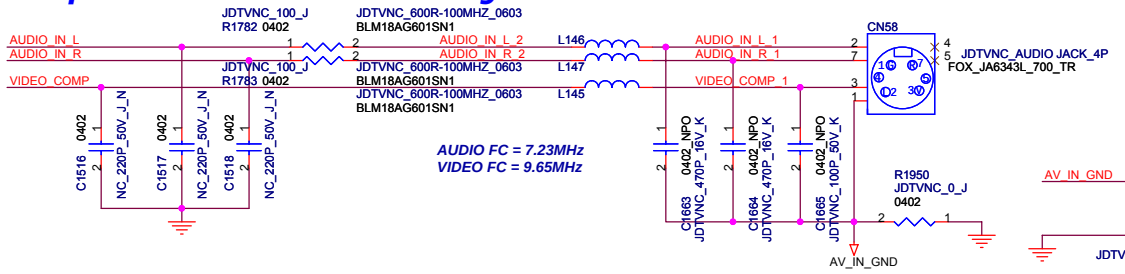
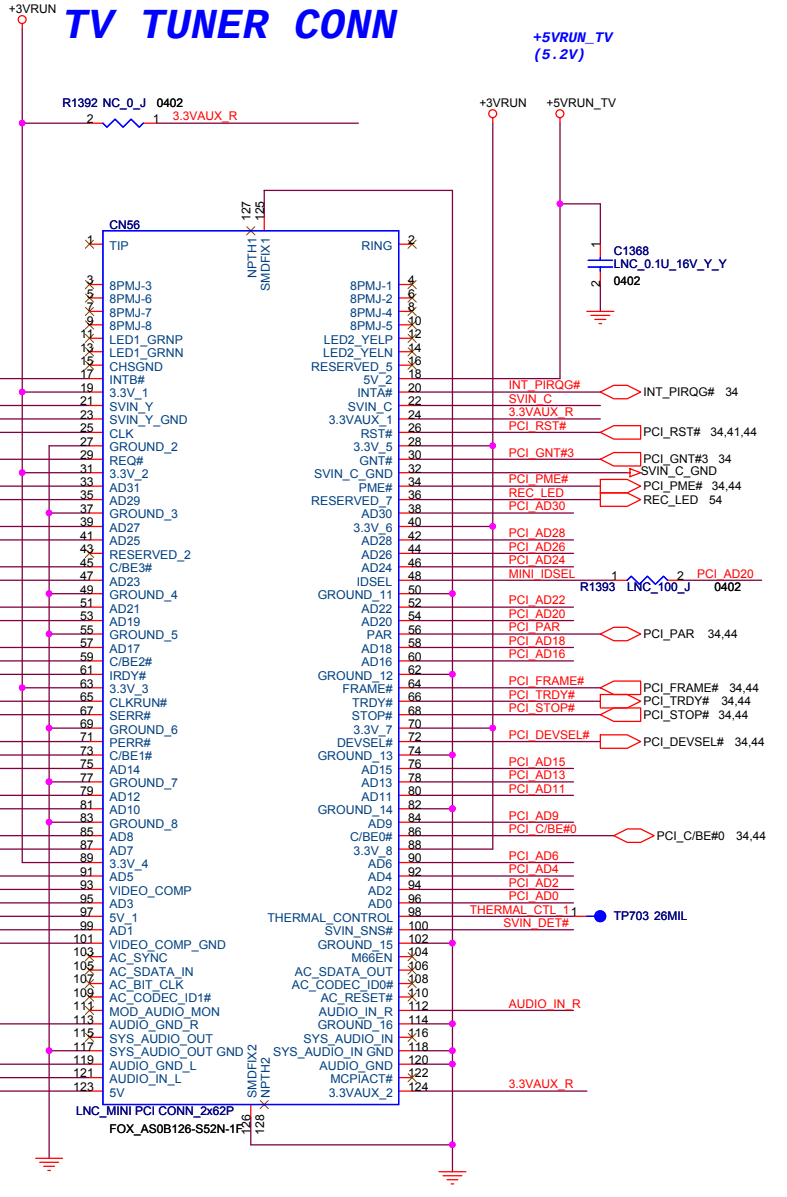
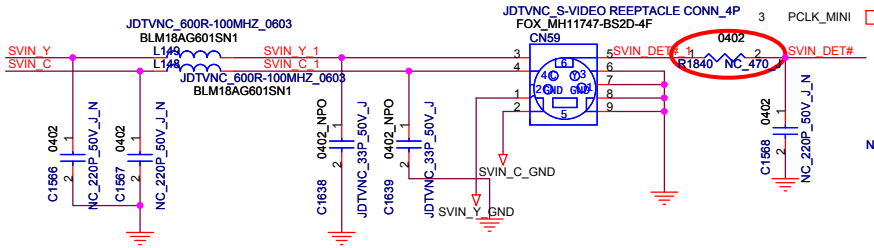
Special mini stereo jack



TV TUNER CONN

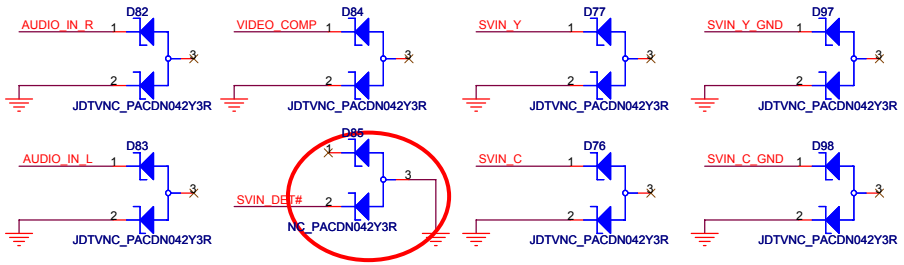


S-VIDEO IN

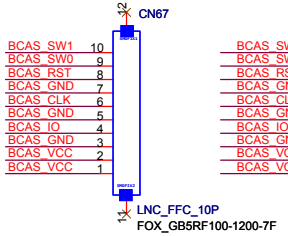


TV tuner "SVIN_DET#" signal no use.
Change R1840,D85 to NC

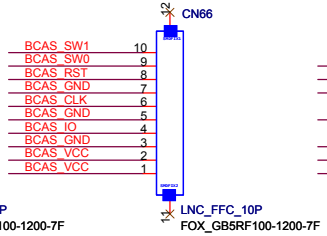
TV-TUNER not support CLKRUN



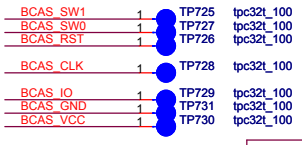
B-CAS connentor (Close to TV Tuner)

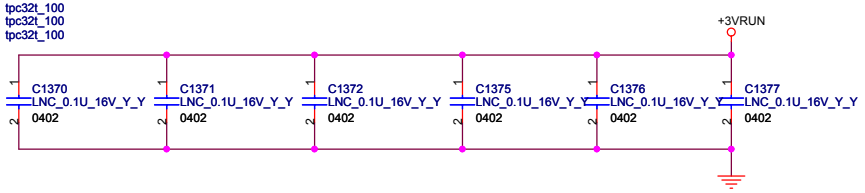


FFC CONNECT TO TV TUNER BOARD (FOR JP DIAGITAL)



BFT Test Pad





FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	MINI-PCI CONN.	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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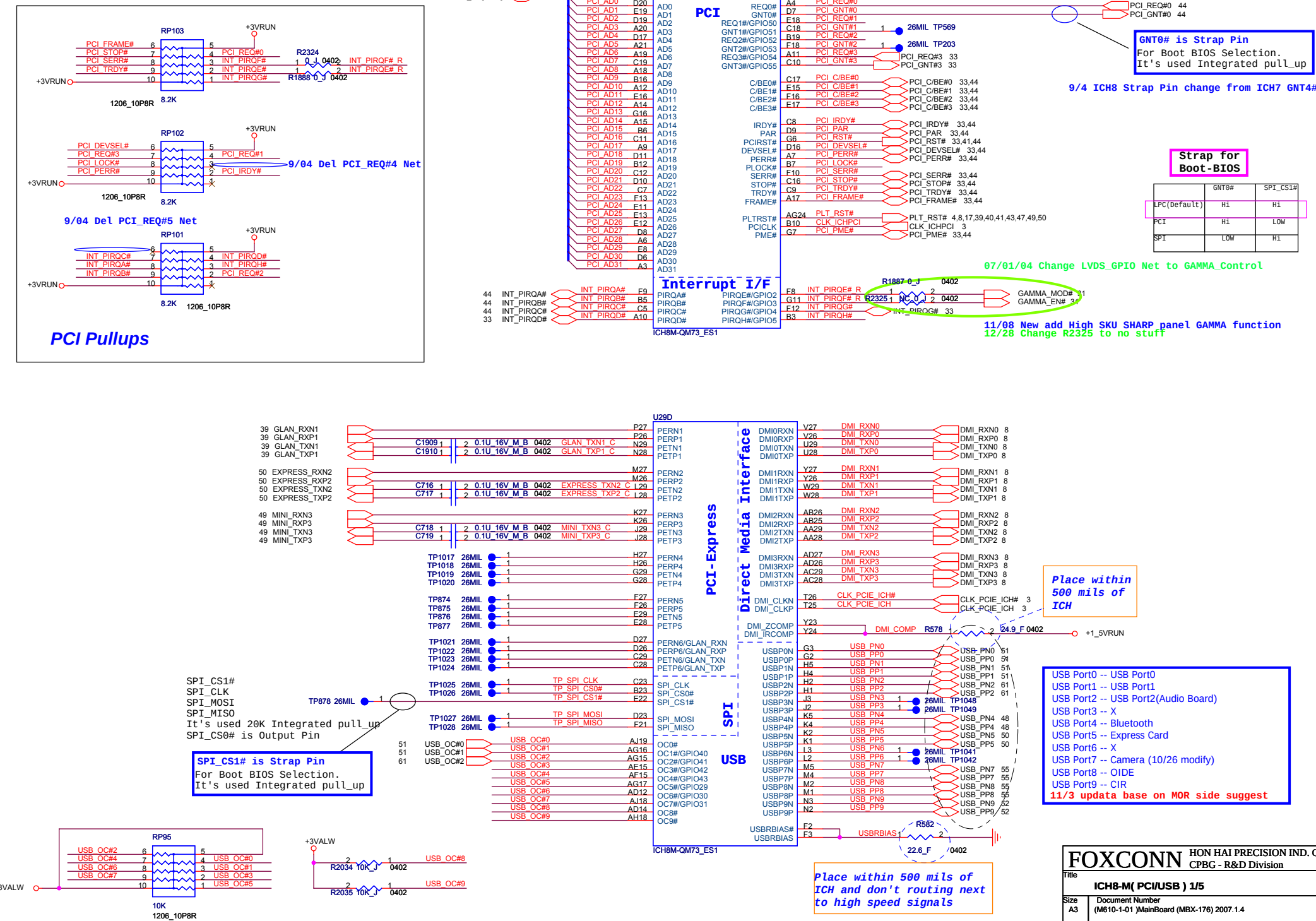
Difference ICH7&ICH8
1.Del REQ4/GNT4,REQ5/GNT5
2.Change Strap Pin station(GNT4#-->GNT0#)
PCI Pullups
RP103
RP102
RP101
RP95
1206_10P8R
8.2K
10K
9/04 Del PCI_REQ#4 Net
9/04 Del PCI_REQ#5 Net
U29B
PCI
Interrupt I/F
ICH8M-QM73_ES1
GNT0# is Strap Pin
For Boot BIOS Selection.
It's used Integrated pull_up
9/4 ICH8 Strap Pin change from ICH7 GNT4#
Strap for Boot-BIOS
07/01/04 Change LVDS_GPIO Net to GAMMA_Control
11/08 New add High SKU SHARP panel GAMMA function
12/28 Change R2325 to no stuff
U29D
PCI-Express
Direct Media Interface
SPI
USB
SPI_CS1#
SPI_CLK
SPI_MOSI
SPI_MISO
It's used 20K Integrated pull_up
SPI_CS0# is Output Pin
SPI_CS1# is Strap Pin
For Boot BIOS Selection.
It's used Integrated pull_up
Place within 500 mils of ICH
USB Port0 -- USB Port0
USB Port1 -- USB Port1
USB Port2 -- USB Port2(Audio Board)
USB Port3 -- X
USB Port4 -- Bluetooth
USB Port5 -- Express Card
USB Port6 -- X
USB Port7 -- Camera (10/26 modify)
USB Port8 -- OIDE
USB Port9 -- CIR
11/3 updata base on MOR side suggest
Place within 500 mils of ICH and don't routing next to high speed signals
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
ICH8-M(PCI/USB) 1/5
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Thursday, May 10, 2007
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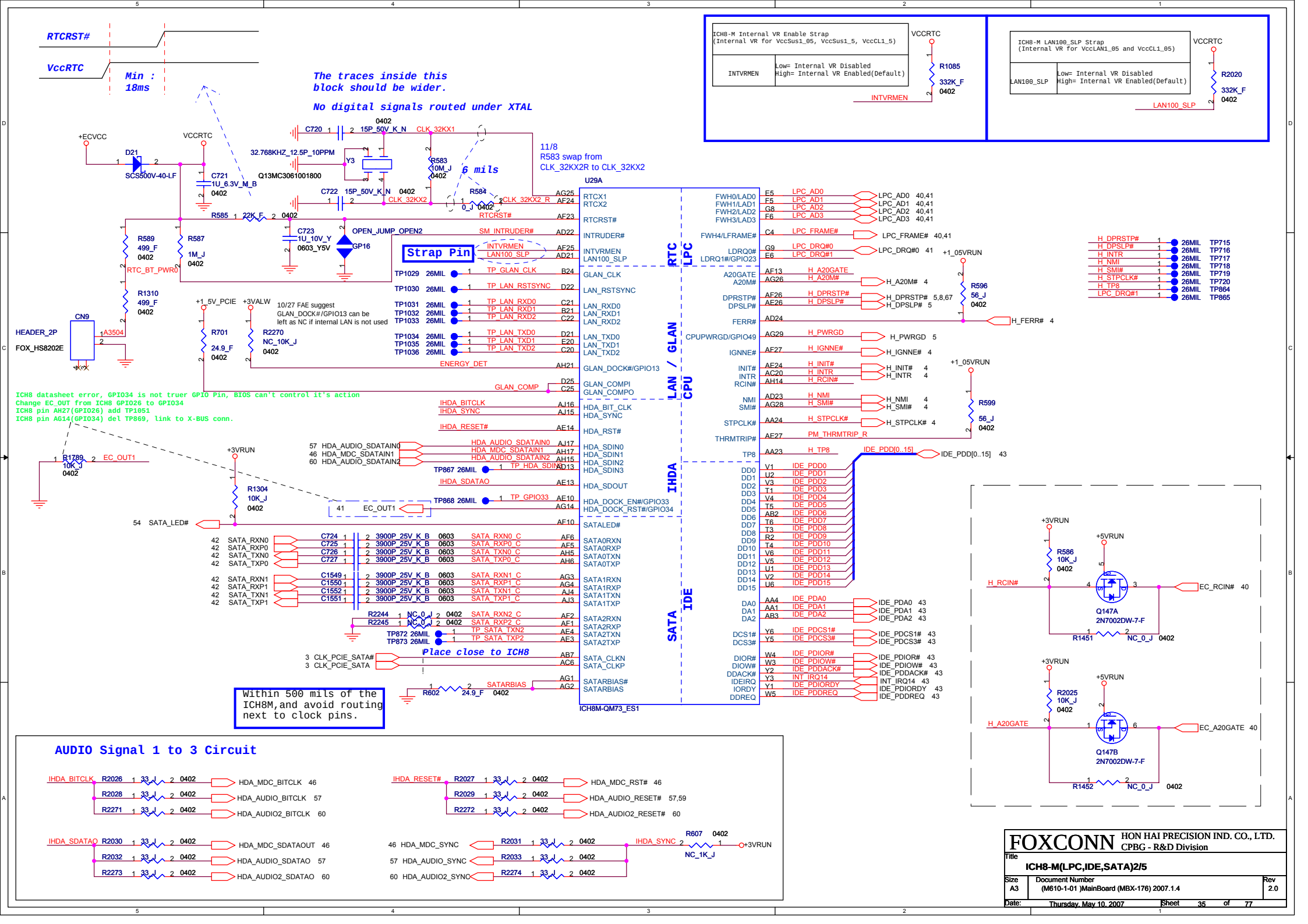
RTCRST#
VccRTC
Min : 18ms
The traces inside this block should be wider.
No digital signals routed under XTAL
ICH8-M Internal VR Enable Strap (Internal VR for VccSus1_05, VccSus1_5, VccCL1_5)
INTVRMEN
Low= Internal VR Disabled
High= Internal VR Enabled(Default)
VCCRTC
R1085
332K_F
0402
INTVRMEN
ICH8-M LAN100_SLP Strap (Internal VR for VccLAN1_05 and VccCL1_05)
LAN100_SLP
Low= Internal VR Disabled
High= Internal VR Enabled(Default)
R2020
332K_F
0402
11/8
R583 swap from CLK_32KX2R to CLK_32KX2
6 mils
U29A
Strap Pin
INTVRMEN
LAN100_SLP
RTC
LPC
LAN / GLAN
CPU
IHDA
SATA
IDE
ICH8 datasheet error, GPIO34 is not truer GPIO Pin, BIOS can't control it's action
Change EC_OUT from ICH8 GPIO26 to GPIO34
ICH8 pin AH27(GPIO26) add TP1051
ICH8 pin AG14(GPIO34) del TP869, link to X-BUS conn.
10/27 FAE suggest
GLAN_DOCK#/GPIO13 can be left as NC if internal LAN is not used
Place close to ICH8
Within 500 mils of the ICH8M,and avoid routing next to clock pins.
ICH8M-QM73_ES1
AUDIO Signal 1 to 3 Circuit
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
ICH8-M(LPC,IDE,SATA)2/5
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Thursday, May 10, 2007
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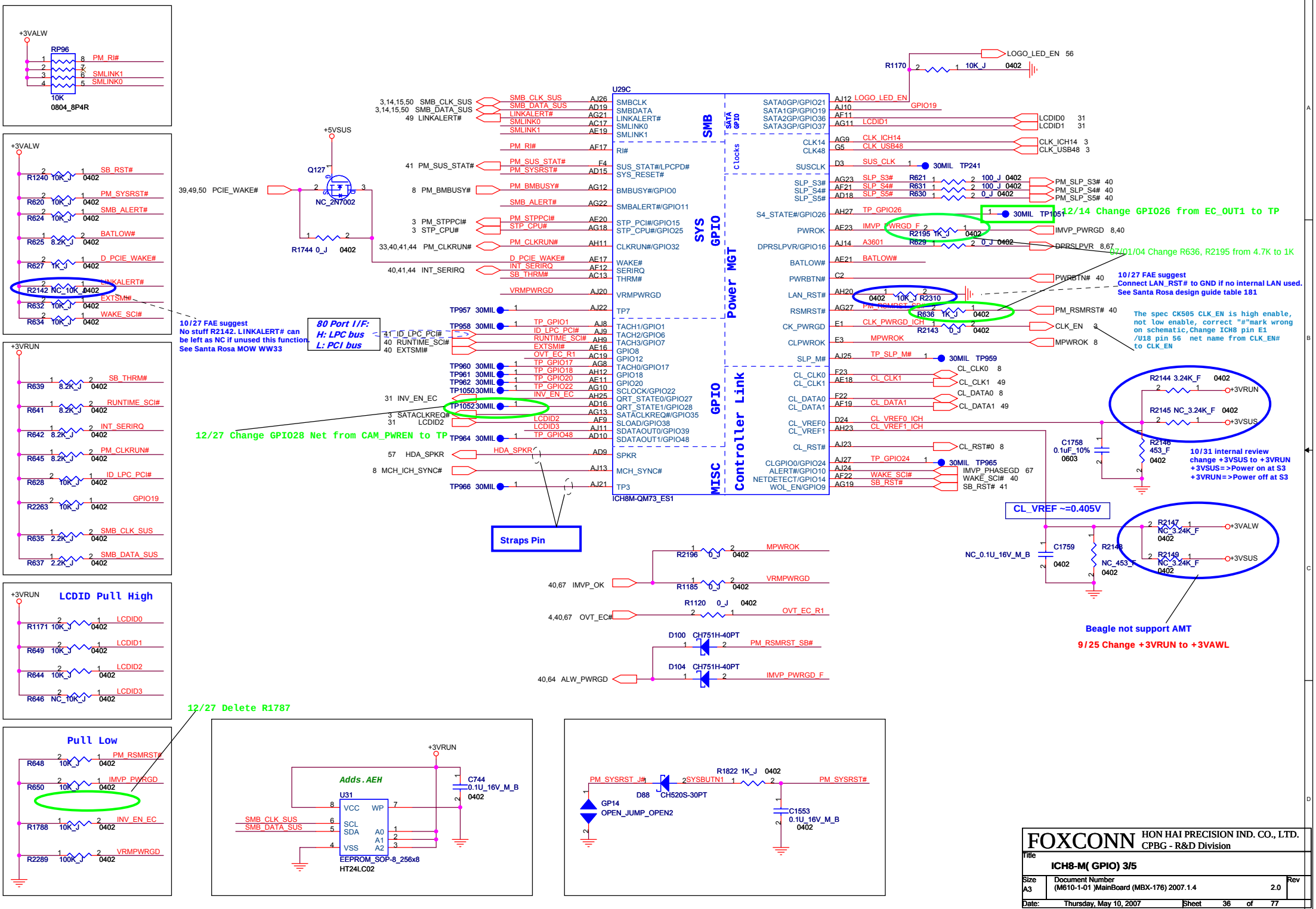
+3VALW
RP96
PM_RI#
SMLINK1
SMLINK0
10K
0804_8P4R
+3VALW
SB_RST#
PM_SYSRST#
SMB_ALERT#
BATLOW#
D_PCIE_WAKE#
LINKALERT#
EXTSMI#
WAKE_SCI#
+3VRUN
SB_THRM#
RUNTIME_SCI#
INT_SERIRQ
PM_CLKRUN#
ID_LPC_PCI#
GPIO19
SMB_CLK_SUS
SMB_DATA_SUS
+3VRUN
LCDID Pull High
LCDID0
LCDID1
LCDID2
LCDID3
Pull Low
PM_RSMRST#
IMVP_PWRGD
INV_EN_EC
VRMPWRGD
U29C
ICH8M-QM73_ES1
SMB
SYS GPIO
Power MGT
GPIO
Controller Link
MISC
SMBCLK
SMBDATA
LINKALERT#
SMLINK0
SMLINK1
RI#
SUS_STAT#/LPCPD#
SYS_RESET#
BMBUSY#/GPIO0
SMBALERT#/GPIO11
STP_PCI#/GPIO15
STP_CPU#/GPIO25
CLKRUN#/GPIO32
WAKE#
SERIRQ
THRM#
VRMPWRGD
TP7
TACH1/GPIO1
TACH2/GPIO6
TACH3/GPIO7
GPIO8
GPIO12
TACH0/GPIO17
GPIO18
GPIO20
SCLOCK/GPIO22
QRT_STATE0/GPIO27
QRT_STATE1/GPIO28
SATACLKREQ#/GPIO35
SLOAD/GPIO38
SDATAOUT0/GPIO39
SDATAOUT1/GPIO48
SPKR
MCH_SYNC#
TP3
SATA GPIO
C Locks
SATA0GP/GPIO21
SATA1GP/GPIO19
SATA2GP/GPIO36
SATA3GP/GPIO37
CLK14
CLK48
SUSCLK
SLP_S3#
SLP_S4#
SLP_S5#
S4_STATE#/GPIO26
PWROK
DPRSLPVR/GPIO16
BATLOW#
PWRBTN#
LAN_RST#
RSMRST#
CK_PWRGD
CLPWROK
SLP_M#
CL_CLK0
CL_CLK1
CL_DATA0
CL_DATA1
CL_VREF0
CL_VREF1
CL_RST#
CLGPIO0/GPIO24
ALERT#/GPIO10
NETDETECT/GPIO14
WOL_EN/GPIO9
LOGO_LED_EN
GPIO19
LCDID0
LCDID1
CLK_ICH14
CLK_USB48
SUS_CLK
SLP_S3#
SLP_S4#
SLP_S5#
TP_GPIO26
IMVP_PWRGD_F
A3601
BATLOW#
PWRBTN#
CLK_PWRGD_ICH
MPWROK
TP_SLP_M#
CL_CLK0
CL_CLK1
CL_DATA0
CL_DATA1
D24
CL_VREF0_ICH
CL_VREF1_ICH
CL_RST#0
TP_GPIO24
WAKE_SCI#
SB_RST#
IMVP_PHASEGD
WAKE_SCI#
SB_RST#
R1170 10K_J 0402
R621 100_J 0402
R631 100_J 0402
R630 0_J 0402
R2195 1K_J 0402
R629 0_J 0402
R2310 10K_J 0402
R636 1K_J 0402
R2143 0_J 0402
TP1051 30MIL
TP959 30MIL
TP965 30MIL
TP241 30MIL
PM_SLP_S3# 40
PM_SLP_S4# 40
PM_SLP_S5# 40
IMVP_PWRGD 8,40
DPRSLPVR 8,67
PWRBTN# 40
PM_RSMRST# 40
CLK_EN 8
MPWROK 8
CL_CLK0 8
CL_CLK1 49
CL_DATA0 8
CL_DATA1 49
IMVP_PHASEGD 67
WAKE_SCI# 40
SB_RST# 41
12/14 Change GPIO26 from EC_OUT1 to TP
07/01/04 Change R636, R2195 from 4.7K to 1K
10/27 FAE suggest
Connect LAN_RST# to GND if no internal LAN used.
See Santa Rosa design guide table 181
The spec CK505 CLK_EN is high enable, not low enable, correct "#"mark wrong on schematic,Change ICH8 pin E1 /U18 pin 56 net name from CLK_EN# to CLK_EN
10/27 FAE suggest
No stuff R2142. LINKALERT# can be left as NC if unused this function.
See Santa Rosa MOW WW33
80 Port I/F:
H: LPC bus
L: PCI bus
12/27 Change GPIO28 Net from CAM_PWREN to TP
Straps Pin
R2144 3.24K_F 0402
R2145 NC_3.24K_F 0402
R2146 453_F 0402
C1758 0.1uF_10% 0603
10/31 internal review
change +3VSUS to +3VRUN
+3VSUS=>Power on at S3
+3VRUN=>Power off at S3
CL_VREF ~=0.405V
R2147 NC_3.24K_F 0402
R2148 NC_453_F 0402
R2149 NC_3.24K_F 0402
C1759 NC_0.1U_16V_M_B 0402
Beagle not support AMT
9/25 Change +3VRUN to +3VAWL
12/27 Delete R1787
Adds.AEH
U31
EEPROM_SOP-8_256x8
HT24LC02
C744 0.1U_16V_M_B 0402
R1822 1K_J 0402
D88 CH520S-30PT
GP14
OPEN_JUMP_OPEN2
C1553 0.1U_16V_M_B 0402
R2196 0_J 0402
R1185 0_J 0402
R1120 0_J 0402
D100 CH751H-40PT
D104 CH751H-40PT
PM_RSMRST_SB#
IMVP_PWRGD_F
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
ICH8-M(GPIO) 3/5
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
2.0
Rev
Date: Thursday, May 10, 2007
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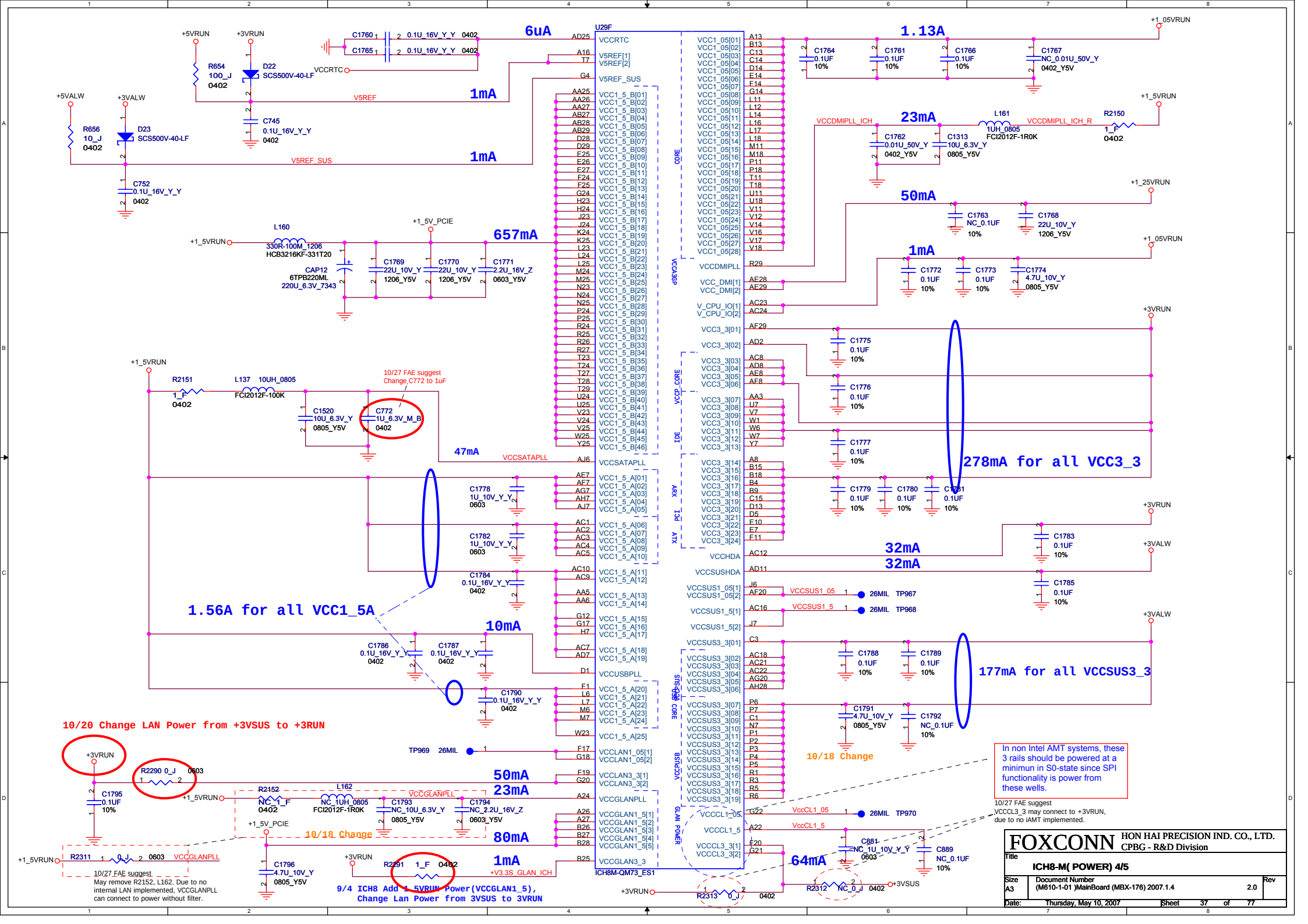
6uA
1mA
1mA
657mA
47mA
1.56A for all VCC1_5A
10mA
1.13A
23mA
50mA
1mA
278mA for all VCC3_3
32mA
32mA
177mA for all VCCSUS3_3
10/18 Change
64mA
80mA
1mA
50mA
23mA
10/20 Change LAN Power from +3VSUS to +3RUN
10/18 Change
9/4 ICH8 Add 1.5VRUN Power(VCCGLAN1_5), Change Lan Power from 3VSUS to 3VRUN
10/27 FAE suggest Change C772 to 1uF
In non Intel AMT systems, these 3 rails should be powered at a minimun in S0-state since SPI functionality is power from these wells.
10/27 FAE suggest VCCCL3_3 may connect to +3VRUN, due to no iAMT implemented.
10/27 FAE suggest May remove R2152, L162. Due to no internal LAN implemented, VCCGLANPLL can connect to power without filter.
U29F
ICH8M-QM73_ES1
FOXCONN
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ICH8-M(POWER) 4/5
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Thursday, May 10, 2007
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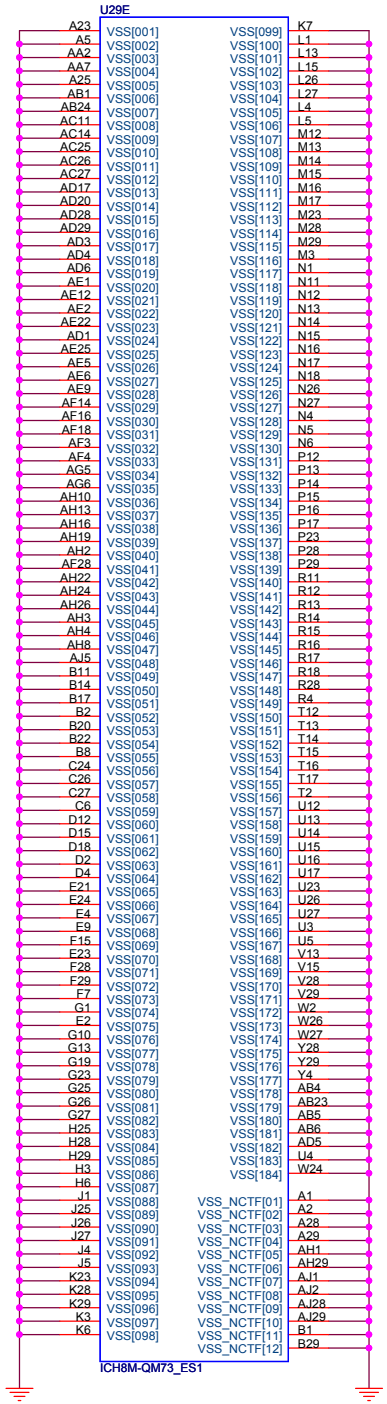

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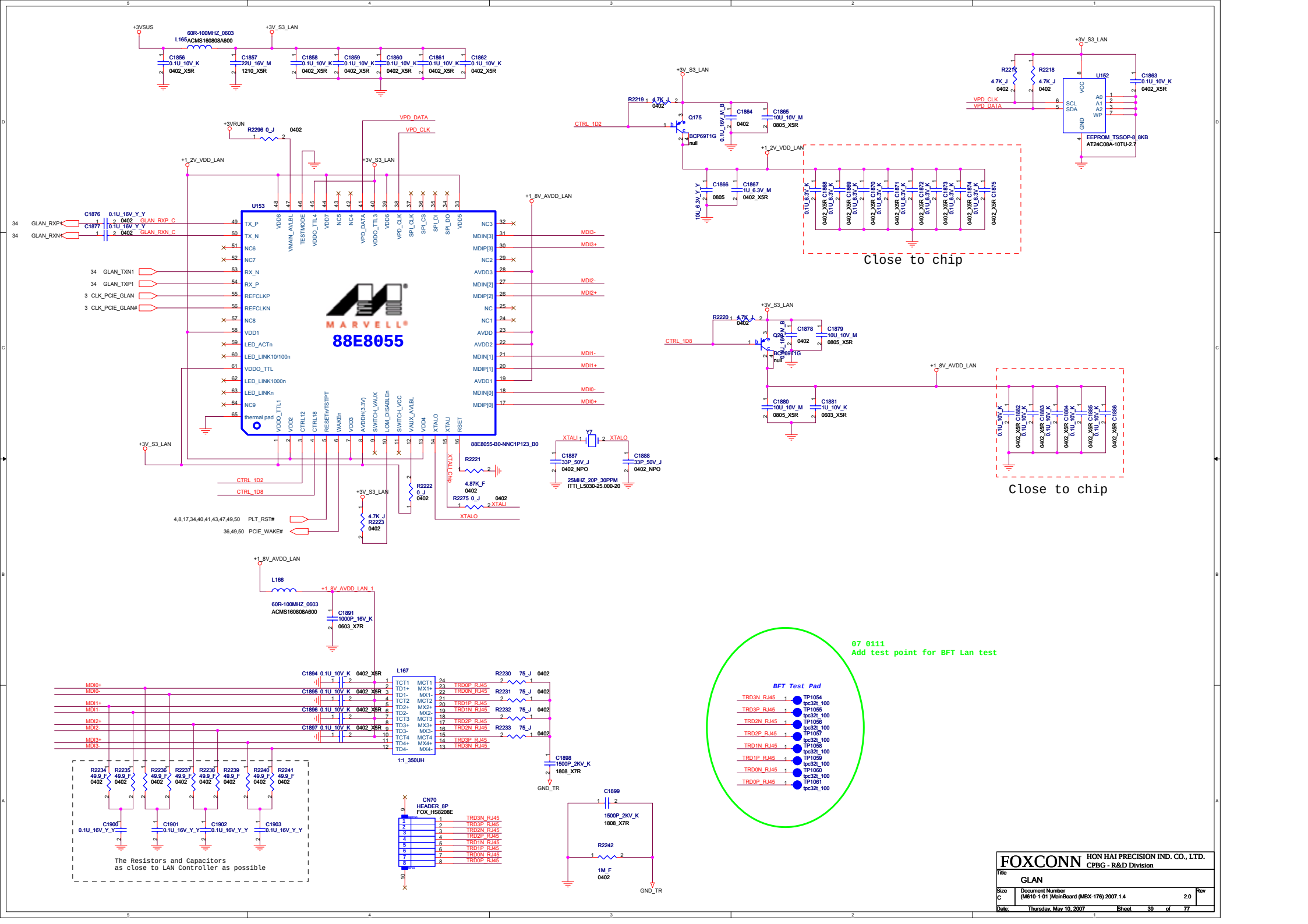
Title: ICH8-M(GND) 5/5		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 38 of 77	



FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title	GLAN	
Size C	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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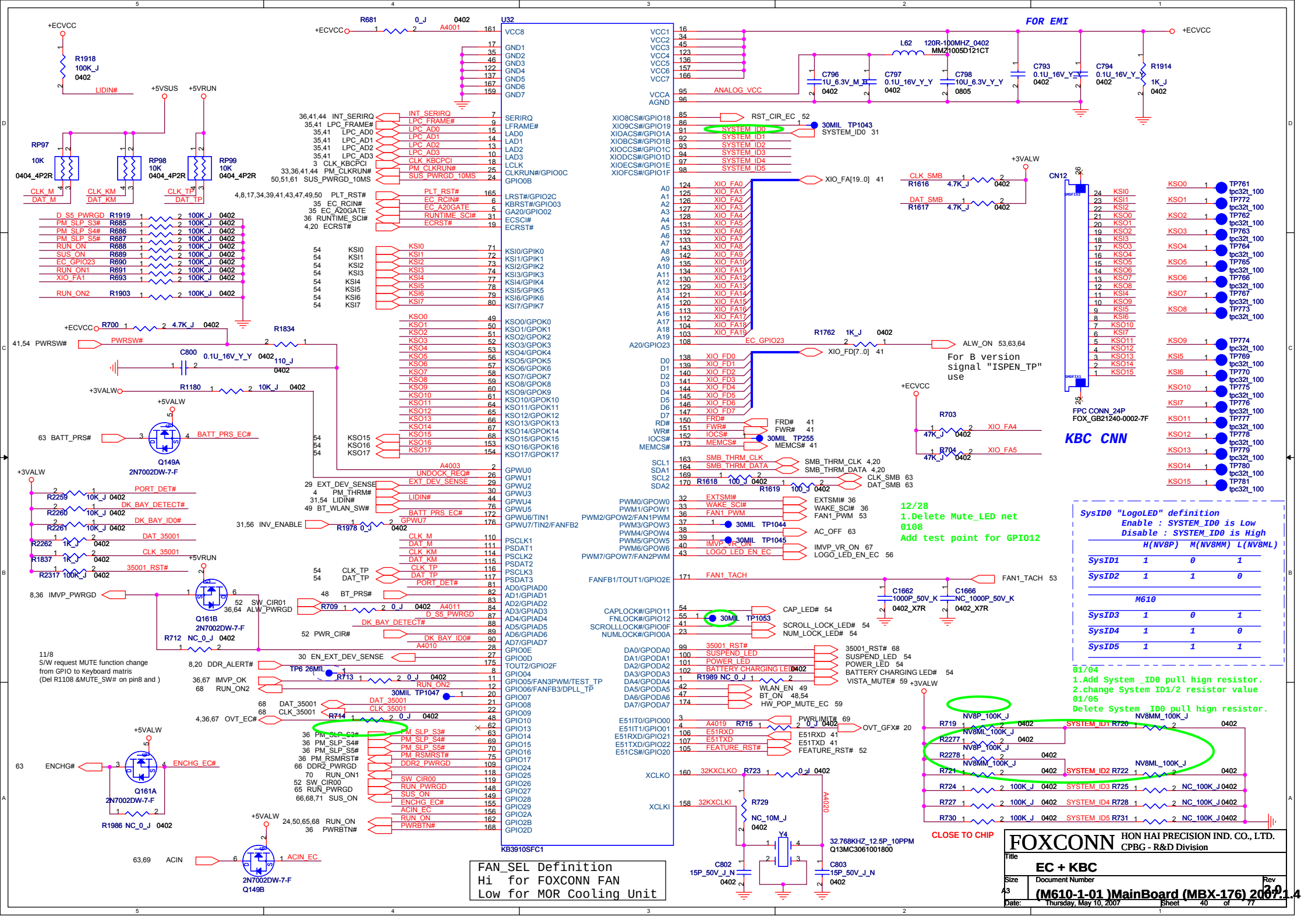
FOR EMI
U32
KB3910SFC1
CN12
FPC CONN_24P
FOX_GB21240-0002-7F
KBC CNN
For B version signal "ISPEN_TP" use
12/28
1.Delete Mute_LED net
0108
Add test point for GPIO12
SysID0 "LogoLED" definition
Enable : SYSTEM_ID0 is Low
Disable : SYSTEM_ID0 is High
H(NV8P) M(NV8MM) L(NV8ML)
SysID1 1 0 1
SysID2 1 1 0
M610
SysID3 1 0 1
SysID4 1 1 0
SysID5 1 1 1
01/04
1.Add System _ID0 pull hign resistor.
2.change System ID1/2 resistor value
01/05
Delete System _ID0 pull hign resistor.
11/8
S/W request MUTE function change from GPIO to Keyboard matris (Del R1108 &MUTE_SW# on pin8 and)
FAN_SEL Definition
Hi for FOXCONN FAN
Low for MOR Cooling Unit
CLOSE TO CHIP
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
EC + KBC
Size A3
Document Number
(M610-1-01)MainBoard (MBX-176) 2007.1.4
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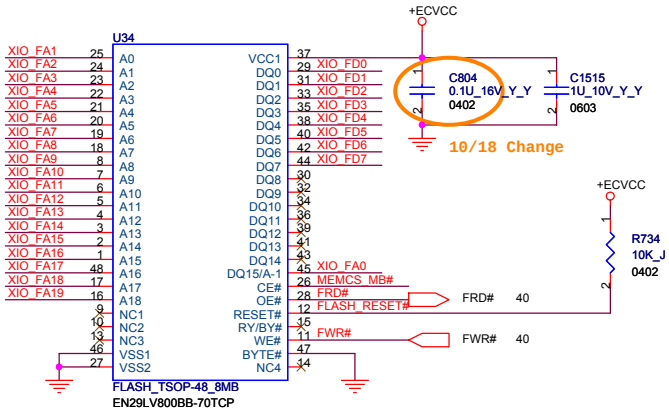
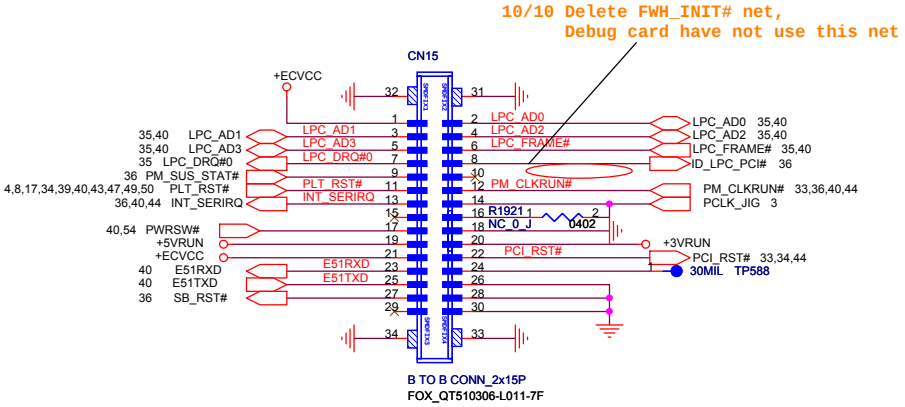
FLASH BIOS

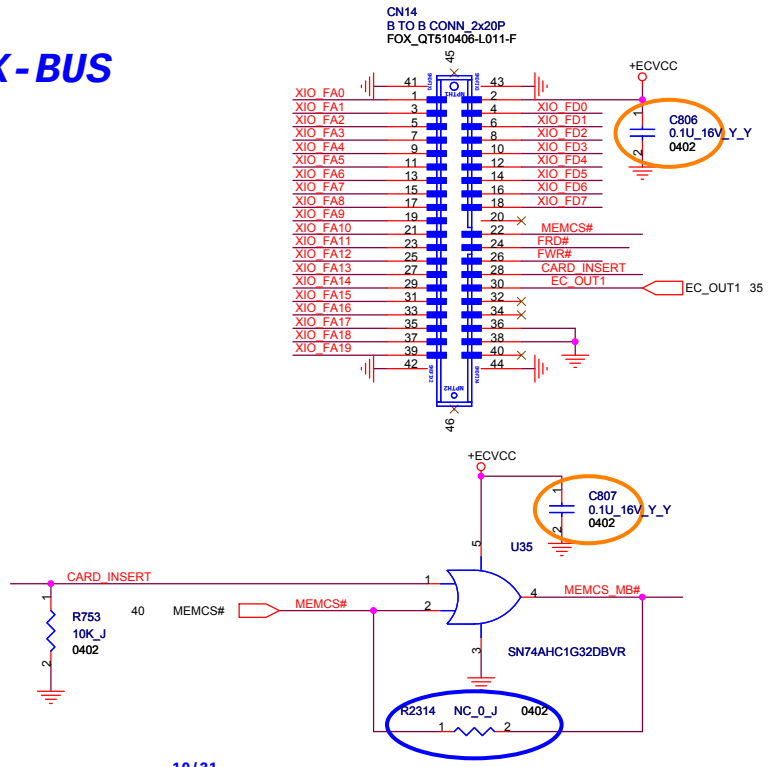
40 XIO_FA[19..0]
40 XIO_FD[7..0]



JIG-120



X-BUS



10/31
At M610 MP don't use X-BUS
CN14,U35,R753,C807 need NC
R2314 need stuff

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: Flash ROM + Jig-120 + XBUS

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

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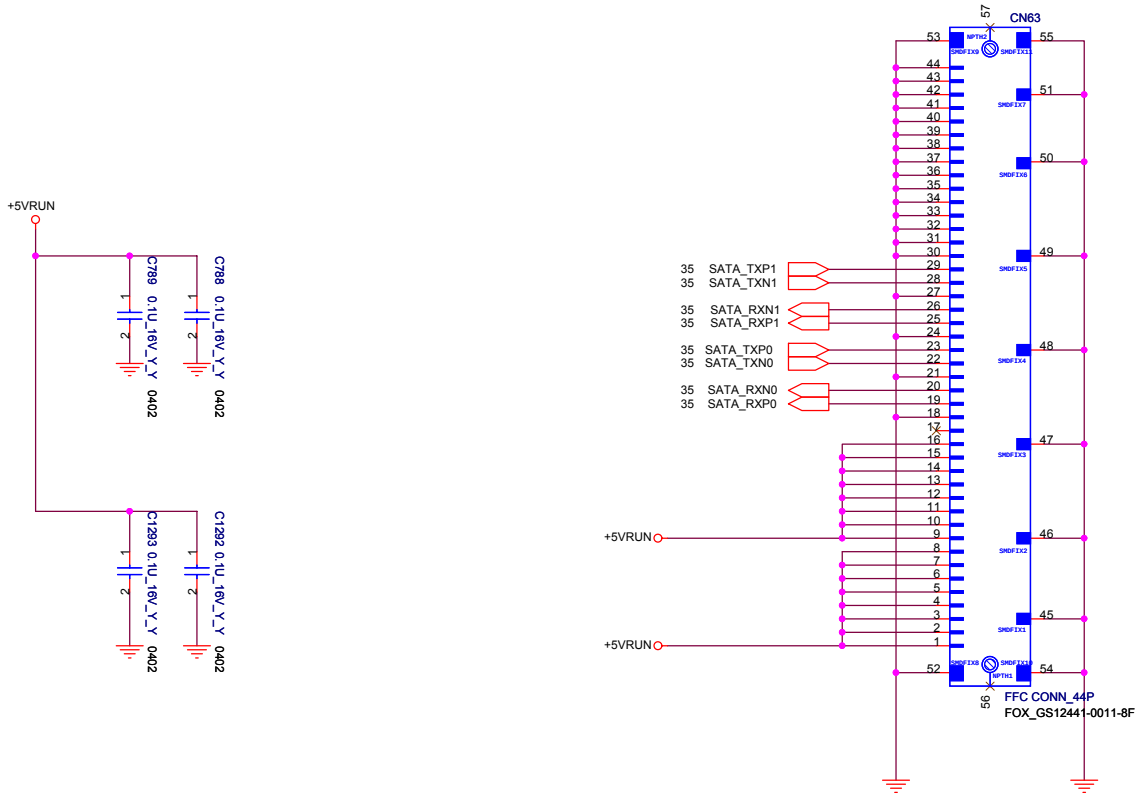

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: SATA HDD RAID		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
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11/3
MOR side suggest IRQ and IORDY pin
add pull up resistance by +5VRUN
(NC: R993 and R996)
Refer to MS90 schematics.

CD-ROM CONN

ODD must Master
H: Slave
L: Master

35 IDE_PDD[0..15] IDE_PDD[0..15]

+5VRUN +3VRUN +5VRUN +3VRUN

R997 4.7K_J 0402
R993 NC_4.7K_J 0402
R998 8.2K_J 0402
R996 NC_8.2K_J 0402

R994 0_J 0402 TP107126MIL

C1025 4.7U_10V_Y_Y 0805
C1024 1000P_50V_M_B 0402
C1023 0.1U_16V_Y_Y 0402
C1667 0.1U_16V_Y_Y 0402
+5VRUN

C1908 NC_0.1U_16V_Y_Y 0402

R995 10K_J 0402

R990 47_J 0402

C1668 100P_50V_K 0402_NPO

C1906 NC_0.1U_16V_Y_Y 0402

C1905 NC_0.1U_16V_Y_Y 0402

C1907 NC_0.1U_16V_Y_Y 0402

CN32
FOX_QT8H0506-H111R-4F
B TO B CONN_50P

Pin	Left	Right	Pin
49	NC_1	NC_2	50
47	CSEL	GND_8	48
45	GND_3	GND_7	46
43	GND_2	GND_6	44
41	+5V_2	+5V_5	42
39	+5V_1	+5V_4	40
37	DASP#	+5V_3	38
35	CS1FX#	CS3FX#	36
33	DA0	DA2	34
31	DA1	PDIAG#	32
29	INTRQ	IOCS16#	30
27	IORDY	DMACK#	28
25	DIOW#	GND_5	26
23	GND_1	DIOR#	24
21	DD0	DMARQ	22
19	DD1	DD15	20
17	DD2	DD14	18
15	DD3	DD13	16
13	DD4	DD12	14
11	DD5	DD11	12
9	DD6	DD10	10
7	DD7	DD9	8
5	RESET#	DD8	6
3	AUDIO_GND	GND_4	4
1	AUDIO_L	AUDIO_R	2

PTH_1 NPTH1 51 53
PTH NPTH2 52 54

ODD_NC_1
CSEL2
ODD_NC_2

35 IDE_PDCS1#
35 IDE_PDA0
35 IDE_PDA1
35 INT_IRQ14
35 IDE_PDIORDY
35 IDE_PDIOW#

IDE_PDCS1#
IDE_PDA0
IDE_PDA1
INT_IRQ14
IDE_PDIORDY
IDE_PDIOW#

IDE_PDCS3# 35
IDE_PDA2 35
TP_PDIAG
IOCS16#
IDE_PDDACK# 35
IDE_PDIOR# 35
IDE_PDDREQ 35

IDE_PDD0
IDE_PDD1
IDE_PDD2
IDE_PDD3
IDE_PDD4
IDE_PDD5
IDE_PDD6
IDE_PDD7
ODD_RESET#

4,8,17,34,39,40,41,47,49,50 PLT_RST#

VR1 IDE_PDD7
VR2 IDE_PDD6
VR3 IDE_PDD5
VR4 IDE_PDD4
VR5 IDE_PDA1
VR6 IDE_PDA0
VR7 TP_PDIAG

NC_VPORT0603100MV05_VR
NC_VPORT0603100MV05_VR
NC_VPORT0603100MV05_VR
NC_VPORT0603100MV05_VR
NC_VPORT0603100MV05_VR
NC_VPORT0603100MV05_VR
NC_VPORT0603100MV05_VR

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: PATA CD-ROM

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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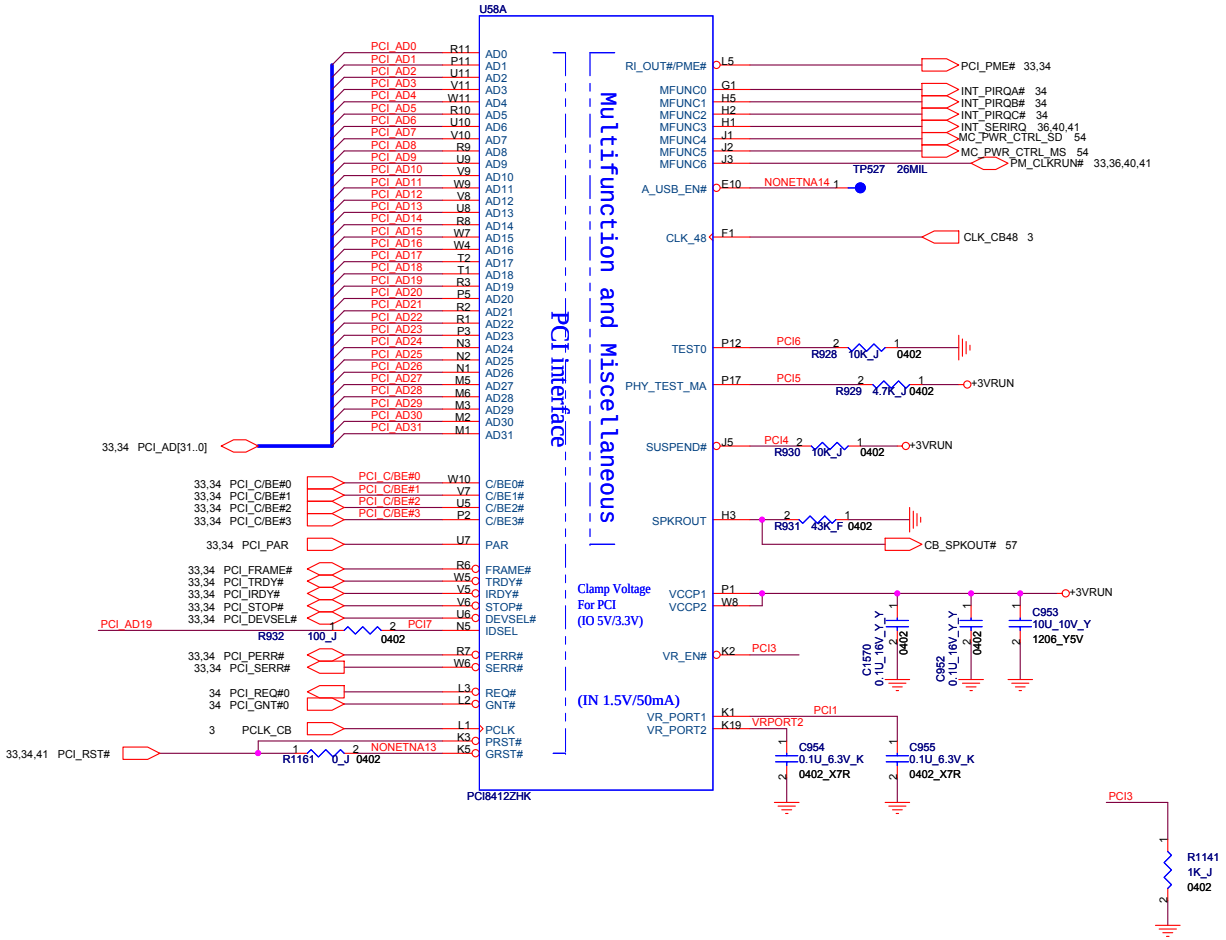
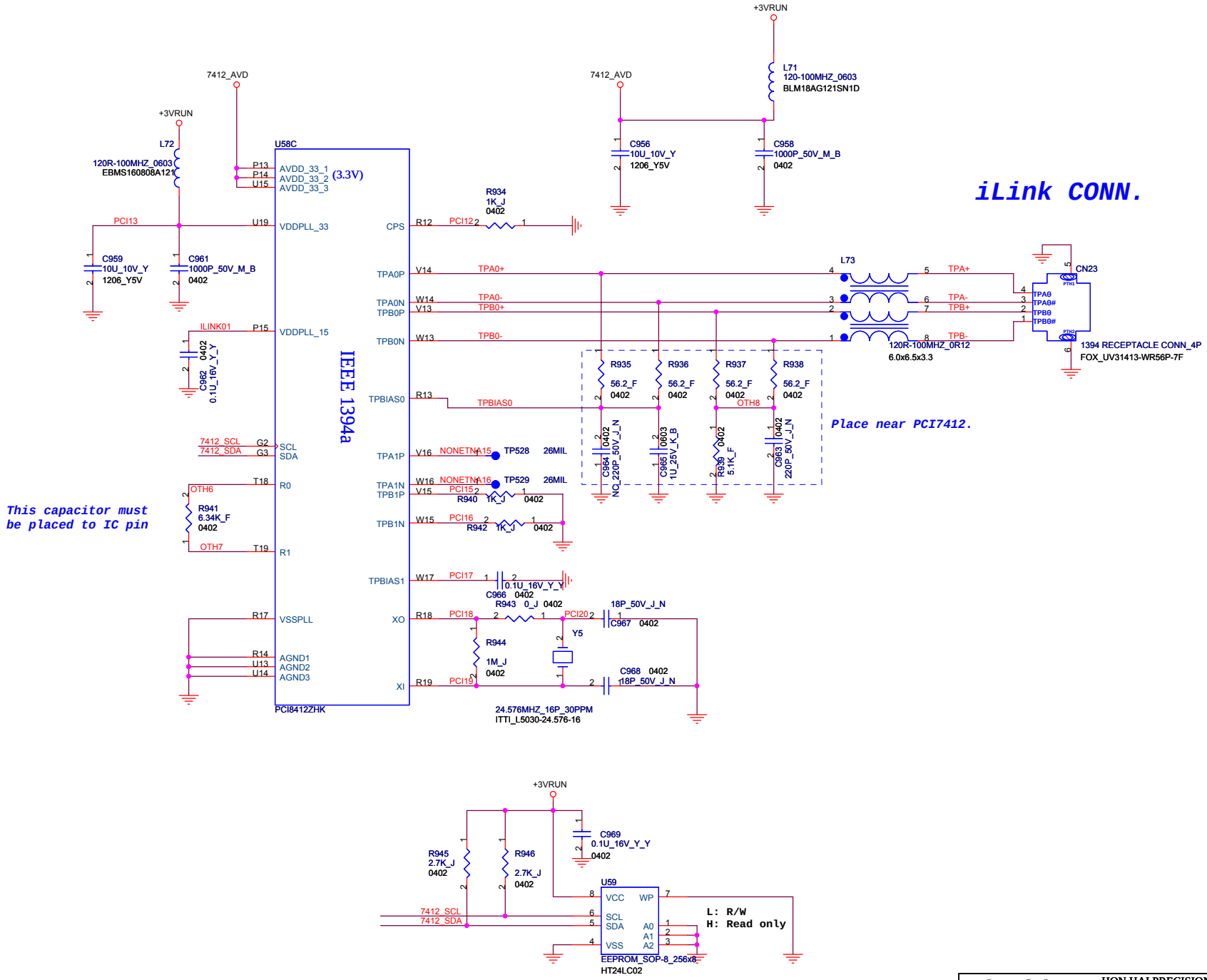


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: PCI (PCI BUS)		
Size: Custom	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 44 of 77	



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

Title: PCI (ILINK)

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

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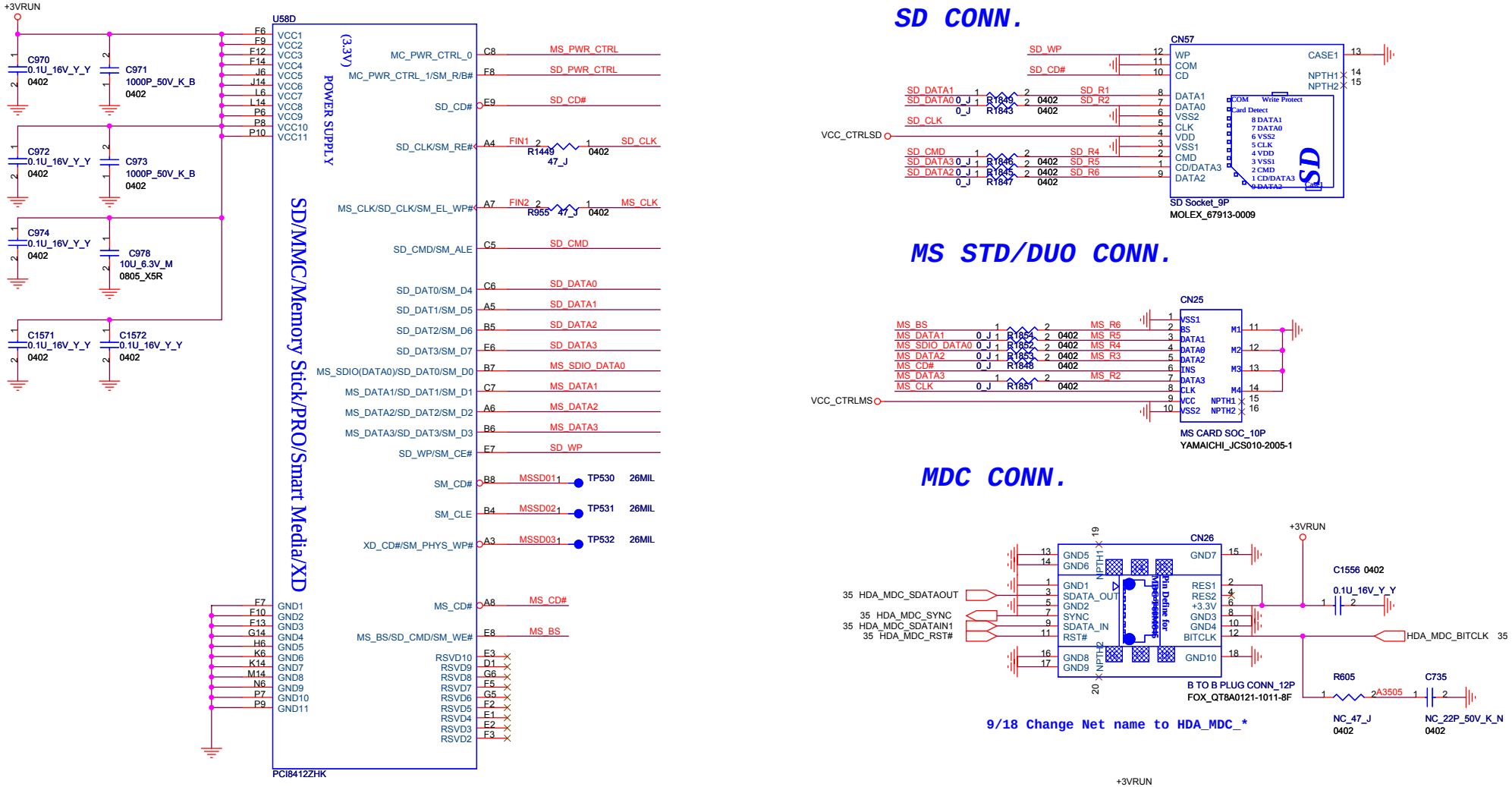


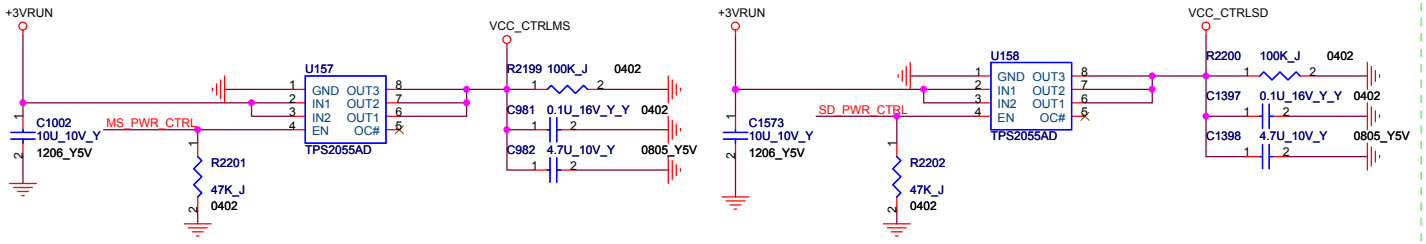
SD CONN.

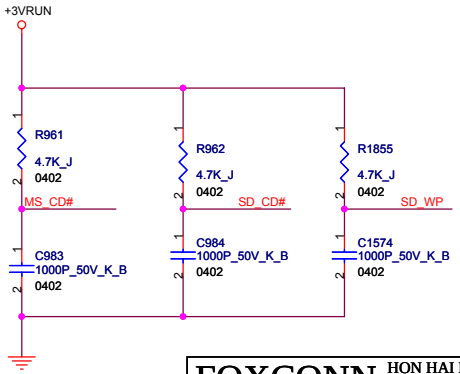
MS STD/DUO CONN.

MDC CONN.

9/18 Change Net name to HDA_MDC_*

02/12/07 PVT Change MS Power switch to TPS2055





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

Title: PCI (MS-DUO/MDC)

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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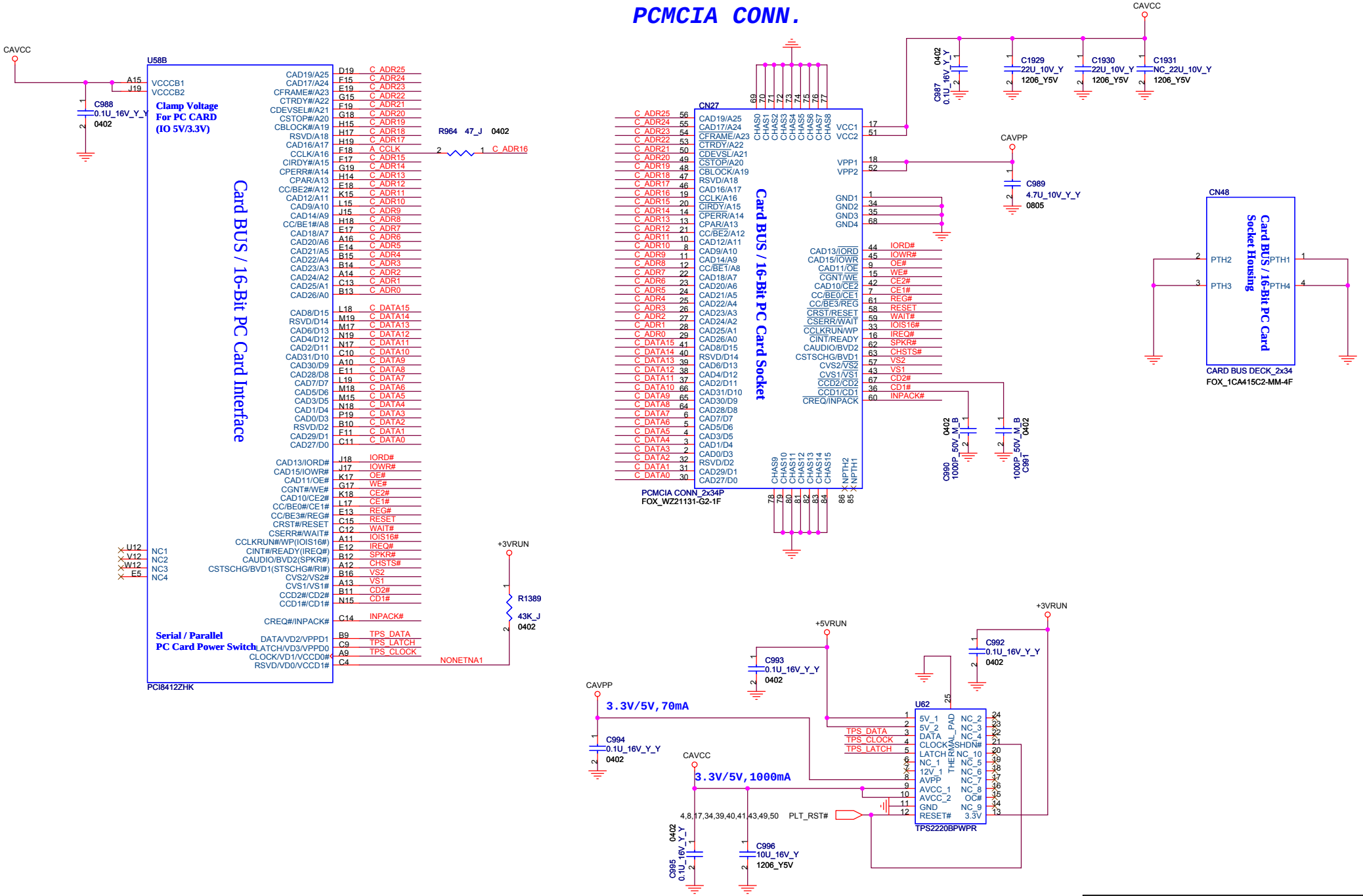
PCMCIA CONN.



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	PCI (PCMCIA)		
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4		Rev 2.0
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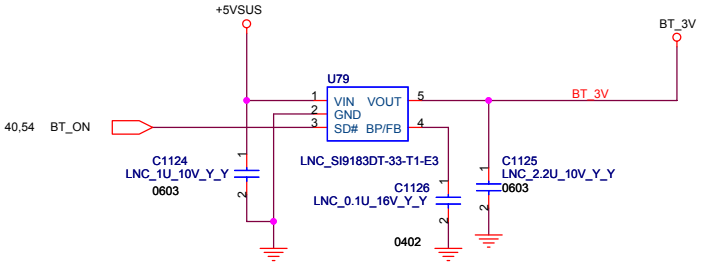
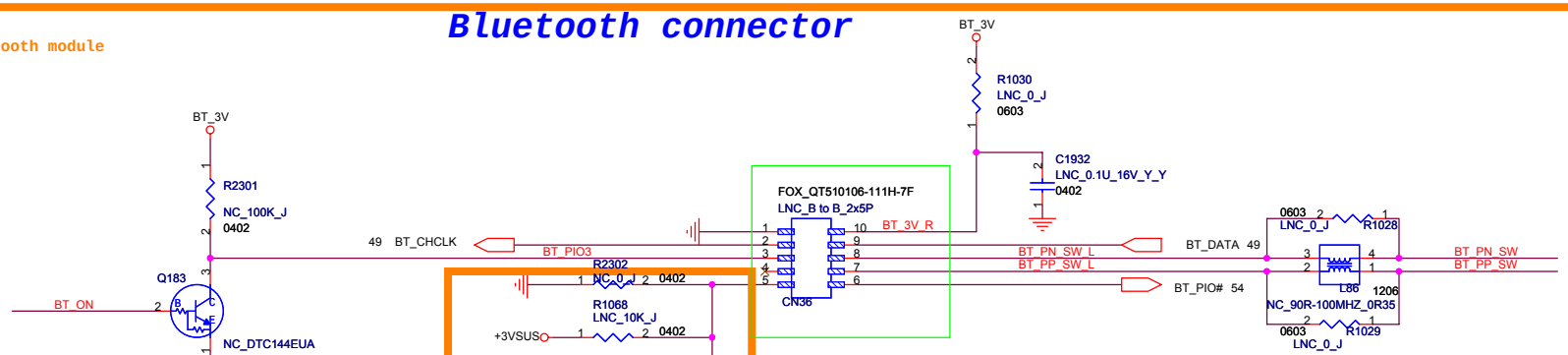


Bluetooth connector

10/26
New Blue tooth module



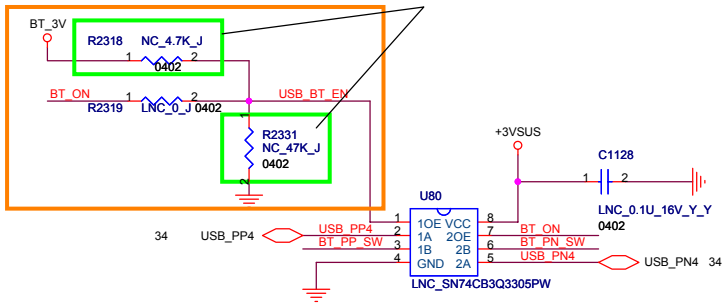
10/26
Waiting conform

07/01/08 Change CN36 from NAIS to FOXCONN

11/04 Change U80 Enable from BT_ON to BT_3V
U79 LDO Ton Max is 1000us
U80 BUS Switch Ton Max is 5ns

12/27 Change Bluetooch circuit Value to LNC_* for M610 DVT L SKU

12/14 Change R2318 from 1K to 4.7K, Add one 47K pull up resistance



To solve U80 enable pin (net name USB_BT_EN)floating during U79 (BT_3V from LDO)BT_ON desable, Add Pull low 47K(R2331) at net USB_BT_EN, Change R2318 from 10K to 1K.

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: FAN/Bluetooth		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
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Mini-PCIE Card connector

SW16
1BS007-12110-002-7F_SW_SMD7

+3VSUS
R1758 10K_J 0402
BT_WLAN_SW# 40

CN39
MINI PCIE_52P
FOX_AS0B226_S40K_4F

TP858
tpc32t_100

CN18
MINI PCI_52P
FOX_AS0B226_S40N_4F

1	WAKE#	+3_3V1	2
3	BT_DATA	GND1	4
5	BT_CHCLK	+1_5V1	6
7	CLKREQ#	RESERVED1	8
9	GND2	RESERVED2	10
11	REFCLK-	RESERVED3	12
13	REFCLK+	RESERVED4	14
15	GND3	RESERVED5	16
17	RESERVED6	GND4	18
19	RESERVED7	W_DISABLE#	20
21	GND5	PERST#	22
23	PERn0	+3_3Vaux	24
25	PERp0	GND6	26
27	GND7	+1_5V2	28
29	GND8	RESERVED8	30
31	PETn0	RESERVED9	32
33	PETp0	GND9	34
35	GND10	RESERVED10	36
37	RESERVED11	RESERVED12	38
39	RESERVED13	GND11	40
41	RESERVED14	NC1	42
43	RESERVED15	LED_WLAN#	44
45	RESERVED16	NC2	46
47	RESERVED17	+1_5V3	48
49	RESERVED18	GND12	50
51	RESERVED19	+3_3V2	52

36,39,50 PCIE_WAKE#
WIRELESS_DATA
WIRELESS_CHCLK
3 MINI_CARD_DET#
R1162 0_J 0402
3 CLK_PCIE_MINI#
3 CLK_PCIE_MINI
TP263 30MIL
TP264 30MIL
A4303
A4304
34 MINI_RXN3
34 MINI_RXP3
34 MINI_TXN3
34 MINI_TXP3
R2153 0_J 0402
R2154 0_J 0402
CL_CLK1_KEDRON
CL_DATA1_KEDRON
CL_RST1_KEDRON

MINI_PCIE_+3_3V
MINI_PCIE_+1_5V
MINI_PCIE_+3VAUX
WLAN_EN 40
PLT_RST# 4,8,17,34,39,40,41,43,47,50
A4305 30MIL TP265
A4306 30MIL TP266
A4307 30MIL TP267
A4308 30MIL TP268
A4309 30MIL
MINI_CARD_S_LED#
A4311 30MIL TP270
R2246 2 0_J 1 0603

R1926 NC_0_J 0402
Q154
2N7002ESPT
null
MINI_CARD_LED# 54
WLAN_EN

11/15
E-ECN change NC to mount
(MOR side command)

12/27 Change WLAN LED control signal from WLAN_EN to WLAN_LED_EN

WIRELESS_CHCLK
R1257 LNC_0_J 0603
BT_CHCLK 48
BT_3V
11/04 Change U96 Power from BT_3V to +3VSUS
R2320 LNC_10K_J 0402
R2323 LNC_100K_J 0402
+3VSUS BT_3V
R2321 NC_0_J 0402
R2322 NC_0_J 0402
U96
LNC_74AHC1G08GW
WIRELESS_DATA
BT_DATA 48
R1912 100K_J 0402
R1258 NC_0_J 0603
12/27 Change Bluetooch circuit Value to LNC_* for M610 DVT L SKU

10/27 FAE suggest
CL_CK1/CL_DATA1/CL_VREF1 can be left as NC if unused iAMT. Don't need to connect to WLAN card.

36 CL_CLK1 CL_CLK1 R2247 NC_0_J 0603 CL_CLK1_KEDRON
36 CL_DATA1 CL_DATA1 R2248 NC_0_J 0603 CL_DATA1_KEDRON
36 LINKALERT# LINKALERT# R2249 NC_0_J 0603 CL_RST1_KEDRON

+3VSUS
R1067 0_J 0603
MINI_PCIE_+3VAUX
C814 0.1U_16V_Y_Y 0402
C1961 22U_10V_Y 1206_Y5V

+3VRUN
R760 0_J 0805
MINI_PCIE_+3_3V
C815 0.1U_16V_Y_Y 0402
C819 4.7U_10V_Y_Y 0805
C816 NC_22U_10V_Y_Y 1206

+1_5VRUN
R761 0_J 0805
MINI_PCIE_+1_5V
C822 0.1U_16V_Y_Y 0402
C824 4.7U_10V_Y_Y 0805
C823 NC_22U_10V_Y_Y 1206

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

Title	Mini-PCIE Card	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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EXPRESS Card

VOLTAGE INPUTS(1)			LOGIC INPUTS			VOLTAGE OUTPUTS(2)			MODE(3)
AUXIN	3.3VIN	1.5VIN	SHDN	STBY	OP (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

U36
TPS2231PW
+3V_EXPRESS_IN
+1_5V_EXPRESS_IN
+3VSUS
CPPE#
CPUSB#
NC_2
GND
3_3Vin_1
3_3Vin_2
1_5Vin_1
1_5Vin_2
AUXIN
3_3Vout_1
3_3Vout_2
1_5Vout_1
1_5Vout_2
AUXOUT
STBY#
SHDN#
OC#
PERST#
RCLKEN
SYSRST#
+3_3V_PCIE_OUT
+1_5V_PCIE_OUT
+3_3VAUX_PCIE_OUT
EXPRESS_STBY#
PERST#
CLKEN
Q162
2N7002
3 EXPRESS_DET#
EXPRESS_CLKEN#
R2251 0_J 0603
R2252 NC_0_J 0603
PLT_RST# 4,8,17,34,39,40,41,43,47,49
SUS_PWRGD_10MS 40,51,61

MOR not agree use ENE chip for second source
Change Express Card Power Switch (U36) from ENE P2231TF to TI TPS2231PW

+3VSUS
+3VRUN
R2253 NC_0_J 0603
R2254 0_J 0603
+3V_EXPRESS_IN
C838
0.1U_16V_M_B
0402

+1_5VSUS
+1_5VRUN
R2255 NC_0_J 0603
R2256 0_J 0603
+1_5V_EXPRESS_IN
C830
0.1U_16V_M_B
0402

U155
NC_MC74VHC1GT32DF2G
CPPE#
24,40,65,68 RUN_ON
EXPRESS_STBY#
R2250 0_J 0603

R1357 0_J 0603
L119 NC_90R-100MHZ_0R35
34 EXPRESS_TXP2
34 EXPRESS_TXN2
EXPRESS_TXP2_R
EXPRESS_TXN2_R
R1356 0_J 1206 0603
R1355 0_J 0603
NC_90R-100MHZ_0R35 L120 1206
3 CLK_PCIE_EXPRESS
3 CLK_PCIE_EXPRESS#
CLK_PCIE_EXPRESS_R
CLK_PCIE_EXPRESS#_R
R1371 0_J 0603
34 EXPRESS_RXP2
34 EXPRESS_RXN2
CPPE#
EXPRESS_CLKEN#
+3_3V_PCIE_OUT
PERST#
+3_3VAUX_PCIE_OUT
36,39,49 PCIE_WAKE#
+1_5V_PCIE_OUT
3,14,15,36 SMB_DATA_SUS
3,14,15,36 SMB_CLK_SUS
R1395 NC_0_J 0402
R1396 NC_0_J 0402
EXPRDA
EXPRCLK
R1276 0_J 1206 0603
34 USB_PP5
34 USB_PN5
USB_PP5_R
USB_PN5_R
CPUSB#
L118 NC_90R-100MHZ_0R35
R1277 0_J 0603
CN19
CARD CONNECTOR_26P
FOX_1CH4310C-DK

+3_3VAUX_PCIE_OUT
R1826 4.7K_J 0402
R1827 4.7K_J 0402
EXPRDA
EXPRCLK

CN47
PTH1
PTH2
EXPRESS CARD HOUSING_26P
FOX_1CX43203-TC

Constant-voltage +1_5VSUS

12/29 Load current test fial, 1.8V transfer 1.5V drop
Voltage too large.12/27 Change Q180 from
17-NDS355A-N000 to 17-S12316D-ST00,
Change Q180 Power from +1_8VSUS to +3VSUS

+3VSUS
R2292 NC_0_J 0402
C1945 NC_10U_10V_Y 1206_Y5V
NC_SI2316DS-T1-E3
Q180
+1_5VSUS
650mA
C1940 NC_10U_10V_Y 1206_Y5V
R2265 NC_100K_J 0402
R2266 NC_1K_J 0402
1_5VSUS_OPOUT
1_5VSUS_FB
1_5VSUS_VER
U160
1OUT VCC
1IN- 2OUT
1IN+ 2IN-
GND 2IN+
NC_LM358ADR
+5VSUS
+3VSUS
R2279 NC_36K_F 0402
1_5VSUS_VER
R2280 NC_30K_F 0402
+1_5VSUS
TP1038
tpc32t_100

+3VSUS
C1804 0.1U_16V_Y_Y 0402

Supply Max 275mA
+3_3VAUX_PCIE_OUT
C1132 0.1U_16V_Y_Y 0402
C1133 4.7U_6.3V_K 0805_X5R

Supply Max 1300mA
+3_3V_PCIE_OUT
C1135 0.1U_16V_Y_Y 0402
C1136 4.7U_6.3V_K 0805_X5R
C1137 10U_10V_Y 1206_Y5V

Supply Max 650mA
+1_5V_PCIE_OUT
C1129 0.1U_16V_Y_Y 0402
C1130 NC_4.7U_6.3V_K 0805_X5R
C1131 10U_10V_Y 1206_Y5V

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

Title: EXPRESS CARD

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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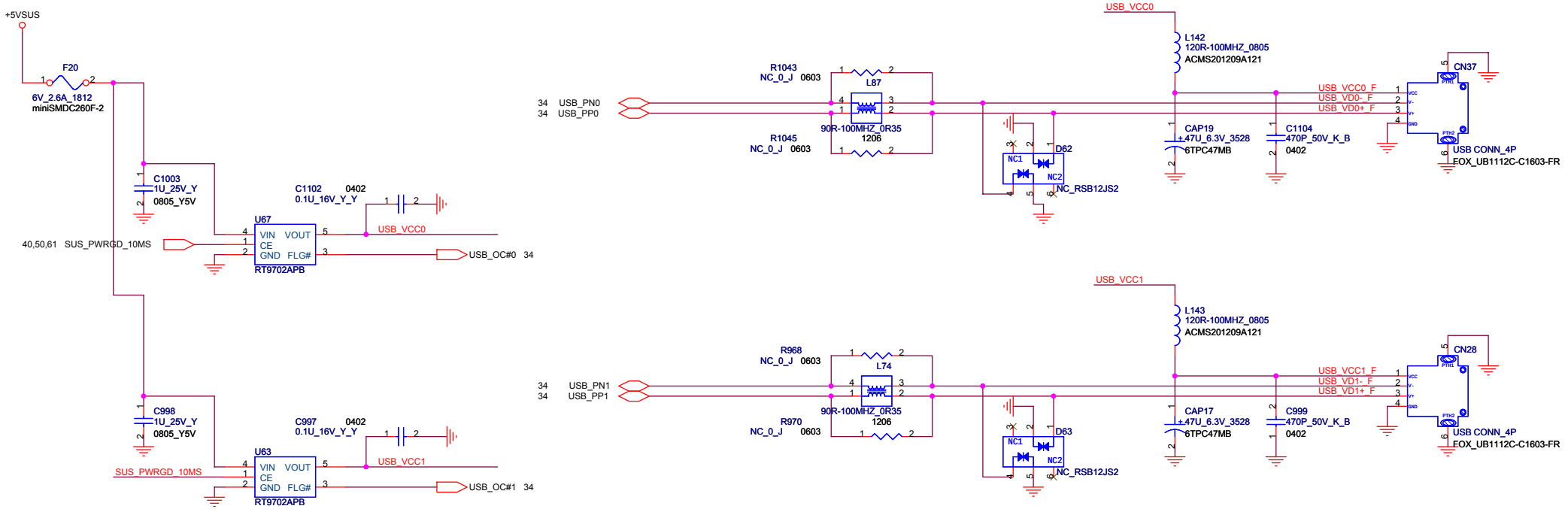
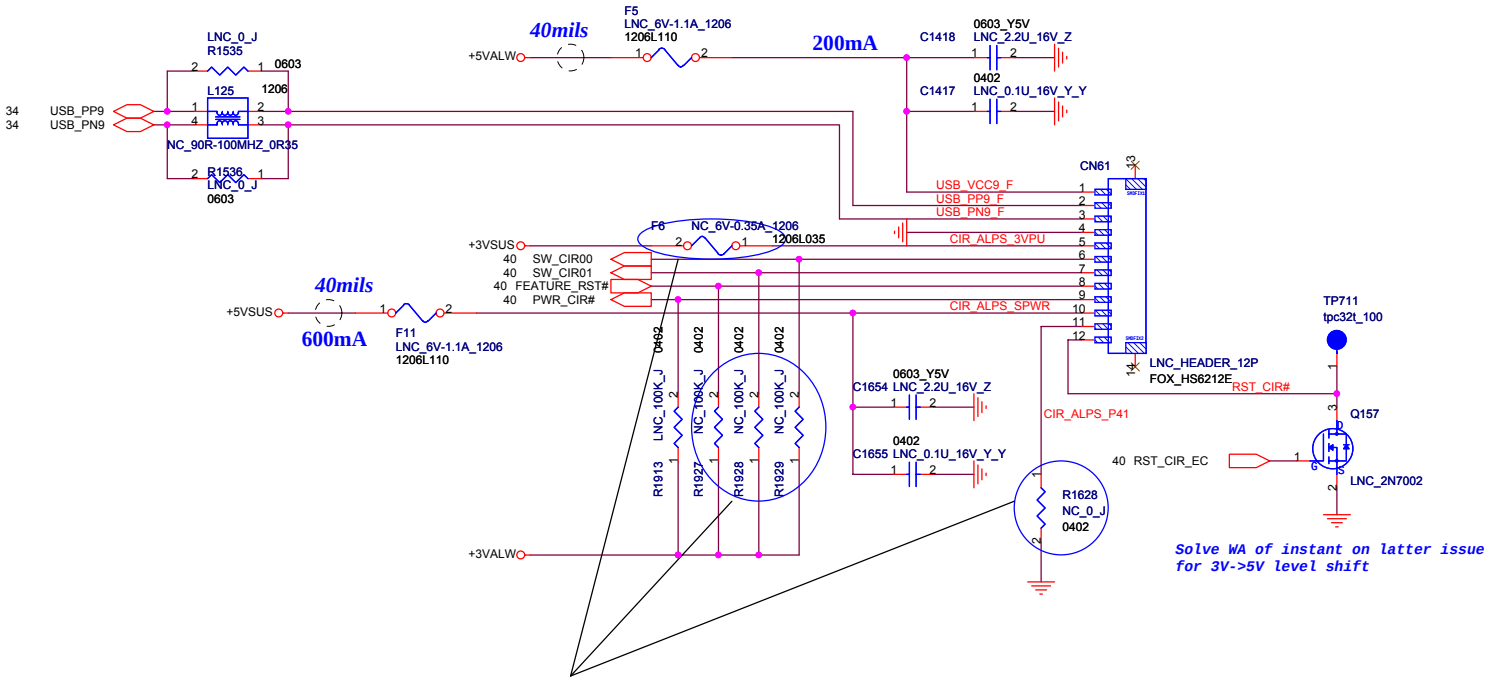
USB connector *2



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	USB2.0/DOCKING CONN.	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 51 of 77	

IR Rreceiver connector

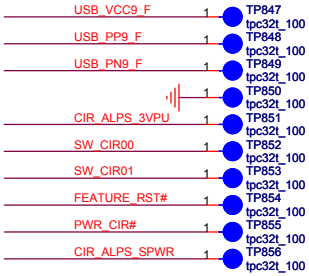


Solve WA of instant on latter issue for 3V->5V level shift

Button		SW1	SW0
VAIO button	Kick Instant On	L	L
Green button	Kick Windows	L	H
Shortcut button	Kick Windows	H	L
Standby button	Kick Windows	H	H

9/26 FOR NEW SMK IR module compatily
1.Change stuff to NC:F6,R1927,R1928,R1929,
2.EC Page GPIO20(105),GPIAD2(83) pin swape

12/27 Change CIR circuit Value to LNC_* for M610 DVT L SKU



Num	Signal Name	I/O	Comment	Difference from ALPS.
1	+5VALW	VCC		<-
2	USB+	I/O		<-
3	USB-	I/O		<-
4	GND	GND		<-
5	+3VSUS	-	Not for use. Because SMK's IC use internal pull up resistor for D-.	ALPS's IC use this signal as a pull up plane of D- for low speed detection.
6	SW0	O	Use for detecting of the remote button. 3.3V CMOS output.	3.3V open drain output.
7	SW1	O	Use for detecting of the remote button. 3.3V CMOS output.	3.3V open drain output.
8	FeatureRST#	I	Software reset signal. (3.3V internal pull up resistor.)	Use for detecting of the remote button. 3.3V open drain output.
9	PWR#	O	Power on request signal. Open drain output.	<-
10	SPWR	I	Power OK signal. 5V input.	<-
11	EN	-	Not for use.	Low: Disable instant on feature Open or High: Enable instant on feature (3.3V internal pull up resistor.)
12	HardRST#	I	Hardware reset.	<-

At Only USB Internal CIR, it's USB Power

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

Title: **LED/LID SW#/Touch PAD**

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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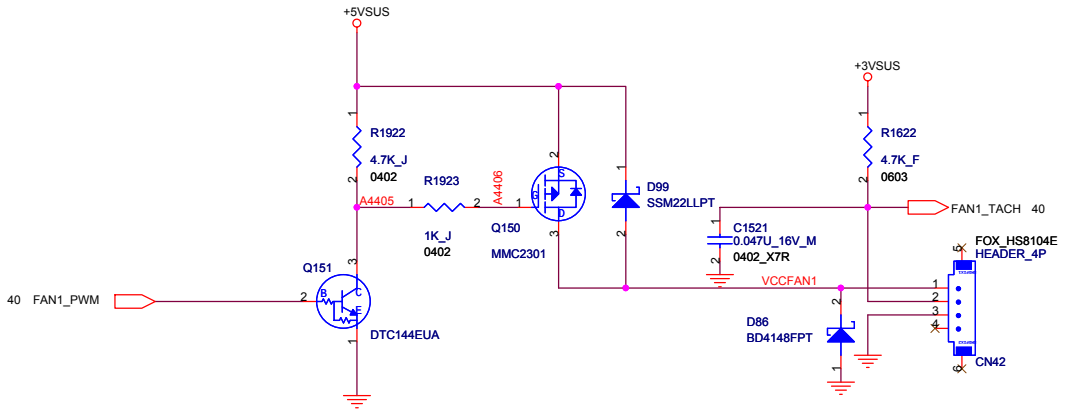
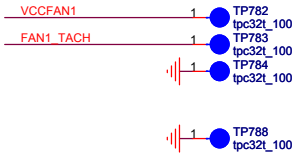
FAN circuit

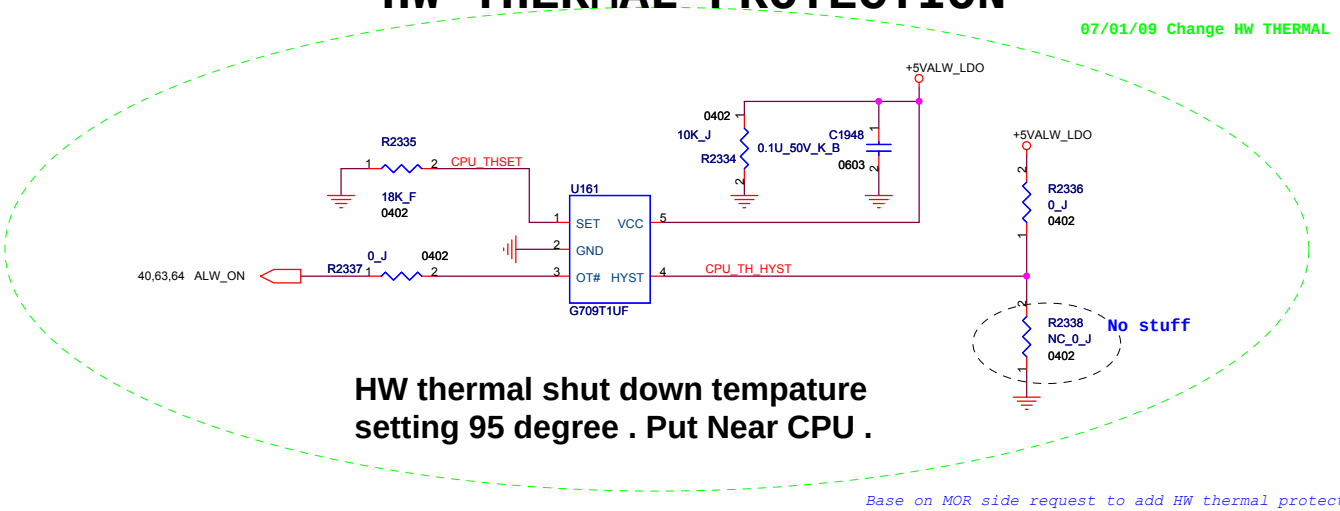


FAN1



HW THERMAL PROTECTION

07/01/09 Change HW THERMAL PROTECTION circuit to stuff



HW thermal shut down tempature setting 95 degree . Put Near CPU .

Base on MOR side request to add HW thermal protection circuit

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: FAN / HW THERMAL PROTECTION		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007	Rev: 2.0
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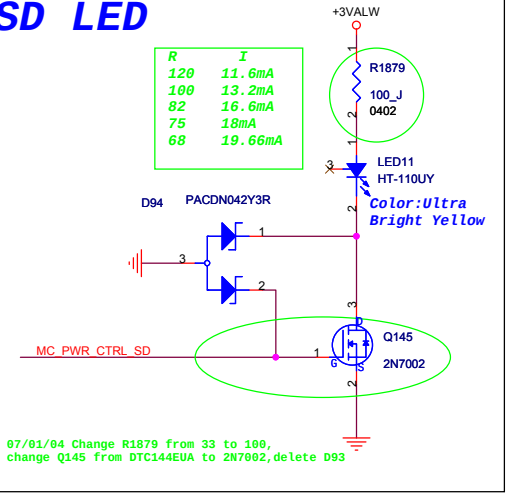
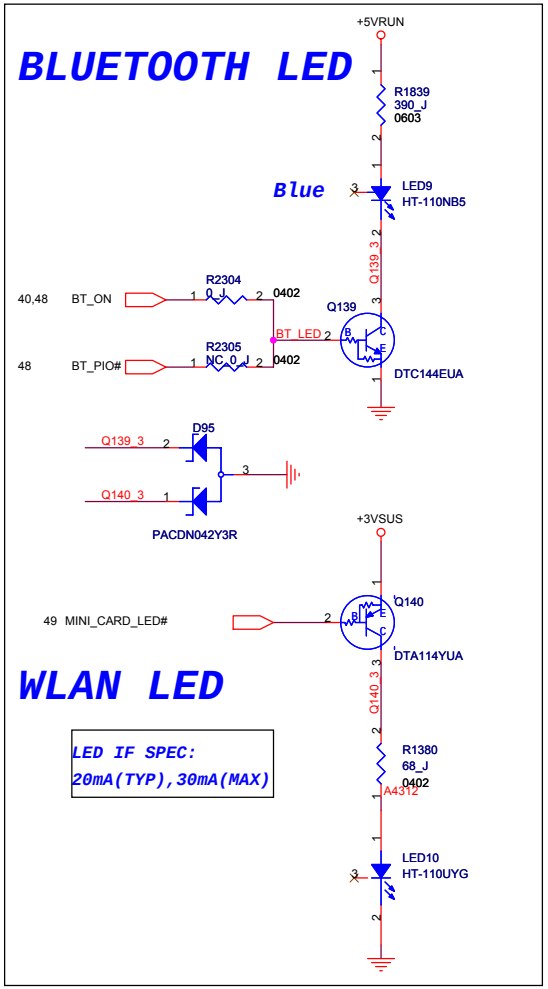
SD LED



R	I
120	11.6mA
100	13.2mA
82	16.6mA
75	18mA
68	19.66mA

07/01/04 Change R1879 from 33 to 100,
change Q145 from DTC144EUA to 2N7002,delete D93

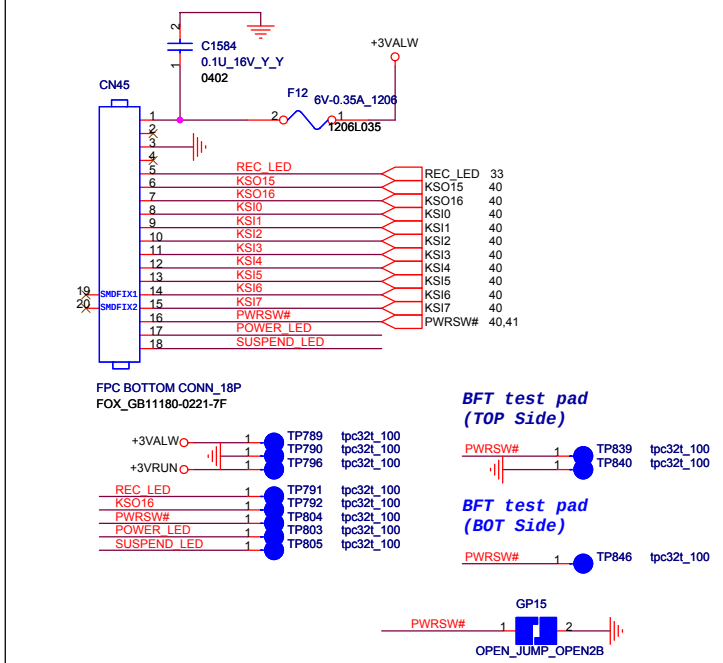
BLUETOOTH LED



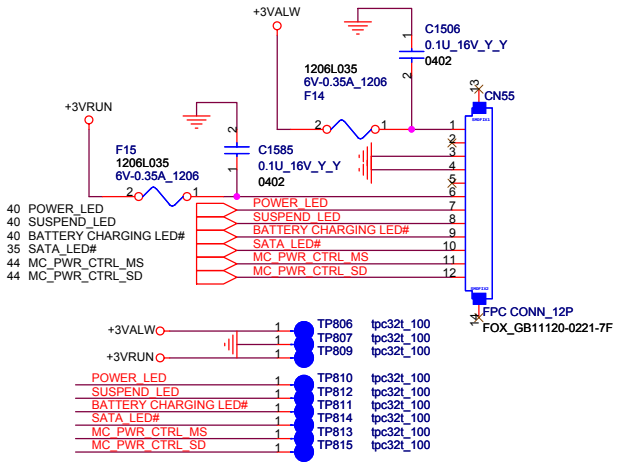
WLAN LED

LED IF SPEC:
20mA(TYP),30mA(MAX)

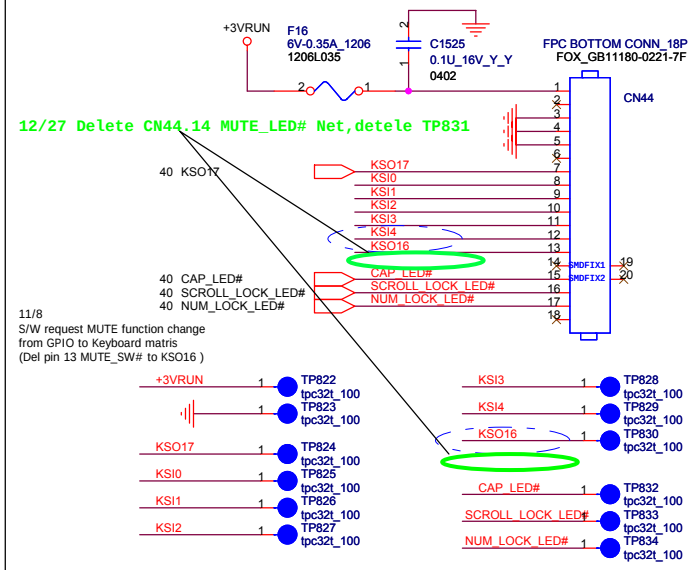
To Power Button Board Connector



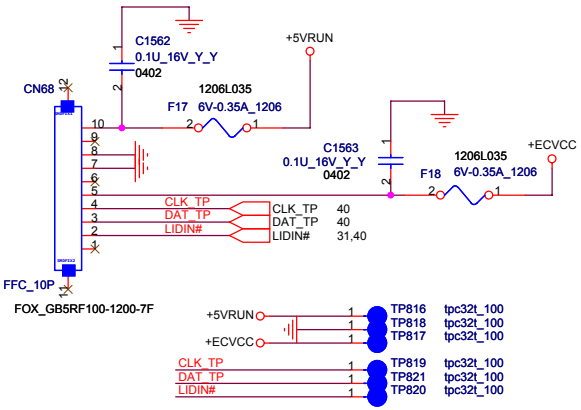
To LED Board Connector



To AV Function Board Connector



To Touch Pad Board Connector



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 (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
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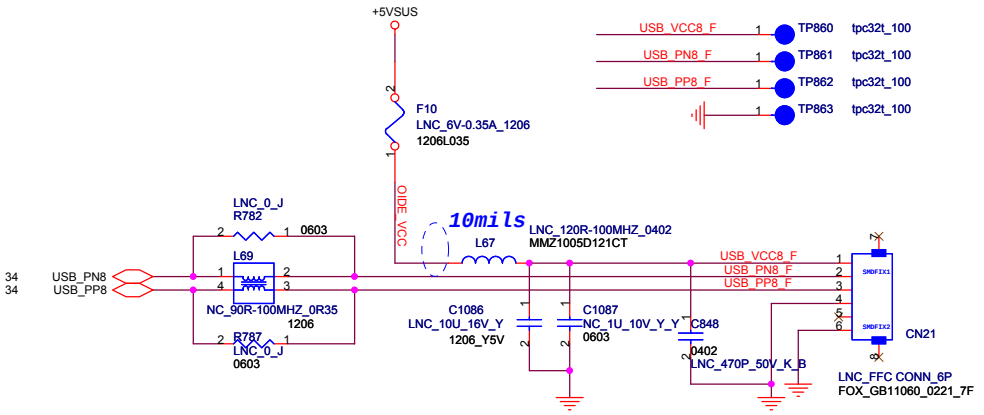
OIDE Connector



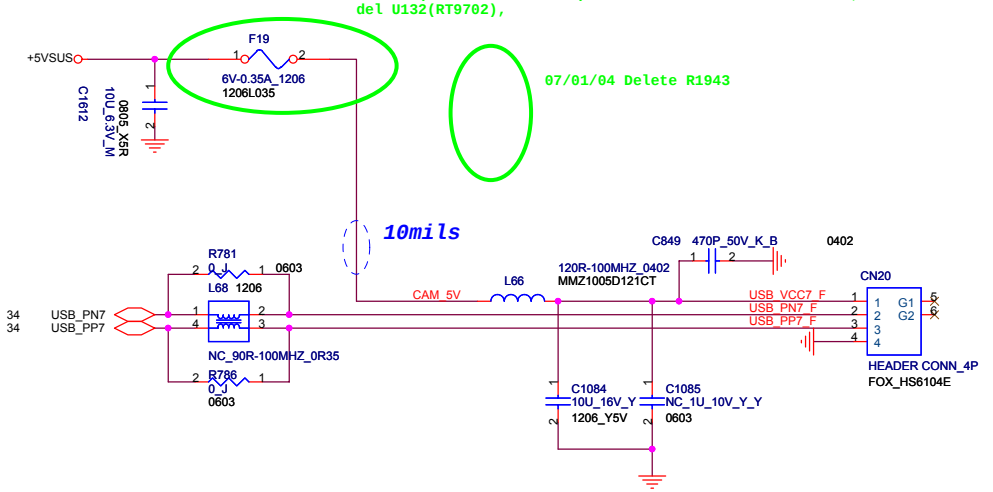
2006.1.4pin swape for ME request

12/27 Change Felica circuit Value to LNC_* for M610 DVT L SKU

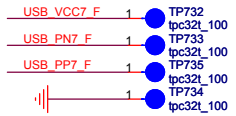
CAMERA Connector

12/22
Base on MOR side suggest to modify cammera power source circuit,
Add F19(LITTLELFUSE 0.35A) between net +5VSUS and CAM_5V,
del U132(RT9702),

07/01/04 Delete R1943



12/21 BFT Test Pad



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

Title: CAM/OIDE

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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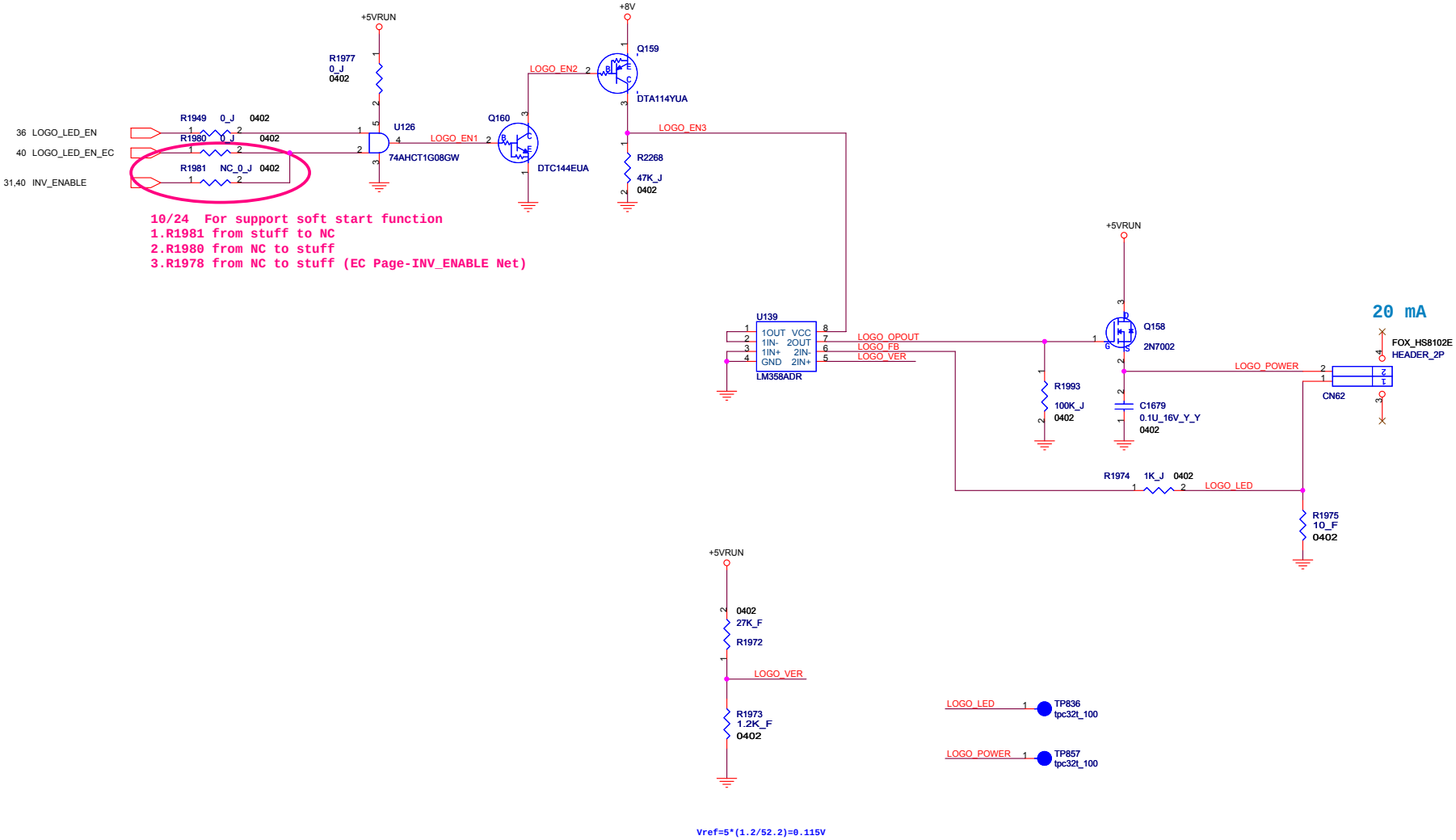
Constant-Current SONY LOGO LED



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: Logo LED / +1_5VSUS		
Size: Custom	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
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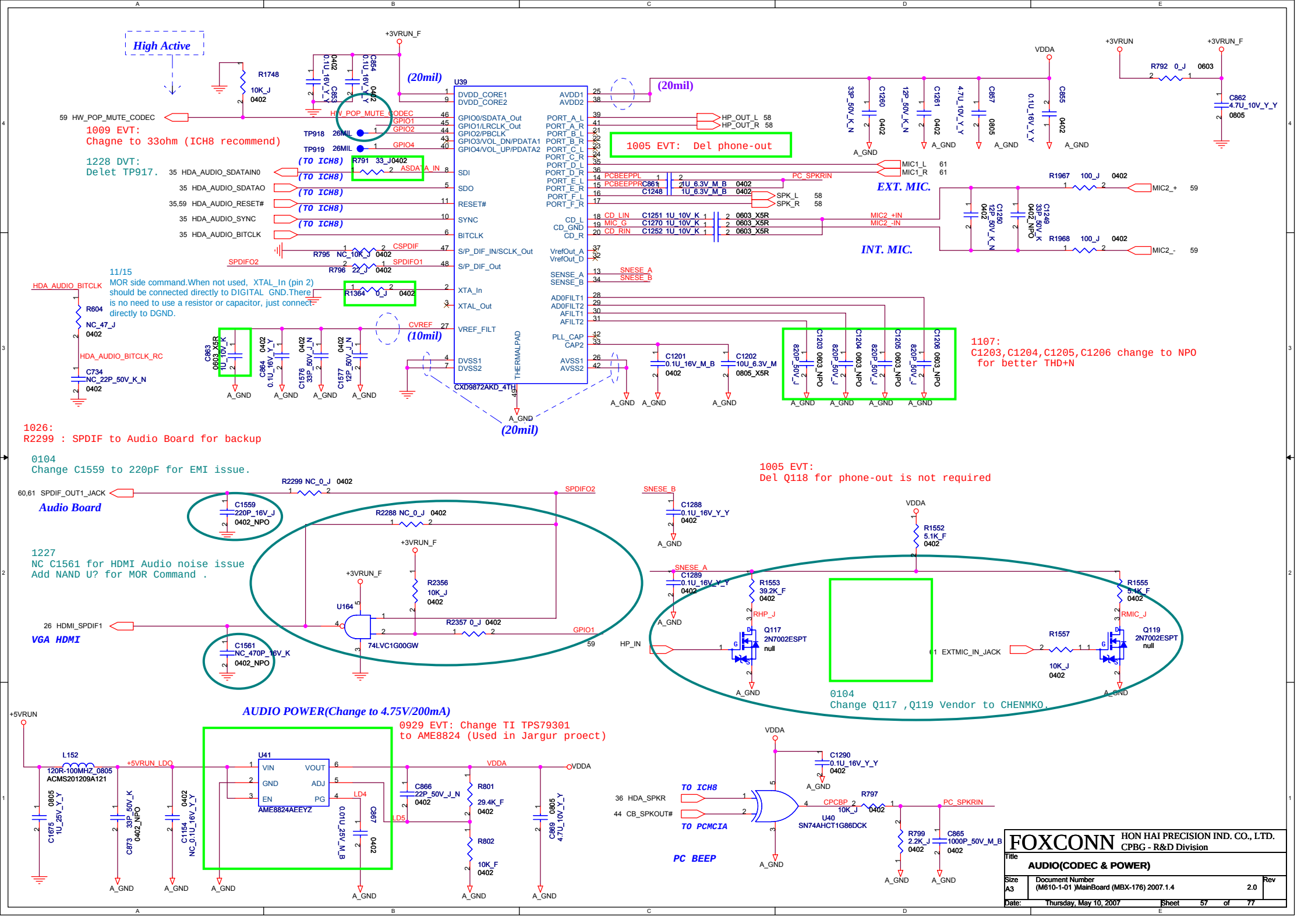
High Active
1009 EVT:
Chagne to 33ohm (ICH8 recommend)
1228 DVT:
Delet TP917.
11/15
MOR side command.When not used, XTAL_In (pin 2) should be connected directly to DIGITAL GND.There is no need to use a resistor or capacitor, just connect directly to DGND.
1005 EVT: Del phone-out
EXT. MIC.
INT. MIC.
1107:
C1203,C1204,C1205,C1206 change to NPO for better THD+N
1026:
R2299 : SPDIF to Audio Board for backup
0104
Change C1559 to 220pF for EMI issue.
Audio Board
1227
NC C1561 for HDMI Audio noise issue
Add NAND U? for MOR Command .
VGA HDMI
1005 EVT:
Del Q118 for phone-out is not required
0104
Change Q117 ,Q119 Vendor to CHENMKO.
AUDIO POWER(Change to 4.75V/200mA)
0929 EVT: Change TI TPS79301
to AME8824 (Used in Jargur proect)
TO ICH8
TO PCMCIA
PC BEEP
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
AUDIO(CODEC & POWER)
Document Number
(M610-1-01)MainBoard (MBX-176) 2007.1.4
2.0
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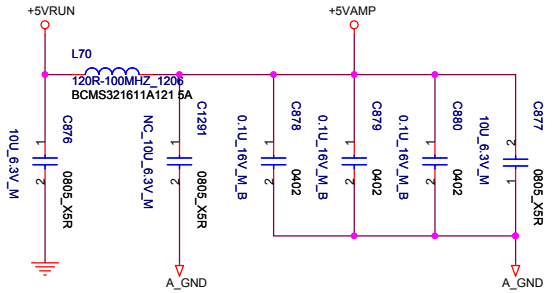
0920
Add 2PCS CAP39,CAP40 100_6.3V_M
Delet CAP24,CAP25

1103
Change CAP39 and CAP40 Vendor from NIPPON CHEMI-CON to LELON

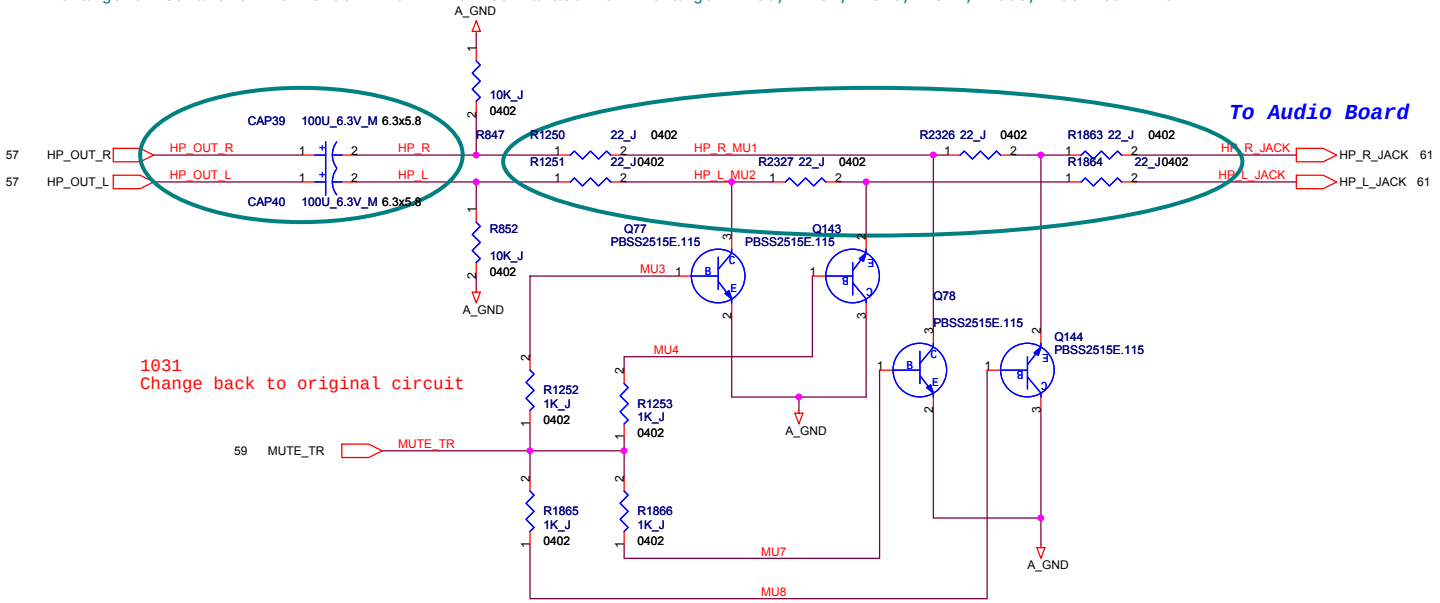
1228
Change CAP39 and CAP40 Vendor from LELON to Panasonic

1229
Change R1250,R1251,R2326,R2327,R1863,R1864 to 22 ohm.

Max 1.7A



To Audio Board

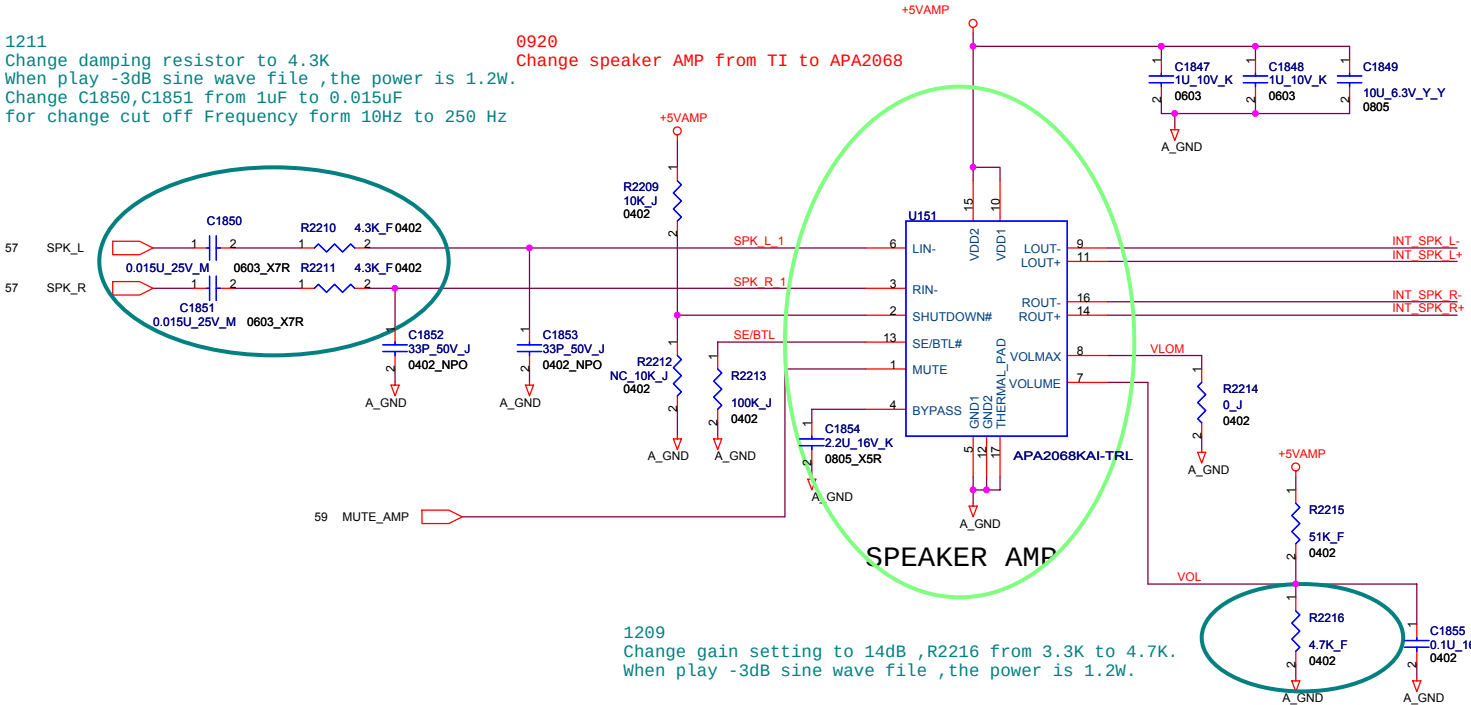


1031
Change back to original circuit

INTERNAL SPEAKER

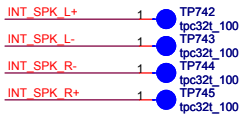
1211
Change damping resistor to 4.3K
When play -3dB sine wave file ,the power is 1.2W.
Change C1850,C1851 from 1uF to 0.015uF
for change cut off Frequency form 10Hz to 250 Hz

0920
Change speaker AMP from TI to APA2068



0920
Change to 0ohm 0603

BFT Test Pad



Gain setting table

Gain	R2216	Voltage
8dB	9.1K	0.77V
10dB	7.68K	0.65V
12dB	6.2K	0.54V
14dB	4.7K	0.43V
16dB	3.3K	0.31V

1209
Change gain setting to 14dB ,R2216 from 3.3K to 4.7K.
When play -3dB sine wave file ,the power is 1.2W.

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

Title: AUDIO(AMP & HP & SPK)

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | 2.0 | Rev

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1004
Change U45, U140 as NC
For Headphone in mute speaker out
isn't supported in Dos mode
1005
Phone-out is not required

Circuit setting table

Circuit 0 (Beagle)	Circuit 1 No support Dos mute (Default)	Circuit 2 Support Dos mute	component
Stuff	NC	Stuff	U45
NC	NC	Stuff	U140
NC	Stuff	NC	R1985
Stuff	NC	NC	R1984

1025
Change Mute control circuit
(Same with MS30/50/90)

0111'07
Change Q181 from 17-MMBT390-4000
to 17-MMBT390-4001 for PUR can't buy issue

0104
Change R1361 From 33k to 22k For improve Mute_TR signal quality well.

1227
Change R1321 and R1325 from 4.7k_J to 4.7K_F
for MOR Side Command.

1005
Del phone-out mute circuit
for phone-out is not required

From EC/CODEC MUTE .

INTERNAL MIC(Non)

BFT Test Pad

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

Title: AUDIO (MUTE & INTMIC)

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 1.0

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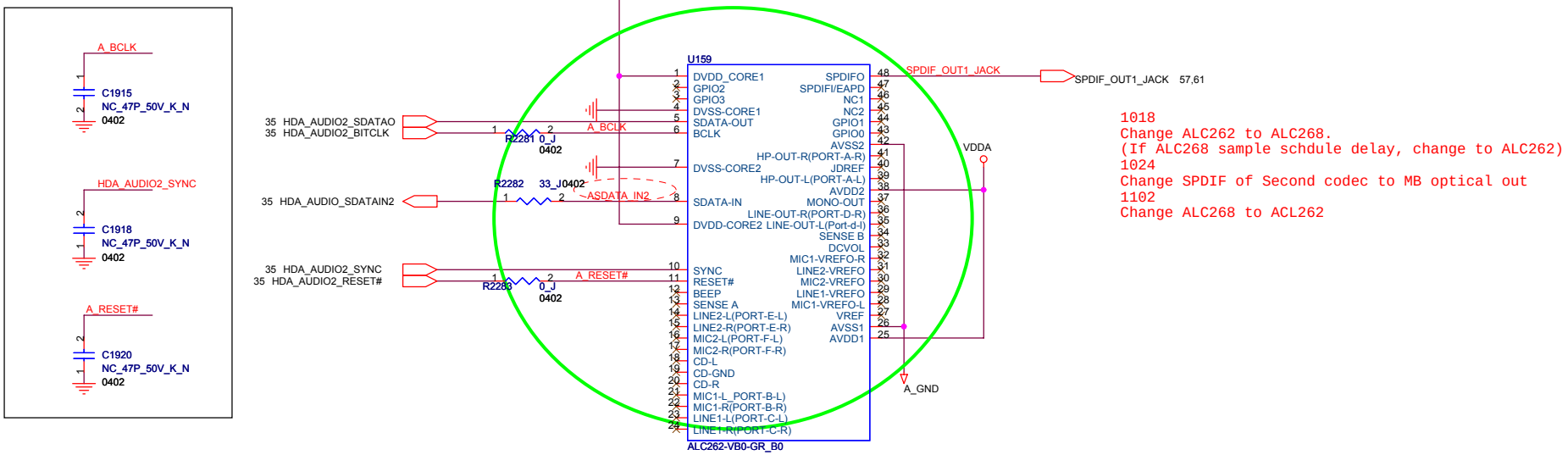
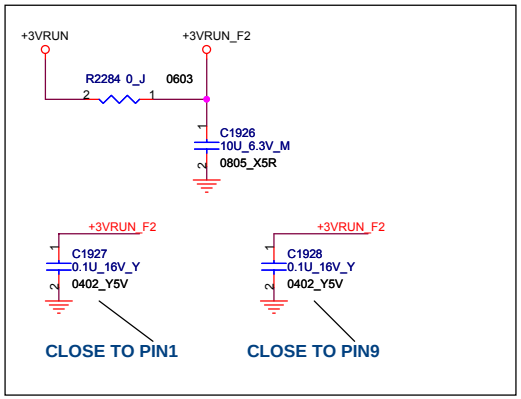
Anti-Glitch

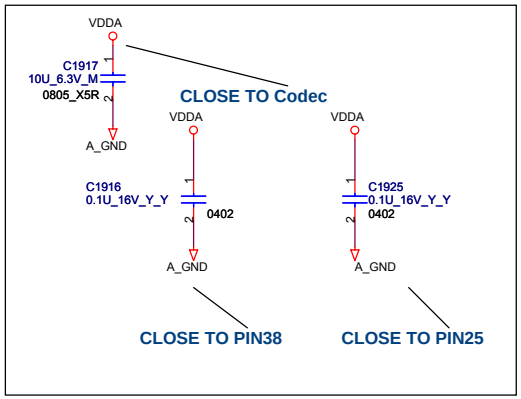


1018
Change ALC262 to ALC268.
(If ALC268 sample schdule delay, change to ALC262)
1024
Change SPDIF of Second codec to MB optical out
1102
Change ALC268 to ACL262

Decoupling Caps, place close to power pin.



Decoupling Caps, place close to power pin.



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

Title: **AUDIO (Secod Codec for HDMI SPDIF)**

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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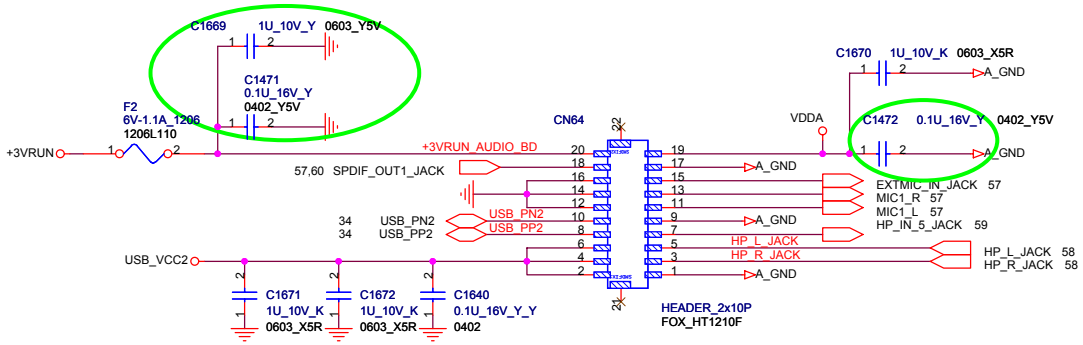
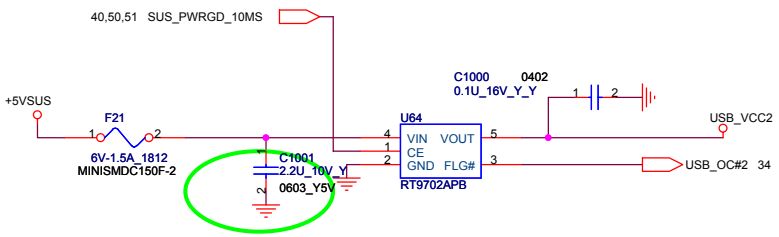
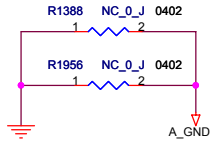
Audio Board connector



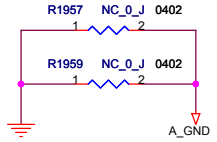


Backup two jumper resistors for bridge between GND and A_GND

Close screw hole H3

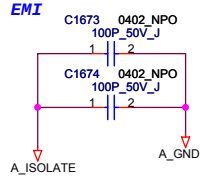


Close screw hole H5

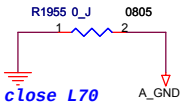


Isolate screw hole H4, and add EMI/ESD solution

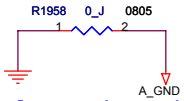
EMI



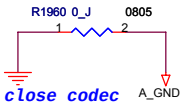
Add jumper resistor for Return patch



close L70

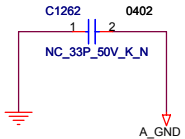


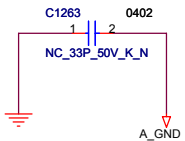
close U41(+5VRUN)



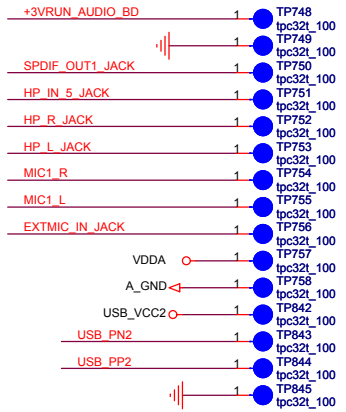
close codec (the same with MS20)

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.
CPBG - R&D Division

Title: **Audio Board conn**

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

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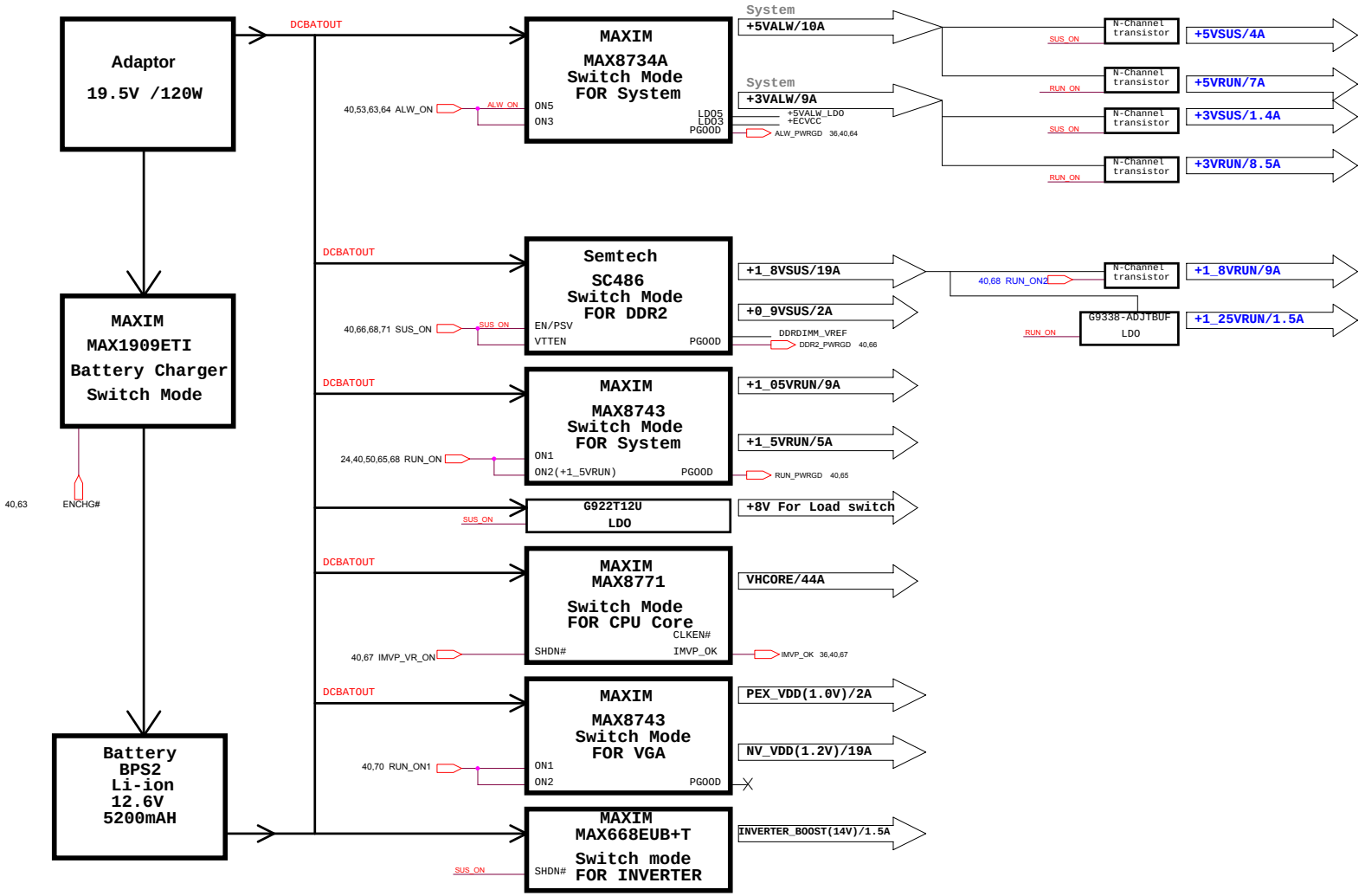

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: Power Design Diagram-ZG

Size	Document Number	Rev
A2	(M610-1-01)MainBoard (MBX-176) 2006.12.29	2.0

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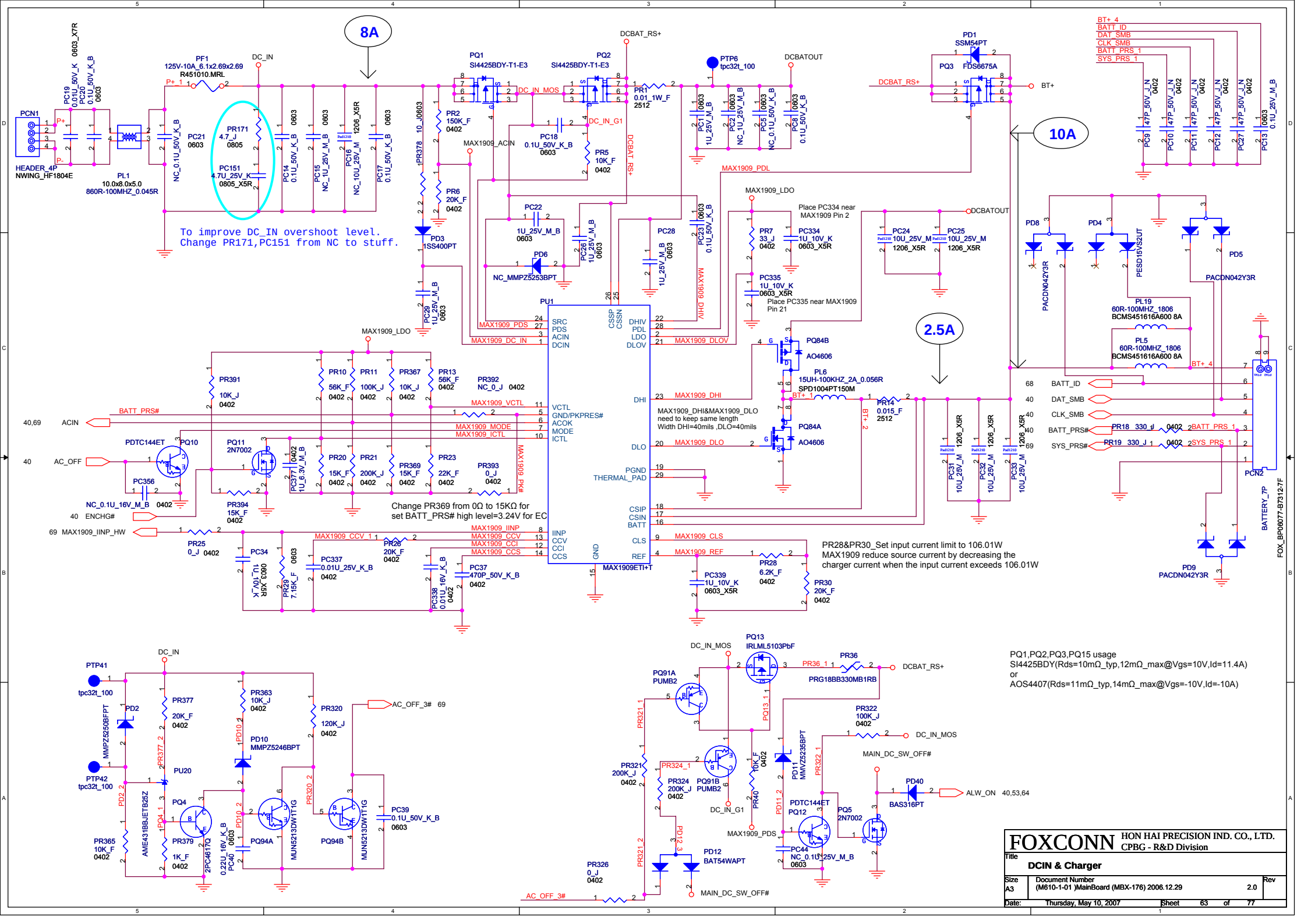
8A
10A
2.5A
DC_IN
DCBAT_RS+
DCBATOUT
BT+
PF1
125V-10A_6.1x2.69x2.69
R451010.MRL
PCN1
HEADER_4P
NWING_HF1804E
PL1
10.0x8.0x5.0
860R-100MHZ_0.045R
PR171
4.7_J
0805
PC151
4.7U_25V_K
0805_X5R
To improve DC_IN overshoot level.
Change PR171,PC151 from NC to stuff.
PQ1
SI4425BDY-T1-E3
PQ2
SI4425BDY-T1-E3
PR1
0.01_1W_F
2512
PTP6
tpc32t_100
PD1
SSM54PT
PQ3
FDS6675A
DC_IN_MOS
DC_IN_G1
MAX1909_ACIN
MAX1909_PDL
MAX1909_LDO
PD3
1SS400PT
PD6
NC_MMPZ5253BPT
PU1
MAX1909ETI+T
SRC
PDS
ACIN
DCIN
CSSP
CSSN
DHIV
PDL
LDO
DLOV
VCTL
GND/PKPRES#
ACOK
MODE
ICTL
DHI
DLO
PGND
THERMAL_PAD
CSIP
CSIN
BATT
CLS
REF
IINP
CCV
CCI
CCS
GND
MAX1909_DC_IN
MAX1909_PDS
MAX1909_DHI
MAX1909_DLO
MAX1909_DLOV
MAX1909_VCTL
MAX1909_MODE
MAX1909_ICTL
MAX1909_IINP
MAX1909_CCV
MAX1909_CCI
MAX1909_CCS
MAX1909_CLS
MAX1909_REF
MAX1909_PKG
PQ84B
AO4606
PQ84A
AO4606
PL6
15UH-100KHZ_2A_0.056R
SPD1004PT150M
PR14
0.015_F
2512
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
PR7
33_J
0402
PC334
1U_10V_K
0603_X5R
PC335
1U_10V_K
0603_X5R
PC24
10U_25V_M
1206_X5R
PC25
10U_25V_M
1206_X5R
PD8
PACDN042Y3R
PD4
PESD15VS2UT
PD5
PACDN042Y3R
PL19
60R-100MHZ_1806
BCMS451616A600 8A
PL5
60R-100MHZ_1806
BCMS451616A600 8A
PC31
10U_25V_M
PC32
10U_25V_M
PC33
10U_25V_M
PCN2
BATTERY_7P
FOX_BP06077-B7312-7F
PD9
PACDN042Y3R
BATT_ID
DAT_SMB
CLK_SMB
BATT_PRS#
SYS_PRS#
PR18 330_J
PR19 330_J
BATT_PRS_1
SYS_PRS_1
PR391
10K_J
0402
PR10
56K_F
PR11
100K_J
PR367
10K_J
PR13
56K_F
PR392
NC_0_J
BATT_PRS#
ACIN
AC_OFF
ENCHG#
MAX1909_IINP_HW
PQ10
PDTC144ET
PQ11
2N7002
PC356
NC_0.1U_16V_M_B
PR394
15K_F
PR20
15K_F
PR21
200K_J
PR369
15K_F
PR23
22K_F
PR393
0_J
PR25
0_J
PC34
1U_10V_K
PR29
7.15K_F
PC337
0.01U_25V_K_B
PR26
20K_F
PC338
0.01U_16V_K_B
PC37
470P_50V_K_B
Change PR369 from 0Ω to 15KΩ for
set BATT_PRS# high level=3.24V for EC
PR28
6.2K_F
PR30
20K_F
PC339
1U_10V_K
PR28&PR30_Set input current limit to 106.01W
MAX1909 reduce source current by decreasing the
charger current when the input current exceeds 106.01W
PTP41
PTP42
PD2
MMPZ5250BFPT
PR377
20K_F
PU20
AME4318BJETB25Z
PQ4
MUN5213DW1T1G
PR379
1K_F
2PC4617O
PR365
10K_F
PD10
MMPZ5246BPT
PR363
10K_J
PQ94A
PR320
120K_J
PQ94B
MUN5213DW1T1G
PC39
0.1U_50V_K_B
AC_OFF_3#
PQ13
IRLML5103PbF
PR36
PRG18BB330MB1RB
PQ91A
PUMB2
PR321
200K_J
PR324
200K_J
PQ91B
PUMB2
PR326
0_J
PD12
BAT54WAPT
PR322
100K_J
PD11
MMVZ5235BPT
PQ12
PDTC144ET
PQ5
2N7002
PD40
BAS316PT
PC44
NC_0.1U_25V_M_B
ALW_ON
MAIN_DC_SW_OFF#
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.
CPBG - R&D Division
Title
DCIN & Charger
Size
A3
Document Number
(M610-1-01)MainBoard (MBX-176) 2006.12.29
Rev
2.0
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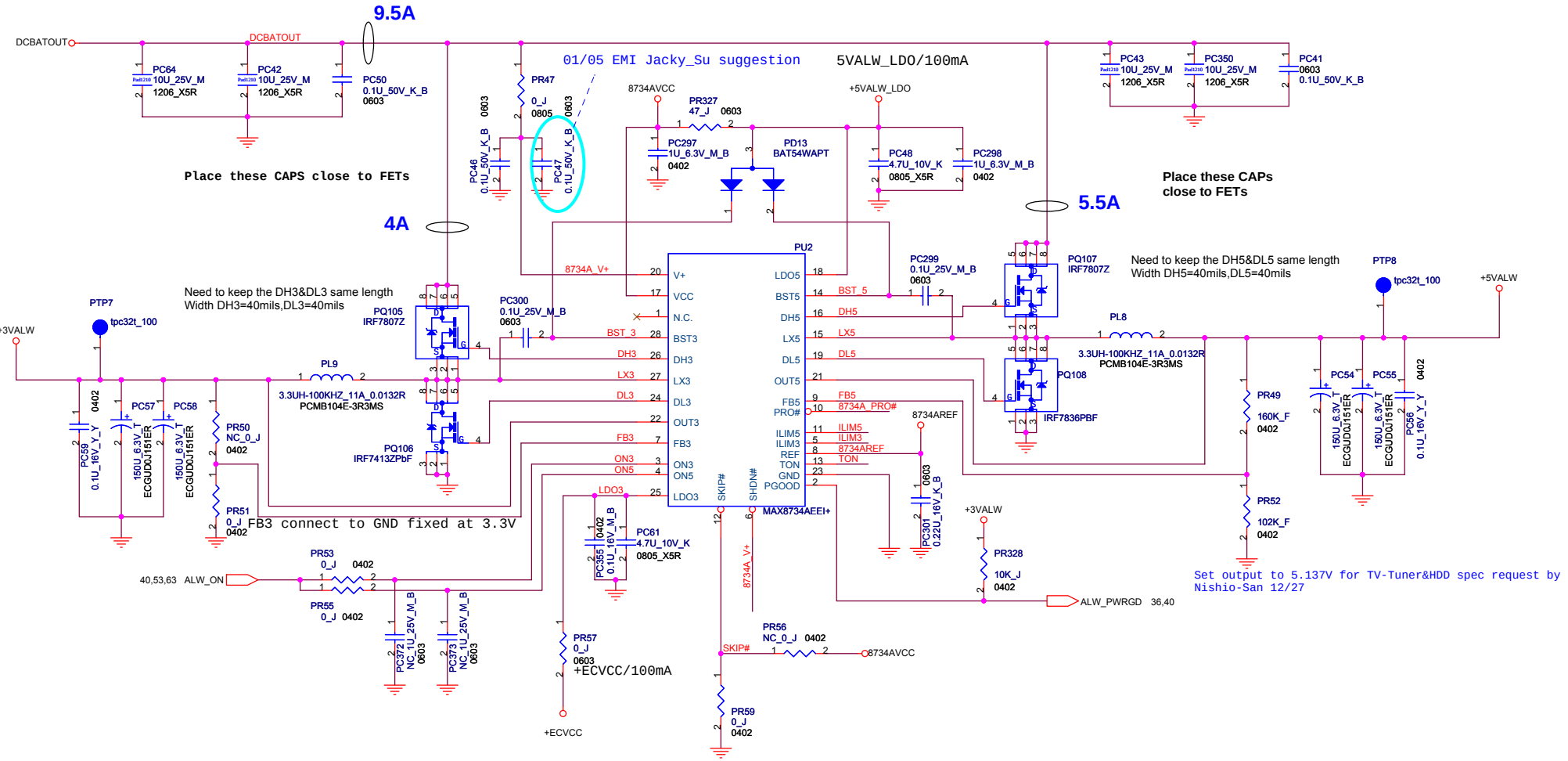
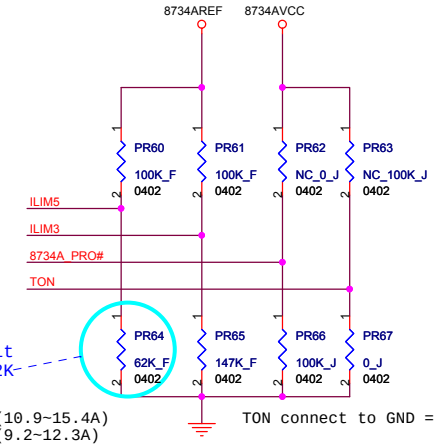


+3VALW Notice:
Output capacitor
ECGUD0J151ER(18 mohm,H=2.8mm)
6TPE150M(25 mohm,H=1.8mm)

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)



5V LIMIT@12A(10.9~15.4A)
3V LIMIT@11A(9.2~12.3A)
TON connect to GND = 5V/400KHZ,3.3V/500KHZ

+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_IRF7836PBF(Rds=5.7mΩ_typ,7.1mΩ_max@Vgs=4.5V,Id=13A)
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.
CPBG - R&D Division

Title	System Power 3.3V&5V	
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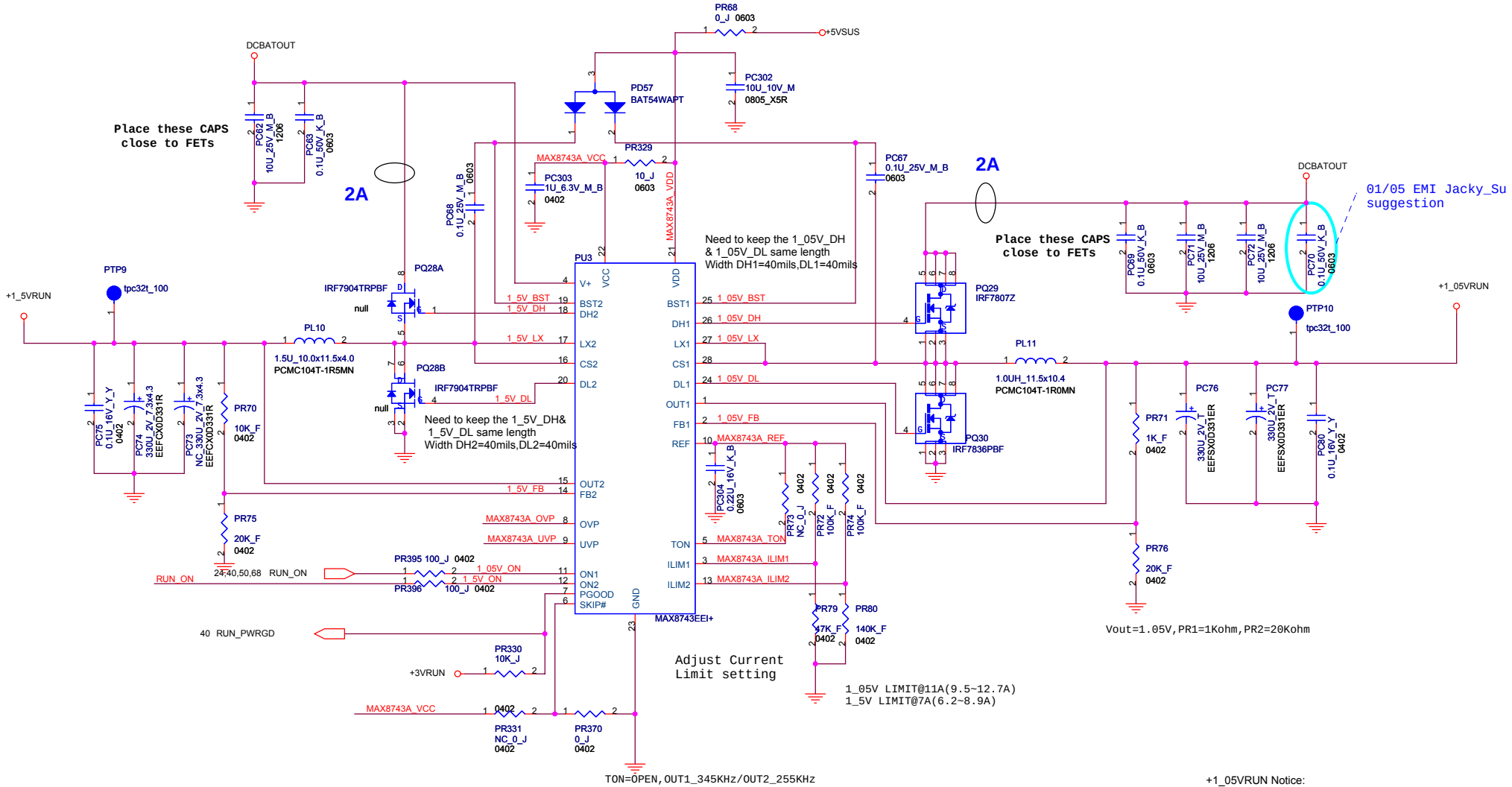

+1_5VRUN Notice:
Output capacitor
EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1A)

MOSFET(Top+Bottom)
IRF7902PBF(Low side Rds=14.3mΩ_typ,20.5mΩ_max@Vgs=4.5V,Id=7.2A)
Si4816DY(Low side Rds=15mΩ_typ,18.5mΩ_max@Vgs=4.5V,Id=8.6A)

+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_IRF7836PBF(Rds=5.7mΩ_typ,7.1mΩ_max@Vgs=4.5V,Id=13A)
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.
CPBG - R&D Division

Title: 1.5V/1.05V

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2006.12.29	2.0

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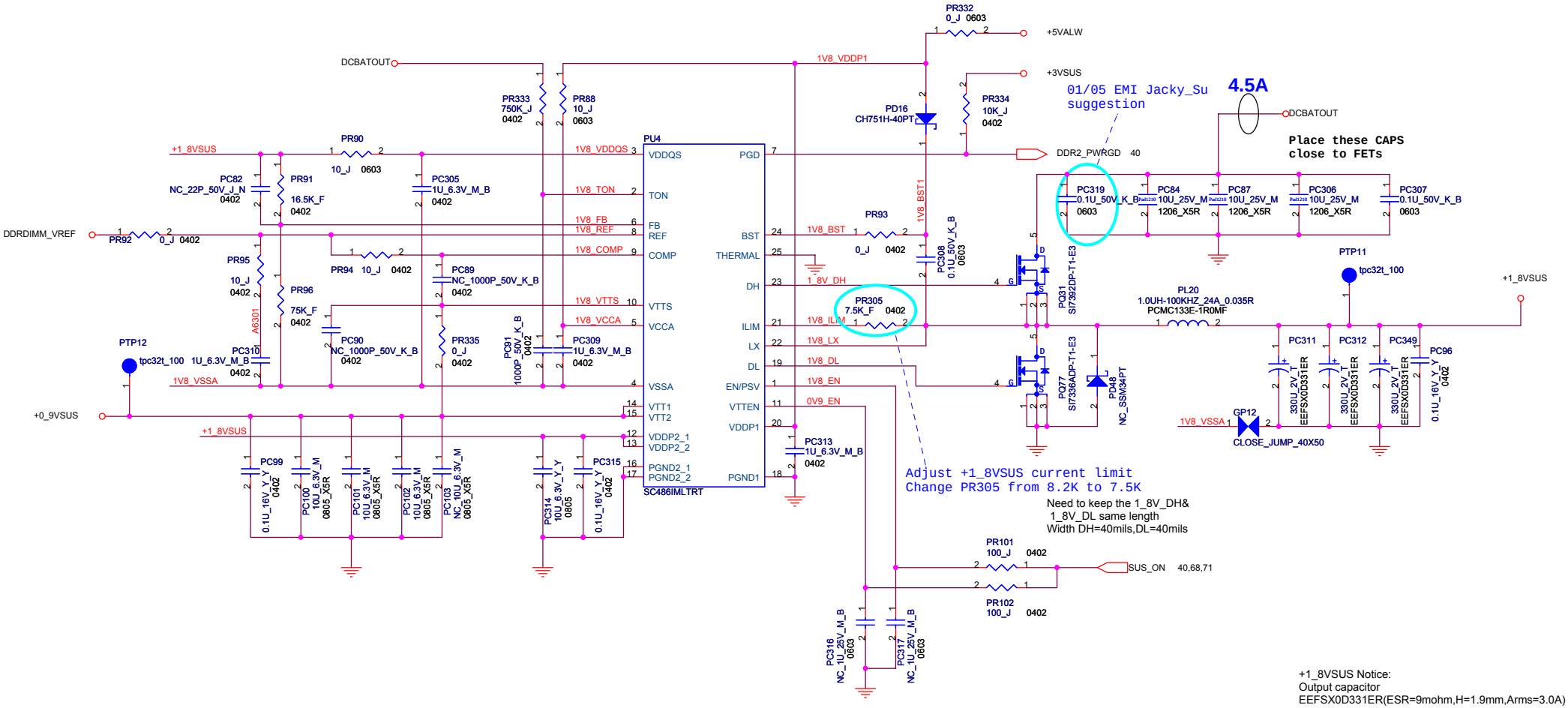

+1_8VSUS Notice:
Output capacitor
EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)
2R5TPE330M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

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@22A(20.2~25A)

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

Title: DDRII 1.8V/0.9V

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2006.12.29	2.0

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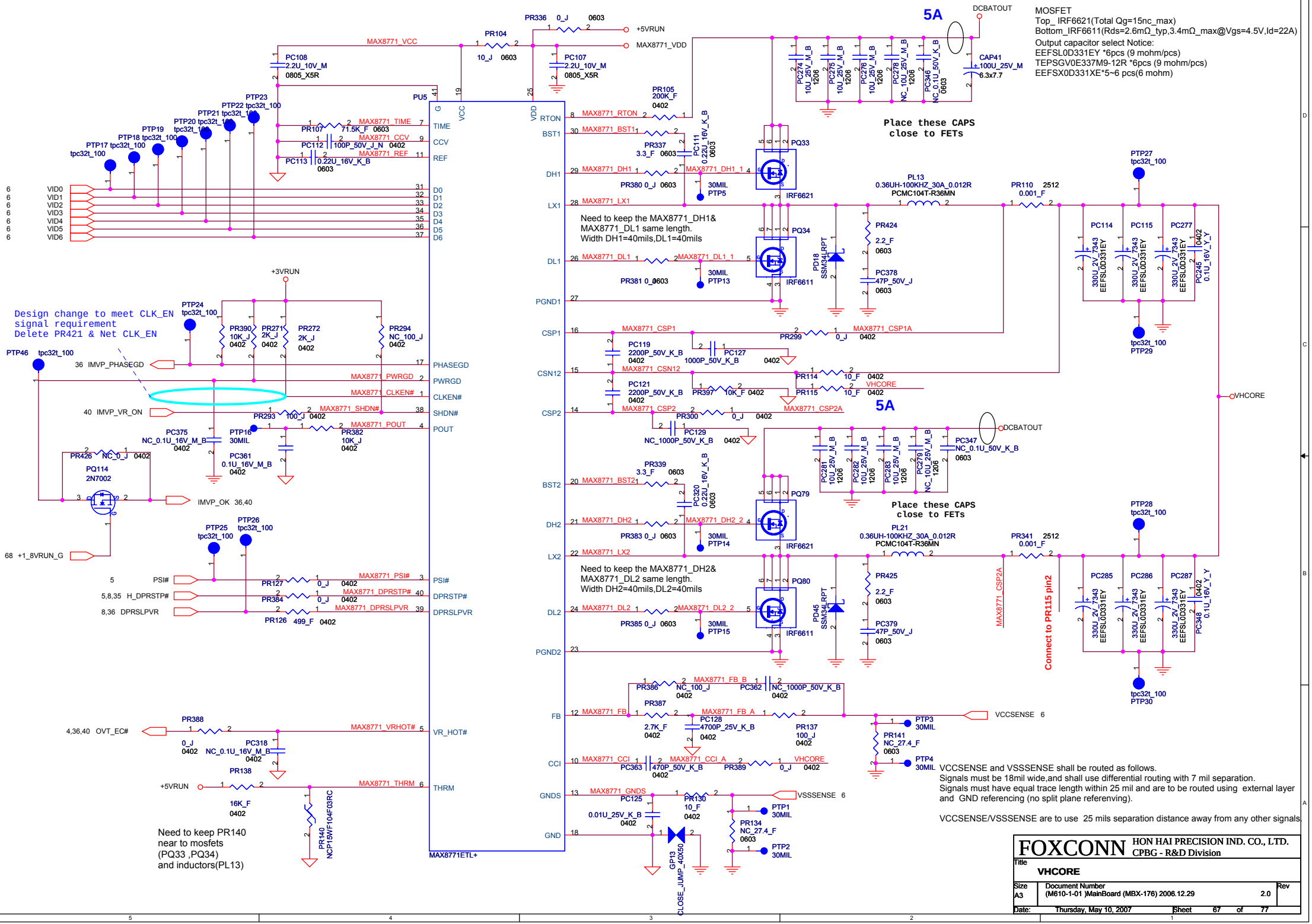
MOSFET
Top_ IRF6621(Total Qg=15nc_max)
Bottom_IRF6611(Rds=2.6mΩ_typ,3.4mΩ_max@Vgs=4.5V,Id=22A)
Output capacitor select Notice:
EEFSL0D331EY *6pcs (9 mohm/pcs)
TEPSGV0E337M9-12R *6pcs (9 mohm/pcs)
EEFSX0D331XE*5~6 pcs(6 mohm)
5A
DCBATOUT
Place these CAPS close to FETs
Need to keep the MAX8771_DH1& MAX8771_DL1 same length. Width DH1=40mils,DL1=40mils
Need to keep the MAX8771_DH2& MAX8771_DL2 same length. Width DH2=40mils,DL2=40mils
Design change to meet CLK_EN signal requirement Delete PR421 & Net CLK_EN
Need to keep PR140 near to mosfets (PQ33 ,PQ34) and inductors(PL13)
Connect to PR115 pin2
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.
MAX8771ETL+
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
VHCORE
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29
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PQ50
SI4800BDY(Rds=45mΩ_max@Vgs=3V,Id=9A)
or
IRF7402Z(Rds=50mΩ_max@Vgs=2.7V,Id=3.5A)

4A

PQ53
IRF7836PBF(Rds=5.7mΩ_typ,7.1mΩ_max@Vgs=4.5V,Id=13A)
or
SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)

9A

1.4A

7A

PQ97
IRF7836PBF(Rds=5.7mΩ_typ,7.1mΩ_max@Vgs=4.5V,Id=13A)
or
SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)

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)

8.5A

PQ99
IRF7836PBF(Rds=5.7mΩ_typ,7.1mΩ_max@Vgs=4.5V,Id=13A)
or
SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)

30mA

for load switch

PQ7
SI4800BDY(Rds=30mΩ_max@Vgs=4.5V,Id=7A)
or
IRF7402Z(Rds=35mΩ_max@Vgs=4.5V,Id=4.1A)

1.5A

Discharge circuit for power-off

11/16 PC159
shortage issue
Change X5R (1C-2B20474-M000)
to X7R (1C-2B20474-K000)

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

Title: Other power plan

Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2006.12.29	2.0

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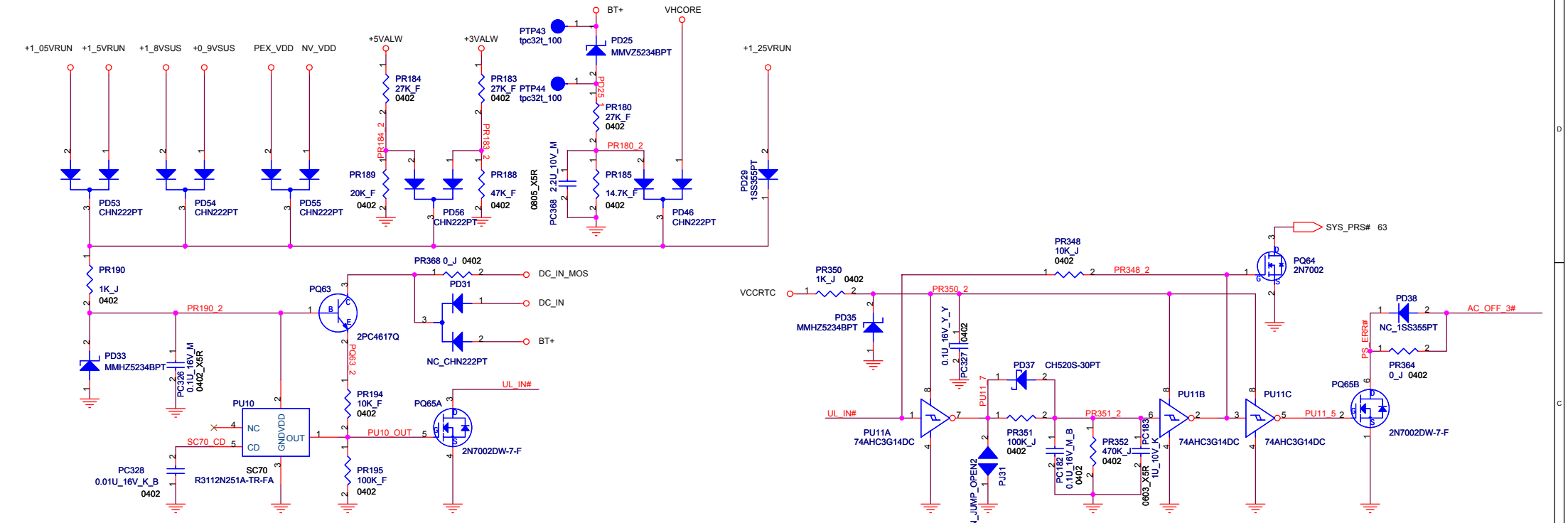

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	OVP protection
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29
Rev	2.0
Date:	Thursday, May 10, 2007
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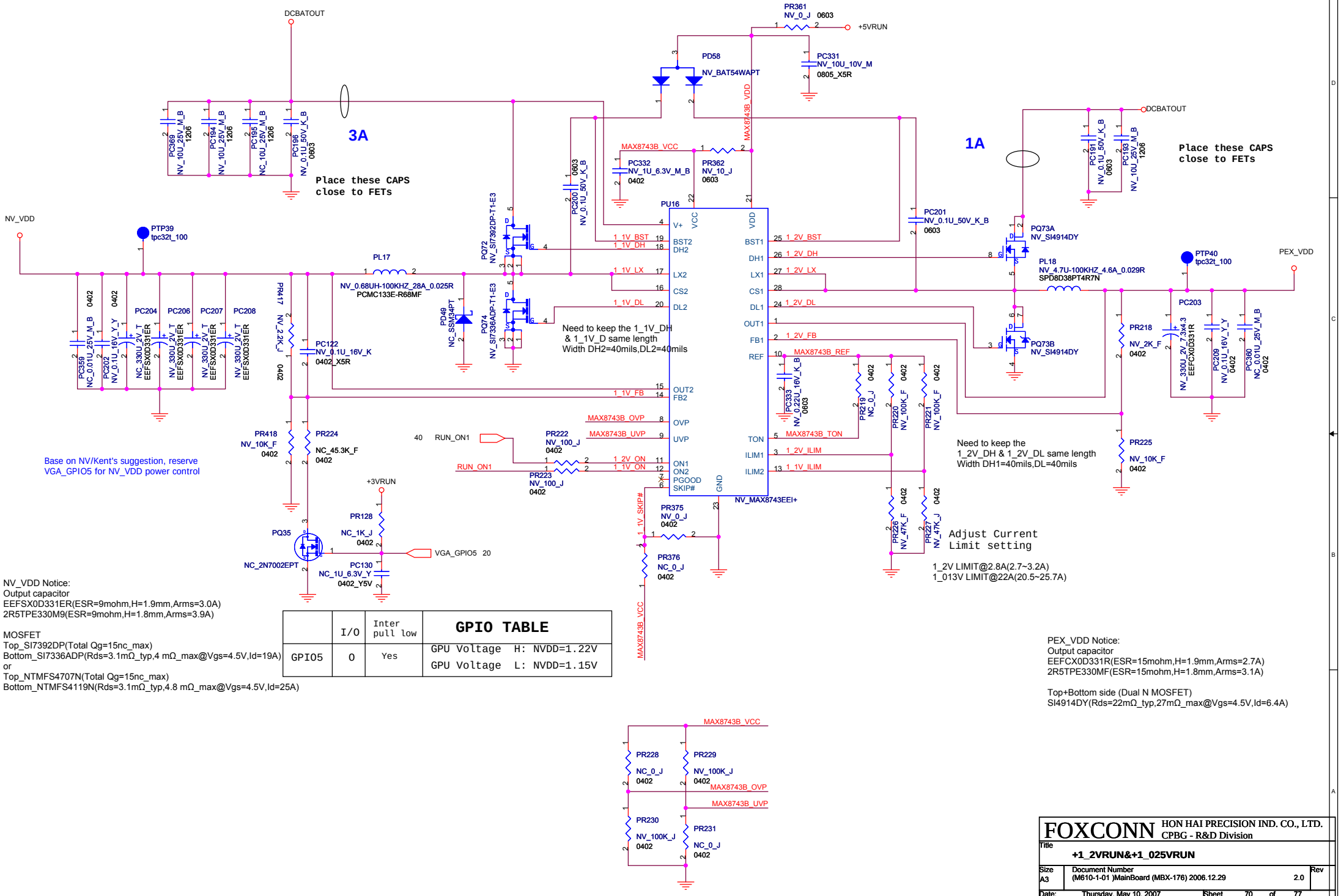

NV_VDD Notice:
Output capacitor
EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)
2R5TPE330M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

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)

	I/O	Inter pull low	GPIO TABLE
GPIO5	O	Yes	GPU Voltage H: NVDD=1.22V GPU Voltage L: NVDD=1.15V

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.
CPBG - R&D Division

Title: +1_2VRUN&+1_025VRUN

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2006.12.29 | Rev: 2.0

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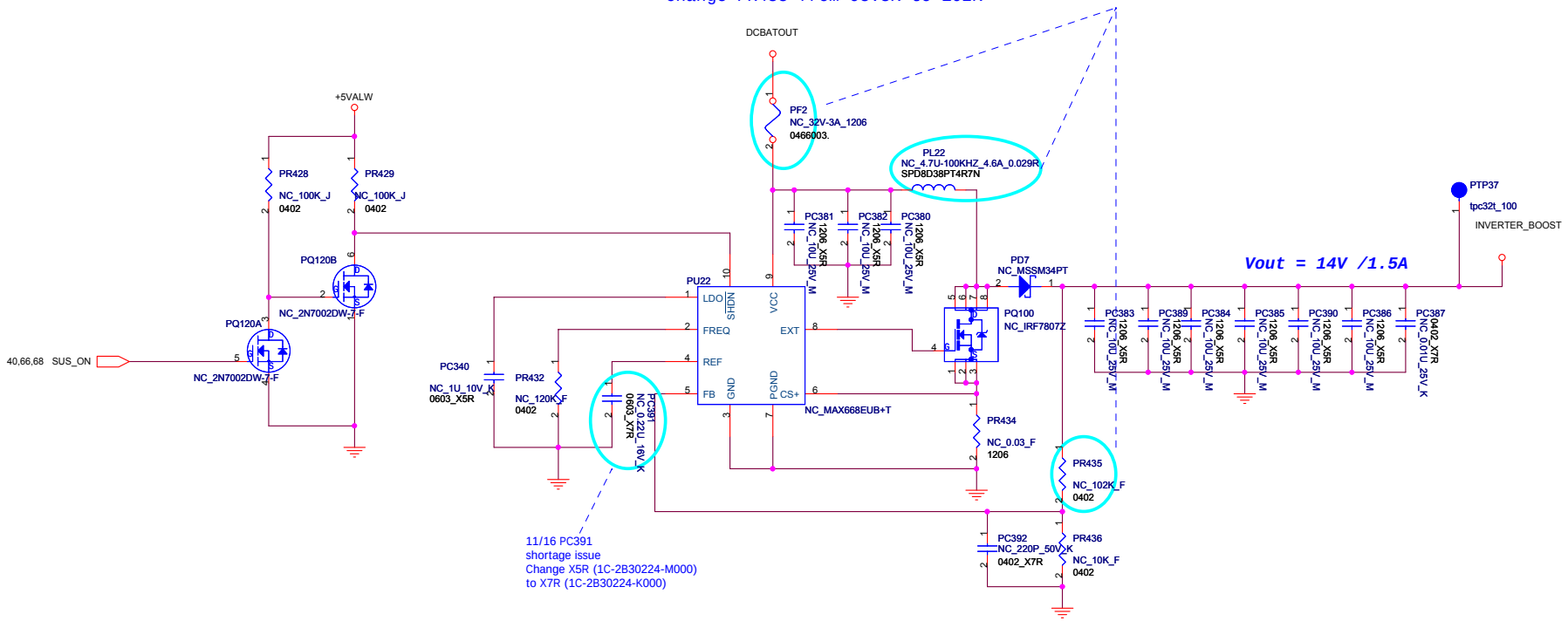
Boost cirsuit design change.
Add PF2 (32V-3A_1206) fuse for boost circuit,
Change PL22 from 8UH-100KHZ_2.5A_0.07R to 4.7U-100KHZ_4.6A_0.029R.
Change PR435 from 95.3K to 102K



11/16 PC391
shortage issue
Change X5R (1C-2B30224-M000)
to X7R (1C-2B30224-K000)

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	STEP_UP	
Size: Custom	Document Number: (M610-1-01)MainBoard (MBX-176) 2006.12.29	Rev: 2.0
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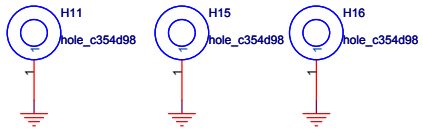
HOLE

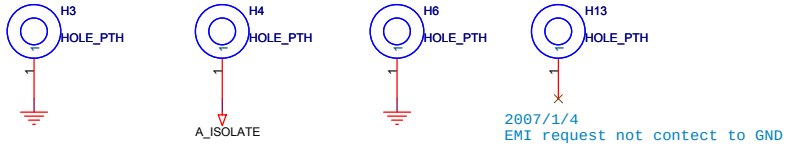
Type 1



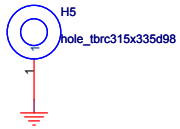
Type 2

Type 3

Type 4



Type 5



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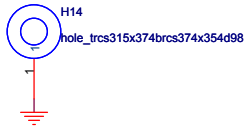
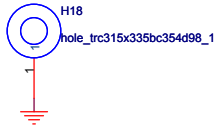


Type 7



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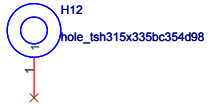
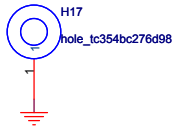
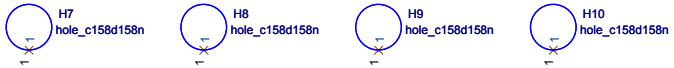
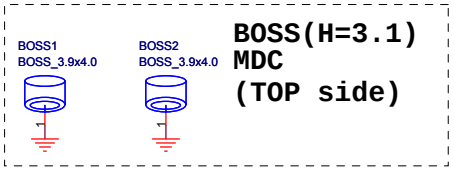


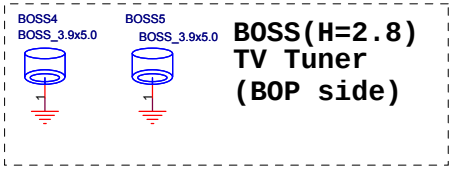
Type 9



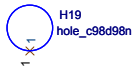
Type CPU





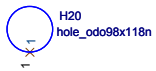


Type NPTH Guide (spherical)HOLD

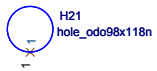


close H1

Type NPTH Guide (oval-shaped)HOLD



close H6



close H17

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

Title: HOLE & BOSS

Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

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1.(page18)NB8M-GT Device ID setting mismatch between VBIOS and H/W Straps
Change R231 value from NC_ to NV8MM_
Change R232 value from NV_ to NV8P_

2.(Page25)NVIDIA update NB8X VRAM termination value
Change R1908 from 50ohm to 45ohm
Change R272 from 40ohm to 30ohm

3.(Page30)Decrease D_SHIFT_+5VRUN ripple noise
Add a (C1947) 1uF cap for C_SHIFT_+5VRUN,Layout place close U76 pin1

4.(Page20)NVIDIA FAE suggestion:
Change GPU thermal alert signal input from GPIO6 to GPIO9.
Delete TP522 and pull-up GPIO8 (R2332 2.2K to +3VRUN)

5.(page20)NVIDIA FAE suggestion:
Reserve NV_I2C2 bus connected to EC for NB8X's internal thermal sensor.
Backup R2326 (NC)/ R2329 (NC)

6.(Page32)Cost down evaluation
Change R2193,R2194 from NC_ to NV8P8ME_,
Change R1945,C1616,U136 from NV8P8MH_ to NC

7.(Page58)Change speaker amp gain to 14dB .When Play -3dB wave file the speaker power is 1.2W.
Change R2216 to 4.7K

8.(Page58)When Play -3dB wave file the speaker power is 1.2W,THD+N<10%.
Change damping resistor R2210,R2211 to 4.3K

9.(Page58)change cut off Frequency form 10Hz to 250 Hz
C1850,C1851 from 1uF to 0.015uF

10.(Page48)To solve U80 enable pin (net name USB_BT_EN)floating during U79 (BT_3V from LDO)BT_ON desable,
Add Pull low 47K(R2331) at net USB_BT_EN, Change R2318 from 10K to 1K.

11.(Page35,36)ICH8 datasheet error, GPIO34 is not truer GPIO Pin, BIOS can't control it's action
Change EC_OUT from ICH8 GPIO26 to GPIO34
ICH8 pin AB27(GPIO26) add TP1051
ICH8 pin AD14(GPIO34) del TP869, link to X-BUS conn.

12.(Page50)NOR not agree use ENE chip for second source
Change Express Card Power Switch (U36) from ENE PJ2317F to TI TPS2213FW

13.(The spec CE505 CLK_EN is high enable,
not low enable, correct "#"mark wrong
on schematic,Change ICH8 pin E1
/U18 pin 56 net name from CLK_EN#
to CLK_EN

14.(Page55)
Base on MOR side suggest to modify cammera power source circuit,
Add F19(LITTELFUSE 0.35A) between net +5VDUS and CAM_5V,
del U132(RT9702),

15.(Page53)Base on MOR side request to add HW thermal protection circuit ,HW thermal shut down tempature
setting 115 degree . Layout place close CPU .
back up U161 (GMT,G709T11U)
back up R2335(18K),R2334(115K),R2336 (0 ohm),R2338 (0 ohm),R2337(0 ohm),,C1948(0.1uf)

16,(page64)Adjust +5VALW current limit
Change PR64 from 51K to 62K

17.(Page66)Adjust +1_8VSUS current limit
Change PR305 from 8.2K to 7.5K

18.(Page68) PC159
shortage issue
Change X5R (1C-2B20474-M000)
to X7R (1C-2B20474-K000)

19.(Page70)Base on Nvidia suggestion, Change NV_VDD from 1.0V to 1.2V.
Change PR417, PR418 from NC to mount and Change PR217, PR224 from mount to NC

20.(Page71) PC391
shortage issue
Change X5R (1C-2B30224-M000)
to X7R (1C-2B30224-K000)

21.(Page71)
Boost circuit design change.
Add PF2 (32V-3A,125N) fuse for boost circuit,
Change PL22 from BUM-1006HZ_2.5A_0.07R to 4.7U-100KHZ_4.6A_0.029R.
Change PR435 from 95.3K to 102K

22.(Page63)To improve DC_IN overshoot level.
Change PR171,PC151 from NC to stuff.

23.(Page67)Design change to meet CLK_EN
signal requirement
Delete PR421 & Net CLK_EN

1.(Page 50) Load current test fial, 1.8V transfer 1.5V drop Voltage too large.12/27 Change Q180 from 17-NDS355A-N000 to 17-S12316D-ST00, Change Q180 Power from +1_8VSUS to +3VSUS

2.(Page 36) Base on MOR side suggest to modify cammera power source circuit,
Change ICH8 AD16 GPIO28 Net from CAM_PWREN to TP1052,Delete R1787 for CAM_PWREN pull down res.

3.(Page 49) New WLAN module have Current Leakage Issue, Change WLAN LED control signal,
Change Q154 WLAN LED control signal from WLAN_EN to WLAN_LED_EN,(Page 40) 12/28
Change GPIO13 from D_RUN_PWRGD to WLAN_LED_EN

4.(Page 54) AV Function Daughter Board MUTE_LED function cancel at DVT stage.
Delete CN44.14 MUTE_LED# Net,detele TP831 for MUTE_LED function cancel.

5.(Page 34) GAMMA_EN# change to HW control,Change R2325 to no stuff for GAMMA_EN# change to HW control

6.(Page 48) Change Bluetooth circuit Value to BSRL_* for M610 DVT L SKU

7.(Page 49) Change Bluetooth circuit Value to BSRL_* for M610 DVT L SKU

8.(Page 52) Change CIR circuit Value to BSRL_* for M610 DVT L SKU

9.(Page 55) Change Felica circuit Value to BSRL_* for M610 DVT L SKU

10.(Page 33) TV tuner "SVIN_DET#" signal no use,Change R1840,D85 to NC

11.(Page 31) Use H/W selection to enable GAMMA function.Change R1937,R1938 from 4.7K to 0ohm

12.(Page 31) Backup Inverter boost circuit and use DCBATOUT as INVERTER_VCC,Change R2308 from NC to mount
Change R2309 from mount to NC

13.(Page 29) PS101 HPD has level shift function, so backup this circuit,Change Q115,Q116,R1545,R1546 to NC

14.(Page 32) meet HDMI Spec,Replace F1 by 0.25Afuse for meet HDMI Spec

15.(Page 32) Add HDMI equalizer for M610 long trace issue,Add (U163)PS101 and around circuit

16.(Page 57) (1).M610 DVT Use GPIO1 ,Delet TP917,Add NAND U164 ,R2347,R2348 for MOR Command The same as Beagle..
(2).NC C1561 for HDMI Audio noise issue .

17.(Page 58)Change R1250,R1251,R2326,R2327,R1863,R1864 to 22 ohm.

18.(Page 58)Change CAP39 and CAP40 Vendor from LELON to Panasonic

19.(Page 59)Change R1321 and R1325 from 4.7k_J to 4.7K_F
for MOR Side Command.

1.(Page 34) 07/01/04 Change LVDS_GPIO Net to GAMMA_MOD

2.(Page 36) 07/01/04 Change R636, R2195 from 4.7K to 1K

3.(Page 46) 07/01/04 CN71 NC

4.(Page 48) 07/01/04 Change R2381 from 1K to 4.7K

5.(Page 49) 07/01/04 Change R1912 at Low SKU stuff

6.(Page 50) 07/01/04 Change +1_5VSUS to NC

7.(Page 54) 07/01/04 Change R1879 from 33 to 100, change Q145 from DTC144EUA to 2N7002,delete D93

8.(Page 55) 07/01/04 Delete R1943

9.(Page 57)07/01/04 Change C1559 to 220pF.

10.(Page 57)07/01/04 Change Q117,Q119 Vendor .

11.(Page 59)07/01/04 Change R1361 From 33Kto 15K.

12.(Page 40)07/01/04 change GPIO12 from Mute_LED to NC

13.(Page 40)07/01/04 change GPIO13 from D_RUN_PWRGD to WLAN_LED_EN

14.(Page 39)07/01/04 change U153 symbol from A2 to B0

15.(Page 40)07/01/04
1.Add pull high resistor for system_ID0 disable.
2.change R2277,R720,R721,R722 value for bom configuration modify.

16.(Page 20)07/01/04
1.Add 0ohm resistor
2.Change R293 from mount to NC

17.(Page 20)07/01/04
1.Delete TP949 and use VGA_GPIO5
3.Add 0ohm resistor to backup GPU thermal alert to shut down system power
4.Change OVT_GFX connection from U8.4 to NV_GPIO8 for power limit input to GPU when use internal thermal sensor

18.(Page 20)07/01/04
Change R2328,R2329 from NC to mount

19.(Page 22/23)07/01/04 ChangeR1896,R1897,R1898,R1899,R1502,R1503,R1873,R1874 from 240ohm to 243ohm

20.(Page 25)07/01/04 Add 45.3ohm and 24.9ohm resistor for N88M-GT

21.(Page 31)07/01/04 Delete R2286,R2287 for Instant On function been cancelled

22.(Page 31)07/01/04 Change net name from LVDS_GPIO to GAMMA_MOD

23.(Page 32)07/01/04
Add bypass cap for PS101 power
Add Selection resistor for backup

24.(Page 70)07/01/04
Change PR417 value from 2.1K to 3.3K, Change PR418 value from 10K to 100K,
Change PR224 value from NC_15K to 19.1K, Change PR217 from NC_200_F to PC122 22P_50V, Add PR128,PC130,PQ35.

25.(Page31/48)07/01/05 Restore System ID control for Logo_LED select
1.Delete Pull high resistor
2.Restire R2286,R2287

26.(Page22/23)07/01/05 Change R2131,R2132,R2133,R2134,R2135,R2136,R2137,R2138 from 7.5K to 4.02K

27.(Page25)07/01/05 Change R1900,R272 head value to NC Change R2349,R2350 head value to NV_

28.07/01/05 For EMI improvement
1.(page64) change PC47 from 4.7U NC to 0.1U stuff
2.(Page65) Add PC70 0.1U Cap
3.(Page)Add PC319 0.1U Cap

29.07/01/08 FAE suggestion
Delete RP109 and R2345
Add 10K resistor for HDMI_I2C_EN# pull up
Change Q174 pin4 net name from HDMI_SDA to HDMI_I2CB_SDA
Change Q174 pin1 net name from HDMI_SCL to HDMI_I2CB_SCL
Change U163 pin8,9,28,29 to NC pin.

30.07/01/08
(Page 40) add test potin for GPIO12

31.07/01/08
(Page 48)Change CN36 from NAIS to FOXCONN

32.07/01/09
(Page 53) 07/01/09 Change HW THERMAL PROTECTION circuit to stuff

33.07/ 01/11
(Page 39) Add test point for BFT Lan test

34.07/01/11
(Page 59)Change Q181 from 17-MMBT390-4000
to 17-MMBT390-4001 for PUR can't buy issue

DVT Change Circuit

1.(Page 29) 07/01/19 Change D60,D61,D81 from 16-SM05TC0-0000 to 16-PACDN04-2Y00

2.(Page 33) 07/01/19 Change D76,D77,D82,D83,D84,D85,D96,D97,D98 from 16-SM05TC0-0000 to 16-PACDN04-2Y00

3.(Page 54) 07/01/19 Change D94,D95 from 16-SM05TC0-0000 to 16-PACDN04-2Y00

4.(Page 63) 07/01/19 Change PD4 from 16-SM15TC0-0000 to 16-PESD15V-S200

5.(Page 31) 07/01/19 Change Panel ID

6.(Page 22) 07/01/19 Change C1608,C1609 to NC

7.(Page 23) 07/01/19 Change C1582,C1583 to NC

8.(Page 22) 07/01/19 Change R1897,R1899 from 243 ohm to 0 ohm

9.(Page 23) 07/01/19 Change R1873,R1874 from 243 ohm to 0 ohm

10.(Page 23) 07/01/19 Change Bluetooth connector(CN36)to LNC

11.(Page 23) 07/01/19 Change R2318, R2331,R2321 from LNC to NC

12.(Page 23) 07/01/19 Change R2319,R2322 from NC to LNC

PVT Change Circuit

13.(Page 32) 07/01/29 Change D106 from 16-NSR15SD-W100 to 16-CH741UP-T000.

14.(Page 04) 07/01/29 Add pull high 56 Ohm resistor for PM_THERMTRIP at CPU side .

15.(Page 49) 07/01/29 Add 1C-2Y60226-Y000(C1961)for MINI_PCIE_+3VAUX.

16.(Page 49) 07/01/29 Change Q154 from 17-2N7002D-0000 to 17-2N7002E-SP00.

17.(Page 49) 07/01/29 Change WLAN LED control signal to WLAN_EN

18.(Page 49) 07/01/29 Delete WLAN_LED_EN singnal

19.(Page 63) 07/01/29 Change PL1 from 1L-DSMH100-8000 to 1L-DPWC100-8S00.

20.(Page 67) 07/01/29 Add test pad PTP46 for MAX8771_PWRGD

21.(Page 67) 07/01/29 Add CAP41 1C-1XX0107-M400 at Vcore DCBATOUT input.

22.(Page 65) 07/01/29 Change PQ28 from 17-1RF7902-0000 to 17-1RF7904-0000.

23.(Page 57) 07/01/30 Change C1203,C1204,C1205,C1206 from 1C-2N20821-J600 to 1C-2N30821-J001.

24.(Page 63) 07/01/30 Add PD8 16-PACDN04-2Y00 for Battery ESD protection.

25.(Page 31) 07/01/30 Change GAMMA_MOD to GAMMA_MOD#

26.(Page 67) 07/02/12 Add PC393 PC394 PC395 PC396 PC397 to NC for CPU Vcore

27.(Page 67) 07/02/12 Change U157 U158 from 15-MAX4798-0000 to 15-TPS2055-0000

28.(Page 46) 07/02/12 Delete ACROSS MS connector CN71 (1N-1010005-0000)

29.(Page 70) 07/02/12 Change PC122 from 1C-2N20220-J000 to 1C-2B20104-K301.

30.(Page 20) 07/02/12 Change U10, C493,C492,R1542,R1543,R316,R317 from NC to Populate for SS circuit

31.(Page 20) 07/02/26 Change SS circuit to CLKGEN Source.

32.(Page 30) 07/02/26 Add D108 for ESD Diode from CRT detection Net

33.(Page 70) 07/02/26 Change PR417 to 2.7kohm, PR418 to 18kohm,PR224 to 45.3kohm for NVDD switching setting change to 1.15V ~ 1.2V.

34.(Page 67) 07/02/26 Change CAP41 from populate to NC.

35.(Page 67) 07/03/01 delete PC393 PC394 PC395 PC396 PC397 PC398 to NC for CPU Vcore

36.(Page 71) 07/03/01 Change Inverter Boost Circuit from populate to NC

37.(Page 59) 07/03/05 Add 4.7uF capacitor for U99 VDDA pin.

38.(Page 64) 07/03/05 Change PC64,PC42,PC43,PC350
from 1C-2B60106-M001 to 1C-2BA0106-M000 for noise.

39.(Page 66) 07/03/05 Change PC84,PC87,PC306
from 1C-2B60106-M001 to 1C-2BA0106-M000 for noise.

40.(Page 22/23) 07/03/07 delete R1897.R1899.R1873.R1874.C1608.C1609.C1582.C1583 according to nVidia's confirmation.

41(Page 32) 07/03/07 add RP109.RP110.RP111.RP112.for signal reflection decreasing. changeR2341 to Populate.R2342 to NC to adjust Equalizer to 12dB

42(Page 32) 07/03/07 change R2310 from 0Ohm to 10k Ohm.

43(Page 32) 07/03/07 add L163 : 1L-BFBM083-3000 for EMI requirement.

44(Page 32) 07/03/09 delete HDMI Bypass solution.delete RP109.RP110.RP111.RP112.RP105.RP106.RP107.RP108

45.(Page 64) 07/03/13 Change PC64,PC42,PC43,PC350
from 1C-2BA0106-M000 to 1C-2B60106-M001for abnormal noise.

46.(Page 66) 07/03/13 Change PC84,PC87,PC306
from 1C-2BA0106-M000 to 1C-2B60106-M001 for abnormal noise.

47.(Page 63) 07/03/13 Change PC19 from 1C-2B20103-K000 to 1C-2Y20103-Y000.

48.(Page 32) 07/03/05 Add 1C-2Y70106-Y000 (10u) capacitor(C1965,C1964) for HDMI

49.(Page 63) 07/03/13 Change PC19 from 1C-2Y20103-Y000 to 1C-2B30103-K001.

50.(Page 56) 07/03/15 Change R1972 from 51K to 27k for log led current 20mA.

51.(Page 20) 07/03/15 Add 0 ohm (R2359) for Power Mizer

52.(Page 40) 07/03/16 Modification +5VSUS change to +5VRUN for TP Pull-up.

53.(Page 70) 07/03/16 Change PR417 from 2.7k ohm to 2k ohm for NVVDD fix 1.2V

54.(Page 70) 07/03/16 Change PR418 from 18k ohm to 10k ohm for NVVDD fix 1.2V

55.(Page 70) 07/03/16 Change PR128, PC130,PR224,PQ35 to dummy for NVVDD fix 1.2V

56.(Page 22) 07/03/21 Change C506,C1400,C504,C1399, C1403,C1404,C1402,C1401 from 0.1U to 0.01U for nVidia.

57.(Page 70) 07/04/10 Change PC195 from stuff to NC.

58.(Page 70) 07/04/10 PC369 changed from NC to stuff.

59.(Page 26) 07/04/12 R2141 changed from 3.4K to 36K and populate as default for HDMI SPDIF from nVidia.

MP Change Circuit

1.(Page 51) 07/04/17 Add Poly Swicth F20(miniSMDC260F) in USB function for TUV certification.

2.(Page 61) 07/04/17 Add Poly Swicth F21(miniSMDC260F) in USB function for TUV certification.

3.(Page 20) 07/04/19 Change R1778 from stuff to NC for double pull high.

4.(Page 32) 07/04/19 Change R2341,R2340 from stuff to NC for HDMI (Equalizer of driving change 4 dB).

5.(Page 32) 07/04/19 Change R2339,R2242 from NC to stuff for HDMI (Equalizer of driving change 4 dB).

6.(Page 70) 07/04/25 Change PR417 from 2K ohm to 2.2K ohm for NV_VDD voltage will improve to 1.22V.

7.(Page 51) 07/05/10 Change Poly Swicth F21(miniSMDC260F) from 1M-F06V2A6-F000 to 1M-F6V01A5-0001 in USB function for TUV certification.

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

File: History(EVT to MP)

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