Schematics Page Index (Title / Revision / Change Date)

Page	Title of Schematics Page	Rev.	Date
01	Schematics Page Index	1.0	2007/8/30
02	Block Diagram	1.0	2007/8/30
03	CLOCK GEN (CK505)	1.0	2007/8/30
04	MEROM(HOST BUS) 1/2	1.0	2007/8/30
05	MEROM(HOST BUS) 2/3	1.0	2007/8/30
06	MEROM(Power/Gnd) 3/3	1.0	2007/8/30
07	Crestline (HOST) 1/7	1.0	2007/8/30
08	Crestline (DMI) 2/7	1.0	2007/8/30
09	Crestline (GRAPHIC) 3/7	1.0	2007/8/30
10	Crestline (DDRII) 4/7	1.0	2007/8/30
11	Crestline (POWER,VCC) 5/7	1.0	2007/8/30
12	Crestline (VCC CORE) 6/7	1.0	2007/8/30
13	Crestline (VSS) 7/7	1.0	2007/8/30
14	DDRII(SO-DIMM_0) 1/3	1.0	2007/8/30
15	DDRII(SO-DIMM_1) 2/3	1.0	2007/8/30
16	DDRII(Termination) 3/3	1.0	2007/8/30
17	VGA(PCI-E)	1.0	2007/8/30
18	VGA(STRAP)	1.0	2007/8/30
19	VGA(GDDR)	1.0	2007/8/30
20	VGA(MULTIUSE)	1.0	2007/8/30
21	VGA(LVD/VDAC)	1.0	2007/8/30
22	VRAM(GDDR)# 1/2	1.0	2007/8/30
23	VRAM(GDDR)# 2/2	1.0	2007/8/30
24	VGA(POWER) 1/3	1.0	2007/8/30
25	VGA(POWER) 2/3	1.0	2007/8/30
26	VGA(POWER) 3/3	1.0	2007/8/30
27	VRAM(BYPASS) 1/2	1.0	2007/8/30
28	VRAM(BYPASS) 2/2	1.0	2007/8/30
29	TVIN and OUT/Semi-PnP#	1.0	2007/8/30
30	CRT	1.0	2007/8/30
31	LVDS	1.0	2007/8/30
32	HDMI	1.0	2007/8/30
33	MINI PCI (TV)	1.0	2007/8/30
34	ICH8-M(PCI/USB) 1/5	1.0	2007/8/30
35	ICH8-M(LPC,IDE,SATA)2/5	1.0	2007/8/30
36	ICH8-M(GPIO) 3/5	1.0	2007/8/30
37	ICH8-M(POWER) 4/5	1.0	2007/8/30
38	ICH8-M(GND) 5/5	1.0	2007/8/30
39	LAN (88E8055 MARVELL)	1.0	2007/8/30
40	EC+KBC (3910)	1.0	2007/8/30
41	Flash ROM/XBUS	1.0	2007/8/30
42	SATA HDD RAID	1.0	2007/8/30
43	PATA CD-ROM	1.0	2007/8/30
44	PCI (PCI BUS)	1.0	2007/8/30
45	PCI (ILINK)	1.0	2007/8/30
46	PCI (MS-STD/DUO/MDC/SD)	1.0	2007/8/30
47	PCI (PCMCIA)	1.0	2007/8/30
48	Bluetooth	1.0	2007/8/30
49	Mini-PCIE Card	1.0	2007/8/30
50	EXPRESS	1.0	2007/8/30
51	USB2.0	1.0	2007/8/30
52	CIR Reciver	1.0	2007/8/30
53	FAN / HW THERMAL PROTECTION	1.0	2007/8/30
54	Daughter Board Conn.	1.0	2007/8/30
55	CAM/OIDE	1.0	2007/8/30
56	Logo LED	1.0	2007/8/30
57	AUDIO(CODEC & POWER)	1.0	2007/8/30
58	AUDIO(AMP & HP & SPK)	1.0	2007/8/30
59	AUDIO (MUTE & INTMIC)	1.0	2007/8/30
60	AUDIO (Second Codec)	1.0	2007/8/30
61	Audio BOARD conn	1.0	2007/8/30
62	Power Design Diagram	1.0	2007/8/30
63	DCIN&Charger	1.0	2007/8/30
64	SYS Power (+3_3V/+5V)	1.0	2007/8/30
65	SYS Power(+1_5V/+1_05V)	1.0	2007/8/30
66	DDR2 Power(+1_8V/+0_9V)	1.0	2007/8/30
67	CPU_Vcore ---MAX8771	1.0	2007/8/30
68	Others power plan	1.0	2007/8/30
69	OVP protection	1.0	2007/8/30
70	VGA POWER(+1_1V/ +1_2V)	1.0	2007/8/30
71	Inverter Boost Circuit	1.0	2007/8/30
72	HOLE & BOSS	1.0	2007/8/30
73	HISTORY(DVT)	1.0	2007/8/30
74	Second Source 01	1.0	2007/8/30
75	Second Source 02	1.0	2007/8/30
76	Power On Sequerce Block Diagram	1.0	2007/8/30
77	Power On Sequerce Timing	1.0	2007/8/30
78			
79			
80			

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

FOXCONN HON HAI PRECISION IND. CO., LTD.
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Title: Index Page

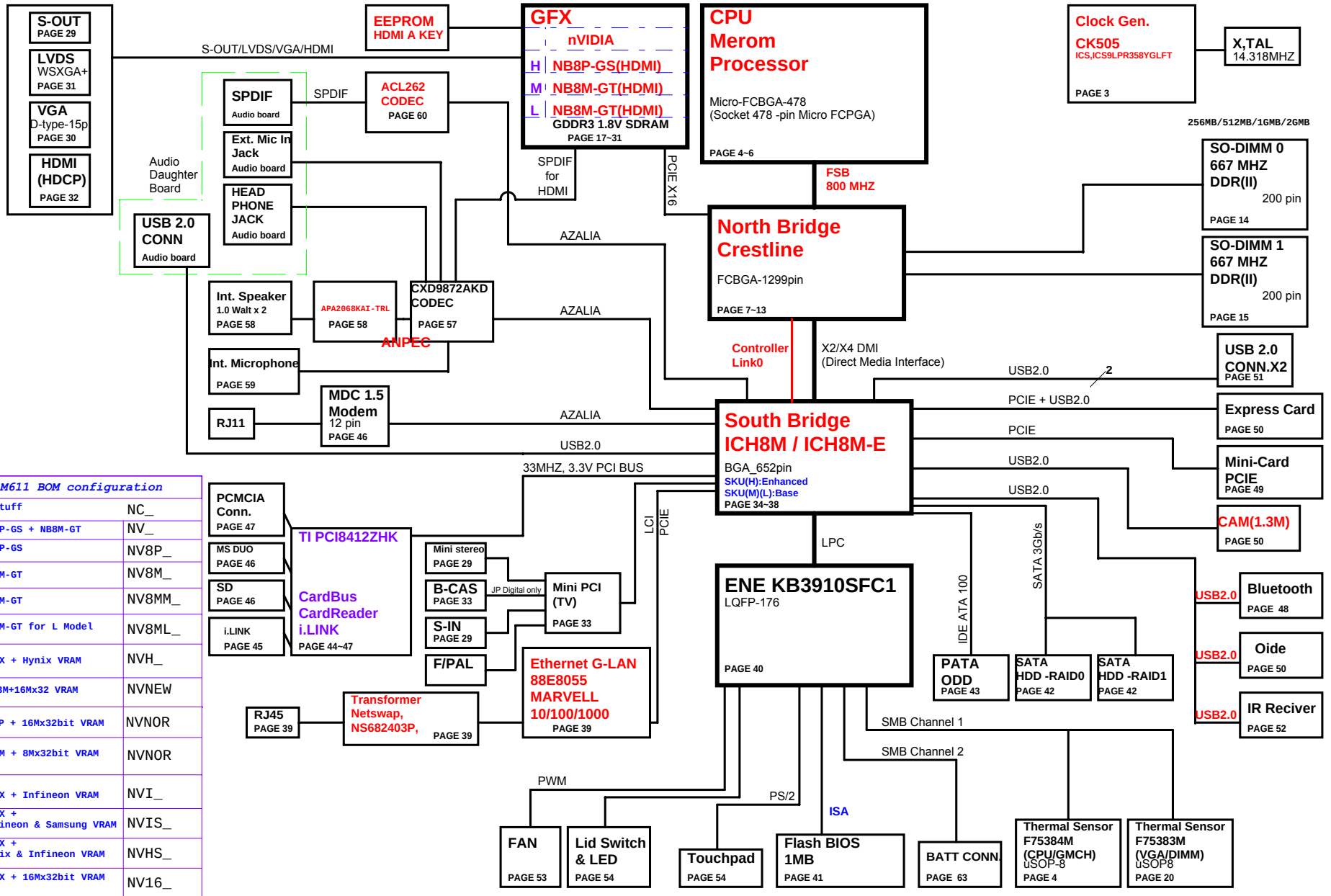
Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 1 of 77

ELEKTRONIKA

M611(Beagle Santa Rosa)Block Diagram

Red texts:
New modified



M611 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_
NB8M+16Mx32 VRAM	NVNEW
NB8P + 16Mx32bit VRAM	NVNOR
NB8M + 8Mx32bit VRAM	NVNOR
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

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

Date: Friday, October 19, 2007 | Sheet 2 of 77

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.

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

Length as short as possible.

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

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

S/W Setting CLKREQ for this pin
CR#A (B5b7=1;B5b6=1)
CR#B (B5b5=1,B5b4=1)
CR#E (not control)
CR#F (not control)
CR#G (B6b5=1)
CR#H (B6b4=1)

SM bus Address :
1101001 (ICH7)
For clock generator

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)

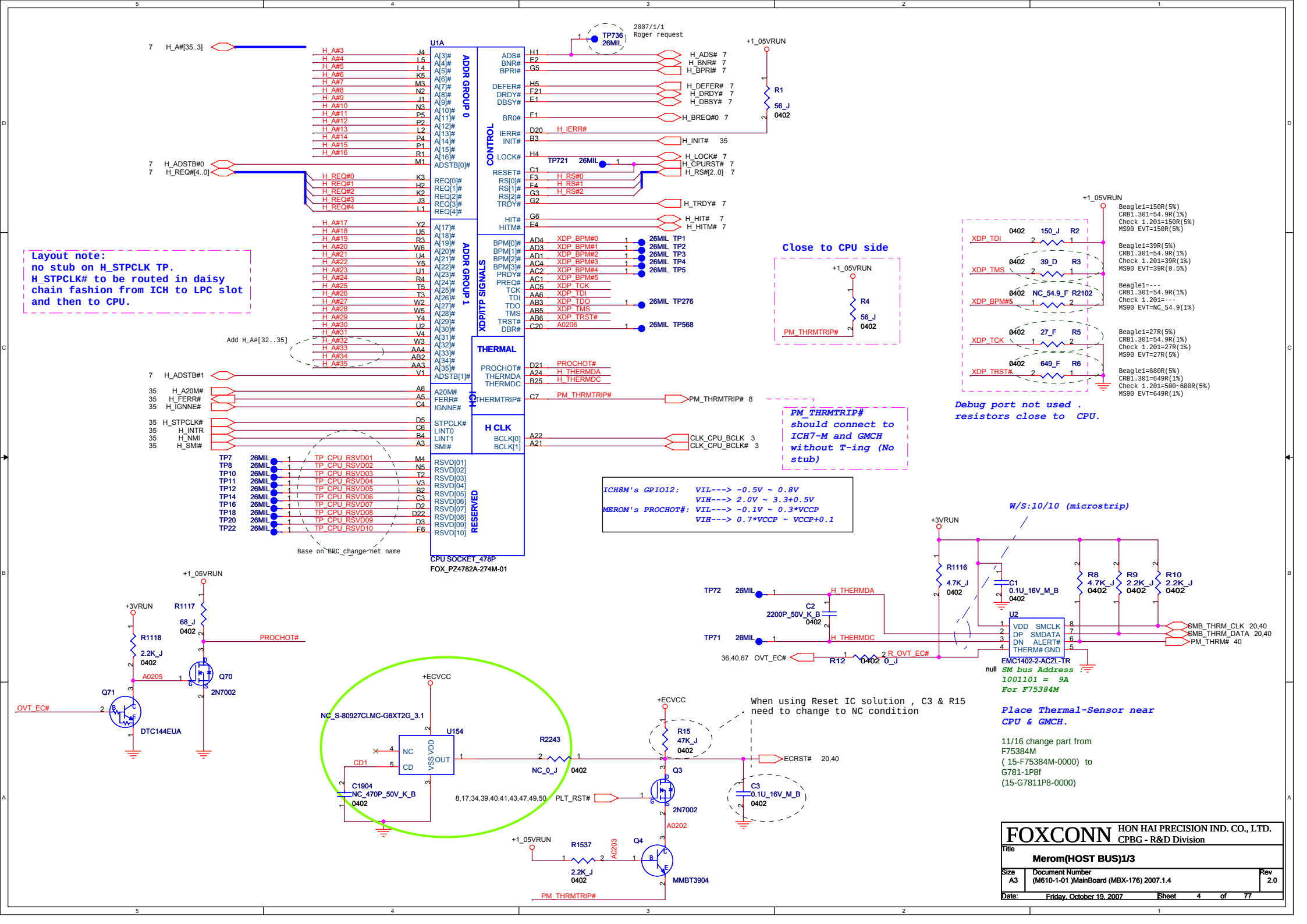
Connect this pin via a 10 K series resistor to the FSC pin on the processor

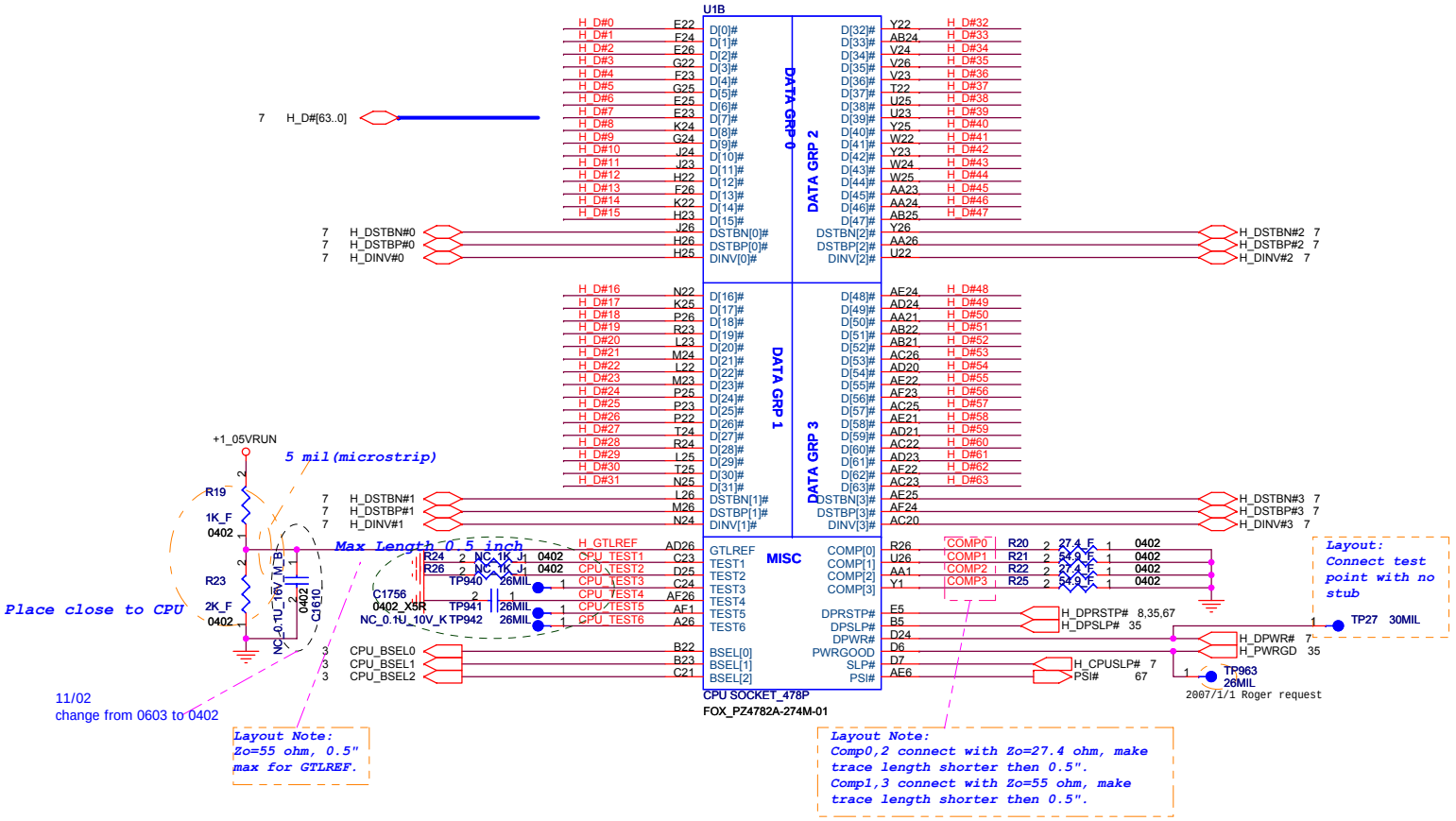
Connect this pin via a 2.2 K series resistor to the FSA pin on the processor.

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.

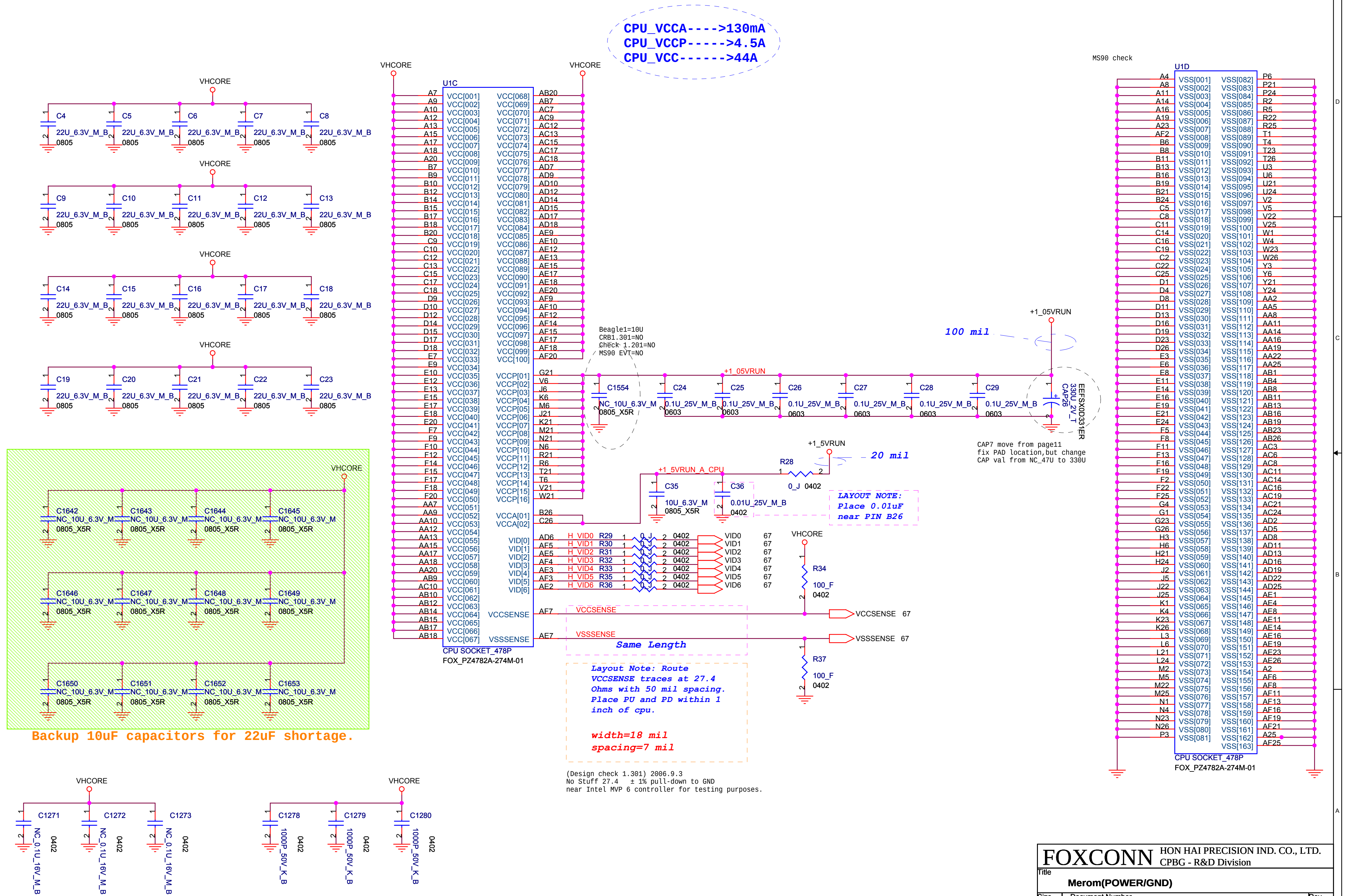
MS90
only MCH_BSEL[0..2]pull down 1K

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
Date: Friday, October 19, 2007	Sheet 3 of 77


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
Rev 2.0
Date: Friday, October 19, 2007
Sheet 4 of 77



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	Merom(HOST BUS)2/3	
Size A3	Document Number (1810-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Friday, October 19, 2007	Sheet 5 of 47	


CPU_VCCA---->130mA
CPU_VCCP----->4.5A
CPU_VCC------>44A
VHCORE
U1C
CPU SOCKET_478P
FOX_PZ4782A-274M-01
VCC[001] … VCC[100]
VCCP[01] … VCCP[16]
VCCA[01]
VCCA[02]
VID[0] … VID[6]
VCCSENSE
VSSSENSE
C4 C5 C6 C7 C8 22U_6.3V_M_B 0805
C9 C10 C11 C12 C13 22U_6.3V_M_B 0805
C14 C15 C16 C17 C18 22U_6.3V_M_B 0805
C19 C20 C21 C22 C23 22U_6.3V_M_B 0805
C1642 C1643 C1644 C1645 NC_10U_6.3V_M 0805_X5R
C1646 C1647 C1648 C1649 NC_10U_6.3V_M 0805_X5R
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
Beagle1=10U
CRB1.301=NO
Check 1.201=NO
MS90 EVT=NO
+1_05VRUN
C1554 NC_10U_6.3V_M 0805_X5R
C24 C25 C26 C27 C28 C29 0.1U_25V_M_B 0603
100 mil
CAP26 330U_2V_T EEFSX0D331ER
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_VID6 R36 0_J 0402
VID0 67
VID1 67
VID2 67
VID3 67
VID4 67
VID5 67
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
VSS[001] … VSS[163]
CPU SOCKET_478P
FOX_PZ4782A-274M-01

FOXCONN HON HAI PRECISION IND. CO., LTD.
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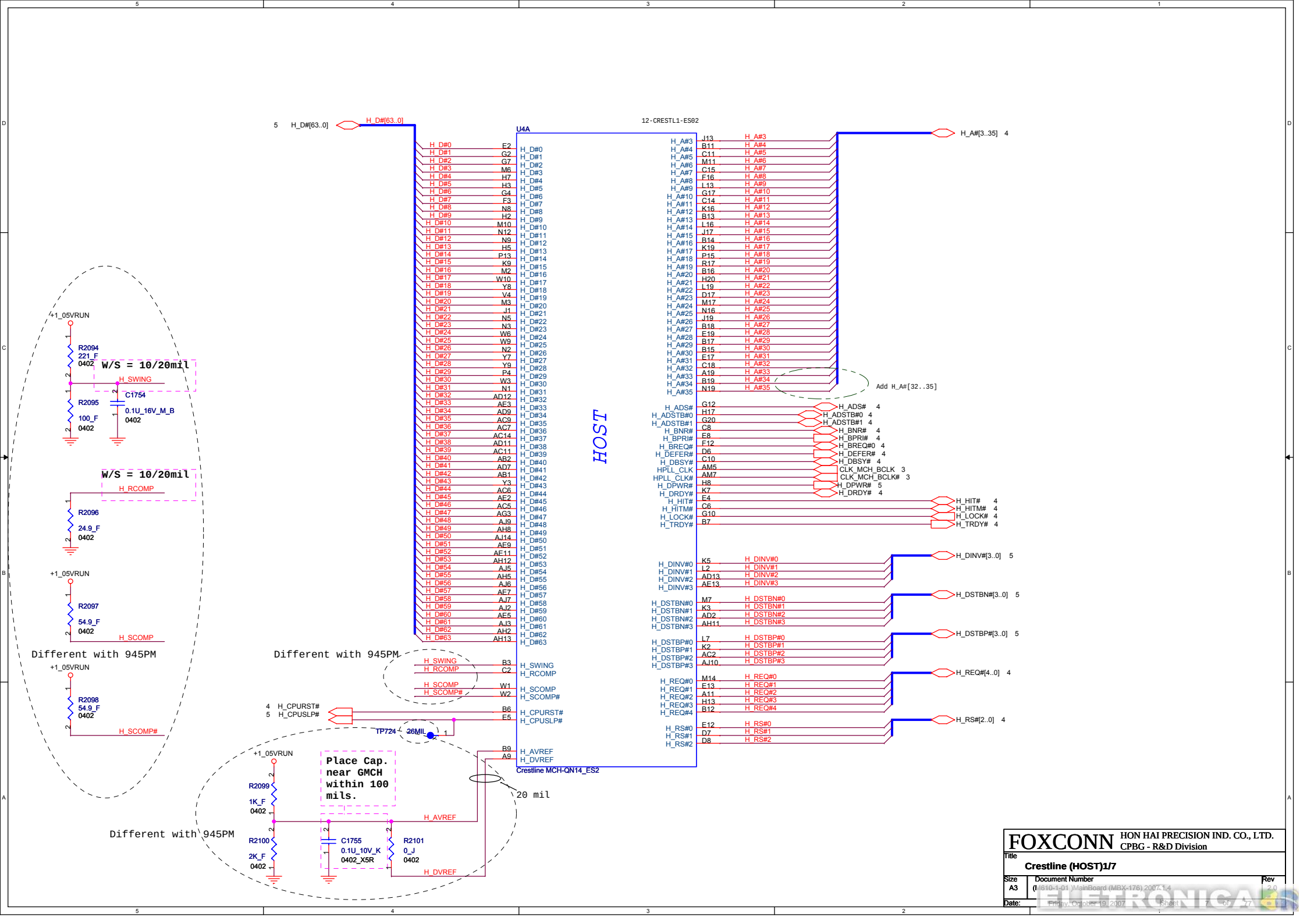
Title: **Merom(POWER/GND)**

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

Date: Friday, October 19, 2007 Sheet 6 of 77


5 H_D#[63..0]
H_D#[63..0]
U4A
12-CRESTL1-ES02
HOST
Crestline MCH-QN14_ES2
H_A#[3..35] 4
Add H_A#[32..35]
+1_05VRUN
R2094 221_F 0402
W/S = 10/20mil
H_SWING
C1754 0.1U_16V_M_B 0402
R2095 100_F 0402
W/S = 10/20mil
H_RCOMP
R2096 24.9_F 0402
+1_05VRUN
R2097 54.9_F 0402
H_SCOMP
Different with 945PM
+1_05VRUN
R2098 54.9_F 0402
H_SCOMP#
Different with 945PM
H_SWING
H_RCOMP
H_SCOMP
H_SCOMP#
4 H_CPURST#
5 H_CPUSLP#
TP724 26MIL
H_AVREF
H_DVREF
+1_05VRUN
R2099 1K_F 0402
R2100 2K_F 0402
Place Cap. near GMCH within 100 mils.
C1755 0.1U_10V_K 0402_X5R
R2101 0_J 0402
H_AVREF
H_DVREF
20 mil
Different with 945PM
H_ADS# 4
H_ADSTB#0 4
H_ADSTB#1 4
H_BNR# 4
H_BPRI# 4
H_BREQ#0 4
H_DEFER# 4
H_DBSY# 4
CLK_MCH_BCLK 3
CLK_MCH_BCLK# 3
H_DPWR# 5
H_DRDY# 4
H_HIT# 4
H_HITM# 4
H_LOCK# 4
H_TRDY# 4
H_DINV#[3..0] 5
H_DSTBN#[3..0] 5
H_DSTBP#[3..0] 5
H_REQ#[4..0] 4
H_RS#[2..0] 4
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
Crestline (HOST)1/7
Size A3
Document Number
(MB10-1-01)MainBoard (MBX-176) 2007-1-4
Rev 2.0
Date: Friday, October 19, 2007
Sheet 7 of 47

U4B

RSVD
DDR MUXING
CLK
DMI
GRAPHICS VID
ME
MISC

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

CFG[17:3] internal pull-up
CFG[20:18] internal pull-down

Wait to confirm with Page 13 / CRB

DDR SYSTEM MEM MS90 /CRB

LVDS MS90 /CRB

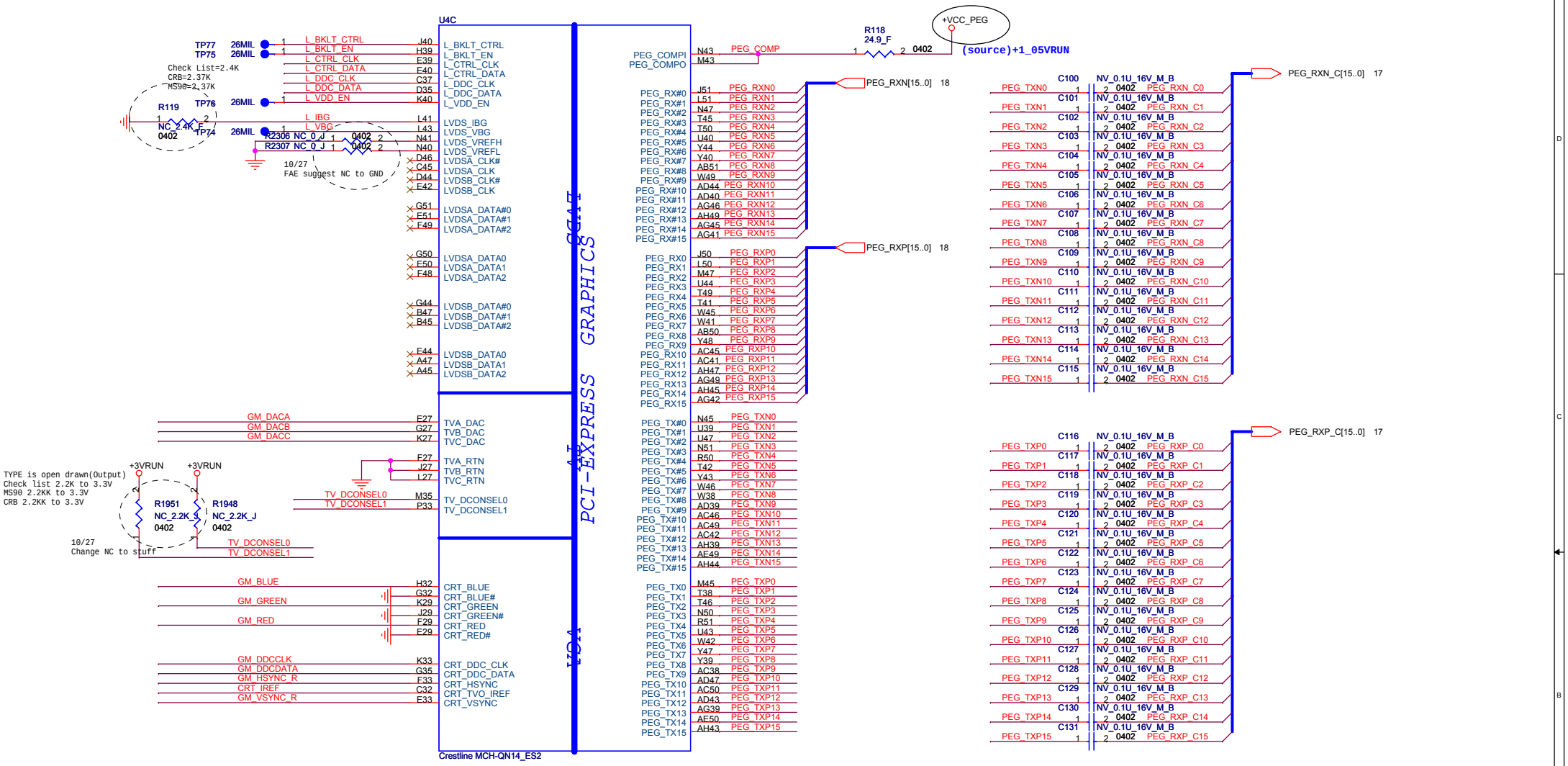
Design check 1.201
DDR2 Connect to PM_EXT_TS#0/1 pins of GMCH, pull up with 10K to Vcc3_3

Form (U8)thermal sanser & (EC)

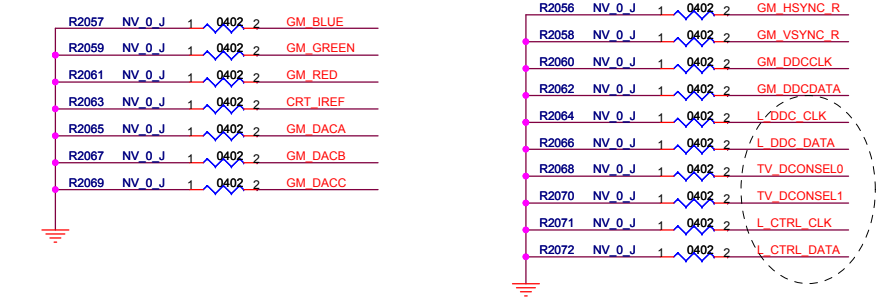
Note:If the voltage regulator for the system memory interface already supplies a VREF output and meets the voltage tolerance and current requirements for these pins, then a voltage divider would not be needed.

External Graphics (GMCH CRT/TVOUT Disable)

Crestline MCH-QN14_ES2

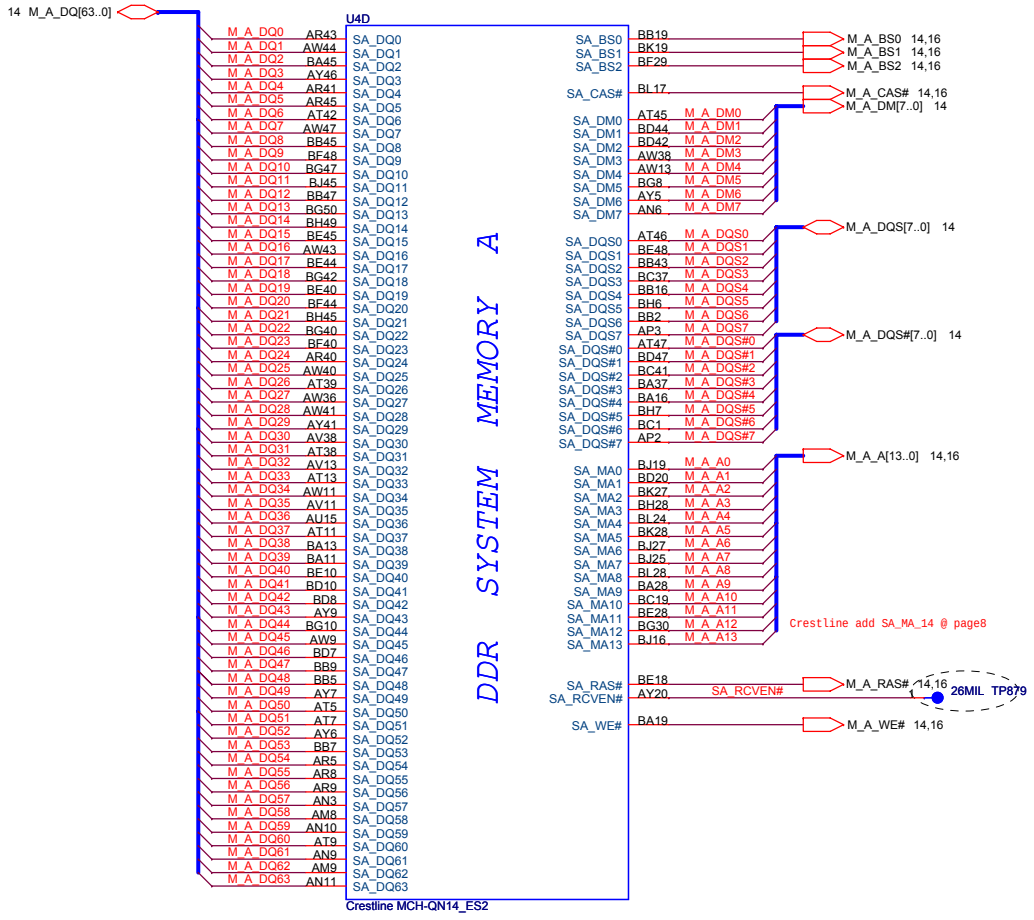


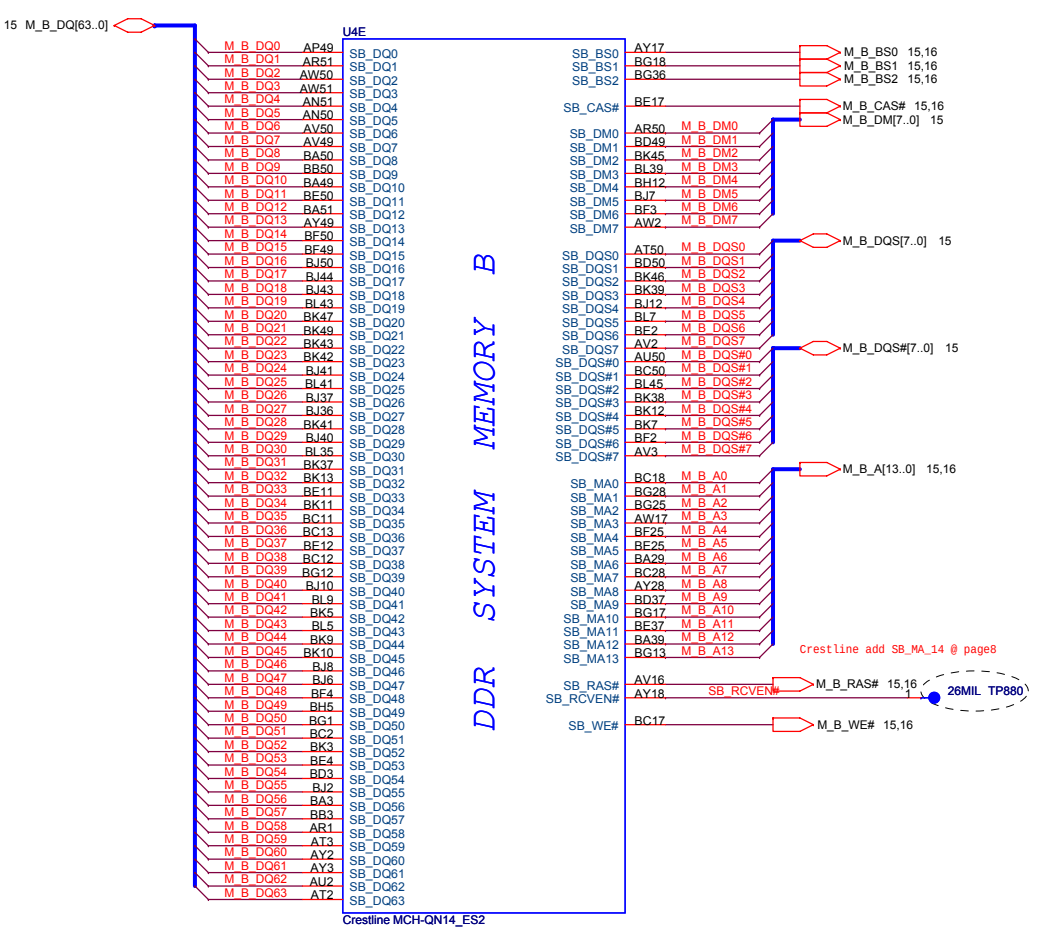
External Graphics (GMCH CRT/TVOUT Disable)



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: (MB10-1-01)MainBoard (MBX-176) 2007-1-4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 9 of 47	





FOXCONN HON HAI PRECISION IND. CO., LTD.
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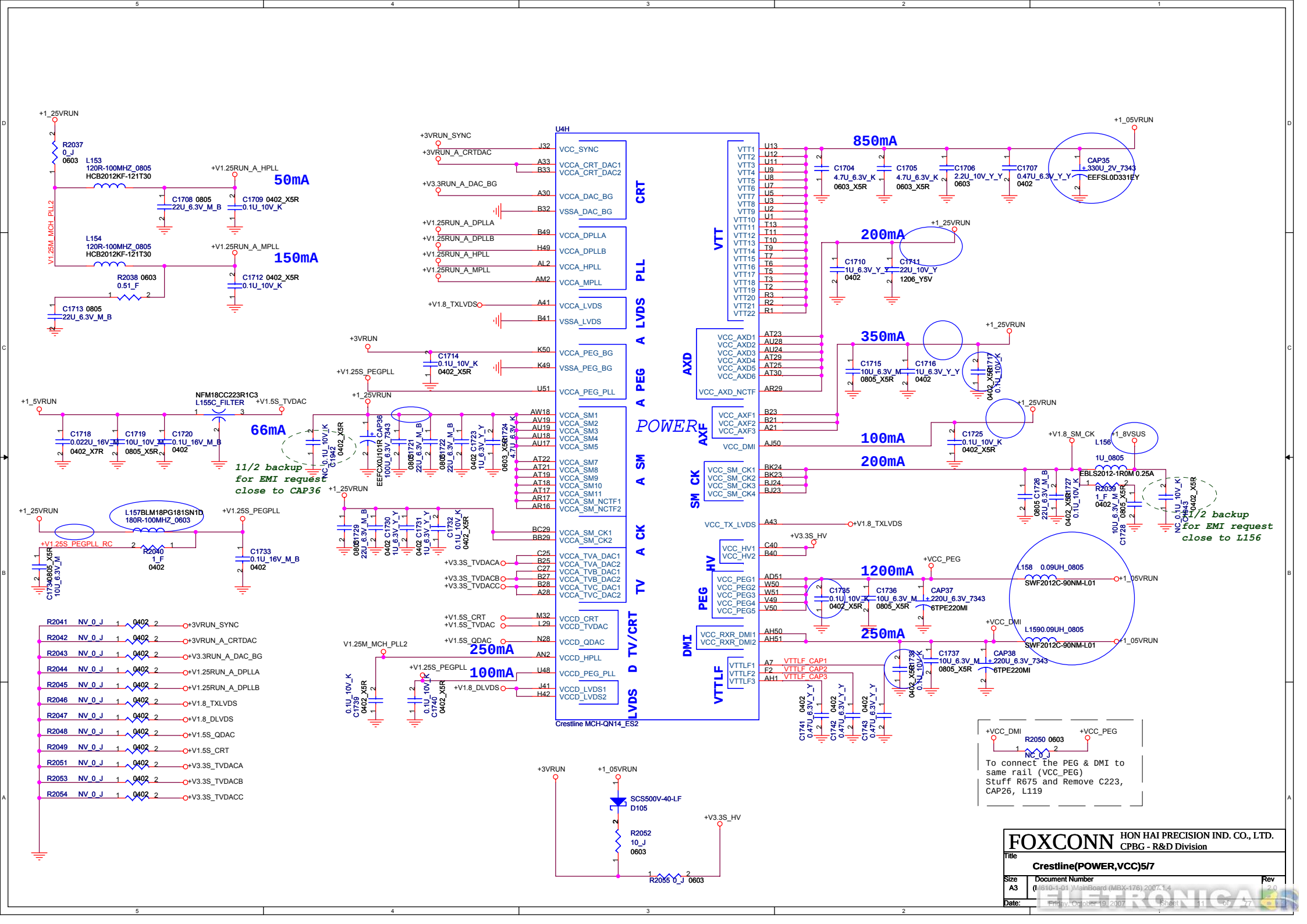
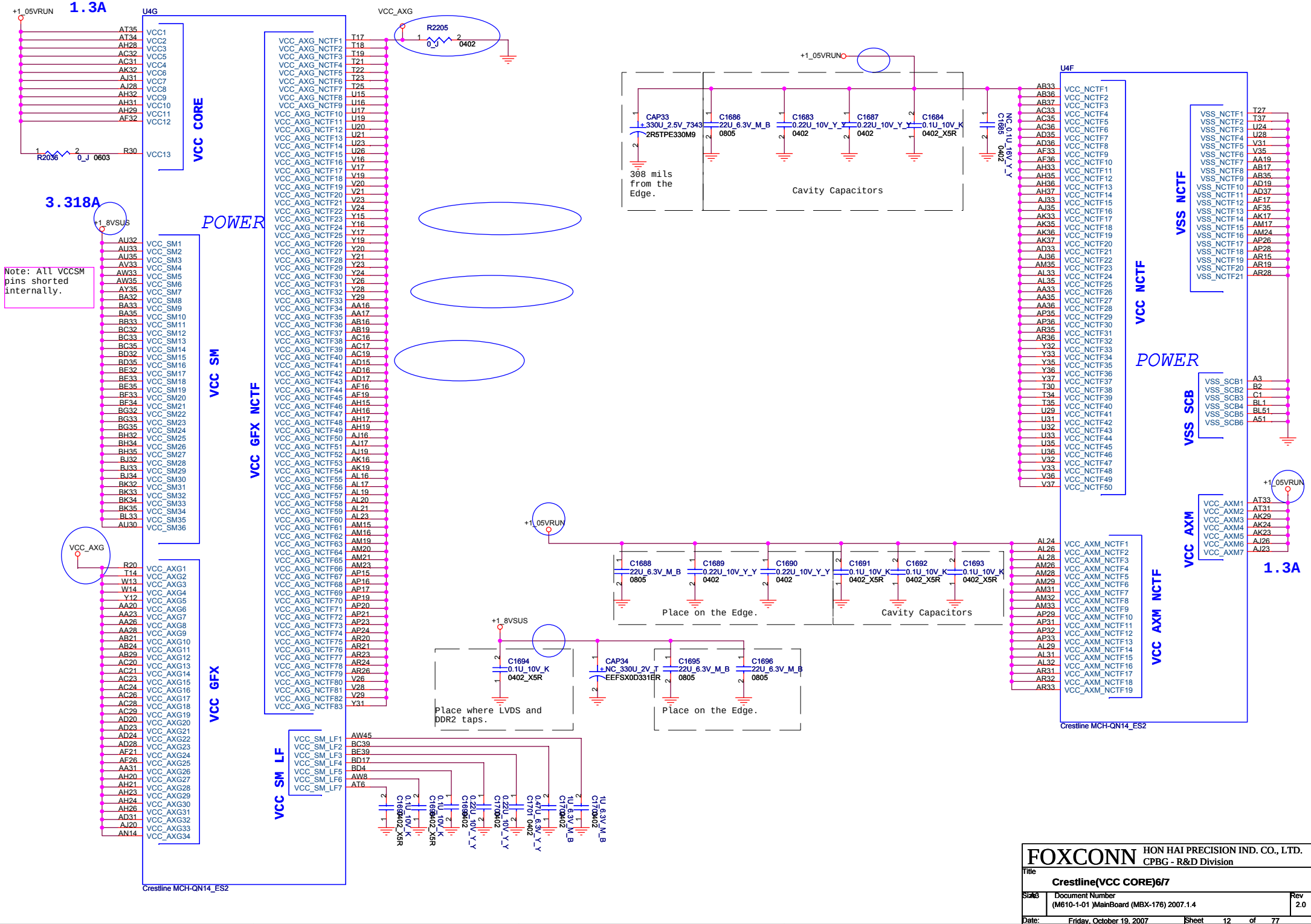
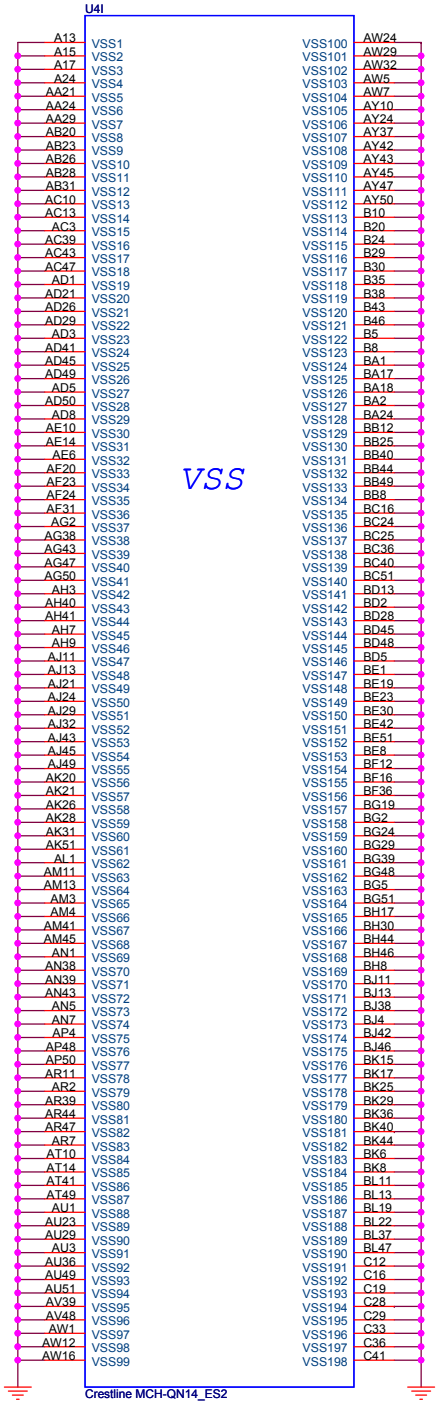
Title: Crestline(DDRII)4/7

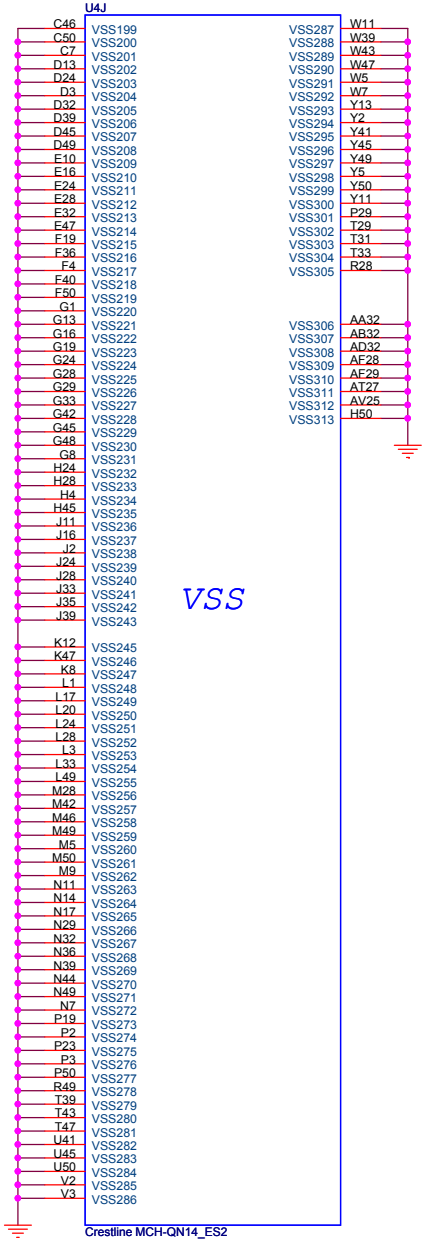
Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 10 of 77


U4H
Crestline MCH-QN14_ES2
POWER
CRT
PLL
LVDS
A PEG
A SM
A CK
TV
TV/CRT
D
VTT
AXD
AXF
SM CK
PEG
HV
DMI
VTTLF
850mA
200mA
350mA
100mA
200mA
1200mA
250mA
50mA
150mA
66mA
250mA
100mA
11/2 backup for EMI request close to CAP36
11/2 backup for EMI request close to L156
To connect the PEG & DMI to same rail (VCC_PEG) Stuff R675 and Remove C223, CAP26, L119
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Crestline(POWER,VCC)5/7
Size A3
Document Number
Rev 2.0
Date: Friday, October 19, 2007
Sheet 11 of 47

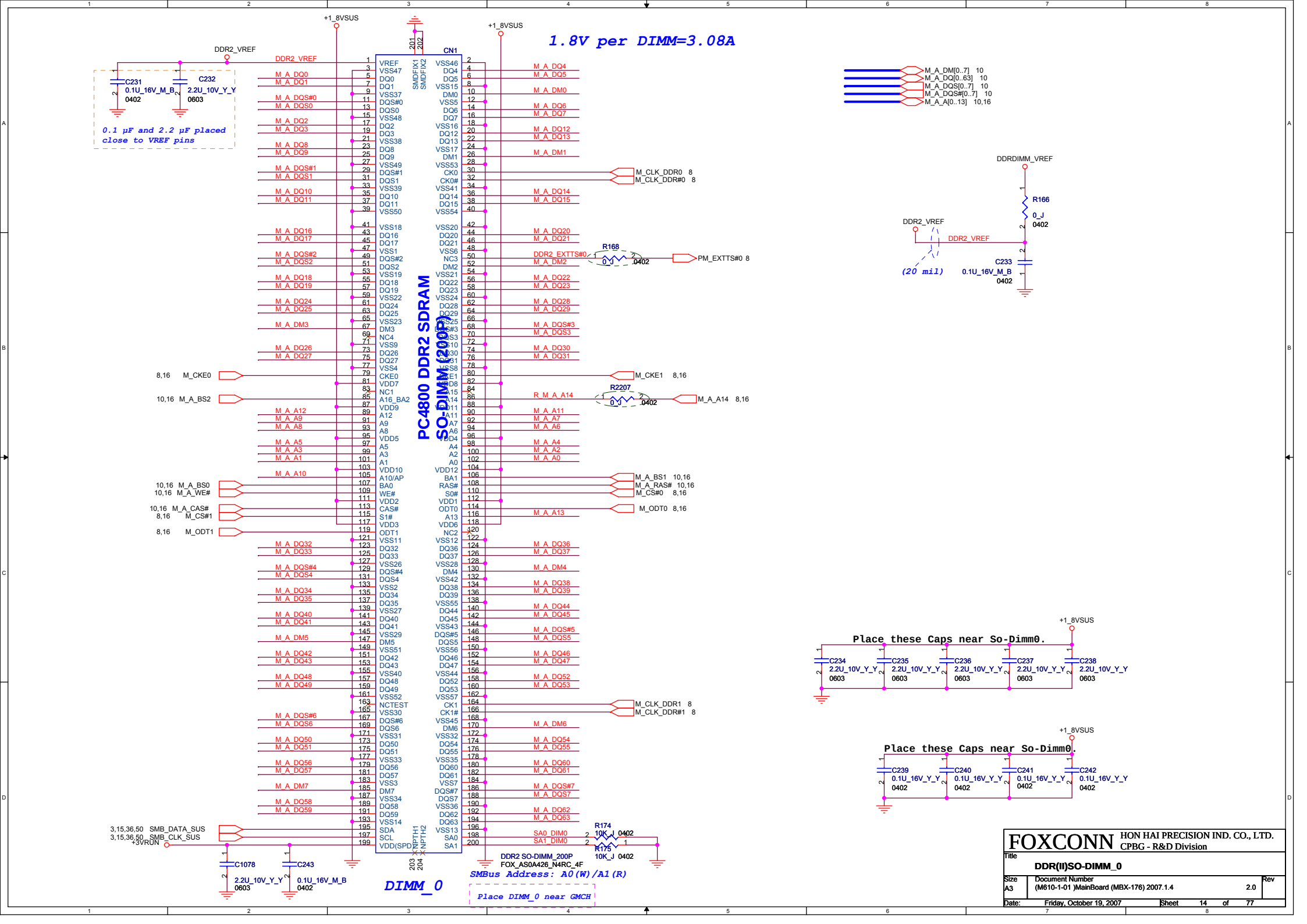

1.3A
+1_05VRUN
U4G
VCC_AXG
R2205
0_J
0402
VCC CORE
VCC1
VCC2
VCC3
VCC5
VCC4
VCC6
VCC7
VCC8
VCC9
VCC10
VCC11
VCC12
VCC13
R30
R2036
0_J 0603
3.318A
+1_8VSUS
POWER
Note: All VCCSM pins shorted internally.
VCC SM
VCC_SM1
VCC_SM2
VCC_SM3
VCC_SM4
VCC_SM5
VCC_SM6
VCC_SM7
VCC_SM8
VCC_SM9
VCC_SM10
VCC_SM11
VCC_SM12
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
308 mils from the Edge.
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
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_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 NCTF
VCC AXM
VCC_AXM1
VCC_AXM2
VCC_AXM3
VCC_AXM4
VCC_AXM5
VCC_AXM6
VCC_AXM7
+1_05VRUN
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
Document Number
(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev
2.0
Date:
Friday, October 19, 2007
Sheet
12
of
77





FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	Crestline (VSS)7/7
Size: B	Document Number: (MB10-1-01) MainBoard (MBX-176) 2007.1.4 Rev: 2.0
Date: Friday, October 19, 2007	Sheet 13 of 47

ELEKTRONICA

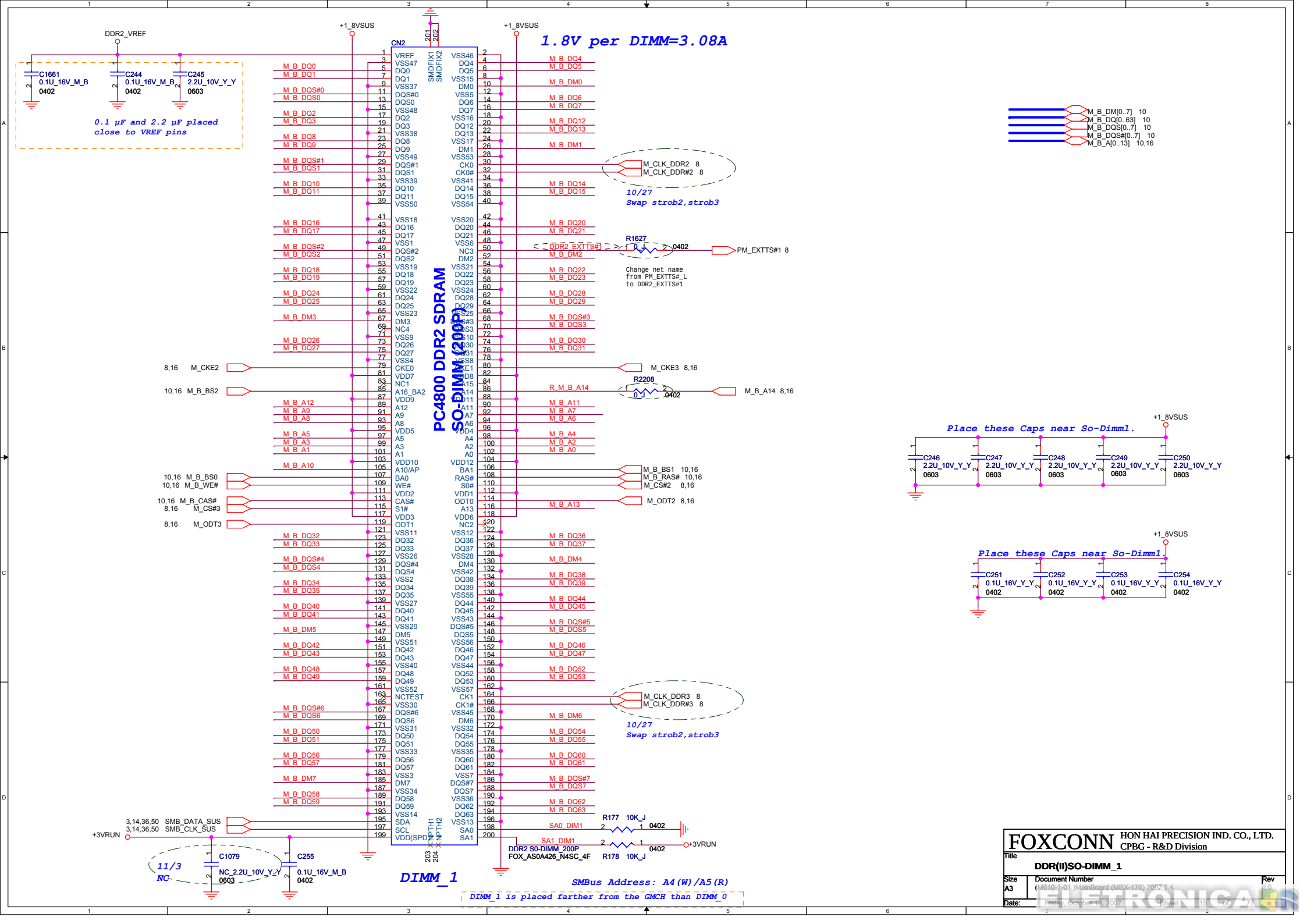


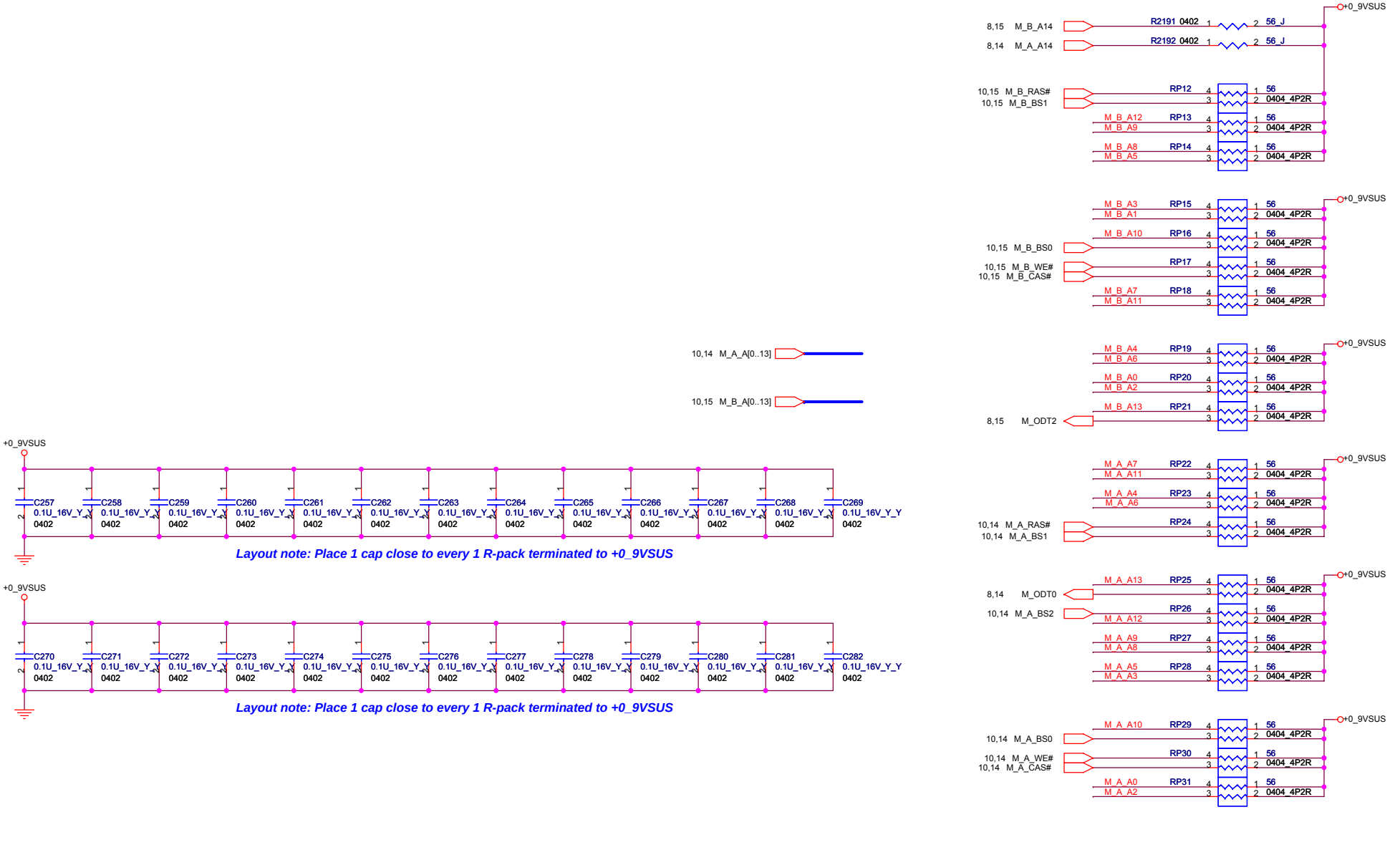
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: DDR(II)SO-DIMM_0

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

Date: Friday, October 19, 2007 | Sheet 14 of 77


1.8V per DIMM=3.08A
DDR2_VREF
+1_8VSUS
+3VRUN
CN2
PC4800 DDR2 SDRAM SO-DIMM (200P)
C1661 0.1U_16V_M_B 0402
C244 0.1U_16V_M_B 0402
C245 2.2U_10V_Y_Y 0603
0.1 µF and 2.2 µF placed close to VREF pins
M_B_DM[0..7] 10
M_B_DQ[0..63] 10
M_B_DQS[0..7] 10
M_B_DQS#[0..7] 10
M_B_A[0..13] 10,16
M_CLK_DDR2 8
M_CLK_DDR#2 8
10/27
Swap strob2,strob3
R1627 0 0402
DDR2_EXTTS#1
PM_EXTTS#1 8
Change net name from PM_EXTTS#_L to DDR2_EXTTS#1
M_CKE2 8,16
M_CKE3 8,16
M_B_BS2 10,16
R2208 0 0402
R_M_B_A14
M_B_A14 8,16
M_B_BS0 10,16
M_B_WE# 10,16
M_B_CAS# 10,16
M_CS#3 8,16
M_ODT3 8,16
M_B_BS1 10,16
M_B_RAS# 10,16
M_CS#2 8,16
M_ODT2 8,16
M_CLK_DDR3 8
M_CLK_DDR#3 8
10/27
Swap strob2,strob3
SMB_DATA_SUS 3,14,36,50
SMB_CLK_SUS 3,14,36,50
R177 10K_J 0402
R178 10K_J 0402
SA0_DIM1
SA1_DIM1
DDR2 SO-DIMM_200P
FOX_AS0A426_N4SC_4F
C1079 NC_2.2U_10V_Y_Y 0603
C255 0.1U_16V_M_B 0402
11/3 NC
DIMM_1
SMBus Address: A4(W)/A5(R)
DIMM_1 is placed farther from the GMCH than DIMM_0
Place these Caps near So-Dimm1.
C246 2.2U_10V_Y_Y 0603
C247 2.2U_10V_Y_Y 0603
C248 2.2U_10V_Y_Y 0603
C249 2.2U_10V_Y_Y 0603
C250 2.2U_10V_Y_Y 0603
Place these Caps near So-Dimm1.
C251 0.1U_16V_Y_Y 0402
C252 0.1U_16V_Y_Y 0402
C253 0.1U_16V_Y_Y 0402
C254 0.1U_16V_Y_Y 0402
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
DDR(II)SO-DIMM_1
Size A3
Document Number (M810-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Friday, October 19, 2007
Sheet 15 of 77

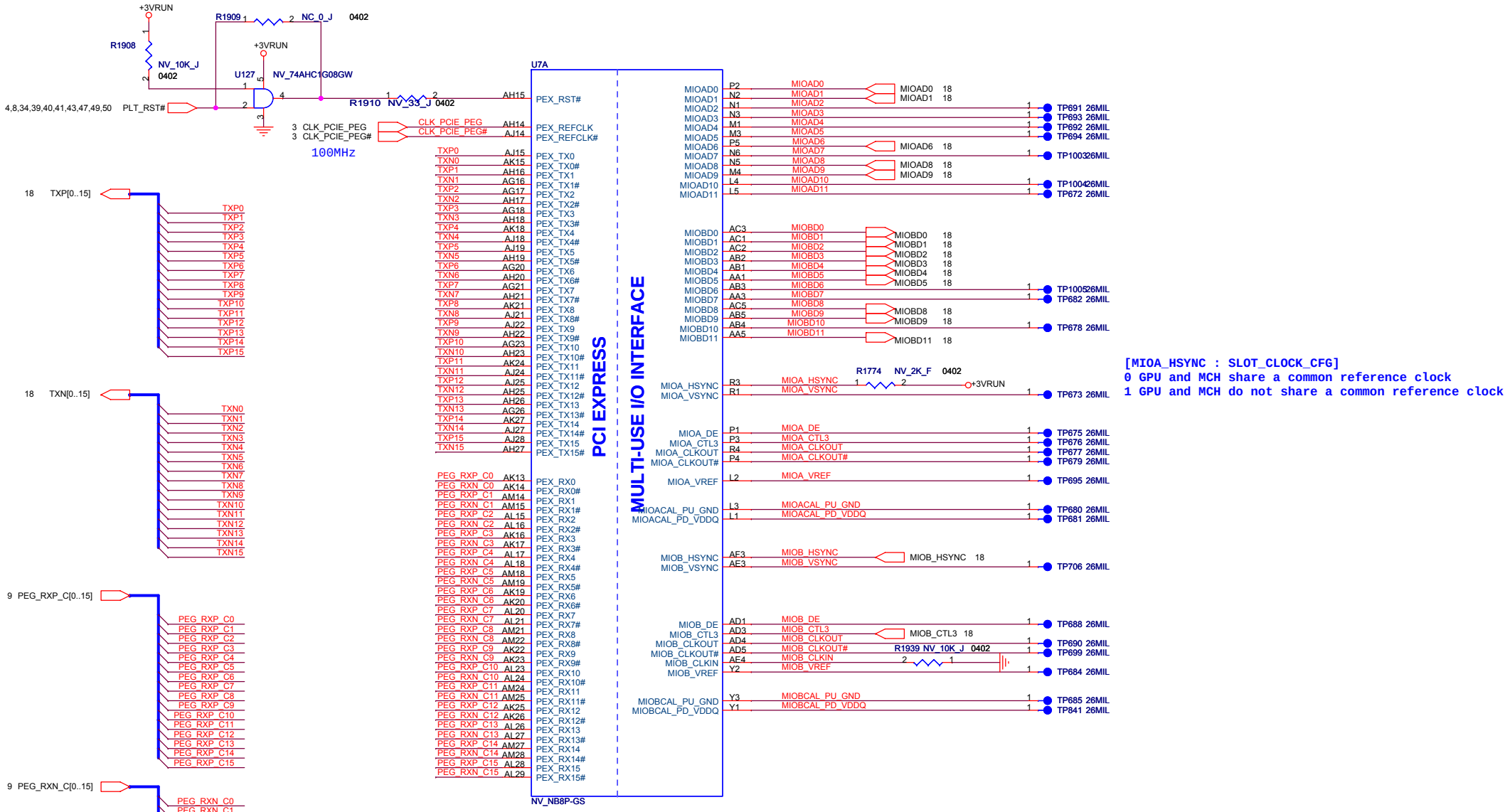


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: DDR(II)Termination

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

Date: Friday, October 19, 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

Date: Friday, October 19, 2007 | Sheet 17 of 77

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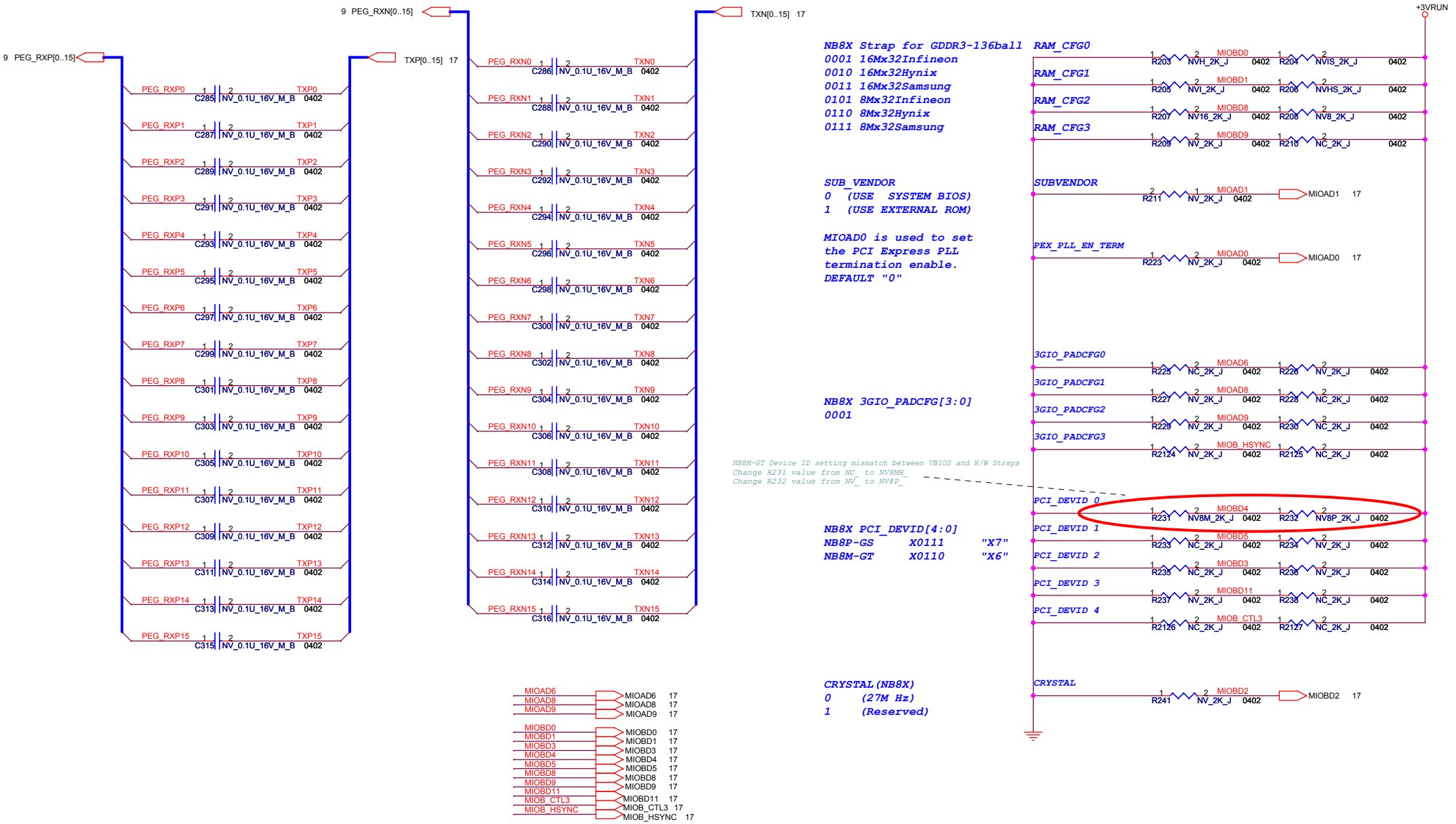
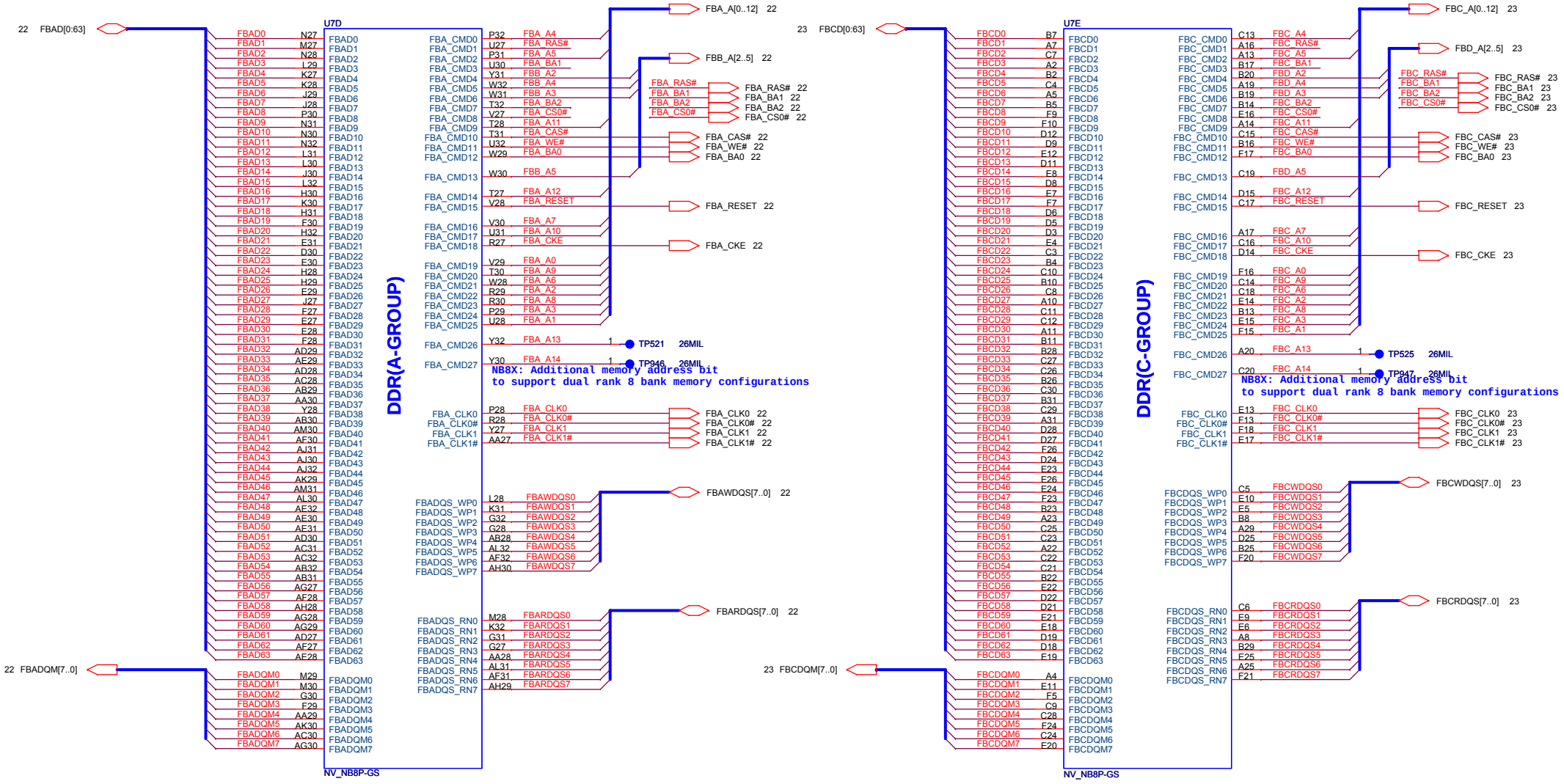


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

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

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

Date: Friday, October 19, 2007 Sheet 18 of 77



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

Title: VGA (GDDR) 3 OF 8

Size: A3 | Document Number: (1810-1-01) MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 19 of 47

SM bus Address :
1001100(EC)
For F75383M

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

4,40 SMB_THRM_CLK
4,40 SMB_THRM_DATA
R2328 NV_0_J 0402
R2329 NV_0_J 0402
NV_I2CS_SCL
NV_I2CS_SDA

HDCP
HDCP_SCL
HDCP_SDA

Backup
NV_I2CC_SCL
NV_I2CC_SDA

HDMI DDC
32 NV_I2CB_SCL
32 NV_I2CB_SDA
NV_I2CB_SCL
NV_I2CB_SDA

CRT DDC
30 NV_I2CA_SCL
30 NV_I2CA_SDA
NV_I2CA_SCL
NV_I2CA_SDA

U7F
NV_NB8P-GS

I2C
I2CS_SCL C1
I2CS_SDA B1
I2CH_SCL G3
I2CH_SDA H3
I2CC_SCL G2
I2CC_SDA G1
I2CB_SCL H4
I2CB_SDA J4
I2CA_SCL K2
I2CA_SDA J3

GENERAL SIGNALS
THERMDN J1 NV_THERMDN
THERMDP K1 NV_THERMDP
BUFRST# F3 BUFRST# 1 TP100626MIL
STEREO T3 STEREO 1 TP137 26MIL
SWAPRDY_A M6 SWAPRDY 1 TP696 26MIL
MEMSTRAPSEL0 AE26 MEMSTRAPSEL3 1 TP139 26MIL
MEMSTRAPSEL1 AD26 TP_MEMSTRAPSEL2 1 TP948 26MIL
MEMSTRAPSEL2 AH31 MEMSTRAPSEL1 1 TP142 26MIL
MEMSTRAPSEL3 AH32 MEMSTRAPSEL0 1 TP143 26MIL

ROM
ROMCS# AA4 ROM_CS# TP605
ROM_SO AA6 ROM_SO TP570
ROM_SI W2 TP_ROM_SI TP1062
ROM_SCLK AA7 ROM_SCLK TP687

TEST SIGNAL
IFPAB_VPROBE AM4 IFPAB_VPROBE TP697
IFPCD_VPROBE AK3 IFPCD_VPROBE TP698
PEX_TSTCLK_OUT AM12 PEX_TSTCLK_OUT TP606
PEX_TSTCLK_OUT# AM11 PEX_TSTCLK_OUT# TP607
FBA_DEBUG AC27 TP1063
FBC_DEBUG F12 TP1064
TESTMODE H2 R303 NV_10K_J 0402
JTAG_TCK AJ11 NV_JTAG_TCK
JTAG_TMS AK11 NV_JTAG_TMS
JTAG_TDI AK12 NV_JTAG_TDI
JTAG_TDO AL12 NV_JTAG_TDO TP150
JTAG_TRST_N AL13 NV_JTAG_TRST#

GPIO
GPIO0 K3 NV_GPIO0 R2130 NV_0_J 0402 NV_HDMI_DET_3 29,32
GPIO1 H1 NV_GPIO1 R301 NV_100K_J 0402
GPIO2 K5 NV_BRADJ NV_BRADJ 31
GPIO3 G5 NV_LCDVCC_EN# NV_LCDVCC_EN# 31
GPIO4 E2 NV_INV_EN NV_INV_EN 31
GPIO5 J5 VGA_GPIO51 VGA_GPIO5 70
GPIO6 G6 NV_GPIO6 R2359 0402 NC_0_J TP950 26MIL
GPIO7 K6 NV_GPIO7 TP713 26MIL
GPIO8 E1 NV_GPIO8 R2348 NC_0_J 0402 ECRST# 4,40
GPIO9 D2 OVT_GFX# OVT_GFX# 40
GPIO10 H5 NV_PWR_MIZER NV_PWR_MIZER 22,23,25
GPIO11 F4 NV_I2CSET_CTL R1820 NC_0_J 0402 HDMI_CEC 32
GPIO12 E3 NV_GPIO12 TP951 26MIL
GPIO13 U3 NV_GPIO13 TP952 26MIL
GPIO14 U4 NV_GPIO14 TP953 26MIL

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

CRYSTAL
XTALSSIN T1 XTALSSIN R1058 0_J 0402 R_SRCC1_27M_SS 3
XTALOUTBUFF T2 XTALOUTBUFF
XTALIN U1 NV_XTALIN R1059 0_J 0402 R_SRCT1_27M_NON 3
XTALOUT U2 NV_XTALOUT
Y2 NC_27MHZ_20P_20PPM ITTI_L5020-27.000-20
C494 NC_27P_50V_J_N 0402
C495 NC_27P_50V_J_N 0402

U8 G781P8f
THERM# GND
D- ALERT#
D+ SDA
VCC SCL
DDR_ALERT#
SMB_THRM_DATA
SMB_THRM_CLK
DDR_ALERT# 8,40
C485 0402 NV_2200P_50V_K_B
C486 0.1U_16V_M_B 0402
R289 2.2K_J 0402
R293 NC_0_J 0402 OVT_GFX#
R2347 NC_0_J 0402 NV_GPIO8
R1778 NC_10K_J 0402

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

To GPU

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

From EC

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	

+3VRUN
R2128 NV_2.2K_J 0402 NV_I2CS_SCL
R2129 NV_2.2K_J 0402 NV_I2CS_SDA
R1056 NV_2.2K_J 0402 NV_I2CC_SCL
R1057 NV_2.2K_J 0402 NV_I2CC_SDA
R1385 NV_2.2K_J 0402 NV_I2CB_SCL
R1386 NV_2.2K_J 0402 NV_I2CB_SDA
R1225 NV_2.2K_J 0402 NV_I2CA_SCL
R1228 NV_2.2K_J 0402 NV_I2CA_SDA

+3VRUN
R1776 NV_10K_J 0402 NV_JTAG_TDI
R1777 NV_10K_J 0402 NV_JTAG_TMS
R1462 NV_10K_J 0402 NV_JTAG_TRST#
R1461 NV_10K_J 0402 NV_JTAG_TCK

NV_BRADJ 0402 NV_10K_J R2315
NV_INV_EN 0402 NV_10K_J R2316

+3VRUN
NV_GPIO8 0402 NV_2.2K_J R2332
OVT_GFX# 0402 NV_2.2K_J R2333

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.

+3VRUN
R1105 NV_10K_J 0402
C1139 NV_0.1U_16V_M_B 0402
HDCP_SCL
HDCP_SDA
U82
SCL VCC
NC1 NC3
NC2 NC4
SDA GND
EEPROM_SOIC-8P_8KB
190-00001-0001-003
R1134 NV_10K_J 0402
HDCP ROM

R1542 NC_10K_J 0402
R1543 NC_10K_J 0402
SS_S0
R319 NC_10K_J 0402
C492 NC_1U_10V_Y_Y 0603
C493 NC_1000P_50V_M_B 0402
XTALOUTBUFF
XTALSSIN
R316 NC_22_J 0402
R317 NC_22_J 0402
U10
X1/ICLK X2
GND VDD
S0 PD#
SSCLK REFCLK
XTALOUTBUFF_R
SS_S0
VGA27MSSOUT
NC_MK1726-08
REFCLK1 TP156 26MIL
R320 NC_10K_J 0402
R321 NC_10K_J 0402

Tis chip can use MK1726 or P1819B

R316 place near GPU
R317 place near spectrum chip

SPREAD SPECTRUM SETTING FOR MK

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

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

SPREAD SPECTRUM SETTING FOR P1819B

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

nVidia support Down -1.25%

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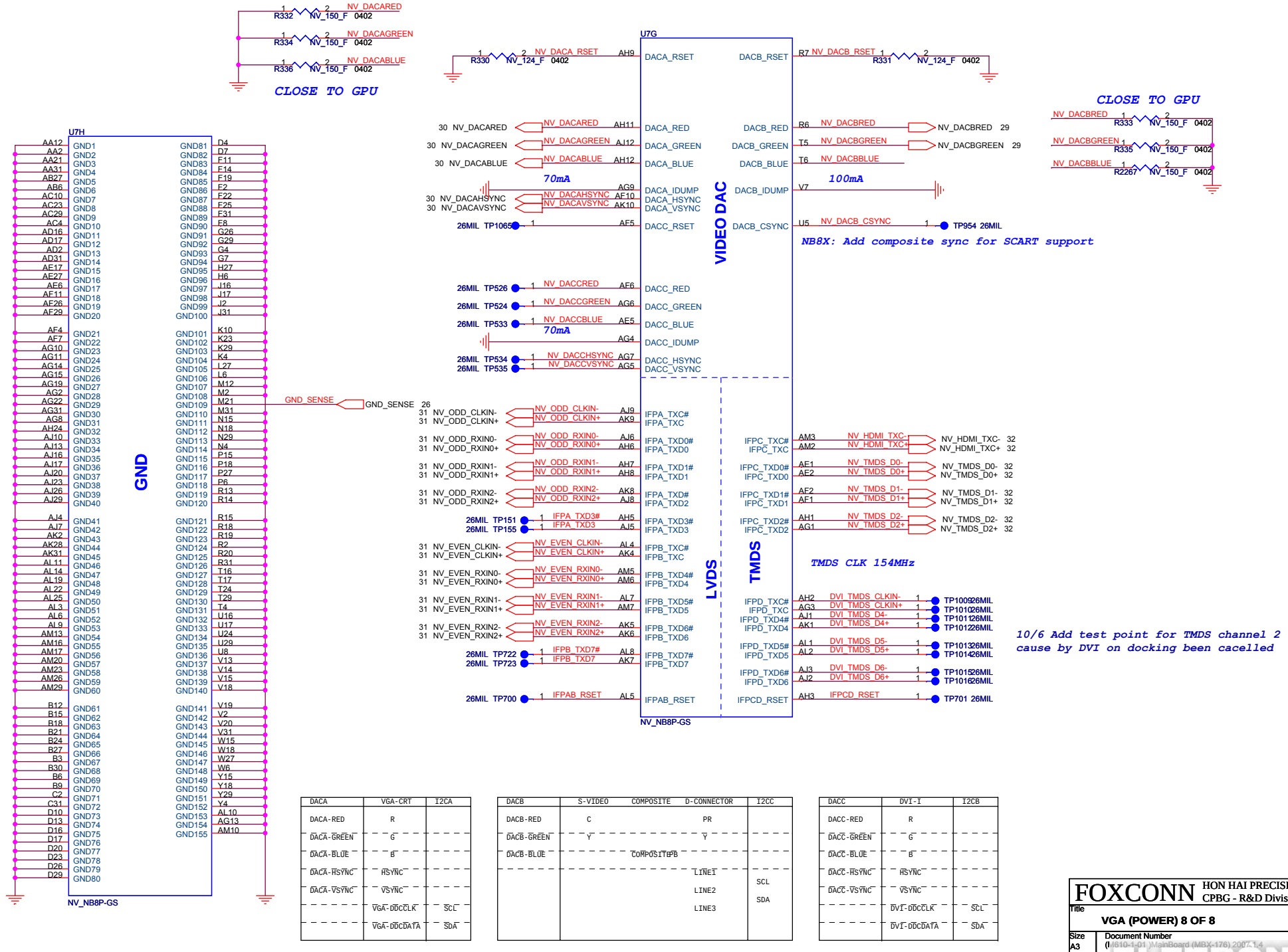
Title: VGA (POWER) 7 OF 8

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

Date: Friday, October 19, 2007 Sheet 20 of 77


U7H
GND
NV_NB8P-GS
U7G
VIDEO DAC
LVDS
TMDS
NV_NB8P-GS
CLOSE TO GPU
CLOSE TO GPU
70mA
70mA
100mA
NB8X: Add composite sync for SCART support
TMDS CLK 154MHz
10/6 Add test point for TMDS channel 2
cause by DVI on docking been cacelled
GND_SENSE
R332 NV_150_F 0402
R334 NV_150_F 0402
R336 NV_150_F 0402
R330 NV_124_F 0402
R331 NV_124_F 0402
R333 NV_150_F 0402
R335 NV_150_F 0402
R2267 NV_150_F 0402
NV_DACARED
NV_DACAGREEN
NV_DACABLUE
NV_DACA_RSET
NV_DACB_RSET
NV_DACBRED
NV_DACBGREEN
NV_DACBBLUE
NV_DACCRED
NV_DACCGREEN
NV_DACCBLUE
NV_DACCHSYNC
NV_DACCVSYNC
NV_DACB_CSYNC
NV_DACAHSYNC
NV_DACAVSYNC
TP1065
TP954 26MIL
TP526
TP524
TP533
TP534
TP535
TP151
TP155
TP722
TP723
TP700
NV_ODD_CLKIN-
NV_ODD_CLKIN+
NV_ODD_RXIN0-
NV_ODD_RXIN0+
NV_ODD_RXIN1-
NV_ODD_RXIN1+
NV_ODD_RXIN2-
NV_ODD_RXIN2+
NV_EVEN_CLKIN-
NV_EVEN_CLKIN+
NV_EVEN_RXIN0-
NV_EVEN_RXIN0+
NV_EVEN_RXIN1-
NV_EVEN_RXIN1+
NV_EVEN_RXIN2-
NV_EVEN_RXIN2+
IFPA_TXD3#
IFPA_TXD3
IFPB_TXD7#
IFPB_TXD7
IFPAB_RSET
IFPCD_RSET
NV_HDMI_TXC-
NV_HDMI_TXC+
NV_TMDS_D0-
NV_TMDS_D0+
NV_TMDS_D1-
NV_TMDS_D1+
NV_TMDS_D2-
NV_TMDS_D2+
DVI_TMDS_CLKIN-
DVI_TMDS_CLKIN+
DVI_TMDS_D4-
DVI_TMDS_D4+
DVI_TMDS_D5-
DVI_TMDS_D5+
DVI_TMDS_D6-
DVI_TMDS_D6+
TP1009 26MIL
TP1010 26MIL
TP1012 26MIL
TP1013 26MIL
TP1014 26MIL
TP1015 26MIL
TP1016 26MIL
TP701 26MIL
DACA
VGA-CRT
I2CA
DACA-RED
DACA-GREEN
DACA-BLUE
DACA-HSYNC
DACA-VSYNC
VGA-DDCCLK
VGA-DDCDATA
SCL
SDA
DACB
S-VIDEO
COMPOSITE
D-CONNECTOR
I2CC
DACB-RED
DACB-GREEN
DACB-BLUE
PR
PB
LINE1
LINE2
LINE3
DACC
DVI-I
I2CB
DACC-RED
DACC-GREEN
DACC-BLUE
DACC-HSYNC
DACC-VSYNC
DVI-DDCCLK
DVI-DDCDATA
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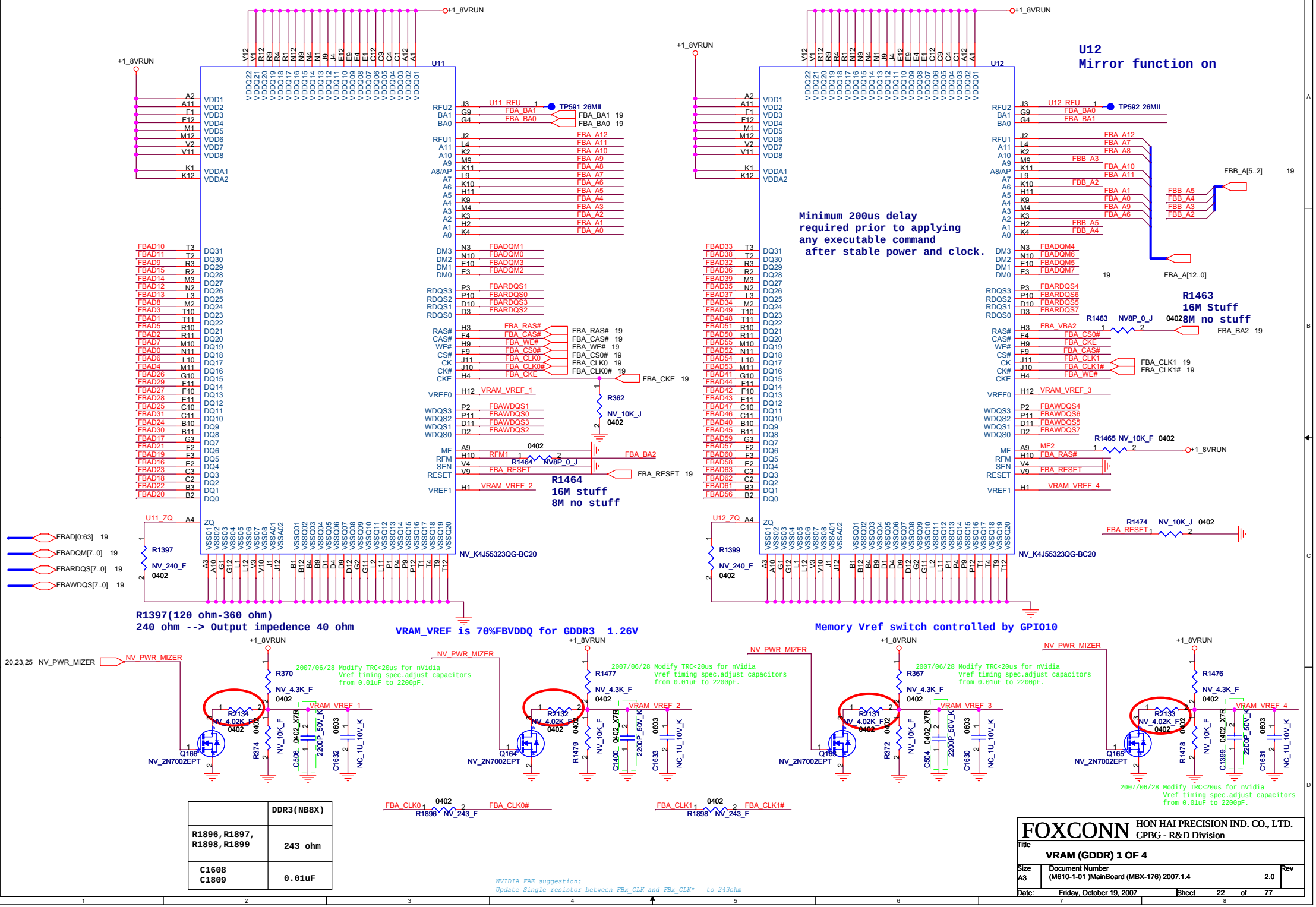
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
VGA (POWER) 8 OF 8
Size A3
Document Number (1810-1-01) MainBoard (MBX-176) 2007-1-4
Rev 2.0
Date: Friday, October 19, 2007
Sheet 21 of 47



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

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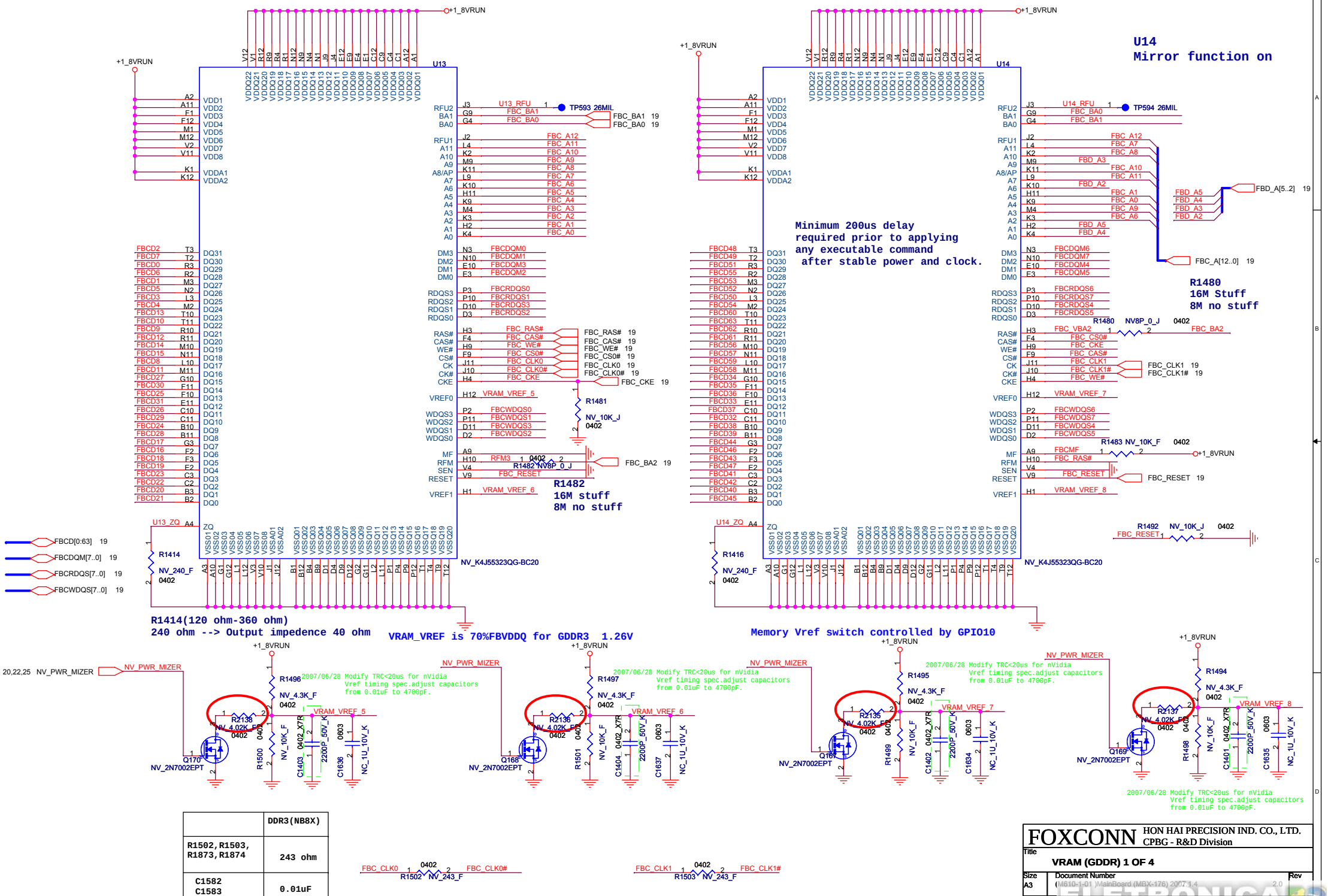
Title: VRAM (GDDR) 1 OF 4

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

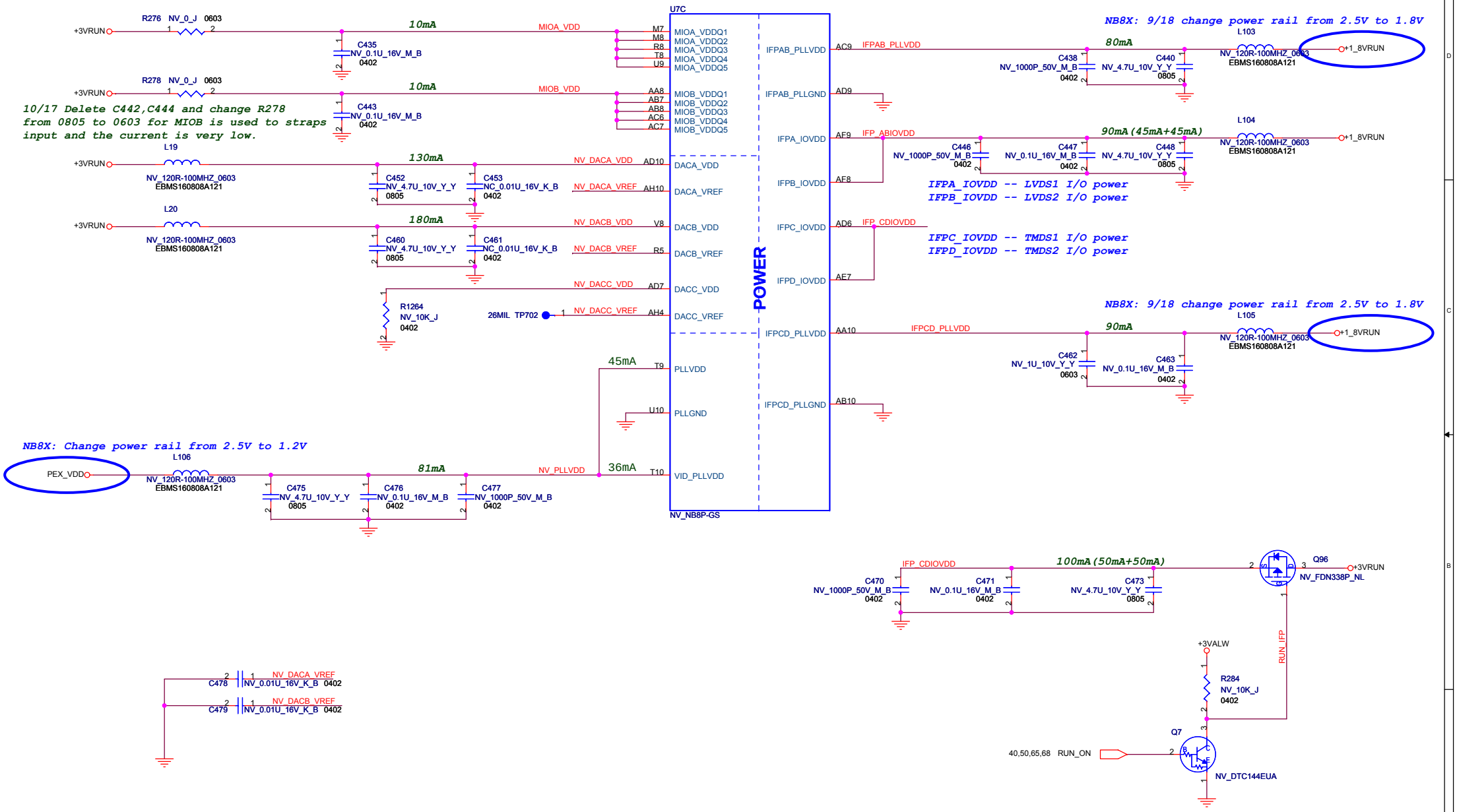
Date: Friday, October 19, 2007 Sheet 22 of 77



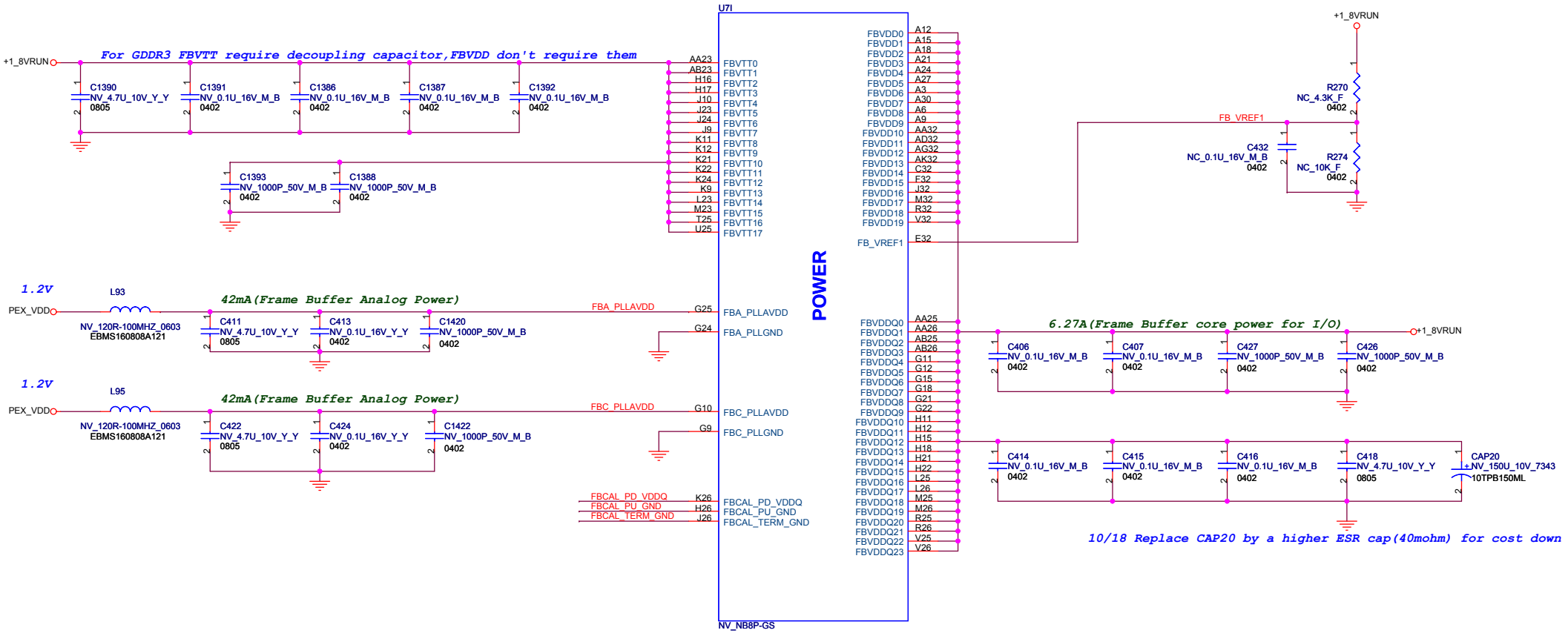
	DDR3(NB8X)
R1502, R1503, R1873, R1874	243 ohm
C1582 C1583	0.01uF

Title	VRAM (GDDR) 1 OF 4
Size	A3
Document Number	(M810-1-01 MainBoard (MBX-176) 2007-1-4
Rev	2.0
Date:	Friday, October 19, 2007
Sheet	23 of 77

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



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: Friday, October 19, 2007	Sheet 24 of 77	

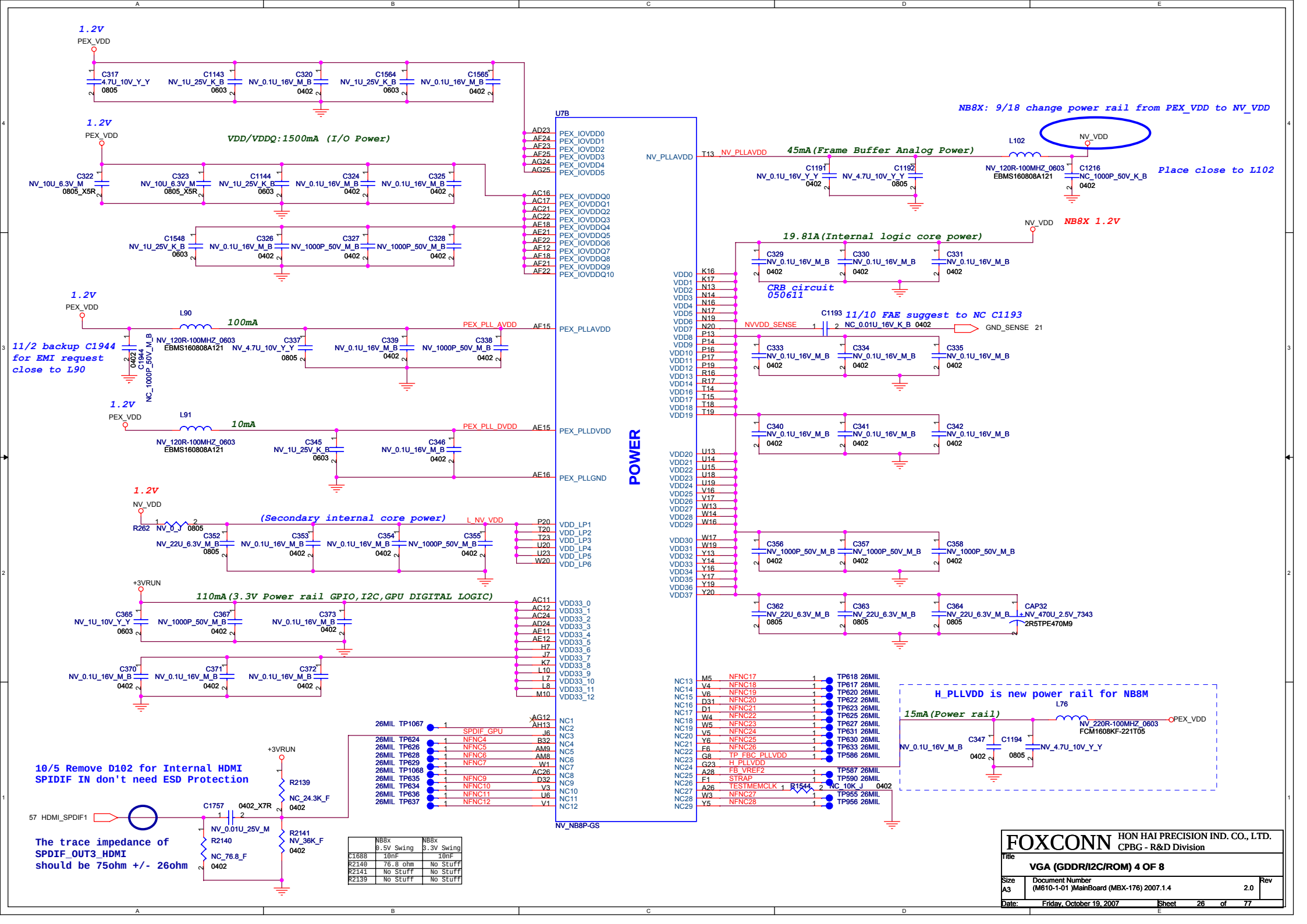


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: VGA (POWER) 5 OF 8

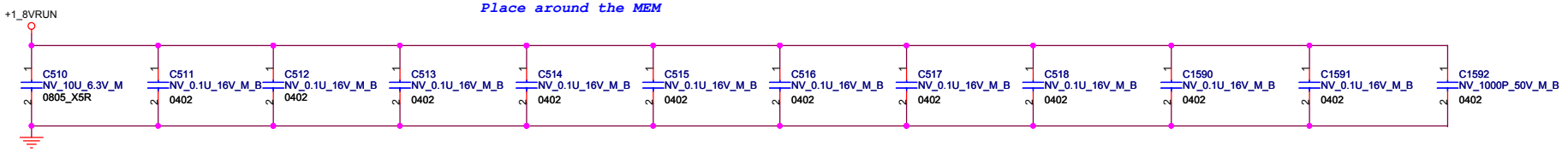
Size	Document Number	Rev
A3	(1810-1-01) MainBoard (MBX-176) 2007-1-4	2.0

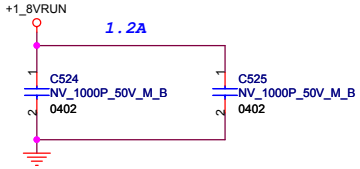
Date: Friday, October 19, 2007 Sheet 25 of 47


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
VDD_LP1
VDD_LP2
VDD_LP3
VDD_LP4
VDD_LP5
VDD_LP6
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
NC1
NC2
NC3
NC4
NC5
NC6
NC7
NC8
NC9
NC10
NC11
NC12
NV_NB8P-GS
POWER
1.2V
PEX_VDD
L90
100mA
PEX_PLL_AVDD
11/2 backup C1944 for EMI request close to L90
C1944 NC_1000P_50V_M_B 0402
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
1.2V
PEX_VDD
L91
10mA
PEX_PLL_DVDD
NV_120R-100MHZ_0603 EBMS160808A121
C345 NV_1U_25V_K_B 0603
C346 NV_0.1U_16V_M_B 0402
1.2V
NV_VDD
R262 NV_0_J 0805
(Secondary internal core power)
L_NV_VDD
C352 NV_22U_6.3V_M_B 0805
C353 NV_0.1U_16V_M_B 0402
C354 NV_0.1U_16V_M_B 0402
C355 NV_1000P_50V_M_B 0402
+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
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
10/5 Remove D102 for Internal HDMI
SPIDIF IN don't need ESD Protection
57 HDMI_SPDIF1
+3VRUN
R2139 NC_24.3K_F 0402
C1757 0402_X7R
R2141 NV_36K_F 0402
R2140 NC_76.8_F 0402
NV_0.01U_25V_M
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
NV_VDD
L102
NV_120R-100MHZ_0603 EBMS160808A121
C1216 NC_1000P_50V_K_B 0402
Place close to L102
45mA(Frame Buffer Analog Power)
C1191 NV_0.1U_16V_Y_Y 0402
C1192 NV_4.7U_10V_Y_Y 0805
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
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
R1544 NC_10K_J 0402
TP955 26MIL
TP956 26MIL
H_PLLVDD is new power rail for NB8M
15mA(Power rail)
L76
NV_220R-100MHZ_0603 FCM1608KF-221T05
C347 NV_0.1U_16V_M_B 0402
C1194 NV_4.7U_10V_Y_Y 0805
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
Rev 2.0
Date: Friday, October 19, 2007
Sheet 26 of 77

Decoupling for Tright MEMORY

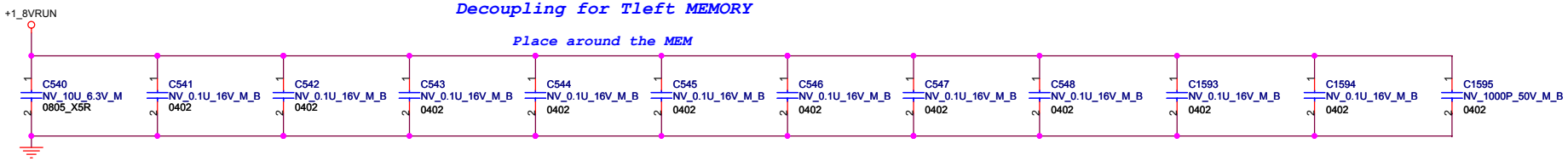
Place around the MEM

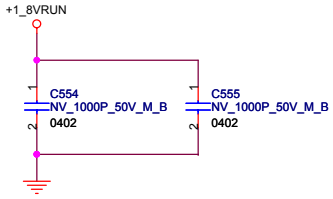




Decoupling for Tleft MEMORY

Place around the MEM



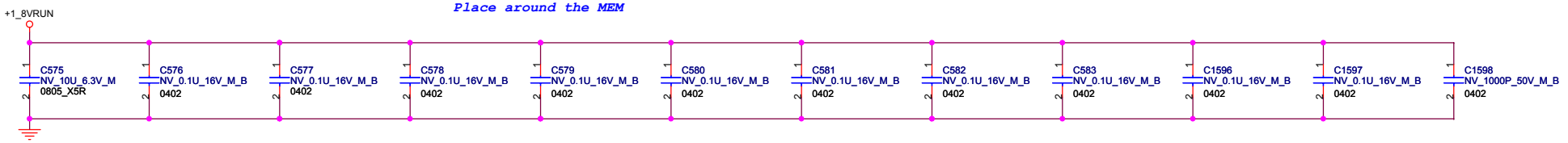


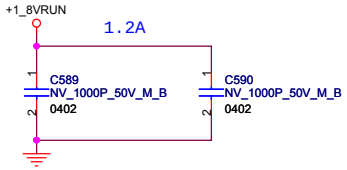
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VRAM (GDDR) 3 OF 4	
Size A3	Document Number (1810-1-01) MainBoard (MBX-176) 2007-1-4	Rev 2.0
Date:	Friday, October 19, 2007	Sheet 27 of 47

ELECTRONICA

Decoupling for Bright MEMORY

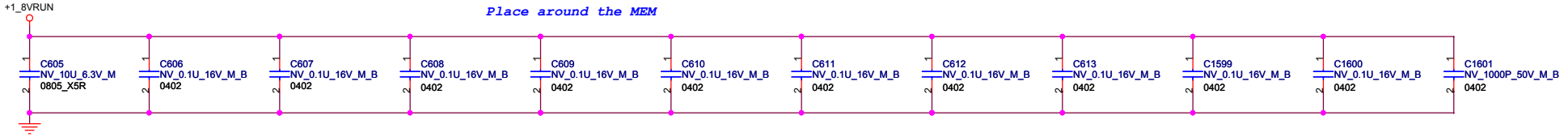
Place around the MEM

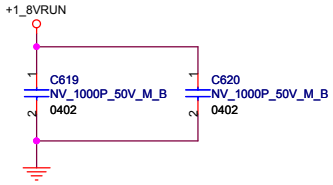




Decoupling for Bleft MEMORY

Place around the MEM





FOXCONN HON HAI PRECISION IND. CO., LTD.
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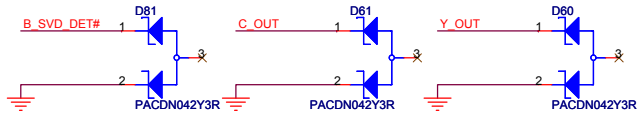
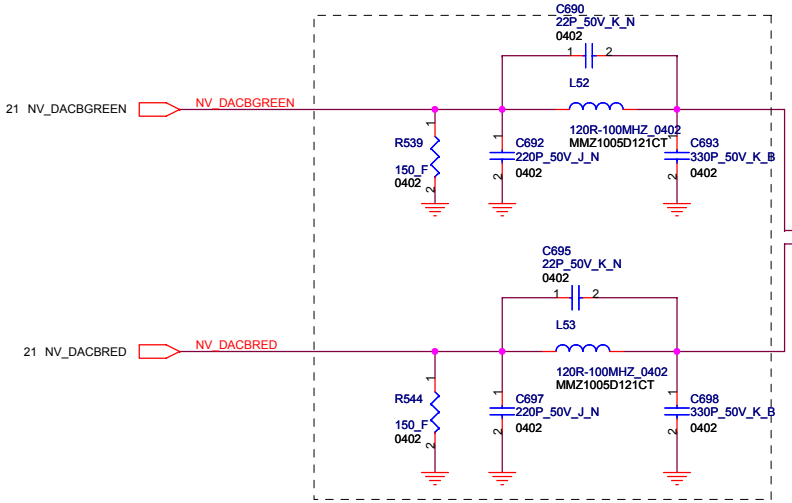
Title: VRAM (POWERBYPASS) 4 OF 4

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

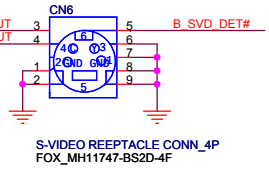
Date: Friday, October 19, 2007 | Sheet 28 of 77

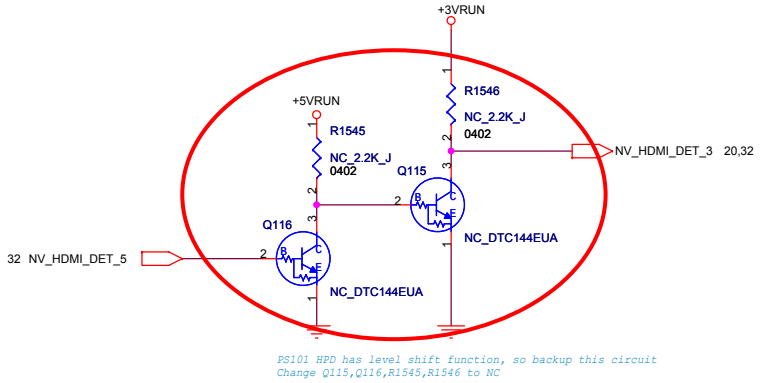


These compoent close to S-Video connector within 700 mil



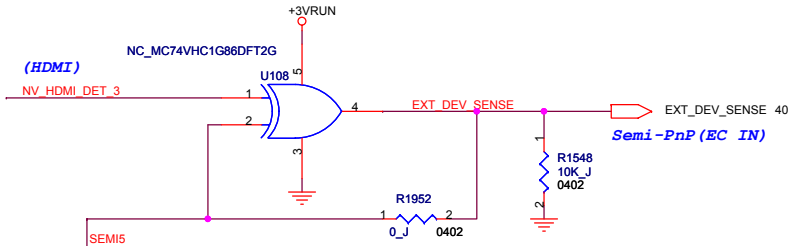
S-VIDEO CONNECTOR

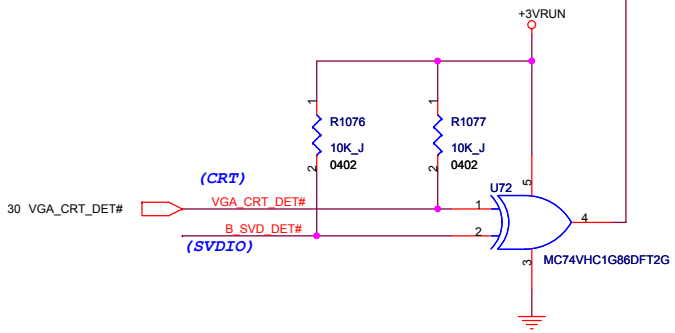




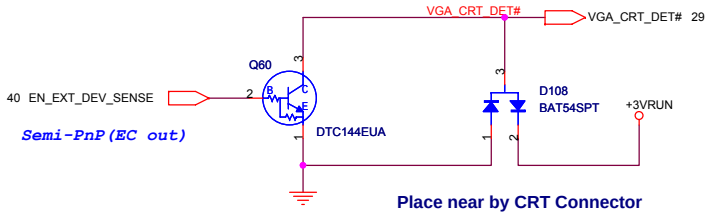
PS101 HPD has level shift function, so backup this circuit
Change Q115,Q116,R1545,R1546 to NC

Semi-PnP Circuit

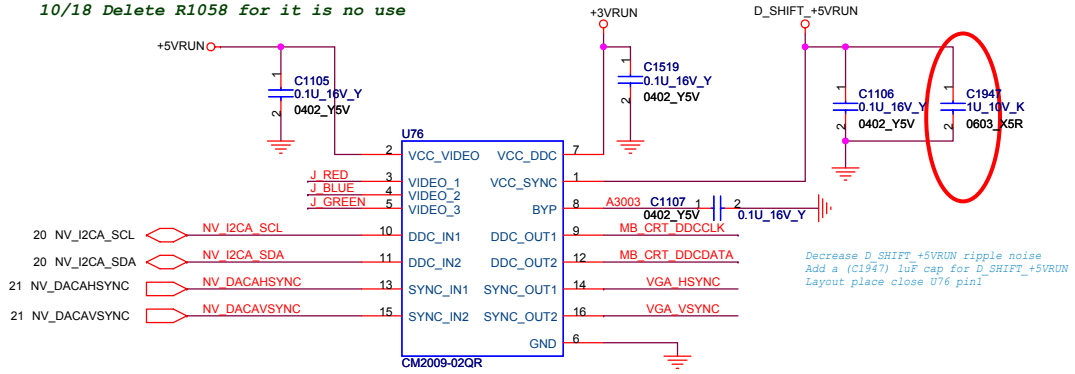


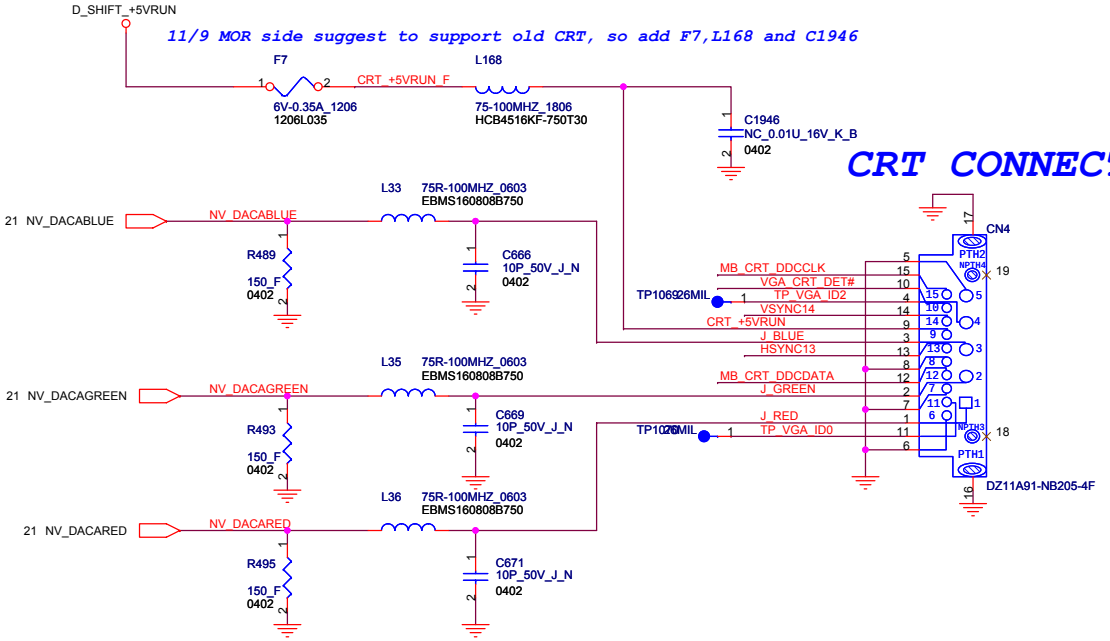


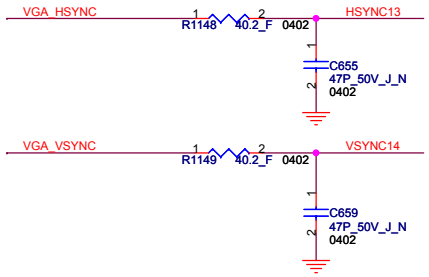
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: S-VIDEO/Semi-PnP		
Size: A3	Document Number: (M810-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 29 of 77	



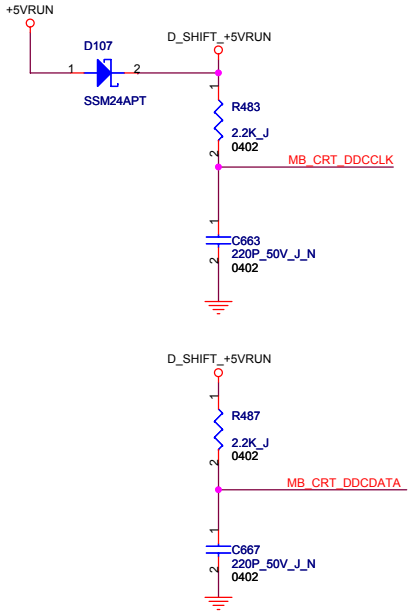
10/18 Delete R1058 for it is no use





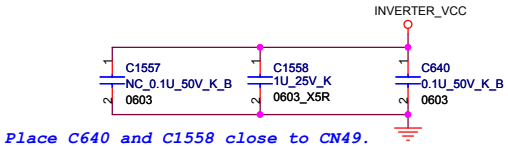


11/8 Change R1148,R1149 from 0ohm to 40ohm for meet CM2009-02 termination Spec

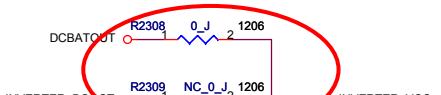


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: CRT		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 30 of 77	

LVDS CONNECTOR

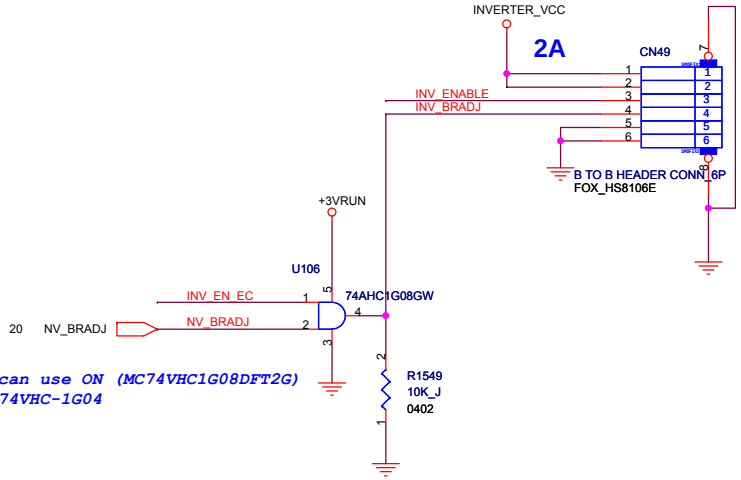


Place C640 and C1558 close to CN49.

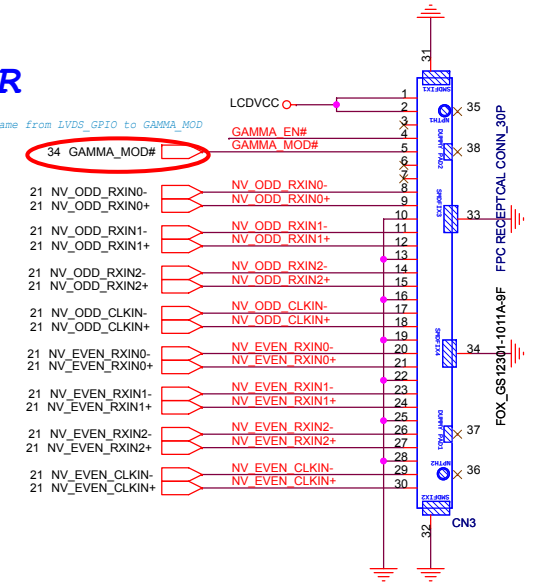


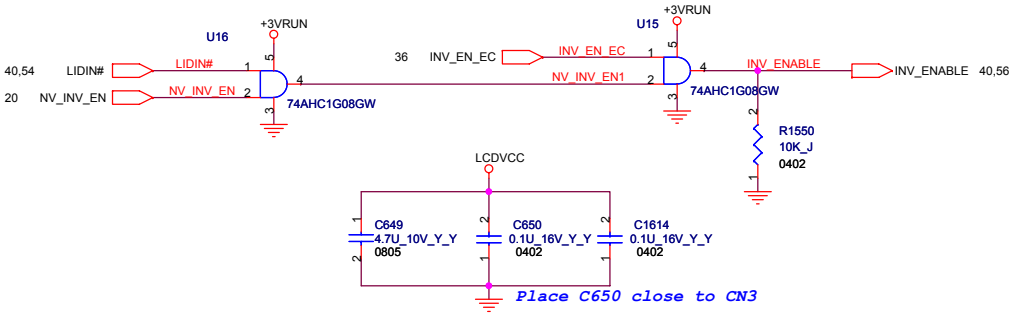
Backup Inverter boost circuit and use DCBATOUT as INVERTER_VCC
Change R2308 from NC to mount
Change R2309 from mount to NC

INVERTER CONNECTOR

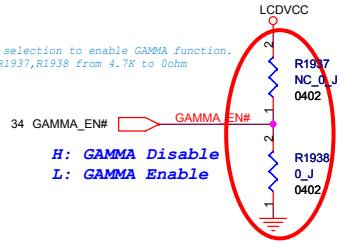


U106,U15,U16 can use ON (MC74VHC1G08DFT2G)
H.H. PN:14-MC74VHC-1G04

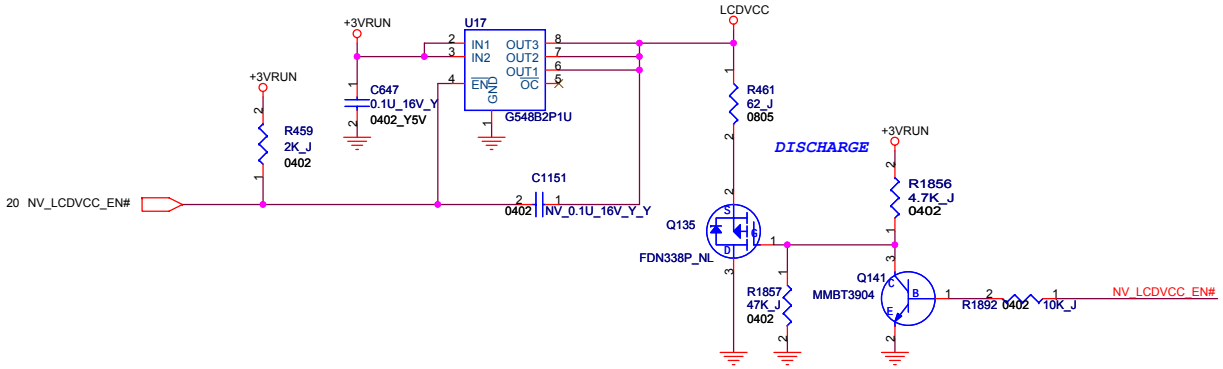




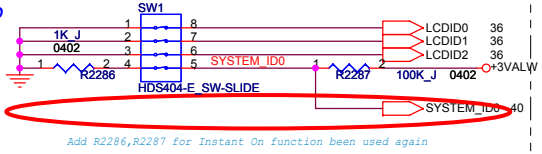
Place C650 close to CN3



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	LQ170M11LA46	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: (M810-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 31 of 77

MANUALSLIB.COM

HDMI CONNECTOR

(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

cost down evaluation
Change R2193,R2194 from NC_ to NV8P8MH_,
Change R1940,C1616,U136 from NV8P8MH_ to NC

HDMI DDC capacitance to GND need less than 50pF,so those parts need close to HDMI connector

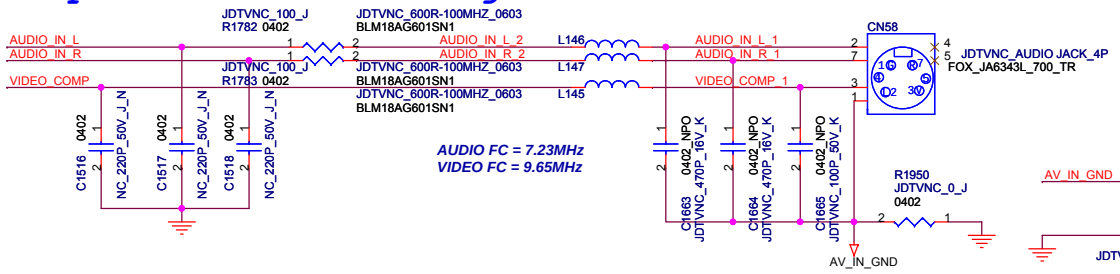
8/4 Change new HDMI connector
P/N change from 1N-0019001-MKG0 to 1N-0019002-MKG0

PVT Change to 16-CH741UP-T000

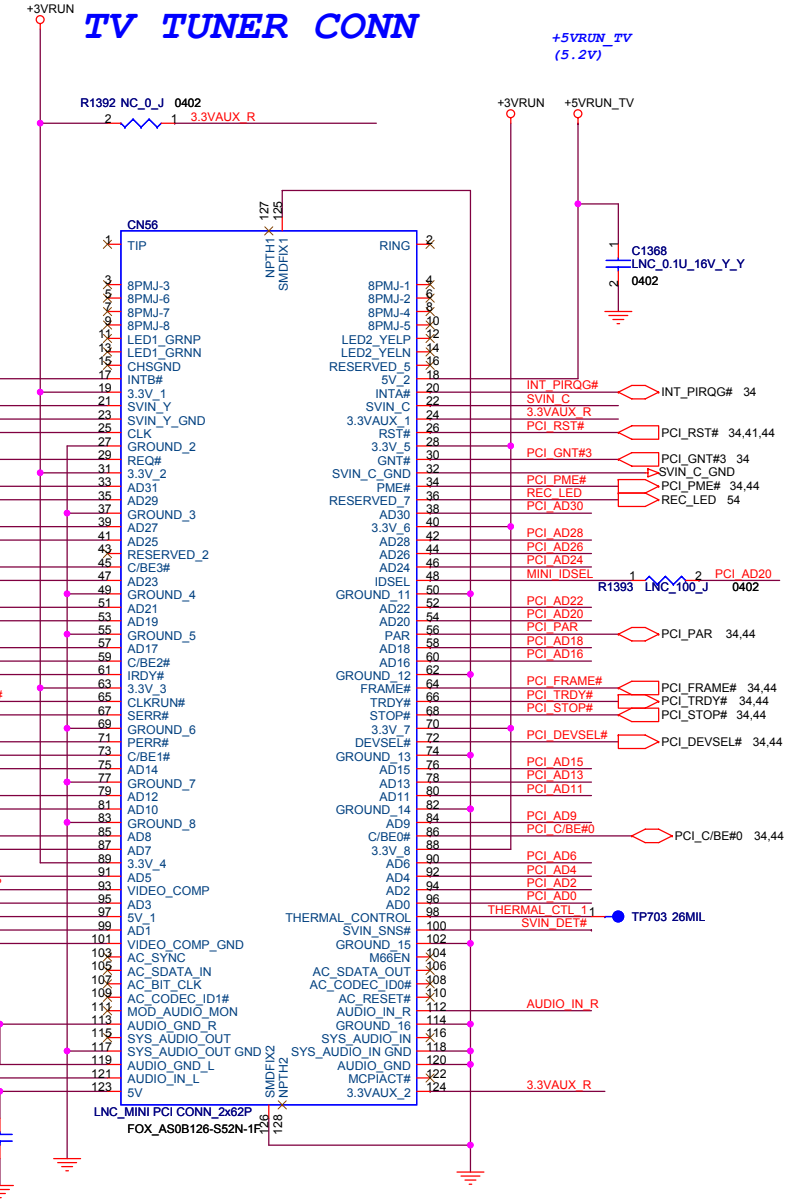
12/29 Replace F1 by 0.25A fuse for meet HDMI Spec

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	HDMI		
Size	Document Number		Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4		2.0
Date:	Friday, October 19, 2007	Sheet 32 of 77	

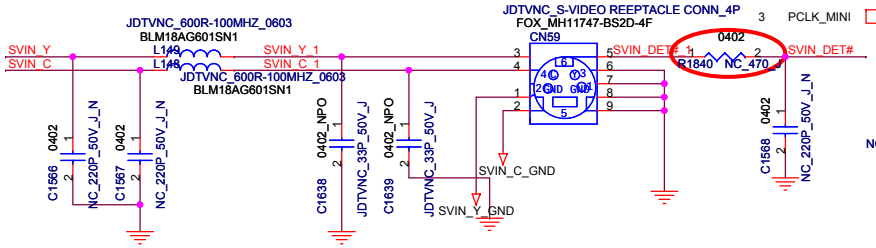
Special mini stereo jack



TV TUNER CONN

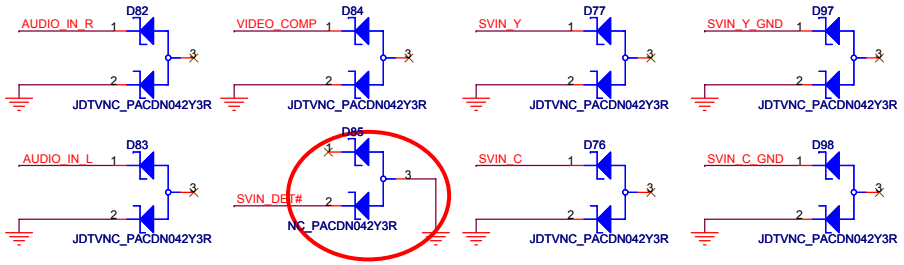


S-VIDEO IN

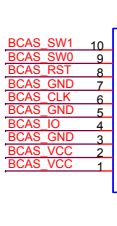


TV tuner "SVIN_DET#" signal no use.
Change R1840,D85 to NC

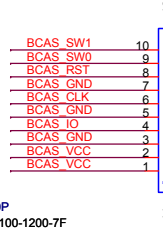
TV-TUNER not support CLKRUN



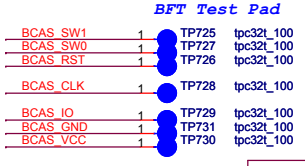
B-CAS connentor (Close to TV Tuner)

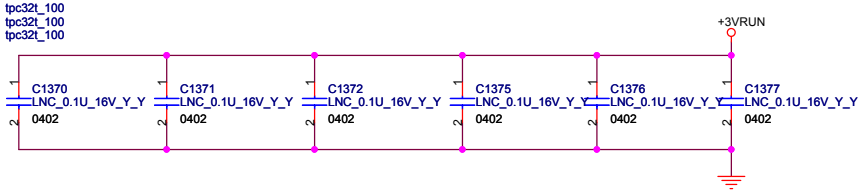


FFC CONNECT TO TV TUNER BOARD (FOR JP DIAGITAL)

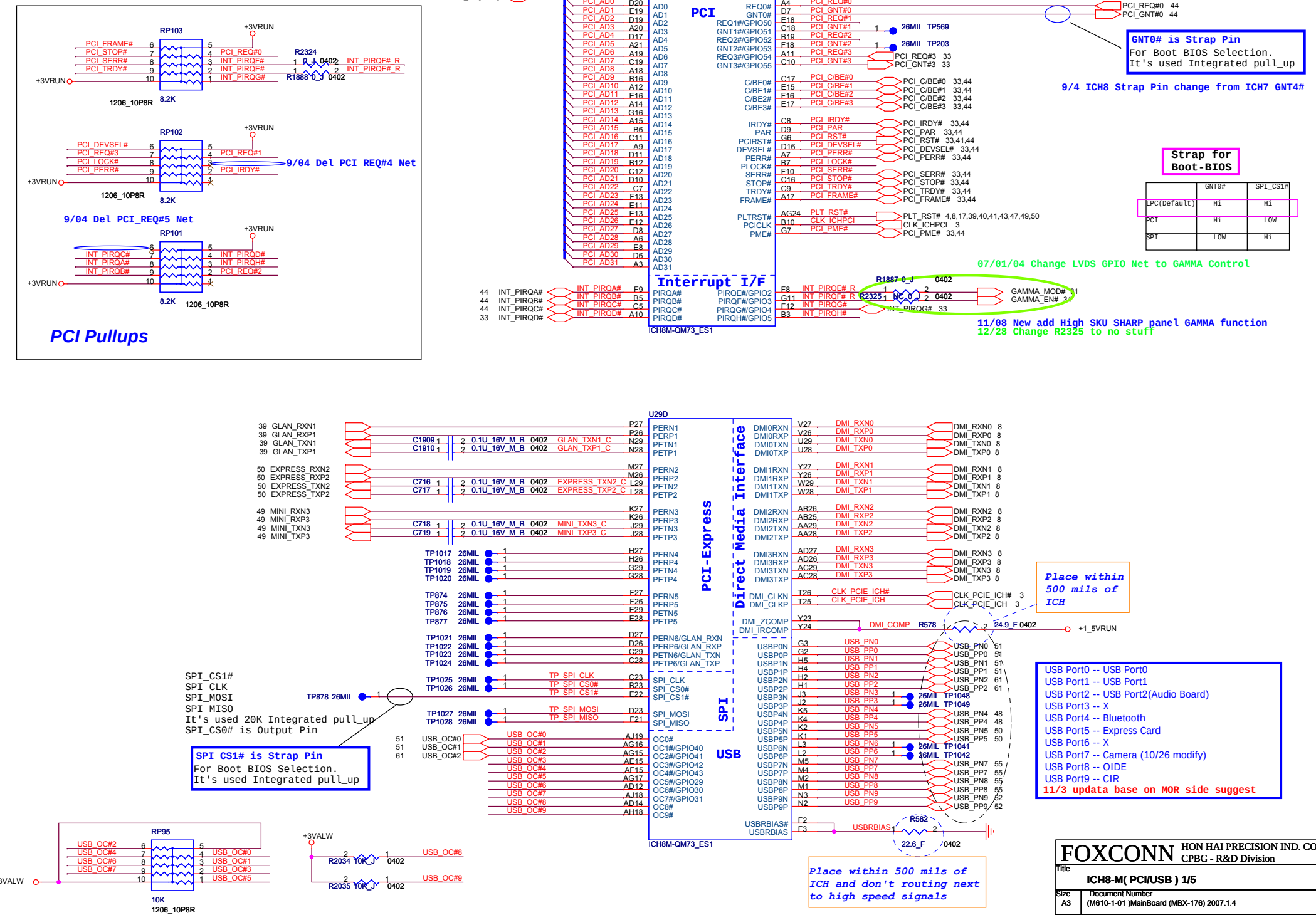


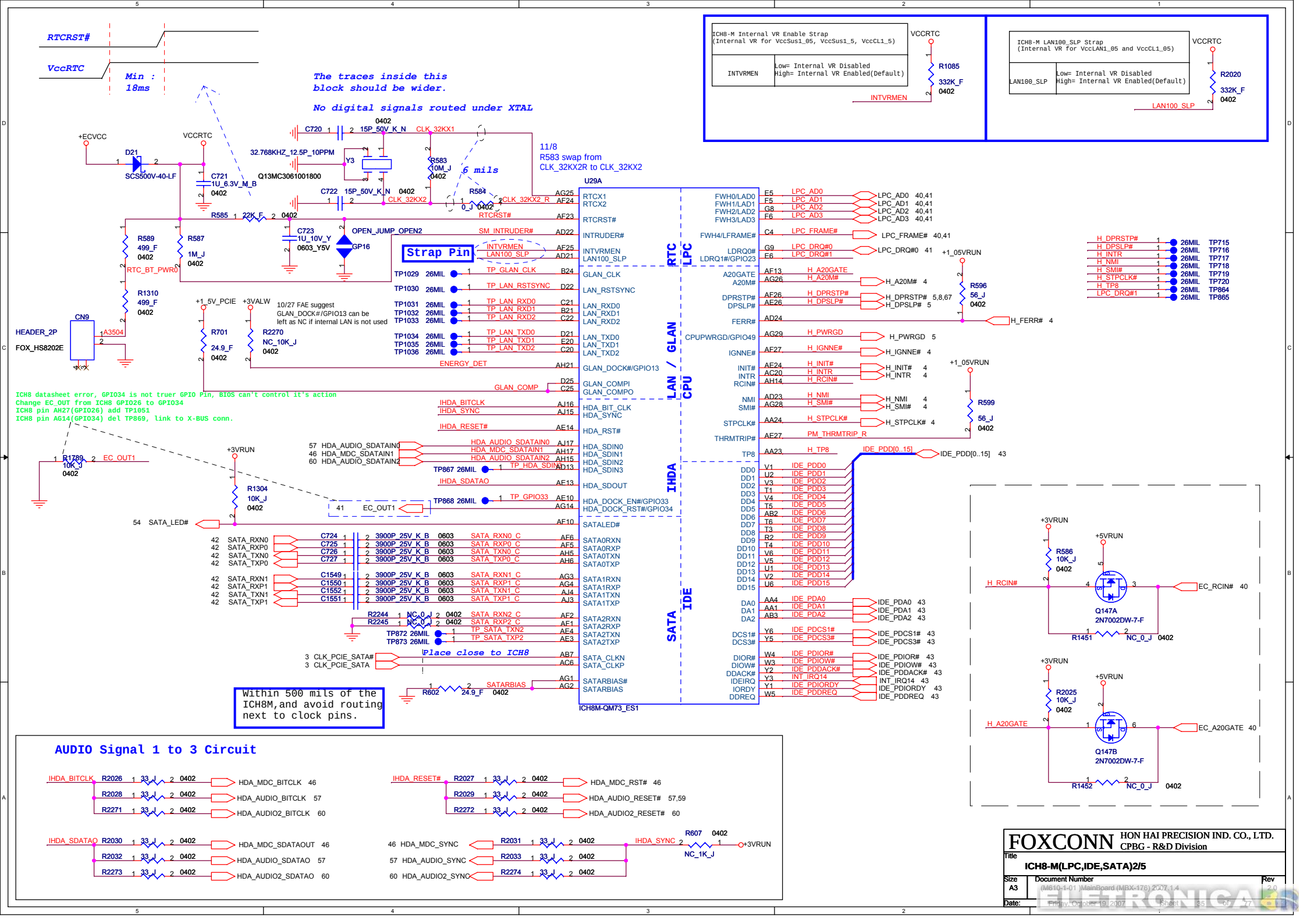
BFT Test Pad





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	
Date:	Friday, October 19, 2007
Sheet	33 of 77


Difference ICH7&ICH8
1.Del REQ4/GNT4,REQ5/GNT5
2.Change Strap Pin station(GNT4#-->GNT0#)
PCI Pullups
RP103
RP102
RP101
1206_10P8R
8.2K
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
Date: Friday, October 19, 2007
Sheet 34 of 77


RTCRST#
VccRTC
Min : 18ms
The traces inside this block should be wider.
No digital signals routed under XTAL
11/8
R583 swap from CLK_32KX2R to CLK_32KX2
6 mils
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)
R1085
332K_F
ICH8-M LAN100_SLP Strap (Internal VR for VccLAN1_05 and VccCL1_05)
LAN100_SLP
R2020
Strap Pin
INTVRMEN
LAN100_SLP
10/27 FAE suggest
GLAN_DOCK#/GPIO13 can be left as NC if internal LAN is not used
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.
Place close to ICH8
Within 500 mils of the ICH8M,and avoid routing next to clock pins.
U29A
ICH8M-QM73_ES1
RTC
LPC
GLAN
LAN / GLAN
CPU
IHDA
SATA
IDE
AUDIO Signal 1 to 3 Circuit
FOXCONN
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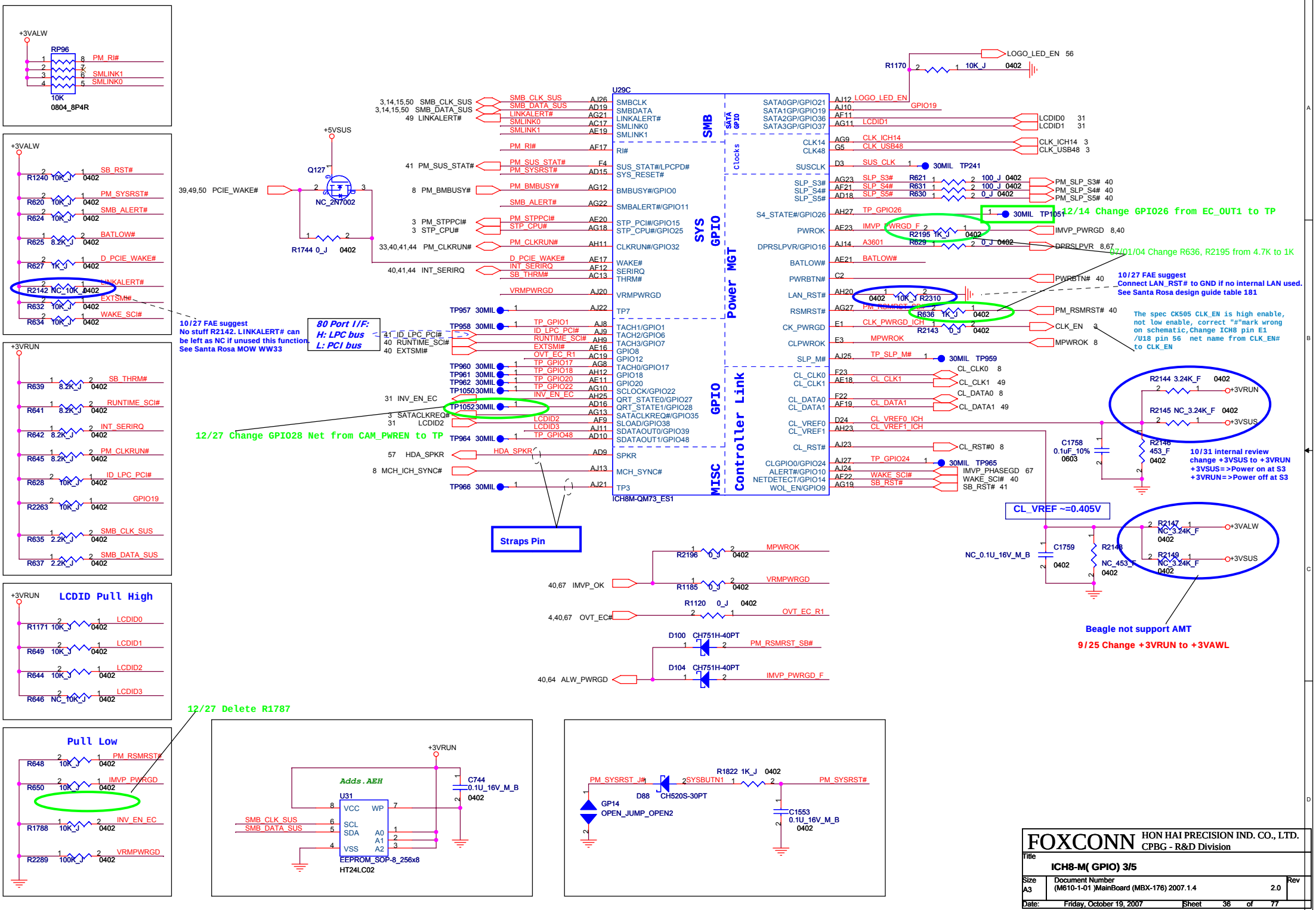
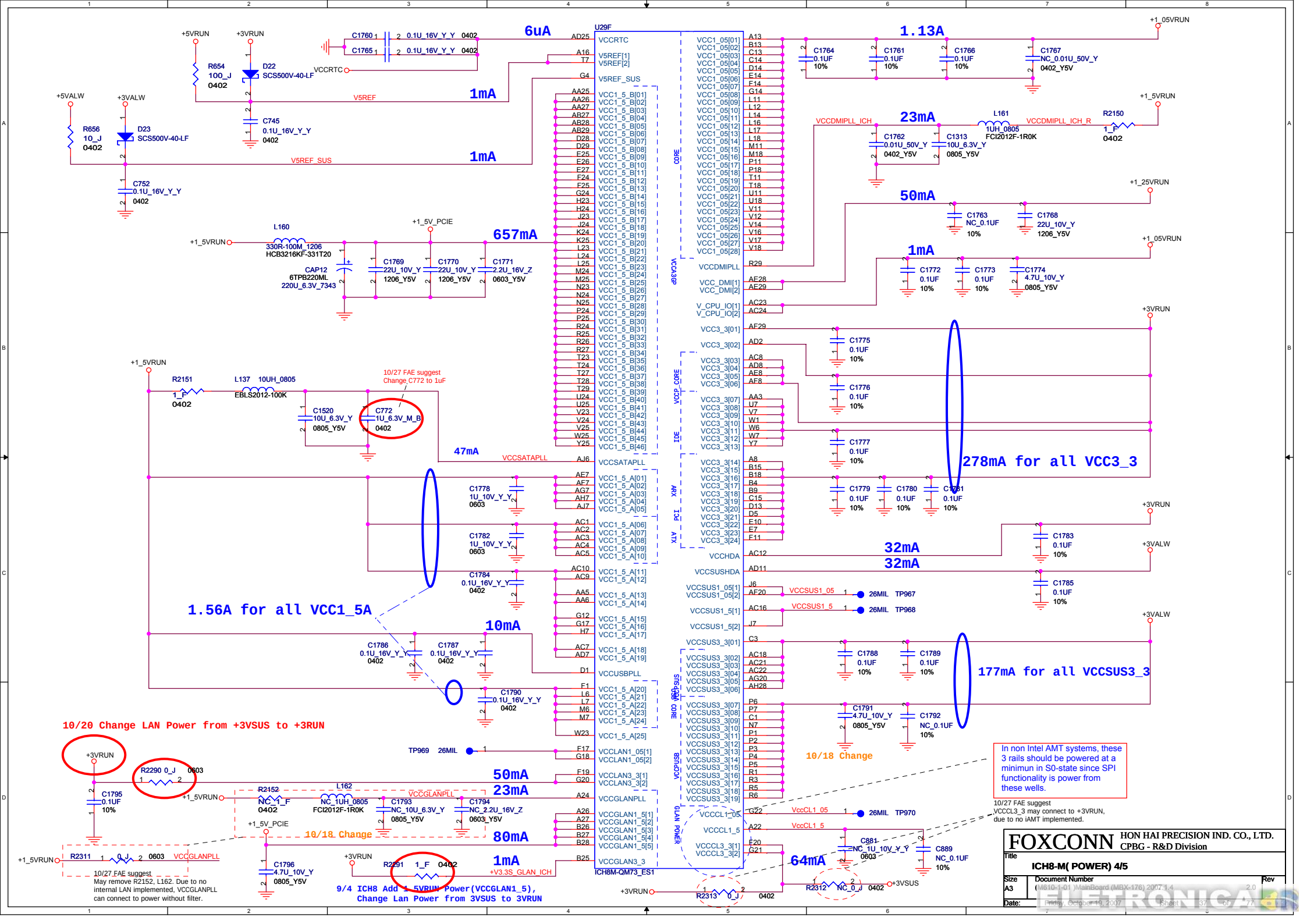
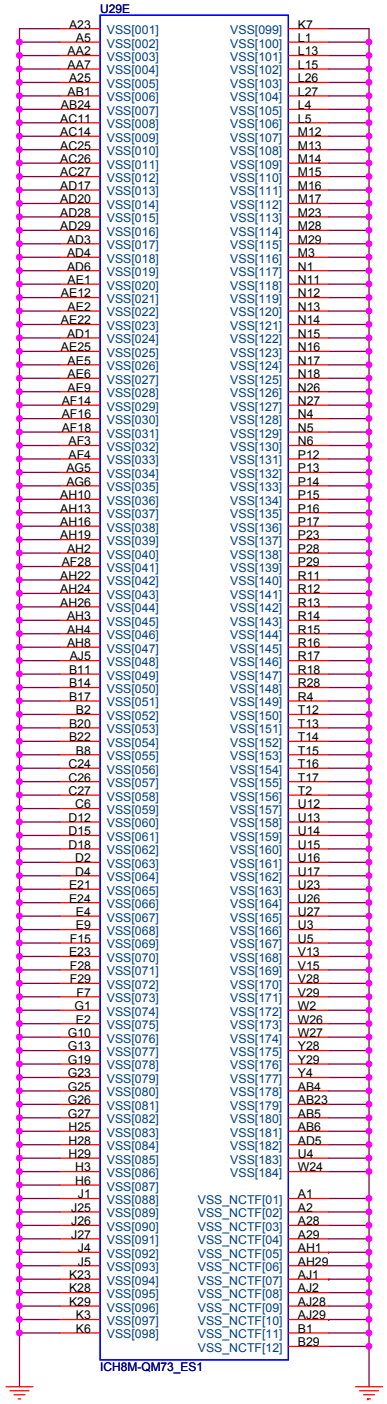
ICH8-M(LPC,IDE,SATA)2/5
Size A3
Document Number
(MG10-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Friday, October 19, 2007
Sheet 35 of 47


+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
+5VSUS
Q127
NC_2N7002
39,49,50 PCIE_WAKE#
R1744 0_J 0402
U29C
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
SMB
SATA GPIO
CLocks
SYS GPIO
Power MGT
GPIO
Controller Link
MISC
ICH8M-QM73_ES1
SATA0GP/GPIO21
SATA1GP/GPIO19
SATA2GP/GPIO36
SATA3GP/GPIO37
CLK14
CLK48
SUSCLK
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 56
R1170 10K_J 0402
GPIO19
LCDID0 31
LCDID1 31
CLK_ICH14 3
CLK_USB48 3
SUS_CLK
30MIL TP241
SLP_S3# R621 100_J 0402
SLP_S4# R631 100_J 0402
SLP_S5# R630 0_J 0402
PM_SLP_S3# 40
PM_SLP_S4# 40
PM_SLP_S5# 40
TP_GPIO26
30MIL TP1051
12/14 Change GPIO26 from EC_OUT1 to TP
IMVP_VRWRGD_F
R2195 1K_J 0402
IMVP_PWRGD 8,40
A3601
R629 0_J 0402
DPRSLPVR 8,67
07/01/04 Change R636, R2195 from 4.7K to 1K
BATLOW#
PWRBTN# 40
10/27 FAE suggest
Connect LAN_RST# to GND if no internal LAN used.
See Santa Rosa design guide table 181
R2310 10K_J 0402
PM_RSMRST# 40
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
CLK_PWRGD_ICH
R2143 0_J 0402
CLK_EN 8
MPWROK 8
TP_SLP_M#
30MIL TP959
CL_CLK0 8
CL_CLK1 49
CL_DATA0 8
CL_DATA1 49
CL_VREF0_ICH
CL_VREF1_ICH
CL_RST#0 8
TP_GPIO24
30MIL TP965
IMVP_PHASEGD 67
WAKE_SCI# 40
SB_RST# 41
R2144 3.24K_F 0402
+3VRUN
R2145 NC_3.24K_F 0402
+3VSUS
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
C1759 NC_0.1U_16V_M_B 0402
R2148 NC_453_F 0402
R2147 NC_3.24K_F 0402
R2149 NC_3.24K_F 0402
+3VALW
+3VSUS
Beagle not support AMT
9/25 Change +3VRUN to +3VAWL
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
TP957 30MIL
TP958 30MIL
TP960 30MIL
TP961 30MIL
TP962 30MIL
TP1050 30MIL
TP1052 30MIL
TP964 30MIL
TP966 30MIL
TP_GPIO1
ID_LPC_PCI#
RUNTIME_SCI#
EXTSMI#
OVT_EC_R1
TP_GPIO17
TP_GPIO18
TP_GPIO20
TP_GPIO22
INV_EN_EC
LCDID2
LCDID3
TP_GPIO48
HDA_SPKR
12/27 Change GPIO28 Net from CAM_PWREN to TP
Straps Pin
MPWROK
R2196 0_J 0402
VRMPWRGD
R1185 0_J 0402
OVT_EC_R1
R1120 0_J 0402
D100 CH751H-40PT
PM_RSMRST_SB#
D104 CH751H-40PT
IMVP_PWRGD_F
12/27 Delete R1787
Adds.AEH
U31
VCC
WP
SCL
SDA
A0
A1
A2
VSS
EEPROM_SOP-8_256x8
HT24LC02
C744 0.1U_16V_M_B 0402
PM_SYSRST_J#
D88 CH520S-30PT
SYSBUTN1
R1822 1K_J 0402
PM_SYSRST#
GP14
OPEN_JUMP_OPEN2
C1553 0.1U_16V_M_B 0402
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
ICH8-M(GPIO) 3/5
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Friday, October 19, 2007
Sheet 36 of 77


U29F
ICH8M-QM73_ES1
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
10/20 Change LAN Power from +3VSUS to +3RUN
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.
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
ICH8-M(POWER) 4/5
Document Number
Rev
Date:
Friday, October 19, 2007



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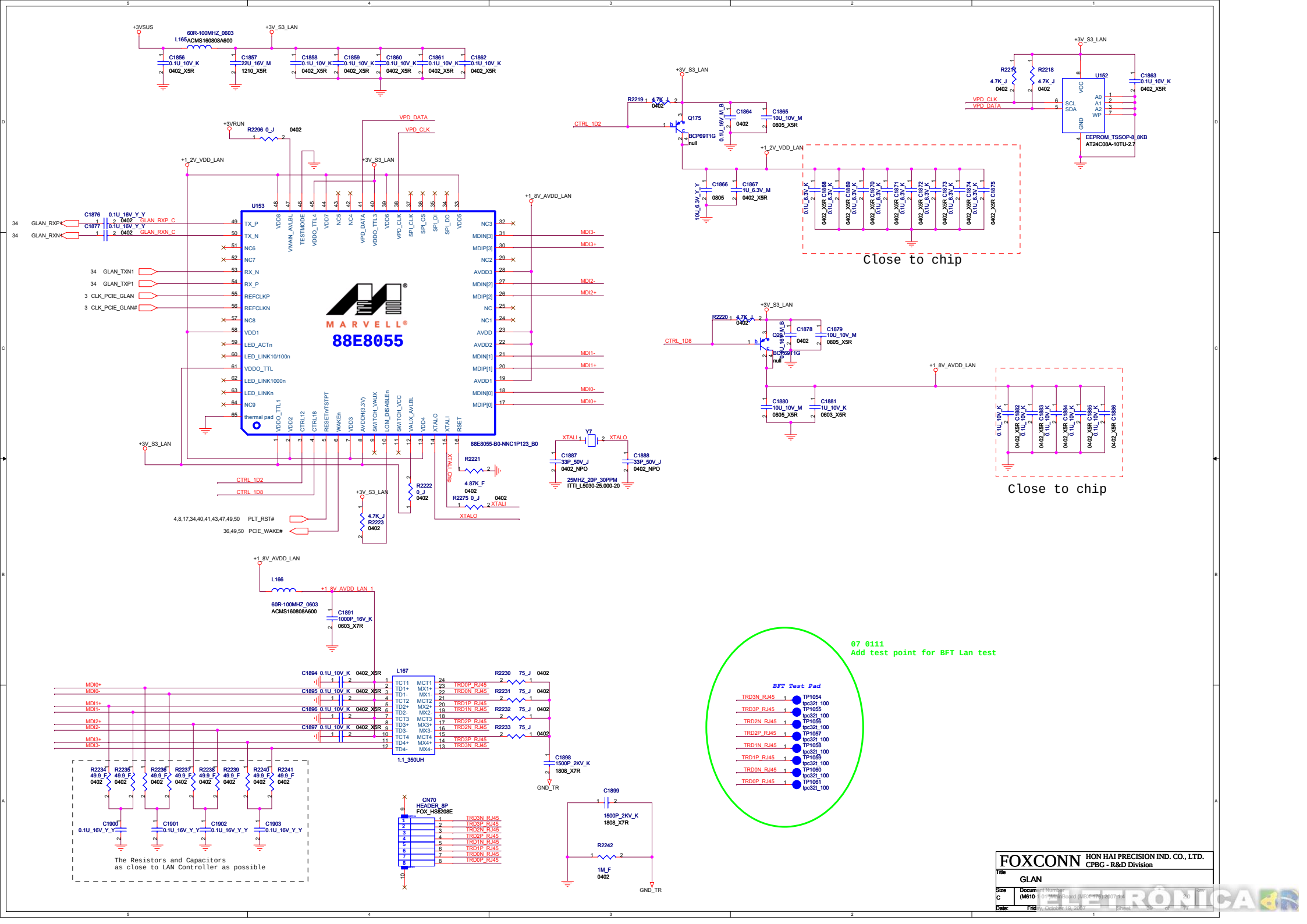
Title: ICH8-M(GND) 5/5

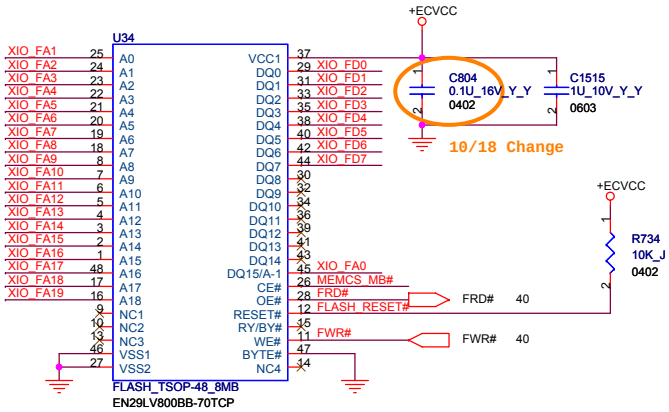
Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 38 of 77

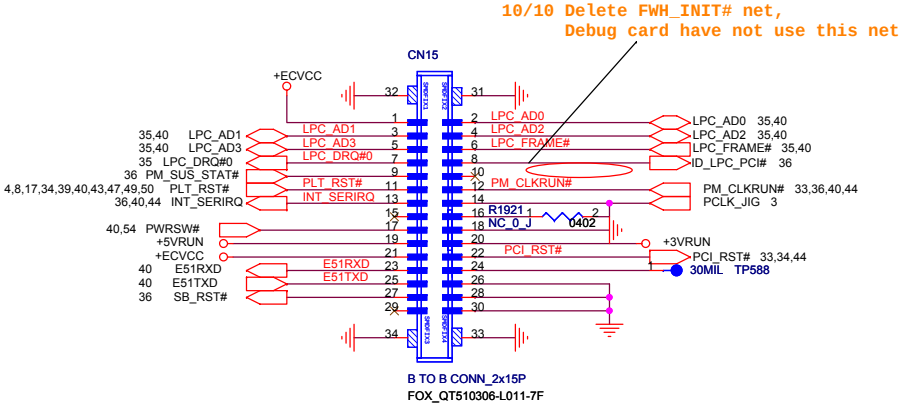

88E8055
MARVELL
88E8055-B0-NNC1P123_B0
Close to chip
Close to chip
07 0111
Add test point for BFT Lan test
BFT Test Pad
The Resistors and Capacitors
as close to LAN Controller as possible
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
GLAN

FLASH BIOS

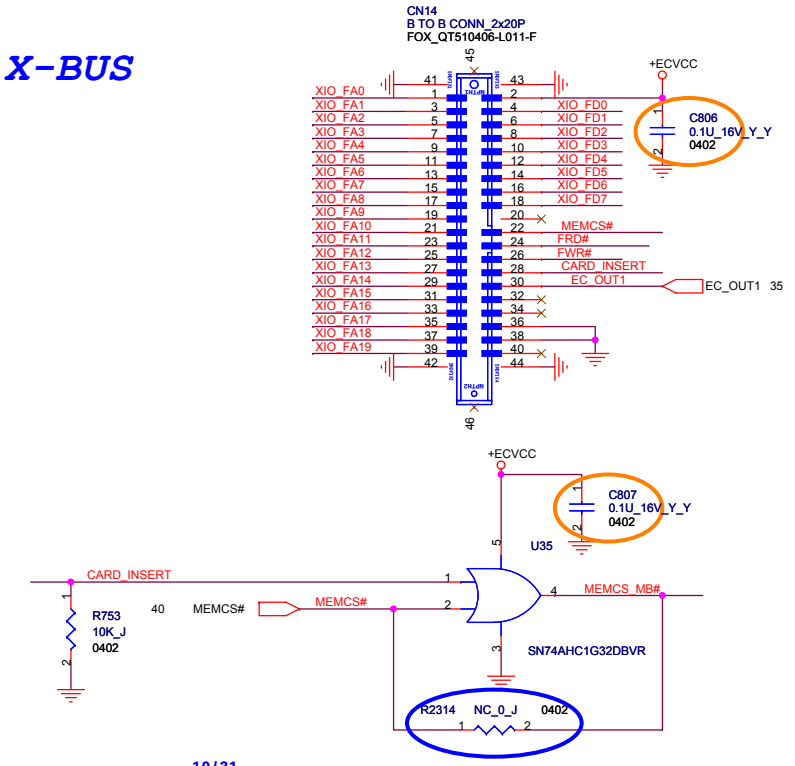
40 XIO_FA[19..0]
40 XIO_FD[7..0]



JIG-120



X-BUS



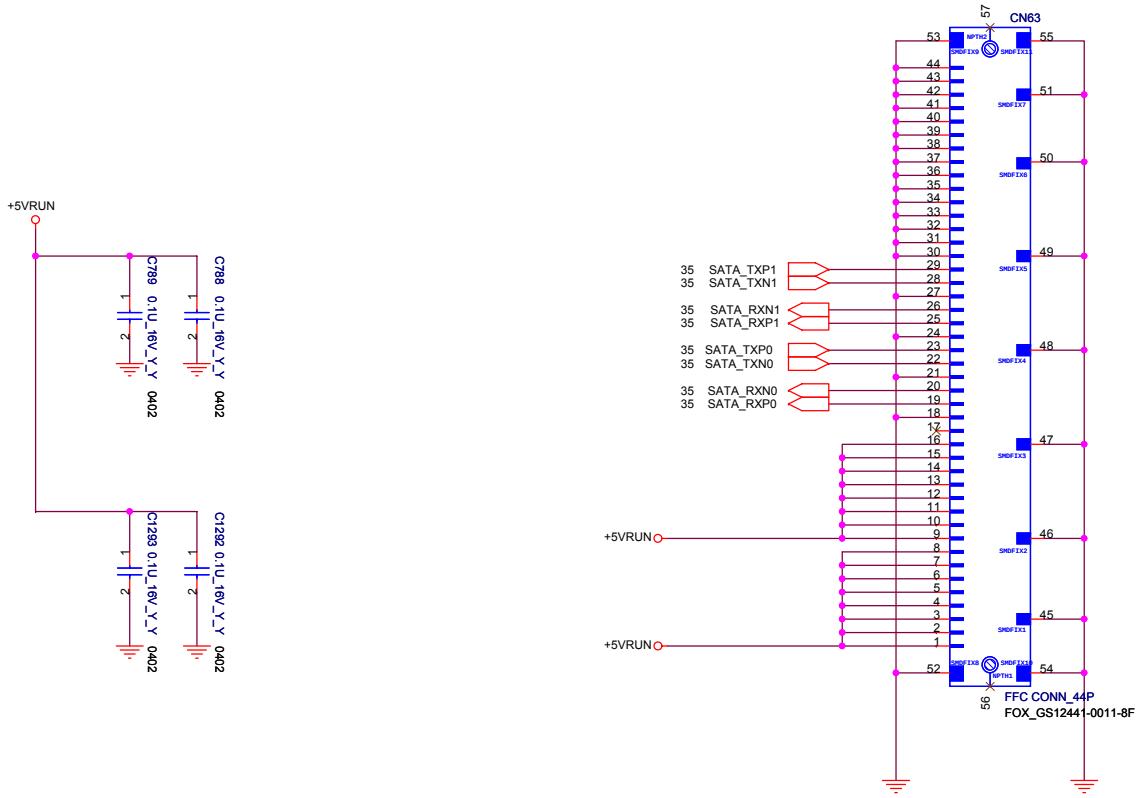
10/31
At M610 MP don't use X-BUS
CN14,U35,R753,C807 need NC
R2314 need stuff

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

Title: Flash ROM + Jig-120 + XBUS

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

Date: Friday, October 19, 2007 | Sheet 41 of 77



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
Date: Friday, October 19, 2007	Sheet 42 of 77	

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

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

PTH1 NPTH1 PTH2 NPTH2

ODD_NC_1
CSEL2
ODD_NC_2

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

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#

IDE_PDCS3# IDE_PDA2 TP_PDIAG IOCS16# IDE_PDDACK# IDE_PDIOR# IDE_PDDREQ IDE_PDD15 IDE_PDD14 IDE_PDD13 IDE_PDD12 IDE_PDD11 IDE_PDD10 IDE_PDD9 IDE_PDD8

IDE_PDCS3# 35
IDE_PDA2 35
IDE_PDDACK# 35
IDE_PDIOR# 35
IDE_PDDREQ 35

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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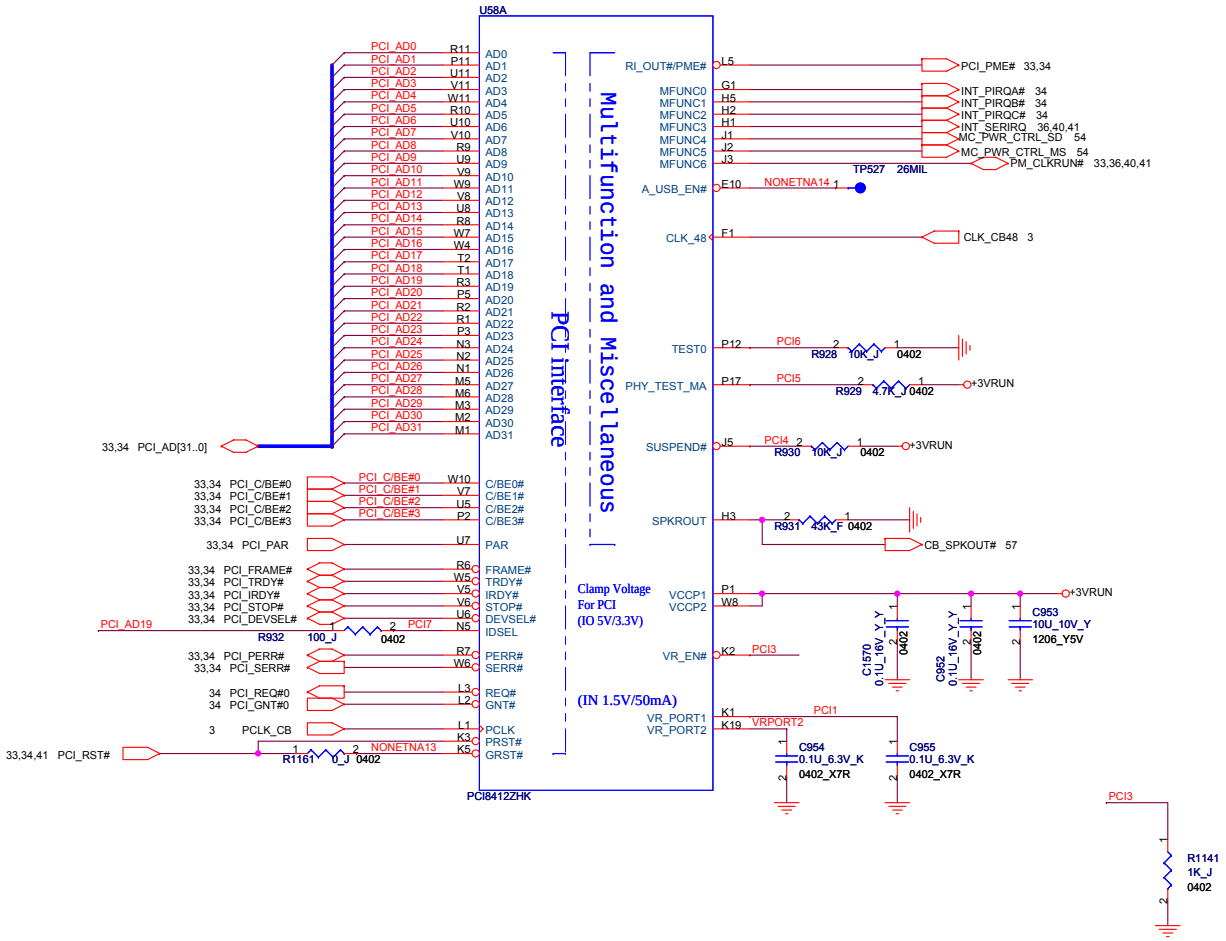
Title: PATA CD-ROM

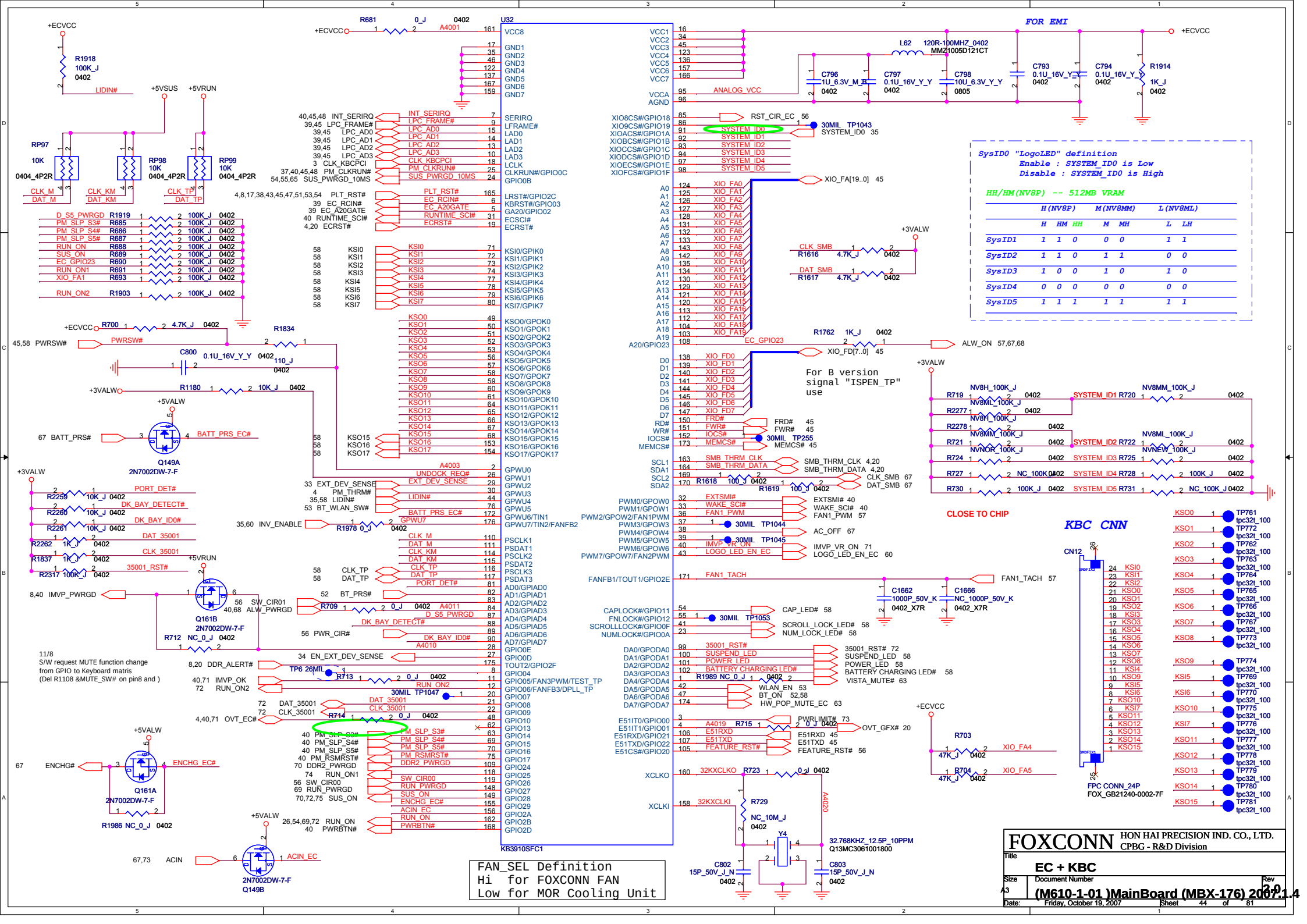
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

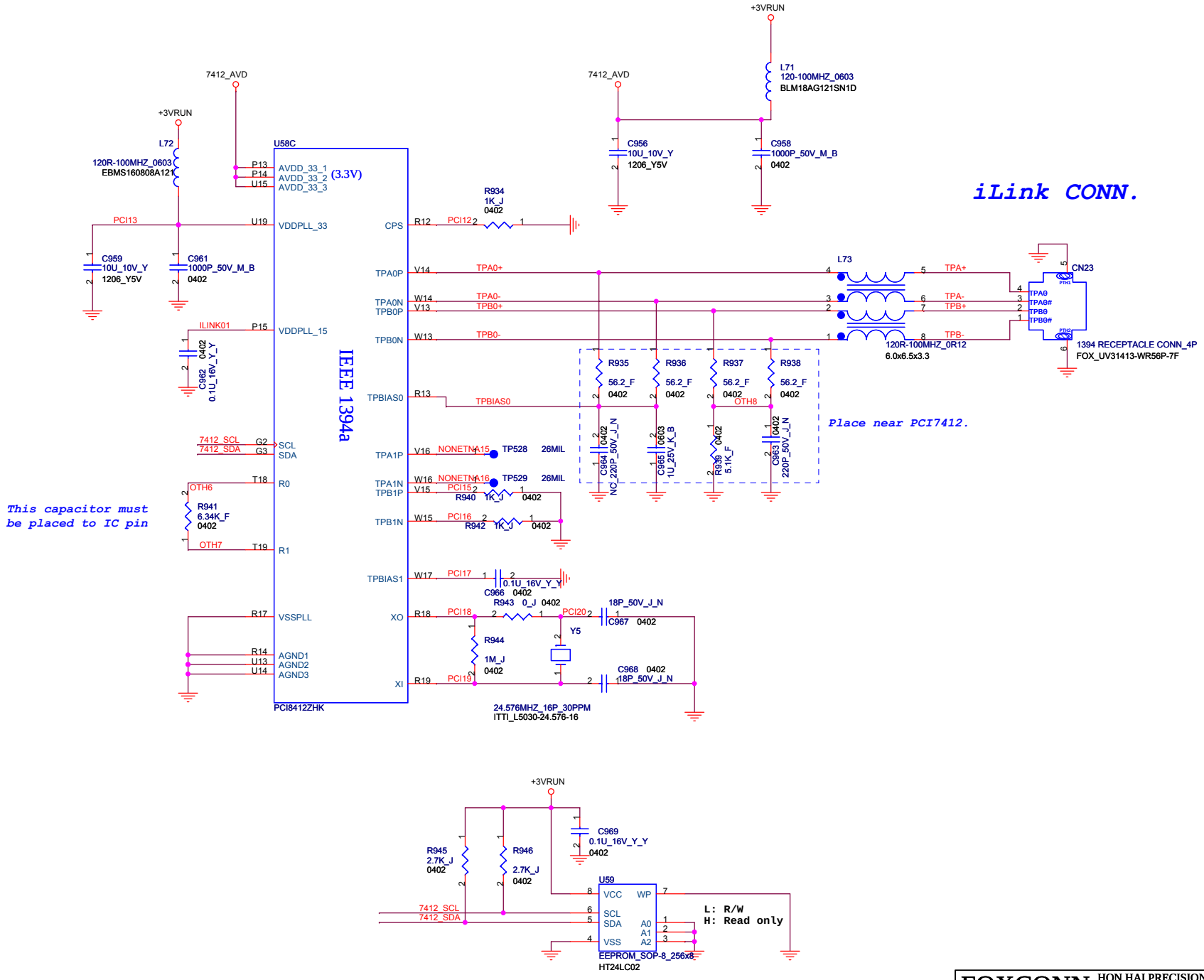
Date: Friday, October 19, 2007 Sheet 43 of 77



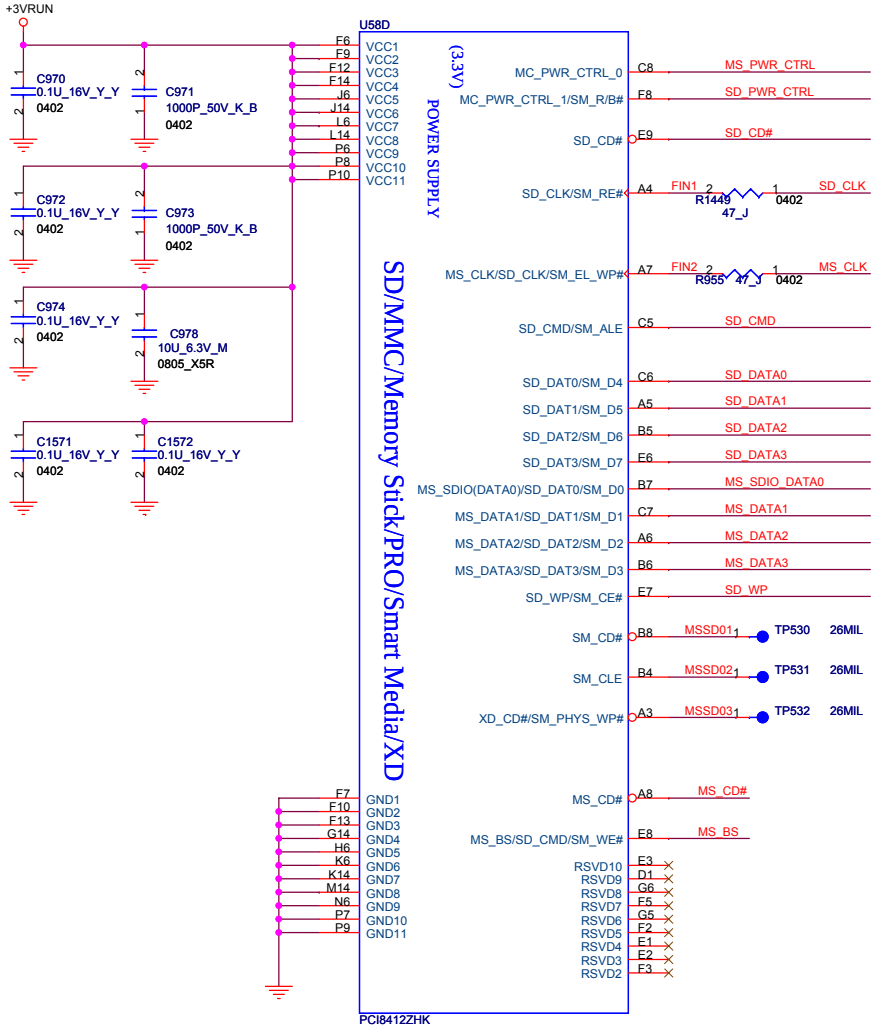
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: PCI (PCI BUS)		
Size: Custom	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 44 of 77	

ELETRÔNICA

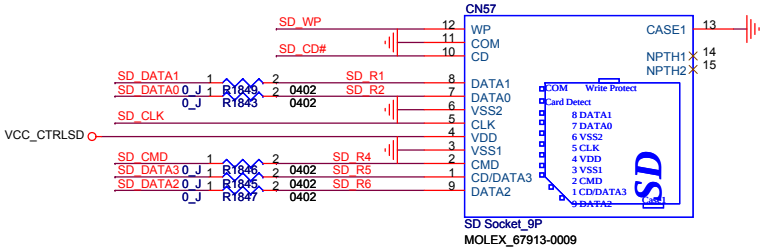

FOR EMI
SysID0 "LogoLED" definition
Enable : SYSTEM_ID0 is Low
Disable : SYSTEM_ID0 is High
HH/HM(NV8P) -- 512MB VRAM
H(NV8P) M(NV8MM) L(NV8ML)
SysID1 1 1 0 0 0 1 1
SysID2 1 1 0 1 1 0 0
SysID3 1 0 0 1 0 1 0
SysID4 0 0 0 0 0 0 0
SysID5 1 1 1 1 1 1 1
For B version signal "ISPEN_TP" use
CLOSE TO CHIP
KBC CNN
FPC CONN_24P
FOX_GB21240-0002-7F
KB3910SFC1
FAN_SEL Definition
Hi for FOXCONN FAN
Low for MOR Cooling Unit
11/8
S/W request MUTE function change from GPIO to Keyboard matris (Del R1108 &MUTE_SW# on pin8 and)
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
Rev 3.0
Date: Friday, October 19, 2007
Sheet 44 of 81



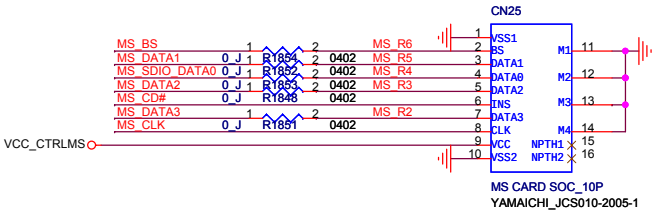
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	PCI (ILINK)
Size A3	Document Number (M810-1-01)MainBoard (MBX-176) 2007.1.4 Rev 2.0
Date:	Friday, October 19, 2007 Sheet 45 of 77



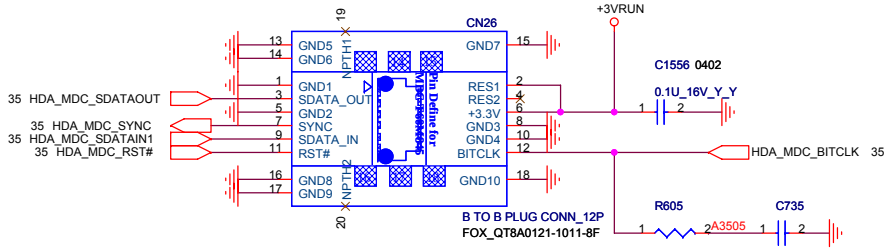
SD CONN.



MS STD/DUO CONN.

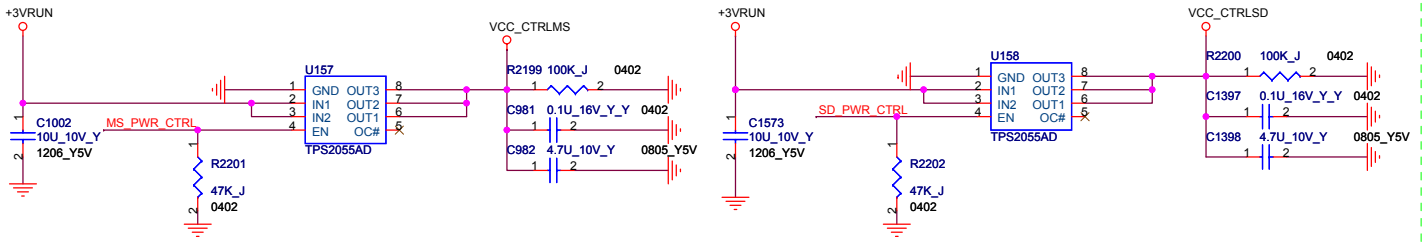


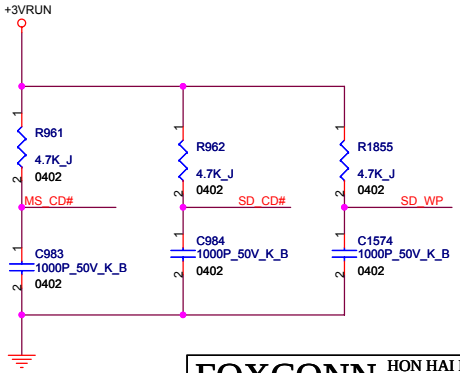
MDC CONN.



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.
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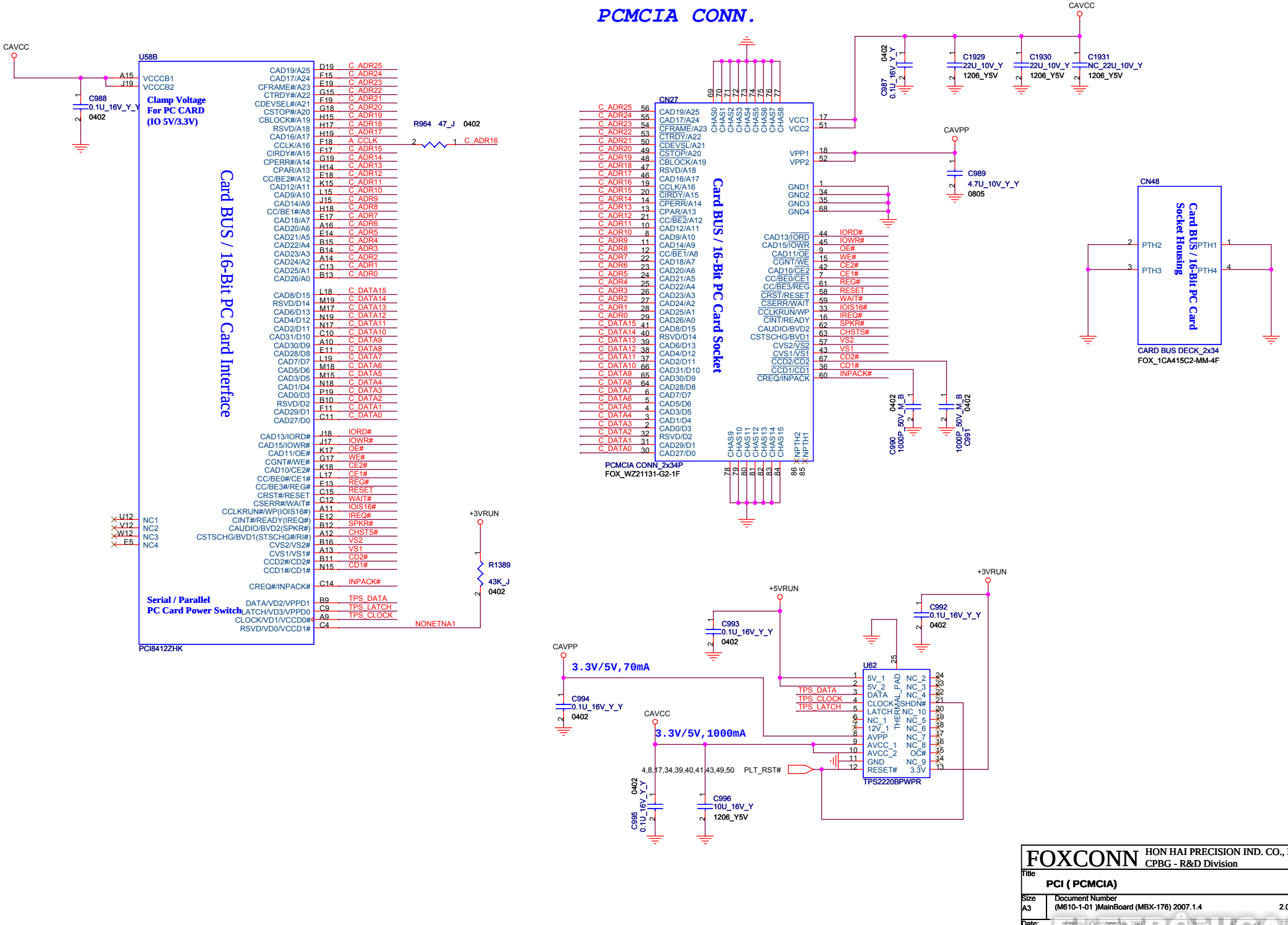
Title: PCI (MS-DUO/MDC)

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

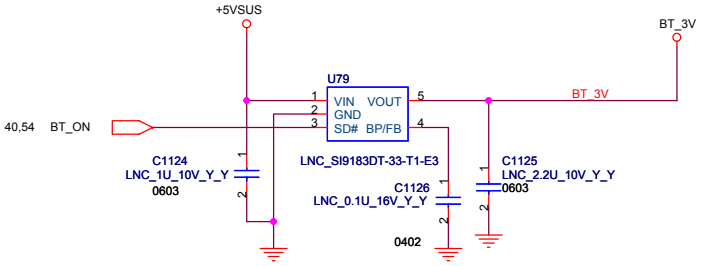
Date: Friday, October 19, 2007 Sheet 46 of 77

PCMCIA CONN.



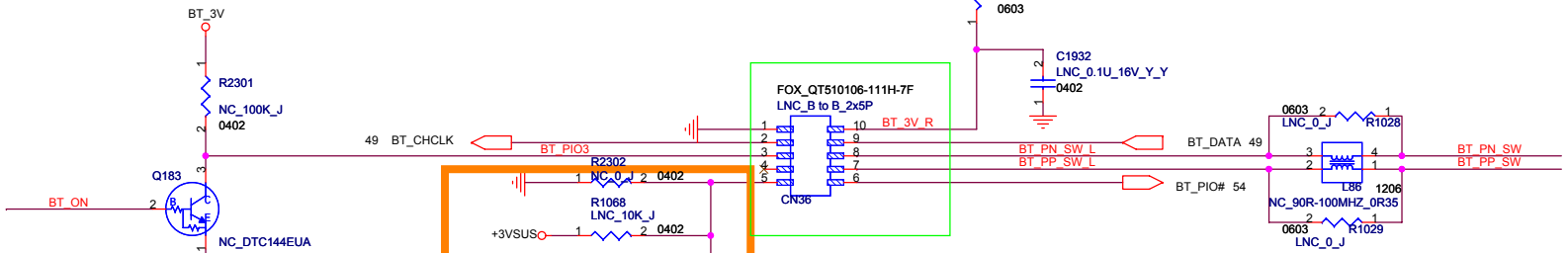
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	PCI (PCMCIA)	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date:	Friday, October 19, 2007	Sheet 17 of 77

ELETRONICA



Bluetooth connector

10/26
New Blue tooth module



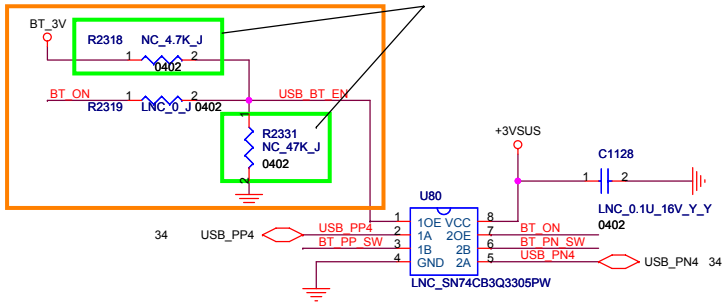
10/26
Waiting conform

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
Date: Friday, October 19, 2007	Sheet 48 of 77	

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

36,39,50 PCIE_WAKE#
3 MINI_CARD_DET#
R1162 0_J 0402
3 CLK_PCIE_MINI#
3 CLK_PCIE_MINI
TP263 30MIL
TP264 30MIL
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

WAKE# WIRELESS_DATA
BT_DATA WIRELESS_CHCLK
BT_CHCLK
CLKREQ#
GND2
REFCLK-
REFCLK+
GND3
RESERVED6
RESERVED7
GND5
PERn0
PERp0
GND7
GND8
PETn0
PETp0
GND10
RESERVED11
RESERVED13
RESERVED14
RESERVED15
RESERVED16
RESERVED17
RESERVED18
RESERVED19
+3_3V1
GND1
+1_5V1
RESERVED1
RESERVED2
RESERVED3
RESERVED4
RESERVED5
GND4
W_DISABLE#
PERST#
+3_3Vaux
GND6
+1_5V2
RESERVED8
RESERVED9
GND9
RESERVED10
RESERVED12
GND11
NC1
LED_WLAN#
NC2
+1_5V3
GND12
+3_3V2

A4303
A4304
R2246 2 0_J 1 0603

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

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.
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Title: Mini-PCIE Card

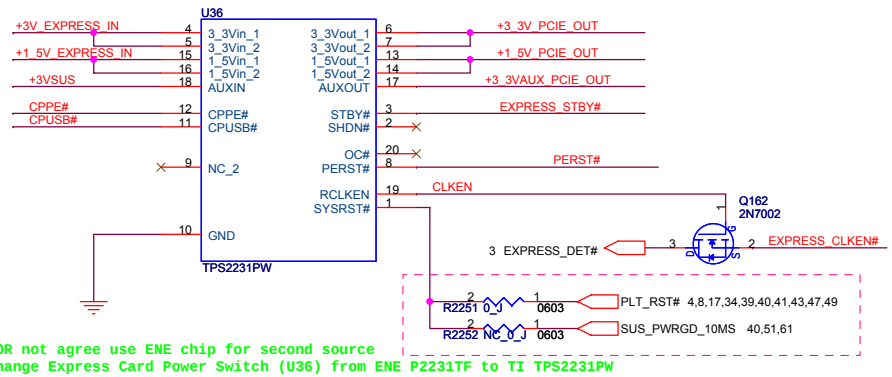
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Friday, October 19, 2007 Sheet 49 of 77

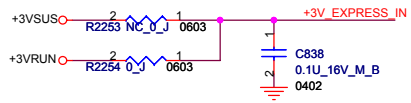
ELECTRONICA

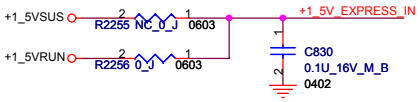
VOLTAGE INPUTS(1)			LOGIC INPUTS			VOLTAGE OUTPUTS(2)			MODE(3)
AUXIN	3.3VIN	1.5VIN	$\overline{SHDN}$	$\overline{STBY}$	$\overline{CP}$ (4)	AUXOUT	3.3VOUT	1.5VOUT	
Off	x	x	x	x	x	Off	Off	Off	OFF
On	x	x	0	x	x	GND	GND	GND	Shutdown
On	x	x	1	x	1	GND	GND	GND	No Card
On	On	On	1	0	0	On	Off	Off	Standby
On	On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

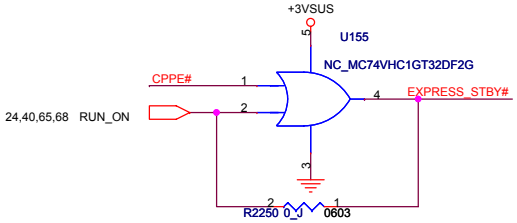
EXPRESS Card

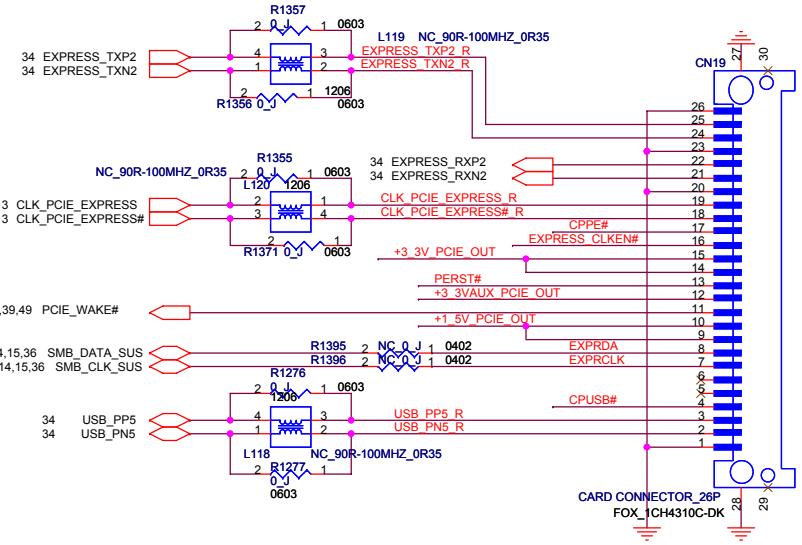


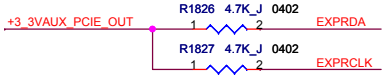
MOR not agree use ENE chip for second source
Change Express Card Power Switch (U36) from ENE P2231TF to TI TPS2231PW

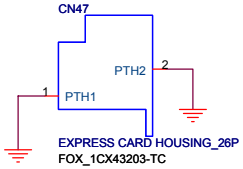






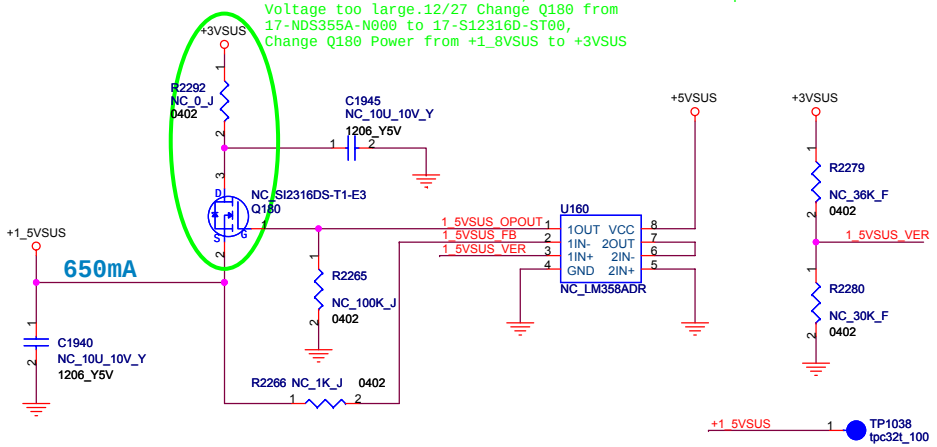


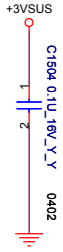




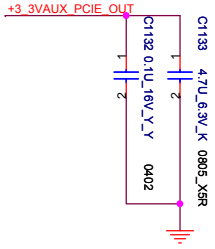
Constant-voltage +1_5VSUS

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

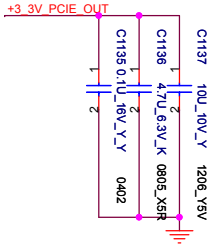




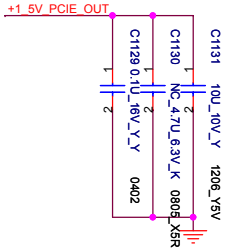
Supply Max 275mA



Supply Max 1300mA

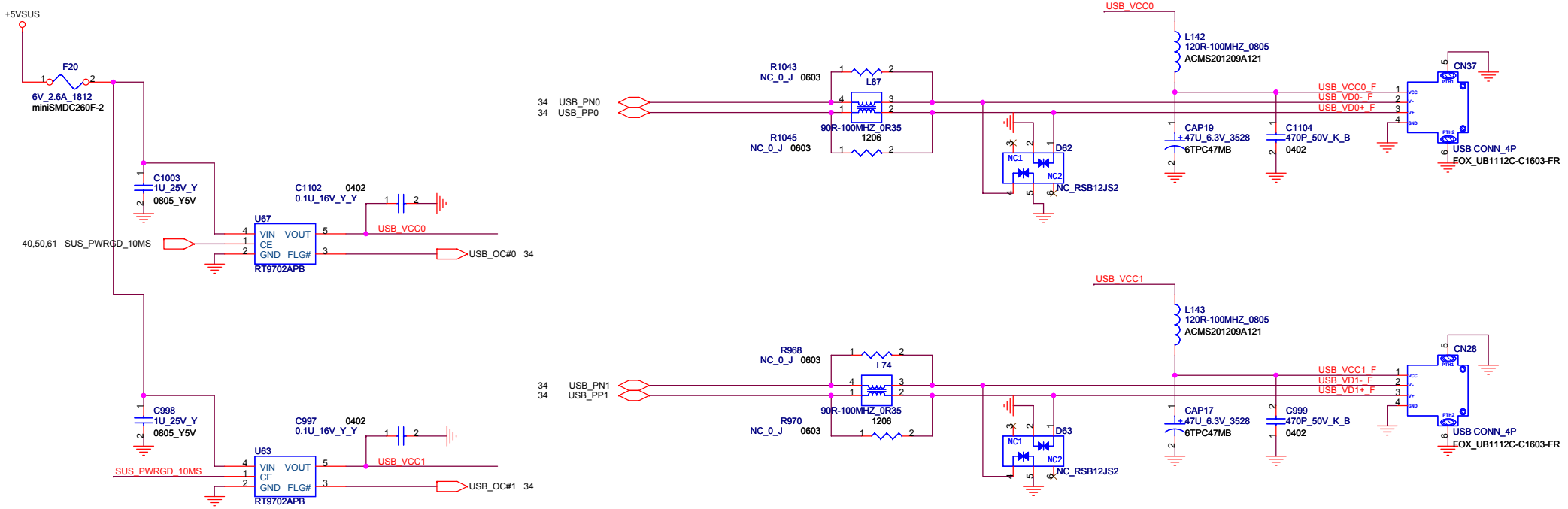


Supply Max 650mA



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: EXPRESS CARD		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 50 of 77	

USB connector *2



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

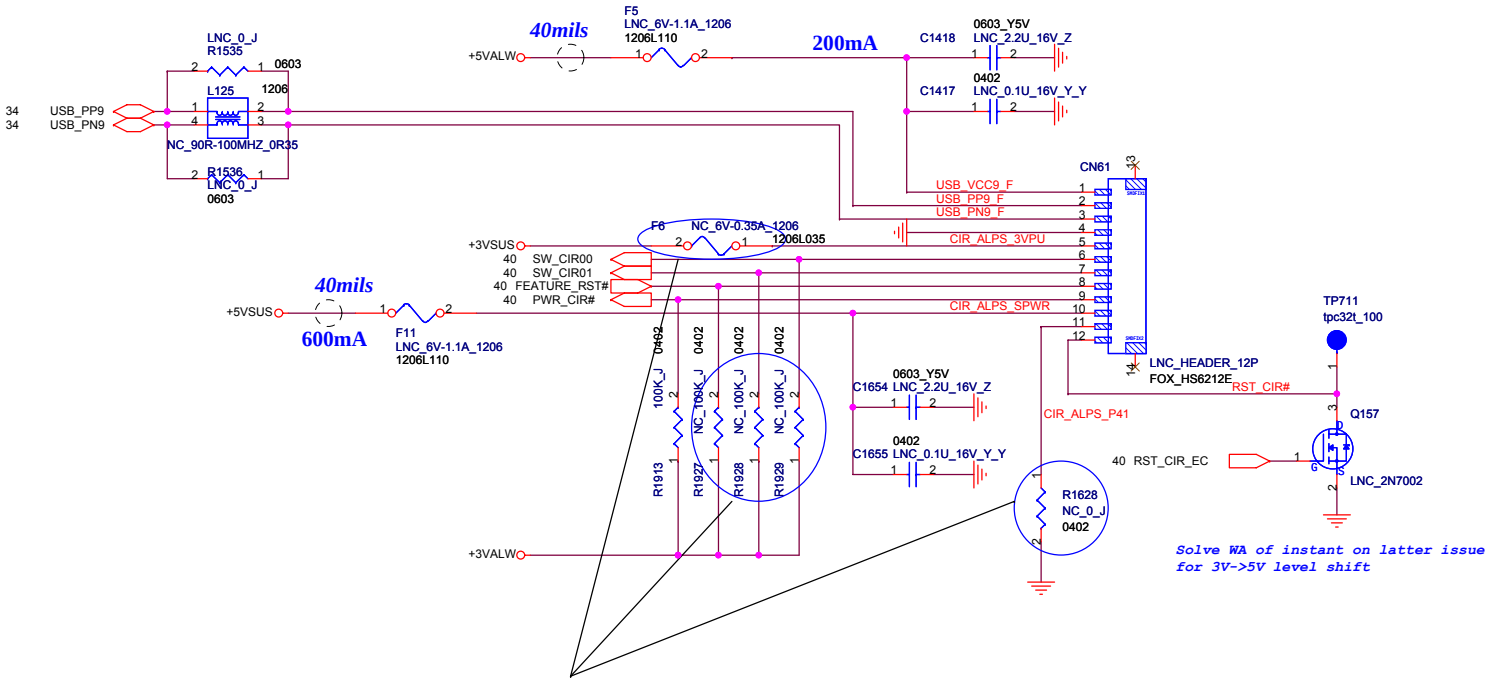
Title: USB2.0/DOCKING CONN.

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

Date: Friday, October 19, 2007 Sheet 57 of 77

ELETRONICA

IR Rreceiver connector



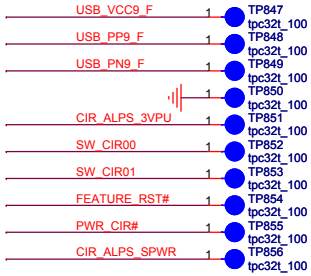
Button		SW1	SW0
VAIO button	Kick Instant On	L	L
Green button	Kick Windows	L	H
Shortcut button	Kick Windows	H	L
Standby button	Kick Windows	H	H

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.	<-

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

At Only USB Internal CIR, it's USB Power



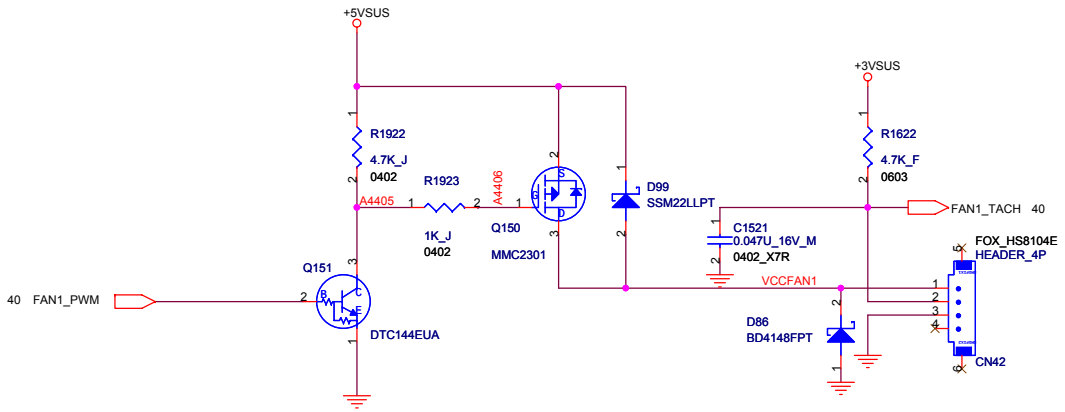
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: LED/LID SW#/Touch PAD

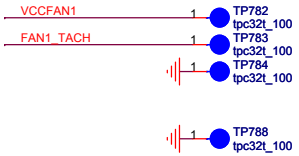
Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 52 of 77

FAN circuit

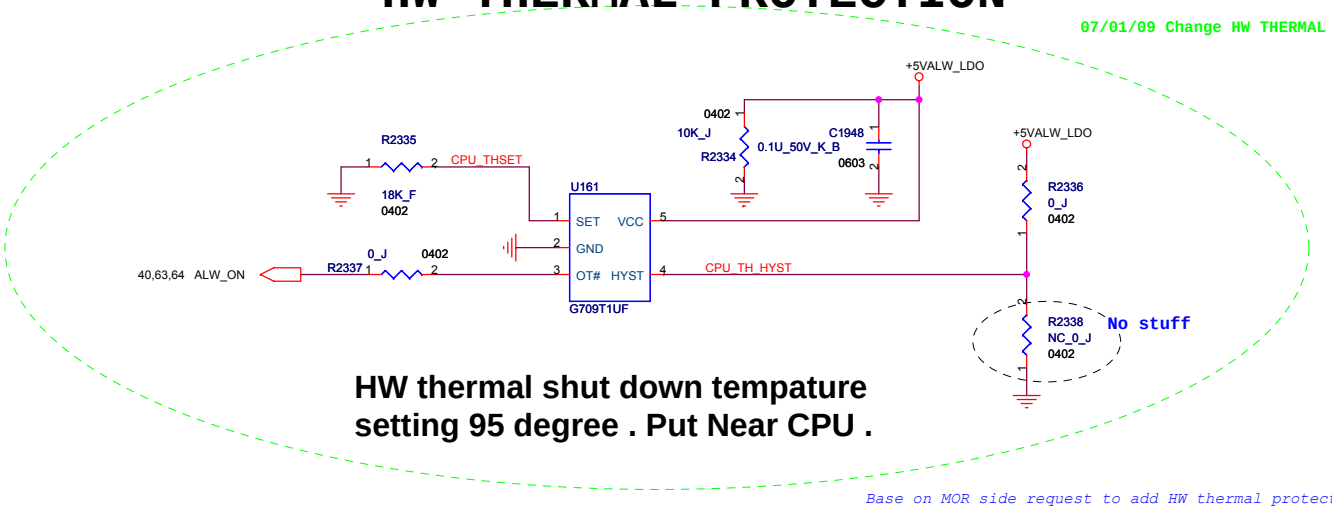


FAN1



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 (MB10-1-01)MainBoard (MBX-176) 2007-0	Rev
Date: Friday, October 19, 2007	Sheet 53 of 77	

SD LED

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

+3VALW
R1879 100_J 0402
LED11 HT-110UY
Color:Ultra Bright Yellow
D94 PACDN042Y3R
MC_PWR_CTRL_SD
Q145 2N7002

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

BLUETOOTH LED

+5VRUN
R1839 390_J 0603
Blue
LED9 HT-110NB5
Q139_3
R2304 0_J 0402
40,48 BT_ON
BT_LED
Q139 DTC144EUA
R2305 NC_0_J 0402
48 BT_PIO#
Q139_3
Q140_3
D95
PACDN042Y3R
+3VSUS
49 MINI_CARD_LED#
Q140 DTA114YUA

WLAN LED

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

Q140_3
R1380 68_J 0402
A4312
LED10 HT-110UYG

To Power Button Board Connector

C1584 0.1U_16V_Y_Y 0402
+3VALW
F12 6V-0.35A_1206 1206L035
CN45

REC_LED	REC_LED	33
KSO15	KSO15	40
KSO16	KSO16	40
KSI0	KSI0	40
KSI1	KSI1	40
KSI2	KSI2	40
KSI3	KSI3	40
KSI4	KSI4	40
KSI5	KSI5	40
KSI6	KSI6	40
KSI7	KSI7	40
PWRSW#	PWRSW#	40,41
POWER_LED		
SUSPEND_LED		

SMDFIX1 SMDFIX2
FPC BOTTOM CONN_18P
FOX_GB11180-0221-7F

+3VALW: TP789 TP790 TP796 tpc32t_100
+3VRUN: TP791 TP792 TP804 TP803 TP805 tpc32t_100
REC_LED KSO16 PWRSW# POWER_LED SUSPEND_LED

BFT test pad (TOP Side)
PWRSW# TP839 TP840 tpc32t_100

BFT test pad (BOT Side)
PWRSW# TP846 tpc32t_100

GP15
PWRSW#
OPEN_JUMP_OPEN2B

To LED Board Connector

+3VALW
C1506 0.1U_16V_Y_Y 0402
1206L035 6V-0.35A_1206 F14
+3VRUN
F15 1206L035 6V-0.35A_1206
C1585 0.1U_16V_Y_Y 0402
CN55

40 POWER_LED	POWER_LED
40 SUSPEND_LED	SUSPEND_LED
40 BATTERY CHARGING LED#	BATTERY CHARGING LED#
35 SATA_LED#	SATA_LED#
44 MC_PWR_CTRL_MS	MC_PWR_CTRL_MS
44 MC_PWR_CTRL_SD	MC_PWR_CTRL_SD

FPC CONN_12P
FOX_GB11120-0221-7F

+3VALW TP806 TP807 TP809 tpc32t_100
+3VRUN
POWER_LED SUSPEND_LED BATTERY CHARGING LED# SATA_LED# MC_PWR_CTRL_MS MC_PWR_CTRL_SD
TP810 TP812 TP811 TP814 TP813 TP815 tpc32t_100

To AV Function Board Connector

+3VRUN F16 6V-0.35A_1206 1206L035
C1525 0.1U_16V_Y_Y 0402
FPC BOTTOM CONN_18P FOX_GB11180-0221-7F
CN44

12/27 Delete CN44_14 MUTE_LED# Net,detele TP831

40 KSO17
KSO17 KSI0 KSI1 KSI2 KSI3 KSI4 KSO16
40 CAP_LED#
40 SCROLL_LOCK_LED#
40 NUM_LOCK_LED#
CAP_LED# SCROLL_LOCK_LED# NUM_LOCK_LED#
SMDFIX1 SMDFIX2

11/8
S/W request MUTE function change
from GPIO to Keyboard matris
(Del pin 13 MUTE_SW# to KSO16)

+3VRUN TP822 TP823 tpc32t_100
KSO17 TP824 tpc32t_100
KSI0 TP825 tpc32t_100
KSI1 TP826 tpc32t_100
KSI2 TP827 tpc32t_100

KSI3 TP828 tpc32t_100
KSI4 TP829 tpc32t_100
KSO16 TP830 tpc32t_100
CAP_LED# TP832 tpc32t_100
SCROLL_LOCK_LED# TP833 tpc32t_100
NUM_LOCK_LED# TP834 tpc32t_100

To Touch Pad Board Connector

C1562 0.1U_16V_Y_Y 0402
+5VRUN
CN68
1206L035 F17 6V-0.35A_1206
C1563 0.1U_16V_Y_Y 0402
+ECVCC
1206L035 F18 6V-0.35A_1206

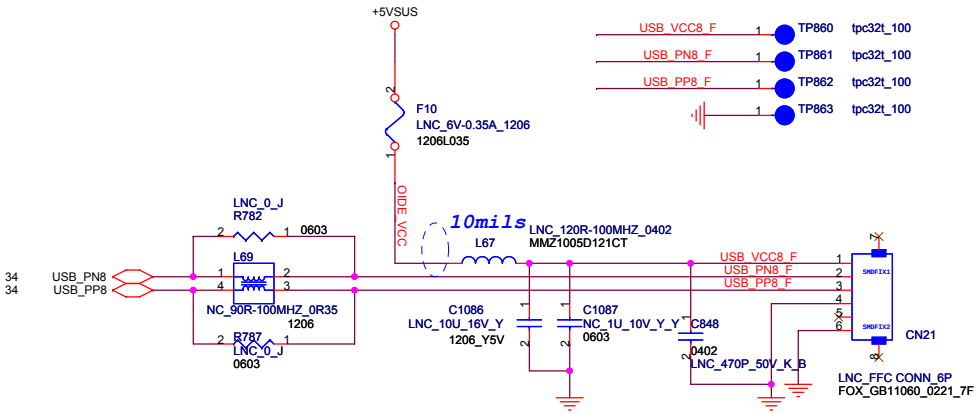
CLK_TP 40
DAT_TP 40
LIDIN# 31,40

FFC_10P
FOX_GB5RF100-1200-7F

+5VRUN TP816 TP818 TP817 tpc32t_100
+ECVCC
CLK_TP DAT_TP LIDIN# TP819 TP821 TP820 tpc32t_100

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
Date: Friday, October 19, 2007	Sheet 54 of 77	

OIDE Connector

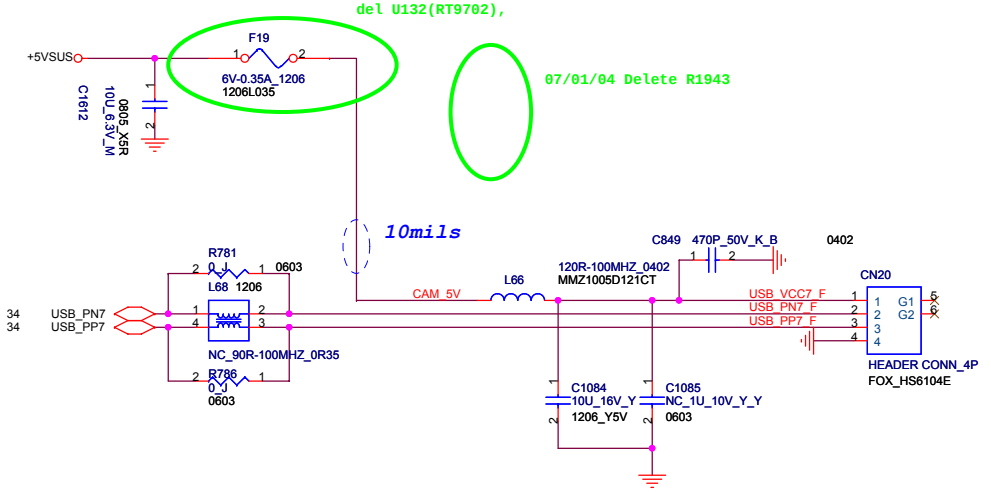


2006.1.4pin swape for ME request

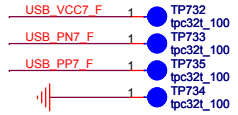
12/27 Change Felica circuit Value to LNC_* for M610 DVT L SKU

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),



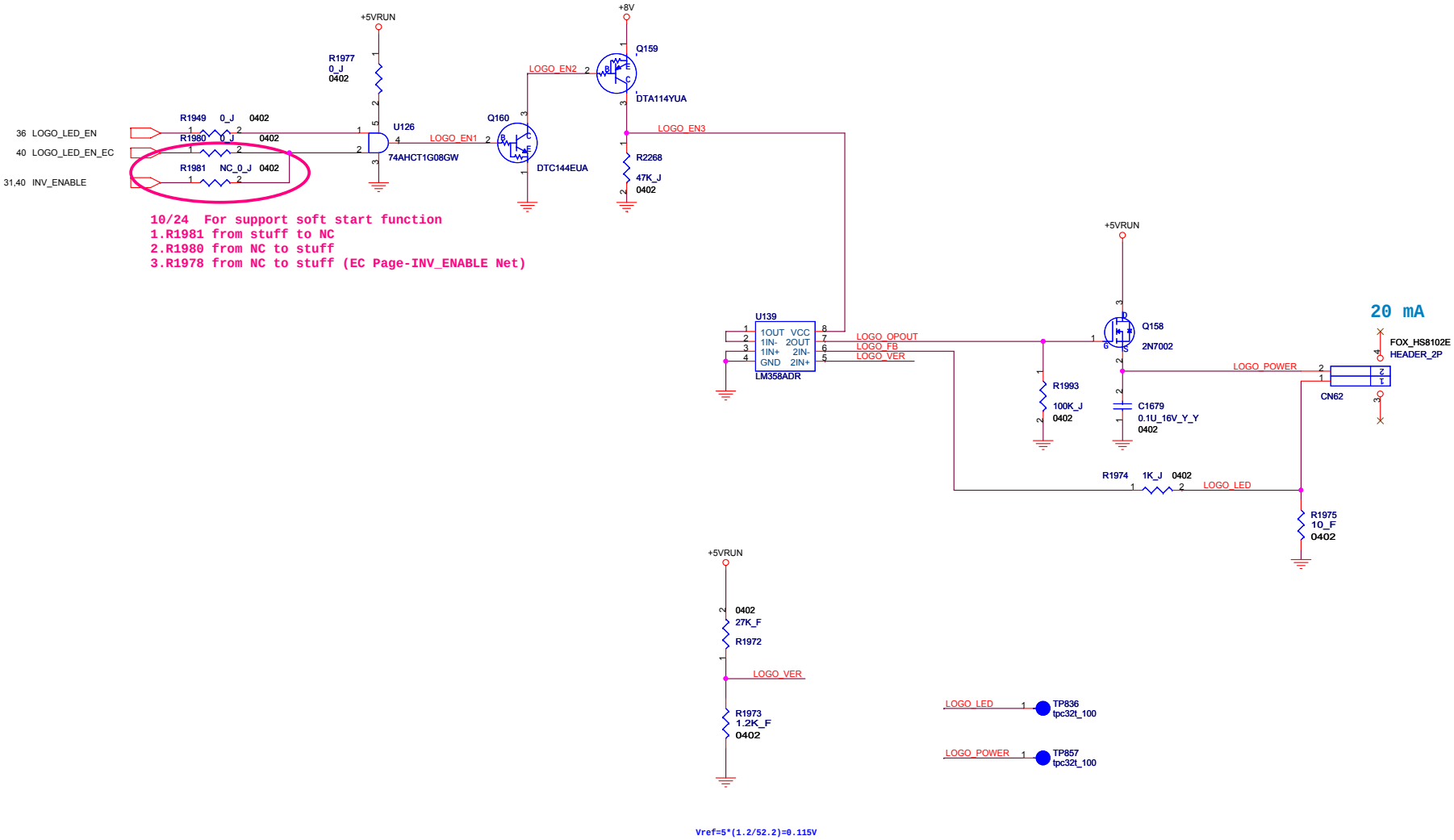
12/21 BFT Test Pad



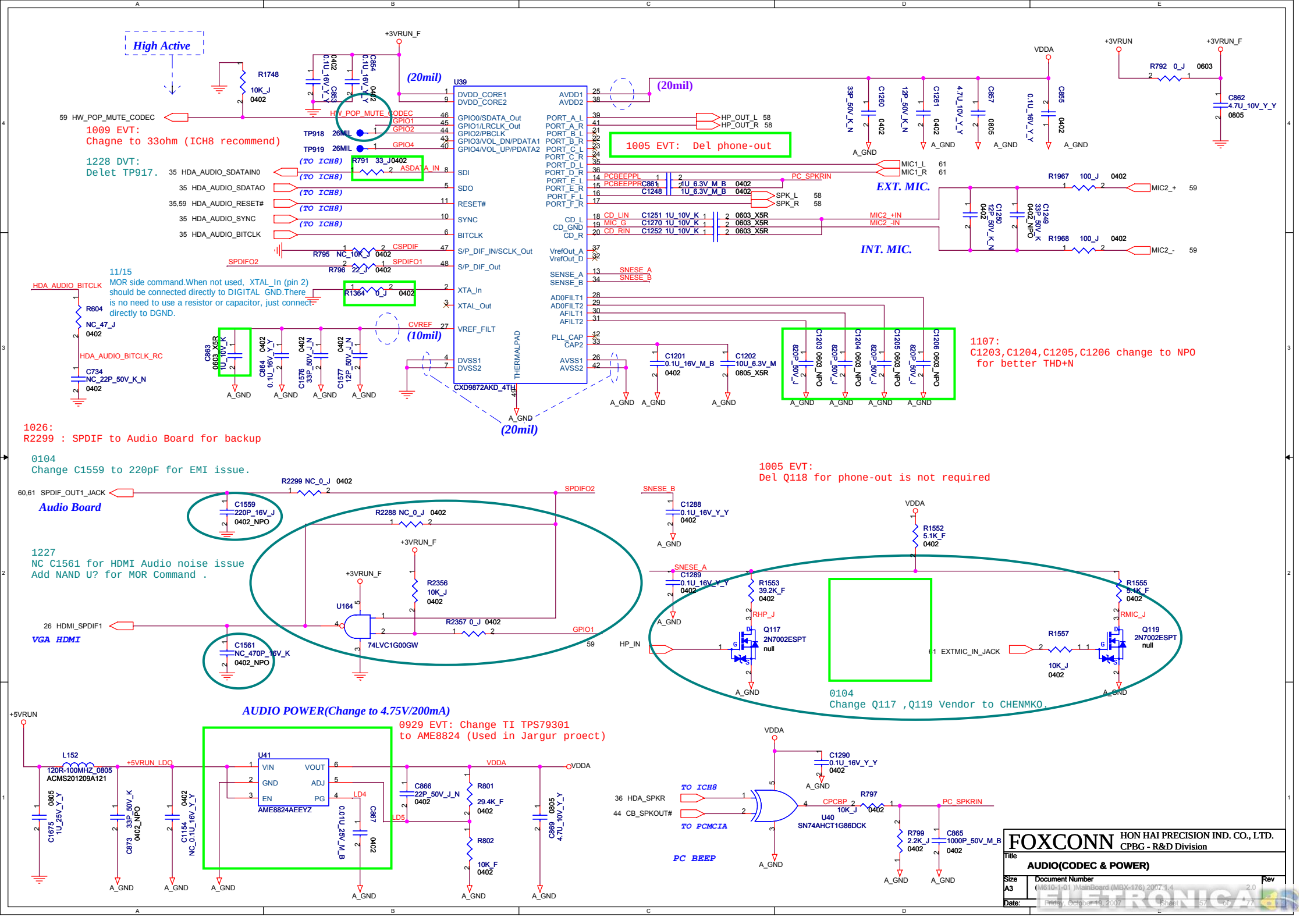
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: CAM/OIDE		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 55 of 77	

ELEKTRONICA

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
Date: Friday, October 19, 2007	Sheet 56 of 77	


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)

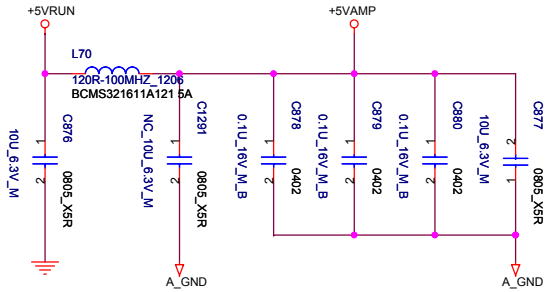
0920
Add 2PCS CAP39,CAP40 100_6.3V_M
Delet CAP24,CAP25

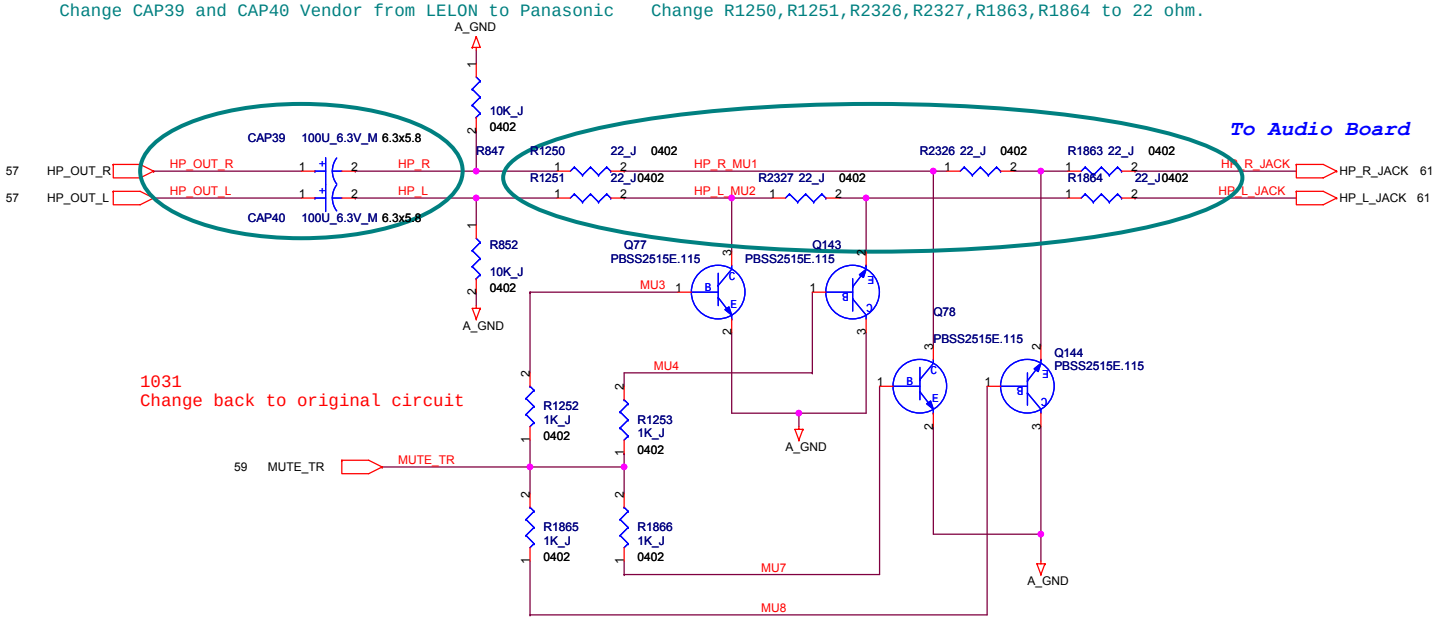
1103
Change CAP39 and CAP40 Vendor from NIPPON CHEMI-CON to LELON

1228
Change CAP39 and CAP40 Vendor from LELON to Panasonic

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

Max 1.7A



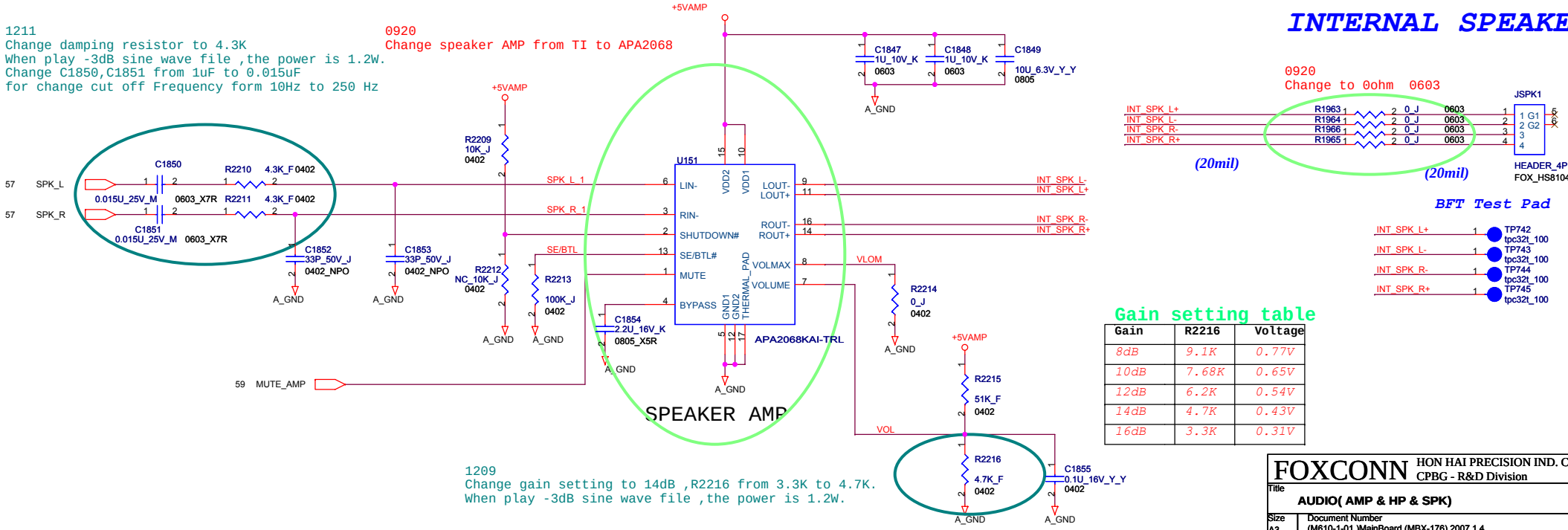


1031
Change back to original circuit

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

INTERNAL SPEAKER



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

Date: Friday, October 19, 2007 | Sheet 58 of 77

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

From EC/CODEC MUTE .

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

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

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

INTERNAL MIC(Non)

BFT Test Pad

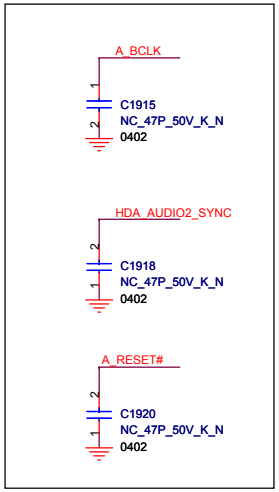
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

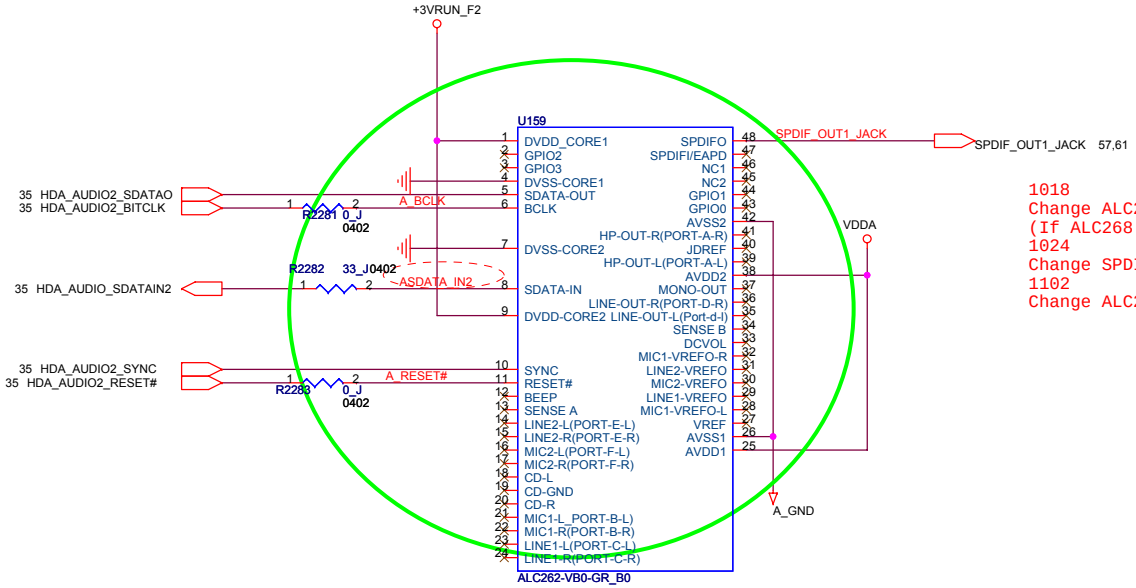
Title: AUDIO (MUTE & INTMIC)

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

Date: Friday, October 19, 2007 | Sheet 39 of 77

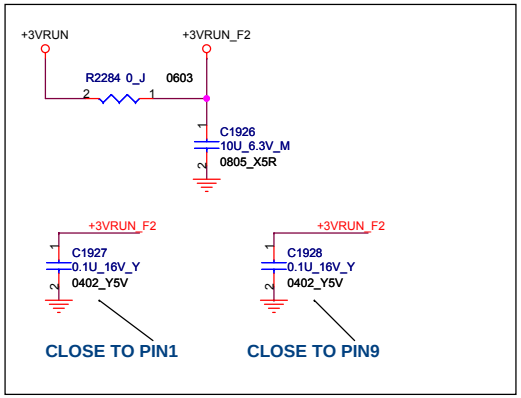
Anti-Glitch



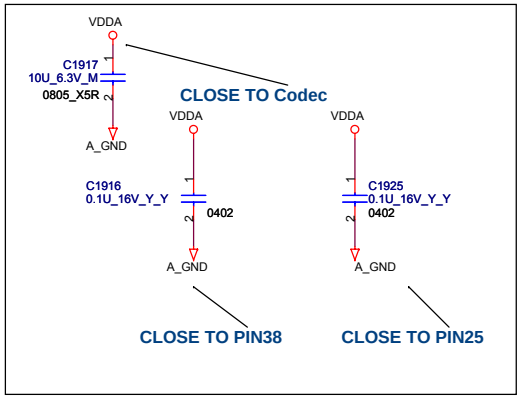


1018
Change ALC262 to ALC268.
(If ALC268 sample schdule delay, change to ALC262)
1024
Change SPDIF of Second codec to MB optical out
1102
Change ALC268 to ACL262

Decoupling Caps, place close to power pin.



Decoupling Caps, place close to power pin.



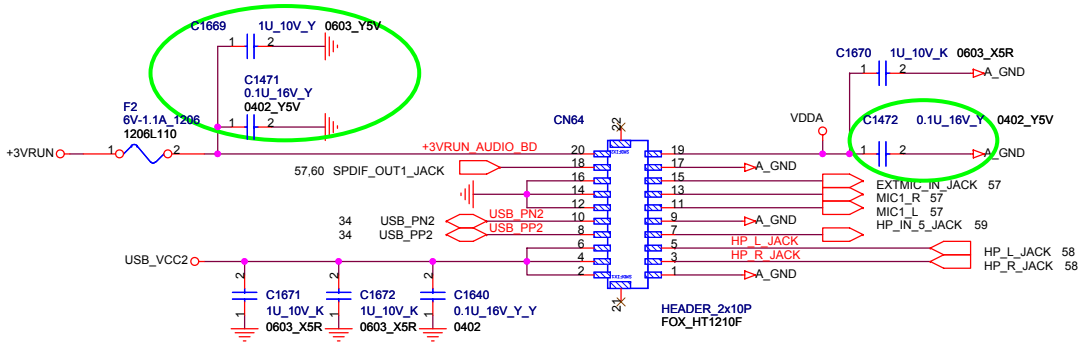
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

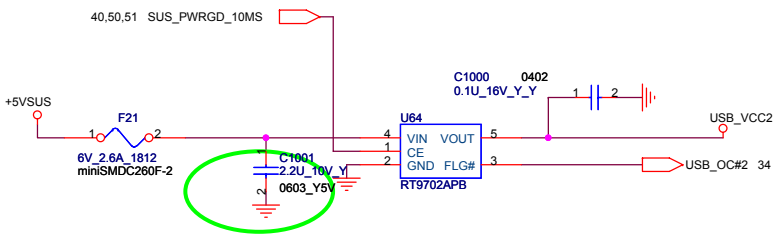
Title: **AUDIO (Secod Codec for HDMI SPDIF)**

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

Date: Friday, October 19, 2007 Sheet 60 of 77

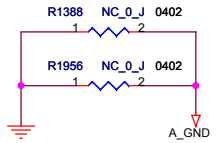
Audio Board connector



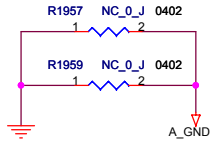


Backup two jumper resistors for bridge between GND and A_GND

Close screw hole H3

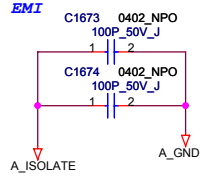


Close screw hole H5

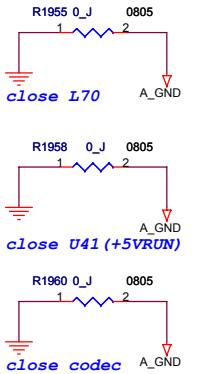


Isolate screw hole H4, and add EMI/ESD solution

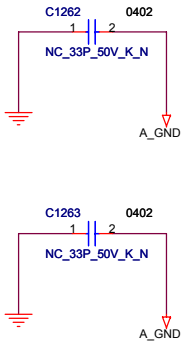
EMI



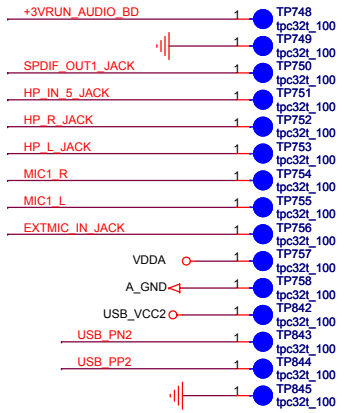
Add jumper resistor for Return patch



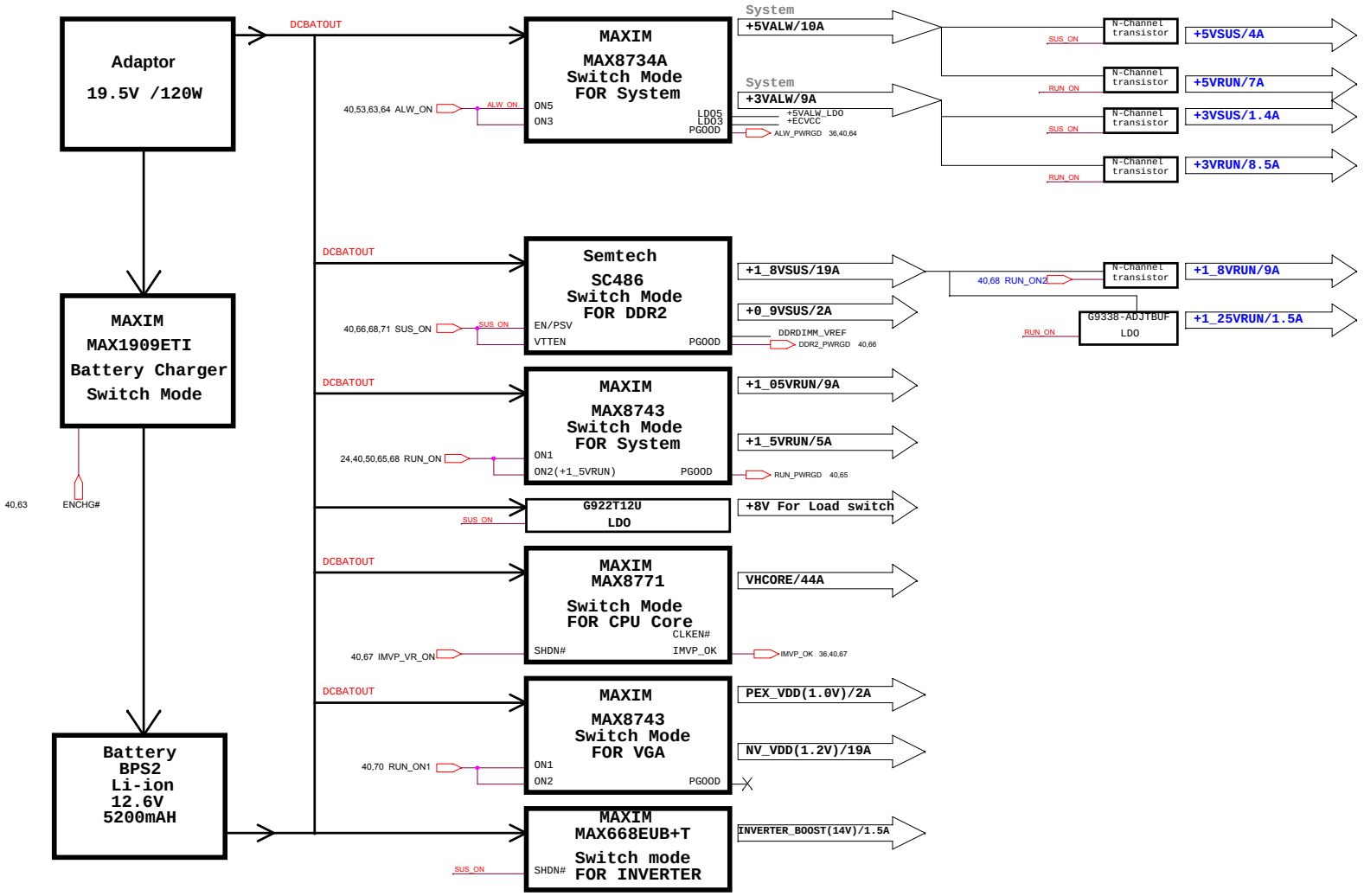
Original EMI back up solution to continue with MS20(bridge between GND and A_GND)



BFT Test Pad



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: Audio Board conn		
Size: A3	Document Number: (MG10-1-01)MainBoard (MBX-176) 2007-1-4	Rev: 2.0
Date: Friday, October 19, 2007	Sheet 61 of 77	

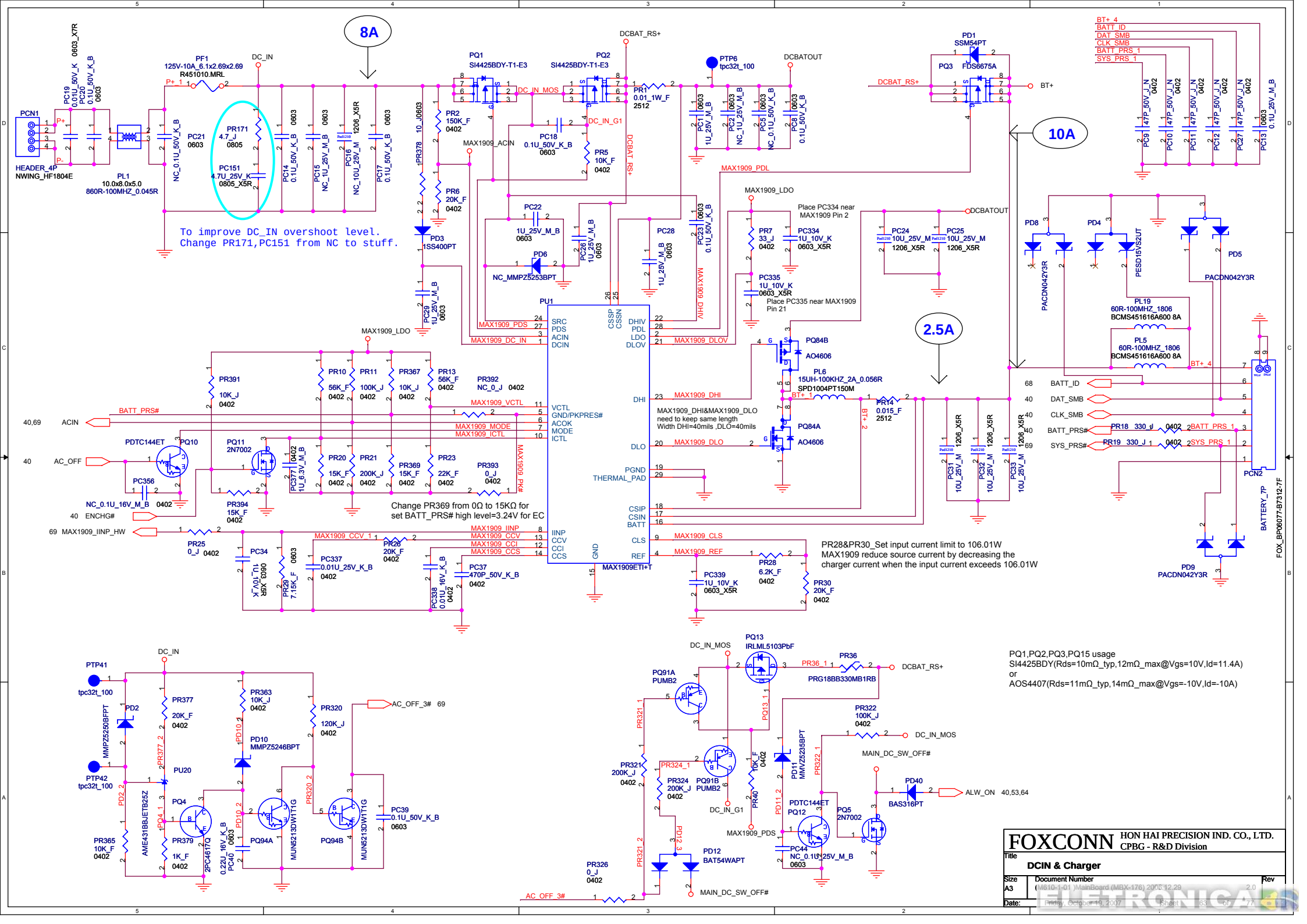


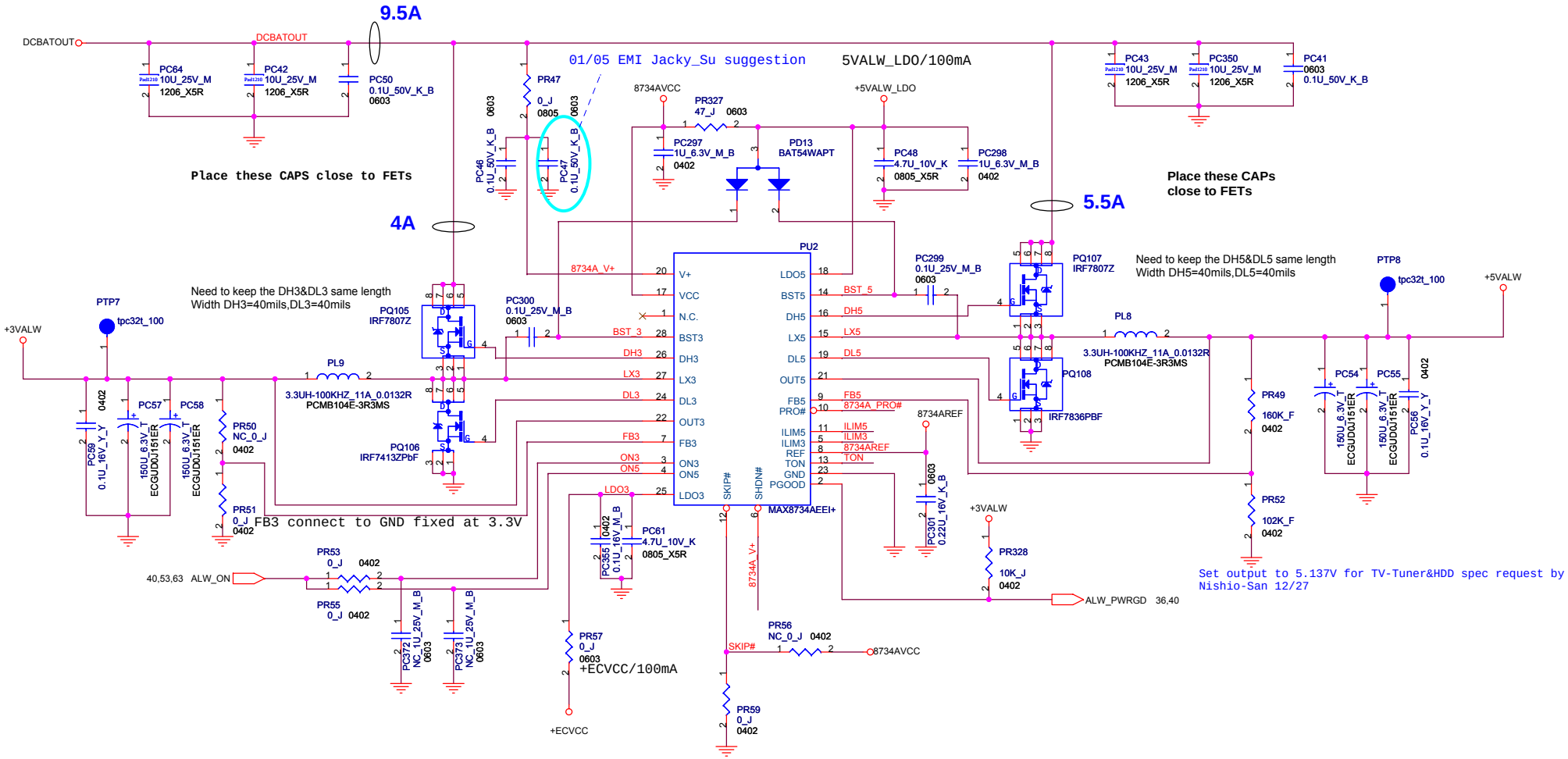
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Power Design Diagram-ZG

Size	Document Number	Rev
A2	(M610-1-01)MainBoard (MBX-176) 2008.12.29	2.0

Date: Friday, October 19, 2007 Sheet 62 of 77


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
PQ1
SI4425BDY-T1-E3
PQ2
SI4425BDY-T1-E3
PTP6
tpc32t_100
PD1
SSM54PT
PQ3
FDS6675A
PR1
0.01_1W_F
2512
PR2
150K_F
0402
PR5
10K_F
0402
PR6
20K_F
0402
PD3
1SS400PT
PC18
0.1U_50V_K_B
0603
PC22
1U_25V_M_B
0603
PD6
NC_MMPZ5253BPT
PC28
1U_25V_M_B
0603
PC29
1U_25V_M_B
0603
MAX1909_ACIN
MAX1909_PDL
MAX1909_LDO
MAX1909_PDS
MAX1909_DC_IN
MAX1909_DHIV
PU1
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
MAX1909ETI+T
PR7
33_J
0402
PC334
1U_10V_K
0603_X5R
Place PC334 near
MAX1909 Pin 2
PC335
1U_10V_K
0603_X5R
Place PC335 near MAX1909
Pin 21
PC24
10U_25V_M
1206_X5R
PC25
10U_25V_M
1206_X5R
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
PC31
10U_25V_M
1206_X5R
PC32
10U_25V_M
1206_X5R
PC33
10U_25V_M
1206_X5R
PD8
PACDN042Y3R
PD4
PESD15VS2UT
PD5
PACDN042Y3R
PL19
60R-100MHZ_1806
BCMS451616A600 8A
PL5
60R-100MHZ_1806
BCMS451616A600 8A
PCN2
BATTERY_7P
FOX_BP06077-87312-7F
PD9
PACDN042Y3R
BATT_ID
DAT_SMB
CLK_SMB
BATT_PRS#
SYS_PRS#
PR18 330_J
PR19 330_J
PR391
10K_J
0402
PR10
56K_F
0402
PR11
100K_J
0402
PR367
10K_J
0402
PR13
56K_F
0402
PR392
NC_0_J
0402
PR20
15K_F
0402
PR21
200K_J
0402
PR369
15K_F
0402
PR23
22K_F
0402
PR393
0_J
0402
PR394
15K_F
0402
PC377
1U_6.3V_M_B
0402
PQ10
PDTC144ET
PQ11
2N7002
PC356
NC_0.1U_16V_M_B
0402
Change PR369 from 0Ω to 15KΩ for
set BATT_PRS# high level=3.24V for EC
PR25
0_J
0402
PC34
1U_10V_K
0603_X5R
PR29
7.15K_F
0603
PC337
0.01U_25V_K_B
0402
PR26
20K_F
0402
PC338
0.01U_16V_K_B
0402
PC37
470P_50V_K_B
0402
PR28
6.2K_F
0402
PC339
1U_10V_K
0603_X5R
PR30
20K_F
0402
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
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)
To improve DC_IN overshoot level.
Change PR171,PC151 from NC to stuff.
PR171
4.7_J
0805
PC151
4.7U_25V_K
0805_X5R
PTP41
PTP42
PD2
MMPZ5250BFPT
PU20
PQ4
AME4318BJETB25Z
PR377
20K_F
0402
PR379
1K_F
0402
PR365
10K_F
0402
2PC4617Q
PD10
MMPZ5246BPT
PQ94A
MUN5213DW1T1G
PQ94B
MUN5213DW1T1G
PR363
10K_J
0402
PR320
120K_J
0402
PC39
0.1U_50V_K_B
0603
0.22U_16V_K_B
0603
PC40
AC_OFF_3# 69
PQ13
IRLML5103PbF
PR36
PRG18BB330MB1RB
PQ91A
PUMB2
PQ91B
PUMB2
PR321
200K_J
0402
PR324
200K_J
0402
PR322
100K_J
0402
PD11
MMVZ5235BPT
PR40
10K_F
0402
PD12
BAT54WAPT
PR326
0_J
0402
PQ12
PDTC144ET
PQ5
2N7002
PC44
NC_0.1U_25V_M_B
0603
PD40
BAS316PT
ALW_ON 40,53,64
MAIN_DC_SW_OFF#
DC_IN_MOS
DC_IN_G1
MAX1909_PDS
AC_OFF_3#
ACIN 40,69
AC_OFF 40
ENCHG# 40
MAX1909_IINP_HW 69
BATT_PRS#
MAX1909_VCTL
MAX1909_MODE
MAX1909_ICTL
MAX1909_CCV_1
MAX1909_IINP
MAX1909_CCV
MAX1909_CCI
MAX1909_CCS
MAX1909_CLS
MAX1909_REF
MAX1909_DLO
MAX1909_DHI
BT+_1
BT+_2
BT+_4
BATT_ID 68
DAT_SMB 40
CLK_SMB 40
BATT_PRS# 40
SYS_PRS# 69
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
DCIN & Charger
Size
A3
Document Number
(M810-1-01)MainBoard (MBX-176) 2006.12.29
Rev
2.0
Date:
Friday, October 19, 2007
Sheet 63 of 77



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

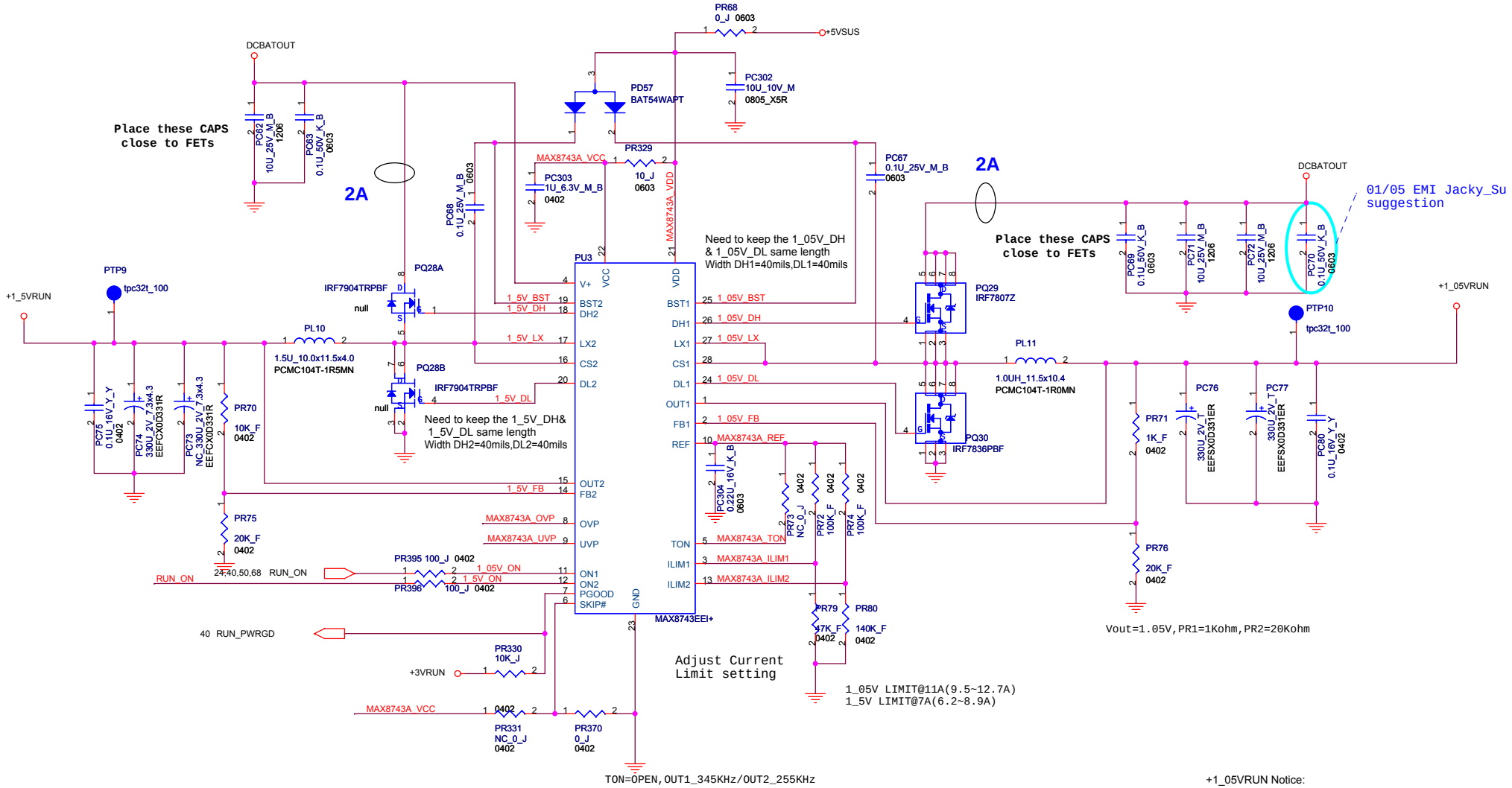
MOSFET
Top_IRF7807Z(Total Qg=11nc_max)
Bottom_IRF7413Z(Rds=10.5mΩ_typ&13mΩ_ max.@Vgs=4.5V,Id=10A)
or
Top_SI4892DY(Total Qg=10.5nc_max)
Bottom_SI4392DY(Rds=11mΩ_typ&13.75mΩ_ max.@Vgs=4.5V,Id=10A)

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

MOSFET
Top_IRF7807Z(Total Qg=11.5nc_max)
Bottom_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	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29	Rev 2.0
Date: Friday, October 19, 2007	Sheet 64 of 77	



+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)

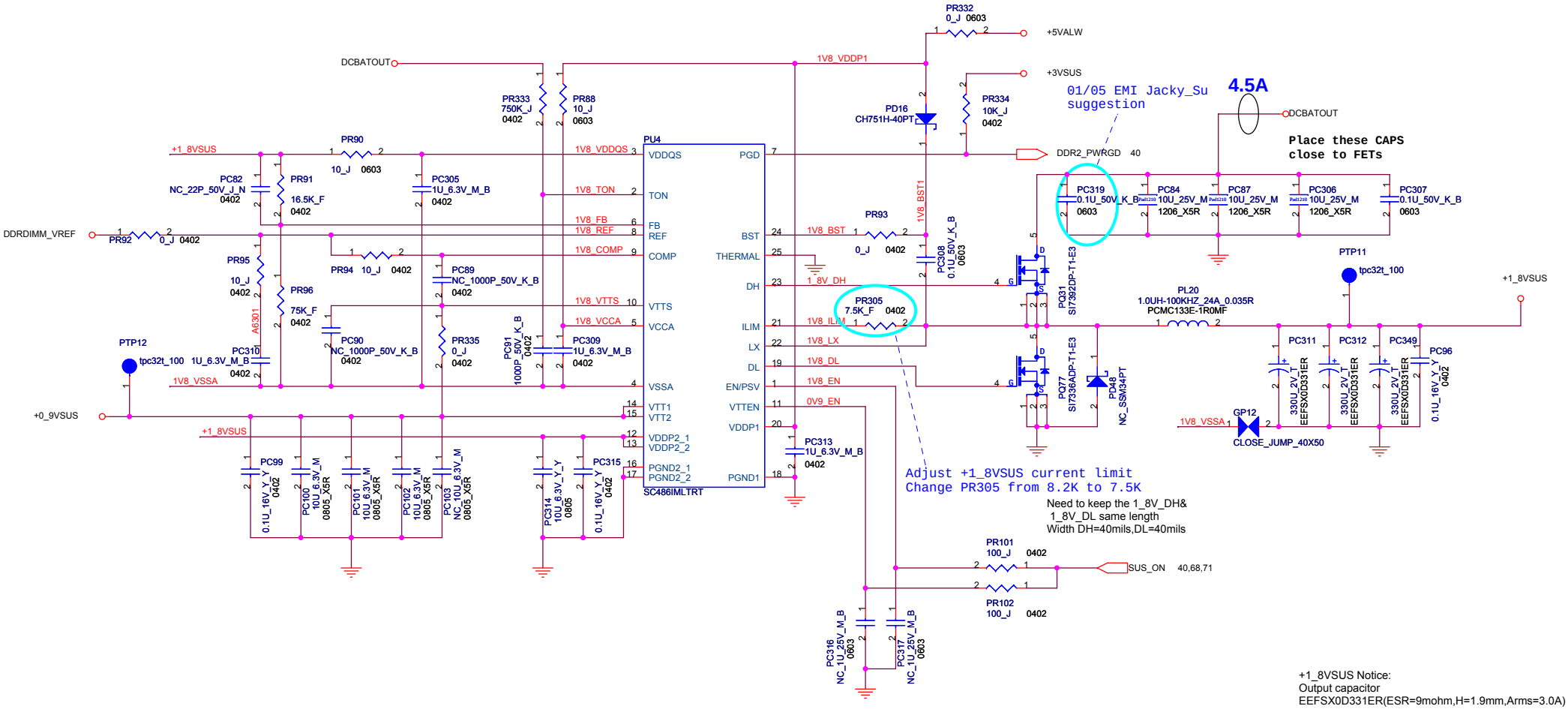
MOSFET
Top_IRF7807Z(Total Qg=11.5nc_max)
Bottom_IRF7836PBF(Rds=5.7mΩ_typ,7.1mΩ_max@Vgs=4.5V,Id=13A)
or
Top_SI4892DY(Total Qg=10nc_max)
Bottom_SI4856ADY(Rds=6.3mΩ_typ,7.6mΩ_max@Vgs=4.5V,Id=14A)

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

Title: 1.5V/1.05V

Size: A3 | Document Number: (M810-1-01)MainBoard (MBX-176) 2006.12.29 | Rev: 2.0

Date: Friday, October 19, 2007 | Sheet 65 of 77



+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)

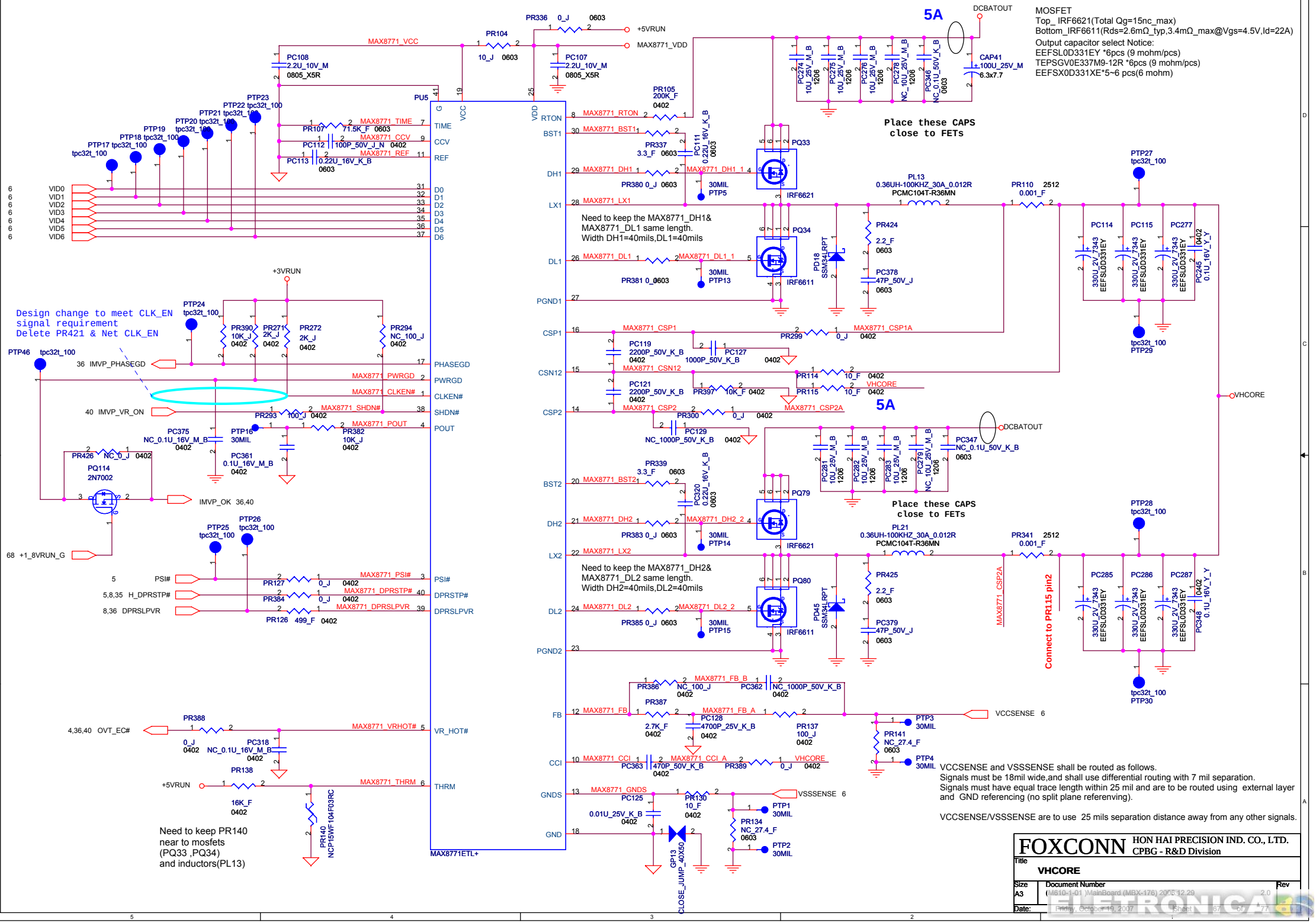
1_8V LIMIT@22A(20.2~25A)

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

Date: Friday, October 19, 2007 Sheet 66 of 77


5A
DCBATOUT
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)
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
Rev
Date:
Friday, October 19, 2007
Sheet

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

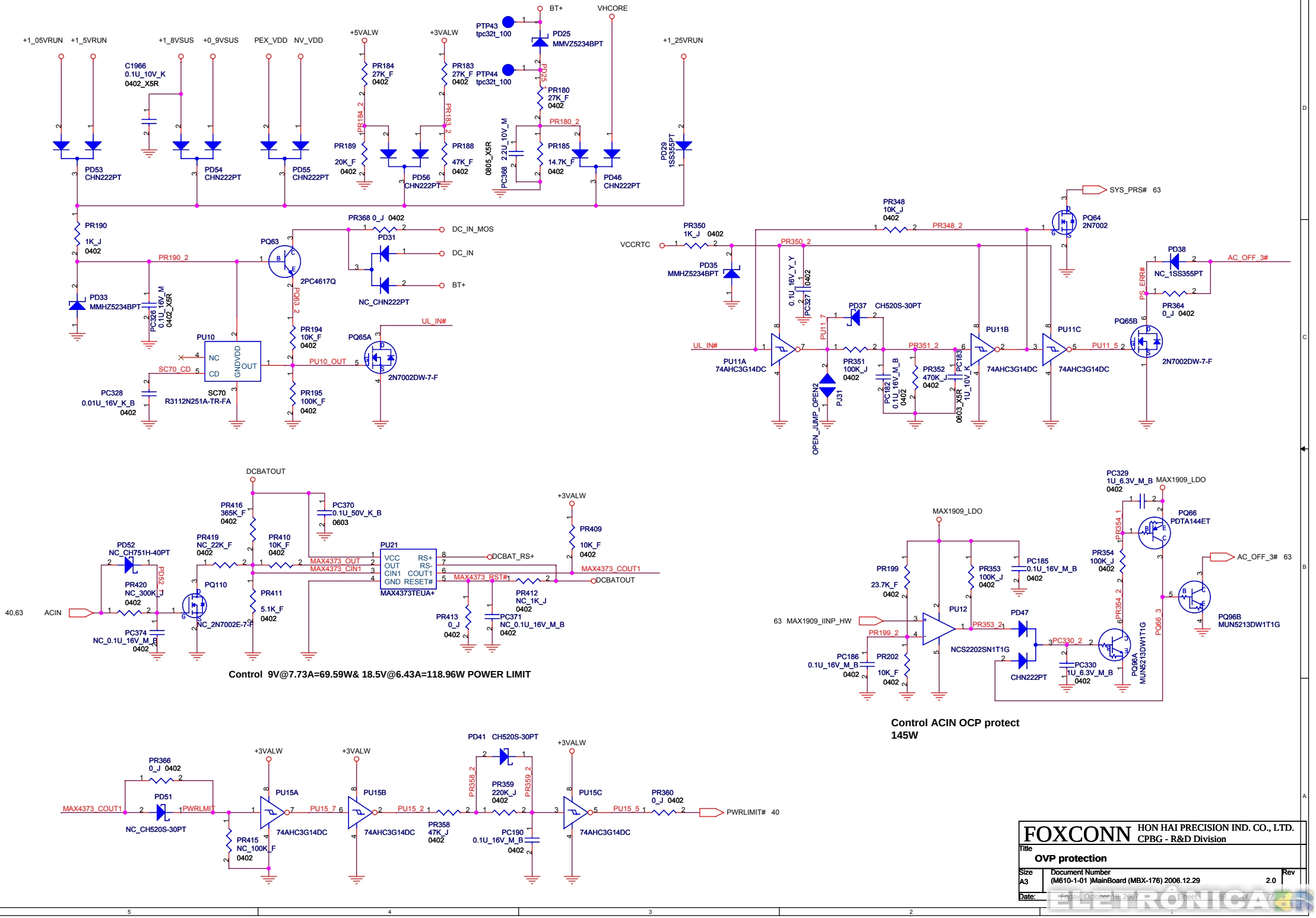
11/16 PC159
shortage issue
Change X5R (1C-2B20474-M000)
to X7R (1C-2B20474-K000)

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

Date: Friday, October 19, 2007 Sheet 68 of 77



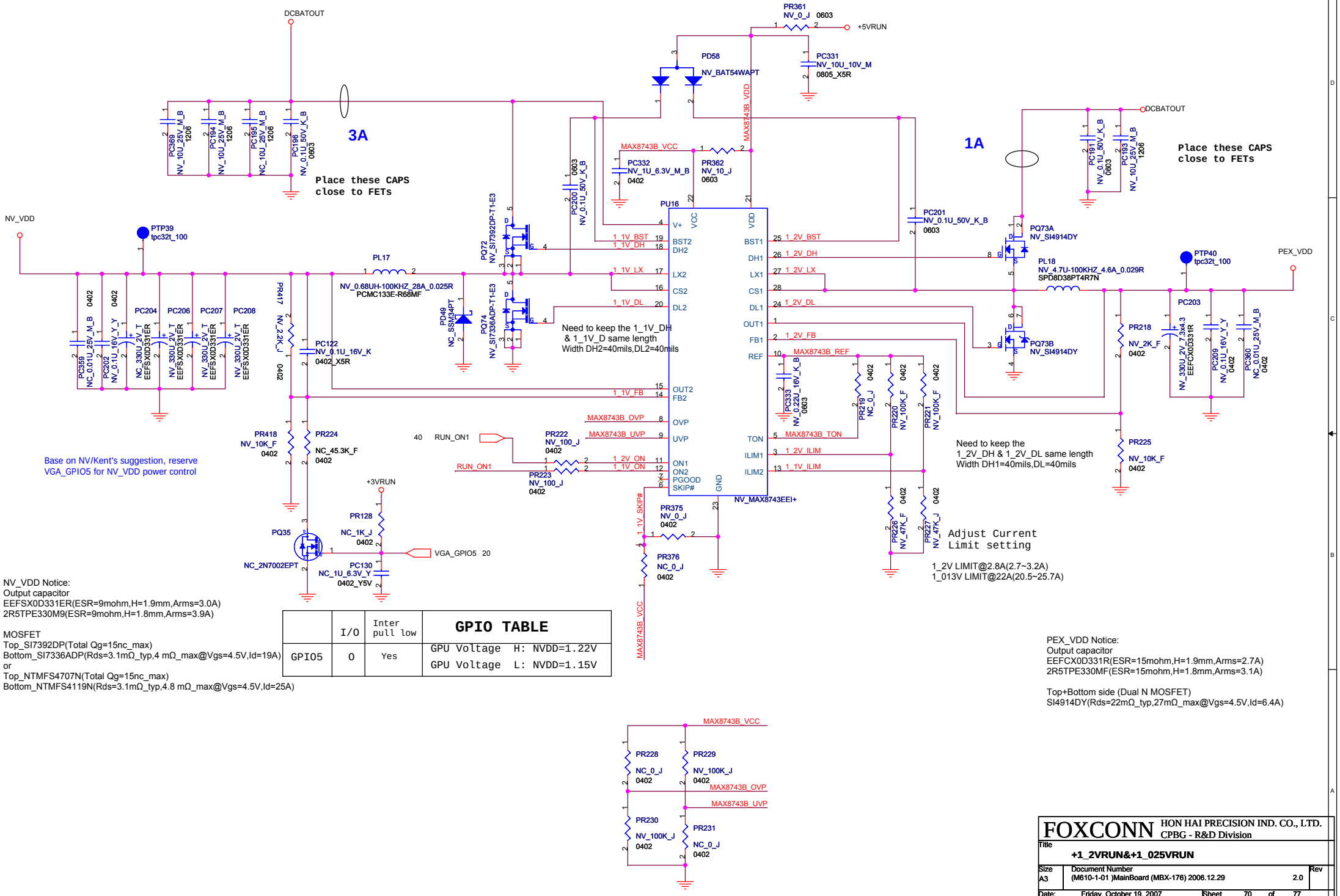
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: OVP protection

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

Date: Friday, October 19, 2007 Sheet 39 of 77

ELEKTRONICA



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)

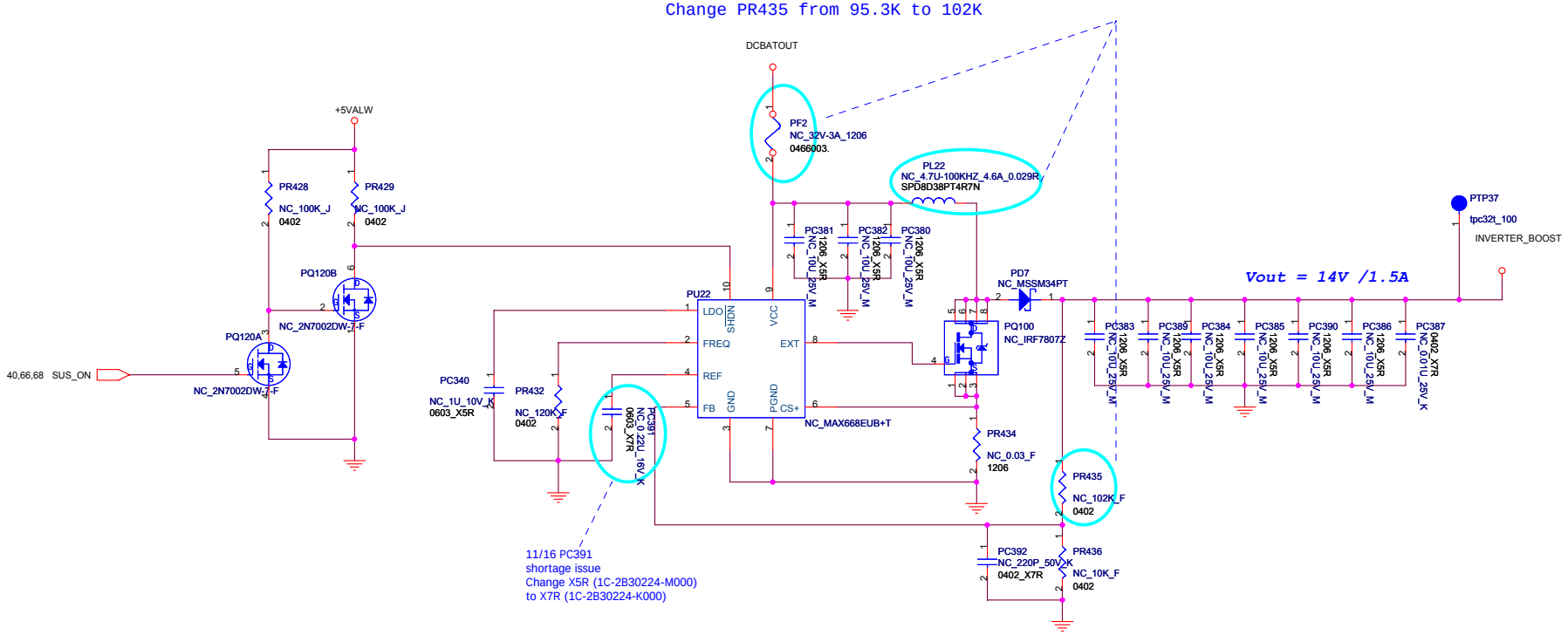
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: +1_2VRUN&+1_025VRUN

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

Date: Friday, October 19, 2007 | Sheet 70 of 77

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



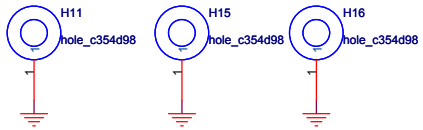
11/16 PC391
shortage issue
Change X5R (1C-2B30224-M000)
to X7R (1C-2B30224-K000)

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	STEP_UP	
Size: Custom	Document Number (M610-1-01)MainBoard (MBX-176) 2.06.12.29	Rev 2.0
Date: Friday, October 19, 2007	Sheet 71 of 77	

ELETRÔNICA

HOLE

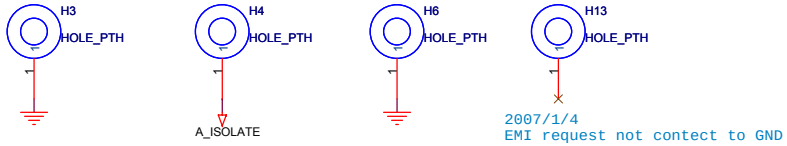
Type 1



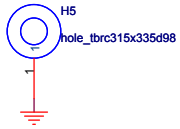
Type 2

Type 3

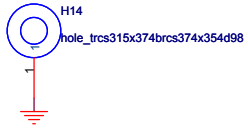
Type 4



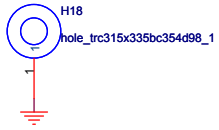
Type 5



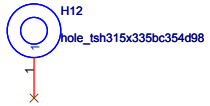
Type 6



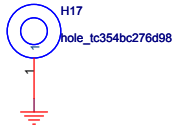
Type 7



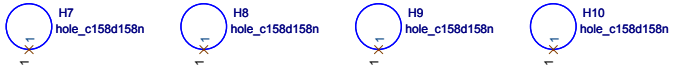
Type 8

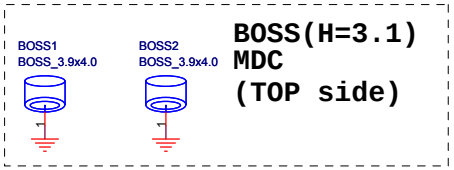


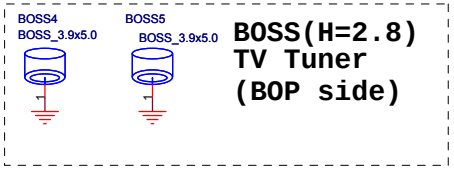
Type 9



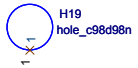
Type CPU







Type NPTH Guide (spherical)HOLD



Type NPTH Guide (oval-shaped)HOLD

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
Date: Friday, October 19, 2007	Sheet 72 of 77	

M612 DVT1 Change Circuit

1. (Page 4) 07/08/29 For support Penryn-CPU, change U2-CPU Thermal Senser from GMT to SMSC.
2. (Page 44) 07/08/29 Change System ID to M612 Type
3. (Page 69) 07/10/19 Add C1966-0.1u to PD54-pin2 for UL-LUCK issue

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: *History(EVT to MP)*		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev:
Date: Friday, October 19, 2007	Sheet 77 of 81	