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48	Bluetooth	1.00	2006/04/10
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51	LAN (82562GT)	1.00	2006/04/10
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70	CPU Vcore ---MAX8771	1.00	2006/04/10
71	Others power plan	1.00	2006/04/10
72	OVP protection	1.00	2006/04/10
73	VGA POWER(+1.1V/ +1.2V)	1.00	2006/04/10
74	HOLE & BOSS	1.00	2006/04/10
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78	HISTORY(MP)	1.00	2006/04/10
79	Power On Sequerce Block Diagram	1.00	2006/04/10
80	Power On Sequerce Timing	1.00	2006/04/10

P. Leader	Check by	Design by

Project Code & Schematics Subject: MS20 MP Main Board

PCB P/N: 1P-0064100-8011 (FUBAI)
1P-1064506-8011 (HANSTAR)

FOXCONN HON HAI Precision Ind. Co., Ltd. (CPBG - R&D Division)
Title: Index Page
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Schematics Page Index (Title / Revision / Change Date)

P. Leader	Check by	Design by

Project Code & Schematics Subject: MS20 MP Main Board

PCB P/N: 1P-0064100-8011 (FUBAI)
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FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

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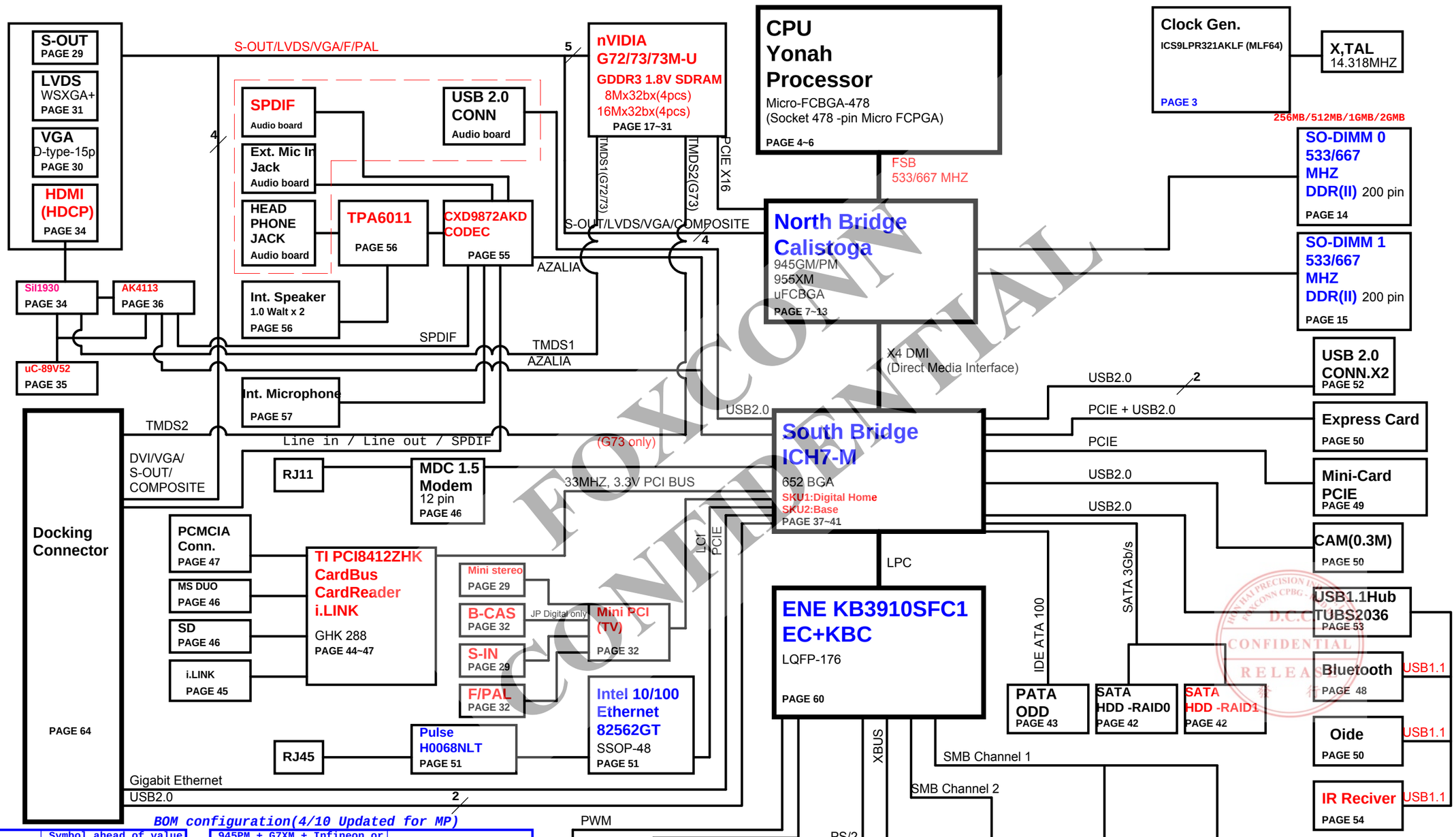
MS20(CALISTOGA PM/GM+Gfx Block Diagram)

Red texts:
New modified



BOM configuration(4/10 Updated for MP)

	Symbol ahead of value for NC components
BOTH	NC_
945PM + G7XM	CA_
945GM	NV_
945PM + G72M	NV73_
945PM + G73M	NV72_
945PM + G72M or G73M-U	NV730nly_

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

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	Block Diagram		
Size C	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
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4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71

+3VRUN

30 mil

150mA

30 mil

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

close to terminal side (For EMI)

Length as short as possible.

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

9/2 SWAP

SM bus Address : 1101001 (ICH7)
For clock generator

ICS9LPR321BKLF

CALISTOGA Chip HOST

CPU

ICH7M SATA

ICH7 DMI

CALISTOGA DOT96

CALISTOGA SSCK

Nvidia Graphic

FSB Frequency Table:

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

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	CLOCK GEN
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156) Rev 1.00
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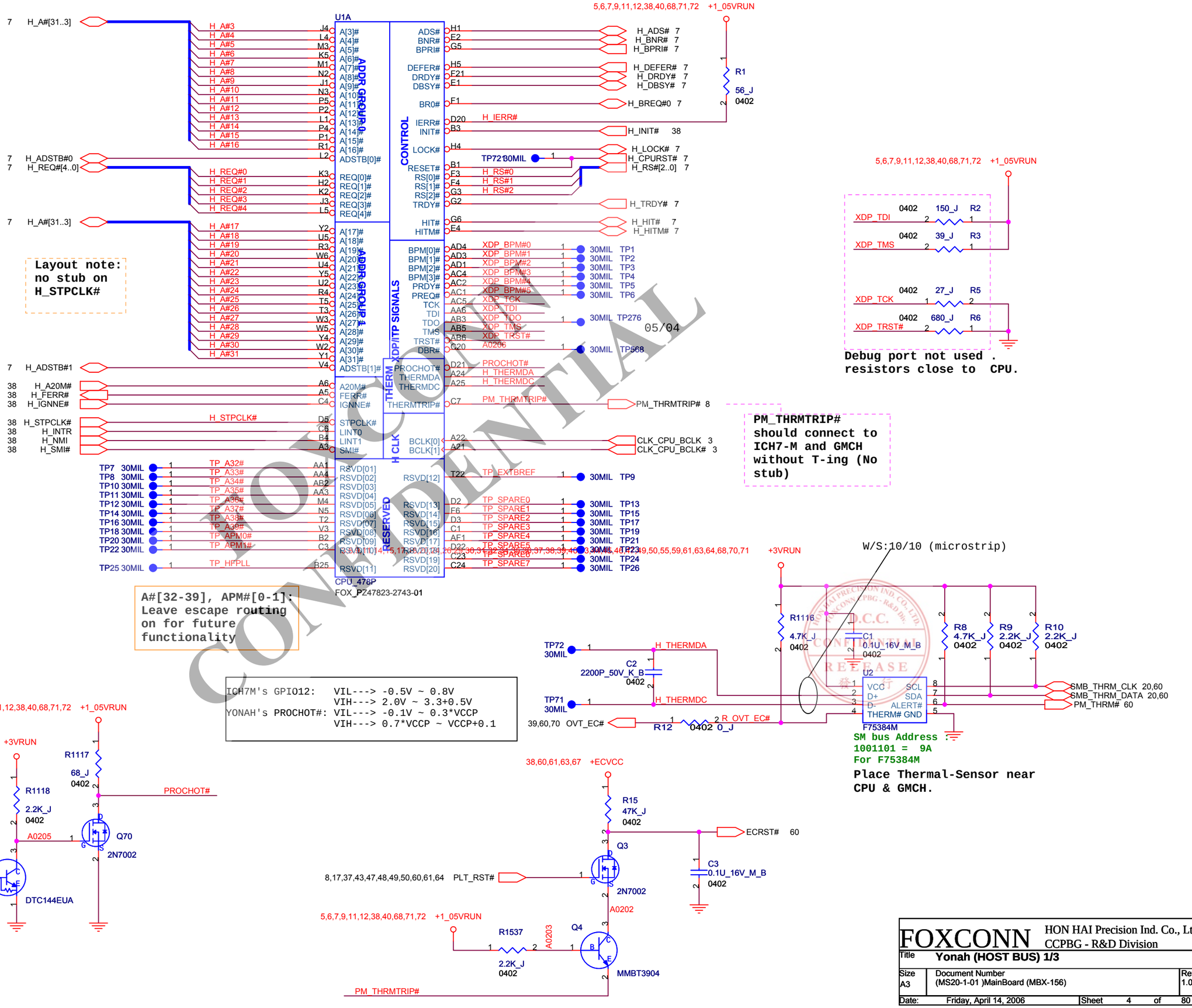
U1A
CPU_478P
FOX_PZ47823-2743-01
ADDR GROUP
DATA GROUP
CONTROL
XDP/ITP SIGNALS
THERM
H_CLK
RESERVED
Layout note: no stub on H_STPCLK#
A#[32-39], APM#[0-1]: Leave escape routing on for future functionality
PM_THRMTRIP# should connect to ICH7-M and GMCH without T-ing (No stub)
Debug port not used . resistors close to CPU.
ICH7M's GPIO12: VIL---> -0.5V ~ 0.8V
VIH---> 2.0V ~ 3.3+0.5V
YONAH's PROCHOT#: VIL---> -0.1V ~ 0.3*VCCP
VIH---> 0.7*VCCP ~ VCCP+0.1
W/S:10/10 (microstrip)
SM bus Address :
1001101 = 9A
For F75384M
Place Thermal-Sensor near CPU & GMCH.
05/04
FOXCONN CONFIDENTIAL
D.C.C. CONFIDENTIAL RELEASE
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title: Yonah (HOST BUS) 1/3
Size: A3
Document Number: (MS20-1-01)MainBoard (MBX-156)
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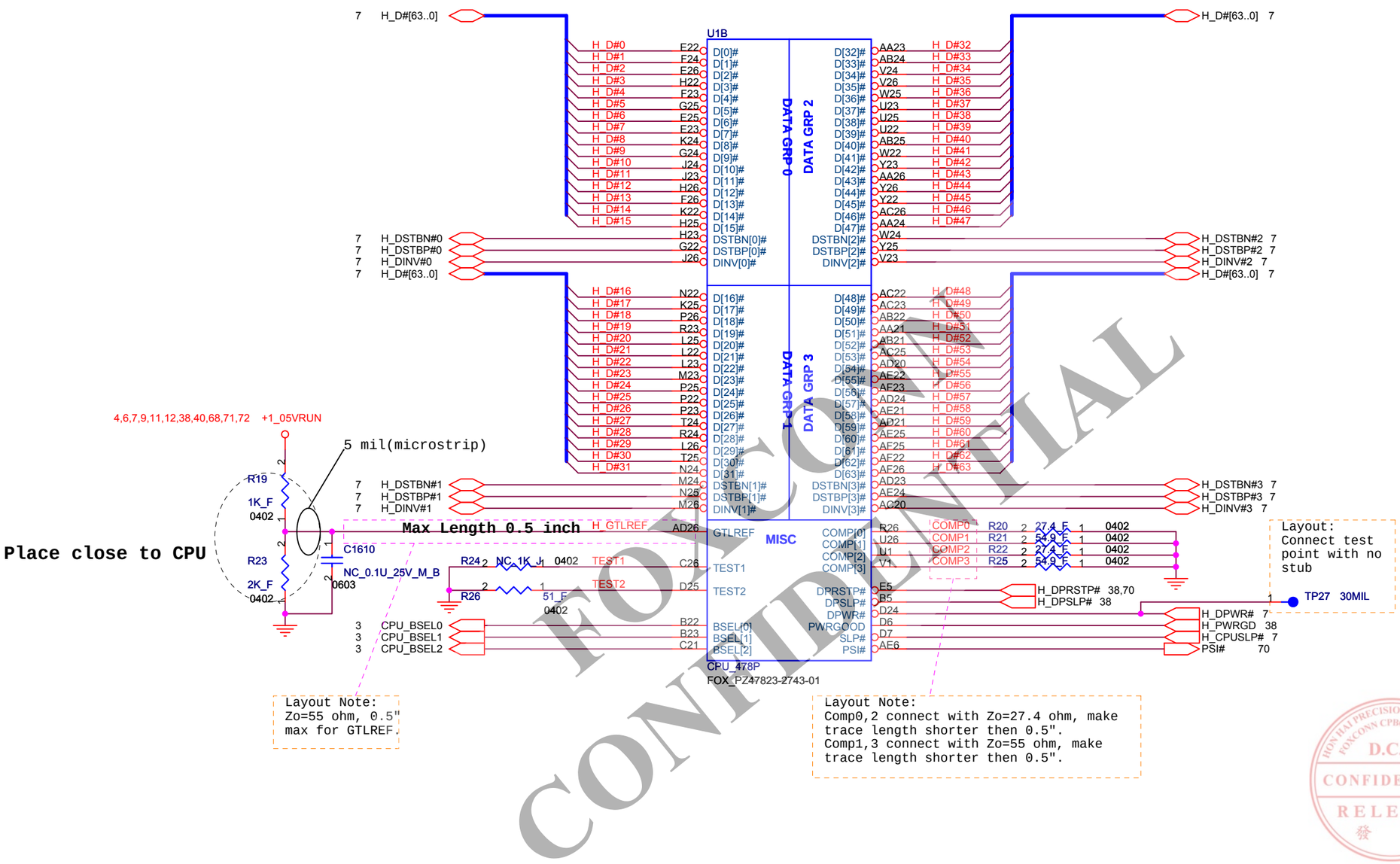

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Yonah (HOST BUS) 2/3	
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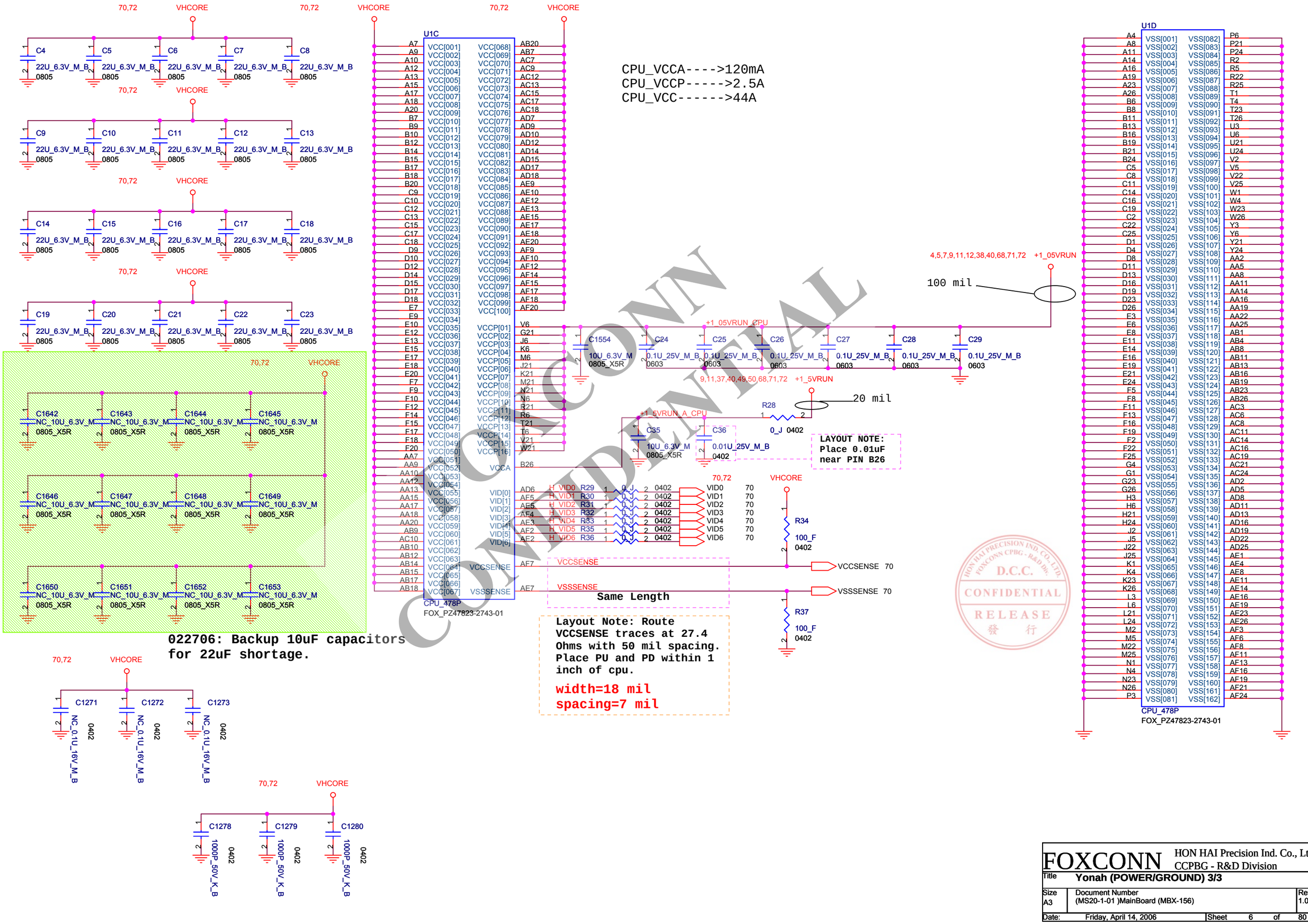
70,72
VHCORE
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
22U_6.3V_M_B
0805
C1642
C1643
C1644
C1645
C1646
C1647
C1648
C1649
C1650
C1651
C1652
C1653
NC_10U_6.3V_M
0805_X5R
022706: Backup 10uF capacitors for 22uF shortage.
C1271
C1272
C1273
NC_0.1U_16V_M_B
0402
C1278
C1279
C1280
1000P_50V_K_B
U1C
VCC[001]
VCC[002]
VCC[003]
VCC[004]
VCC[005]
VCC[006]
VCC[007]
VCC[008]
VCC[009]
VCC[010]
VCC[011]
VCC[012]
VCC[013]
VCC[014]
VCC[015]
VCC[016]
VCC[017]
VCC[018]
VCC[019]
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VCC[093]
VCC[094]
VCC[095]
VCC[096]
VCC[097]
VCC[098]
VCC[099]
VCC[100]
VCCP[01]
VCCP[02]
VCCP[03]
VCCP[04]
VCCP[05]
VCCP[06]
VCCP[07]
VCCP[08]
VCCP[09]
VCCP[10]
VCCP[11]
VCCP[12]
VCCP[13]
VCCP[14]
VCCP[15]
VCCP[16]
VCCA
VCCSENSE
VSSSENSE
VID[0]
VID[1]
VID[2]
VID[3]
VID[4]
VID[5]
VID[6]
CPU_478P
FOX_PZ47823-2743-01
CPU_VCCA----->120mA
CPU_VCCP----->2.5A
CPU_VCC------>44A
C1554
C24
C25
C26
C27
C28
C29
10U_6.3V_M
0.1U_25V_M_B
0603
+1_05VRUN_CPU
9,11,37,40,49,50,68,71,72
+1_5VRUN
+1_5VRUN_A_CPU
C35
C36
0.01U_25V_M_B
0402
R28
0_J 0402
20 mil
LAYOUT NOTE:
Place 0.01uF
near PIN B26
H_VID0
H_VID1
H_VID2
H_VID3
H_VID4
H_VID5
H_VID6
R29
R30
R31
R32
R33
R35
R36
R34
R37
100_F
0402
VCCSENSE 70
VSSSENSE 70
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
4,5,7,9,11,12,38,40,68,71,72
+1_05VRUN
100 mil
U1D
VSS[001]
VSS[002]
VSS[003]
VSS[004]
VSS[005]
VSS[006]
VSS[007]
VSS[008]
VSS[009]
VSS[010]
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VSS[160]
VSS[161]
VSS[162]
CPU_478P
FOX_PZ47823-2743-01
D.C.C.
CONFIDENTIAL
RELEASE
發 行
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title
Yonah (POWER/GROUND) 3/3
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W/S = 10/20mil
H_XRCOMP
R92
24.9_F
0402
4,5,6,9,11,12,38,40,68,71,72 +1_05VRUN
R93
54.9_F
0402
H_XSCOMP
4,5,6,9,11,12,38,40,68,71,72 +1_05VRUN
R94
221_F
0402
W/S = 10/20mil
H_XSWING
C93
R96
100_F
0402
0.1U_16V_M_B
0402
W/S = 10/20mil
H_YRCOMP
R98
24.9_F
0402
4,5,6,9,11,12,38,40,68,71,72 +1_05VRUN
R99
54.9_F
0402
H_YSCOMP
4,5,6,9,11,12,38,40,68,71,72 +1_05VRUN
R100
221_F
0402
W/S = 10/20mil
H_YSWING
C95
R101
100_F
0402
0.1U_16V_M_B
0402

5 H_D#[63..0]
H_D#[63..0]

U4A

H_D#0	F1	H_D#_0	
H_D#1	J1	H_D#_1	
H_D#2	H1	H_D#_2	
H_D#3	J6	H_D#_3	
H_D#4	H3	H_D#_4	
H_D#5	K2	H_D#_5	
H_D#6	G1	H_D#_6	
H_D#7	G2	H_D#_7	
H_D#8	K9	H_D#_8	
H_D#9	K1	H_D#_9	
H_D#10	K7	H_D#_10	
H_D#11	J8	H_D#_11	
H_D#12	H4	H_D#_12	
H_D#13	J3	H_D#_13	
H_D#14	K11	H_D#_14	
H_D#15	G4	H_D#_15	
H_D#16	T10	H_D#_16	
H_D#17	W11	H_D#_17	
H_D#18	T3	H_D#_18	
H_D#19	U7	H_D#_19	
H_D#20	U9	H_D#_20	
H_D#21	U11	H_D#_21	
H_D#22	T11	H_D#_22	
H_D#23	W9	H_D#_23	
H_D#24	T1	H_D#_24	
H_D#25	T8	H_D#_25	
H_D#26	T4	H_D#_26	
H_D#27	W7	H_D#_27	
H_D#28	U5	H_D#_28	
H_D#29	T9	H_D#_29	
H_D#30	W6	H_D#_30	
H_D#31	T5	H_D#_31	
H_D#32	AB7	H_D#_32	
H_D#33	AA9	H_D#_33	
H_D#34	W4	H_D#_34	
H_D#35	W3	H_D#_35	
H_D#36	Y3	H_D#_36	
H_D#37	Y7	H_D#_37	
H_D#38	W5	H_D#_38	
H_D#39	Y10	H_D#_39	
H_D#40	AB8	H_D#_40	
H_D#41	W2	H_D#_41	
H_D#42	AA4	H_D#_42	
H_D#43	AA7	H_D#_43	
H_D#44	AA2	H_D#_44	
H_D#45	AA6	H_D#_45	
H_D#46	AA10	H_D#_46	
H_D#47	Y8	H_D#_47	
H_D#48	AA1	H_D#_48	
H_D#49	AB4	H_D#_49	
H_D#50	AC9	H_D#_50	
H_D#51	AB11	H_D#_51	
H_D#52	AC11	H_D#_52	
H_D#53	AB3	H_D#_53	
H_D#54	AC2	H_D#_54	
H_D#55	AD1	H_D#_55	
H_D#56	AD9	H_D#_56	
H_D#57	AC1	H_D#_57	
H_D#58	AD7	H_D#_58	
H_D#59	AC6	H_D#_59	
H_D#60	AB5	H_D#_60	
H_D#61	AD10	H_D#_61	
H_D#62	AD4	H_D#_62	
H_D#63	AC8	H_D#_63	

H_XRCOMP	E1	H_XRCOMP	
H_XSCOMP	E2	H_XSCOMP	
H_XSWING	E4	H_XSWING	
H_YRCOMP	Y1	H_YRCOMP	
H_YSCOMP	U1	H_YSCOMP	
H_YSWING	W1	H_YSWING	
3 CLK_MCH_BCLK	AG2	H_CLKIN	
3 CLK_MCH_BCLK#	AG1	H_CLKIN#	

HOST

QG82945PM_A3

H_A#_3	H9	H_A#3	
H_A#_4	C9	H_A#4	
H_A#_5	E11	H_A#5	
H_A#_6	G11	H_A#6	
H_A#_7	F11	H_A#7	
H_A#_8	G12	H_A#8	
H_A#_9	F9	H_A#9	
H_A#_10	H11	H_A#10	
H_A#_11	J12	H_A#11	
H_A#_12	G14	H_A#12	
H_A#_13	D9	H_A#13	
H_A#_14	J14	H_A#14	
H_A#_15	H13	H_A#15	
H_A#_16	J15	H_A#16	
H_A#_17	F14	H_A#17	
H_A#_18	D12	H_A#18	
H_A#_19	A11	H_A#19	
H_A#_20	C11	H_A#20	
H_A#_21	A12	H_A#21	
H_A#_22	A13	H_A#22	
H_A#_23	E13	H_A#23	
H_A#_24	G13	H_A#24	
H_A#_25	F12	H_A#25	
H_A#_26	B12	H_A#26	
H_A#_27	B14	H_A#27	
H_A#_28	C12	H_A#28	
H_A#_29	A14	H_A#29	
H_A#_30	C14	H_A#30	
H_A#_31	D14	H_A#31	

H_A#[3..31] 4

H_ADS#	F8	H_ADS#	4
H_ADSTB#_0	B9	H_ADSTB#0	4
H_ADSTB#_1	C13	H_ADSTB#1	4
H_VREF_0	J13		
H_BNR#	C6	H_BNR#	4
H_BPRI#	F6	H_BPRI#	4
H_BREQ#0	C7	H_BREQ#0	4
H_CPURST#	B7	H_CPURST#	4
H_DBSY#	A7	H_DBSY#	4
H_DEFER#	C3	H_DEFER#	4
H_DPWR#	J9	H_DPWR#	5
H_DRDY#	H8	H_DRDY#	4
H_VREF_1	K13		

4,5,6,9,11,12,38,40,68,71,72 +1_05VRUN

Place Cap. near GMCH within 100 mils.

R95
100_F
0402
H_VREF
20 mil
C94
0.1U_16V_M_B
0402
R97
200_F
0402

H_DINV#_0	J7	H_DINV#0	
H_DINV#_1	W8	H_DINV#1	
H_DINV#_2	U3	H_DINV#2	
H_DINV#_3	AB10	H_DINV#3	

H_DINV#[3..0] 5

H_DSTBN#_0	K4	H_DSTBN#0	
H_DSTBN#_1	T7	H_DSTBN#1	
H_DSTBN#_2	Y5	H_DSTBN#2	
H_DSTBN#_3	AC4	H_DSTBN#3	

H_DSTBN#[3..0] 5

H_DSTBP#_0	K3	H_DSTBP#0	
H_DSTBP#_1	T6	H_DSTBP#1	
H_DSTBP#_2	AA5	H_DSTBP#2	
H_DSTBP#_3	AC5	H_DSTBP#3	

H_DSTBP#[3..0] 5

H_HIT#	D3	H_HIT#	4
H_HITM#	D4	H_HITM#	4
H_LOCK#	B3	H_LOCK#	4

H_REQ#_0	D8	H_REQ#0	
H_REQ#_1	G8	H_REQ#1	
H_REQ#_2	B8	H_REQ#2	
H_REQ#_3	F8	H_REQ#3	
H_REQ#_4	A8	H_REQ#4	

H_REQ#[4..0] 4

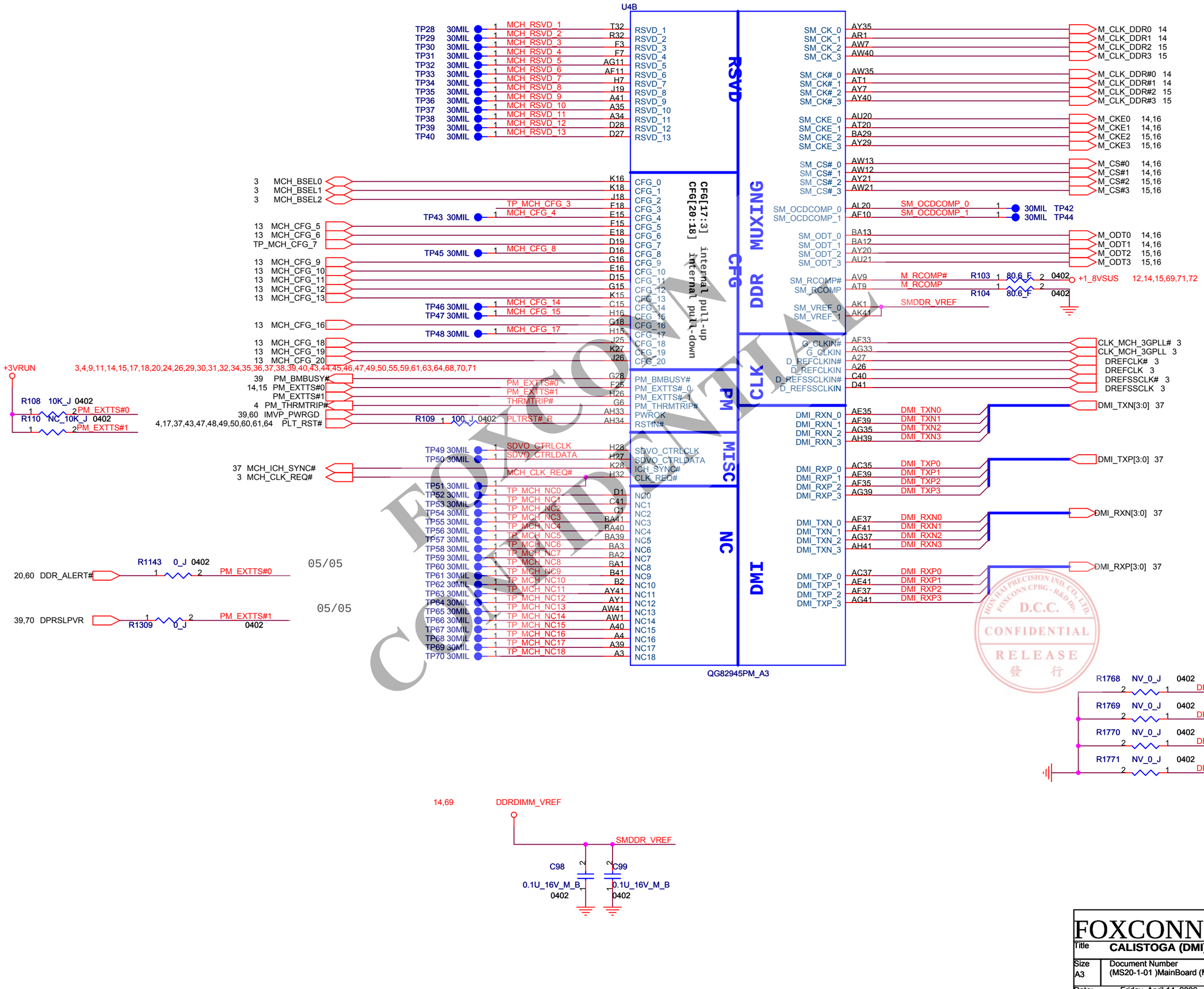
H_RS#_0	B4	H_RS#0	
H_RS#_1	E6	H_RS#1	
H_RS#_2	D6	H_RS#2	

H_RS#[2..0] 4

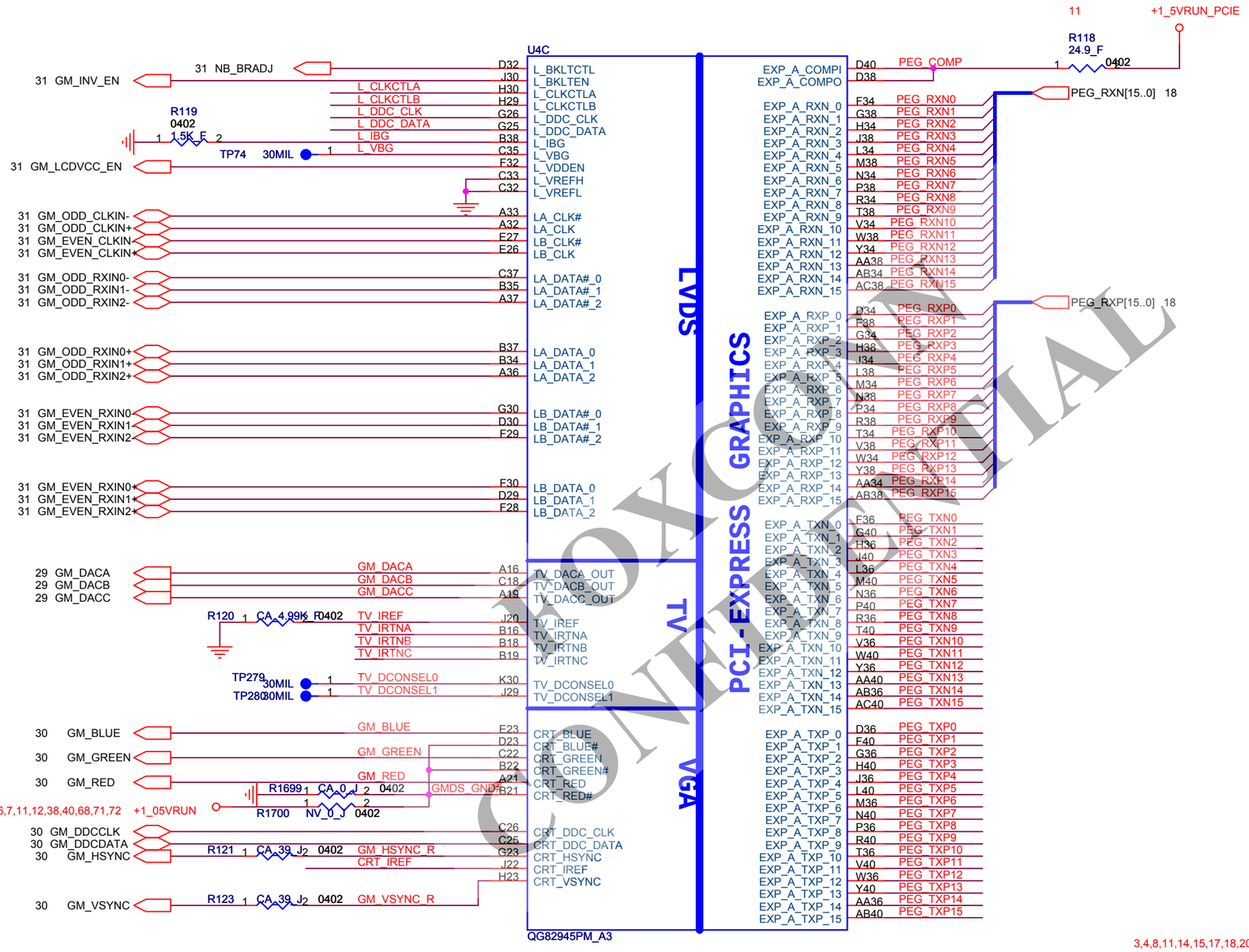
H_SLPCPU#	E3	H_CPUSLP#	
H_TRDY#	E7	H_TRDY#	4

H_CPUSLP# 5

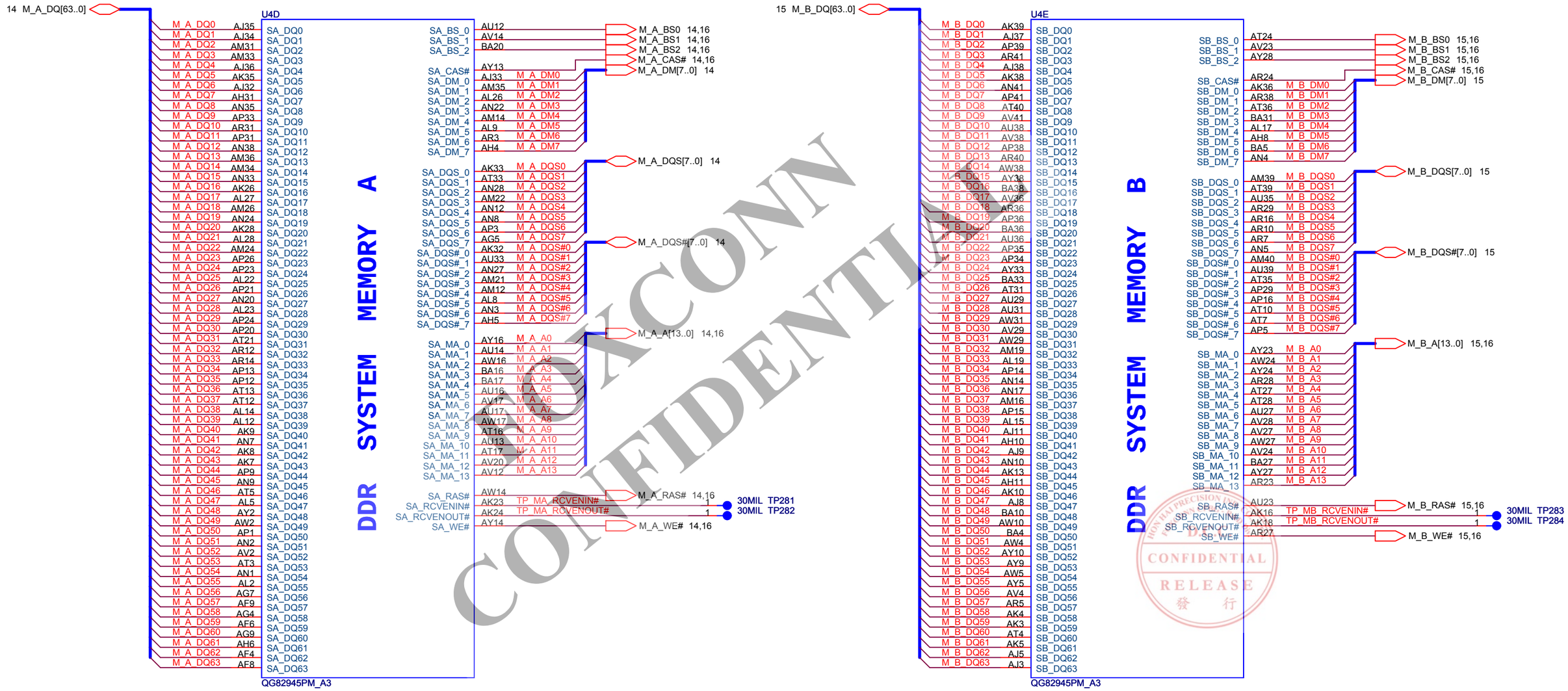
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	CALISTOGA (HOST) 1 of 7
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156) Rev 1.00
Date: Friday, April 14, 2006	Sheet 7 of 80



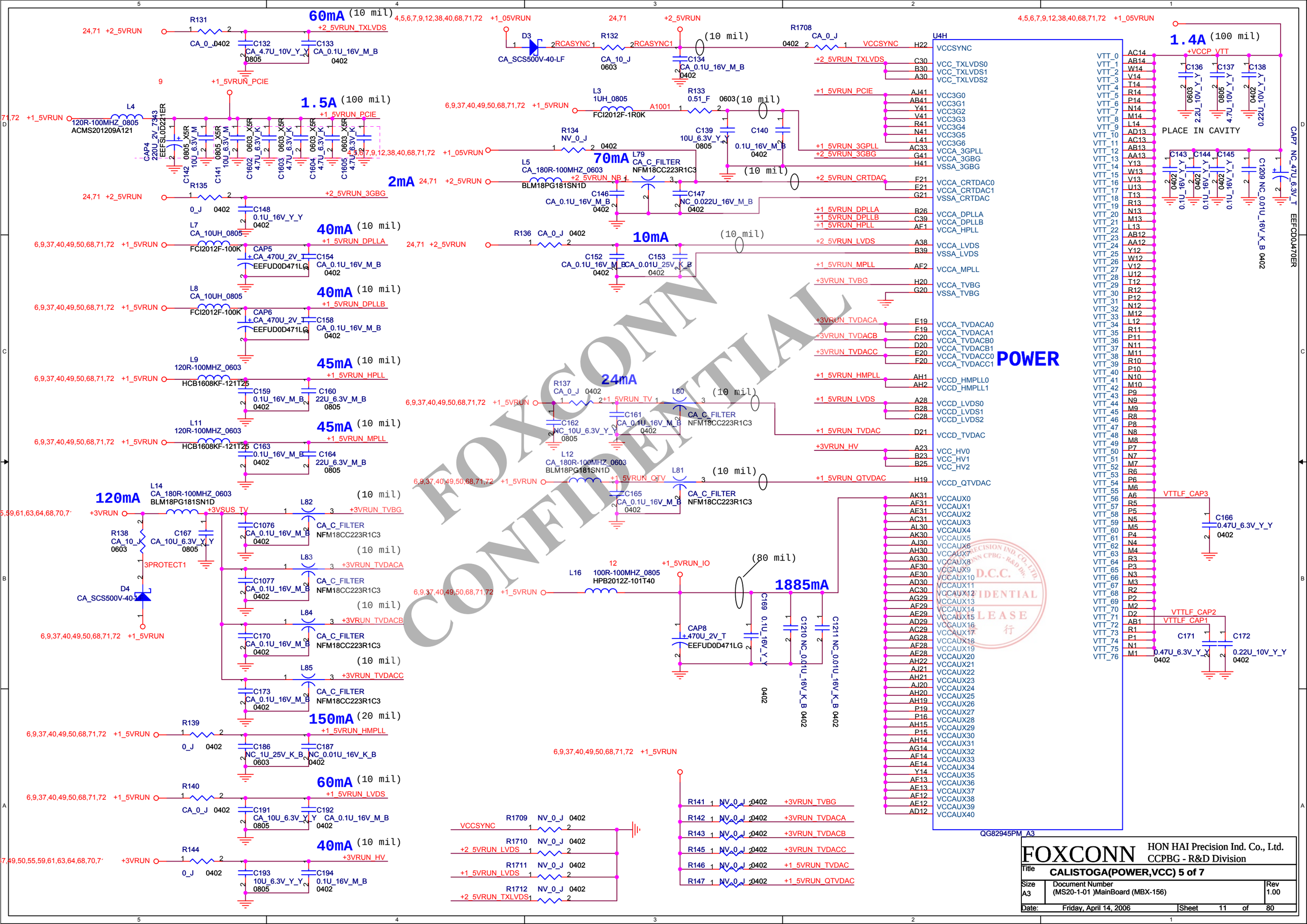
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	CALISTOGA (DMI) 2 of 7	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 8 of 80	

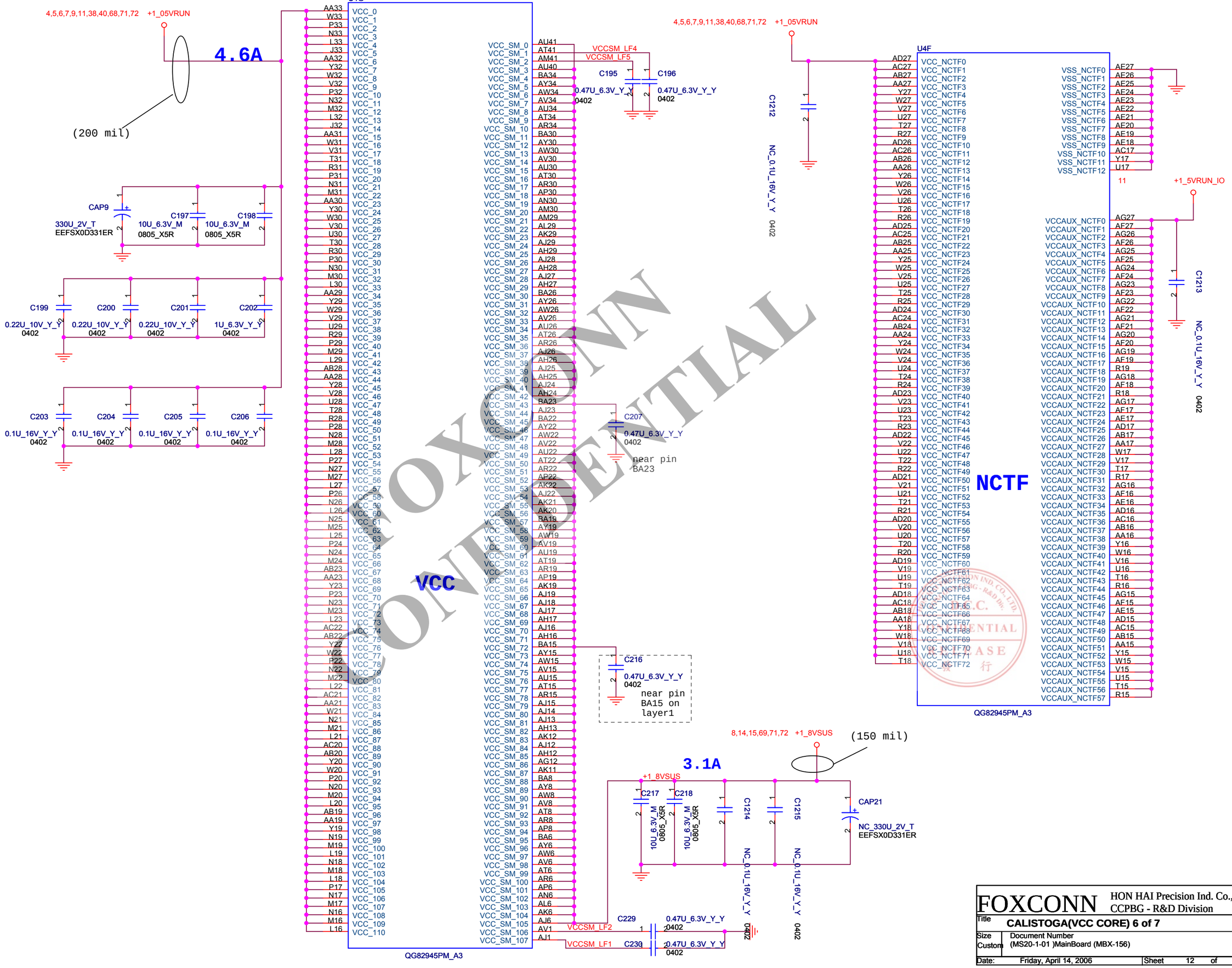


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	CALISTOGA (DMI) 3 of 7
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)
Rev	1.00
Date: Friday, April 14, 2006	Sheet 9 of 80



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	CALISTOGA (DDRII) 4 of 7	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 10 of 80	


60mA (10 mil)
1.5A (100 mil)
40mA (10 mil)
40mA (10 mil)
45mA (10 mil)
45mA (10 mil)
120mA (10 mil)
150mA (20 mil)
60mA (10 mil)
40mA (10 mil)
2mA
70mA
10mA
24mA
1885mA (80 mil)
1.4A (100 mil)
POWER
PLACE IN CAVITY
FOXCONN CONFIDENTIAL
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
CALISTOGA(POWER,VCC) 5 of 7
Size A3
Document Number (MS20-1-01)MainBoard (MBX-156)
Rev 1.00
Date: Friday, April 14, 2006
Sheet 11 of 80
QG82945PM_A3



8 MCH_CFG_5 — 1 — 30MIL TP554

MCH_CFG_5	Low = DMIx2 High = DMIx4

8 MCH_CFG_6 — 1 — 30MIL TP556

MCH_CFG_6	Low = Moby Dick High = Calistoga

DDR2 select (default high)

8 TP_MCH_CFG_7 — TP_MCH_CFG_7

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

8 MCH_CFG_9 — 1 — 30MIL TP559

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

For layout convenience

8 MCH_CFG_10 — 1 — 30MIL TP560

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

8 MCH_CFG_11 — 1 — R162 NC_2.2K_J 0402 — 2

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

8 MCH_CFG_12 — 1 — 30MIL TP562

8 MCH_CFG_13 — 1 — 30MIL TP563

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

8 MCH_CFG_16 — 1 — 30MIL TP564

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

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

8 MCH_CFG_18 — 1 — 30MIL TP555

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

8 MCH_CFG_19 — 1 — 30MIL TP558

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

8 MCH_CFG_20 — 1 — 30MIL TP561

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

U4I

AC41	VSS_0	VSS_97	AK34
AA41	VSS_1	VSS_98	AG34
W41	VSS_2	VSS_99	AF34
T41	VSS_3	VSS_100	AE34
P41	VSS_4	VSS_101	AC34
M41	VSS_5	VSS_102	C34
J41	VSS_6	VSS_103	AW33
F41	VSS_7	VSS_104	AV33
AV40	VSS_8	VSS_105	AR33
AP40	VSS_9	VSS_106	AE33
AN40	VSS_10	VSS_107	AB33
AK40	VSS_11	VSS_108	Y33
AJ40	VSS_12	VSS_109	V33
AH40	VSS_13	VSS_110	T33
AG40	VSS_14	VSS_111	R33
AF40	VSS_15	VSS_112	M33
AE40	VSS_16	VSS_113	H33
B40	VSS_17	VSS_114	G33
AY39	VSS_18	VSS_115	F33
AW39	VSS_19	VSS_116	D33
AV39	VSS_20	VSS_117	B33
AR39	VSS_21	VSS_118	AH32
AN39	VSS_22	VSS_119	AG32
AJ39	VSS_23	VSS_120	AE32
AC39	VSS_24	VSS_121	AE32
AB39	VSS_25	VSS_122	AC32
AA39	VSS_26	VSS_123	AB32
Y39	VSS_27	VSS_124	G32
W39	VSS_28	VSS_125	B32
V39	VSS_29	VSS_126	AY31
T39	VSS_30	VSS_127	AV31
R39	VSS_31	VSS_128	AN31
P39	VSS_32	VSS_129	AJ31
N39	VSS_33	VSS_130	AG31
M39	VSS_34	VSS_131	AB31
L39	VSS_35	VSS_132	Y31
J39	VSS_36	VSS_133	AB30
H39	VSS_37	VSS_134	E30
G39	VSS_38	VSS_135	AT29
F39	VSS_39	VSS_136	AN29
D39	VSS_40	VSS_137	AB29
AT38	VSS_41	VSS_138	T29
AM38	VSS_42	VSS_139	N29
AH38	VSS_43	VSS_140	K29
AG38	VSS_44	VSS_141	G29
AF38	VSS_45	VSS_142	E29
AE38	VSS_46	VSS_143	C29
C38	VSS_47	VSS_144	B29
AK37	VSS_48	VSS_145	A29
AH37	VSS_49	VSS_146	BA28
AB37	VSS_50	VSS_147	AW28
AA37	VSS_51	VSS_148	AU28
Y37	VSS_52	VSS_149	AP28
W37	VSS_53	VSS_150	AM28
V37	VSS_54	VSS_151	AD28
T37	VSS_55	VSS_152	AC28
R37	VSS_56	VSS_153	W28
P37	VSS_57	VSS_154	J28
N37	VSS_58	VSS_155	E28
M37	VSS_59	VSS_156	AP27
L37	VSS_60	VSS_157	AM27
J37	VSS_61	VSS_158	AK27
H37	VSS_62	VSS_159	J27
G37	VSS_63	VSS_160	G27
F37	VSS_64	VSS_161	F27
D37	VSS_65	VSS_162	C27
AY36	VSS_66	VSS_163	B27
AW36	VSS_67	VSS_164	AN26
AN36	VSS_68	VSS_165	M26
AH36	VSS_69	VSS_166	K26
AG36	VSS_70	VSS_167	F26
AF36	VSS_71	VSS_168	D26
AE36	VSS_72	VSS_169	AK25
AC36	VSS_73	VSS_170	P25
C36	VSS_74	VSS_171	K25
B36	VSS_75	VSS_172	H25
BA35	VSS_76	VSS_173	E25
AV35	VSS_77	VSS_174	D25
AR35	VSS_78	VSS_175	A25
AH35	VSS_79	VSS_176	BA24
AB35	VSS_80	VSS_177	AU24
AA35	VSS_81	VSS_178	AL24
Y35	VSS_82	VSS_179	AW23
W35	VSS_83		
V35	VSS_84		
T35	VSS_85		
R35	VSS_86		
P35	VSS_87		
N35	VSS_88		
M35	VSS_89		
L35	VSS_90		
J35	VSS_91		
H35	VSS_92		
G35	VSS_93		
F35	VSS_94		
D35	VSS_95		
AN34	VSS_96		

VSS

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U4J

AT23	VSS_180	VSS_273 J11
AN23	VSS_181	VSS_274 D11
AM23	VSS_182	VSS_275 B11
AH23	VSS_183	VSS_276 AV10
AC23	VSS_184	VSS_277 AP10
W23	VSS_185	VSS_278 AL10
K23	VSS_186	VSS_279 AJ10
J23	VSS_187	VSS_280 AG10
F23	VSS_188	VSS_281 AC10
C23	VSS_189	VSS_282 W10
AA22	VSS_190	VSS_283 U10
K22	VSS_191	VSS_284 BA9
G22	VSS_192	VSS_285 AW9
F22	VSS_193	VSS_286 AR9
E22	VSS_194	VSS_287 AH9
D22	VSS_195	VSS_288 AB9
A22	VSS_196	VSS_289 Y9
BA21	VSS_197	VSS_290 R9
AV21	VSS_198	VSS_291 G9
AR21	VSS_199	VSS_292 E9
AN21	VSS_200	VSS_293 A9
AL21	VSS_201	VSS_294 AG8
AB21	VSS_202	VSS_295 AD8
Y21	VSS_203	VSS_296 AA8
P21	VSS_204	VSS_297 U8
K21	VSS_205	VSS_298 K8
J21	VSS_206	VSS_299 C8
H21	VSS_207	VSS_300 BA7
C21	VSS_208	VSS_301 AV7
AW20	VSS_209	VSS_302 AP7
AR20	VSS_210	VSS_303 AL7
AM20	VSS_211	VSS_304 AJ7
AA20	VSS_212	VSS_305 AH7
K20	VSS_213	VSS_306 AE7
B20	VSS_214	VSS_307 AC7
A20	VSS_215	VSS_308 R7
AN19	VSS_216	VSS_309 G7
AC19	VSS_217	VSS_310 D7
W19	VSS_218	VSS_311 AG6
K19	VSS_219	VSS_312 AD6
G19	VSS_220	VSS_313 AB6
C19	VSS_221	VSS_314 Y6
AH18	VSS_222	VSS_315 U6
P18	VSS_223	VSS_316 N6
H18	VSS_224	VSS_317 K6
D18	VSS_225	VSS_318 H6
A18	VSS_226	VSS_319 B6
AY17	VSS_227	VSS_320 AV5
AR17	VSS_228	VSS_321 AF5
AP17	VSS_229	VSS_322 AD5
AM17	VSS_230	VSS_323 AY4
AK17	VSS_231	VSS_324 AR4
AV16	VSS_232	VSS_325 AP4
AN16	VSS_233	VSS_326 AL4
AL16	VSS_234	VSS_327 AJ4
J16	VSS_235	VSS_328 Y4
F16	VSS_236	VSS_329 U4
C16	VSS_237	VSS_330 R4
AN15	VSS_238	VSS_331 J4
AM15	VSS_239	VSS_332 F4
AK15	VSS_240	VSS_333 C4
N15	VSS_241	VSS_334 AY3
M15	VSS_242	VSS_335 AW3
L15	VSS_243	VSS_336 AV3
B15	VSS_244	VSS_337 AL3
A15	VSS_245	VSS_338 AH3
BA14	VSS_246	VSS_339 AG3
AT14	VSS_247	VSS_340 AF3
AK14	VSS_248	VSS_341 AD3
AD14	VSS_249	VSS_342 AC3
AA14	VSS_250	VSS_343 AA3
U14	VSS_251	VSS_344 G3
K14	VSS_252	VSS_345 AT2
H14	VSS_253	VSS_346 AR2
E14	VSS_254	VSS_347 AP2
AV13	VSS_255	VSS_348 AK2
AR13	VSS_256	VSS_349 AJ2
AN13	VSS_257	VSS_350 AD2
AM13	VSS_258	VSS_351 AB2
AL13	VSS_259	VSS_352 Y2
AG13	VSS_260	VSS_353 U2
P13	VSS_261	VSS_354 T2
F13	VSS_262	VSS_355 N2
D13	VSS_263	VSS_356 J2
B13	VSS_264	VSS_357 H2
AY12	VSS_265	VSS_358 F2
AC12	VSS_266	VSS_359 C2
K12	VSS_267	VSS_360 AL1
H12	VSS_268	
E12	VSS_269	
AD11	VSS_270	
AA11	VSS_271	
Y11	VSS_272	

VSS

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FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	CALISTOGA(VSS) 7 of 7
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)
Rev	1.00
Date: Friday, April 14, 2006	Sheet 13 of 80

1.8V per DIMM=3.08A

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

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

C231 0.1U_16V_M_B 0402

C232 2.2U_10V_Y_Y 0603

0.1 µF and 2.2 µF placed close to VREF pins

DDR2_VREF

CN1

SMDFIX1 SMDFIX2

		VREF	1	2	VSS46		
M_A_DQ0	M_A_DQ1	VSS47 DQ0 DQ1	3 5 7	4 6 8	DQ4 DQ5 VSS15	M_A_DQ4	M_A_DQ5
M_A_DQS#0	M_A_DQS0	VSS37 DQS#0 DQS0	9 11 13	10 12 14	DM0 VSS5 DQ6	M_A_DM0	M_A_DQ6 M_A_DQ7
M_A_DQ2	M_A_DQ3	VSS48 DQ2 DQ3	15 17 19	16 18 20	DQ7 VSS16 DQ12	M_A_DQ12	M_A_DQ13
M_A_DQ8	M_A_DQ9	VSS38 DQ8 DQ9	21 23 25	22 24 26	DQ13 VSS17 DM1	M_A_DM1	
M_A_DQS#1	M_A_DQS1	VSS49 DQS#1 DQS1	27 29 31	28 30 32	VSS53 CK0 CK0#	M_CLK_DDR0 8	M_CLK_DDR#0 8
M_A_DQ10	M_A_DQ11	VSS39 DQ10 DQ11	33 35 37	34 36 38	VSS41 DQ14 DQ15	M_A_DQ14	M_A_DQ15
		VSS50	39	40	VSS54		
M_A_DQ16	M_A_DQ17	VSS18 DQ16 DQ17	41 43 45	42 44 46	VSS20 DQ20 DQ21	M_A_DQ20	M_A_DQ21
M_A_DQS#2	M_A_DQS2	VSS1 DQS#2 DQS2	47 49 51	48 50 52	VSS6 NC3 DM2	DDR2_EXTTS#0	M_A_DM2
M_A_DQ18	M_A_DQ19	VSS19 DQ18 DQ19	53 55 57	54 56 58	VSS21 DQ22 DQ23	M_A_DQ22	M_A_DQ23
M_A_DQ24	M_A_DQ25	VSS22 DQ24 DQ25	59 61 63	60 62 64	VSS24 DQ28 DQ29	M_A_DQ28	M_A_DQ29
M_A_DM3		VSS23 DM3	65 67	66 68	VSS25 DQS#3	M_A_DQS#3	
		NC4	69	70	VSS3	M_A_DQS3	
M_A_DQ26	M_A_DQ27	VSS9 DQ26 DQ27	71 73 75	72 74 76	VSS10 DQ30 VSS31	M_A_DQ30	M_A_DQ31
		VSS4	77	78	VSS8		
8,16 M_CKE0		CKE0	79	80	CKE1	M_CKE1 8,16	
		VDD7	81	82	VDD8		
		NC1	83	84	A15		
10,16 M_A_BS2		A16_BA2	85	86	A14		
		VDD9	87	88	A11	M_A_A11	
M_A_A12	M_A_A9	A12 A9	89 91	90 92	A11 A7	M_A_A7	M_A_A6
M_A_A8		A8	93	94	A6		
		VDD5	95	96	VDD4		
M_A_A5	M_A_A3	A5 A3	97 99	98 100	A4 A2	M_A_A4	M_A_A2
M_A_A1		A1	101	102	A0	M_A_A0	
		VDD10	103	104	VDD12		
M_A_A10		A10/AP	105	106	BA1	M_A_BS1 10,16	
10,16 M_A_BS0		BA0	107	108	RAS#	M_A_RAS# 10,16	
10,16 M_A_WE#		WE#	109	110	S0#	M_CS#0 8,16	
		VDD2	111	112	VDD1		
10,16 M_A_CAS#		CAS#	113	114	ODT0	M_ODT0 8,16	
8,16 M_CS#1		S1#	115	116	A13	M_A_A13	
		VDD3	117	118	VDD6		
8,16 M_ODT1		ODT1	119	120	NC2		
		VSS11	121	122	VSS12		
M_A_DQ32	M_A_DQ33	DQ32 DQ33	123 125	124 126	DQ36 DQ37	M_A_DQ36	M_A_DQ37
M_A_DQS#4	M_A_DQS4	VSS26 DQS#4 DQS4	127 129 131	128 130 132	VSS28 DM4 VSS42	M_A_DM4	
M_A_DQ34	M_A_DQ35	VSS2 DQ34 DQ35	133 135 137	134 136 138	DQ38 DQ39 VSS55	M_A_DQ38	M_A_DQ39
M_A_DQ40	M_A_DQ41	VSS27 DQ40 DQ41	139 141 143	140 142 144	DQ44 DQ45 VSS43	M_A_DQ44	M_A_DQ45
M_A_DM5		VSS29 DM5	145 147	146 148	DQS#5 DQS5	M_A_DQS#5	M_A_DQS5
M_A_DQ42	M_A_DQ43	VSS51 DQ42 DQ43	149 151 153	150 152 154	VSS56 DQ46 DQ47	M_A_DQ46	M_A_DQ47
M_A_DQ48	M_A_DQ49	VSS40 DQ48 DQ49	155 157 159	156 158 160	VSS44 DQ52 DQ53	M_A_DQ52	M_A_DQ53
		VSS52	161	162	VSS57		
		NCTEST	163	164	CK1	M_CLK_DDR1 8	
		VSS30	165	166	CK1#	M_CLK_DDR#1 8	
M_A_DQS#6	M_A_DQS6	DQS#6 DQS6	167 169	168 170	VSS45 DM6	M_A_DM6	
M_A_DQ50	M_A_DQ51	VSS31 DQ50 DQ51	171 173 175	172 174 176	VSS32 DQ54 DQ55	M_A_DQ54	M_A_DQ55
M_A_DQ56	M_A_DQ57	VSS33 DQ56 DQ57	177 179 181	178 180 182	VSS35 DQ60 DQ61	M_A_DQ60	M_A_DQ61
M_A_DM7		VSS3 DM7	183 185	184 186	VSS7 DQS#7	M_A_DQS#7	M_A_DQS7
M_A_DQ58	M_A_DQ59	VSS34 DQ58 DQ59	187 189 191	188 190 192	DQS7 VSS36 DQ62	M_A_DQ62	M_A_DQ63
		VSS14	193	194	DQ63		
3,15,39,50 SMB_DATA_SUS		SDA	195	196	VSS13		
3,15,39,50 SMB_CLK_SUS		SCL	197	198	SA0	SA0_DIM0	
47,49,50,55,59,61,63,64,68,70,7 +3VRUN		VDD(SPD)	199	200	SA1	SA1_DIM0	
		NPTH1 NPTH2	201 202	203 204			

DDR2 SO-DIMM (200P)

FOX_AS0A426_N4RC_4F

R168 0_J 0402

R174 10K_J 0402

R175 10K_J 0402

C1078 2.2U_10V_Y_Y 0603

C243 0.1U_16V_M_B 0402

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

DIMM_0

Place DIMM_0 near GMCH

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

8,69 DDRDIMM_VREF

15 DDR2_VREF

R166 0_J 0402

DDR2_VREF

(20 mil)

C233 0.1U_16V_M_B 0402

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

Place these Caps near So-Dimm0.

C234 2.2U_10V_Y_Y 0603
C235 2.2U_10V_Y_Y 0603
C236 2.2U_10V_Y_Y 0603
C237 2.2U_10V_Y_Y 0603
C238 2.2U_10V_Y_Y 0603

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

Place these Caps near So-Dimm0.

C239 0.1U_16V_Y_Y 0402
C240 0.1U_16V_Y_Y 0402
C241 0.1U_16V_Y_Y 0402
C242 0.1U_16V_Y_Y 0402

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	DDR(II)SO-DIMM_0	
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14 DDR2_VREF

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

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

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

1.8V per DIMM=3.08A

CN2

1	VREF	VSS46	2				
3	VSS47	DQ4	4	M_B_DQ0	M_B_DQ4		
5	DQ0	DQ5	6	M_B_DQ1	M_B_DQ5		
7	DQ1	VSS15	8				
9	VSS37	DM0	10		M_B_DM0		
11	DQS#0	VSS5	12	M_B_DQS#0			
13	DQS0	DQ6	14	M_B_DQS0	M_B_DQ6		
15	VSS48	DQ7	16		M_B_DQ7		
17	DQ2	VSS16	18	M_B_DQ2			
19	DQ3	DQ12	20	M_B_DQ3	M_B_DQ12		
21	VSS38	DQ13	22		M_B_DQ13		
23	DQ8	VSS17	24	M_B_DQ8			
25	DQ9	DM1	26	M_B_DQ9	M_B_DM1		
27	VSS49	VSS53	28				
29	DQS#1	CK0	30	M_B_DQS#1		M_CLK_DDR3	8
31	DQS1	CK0#	32	M_B_DQS1		M_CLK_DDR#3	8
33	VSS39	VSS41	34				
35	DQ10	DQ14	36	M_B_DQ10	M_B_DQ14		
37	DQ11	DQ15	38	M_B_DQ11	M_B_DQ15		
39	VSS50	VSS54	40				
41	VSS18	VSS20	42				
43	DQ16	DQ20	44	M_B_DQ16	M_B_DQ20		
45	DQ17	DQ21	46	M_B_DQ17	M_B_DQ21		
47	VSS1	VSS6	48				
49	DQS#2	NC3	50	M_B_DQS#2	PM_EXTTS# L		
51	DQS2	DM2	52	M_B_DQS2	M_B_DM2		
53	VSS19	VSS21	54				
55	DQ18	DQ22	56	M_B_DQ18	M_B_DQ22		
57	DQ19	DQ23	58	M_B_DQ19	M_B_DQ23		
59	VSS22	VSS24	60				
61	DQ24	DQ28	62	M_B_DQ24	M_B_DQ28		
63	DQ25	DQ29	64	M_B_DQ25	M_B_DQ29		
65	VSS23	VSS25	66				
67	DM3	DQS#3	68	M_B_DM3	M_B_DQS#3		
69	NC4	DQS3	70		M_B_DQS3		
71	VSS9	VSS10	72				
73	DQ26	DQ30	74	M_B_DQ26	M_B_DQ30		
75	DQ27	DQ31	76	M_B_DQ27	M_B_DQ31		
77	VSS4	VSS8	78				
79	CKE0	CKE1	80	8,16 M_CKE2		M_CKE3	8,16
81	VDD7	VDD8	82				
83	NC1	A15	84				
85	A16_BA2	A14	86	10,16 M_B_BS2			
87	VDD9	A11	88				
89	A12	A11	90	M_B_A12	M_B_A11		
91	A9	A7	92	M_B_A9	M_B_A7		
93	A8	A6	94	M_B_A8	M_B_A6		
95	VDD5	VDD4	96				
97	A5	A4	98	M_B_A5	M_B_A4		
99	A3	A2	100	M_B_A3	M_B_A2		
101	A1	A0	102	M_B_A1	M_B_A0		
103	VDD10	VDD12	104				
105	A10/AP	BA1	106	M_B_A10		M_B_BS1	10,16
107	BA0	RAS#	108	10,16 M_B_BS0		M_B_RAS#	10,16
109	WE#	S0#	110	10,16 M_B_WE#		M_CS#2	8,16
111	VDD2	VDD1	112				
113	CAS#	ODT0	114	10,16 M_B_CAS#		M_ODT2	8,16
115	S1#	A13	116	8,16 M_CS#3	M_B_A13		
117	VDD3	VDD6	118				
119	ODT1	NC2	120	8,16 M_ODT3			
121	VSS11	VSS12	122				
123	DQ32	DQ36	124	M_B_DQ32	M_B_DQ36		
125	DQ33	DQ37	126	M_B_DQ33	M_B_DQ37		
127	VSS26	VSS28	128				
129	DQS#4	DM4	130	M_B_DQS#4	M_B_DM4		
131	DQS4	VSS42	132	M_B_DQS4			
133	VSS2	DQ38	134		M_B_DQ38		
135	DQ34	DQ39	136	M_B_DQ34	M_B_DQ39		
137	DQ35	VSS55	138	M_B_DQ35			
139	VSS27	DQ44	140		M_B_DQ44		
141	DQ40	DQ45	142	M_B_DQ40	M_B_DQ45		
143	DQ41	VSS43	144	M_B_DQ41			
145	VSS29	DQS#5	146		M_B_DQS#5		
147	DM5	DQS5	148	M_B_DM5	M_B_DQS5		
149	VSS51	VSS56	150				
151	DQ42	DQ46	152	M_B_DQ42	M_B_DQ46		
153	DQ43	DQ47	154	M_B_DQ43	M_B_DQ47		
155	VSS40	VSS44	156				
157	DQ48	DQ52	158	M_B_DQ48	M_B_DQ52		
159	DQ49	DQ53	160	M_B_DQ49	M_B_DQ53		
161	VSS52	VSS57	162				
163	NCTEST	CK1	164			M_CLK_DDR2	8
165	VSS30	CK1#	166			M_CLK_DDR#2	8
167	DQS#6	VSS45	168	M_B_DQS#6			
169	DQS6	DM6	170	M_B_DQS6	M_B_DM6		
171	VSS31	VSS32	172				
173	DQ50	DQ54	174	M_B_DQ50	M_B_DQ54		
175	DQ51	DQ55	176	M_B_DQ51	M_B_DQ55		
177	VSS33	VSS35	178				
179	DQ56	DQ60	180	M_B_DQ56	M_B_DQ60		
181	DQ57	DQ61	182	M_B_DQ57	M_B_DQ61		
183	VSS3	VSS7	184				
185	DM7	DQS#7	186	M_B_DM7	M_B_DQS#7		
187	VSS34	DQS7	188		M_B_DQS7		
189	DQ58	VSS36	190	M_B_DQ58			
191	DQ59	DQ62	192	M_B_DQ59	M_B_DQ62		
193	VSS14	DQ63	194		M_B_DQ63		
195	SDA	VSS13	196	3,14,39,50 SMB_DATA_SUS			
197	SCL	SA0	198	3,14,39,50 SMB_CLK_SUS	SA0_DIM1		
199	VDD(SPD)	SA1	200		SA1_DIM1		

SMDFIX1 SMDFIX2 NPTH1 NPTH2

201 202 203 204

DDR2 S0-DIMM_200P

FOX_AS0A426_N4SC_4F

PC4800 DDR2 SDRAM SO-DIMM (200P)

R1627 0_J 2 0402 PM_EXTTS#0 8,14

R177 10K_J 2 1 0402 +3VRUN

R178 10K_J 2 1 0402 +3VRUN

3,4,8,9,11,14,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,54,59,61,63,64,68,70,7

C1079 2.2U_10V_Y_Y 0603

C255 0.1U_16V_M_B 0402

DIMM_1

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

DIMM_1 is placed farther from the GMCH than DIMM_0

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

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

Place these Caps near So-Dimm1.

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

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

Place these Caps near So-Dimm1.

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

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	DDR(II)SO-DIMM_1		
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
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10,14 M_A_A[0..13]

10,15 M_B_A[0..13]

69,72 +0_9VSUS

C257 0.1U_16V_Y_Y 0402
C258 0.1U_16V_Y_Y 0402
C259 0.1U_16V_Y_Y 0402
C260 0.1U_16V_Y_Y 0402
C261 0.1U_16V_Y_Y 0402
C262 0.1U_16V_Y_Y 0402
C263 0.1U_16V_Y_Y 0402
C264 0.1U_16V_Y_Y 0402
C265 0.1U_16V_Y_Y 0402
C266 0.1U_16V_Y_Y 0402
C267 0.1U_16V_Y_Y 0402
C268 0.1U_16V_Y_Y 0402
C269 0.1U_16V_Y_Y 0402

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

69,72 +0_9VSUS

C270 0.1U_16V_Y_Y 0402
C271 0.1U_16V_Y_Y 0402
C272 0.1U_16V_Y_Y 0402
C273 0.1U_16V_Y_Y 0402
C274 0.1U_16V_Y_Y 0402
C275 0.1U_16V_Y_Y 0402
C276 0.1U_16V_Y_Y 0402
C277 0.1U_16V_Y_Y 0402
C278 0.1U_16V_Y_Y 0402
C279 0.1U_16V_Y_Y 0402
C280 0.1U_16V_Y_Y 0402
C281 0.1U_16V_Y_Y 0402
C282 0.1U_16V_Y_Y 0402

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

10,15 M_B_RAS#
10,15 M_B_BS1
RP12 56 0404_4P2R
M_B_A12
M_B_A9
RP13 56 0404_4P2R
M_B_A8
M_B_A5
RP14 56 0404_4P2R
+0_9VSUS 69,72

M_B_A3
M_B_A1
RP15 56 0404_4P2R
M_B_A10
RP16 56 0404_4P2R
10,15 M_B_BS0
10,15 M_B_WE#
RP17 56 0404_4P2R
10,15 M_B_CAS#
M_B_A7
M_B_A11
RP18 56 0404_4P2R
+0_9VSUS 69,72

M_B_A4
M_B_A6
RP19 56 0404_4P2R
M_B_A0
M_B_A2
RP20 56 0404_4P2R
M_B_A13
RP21 56 0404_4P2R
8,15 M_ODT2
+0_9VSUS 69,72

M_A_A7
M_A_A11
RP22 56 0404_4P2R
M_A_A4
M_A_A6
RP23 56 0404_4P2R
RP24 56 0404_4P2R
10,14 M_A_RAS#
10,14 M_A_BS1
+0_9VSUS 69,72

M_A_A13
RP25 56 0404_4P2R
8,14 M_ODT0
10,14 M_A_BS2
RP26 56 0404_4P2R
M_A_A12
M_A_A9
RP27 56 0404_4P2R
M_A_A8
M_A_A5
RP28 56 0404_4P2R
M_A_A3
+0_9VSUS 69,72

M_A_A10
RP29 56 0404_4P2R
10,14 M_A_BS0
RP30 56 0404_4P2R
10,14 M_A_WE#
10,14 M_A_CAS#
M_A_A0
RP31 56 0404_4P2R
M_A_A2
+0_9VSUS 69,72

8,14 M_CKE0
R183 0402 56_J
8,14 M_CKE1
R186 0402 56_J
8,15 M_CKE2
R189 0402 56_J
8,15 M_CKE3
R192 0402 56_J
+0_9VSUS 69,72

8,14 M_CS#0
R181 0402 56_J
8,14 M_CS#1
R184 0402 56_J
8,15 M_CS#2
R187 0402 56_J
8,15 M_CS#3
R190 0402 56_J
+0_9VSUS 69,72

8,14 M_ODT1
R182 0402 56_J
8,15 M_ODT3
R185 0402 56_J
M_A_A1
R188 0402 56_J
10,15 M_B_BS2
R191 0402 56_J
+0_9VSUS 69,72

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	DDR(II)Termination	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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+3VRUN
3,4,8,9,11,14,15,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71
R1909 1 2 NC_0_J 0402
R1908 NV_10K_J 0402
+3VRUN
3,4,8,9,11,14,15,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71
U127 NV_74AHC1G08GW
4,8,37,43,47,48,49,50,60,61,64 PLT_RST#
R1910 NV_33_J 0402
3 CLK_PCIE_PEG
3 CLK_PCIE_PEG#
100MHz
18 TXP[0..15]
18 TXN[0..15]
9 PEG_RXP_C[0..15]
9 PEG_RXN_C[0..15]

U7A

	AH15	PEX_RST#	
CLK_PCIE_PEG	AH14	PEX_REFCLK	
CLK_PCIE_PEG#	AJ14	PEX_REFCLK#	
TXP0	AJ15	PEX_TX0	
TXN0	AK15	PEX_TX0#	
TXP1	AH16	PEX_TX1	
TXN1	AG16	PEX_TX1#	
TXP2	AG17	PEX_TX2	
TXN2	AH17	PEX_TX2#	
TXP3	AG18	PEX_TX3	
TXN3	AH18	PEX_TX3#	
TXP4	AK18	PEX_TX4	
TXN4	AJ18	PEX_TX4#	
TXP5	AJ19	PEX_TX5	
TXN5	AH19	PEX_TX5#	
TXP6	AG20	PEX_TX6	
TXN6	AH20	PEX_TX6#	
TXP7	AG21	PEX_TX7	
TXN7	AH21	PEX_TX7#	
TXP8	AK21	PEX_TX8	
TXN8	AJ21	PEX_TX8#	
TXP9	AJ22	PEX_TX9	
TXN9	AH22	PEX_TX9#	
TXP10	AG23	PEX_TX10	
TXN10	AH23	PEX_TX10#	
TXP11	AK24	PEX_TX11	
TXN11	AJ24	PEX_TX11#	
TXP12	AJ25	PEX_TX12	
TXN12	AH25	PEX_TX12#	
TXP13	AH26	PEX_TX13	
TXN13	AG26	PEX_TX13#	
TXP14	AK27	PEX_TX14	
TXN14	AJ27	PEX_TX14#	
TXP15	AJ28	PEX_TX15	
TXN15	AH27	PEX_TX15#	
PEG_RXP_C0	AK13	PEX_RX0	
PEG_RXN_C0	AK14	PEX_RX0#	
PEG_RXP_C1	AM14	PEX_RX1	
PEG_RXN_C1	AM15	PEX_RX1#	
PEG_RXP_C2	AL15	PEX_RX2	
PEG_RXN_C2	AL16	PEX_RX2#	
PEG_RXP_C3	AK16	PEX_RX3	
PEG_RXN_C3	AK17	PEX_RX3#	
PEG_RXP_C4	AL17	PEX_RX4	
PEG_RXN_C4	AL18	PEX_Rx4#	
PEG_RXP_C5	AM18	PEX_RX5	
PEG_RXN_C5	AM19	PEX_RX5#	
PEG_RXP_C6	AK19	PEX_RX6	
PEG_RXN_C6	AK20	PEX_RX6#	
PEG_RXP_C7	AL20	PEX_RX7	
PEG_RXN_C7	AL21	PEX_RX7#	
PEG_RXP_C8	AM21	PEX_RX8	
PEG_RXN_C8	AM22	PEX_RX8#	
PEG_RXP_C9	AK22	PEX_RX9	
PEG_RXN_C9	AK23	PEX_RX9#	
PEG_RXP_C10	AL23	PEX_RX10	
PEG_RXN_C10	AL24	PEX_RX10#	
PEG_RXP_C11	AM24	PEX_RX11	
PEG_RXN_C11	AM25	PEX_RX11#	
PEG_RXP_C12	AK25	PEX_RX12	
PEG_RXN_C12	AK26	PEX_RX12#	
PEG_RXP_C13	AL26	PEX_RX13	
PEG_RXN_C13	AL27	PEX_RX13#	
PEG_RXP_C14	AM27	PEX_RX14	
PEG_RXN_C14	AM28	PEX_RX14#	
PEG_RXP_C15	AL28	PEX_RX15	
PEG_RXN_C15	AL29	PEX_RX15#	

PCI EXPRESS

MULTI-USE I/O INTERFACE

MIOAD0	P2	MIOAD0	MIOAD0 18
MIOAD1	N2	MIOAD1	MIOAD1 18
MIOAD2	N1	MIOAD2	TP691 26MIL
MIOAD3	N3	MIOAD3	TP693 26MIL
MIOAD4	M1	MIOAD4	TP692 26MIL
MIOAD5	M3	MIOAD5	TP694 26MIL
MIOAD6	P5	MIOAD6	MIOAD6 18
MIOAD7	N6	MIOAD7	MIOAD7 18
MIOAD8	N5	MIOAD8	MIOAD8 18
MIOAD9	M4	MIOAD9	MIOAD9 18
MIOAD10	L4	MIOAD10	MIOAD10 18
MIOAD11	L5	MIOAD11	TP672 26MIL
MIOBD0	AC3	MIOBD0	MIOBD0 18
MIOBD1	AC1	MIOBD1	MIOBD1 18
MIOBD2	AC2	MIOBD2	MIOBD2 18
MIOBD3	AB2	MIOBD3	MIOBD3 18
MIOBD4	AB1	MIOBD4	MIOBD4 18
MIOBD5	AA1	MIOBD5	MIOBD5 18
MIOBD6	AB3	MIOBD6	MIOBD6 18
MIOBD7	AA3	MIOBD7	TP682 26MIL
MIOBD8	AC5	MIOBD8	MIOBD8 18
MIOBD9	AB5	MIOBD9	MIOBD9 18
MIOBD10	AB4	MIOBD10	TP678 26MIL
MIOBD11	AA5	MIOBD11	MIOBD11 18
MIOA_HSYNC	R3	MIOA_HSYNC	R1774 NV_2K_F 0402 +3VRUN 3,4,8,9,11,14,15,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71
MIOA_VSYNC	R1	MIOA_VSYNC	TP673 26MIL
MIOA_DE	P1	MIOA_DE	TP675 26MIL
MIOA_CTL3	P3	MIOA_CTL3	TP676 26MIL
MIOA_CLKOUT	R4	MIOA_CLKOUT	TP677 26MIL
MIOA_CLKOUT#	P4	MIOA_CLKOUT#	TP679 26MIL R197 NV_10K_J 0402
MIOA_CLKIN	M5	MIOA_CLKIN	
MIOA_VREF	L2	MIOA_VREF	TP695 26MIL
MIOACAL_PU_GND	L3	MIOACAL_PU_GND	TP680 26MIL
MIOACAL_PD_VDDQ	L1	MIOACAL_PD_VDDQ	TP681 26MIL
MIOB_HSYNC	AF3	MIOB_HSYNC	TP705 26MIL
MIOB_VSYNC	AE3	MIOB_VSYNC	TP706 26MIL
MIOB_DE	AD1	MIOB_DE	TP688 26MIL
MIOB_CTL3	AD3	MIOB_CTL3	TP689 26MIL
MIOB_CLKOUT	AD4	MIOB_CLKOUT	TP690 26MIL
MIOB_CLKOUT#	AD5	MIOB_CLKOUT#	TP699 26MIL R1939 NV_10K_J 0402
MIOB_CLKIN	AE4	MIOB_CLKIN	
MIOB_VREF	Y2	MIOB_VREF	TP684 26MIL
MIOBCAL_PU_GND	Y3	MIOBCAL_PU_GND	TP685 26MIL
MIOBCAL_PD_VDDQ	Y1	MIOBCAL_PD_VDDQ	TP841 26MIL

NV_GF-GO6600-N-AX (G73M)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (PCI EXPRESS) 1 OF 8	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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9 PEG_RXP[0..15]

TXP[0..15] 17

PEG_RXP0	1	2	TXP0	C285	NV_0.1U_16V_M_B 0402
PEG_RXP1	1	2	TXP1	C287	NV_0.1U_16V_M_B 0402
PEG_RXP2	1	2	TXP2	C289	NV_0.1U_16V_M_B 0402
PEG_RXP3	1	2	TXP3	C291	NV_0.1U_16V_M_B 0402
PEG_RXP4	1	2	TXP4	C293	NV_0.1U_16V_M_B 0402
PEG_RXP5	1	2	TXP5	C295	NV_0.1U_16V_M_B 0402
PEG_RXP6	1	2	TXP6	C297	NV_0.1U_16V_M_B 0402
PEG_RXP7	1	2	TXP7	C299	NV_0.1U_16V_M_B 0402
PEG_RXP8	1	2	TXP8	C301	NV_0.1U_16V_M_B 0402
PEG_RXP9	1	2	TXP9	C303	NV_0.1U_16V_M_B 0402
PEG_RXP10	1	2	TXP10	C305	NV_0.1U_16V_M_B 0402
PEG_RXP11	1	2	TXP11	C307	NV_0.1U_16V_M_B 0402
PEG_RXP12	1	2	TXP12	C309	NV_0.1U_16V_M_B 0402
PEG_RXP13	1	2	TXP13	C311	NV_0.1U_16V_M_B 0402
PEG_RXP14	1	2	TXP14	C313	NV_0.1U_16V_M_B 0402
PEG_RXP15	1	2	TXP15	C315	NV_0.1U_16V_M_B 0402

9 PEG_RXN[0..15]

TXN[0..15] 17

PEG_RXN0	1	2	TXN0	C286	NV_0.1U_16V_M_B 0402
PEG_RXN1	1	2	TXN1	C288	NV_0.1U_16V_M_B 0402
PEG_RXN2	1	2	TXN2	C290	NV_0.1U_16V_M_B 0402
PEG_RXN3	1	2	TXN3	C292	NV_0.1U_16V_M_B 0402
PEG_RXN4	1	2	TXN4	C294	NV_0.1U_16V_M_B 0402
PEG_RXN5	1	2	TXN5	C296	NV_0.1U_16V_M_B 0402
PEG_RXN6	1	2	TXN6	C298	NV_0.1U_16V_M_B 0402
PEG_RXN7	1	2	TXN7	C300	NV_0.1U_16V_M_B 0402
PEG_RXN8	1	2	TXN8	C302	NV_0.1U_16V_M_B 0402
PEG_RXN9	1	2	TXN9	C304	NV_0.1U_16V_M_B 0402
PEG_RXN10	1	2	TXN10	C306	NV_0.1U_16V_M_B 0402
PEG_RXN11	1	2	TXN11	C308	NV_0.1U_16V_M_B 0402
PEG_RXN12	1	2	TXN12	C310	NV_0.1U_16V_M_B 0402
PEG_RXN13	1	2	TXN13	C312	NV_0.1U_16V_M_B 0402
PEG_RXN14	1	2	TXN14	C314	NV_0.1U_16V_M_B 0402
PEG_RXN15	1	2	TXN15	C316	NV_0.1U_16V_M_B 0402

TVMODE(NV43M/G7X)
NTSC (01)

MIOAD10	MIOAD7	TVMODE
0	0	SECAM
0	1	NTSC
1	0	PAL
1	1	CRT

Strap for GDDR3-136ball
0001 16Mx32Infineon
0010 16Mx32Hynix
0011 16Mx32Samsung

0101 8Mx32Infineon
0110 8Mx32Hynix
0111 8Mx32Samsung

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

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

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

G72M/G73M/NV43M
PCI_DEVID[3:0]="1000"->8
G73M-U
PCI_DEVID[3:0]="1001"->9

CRYSTAL(NV43M/G7X)
10 (27M Hz)

MIOBD6	MIOBD2	Crystal
1	0	27MHz
0	1	14.318MHz
0	0	13.5MHz
1	1	Preserved

ROM_TYPE(NV43M/G7X) NC
MIOBD10,MIOBD_HSYNC

00 PARALLEL
01 SERIAL_AT25F
10 SERIAL_SST45VF
11 LPC

MIOAD6 MIOAD6 17
MIOAD8 MIOAD8 17
MIOAD9 MIOAD9 17

MIOBD0 MIOBD0 17
MIOBD1 MIOBD1 17
MIOBD3 MIOBD3 17
MIOBD4 MIOBD4 17
MIOBD5 MIOBD5 17
MIOBD8 MIOBD8 17
MIOBD9 MIOBD9 17
MIOBD11 MIOBD11 17

+3VRUN

17 MIOAD7 — MIOAD7 — R200 NV_2K_J 0402

MIOAD10 — R201 NV_2K_J 0402 — MIOAD10 17

PVT modify

RAM_CFG0	R203	NVH_2K_J 0402	MIOBD0	R204	NVIS_2K_J 0402
RAM_CFG1	R205	NVI_2K_J 0402	MIOBD1	R206	NVHS_2K_J 0402
RAM_CFG2	R207	NV16M_2K_J 0402	MIOBD8	R208	NV8M_2K_J 0402
RAM_CFG3	R209	NV_2K_J 0402	MIOBD9	R210	NC_2K_J 0402

SUBVENDOR — R211 NV_2K_J 0402 — MIOAD1 — MIOAD1 17

PEX_PLL_EN_TERM — R223 NV_2K_J 0402 — MIOAD0 — MIOAD0 17

10/13 FAE suggest to use 001

3GIO_PADCFG0	R225	NC_2K_J 0402	MIOAD6	R226	NV_2K_J 0402
3GIO_PADCFG1	R227	NV_2K_J 0402	MIOAD8	R228	NC_2K_J 0402
3GIO_PADCFG2	R229	NV_2K_J 0402	MIOAD9	R230	NC_2K_J 0402
PCI_DEVID 0	R231	NV7273_2K_J 0402	MIOBD4	R232	NV73U_2K_J 0402
PCI_DEVID 1	R233	NV_2K_J 0402	MIOBD5	R234	NC_2K_J 0402
PCI_DEVID 2	R235	NV_2K_J 0402	MIOBD3	R236	NC_2K_J 0402
PCI_DEVID 3	R237	NC_2K_J 0402	MIOBD11	R238	NV_2K_J 0402

CRYSTAL 0 — R241 NV_2K_J 0402 — MIOBD2 — MIOBD2 17

CRYSTAL 1 — 17 MIOBD6 — MIOBD6 — R244 NV_2K_J 0402

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (PCI-EXPRESS/STRAP) 2 OF 8	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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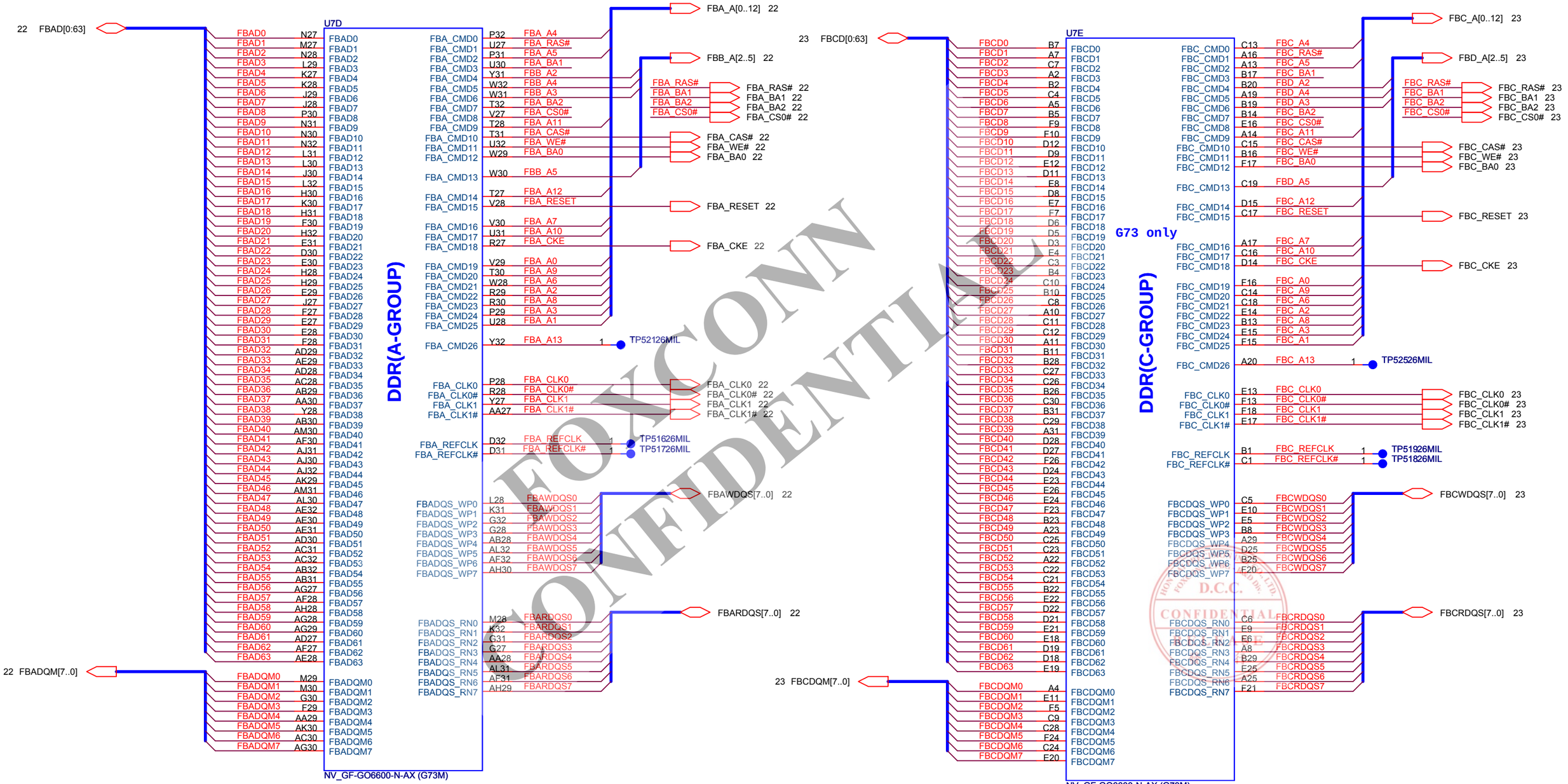

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VGA (GDDR) 3 OF 8	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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SM bus Address :
1001100(EC)
For F75383M

+3VRUN

R1056 NV_2.2K_J 0402
R1057 NV_2.2K_J 0402
R1385 NV_2.2K_J 0402
R1386 NV_2.2K_J 0402

HDCP

U7F

HDCP_SCL G3
HDCP_SDA H3
NV_I2CC_SCL G2
NV_I2CC_SDA G1
NV_I2CB_SCL H4
NV_I2CB_SDA J4
NV_I2CA_SCL K2
NV_I2CA_SDA J3

I2C

I2CH_SCL
I2CH_SDA
I2CC_SCL
I2CC_SDA
I2CB_SCL
I2CB_SDA
I2CA_SCL
I2CA_SDA

ROM

26MIL TP605 ROM_CS# AA4
26MIL TP570 ROM_SO AA6
TP_ROM_SI W2
26MIL TP687 ROM_SCLK AA7

ROMCS#
ROM_SO
ROM_SI
ROM_SCLK

GENERAL SIGNALS

THERMDN J1 NV_THERMDN
THERMDP K1 NV_THERMDP
BUFRST# F3 BUFRST# BUFRST# 35,36
STEREO T3 STEREO 1 TP137 26MIL
SWAPRDY_A M6 SWAPRDY 1 TP696 26MIL
MEMSTRAPSEL0 AE26 MEMSTRAPSEL3 1 TP139 26MIL
MEMSTRAPSEL1 AD26 TP_MEMSTRAPSEL2
MEMSTRAPSEL2 AH31 MEMSTRAPSEL1 1 TP142 26MIL
MEMSTRAPSEL3 AH32 MEMSTRAPSEL0 1 TP143 26MIL

C485 0402 NV_2200P_50V_K_B

F75383M(VERISION:0.28P)

THERM# GND
D- ALERT#
D+ SDA
VCC SCL
U8

DDR_ALERT# 8,60
SMB_THRM_DATA 4,60
SMB_THRM_CLK 4,60

R289 2.2K_J 0402
C486 0.1U_16V_M_B 0402
R293 NV_0_J 0402
NV_GPIO8
OVT_GFX# 60
To EC

UC_HDNI_HP 0402 NC_100K_J R1541
NV_DVI_DET 0402 NV_100K_J R301
NV_THERMDP 0402 CA_100_J R1775

PVT R1820 change to NC
CEC line capacitance = 777pF is much bigger than 100PF spec. After remove this resistor, CEC cap reduced to 39PF. Pass.
(This GPIO11 is no function on our system, Silicon Image suggest remove it.)

TEST SIGNAL

TP_FBA_DEBUG AC27 FBA_DEBUG
TP_FBC_DEBUG F12 FBC_DEBUG
R303 NV_10K_J 0402 TESTMODE H2 TESTMODE

GPIO

GPIO0 K3 UC_HDNI_HP
GPIO1 H1 TPI_INT_EN
GPIO2 K5 NV_BRADJ
GPIO3 G5 NV_LCDVCC_EN#
GPIO4 E2 NV_INV_EN
GPIO5 J5 R1819 NV_0_J 0402
GPIO6 G6 NV_GPIO6
GPIO7 K6 NV_GPIO7 1
GPIO8 E1 NV_GPIO8 1 TP713 26MIL
GPIO9 D2 NV_GPIO9 1 TP522 26MIL
GPIO10 H5 UC_INT1
GPIO11 F4 NV_RSET_CTL R1820 NC_0_J 0402
GPIO12 E3 NV_PRGM#

UC_HDNI_HP 35
TPI_INT_EN 35
NV_BRADJ 31
NV_LCDVCC_EN# 31
NV_INV_EN 31
NV_DVI_DET 64
NV_GPIO6 35
UC_INT1 35
HDMI_CEC 34
NV_PRGM# 35

CRYSTAL

XTALSSIN T1 XTALSSIN
XTALOUTBUFF T2 XTALOUTBUFF
XTALIN U1 NV_XTALIN
XTALOUT U2 NV_XTALOUT
Y2 27MHZ_20P_20PPM ITTI_L5020-27.000-20
NV_27P_50V_J_N C494 0402
NV_27P_50V_J_N C495 0402

JTAG_TCK NV_JTAG_TCK AJ11
JTAG_TMS NV_JTAG_TMS AK11
JTAG_TDI NV_JTAG_TDI AK12
JTAG_TDO NV_JTAG_TDO AL12
JTAG_TRST_N NV_JTAG_TRST# AL13
26MIL TP150

NV_GF-GO6600-N-AX (G73M)

+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

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

3,44,45,46,47,49,50,55,59,61,63,64,68,70,7 +3VRUN

R1105 NV_10K_J 0402
C1139 NC_0.1U_16V_M_B 0402
U82
HDCP_SCL
HDCP_SDA
R1134 NC_10K_J 0402
NC_EEPROM_SOIC-8_8 K
AT88SC0808C-SU

HDCP ROM

3,4,8,9,11,14,15,17,18,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R1542 NC_10K_J 0402
SS_S0
R1543 NC_10K_J 0402
R319 NV_10K_J 0402
C492 NV_1U_10V_Y_Y 0603
C493 NV_1000P_50V_M_B 0402
XTALOUTBUFF
R316 NV_22_J 0402
XTALSSIN
R317 NV_22_J 0402
R320 NV_10K_J 0402
R321 NV_10K_J 0402
U10
XTALOUTBUFF_R
SS_S0
VGA27MSSOUT
X1/ICLK X2
GND VDD
S0 PD#
SSCLK REFCLK
NV_MK1726-08
REFCLK1 TP156 26MIL

Tis chip can use MK1726 or P1819B

R316 place near GPU
R317 place near spectrum chip

SPREAD SPECTRUM SETTING FOR MK

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

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

SPREAD SPECTRUM SETTING FOR P1819B

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

nVidia support Down -1.25%

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

Title: VGA (POWER) 7 OF 8
Size: A3
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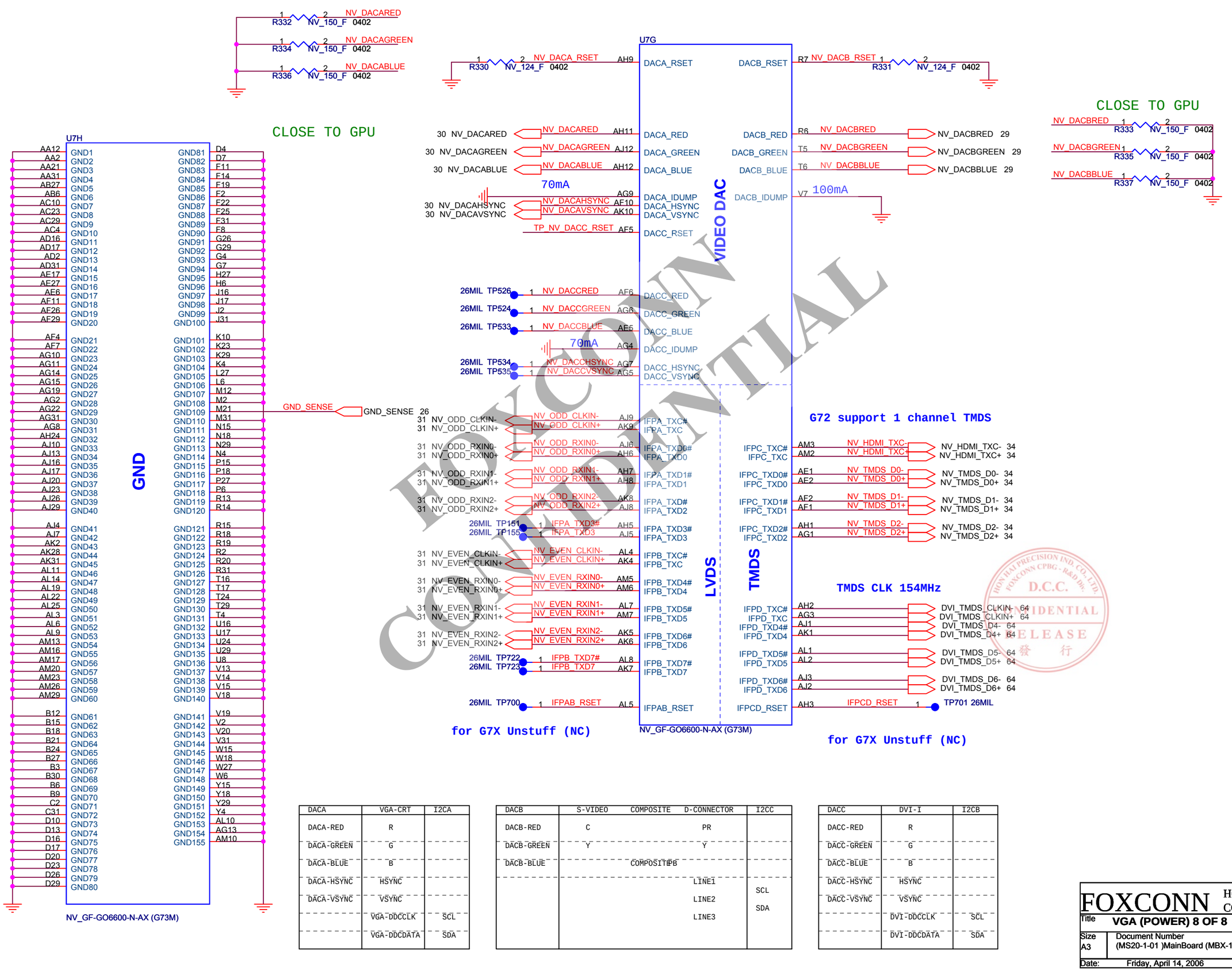

DACA	VGA-CRT	I2CA
DACA-RED	R	
DACA-GREEN	G	
DACA-BLUE	B	
DACA-HSYNC	HSYNC	
DACA-VSYNC	VSYNC	
	VGA-DDCCLK	SCL
	VGA-DDCDATA	SDA

DACB	S-VIDEO	COMPOSITE	D-CONNECTOR	I2CC
DACB-RED	C		PR	
DACB-GREEN	Y		Y	
DACB-BLUE		COMPOSITE	PB	
			LINE1	SCL
			LINE2	SDA
			LINE3	

DACC	DVI-I	I2CB
DACC-RED	R	
DACC-GREEN	G	
DACC-BLUE	B	
DACC-HSYNC	HSYNC	
DACC-VSYNC	VSYNC	
	DVI-DDCCLK	SCL
	DVI-DDCDATA	SDA

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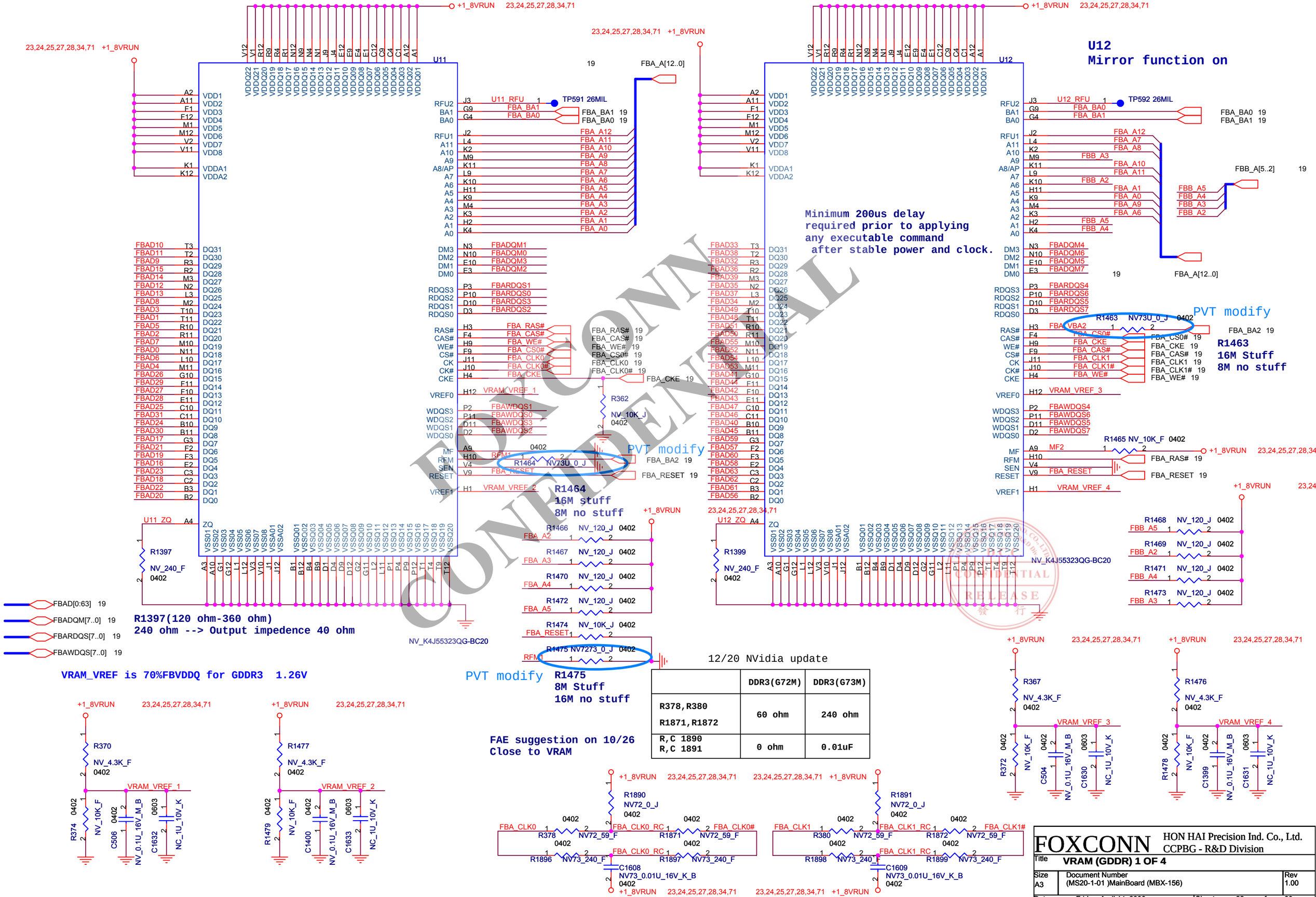

+1_8VRUN 22,24,25,27,28,34,71

U13

U13_ZQ A4 — R1414 NV73_240_F 0402 — ZQ

U13_RFU 1 — TP593 26MIL

FBC_BA1 19
FBC_BA0 19

FBC_A[12..0]

FBCDQM0
FBCDQM1
FBCDQM3
FBCDQM2 19

FBCRDQS0
FBCRDQS1
FBCRDQS3
FBCRDQS2

FBC_RAS# 19
FBC_CAS# 19
FBC_WE# 19
FBC_CS0# 19
FBC_CLK0 19
FBC_CLK0# 19
FBC_CKE 19

VRAM_VREF_5 — R1481 NV73_10K_J 0402

FBCWDQS0
FBCWDQS1
FBCWDQS3
FBCWDQS2

R1482 NV73U_0_J — PVT modify — FBC_BA2 19

FBC_RESET 19

VRAM_VREF_6

NV73_K4J55323QG-BC20

FBCD[0:63] 19
FBCDQM[7..0] 19
FBCRDQS[7..0] 19
FBCWDQS[7..0] 19

R1414(120 ohm-360 ohm)
240 ohm --> Output impedence 40 ohm

R1482
16M stuff
8M no stuff

R1493
8M Stuff
16M no stuff

VRAM_VREF is 70%FBVDDQ for GDDR3 1.26V

R1484–R1492 NV73_120_J 0402 / NV73_10K_J 0402

R1493 NV73Only_0_J 0402

040506
R1493 change part name (G73Only_ ->NV73Only_)
to meet BOM configuration
***PVT already modify(special noties V0.6)**

U14

U14_ZQ A4 — R1416 NV73_240_F 0402 — ZQ

Minimum 200us delay required prior to applying any executable command after stable power and clock.

U14
Mirror function on

TP594 26MIL

FBC_BA0 19
FBC_BA1 19

FBD_A[5..2] 19

FBC_A[12..0] 19

FBCDQM6
FBCDQM7
FBCDQM4
FBCDQM5

FBCRDQS6
FBCRDQS7
FBCRDQS4
FBCRDQS5

R1480 NV73U_0_J 0402 — PVT modify — FBC_BA2 19

FBC_CS0# 19
FBC_CKE 19
FBC_CAS# 19
FBC_CLK1 19
FBC_CLK1# 19
FBC_WE# 19

VRAM_VREF_7

FBCWDQS6
FBCWDQS7
FBCWDQS4
FBCWDQS5

R1483 NV73_10K_F 0402 — FBCMF — FBC_RAS# 19

FBC_RESET 19

VRAM_VREF_8

R1485–R1491 NV73_120_J 0402

R1480
16M Stuff
8M no stuff

11/3 nVidia update

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

R1496 NV73_4.3K_F 0402 — VRAM_VREF_5 — R1500 NV73_10K_F 0402 — C1403 NV73_0.1U_16V_M_B 0402 — C1636 NC_1U_10V_K 0603

R1497 NV73_4.3K_F 0402 — VRAM_VREF_6 — R1501 NV73_10K_F 0402 — C1404 NV73_0.1U_16V_M_B 0402 — C1637 NC_1U_10V_K 0603

C1582 NV73_0.01U_25V_M_B 0402 — FBC_CLK0 — R1502 NV73_240_F 0402 — R1873 NV73_240_F 0402 — FBC_CLK0#

C1583 NV73_0.01U_25V_M_B 0402 — FBC_CLK1 — R1503 NV73_240_F 0402 — R1874 NV73_240_F 0402 — FBC_CLK1#

R1495 NV73_4.3K_F 0402 — VRAM_VREF_7 — R1499 NV73_10K_F 0402 — C1402 NV73_0.1U_16V_M_B 0402 — C1634 NC_1U_10V_K 0603

R1494 NV73_4.3K_F 0402 — VRAM_VREF_8 — R1498 NV73_10K_F 0402 — C1401 NV73_0.1U_16V_M_B 0402 — C1635 NC_1U_10V_K 0603

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	VRAM (GDDR) 1 OF 4		
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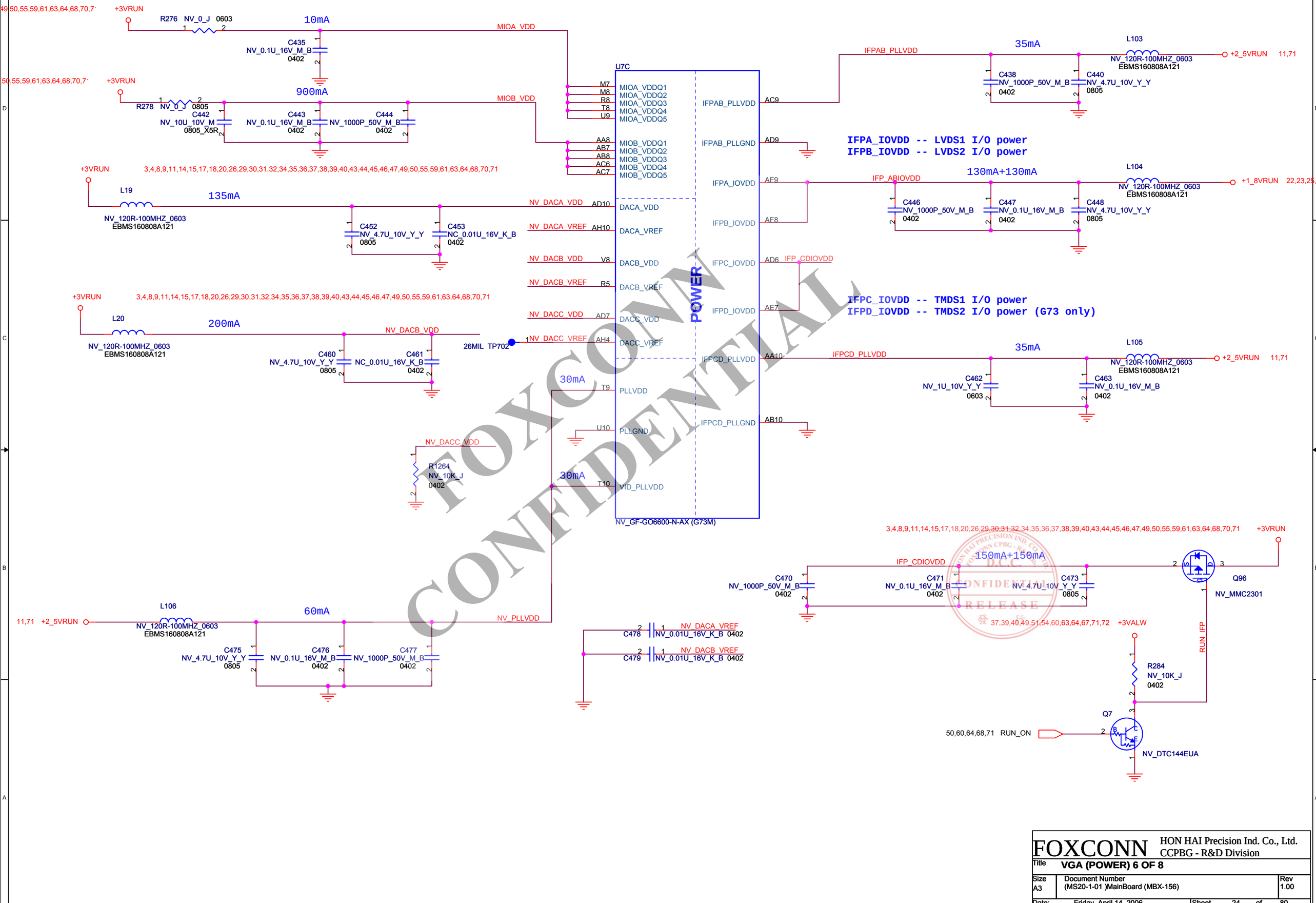

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
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For GDDR3 FBVTT require decoupling capacitor,FBVDD don't require them.

U7I

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

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

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

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

POWER

22,23,24,27,28,34,71 +1_8VRUN
R270 NV72_4.3K_F 0402
FB_VREF1
C432 NV72_0.1U_16V_M_B 0402
R274 NV72_10K_F 0402

1.2V L93
26,72,73 PEX_VDD
NV_120R-100MHZ_0603
EBMS160808A121
30mA(Frame Buffer Analog Power)
C411 NV_4.7U_10V_Y_Y 0805
C413 NV_0.1U_16V_Y_Y 0402
C1420 NV_1000P_50V_M_B 0402

FBA_PLLAVDD G25 FBA_PLLAVDD
G24 FBA_PLLGND

FBC_PLLAVDD G10 FBC_PLLAVDD
G9 FBC_PLLGND

FBCAL_PD_VDDQ K26 FBCAL_PD_VDDQ
FBCAL_PU_GND H26 FBCAL_PU_GND
FBCAL_TERM_GND J26 FBCAL_TERM_GND

NV_GF-GO6600-N-AX (G73M)

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

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

+1_8VRUN 22,23,24,27,28,34
C406 NV_0.1U_16V_M_B 0402
C407 NV_0.1U_16V_M_B 0402
C427 NV_1000P_50V_M_B 0402
C426 NV_1000P_50V_M_B 0402

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

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

1.2V L95
72,73 PEX_VDD
NV73_120R-100MHZ_0603
EBMS160808A121
30mA(Frame Buffer Analog Power)
C422 NV73_4.7U_10V_Y_Y 0805
C424 NV73_0.1U_16V_Y_Y 0402
C1422 NV73_1000P_50V_M_B 0402

+1_8VRUN 22,23,24,27,28,34,71
FBCAL_PD_VDDQ R1900 NV73_49.9_F 0402 R269 NV72_59_F 0402
FBCAL_PU_GND R272 NV_40.2_F 0402
FBCAL_TERM_GND R273 NV_40.2_F 0603

11/3 nVidia update

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

FOXCONN HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
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G3 design guide require that PEX_IOVDD/Q directly connect to PEX_VDD on page 16.

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

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

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

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

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

247,49,50,55,59,61,63,64,68,70,7 +3VRUN
110mA(3.3V Power rail GPIO,I2C,GPU DIGITAL LOGIC)
C365 NV_1U_10V_Y_Y 0603
C367 NV_1000P_50V_M_B 0402
C373 NV_0.1U_16V_M_B 0402
C370 NV_0.1U_16V_M_B 0402
C371 NV_0.1U_16V_M_B 0402
C372 NV_0.1U_16V_M_B 0402

U7B

AD23	PEX_IOVDD0	
AE24	PEX_IOVDD1	
AF23	PEX_IOVDD2	
AF25	PEX_IOVDD3	
AG24	PEX_IOVDD4	
AG25	PEX_IOVDD5	
AC16	PEX_IOVDDQ0	
AC17	PEX_IOVDDQ1	
AC21	PEX_IOVDDQ2	
AC22	PEX_IOVDDQ3	
AE18	PEX_IOVDDQ4	
AE21	PEX_IOVDDQ5	
AE22	PEX_IOVDDQ6	
AF12	PEX_IOVDDQ7	
AF18	PEX_IOVDDQ8	
AF21	PEX_IOVDDQ9	
AF22	PEX_IOVDDQ10	
AF15	PEX_PLLAVDD	
AE15	PEX_PLLDVDD	
AE16	PEX_PLLGND	
P20	VDD_LP1	
T20	VDD_LP2	
T23	VDD_LP3	
U20	VDD_LP4	
U23	VDD_LP5	
W20	VDD_LP6	
AC11	VDD33_0	
AC12	VDD33_1	
AC24	VDD33_2	
AD24	VDD33_3	
AE11	VDD33_4	
AE12	VDD33_5	
H7	VDD33_6	
J7	VDD33_7	
K7	VDD33_8	
L10	VDD33_9	
L7	VDD33_10	
L8	VDD33_11	
M10	VDD33_12	
AG12	NC1	
AH13	NC2	
J6	NC3	
B32	NC4	
AM9	NC5	
AM8	NC6	
Y30	NC7	
AC26	NC8	
U3	NC9	
V3	NC10	
U6	NC11	
U5	NC12	

NV_GF-GO6600-N-AX (G73M)

TP_NFNC1
TP_NFNC2
HSPDIF
NFNC4
NFNC5
NFNC6
NFNC7
TP_NFNC8
NFNC9
NFNC10
NFNC11
NFNC12
55 HSPDIF
26MIL TP624
26MIL TP626
26MIL TP628
26MIL TP629
26MIL TP635
26MIL TP634
26MIL TP636
26MIL TP637

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

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

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

U4	NFNC13	TP614 26MIL
V4	NFNC14	TP613 26MIL
V6	NFNC15	TP616 26MIL
C20	NFNC16	TP615 26MIL
D1	NFNC17	TP618 26MIL
W3	NFNC18	TP617 26MIL
V1	NFNC19	TP620 26MIL
Y5	NFNC20	TP622 26MIL
W1	NFNC21	TP623 26MIL
W4	NFNC22	TP625 26MIL
W5	NFNC23	TP627 26MIL
V5	NFNC24	TP631 26MIL
Y6	NFNC25	TP630 26MIL
F6	NFNC26	TP633 26MIL
G8	TP_FBC_PLLVDD	
G23	FBA_PLLVDD	TP586 26MIL
A28	FB_VREF2	TP587 26MIL
F1	STRAP	TP590 26MIL
A26	TESTMEMCLK	

NC13 NC14 NC15 NC16 NC17 NC18 NC19 NC20 NC21 NC22 NC23 NC24 NC25 NC26 NC27 NC28 NC29 NC30 NC31

R1544 NV72_10K_J 0402

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

G72M 1.1V
G73M 1.1V
G73M-U 1.2V

CRB circuit 050611

2006.4.11
NV_VDD on G73M-U power noise issue,modify BOM configuration,
(1)G73M-U (H) C352,C362,C363,C364
on 22uF / X5R / 0805(1C-2B70226-M100)
(2)G72 (L) / G73 (M) C352,C362,C363,C364
on 10uF / X5R / 0805(1C-2B70106-M100)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
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Decoupling for Tright MEMORY

Place around the MEM

MOR recommend 10/28

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

5/6
4.7u->10u

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

PVT EMI recommend(NC_ ->NV_)

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

1.2A

C524 NV_1000P_50V_M_B 0402
C525 NV_1000P_50V_M_B 0402

Decoupling for Tleft MEMORY

Place around the MEM

MOR recommend 10/28

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

5/6
4.7u->10u

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

PVT EMI recommend(NC_ ->NV_)

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

C554 NV_1000P_50V_M_B 0402
C555 NV_1000P_50V_M_B 0402

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	VRAM (GDDR) 3 OF 4	
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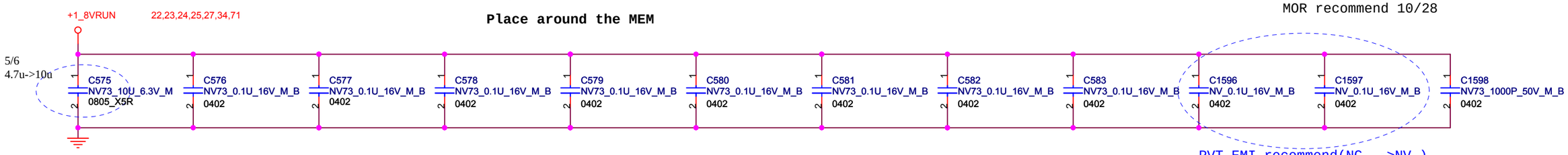
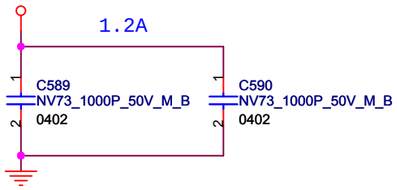
Decoupling for Bright MEMORY

Place around the MEM

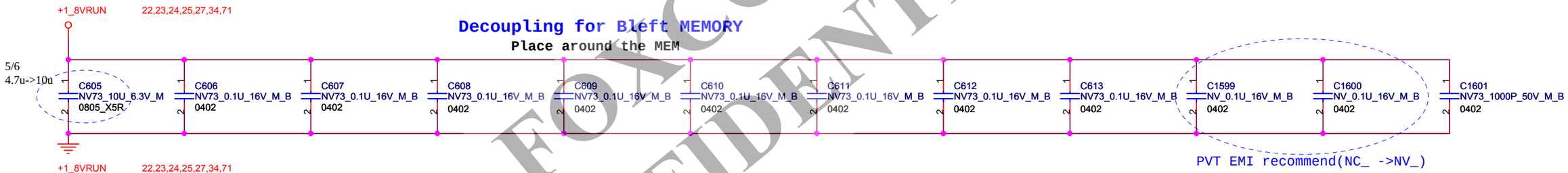
MOR recommend 10/28

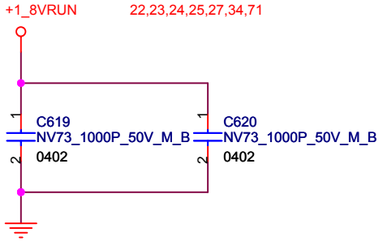




Decoupling for Bleft MEMORY

Place around the MEM





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

H : S-VIDEO&CVBS
L : PORT REPLICATOR

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

C691 1U_10V_Y_Y 0603

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

COME TO DOCKING

U77 SN74CBT3257PW

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

30 GM_OR_NV_DDCCLK
30 GM_OR_NV_DDCDATA

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

S-VIDEO

These compoent close to S-Video connector within 700 mil

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

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

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

Y_OUT	3	5	B_SVD_DET#
C_OUT	4	6	
		7	
		8	
		9	

D81 D61 D60 — NV_SM05.TCT

B_SVD_DET# — D81
C_OUT — D61
Y_OUT — D60

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

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

R1545 NV_2.2K_J 0402
R1546 NV_2.2K_J 0402 — NV_HDMI_DET_3 34

Q115 NV_DTC144EUA
Q116 NV_DTC144EUA
34,35 NV_HDMI_DET_5

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

64 DOCK_SEMI_PNP — R1911 10K_J 0402

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

NC_MC74VHC1G86DFT2G

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

U84 74AHC1G08GW — 30,64 DOCKED# — AND4
R1952 0_J 0402

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

R1076 10K_J 0402
R1077 10K_J 0402
SEMI5

(CRT) VGA_CRT_DET# — 30 VGA_CRT_DET#
(SVDIO) B_SVD_DET#
U72 MC74VHC1G86DFT2G

DVT modify

040606
Modify BOM to desable HDMI connentor SEMI PNP Hot plug detect function:(backup)
(1)U108 change part name to NC_ (not stuff)
(2)Add R1952 (0 ohm) link U84 pin4 to U73 pin2

Semi-PnP

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

29,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73 +5VRUN

C652 1U_10V_Y_Y 0603

21 NV_DACARED — R463 NV_0_J 0402 — RED
9 GM_RED — R464 CA_0_J 0402

21 NV_DACAGREEN — R469 NV_0_J 0402 — GREEN
9 GM_GREEN — R471 CA_0_J 0402

21 NV_DACABLUE — R473 NV_0_J 0402 — BLUE
9 GM_BLUE — R474 CA_0_J 0402

21 NV_DACAVSYNC — R479 NV_0_J 0402 — VSYNC_IN
9 GM_VSYNC — R476 CA_0_J 0402

29,64 DOCKED#

U81 SN74CBT3257PW

4	1A	1B1	16
		1B2	2
7	2A	2B1	3
		2B2	5
9	3A	3B2	6
		3B1	10
12	4A	4B2	11
		4B1	13
1	S	OE#	14
		GND	15
			8

VCC

PR_RED 2 — VGA_RED 3 — PR_RED 64
PR_GREEN 5 — VGA_GREEN 6 — PR_GREEN 64
VGA_BLUE 10 — PR_BLUE 11 — PR_BLUE 64
VGAVSYNC 13 — PR_VSYNC 14 — PR_VSYNC 64

SWITCH FREQ. IS 200MHZ.

H : NOTEBOOK
L : PORT REPLICATOR

21 NV_DACAHSYNC — R1082 NV_0_J 0402 — HSYNC_IN
9 GM_HSYNC — R1081 CA_0_J 0402

3,4,8,9,11,14,15,17,18,20,24,26,29,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

29,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73 +5VRUN — R1058 0_J 0402 — A3001

C1105 0.1U_16V_M_B 0402

C1519 0.1U_16V_M_B 0402

D_SHIFT_+5VRUN — C1106 0.1U_16V_M_B 0402

U76 CM2009-02QR

2	VCC_VIDEO	VCC_DDC	7
3	VIDEO_1	VCC_SYNC	1
4	VIDEO_2	BYP	8
5	VIDEO_3	DDC_OUT1	9
10	DDC_IN1	DDC_OUT2	12
11	DDC_IN2	SYNC_OUT1	14
13	SYNC_IN1	SYNC_OUT2	16
15	SYNC_IN2	GND	6

J_RED 3 — J_BLUE 4 — J_GREEN 5

A3003 C1107 0402 0.1U_16V_M_B

29 MB_DDCCLK — MB_CRT_DDCCLK
29 MB_DDCDATA — MB_CRT_DDCDATA
HSYNC_IN — PR_VGA_HSYNC 64
VGAVSYNC — AVSYNC

3,4,8,9,11,14,15,17,18,20,24,26,29,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

5/12
Follow Intel FAE suggest GM_DDCCLK and GM_DDCDATA are 3.3V tolerance signals from Calistoga

R1225 2.2K_J 0402 — C1108 0402 0.1U_16V_M_B

R491 NV_0_J 0402
20 NV_I2CA_SCL — GM_OR_NV_DDCCLK — GM_OR_NV_DDCCLK 29
R1146 CA_0_J 0402
9 GM_DDCCLK

3,4,8,9,11,14,15,17,18,20,24,26,29,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R1228 2.2K_J 0402 — C1152 0402 0.1U_16V_M_B

R485 NV_0_J 0402
20 NV_I2CA_SDA — GM_OR_NV_DDCDATA — GM_OR_NV_DDCDATA 29
R1145 CA_0_J 0402
9 GM_DDCDATA

29,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73 +5VRUN

D7 BAS316

D_SHIFT_+5VRUN — R483 2.2K_J 0402 — MB_CRT_DDCCLK — C663 220P_50V_J_N 0402

D_SHIFT_+5VRUN — R487 2.2K_J 0402 — MB_CRT_DDCDATA — C667 220P_50V_J_N 0402

CRT CONNECTOR

L33 75R-100MHZ_0603 EBMS160808B750
VGA_BLUE — R489 150_F 0402 — C666 10P_50V_J_N 0402

L35 75R-100MHZ_0603 EBMS160808B750
VGA_GREEN — R493 150_F 0402 — C669 10P_50V_J_N 0402

L36 75R-100MHZ_0603 EBMS160808B750
VGA_RED — R495 150_F 0402 — C671 10P_50V_J_N 0402

5/6
change to NC

5/6
change to 10P

26MIL TP683

CN4 DZ11A91-NB205-4F

17	PTH2	NPTH4	19
5	15		5
15	10		
4	14		4
10	9		
14	13		3
9	8		
3	12		2
13	7		
8	11		1
12	6		
2	NPTH3		18
7	PTH1		
1	16		
11			
6			

MB_CRT_DDCCLK
VGA_CRT_DET#
TP_VGA_ID2
VSYNC14
CRT_+5VRUN
J_BLUE
HSYNC13
MB_CRT_DDCDATA
J_GREEN
J_RED
TP_VGA_ID0

PR_VGA_HSYNC — R1148 0_J 0402 — HSYNC13 — C655 47P_50V_J_N 0402

AVSYNC — R1149 0_J 0402 — VSYNC14 — C659 47P_50V_J_N 0402

VGA_CRT_DET# — VGA_CRT_DET# 29

Q60 DTC144EUA

60,64 EN_EXT_DEV_SENSE

Semi-PnP(EC out)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: CRT		
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
Date: Friday, April 14, 2006	Sheet 30 of 80	

LVDS

Group1 Group2

21 NV_ODD_CLKIN-
21 NV_ODD_CLKIN+
0404_4P2R NV_0 RP76 — ODD_CLKIN- / ODD_CLKIN+
0404_4P2R CA_0 RP77
GM_ODD_CLKIN- 9
GM_ODD_CLKIN+ 9

21 NV_ODD_RXIN0-
21 NV_ODD_RXIN0+
0404_4P2R NV_0 RP78 — ODD_RXIN0- / ODD_RXIN0+
0404_4P2R CA_0 RP79
GM_ODD_RXIN0- 9
GM_ODD_RXIN0+ 9

21 NV_ODD_RXIN1-
21 NV_ODD_RXIN1+
0404_4P2R NV_0 RP80 — ODD_RXIN1- / ODD_RXIN1+
0404_4P2R CA_0 RP81
GM_ODD_RXIN1- 9
GM_ODD_RXIN1+ 9

21 NV_ODD_RXIN2-
21 NV_ODD_RXIN2+
0404_4P2R NV_0 RP82 — ODD_RXIN2- / ODD_RXIN2+
0404_4P2R CA_0 RP83
GM_ODD_RXIN2- 9
GM_ODD_RXIN2+ 9

21 NV_EVEN_CLKIN-
21 NV_EVEN_CLKIN+
0404_4P2R NV_0 RP84 — EVEN_CLKIN- / EVEN_CLKIN+
0404_4P2R CA_0 RP85
GM_EVEN_CLKIN- 9
GM_EVEN_CLKIN+ 9

21 NV_EVEN_RXIN0-
21 NV_EVEN_RXIN0+
NV_0 RP86 — EVEN_RXIN0- / EVEN_RXIN0+ — CA_0 RP87
GM_EVEN_RXIN0- 9
GM_EVEN_RXIN0+ 9

21 NV_EVEN_RXIN1-
21 NV_EVEN_RXIN1+
NV_0 RP88 — EVEN_RXIN1- / EVEN_RXIN1+ — CA_0 RP89
GM_EVEN_RXIN1- 9
GM_EVEN_RXIN1+ 9

21 NV_EVEN_RXIN2-
21 NV_EVEN_RXIN2+
0404_4P2R NV_0 RP90 — EVEN_RXIN2- / EVEN_RXIN2+
0404_4P2R CA_0 RP91
GM_EVEN_RXIN2- 9
GM_EVEN_RXIN2+ 9

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

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

Place C640 and C1558 close to CN49.

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

2A

INV_ENABLE
INV_BRADJ
CN49 — B TO B HEADER CONN_6P FOX_HS8106E

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

U106 74AHC1G08GW
39 INV_EN_EC
NB_BRADJ — R1268 CA_0_J 0402
20 NV_BRADJ — R1269 NV_0_J 0402
INV_EN_EC
BRADJPWM_LPF
R1549 10K_J 0402

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

9/7 change for custmer requirement.

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

U16 74AHC1G08GW
60,63 LIDIN#
20 NV_INV_EN
9 GM_INV_EN (3.3V tolerant) — R1724 — R458 CA_100K_J 0402 — CA_0_J 0402

U15 74AHC1G08GW
39 INV_EN_EC
INV_ENABLE — INV_ENABLE 63
R1550 10K_J 0402

9/7 change for custmer requirement.

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

Place C650 close to CN3

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

R459 2K_J 0402

Current limit is from 1.1A to 2.1A.

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

Q10 CA_DTC144EUA
9 GM_LCDVCC_EN
20 NV_LCDVCC_EN#

C647 0.1U_16V_M_B 0402

U17 G548B2P1U
IN1 IN2 EN GND OUT3 OUT2 OUT1 OC

C1151 0402 INV_0.1U_16V_Y_Y

LCDVCC
R461 62_J 0805
DISCHARGE
Q135 MMC2301
R1857 47K_J 0402
R1856 4.7K_J 0402
Q141 MMBT3904
R1892 0402 10K_J
NV_LCDVCC_EN# 20

11/5

LVDS CONNECTOR

LCDVCC
37,39 LVDS_GPIO — GAMMA_CTRL
EVEN_RXIN0+ / EVEN_RXIN0-
EVEN_RXIN1+ / EVEN_RXIN1-
EVEN_RXIN2+ / EVEN_RXIN2-
EVEN_CLKIN+ / EVEN_CLKIN-
ODD_CLKIN+ / ODD_CLKIN-
ODD_RXIN2+ / ODD_RXIN2-
ODD_RXIN1+ / ODD_RXIN1-
ODD_RXIN0+ / ODD_RXIN0-
CN3 — FOX_GS12301-1011A-9F FPC RECEPTCAL CONN_30P

INVERTER CONNECTOR

LCDVCC
R1937 NC_0_J 0402
GAMMA_CTRL
R1938 0_J 0402

2006.3.13
CN3 update OrCAN symbol

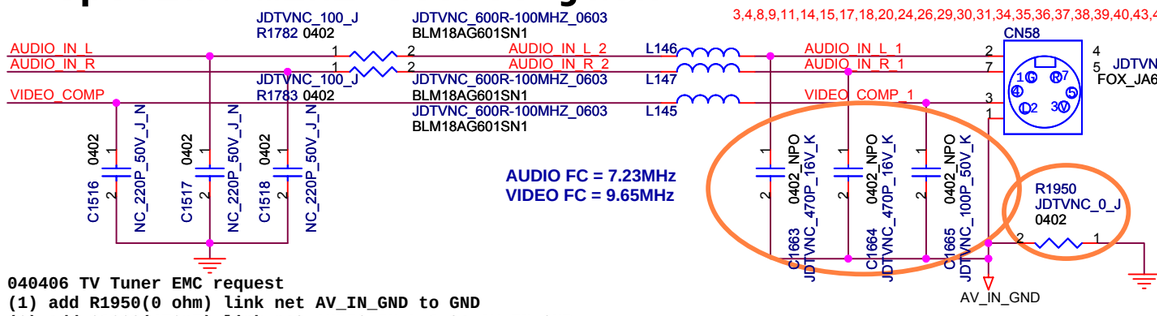
PANEL ID
SW1 HDS404-E_SW-SLIDE
LCDID0 39
LCDID1 39
LCDID2 39
FAN_SEL 60

FAN_SEL:
H: Foxconn FAN
L: MOR cooling unit

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

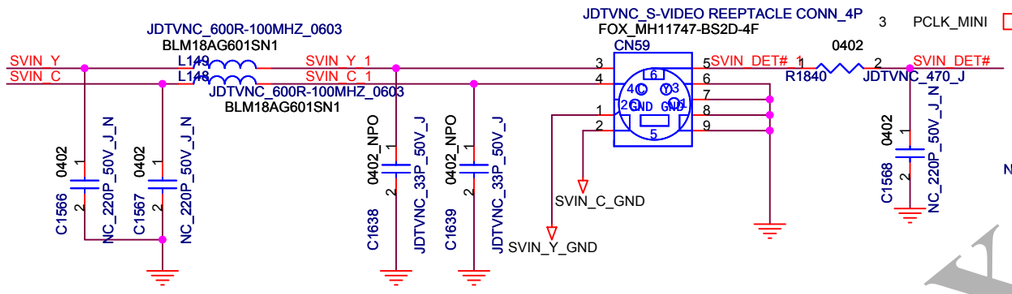
FOXCONN HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title: LVDS
Size: A3 | Document Number: (MS20-1-01)MainBoard (MBX-156) | Rev: 1.00
Date: Friday, April 14, 2006 | Sheet 31 of 80

Special mini stereo jack

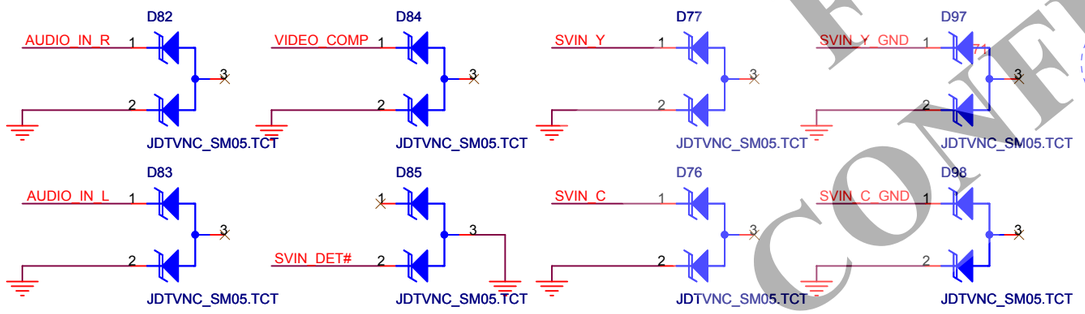


040406 TV Tuner EMC request
(1) add R1950(0 ohm) link net AV_IN_GND to GND
(2) add C1663(470pF) link net AUDIO_IN_L_1 to AV_IN_GND
(3) add C1664(470pF) link net AUDIO_IN_R_1 to AV_IN_GND
(4) add C1665(100pF) link net VIDEO_COMP_1 to AV_IN_GND

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



S-VIDEO IN



B-CAS connentor
(Close to TV Tuner)

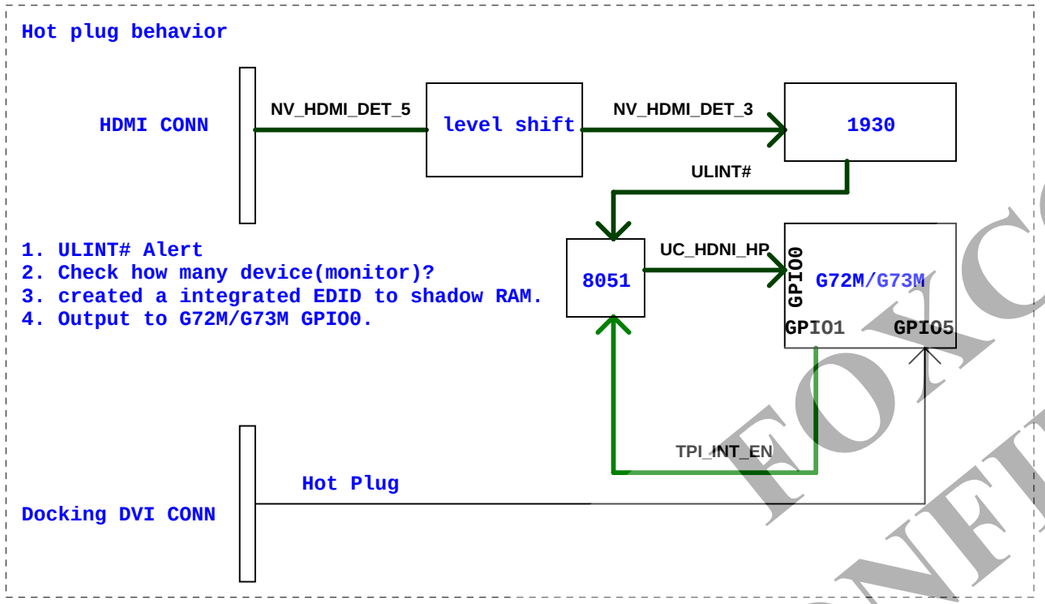
FFC CONNECT TO TV TUNER BOARD
(FOR JP DIAGITAL)

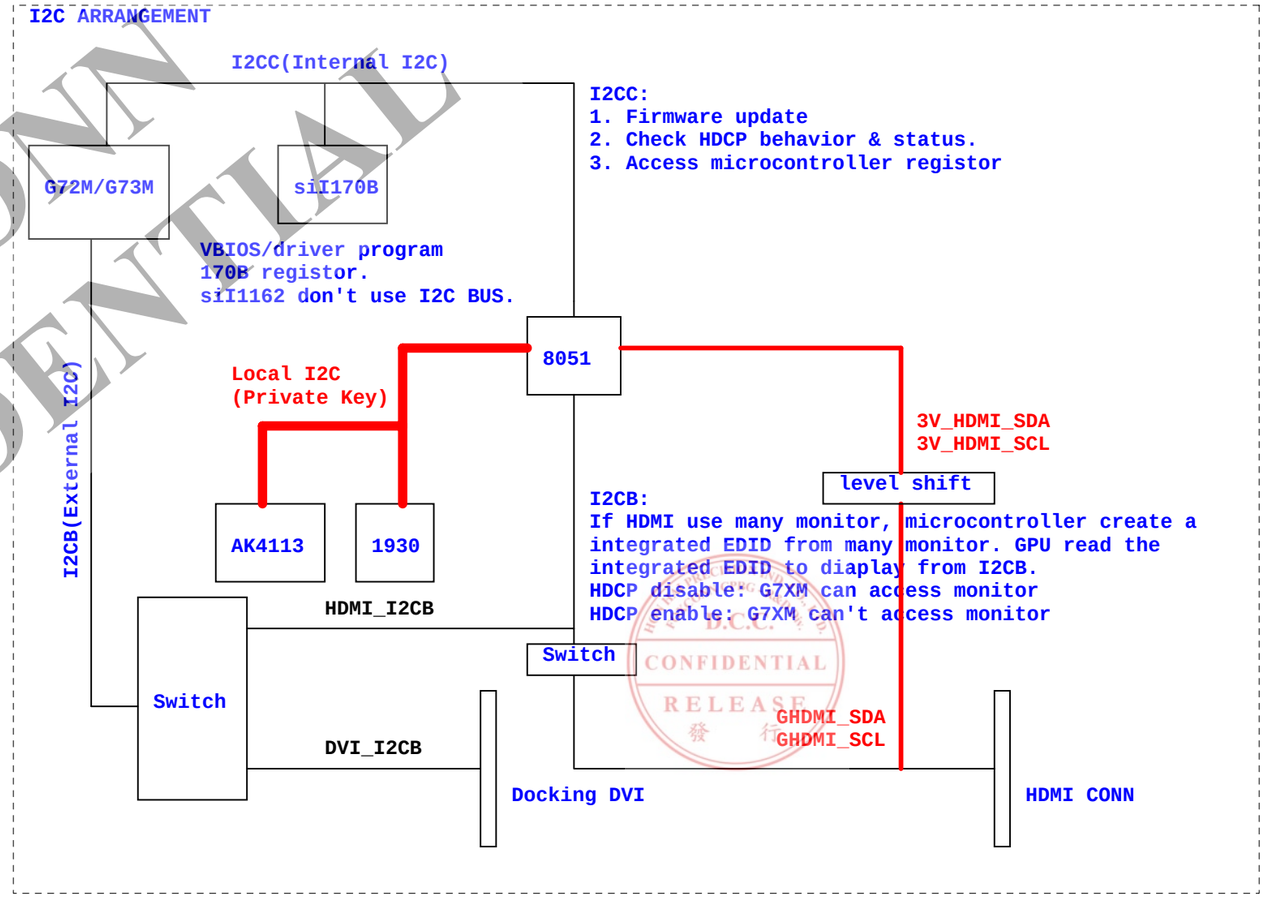
12/21 BFT Test Pad

030306: Change S/N from 1N-0010000-M0X0 to 1N-0010000-MWG0.
031006: change part name from NV73_->TV_

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	MINI-PCI CONN.	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 32 of 80	

Hot plug behavior & I2C ARRANGEMENT block diagram





Title	Hot plug behavior & I2C ARRANGEMENT block diagram	
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
Date: Friday, April 14, 2006	Sheet 33 of 80	

VCC: 150mA

AVCC: 2mA

SPVCC: 35mA

SVCC: 300mA

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

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

U117

Silicon Image
Sil1930

030806: Update CN60 CIS symbol for SMT issue.

CN60
HDMI_CONN_19P
FOX_QJ51193_ESB3_7F

U128
RClamp0514M

DVT-2 1/11
Modify ESD diode (U128)depend on HDMI spec(C<50 pF)
change part uClamp0504A->RClamp0514M

Close to sii1930

6/16 -> package 0402(300R)->0603(300R)
For special layout.

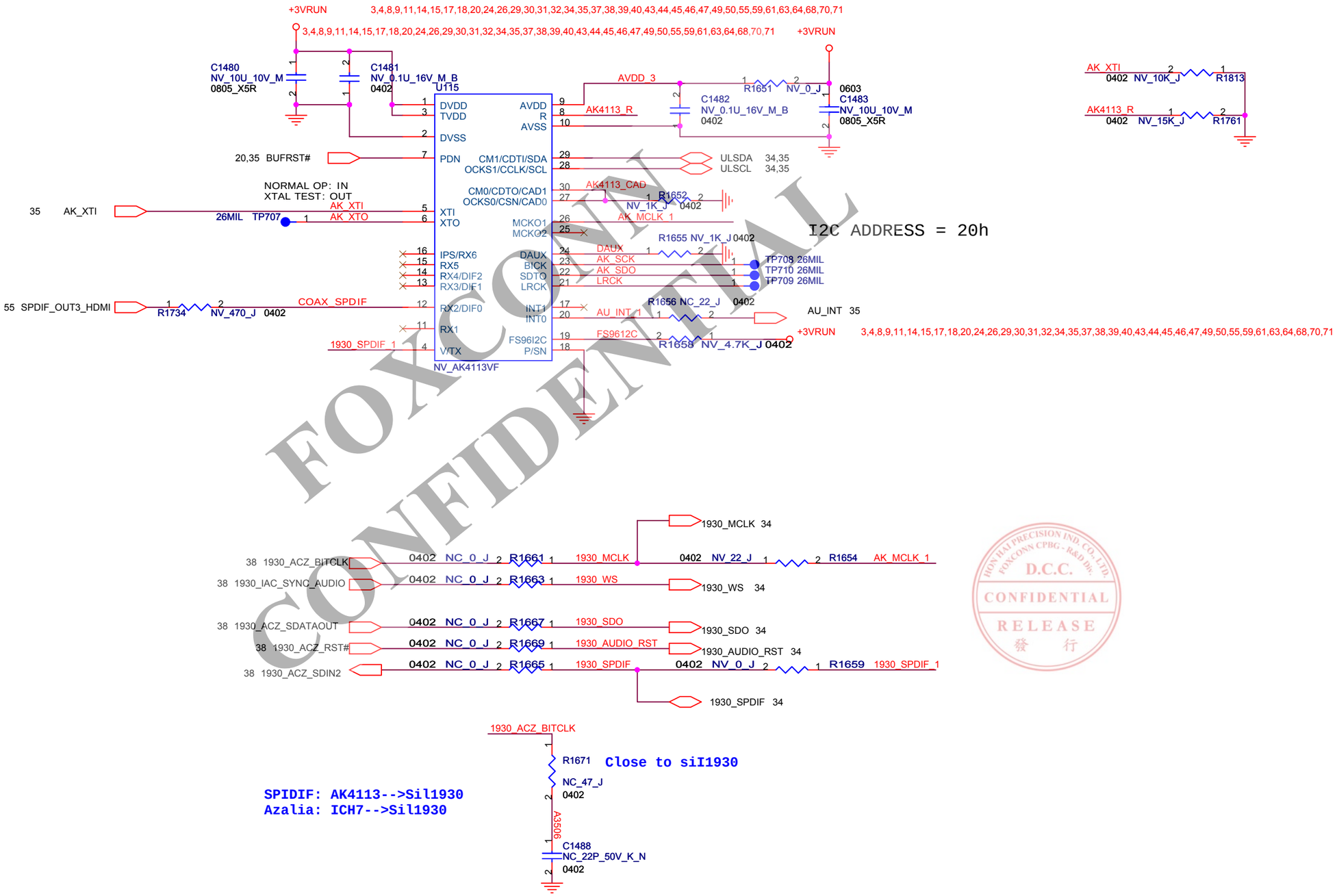
Data line to GND capacitor need less than 10pF.
FAE suggest to use TDK common chock.

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	HDMI Sil1930
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)
Rev	1.00
Date: Friday, April 14, 2006	Sheet 34 of 80

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

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

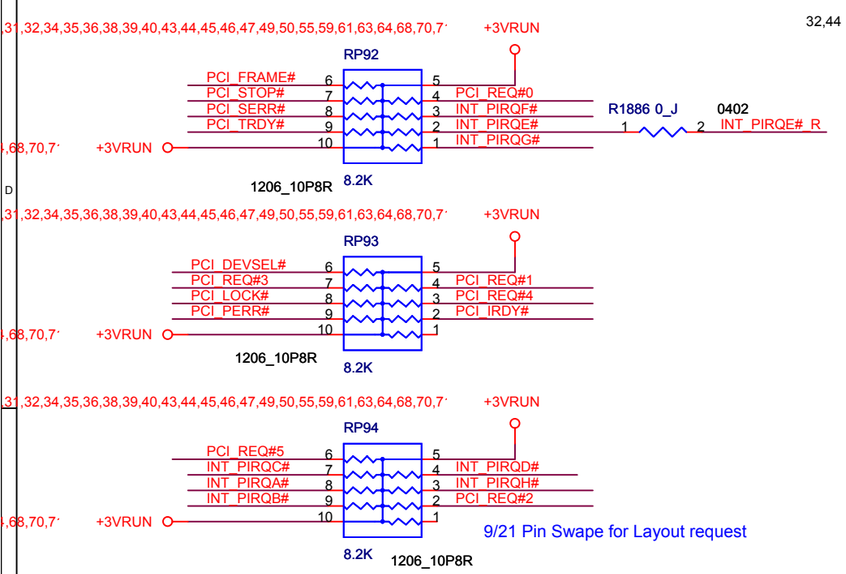
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	MINI-PCI CONN.		
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
Date: Friday, April 14, 2006		Sheet 35 of 80	



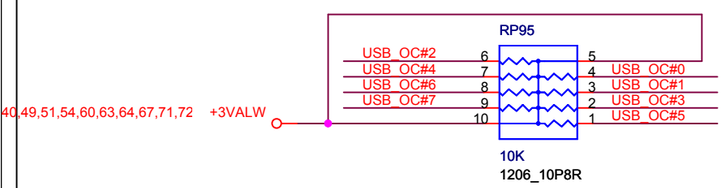
SPIDIF: AK4113-->Sil1930
Azalia: ICH7-->Sil1930

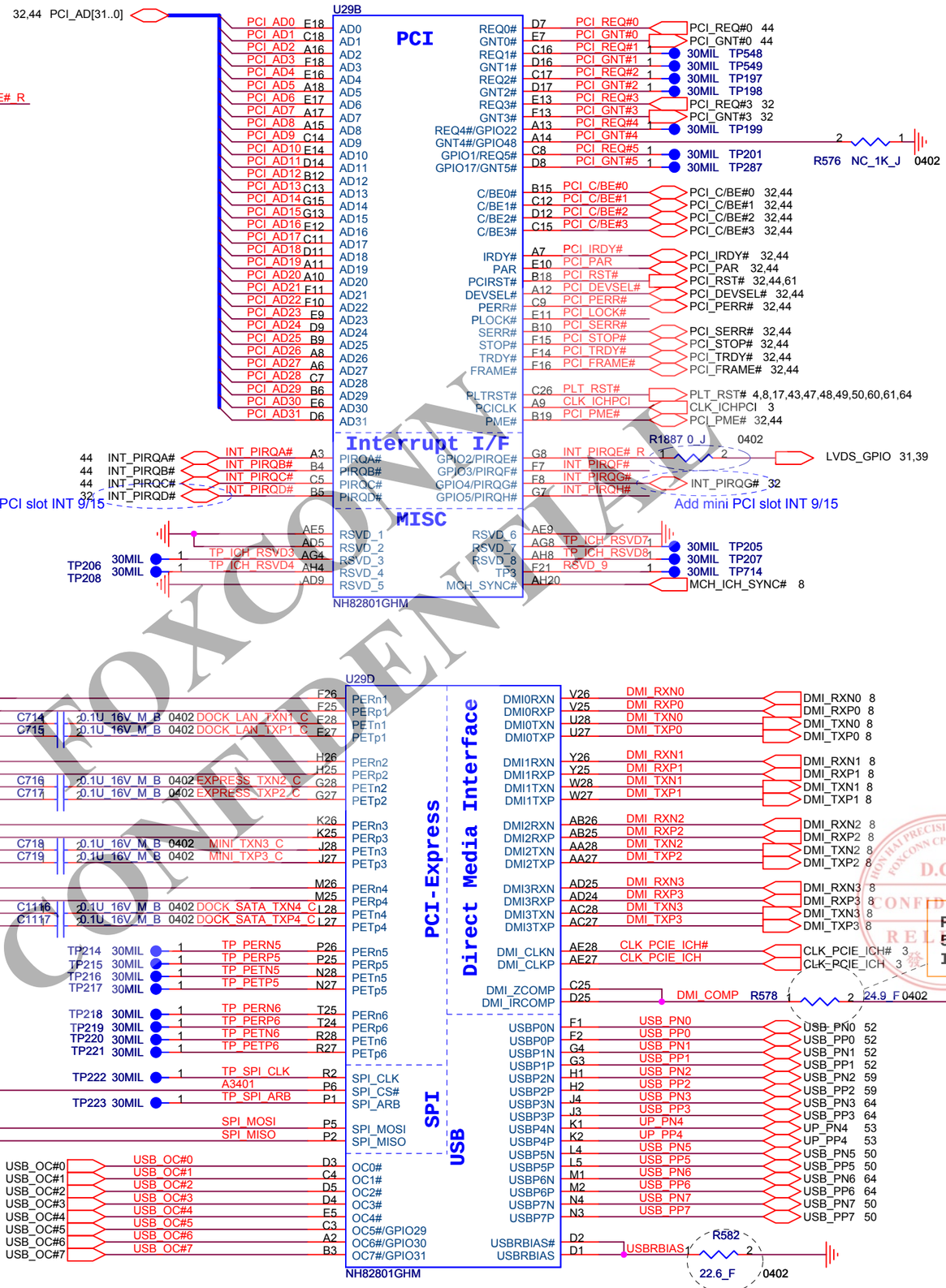
(2006/4/10)Hot plug behavior & I2C ARRANGEMENT block diagram move to page 33

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	***MINI-PCI CONN.***	
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
Date: Friday, April 14, 2006	Sheet 36 of 80	



PCI Pullups





Strap for Boot-BIOS

	GNT5#	GNT4#
LPC(Default)	Hi	Hi
PCI	Hi	LOW

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	ICH7-M(PCI/DMI/USB/PCIE) 1/5
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)
Rev	1.00
Date: Friday, April 14, 2006	Sheet 37 of 80

RTCRST#

VccRTC

Min :
18ms

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

4,60,61,63,67 +ECVCC 40,72 VCCRTC

D21 SCS500V-40-LF

C721 1U_6.3V_M_B 0402

32.768KHZ_12.5P_10PPM Q13MC3061001800 Y3

C720 15P_50V_K_N 0402 CLK_32KX1

C722 15P_50V_K_N 0402 CLK_32KX2

6 mils

R583 10M_J 0402

R584 0_J 0402

CLK_32KX2_R

R585 22K_F 0402

RTCRST#

OPEN_JUMP_OPEN2

C723 1U_25V_K_B 0603

GP16

SM_INTRUDER#

INTVRMEN

R589 499_F 0402

R587 1M_J 0402

RTC_BT_PWR0

R1310 499_F 0402

030206: Add open jump on RTCRST# net.

030406:R585 change from 20K_J to 22K_F

9/16 NEW for HDMI 1930

CN9 HEADER_2P FOX_HS8202E A3504

EEP_CS EEP_SK EEP_DOUT EEP_DIN

LAN_CLK

LAN_RSTSYNC R1205 22_F 0402 LAN_RSTSYNC_R

R_LAN_RXD0 R_LAN_RXD1 R_LAN_RXD2

LAN_TXD0 LAN_TXD1 LAN_TXD2

R1206 R1207 R1208 22_F 0402 LAN_TXD0_L1 LAN_TXD1_L1 LAN_TXD2_L1

+3VRUN

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

R1304 10K_J 0402

ACZ_SDATAIN0 ACZ_MDC_SDATAIN1 SB_ACZ_SDIN3

R1732 NC_0_J

1930_ACZ_SDIN2

9/16 NEW for HDMI 1930

IAC_BITCLK IAC_SYNC IAC_RESET# IAC_SDATAO

40,72 VCCRTC

R1065 332K_F 0402 INTVRMEN

63,64 SATA_LED#

C724 C725 C726 C727 3900P_25V_K_B 0603 SATA_RXN0_C SATA_RXP0_C SATA_TXN0_C SATA_TXP0_C

C1549 C1550 C1552 C1551 3900P_25V_K_B 0603 SATA_RXN2_C SATA_RXP2_C SATA_TXN2_C SATA_TXP2_C

Place close to ICH7

CLK_PCIE_SATA# CLK_PCIE_SATA

R602 24.9_F 0402 SATARBIAS

IDE_PDIOR# IDE_PDIOW# IDE_PDDACK# INT_IRQ14 IDE_PDIORDY IDE_PDDREQ

U29A

NH82801GHM

RTC LPC LAN CPU AC-97/AZALIA SATA IDE

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71

LPC_AD0 LPC_AD1 LPC_AD2 LPC_AD3 LPC_DRQ#0 LPC_DRQ#1 LPC_FRAME#

H_A20GATE H_A20M# TP_CPUSLP# TP1/DPRSTP# TP2/DPSLP# FERR# H_PWRGD

H_IGNNE# FWH_INIT# H_INIT# H_INTR H_RCIN# NMI SMI# STPCLK# THERMTRIP#

PM_THRMTRIP_R

IDE_PDD[0..15]

IDE_PDA0 IDE_PDA1 IDE_PDA2 IDE_PDCS1# IDE_PDCS3#

+3VRUN

R586 10K_J 0402 H_RCIN#

R592 8.2K_J 0402 H_A20GATE

30MIL TP716 30MIL TP715 30MIL TP288 30MIL TP717 30MIL TP718 30MIL TP719 30MIL TP720

H_DPRSTP# 5,70 H_DPSLP# 5 +1_05VRUN 4,5,6,7,9,11,12,40,68,71,72 H_FERR# 4

R596 56_J 0402

+1_05VRUN 4,5,6,7,9,11,12,40,68,71,72

R599 56_J 0402

+5VRUN 29,30,34,35,40,42,43,47,55,56,57,61,63,70,71,7

Q147 2N7002 H_RCIN# EC_RCIN# 60 R1451 NC_0_J 0402

Q148 2N7002 H_A20GATE EC_A20GATE 60 R1452 NC_0_J 0402

R603 39_J 0402 IAC_BITCLK ACZ_BITCLK 46

R606 39_J 0402 IAC_BITCLK_AUDIO 55

R1672 NC_39_J 0402 1930_ACZ_BITCLK 36

R608 39_J 0402 IAC_RESET# ACZ_RST# 46

R611 39_J 0402 IAC_RESET#_AUDIO 55,57

R1673 NC_39_J 0402 1930_ACZ_RST# 36

R613 39_J 0402 IAC_SDATAO ACZ_SDATAOUT 46

R614 39_J 0402 IAC_SDATAO_AUDIO 55

R1675 NC_39_J 0402 1930_ACZ_SDATAOUT 36

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R607 NC_1K_J 0402

46 ACZ_SYNC R609 39_J 0402 IAC_SYNC

55 IAC_SYNC_AUDIO R612 39_J 0402

36 1930_IAC_SYNC_AUDIO R1674 NC_39_J 0402

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	ICH7-M(LPC,IDE,SATA) 2/5	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 38 of 80	

RP96 10K 0804_8P4R
1 PM_RI#
2 SMB_LINK_ALERT#
3 SMLINK1
4 SMLINK0
8 7 6 5

Stuff for No-reboot

R615 NC_1K_J 0402
AC_SPKR

U29C NH82801GHM

SMB
SMBCLK
SMBDATA
LINKALERT#
SMLINK0
SMLINK1

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

Clocks
RI#
CLK14
CLK48
SUSCLK

SPKR
SUS_STAT#
SYS_RST#

GPIO0/BM_BUSY#
GPIO11/SMBALERT#
GPIO18/STPPCI#
GPIO20/STPCPU#
GPIO26/EL_RSVD
GPIO27/EL_STATE0
GPIO28/EL_STATE1
GPIO32/CLKRUN#
GPIO33/AZ_DOCK_EN#
GPIO34/AZ_DOCK_RST#

Power MGT
PWROK
GPIO16/DPRSLPVR
TP0/BATLOW#
PWRBTN#
LAN_RST#
RSMRST#

SYS GPIO
GPIO9
GPIO10
GPIO12
GPIO13
GPIO14
GPIO15
GPIO24
GPIO25

WAKE#
SERIRQ
THRM#
VRMPWRGD

GPIO
GPIO6
GPIO7
GPIO8
GPIO35/SATACLKREQ#
GPIO38
GPIO39

3,14,15,50 SMB_CLK_SUS → SMB_CLK_SUS C22
3,14,15,50 SMB_DATA_SUS → SMB_DATA_SUS B22
SMB_LINK_ALERT# A26
SMLINK0 B25
SMLINK1 A25
PM_RI# A28

55 AC_SPKR → AC_SPKR A19
61 PM_SUS_STAT# → PM_SUS_STAT# A27
PM_SYSRST# A22

8 PM_BMBUSY# → PM_BMBUSY# AB18
SMB_ALERT# B23

3 PM_STPPCI# → PM_STPPCI# AC20
3 STP_CPU# → STP_CPU# AF21
EC_OUT1 A21
INV_EN_EC B21
CAM_PWREN E23

32,44,60,61 PM_CLKRUN# → PM_CLKRUN# AG18
TP_GPIO33 AC19
GPIO34 U2

64 D_PCIE_WAKE# → D_PCIE_WAKE# F20
44,60,61 INT_SERIRQ → INT_SERIRQ AH21
SB_THRM# AE20
VRMPWRGD AD22

61 ID_LPC_PCI# → ID_LPC_PCI# AC21
60 RUNTIME_SCI# → RUNTIME_SCI# AC18
60 EXTSMI# → EXTSMI# E21

AF19 LOGO_LED_EN
AH18
AH19 DK_BAY_R1
AE19 LCDID1
AC1 CLK_ICH14
B2 CLK_USB48
C20 SUS_CLK
B24 SLP_S3#
D23 SLP_S4#
F22 SLP_S5#
AA4 IMVP_PWRGD
AC22 A3601
C21 BATLOW#
C23
C19 SUS_PWRGD_10MS
Y4 A3602
E20 SB_RST#
A20
F19 OVT_EC_R1
E19 TP_GPIO13
R4 WAKE_SCI#
E22 TP_GPIO15
R3 TP_GPIO24
D20 TP_GPIO25
AD21
AD20 LCDID2
AE20 LCDID3

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R1168 2 1 10K_J 0402 LOGO_LED_EN 63
R1167 2 1 10K_J 0402
R616 2 1 10K_J 0402 LCDID1 31
R1256 1 2 0_J 0402 LCDID0 31 DK_BAY_ID0# 60,64
LCDID1 31
CLK_ICH14 3
CLK_USB48 3
C20 SUS_CLK 1 30MIL TP240
R619 1 2 100_J 0402 PM_SLP_S3# 60
R622 1 2 100_J 0402 PM_SLP_S4# 60
R623 1 2 0_J 0402 PM_SLP_S5# 60
IMVP_PWRGD 8,60
R626 1 2 0_J 0402 DPRSLPVR 8,70
PWRBTN# 60
SUS_PWRGD_10MS 52,53,59,60
R633 100_J 0402 PM_RSMRST# 60,64
3,4,8,9,11,14,15,17,18,20,24,26,29,30,32,34,35,36,37,38,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN
R1120 2 0_J 0402 IMVP_PHASEGD 70
OVT_EC# 4,60,70
TP246 TP247 TP509 TP248
SATACLKREQ# 3
R638 2 1 10K_J 0402 LCDID2 31
R640 2 1 NC_10K_J 0402 LCDID3

7,71,72 +3VALW

R1240 SB_RST#
R620 PM_SYSRST#
R624 SMB_ALERT#
R625 BATLOW#
R627 D_PCIE_WAKE#
R632 EXTSMI#
R634 WAKE_SCI#
10K_J 0402 / 8.2K_J 0402 / 1K_J 0402

48,50,52,54,59,60,62,64,68,71 +5VSUS

Q126 NC_2N7002
49,50 PCIE_WAKE#
R1743 0_J 0402
TP242 30MIL

70,7 +3VRUN

R639 SB_THRM#
R641 RUNTIME_SCI#
R642 INT_SERIRQ
R645 PM_CLKRUN#
R628 ID_LPC_PCI#
8.2K_J 0402 / 10K_J 0402

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

7,70 +3VRUN

R635 SMB_CLK_SUS
R637 SMB_DATA_SUS
2.2K_J 0402

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

50 CAM_PWREN → R1787 10K_J 0402
31 INV_EN_EC → R1788 10K_J 0402
61 EC_OUT1 → R1789 10K_J 0402

R648 PM_RSMRST# 10K_J 0402
R649 CLK_EN NC_10K_J 0402
R650 IMVP_PWRGD 10K_J 0402

LVDS_GPIO → LVDS_GPIO 31,37
Q146 NC_DTC144EUA
GPIO34

3,70 CLK_EN# → U30 NC_74AHC1G14GW → CLK_EN → R1183 NC_0_J 0402 → VRMPWRGD
R1184 0_J 0402

60,70 IMVP_OK

Modified for MOR requirement on 11/3.

Update on 9/19

CLK_USB48
3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R643 NC_10_J 0402
C742 NC_10P_50V_J_N 0402
A3603

Adds.AEH
U31 EEPROM_SOP-8_256x8 HT24LC02
VCC WP SCL SDA A0 A1 A2 VSS
SMB_CLK_SUS
SMB_DATA_SUS
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

HON HAI PRECISION IND. CO., LTD. FOXCONN CPBG - R&D DIV. D.C.C. CONFIDENTIAL RELEASE

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	ICH7-M(GPIO) 3/5	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 39 of 80	

D22 SCS500V-40-LF

+3VRUN

R654 100_J 0402

+5VRUN

C745 0.1U_16V_Y_Y 0402

Modified on 10/19

6mA

10mA

V5REF

V5REF_SUS

6,9,11,37,49,50,68,71,72 +1_5VRUN

L60 BCMS321611A121 5A 120R-100MHZ_1206

1.9A

+1_5V_PCIE

CAP12 6TPB220ML 220U_6.3V_7343

C748 0.1U_16V_Y_Y 0402

C749 0.1U_16V_Y_Y 0402

C750 0.1U_16V_Y_Y 0402

C1219 0.01U_16V_K_B 0402

C1220 0.01U_16V_K_B 0402

24,37,39,49,51,54,60,63,64,67,71,72 +3VALW

D23 SCS500V-40-LF

R656 10_J 0402

67,69,71,72 +5VALW

C752 0.1U_16V_Y_Y 0402

Layout note: Placed within 100mils of pin AD17 of ICH7 on the bottom side or 140 mils on the top.

Layout note: Placed within 100mils of pin F6 of ICH7 on the bottom side or 140 mils on the top.

Layout note: Place above Caps within 100 mils of ICH on the bottem side or 140 mils on the top near D28,T28,AD28.

U29F

NH82801GHM

V5REF_1 G10
V5REF_2 AD17
V5REF_Sus F6

CORE
Vcc1_5_B_1 AA22
Vcc1_5_B_2 AA23
Vcc1_5_B_3 AB22
Vcc1_5_B_4 AB23
Vcc1_5_B_5 AC23
Vcc1_5_B_6 AC24
Vcc1_5_B_7 AC25
Vcc1_5_B_8 AC26
Vcc1_5_B_9 AD26
Vcc1_5_B_10 AD27
Vcc1_5_B_11 AD28
Vcc1_5_B_12 D26
Vcc1_5_B_13 D27
Vcc1_5_B_14 D28
Vcc1_5_B_15 E24
Vcc1_5_B_16 E25
Vcc1_5_B_17 E26
Vcc1_5_B_18 F23
Vcc1_5_B_19 F24
Vcc1_5_B_20 G22
Vcc1_5_B_21 G23
Vcc1_5_B_22 H22
Vcc1_5_B_23 H23
Vcc1_5_B_24 J22
Vcc1_5_B_25 J23
Vcc1_5_B_26 K22
Vcc1_5_B_27 K23
Vcc1_5_B_28 L22
Vcc1_5_B_29 L23
Vcc1_5_B_30 M22
Vcc1_5_B_31 M23
Vcc1_5_B_32 N22
Vcc1_5_B_33 N23
Vcc1_5_B_34 P22
Vcc1_5_B_35 P23
Vcc1_5_B_36 R22
Vcc1_5_B_37 R23
Vcc1_5_B_38 R24
Vcc1_5_B_39 R25
Vcc1_5_B_40 R26
Vcc1_5_B_41 T22
Vcc1_5_B_42 T23
Vcc1_5_B_43 T26
Vcc1_5_B_44 T27
Vcc1_5_B_45 T28
Vcc1_5_B_46 U22
Vcc1_5_B_47 U23
Vcc1_5_B_48 V22
Vcc1_5_B_49 V23
Vcc1_5_B_50 W22
Vcc1_5_B_51 W23
Vcc1_5_B_52 Y22
Vcc1_5_B_53 Y23
Vcc3_3_1 B27
VccDMIPLL AG28
VccSATAPLL AD2
Vcc3_3_2 AH11

Vcc1_05_1 L11
Vcc1_05_2 L12
Vcc1_05_3 L14
Vcc1_05_4 L16
Vcc1_05_5 L17
Vcc1_05_6 L18
Vcc1_05_7 M11
Vcc1_05_8 M18
Vcc1_05_9 P11
Vcc1_05_10 P18
Vcc1_05_11 T11
Vcc1_05_12 T18
Vcc1_05_13 U11
Vcc1_05_14 U18
Vcc1_05_15 V11
Vcc1_05_16 V12
Vcc1_05_17 V14
Vcc1_05_18 V16
Vcc1_05_19 V17
Vcc1_05_20 V18

VCC_PAUX
VccSus3_3/VccLAN3_3_1 V5
VccSus3_3/VccLAN3_3_2 V1
VccSus3_3/VccLAN3_3_3 W2
VccSus3_3/VccLAN3_3_4 W7
Vcc3_3/VccHDA U6
VccSus3_3/VccSusHDA R7

VCCA3GP
V_CPU_IO_1 AE23
V_CPU_IO_2 AE26
V_CPU_IO_3 AH26

IDE
Vcc3_3_3 AA7
Vcc3_3_4 AB12
Vcc3_3_5 AB20
Vcc3_3_6 AC16
Vcc3_3_7 AD13
Vcc3_3_8 AD18
Vcc3_3_9 AG12
Vcc3_3_10 AG15
Vcc3_3_11 AG19

PCI
Vcc3_3_12 A5
Vcc3_3_13 B13
Vcc3_3_14 B16
Vcc3_3_15 B7
Vcc3_3_16 C10
Vcc3_3_17 D15
Vcc3_3_18 F9
Vcc3_3_19 G11
Vcc3_3_20 G12
Vcc3_3_21 G16

VccRTC W5

VccSus3_3_1 P7
VccSus3_3_2 A24
VccSus3_3_3 C24
VccSus3_3_4 D19
VccSus3_3_5 D22
VccSus3_3_6 G19
VccSus3_3_7 K3
VccSus3_3_8 K4
VccSus3_3_9 K5
VccSus3_3_10 K6
VccSus3_3_11 L1
VccSus3_3_12 L2
VccSus3_3_13 L3
VccSus3_3_14 L6
VccSus3_3_15 L7
VccSus3_3_16 M6
VccSus3_3_17 M7
VccSus3_3_18 N7

USB

Vcc1_5_A_1 AB7
Vcc1_5_A_2 AC6
Vcc1_5_A_3 AC7
Vcc1_5_A_4 AD6
Vcc1_5_A_5 AE6
Vcc1_5_A_6 AF5
Vcc1_5_A_7 AF6
Vcc1_5_A_8 AG5
Vcc1_5_A_9 AH5
ARX

Vcc1_5_A_10 AB10
Vcc1_5_A_11 AB9
Vcc1_5_A_12 AC10
Vcc1_5_A_13 AD10
Vcc1_5_A_14 AE10
Vcc1_5_A_15 AF10
Vcc1_5_A_16 AF9
Vcc1_5_A_17 AG9
Vcc1_5_A_18 AH9
ATX

Vcc1_5_A_19 AB17
Vcc1_5_A_20 AC17
Vcc1_5_A_21 T7
Vcc1_5_A_22 F17
Vcc1_5_A_23 G17
Vcc1_5_A_24 AB8
Vcc1_5_A_25 AC8

VccSus3_3_19 E3
VccUSBPLL C1
VccSus1_05/VccLAN1_05_1 AA2
VccSus1_05/VccLAN1_05_2 Y7

VccSus1_05_1 K7
VccSus1_05_2 C28
VccSus1_05_3 G20

USB CORE
Vcc1_5_A_26 A1
Vcc1_5_A_27 H6
Vcc1_5_A_28 H7
Vcc1_5_A_29 J6
Vcc1_5_A_30 J7

4,5,6,7,9,11,12,38,68,71,72 +1_05VRUN

0.86A

C746 0.1U_16V_Y_Y 0402
C747 1U_6.3V_M_B 0402
C1221 NC_0.01U_16V_K_B 0402
C1555 10U_6.3V_Y_Y 0805

04/27

24,37,39,49,51,54,60,63,64,67,71,72 +3VALW

R659 NC_0_J 0603

37,48,49,50,51,53,54,62,63,69,71 +3VSUS

R657 0_J 0603

C751 0.1U_16V_Y_Y 0402

A3707

C753 0.1U_16V_Y_Y 0402 +3VRUN 3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35

+3VALW 24,37,39,49,51,54,60,63,64,67,71,72

+1_05VRUN 4,5,6,7,9,11,12

14mA

C754 0.1U_16V_Y_Y 0402
C755 0.1U_16V_Y_Y 0402
C756 4.7U_6.3V_K 0603_X5R
C757 0.1U_16V_Y_Y 0402

+3VRUN 3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,43,44,45

C758 0.1U_16V_Y_Y 0402
C759 0.1U_16V_Y_Y 0402
C760 0.1U_16V_Y_Y 0402
C761 0.1U_16V_Y_Y 0402

+3VRUN 3,4,8,9,11,14,15,1

VCCRTC 38,72

C765 0.1U_16V_Y_Y 0402
C766 0.1U_16V_Y_Y 0402

+3VALW 24,37,39,49,51,54,60,63,64,67,71,72

C767 0.1U_16V_Y_Y 0402
C768 0.1U_16V_Y_Y 0402

+3VALW 24,37,39,49,51,54,60,63,64,67,71,72

C773 0.1U_16V_Y_Y 0402
C774 0.1U_16V_Y_Y 0402

+1_5VRUN 6,9,11,37,49,50,68,71,72

C777 0.1U_16V_Y_Y 0402

VCCSUS1_05 30MIL TP510

+1_5VRUN 6,9,11,37,49,50,68,71,72

C780 0.1U_16V_Y_Y 0402

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

6,9,11,37,49,50,68,71,72 +1_5VRUN

Place within 100 mils of ICH on the bottom side or 140 mils on the top

R1842 1_F 0603

L61 FCI2012F-1R0K 1UH_0805

50mA

C762 0.01U_25V_M_B 0402

C763 4.7U_10V_Y_Y 0805

C764 0.1U_16V_Y_Y 0402

6,9,11,37,49,50,68,71,72 +1_5VRUN

L137 10UH_0805 FCI2012F-100K

50mA

6,9,11,37,49,50,68,71,72 +1_5VRUN

C1520 10U_6.3V_M 0805_X5R

C772 0.1U_16V_Y_Y 0402

C769 4.7U_10V_Y_Y 0805

C770 0.1U_16V_Y_Y 0402

C771 0.1U_16V_Y_Y 0402

VCCSATAPLL

1.1A For all 1.5_A plane

C775 0.1U_16V_Y_Y 0402

6,9,11,37,49,50,68,71,72 +1_5VRUN

Place within 100 mils of ICH on the bottom side or 140 mils on the top near pin AG9.

C776 1U_6.3V_M_B 0402

24,37,39,49,51,54,60,63,64,67,71,72 +3VALW

10mA

6,9,11,37,49,50,68,71,72 +1_5VRUN

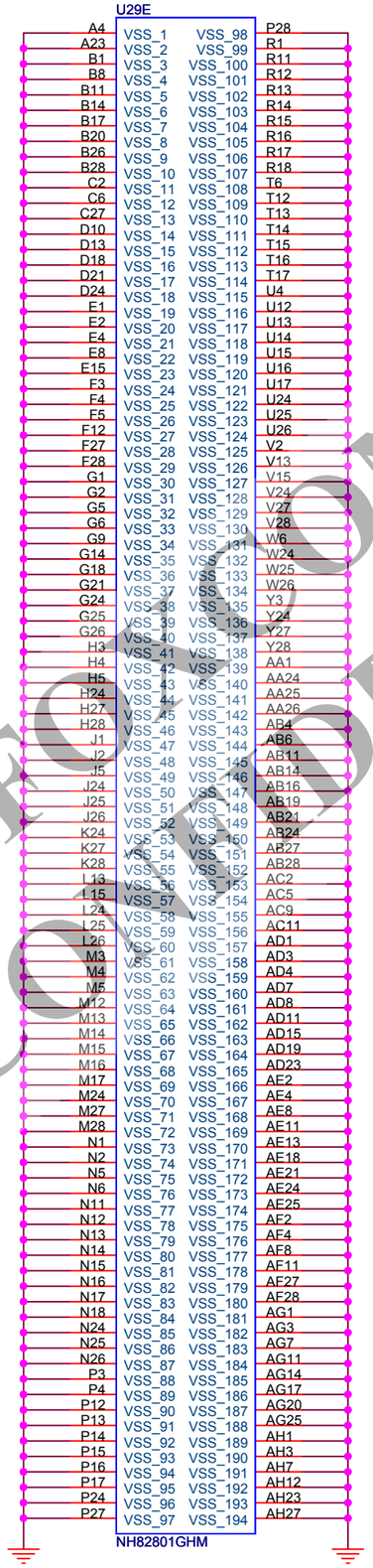
C778 0.1U_16V_Y_Y 0402

C779 0.1U_16V_Y_Y 0402

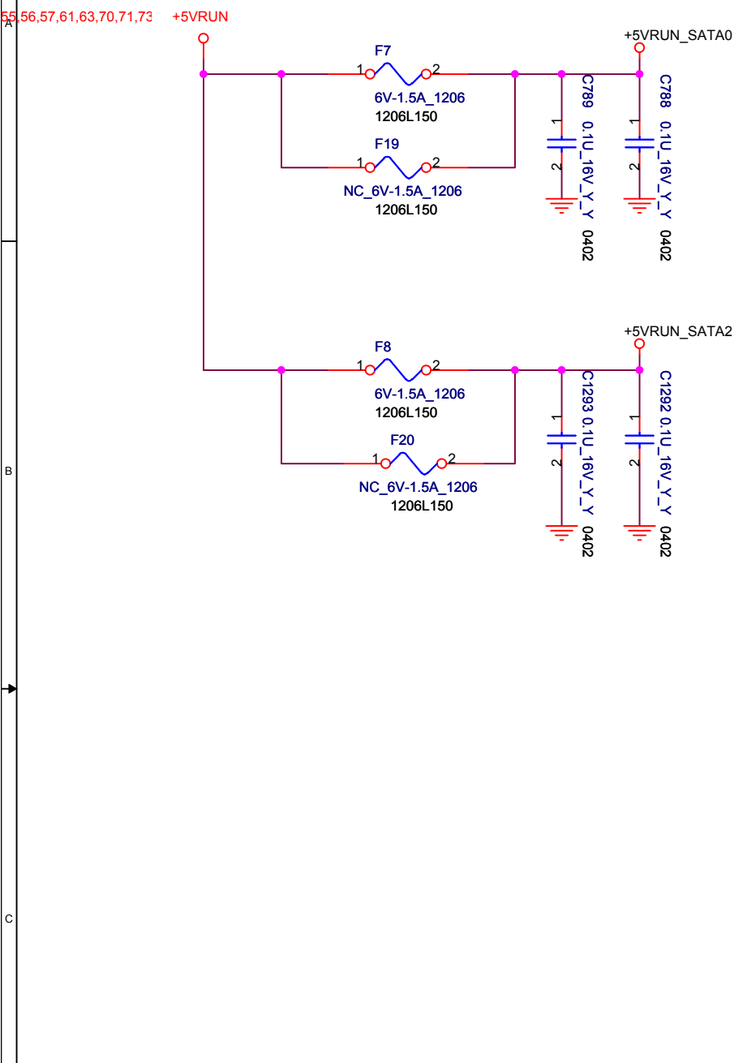
TP5630MIL

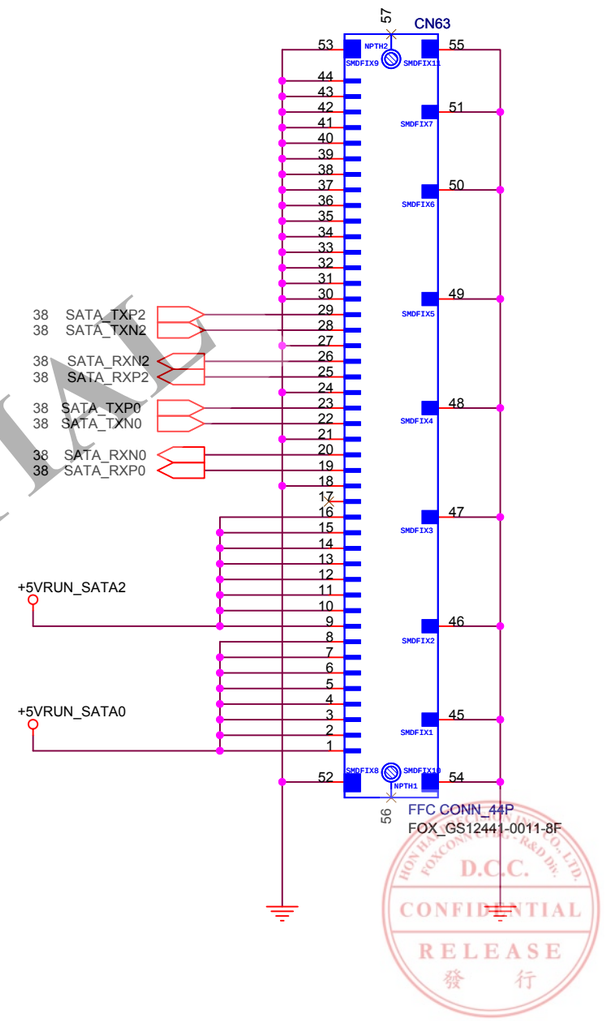
VCCSUS_LANY7

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	ICH7-M(POWER) 4/5
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156) Rev 1.00
Date: Friday, April 14, 2006	Sheet 40 of 80

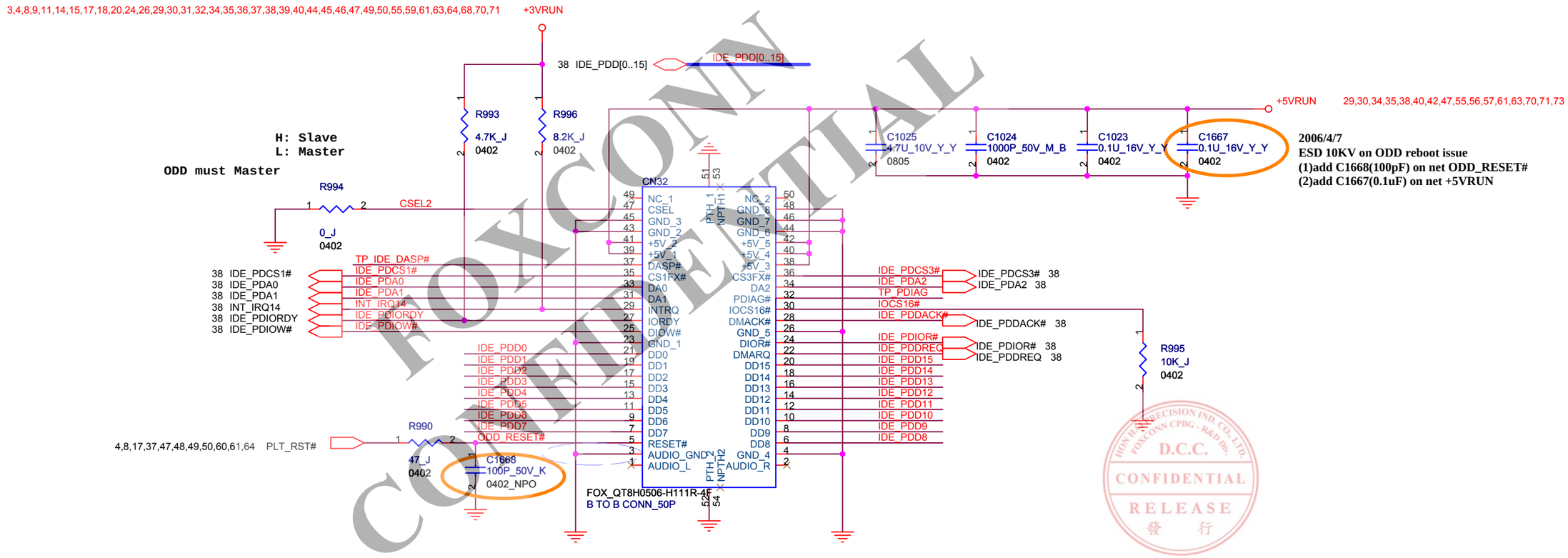


FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	ICH7-M(GND) 5/5	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 41 of 80	





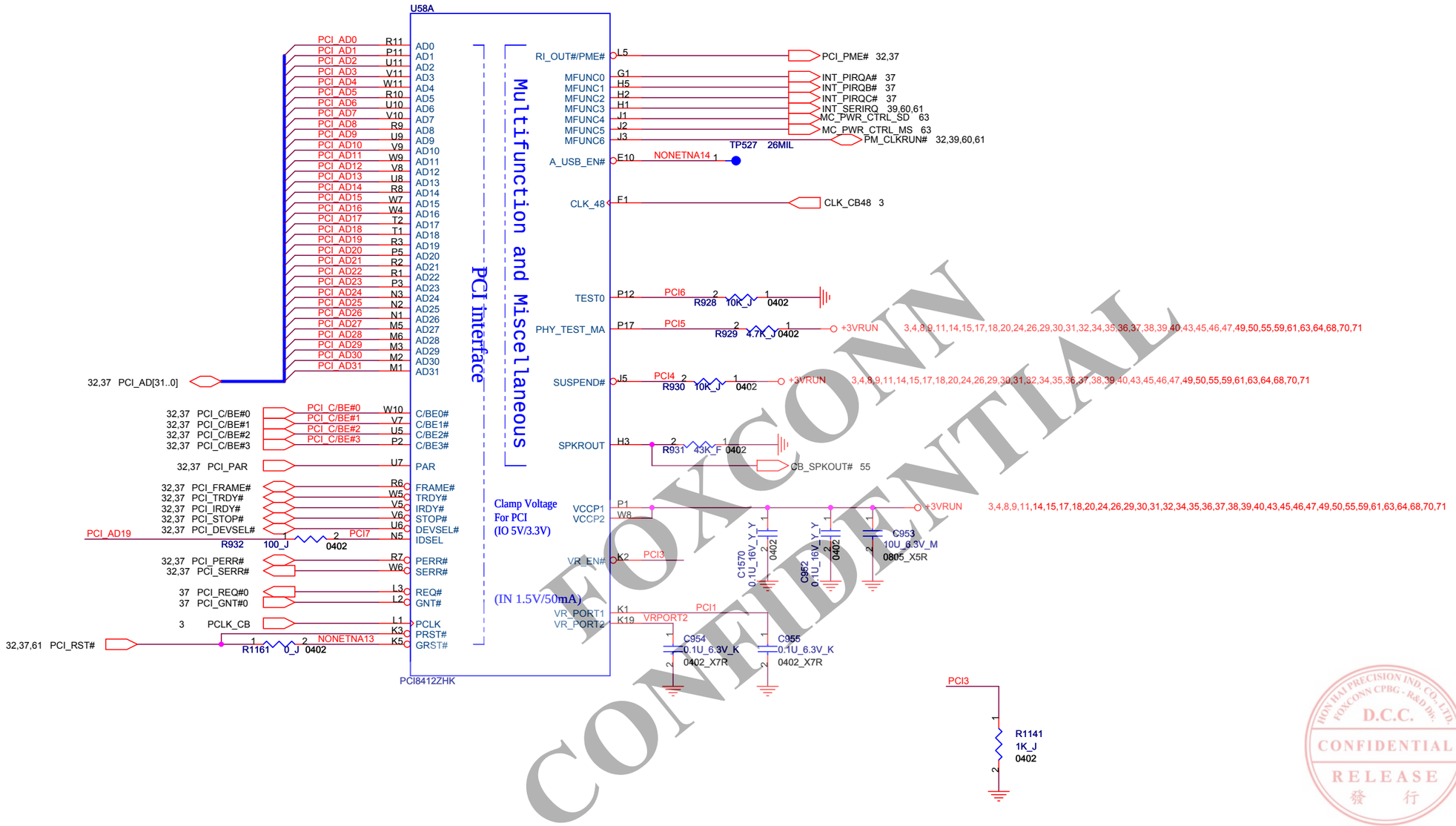
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	SATA HDD RAID	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 42 of 80	



2005/4/17
Follow Adoi san suggest ODD: Master/HDD:Slave

CD-ROM CONN

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: PATA CD-ROM		
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
Date: Friday, April 14, 2006	Sheet 43 of 80	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	PCI (PCI BUS)		
Size: Custom	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
Date: Friday, April 14, 2006		Sheet 44 of 80	

iLink CONN.

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

7412_AVD

L72 120R-100MHZ_0603 EBMS160808A121

U58C

P13 AVDD_33_1
P14 AVDD_33_2 (3.3V)
U15 AVDD_33_3

PCI13 — U19 VDDPLL_33

C959 0805_X5R 10U_6.3V_M

C961 1000P_50V_M_B 0402

ILINK01 — P15 VDDPLL_15

C962 0402 0.1U_16V_Y_Y

7412_SCL G2 SCL
7412_SDA G3 SDA

OTH6 — T18 R0 — R941 6.34K_F 0402

OTH7 — T19 R1

R17 VSSPLL

R14 AGND1
U13 AGND2
U14 AGND3

IEEE 1394a

PCI8412ZHK

CPS R12 PCI12 — R934 1K_J 0402

TPA0P V14 TPA0+
TPA0N W14 TPA0-
TPB0P V13 TPB0+
TPB0N W13 TPB0-

TPBIAS0 R13 TPBIAS0

TPA1P V16 NONETN115 TP528 26MIL
TPA1N W16 NONETN116 TP529 26MIL
TPB1P V15 PCI15 — R940 1K_J 0402
TPB1N W15 PCI16 — R942 1K_J 0402

TPBIAS1 W17 PCI17 — C966 0402 0.1U_16V_Y_Y

XO R18 PCI18 — R943 0_J 0402 — PCI20 — C967 0402 18P_50V_J_N
R944 1M_J 0402
Y5
XI R19 PCI19 — C968 0402 18P_50V_J_N

24.576MHZ_16P_30PPM
ITTI_L5030-24.576-16

5/9
Add test Pad

R935 56.2_F 0402 — C964 0402 NC_220P_50V_J_N
R936 56.2_F 0402 — C965 0603 1U_25V_K_B
R937 56.2_F 0402 OTH8 — R939 0402 5.1K_F
R938 56.2_F 0402 — C963 0402 220P_50V_J_N

Place near PCI7412.

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

7412_AVD

C956 0805_X5R 10U_6.3V_M

L71 120-100MHZ_0603 BLM18AG121SN1D

C958 1000P_50V_M_B 0402

L73 120R-100MHZ_0R12 6.0x6.5x3.3

TPA+ TPA- TPB+ TPB-

CN23 1394 RECEPTACLE CONN_4P FOX_UV31413-WR56P-7F

This capacitor must be placed to IC pin

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R945 2.7K_J 0402
R946 2.7K_J 0402

C969 0.1U_16V_Y_Y 0402

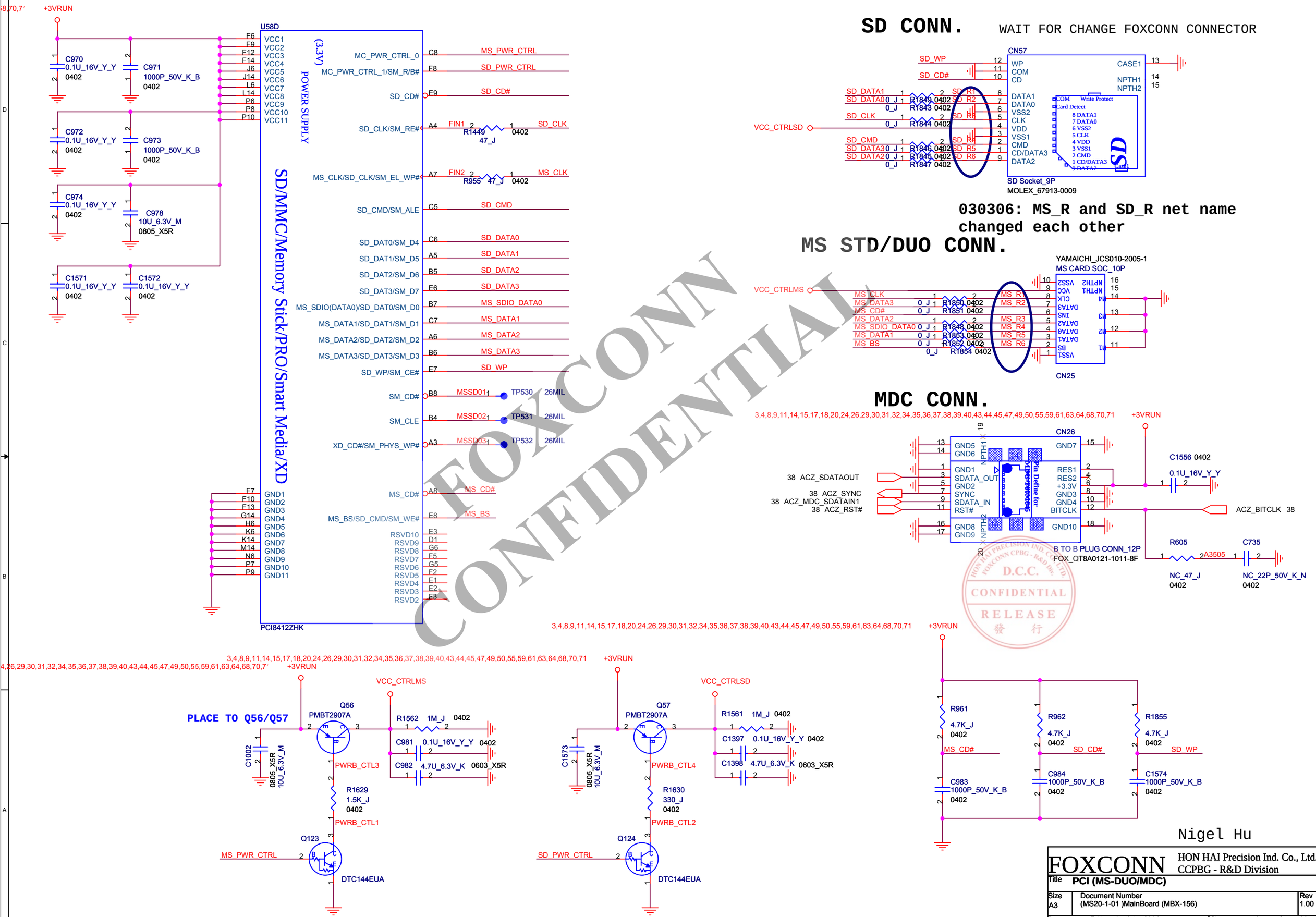
U59 EEPROM_SOP-8_256x8 HT24LC02

VCC WP
SCL
SDA A0 A1 A2
VSS

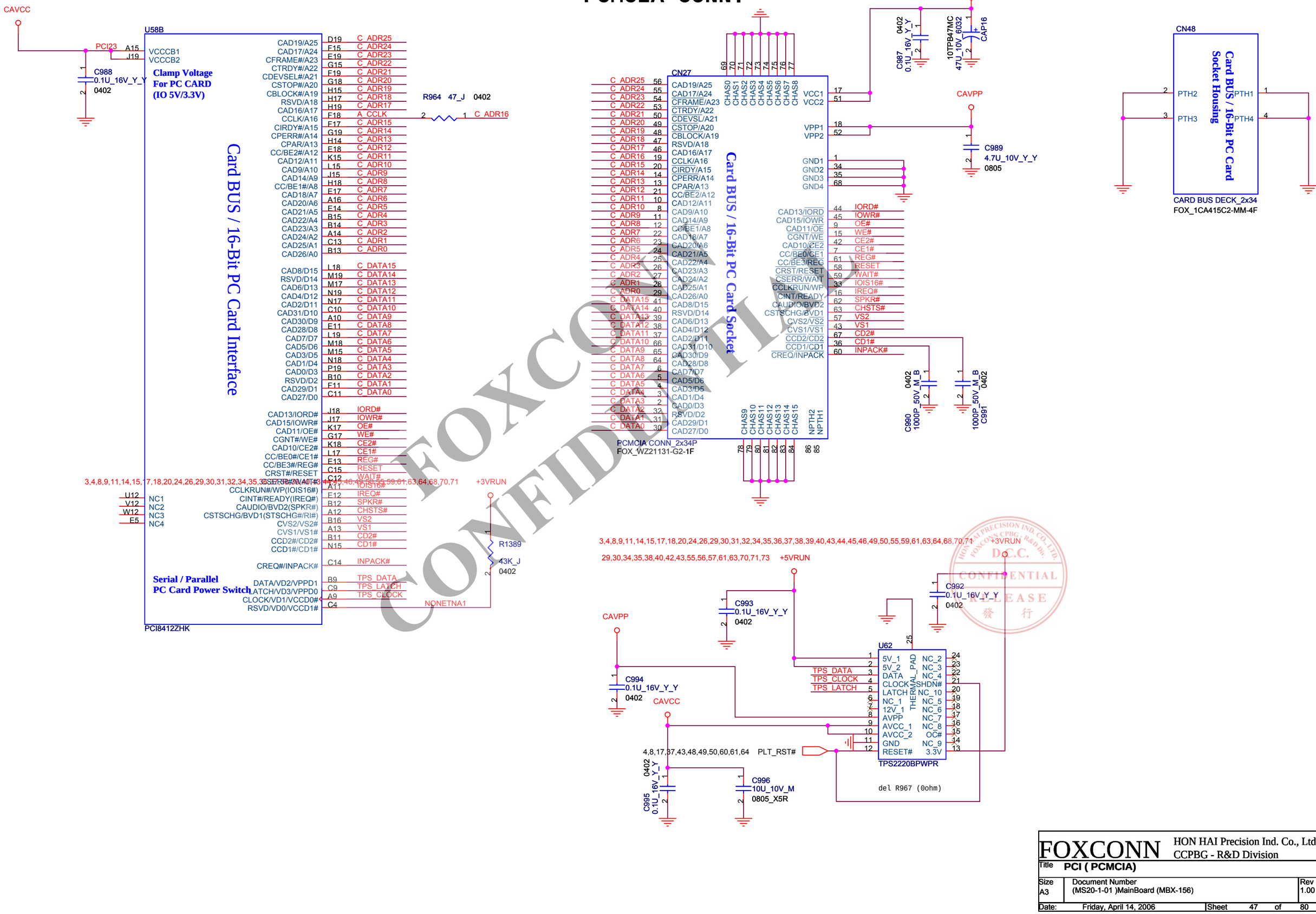
7412_SCL
7412_SDA

L: R/W
H: Read only

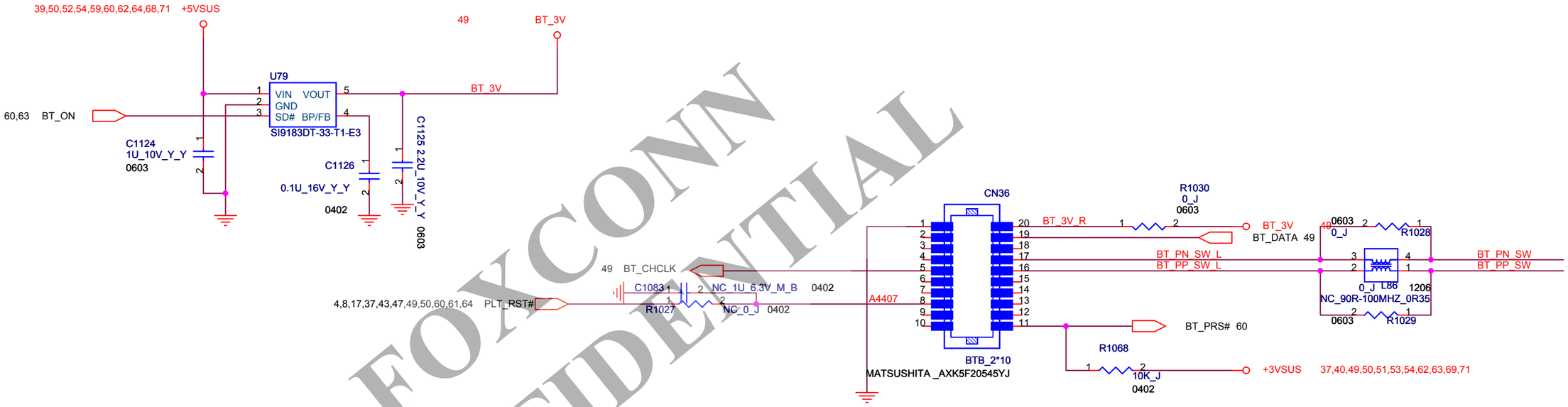
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	PCI (ILINK)	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 45 of 80	

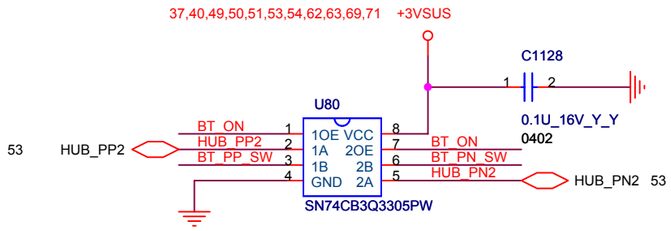

SD CONN.
WAIT FOR CHANGE FOXCONN CONNECTOR
CN57
SD Socket_9P
MOLEX_67913-0009
030306: MS_R and SD_R net name changed each other
MS STD/DUO CONN.
YAMAICHI_JCS010-2005-1
MS CARD SOC_10P
CN25
MDC CONN.
CN26
B TO B PLUG CONN_12P
FOX_QT8A0121-1011-8F
U58D
PCI8412ZHK
SD/MMC/Memory Stick/PRO/Smart Media/XD
POWER SUPPLY (3.3V)
PLACE TO Q56/Q57
Q56
Q57
Q123
Q124
PMBT2907A
DTC144EUA
Nigel Hu
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
PCI (MS-DUO/MDC)
Document Number (MS20-1-01)MainBoard (MBX-156)
Friday, April 14, 2006
Sheet 46 of 80
FOXCONN CONFIDENTIAL
D.C.C. CONFIDENTIAL RELEASE 發行

PCMCIA CONN.



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	PCI (PCMCIA)		
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
Date: Friday, April 14, 2006	Sheet 47 of 80		





FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	FAN/Bluetooth	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 48 of 80	

SW16
1BS007-12110-002-7F_SW_SMD7

37,40,48,50,51,53,54,62,63,69,71 +3VSUS

R1758 10K_J 0402

BT_WLAN_SW# 60

SW16 PIN8,9 : NPTH

DVT-2 1/16
For BFT test request,add wake on W-LAN
test item,add Test Pad TP858

CN39
MINI PCIE_52P
FOX_AS0B226_S40K_4F

TP858
tpc32t_100

CN18

39,50 PCIE_WAKE#
WIRELESS_DATA
WIRELESS_CHCLK
3 MINI_CARD_DET#
R1162 0_J 0402
3 CLK_PCIE_MINI#
3 CLK_PCIE_MINI

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

NPTH1 SMDFIX1 SMDFIX2 NPTH2 55 53 54 56

MINI PCI_52P
FOX_AS0B226_S40N_4F

A4303 30MIL TP263
A4304 30MIL TP264

37 MINI_RXN3
37 MINI_RXP3
37 MINI_TXN3
37 MINI_TXP3

MINI_PCIE_+3_3V
MINI_PCIE_+1_5V
MINI_PCIE_+3VAUX

WLAN_EN 60
PLT_RST# 4,8,17,37,43,47,48,50,60,61,64

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
2N7002

MINI_CARD_LED# 63

WLAN_EN

WIRELESS_CHCLK
R1257 0_J 0603
BT_CHCLK 48

48 BT_3V
R1383 10K_J 0402
R1258 NC_0_J 0603
BT_3V
U96
74AHC1G08GW
WIRELESS_DATA
R1912 100K_J 0402
BT_DATA 48

37,40,48,50,51,53,54,62,63,69,71 +3VSUS
R1067 0_J 0603
24,37,39,40,51,54,60,63,64,67,71,72 +3VALW
R1817 NC_0_J 0603
MINI_PCIE_+3VAUX
C814 0.1U_16V_Y_Y 0402

9/28

+3VRUN 3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,50,55,59,61,63,64,68,70,71
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 6,9,11,37,40,50,68,71,72
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. CCPBG - R&D Division	
Title	Mini-PCIE Card	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 49 of 80	

VOLTAGE INPUTS[1]			LOGIC INPUTS			VOLTAGE OUTPUTS[2]			MODE[3]
AUXIN	3.3VIN	1.5VIN	SHDN	STBY	OF[4]	AUXOUT	3.3VOUT	1.5VOUT	
Off	x	x	x	x	x	Off	Off	Off	OFF
On	x	x	0	x	x	GND	GND	GND	Shutdown
On	x	x	1	x	1	GND	GND	GND	No Card
On	On	On	1	0	0	On	Off	Off	Standby
On	On	On	1	1	0	On	On	On	Card Inserted

U36

+3VRUN → 3_3Vin_1 (5), 3_3Vin_2 (6)
+1_5VRUN → 1_5Vin_1 (18), 1_5Vin_2 (19)
+3VSUS → AUXIN (21)
CPPE# → CPPE# (15)
CPUSB# → CPUSB# (14)
NC_1 (1), NC_2 (10), NC_3 (12), NC_4 (13), NC_5 (24)
GND (11)
THERMAL PAD → 25

3_3Vout_1 (7), 3_3Vout_2 (8) → +3_3V_PCIE_OUT
1_5Vout_1 (16), 1_5Vout_2 (17) → +1_5V_PCIE_OUT
AUXOUT (20) → +3_3VAUX_PCIE_OUT
STBY# (4) → RUN_ON 24,60,64,68,71
SHDN# (3)
OC# (23)
PERST# (9) → PERST#
RCLKEN (22)
SYSRST# (2) → PLT_RST# 4,8,17,37,43,47,48,49,60,61,64

TPS2231PWP

37,40,48,49,51,53,54,62,63,69,71 +3VSUS
6,47,49,55,59,61,63,64,68,70,7 +3VRUN
6,9,11,37,40,49,68,71,72 +1_5VRUN

C838 0.1U_16V_M_B 0402
C1504 0.1U_16V_M_B 0402
C830 0.1U_16V_M_B 0402

Supply Max 275mA

+3_3VAUX_PCIE_OUT
C1132 0.1U_16V_M_B 0402
C1133 4.7U_6.3V_K 0805_X5R

Supply Max 1300mA

+3_3V_PCIE_OUT
C1135 0.1U_16V_M_B 0402
C1136 4.7U_6.3V_K 0805_X5R
C1137 10U_6.3V_M 0805_X5R

Supply Max 650mA

+1_5V_PCIE_OUT
C1129 0.1U_16V_M_B 0402
C1130 4.7U_6.3V_K 0805_X5R
C1131 10U_6.3V_M 0805_X5R

R1357 0 0603 — L119 NC_90R-100MHZ_0R35 1206
37 EXPRESS_TXP2 → EXPRESS_TXP2_R
37 EXPRESS_TXN2 → EXPRESS_TXN2_R
R1356 0_J 0603

Update by Kain 10/27

R1355 0_J 0603 — L120 NC_90R-100MHZ_0R35 1206
3 CLK_PCIE_EXPRESS → CLK_PCIE_EXPRESS_R
3 CLK_PCIE_EXPRESS# → CLK_PCIE_EXPRESS#_R
R1371 0_J 0603
37 EXPRESS_RXP2
37 EXPRESS_RXN2
3 EXPRESS_DET#
+3_3V_PCIE_OUT
+3_3VAUX_PCIE_OUT
+1_5V_PCIE_OUT
39,49 PCIE_WAKE#
PERST#
CPPE#
CPUSB#

3,14,15,39 SMB_DATA_SUS → R1395 NC_0_J 0402 → EXPRDA
3,14,15,39 SMB_CLK_SUS → R1396 NC_0_J 0402 → EXPRCLK

R1276 0_J 0603 1206 — L118 NC_90R-100MHZ_0R35 1206
37 USB_PP5 → USB_PP5_R
37 USB_PN5 → USB_PN5_R
R1277 0_J 0603

CN19 CARD CONNECTOR_26P
FOX_1CH4310C-DK

030706: Change CN19 parts for SMT issue.

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

CN47 EXPRESS CARD HOUSING_26P
FOX_1CX43203-TC

022706: Chagne Oide power from +5VRUN to +5VSUS.

39,48,52,54,59,60,62,64,68,71 +5VSUS
F10 6V-0.35A_1206 1206L035

10mils

R782 0 0603 — L69 NC_90R-100MHZ_0R35 1206 — R787 0_J 0603
53 HUB_PN1
53 HUB_PP1

L67 120R-100MHZ_0402 MMZ1005D121CT
HUB_VCC1_F
HUB_PN1_F
HUB_PP1_F

C1086 22U_10V_Y_Y 1206
C1087 1U_10V_Y_Y 0603
C848 470P_50V_K_B 0402

Oide
FFC CONN_6P
FOX_GB11060_0221_7F
CN21

2006.1.4pin swape for ME request

HUB_VCC1_F → TP860 tpc32t_100
HUB_PN1_F → TP861 tpc32t_100
HUB_PP1_F → TP862 tpc32t_100
TP863 tpc32t_100

10mils

R781 0 0603 — L68 1206 — NC_90R-100MHZ_0R35 — R786 0_J 0603
37 USB_PN7
37 USB_PP7

L66 120R-100MHZ_0402 MMZ1005D121CT
CAM_5V
C849 470P_50V_K_B 0402
USB_VCC7_F
USB_PN7_F
USB_PP7_F

CN20 HEADER CONN_4P FOX_HS6104E

C1084 22U_10V_Y_Y 1206
C1085 1U_10V_Y_Y 0603

12/21 BFT Test Pad
USB_VCC7_F → TP732 tpc32t_100
USB_PN7_F → TP733 tpc32t_100
USB_PP7_F → TP735 tpc32t_100
TP734 tpc32t_100

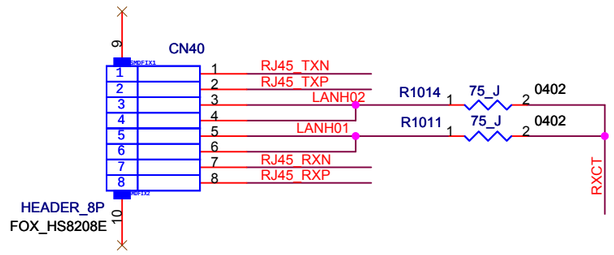
39,48,52,54,59,60,62,64,68,71 +5VSUS
U132 RT9702APB (VIN, VOUT, CE, GND, FLG#)
C1612 10U_6.3V_M 0805_X5R
39 CAM_PWREN
CAM_5V
R1943 0_J_M 0402

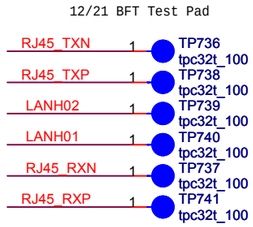
CAMERA

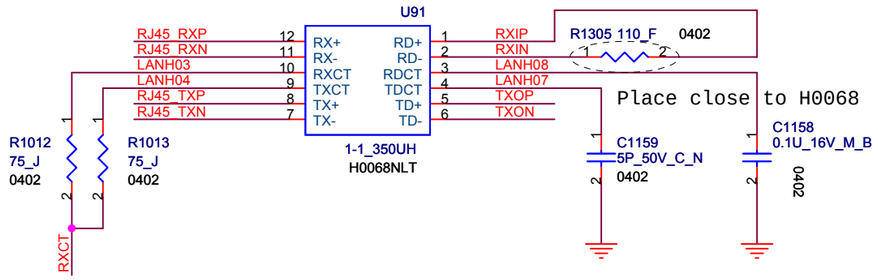
022706: Add discharge resistor for camera.

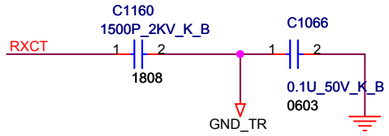
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	EXPRESS/CAM/OIDE	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 50 of 80	

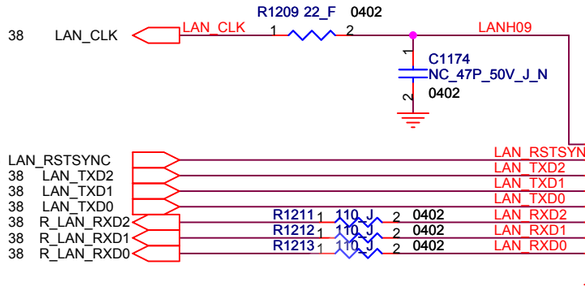
LAN PHY

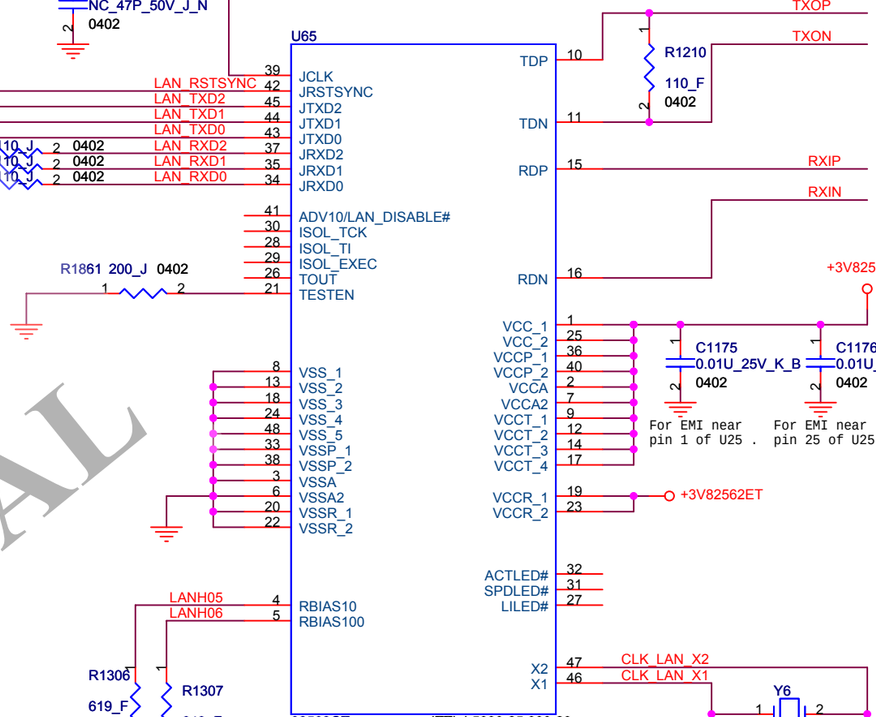


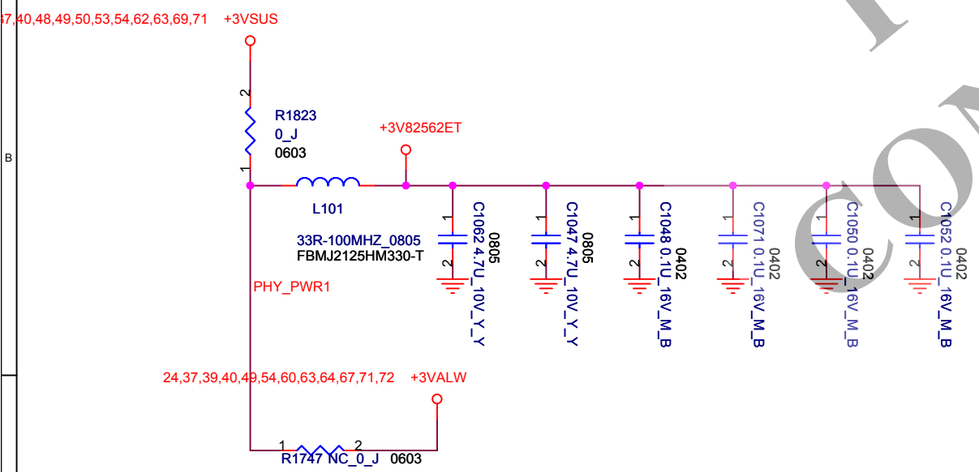


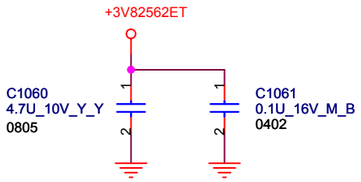


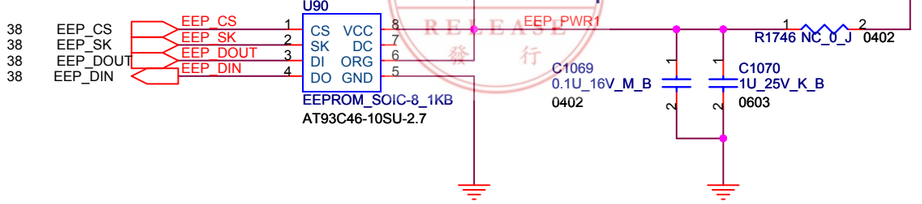












Default for S3 waking up event ,
backup for S4 waking up event

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: LAN		
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
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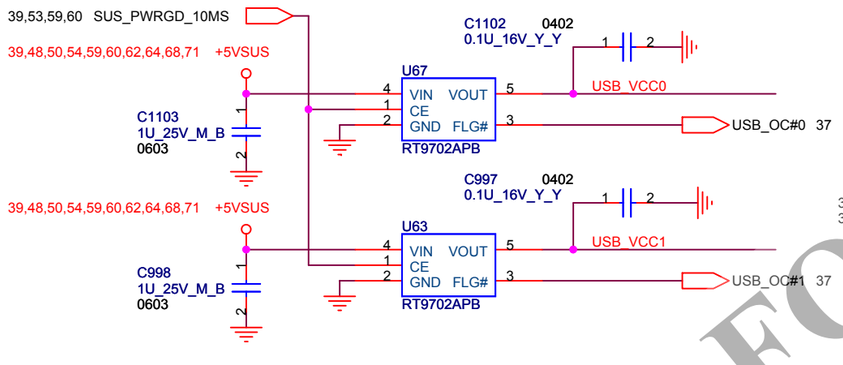
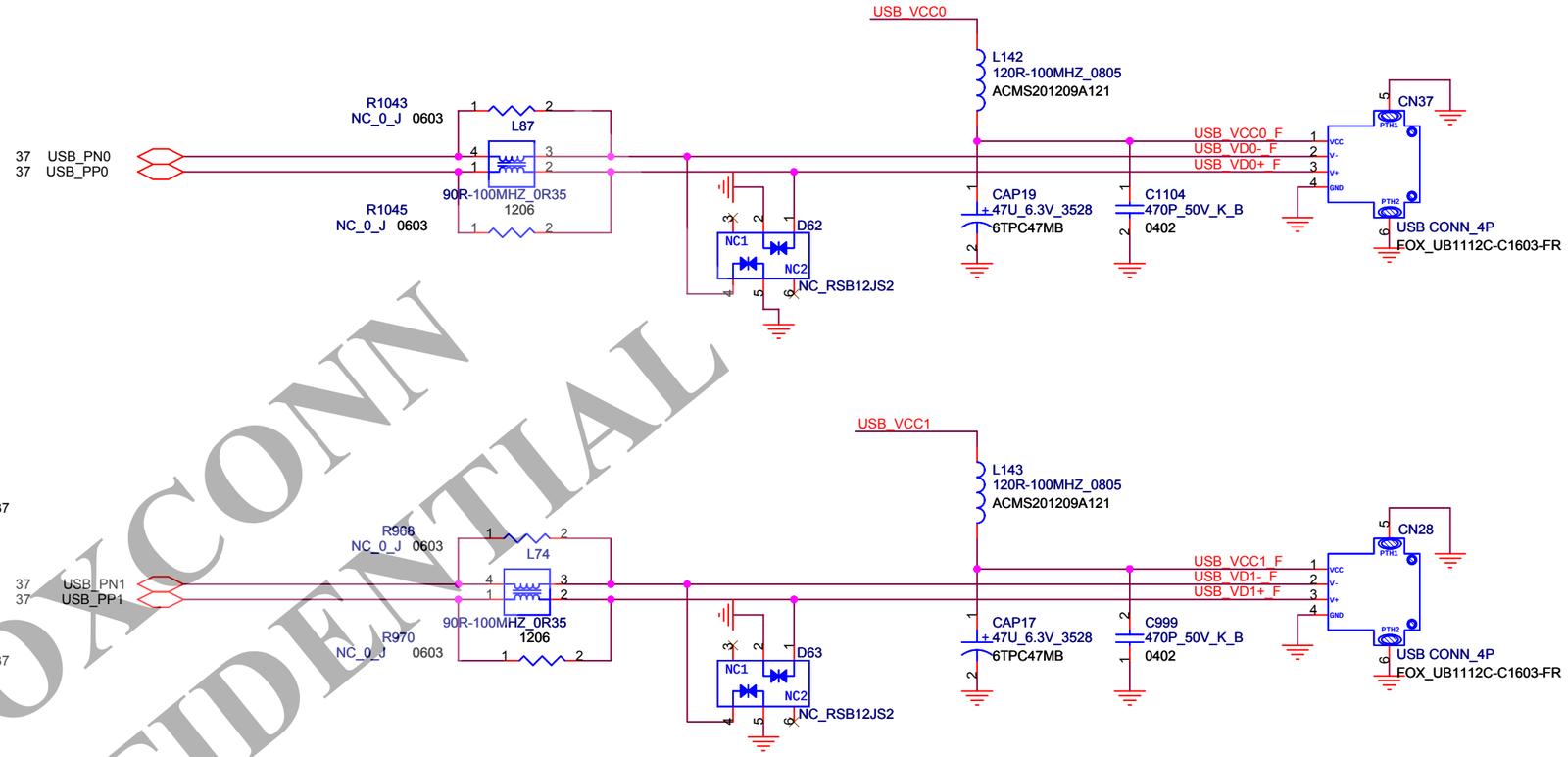
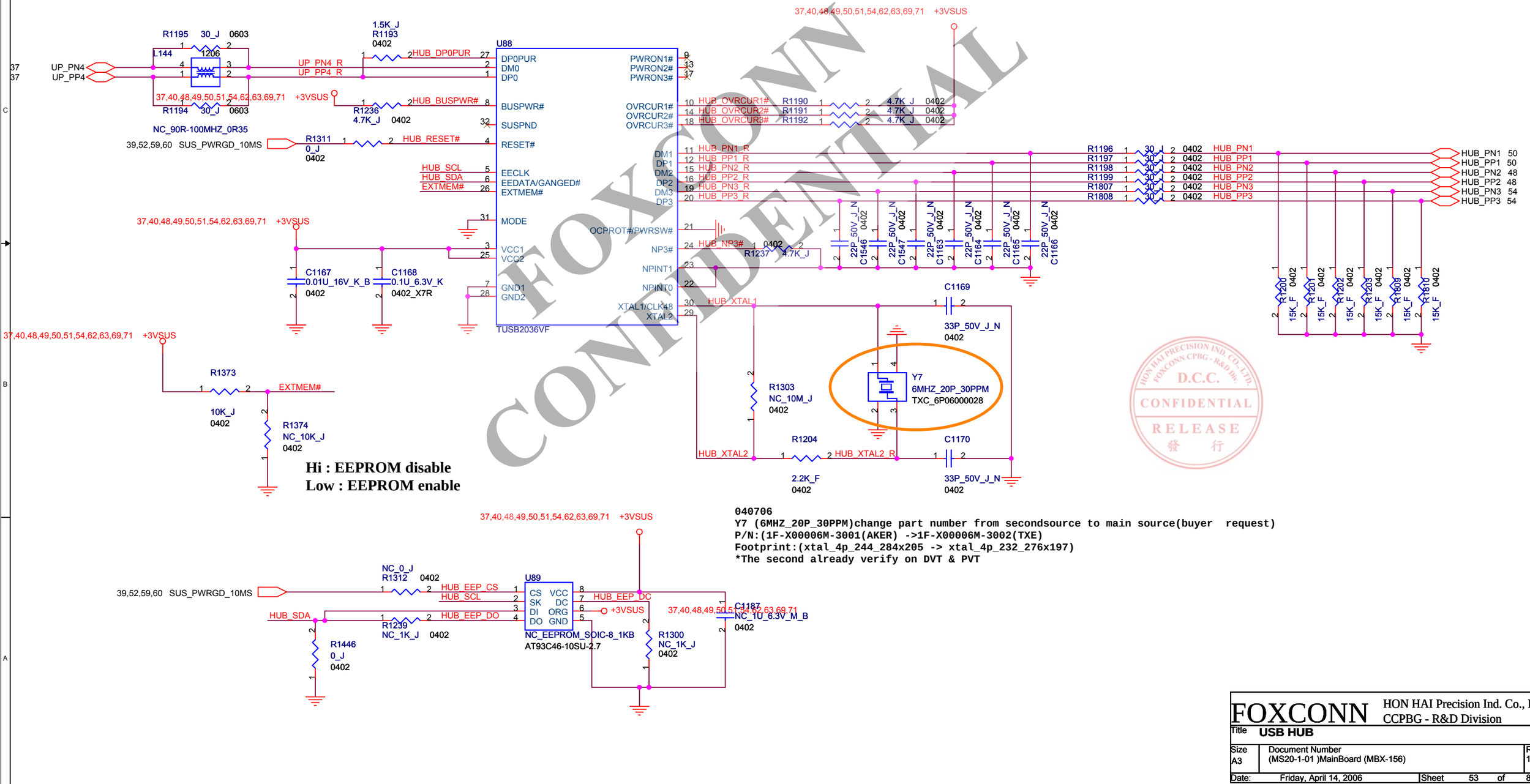
USB CONN X 2





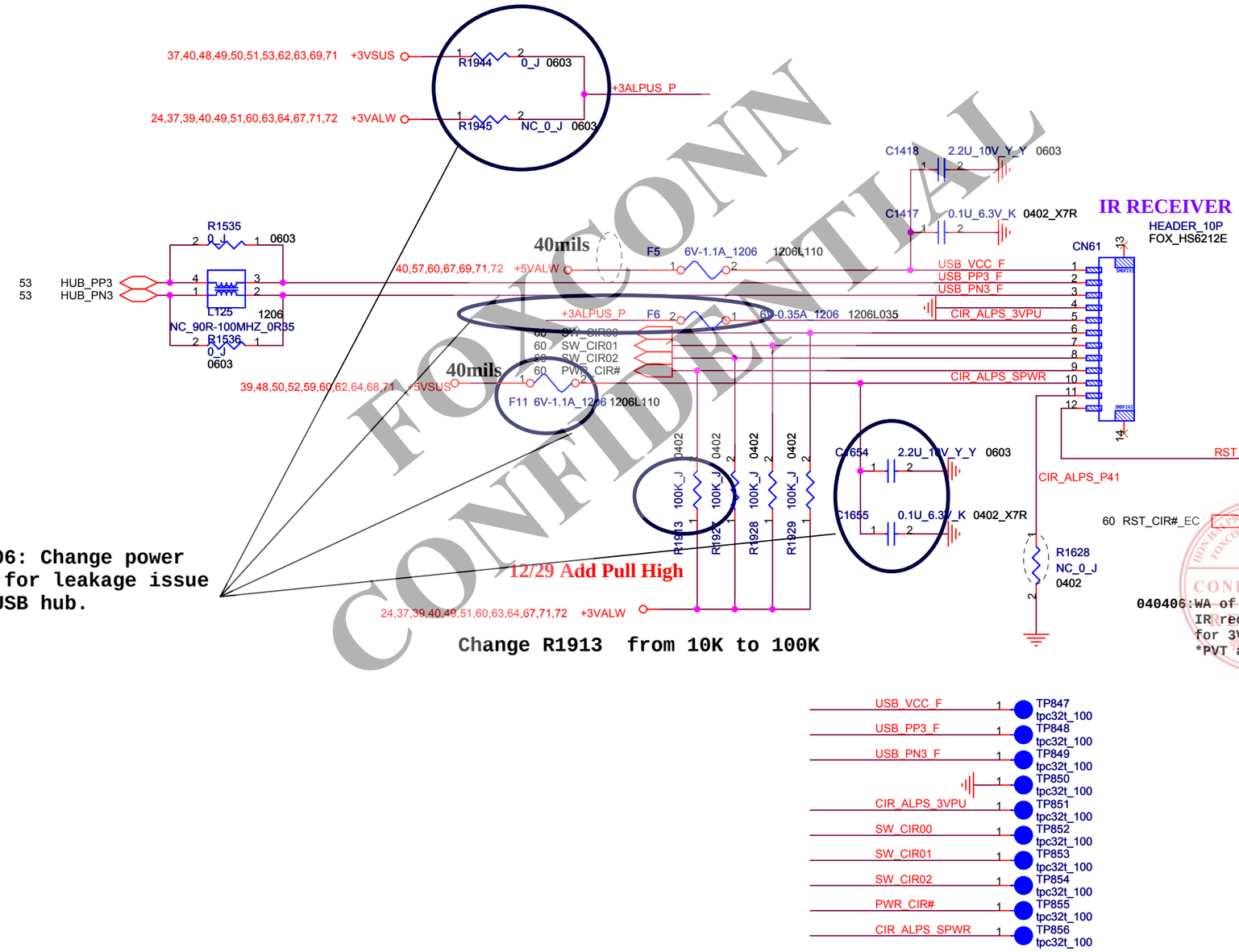
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	**USB2.0/DOCKING CONN.**	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 52 of 80	

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



040706
Y7 (6MHZ_20P_30PPM)change part number from secondsource to main source(buyer request)
P/N:(1F-X00006M-3001(AKER) ->1F-X00006M-3002(TXE)
Footprint:(xtal_4p_244_284x205 -> xtal_4p_232_276x197)
***The second already verify on DVT & PVT**

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title: USB HUB		
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
Date: Friday, April 14, 2006	Sheet 53 of 80	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	LED/LID SW#/Touch PAD		
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
Date: Friday, April 14, 2006		Sheet 54 of 80	

11/5
15-CXD9872-0400->15-CXD9872-0401

High Active

+3VRUN_F

R1748 10K_J 0402

57 HW_POP_MUTE_CODEC

C853 0.1U_16V_Y_Y 0402

C854 0.1U_16V_Y_Y 0402

(20mil)

U39

CXD9872AKD_4TH

1	DVDD_CORE1	AVDD1	25
9	DVDD_CORE2	AVDD2	38
46	GPIO0/SDATA_Out	PORT_A_L	39
45	GPIO1/LRCLK_Out	PORT_A_R	41
44	GPIO2/PBCLK	PORT_B_L	21
43	GPIO3/VOL_DN/PDATA1	PORT_B_R	22
40	GPIO4/VOL_UP/PDATA2	PORT_C_L	23
		PORT_C_R	24
		PORT_D_L	35
8	SDI	PORT_D_R	36
5	SDO	PORT_E_L	14
11	RESET#	PORT_E_R	15
10	SYNC	PORT_F_L	16
6	BITCLK	PORT_F_R	17
47	S/P_DIF_IN/SCLK_Out	CD_L	18
48	S/P_DIF_Out	CD_GND	19
		CD_R	20
2	XTA_In	VrefOut_A	37
3	XTAL_Out	VrefOut_D	32
27	VREF_FILT	SENSE_A	13
		SENSE_B	34
4	DVSS1	AD0FILT1	28
7	DVSS2	AD0FILT2	29
		AFILT1	30
		AFILT2	31
		PLL_CAP	12
		CAP2	33
		AVSS1	26
		AVSS2	42
45	THERMALPAD		

38 ACZ_SDATAIN0 — R791 39_J 0402 — ASDATA_IN

38 IAC_SDATAO_AUDIO — TO ICH7

38,57 IAC_RESET#_AUDIO — TO ICH7

38 IAC_SYNC_AUDIO — TO ICH7

38 IAC_BITCLK_AUDIO — TO ICH7

R795 NC_10K_J 0402 — CSPDIF

SPDIFO2 — R796 22_J 0402 — SPDIFO1

R1364 0_J 0402

IAC_BITCLK_AUDIO — R604 NC_47_J 0402 — IAC_BITCLK_AUDIO_RC — C734 NC_22P_50V_K_N 0402

12/24 Change Cap calue 10u -> 1u

C863 1U_25V_K_B 0603 — C864 0.1U_16V_Y_Y 0402 — C1576 33P_50V_J_N 0402 — C1577 12P_50V_J_N 0402 — A_GND

CVREF — 10mil

+3VRUN_F — R1828 10K_J 0402 — (20mil)

C1263 NC_33P_50V_K_N 0402 — C1262 NC_33P_50V_K_N 0402 — A_GND

SPDIFO2 — R1829 0_J 0402 — GPIO2

R1830 0_J 0402

R1831 NC_0_J 0402 — GPIO4

R1833 10K_R1832 0_J 0402 — GPIO1

59 SPDIF_OUT1_JACK

Audio Board

C1559 470P_16V_K 0402_NPO

74LVC00APW U110A

74LVC00APW U110B

74LVC00APW U110C

74LVC00APW U110D

64 SPDIF_OUT

Docking

R1835 0_J 0402 — SPDIF_OUT_DOCKING

C1560 470P_16V_K 0402_NPO

SILICON1930 HDMI

36 SPDIF_OUT3_HDMI — R1815 NV_0_J 0402

26 HSPDIF — R1816 NC_0_J 0402

G73M HDMI

C1561 470P_16V_K 0402_NPO

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,59,61,63,64,68,70,71 57,58,59 VDDA

12/29 Change CAP value

33P_50V_K_N 0402 — C1260 — 12P_50V_K_N 0402 — C1261 — 4.7U_10V_Y_Y 0805 — C857 — 0.1U_16V_Y_Y 0402 — C855 — A_GND

+3VRUN — R792 0_J 0603 — +3VRUN_F — C862 4.7U_10V_Y_Y 0805

HP_OUT_L 56

HP_OUT_R 56

PHONE_OUT_L 58

PHONE_OUT_R 58

MIC1_L 59

MIC1_R 59

EXT. MIC.

PCBEEPPL — C861 1U_6.3V_M_B 0402

PCBEEPPR — C1248 1U_6.3V_M_B 0402

PC_SPKRIN

SPK_L 56,58

SPK_R 56,58

12/29 Change net name

MIC_G

MIC2_L 57 — C1270 0.1U_16V_Y_Y 0402 — A_GND

MIC2_R 57

INT. MIC.

R1388 NC_0_J 0402 — GP3 — CLOSE_JUMP_40X50 — A_GND

SNESE_A — C1249 33P_50V_K_N 0402 — C1250 12P_50V_K_N 0402 — C1251 33P_50V_K_N 0402 — C1252 12P_50V_K_N 0402

SNESE_B

C1201 0.1U_16V_M_B 0402 — C1202 10U_6.3V_M 0805_X5R

C1203 820P_50V_J 0402 — C1204 820P_50V_J 0402 — C1205 820P_50V_J 0402 — C1206 820P_50V_J 0402

C1288 0.1U_16V_Y_Y 0402 — A_GND

SNESE_A — C1289 0.1U_16V_Y_Y 0402 — A_GND

R1553 39.2K_F 0402 — RHP_J — Q117 — 2N7002K — R1862 0_J 0402 — HP_IN

R1554 10K_F 0402 — RDOCK_J — Q118 — 2N7002K — R1556 10K_J 0402 — AV_PHONE_DET 57,64

R1555 5.1K_F 0402 — RMIC_J — Q119 — 2N7002K — R1557 10K_J 0402 — EXTMIC_IN_JACK

R1552 5.1K_F 0402

+5VRUN 29,30,34,35,38,40,42,43,47,56,57,61,63,70,71,73

AUDIO POWER(Change to 4.75V/200mA)

U41 TPS79301DBVR (IN, GND, EN, OUT, FB, BYPASS)

C873 1U_25V_Y_Y 0805 — C1154 0.1U_16V_Y_Y 0402 — A_GND

LD4 — C867 0.01U_25V_M_B 0402

LD5 — C866 22P_50V_J_N 0402

VDDA — R801 29.4K_F 0402 — R802 10K_F 0402 — C869 4.7U_10V_Y_Y 0805

57,58,59 VDDA

C1290 0.1U_16V_Y_Y 0402

39 AC_SPKR — TO ICH7

44 CB_SPKOUT# — TO PCMCIA

U40 SN74AHCT1G86DCK

CPCBP — R797 10K_J 0402 — PC_SPKRIN

R799 2.2K_J 0402 — C865 1000P_50V_M_B 0402

PC BEEP

FOXCONN CONFIDENTIAL

HON HAI PRECISION IND. CO., LTD. FOXCONN CPBG R&D DIV. D.C.C. CONFIDENTIAL RELEASE 發行

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title	AUDIO(CODEC & POWER)		
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)		Rev 1.00
Date: Friday, April 14, 2006		Sheet 55 of 80	

Max 1.7A

47,55,57,61,63,70,71,73 +5VRUN

L70
120R-100MHZ_1206
BCMS321611A121 5A

C876 10U_6.3V_M 0805_X5R
C1291 NC_10U_6.3V_M 0805_X5R
C878 0.1U_16V_M_B 0402
C879 0.1U_16V_M_B 0402
C880 0.1U_16V_M_B 0402
C877 10U_6.3V_M 0805_X5R

A_GND

+5VAMP

A_GND

R847 10K_J 0402

CAP22 100U_6.3V_M 9.3*3.6
CAP23 100U_6.3V_M 9.3*3.6

55 HP_OUT_R → HP_OUT_R → HP_R
55 HP_OUT_L → HP_OUT_L → HP_L

R852 10K_J 0402

A_GND

CAP24 NC_100U_6.3V_T ECGUD0J101ER
CAP25 NC_100U_6.3V_T ECGUD0J101ER

R1250 22_J 0402 HP_R_MU1
R1251 22_J 0402 HP_L_MU2
R1284 22_J 0402 HP_R_MU5
R1285 22_J 0402 HP_L_MU6
R1863 22_J 0402 HP_R_JACK → HP_R_JACK 59
R1864 22_J 0402 HP_L_JACK → HP_L_JACK 59

To Audio Board

Q77 PBSS2515F.115
Q143 PBSS2515F.115
Q78 PBSS2515F.115
Q144 PBSS2515F.115

MU3
MU4
MU7
MU8

R1252 1K_J 0402
R1253 1K_J 0402
R1866 1K_J 0402
R1865 1K_J 0402

A_GND

022706: Audio coupling capacitor co-layout.
031106: CAP24,CAP25 change to NC

57 MUTE_TR → MUTE_TR

INTERNAL SPEAKER

INT_SPK_L+ 120R-100MHZ_0402_L139 MMZ1005D121CT
INT_SPK_L- 120R-100MHZ_0402_L138 MMZ1005D121CT
INT_SPK_R- 120R-100MHZ_0402_L141 MMZ1005D121CT
INT_SPK_R+ 120R-100MHZ_0402_L140 MMZ1005D121CT

JSPK1
1 G1
2 G2
3
4
5
6
HEADER_4P
FOX_HS8104E

+5VAMP

U68
TPA6011A4PWPRG4

55,58 SPK_R → SPK_R
55,58 SPK_L → SPK_L

C1617 2.2U_10V_Y_Y 0603
C1618 0.1U_16V_Y_Y 0402
C1620 0.1U_16V_Y_Y 0402
C1619 2.2U_10V_Y_Y 0603

AMP_SRIN
AMP_RIN
AMP_LIN
AMP_SLIN
AMP_BP
AMP_RHP
AMP_LHP

RLINEIN
RIN
LIN
LLINEIN
BYPASS
SHUTDOWN#
RHPIN
LHPIN
PVDD2
PVDD1
VDD
ROUT-
ROUT+
LOUT-
LOUT+
SE/BTL#
HP/LINE#
VOLUME
SEDIFF
SEMAX
FADE#
PGND1
PGND2
AGND
Thermal Pad

INT_SPK_R-
INT_SPK_R+
INT_SPK_L-
INT_SPK_L+

R1931 0_J 0402 HP_IN_DET 57
R1930 10K_J 0402
AMP_VOL

C1625 33P_50V_K_N 0402
C1626 0.47U_6.3V_K_B 0402
C1627 0.01U_16V_K_B 0402
C1628 0.1U_16V_Y 0402
C1629 0.1U_16V_Y 0402
C1621 NC_33P_50V_K_N 0402
C1622 NC_33P_50V_K_N 0402
C1623 NC_33P_50V_K_N 0402
C1624 NC_33P_50V_K_N 0402

R1932 6.2K_F 0402
R1933 10K_F 0402

12/21 BFT Test Pad

INT_SPK_L+ TP742 tpc32t_100
INT_SPK_L- TP743 tpc32t_100
INT_SPK_R- TP744 tpc32t_100
INT_SPK_R+ TP745 tpc32t_100

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO(AMP & HP & SPK)	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 56 of 80	

040506
Q86 change part from 17-MMBT390-6000 (MMBT3906)
to 17-MMBT390-6K00 (MMBT3906K)
*PVT already modify(special noties V0.1)

040606 FAN Noise on Int.MIC
(1)Cut-off frequency => 159Hz
R1319 : 2.2k -> 1k
C1232 : 2.2u -> 1u
(2)Cut-off frequency =>7.2kHz
R1318: 22k -> 10k
C1230: 220p -> 2200p
*MOR Nishio-san suggest 3/31

12/24 change part
from 16-ASKS020-3S00 to 16-CH520S3-0P00

12/5 modify capacitor value

Delay 100-200 ms

From EC/CODEC MUTE .

12/23 change net name
from MUTE_5 to MUTE_5#

INTERNAL MIC(Non)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	AUDIO (MUTE & INTMIC)
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156) Rev 1.00
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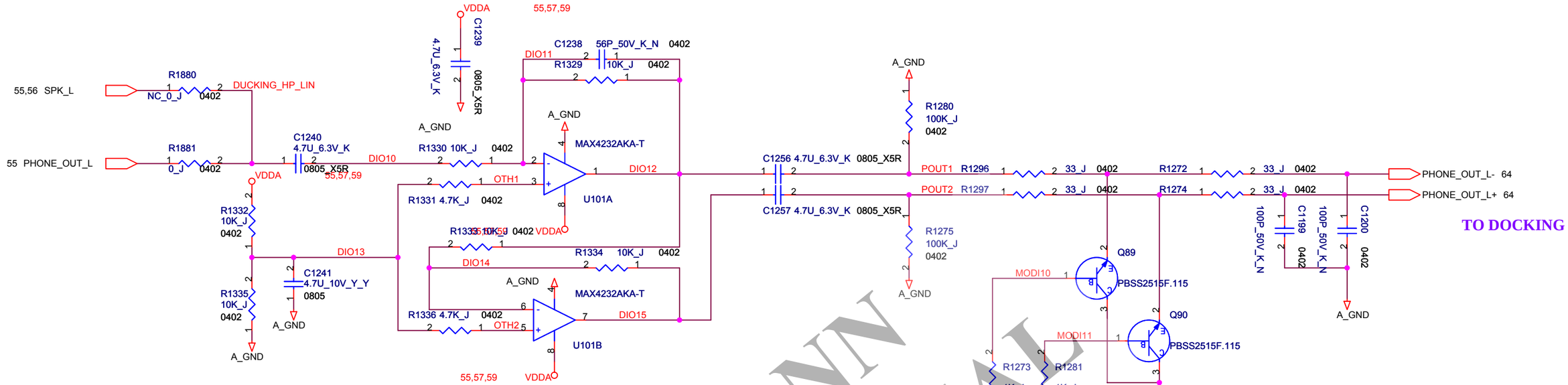
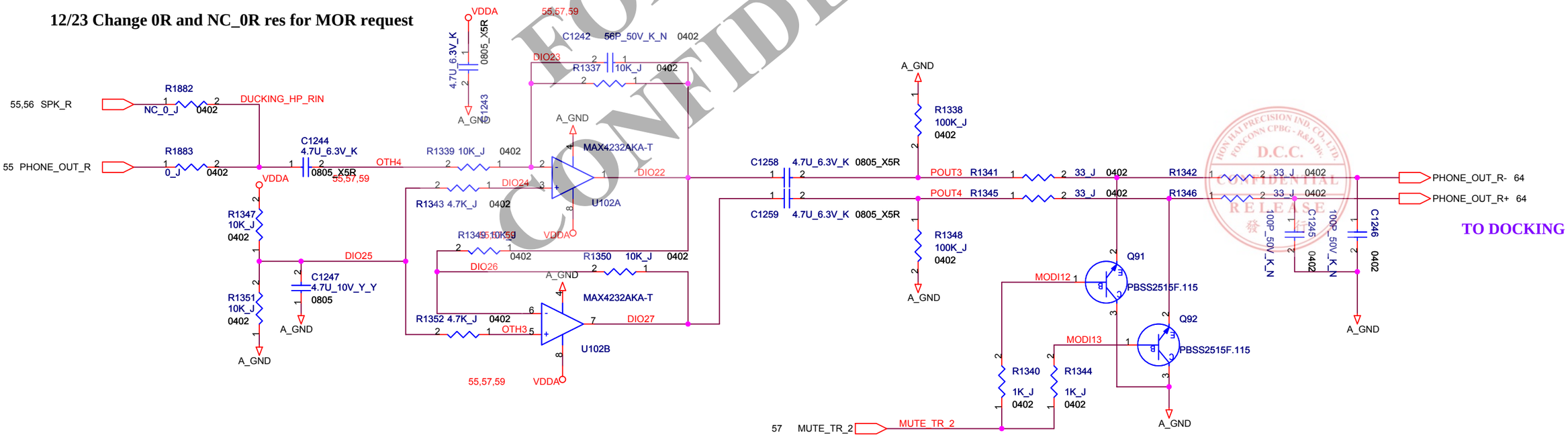
PHONE OUT



12/23 Change 0R and NC_0R res for MOR request



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	AUDIO (PHONE OUT)	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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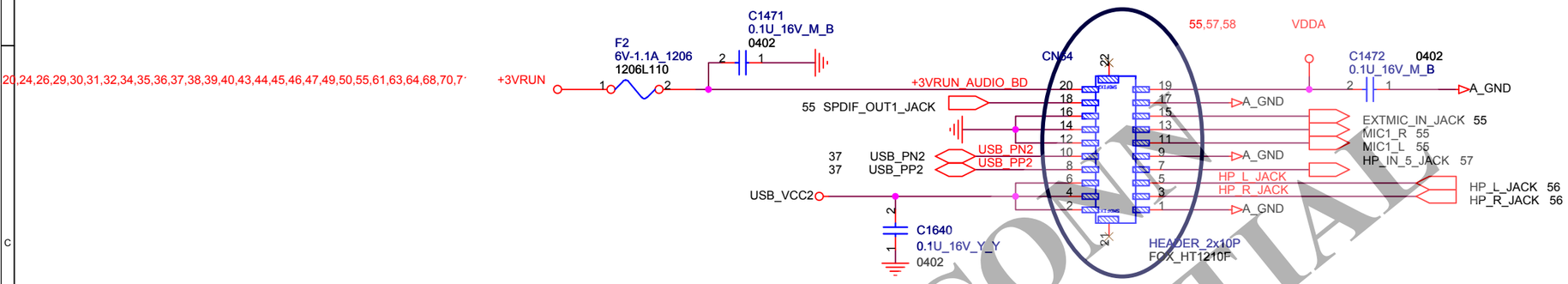
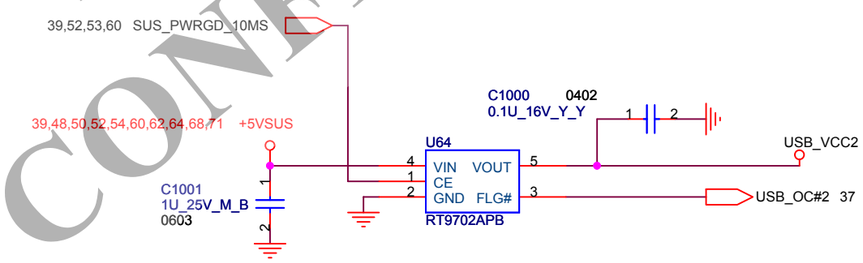
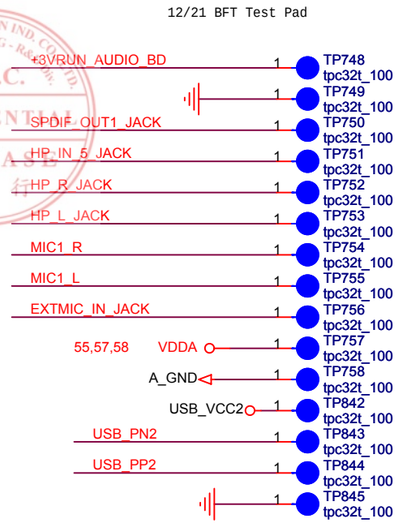


030706: Change CN64 PIN16 from +3VSUS to GND and change PIN6 from USB_PP2 to USB_VCC2.
Shift Pin 6&8 to Pin 8&10.
Delet F9 and C1641.





FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	**Touch Pad & LED Board**	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 59 of 80	

Consider short FB after BB test.

040406:WA of InstantOn later(2)
EC (U32)GPIO18(pin85)contact to 2N7002 pin1
***PVT already modify(Rework Notice item#3)**

"INSTANT ON" definition
Enable : SYSTEM_ID0 is Low
Disable : SYSTEM_ID0 is High

For B version
signal "ISPEN_TP"
use

040406:FAN noise issue:Add 1000pF(C1662)close EC
Add 1000pF(C1666)closc PVT rework location(backup)
on net FAN1_TACH(fan feedback),and remove
C1657 on net FAN1_PWM(EC to FAN control)
***PVT already modify(Rework Notice item#2)**

022706:Delete Fan2 circuit,backup for viao loge
soft start.

FAN_SEL Definition
Hi for FOXCONN FAN
Low for MOR Cooling Unit

CLOSE TO CHIP

FOR EMI

FPC CONN_24P
FOX_GB21240-0002-7F

KBC CNN

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	EC + KBC	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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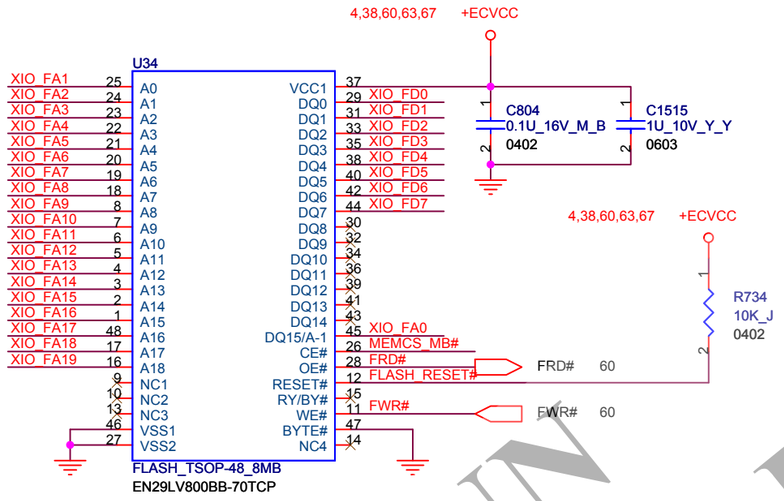
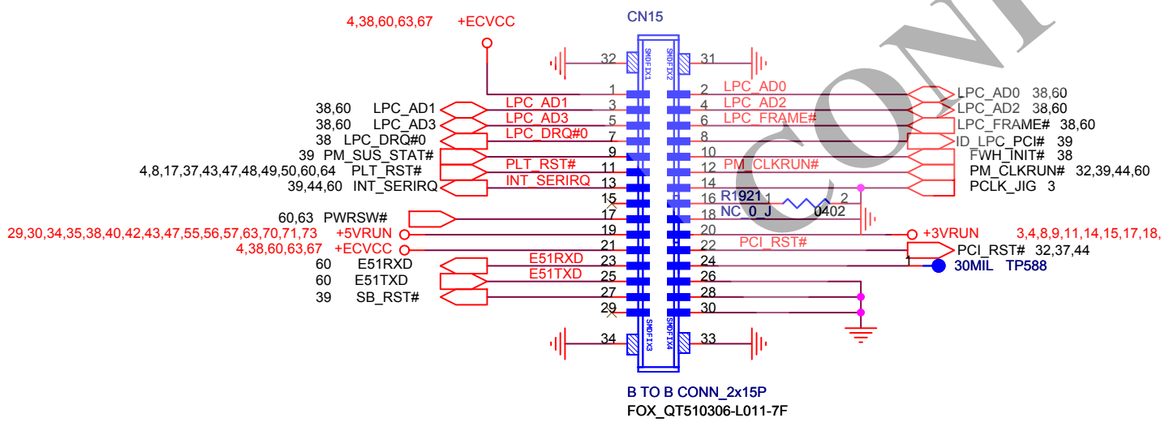
60 XIO_FA[19..0]

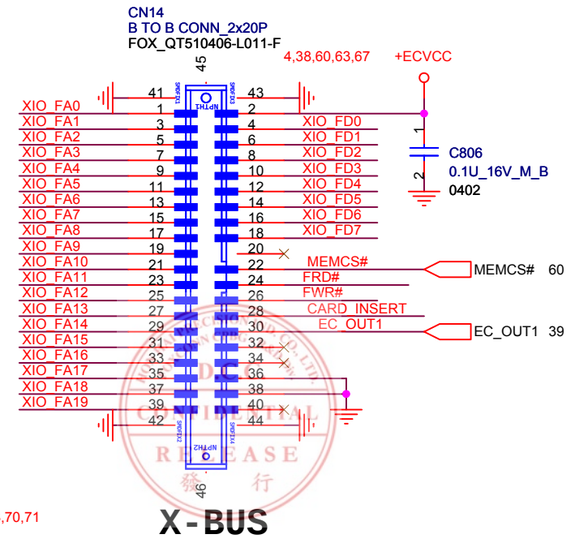
60 XIO_FD[7..0]



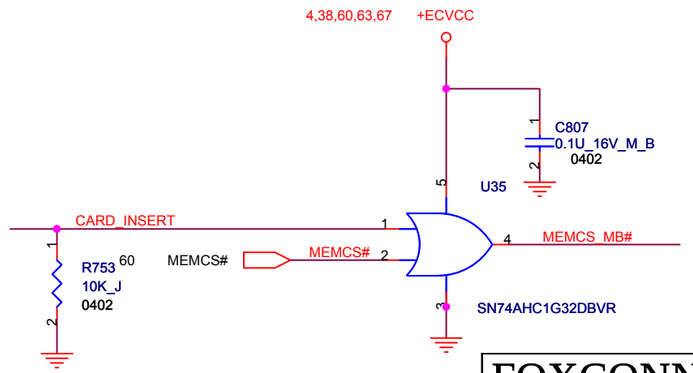
FLASH BIOS



JIG-120



X-BUS



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

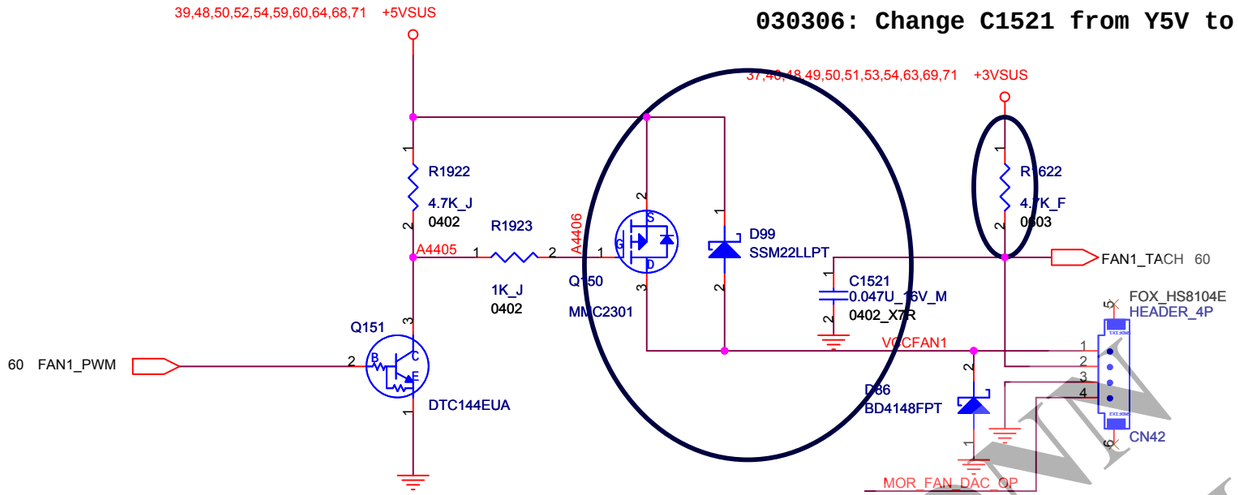
Title: Flash ROM + Jig-120 + XBUS

Size	Document Number	Rev
A3	(MS20-1-01)MainBoard (MBX-156)	1.00

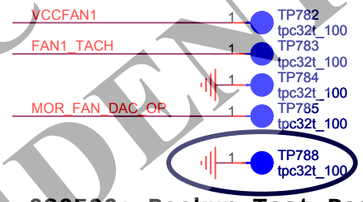
Date: Friday, April 14, 2006 Sheet 61 of 80

022706: Add doide for inverse current and change pull-high resistor from 10K to 4.7K.

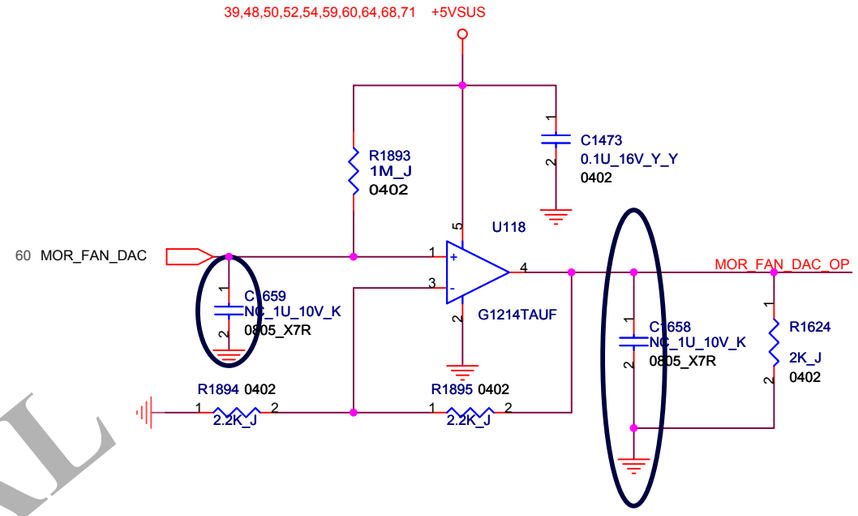
030306: Change C1521 from Y5V to X7R.



FAN1



030506: Backup Test Pad.



022706: Add capacitor for cooling unit.
031106: C1658 change to NC

FAN(FAN1+MOR FAN)

030306: Delet FAN2 circuit.

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: FAN		
Size: A3	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
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SD LED

040506 Modify SD LED brightness
LED11 change part from 16-HT110Y0-0000
(Vendor P/N : HT_110Y)to 16-HT110UY-0000.
(Vendor P/N : HT-110UY)

24,37,39,40,49,51,54,60,64,67,71,72 +3VALW
R1879 33_J 0402
LED11 HT-110UY
Ultra Bright Yellow
D94 SM05.TCT
D92 NC_BAS316
D93 BAS316
MC_PWR_CTRL_MS
MC_PWR_CTRL_SD
Q145 DTC144EUA

REC_LED TP789 tpc32t_100
KSO15 TP790 tpc32t_100
KSO16 TP796 tpc32t_100
KSI0 TP791 tpc32t_100
KSI1 TP792 tpc32t_100
KSI2
KSI3
KSI4
KSI5
KSI6
KSI7
PWRSW# TP804 tpc32t_100
POWER_LED TP803 tpc32t_100
SUSPEND_LED TP805 tpc32t_100

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,64,68,70,71 +3VRUN
24,37,39,40,49,51,54,60,64,67,71,72 +3VALW
CN45 FPC BOTTOM CONN_18P FOX_GB11180-0221-7F
6V-0.35A_1206 F12 1206L035
C1584 0.1U_16V_Y_Y 0402
F13 NC_6V-0.35A_1206 1206L035
C1507 NC_0.1U_16V_Y_Y 0402
040606
C1507 change to NC
C1585 0.1U_16V_Y_Y 0402
C1506 0.1U_16V_Y_Y 0402
6V-0.35A_1206 F14 1206L035
6V-0.35A_1206 F15 1206L035
CN55 FPC CONN_12P FOX_GB11120-0221-7F

REC_LED 32
KSO15 60
KSO16 60
KSI0 60
KSI1 60
KSI2 60
KSI3 60
KSI4 60
KSI5 60
KSI6 60
KSI7 60
PWRSW# 60,61
POWER_LED 60
SUSPEND_LED 60

60 POWER_LED
60 SUSPEND_LED
60 BATTERY CHARGING LED#
38,64 SATA_LED#
44 MC_PWR_CTRL_MS
44 MC_PWR_CTRL_SD

POWER_LED
SUSPEND_LED
BATTERY CHARGING LED#
SATA_LED#
MC_PWR_CTRL_MS
MC_PWR_CTRL_SD

060301: Add 6 fulse for short issue.

To Power Button Board Connector

24,37,39,40,49,51,54,60,64,67,71,72 +3VALW
3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,64,68,70,71 +3VRUN

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

To LED Board Connector

PWRSW# TP839 tpc32t_100
PWRSW# TP840 tpc32t_100
PWRSW# TP846 tpc32t_100
GP15 OPEN_JUMP_OPEN2B

TOP Side
BOP Side

BLUETOOTH LED

29,30,34,35,38,40,42,43,47,55,56,57,61,70,71,73 +5VRUN

040506 Modify Bluetooth LED brightness
(1)LED9 change part from 16-HT110NB-0000
(Vendor P/N : HT_110NB)to 16-HT110NB-5000.
(Vendor P/N : HT-110NB5)(The same with MS10)
(2)R1839 change part from 1R-0000201-J200
(200ohm,5%,0402) to 1R-0000391-J300.
(390 ohm,5%,0603)(The same with MS10)

R1839 390_J 0603
Blue
LED9 HT-110NB5
Q139 DTC144EUA
48,60 BT_ON

TP816 tpc32t_100
TP818 tpc32t_100
TP817 tpc32t_100
TP819 tpc32t_100
TP821 tpc32t_100
TP820 tpc32t_100
CLK_TP
DAT_TP
LIDIN#

MOLEX_52893_1095 FFC CONN_10P CN68
6V-0.35A_1206 F17 1206L035
C1562 0.1U_16V_Y_Y 0402
4,38,60,61,67 +ECVCC
6V-0.35A_1206 F18 1206L035
C1563 0.1U_16V_Y_Y 0402

CLK_TP 60
DAT_TP 60
LIDIN# 31,60

030306: Change S/N from 1N-0010000-M0X0
to 1N-0010000-MWG0.

To Touch Pad Board Connector

60 KSO17
60 KSI0
60 KSI1
60 KSI2
60 KSI3
60 KSI4
60 MUTE_SW#
60 MUTE_LED#
60 CAP_LED#
60 SCROLL_LOCK_LED#
60 NUM_LOCK_LED#

KSO17
KSI0
KSI1
KSI2
KSI3
KSI4
MUTE_SW#
MUTE_LED#
CAP_LED#
SCROLL_LOCK_LED#
NUM_LOCK_LED#

FPC BOTTOM CONN_18P FOX_GB11180-0221-7F

030306: Backup for
MAX1916 chip .

WLAN LED

37,40,48,49,50,51,53,54,62,69,71 +3VSUS
49 MINI_CARD_LED#
Q140 DTA114YUA
Ultra Bright Yellow
D95 SM05.TCT
R1380 68_J 0402
LED10 HT-110UYG

29,30,34,35,38,40,42,43,47,55,56,57,61,70,71,73 +5VRUN
U139 NC_G5920TB1Uf
C1660 NC_0.1U_16V_Y_Y 0402

60 LOGO_LED_EN_EC
39 LOGO_LED_EN
R1948 NC_0402
R1949 0_J 0402
31 INV_ENABLE
U126 74AHCT1G08GW
U138 MAX1916EZT
LOGO_EN
LOGO_LED
R1936 43K_F 0402
SONY LOGO LED
FOX_HS8102E HEADER_2P
CN62

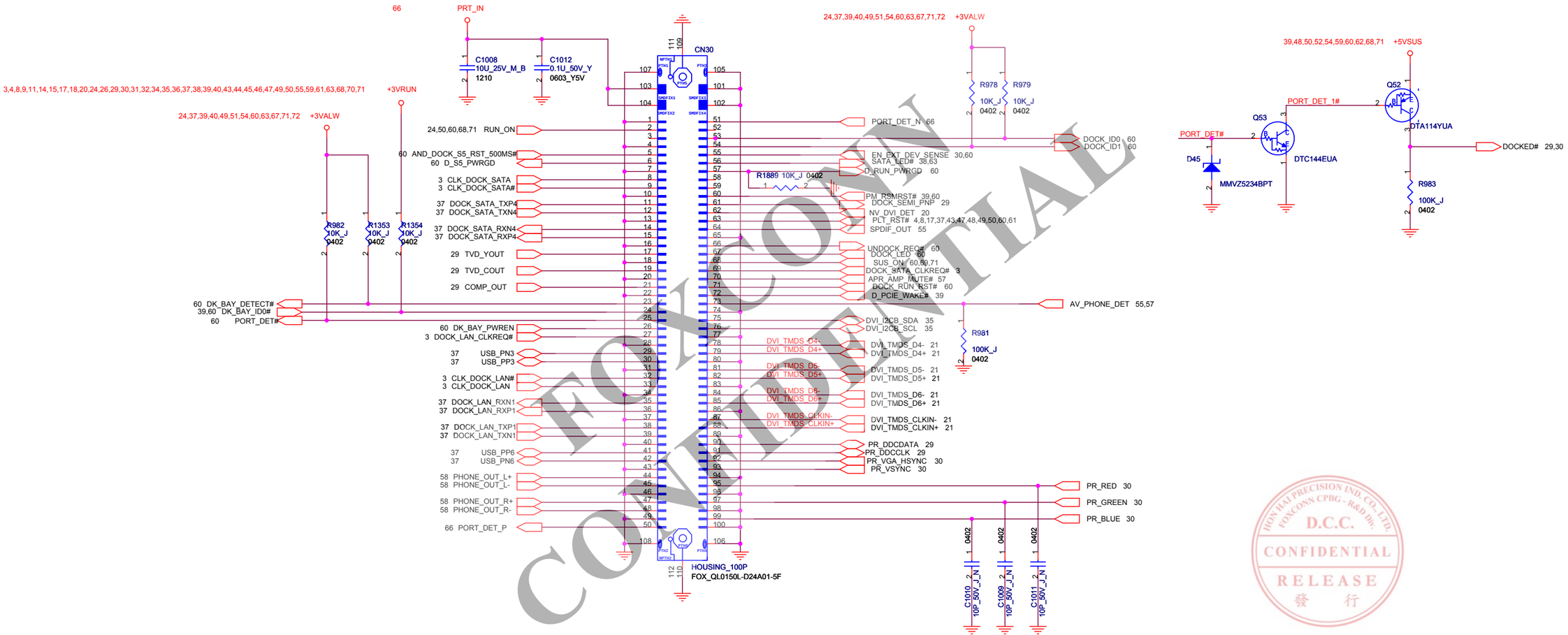
TP835 tpc32t_100
TP836 tpc32t_100

To AV Function Board Connector

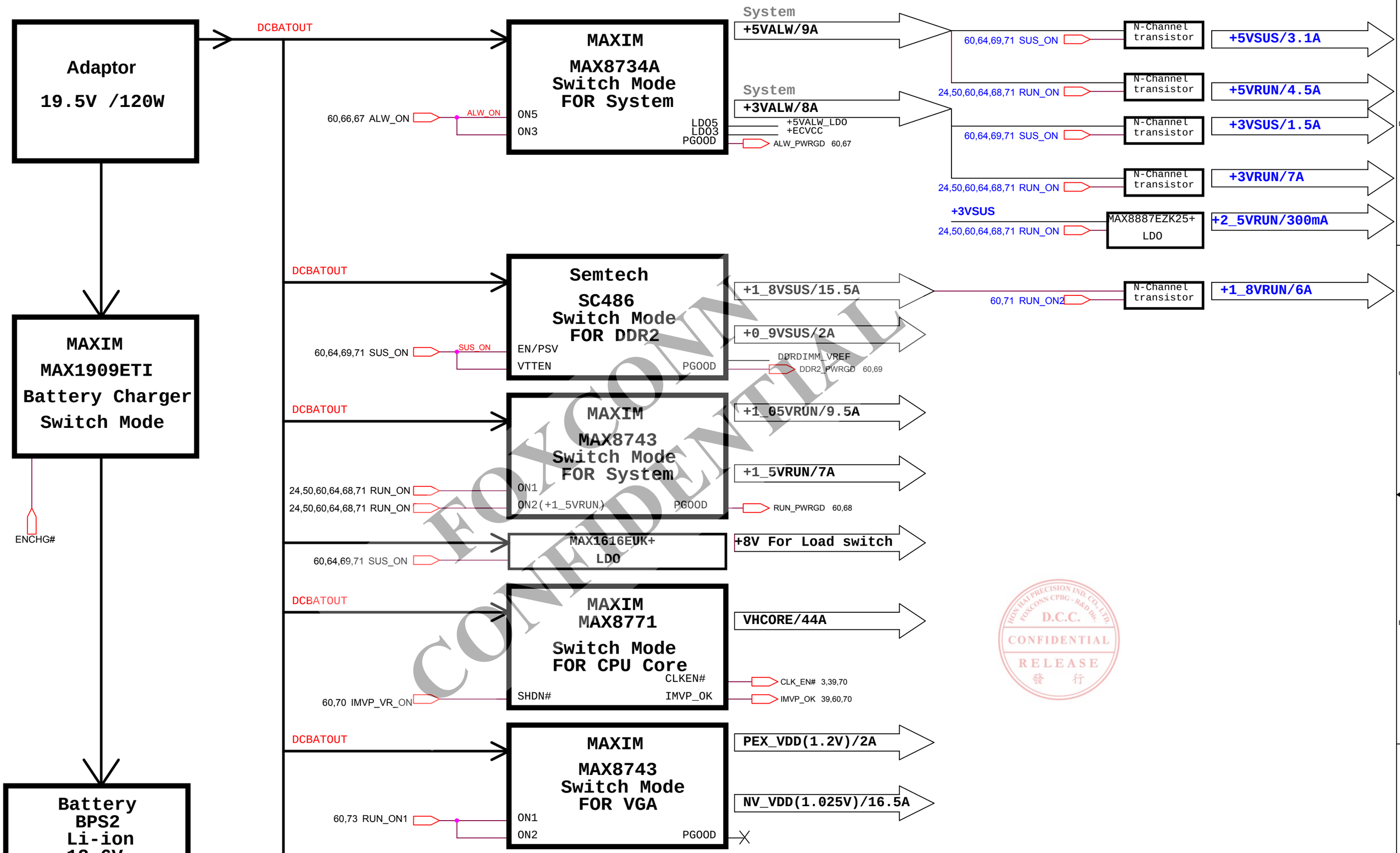
LED IF SPEC:
20mA(TYP),30mA(MAX)

030906: Add two 0ohm resistors for Viao loge
soft start issue.

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: (MS20-1-01)MainBoard (MBX-156) | Rev: 1.00
Date: Friday, April 14, 2006 | Sheet 63 of 80



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	DOCKING CONN.	
Size C	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 64 of 80	



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	Power Design Diagram-ZG	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 65 of 80	

8A

DC_IN 72

PF1
125V-10A_6.1x2.69x2.69
R451010.MRL

PTP41 tpc32t_100

PTP42 tpc32t_100

PCN1
HEADER CONN_4P
MOLEX_22-05-3041

PL1
SMH 100805-4T
860R-100MHZ_8A_0.045R

PC19 0.01U_25V_K_B 0402
PC20 0.1U_50V_K_B 0603
PC21 0.1U_50V_K_B 0603
NC_0.1U_50V_K_B

PD2 MMPZ5250BFPT

PR377 1K_F 0402
PR363 10K_J 0402
PR364 120K_J 0402
PR377_2
PR364_2
PQ4_3

PC14 0.1U_50V_K_B 0603
PC15 NC_1U_25V_M_B 0603
PC16 NC_10U_25V_M_B 1210
PC17 0.1U_50V_K_B 0603

PR378 10_J 0603

PU20
AME431BBJETB25Z
2PC4617Q
PQ90A MUN5213DW1T1G
PQ90B MUN5213DW1T1G

PQ4
PR379 1K_F 0402
PR365 10K_F 0402
PD2_2
PQ4_1

72 AC_OFF_3#

PD3 1SS400PT

PC29 1U_25V_M_B 0603

72 DCBAT_RS+

PQ1 SI4425BDY-T1-E3
PQ2 SI4425BDY-T1-E3

DC_IN_MOS

PR1 0.01_1W_F 2512

31,67,68,69,70,71,72,73 DCBATOUT

PTP6 tpc32t_100

PC1 1U_25V_M_B 0603
PC2 NC_1U_25V_M_B 0603
PC5 0.1U_50V_K_B 0603
PC8 0.1U_50V_K_B 0603

PR2 150K_F 0402
MAX1909_ACIN

PC18 0.1U_50V_K_B 0603
DC_IN_G1

PR5 10K_F 0402

DCBAT_RS+

PR6 20K_F 0402

PC22 1U_25V_M_B 0603
PC26 1U_25V_M_B 0603
PD6 NC_MMPZ5253BPT

PC28 1U_25V_M_B 0603
PC23 0.1U_50V_K_B 0603

MAX1909_PDS
MAX1909_DC_IN

MAX1909_PDL

MAX1909_LDO 72

Place PC334 near MAX1909 Pin 2

PR7 33_J 0402
PC334 1U_25V_M_B 0603

PC335 1U_25V_M_B 0603
Place PC335 near MAX1909 Pin 21

DCBATOUT 31,67,68,69,70,71,72,73

PC24 10U_25V_M_B 1210
PC25 10U_25V_M_B 1210

PU1
MAX1909

24	SRC	DHIV	22
27	PDS	PDL	28
3	ACIN	LDO	2
1	DCIN	DLOV	21
11	VCTL	DHI	23
5	GND/PKPRES#	DLO	20
6	ACOK	PGND	19
7	MODE	THERMAL_PAD	29
10	ICTL	CSIP	18
26	CSSP	CSIN	17
25	CSSN	BATT	16
8	IINP	CLS	9
13	CCV	REF	4
12	CCI	GND	15
14	CCS		

MAX1909_DHIV

72 MAX1909_LDO

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

MAX1909_VCTL
MAX1909_MODE
MAX1909_ICTL

BATT_PRS#

60,72 ACIN

PQ10 PDTC144ET

60 AC_OFF

PQ11 2N7002

PR20 15K_F 0402
PR21 200K_J 0402
PR369 15K_F 0402
PR23 22K_F 0402
PR393 0_J 0402

PC377 1U_6.3V_M_B 0402

MAX1909_PKP

60 ENCHG#

PR394 15K_F 0402

Change PR369 from 0Ω to 15KΩ for set BATT_PRS# high level=3.24V for EC

72 MAX1909_IINP_HW

PR25 0_J 0402

PC34 1U_25V_M_B 0603

PR29 7.15K_F 0603

MAX1909_CCV_1
MAX1909_IINP
MAX1909_CCV
MAX1909_CCI
MAX1909_CCS

PR26 20K_F 0402

PC337 0.01U_25V_K_B 0402

PC338 0.01U_16V_K_B 0402

PC37 470P_50V_K_B 0402

MAX1909ETI+T

MAX1909_CLS
MAX1909_REF

PC339 1U_25V_M_B 0603

PR28 6.2K_F 0402

PR30 20K_F 0402

PR28&PR30_Set input current limit to 111W
MAX1909 reduce source current by decreasing the charger current when the input current exceeds 111W

PQ84B AO4606

PL6
15UH-100KHZ_2A_0.056R
SPD1004PT150M

MAX1909_DHI&MAX1909_DLO need to keep same length
Width DHI=40mils ,DLO=40mils

PQ84A AO4606

BT+_1

PR14 0.015_F 2512

BT+_2

PC31 NC_10U_25V_M_B 1210
PC32 10U_25V_M_B 1210
PC33 10U_25V_M_B 1210

60
60
60
72

2.5A

10A

PD1 SSM34PT

PQ3 FDS6675A

DCBAT_RS+

BT+ 72

BT+_4
DAT_SMB
CLK_SMB
BATT_PRS_1
SYS_PRS_1

PC9 0.1U_50V_K_B 0603
PC10 47P_50V_J_N 0402
PC11 47P_50V_J_N 0402
PC12 47P_50V_J_N 0402
PC13 0.1U_50V_K_B 0603

PD4 SM15.TC

PD5 PACDN042Y3R

PL19
60R-100MHZ_1806
BCMS451616A600 8A

PL5
60R-100MHZ_1806
BCMS451616A600 8A

BT+_4

DAT_SMB
CLK_SMB
BATT_PRS#
SYS_PRS#

PR18 330_J 0402
PR19 330_J 0402

BATT_PRS_1
SYS_PRS_1

PCN2

PD9 PACDN042Y3R

BATTERY CONN_6P
FOX_BP3406L-P7232-7F

6.5A

DC_IN 72

PRT_IN 64

PQ15 SI4425BDY-T1-E3

PR319 100K_J 0402

PQ15_4

Reduce Vgs voltage value to 15V follow PQ15 Vgs =+-20V spec

PR44 33K_J 0402

PQ25_3

PR325 0_J 0402

PQ25 PDTC144ET

PORT_DET_P 64

PORT_DET_N 64

2006/4/5
PD10 Change from 16-MM3216V-T100 (Vz=15.3V~17.1V) to 16-MMP2524-6B00(Vz=16.8V)
*PVT already modify(special noties V0.5)

DC_IN 72

PD10 MMPZ5246BPT

PD10_2

PR323 1K_J 0402

PR323_2

PQ94A MUN5213DW1T1G

PC40 0.1U_50V_K_B 0603

PR320 120K_J 0402

PR320_2

PQ94B MUN5213DW1T1G

PC39 0.1U_50V_K_B 0603

AC_OFF_3# 72

DC_IN_MOS

PQ13 IRLML5103PbF

PR36 PRG18BB330MB1RB

PR36_1

DCBAT_RS+ 72

PQ91A PUMB2

PQ13_1

PR321_1 200K_J 0402

PR324_1

PR324 200K_J 0402

PQ91B PUMB2

PR40 10K_F 0402

DC_IN_G1

MAX1909_PDS

PR321_2

PD12 BAT54WAPT

PR326 0_J 0402

72 AC_OFF_3#

MAIN_DC_SW_OFF#

PR322 100K_J 0402

DC_IN_MOS

PD11 MMVZ5235BPT

PD11_2

PR322_1

MAIN_DC_SW_OFF#

PD40 BAS316PT

ALW_ON 60,67

PQ95A

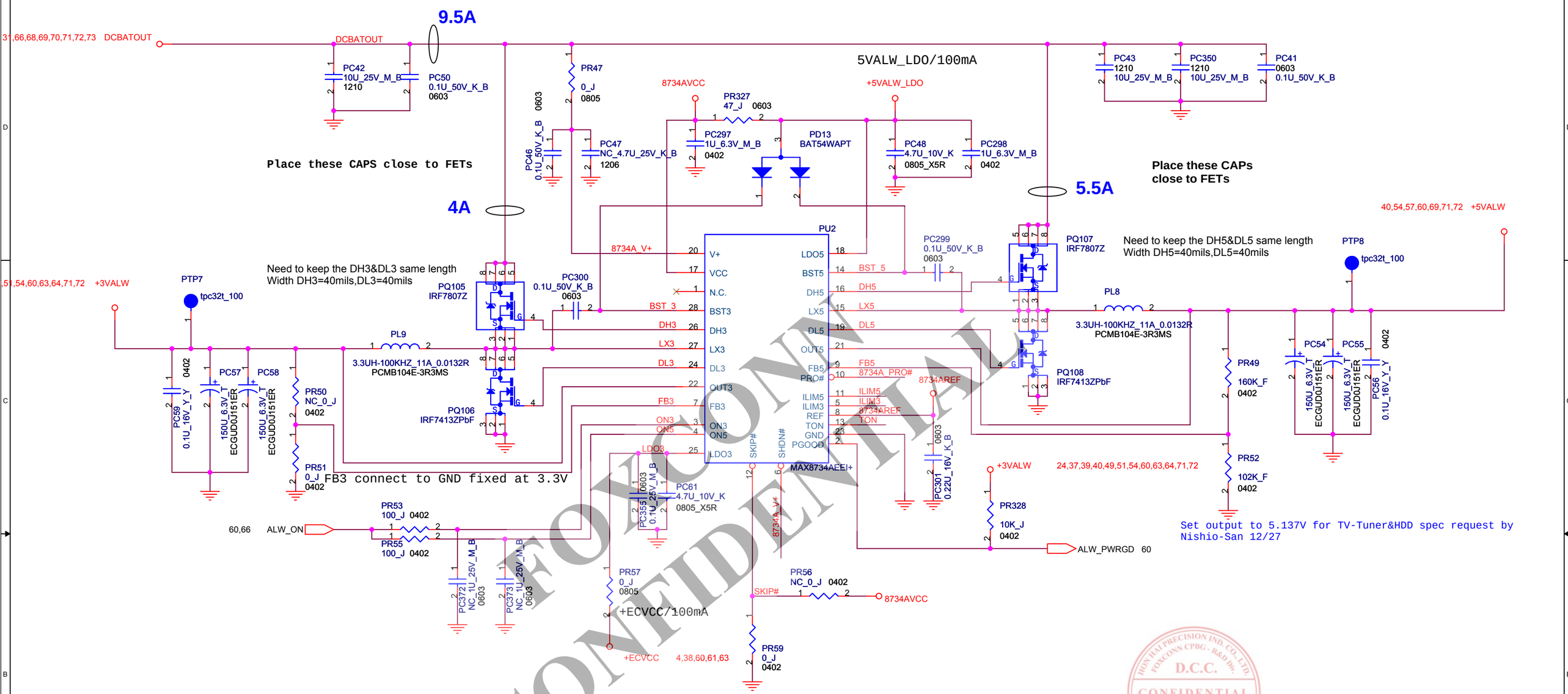
PQ95B

MUN5213DW1T1G

MUN5213DW1T1G

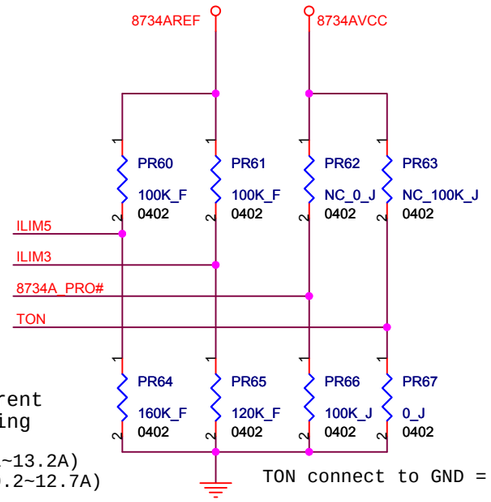
PQ1,PQ2,PQ3,PQ15 usage
SI4425BDY(Rds=10mΩ_typ,12mΩ_max@Vgs=10V,Id=11.4A)
or
AOS4407(Rds=11mΩ_typ,14mΩ_max@Vgs=-10V,Id=-10A)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	DCIN & Charger	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 66 of 80	



+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)



Adjust Current Limit setting

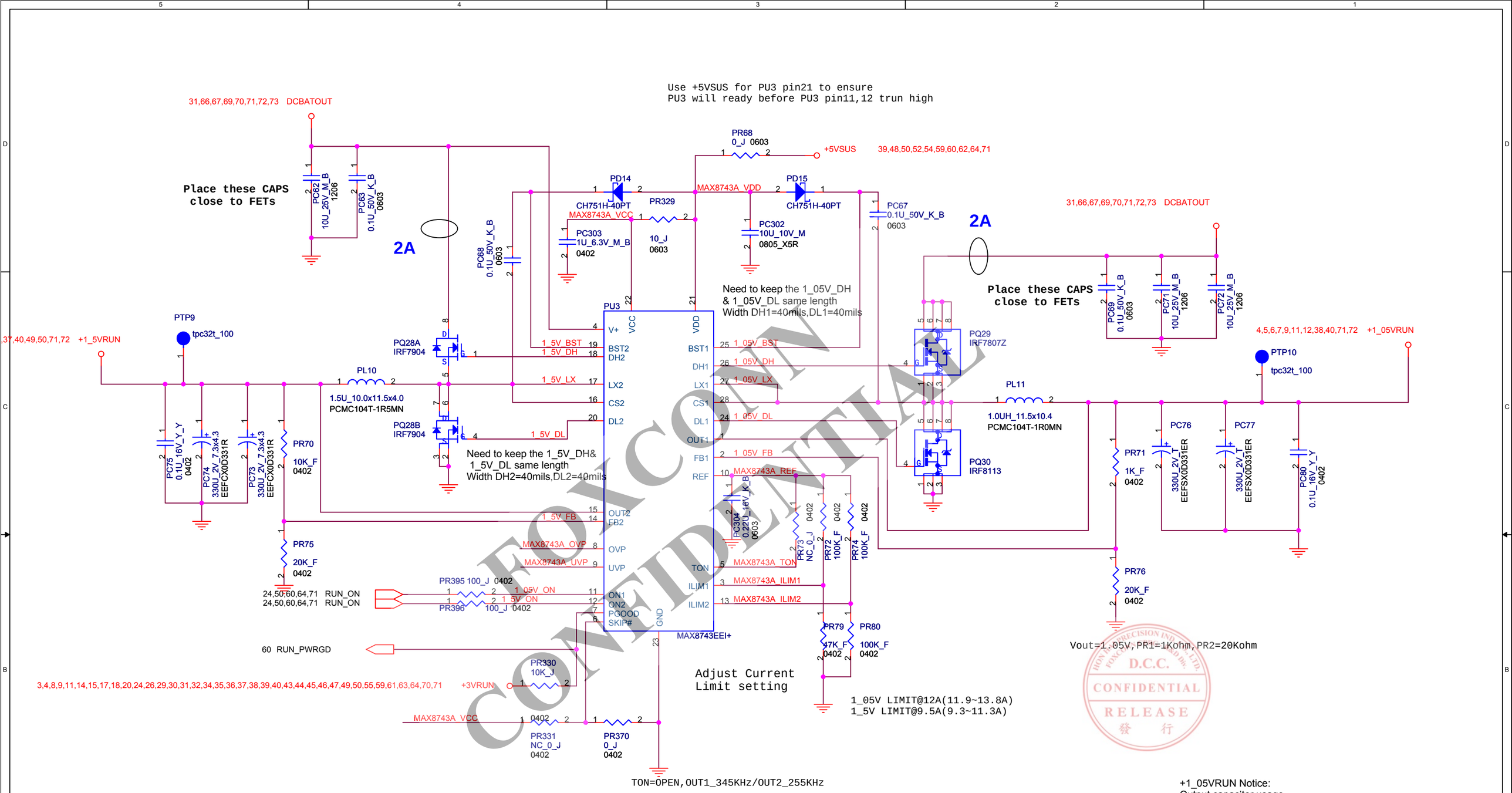
5V LIMIT@11A(10.1~13.2A)
3V LIMIT@10.5A(10.2~12.7A)

TON connect to GND = 5V/400KHZ,3.3V/500KHZ

+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)

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	System Power 3.3V&5V	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 67 of 80	



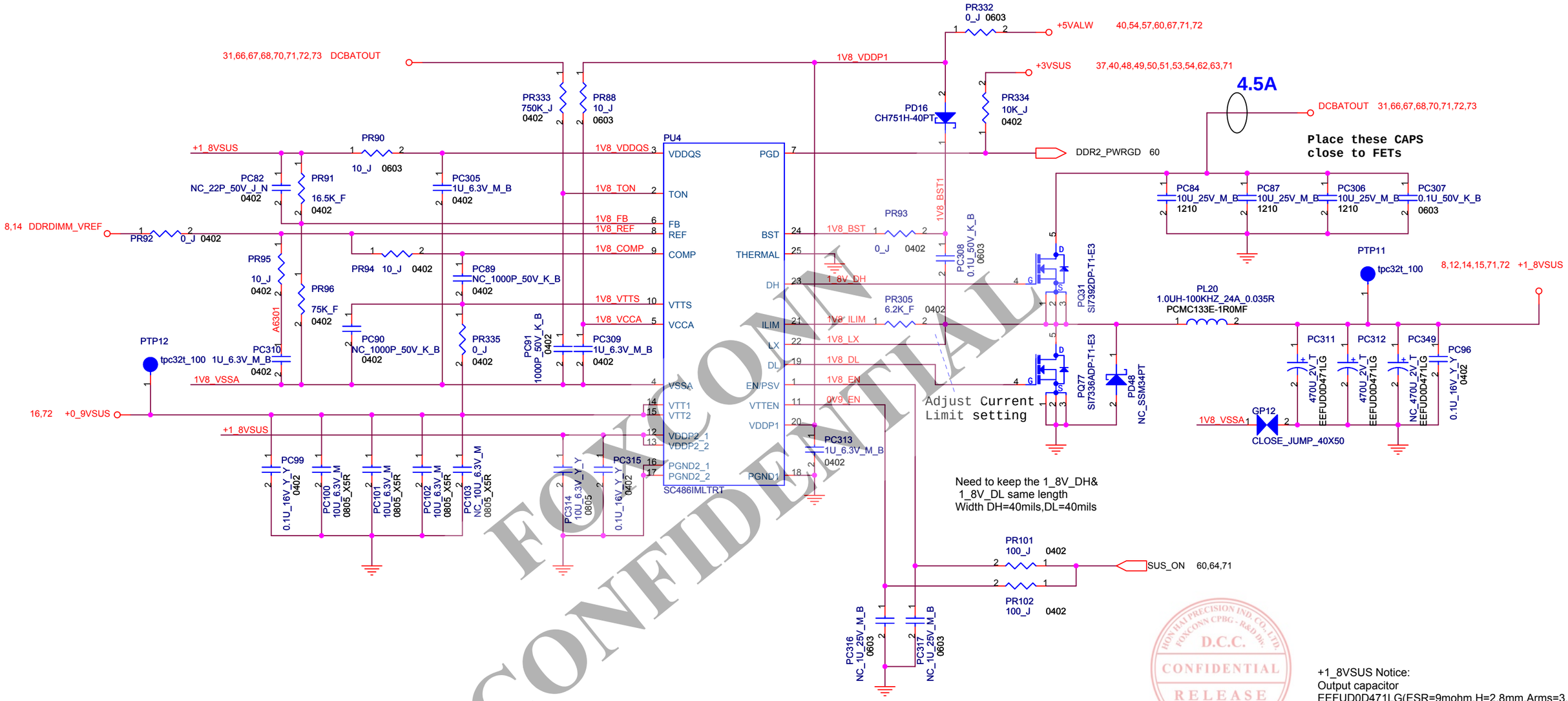
+1_5VRUN Notice:
Output capacitor
EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1A)

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

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

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

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	1.5V/1.05V	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 68 of 80	



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

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

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

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	DDRII 1.8V/0.9V	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 69 of 80	

MOSFET
Top_ IRF6621(Total Qg=15nc_max)
Bottom_IRF6611(Rds=2.6mΩ_typ,3.4mΩ_max@Vgs=4.5V,Id=22A)

Output capacitor:
2R5TPL330M9 *6pcs (9 mohm/pcs)
EEFSX0D331XE*5~6 pcs(6 mohm)

040406 TV turner noise issue:
(1)Add PR424(2.2 ohm), PC378(47pF) on net MAX8771_LX1,
(2)Add PR425(2.2 ohm), PC379(47pF) on net MAX8771_LX2
(3)PR299 change value from 10 ohm to 0 ohm
***PVT already modify(special noties V0.8)**

Place these CAPS close to FETs

Need to keep the MAX8771_DH1& MAX8771_DL1 same length.
Width DH1=40mils,DL1=40mils

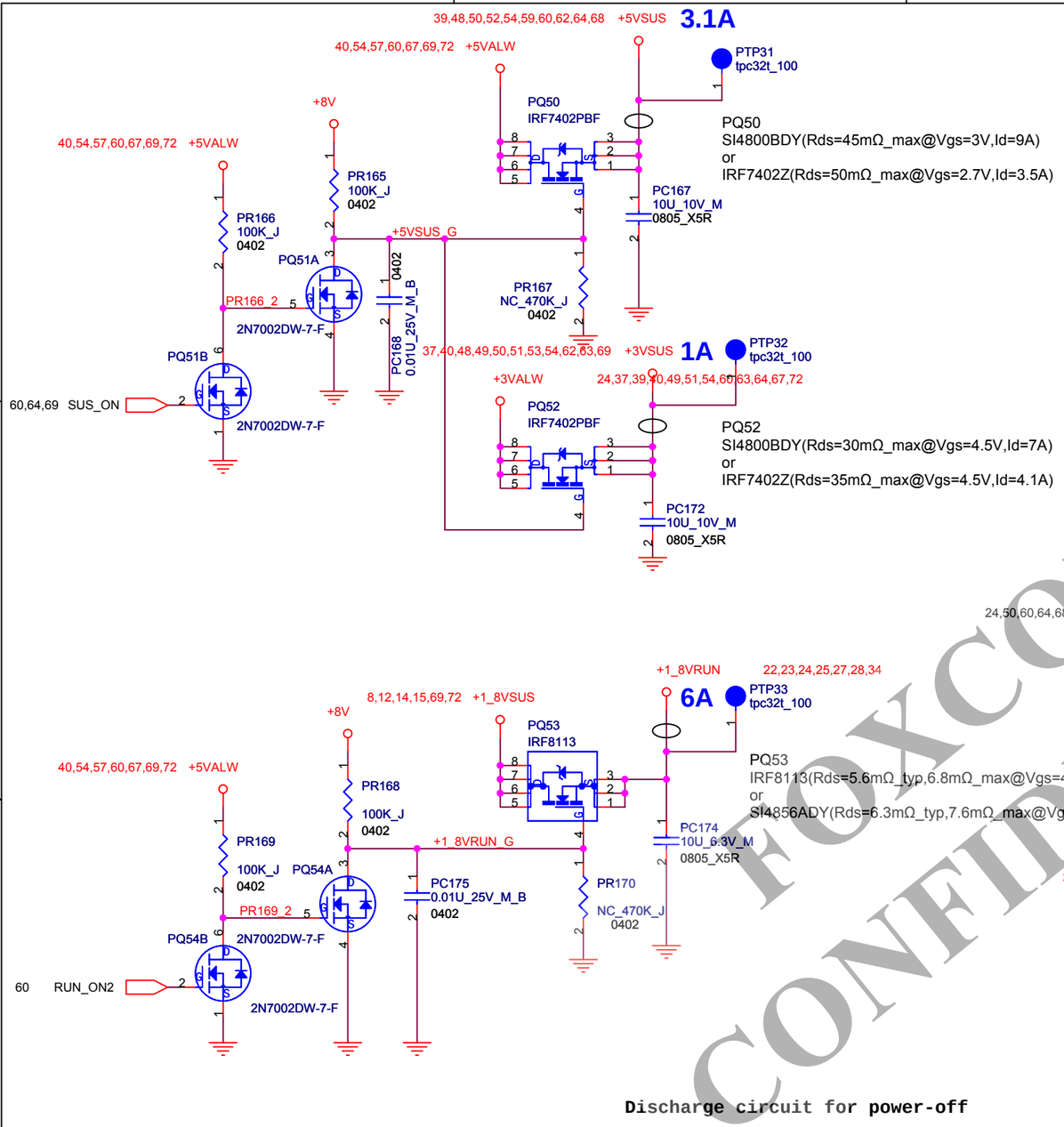
Need to keep the MAX8771_DH2& MAX8771_DL2 same length.
Width DH2=40mils,DL2=40mils

Need to keep PR140 near to mosfets (PQ33 ,PQ34) and inductors(PL13)

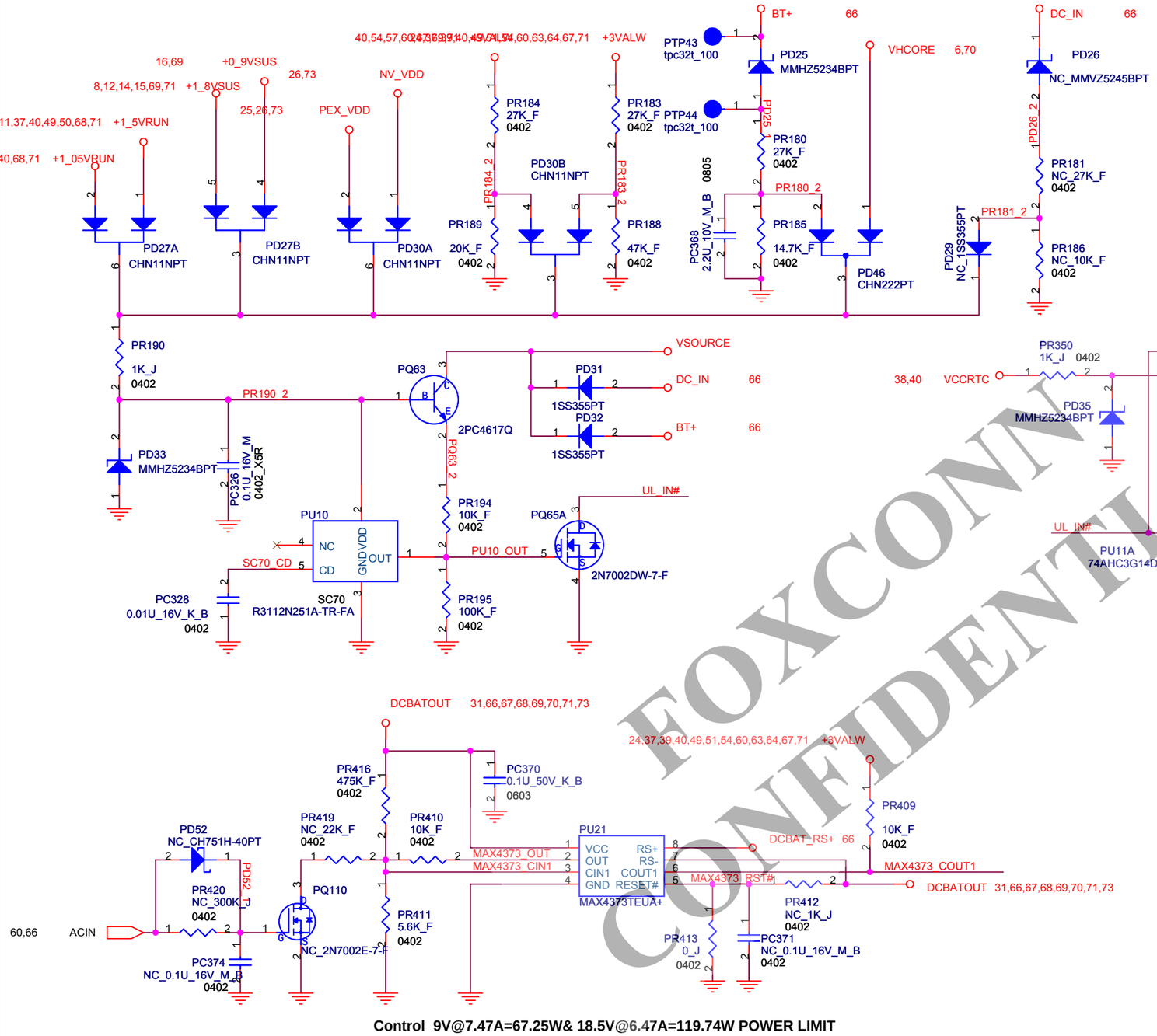
VCCSENSE and VSSSENSE shall be routed as follows.
Signals must be 18mil wide,and shall use differential routing with 7 mil separation.
Signals must have equal trace length within 25 mil and are to be routed using external layer and GND referencing (no split plane referenving).

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

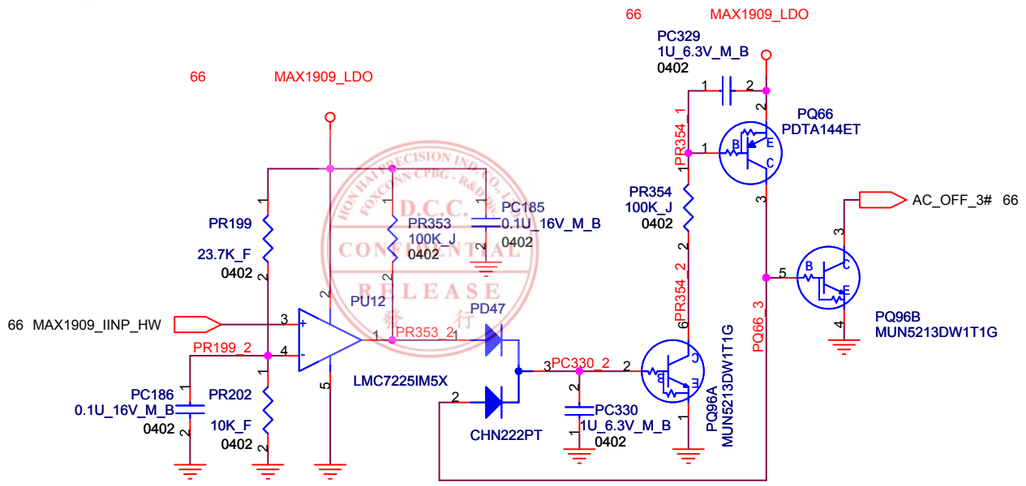
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	VHCORE
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156) Rev 1.00
Date: Friday, April 14, 2006	Sheet 70 of 80



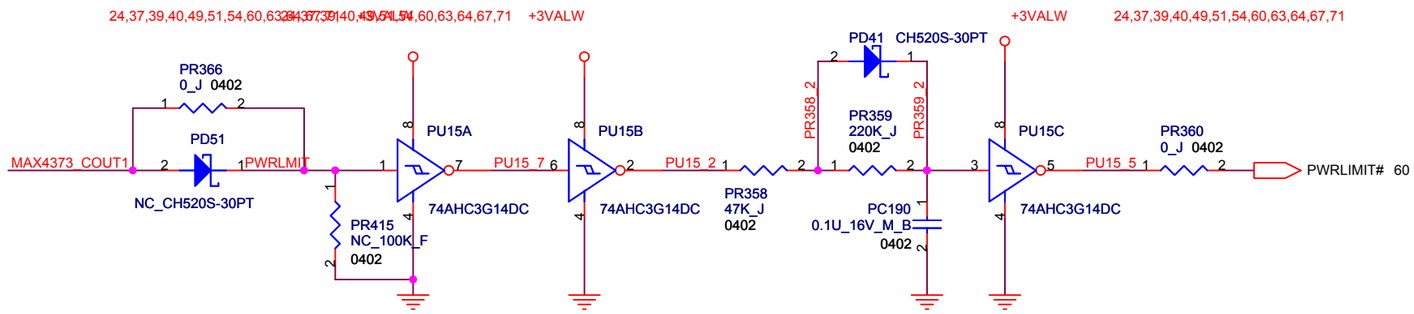
FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division
Title	Other power plan
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)
Rev	1.00
Date:	Friday, April 14, 2006
Sheet	71 of 80



Control 9V@7.47A=67.25W& 18.5V@6.47A=119.74W POWER LIMIT



Control ACIN OCP protect 145W



FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title **OVP protection**		
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
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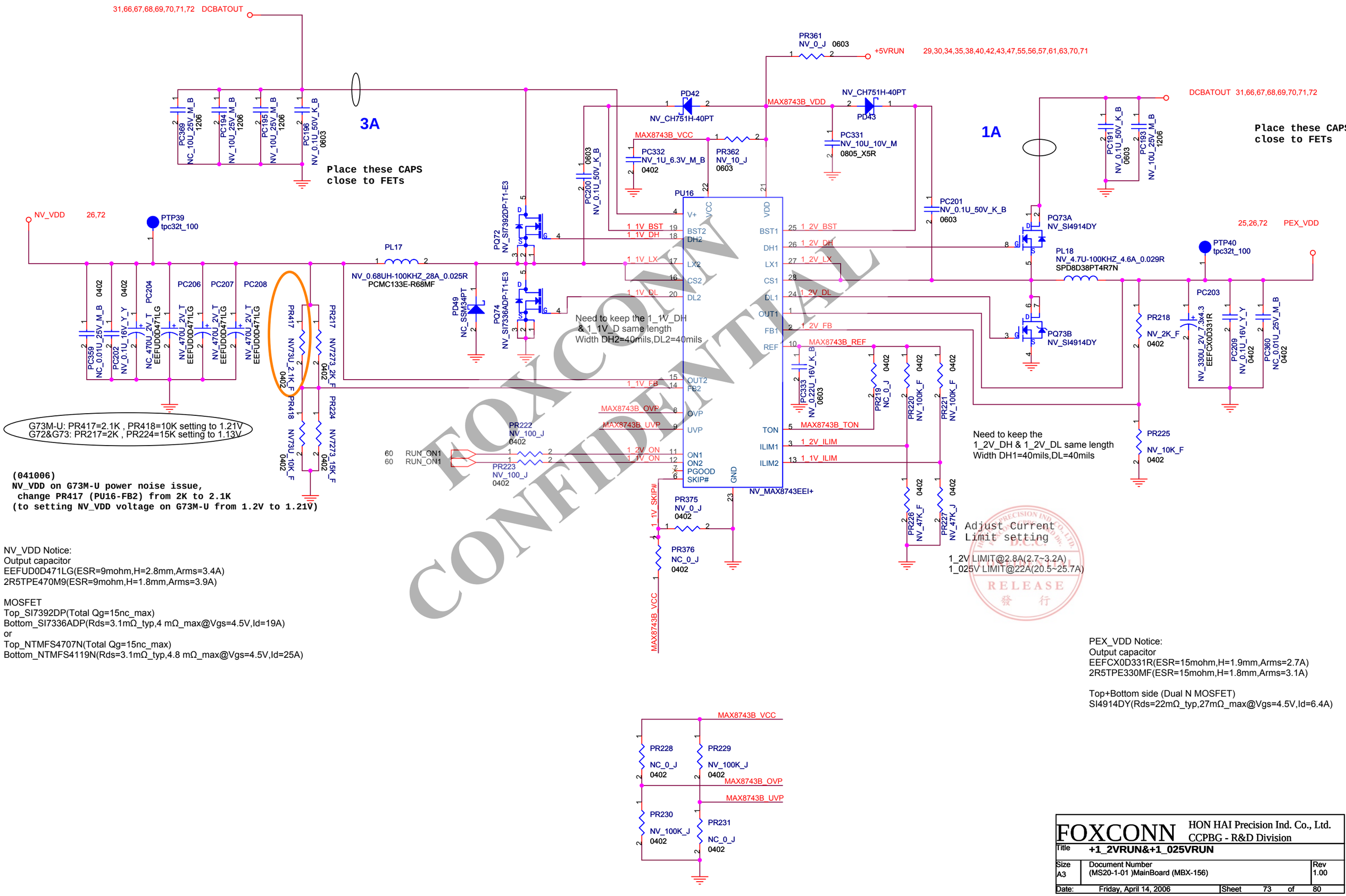
31,66,67,68,69,70,71,72 DCBATOUT
3A
Place these CAPS close to FETs
PC369 NC_10U_25V_M_B 1206
PC194 NV_10U_25V_M_B 1206
PC195 NV_10U_25V_M_B 1206
PC196 NV_0.1U_50V_K_B 0603
PR361 NV_0_J 0603
+5VRUN 29,30,34,35,38,40,42,43,47,55,56,57,61,63,70,71
PD42 NV_CH751H-40PT
NV_CH751H-40PT PD43
MAX8743B_VDD
MAX8743B_VCC
PC332 NV_1U_6.3V_M_B 0402
PR362 NV_10_J 0603
PC331 NV_10U_10V_M 0805_X5R
PC200 NV_0.1U_50V_K_B 0603
PU16
NV_MAX8743EEI+
V+ VCC VDD
BST2 DH2 LX2 CS2 DL2
BST1 DH1 LX1 CS1 DL1
OUT1 FB1 REF
OUT2 FB2
OVP UVP
ON1 ON2 PGOOD SKIP# GND
TON ILIM1 ILIM2
1_1V_BST 1_1V_DH 1_1V_LX 1_1V_DL 1_1V_FB
1_2V_BST 1_2V_DH 1_2V_LX 1_2V_DL 1_2V_FB
MAX8743B_REF MAX8743B_OVP MAX8743B_UVP MAX8743B_TON
1_2V_ILIM 1_1V_ILIM
1_2V_ON 1_1V_ON
PQ72 NV_SI7392DP-T1-E3
PQ74 NV_SI7336ADP-T1-E3
PD49 NC_SSM34PT
PL17 NV_0.68UH-100KHZ_28A_0.025R PCMC133E-R68MF
NV_VDD 26,72
PTP39 tpc32t_100
PC359 NC_0.01U_25V_M_B 0402
PC202 NV_0.1U_16V_Y_Y 0402
PC204 NC_470U_2V_T EEFUD0D471LG
PC206 NV_470U_2V_T EEFUD0D471LG
PC207 NV_470U_2V_T EEFUD0D471LG
PC208 NV_470U_2V_T EEFUD0D471LG
PR417 NV73U_2.1K_F 0402
PR418 NV73U_10K_F 0402
PR217 NV7273_2K_F 0402
PR224 NV7273_15K_F 0402
Need to keep the 1_1V_DH & 1_1V_D same length Width DH2=40mils,DL2=40mils
G73M-U: PR417=2.1K , PR418=10K setting to 1.21V
G72&G73: PR217=2K , PR224=15K setting to 1.13V
(041006)
NV_VDD on G73M-U power noise issue,
change PR417 (PU16-FB2) from 2K to 2.1K
(to setting NV_VDD voltage on G73M-U from 1.2V to 1.21V)
60 RUN_ON1
60 RUN_ON1
PR222 NV_100_J 0402
PR223 NV_100_J 0402
PR375 NV_0_J 0402
PR376 NC_0_J 0402
1V_SKIP#
MAX8743B_VCC
PC333 NV_0.22U_16V_K_B 0603
PR219 NC_0_J 0402
PR220 NV_100K_F 0402
PR221 NV_100K_F 0402
PR226 NV_47K_F 0402
PR227 NV_47K_J 0402
1A
DCBATOUT 31,66,67,68,69,70,71,72
Place these CAPS close to FETs
PC191 NV_0.1U_50V_K_B 0603
PC193 NV_10U_25V_M_B 1206
PC201 NV_0.1U_50V_K_B 0603
PQ73A NV_SI4914DY
PQ73B NV_SI4914DY
PL18 NV_4.7U-100KHZ_4.6A_0.029R SPD8D38PT4R7N
25,26,72 PEX_VDD
PTP40 tpc32t_100
PC203 NV_330U_2V_7.3X4.3 EEFCX0D331R
PC209 NV_0.1U_16V_Y_Y 0402
PC360 NC_0.01U_25V_M_B 0402
PR218 NV_2K_F 0402
PR225 NV_10K_F 0402
Need to keep the 1_2V_DH & 1_2V_DL same length Width DH1=40mils,DL=40mils
Adjust Current Limit setting
1_2V LIMIT@2.8A(2.7~3.2A)
1_025V LIMIT@22A(20.5~25.7A)
PR228 NC_0_J 0402
PR229 NV_100K_J 0402
PR230 NV_100K_J 0402
PR231 NC_0_J 0402
NV_VDD Notice:
Output capacitor
EEFUD0D471LG(ESR=9mohm,H=2.8mm,Arms=3.4A)
2R5TPE470M9(ESR=9mohm,H=1.8mm,Arms=3.9A)
MOSFET
Top_SI7392DP(Total Qg=15nc_max)
Bottom_SI7336ADP(Rds=3.1mΩ_typ,4 mΩ_max@Vgs=4.5V,Id=19A)
or
Top_NTMFS4707N(Total Qg=15nc_max)
Bottom_NTMFS4119N(Rds=3.1mΩ_typ,4.8 mΩ_max@Vgs=4.5V,Id=25A)
PEX_VDD Notice:
Output capacitor
EEFCX0D331R(ESR=15mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15mohm,H=1.8mm,Arms=3.1A)
Top+Bottom side (Dual N MOSFET)
SI4914DY(Rds=22mΩ_typ,27mΩ_max@Vgs=4.5V,Id=6.4A)
FOXCONN CONFIDENTIAL
RELEASE 發 行
FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title +1_2VRUN&+1_025VRUN
Size A3
Document Number (MS20-1-01)MainBoard (MBX-156)
Rev 1.00
Date: Friday, April 14, 2006
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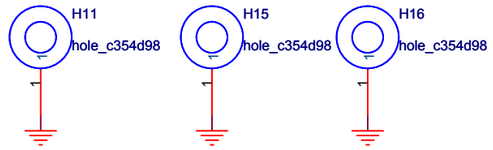
HOLE

Type 1



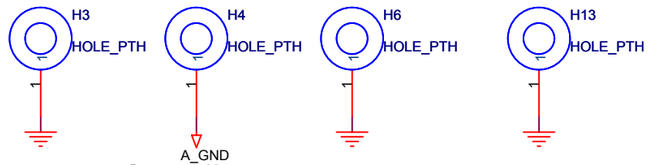
Type 2

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

Type 3

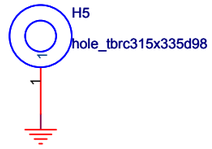
10/24
Remove Screw Hole H1
P/N 1X-HOLE000-0110
beacuse the Hole overlay
with CN32 and layout will
modify component screw shipe

Type 4

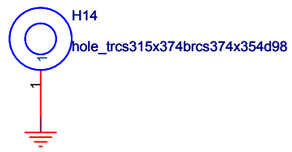


Close Audio Mote

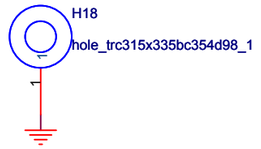
Type 5



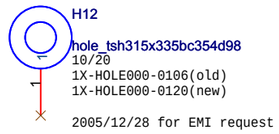
Type 6



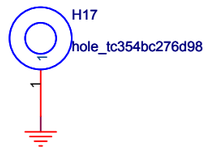
Type 7



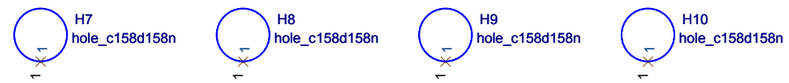
Type 8

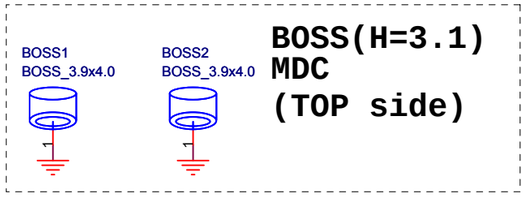


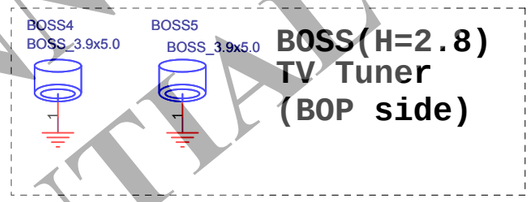
Type 9



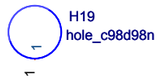
Type CPU





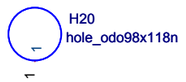


Type NPTH Guide (spherical)HOLD



close H1

Type NPTH Guide (oval-shaped)HOLD



close H6

close H17

FOXCONN	HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division	
Title	HOLE & BOSS	
Size A3	Document Number (MS20-1-01)MainBoard (MBX-156)	Rev 1.00
Date: Friday, April 14, 2006	Sheet 74 of 80	

(2005/09/19)

1.Update the NB and CPU circuit base on intel new design guide revision 1.5
2.Changed the wake event from S3 to S4 for lan .
3.Modified the MS current resistor from 1K to 1.5K to meet customer specification.
4.Express card power plane changed.
5.SB some power changed .
6.Modify HDMI circuit
7.Back Part value "NV"
8.Replease LVDS of 945GM interface

(2005/09/21)

1.Oide power plane change from 5VSUS to 5VRUN on page 48.
2.C1131 was connected to net "+1_5V_PCIE_OUT" on page 48.
3.Change R1672~R1675 from stuff to no sutff on page 34.
4.Add one series 0ohm resistor to net "1930_ACZ_SDIN2" on page 34.
5.Add pull-up resistor to LDDC_CLK/DATA and L_CLKCTLA/CLKCTLB
according to intel design guide on page 9.
6.ODD/SATA HDD change power plan from SUS to RUN
7.CN19/CN47/CN26 updata CIS Library
8.CN26 MDC modem Pin 2-Pin 6 short
9.CN12 KB connentor change type updata CIS library

(2005/09/22)

1.CN48 change from P/N:1N-1080000-0000 to P/N:1N-1068000-0000
2.page 72 add battery in current limit protection
3.page 66 modified battery input circuit.
4.page 46 Modify 2nd FAN circuit
5.page 55 Modify CIR interface
6.page 54 Modify Audio Board interface

7.Delete R772/R774/R1096 and Q35 on page 48.

8.Backup express card and Wlan wake event signal leakage circuit and change
net name "D_PCIE_WAKE#" on page 35 and 44.
9.Default for wake S3,backup for wake S4 circuit on page 36 and 61.
10.USB power change from +5valw to +5vsus on page 45.
11.Modify the resistors for CRT and TV disable on page 9.
12.Update CN29 for new symbol on page 45.
13.Modify EC pin out
14.Modify Mini PCIE power plan from SUS to RUN
15.Modify HDMI circuit
16.Change Y8 package to 5mm*7mm(H=1.2)
17.GPIO require from EC to SB Waiting S/W assign SB GPIO

(2005/09/23)

1.Change R162 from stuff to no stuff on page 13 .

2.Change R1354 pull-up power from +3VSUS to +3VRUN on page 44.

3. Pull " +1_5VRUN_DPLLA" and "+1_5VRUN_DPLLA" up to +1_5VRUN for
high type and change CAP5/6 to CA on page 11.
4.Pull LVDS clock up to +1_5RUN and down to GND for high type base
on design version 1.5 on page 8.
5.Add one inductance and one capacitor for SATSPLL power filter on page 36.

6.Add Function RUN_ON & AND_DOCK_S5_RST_100MS# & D_S5_PWRGD on page 44.

7.Detele HDCP_SCL & HDCP_SDA on page 44
8.Change MC_PWR_CTRL_MS# to MC_PWR_CTRL_MS; Change MC_PWR_CTRL_SD# to
MC_PWR_CTRL_SD on page 56
9.Delete R925,R926 on page 56

(2005/09/27)

1.Delete R1739~1741 on page 9
2.Move three GPIO signals from EC to SB on page 35.
3.Change L4 and C142 value on page 11.
4.Add two 0ohm resistor for backup S4 wake event on page 61.
5.Modify Docking DVI chip from sii170B to sii1162
6.Modify FAN circuit
7.Change CAP to FB on Audio internal speaker connector
8.Page 53 USB HUB 2.0->1.1

(2005/09/30)

1.PR407 change 0.012 ohm into 0.01 ohm
2.PQ3 change FDS6675A into SI4425BDY
3.PF1 change 8A into 10A
4.PD11 change MMVZ5231BPT into MMVZ5235BPT
5.PCN2 change package
6.Del PQ75,Change PQ72,PQ74 to POWERPAK package
7.Add PC374,PC375
8.Modify GFX/HDMI circuit,review bypass and reciver RES.
9.Modify Docking pin out(Alex chen)

(2005/10/03)
1.Modify VRAM DDR3 Address pin swape(Alex chen)

(2005/10/04)
1.Schematic page swape
2.Modify Audio circuit
3.Modify VGA circuit
4.Modify SATA/PATA circuit
5.Modify SB SATA interface add SATA AC Coupling cap

(2005/10/06)
1.Modify Power circuit
2.Modify Audio circuit
3.Modify VGA circuit
4.Modify Mini PCIE Circuit
5.Delect R27,R130,R1772,R1773 and add the circuit for reboot.
6.Delect SM_VREF buffer circuit ,because the DDRDIMM_VREF
can meet specification on page8.

(2005/10/07)

1.Modify CIR circuit ,change polyswitch
2.Modify GFX VRAM pin swape
3.Modify docking circuit
4.Add c? beside MDC Power on page 46
5.Detele R963 on page 47
6.Detele R1093,R1095,R1097; Detele C840,C834,C832,C1134 By on page 50
7.Change R1307 form 649 to 620 on page 51
8.Update DVI_TMDS* Net Name on page64

(2005/10/11)

1.Detele C836; ADD two 4.7K pull-up resistors to SMBUS on page 50
2.Change R110 from stuff to NC according to intel WW 41 document on page 8.
3.Modify VGA circuit
4.HDMI RP122,RP123,RP124,RP125 pin1-pin4 & pin2-pin3 pin swape.
5.Modify Power circuit

(2005/10/13)

1.Detele C836; ADD two 4.7K pull-up resistors to SMBUS on page 50
2.Change R110 from stuff to NC according to intel WW 41 document on page 8.
3.Modify VGA circuit
4.Modify Power circuit
5.Modify I/O Board connentor
6.Updata OrCAD symbol CN1,CN2,CN14,CN18,CN25,CPU,NB,Codec
7.Add Screw ,Boss,Power sequency page

(2005/10/19)

1.Change panel ID for Allen requirement on page39 .
2.Add 0.1u capacitance beside Vcpp1&Vcpp2 on page 44
3.Change C954,C955 form 1u to 0.1u ; chang R931 form 10k to 43k on page 44
4.Add 2 capacitance of 0.1u beside +3VRUN on page 46
5.Change R1630 form 1.5k to 1k on 10/17 on page 46
6.change D62,D63 place on page 52
7.Add ten resistances on SD and MS signals according to MOR requirement.
8.Changed cap19/17 value from 150uF to 47uF according to MOR requirement on page52.
9.Add one 10uF capacitor and pull up SD_WP on page46.
10.Aadded R? 1R-000010X-F300 (1ohm 1%, 0603, 1/10W)
according to latest checklist on page 40.
11.MIDIFY POWER CIRCUIT
12.MODIFY VGA circuit
13.MODIFY EC circuit
14.MODIFY SATA/ODD circuit

(2005/10/20)
1.Page43 PATA CD-ROM: CN32 Pin3(Audio_GND) connect to GND.
2.Page49 Mini-PCIE Card:only support S3 Wake On WLAN,
so change Mini_PCIE_+3VAUX Default to +3VSUS (R1067 NC=>ON)(R1817 ON=>NC)

(2005/10/20)
1.Change the value of R91 to 1K and let PR126 no stuff.
2.Update connector pin connection according to Steve's comment.
3.Modify EC/Daughter Board connentor Circuit

(2005/10/24)

1.U126 pin27 Add 33pF and 12pF capacitor for RF frequency
countermeasure.The small capacitance capacitor is put on
close to 27 pin.
2.Delete L112.
3.A_GND GNDD connection through L(NC) at one point.
Make this circuit on M/B.
(This circuit is moved from Audio daughter board.)

4.U41 pin1 Change to following circuit.
5.U68 pin 1/pin 27 Add 1 kohm buffer resistance on IN_L.
Add 1 kohm buffer resistance on IN_R.
6.Q112 It is necessary to check there is no chance not
to be ON because of an internal resistance of Digital
Tr(Q112) in the case of emitter follower.

7.U68 CP_GND do not have any connection to GND in schematics.
There is no probrem to connect A_GND.
8.Change the connection GNDD to A_GND.(C1291)
9.U50 Add the following RC filter(R:0 ohm,C:4.7uF)
circuit between U50 4pin and MUTE_5
10.Modify VGA circuit

(2005/10/26)
1.Modify Power circuit
2.Delete TP682,TP684,TP619,TP621
3.Audio add E-CAP

(2005/10/27)

1.change PCI7412 to PCI8412
2.Connentor Pin swap CN21,for FFC pin1 to pin1,
3.Common chock pin swap L68, L120 for layout request
4.Modify Power circuit
5.Modify GFX circuit

(2005/11/01)
1.Modify GFX circuit (incluse ESD diode)
2.Modify Power circuit
3.Delete TP41,TP557
4.SATA CN63 Pin15.16.17.18.19.20 +3VRUN_SATA*->NC
5.SATA Delete Componment F9 & F10 & C791 & C792 & C1295 & C1296
6.Add SD LED
7.SPDIF Add R1835 (MOR request) for matching the impedance

(2005/11/01)

1.Change C141 value from 0.1uF to 10uF on page 11.
2.Change R1307 value from 620_F to 649_F on page 51.
3.Add two resistors for clock amplitude tune on page 3.
4.Add one pull-low resistor in D_RUN_PWRGD on page64.
5.Modified for MOR requirement on page37 and page 39.
6.Delete LVDS_GPIO in EC pin85 and then make EC pin85 as Test Point.
7.Ducking Hot Dock issue add pull down 10K(R1889) on D_RUN_PWRGD

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: History(EVT)		
Size: A2	Document Number: (MS20-1-01)MainBoard (MBX-156)	Rev: 1.00
Date: Friday, April 14, 2006	Sheet 75 of 80	

(2005/11/27)

1.MUTE_SW#(R1108) change from pull +ECVCC to pull +3VALW
2.CN42(FAN1)Pin swap
3.MOR COOLING UNIT,Add for 0V,1V,1.9V,5V control,solving 5V ringback
4.SD/MS LED(LED11) revise for too dark issue
5.BLUETOOTH LED(LED9) revise for too dark issue
6.SONY LOGO LED(U126)change from +3VRUN to +5VRUN,& change from AHC(CMOS) to AHCT(TTL)

(2005/12/08)

1.(U18)Change the connection for clock amplitude issue.(Add C1606,C1607,swape R1884,R1885 with L1,L2)
2.(U11)Updata VDDR3 CLK terminal for G73(Add C1608,R1896,R1897) **=>Omit by 12/21 item#9**
3.(U12)Updata VDDR3 CLK terminal for G73(Add C1609,R1898,R1899)
4.(VDDR3) RFM1(R1464),FBA_VBA2(R1463) change to NC
5.(EC)BATT_PRS# add circuit controlled by +3VALW(Add Q147,R1905)
6.(EC)PWRSW# (R700)pull up from +ECVCC to +3VALW
7.(EC)(Pull Down for EC strap issue)(Add RUN_ON2 R1903,IMVP_OK R1904)
8.(EC)Swap MUTE_SW# with IMVP_OK (pin8<->pin11)for EC strap(TEST_TP) issue
9.(EC)MUTE_SW# pull up(R1108) change from +ECVCC to +3VALW
10.(EC)Swap OVT_EC# with RUN_ON2(R713<->R714)for EC strap(DPLL_TP) issue
11.(EC)Change BIOS(U32->U34->CN14) net name SIO_FA[0..19] & SIO_FD[0..7]to XIO_FA[0..19] & XIO_FD[0..7]
12.(EC)XIO_FA4(R703) & XIO_FA5(R704)pull res change from 470K to 47K based on MS10 PVT revise
13.(EC) pin39 change from DOCK_RUN_RST to DOCK_RUN_RST#
14.(EC)PU CIR_ALPS_SW1 for EC strap(ISP_TP)(Add R1906)
15.(EC)pin156 ACIN Control by +3VALW(addQ148,R1907)
16.(GFX)FBCAL_PD_VDDQ add pull res (add R1900)
17.(GFX)reverse INV_EN_EC to contect NONETNA2(add NC R1901)
18.(Audio)MUTE_5 add 10K RES to Q112(add R1902)
19.(GFX)PLT_RST# to GFX add a AND circuit(Add R1908,R1909,R1910,U127)
20.(HDMI)Del BUFRST# to microcontroller reverse gate(Del U124)
21.(Audio)modify capacitor value C1118 to 4.7u
22.(Thermal sanser)change part U8 (15-F75383M-0000->15-F75383M-1000)
23.(S-VIDEO ANALOG SWITCH)U77 change part U77 SN74CBT3257PW(NEW) <-> TS5A23157DGS(OLD)
24.(S-VIDEO ANALOG SWITCH)change throuth U77:PR_DDCCLK,PR_DDCDATA,MB_DDCCLK,MB_DDCDATA,GM_OR_NV_DDCCLK,GM_OR_NV_DDCDATA.
25.(SEMI-PNP)Modify SEMI-PNP circuit
26.(CRT)Modify CRT circuit:
27.(HDMI)U123 pin44 pull up res R1690 NC_10K_J <- NV72_10K_J
28.(HDMI)Modify Y8 circuit.
29.(PCMCIA)U62 pin12 connent to PLT_RST#
28.(Audio)Change part Q77,Q78,Q89,Q90,Q91,Q92,Q143,Q144(17-2SC5376-0000->17-PBSS251-5F00)
29.(SD)power control circuit R1630 (1K->330R)
30.(HDMI)U116 change part (SST89V54RD2-33-C-TQ <- NV_SST89V52RD2-33-C)
31.(Audio)Q112 change part (MMBT3906 <- 2SC5376)

(2005/12/15)

1.(POWER)Page 66---Change PR44 from 13K_J to 33K_J, Change PQ3 from SI4425BDY-T1-E3 to FDS6675A, Change PD1 from SSM34APT to SSM34PT.
2.(POWER)Page 67----Change PC350 from NC to 10U_25V_M_B, Change PR67 from NC to 0_J, Change PR63 from NC to 100K_J, change PR64 from 120K_F to 160K_F, change PR65 from 147K_F to 120K_F,Change from PJ29 to PR57 0_J, Delete PJ2&PJ4 and short, Delete PJ1&PJ3 and short, Delete PR414, Add PR422 1K_J.
3.(POWER)Page 68----Change PR79 from 56K_F to 47K_F, Delete PJ5&PJ6 and short, Delete PJ7&PJ8 and short.
4.(POWER)Page 69----Change PR305 from 8.2K_F to 6.2K_F, Delete PJ11 and short, Delete PJ9,PJ11&PJ37 and short.
5.(POWER)Page 70----Delete "Reserve for improve CLK_EN# wrong timing" circuit, Change PC276 & PC283 from NC to 10U_25V_M_B, Change PD18 & PD45 from SKS30-04AT-G to SSM34PT.Del PQ111,PR422
6.(POWER)Page 71----Change PQ104 from NC to 2N7002,Change PR404 from 62_J to NC, Change PQ50&PQ97 from IRF7807Z to IRF7402PBF, Delete PJ41 and short, Delete PJ28 and short,Delete PJ40 and short.
7.(POWER)Page 72----Change Power Limit circuit.(Add PR366,Del PQ109,PC188,PC189,PR207,PR208,PR212,PR213,PU14, change part:PQ110 NPN->N-MOS
8.(POWER)Page 73----Change PR227 from 56K_F to 47K_F, Change PR417 from 560_F to 2K_F, Change PR418 from 22K_F to 10K_F, Delete PJ32,PJ33&PJ35 and short, Delete PJ34 and short.
9.(CKG) Del C1606,C1607,R1884 and R1885 on page 3.
10.(CPU) Add 0.1uF capacitor(C1610) for GTLREF on page 5.
11.(Docking)Change Net From DK_BAY_PWEN to DK_BAY_PWREN
12.(Docking)Change Net From DK_BAY_ID# to DK_BAY_ID0#
13.(Docking)Change Net From AND_DOCK_S5_RST_100MS# to AND_DOCK_S5_RST_500MS#
14.(Docking)Change Net From DK_BAY_ID# to DK_BAY_ID0#
15.(GFX)Modify BOM configuration for G73M-U(BLOCK DIAGRAM).
16.(GFX)Modify PCI_DEVID[3:0]="1001"->9 for G73M-U.
17.(GFX)Add pull down 10K ohm resistor to DOCK_SEMI_PNP.(R1911)
18.(GFX)Update the pannel ID Spec.
19.(GFX)Change the reset signal to PCI_RST for U116 and U117(NVidia suggestion).
20.(EC)Add DIP SW17(HDS401-E) for Instant ON selection.Delete R717,R716 change from CA_100K_J to 100K_J
21.(EC)Change CIR_ALPS_SW0 to SW_CIR00 for the same as IR module net name
22.(EC)Change CIR_ALPS_SW1 to SW_CIR01 for the same as IR module net name
23.(EC)Change CIR_ALPS_SW2 to SW_CIR02 for the same as IR module net name
24.(EC) Change CIR_ALPS_WAKE# to PWR_CIR# for the same as IR module net name
25.(EC)Change LIDIN# power source from +3VALW to +ECVCC due to SW/Kenny request
26.(EC)PWRSW# Pull High change from +3VALW to +ECVCC
27.(EC)Add KSO15 and redefine CN45 Pin4 ~ Pin6 for SW/Kenny Request
28.(CIR)Change EC to CIR connentor CN61 net name
29.(CIR)Add PWR_CIR# pull up RES R1913
30.(GFX)U8 modify
31.(EC)System ID pull up power source change from +ECVCC->+3VALW
32.(Audio)CVREF bypass CAP change from C863(10U)->(1U)
33.(Mini PCIE)WIRELESS Add R1912 pull up RES.
34.(EC) Add +ECVCC discharge RES (R1914)
35.(Touch Pad)LIDIN# pull up from +3VALW ->+ECVCC
36.(EC)Q147,Q148 change part from P-MOS->NPN
37.(SB) LVDSGPIO R1887 change to NC

(2005/12/21)

1.(EC)12/20,40 Revise SW17 from HDS401-E to HDS402-E_SW-SMD4 cause the vendor has stopped producing HDS401-E.
2.(EC)12/21,43 Revise C802/C803 from 10pf to 15pf due to Steve's SI test report.
3.(POWER)Page 67----Del PR422
4.(POWER)Page 69----Change PD19 to PD48
5.(POWER)Page 72----Change PU22A to PU15A, Change PU22B to PU15B
6.(POWER)Other-----Add 32mil test point for BFT test
7.(MDC)MDC connentor change to P/N: 1N-0012000-F0X0 ,BOSS1/BOSS2 P/N:1M-1A40M20-3100) the same with MS10
8.(CARD BUS)CARD BUS control change PCI7412 to 8412
9.(SB)RP95 pin swape for Layout request

(2005/12/30)

1.(GFX)Modify SiI1162 power net SIL1162_PVCC.
2.(GFX)Add FBA_CLK0_RC and FBA_CLK1_RC net name.
3.(GFX)Modify R378,R380,R1871,R1872 from 40ohm to 60ohm for NVidia suggestion.
4.(GFX)Remove SiI1162 and other parts to cancel G72M DVI Function.
5.(GFX)Add two Inverter gate to prevent the glitch from SiIcon 1930.
6.(GFX)Update the reset signal of HDMI UCODEC,HDMI Microcontroller and HDMI Silicon 1930.
7.(GFX)Remove C432,R270,R274 on G73M SKU.
8.(GFX)Add TP682, TP678 test point because MIOBD7 and MIOBD10 unused.
9.(GFX)Modify HW strap for Infineon VRAM and update the BOM configuration in block diagram page.
10.(GFX)Change ESD diode D78,D79,D80 to meet the HDMI Spec.
11.(GFX)Delete the page 33(DVO-TMDS SiI1162) for layout space.
12.(GFX)Add 1 switch to divide DVI DDC from HDMI DDC.
13.(GFX)12/27 Remove R195,R196,R1729,R1730 and C284 for G72M DVI funtion missing.
14.(GFX)Change R1592 from 360 ohm to 390 ohm for SiIcon Image suggestion.
15.(GFX)Modify the INV_EN_EC to control INV_BRADJ for the NVidia glitch issue on MS10.
16.(POWER)Page 71----Change PQ52,PQ112 from IRF7807Z to IRF7402PBF,Change PQ97 from IRF7402PBF to IRF7807Z.
17.(POWER)Page 72----Change PD52,PR420,PC374,PQ110 to NC.
18.(POWER)Page 67----Change PR49 from 160K to 187K, Change PR52 from 100K to 120K.
19.(ICH7)12/23 Change U30 and R1183 to NC and change R1184 to stuff on page 39.
20.(ICH7)12/23 Add two 2N7002 for leakage on page 38
21.(camera)Add 10uF capacitor for camera power,and add modify OCP circuit (add u133,del Q79,Q80)on page 50.
22.(CKG)12/23 change dumping resistor from 33 ohm to 100ohm and add FB between dumping resistor and clock generator for MOR requirement on page 3.
23.(CKG)12/28 Del 27MHZ circuit for Nvidia on page 3.
24.(USB)12/28 Change USB connectors to white type on page 52.
25.(EC)12/22,45 : Revise net name from FAN1_PWM to 2ND_FAN_PWM for error correction.
26.(EC)12/22,46 : Remove R1915 for moving pull high R from connector(CN68) side to EC side
27.(EC)12/22,47 : Add pull +ECVCC high R for moving from connector(CN68) side to EC side
28.(EC)12/23,48 : Revise H_RCIN# to EC_RCIN# and H_A20GATE to EC_A20GATE for matching leakage-proof circuit in P32
29.(EC)12/23,49 : Revise 2ND_FAN component to NC due to Ted request 12/22. (R1920~R1923,R1767,C1615,C1616,C1618,Q150,D87,CN65)
30.(EC)12/23,50 : Revise net name from FAN2_DAC to MOR_FAN_DAC due to Ted request 12/22.
31.(EC)12/23,51 : Revise net name from FAN2_DAC_OP to MOR_FAN_DAC_OP due to Ted request 12/22.
32.(EC)12/23,52 : Add 0 ohm(NC) for improving clock skew of PCLK_JIG.
32.(EC)12/23,53 : Revise R693,R1904,1903 from 10K to 100K for improving driving ability
33.(EC)12/23,54 : Add 1k ohm for avoiding EC directly short to GND.
34.(EC)12/26,55 : Change CN62 from HS8202E to HS8102E due to Mechanical 12/23 outline file
35.(EC)12/26,56 : Due to leakage of original circuit we revise 12/23 BATT_PRS# controlled by ALW power well circuit.
36.(EC)12/26,57 : Due to leakage of original circuit we revise 12/23 ACIN controlled by ALW power well circuit.
37.(EC)12/27,58 : D_S5_PWRGD add pull down 100k ohm due to Hibino San request(12/26 mail).
38.(EC)12/28,59 : Delete R1540 due to too dark issue
39.(EC)12/28,60 : Add PWRSW# test point due to BFT request.
40.(EC)12/28,61 : Change LED11 from HT-110UYG to HT-110UY due to error color correction.
41.(EC)12/28,64 : Change BT LED power source from +3VRUN to +5VRUN and R1839 from 68 ohm to 82 ohm due to too dark issue.
42.(EC)12/28,65 : Add ESD protector of SD LED due to Jacky Su/EMI request on 12/28.
43.(EC)12/28,66 : Add ESD protector of BlueTooth LED and WLAN LED due to Jacky Su/EMI request on 12/28.
45.(Ducking) Page64 CN30 pin 75,pin76 change net name NV_I2CB_SDA->DVI_I2CB_SDA NV_I2CB_SCL->DVI_I2CB_SCL
46.(GFX)Modify the INV_EN_EC to control INV_BRADJ for the NVidia glitch issue on MS10.
47.(GFX)EMI suggestion:mount Cap.C1592,C1595,C1598,C1601.
48.(GFX)EMI suggestion:add cap.0.1uF on LCDVCC near CN3.Mount C1558 near CN49.
49.(GFX)EMI suggestion:add EMI bead on HDMI_+5VSUS before C1452,and near CN60.reserve cap.0.1uF on +5VRUN near F1.
50.(GFX)EMI suggestion:add ESD Diode for AV_IN_GND.
51.(W-LAN)Page 49.Change R1912 from 1M to 100k ohm(Nishio San Request)
52.(W-LAN)Add FET on MINI_CARD_LED# beween CN18 pin 44(P.49) and Q140 2pin(P.63) and control FET by using WLAN_EN that Wireless Off Control signal from EC .(Nishio San Request worry about only SW Driver conrtrol.)
53.(W-LAN)Prepare big Capacitor pad 22uF(1206) pad for MINI_PCIE_+3_3V and MINI_PCIE_+1_5V for each. Because .11n is bigger than .11abg from point of view of power consumption.
54.(SD)change SD socket to 67913-0009(easy repaiy issue)
55.(LAN).XTAL Y6 Load CapC1034,C1035 change 22pF->27pF

(2005/12/31)

1.(POWER)Page 67----Change PR49 from 187K to 160K, Change PR52 from 120K to 102K.
2.(POWER)Page 72----Change PC368 from NC to 2.2U_10V_M_B
3.(EC)12/30,67 : Change R1920 from NC_1K to 1K due to error correction.
4.(EC)12/30,68 : Change TP785 net name from FAN2_DAC_OP to MOR_FAN_DAC_OP due to error correction.
5.(EC)12/30,69 : Swap CN68 for change T/P FFC from bending to no bending.
6.(EC)12/31,70 : Add constant current circuit MAX1916 due to MOR request.
7.(GFX)EMI suggestion:Add 33pF Cap to SVIN_Y_1 and SVIN_C_1.
8.(GFX)EMI suggestion:Change C1516,C1517,C1518,C1566,C1567,C1568 from 0.1uF to 220pF.
9.(GFX)EMI suggestion:add ESD Diode for SVIN_Y_GND and SVIN_C_GND.
10.(GFX).Add 1uF capacitor(NC) to VRAM_VREF for VRAM Max Load Drop.
11.(GFX).Add two resistor to LVDS CONN pin6 for Gamma control.
12.(Audio) Modify CN64 pin definf
13.(Audio)Change audio amp from MAXIN to TI
14.(USB)Delete EXT USB connentor (MB CN29),and move USB signel to CN64.

(2006/01/03)

1.(GFX)page 17.Add MIOB_CLKIN (R1939)10K ohm to GND
2.(GFX)page 35.Add NV_HDMI_DET_5 (R1940)100K ohm to GND
3.(EC)page 63.Add PWRSW# (TP846) Test Pad on BOT side
4.(ESD)page 63.Change Part D94,D95 from PACDN042Y3R to SM05.TCT
5.(ICH7) page 37 INT_PIRQE#_R connect to GND(R1887) NC->0R
6.(GFX) page 25 (+1_8VRUN) CAP20 change 47uF to 150 uF

(2006/01/04)

1.(Oide)page 50.CN21.pin swape for ME request

(2006/01/20)

1.(Power)page 70.PR138 change from 13K to 16K due to 青建德 revise on 1/20.

(2006/01/21)

1.(ICH)page 37.Change R1886 from NC to 0 ohm due to control Gamma function.
2.(OIDE)page 50.Change F10 from 1206L150 to 1206L035 due to short current protect.

(2006/1/12)DVT-2

1.(GFX) For some HDMI device no support detect pin function issue,
  (1)Page 20 NV_GPIO6 del TP610,add off page port.
  (2)Page 35 Add backup circuit,NV_GPIO6(level shift) to switch(U136 pin1)Add part:Q156,Q155,R1942,(NC)R1941
2.(GFX)Page 35 HDMI I2C double pull up issue change R1611,R1612 NV->NC, because page 20,R1385,R1386 still pull up.
3.(Audio Conn)Page 59.For Audio Board USB2.0 HUB request,
  (1)CN64 pin 16 change GND to +3VSUS.
  (2)add FUSE(F9),and bypass CAP(C1641)
4.(CIR) Page 54 For BFM request,add CIR test pad (TP847~TP856)
5.(GFX) Page 34 Modify ESD diode (U128)depend on HDMI spec(C<50 pF) change part uClamp0504A->RClamp0514M (Modify Layout & BOM)
6.(SATA) Page 42 Modify SATA connentor pin define,pin swape and add power pin to meet 7200RPM HDD current(MAX 5.2A/2 HDD)
7.(SATA) Page 38 SATA signal Eye test Fail issue,change C724~C727,C1549~C1512 from P/N:1C-2B20392-K000(0402)->P/N:1C-2B30392-K001(0603) the same with MS10

(2006/1/16)DVT-2

1.(FAN-2) Page 62 Modify second FAN2 short with FAN1 issue
2.(FAN-2) Page 62 FAN2 component cost down Q152,Q153,R1924,R1925 change to NC
3.(SD LED) Page 63 LED11 change part HARVATEK_HT_110UY ->HARVATEK_HT_110Y

(2006/1/18)DVT-2

1.(ICH7) Page37 For support LVDS_GPIO function,ICH7 INT_PIRQE#_R pull up RES.R1886 change 0R->NC
2.(FAN-1) Page62 Modify fan speed feedback function,stuff C1521
3.(W-LAN) Page49 For BFT test request,add wake on W-LAN test item,add Test Pad TP858
4.(Audio) Page55 for Audio jack ESD issue,change Q117,Q118,Q119 form 17-2N70020-0000 ->17-2N7002K-0000
5.(Oide) Page50 For I/O current protect request.Add F10, (This part only for placement,Wait to change part of I hold=0.35A,I trip=0.7A)

(2006/2/27)

1. Add doide for fan inverse current on page 62
2. Add capacitor 1uF for cooling unit on page 62.
3. Add capacitor 1000pF for fan noise on page 62 and should place colse to EC pin.
4. Chagne Oide power from +5VRUN to +5VSUS on page 50.
5. Audio coupling capacitor co-layout on page 56.
6. Backup 10uF capacitors for 22uF shortage on page 6.
7. Add discharge resistor for camera on page 50.
8. Change power plan for leakage issue of USB hub and change the fulse specification on page 54 , CN61 pin10 trace shold place same as pin1.
9. Add 6 fulse for FFC short issue on page 63.
10. Chagne CAP5 to "CA"
11. Add 2.2uf and 0.1uF capacitor for SMK power and add optional select for Alpus pull-high power.

(2006/3/3)

1. (VIDEO)Modify the HW strap of VRAM for PVT
2. (VIDEO)Modify R1463,R1464,R1475,R1480,R1482,R1493 for 16Mx32 and 8Mx32 VRAM configuration
3. (VIDEO)U136 change switch control from NV_HDMI_DET_5 to NV_GPIO6
4. (VIDEO)Add two 0 ohm resistors to avoid the switch for NV_I2CB because G72M only support HDMI
5. Change codec CIS symbol to four plus.
6. Add open jump on RTCRST# net on page 38.
7. Delet fan2 circuit and change the pull-high resistor of fan_tach from 10K to 4.7K.
8. Back up logo led circuit for GMT solution on page 63.
9. MS_R and SD_R net name changed each other on page46.
10. Change connector S/N from 1N-0010000-M0X0 to 1N-0010000-MWG0 for S/N wrong on page32.
11. Change CN68 S/N from 1N-0010000-M0X0 to 1N-0010000-MWG0 for S/N wrong on page63.
12. Change the resistor (R1839) of bluetooth to 200ohm for too light issue on page 63.
13. Change the resistor (R1879) of SD card to 33 ohm for too dark issue on page 63.

(2006/3/9)

1. Change C1521 from Y5V to X7R on page 62
2. R585 change from 20K_J to 22K_F
3. Boss4 and Boss5 change to "NV73_" on page 74.
4. Add one test point on signal "2ND_FAN_TACH" on page 60.
5. Add 4 test points on CN21 connector for TE test on page50.
6. Change net name from "EN_EXT_DEV_SENSE#" to "EN_EXT_DEV_SENSE" on page 30,60 and 64.
7. Delet R1906 on page 60 for CIR double pull-high issue.
8. Change R1913 from 10K to 100K on page 54.
9. Change CN19 parts for SMT issue on page50.
10. Change CN64 PIN16 from +3VSUS to GND and change PIN6 from USB_PP2 to USB_VCC2, Shift Pin 6&8 to Pin 8&10,
    Delet F9 and C1641 on page59.
11. Backup fusle for HDD voltage drop issue on page42.
12. Update U117 CIS symbol on page 34.
13. Update CN60 CIS symbol for SMT issue on page34
14. Add two 0ohm resistors for Viao loge
    soft start issue on page 63 and page60.
15. (Power)Page 69-----Change PR91 from 15.8K_F to 16.5K_F.
16. (Power)Page 70-----Change PR299/PR114/PR115 to 10 ohm, Change PR300 to 0 ohm, Change PC127 from NC to 1000P_50V_K_B, Change PC126 to PR397 10K ohm. Change PR387 to 2.7K ohm.
17. (Power)Page72----Change PC326&PC327 from 0.1U_16V_Y_Y to 0.1U_16V_M (X5R)
18. (Power)Page71----Change PQ97 from IRF7807Z to IRF8113.
19. (Video)Page 20,R1820change to NC,because The MS20 CEC line capacitance = 777pF is much bigger than 100PF spec. After remove this resistor, CEC cap reduced to 39PF. Pass.(This GPIO11 is no function on our system, Silicon Image suggest remove it.)
20. (Video)Page 74-BOSS4,BOSS5 change part name from NV73_->TV_
21. (Video)Page 32 change part name from NV73_->TV_
22. (Video)Page 32 CN67,change PCB Footprint to co-layput "molex" & "Foxconn"part
23. page 63 CN68 change PCB Footprint to co-layput "molex" & "Foxconn"part
24. page 15 add C1661 (0.1uF) close CN2 pin1 (DDR2_VREF) for voltage level noise debug.

(2006/3/11)

1. Page 62 C1658 change to NC
2. Page 56 CAP24,CAP25 change to NC
3. Page 70 PR397 change part 10K(5%) to 10K(1%)
4. (VIDEO)Page 35 R1940 change part name NV_100K_J to NV73_100K_J
5. (VIDEO) page 27,Page 28 PVT EMI recommend(NC_ ->NV_):C1590,C1591,C1593,C1594,C1596,C1597,C1599,C1600

(2006/3/13)

"Not neet to modiy BOM and Layout "

1. change title block ver "1.0" to "0.40"
2. page 34.HDMI circuit, change net name(1)HDMI_+5VSUS->HDMI_+5VRUN (2)HDMI_+5VSUS1->HDMI_+5VRUN1

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(2006/4/5)

1.(page60)FAN noise issue:Add 1000pF(C1662)close EC Add 1000pF(C1666)closc PVT
rework location(backup only) on net FAN1_TACH(fan feedback),and remove
C1657 on net FAN1_PWM(EC to FAN control)
*PVT already modify(Rework Notice item#2)

2.(page 70)TV turner noise issue:
(1)Add PR424(2.2 ohm), PC378(47pF) on net MAX8771_LX1,
(2)Add PR425(2.2 ohm), PC379(47pF) on net MAX8771_LX2
(3)PR299 change value from 10 ohm to 0 ohm
*PVT already modify(special noties V0.8)

3.(page54)WA of InstantOn later(1)
IR receiver connentor side add N-MOS 2N7002(Q157) for 3V->5V level shift
*PVT already modify(Rework Notice item#3)

4.(page60)WA of InstantOn later(2)
EC (U32)GPIO18(pin85)contact to 2N7002 pin1
*PVT already modify(Rework Notice item#3)

5.(page29)Modify BOM to desable HDMI connentor SEMI PNP Hot plug detect function:(backup)
(1)U108 change part name to NC_ (not stuff)
(2)Add R1952 (0 ohm) link U84 pin4 to U73 pin2

6.(page32)TV module modify BOM roul
(1)Mini PCI socket circuit group change part neam from TV_ to normal.
(2)Special mini stereo jack and S-VIDEO in group change part name from TV_ to JDTVNC_
(JP digital tuner sku NOT stuff)

7.(page32)TV Tuner EMC request
(1) add R1950(0 ohm) link net AV_IN_GND to GND
(2) add C1663(470pF) link net AUDIO_IN_L_1 to AV_IN_GND
(3) add C1664(470pF) link net AUDIO_IN_R_1 to AV_IN_GND
(4) add C1665(100pF) link net VIDEO_COMP_1 to AV_IN_GND

8.(page66)PD10 Change from 16-MM3216V-T100(Vz=15.3V~17.1V) to 16-MMP2524-6B00(Vz=16.8V)
*PVT already modify(special noties V0.5)

9.(page35)Desable HDMI connentor SEMI PNP Hot plug detect function(MOR request)
change part name:
(1)NV73_->NV_:U136,Q155,Q156,R1940,R1941,C1616
(2)NV72_->NC:R1946,R1947
*PVT already modify(special noties V0.4)

10.R1493 change part name (G73Only_ ->NV73Only_) to meet BOM configuration
*PVT already modify(special noties V0.6)

11.(page57)Q86 change part from 17-MMBT390-6000 (MMBT3906) to 17-MMBT390-6K00 (MMBT3906K)
*PVT already modify(special noties V0.1)

12.Modify Bluetooth LED brightness
(1)LED9 change part from 16-HT110NB-0000(Vendor P/N : HT_110NB) to 16-HT110NB-5000.(Vendor P/N : HT-110NB5)
(The same with MS10)
(2)R1839 change part from 1R-0000201-J200 (200ohm,5%,0402) to 1R-0000391-J300.(390 ohm,5%,0603)
(The same with MS10)

13.Modify SD LED brightness
LED11 change part from 16-HT110Y0-0000(Vendor P/N : HT_110Y)to 16-HT110UY-0000.(Vendor P/N : HT-110UY)

14.(page7~page13) updata U4(NB) part to meet KCL
change from 12-0K58000-A300(945 PM ,QK5800,Version A3) to 12-0G82945-A301(945 PM ,QG82945PM (SL8Z4),Version A3)

15.(page37~page41) updata U29(SB) part to meet KCL
change from 12-0K17000-B000(82801GHM1,QK1700,Version B0) to 12-NH82801-0000(NH82801GHM,(SL8YR),Version B0)

16.FAN Noise on Int.MIC
(1)Cut-off frequency => 159Hz
R1319 : 2.2k -> 1k
C1232 : 2.2u -> 1u
(2)Cut-off frequency =>7.2kHz
R1318: 22k -> 10k
C1230: 220p -> 2200p
*MOR Nishio-san suggest 3/31

17.(page63)Power Button Board Connector back up power plan bypass cap C1507 change to NC
(modify BOM change part name NC_)

18.Y7 (6MHZ_20P_30PPM)change part number from secondsource to main source(buyer request)
P/N:(1F-X00006M-3001(AKER) ->1F-X00006M-3002(TXE)
Footprint:(xtal_4p_244_284x205 -> xtal_4p_232_276x197)
*The second already verify on DVT & PVT

19.(page43)ESD 10KV on ODD reboot issue
(1)add C1668(100pF) on net ODD_RESET#
(2)add C1667(0.1uF) on net +5VRUN

20.(page73)NV_VDD on G73M-U power noise issue, change PR417 (PU16-FB2) from 2K to 2.1K
(to setting NV_VDD voltage on G73M-U from 1.2V to 1.21V)

21.(page26)NV_VDD on G73M-U power noise issue,modify BOM configuration,
(1)G73M-U (H) C352,C362,C363,C364 on 22uF / X5R / 0805(1C-2B70226-M100)
(2)G72 (L) / G73 (M) C352,C362,C363,C364 on 10uF / X5R / 0805(1C-2B70106-M100)

22.(page31) CN3 (LVDS CONNECTOR) update OrCAN symbol

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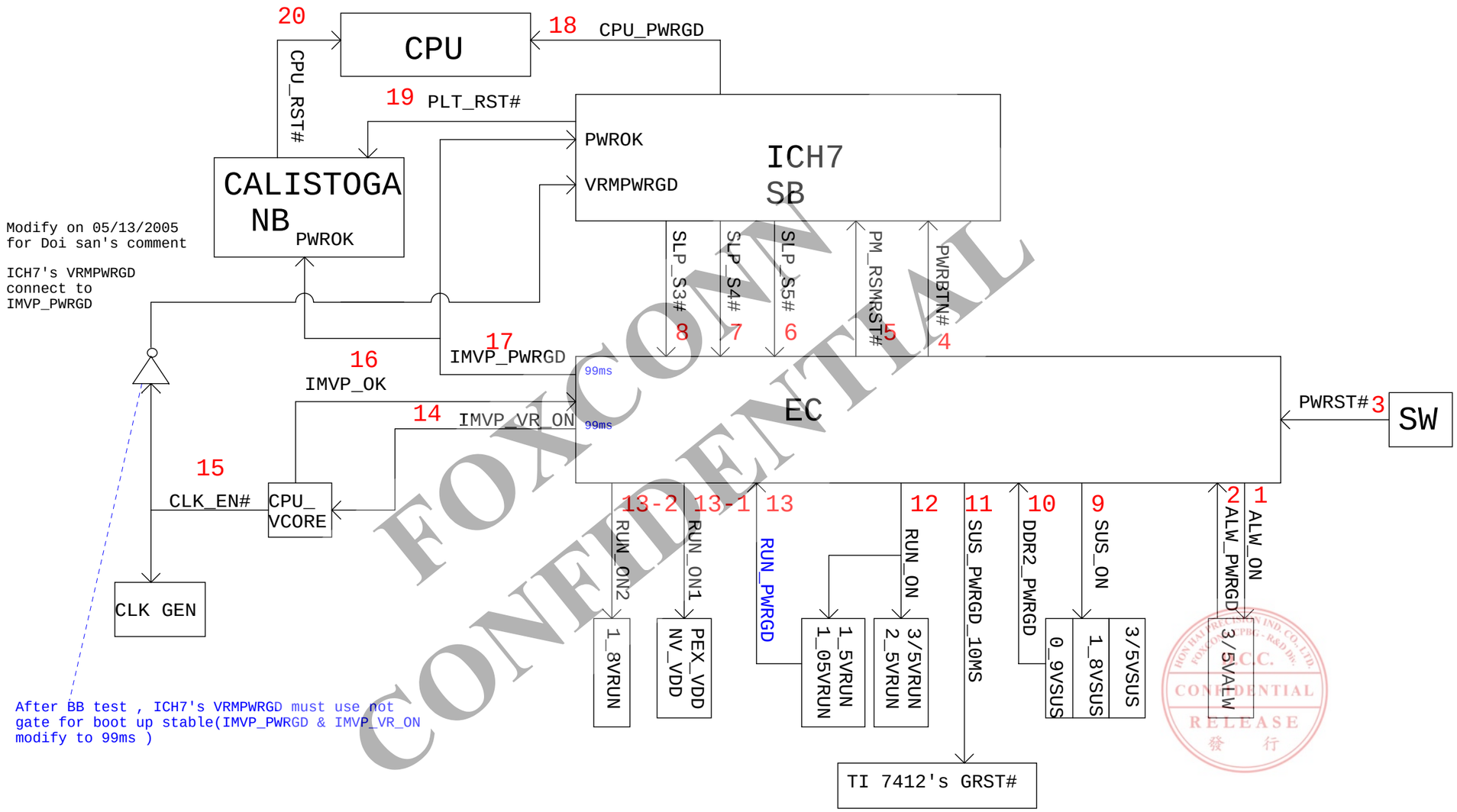
MS20 Power On Sequerce Block Diagram



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MS20 Power On Sequerce Timing

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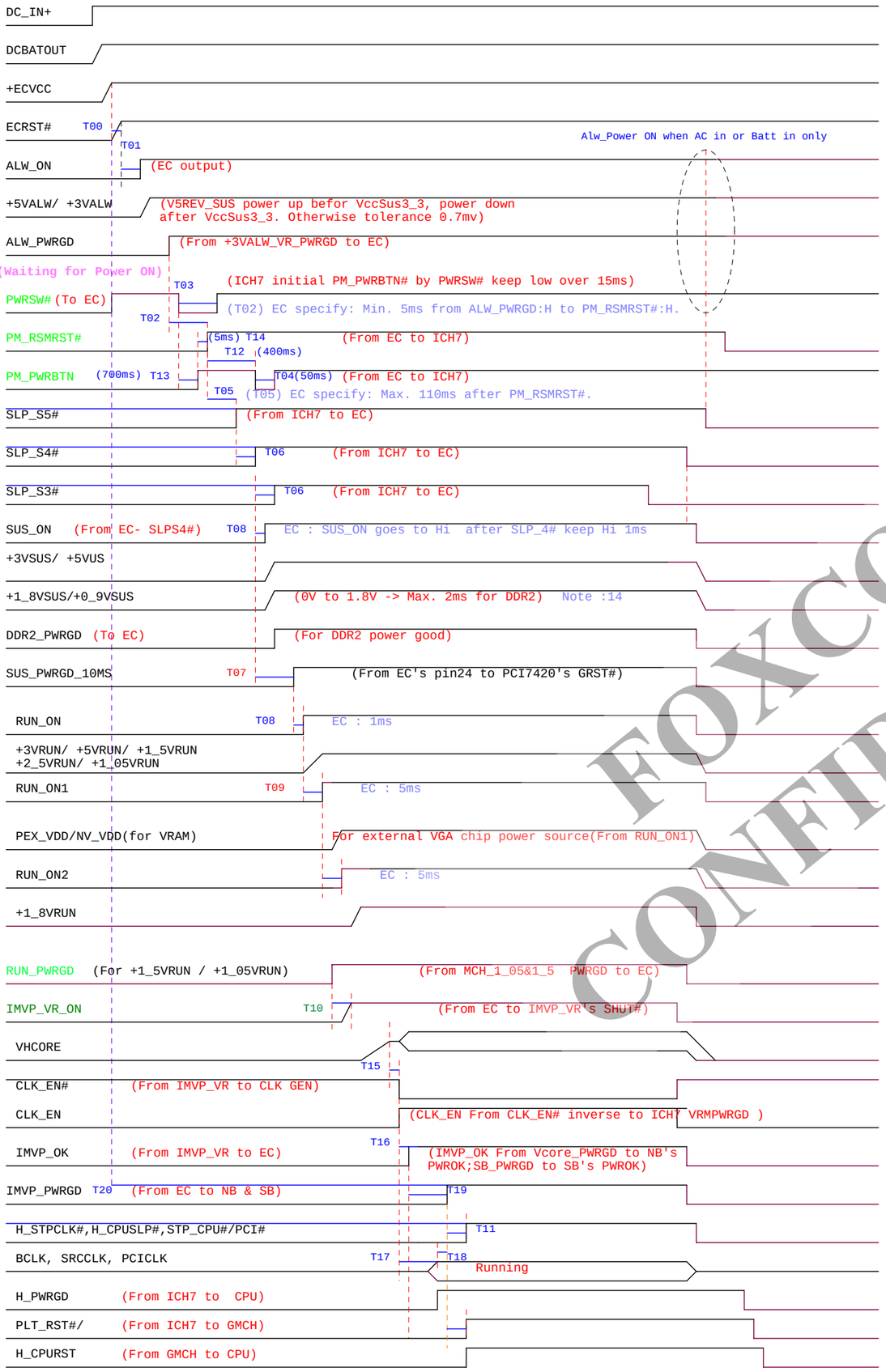
Modified date : 2006/4/6



NOTE : (EC KB3910 Min. response time is 1ms)

1. T00 : R=47K , C = 0.1uF is ENE recommand value please refer to KB3910B0-AN4A-200
2. T01 : When RTC battery already is present,this timing is always meet specification, so we don't control it.
3. T02 : ALW_PWRGD:H to PM_RSMRST#:H at least 5ms (Please refer to 16971 Page 300 of t205 timing)Doi-San request 10ms 05/17
4. T04 : For MS01 SPEC Min. is 50 ms(Normal SPEC is 20ms)
5. T05 : RSMRST# active High to SLP_S5# avtive High Max. is 110ms(Please reference Intel 16971 Page 301of t232 timing
6. T06(Please reference Intel 16971 Page 301 of t234 timing
7. T07 : For MS01 current SPEC Min. is 25 ms(Please refer Intel 16971Page 301 t208 SPEC is Min 10ms)
8. T08 : For MS01 current SPEC Min. is 1 ms(1ms is EC KB3910 at least response time)
9. T09 : For MS01 current SPEC
10. T10 :Please refer to Intel 16971 Page 300 of t214 timing
11. T11 :Please refer to Intel 16971 Page 303 of t216 timing
12. T12 : PM_RSMRST# ACTIVE HIGH TO PM_PWRBTN# ACTIVE LOW is 400ms(Normal SPEC is 110ms;Please reference Intel 16971 Page 301of t232 timing)
13. T13 : For MS01 current SPEC Min. is 700 ms(Normal SPEC is 1ms that EC can response)
14. T14 : For MS01 current SPEC Min. is 5 ms
15. DDR2 1.8V from 0V to 2V Max. is 2 ms please refer to Intel 16981 Page 304
16. IMVP_OK is same with SB_PWRGD(reserved And Gate with SYS_PWRGD)
17. In NV4X power sequence : NV_VDD , VRAMVDD,PEX_VDD and VRAM_TERM can ramping up anytime after +3VRUN starts ramping up.(Please refer to DG-00969_v05c Page 50 for NV4x GPU power sequencing description)
18. T15 : Please refer to MAX8736 datasheet page 7 & page 25 Figure 8
19. T16: Please refer to MAX8736 datasheet page 25 Figure 8
20. T17 : Please refer to Intel CK410(14690) page 53
21. T18 : The ICH7 drives PLTRST# active a mininum of 1ms when initiated through the Reset Control register I/O Register CF9h)
22. CPUPWRGD is an output signal that presents a logical AND of the ICH7's PWROK and VRMPWRGD signals
23. T20 : From ECRST# L->H to IMVP_PWRGD L->H. If EC's 32KHz is not stable, LPC I/F will hang. So the 1sec must be guaranteed.(Requested by Doi's san 05/13)

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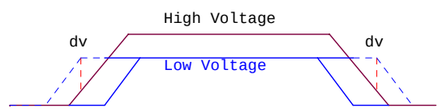
Remark: (Item1,2,3 add Diode; Item4,5,6 add dischage circuit; Item7 for implement TV)
SPEC please refer to Intel 16981 15.4 GMCH/ICH7M Platform Power -up Requirements)

1. V5REF(+5VRUN) -> +3VRUN, dt:0.7mV
2. V5REF_SUS(+5VALW) -> +3VALW, dt:0.7mV
3. +2.5VRUN -> GMCH_VCC(1.05V), dt:0.7mV
4. +1_5VRUN -> +GMCH(1.05V), dt:0.7mV
5. +3.3VRUN -> +2_5VRUN, dt:0.3mV
6. +3.3VRUN -> +5VRUN (VccLAN), dt:0.3mV
7. +3_3VRUN -> +1_5VRUN(TV), dt:0.7mV

R/C delay (47K/ 0.1uF)



T00	T01	T02	T03	T04	T05	T06	T07	T08	T09	T10
within 10ns~2ms	Don't control	Min. 10 ms	Min. 40ms	Min. 50ms	Max. 110ms	1 - 2 RTCCLK	Min. 25 ms	1ms	Min. 10ms	Min. 99ms

T11	T12	T13	T14	T15	T16	T17	T18	T19	T20
Max. 50ns	Min. 400ms	Min 700ms	Min 5ms	typ 60us	Min : 3ms Max : 8ms	Max 1.8ms	Min 1ms	Min : 99ms	Min :1s

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