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P. Leader	Check by	Design by

Project Code & Schematics Subject: MS22 Main Board	PCB P/N: 1P-0068100-80SA
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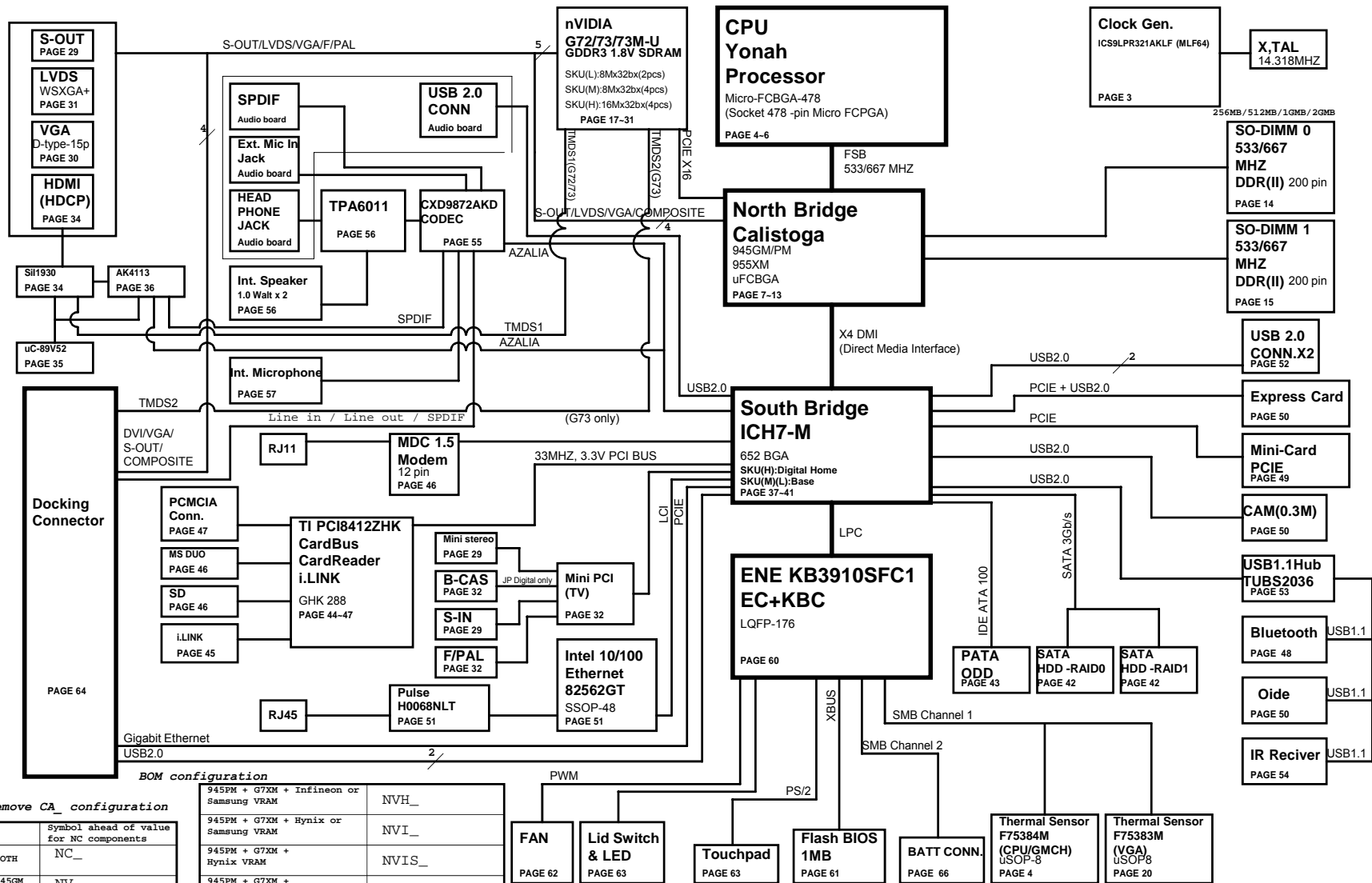
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MS22(CALISTOGA PM+Gfx Block Diagram)

Red texts:
New modified



BOM configuration

Remove CA configuration

	Symbol ahead of value for NC components
BOTH	NC_
945GM	NV_
945PM + G72M	NV73_
945PM + G73M	NV72_
945PM + G72M or G73M-U	NV73Only_

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_

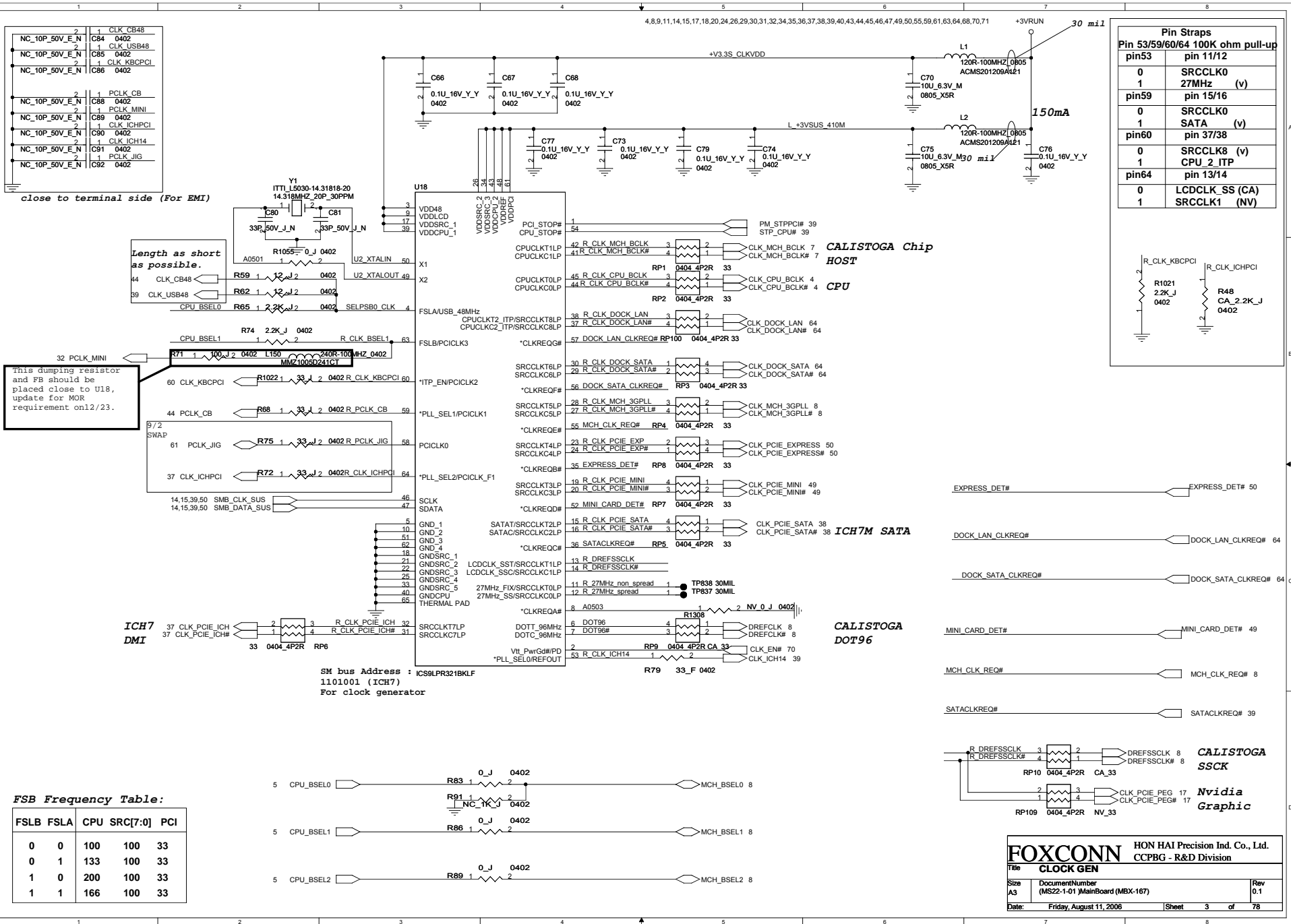
4,8.9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71

2	1	CLK_CB48
NC_10P_50V_E_N	2	C84 0402
NC_10P_50V_E_N	2	1 CLK_USB48
NC_10P_50V_E_N	2	C85 0402
NC_10P_50V_E_N	2	1 CLK_KBCPCI
NC_10P_50V_E_N	2	C86 0402
2	1	PCLK_CB
NC_10P_50V_E_N	2	C88 0402
NC_10P_50V_E_N	2	1 PCLK_MINI
NC_10P_50V_E_N	2	C89 0402
NC_10P_50V_E_N	2	1 CLK_IHPPCI
NC_10P_50V_E_N	2	C90 0402
NC_10P_50V_E_N	2	1 CLK_IH14
NC_10P_50V_E_N	2	C91 0402
NC_10P_50V_E_N	2	1 PCLK_JIG
NC_10P_50V_E_N	2	C92 0402

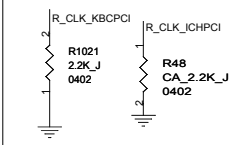
close to terminal side (For EMI)

Length as short as possible.

This dumping resistor and FB should be placed close to U18, update for MOR requirement on 12/23.



Pin Straps	
Pin	Pin
pin53	pin 11/12
0	SRCLK0
1	SATA
pin59	pin 15/16
0	SRCLK0
1	SATA
pin60	pin 37/38
0	SRCLK8
1	CPU 2 ITP
pin64	pin 13/14
0	LCDCLK_SS (CA)
1	SRCLK1 (NV)



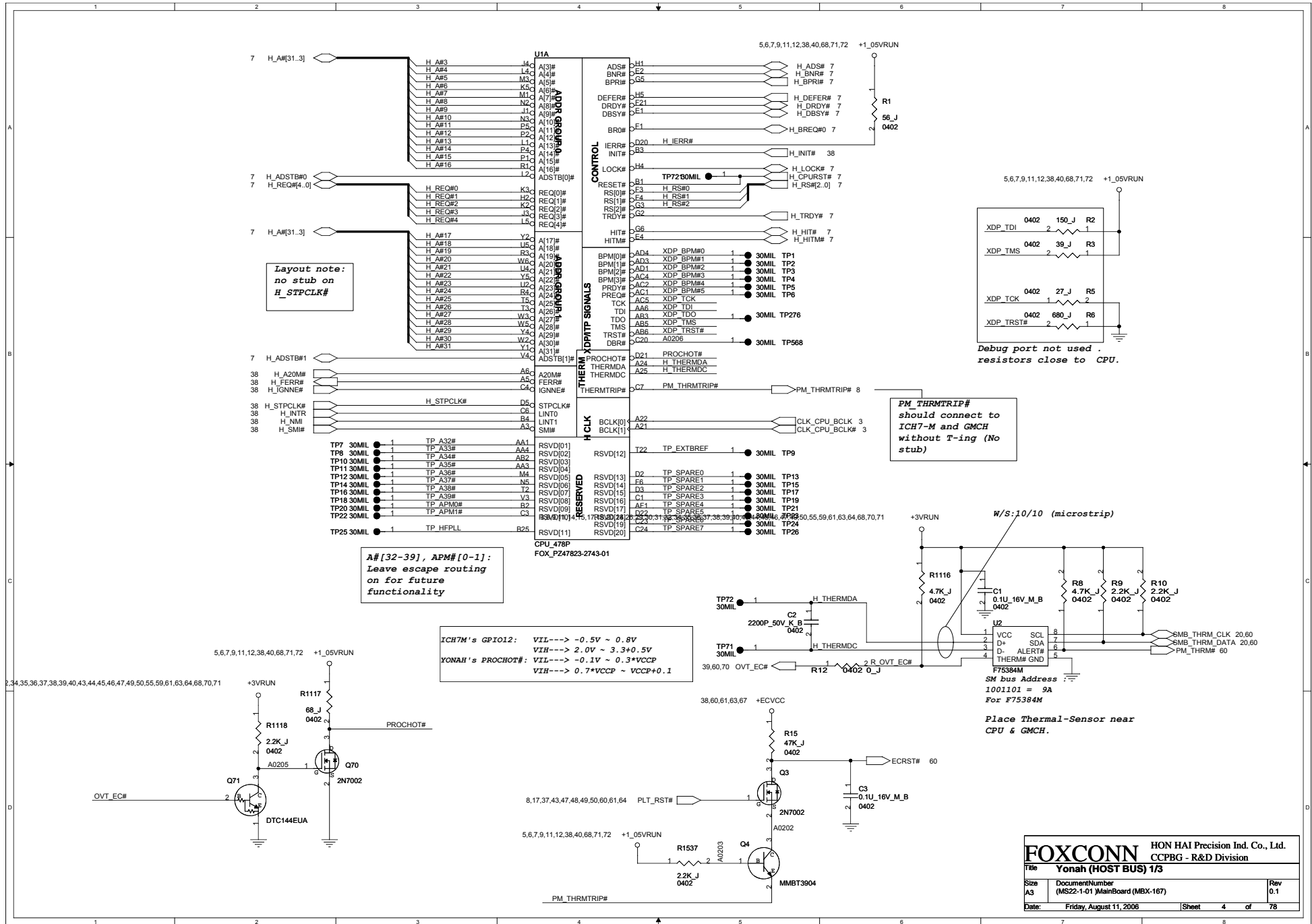
FSB Frequency Table:

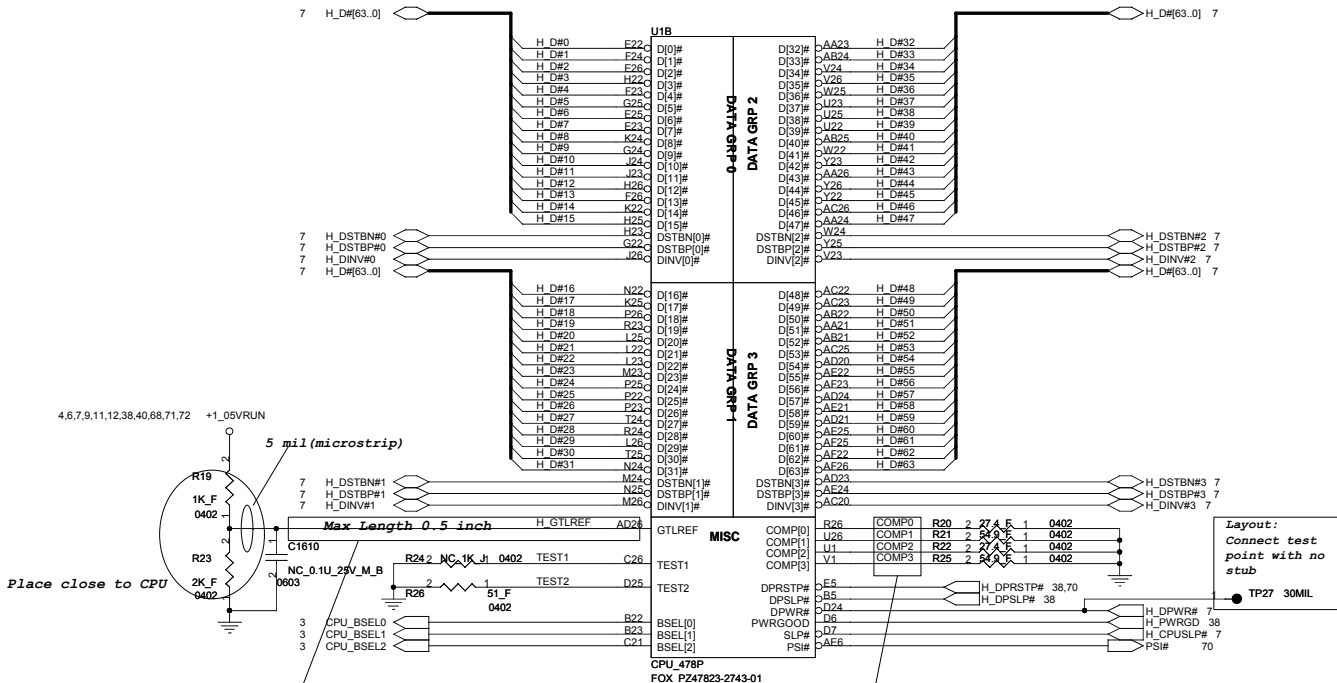
FSLB	FSLA	CPU SRC[7:0]	PCI
0	0	100	100 33
0	1	133	100 33
1	0	200	100 33
1	1	166	100 33

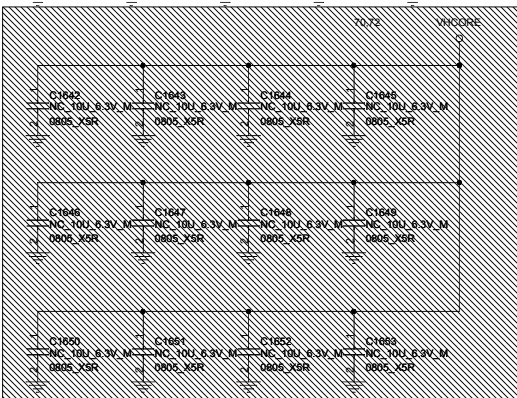
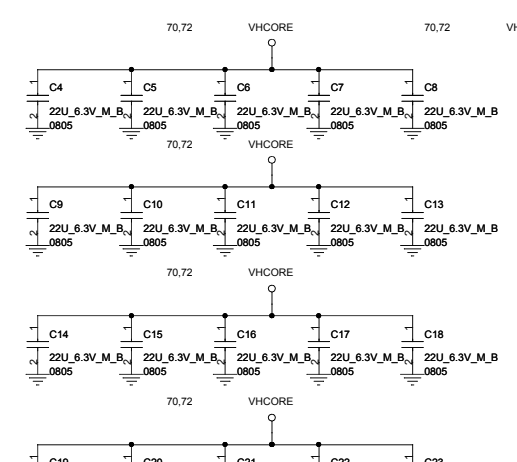
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Title: **CLOCK GEN**

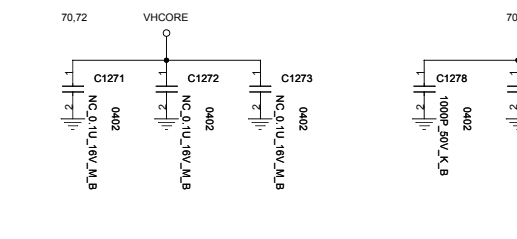
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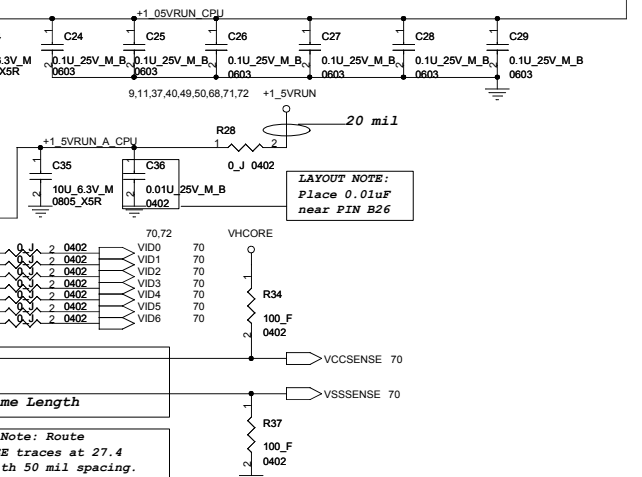
Backup 10uF capacitors for 22uF shortage.



Pin	Signal	Pin	Signal	Pin	Signal
A7	VCC[001]	VCC[068]	AB20		
A9	VCC[002]	VCC[069]	AB7		
A10	VCC[003]	VCC[070]	AC7		
A12	VCC[004]	VCC[071]	AC9		
A13	VCC[005]	VCC[072]	AC12		
A15	VCC[006]	VCC[073]	AC13		
A17	VCC[007]	VCC[074]	AC15		
A20	VCC[008]	VCC[075]	AC17		
A21	VCC[009]	VCC[076]	AC18		
B7	VCC[010]	VCC[077]	AD7		
B8	VCC[011]	VCC[078]	AD9		
B10	VCC[012]	VCC[079]	AD10		
B12	VCC[013]	VCC[080]	AD12		
B14	VCC[014]	VCC[081]	AD14		
B15	VCC[015]	VCC[082]	AD15		
B17	VCC[016]	VCC[083]	AD17		
B18	VCC[019]	VCC[084]	AD18		
B20	VCC[018]	VCC[085]	AE9		
C9	VCC[019]	VCC[086]	AE10		
C10	VCC[020]	VCC[087]	AE12		
C12	VCC[021]	VCC[088]	AE13		
C13	VCC[022]	VCC[089]	AE15		
C15	VCC[023]	VCC[090]	AE17		
C18	VCC[024]	VCC[091]	AE18		
D9	VCC[025]	VCC[092]	AE20		
D10	VCC[026]	VCC[093]	AF9		
D12	VCC[027]	VCC[094]	AF10		
D14	VCC[028]	VCC[095]	AF12		
D15	VCC[029]	VCC[096]	AF14		
D17	VCC[030]	VCC[097]	AF15		
D18	VCC[031]	VCC[098]	AF18		
E7	VCC[032]	VCC[099]	AF20		
E9	VCC[033]	VCC[100]			
E10	VCC[034]				
E12	VCC[035]	VCCP[011]	V6		
E13	VCC[036]	VCCP[012]	G21		
E15	VCC[037]	VCCP[013]	J6		
E18	VCC[038]	VCCP[014]	K6		
E20	VCC[039]	VCCP[015]	M6		
F9	VCC[040]	VCCP[016]	J21		
F10	VCC[041]	VCCP[017]	K21		
F12	VCC[042]	VCCP[018]	M21		
F14	VCC[043]	VCCP[019]	N21		
F15	VCC[044]	VCCP[020]	R6		
F17	VCC[045]	VCCP[021]	R21		
F18	VCC[046]	VCCP[022]	T21		
F20	VCC[047]	VCCP[023]	T6		
F21	VCC[048]	VCCP[024]	T16		
F22	VCC[049]	VCCP[025]	V21		
F23	VCC[050]	VCCP[026]	W21		
F24	VCC[051]				
AA7	VCC[052]	VCCA	B26		
AA9	VCC[053]				
AA10	VCC[054]				
AA12	VCC[055]				
AA13	VCC[056]				
AA15	VCC[057]				
AA17	VCC[058]				
AA18	VCC[059]				
AA20	VCC[060]				
AB9	VCC[061]				
AC10	VCC[062]				
AB10	VCC[063]				
AB12	VCC[064]				
AB14	VCC[065]				
AB15	VCC[066]				
AB17	VCC[067]				
AB18	VCC[068]				

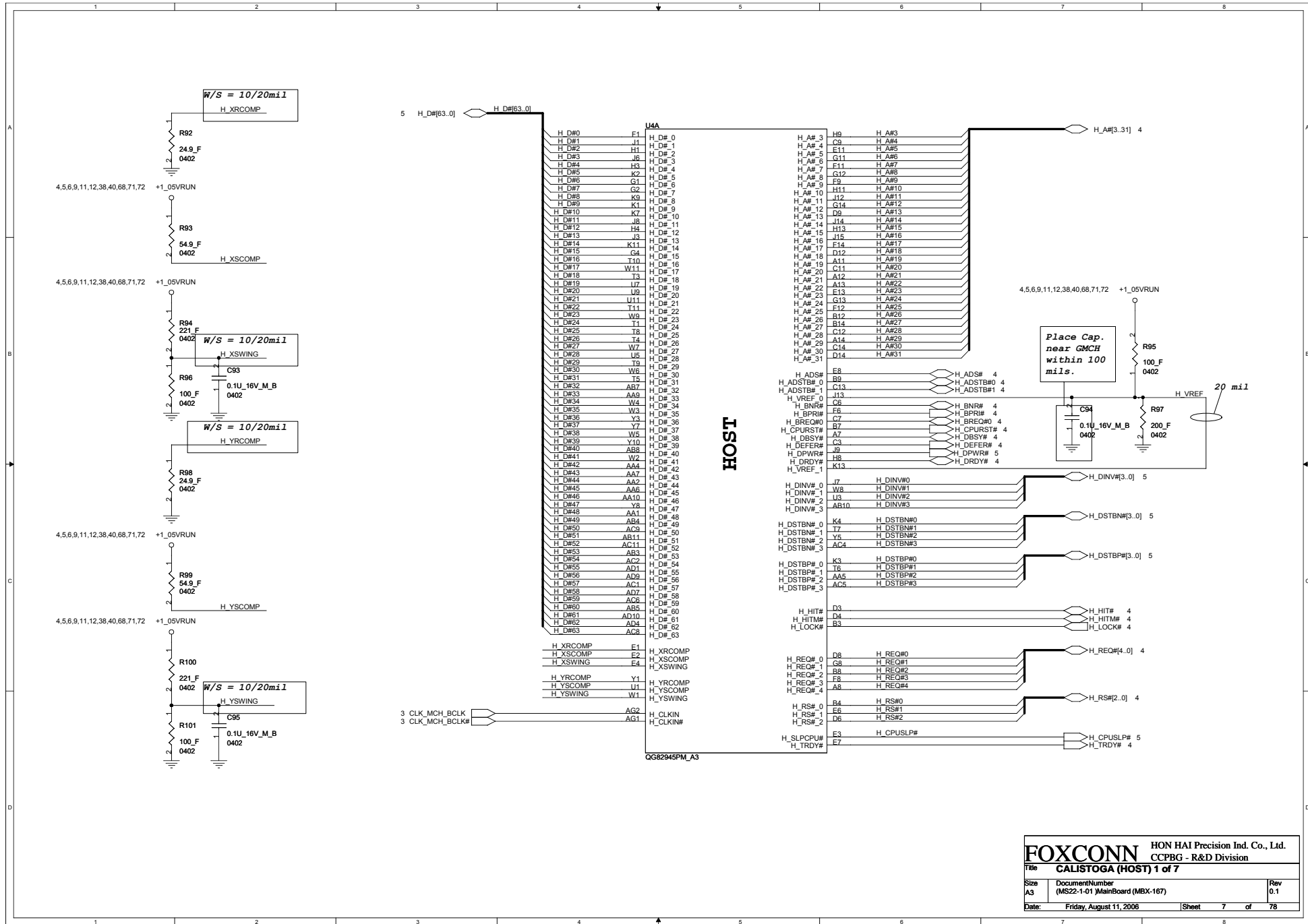
CPU_478P
FOX_P247823-2743-01

CPU_VCCA---->120mA
CPU_VCCP---->2.5A
CPU_VCC---->44A



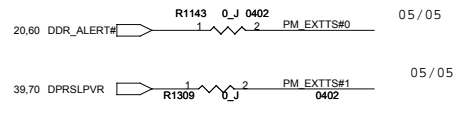
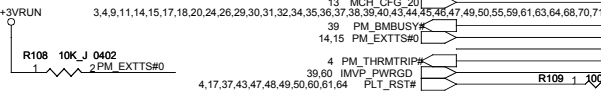
Layout Note: Route VCCSENSE traces at 27.4 Ohms with 50 mil spacing. Place PU and PD within 1 inch of cpu. width=18 mil spacing=7 mil

Pin	Signal	Pin	Signal	Pin	Signal
A4	VSS[001]	VSS[082]	P21		
A8	VSS[002]	VSS[083]	P24		
A10	VSS[003]	VSS[084]	R2		
A14	VSS[004]	VSS[085]	R22		
A16	VSS[005]	VSS[086]	R2		
A19	VSS[006]	VSS[087]	R25		
A23	VSS[007]	VSS[088]	T4		
A26	VSS[008]	VSS[089]	T14		
B6	VSS[009]	VSS[090]	T23		
B8	VSS[010]	VSS[091]	T26		
B11	VSS[011]	VSS[092]	U1		
B13	VSS[012]	VSS[093]	U1		
B16	VSS[013]	VSS[094]	U6		
B19	VSS[014]	VSS[095]	U12		
B21	VSS[015]	VSS[096]	U24		
B24	VSS[016]	VSS[097]	V2		
C5	VSS[018]	VSS[099]	V22		
C8	VSS[017]	VSS[098]	V25		
C11	VSS[019]	VSS[100]	V25		
C14	VSS[020]	VSS[101]	W1		
C16	VSS[021]	VSS[102]	W23		
C19	VSS[022]	VSS[103]	W26		
C2	VSS[023]	VSS[104]	V3		
C22	VSS[024]	VSS[105]	V6		
C25	VSS[025]	VSS[106]	Y21		
D1	VSS[026]	VSS[107]	Y22		
D4	VSS[027]	VSS[108]	Y24		
D8	VSS[028]	VSS[109]	AA2		
D11	VSS[029]	VSS[110]	AA5		
D13	VSS[030]	VSS[111]	AA8		
D16	VSS[031]	VSS[112]	AA11		
D19	VSS[032]	VSS[113]	AA14		
D23	VSS[033]	VSS[114]	AA16		
D26	VSS[034]	VSS[115]	AA19		
E3	VSS[035]	VSS[116]	AA22		
E6	VSS[036]	VSS[117]	AB1		
E8	VSS[037]	VSS[118]	AB4		
E11	VSS[038]	VSS[119]	AB4		
E14	VSS[039]	VSS[120]	AB11		
E16	VSS[040]	VSS[121]	AB13		
E19	VSS[041]	VSS[122]	AB16		
E21	VSS[042]	VSS[123]	AB23		
E24	VSS[043]	VSS[124]	AB26		
F5	VSS[044]	VSS[125]	AC6		
F8	VSS[045]	VSS[126]	AC8		
F11	VSS[046]	VSS[127]	AC11		
F16	VSS[047]	VSS[128]	AC14		
F19	VSS[048]	VSS[129]	AC16		
F22	VSS[049]	VSS[130]	AC19		
F25	VSS[050]	VSS[131]	AC21		
F28	VSS[051]	VSS[132]	AC24		
F31	VSS[052]	VSS[133]	AD2		
F34	VSS[053]	VSS[134]	AD2		
F37	VSS[054]	VSS[135]	AD5		
G23	VSS[055]	VSS[136]	AD8		
G26	VSS[056]	VSS[137]	AD11		
H3	VSS[057]	VSS[138]	AD13		
H6	VSS[058]	VSS[139]	AD16		
H10	VSS[059]	VSS[140]	AD22		
H21	VSS[060]	VSS[141]	AE1		
J2	VSS[061]	VSS[142]	AE4		
J5	VSS[062]	VSS[143]	AE8		
J22	VSS[063]	VSS[144]	AE11		
J25	VSS[064]	VSS[145]	AE14		
K1	VSS[065]	VSS[146]	AE16		
K4	VSS[066]	VSS[147]	AE19		
K23	VSS[067]	VSS[148]	AE23		
K26	VSS[068]	VSS[149]	AE26		
L3	VSS[069]	VSS[150]	AE26		
L6	VSS[070]	VSS[151]	AE26		
L21	VSS[071]	VSS[152]	AE26		
L24	VSS[072]	VSS[153]	AE26		
M2	VSS[073]	VSS[154]	AE26		
M5	VSS[074]	VSS[155]	AE26		
M22	VSS[075]	VSS[156]	AE26		
M25	VSS[076]	VSS[157]	AE26		
N1	VSS[077]	VSS[158]	AE26		
N4	VSS[078]	VSS[159]	AE26		
N23	VSS[079]	VSS[160]	AE26		
N26	VSS[080]	VSS[161]	AE26		
P3	VSS[081]	VSS[162]	AE26		



HOST

FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title		CCPBG - R&D Division	
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Pin	Value	Label	Pin	Value	Label
TP28	30MIL	1 MCH_RSVD_1	T32		RSVD_1
TP29	30MIL	1 MCH_RSVD_2	R32		RSVD_2
TP30	30MIL	1 MCH_RSVD_3	F3		RSVD_3
TP31	30MIL	1 MCH_RSVD_4	F7		RSVD_4
TP32	30MIL	1 MCH_RSVD_5	AG11		RSVD_5
TP33	30MIL	1 MCH_RSVD_6	AF11		RSVD_6
TP34	30MIL	1 MCH_RSVD_7	H7		RSVD_7
TP35	30MIL	1 MCH_RSVD_8	J19		RSVD_8
TP36	30MIL	1 MCH_RSVD_9	A41		RSVD_9
TP37	30MIL	1 MCH_RSVD_10	A35		RSVD_10
TP38	30MIL	1 MCH_RSVD_11	A34		RSVD_11
TP39	30MIL	1 MCH_RSVD_12	D28		RSVD_12
TP40	30MIL	1 MCH_RSVD_13	D27		RSVD_13
			K16		CFG_0
			K18		CFG_1
			J18		CFG_2
			F18		CFG_3
			F15		CFG_4
			F15		CFG_5
			D18		CFG_6
			D16		CFG_7
			G18		CFG_8
			F16		CFG_9
			D15		CFG_10
			G15		CFG_11
			G15		CFG_12
			K12		CFG_13
			C15		CFG_14
			H16		CFG_15
			G18		CFG_16
			H15		CFG_17
			J25		CFG_18
			K27		CFG_19
			J26		CFG_20
			G28		PM_BMBUS#
			F25		PM_EXTTS#0
			H26		PM_EXTTS#1
			G6		PM_THRMTRIP#
			AH33		PWROK
			AH34		RSTIN#
			H28		SDVO_CTRLCLK
			H27		SDVO_CTRLDATA
			H32		SDVO_CTRLDATA
			H32		ICH_SYNC#
			H32		CLK_REQ#
			D1		NC0
			C41		NC1
			C1		NC2
			BA41		NC3
			BA40		NC4
			BA39		NC5
			BA3		NC6
			BA2		NC7
			BA1		NC8
			BA1		NC9
			B2		NC10
			AY41		NC11
			AY1		NC12
			AW11		NC13
			AW1		NC14
			A40		NC15
			A4		NC16
			A39		NC17
			A3		NC18

QG82945PM_A3

RSVD

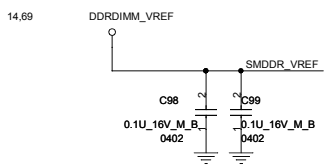
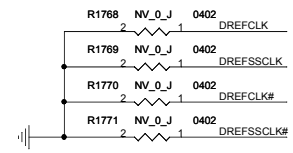
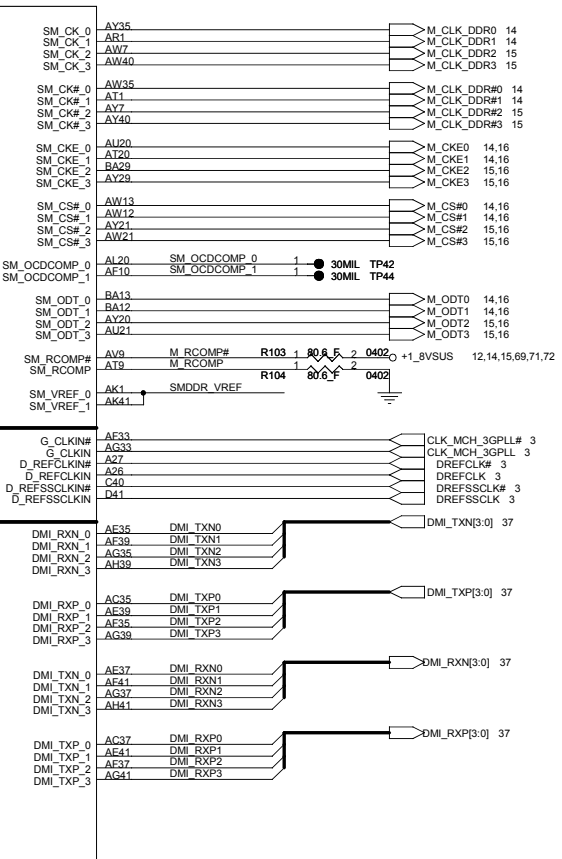
CFG

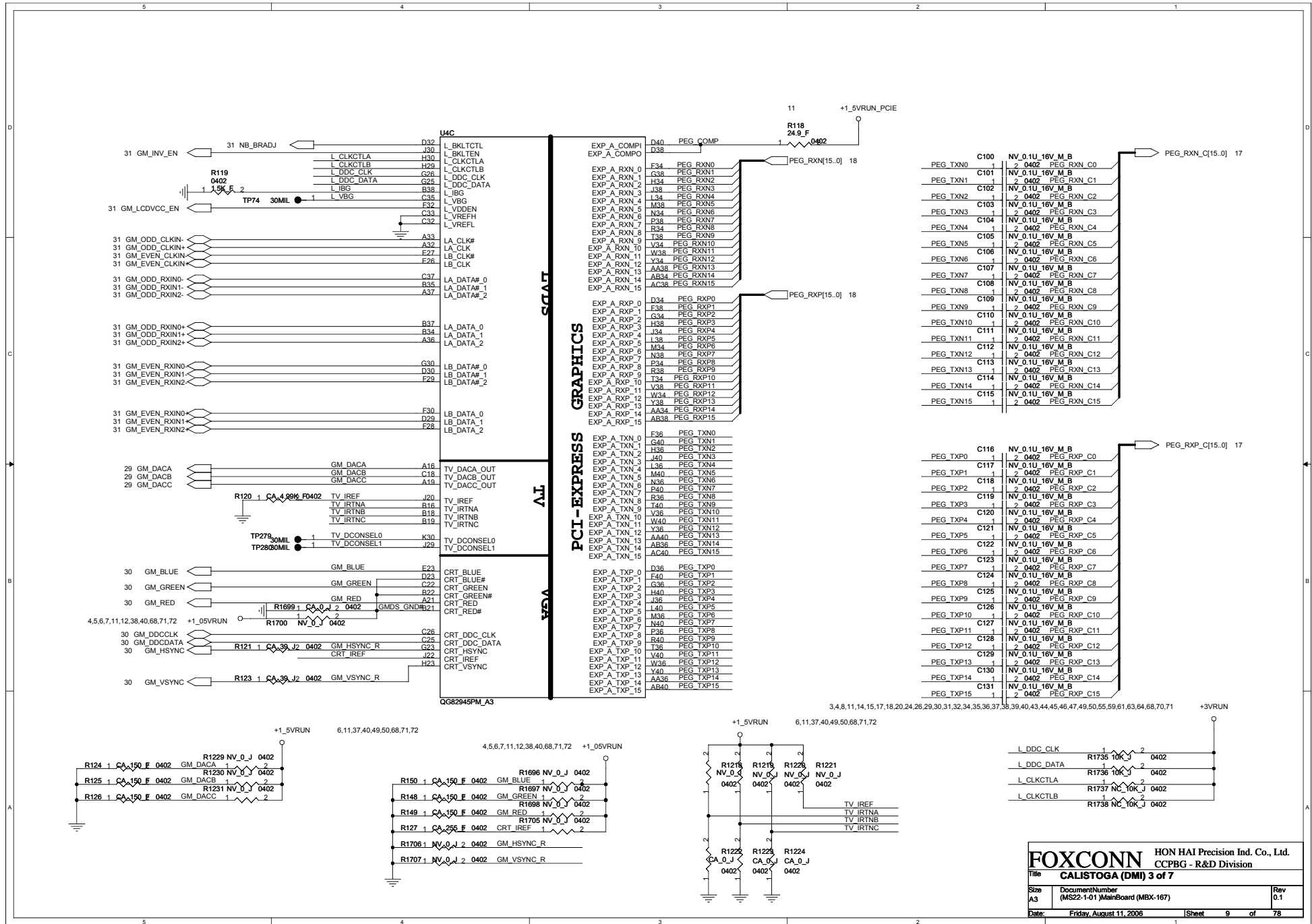
PM

MISC

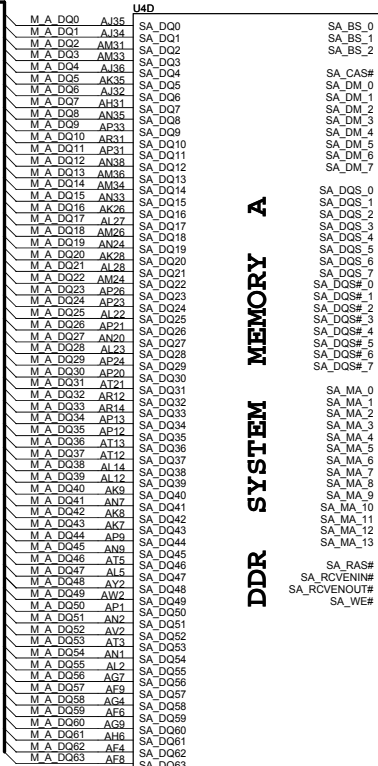
NC

DMI





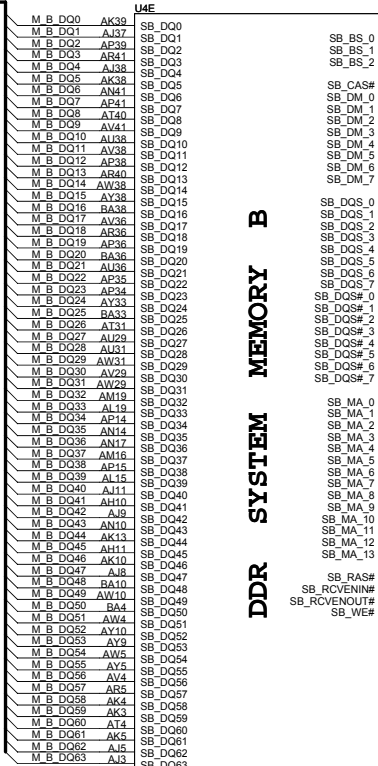
14 M_A_DQ[63..0]



DDR SYSTEM MEMORY A

QG82945PM_A3

15 M_B_DQ[63..0]



DDR SYSTEM MEMORY B

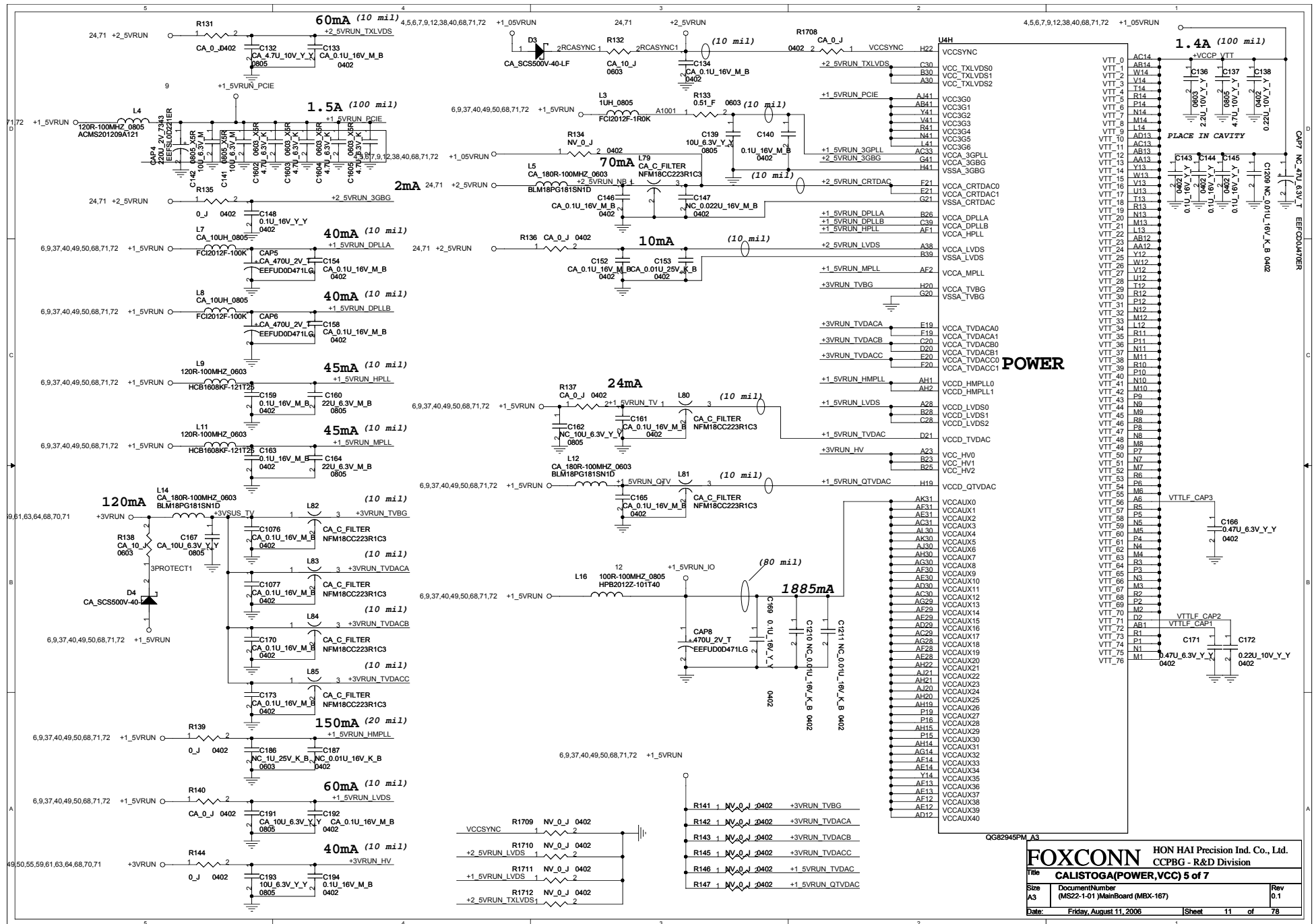
QG82945PM_A3

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

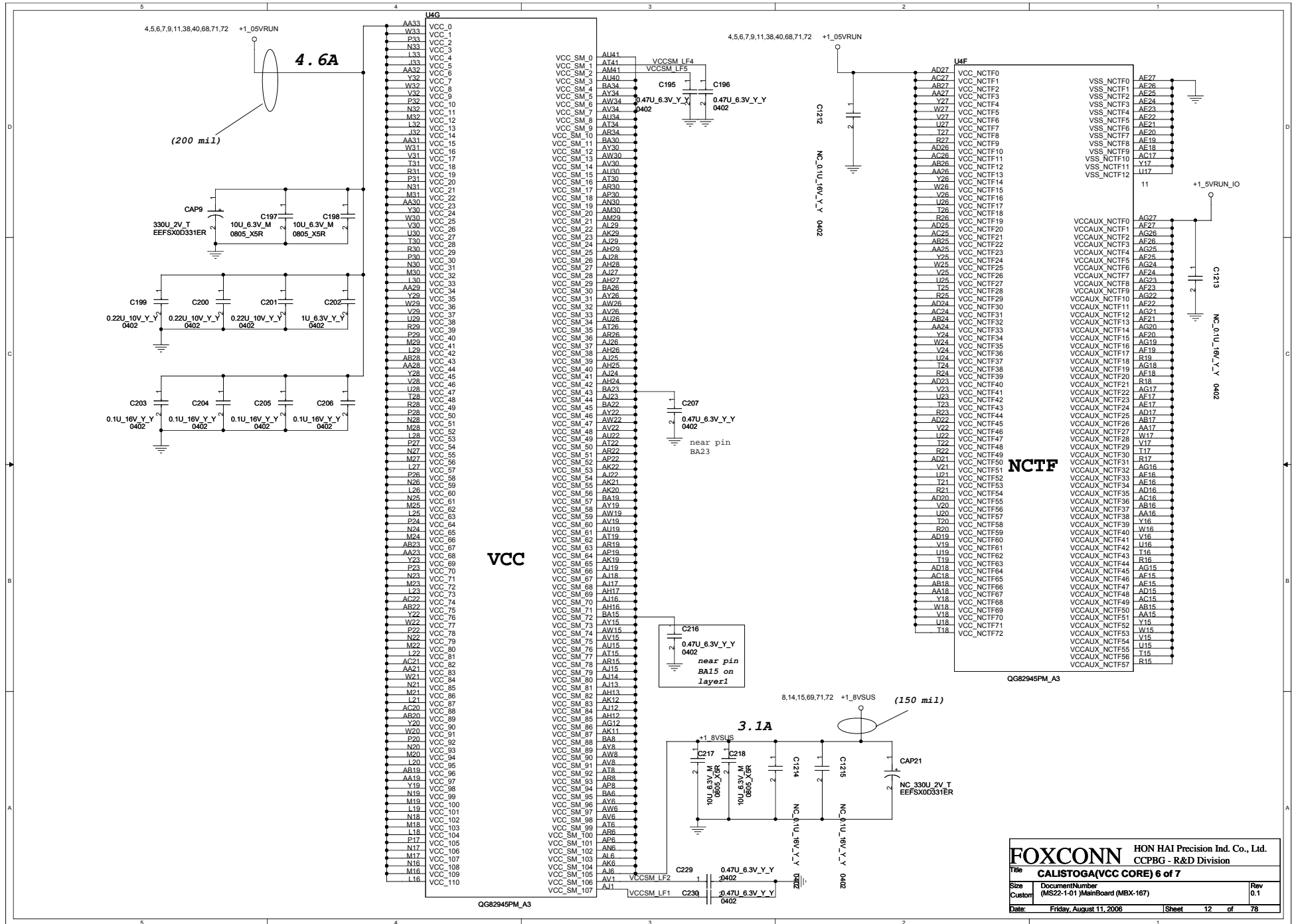
Title **CALISTOGA (DDRII) 4 of 7**

Size DocumentNumber (MS22-1-01) MainBoard (MBX-167) Rev 0.1

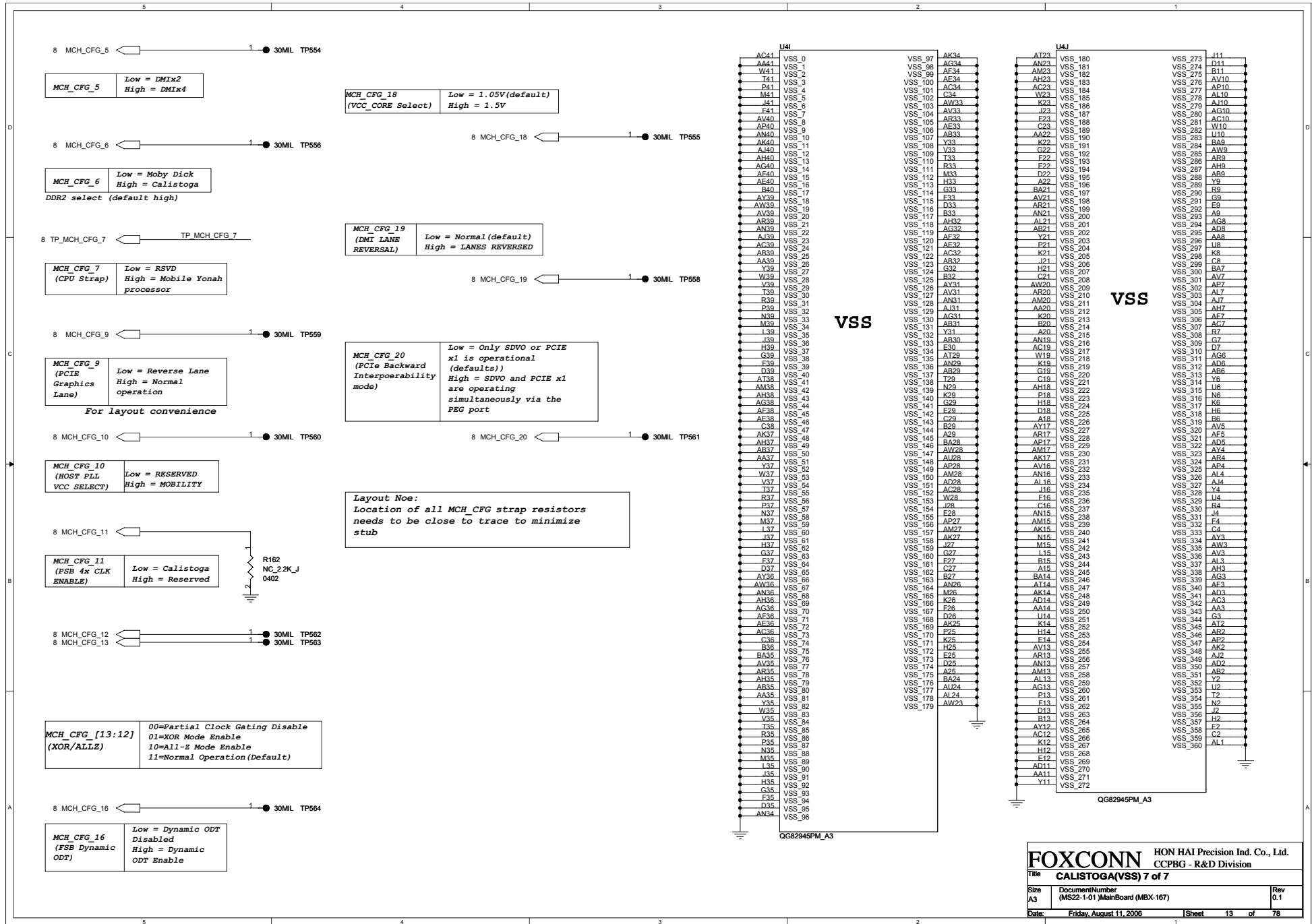
Date: Friday, August 11, 2006 Sheet 10 of 78



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title CALISTOGA(POWER,VCC) 5 of 7			
Size	Document Number	Rev	
A3	MS22-1-01 (MainBoard)	01	
Date	Friday, August 11, 2006	Sheet	11 of 78



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
CCPBG - R&D Division		CALISTOGA(VCC CORE) 6 of 7	
Title	Document Number	Sheet	Rev
Customer	(MS22-1-01) MainBoard (MBX-167)	12	0.1
Date:	Friday, August 11, 2006	of	78



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

Title: CALISTOGA(VSS) 7 of 7

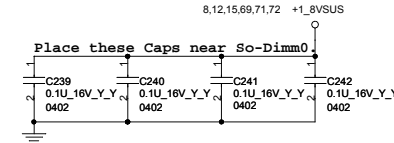
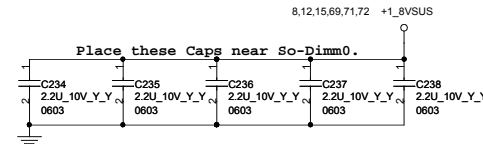
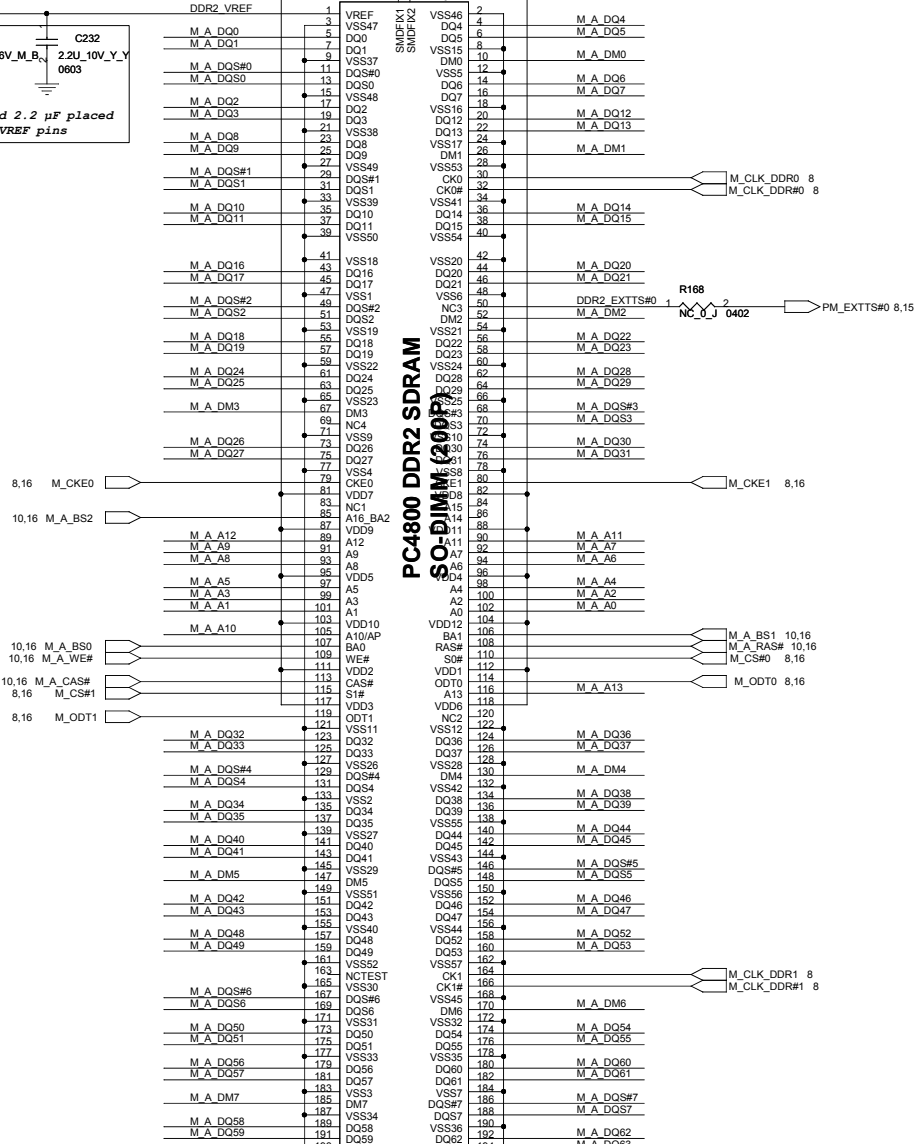
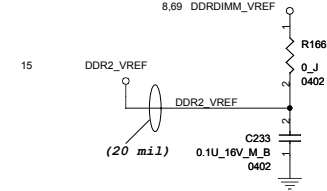
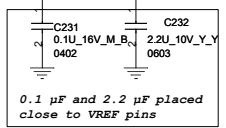
Size: A3 DocumentNumber: MSZ2-1-01/MainBoard (MBX-167) Rev: 0.1

Date: Friday, August 11, 2006 Sheet: 13 of 78

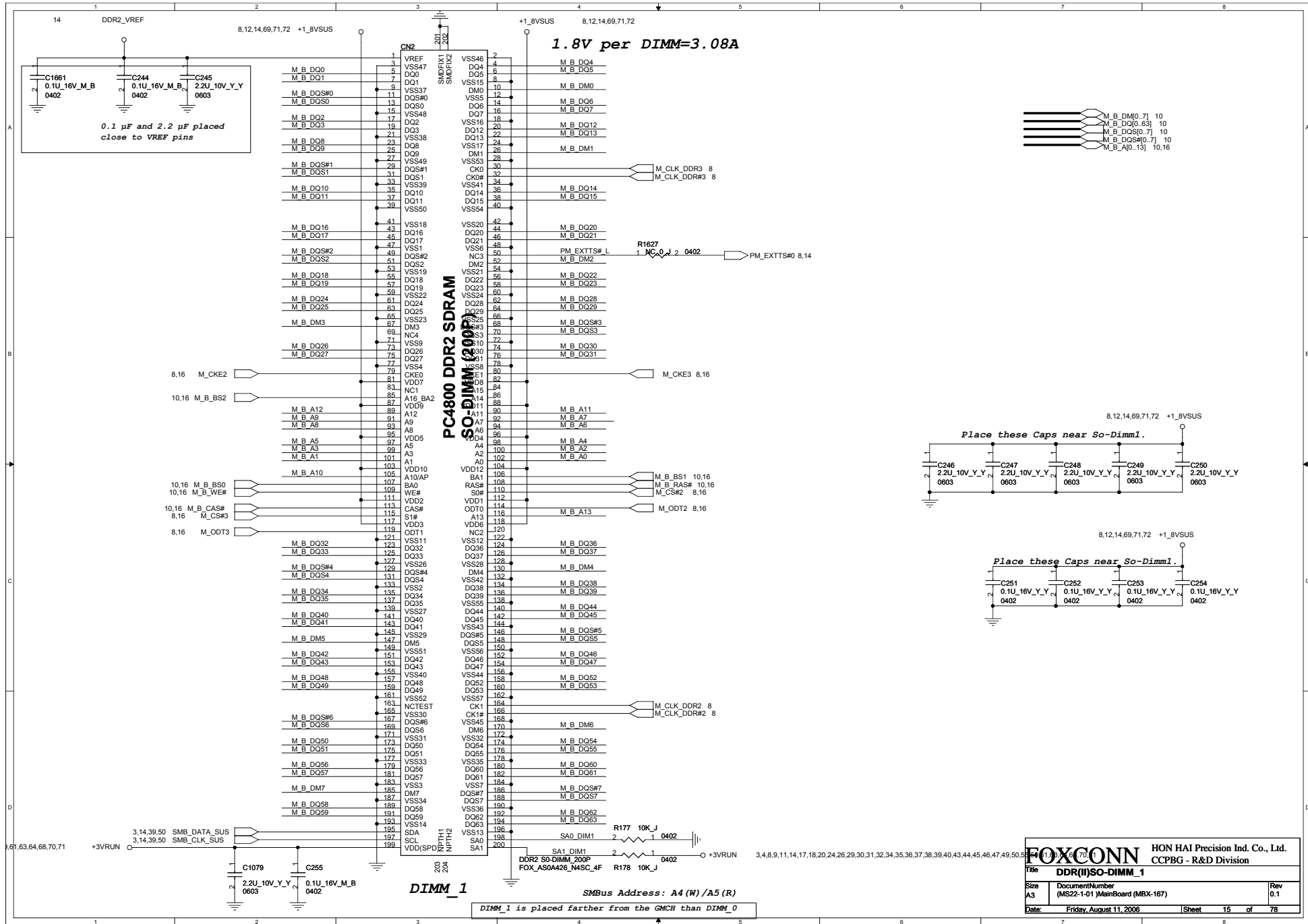
8.12,15,69,71,72 +1_8VSUS

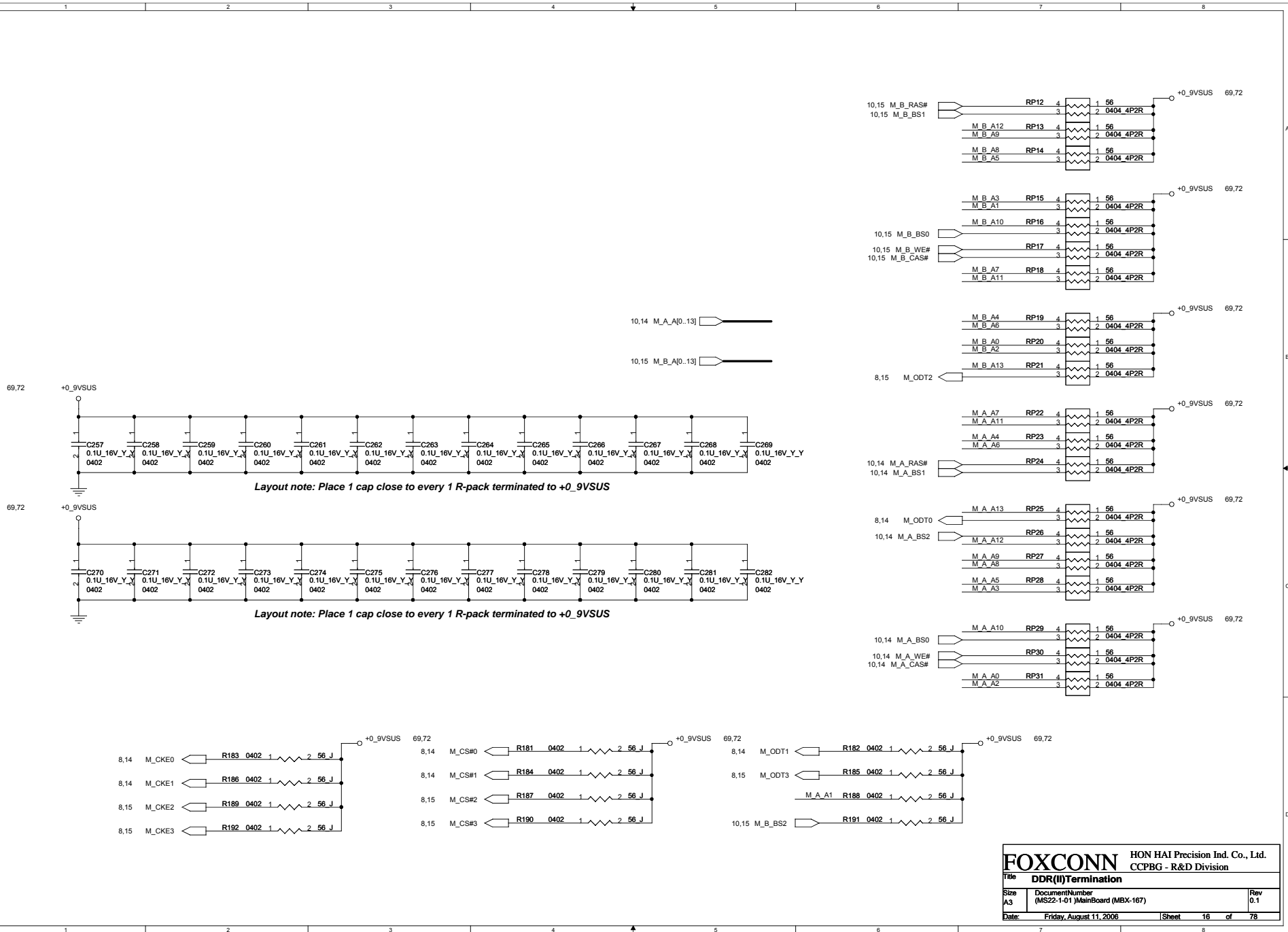
+1_8VSUS 8.12,15,69,71,72

1.8V per DIMM=3.08A

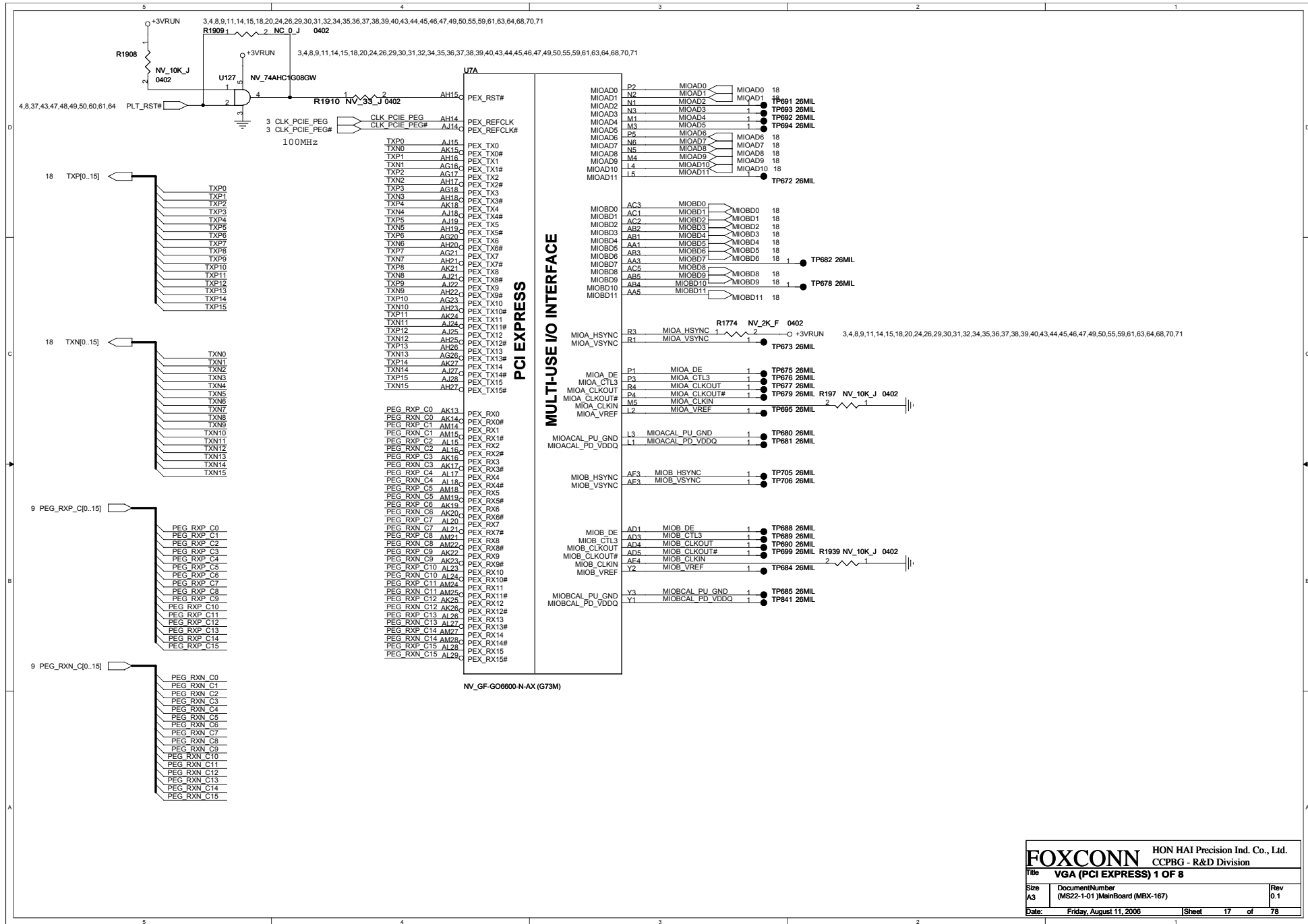


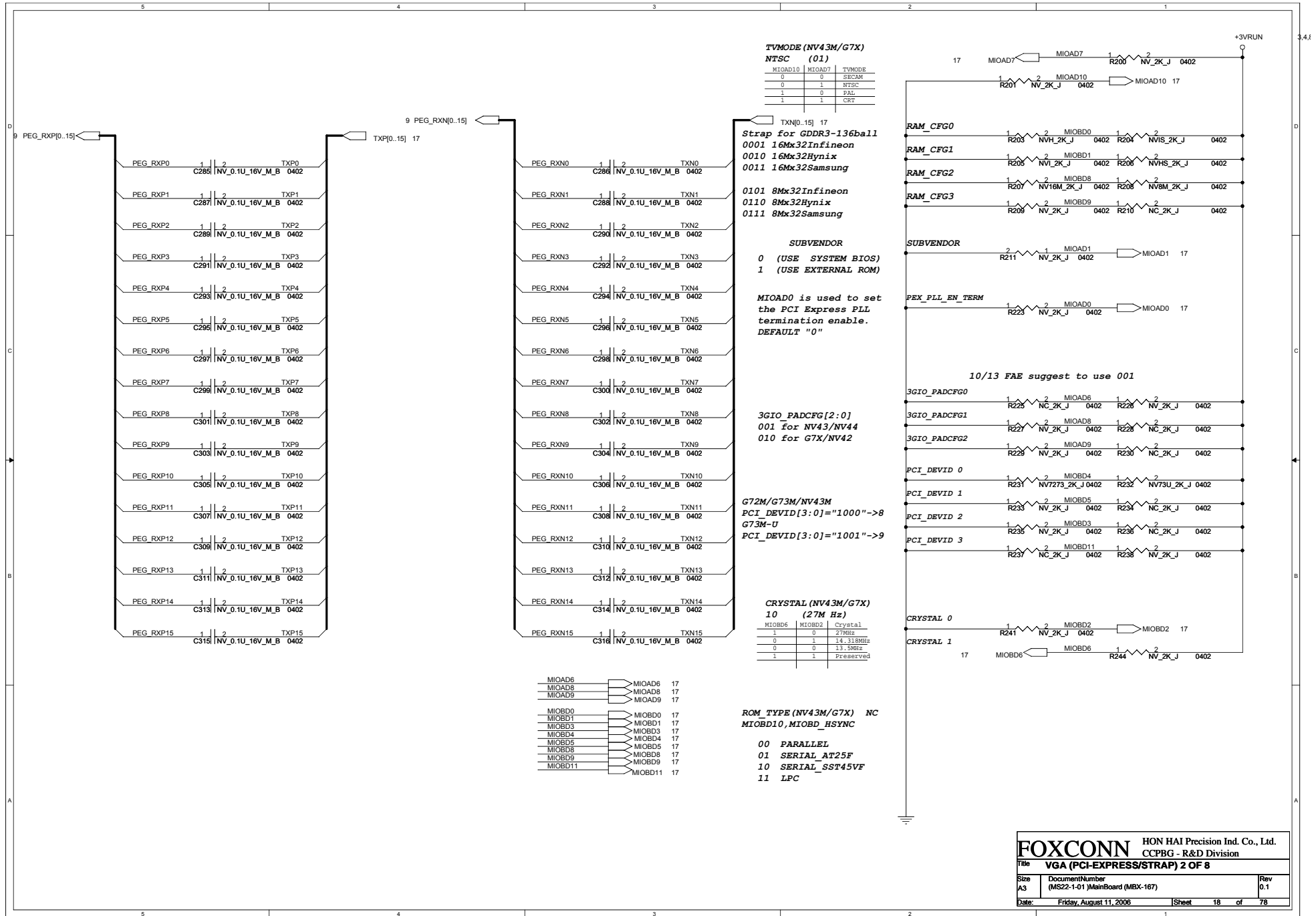
FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title		CCPBG - R & D Division	
DDR(I)SO-DIMM_0			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	14 of 78





FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title DDR(II) Termination			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	16 of 78





TVMODE (NV43M/G7X)
NTSC (01)

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

TXN[0..15] 17
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

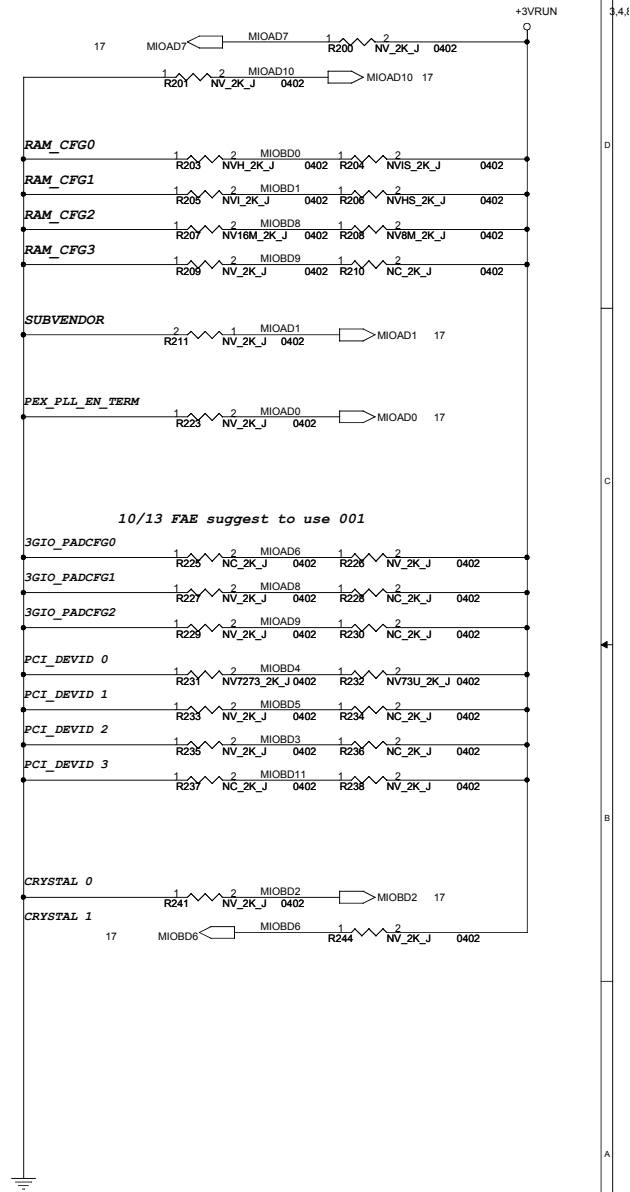
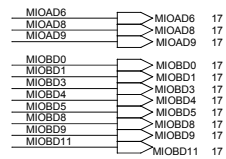
G72M/G73M/NV43M
 PCI_DEVID[3:0]="1000"->8
 G73M-U
 PCI_DEVID[3:0]="1001"->9

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

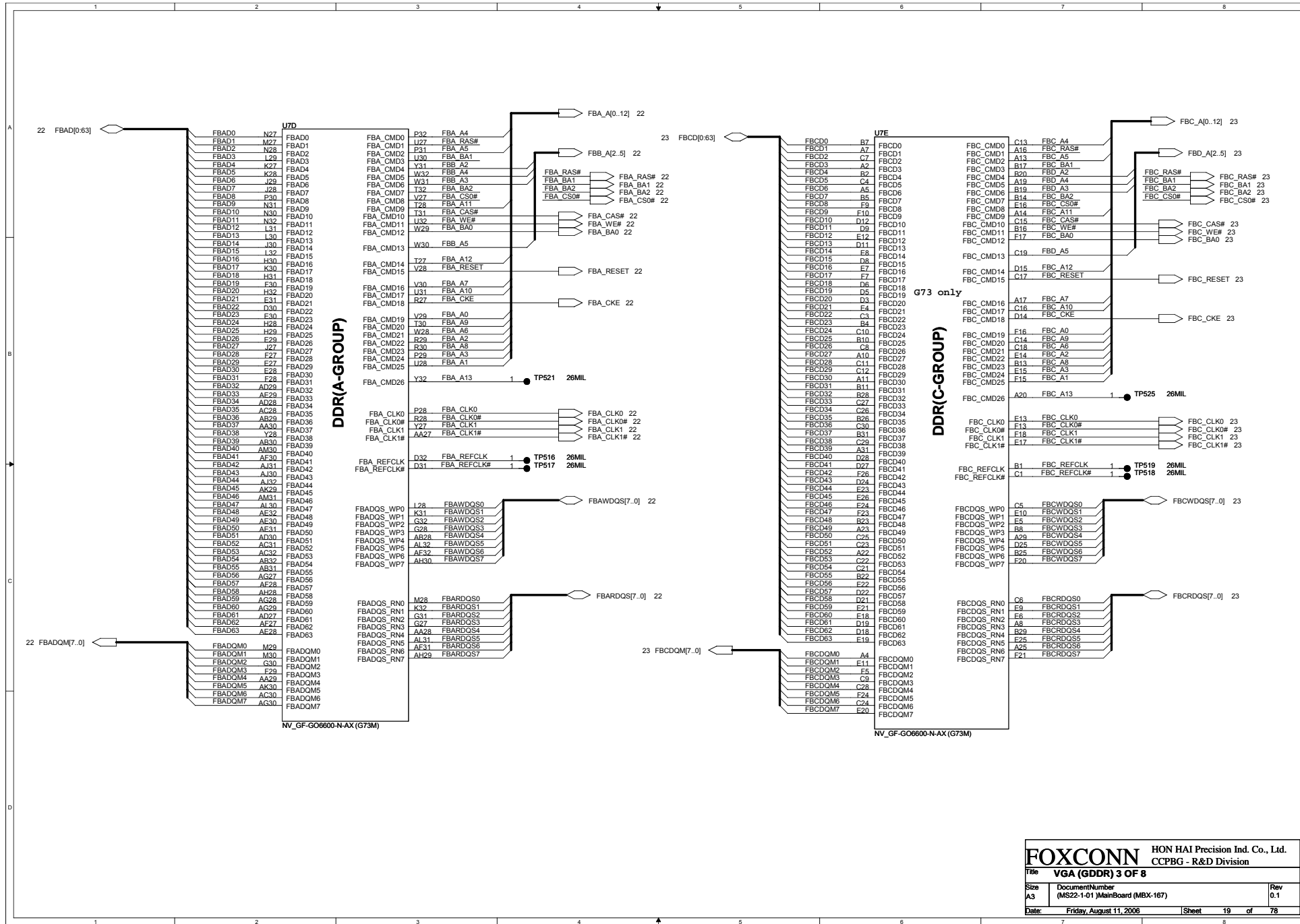
MIOBD6	MIOBD2	Crystal
0	0	27MHz
0	1	14.318MHz
1	0	13.5MHz
1	1	Reserved

ROM_TYPE (NV43M/G7X) NC
 MIOBD10, MIOBD_HSYNC

00 PARALLEL
 01 SERIAL_AT25F
 10 SERIAL_SST45VF
 11 LPC



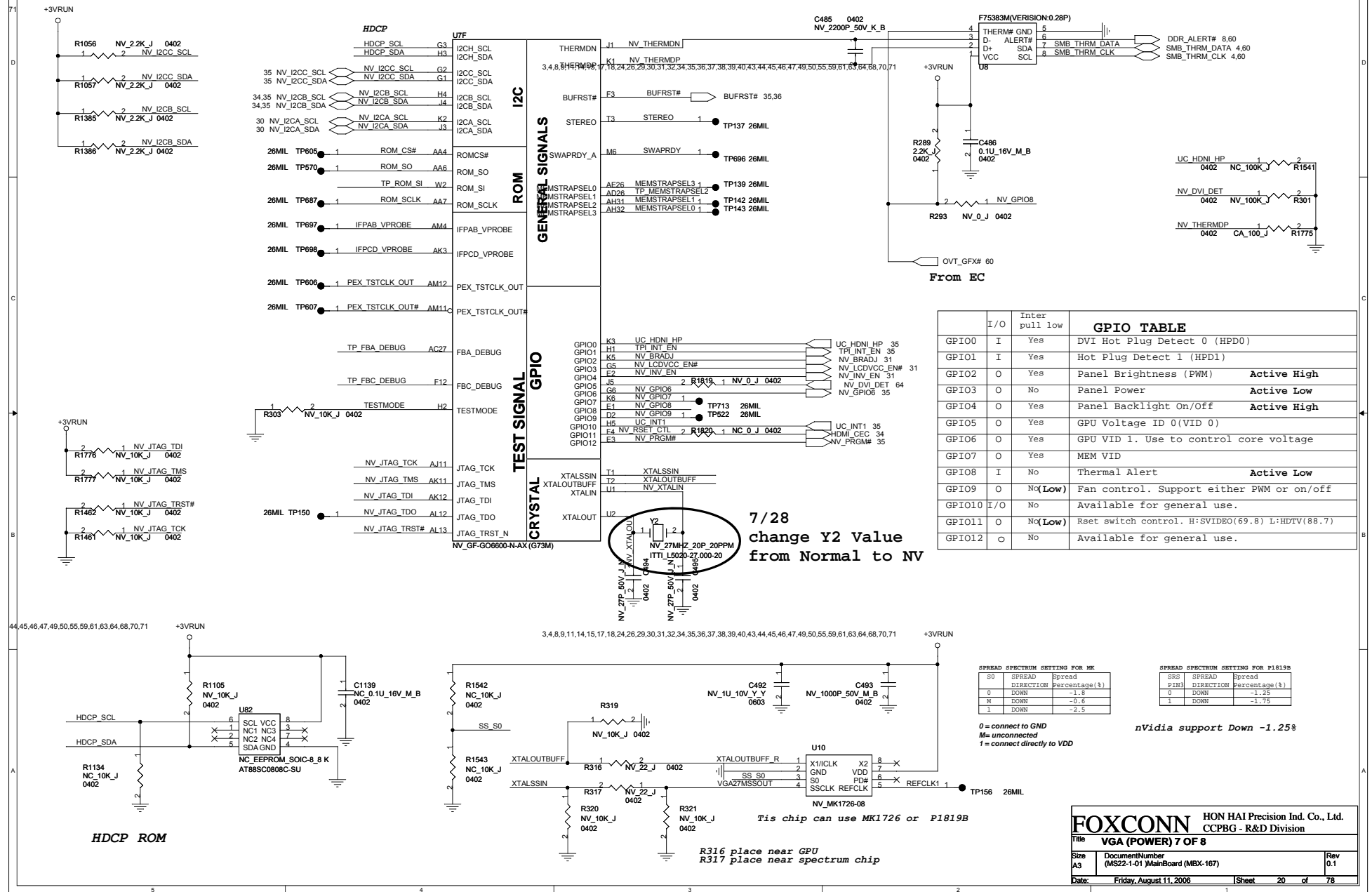
FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title VGA (PCI-EXPRESS/STRAP) 2 OF 8			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	18 of 78



NV_GF-G06600-N-AX (G73M)

NV_GF-G06600-N-AX (G73M)

SM bus Address :
1001100 (EC)
For F75383M



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

7/28
change Y2 Value
from Normal to NV

SPREAD SPECTRUM SETTING FOR MK			
SU	SPREAD	Spread	
FREQ	DIRECTION	Percentage(%)	
0	DOWN	-1.8	
N	DOWN	-0.6	
1	DOWN	-2.5	

SPREAD SPECTRUM SETTING FOR P1819B			
SRS	SPREAD	Spread	
FREQ	DIRECTION	Percentage(%)	
0	DOWN	-1.25	
1	DOWN	-1.75	

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

nVidia support Down -1.25%

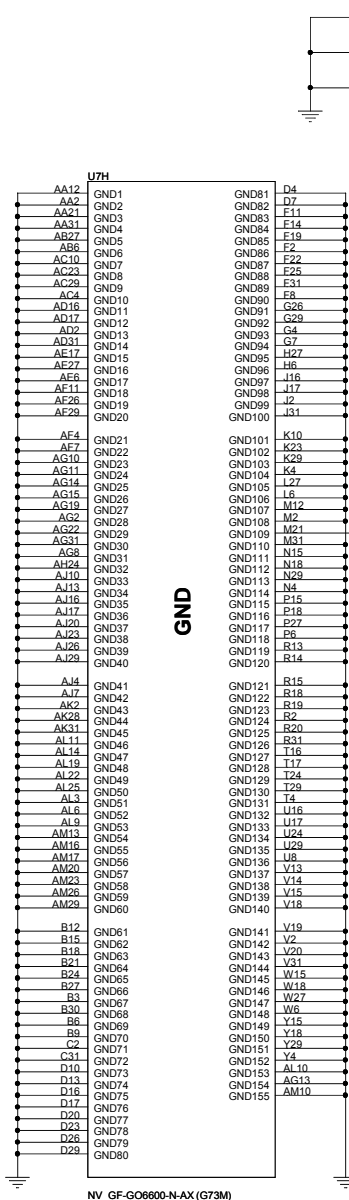
FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPG - R&D Division

Title **VGA (POWER) 7 OF 8**

Size A3	DocumentNumber (MS22-1-01) MainBoard (MBX-167)	Rev 0.1
Date: Friday, August 11, 2006	Sheet 20 of 78	

Tis chip can use MK1726 or P1819B

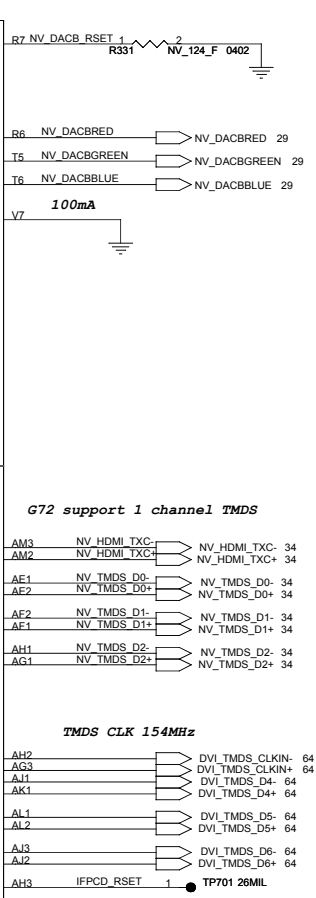
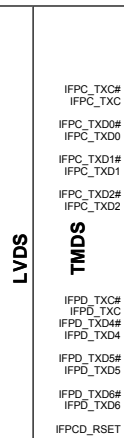
R316 place near GPU
R317 place near spectrum chip



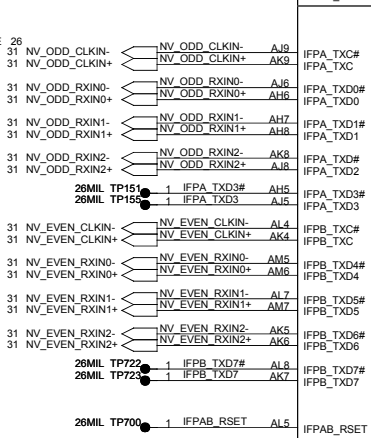
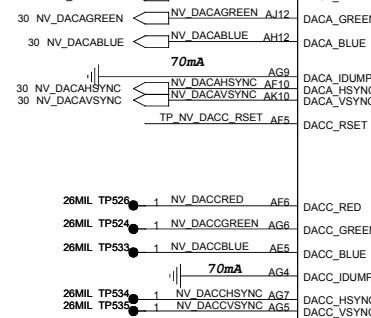
CLOSE TO GPU

CLOSE TO GPU

U7G



CLOSE TO GPU



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#B		
			LINE1	SCL
			LINE2	SDA
			LINE3	

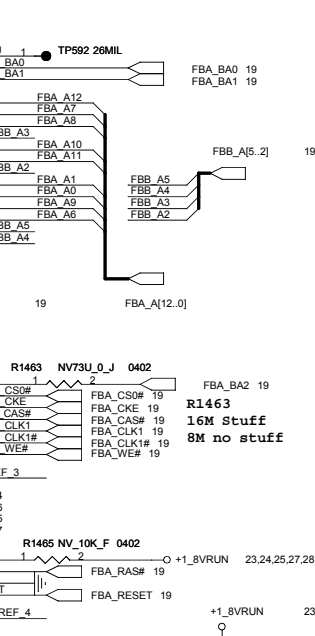
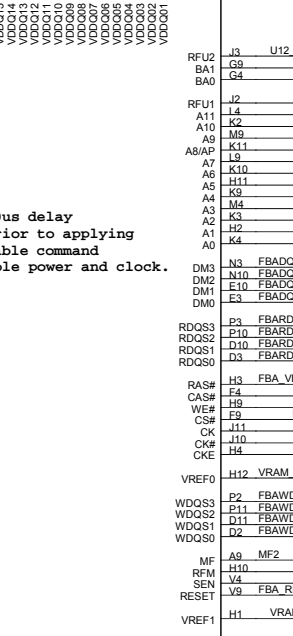
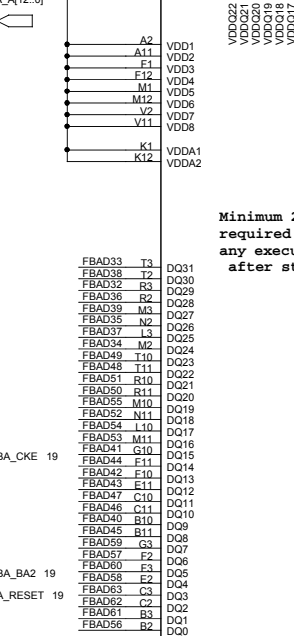
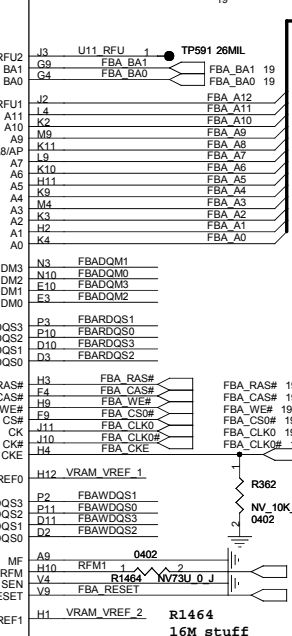
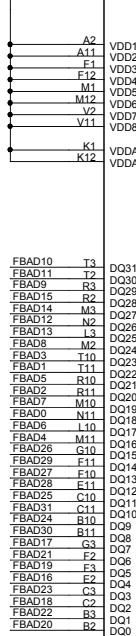
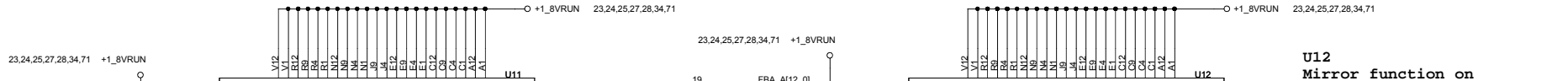
DACC	DVI-I	I2CB
DACC-RED	R	
DACC-GREEN	G	
DACC-BLUE	B	
DACC-HSYNC	HSYNC	
DACC-VSYNC	VSYNC	
	DVI-DDCCLK	SCL
	DVI-DDCDATA	SDA

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CCPBG - R&D Division

Title: **VGA (POWER) 8 OF 8**

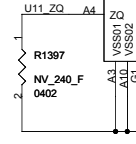
Size: A3 Document Number: (MS22-1-01) MainBoard (MBX-167) Rev: 0.1

Date: Friday, August 11, 2006 Sheet: 21 of 78



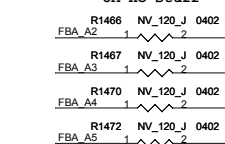
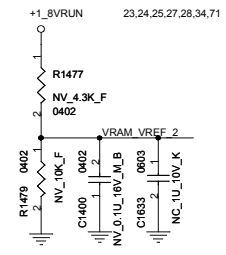
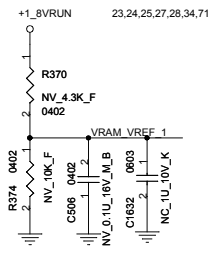
Minimum 200us delay required prior to applying any executable command after stable power and clock.

U12 Mirror function on



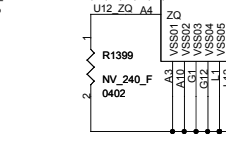
R1397(120 ohm-360 ohm)
240 ohm --> Output impedance 40 ohm

VRAM_VREF is 70%FBVDDQ for GDDR3 1.26V



R1466 NV_120_J 0402
R1467 NV_120_J 0402
R1470 NV_120_J 0402
R1472 NV_120_J 0402
R1474 NV_10K_J 0402
R1475 NV7273_0_J 0402

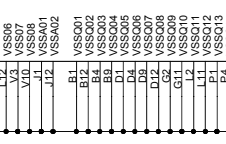
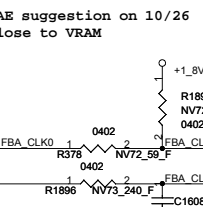
FAB suggestion on 10/26
Close to VRAM



R1466 NV_120_J 0402
R1467 NV_120_J 0402
R1470 NV_120_J 0402
R1472 NV_120_J 0402
R1474 NV_10K_J 0402
R1475 NV7273_0_J 0402

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

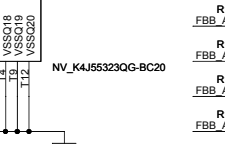
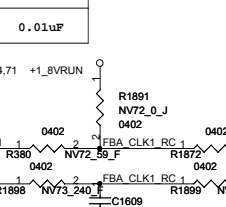
12/20 Nvidia update



R1466 NV_120_J 0402
R1467 NV_120_J 0402
R1470 NV_120_J 0402
R1472 NV_120_J 0402
R1474 NV_10K_J 0402
R1475 NV7273_0_J 0402

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

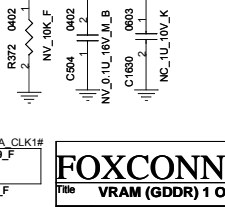
12/20 Nvidia update



R1466 NV_120_J 0402
R1467 NV_120_J 0402
R1470 NV_120_J 0402
R1472 NV_120_J 0402
R1474 NV_10K_J 0402
R1475 NV7273_0_J 0402

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

12/20 Nvidia update

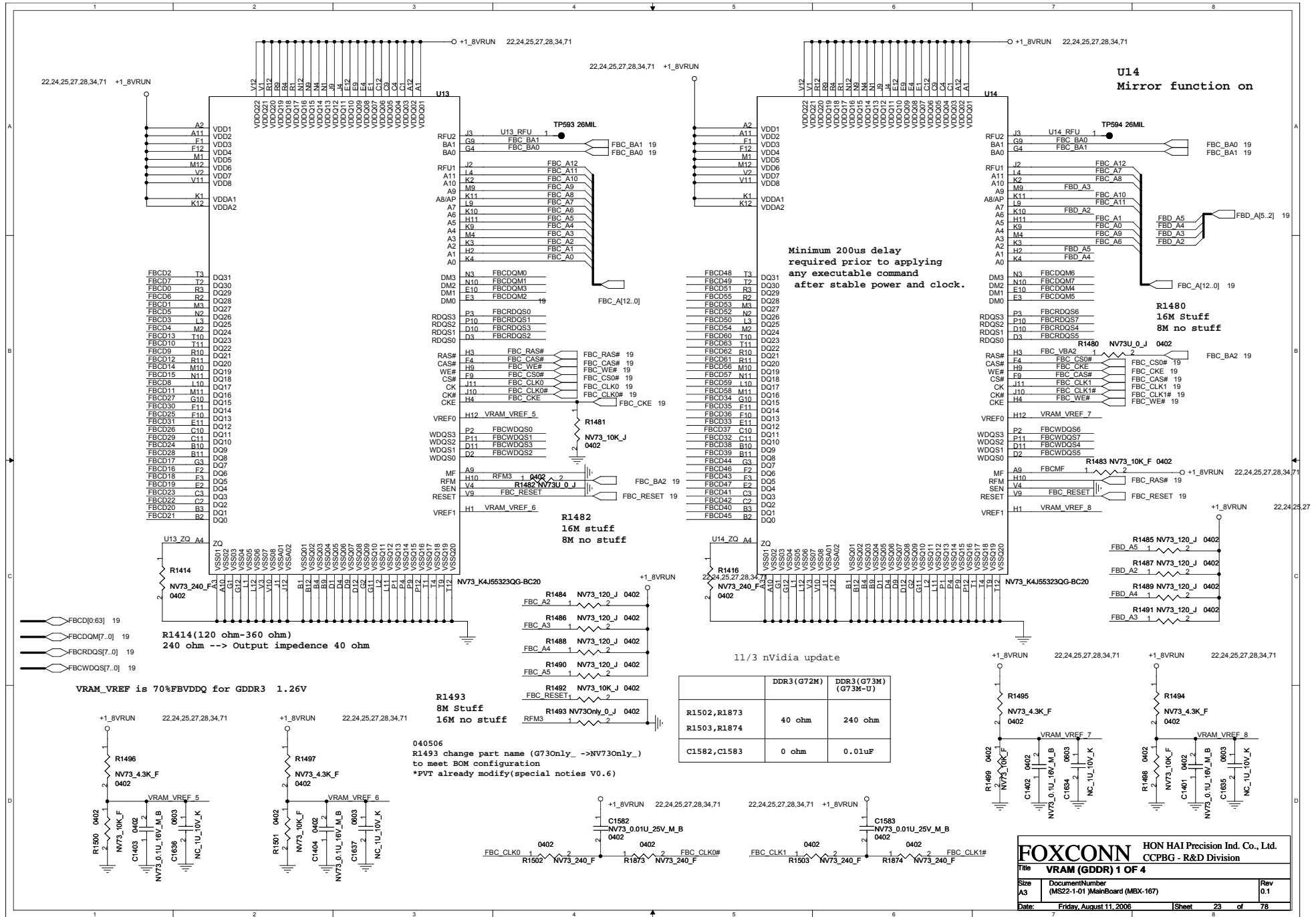


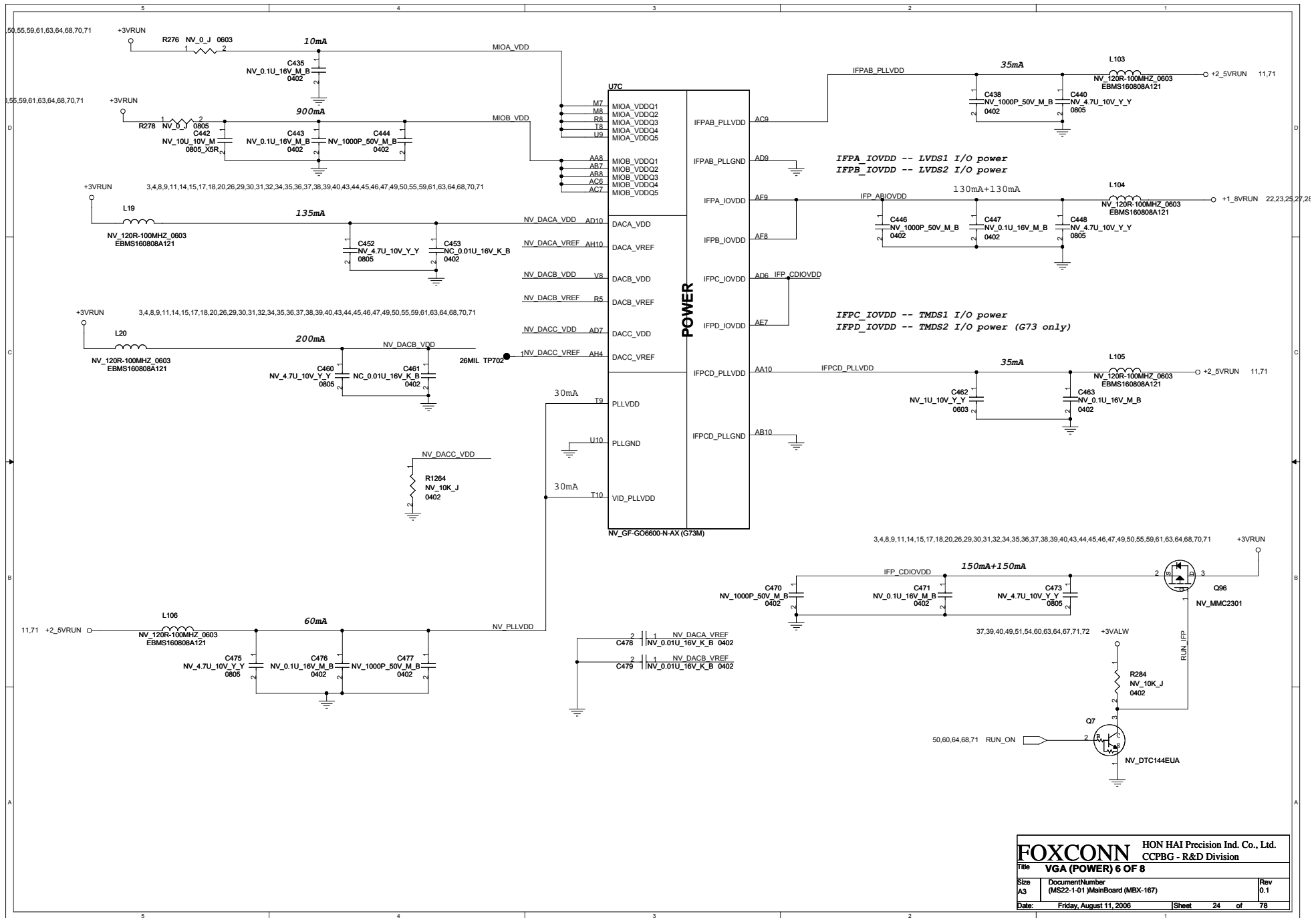
FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title: **VRAM (GDDR) 1 OF 4**

Size: A3 DocumentNumber: MS22-1-01 Mainboard (MBX-167) Rev: 0.1

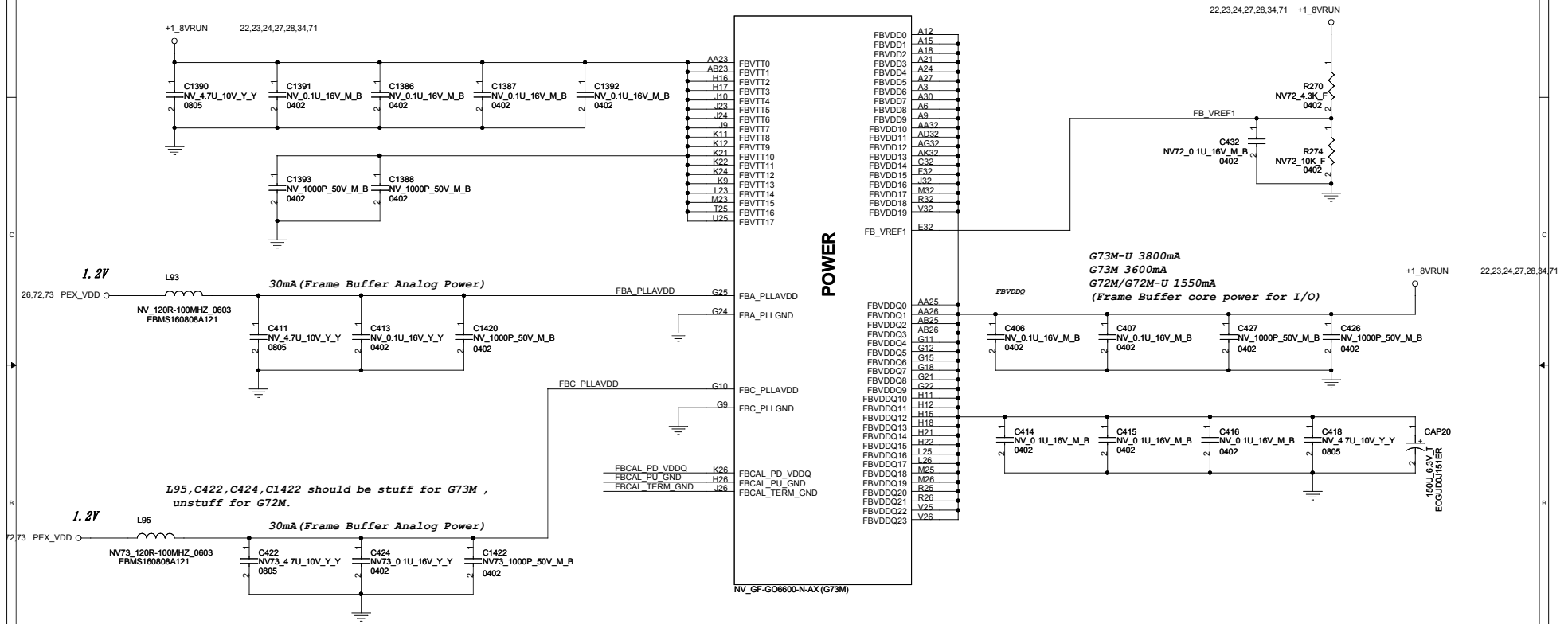
Date: Friday, August 11, 2006 Sheet: 22 of 78





For GDDR3 FBVTT require decoupling capacitor,FBVDD don't require them.

U71



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

11/3 nVidia update

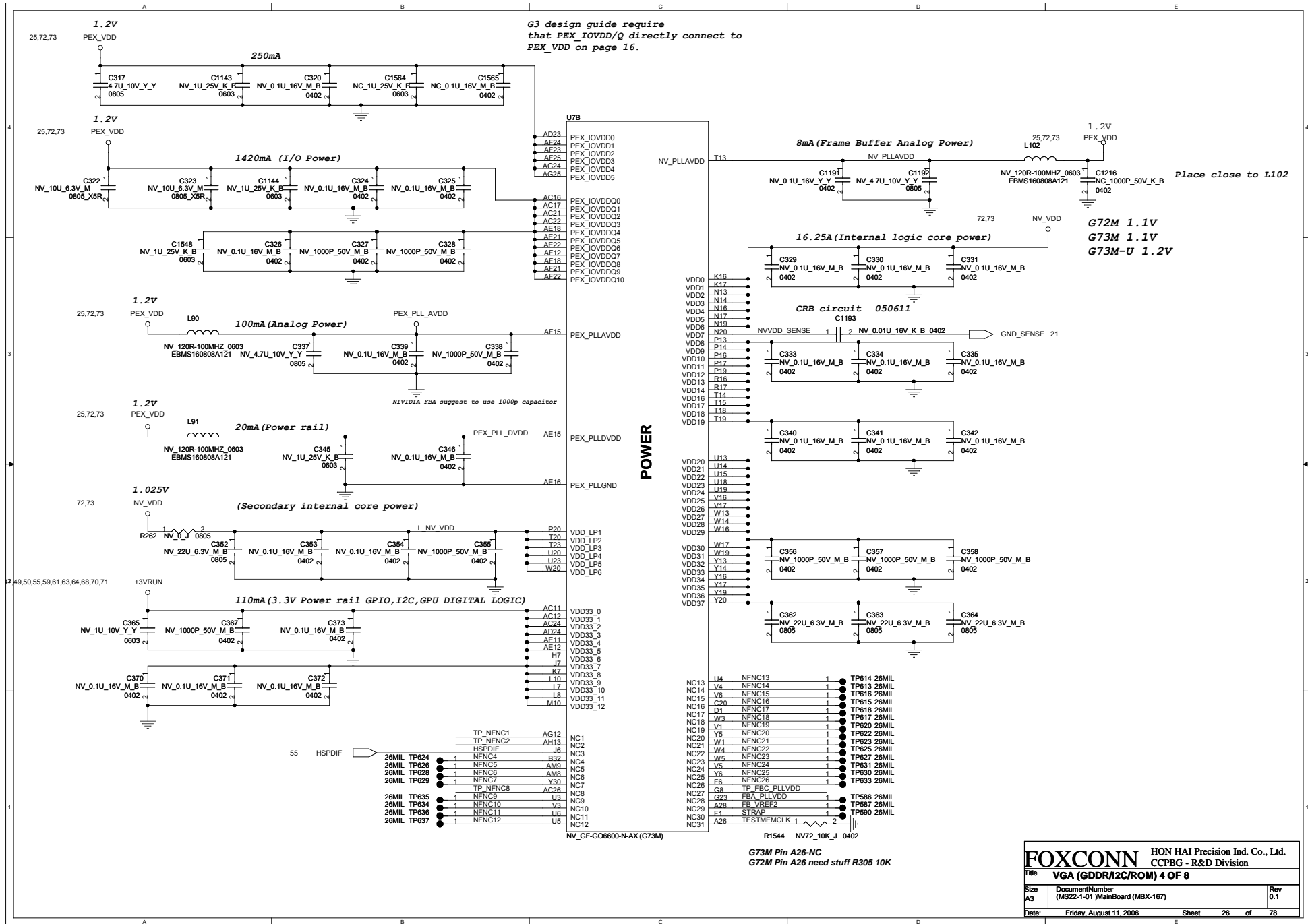
	DDR1	DDR3 (G72M)	DDR3 (G73M)
FBCAL_PD_VDDQ	40 ohm	60 ohm	50 ohm
FBCAL_PU_GND	30 ohm	40 ohm	40 ohm
FBCAL_TERM_GND	NC	40 ohm	40 ohm

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CCPBG - R & D Division

Title: **VGA (POWER) 5 OF 8**

Size: A3	Document Number: (MS22-1-01) MainBoard (MBX-167)	Rev: 0.1
Date: Friday, August 11, 2006	Sheet: 25	of 78

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



NV_GF-GO6800-N-AX (G73M)

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

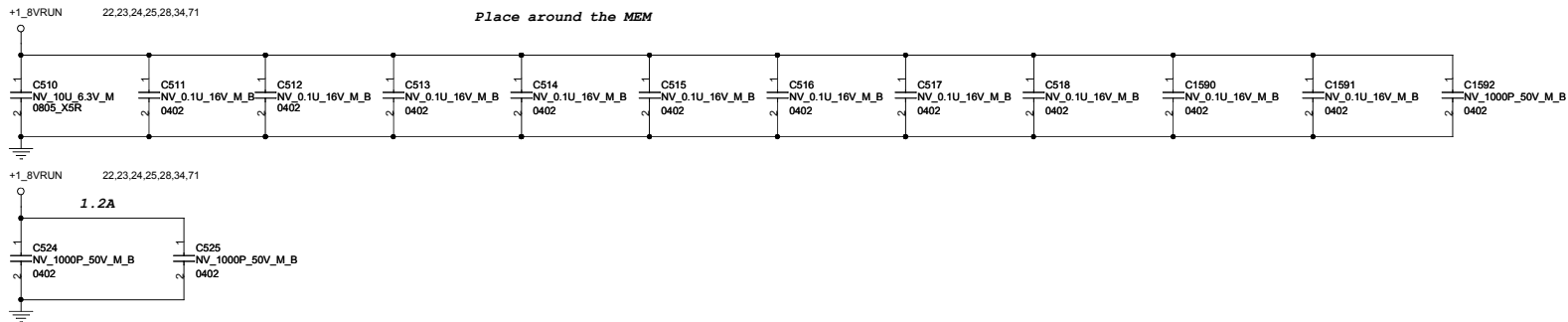
FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title: **VGA (GDDR/2C/ROM) 4 OF 8**

Size: A3	Document Number: MS22-1-01 MainBoard (MBX-167)	Rev: 0.1
Date: Friday, August 11, 2006	Sheet: 26	of 78

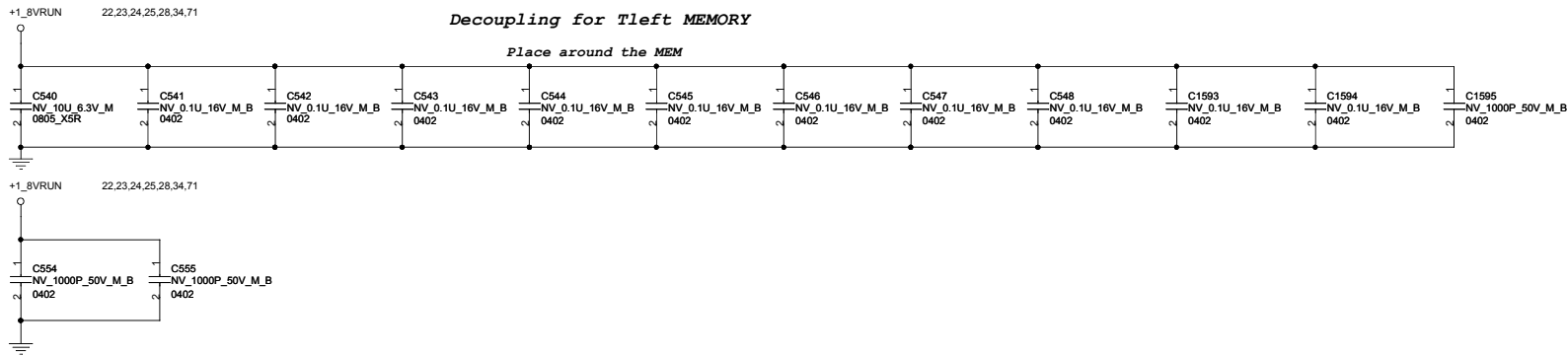
Decoupling for Tright MEMORY

Place around the MEM



Decoupling for Tleft MEMORY

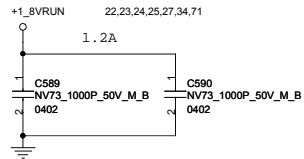
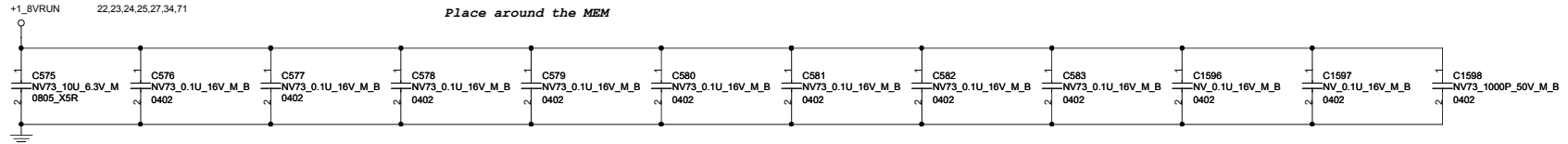
Place around the MEM



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title VRAM (GDDR) 3 OF 4			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	27 of 78

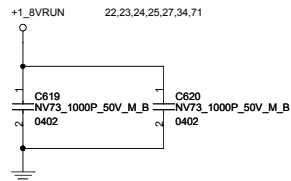
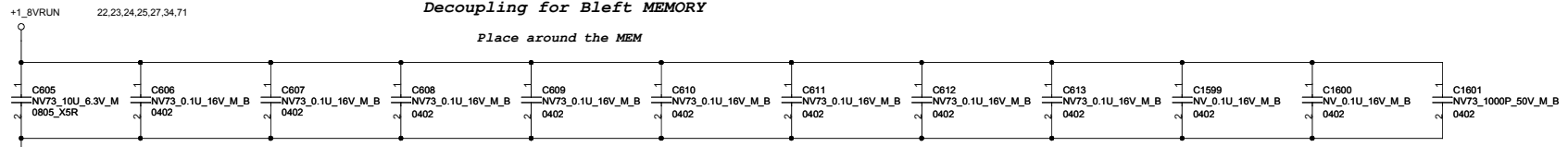
Decoupling for Bright MEMORY

Place around the MEM



Decoupling for Bleft MEMORY

Place around the MEM



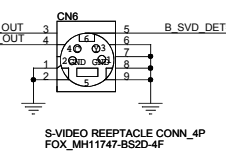
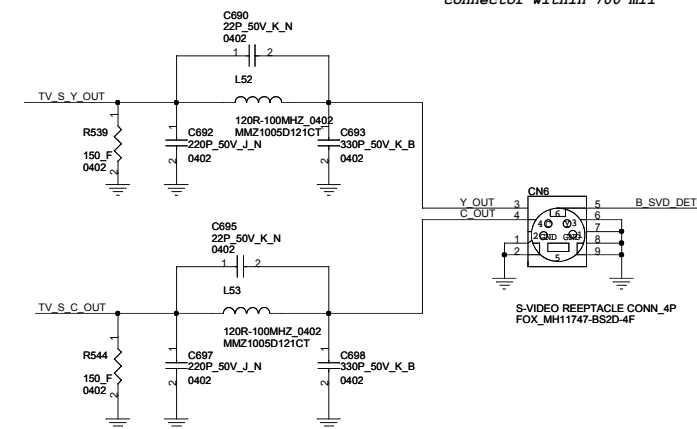
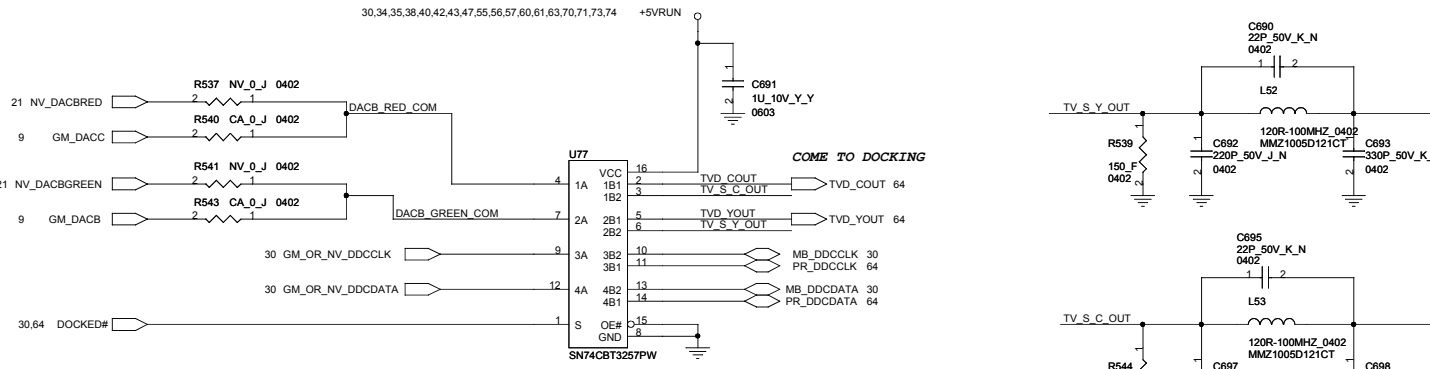
FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title VRAM (POWERBYPASS) 4 OF 4			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	28 of 78

S-VIDEO ANALOG SWITCH

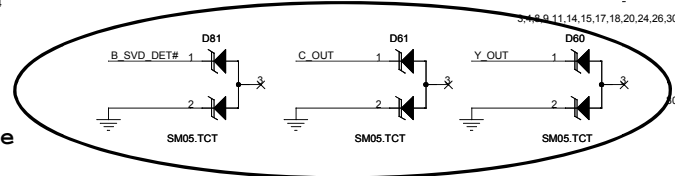
S-VIDEO

H : S-VIDEO&CVBS
L : PORT REPLICATOR

These component close to S-Video connector within 700 mil

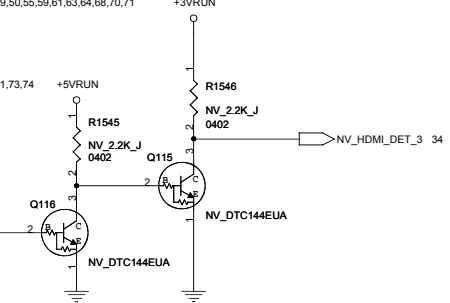
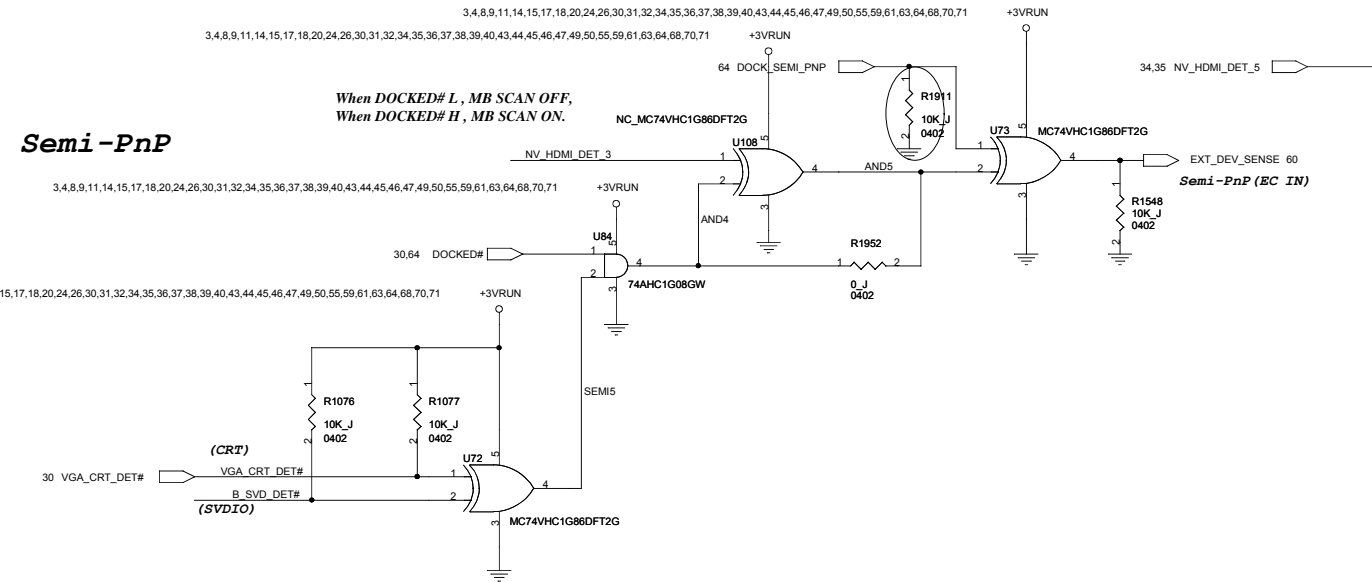


7/28
change D60,D61,D81 Value
from NV to Normal



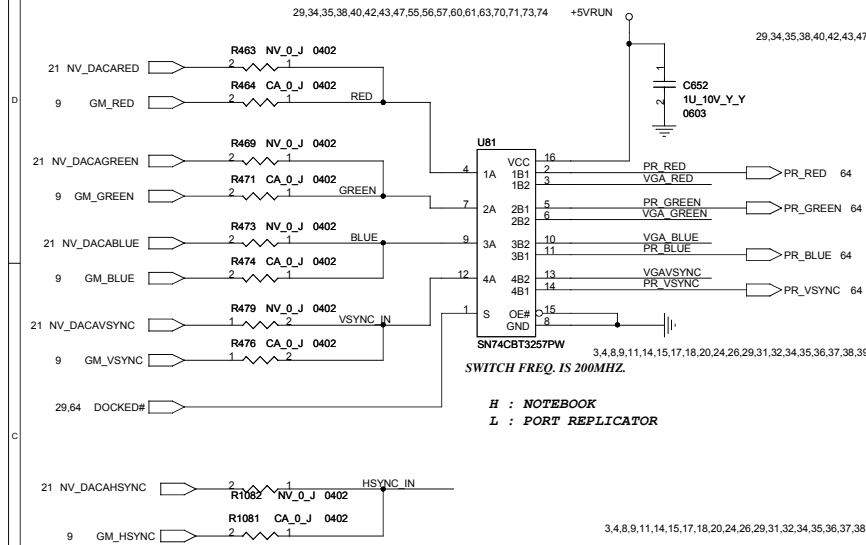
Semi-PnP

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



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title		S-VIDEO/Semi-PnP	
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	29 of 78

CRT ANALOG SWITCH



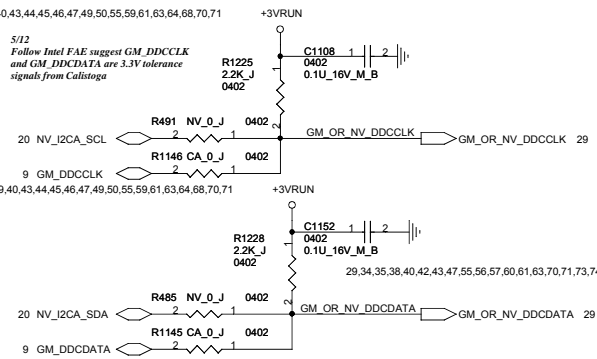
SWITCH FREQ. IS 200MHZ.

H : NOTEBOOK
L : PORT REPLICATOR

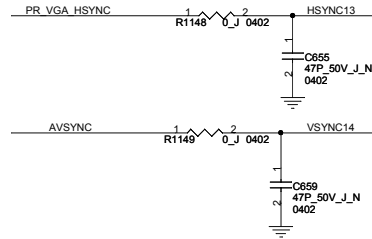
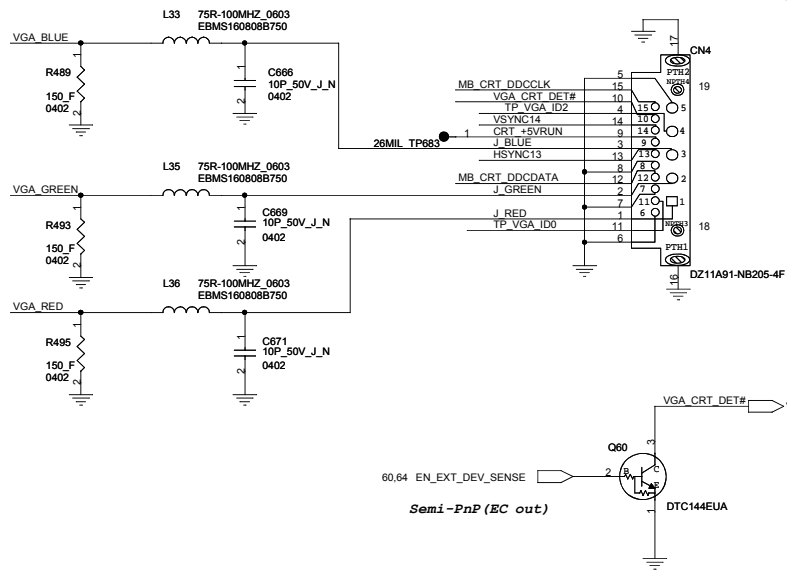
3,4,8,9,11,14,15,17,18,20,24,26,29,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71

5/12

Follow Intel FAE suggest GM_DDCCLK and GM_DDCDATA are 3.3V tolerance signals from Collstope



CRT CONNECTOR

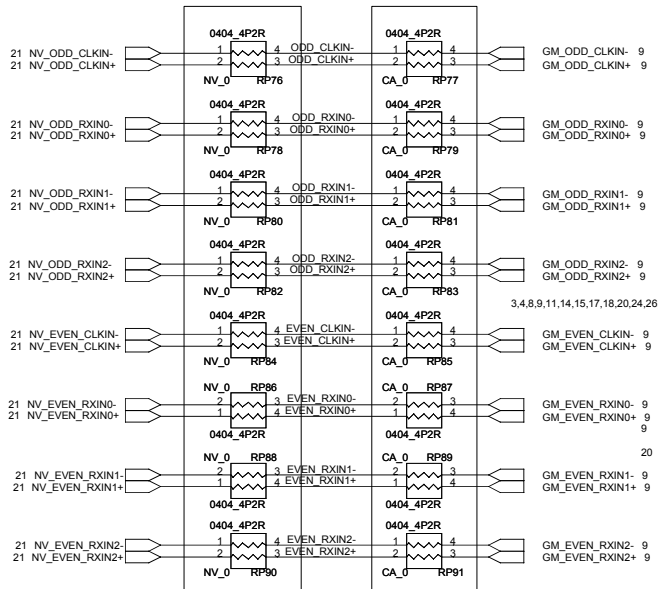


FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title CRT			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	30 of 78

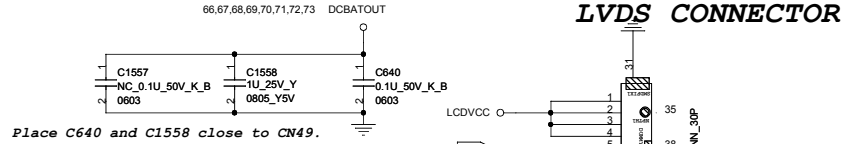
LVDS

Group1

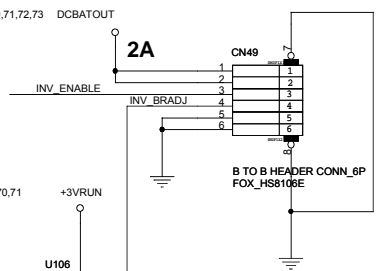
Group2



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

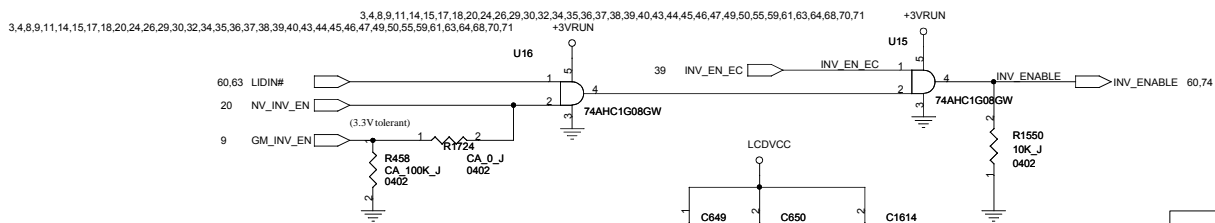


Place C640 and C1558 close to CN49.



INVERTER CONNECTOR

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



Current limit is from 1.1A to 2.1A.

Place C650 close to CN3

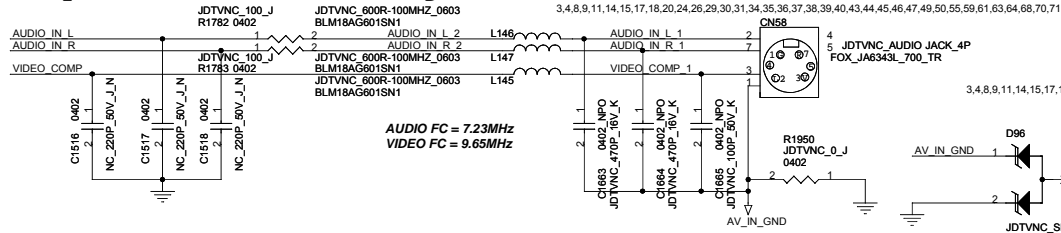
PANEL ID

SW1
 1
 2
 3
 4
 5
 6
 7
 8
 HDS404-E_SW-SLIDE
 LCDID0 39
 LCDID1 39
 LCDID2 39
 FAN_SEL 60

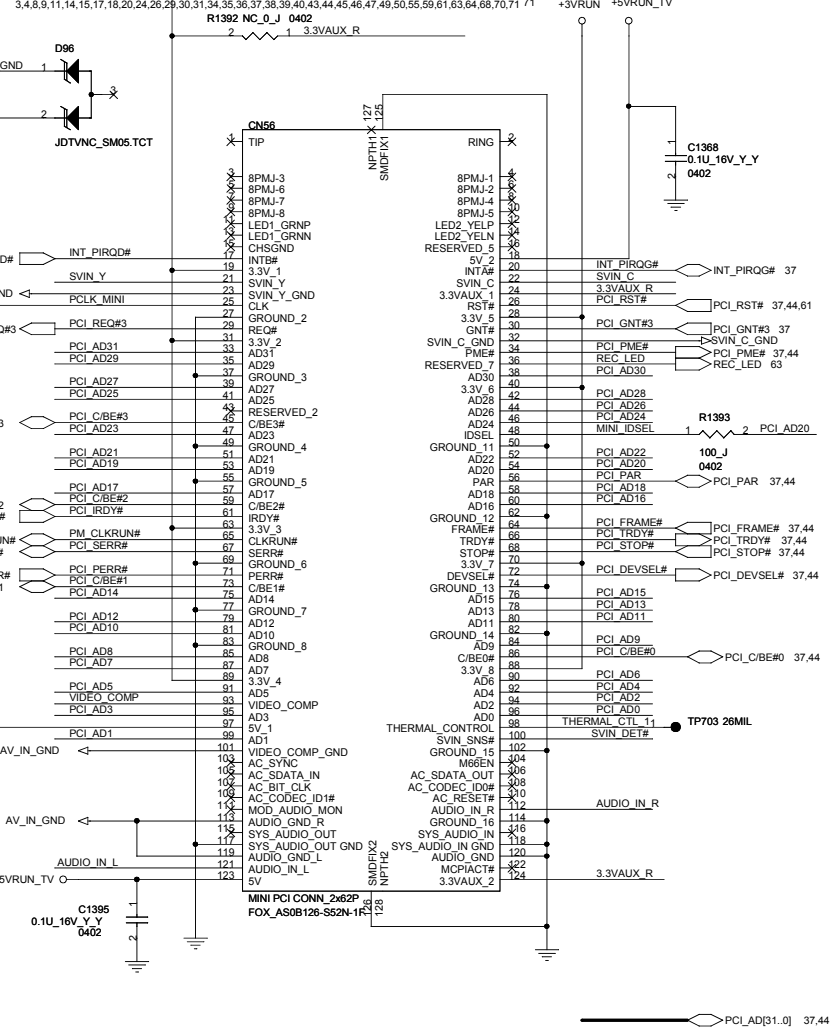
FAN_SEL:
 H: Foxconn FAN
 L: MOR cooling unit

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

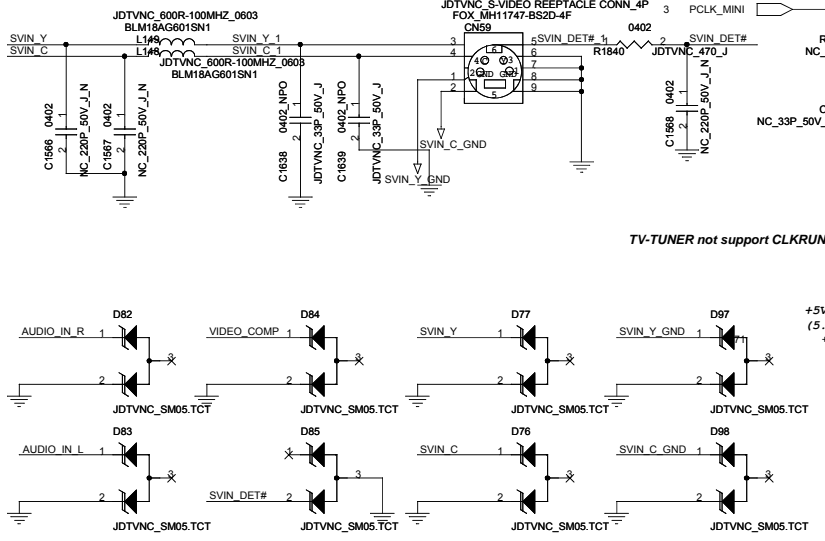
Special mini stereo jack



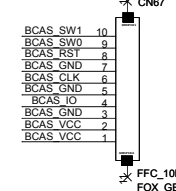
TV TUNER CONN



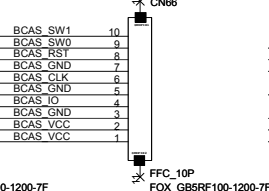
S-VIDEO IN



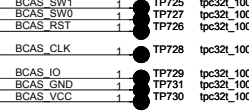
B-CAS connentor



FFC CONNECT TO TV TUNER BOARD



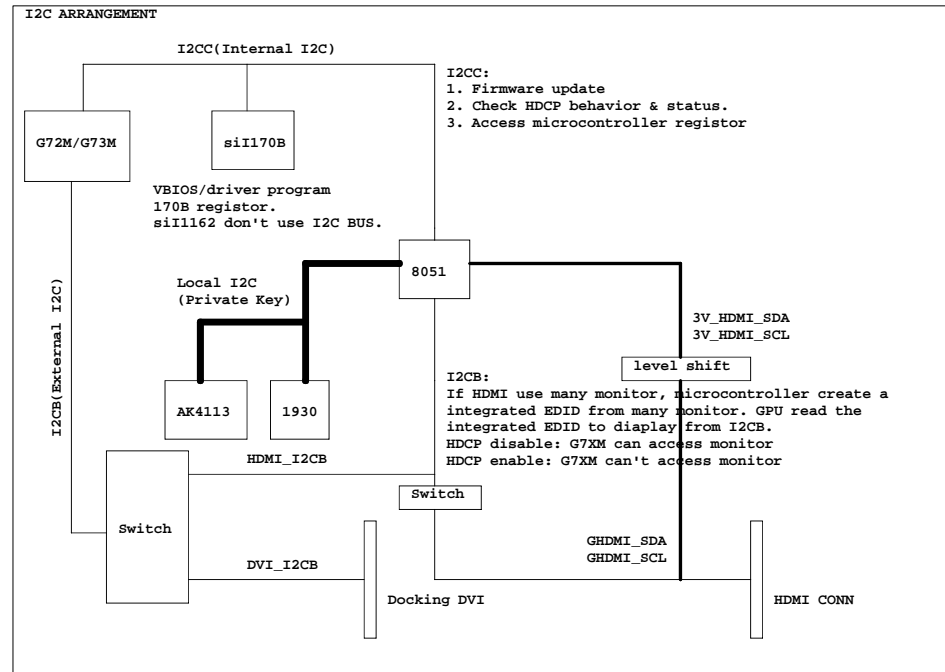
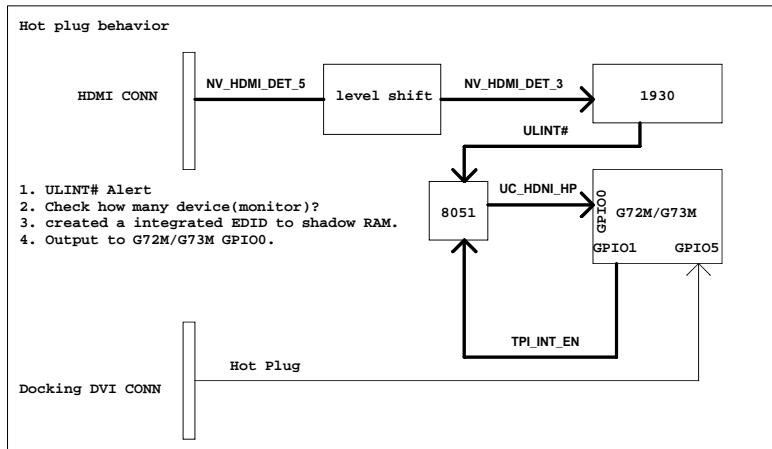
BFT Test Pad



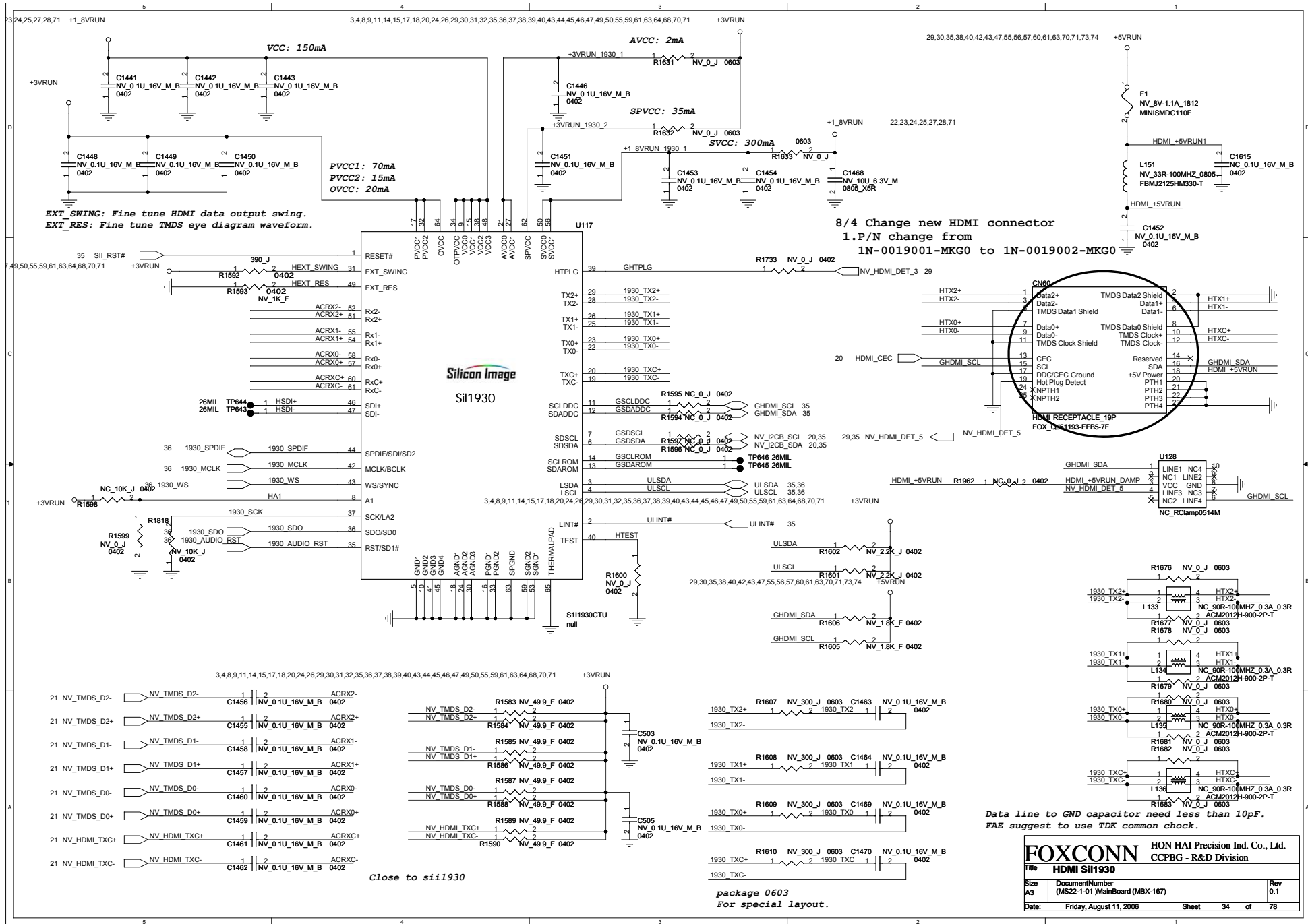
FOXCONN HON HAI PRECISION IND. CO., LTD.

Title		
MINI-PCI CONN.		
Size	DocumentNumber	Rev
A3	(MS22-1-01) MainBoard (MBX-167)	0.1
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Hot plug behavior & I2C ARRANGEMENT block diagram



Title		
Hot plug behavior & I2C ARRANGEMENT block diagram		
Size	DocumentNumber	Rev
A3	(MS22-1-01) MainBoard (MBX-167)	0.1
Date:	Wednesday, August 09, 2006	Sheet 33 of 78



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

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

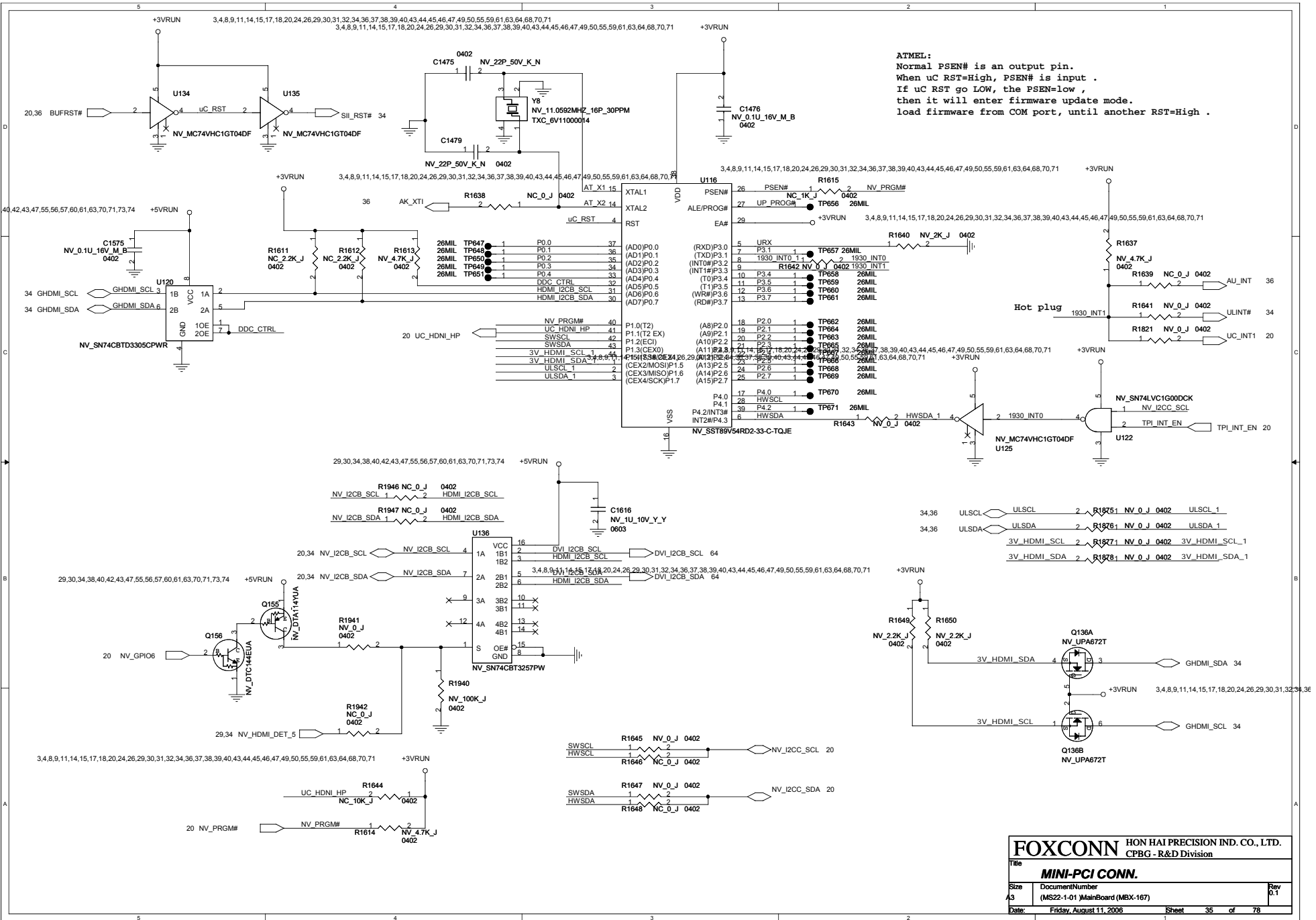


Data line to GND capacitor need less than 10pF.
 FAE suggest to use TDK common chock.

FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title HDMI SII1930		CCPBG - R&D Division	
Size A3	DocumentNumber (MS22-1-01) MainBoard (MBX-167)	Rev 0.1	
Date: Friday, August 11, 2006	Sheet 34	of 76	

Close to sii1930

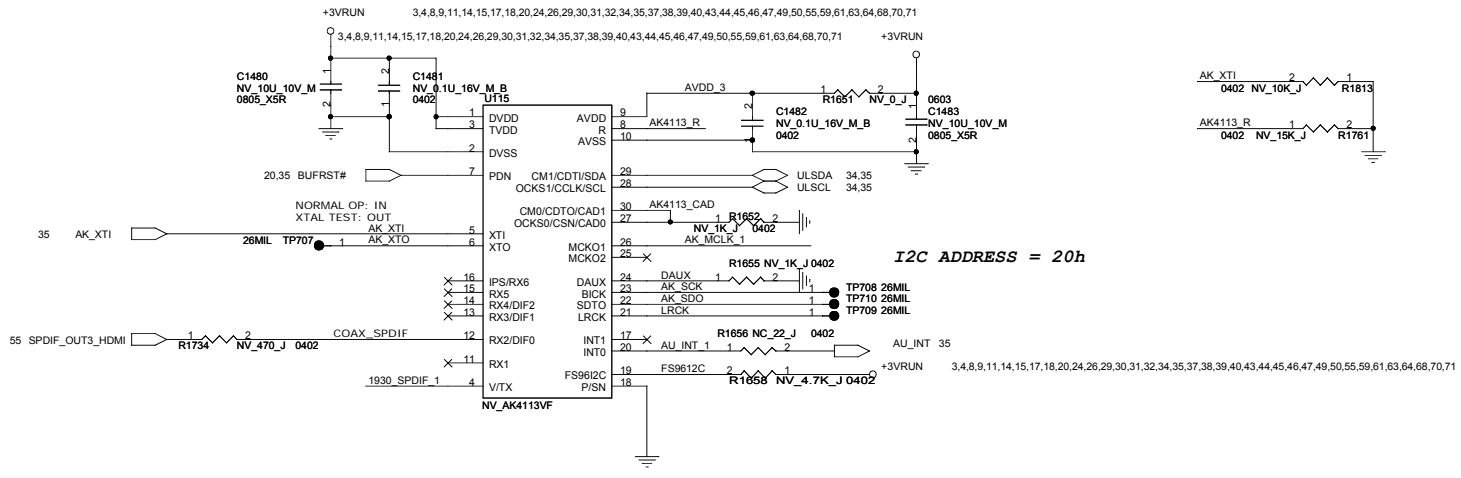
package 0603
 For special layout.



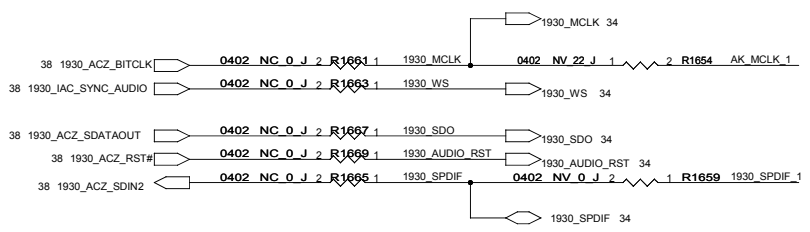
ATMEL:
 Normal PSEN# is an output pin.
 When uC RST=High, PSEN# is input .
 If uC RST go LOW, the PSEN# is low ,
 then it will enter firmware update mode.
 load firmware from COM port, until another RST=High .

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

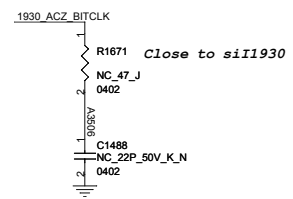
Title		
MINI-PCI CONN.		
Size	Document Number	Rev
A3	(MS22-1-01) MainBoard (MBX-167)	0.1
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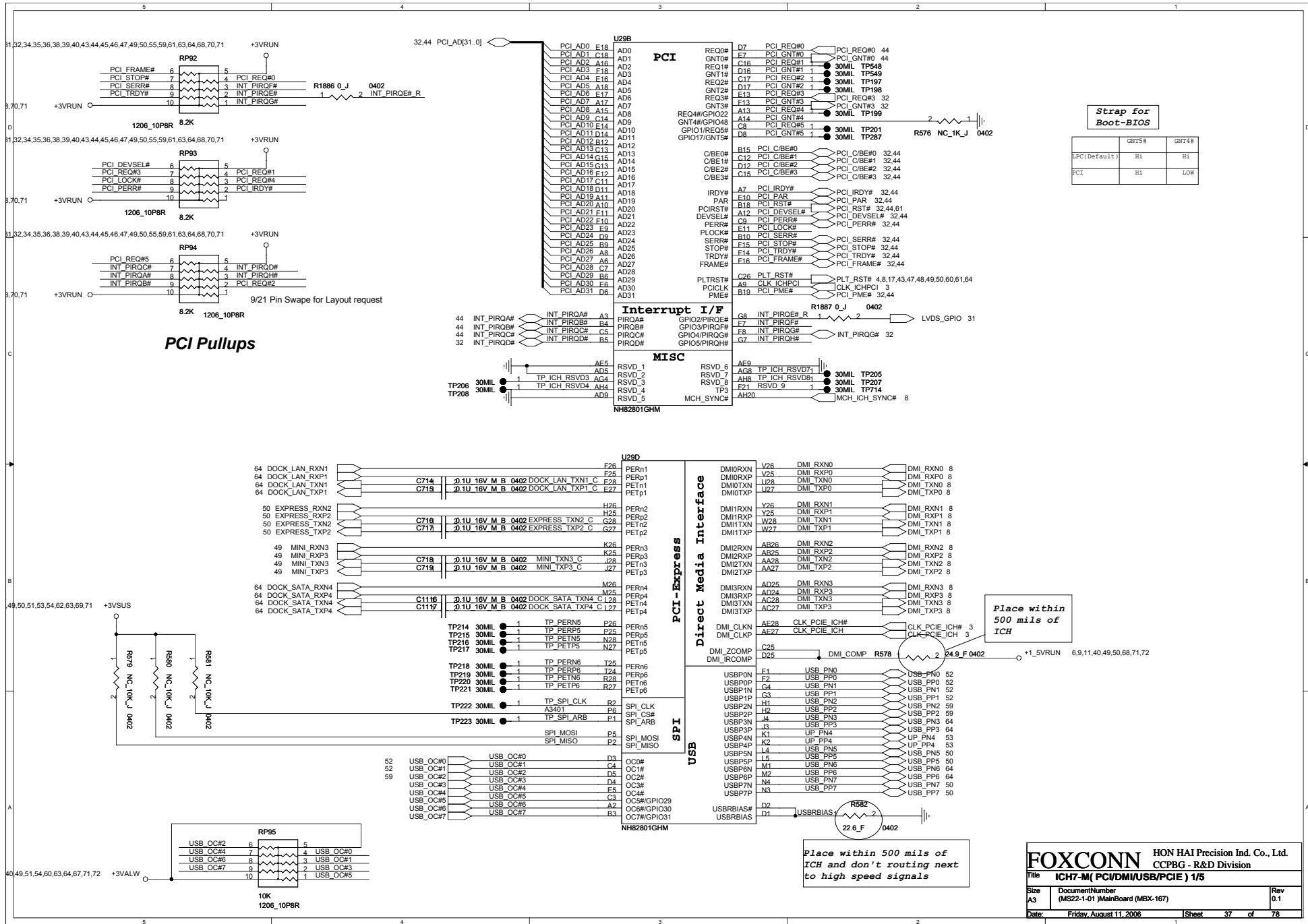
I2C ADDRESS = 20h



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



FOXCONN		HON HAI PRECISION IND. CO., LTD.	
		CPBG - R&D Division	
Title			
HDMI UCODEC			
Size	Document Number		Rev
A3	(MS22-1-01) MainBoard (MBX-167)		0.1
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Strap for Boot-BIOS

	GNT5#	GNT4#
PCI[De]Fault#	H1	H1
PCI	H1	LOW

PCI Pullups

PCI

Interrupt I/F

MISC

Direct Media Interface

USB

IFS

Place within 500 mils of ICH

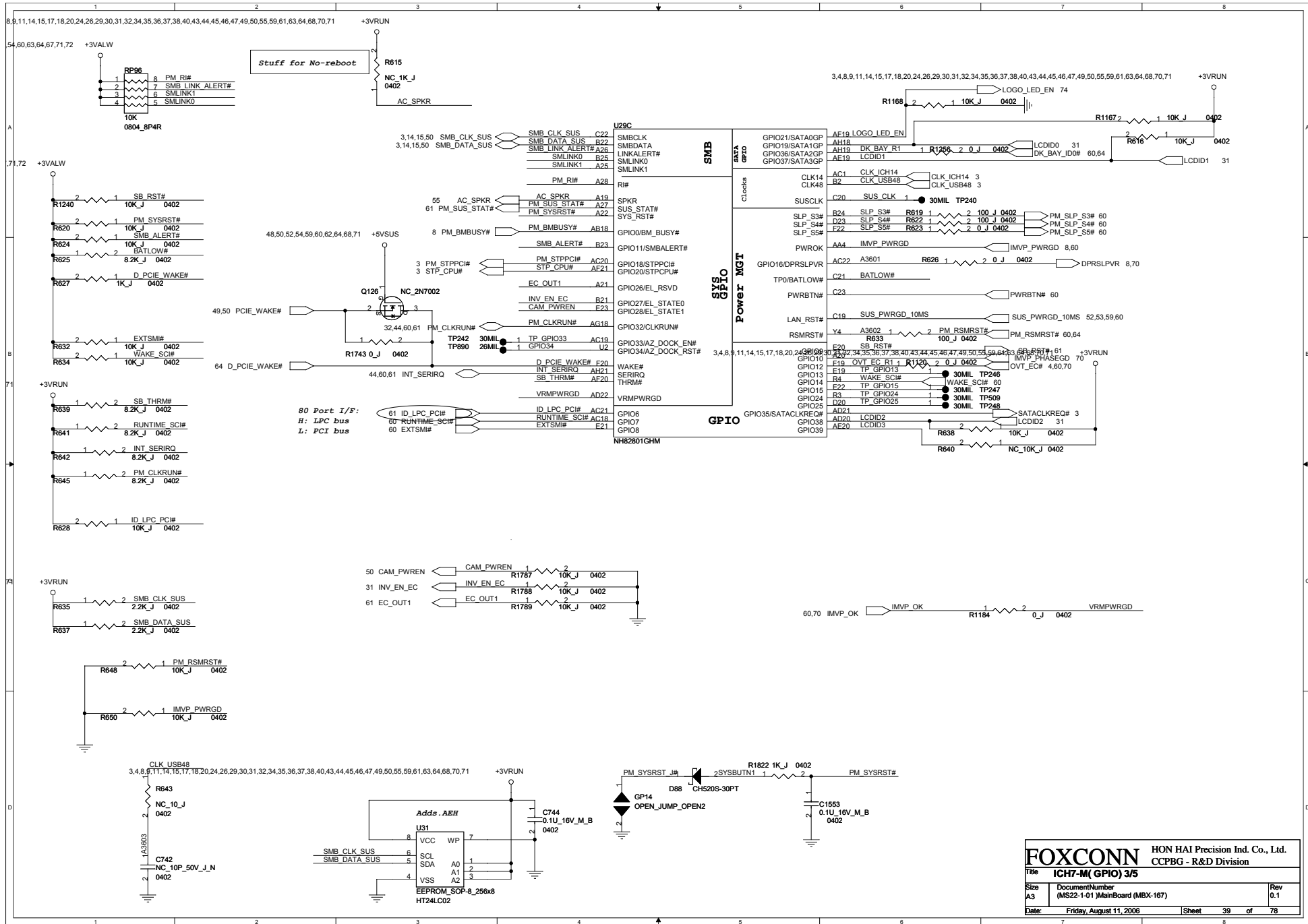
Place within 500 mils of ICH and don't routing next to high speed signals

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

Title: **ICH7-M (PC/DMI/USB/PCIE) 1/5**

Size: Document Number (MS22-1-01) MainBoard (MBX-167) Rev 0.1

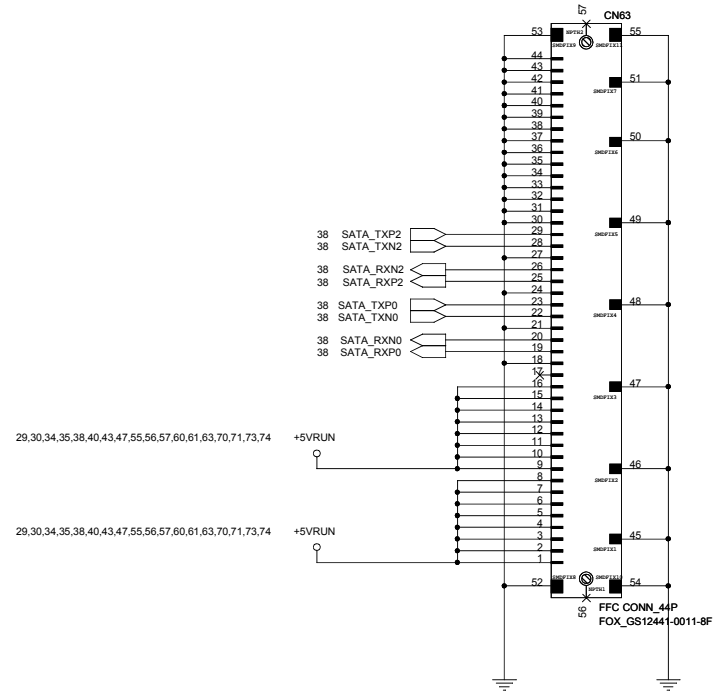
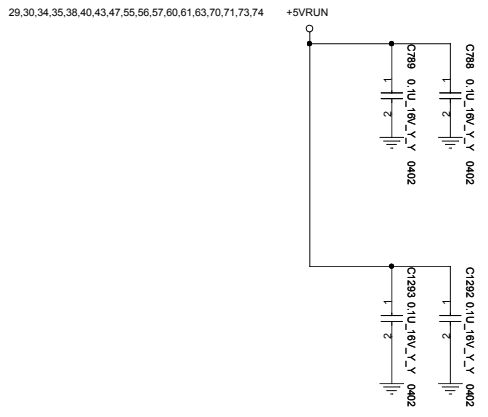
Date: Friday, August 11, 2006 Sheet 37 of 78



U29E			
A4	VSS_1	VSS_98	P28
A23	VSS_2	VSS_99	R1
B1	VSS_3	VSS_100	R11
B8	VSS_4	VSS_101	R12
B11	VSS_5	VSS_102	R13
B14	VSS_6	VSS_103	R14
B17	VSS_7	VSS_104	R15
B20	VSS_8	VSS_105	R16
B26	VSS_9	VSS_106	R17
B28	VSS_10	VSS_107	R18
C2	VSS_11	VSS_108	T8
C6	VSS_12	VSS_109	T12
C27	VSS_13	VSS_110	T13
D10	VSS_14	VSS_111	T14
D13	VSS_15	VSS_112	T15
D18	VSS_16	VSS_113	T16
D21	VSS_17	VSS_114	T17
D24	VSS_18	VSS_115	U4
F1	VSS_19	VSS_116	U12
F2	VSS_20	VSS_117	U13
F4	VSS_21	VSS_118	U14
F8	VSS_22	VSS_119	U15
F15	VSS_23	VSS_120	U16
F3	VSS_24	VSS_121	U17
F4	VSS_25	VSS_122	U24
F5	VSS_26	VSS_123	U25
F12	VSS_27	VSS_124	U26
F27	VSS_28	VSS_125	V2
F28	VSS_29	VSS_126	V13
G1	VSS_30	VSS_127	V16
G2	VSS_31	VSS_128	V24
G5	VSS_32	VSS_129	V27
G6	VSS_33	VSS_130	V28
G9	VSS_34	VSS_131	W6
G14	VSS_35	VSS_132	W24
G18	VSS_36	VSS_133	W25
G21	VSS_37	VSS_134	W26
G24	VSS_38	VSS_135	Y3
G25	VSS_39	VSS_136	Y24
G26	VSS_40	VSS_137	Y27
H3	VSS_41	VSS_138	Y28
H4	VSS_42	VSS_139	AA1
H5	VSS_43	VSS_140	AA24
H24	VSS_44	VSS_141	AA25
H27	VSS_45	VSS_142	AA26
H28	VSS_46	VSS_143	AB4
J1	VSS_47	VSS_144	AB6
J2	VSS_48	VSS_145	AB11
J5	VSS_49	VSS_146	AB14
J24	VSS_50	VSS_147	AB16
J25	VSS_51	VSS_148	AB19
J26	VSS_52	VSS_149	AB21
K24	VSS_53	VSS_150	AB24
K27	VSS_54	VSS_151	AB27
K28	VSS_55	VSS_152	AB28
L13	VSS_56	VSS_153	AC2
L15	VSS_57	VSS_154	AC5
L24	VSS_58	VSS_155	AC9
L25	VSS_59	VSS_156	AC11
L26	VSS_60	VSS_157	AD1
M3	VSS_61	VSS_158	AD3
M4	VSS_62	VSS_159	AD4
M5	VSS_63	VSS_160	AD7
M12	VSS_64	VSS_161	AD8
M13	VSS_65	VSS_162	AD11
M14	VSS_66	VSS_163	AD15
M15	VSS_67	VSS_164	AD19
M16	VSS_68	VSS_165	AD23
M17	VSS_69	VSS_166	AE2
M24	VSS_70	VSS_167	AE4
M27	VSS_71	VSS_168	AE8
M28	VSS_72	VSS_169	AE11
N1	VSS_73	VSS_170	AE13
N2	VSS_74	VSS_171	AE18
N5	VSS_75	VSS_172	AE21
N6	VSS_76	VSS_173	AE24
N11	VSS_77	VSS_174	AE25
N12	VSS_78	VSS_175	AF2
N13	VSS_79	VSS_176	AF4
N14	VSS_80	VSS_177	AF8
N15	VSS_81	VSS_178	AF11
N16	VSS_82	VSS_179	AF27
N17	VSS_83	VSS_180	AF28
N18	VSS_84	VSS_181	AG1
N24	VSS_85	VSS_182	AG3
N25	VSS_86	VSS_183	AG7
N26	VSS_87	VSS_184	AG11
P3	VSS_88	VSS_185	AG14
P4	VSS_89	VSS_186	AG17
P12	VSS_90	VSS_187	AG20
P13	VSS_91	VSS_188	AG25
P14	VSS_92	VSS_189	AH1
P15	VSS_93	VSS_190	AH3
P16	VSS_94	VSS_191	AH7
P17	VSS_95	VSS_192	AH12
P24	VSS_96	VSS_193	AH23
P27	VSS_97	VSS_194	AH27
NH82801GHM			

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

Title	ICH7-M(GND) 5/5	
Size	Document Number	Rev
A3	(MS22-1-01) MainBoard (MBX-167)	0.1
Date:	Wednesday, August 09, 2006	Sheet 41 of 78

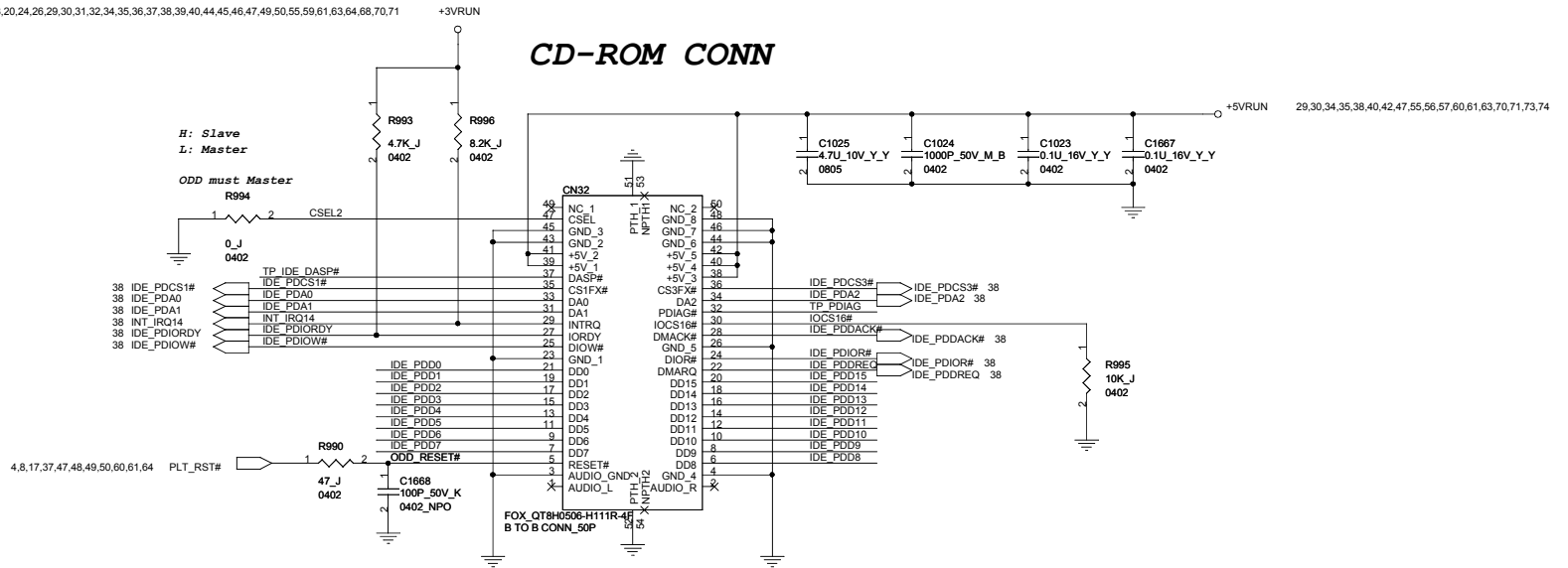


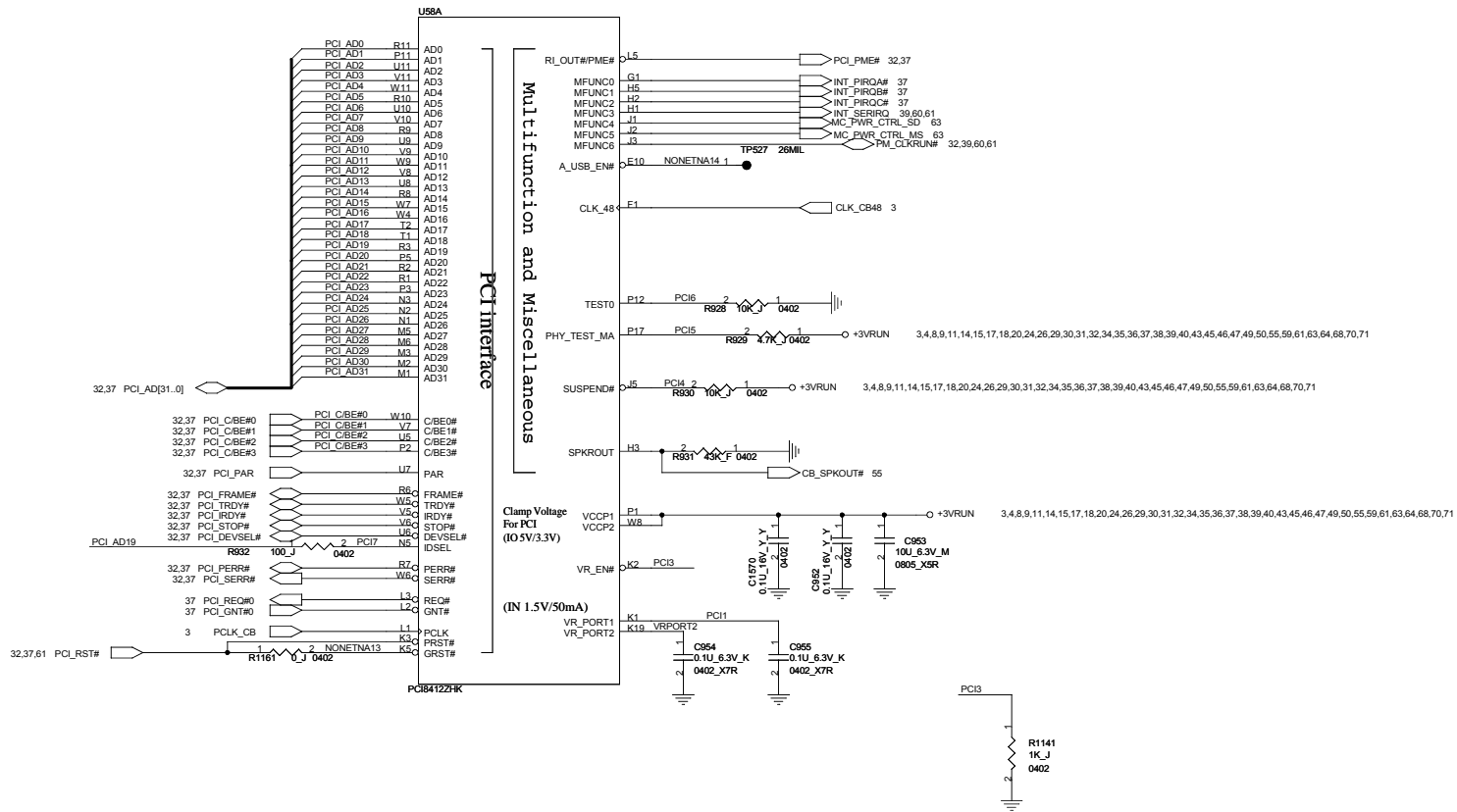
FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title SATA HDD RAID			
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1	
Date: Friday, August 11, 2006	Sheet 42	of 78	

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,44,45,46,47,49,50,55,59,61,63,64,68,70,71

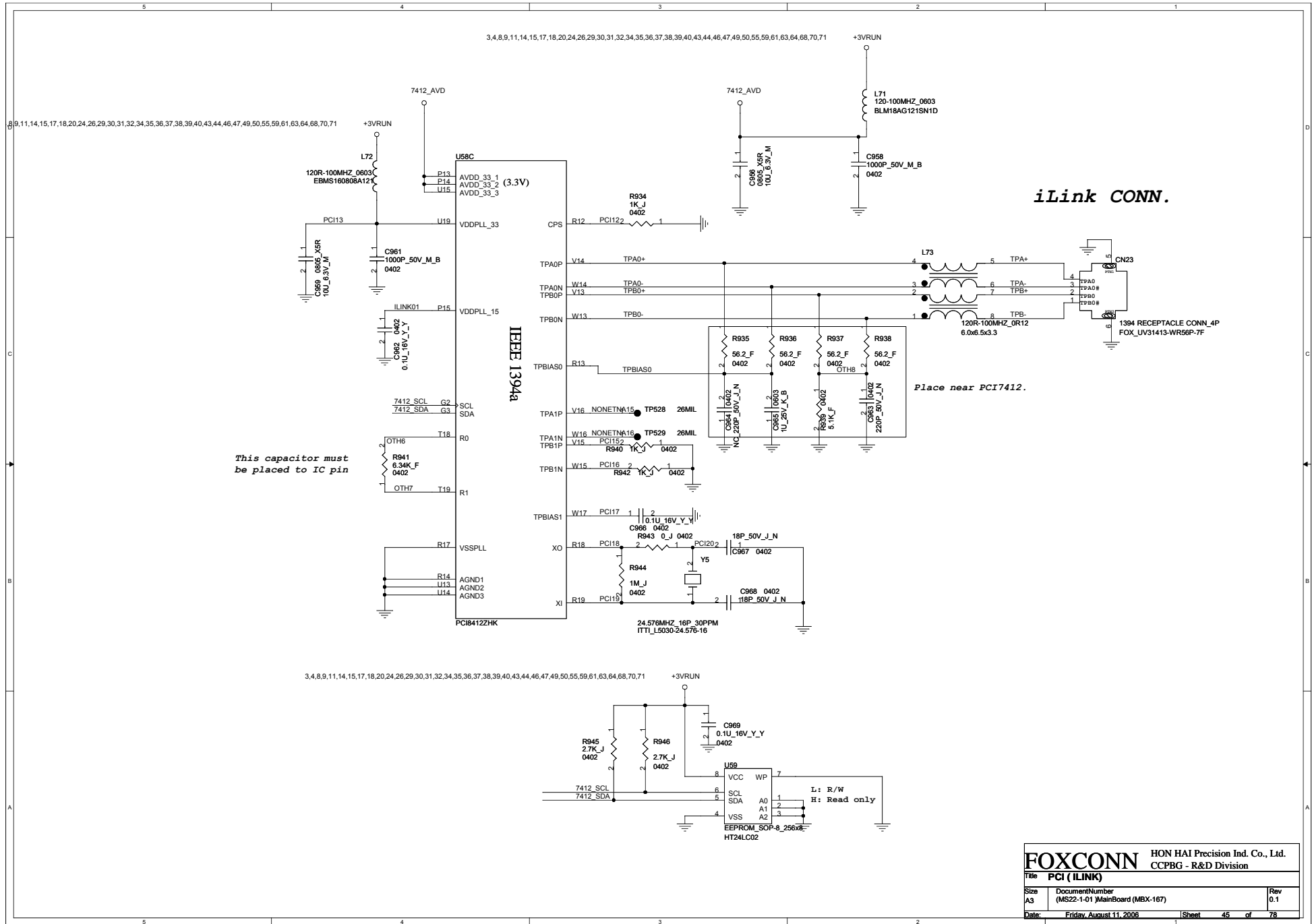
38 IDE_PDD[0..15] \leftrightarrow IDE_PDD[0..15]

CD-ROM CONN





FOXCONN		HON HAI Precision Ind. Co., Ltd.
		CCPBG - R&D Division
Title PCI (PCI BUS)		
Size	Document Number	Rev
Custom	(MS22-1-01)MainBoard(MBX-167)	0.1
Date:	Friday, August 11, 2006	Sheet 44 of 78



This capacitor must be placed to IC pin

iLink CONN.

Place near PCI7412.

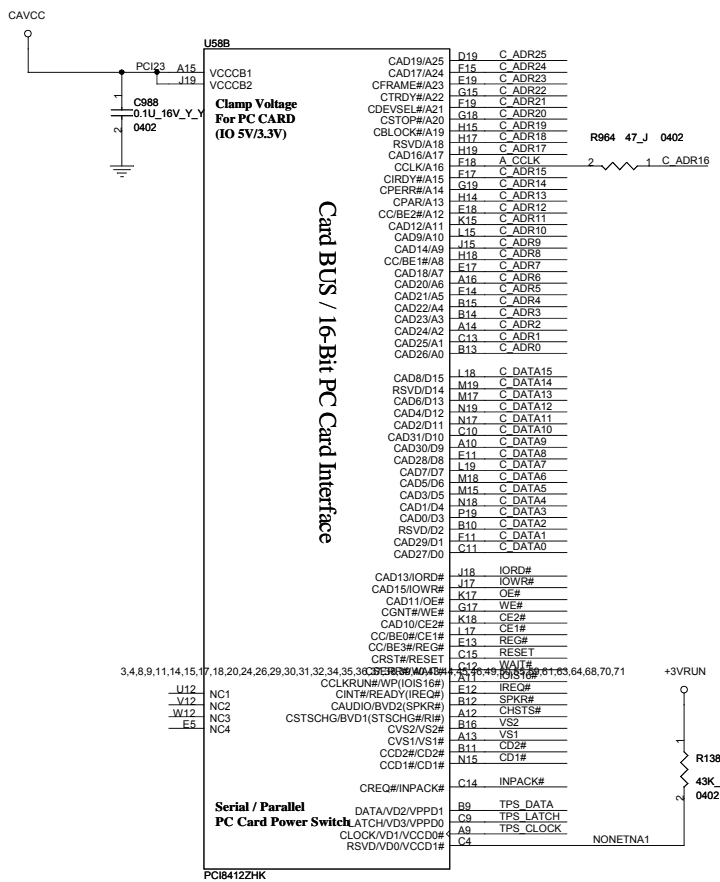
FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title **PCI (iLINK)**

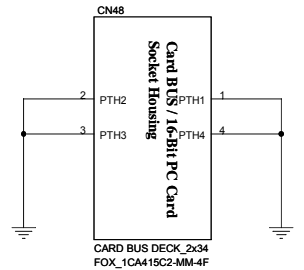
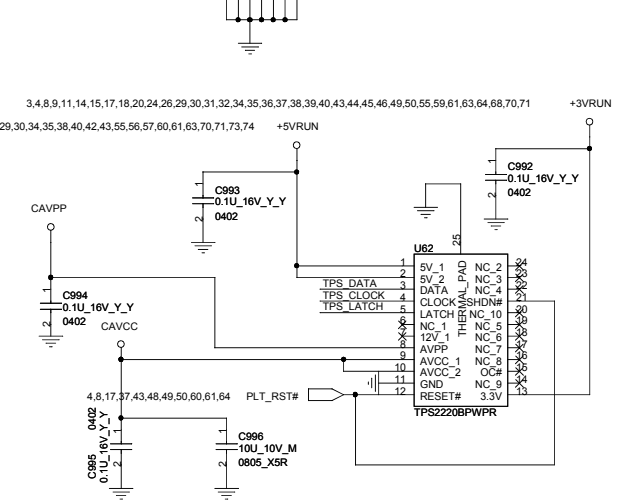
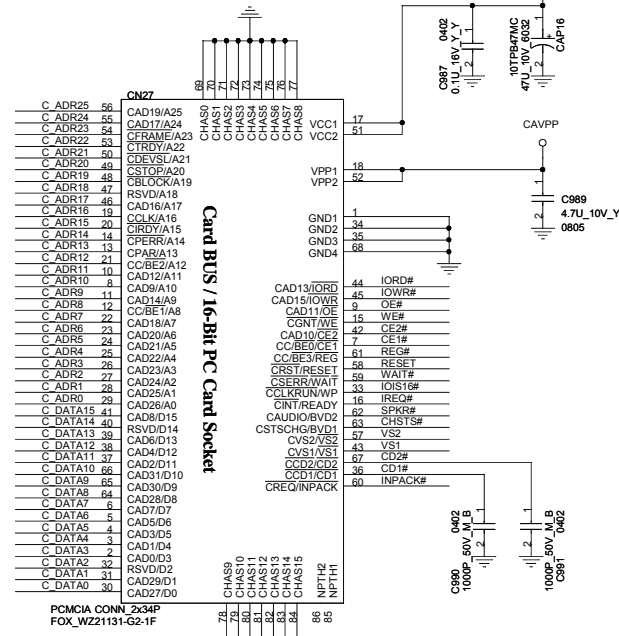
Size DocumentNumber Rev
A3 (MS22-1-01) MainBoard (MBX-167) 0.1

Date: Friday, August 11, 2006 Sheet 46 of 78

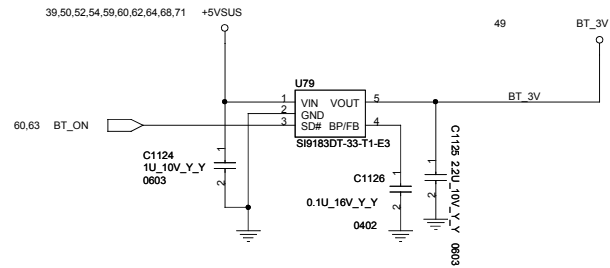
PCMCIA CONN.



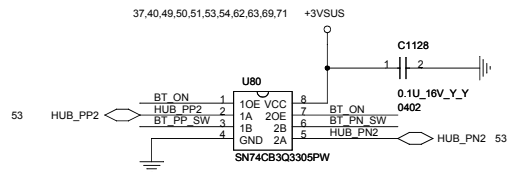
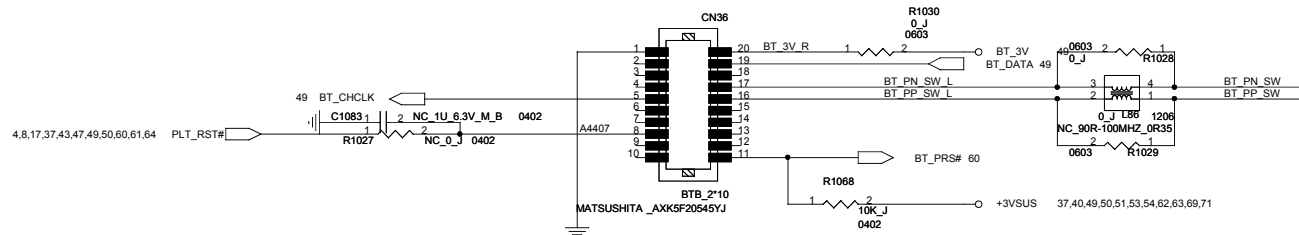
- | | | | |
|-------------|-----|---|-----------|
| CAD19/A25 | D19 | C | ADR25 |
| CAD17/A24 | F15 | C | ADR24 |
| CFRAME#A23 | E19 | C | ADR23 |
| CTRDY#A22 | F19 | C | ADR22 |
| CDEVSEL#A21 | G18 | C | ADR20 |
| CSTOP#A20 | H15 | C | ADR19 |
| CBLOCK#A19 | H17 | C | ADR18 |
| RSVD/A18 | H13 | C | ADR17 |
| CAD16/A17 | F18 | A | CCLK |
| CCLK/A16 | F17 | C | ADR15 |
| CIRDY#A15 | G19 | C | ADR14 |
| CPERR#A14 | H14 | C | ADR13 |
| GPARA/A13 | E18 | C | ADR12 |
| COBE#A12 | H14 | C | ADR11 |
| CAD12/A11 | K15 | C | ADR10 |
| CAD9/A10 | L15 | C | ADR9 |
| CAD14/A9 | H15 | C | ADR8 |
| COBE1#A8 | H16 | C | ADR7 |
| CAD18/A7 | F17 | C | ADR7 |
| CAD20/A6 | A16 | C | ADR6 |
| CAD21/A5 | E14 | C | ADR5 |
| CAD22/A4 | B15 | C | ADR4 |
| CAD23/A3 | B14 | C | ADR3 |
| CAD24/A2 | A14 | C | ADR2 |
| CAD25/A1 | C13 | C | ADR1 |
| CAD26/A0 | B13 | C | ADR0 |
| | | | |
| CAD8/D15 | M19 | C | DATA15 |
| RSVD/D14 | M18 | C | DATA14 |
| CAD6/D13 | M17 | C | DATA13 |
| CAD4/D12 | N19 | C | DATA12 |
| CAD2/D11 | N17 | C | DATA11 |
| CAD3/D10 | C10 | C | DATA10 |
| CAD30/D9 | A10 | C | DATA9 |
| CAD28/D8 | E11 | C | DATA8 |
| CAD7/D7 | L19 | C | DATA7 |
| CAD5/D6 | M18 | C | DATA6 |
| CAD3/D5 | M15 | C | DATA5 |
| CAD1/D4 | N18 | C | DATA4 |
| CAD0/D3 | E19 | C | DATA3 |
| RSVD/D2 | B10 | C | DATA2 |
| CAD29/D1 | F11 | C | DATA1 |
| CAD27/D0 | C11 | C | DATA0 |
| | | | |
| CAD13/IORD# | J18 | | IORD# |
| CAD15/IOWR# | J17 | | IOWR# |
| CAD11/OE# | K17 | | OE# |
| CGNT#WE# | G17 | | WE# |
| CAD10/CE2# | K18 | | CE2# |
| COBE0#CE1# | L17 | | CE1# |
| COBE3#REG# | E13 | | REG# |
| CRST#RESET | C15 | | RESET |
| CDEVSEL#A21 | C12 | | WAIT# |
| CSTOP#A20 | A11 | | IRCSH# |
| CBLOCK#A19 | F15 | | IREQ# |
| RSVD/A18 | H17 | | SPKR# |
| CCLK/A16 | H13 | | CHSTS# |
| CIRDY#A15 | G19 | | VS2 |
| CPERR#A14 | H14 | | VS1 |
| GPARA/A13 | E18 | | CD2# |
| COBE#A12 | H14 | | CD1# |
| CAD12/A11 | K15 | | INPACK# |
| CAD9/A10 | L15 | | TPS_DATA |
| CAD14/A9 | H15 | | TPS_LATCH |
| COBE1#A8 | H16 | | TPS_CLOCK |
| CAD18/A7 | F17 | | TPS_CLOCK |
| CAD20/A6 | A16 | | TPS_CLOCK |
| CAD21/A5 | E14 | | TPS_CLOCK |
| CAD22/A4 | B15 | | TPS_CLOCK |
| CAD23/A3 | B14 | | TPS_CLOCK |
| CAD24/A2 | A14 | | TPS_CLOCK |
| CAD25/A1 | C13 | | TPS_CLOCK |
| CAD26/A0 | B13 | | TPS_CLOCK |
| | | | |
| CAD8/D15 | M19 | | TPS_DATA |
| RSVD/D14 | M18 | | TPS_LATCH |
| CAD6/D13 | M17 | | TPS_LATCH |
| CAD4/D12 | N19 | | TPS_CLOCK |
| CAD2/D11 | N17 | | TPS_CLOCK |
| CAD3/D10 | C10 | | TPS_CLOCK |
| CAD30/D9 | A10 | | TPS_CLOCK |
| CAD28/D8 | E11 | | TPS_CLOCK |
| CAD7/D7 | L19 | | TPS_CLOCK |
| CAD5/D6 | M18 | | TPS_CLOCK |
| CAD3/D5 | M15 | | TPS_CLOCK |
| CAD1/D4 | N18 | | TPS_CLOCK |
| CAD0/D3 | E19 | | TPS_CLOCK |
| RSVD/D2 | B10 | | TPS_CLOCK |
| CAD29/D1 | F11 | | TPS_CLOCK |
| CAD27/D0 | C11 | | TPS_CLOCK |



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title PCI (PCMCIA)		CCPBG - R&D Division	
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1	
Date: Friday, August 11, 2006	Sheet 47	of 78	

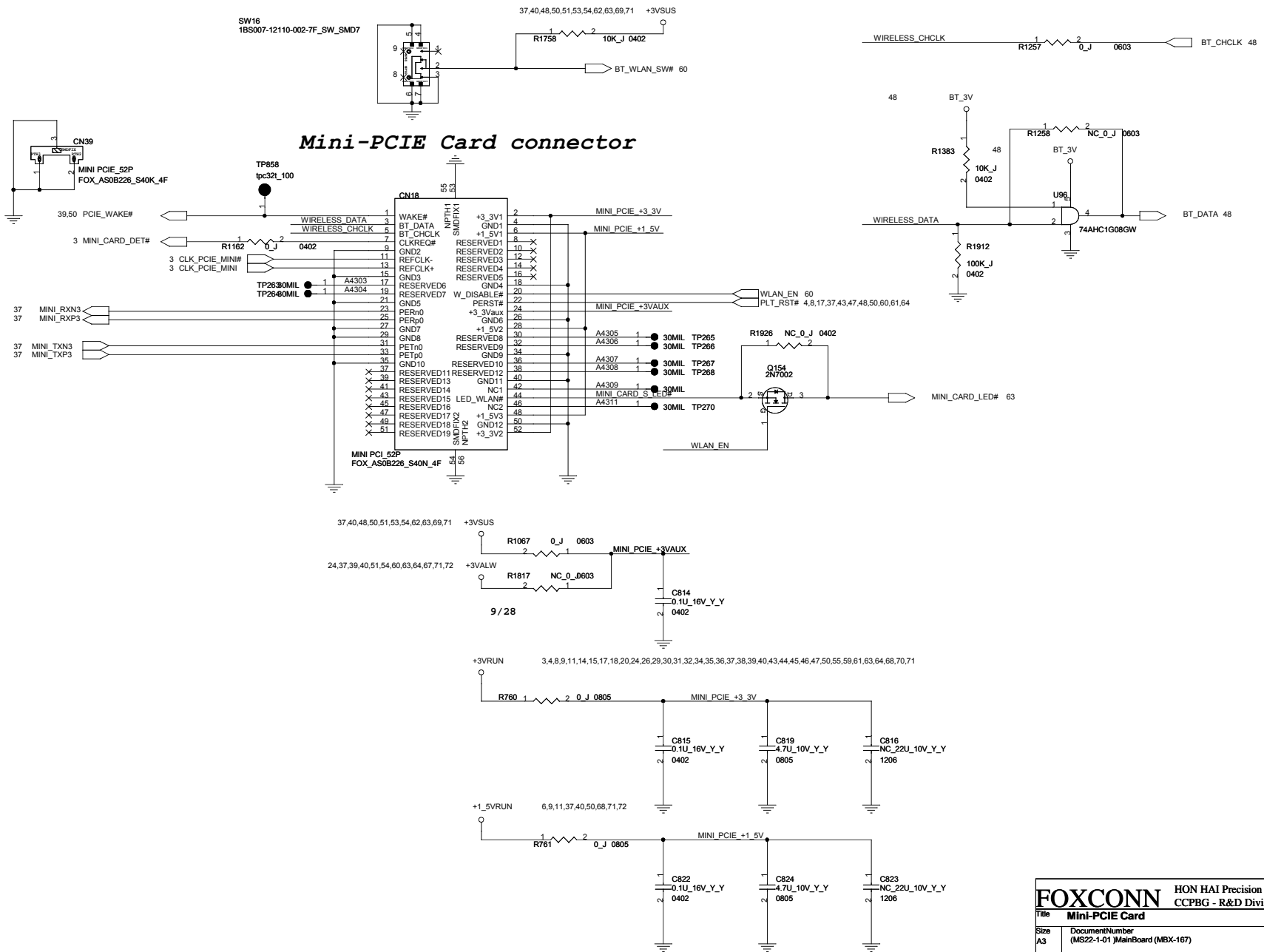


Bluetooth connector



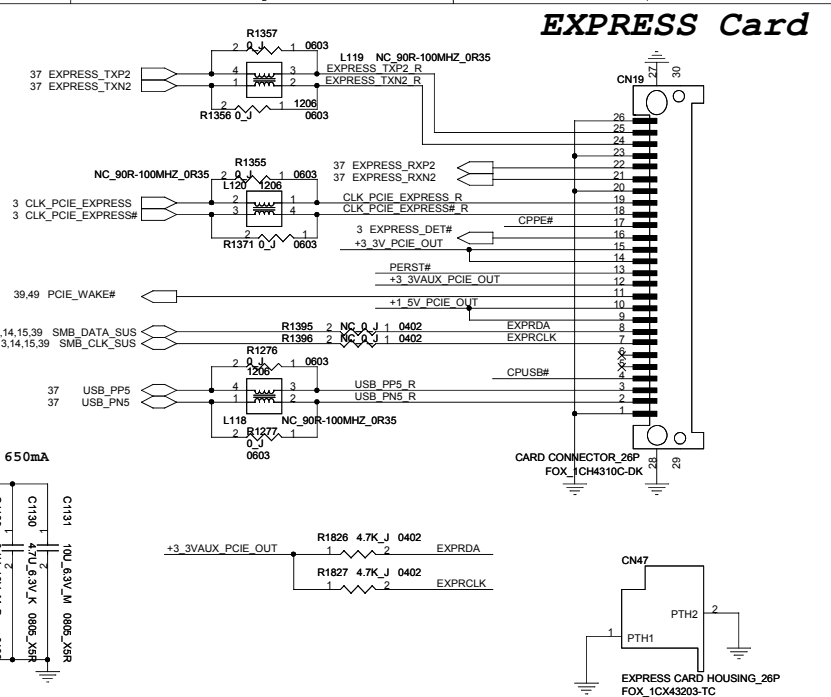
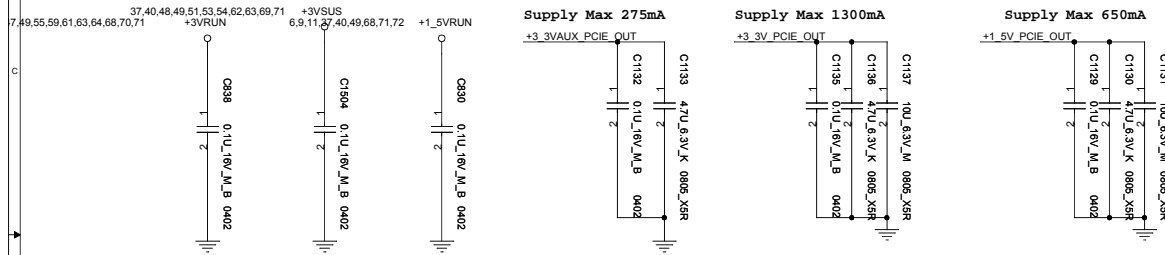
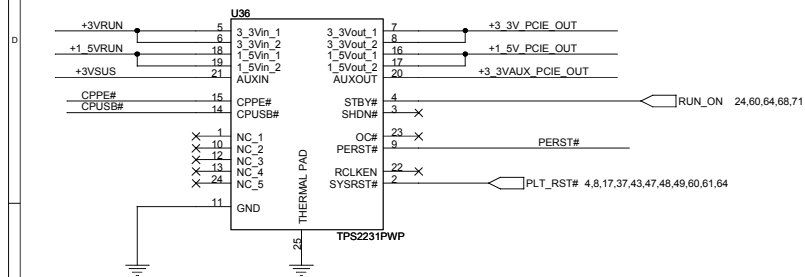
FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title: FAN/Bluetooth			
Size: A3	Document Number: (MS22-1-01) MainBoard (MBX-167)	Rev: 0.1	
Date: Friday, August 11, 2006	Sheet: 48	of 78	

Mini-PCIE Card connector

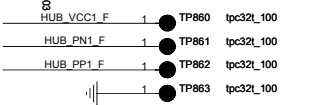
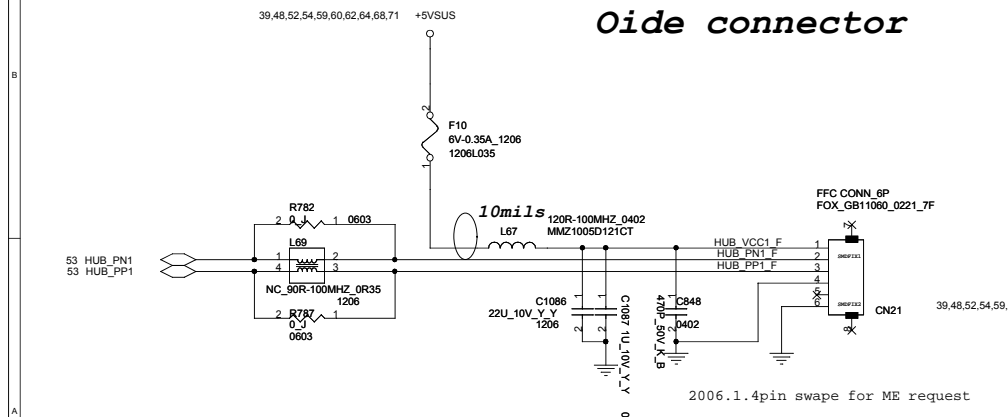


FOXCONN HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title Mini-PCIE Card		
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1
Date: Friday, August 11, 2006	Sheet 49	of 78

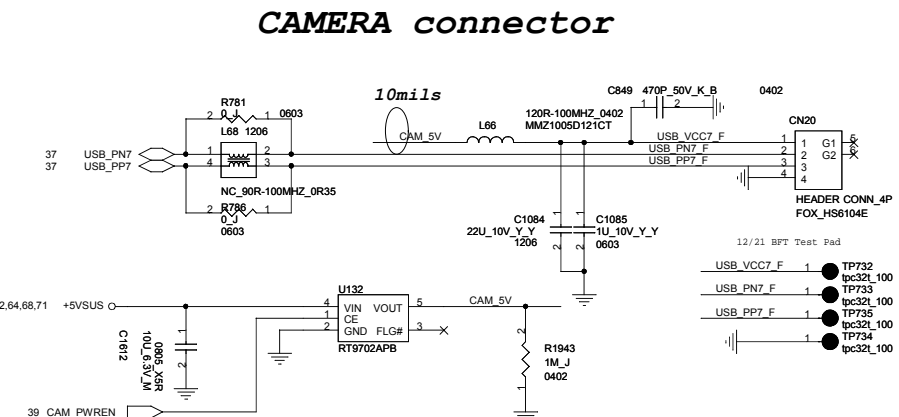
VOLTAGE INPUTS ⁽¹⁾			LOGIC INPUTS			VOLTAGE OUTPUTS ⁽²⁾			MODE ⁽³⁾
AUXIN	3.3VIN	1.5VIN	SHDN	STBY	CP ⁽⁴⁾	AUXOUT	3.3VOUT	1.5VOUT	
Off	x	x	x	x	x	Off	Off	Off	OFF
On	x	x	0	x	x	GND	GND	GND	Shutdown
On	x	x	1	x	1	GND	GND	GND	No Card
On	On	On	1	0	0	On	Off	Off	Standby
On	On	On	1	1	0	On	On	On	Card Inserted



Oide connector



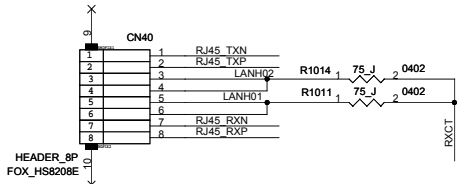
CAMERA connector



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

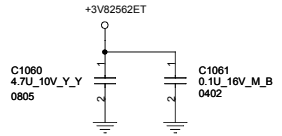
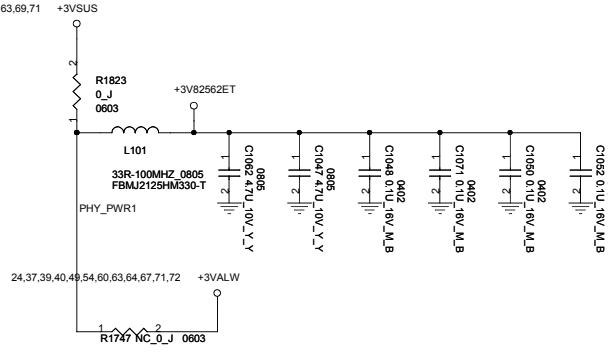
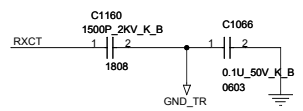
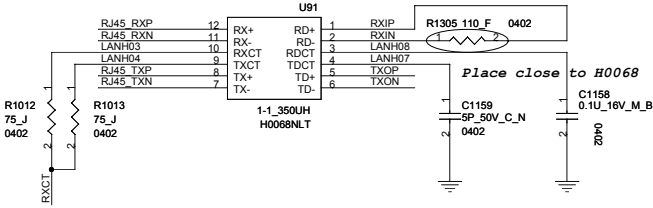
Title EXPRESS/CAM/OIDE		
Size A3	Document Number (MS22-1-01 MainBoard (MBX-167))	Rev 0.1
Date: Friday, August 11, 2006	Sheet 50	of 76

LAN connector

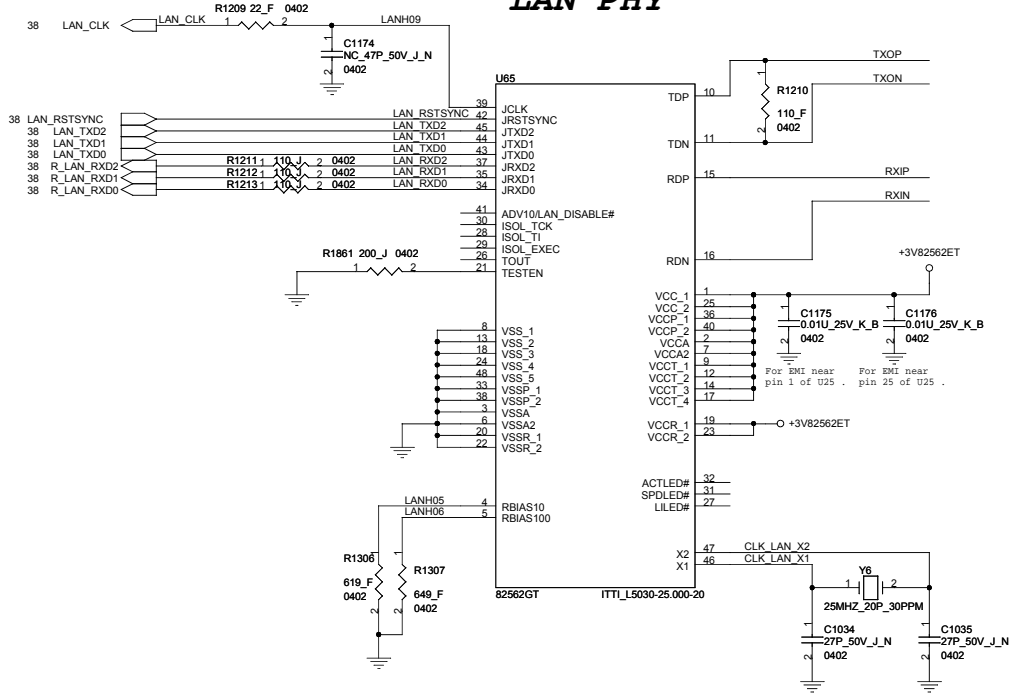


BFT Test Pad

RJ45 TXN	1	TP736	tpc321_100
RJ45 TXP	1	TP738	tpc321_100
LANH02	1	TP739	tpc321_100
LANH01	1	TP740	tpc321_100
RJ45 RXN	1	TP737	tpc321_100
RJ45 RXP	1	TP741	tpc321_100



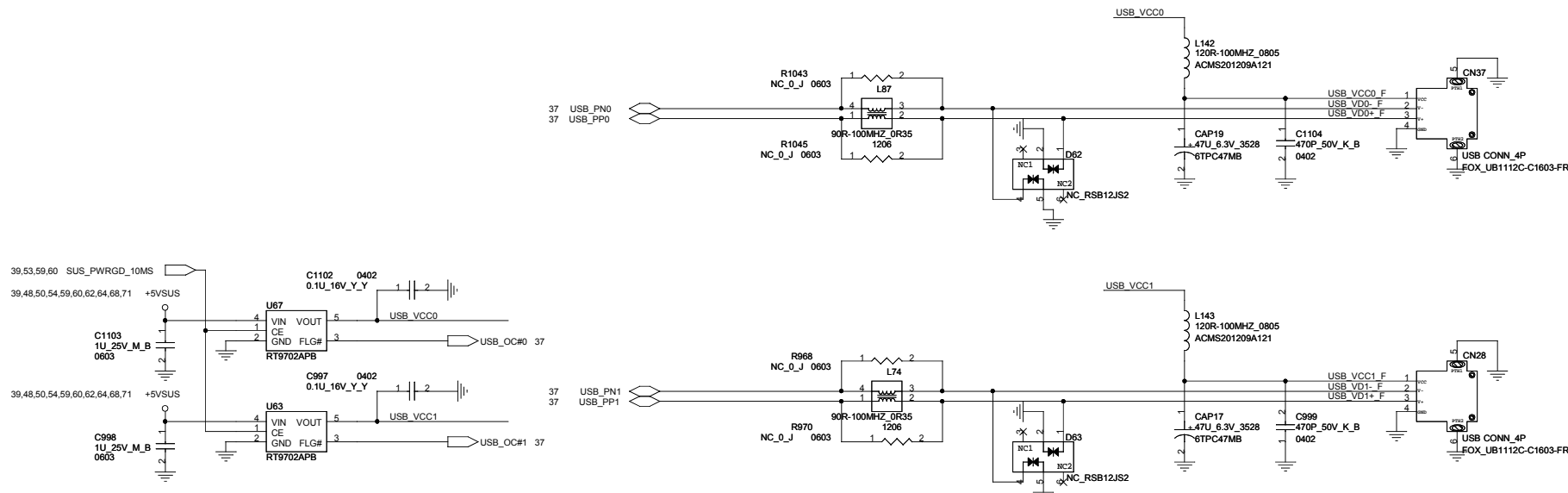
LAN PHY



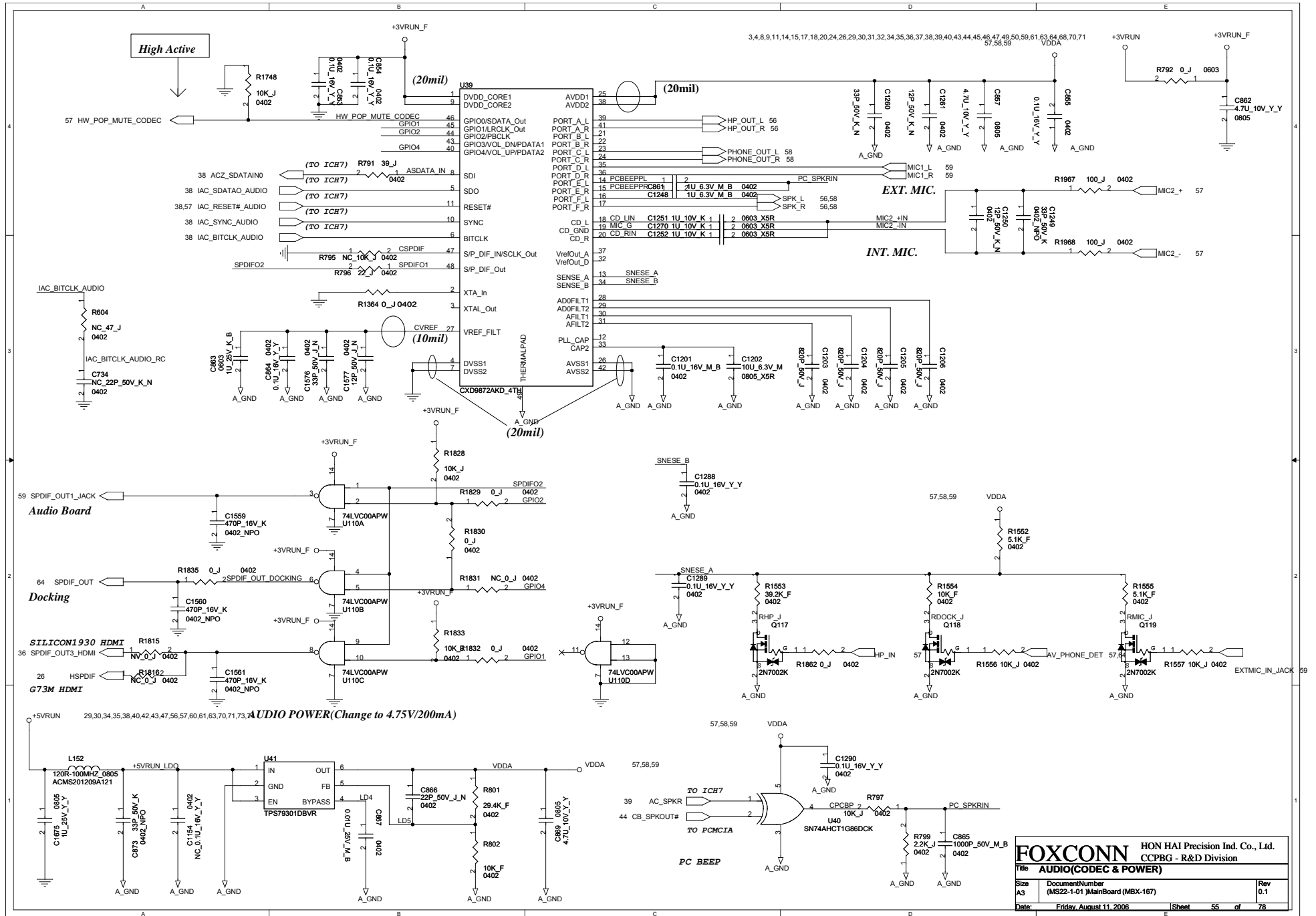
Default for S3 waking up event ,
backup for S4 waking up event

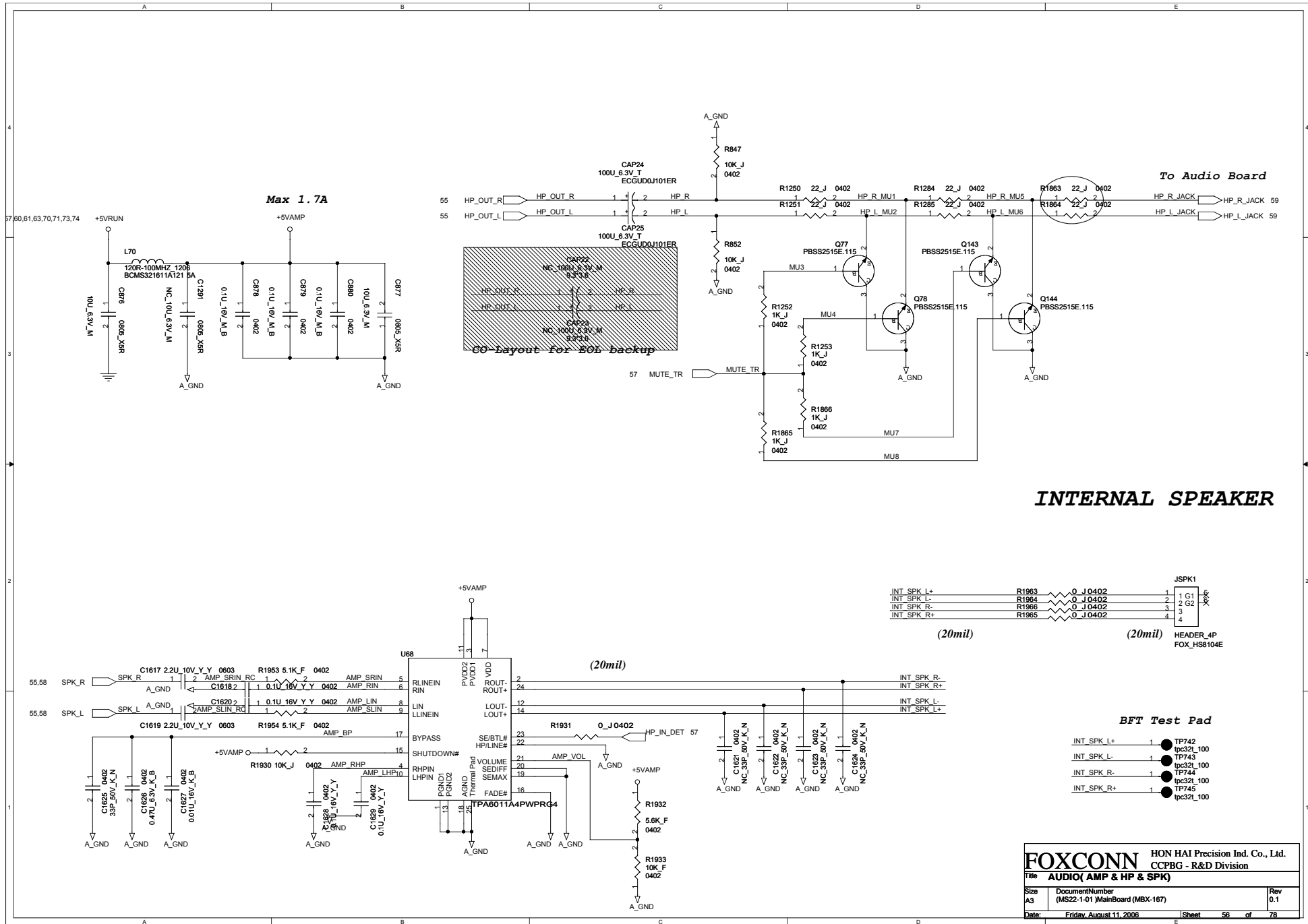
FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title LAN		CCPBG - R&D Division	
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1	
Date: Friday, August 11, 2006	Sheet 51	of 78	

USB connector *2



FOXCONN HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title USB2.0/DOCKING CONN.		
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1
Date: Friday, August 11, 2006	Sheet 52	of 78

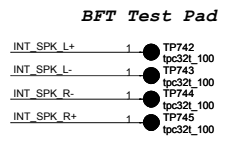
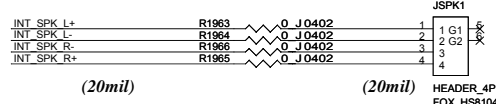




Max 1.7A

CO Layout for EOL backup

INTERNAL SPEAKER



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

File AUDIO (AMP & HP & SPK)

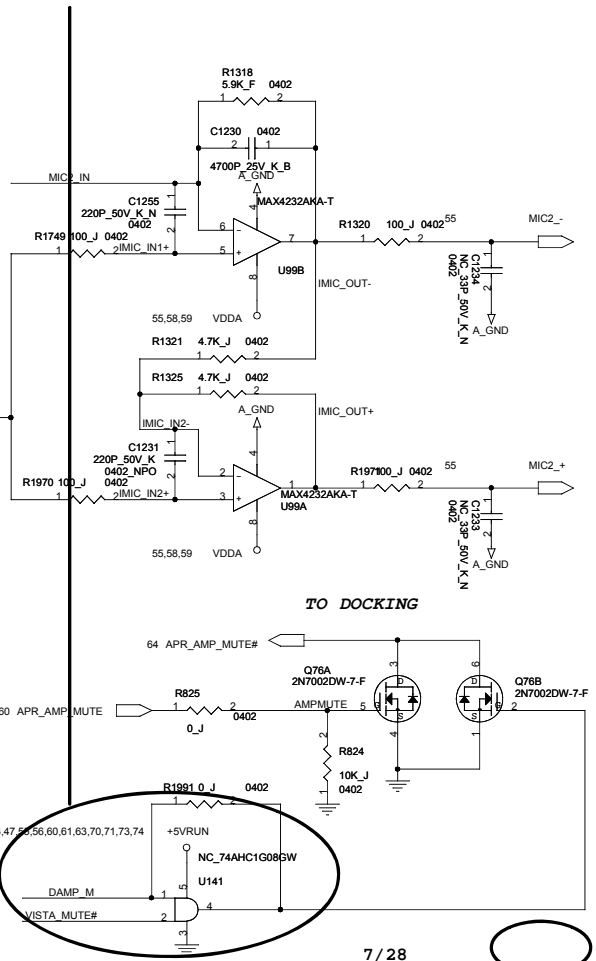
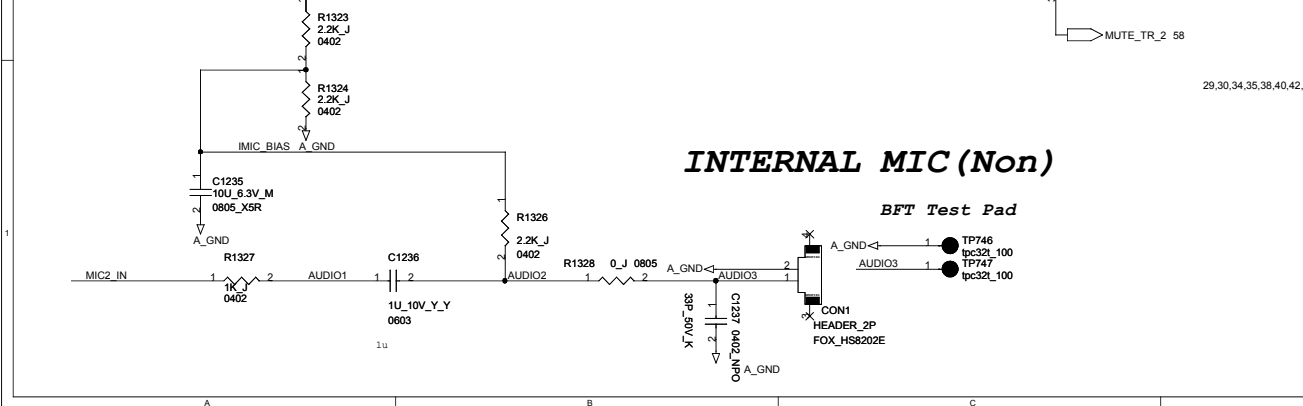
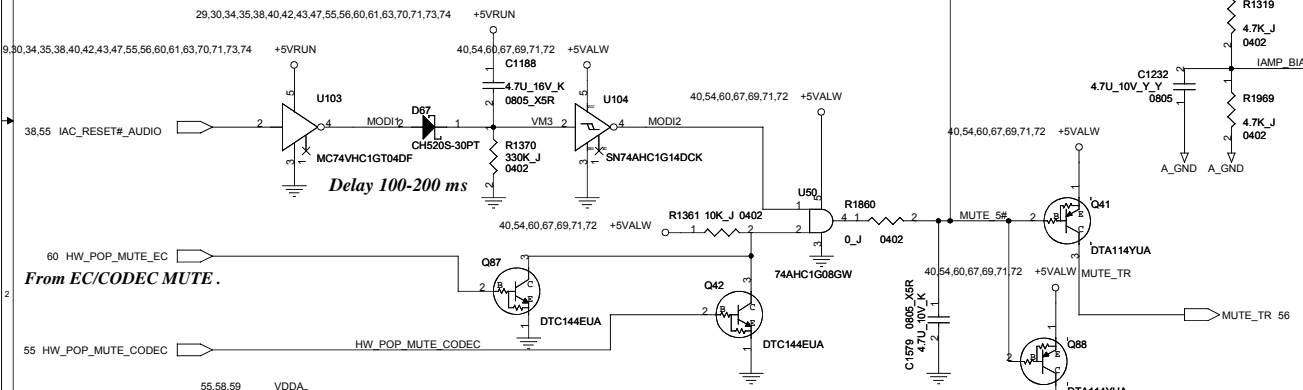
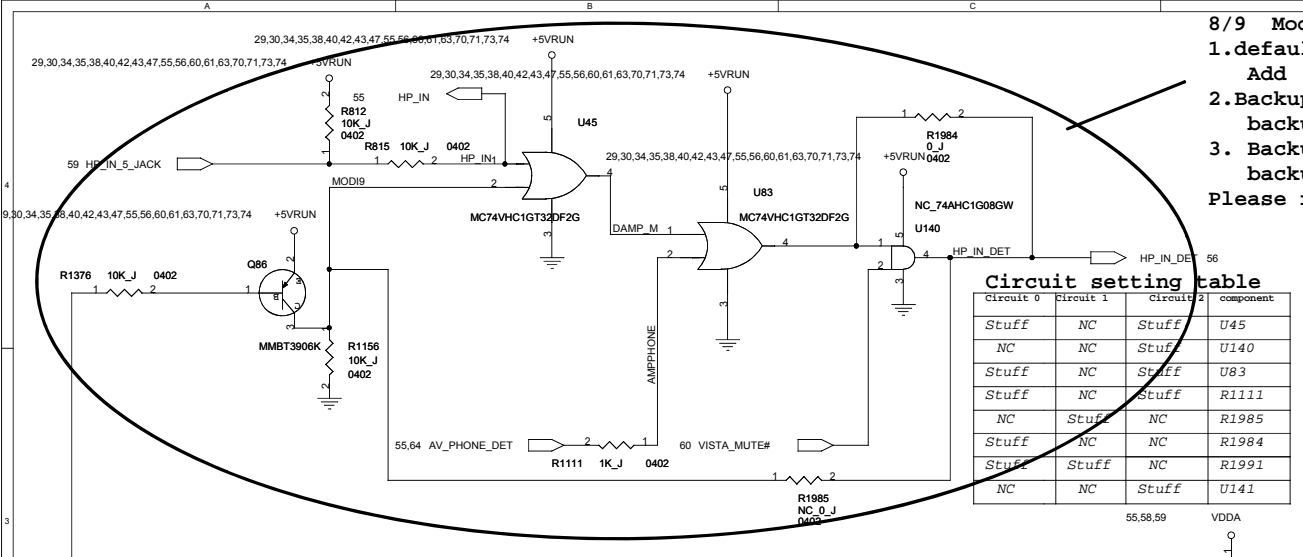
Size	Document Number	Rev
A3	(MS22-1-01) MainBoard (MBX-167)	0.1

Date: Friday, August 11, 2006 **Sheet** 56 **of** 78

8/9 Modify Int SPK mute circuit for Vista requirement
 1.default original circuit
 Add R1984,R1991
 2.Backup circuit 1
 backup R1985
 3. Backup circuit 2
 backup U140 , U141
 Please reference below setting table

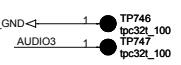
Circuit setting table

Circuit 0	Circuit 1	Circuit 2	component
Stuff	NC	Stuff	U45
NC	NC	Stuff	U140
Stuff	NC	Stuff	U83
Stuff	NC	Stuff	R1111
NC	Stuff	NC	R1985
Stuff	NC	NC	R1984
Stuff	Stuff	NC	R1991
NC	NC	Stuff	U141



INTERNAL MIC (Non)

BFT Test Pad



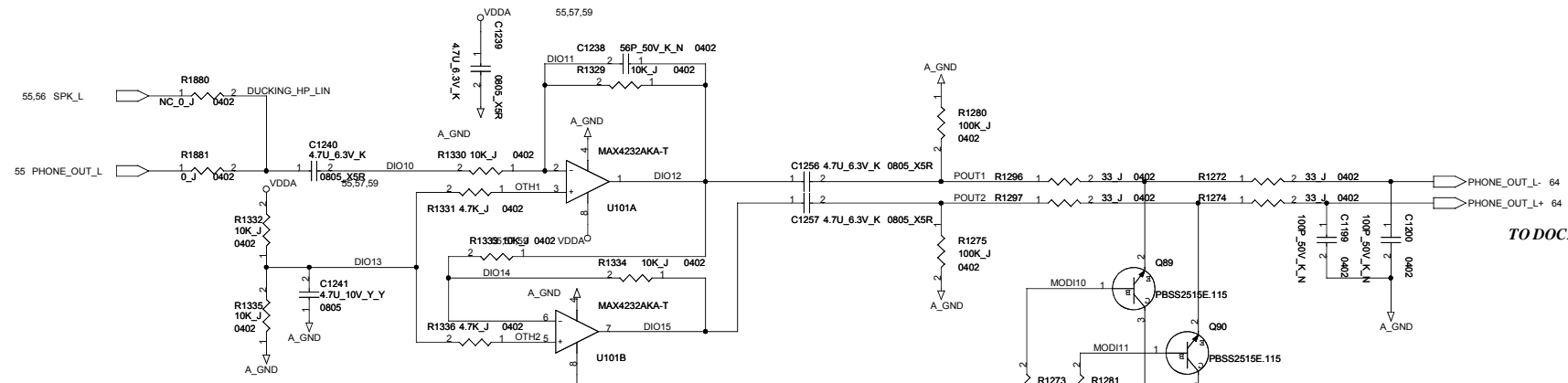
7/28
 Delete C1676
 For MOR suggestion

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

Title: **AUDIO (MUTE & INTMIC)**

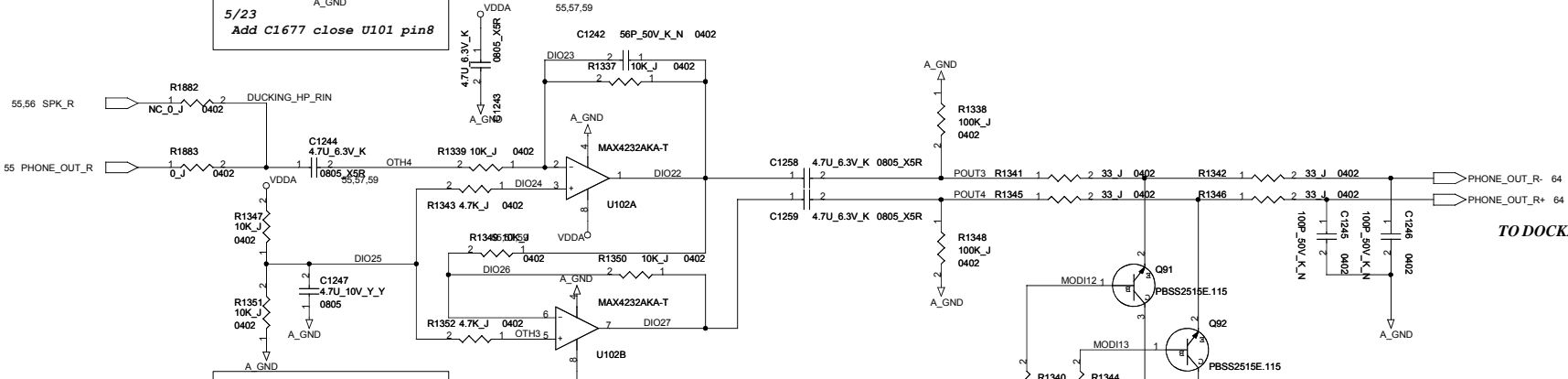
Size: A3	Document Number: (MS22-1-01) MainBoard (MBX-167)	Rev: 0.1
Date: Friday, August 11, 2006	Sheet: 57	of: 78

PHONE OUT



TO DOCKING

5/23
Add C1677 close U101 pin8

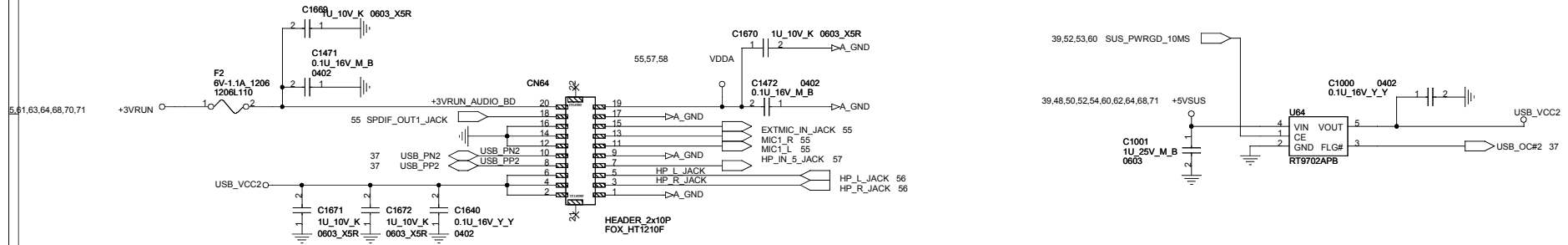


TO DOCKING

5/23
Add C1678 close U102 pin8

FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title AUDIO (PHONE OUT)			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	58 of 78

Audio Board connector

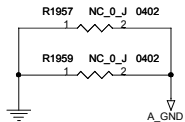


Backup two jumper resistors for bridge between GND and A_GND

Close screw hole H3

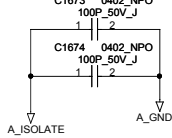


Close screw hole H5

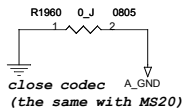
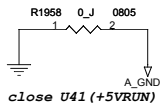
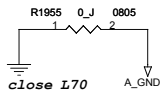


Isolate screw hole H4, and add EMI/ESD solution

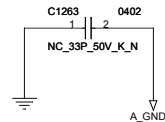
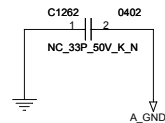
EMI



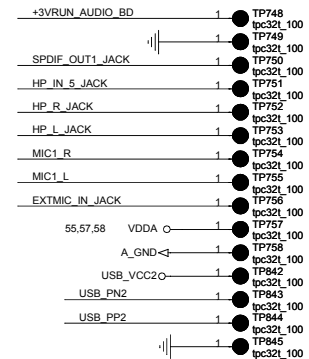
Add jumper resistor for Return patch



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



BFT Test Pad

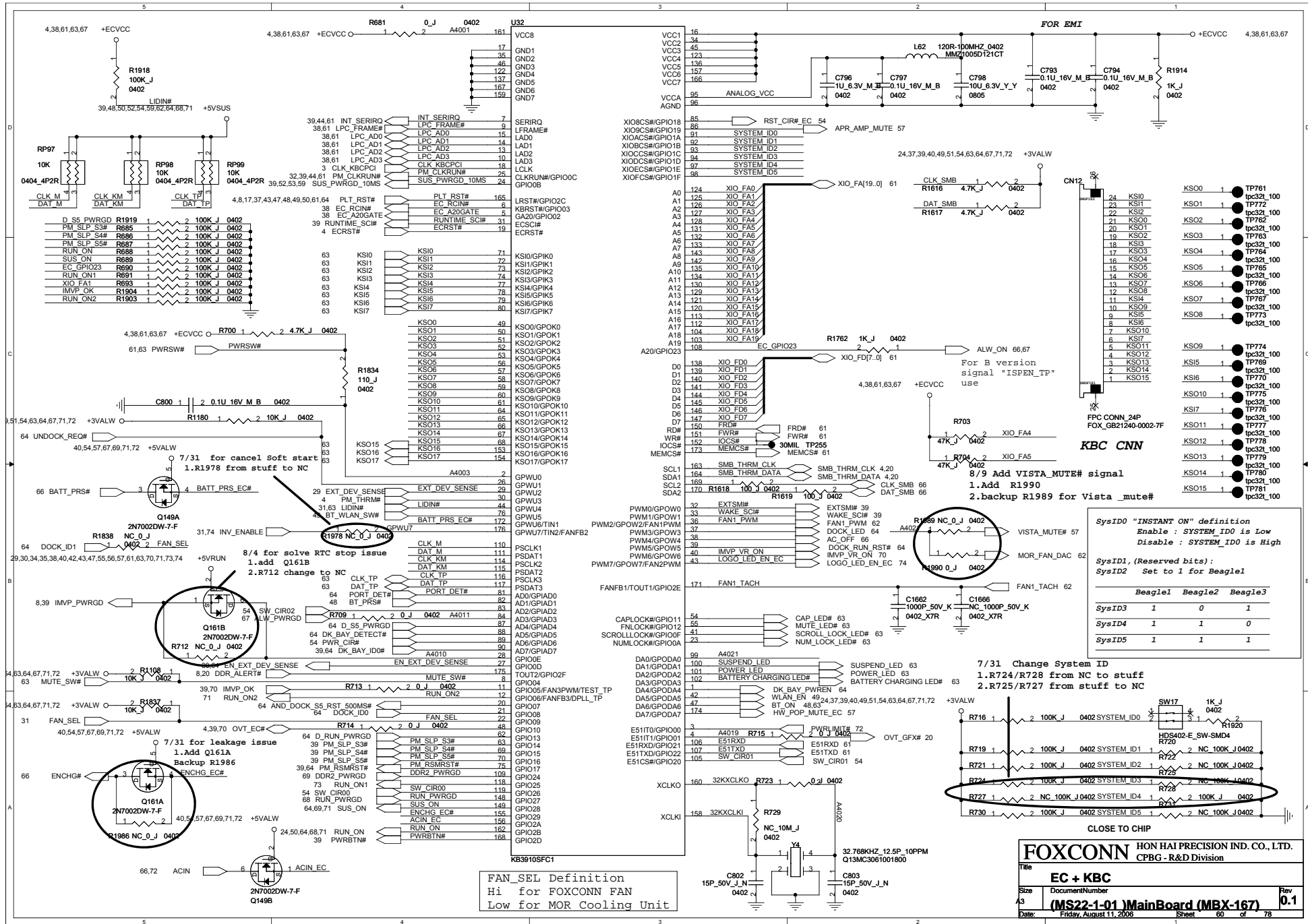


FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title: **Touch Pad & LED Board**

Size: DocumentNumber (MS22-1-01) MainBoard (MBX-167) Rev 0.1

Date: Friday, August 11, 2006 Sheet 59 of 78



FAN_SEL Definition
 Hi for FOXCONN FAN
 Low for MOR Cooling Unit

SysID0 "INSTANT ON" definition
 Enable : SYSTEM_ID0 is Low
 Disable : SYSTEM_ID0 is High

SysID1 (Reserved bits):
 SysID2 Set to 1 for Beagle1

	Beagle1	Beagle2	Beagle3
SysID3	1	0	1
SysID4	1	1	0
SysID5	1	1	1

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

Title: **EC + KBC**

Size: **Document Number**

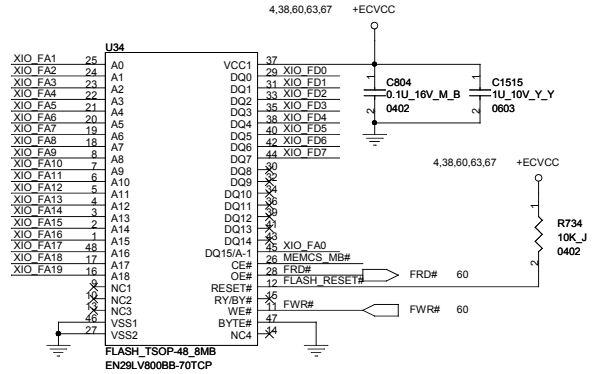
A3: **(MS22-1-01) MainBoard (MBX-167)**

Date: **Friday, August 11, 2006** Sheet **60** of **78**

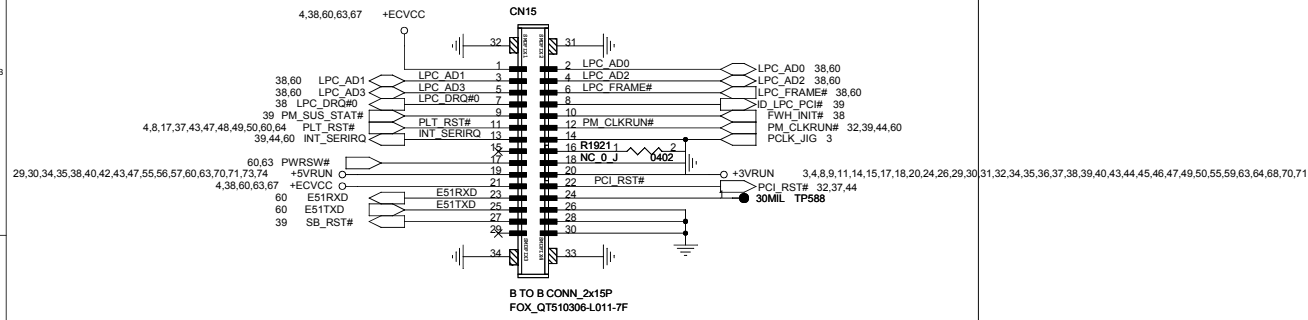
Rev: **0.1**

FLASH BIOS

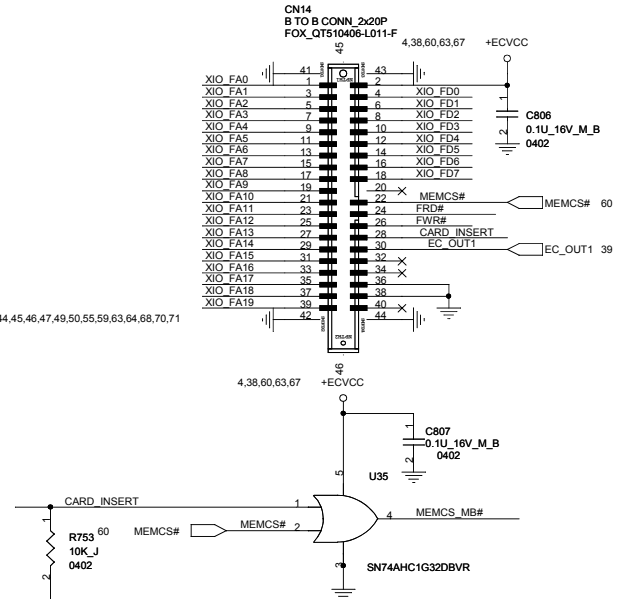
60 XIO_FA[19..0]
60 XIO_FD[7..0]



JIG-120



X-BUS



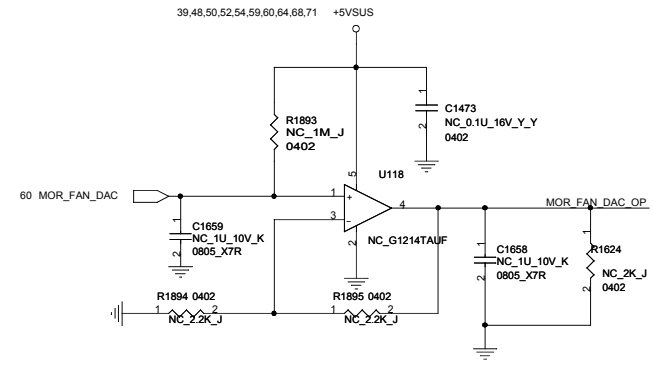
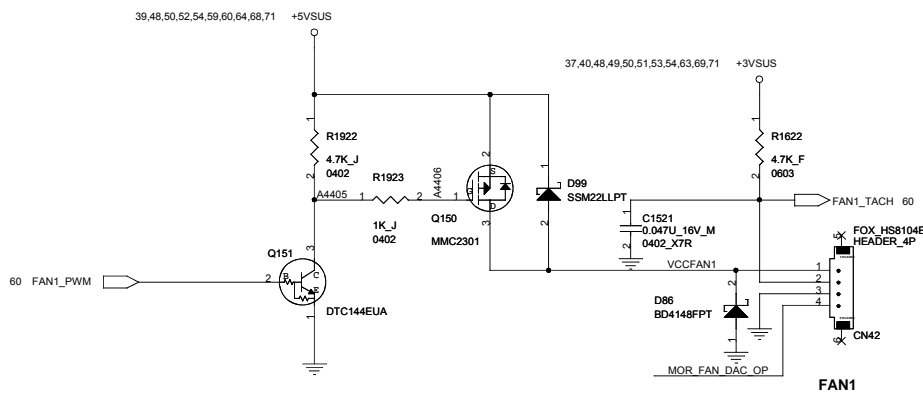
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R & D Division

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

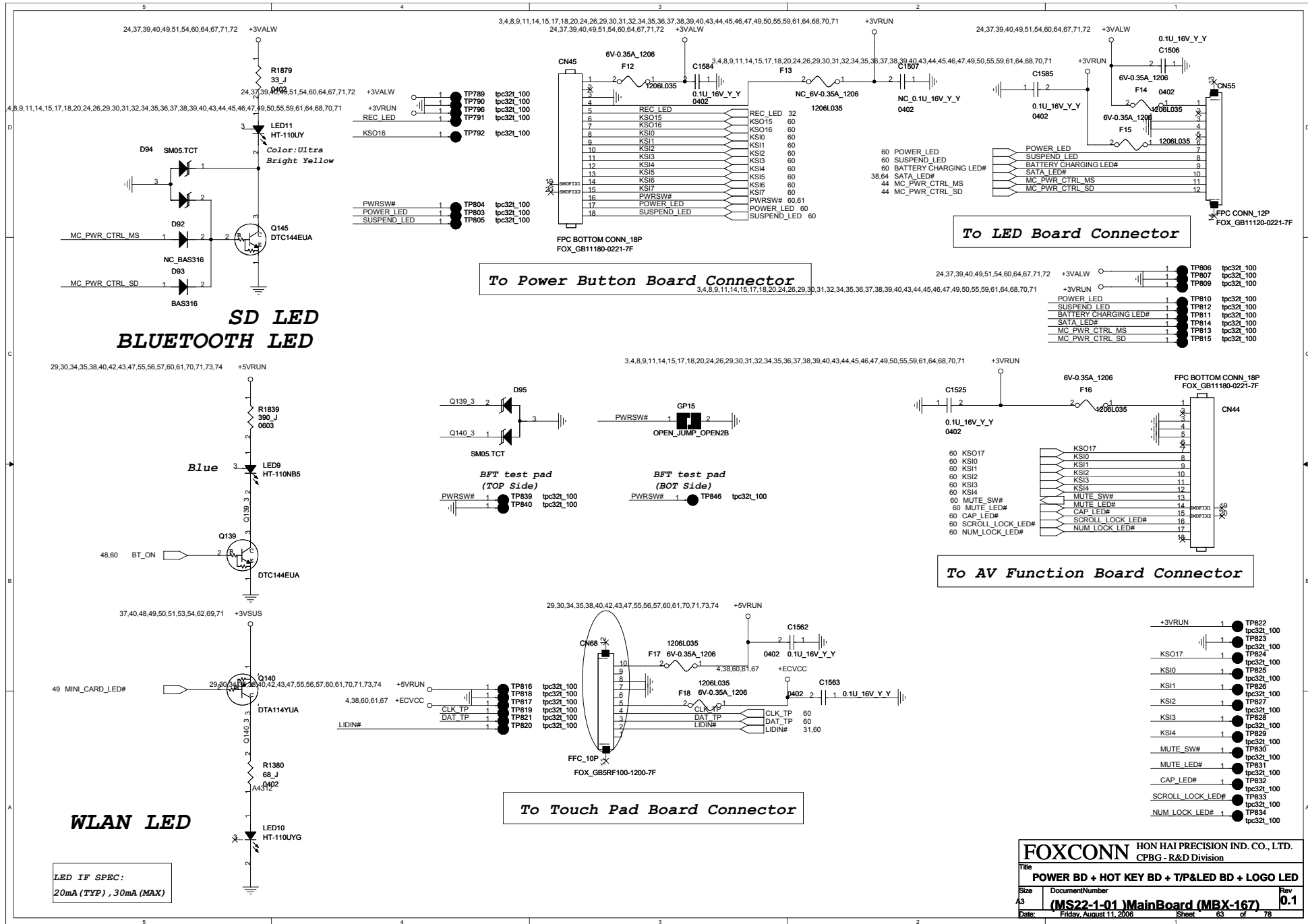
Size	Document Number	Rev
A3	(MS22-1-01) MainBoard (MBX-167)	0.1

Date: Friday, August 11, 2006 Sheet 61 of 78

FAN circuit



- VCCFAN1 1 ● TP782 tpc32l_100
- FAN1_TACH 1 ● TP783 tpc32l_100
- MOR_FAN_DAC_OP 1 ● TP784 tpc32l_100
- 1 ● TP785 tpc32l_100
- 1 ● TP788 tpc32l_100



**SD LED
BLUETOOTH LED**

To Power Button Board Connector

To LED Board Connector

To AV Function Board Connector

To Touch Pad Board Connector

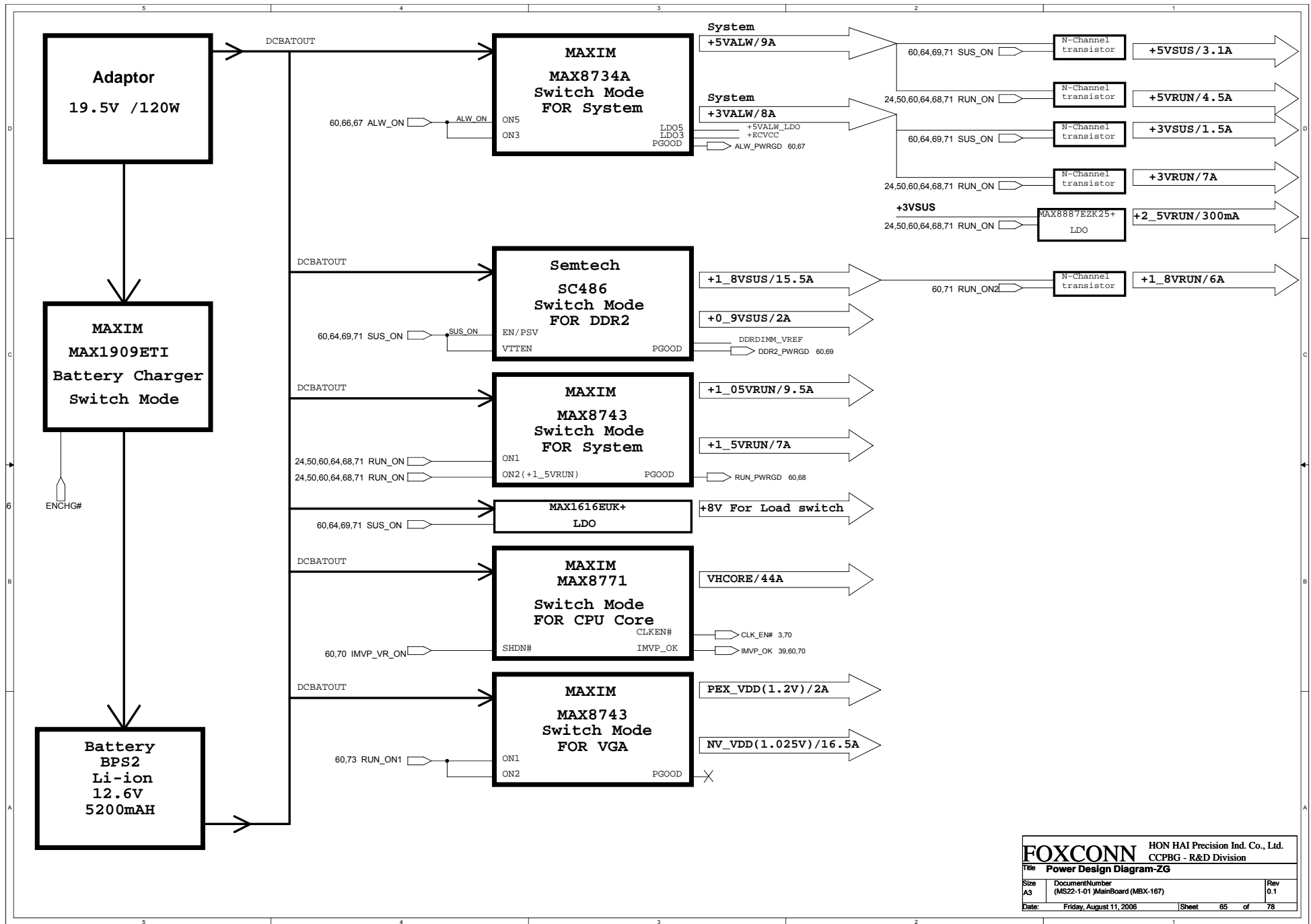
LED IF SPEC:
20mA (TYP) , 30mA (MAX)

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

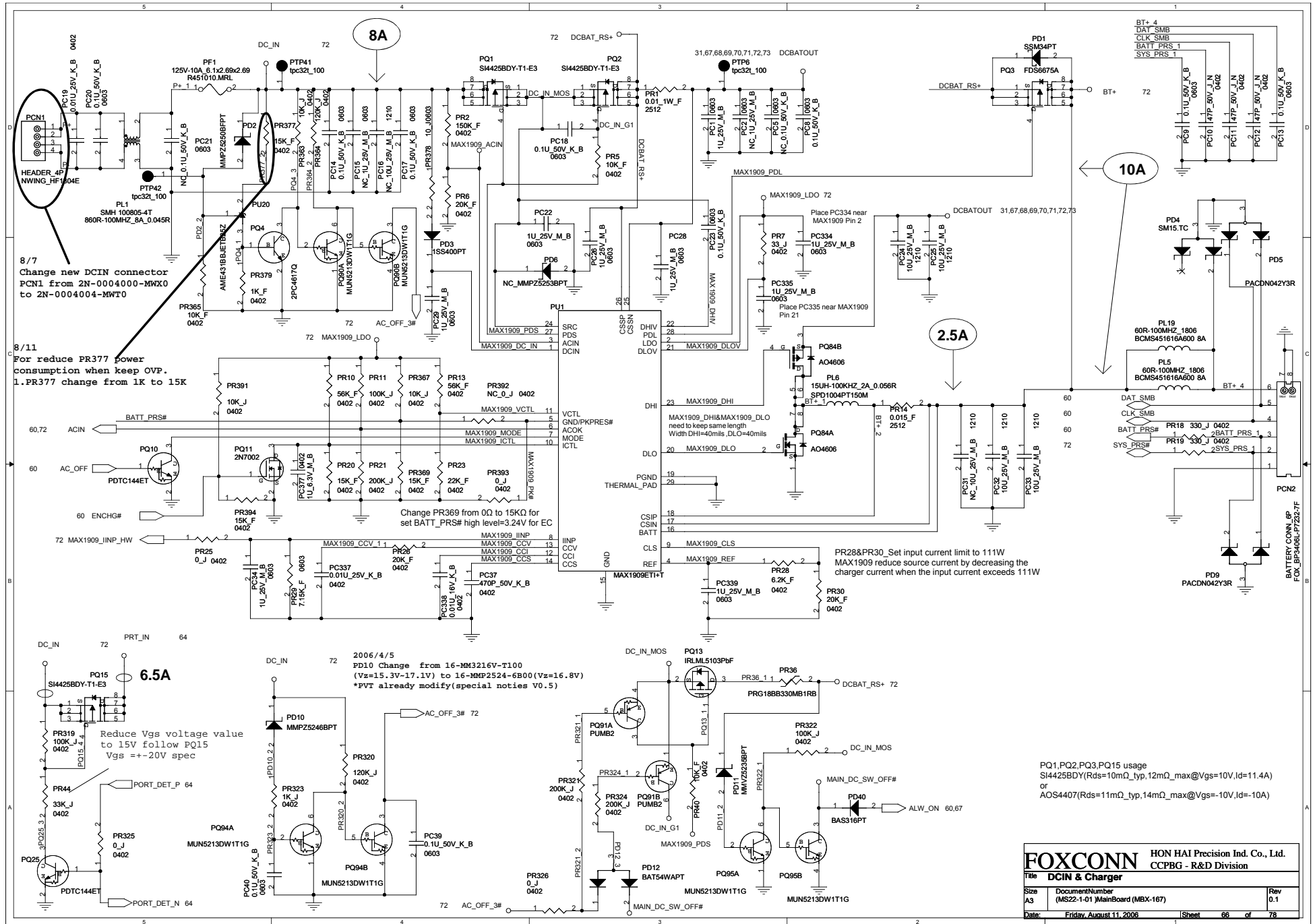
Title: **POWER BD + HOT KEY BD + TP&LED BD + LOGO LED**

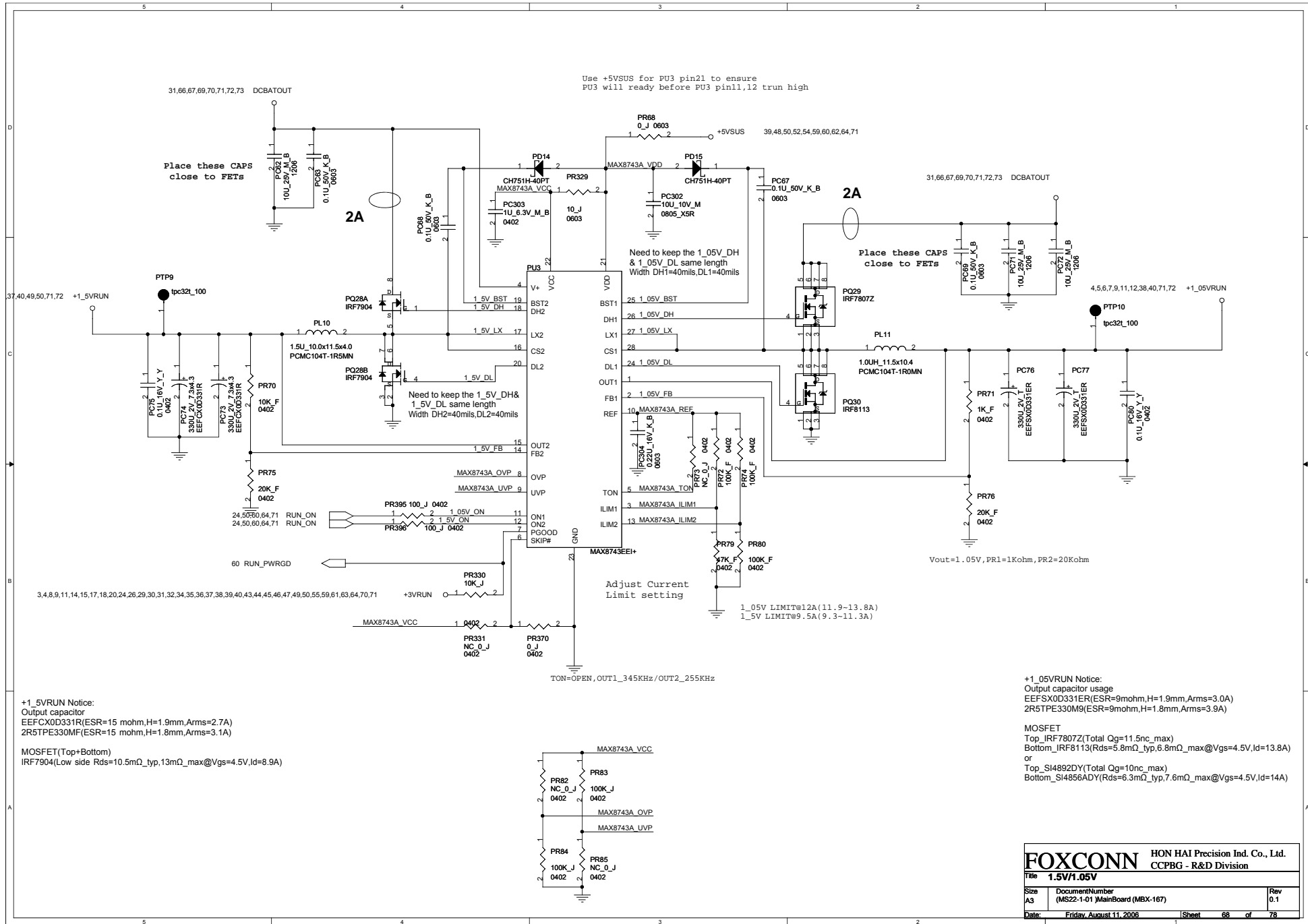
Size: Document Number
A3: **(MS22-1-01) MainBoard (MBX-167)** Rev: **0.1**

Date: Friday, August 11, 2006 Sheet: 63 of 78



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title Power Design Diagram-ZG			
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1	
Date: Friday, August 11, 2006	Sheet 65	of 78	





Use +5VSRUN for PU3 pin21 to ensure
PU3 will ready before PU3 pin11,12 trun high

31,66,67,69,70,71,72,73 DCBATOUT

Place these CAPS
close to FETs

Place these CAPS
close to FETs

37,40,49,50,71,72 +1_5VSRUN

4,5,6,7,9,11,12,38,40,71,72 +1_05VSRUN

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,32,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,70,71

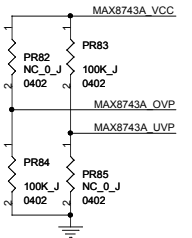
Vout=1.05V, PR1=1Kohm, PR2=20Kohm

+1_5VSRUN Notice:
Output capacitor
EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1A)

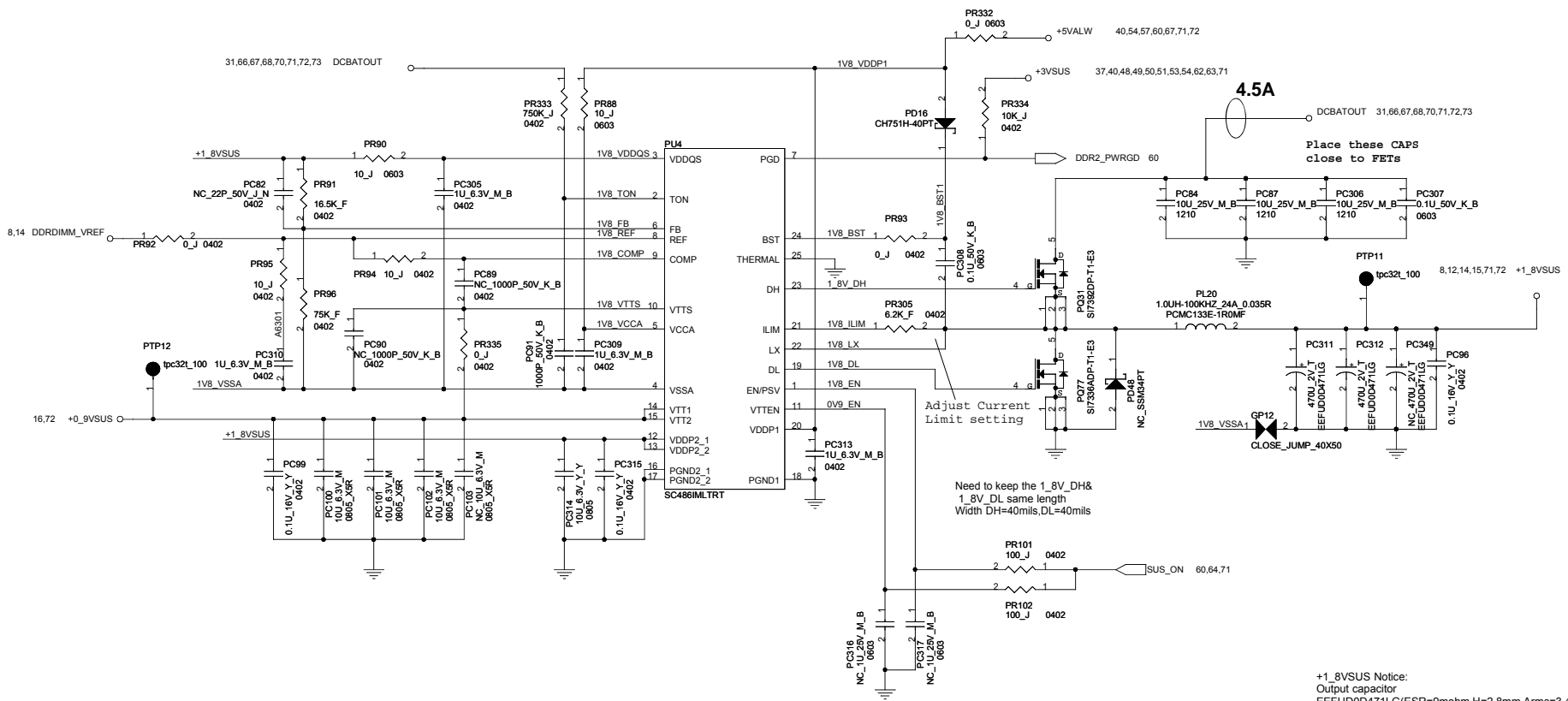
MOSFET(Top+Bottom)
IRF7904(Low side Rds=10.5mΩ_typ,13mΩ_max@Vgs=4.5V,Id=8.9A)

+1_05VSRUN Notice:
Output capacitor usage
EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)
2R5TPE330M9R(ESR=9mohm,H=1.8mm,Arms=3.9A)

MOSFET
Top_IRF7807Z(Total Qg=11.5nc_max)
Bottom_IRF6113(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	
File 1.5V/1.05V			
Size	DocumentNumber	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	68 of 78



4.5A
Place these CAPS close to FETs

Adjust Current Limit setting

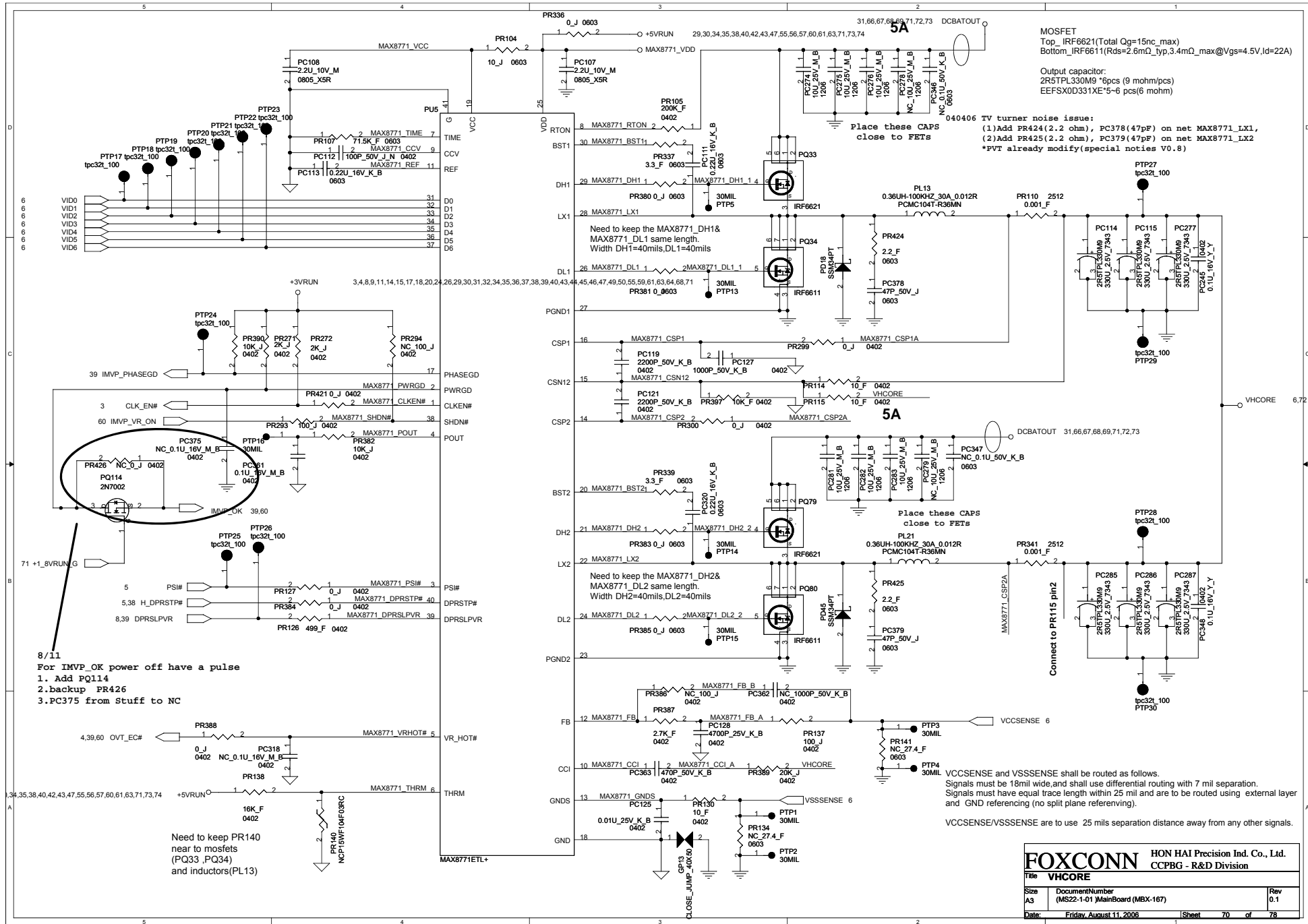
Need to keep the 1.8V_DH & 1.8V_DL same length
Width DH=40mils, DL=40mils

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

MOSFET
Top_S17392DP(Total Qg=15nc_max)
Bottom_S17336ADP(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	
File DDRII 1.8V/0.9V			
Size	DocumentNumber	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
Date:	Friday, August 11, 2006	Sheet	69 of 78



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)
 EEFSXD0331XE*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
 *FVT already modify(special notices V0.8)

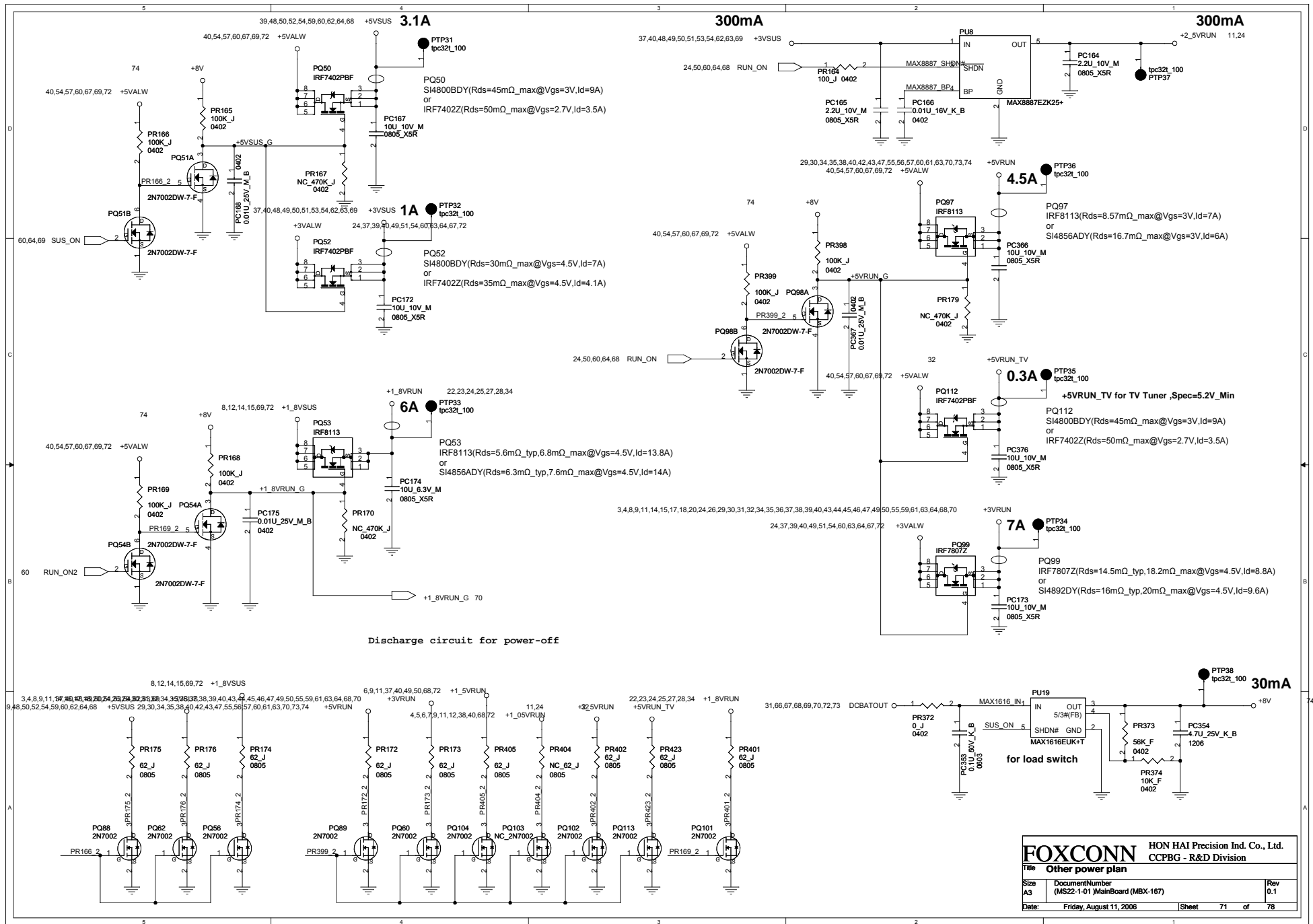
Need to keep the MAX8771_DH1&
 MAX8771_DL1 same length.
 Width DH1=40mils,DL1=40mils

Place these CAPS
 close to FETS

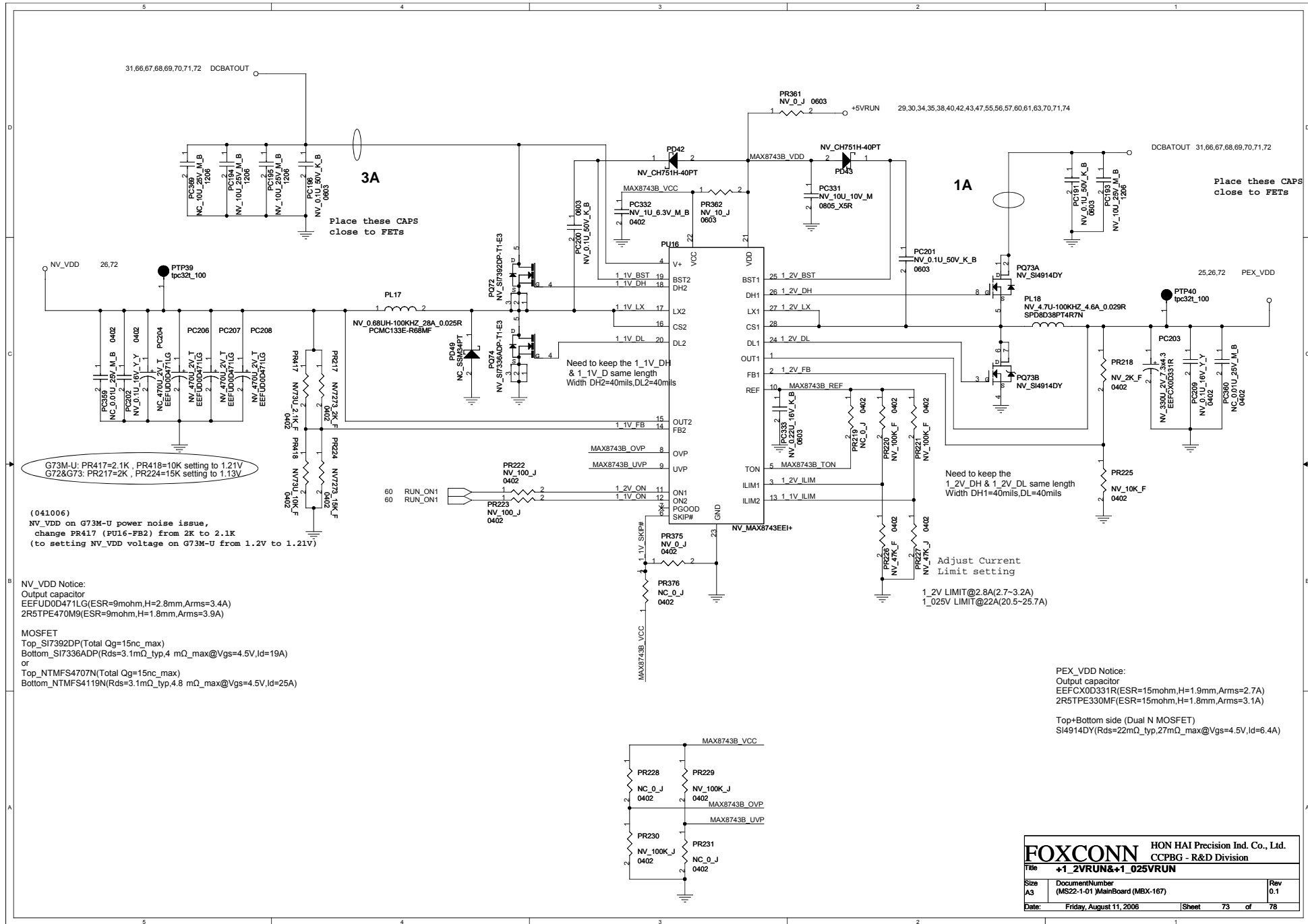
VCCSENSE and VSSSENSE shall be routed as follows.
 Signals must be 18mil wide, and shall use differential routing with 7 mil separation.
 Signals must have equal trace length within 25 mil and are to be routed using external layer
 and GND referencing (no split plane referencing).
 VCCSENSE/VSSSENSE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

8/11
 For IMVP_OK power off have a pulse
 1. Add PQ114
 2.backup PR426
 3.PC375 from Stuff to NC

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



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
Title Other power plan		CCPBG - R&D Division	
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1	
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3A
Place these CAPS close to FETs

1A

Place these CAPS close to FETs

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)

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_S17392DP(Total Qg=15nc_max)
Bottom_S17336ADP(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)

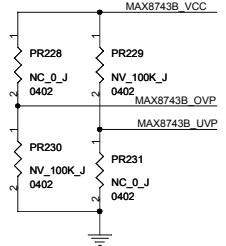
Need to keep the 1.1V_DH
& 1.1V_D same length
Width DH2=40mils,DL2=40mils

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)

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

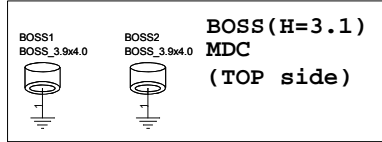
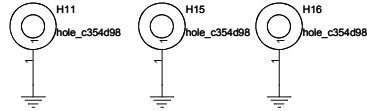
Top+Bottom side (Dual N MOSFET)
SI4914DY(Rds=22mΩ_typ,27mΩ_max@Vgs=4.5V,Id=6.4A)



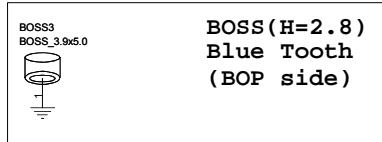
FOXCONN HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division		
Title +1_2VRUN&+1_025VRUN		
Size A3	Document Number (MS22-1-01) MainBoard (MBX-167)	Rev 0.1
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HOLE

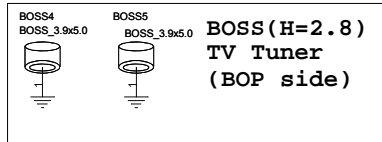
Type 1



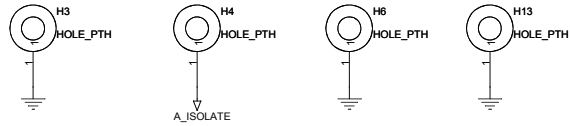
Type 2



Type 3



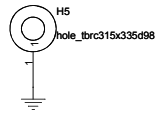
Type 4



Type NPTH Guide (spherical)HOLD



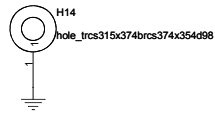
Type 5



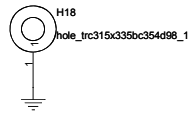
Type NPTH Guide (oval-shaped)HOLD



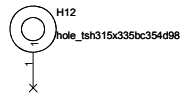
Type 6



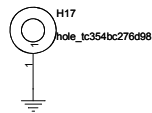
Type 7



Type 8



Type 9



Type CPU



FOXCONN		HON HAI Precision Ind. Co., Ltd.	
		CCPBG - R&D Division	
Title HOLE & BOSS			
Size	Document Number	Rev	
A3	(MS22-1-01) MainBoard (MBX-167)	0.1	
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MS21 PVT to MS22 EVT Change History

(2006/7/28)

- (修) 01.(Page57) Delete C1676 For MDR suggestion
- (調) 02.(Page29) change D60,D61,D81 Value from NV to Normal
- (調) 03.(Page20) change Y2 Value from Normal to NV

(2006/7/31)

- (費) 04.(Page60) for cancel Soft start
1.R1978 from stuff to NC
- (才) 05.(Page60) Change System ID
1.R724/R728 from NC to stuff
2.R725/R727 from stuff to NC
- (費) 06.(Page74) For cancel soft start
1.R1981 from NC to stuff
2.R1980 from stuff to NC
- (才) 07.(Page38) Change new mosfet for gate threshold voltage level issue
1. Q147 and Q148 from 2N7002 change to 2N7002DW-7-F
Location change to Q147A and Q147B
- (才) 08.(Page60) for Leakage issue
1.Add Q161A
2.Backup R1986

(2006/8/4)

- (才) 09.(Page60) for solve RTC stop issue
1.add Q161B
2.R712 change to NC
- (調) 10.(Page34)Change new HDMI connector
1.P/N change from
1N-0019001-MKX0 to 1N-0019002-MKGG
- (費) 11.(Page64) Change AV_PHONE_DET signal direction
- (青) 12.(Page66) Change new DCIN connector
1. PCN1 from 2N-0004000-MKX0 to 2N-0004004-MWT0
- (青) 13.(Page66) For reduce PR377 power consumption when keep OVP.
1.PR377 Value change from 1K to 15K

(2006/8/9)

- (修) 14.(Page57) Modify Int SPK mute circuit for Vista requirement
1.default original circuit
Add R1984,R1991
2.Backup circuit 1
Backup R1985
3. Backup circuit 2
Backup U140 , U141
- (才) 15.(Page60) Add VISTA_MUTE# signal
1.Add R1990
2.backup R1989 for Vista _mute#
- (青) 16.(Page70)For IMVP_OK power off have a pulse
1. Add PQ114
2.backup PR426
3.PC375 from Stuff to NC