Schematics Page Index (Title / Revision / Change Date)

P. Leader	Check by	Design by

Project Code & Schematics Subject: **M610 PVT Main Board**

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

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

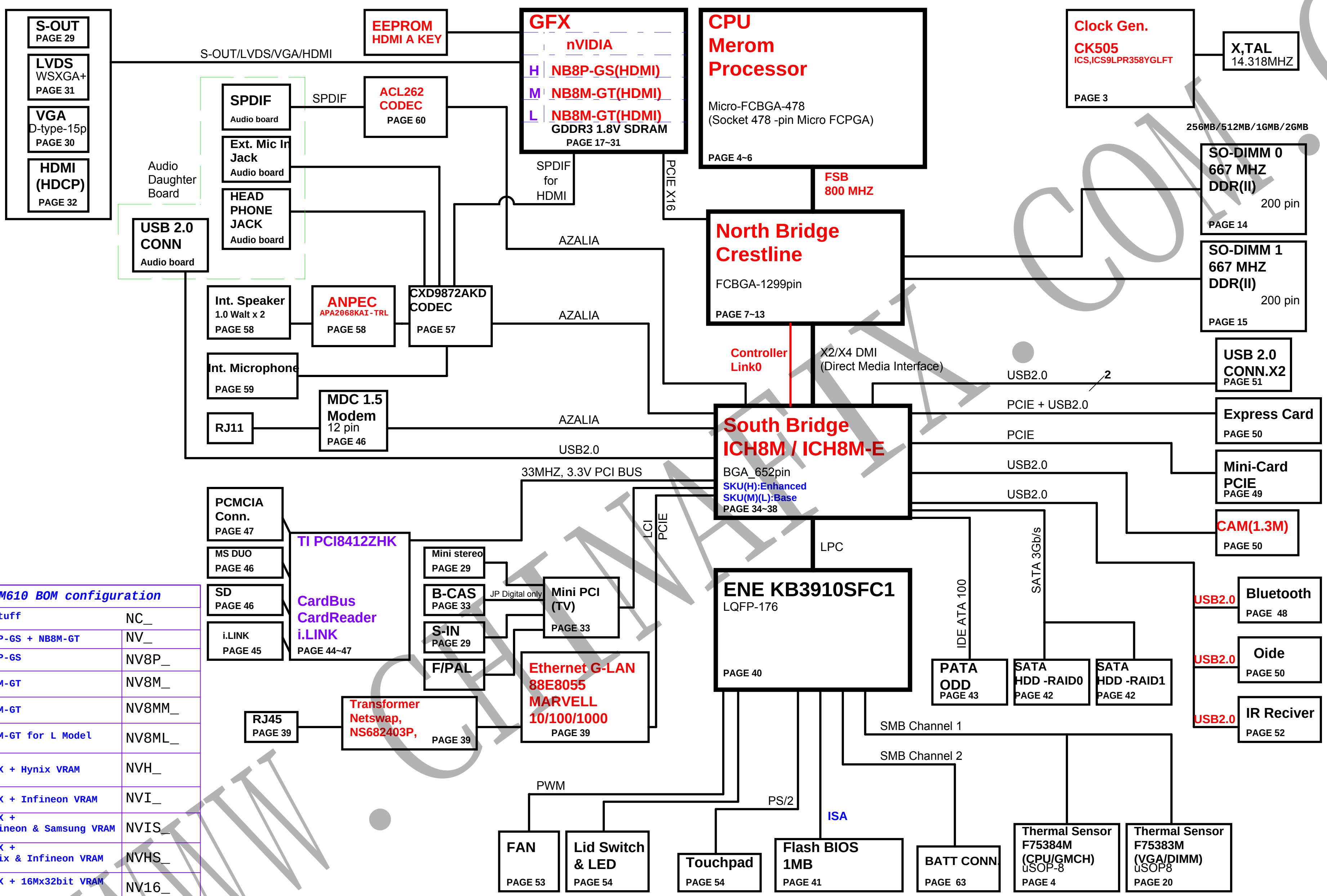
Title: **Index Page**

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

Date: Thursday, May 10, 2007 Sheet 1 of 77

M610(Beagle Santa Rosa)Block Diagram

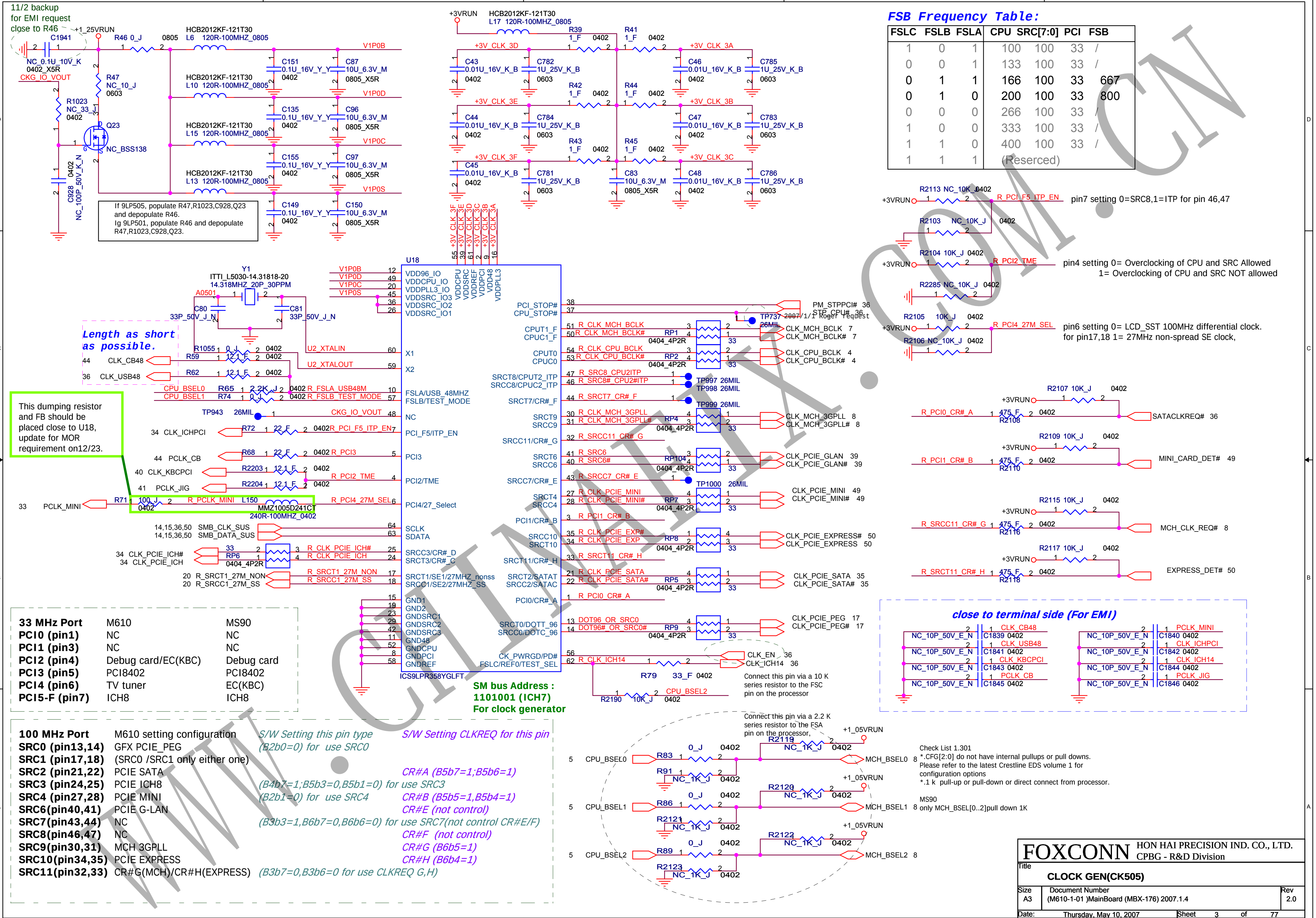
Red texts:
New modified



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

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

Title	Block Diagram	
Size C	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 2 of 77	



11/2 backup for EMI request close to R46

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

FSB Frequency Table:

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

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

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

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

Length as short as possible.

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

2007/1/1 Roger request

SM bus Address :
1101001 (ICH7)
For clock generator

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

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

close to terminal side (For EMI)

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

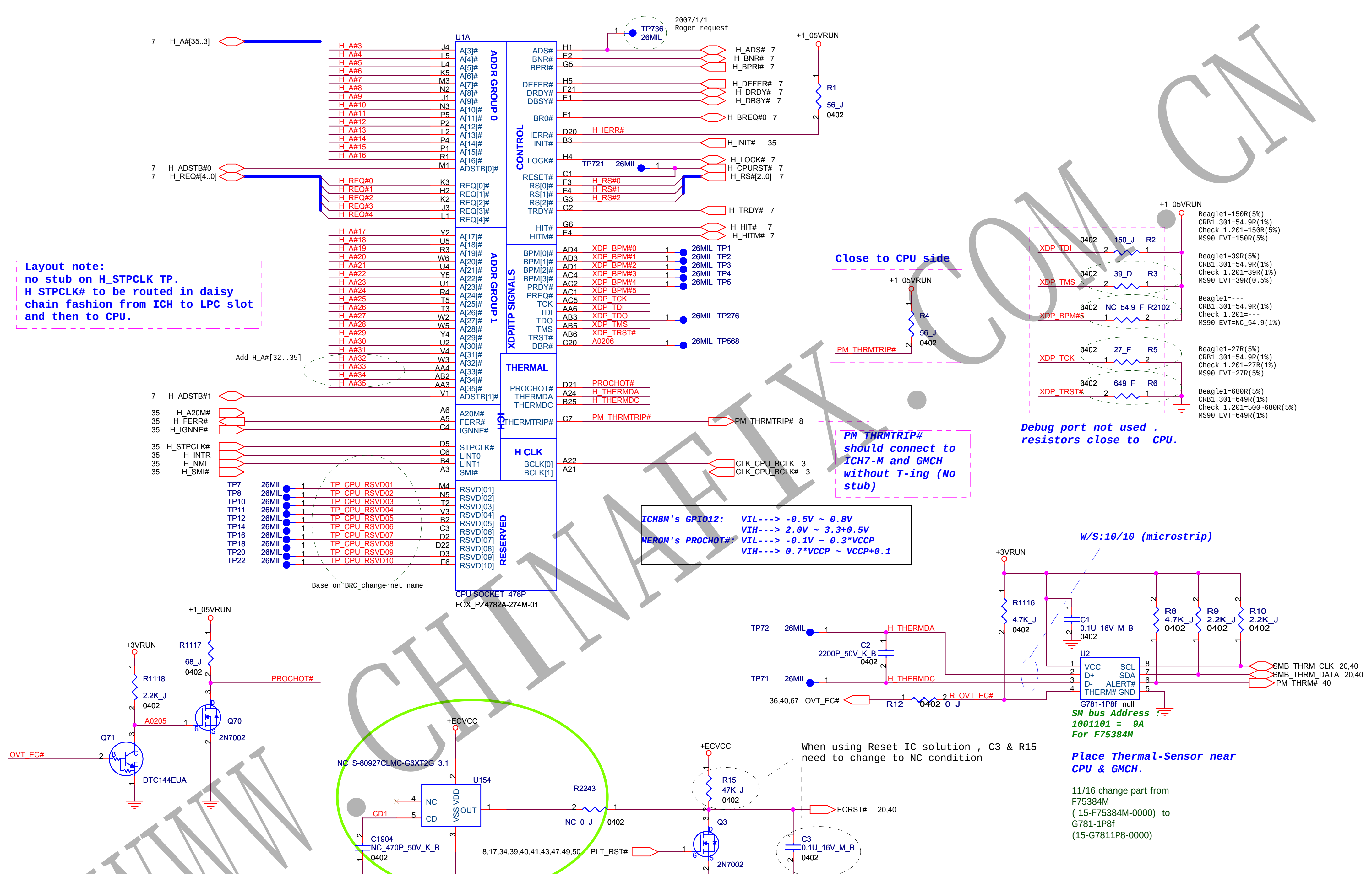
100 MHz Port	M610 setting configuration	S/W Setting this pin type	S/W Setting CLKREQ for this pin
SRC0 (pin13,14)	GFX PCIE_PEG	(B2b0=0) for use SRC0	
SRC1 (pin17,18)	(SRC0 /SRC1 only either one)		
SRC2 (pin21,22)	PCIE SATA		CR#A (B5b7=1;B5b6=1)
SRC3 (pin24,25)	PCIE ICH8	(B4b7=1;B5b3=0,B5b1=0) for use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

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

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

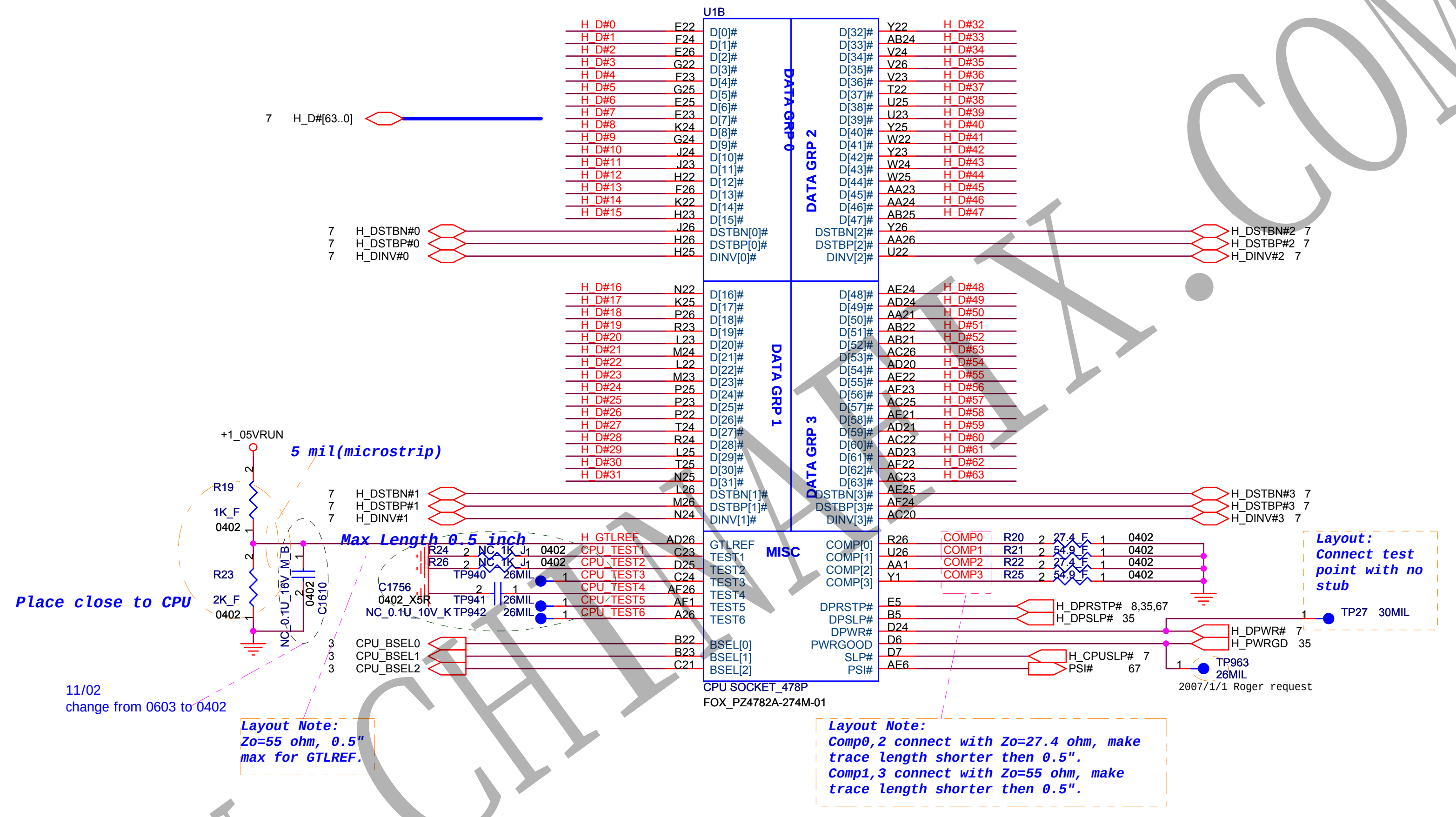
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	CLOCK GEN(CK505)	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 3 of 77	



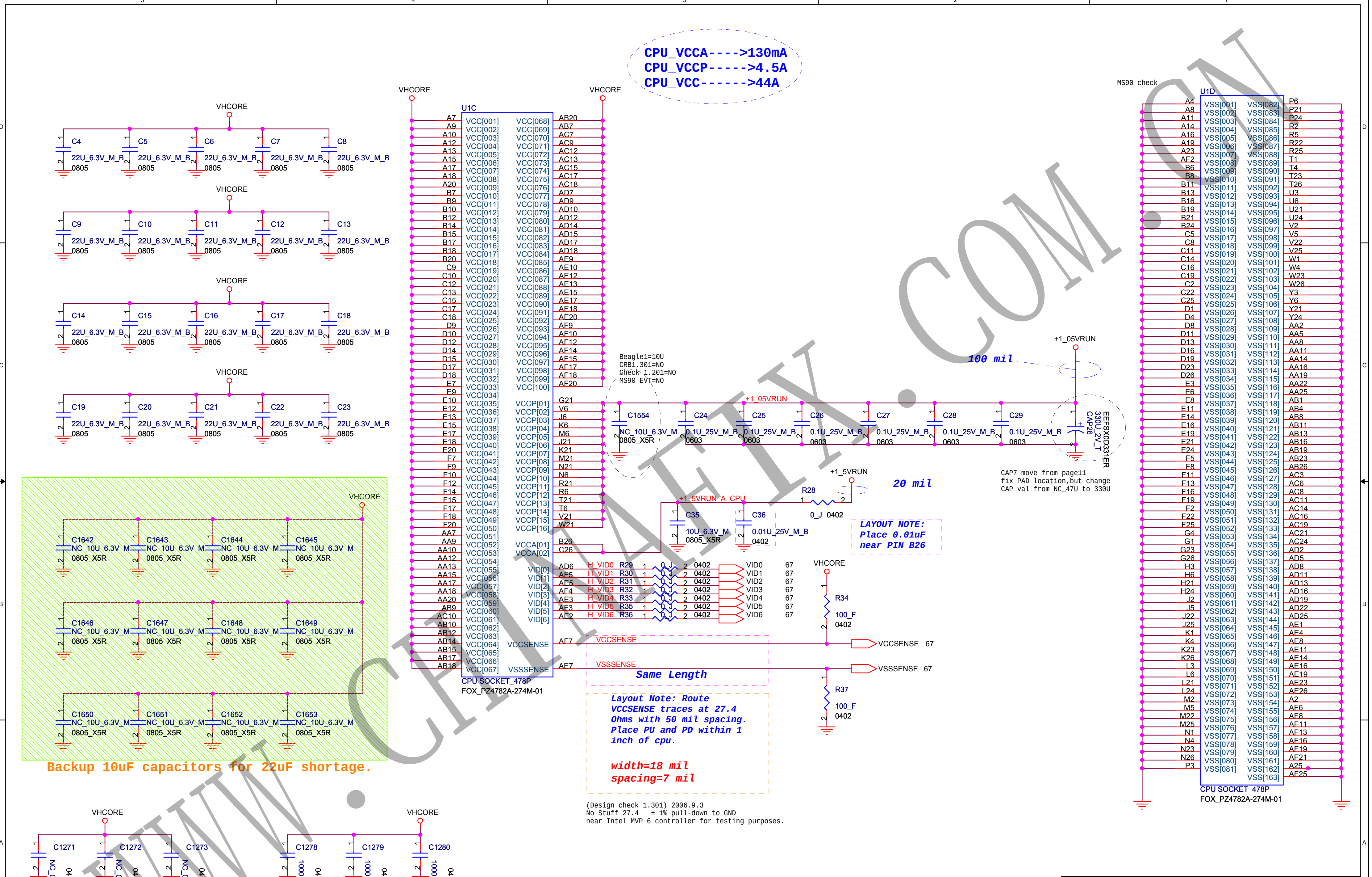
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	Merom(HOST BUS)1/3
Size	A3
Document Number	(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev	2.0
Date:	Thursday, May 10, 2007
Sheet	4 of 77



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

Title	Merom(HOST BUS)2/3	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 5 of 77	

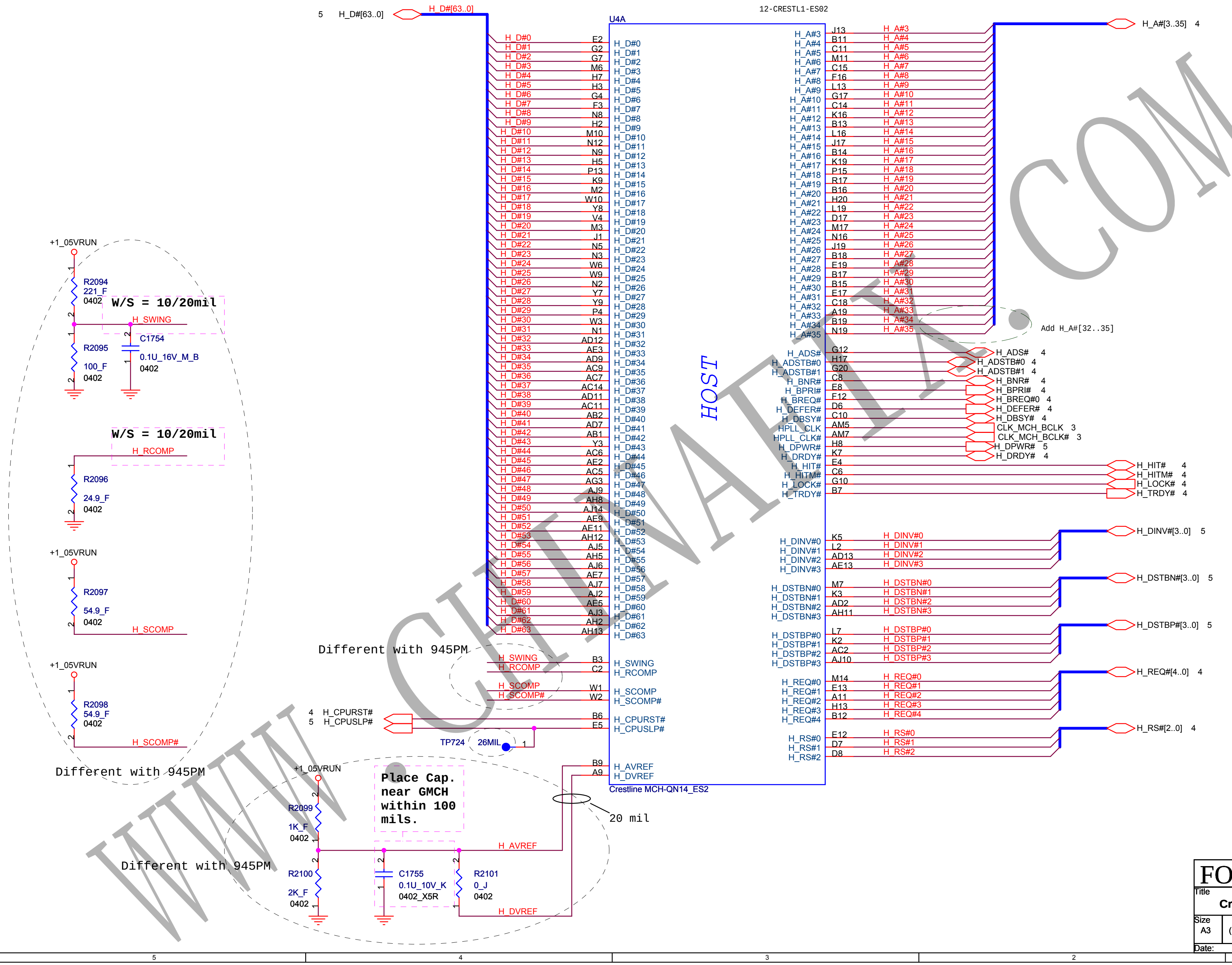


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Merom(POWER/GND)

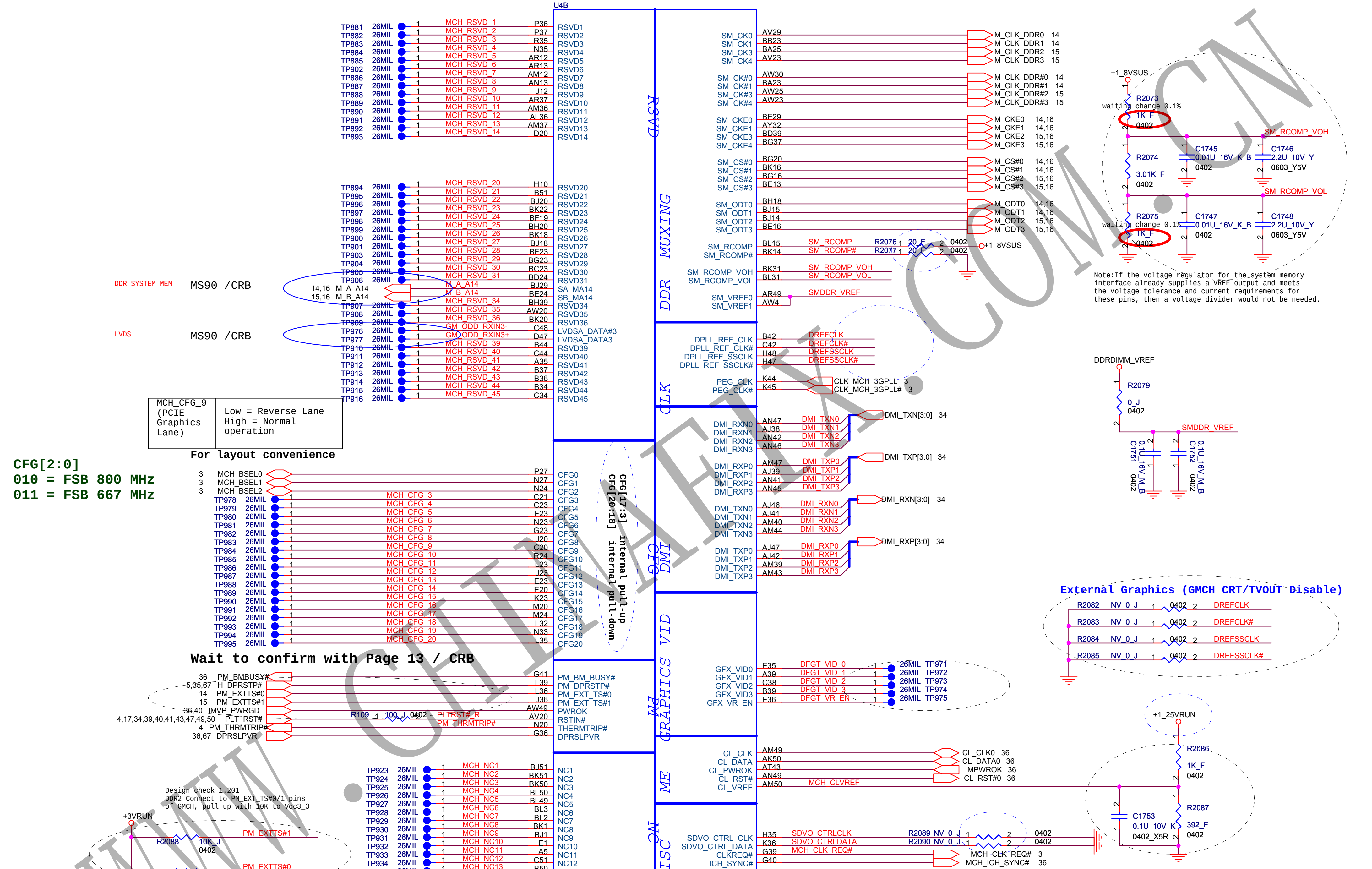
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 6 of 77



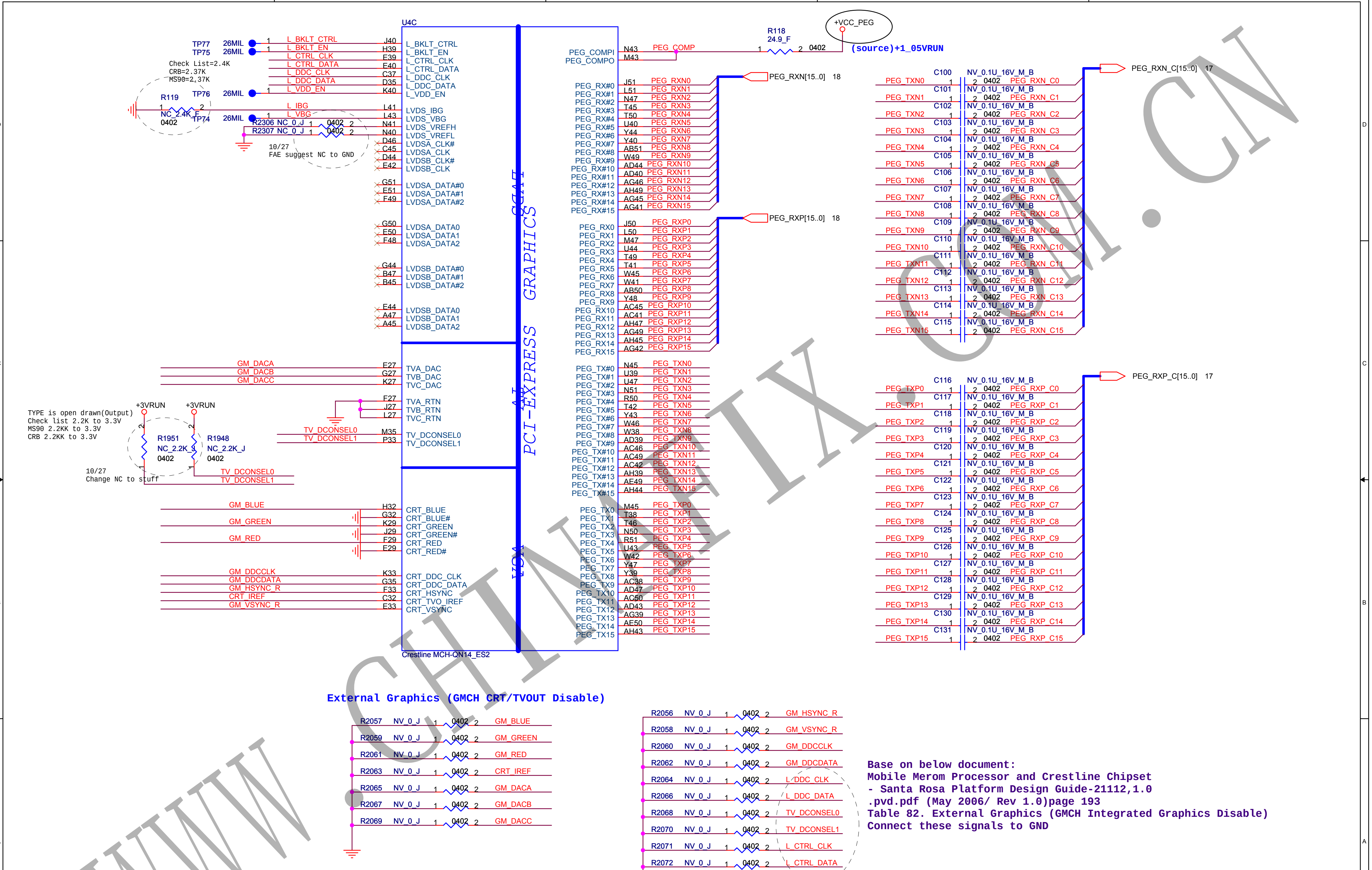
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	Crestline (HOST)1/7	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 7 of 77	



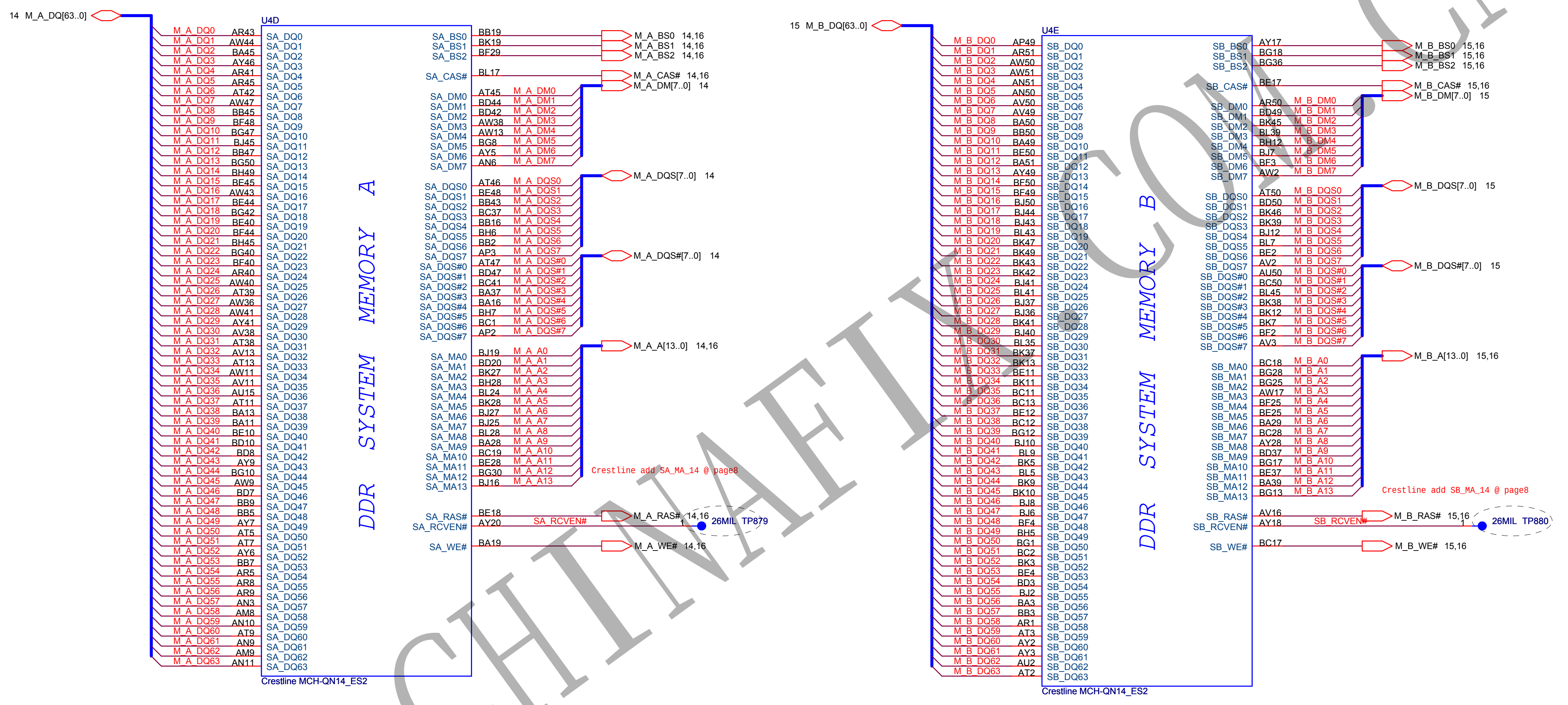
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	Crestline (DMI)2/7
Size	A3
Document Number	(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev	2.0
Date:	Thursday, May 10, 2007
Sheet	8 of 77



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

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	Crestline(GRAPHIC)3/7	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 9 of 77	

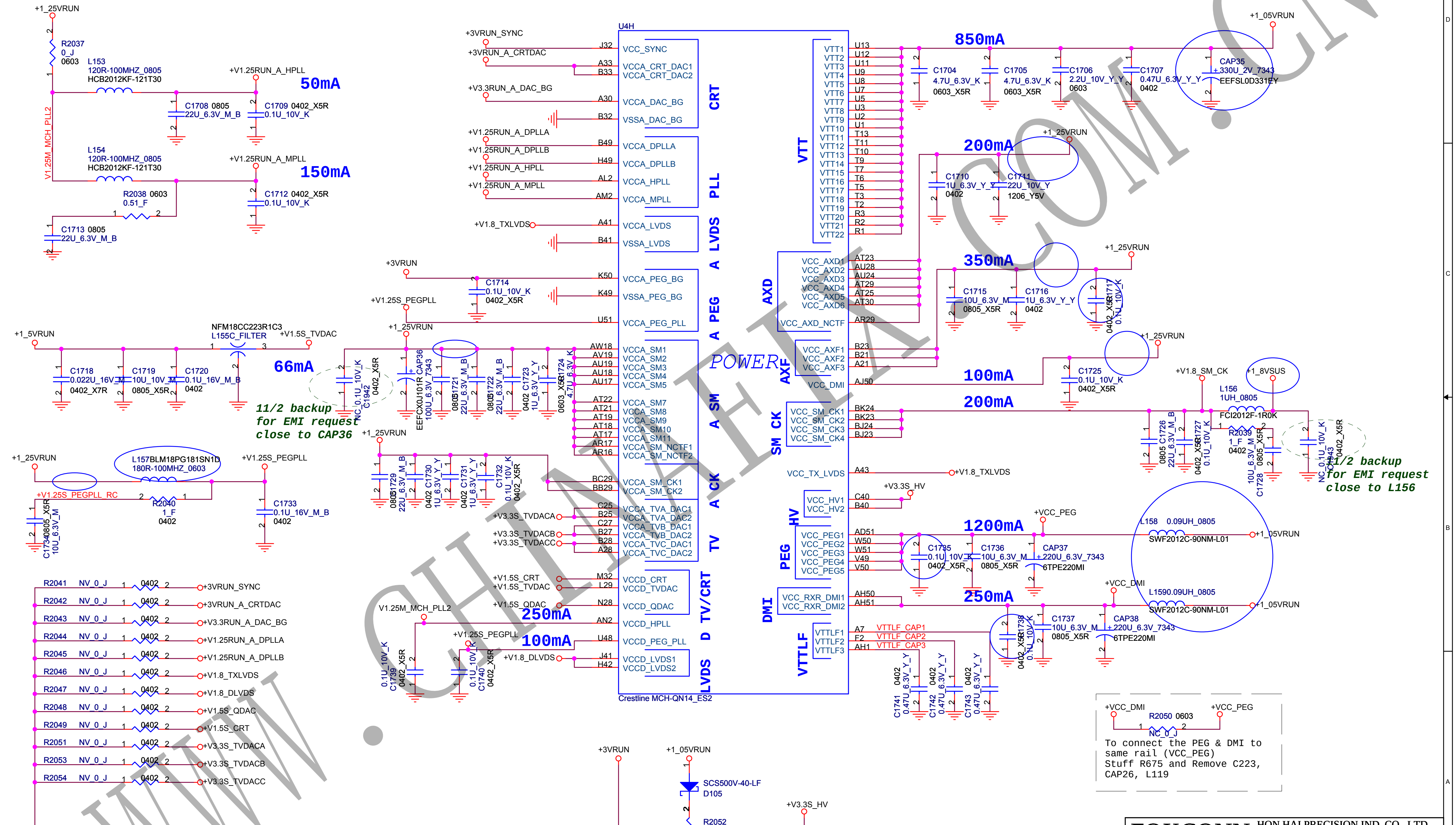


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Crestline(DDRII)4/7

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

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

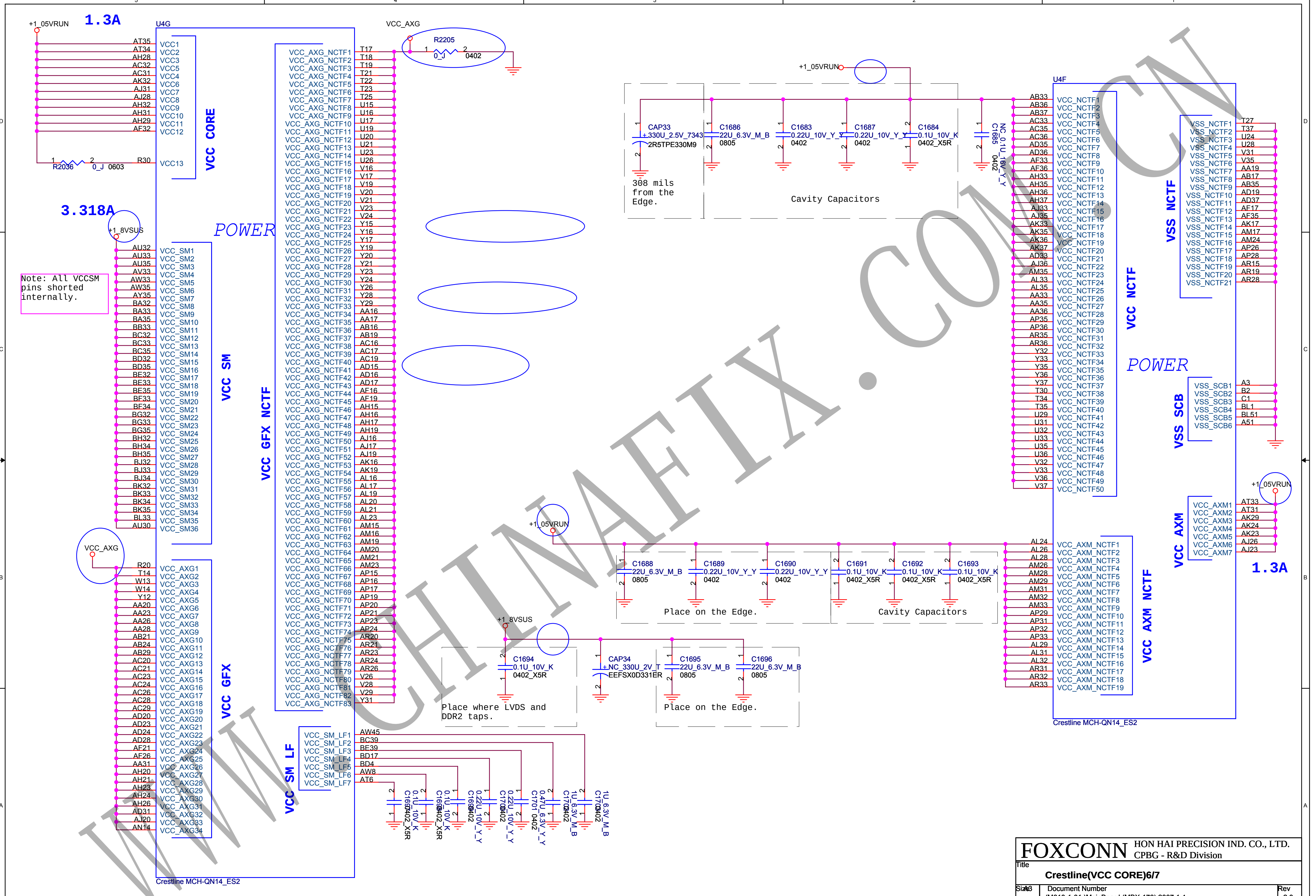


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Crestline(POWER,VCC)5/7

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

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

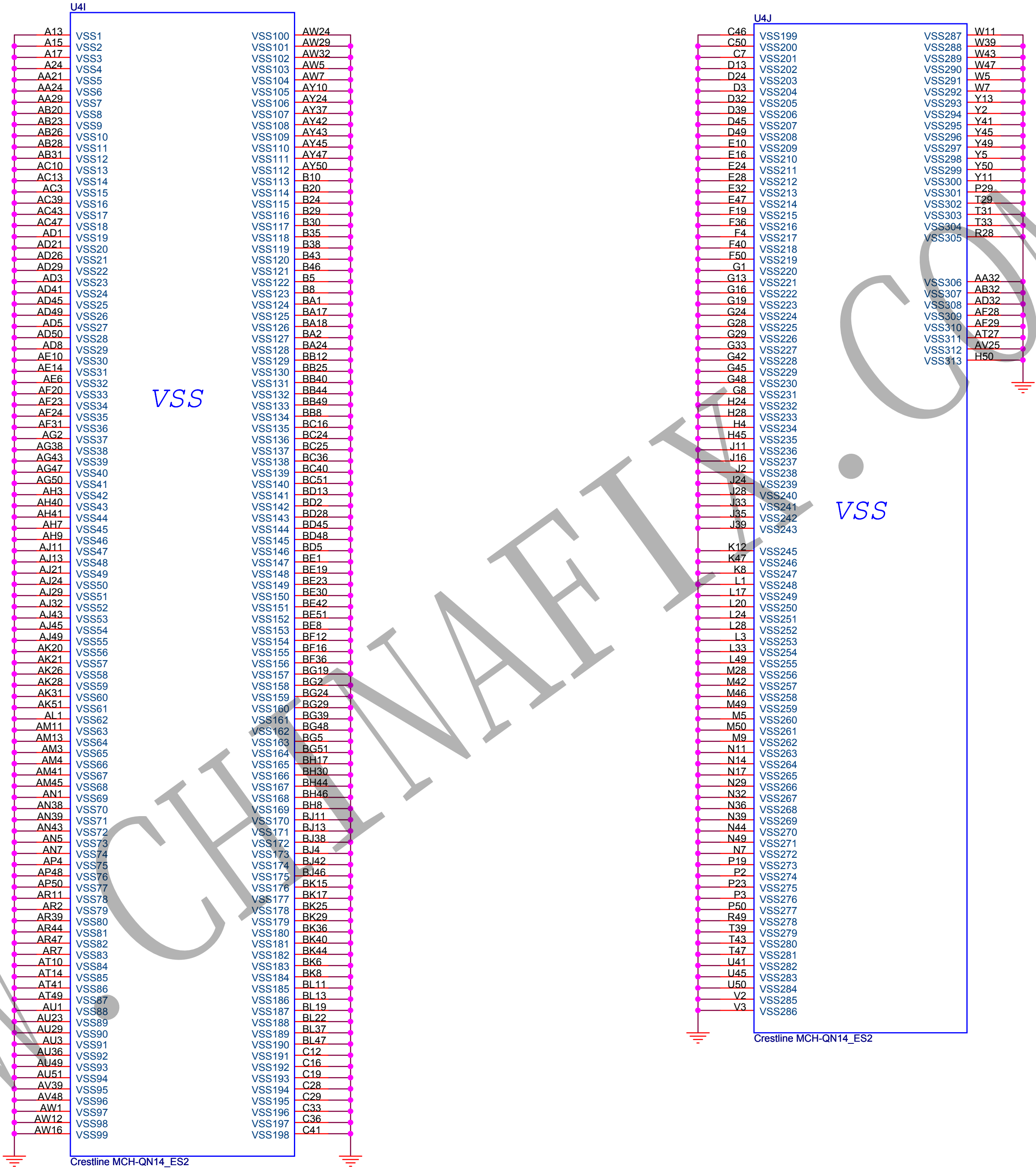


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: **Crestline(VCC CORE)6/7**

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

Date: Thursday, May 10, 2007 Sheet 12 of 77

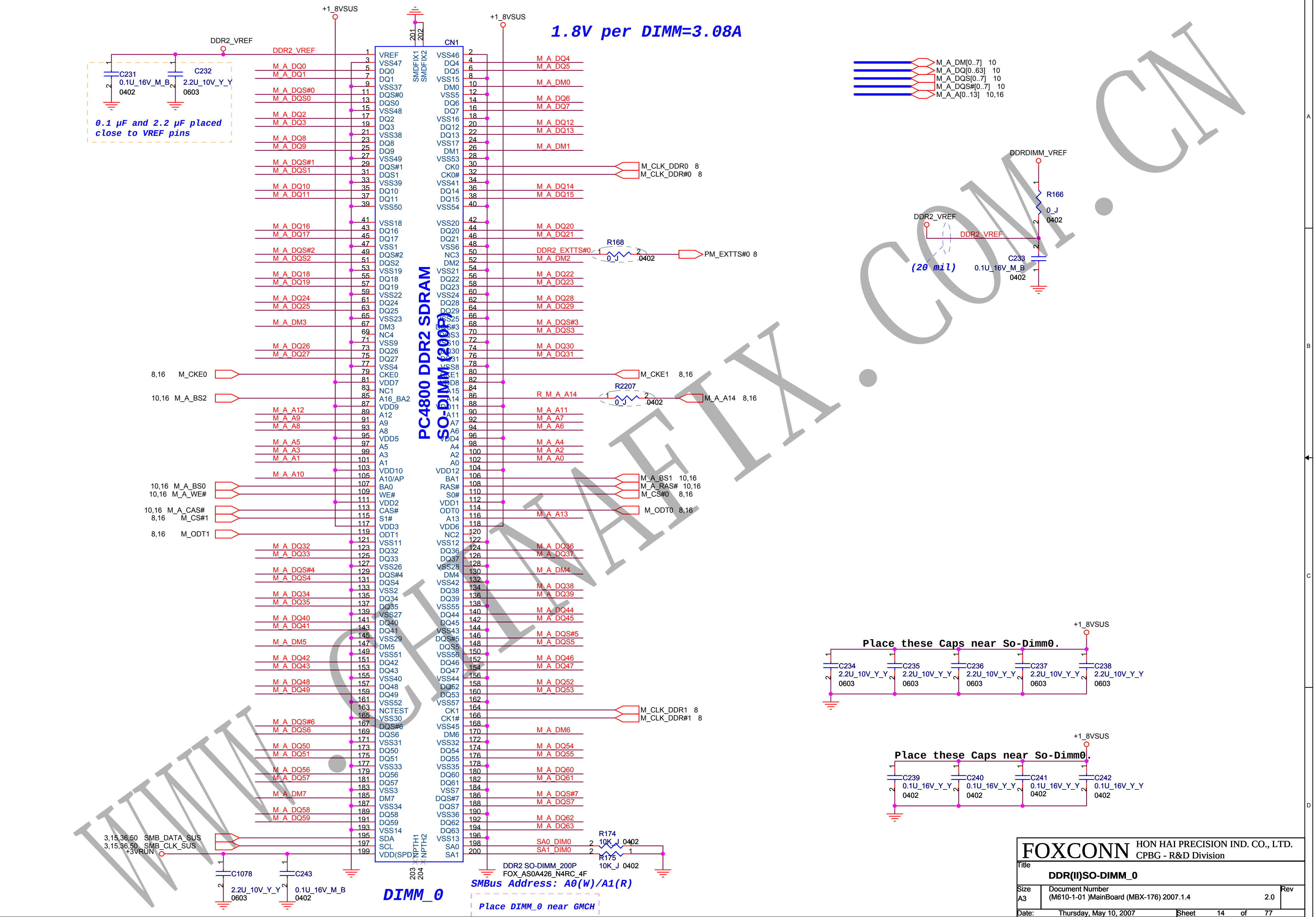


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title
Crestline (VSS)7/7

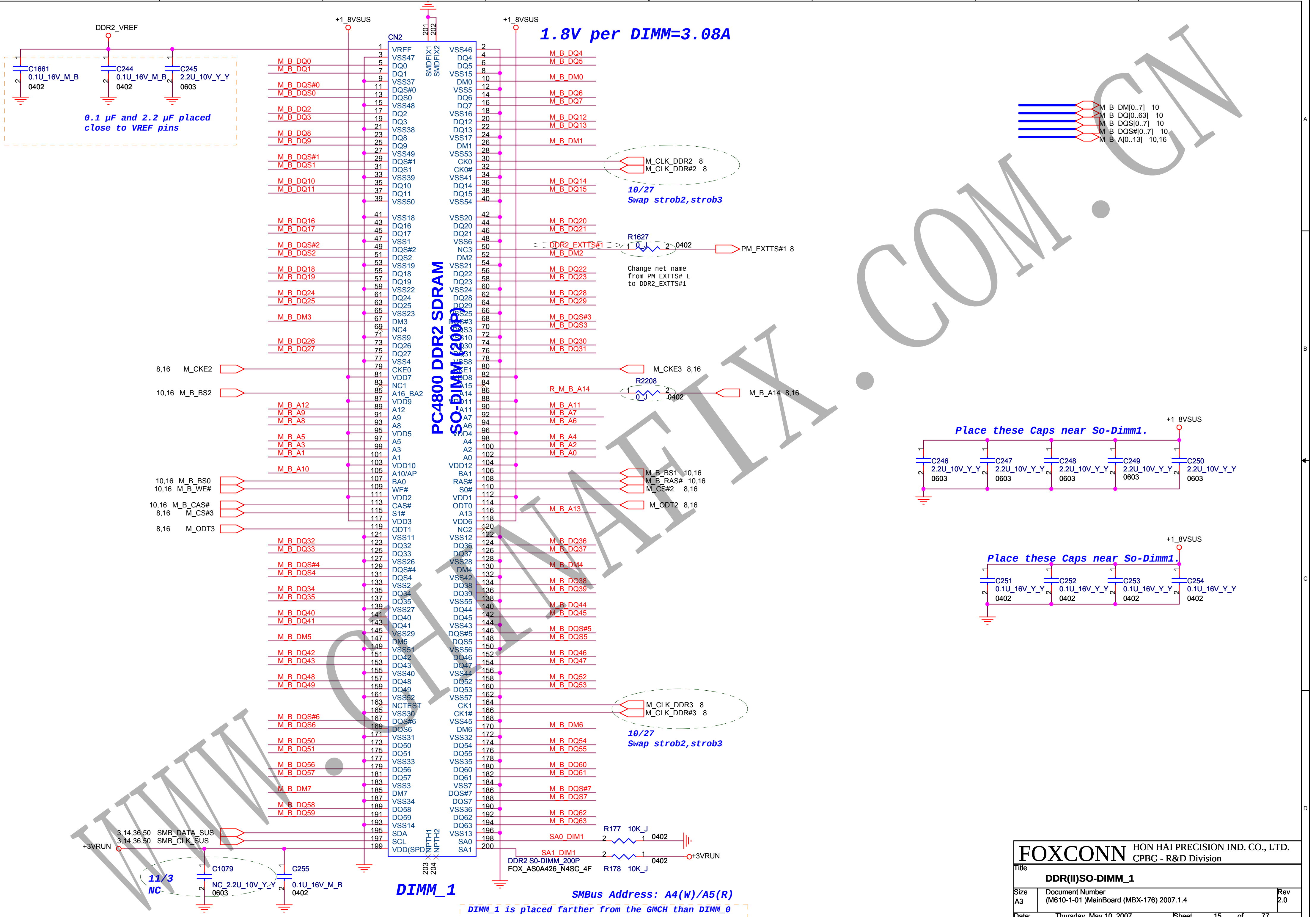
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 13 of 77



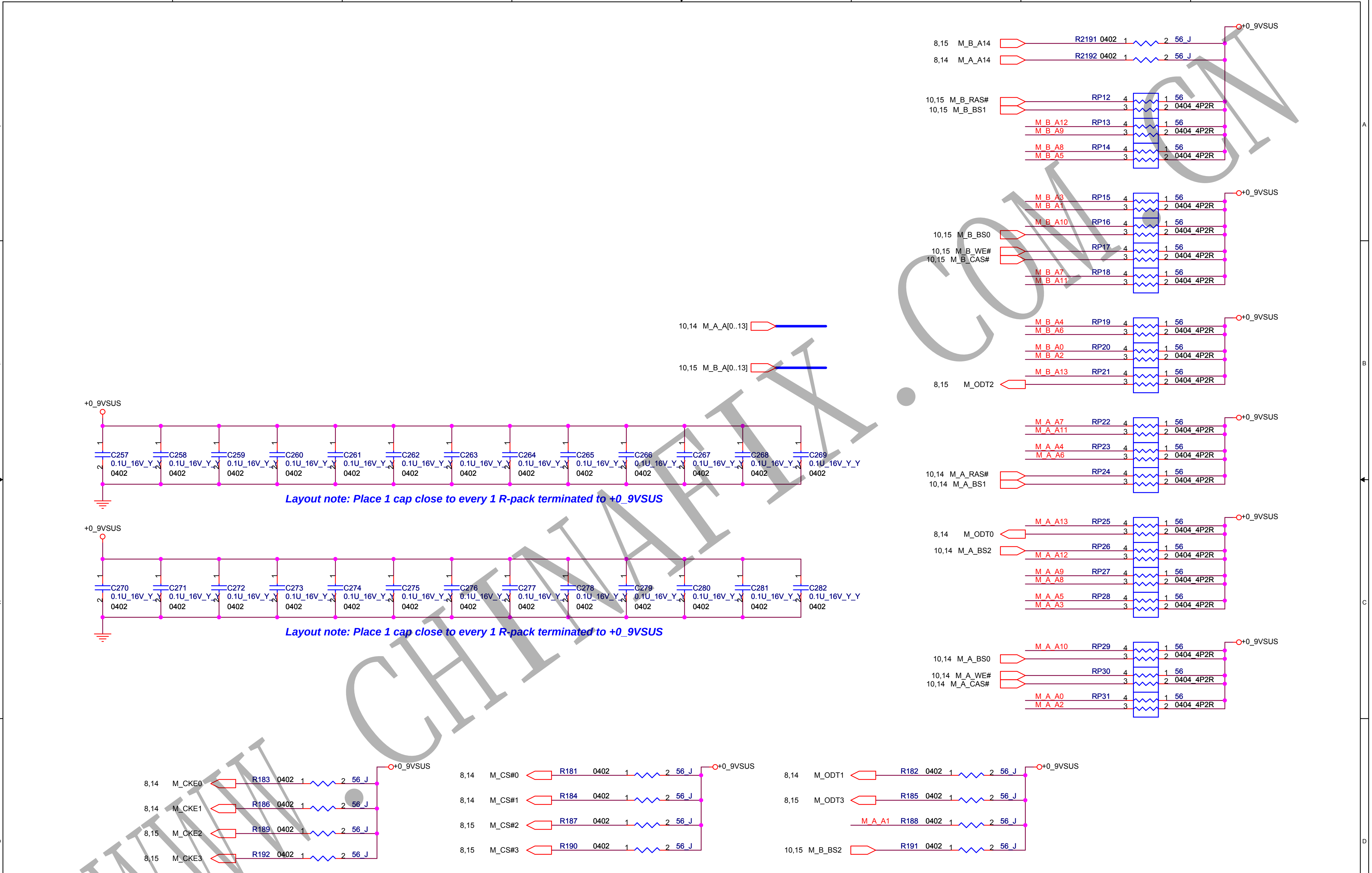
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	DDR(II)SO-DIMM_0	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 14 of 77	



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

Title	DDR(II)SO-DIMM_1
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 2.0
Date:	Thursday, May 10, 2007 — Sheet 15 of 77

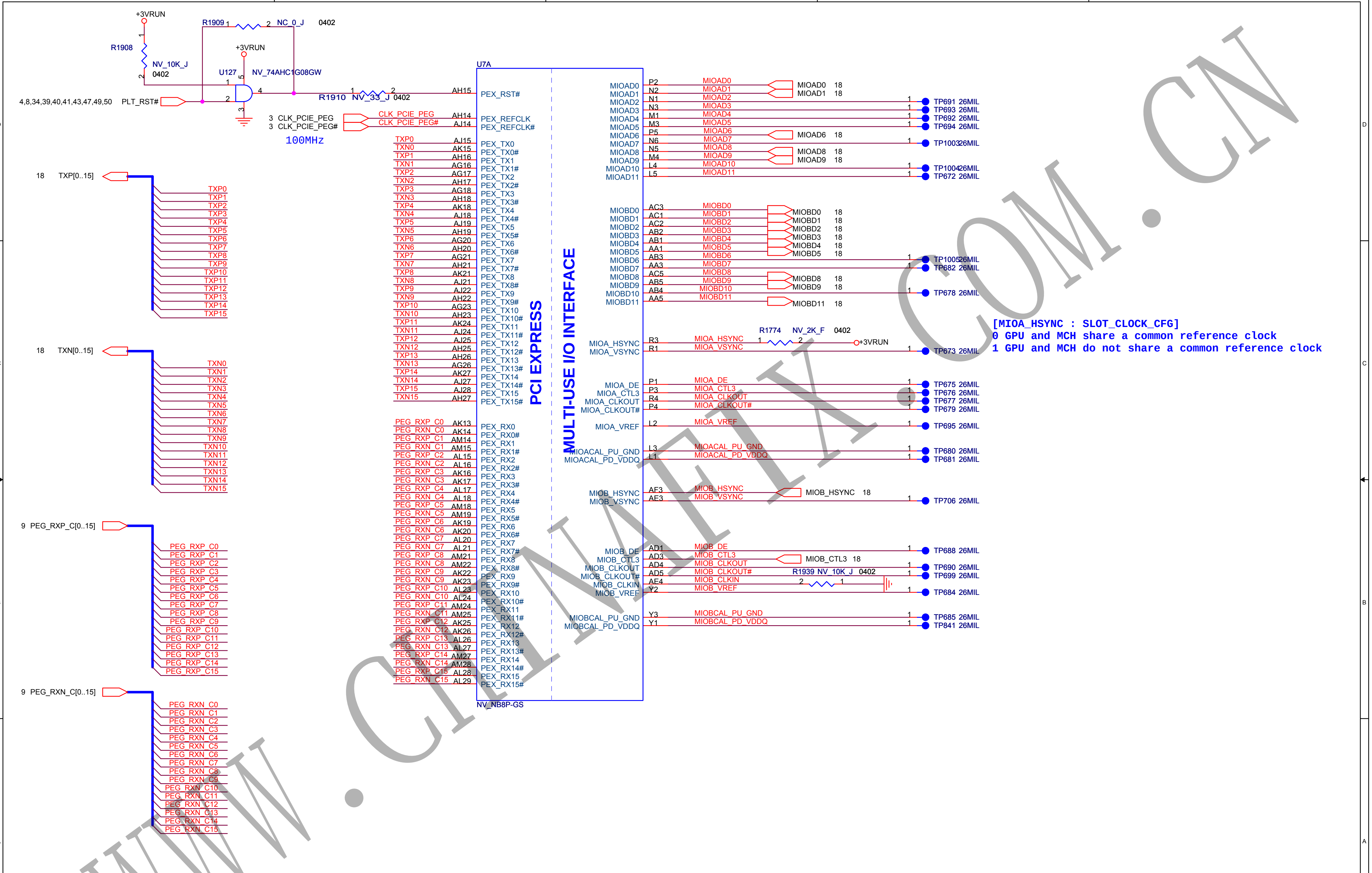


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: **DDR(II)Termination**

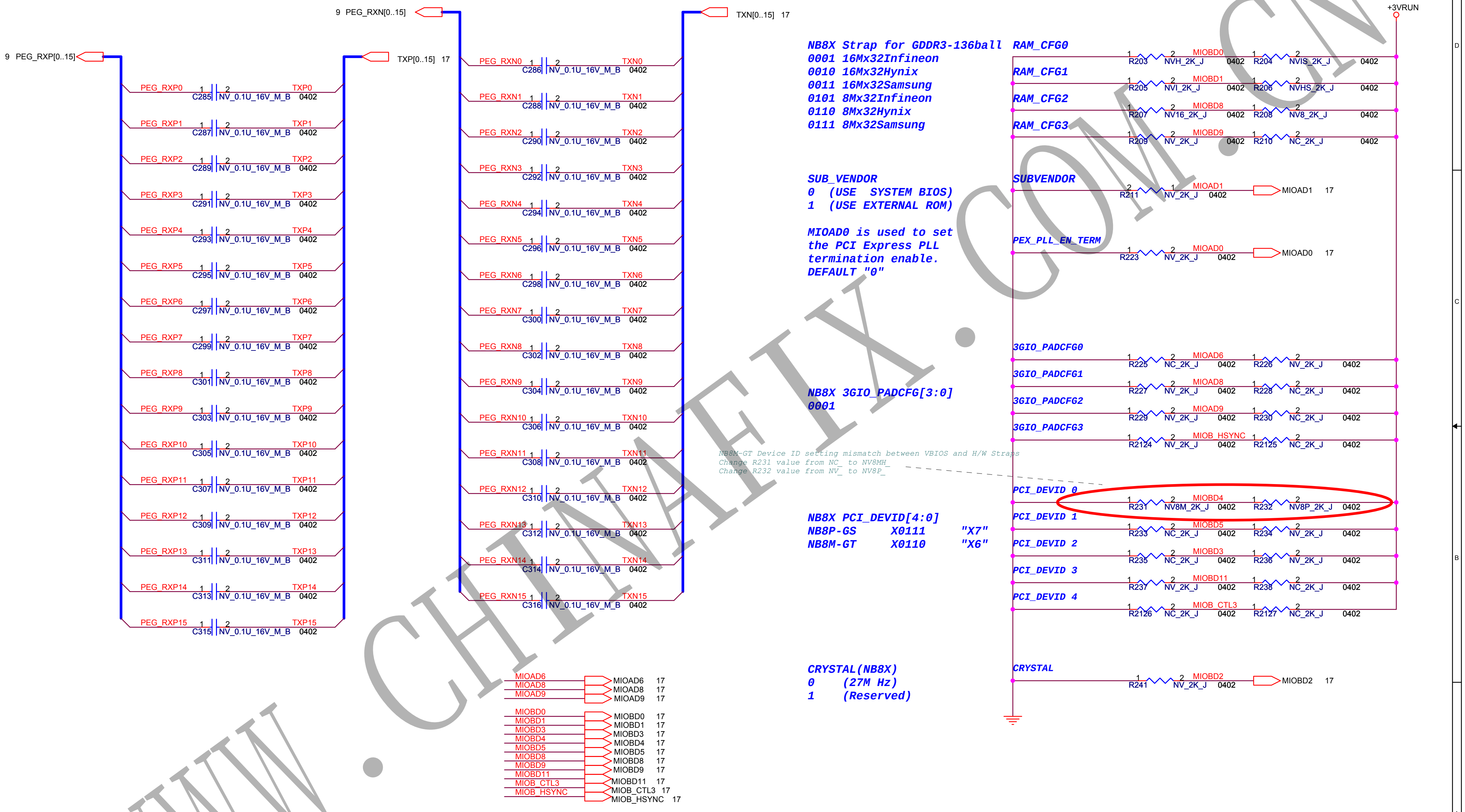
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 16 of 77



[MIOA_HSYNC : SLOT_CLOCK_CFG]
0 GPU and MCH share a common reference clock
1 GPU and MCH do not share a common reference clock

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	VGA (PCI EXPRESS) 1 OF 8
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 2.0
Date: Thursday, May 10, 2007	Sheet 17 of 77

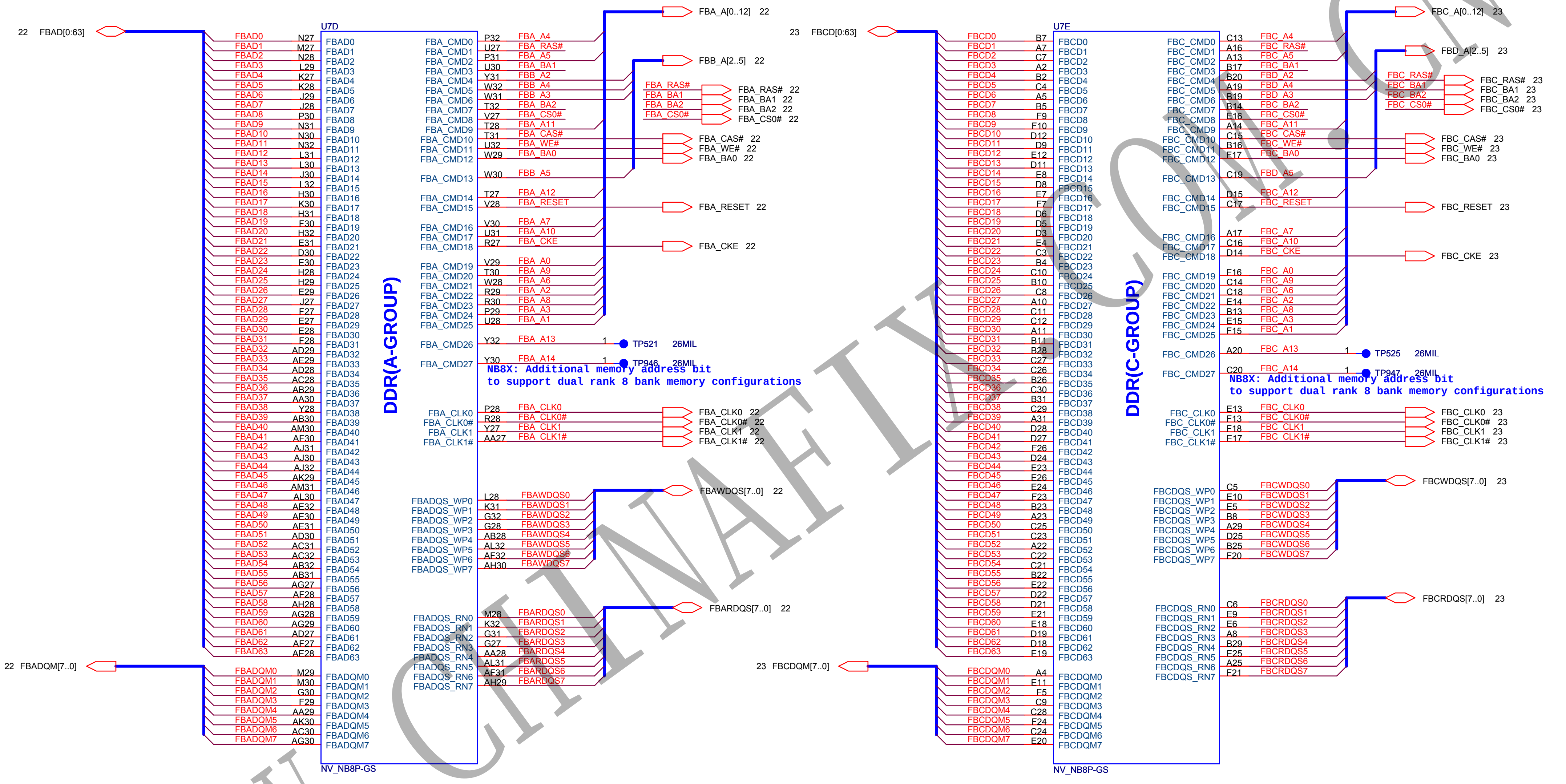


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

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

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

Date: Thursday, May 10, 2007 | Sheet 18 of 77

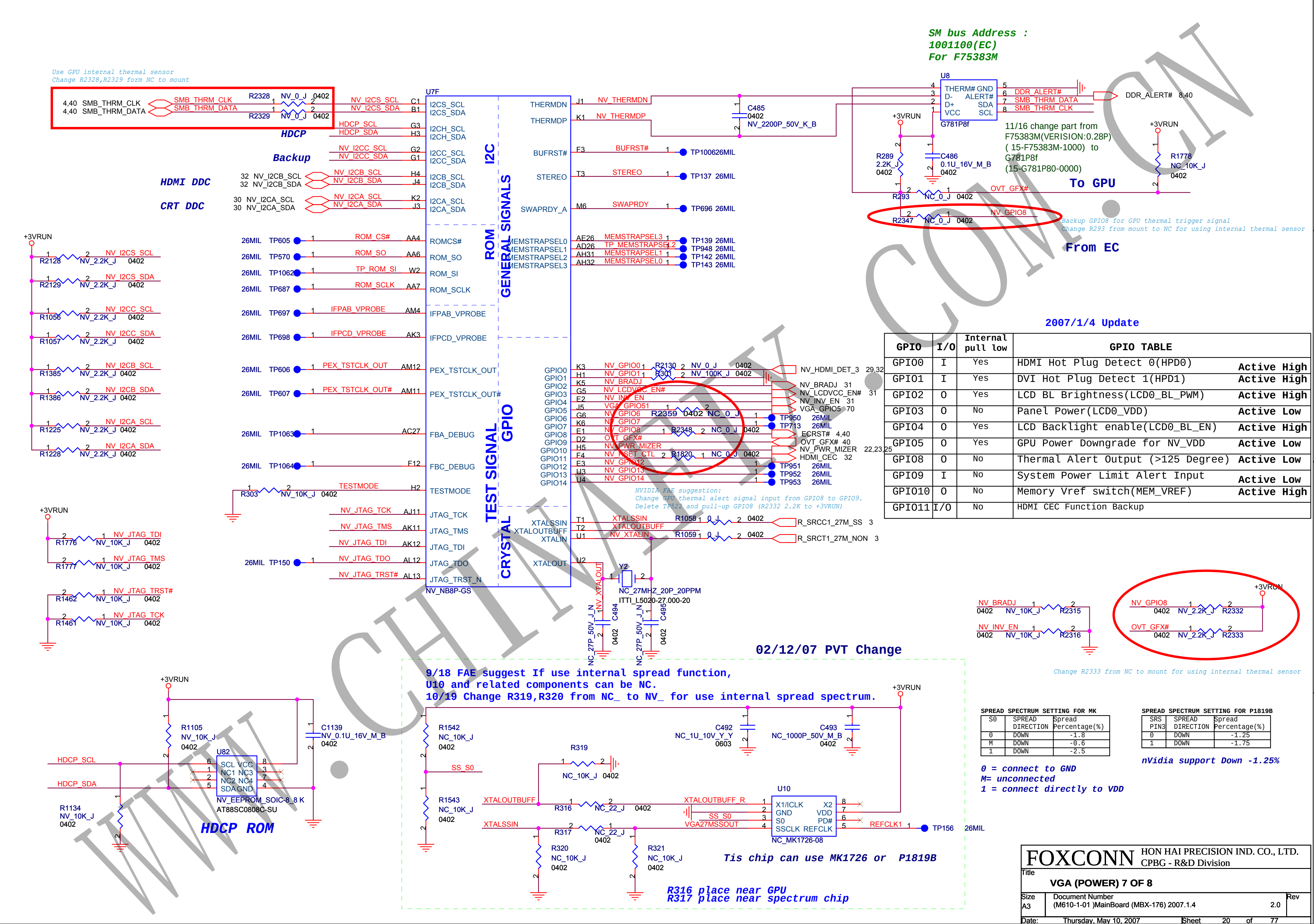


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: VGA (GDDR) 3 OF 8

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

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



2007/1/4 Update

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

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

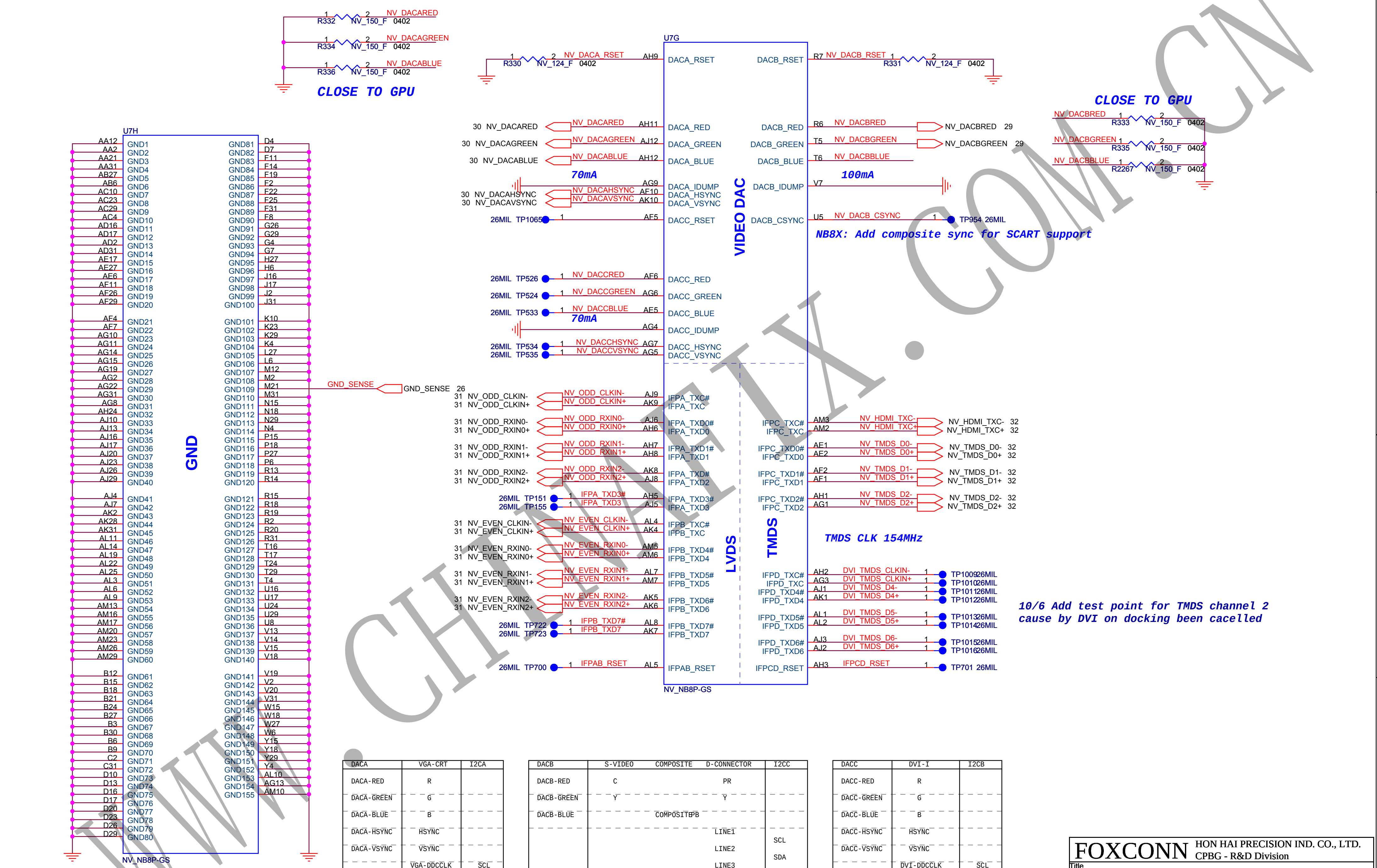
nVidia support Down -1.25%

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

Title: VGA (POWER) 7 OF 8

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

Date: Thursday, May 10, 2007 | Sheet 20 of 77



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	
			LINE2	SCL
			LINE3	SDA

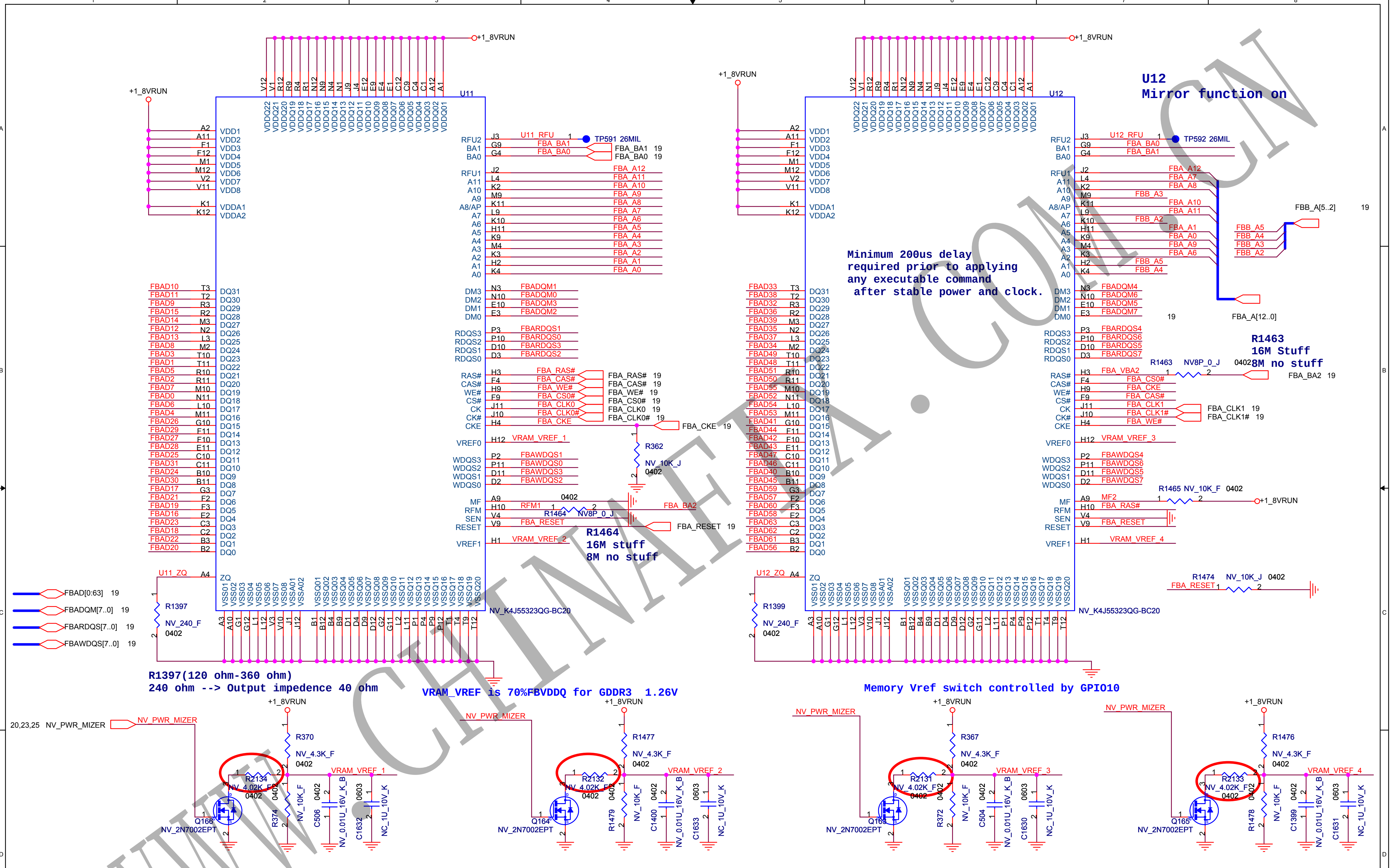
DACC	DVI-I	I2CB
DACC-RED	R	
DACC-GREEN	G	
DACC-BLUE	B	
DACC-HSYNC	HSYNC	
DACC-VSYNC	VSYNC	
	DVI-DDCCLK	SCL
	DVI-DDCDATA	SDA

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

Title: VGA (POWER) 8 OF 8

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

Date: Thursday, May 10, 2007 | Sheet 21 of 77



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

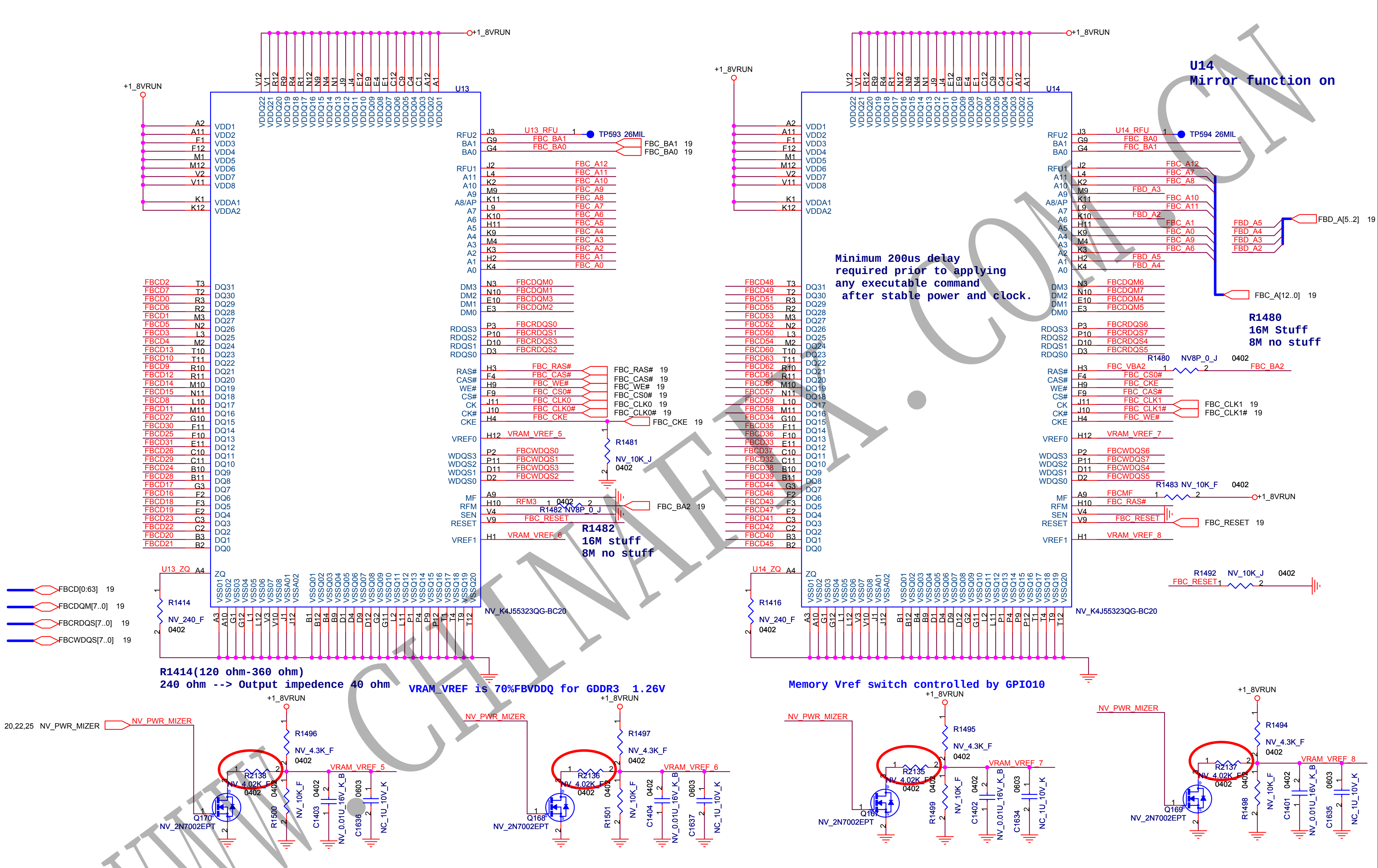
NVIDIA FAE suggestion:
Update Single resistor between FBx_CLK and FBx_CLK to 243ohm*

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

Title: VRAM (GDDR) 1 OF 4

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

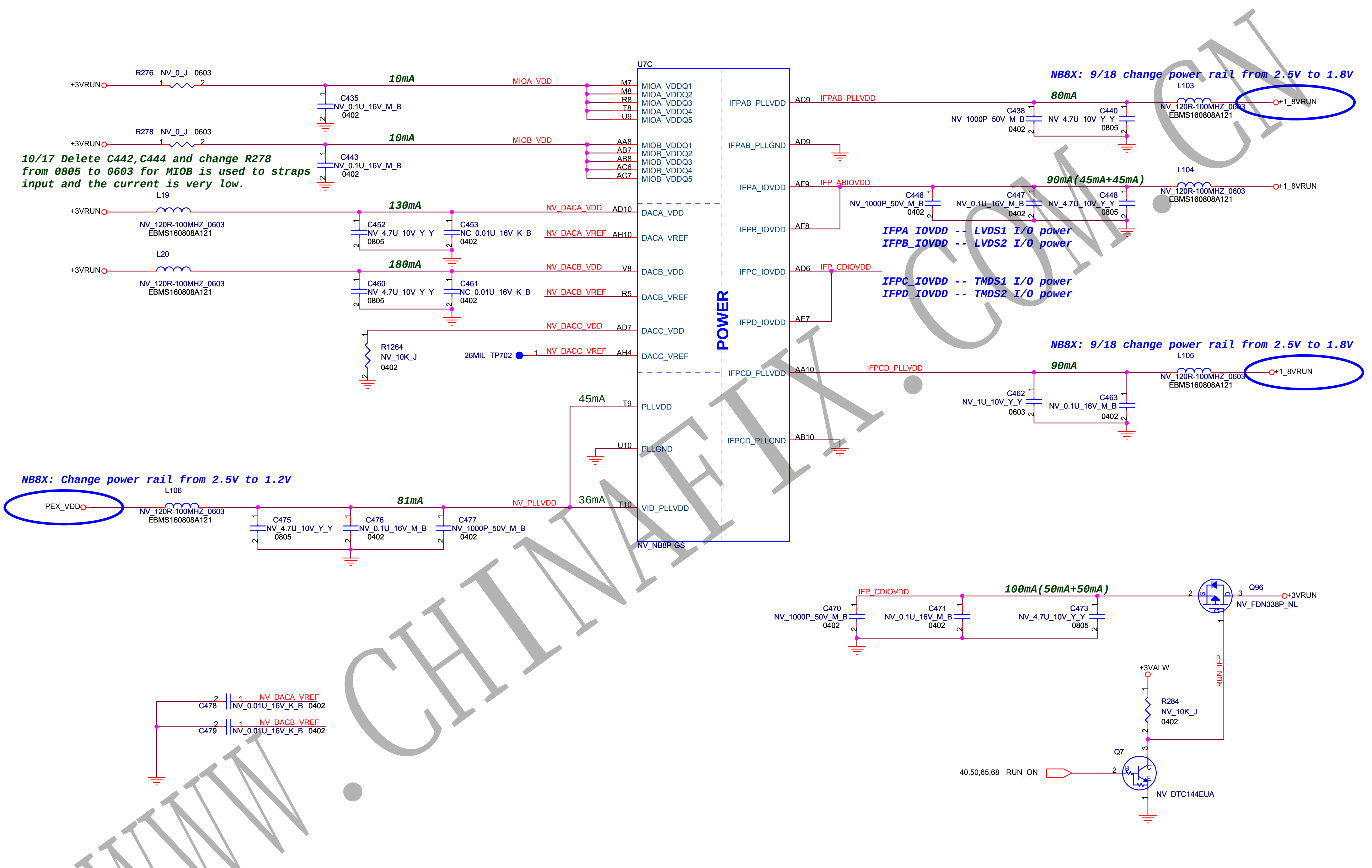
Date: Thursday, May 10, 2007 | Sheet 22 of 77



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

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

Title	VRAM (GDDR) 1 OF 4	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 23 of 77	

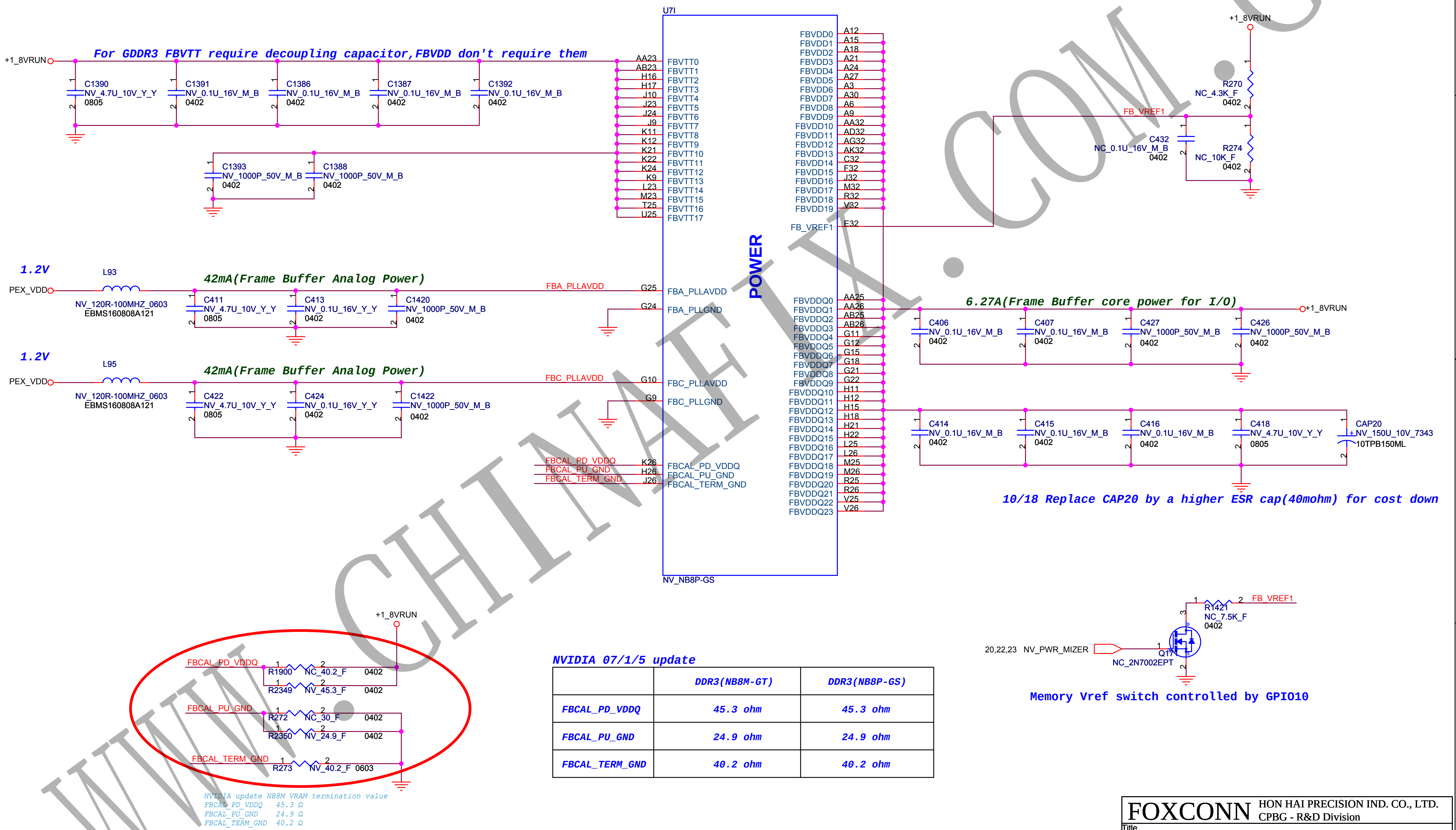


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: VGA (POWER) 6 OF 8

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

Date: Thursday, May 10, 2007 Sheet 24 of 77



NVIDIA 07/1/5 update

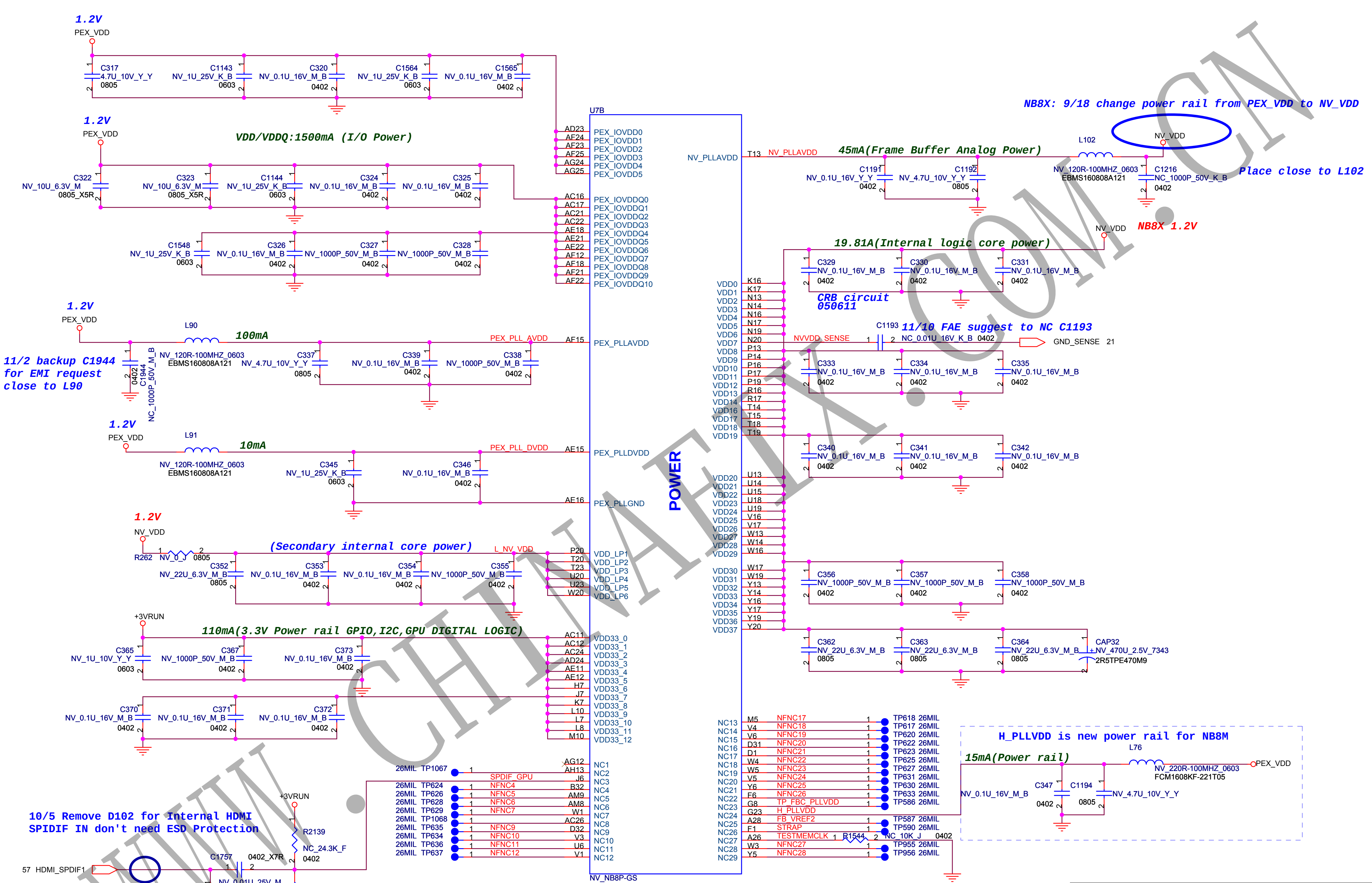
	DDR3(NB8M-GT)	DDR3(NB8P-GS)
FBCAL_PD_VDDQ	45.3 ohm	45.3 ohm
FBCAL_PU_GND	24.9 ohm	24.9 ohm
FBCAL_TERM_GND	40.2 ohm	40.2 ohm

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

Title: VGA (POWER) 5 OF 8

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

Date: Thursday, May 10, 2007 | Sheet 25 of 77



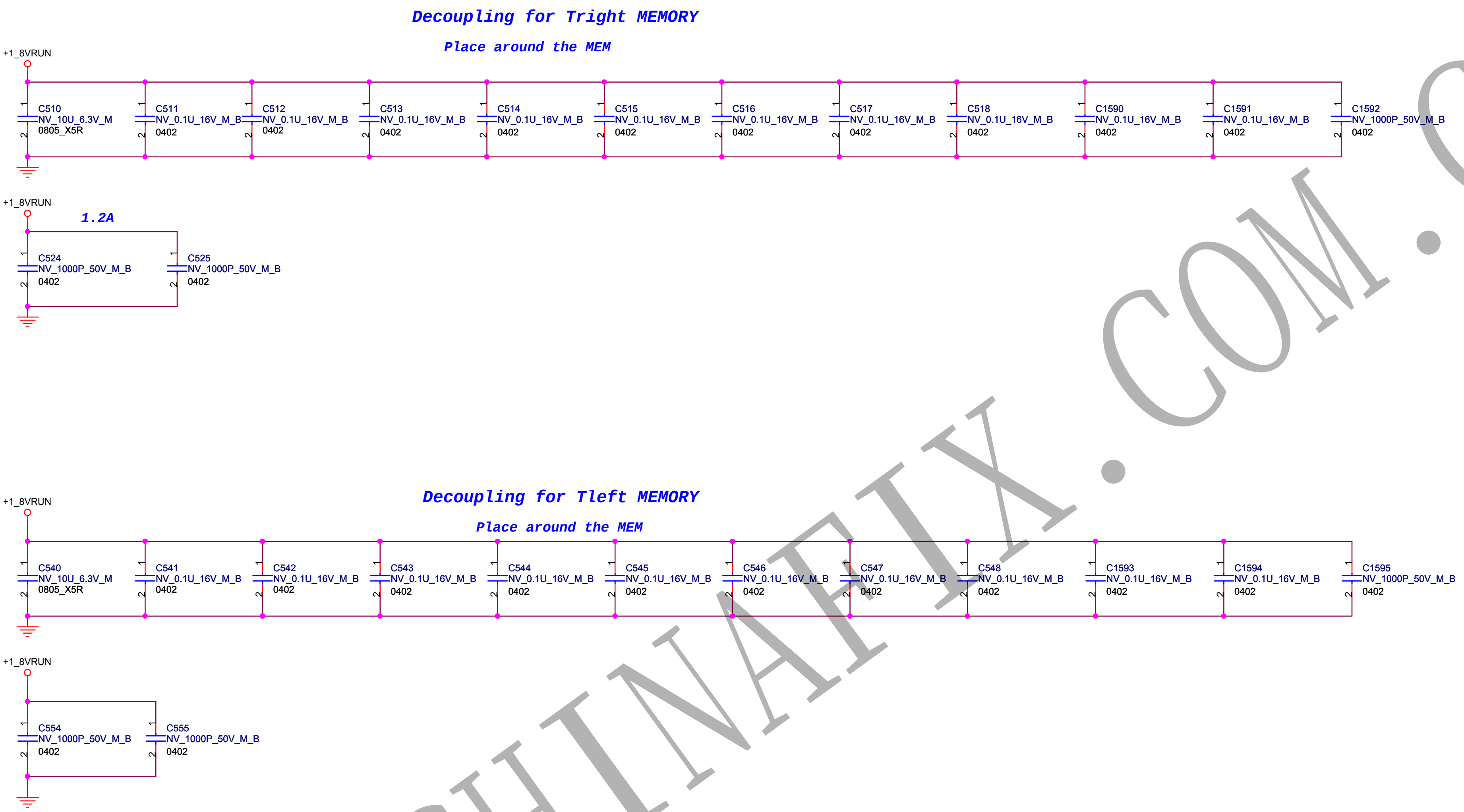
	NB8x 0.5V Swing	NB8x 3.3V Swing
C1688	10nF	10nF
R2140	76.8 ohm	No Stuff
R2141	No Stuff	No Stuff
R2139	No Stuff	No Stuff

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

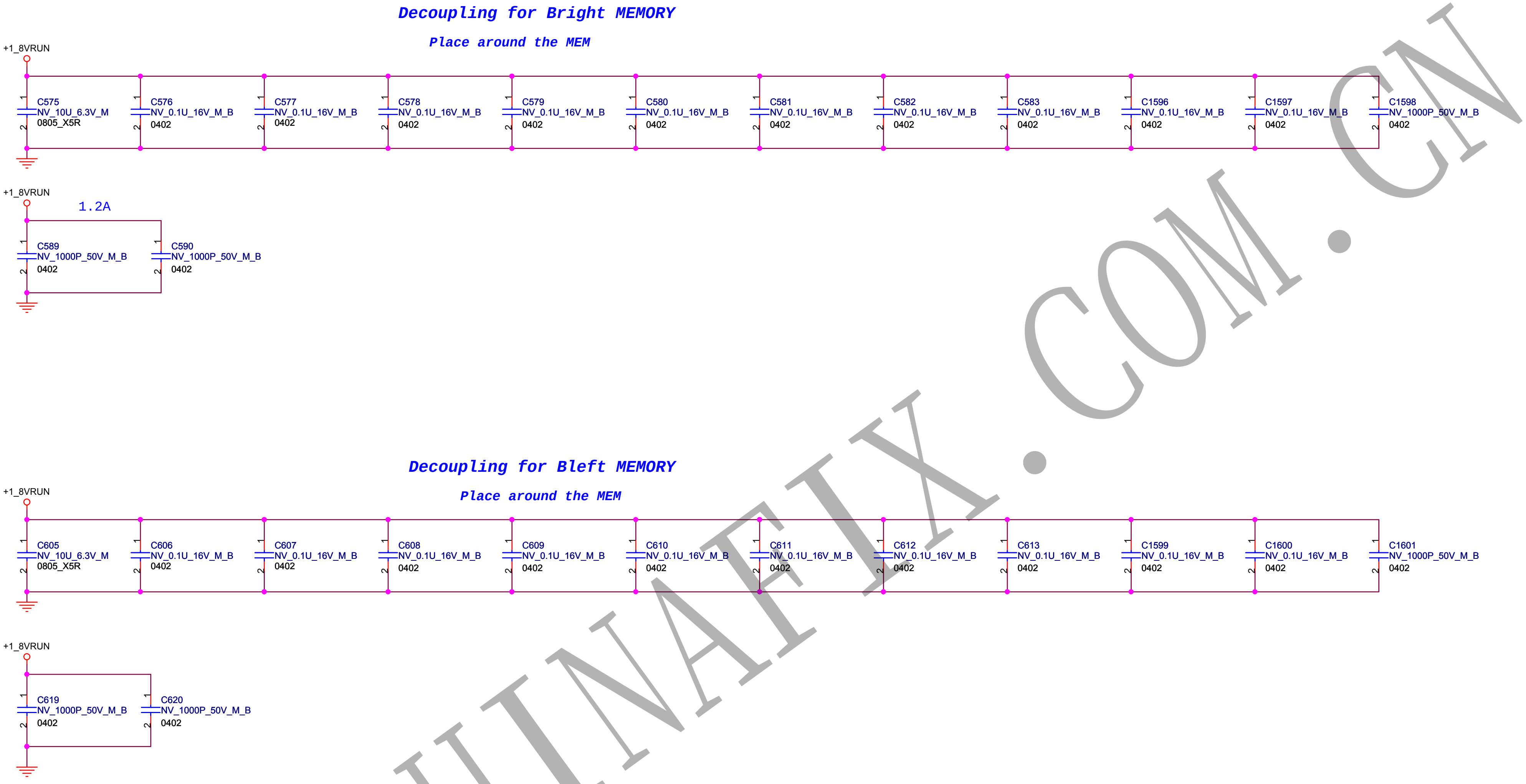
Title: VGA (GDDR/I2C/ROM) 4 OF 8

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

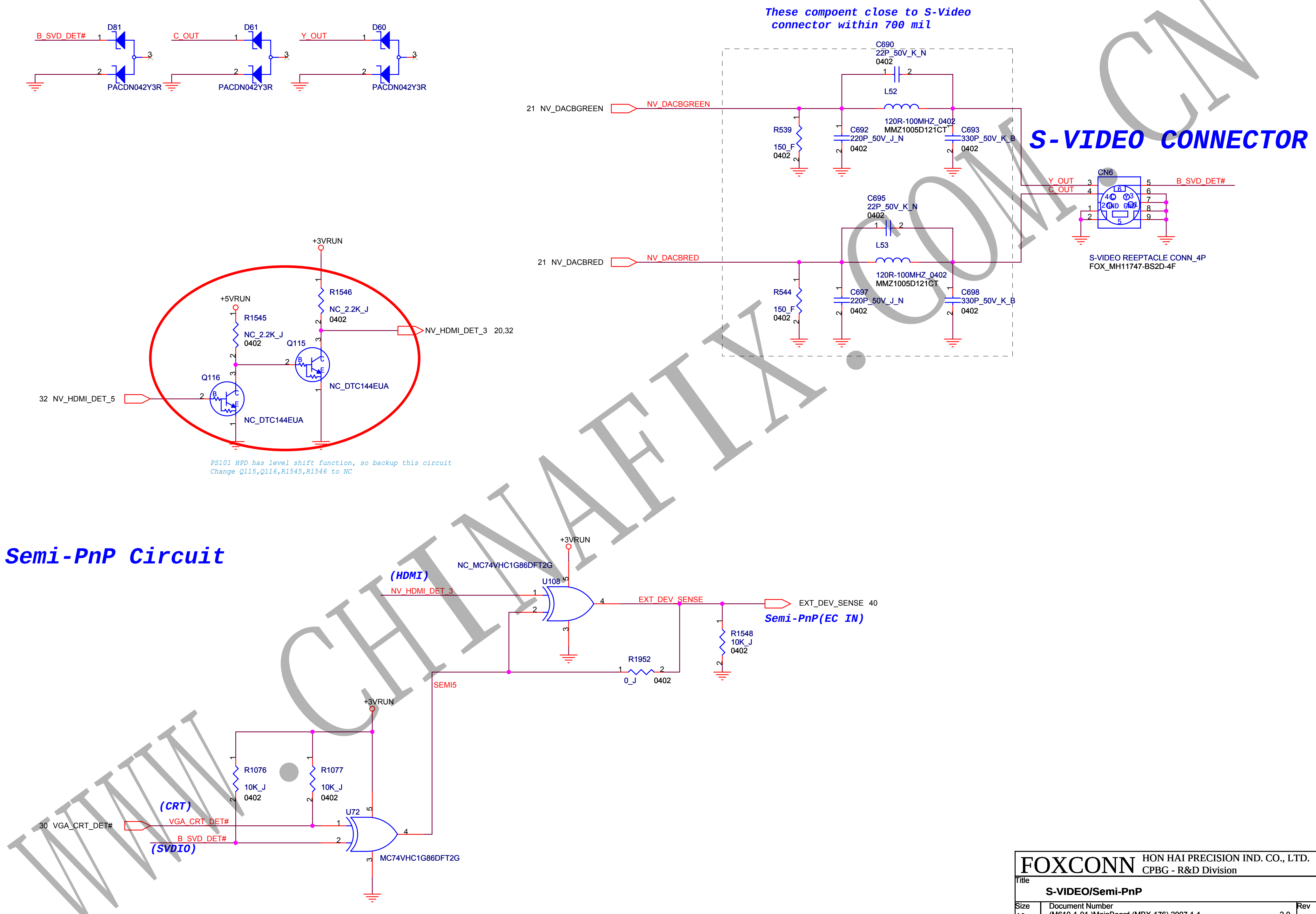
Date: Thursday, May 10, 2007 | Sheet 26 of 77



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	VRAM (GDDR) 3 OF 4	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 27 of 77	

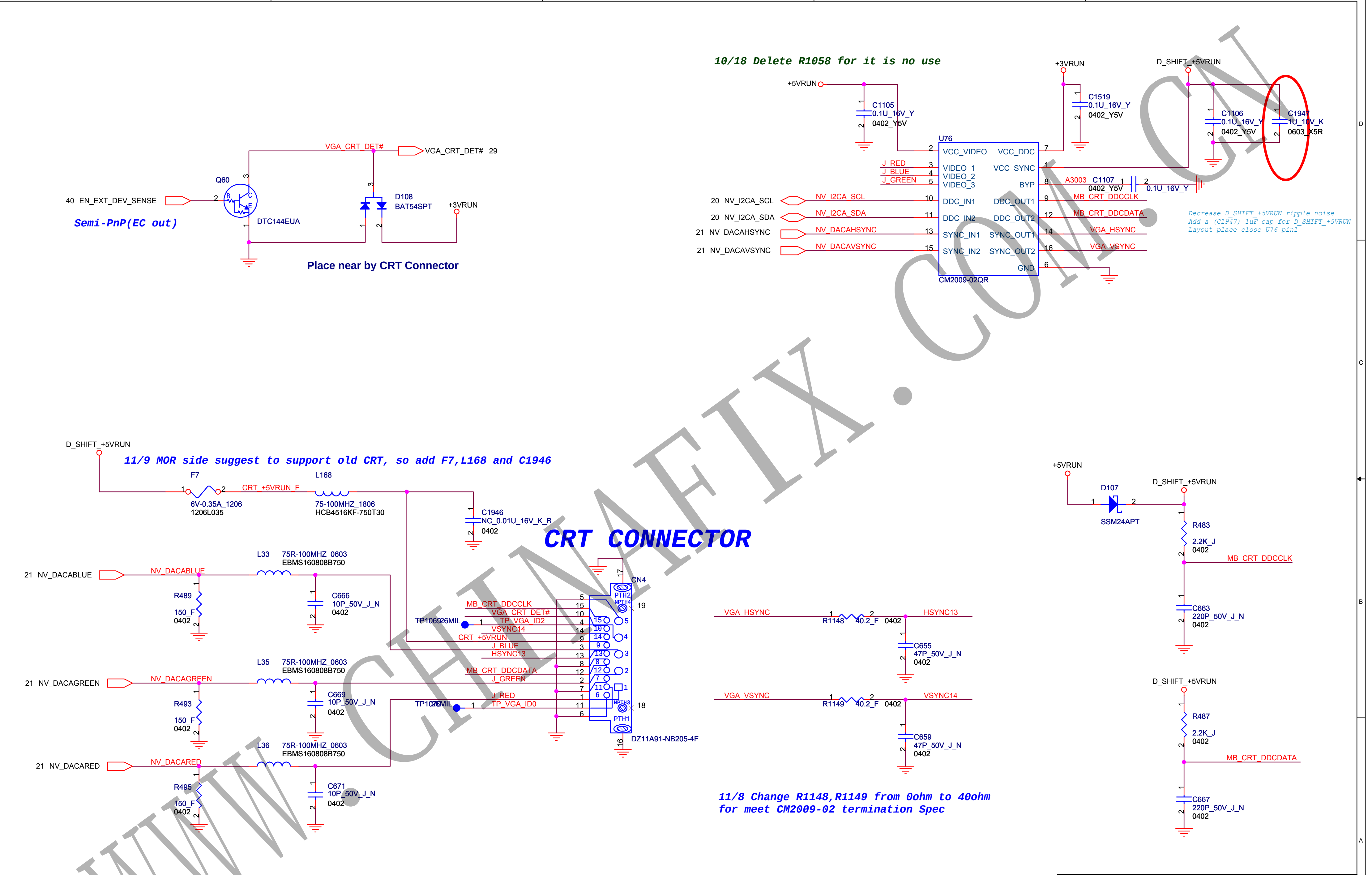


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	VRAM (POWERBYPASS) 4 OF 4
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 2.0
Date: Thursday, May 10, 2007	Sheet 28 of 77

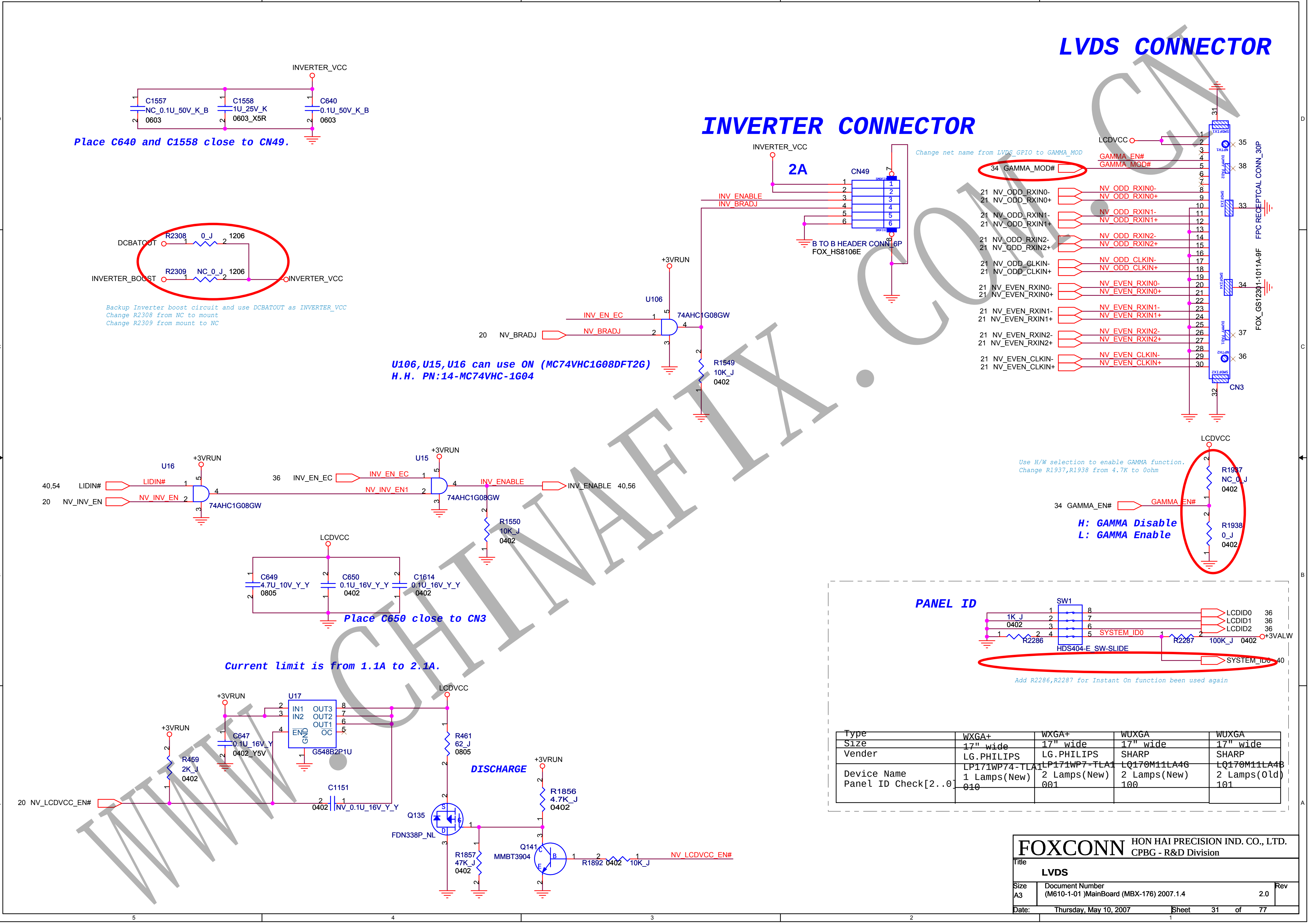


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	S-VIDEO/Semi-PnP	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 29 of 77	



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



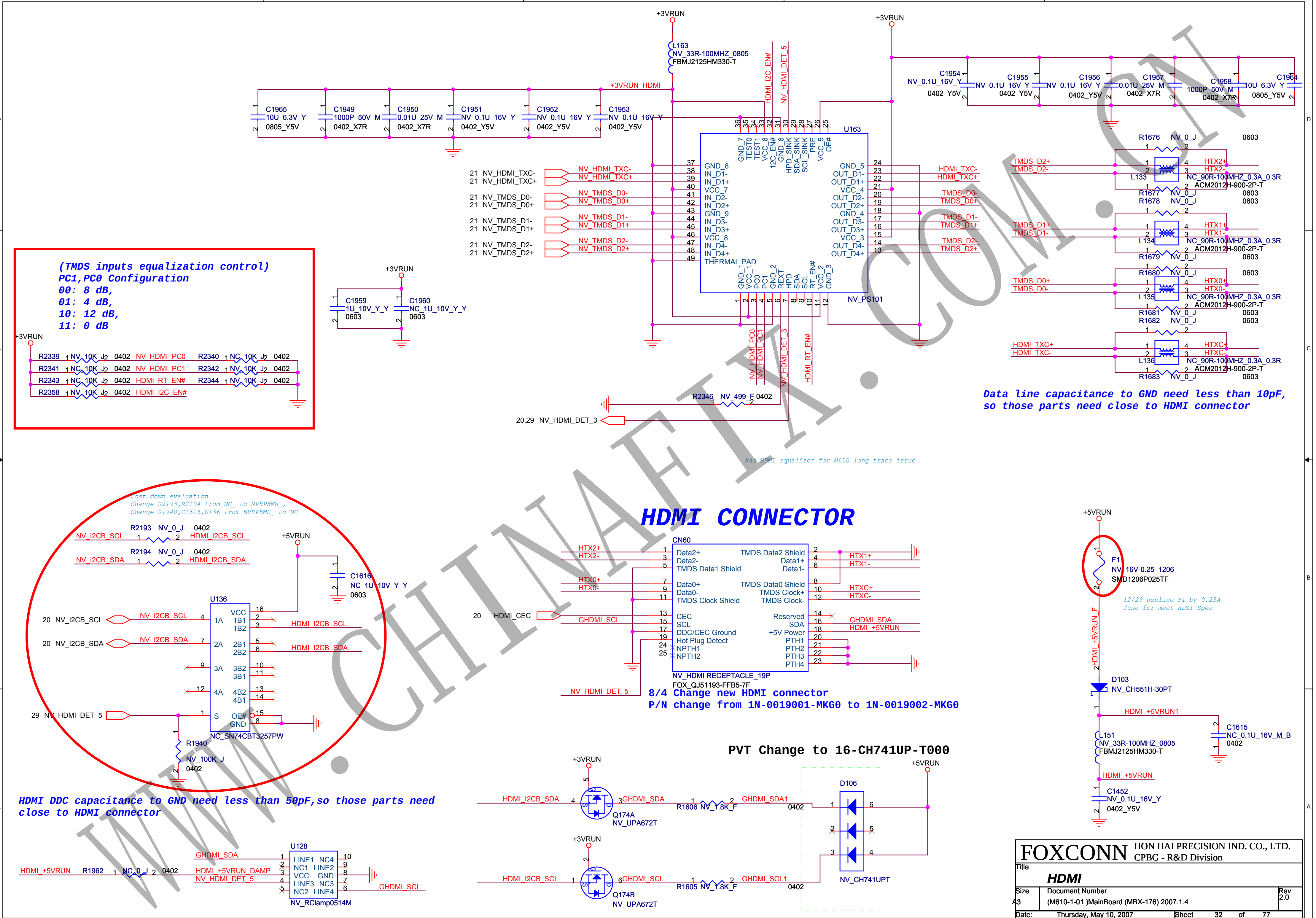
Type	WXGA+	WXGA+	WUXGA	WUXGA
Size	17" wide	17" wide	17" wide	17" wide
Vender	LG.PHILIPS	LG.PHILIPS	SHARP	SHARP
	LP171WP74-TLA1	LP171WP7-TLA1	LQ170M11LA4G	LQ170M11LA4B
Device Name	1 Lamps(New)	2 Lamps(New)	2 Lamps(New)	2 Lamps(Old)
Panel ID Check[2..0]	010	001	100	101

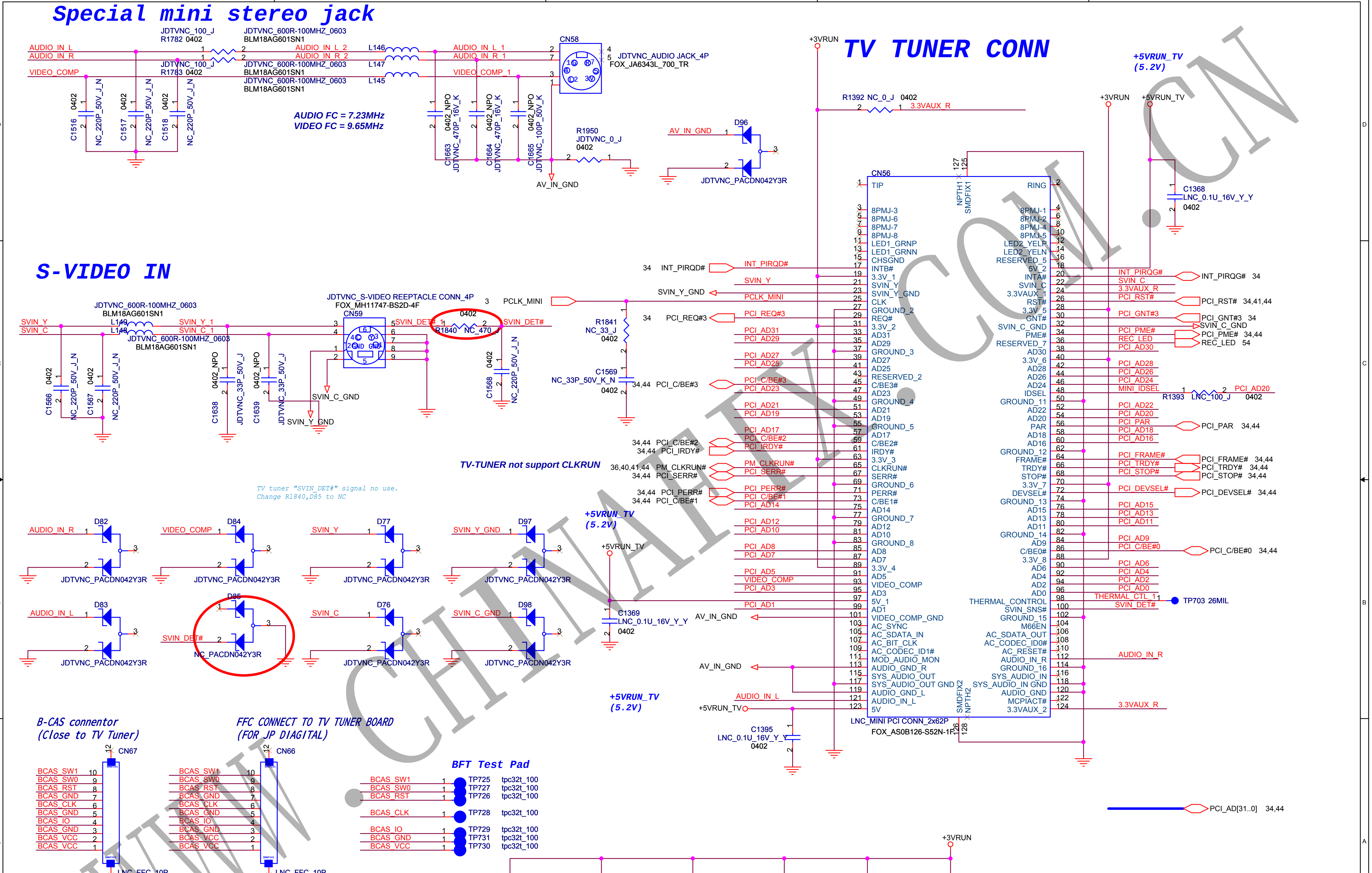
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: LVDS

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

Date: Thursday, May 10, 2007 | Sheet 31 of 77


(TMDS inputs equalization control)
PC1,PC0 Configuration
00: 8 dB,
01: 4 dB,
10: 12 dB,
11: 0 dB
+3VRUN
R2339 NV_10K_J 0402 NV_HDMI_PC0 R2340 NC_10K_J 0402
R2341 NC_10K_J 0402 NV_HDMI_PC1 R2342 NV_10K_J 0402
R2343 NC_10K_J 0402 HDMI_RT_EN# R2344 NV_10K_J 0402
R2358 NV_10K_J 0402 HDMI_I2C_EN#
C1959 1U_10V_Y_Y 0603
C1960 NC_1U_10V_Y_Y 0603
L163 NV_33R-100MHZ_0805 FBMJ2125HM330-T
+3VRUN_HDMI
C1965 10U_6.3V_Y 0805_Y5V
C1949 1000P_50V_M 0402_X7R
C1950 0.01U_25V_M 0402_X7R
C1951 NV_0.1U_16V_Y 0402_Y5V
C1952 NV_0.1U_16V_Y 0402_Y5V
C1953 NV_0.1U_16V_Y 0402_Y5V
C1954 NV_0.1U_16V_Y 0402_Y5V
C1955 NV_0.1U_16V_Y 0402_Y5V
C1956 NV_0.1U_16V_Y 0402_Y5V
C1957 0.01U_25V_M 0402_X7R
C1958 1000P_50V_M 0402_X7R
C1964 10U_6.3V_Y 0805_Y5V
U163 NV_PS101
21 NV_HDMI_TXC-
21 NV_HDMI_TXC+
21 NV_TMDS_D0-
21 NV_TMDS_D0+
21 NV_TMDS_D1-
21 NV_TMDS_D1+
21 NV_TMDS_D2-
21 NV_TMDS_D2+
R2346 NV_499_F 0402
20,29 NV_HDMI_DET_3
NV_HDMI_PC0 NV_HDMI_PC1 NV_HDMI_DET_3 HDMI_RT_EN# HDMI_I2C_EN# NV_HDMI_DET_5
R1676 NV_0_J 0603
L133 NC_90R-100MHZ_0.3A_0.3R ACM2012H-900-2P-T
R1677 NV_0_J 0603
R1678 NV_0_J 0603
L134 NC_90R-100MHZ_0.3A_0.3R ACM2012H-900-2P-T
R1679 NV_0_J 0603
R1680 NV_0_J 0603
L135 NC_90R-100MHZ_0.3A_0.3R ACM2012H-900-2P-T
R1681 NV_0_J 0603
R1682 NV_0_J 0603
L136 NC_90R-100MHZ_0.3A_0.3R ACM2012H-900-2P-T
R1683 NV_0_J 0603
Data line capacitance to GND need less than 10pF,
so those parts need close to HDMI connector
Add HDMI equalizer for M610 long trace issue
Cost down evaluation
Change R2193,R2194 from NC_ to NV8P8MH_,
Change R1940,C1616,U136 from NV8P8MH_ to NC
R2193 NV_0_J 0402 NV_I2CB_SCL HDMI_I2CB_SCL
R2194 NV_0_J 0402 NV_I2CB_SDA HDMI_I2CB_SDA
+5VRUN
C1616 NC_1U_10V_Y_Y 0603
U136 NC_SN74CBT3257PW
20 NV_I2CB_SCL
20 NV_I2CB_SDA
29 NV_HDMI_DET_5
R1940 NV_100K_J 0402
HDMI CONNECTOR
CN60 NV_HDMI RECEPTACLE_19P FOX_QJ51193-FFB5-7F
20 HDMI_CEC
8/4 Change new HDMI connector
P/N change from 1N-0019001-MKG0 to 1N-0019002-MKG0
+5VRUN
F1 NV_16V-0.25_1206 SMD1206P025TF
12/29 Replace F1 by 0.25A fuse for meet HDMI Spec
D103 NV_CH551H-30PT
HDMI_+5VRUN1
C1615 NC_0.1U_16V_M_B 0402
L151 NV_33R-100MHZ_0805 FBMJ2125HM330-T
HDMI_+5VRUN
C1452 NV_0.1U_16V_Y 0402_Y5V
PVT Change to 16-CH741UP-T000
Q174A NV_UPA672T
Q174B NV_UPA672T
R1606 NV_1.8K_F 0402
R1605 NV_1.8K_F 0402
D106 NV_CH741UPT
HDMI DDC capacitance to GND need less than 50pF,so those parts need close to HDMI connector
U128 NV_RClamp0514M
HDMI_+5VRUN R1962 NC_0_J 0402
HDMI_+5VRUN_DAMP NV_HDMI_DET_5 GHDMI_SDA GHDMI_SCL
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title HDMI
Size A3 Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 Rev 2.0
Date: Thursday, May 10, 2007 Sheet 32 of 77

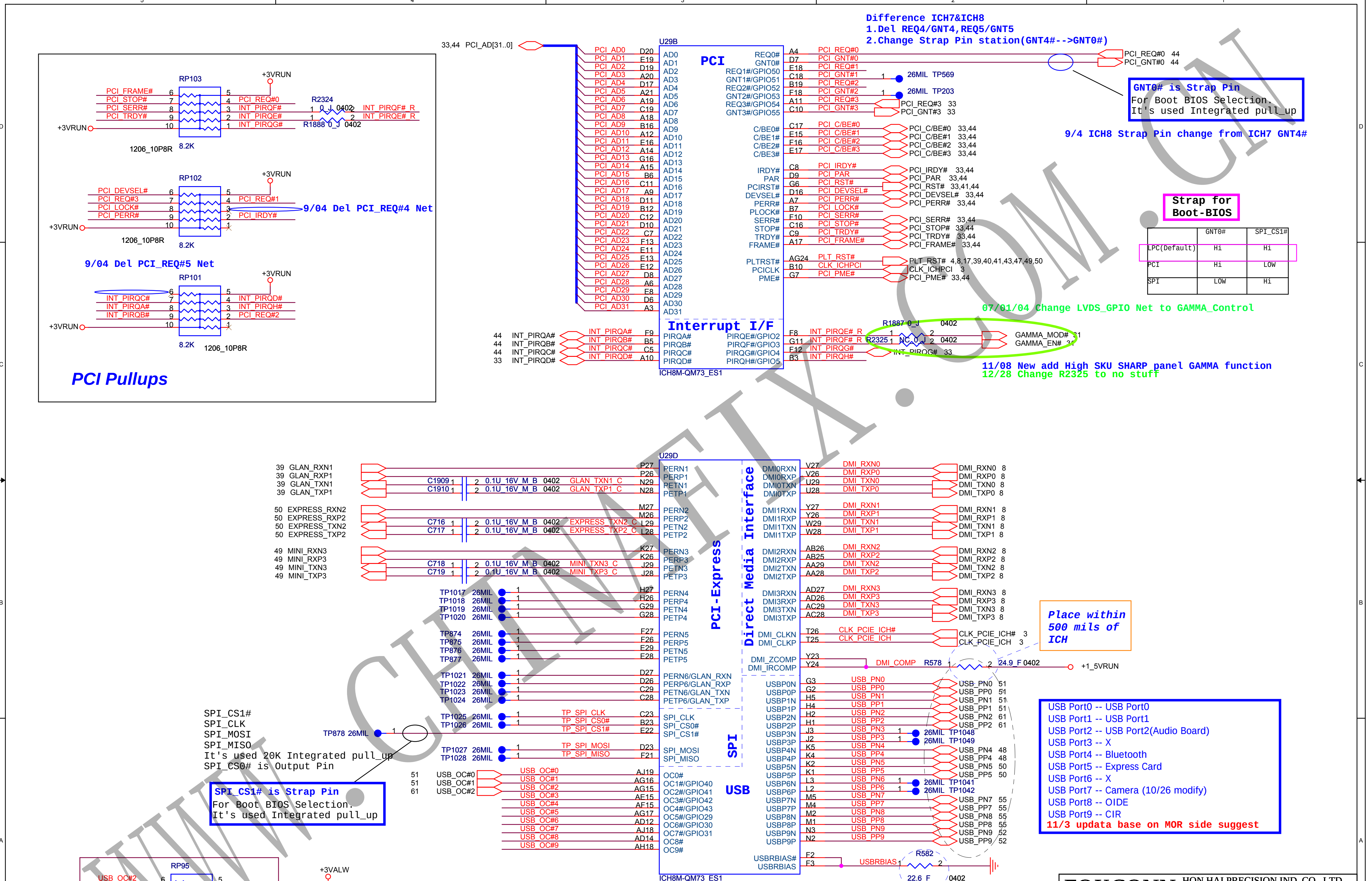


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: **MINI-PCI CONN.**

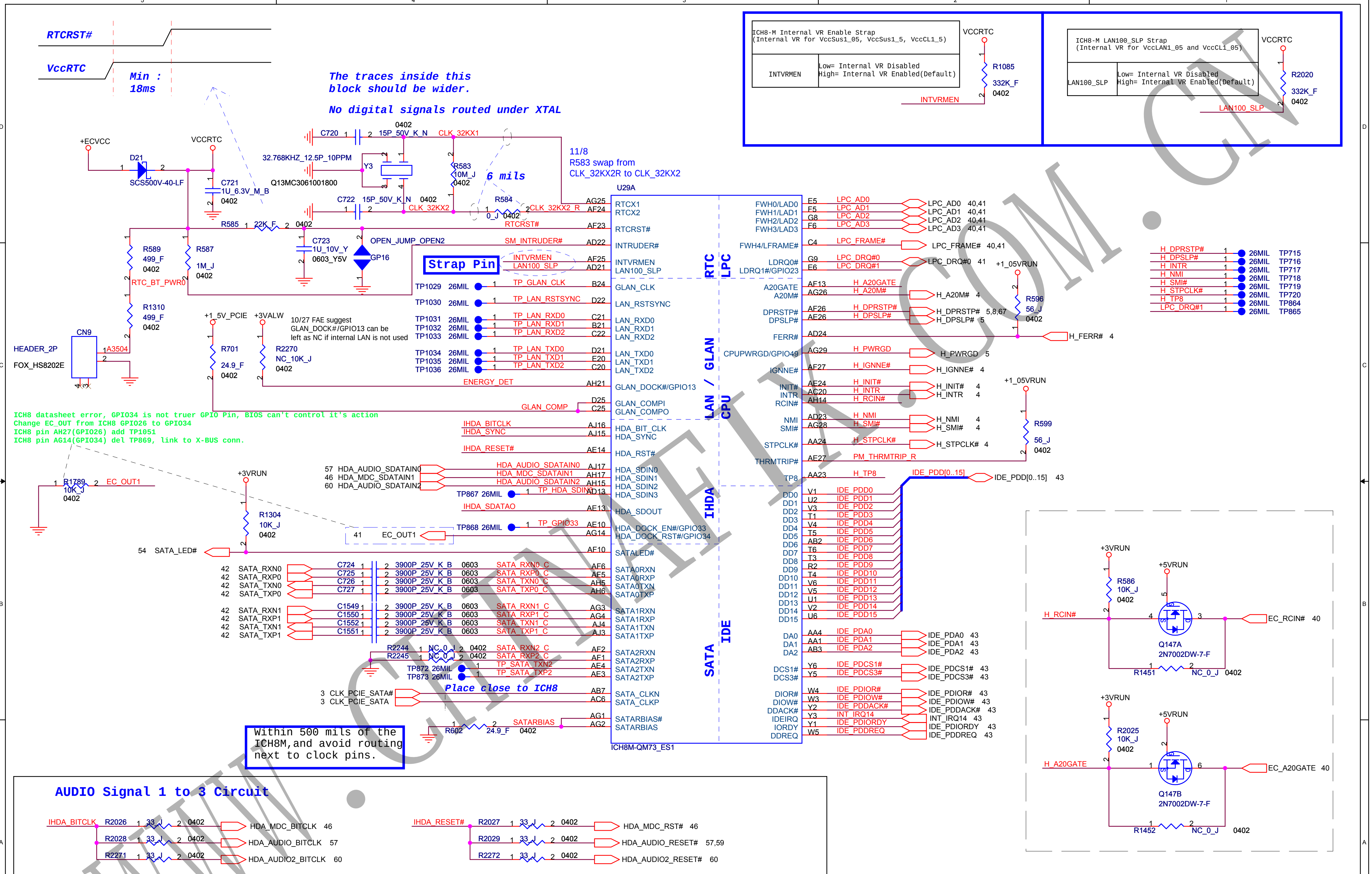
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 33 of 77



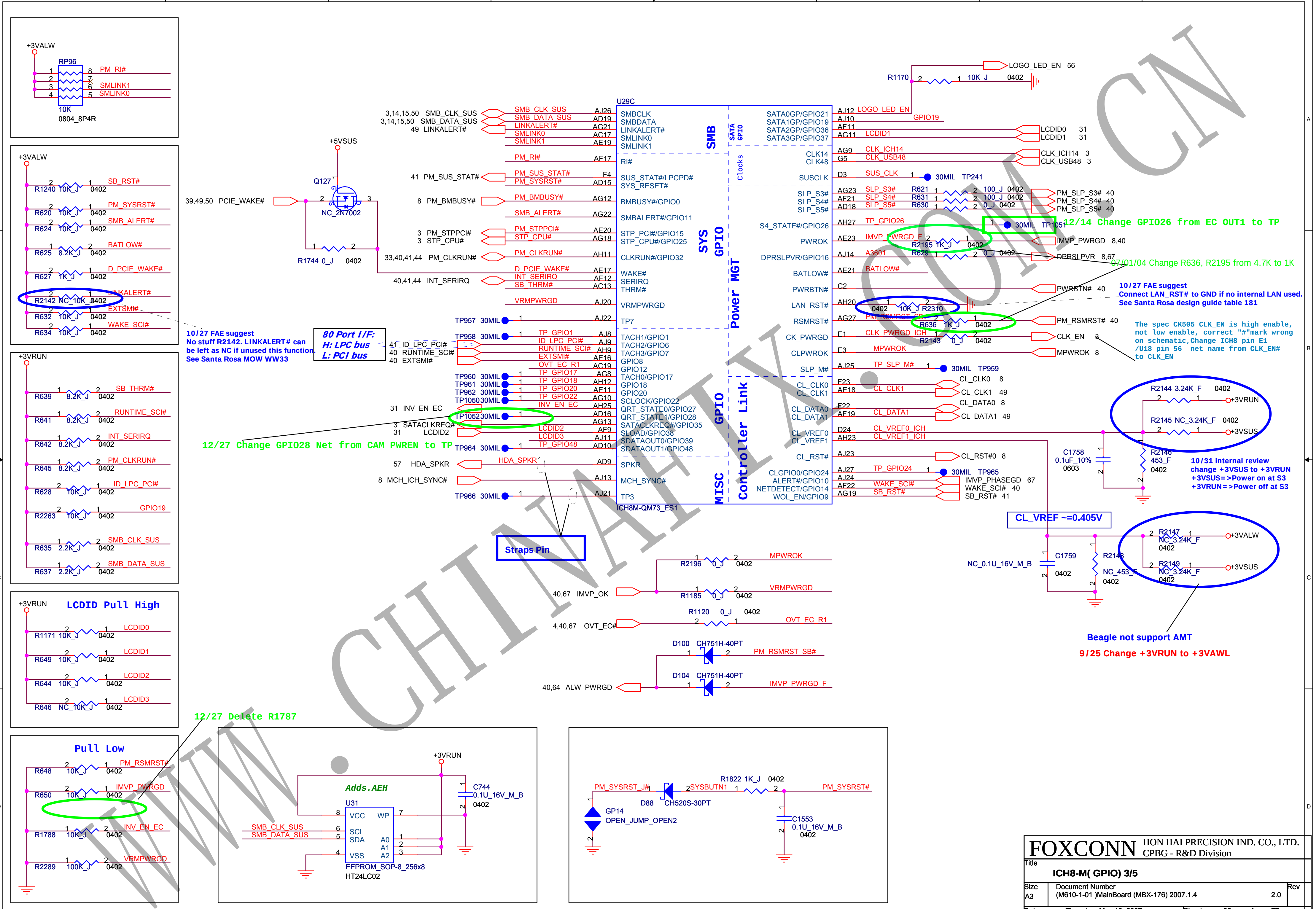
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	ICH8-M(PCI/USB) 1/5
Size	A3
Document Number	(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev	2.0
Date:	Thursday, May 10, 2007
Sheet	34 of 77



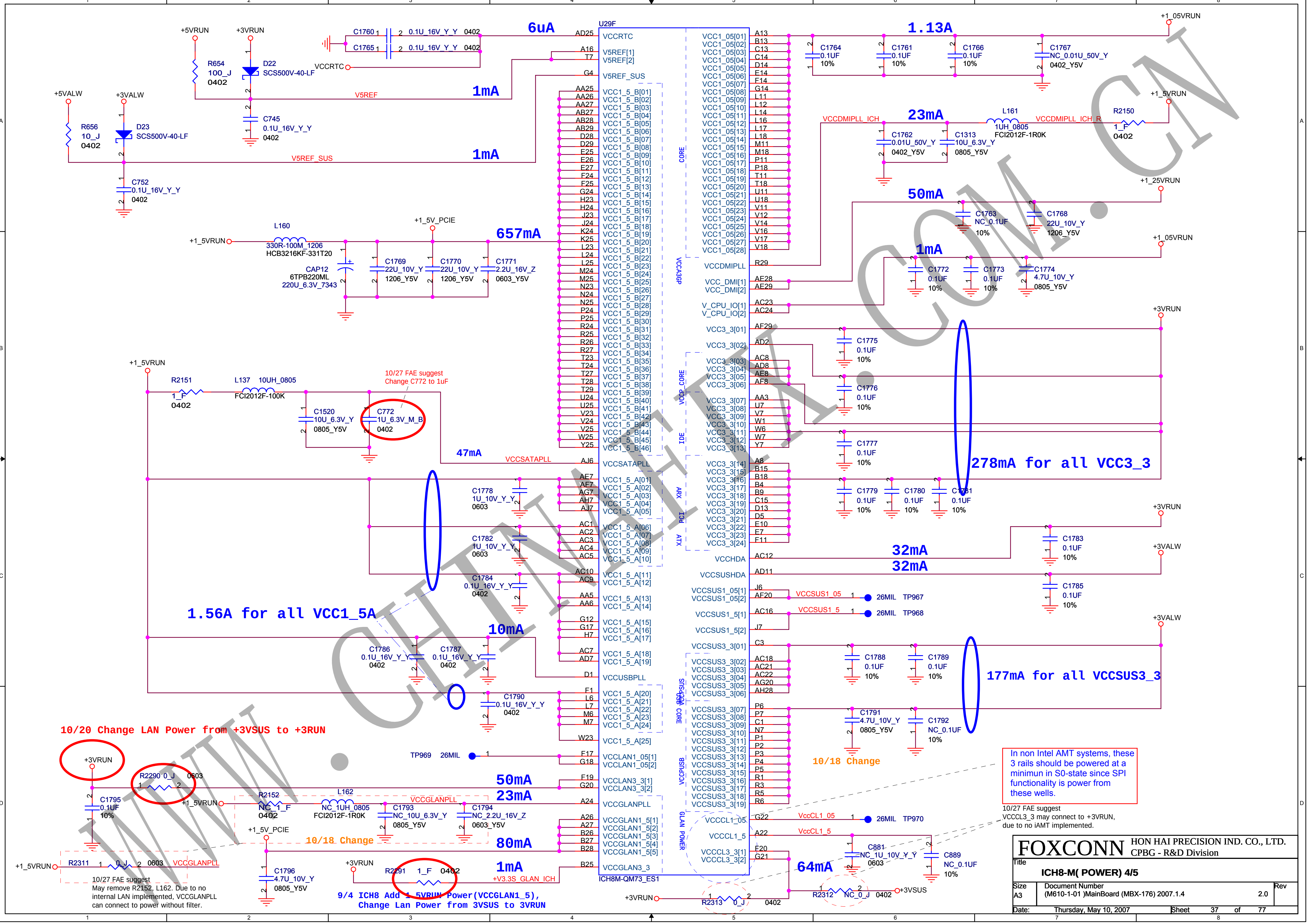
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	ICH8-M(LPC,IDE,SATA)2/5	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 35 of 77	

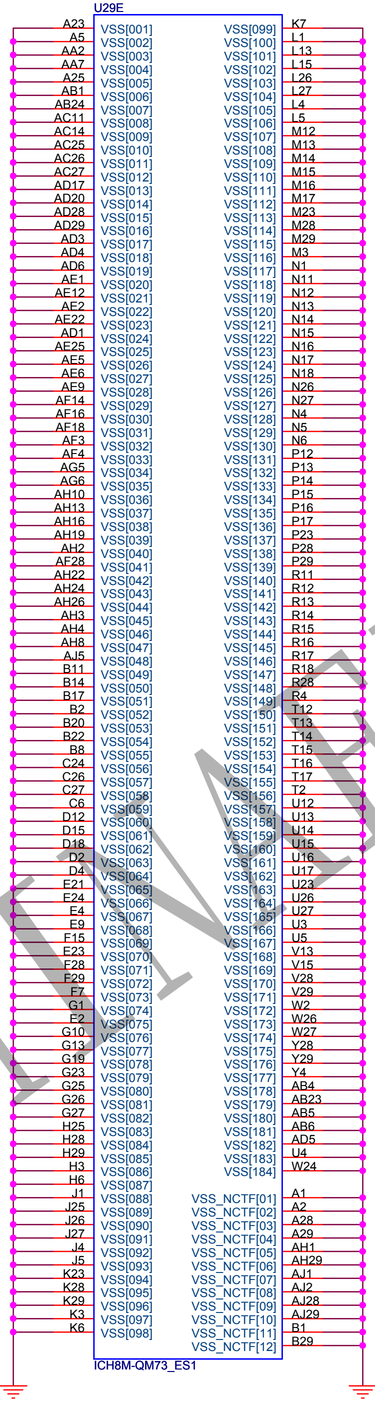


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	ICH8-M(GPIO) 3/5	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 36 of 77	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	ICH8-M(POWER) 4/5
Size	A3
Document Number	(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev	2.0
Date:	Thursday, May 10, 2007
Sheet	37 of 77

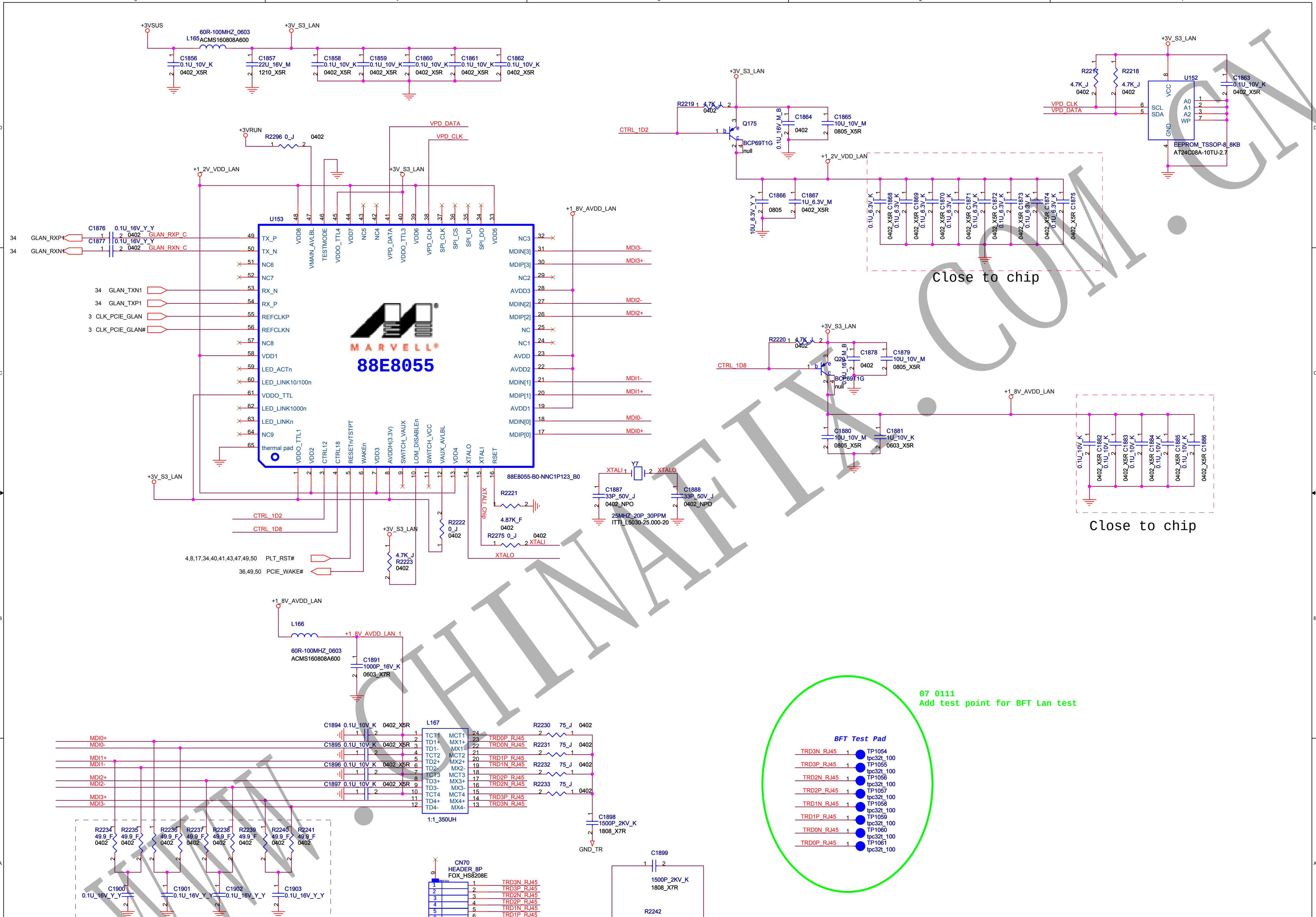


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: ICH8-M(GND) 5/5

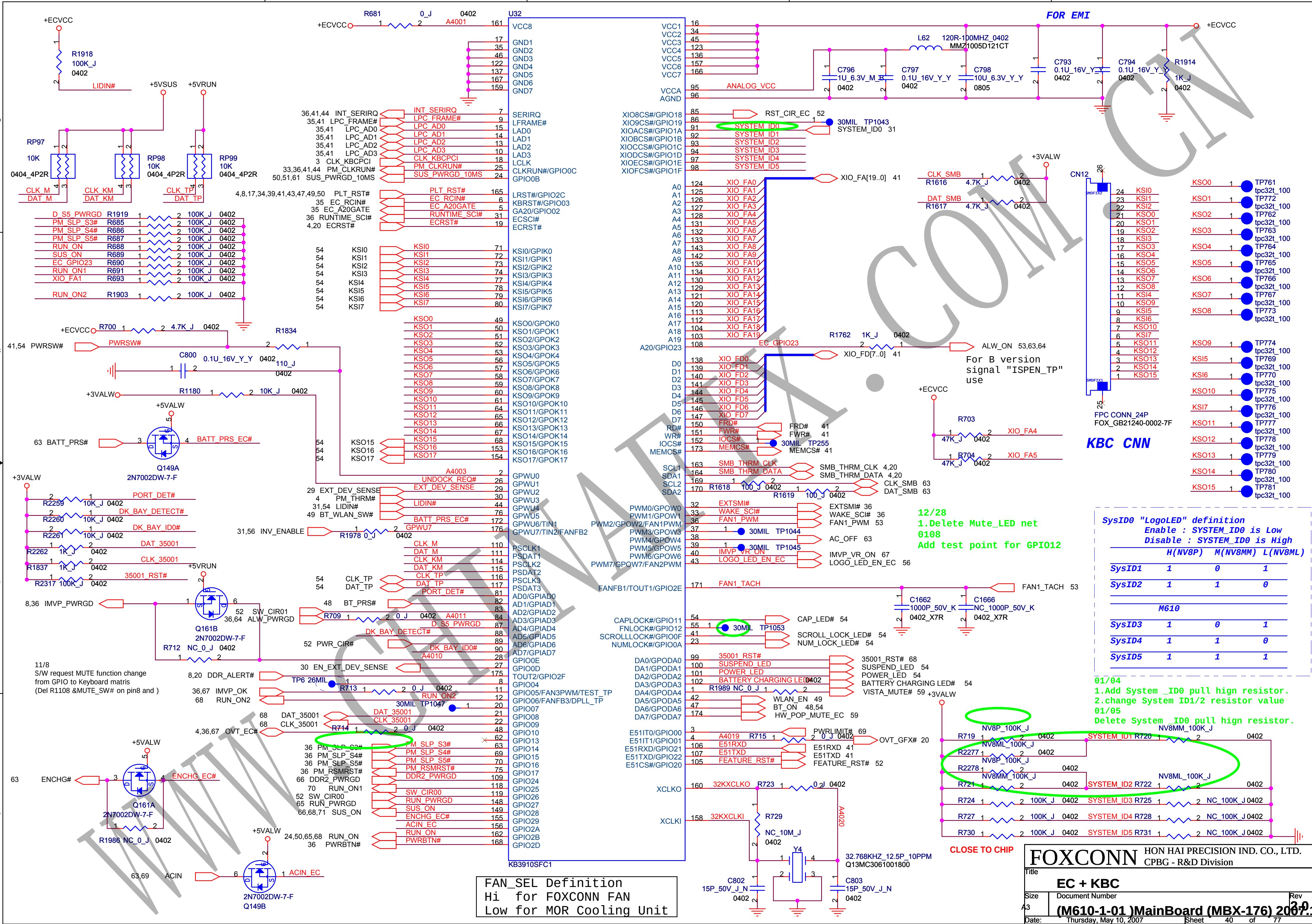
Size: A3 | Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4 | Rev: 2.0

Date: Thursday, May 10, 2007 | Sheet 38 of 77



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

Title	GLAN
Size	C
Document Number	(M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev	2.0
Date:	Thursday, May 10, 2007
Sheet	39 of 77

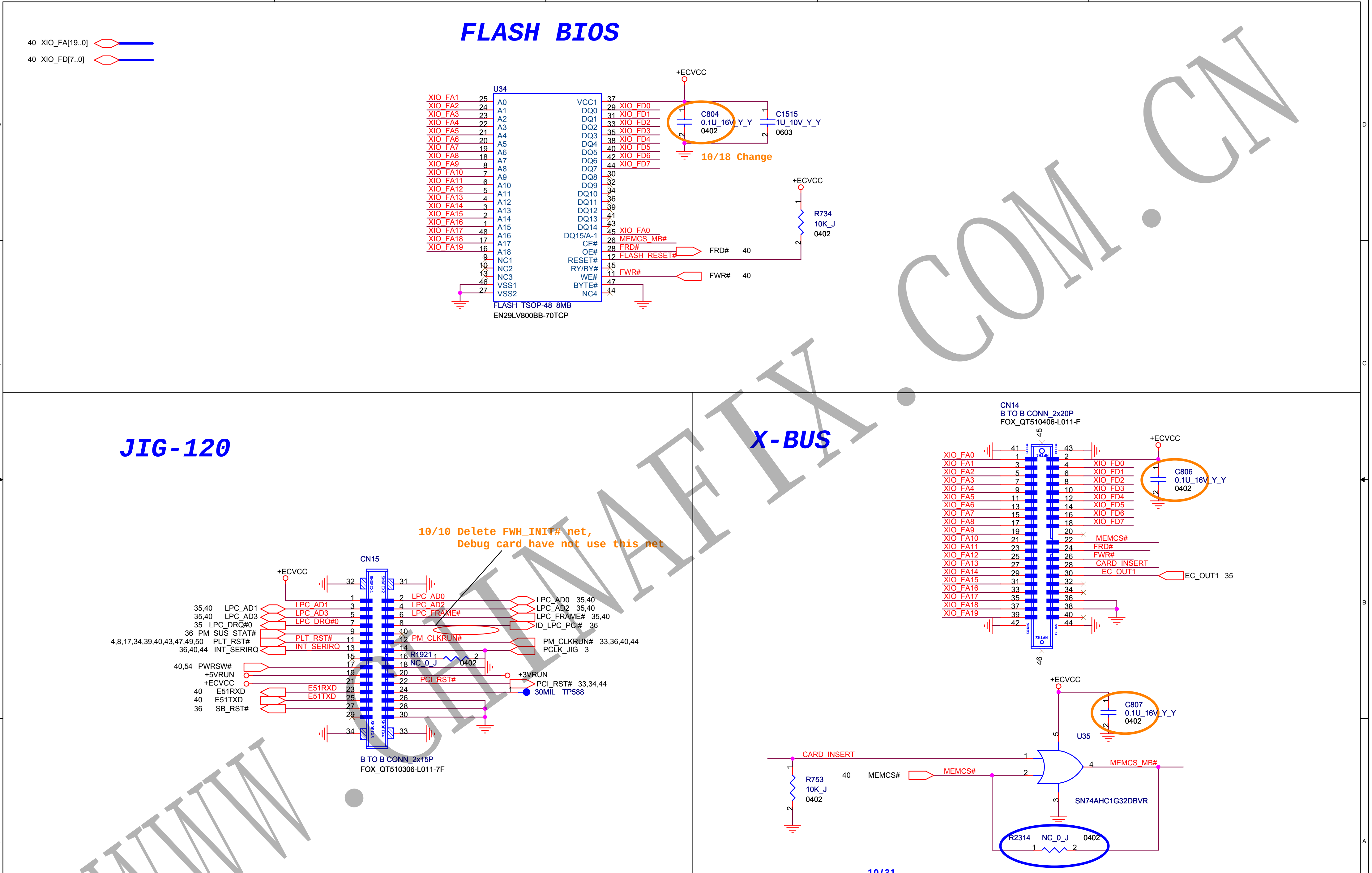


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: EC + KBC

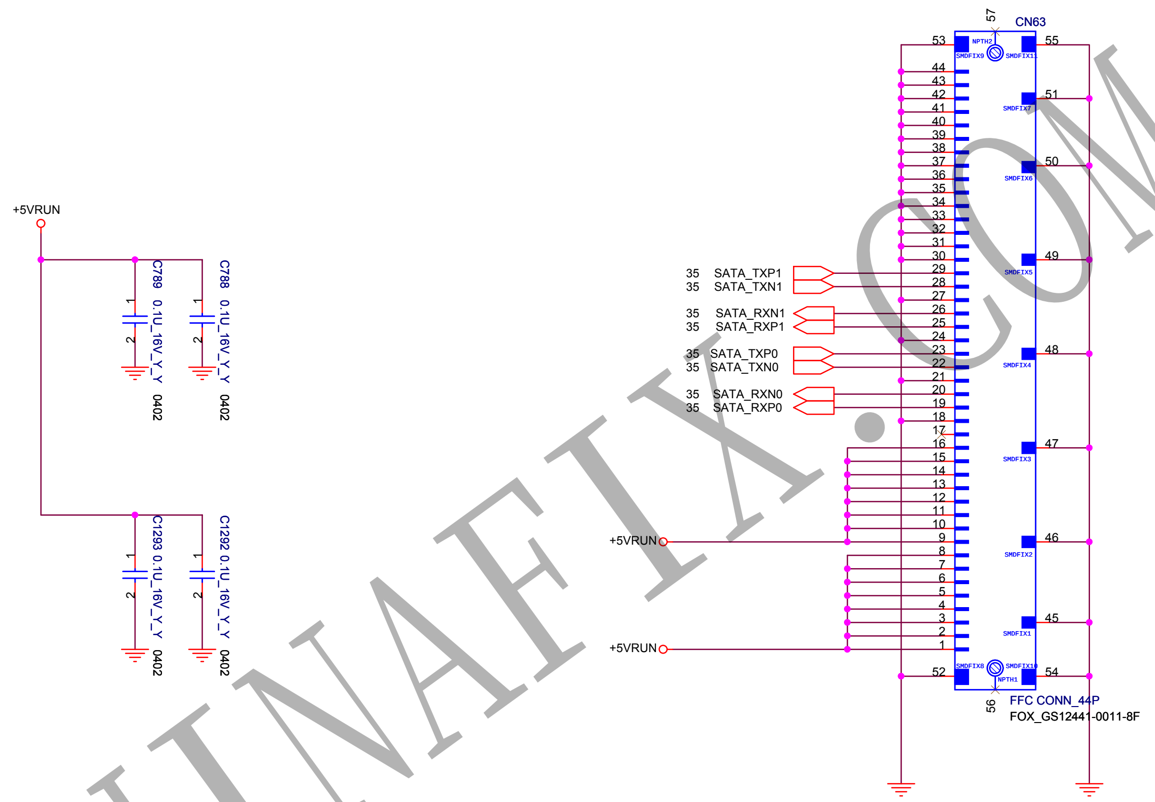
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 40 of 77



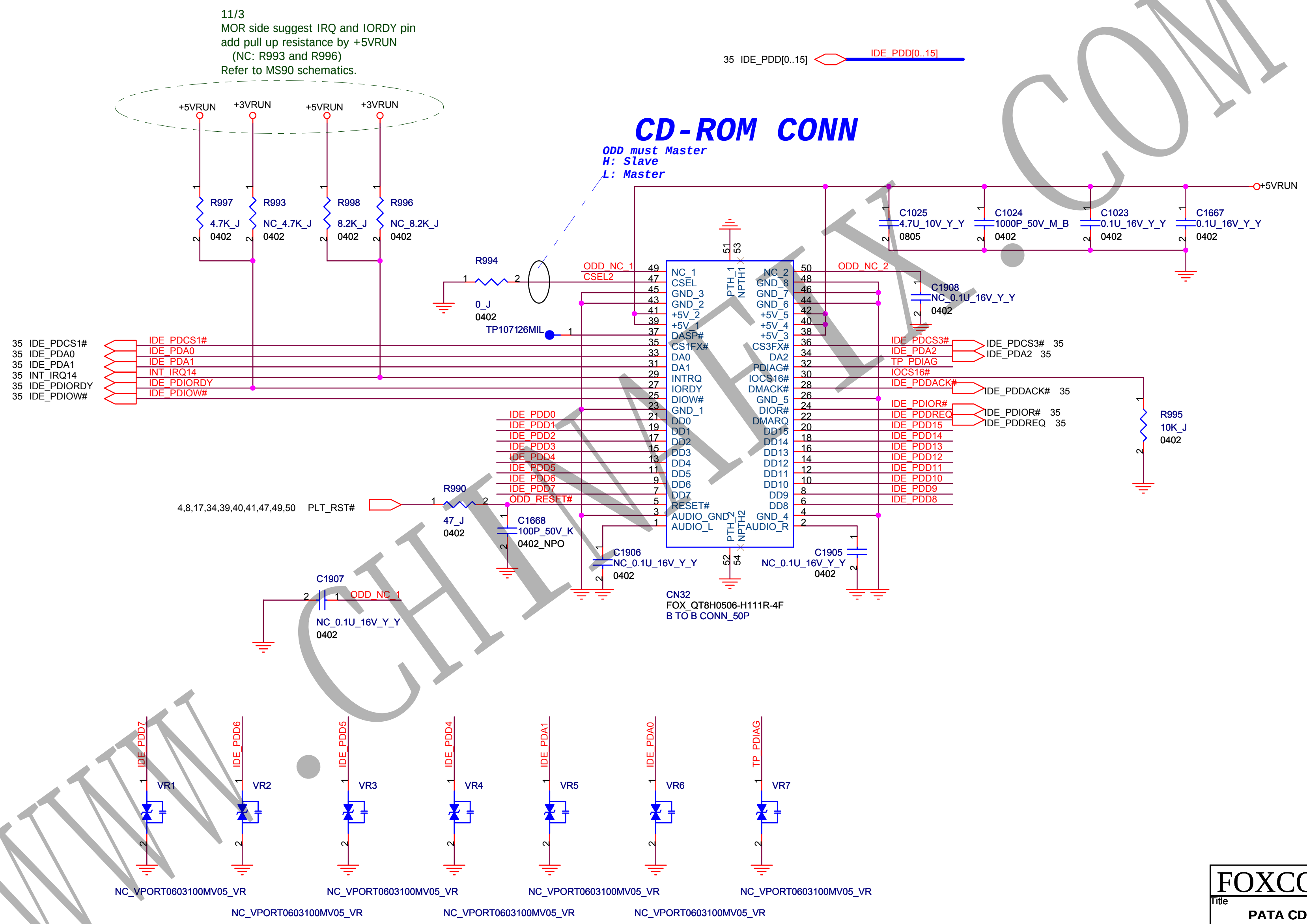
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title		
Flash ROM + Jig-120 + XBUS		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 41 of 77	



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

Title	SATA HDD RAID	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 42 of 77	

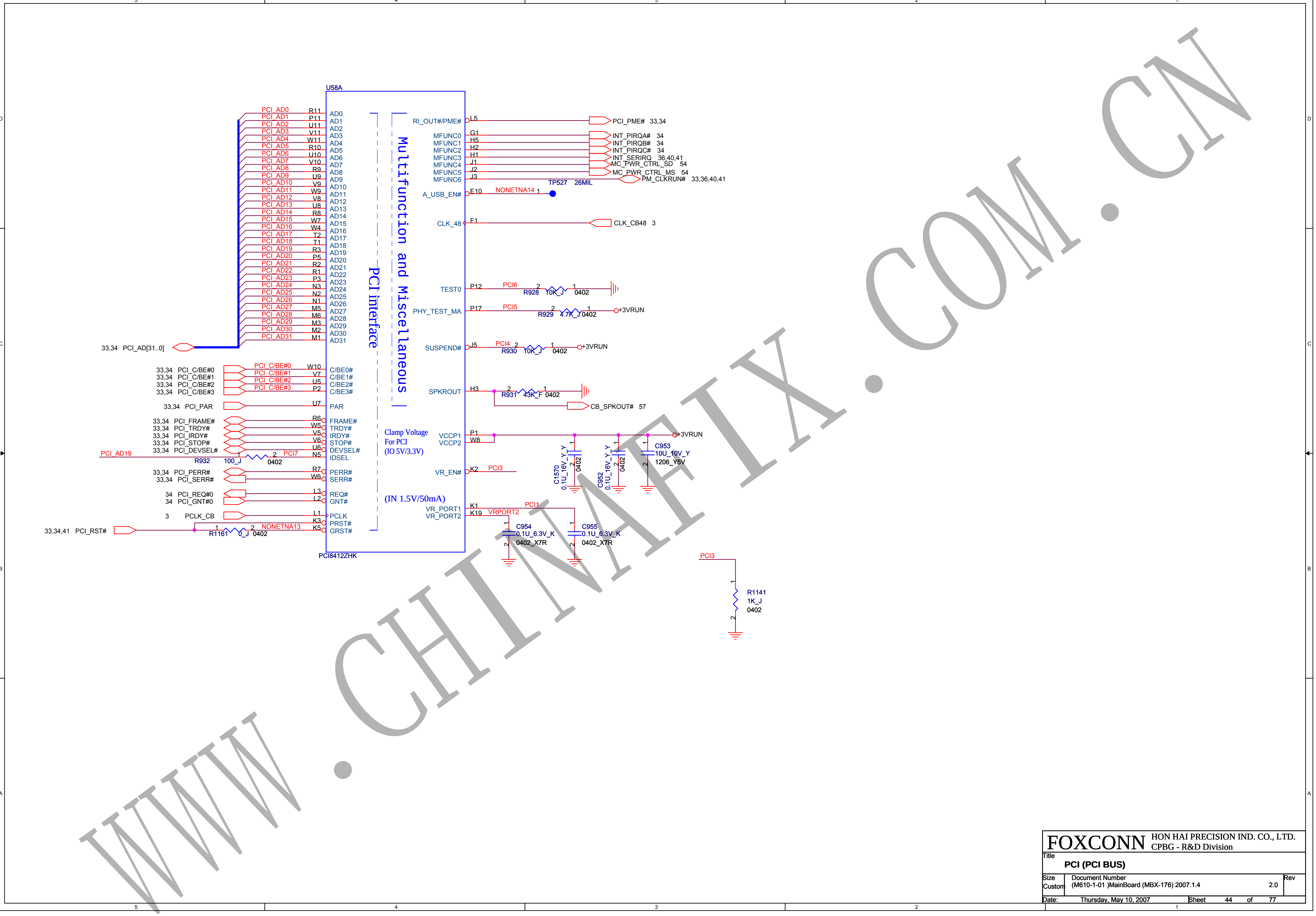


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: **PATA CD-ROM**

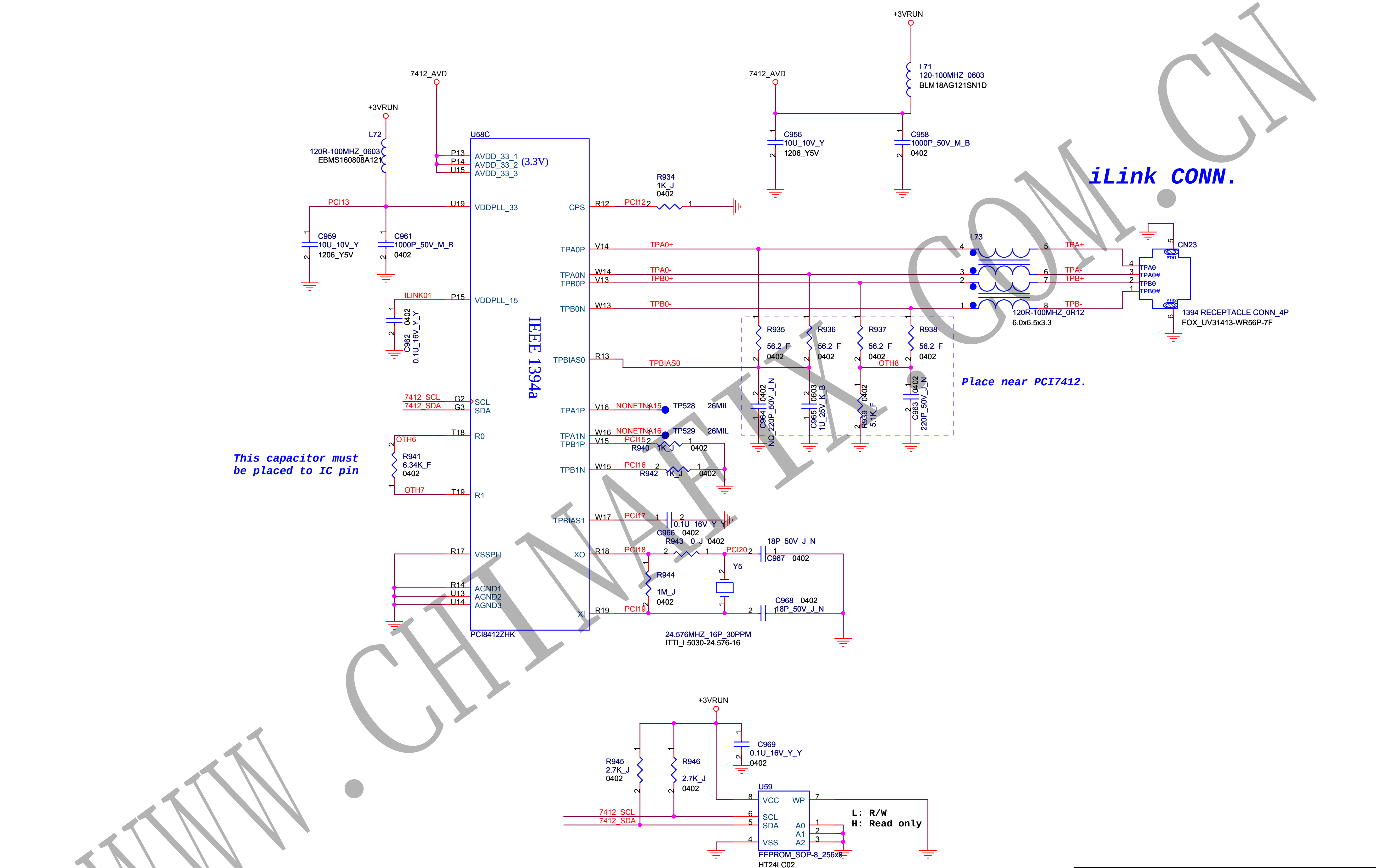
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 — Sheet 43 of 77



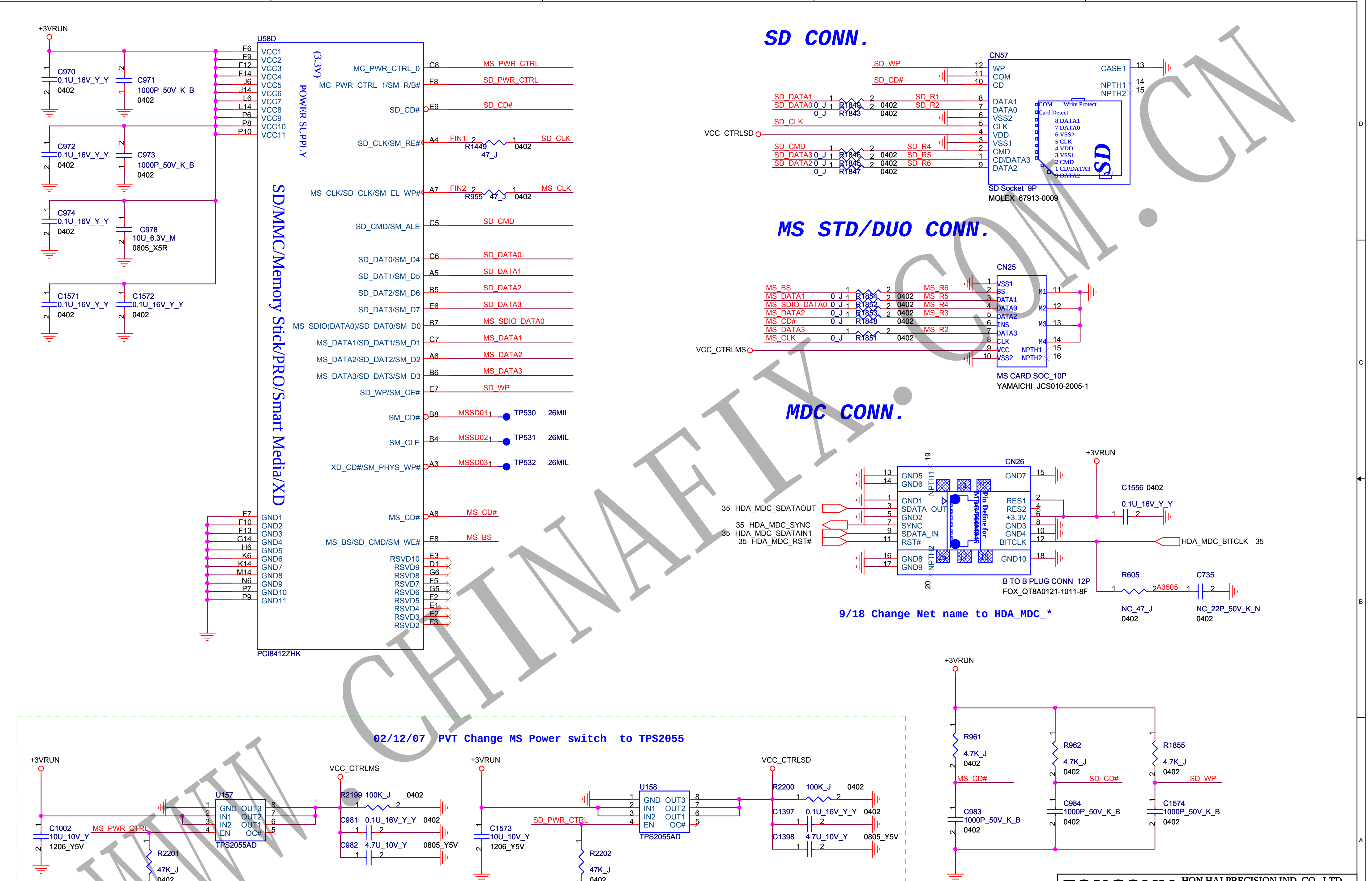
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title	PCI (PCI BUS)	
Size Custom	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 44 of 77	



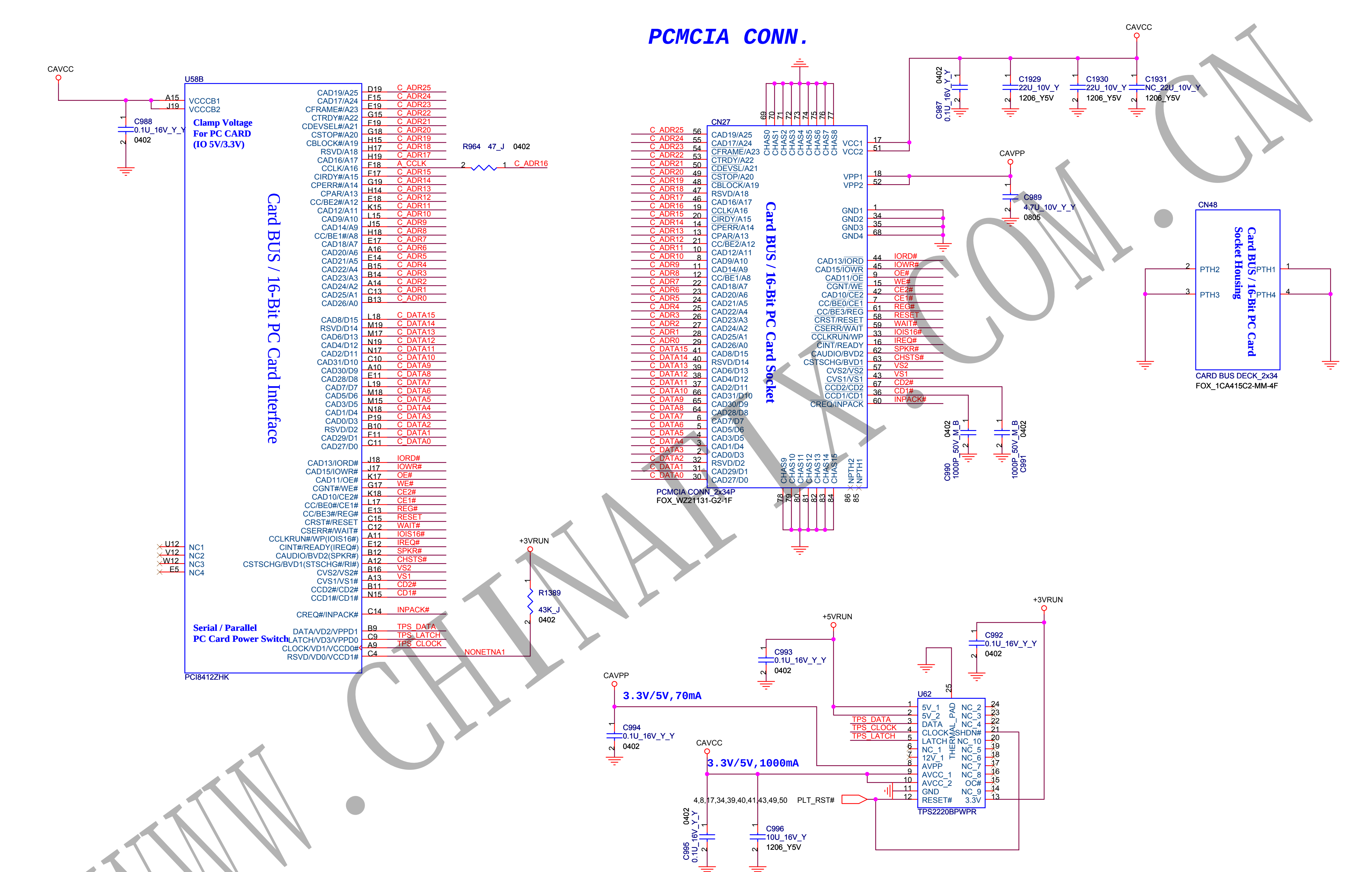
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	PCI (ILINK)	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 45 of 77	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	PCI (MS-DUO/MDC)	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 46 of 77	

PCMCIA CONN.

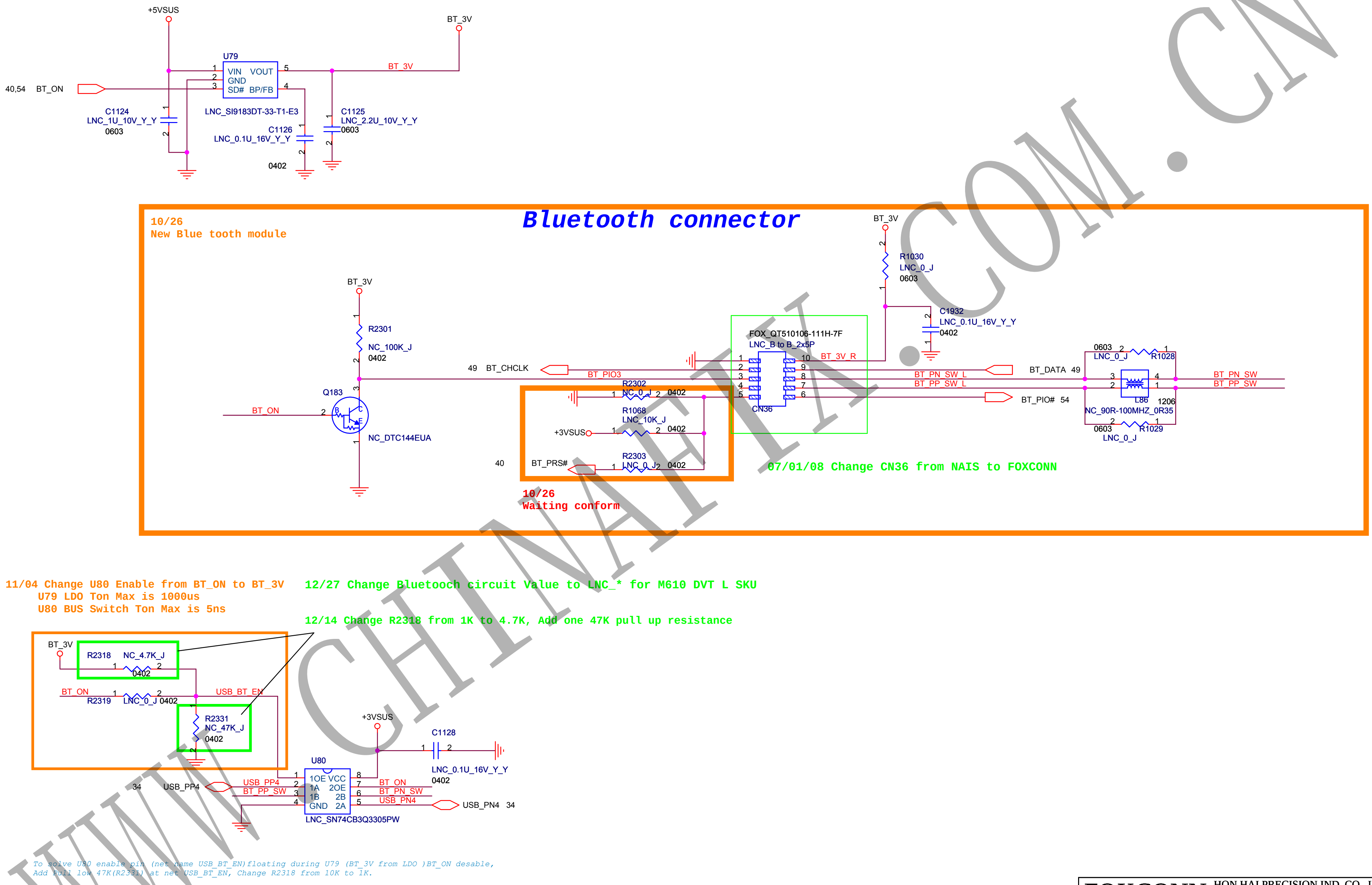


FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: PCI (PCMCIA)

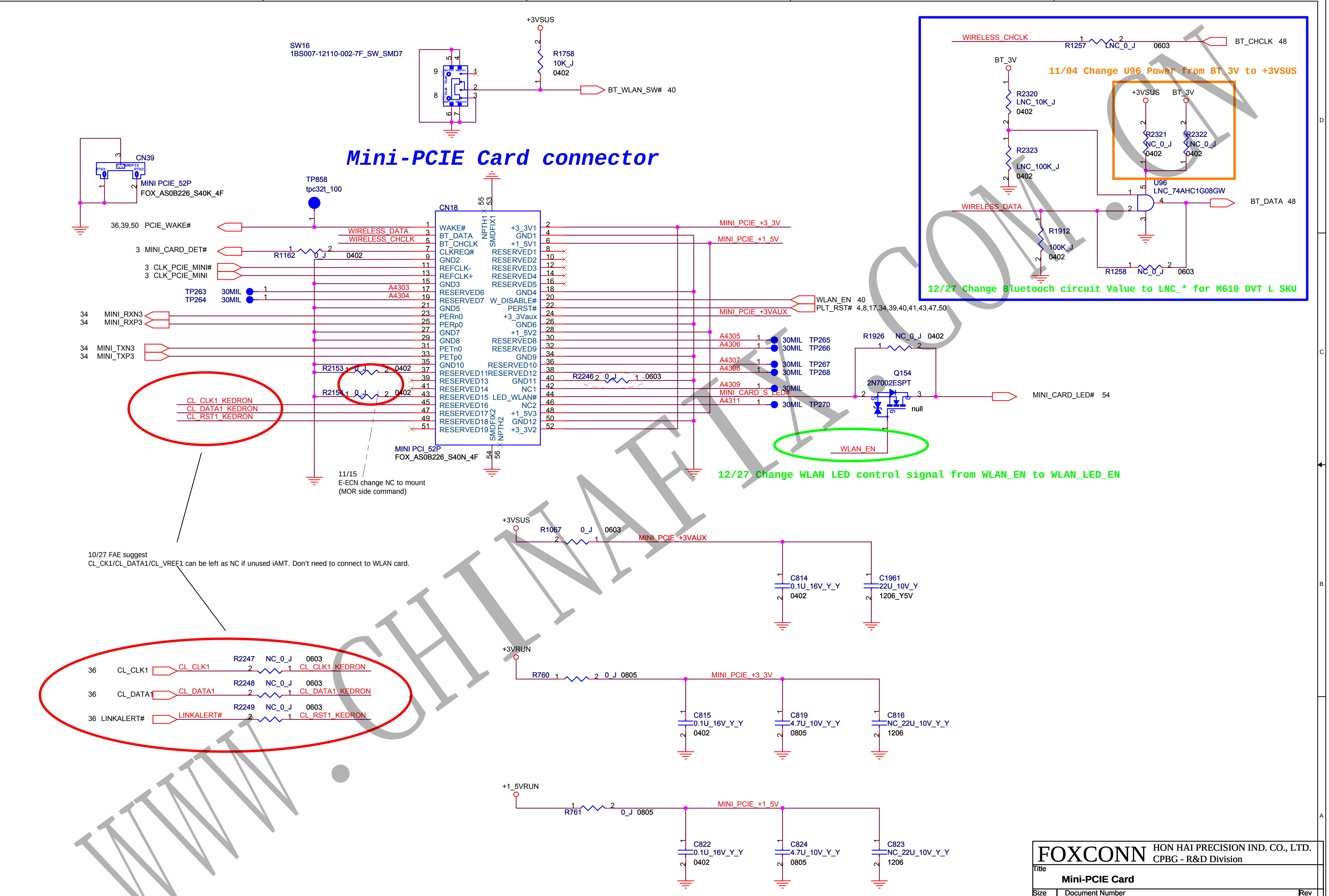
Size	Document Number	Rev
A3	(M610-1-01)MainBoard (MBX-176) 2007.1.4	2.0

Date: Thursday, May 10, 2007 Sheet 47 of 77



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

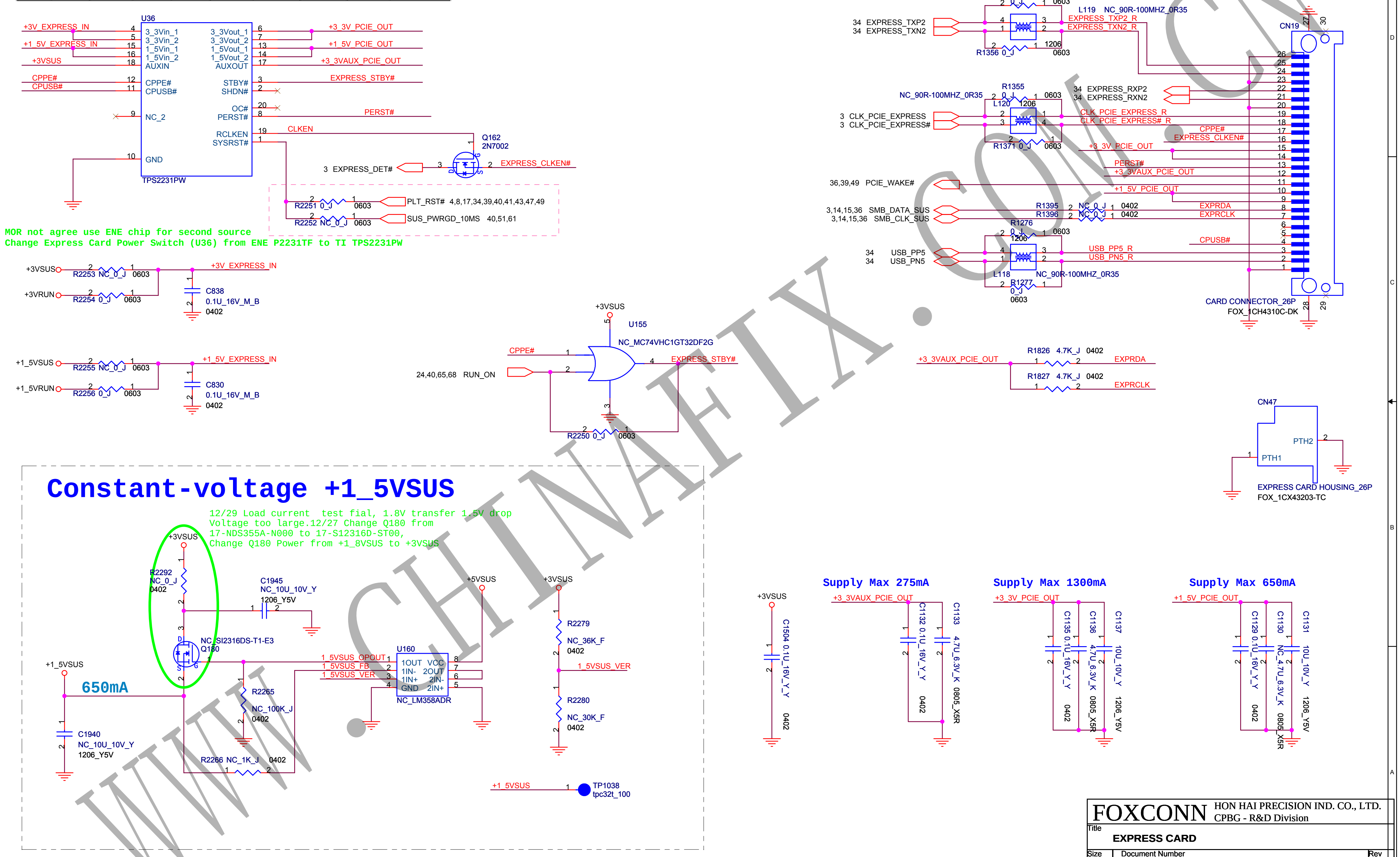
Title	FAN/Bluetooth	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 48 of 77	



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	Mini-PCIE Card	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 49 of 77	

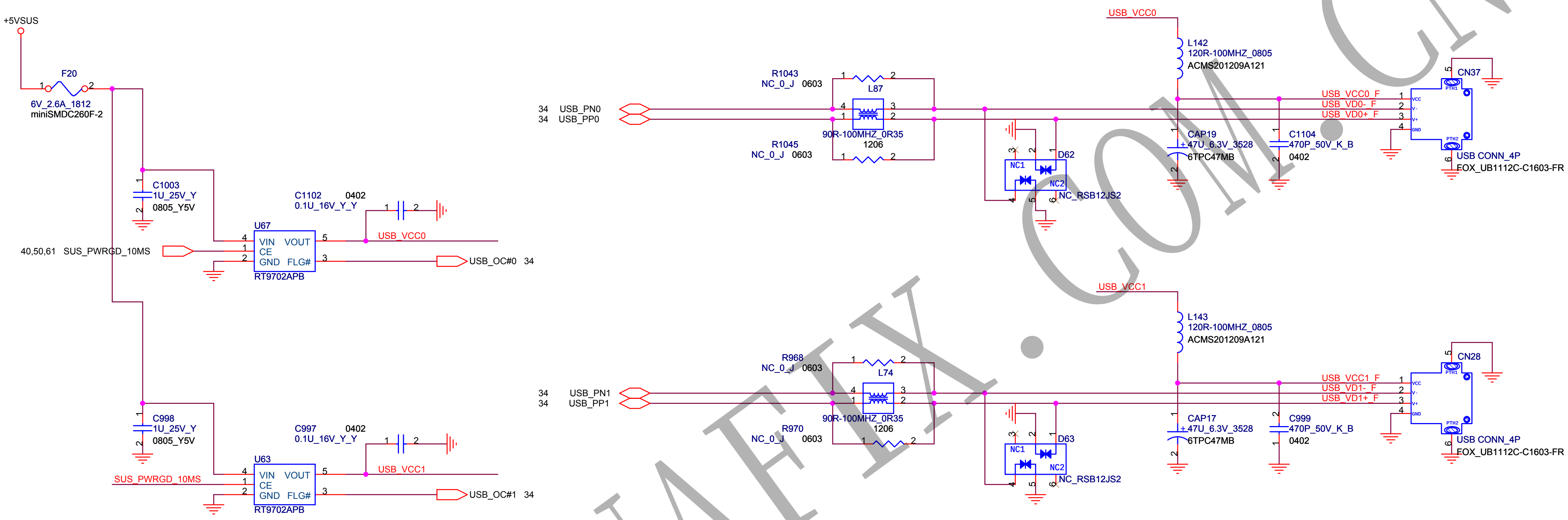
VOLTAGE INPUTS(1)			LOGIC INPUTS			VOLTAGE OUTPUTS(2)			MODE(3)
AUXIN	3.3VIN	1.5VIN	SHDN	STBY	CP(4)	AUXOUT	3.3VOUT	1.5VOUT	
Off	x	x	x	x	x	Off	Off	Off	OFF
On	x	x	0	x	x	GND	GND	GND	Shutdown
On	x	x	1	x	1	GND	GND	GND	No Card
On	On	On	1	0	0	On	Off	Off	Standby
On	On	On	1	1	0	On	On	On	Card Inserted

EXPRESS Card



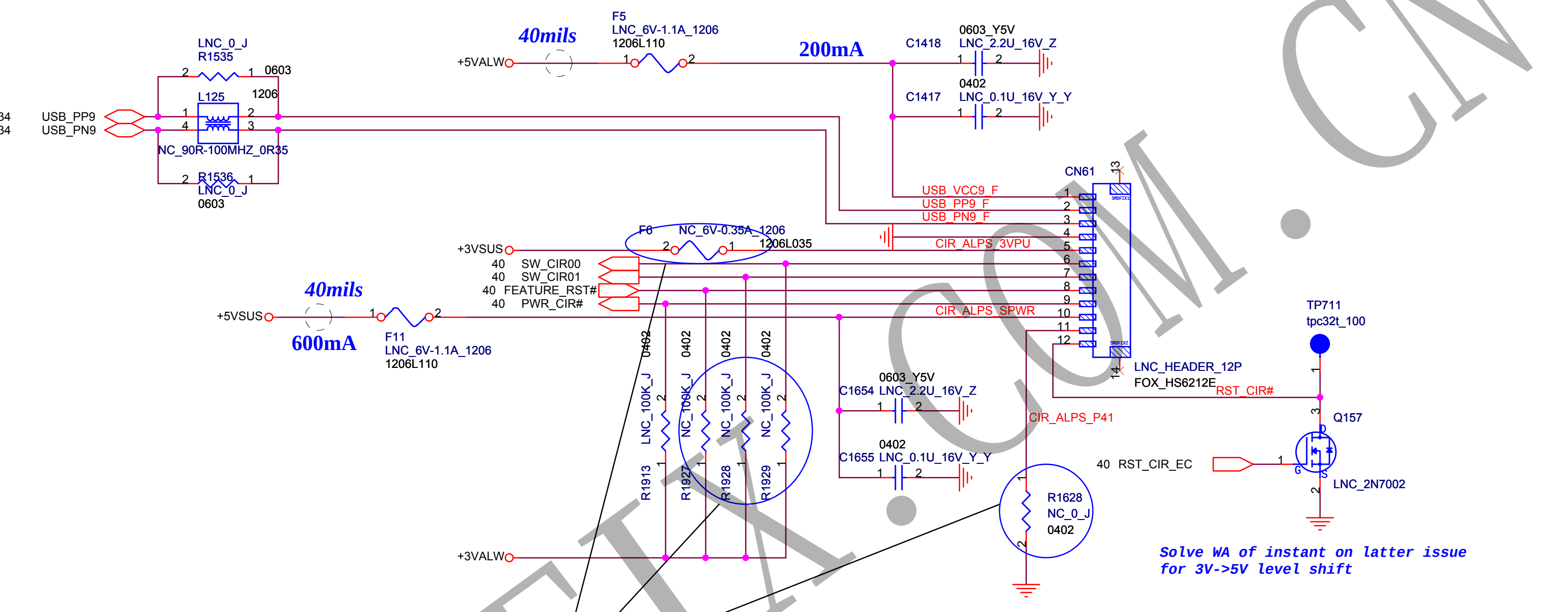
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	EXPRESS CARD
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 2.0
Date: Thursday, May 10, 2007	Sheet 50 of 77

USB connector *2



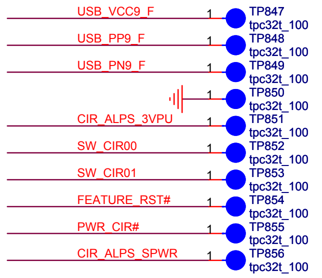
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	USB2.0/DOCKING CONN.
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 2.0
Date: Thursday, May 10, 2007	Sheet 51 of 77

IR Rreceiver connector



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

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



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

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

At Only USB Internal CIR, it's USB Power

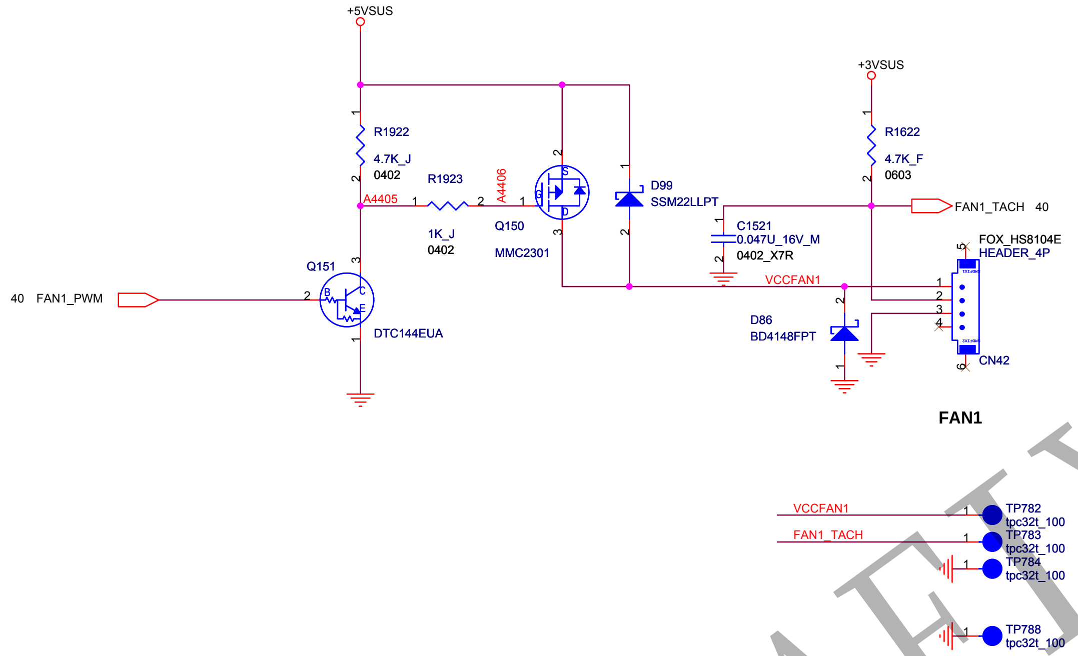
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: LED/LID SW#/Touch PAD

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

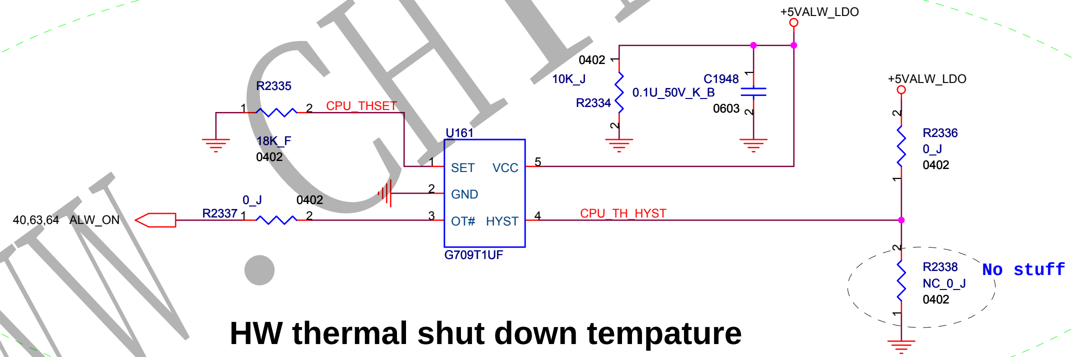
Date: Thursday, May 10, 2007 Sheet 52 of 77

FAN circuit



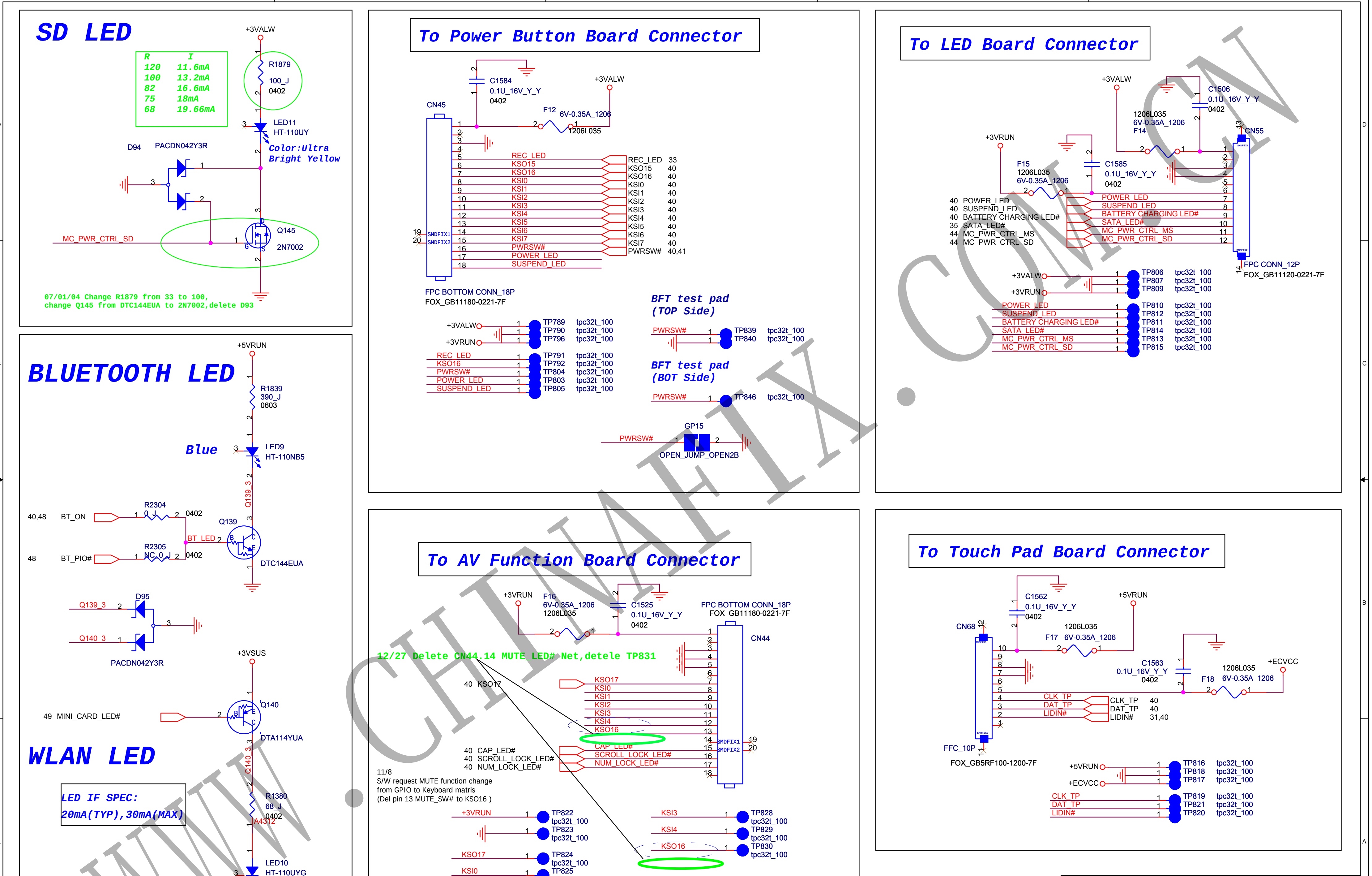
HW THERMAL PROTECTION

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



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

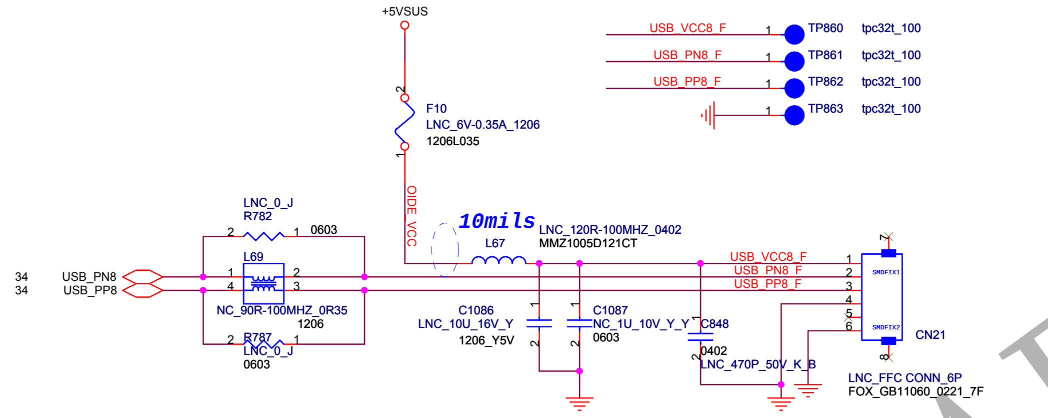
Base on MOR side request to add HW thermal protection circuit



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

Title	POWER BD + HOT KEY BD + T/P&LED BD + LOGO LED		
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4		Rev 2.0
Date:	Thursday, May 10, 2007	Sheet 54	of 77

OIDE Connector



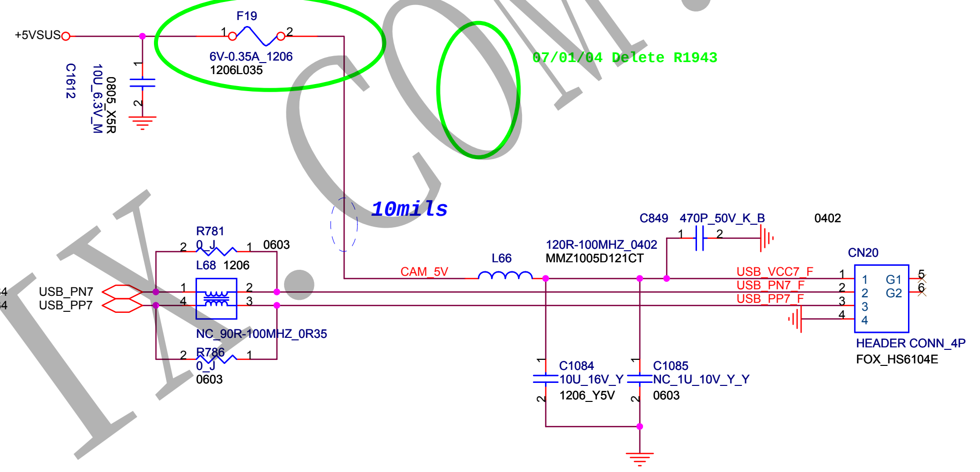
2006.1.4pin swape for ME request

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

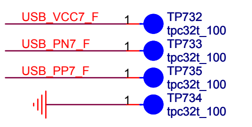
CAMERA Connector

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

07/01/04 Delete R1943

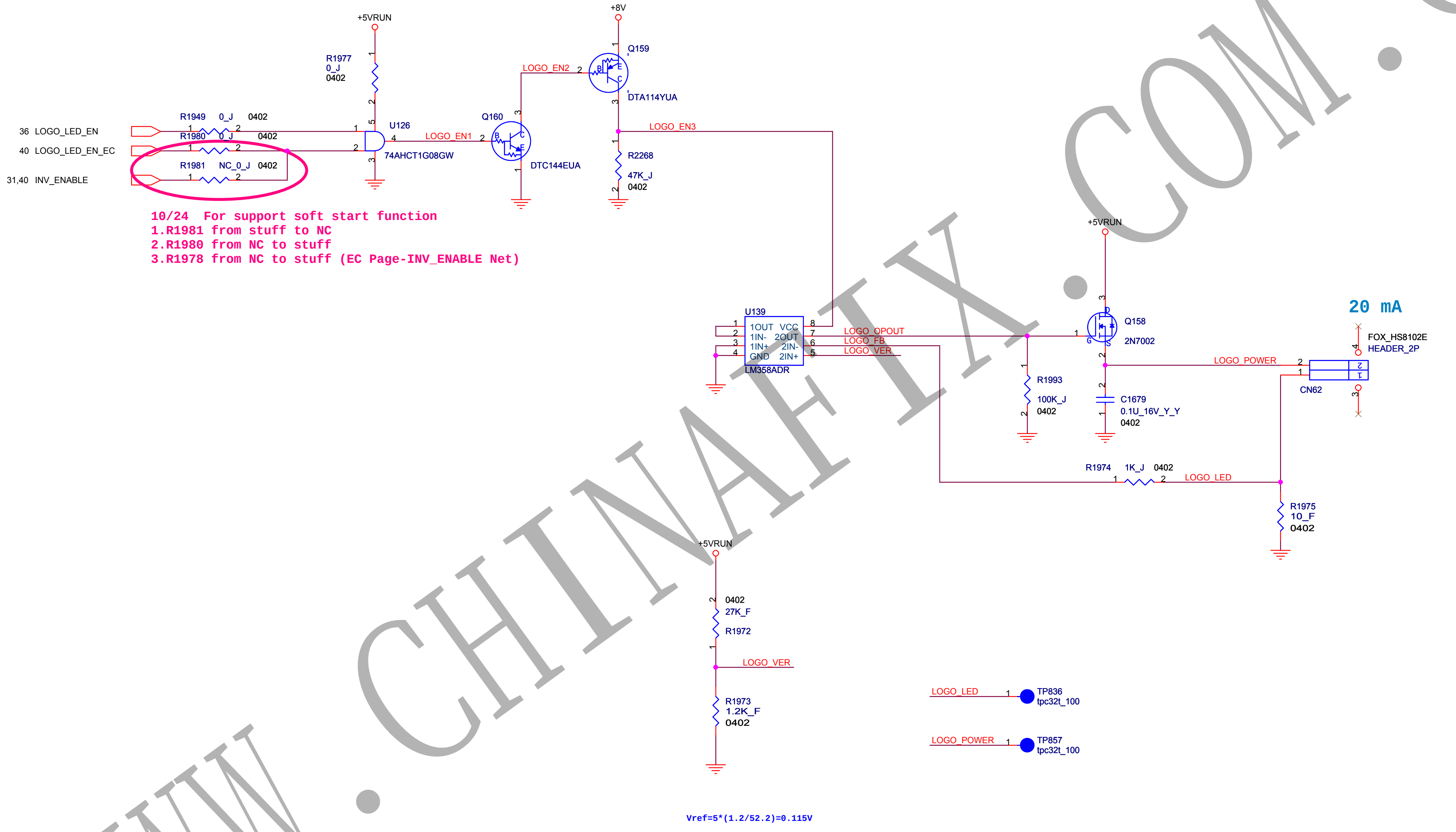


12/21 BFT Test Pad



FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	CAM/OIDE	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 55 of 77	

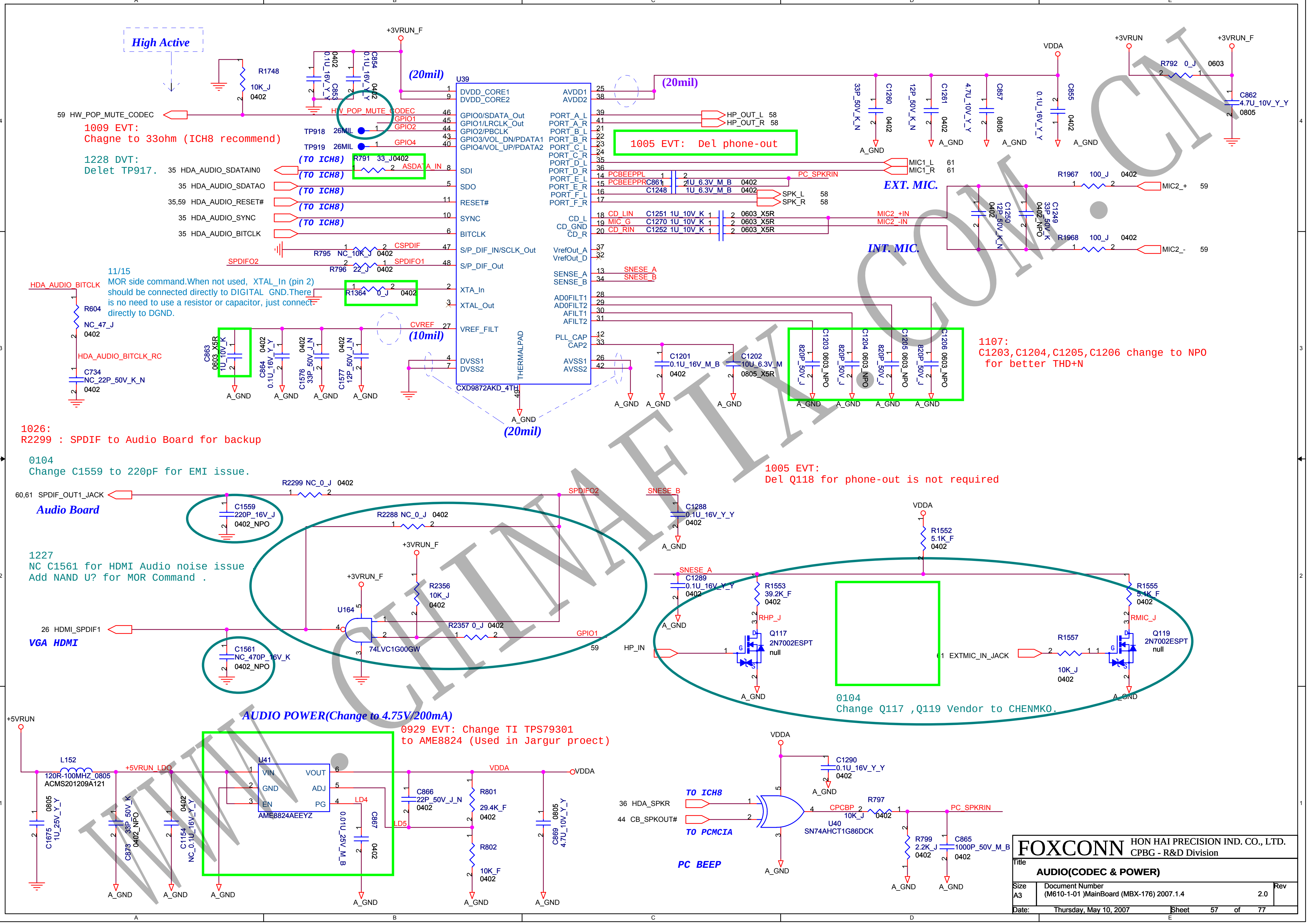
Constant-Current SONY LOGO LED



10/24 For support soft start function
1.R1981 from stuff to NC
2.R1980 from NC to stuff
3.R1978 from NC to stuff (EC Page-INV_ENABLE Net)

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

Title	Logo LED / +1_5VSUS	
Size: Custom	Document Number: (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 56 of 77	



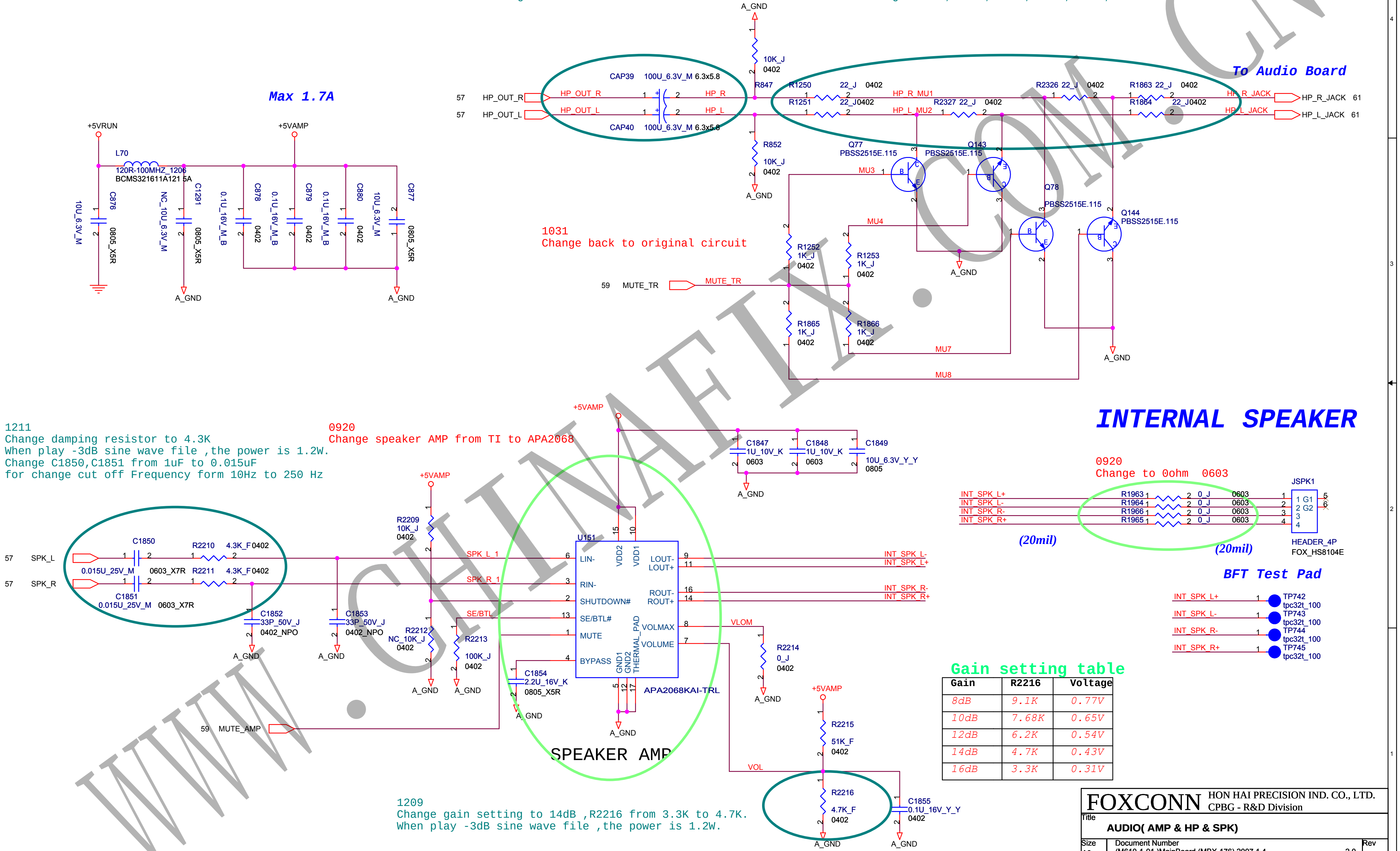
High Active
U39
CXD9872AKD_4TH
(20mil)
(10mil)
1009 EVT:
Chagne to 33ohm (ICH8 recommend)
1228 DVT:
Delet TP917.
1005 EVT: Del phone-out
EXT. MIC.
INT. MIC.
11/15
MOR side command.When not used, XTAL_In (pin 2) should be connected directly to DIGITAL GND.There is no need to use a resistor or capacitor, just connect directly to DGND.
1107:
C1203,C1204,C1205,C1206 change to NPO for better THD+N
1026:
R2299 : SPDIF to Audio Board for backup
0104
Change C1559 to 220pF for EMI issue.
Audio Board
1227
NC C1561 for HDMI Audio noise issue
Add NAND U? for MOR Command .
VGA HDMI
1005 EVT:
Del Q118 for phone-out is not required
0104
Change Q117 ,Q119 Vendor to CHENMKO.
AUDIO POWER(Change to 4.75V/200mA)
0929 EVT: Change TI TPS79301 to AME8824 (Used in Jargur proect)
TO ICH8
TO PCMCIA
PC BEEP
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title
AUDIO(CODEC & POWER)
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4
Rev 2.0
Date: Thursday, May 10, 2007
Sheet 57 of 77

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

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

1228
Change CAP39 and CAP40 Vendor from LELON to Panasonic

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



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

0920
Change speaker AMP from TI to APA2068

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

Gain setting table

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

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

Title: AUDIO(AMP & HP & SPK)

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

Date: Thursday, May 10, 2007 | Sheet 58 of 77

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

Circuit setting table

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

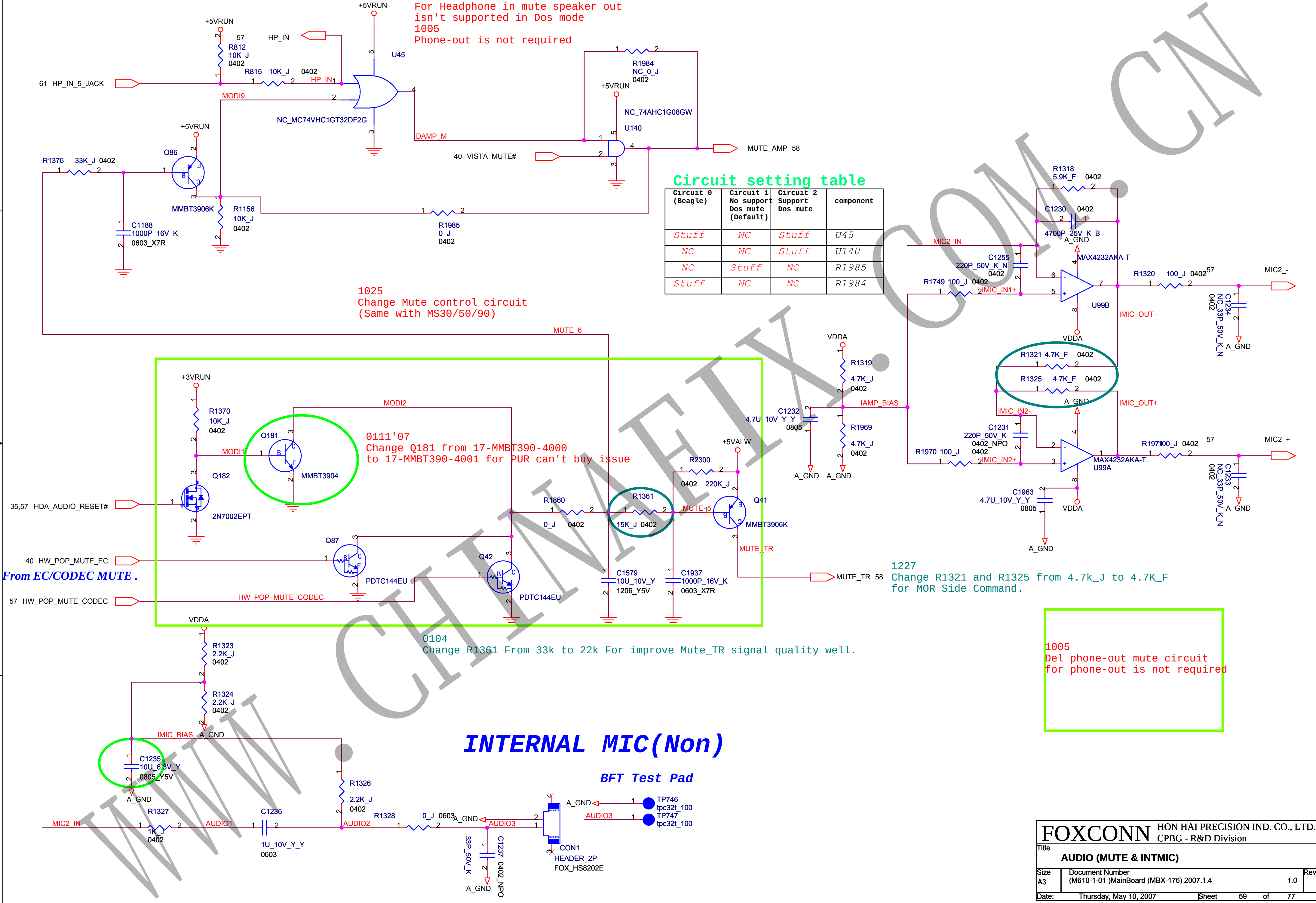
1025
Change Mute control circuit
(Same with MS30/50/90)

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

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

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

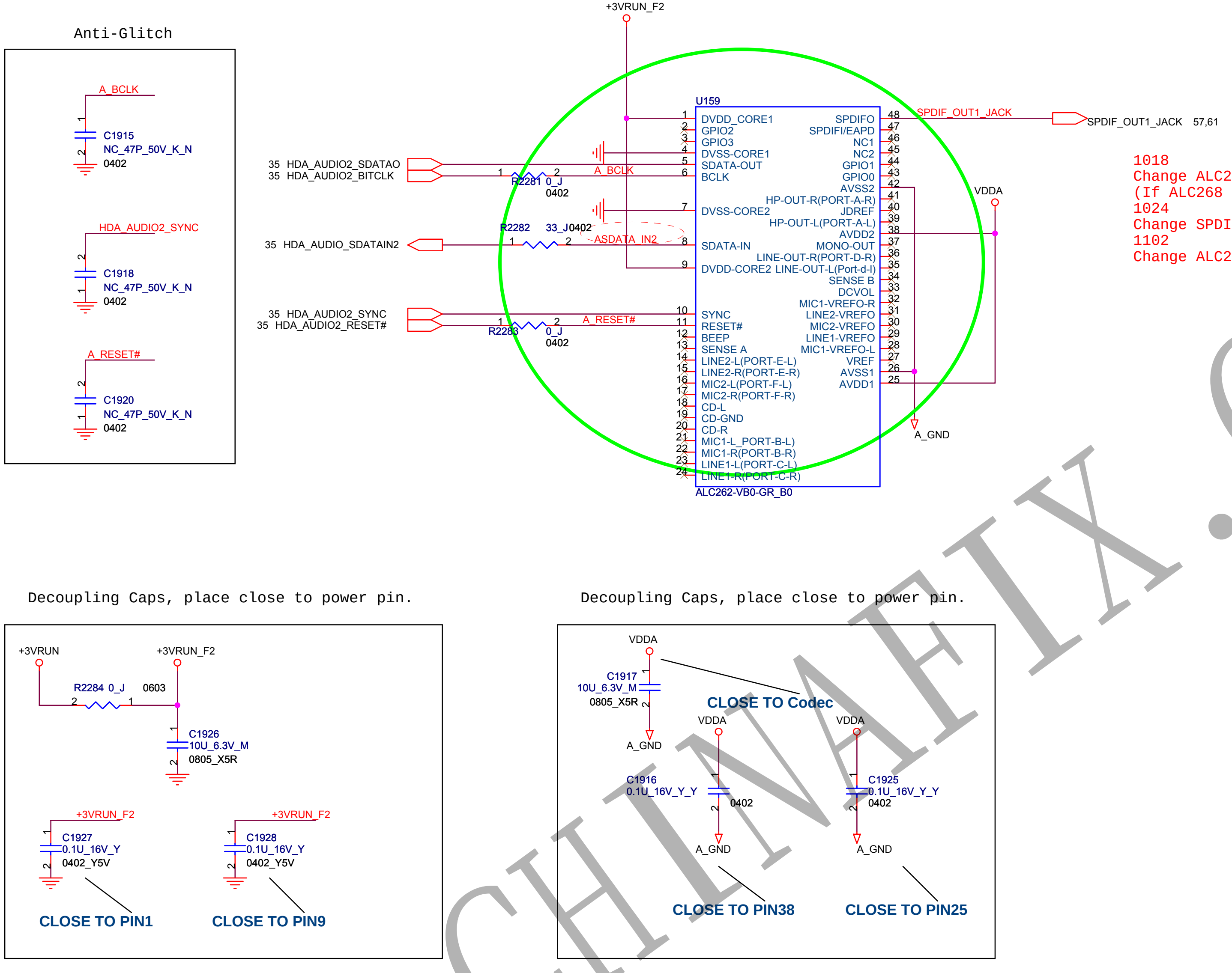
1005
Del phone-out mute circuit
for phone-out is not required



INTERNAL MIC(Non)

BFT Test Pad

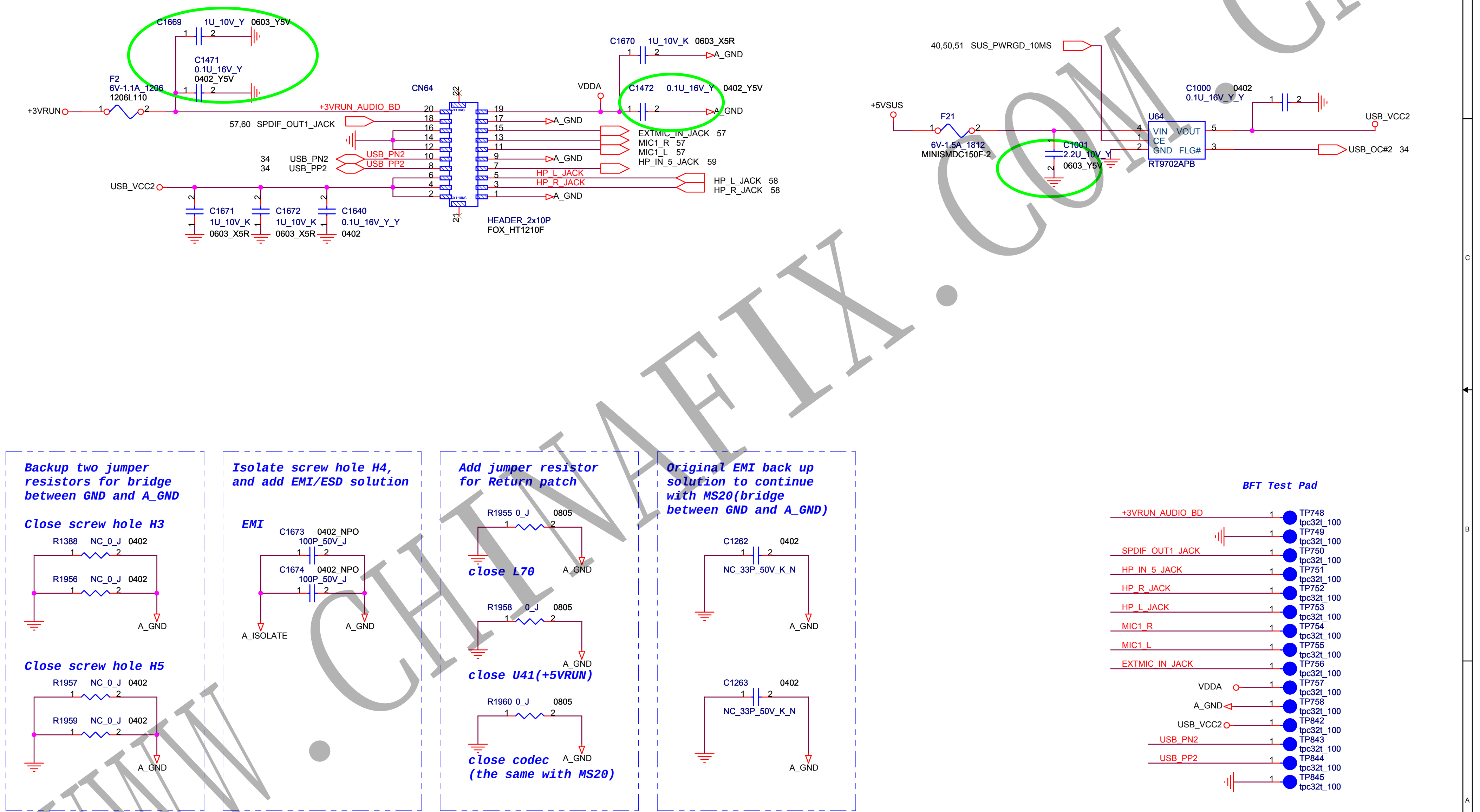
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	AUDIO (MUTE & INTMIC)
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 1.0
Date: Thursday, May 10, 2007	Sheet 59 of 77



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

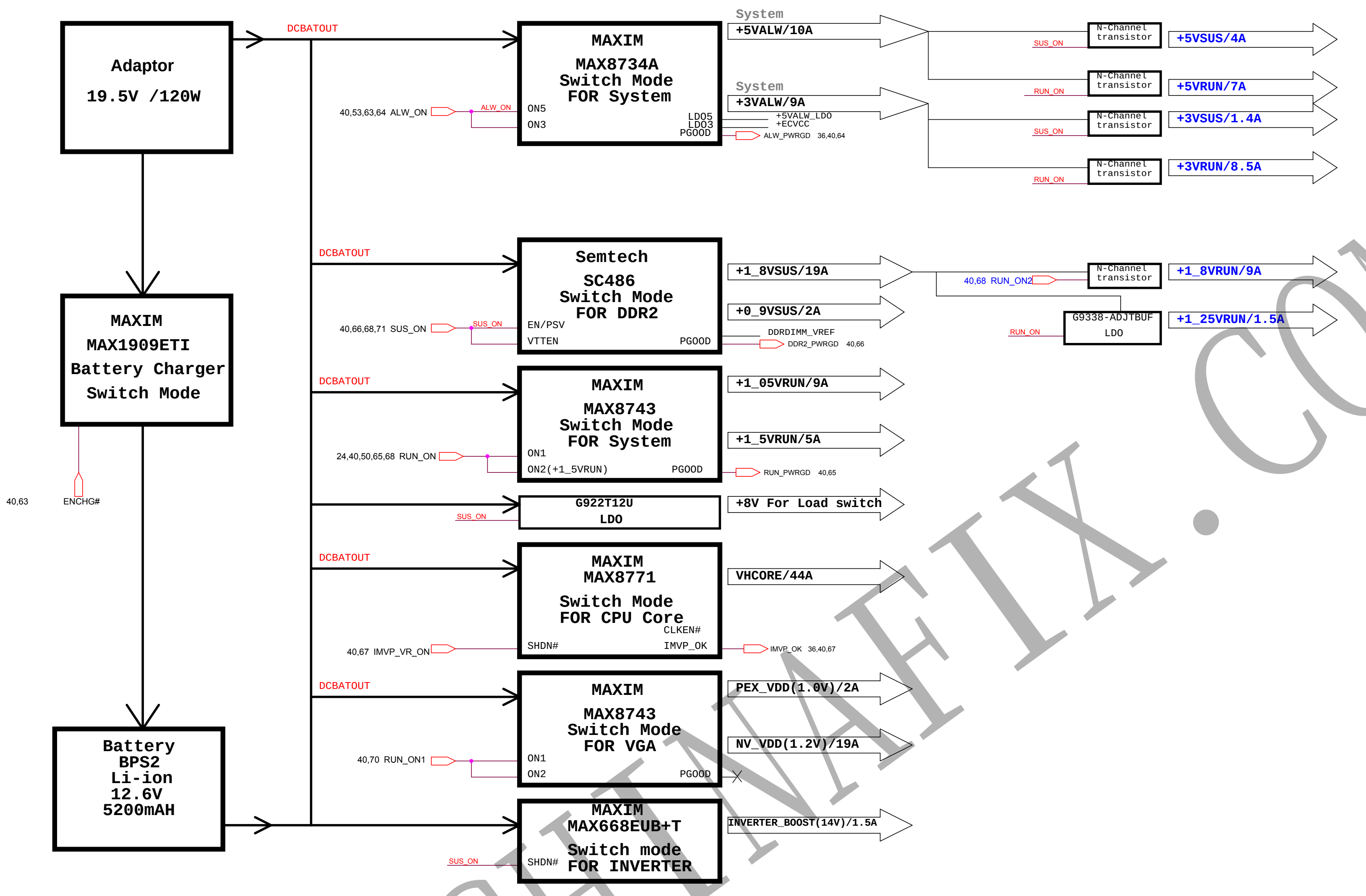
FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division
Title	AUDIO (Secod Codec for HDMI SPDIF)
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4 — Rev 2.0
Date: Thursday, May 10, 2007	Sheet 60 of 77

Audio Board connector

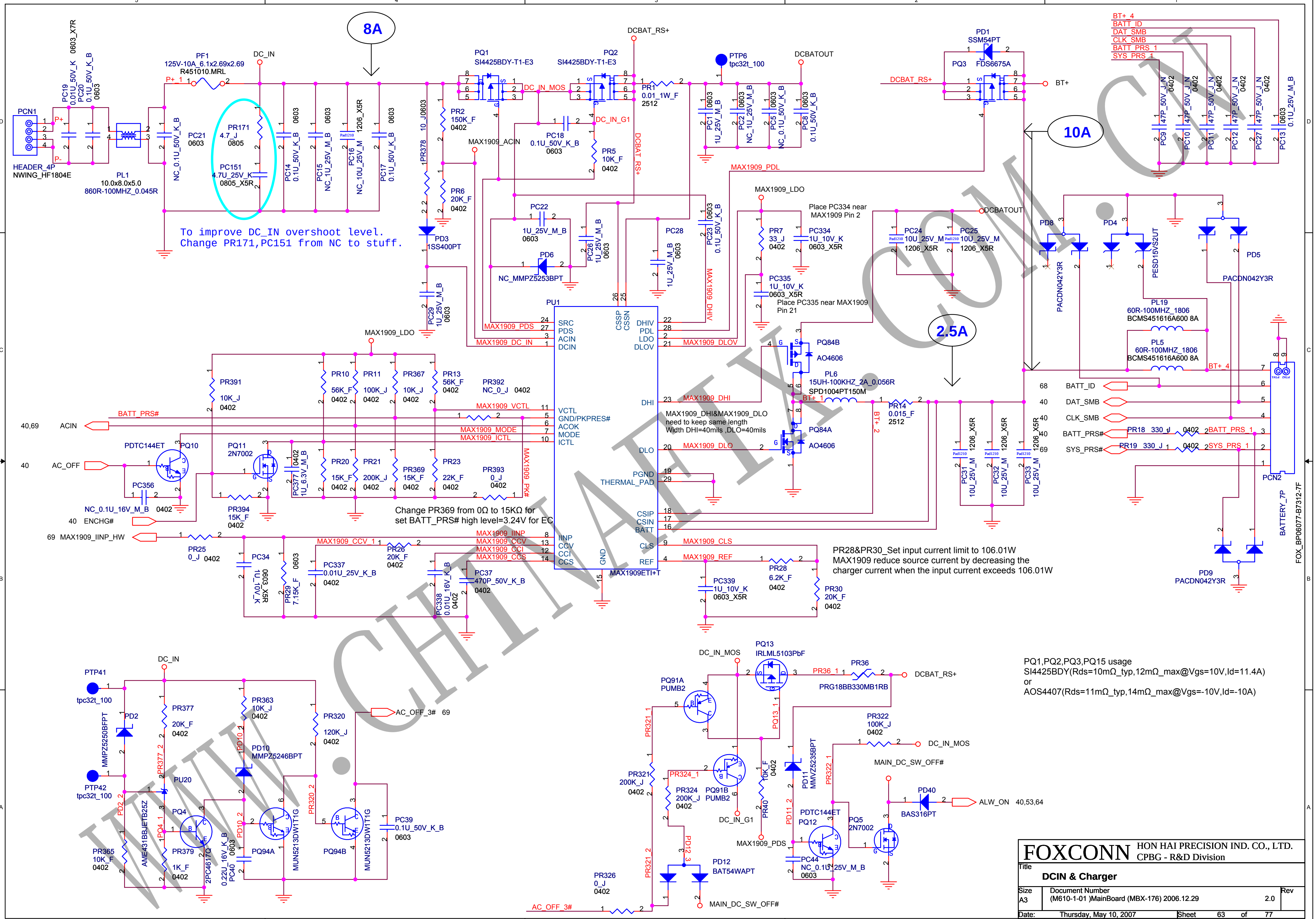


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title	Audio Board conn	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 61 of 77	

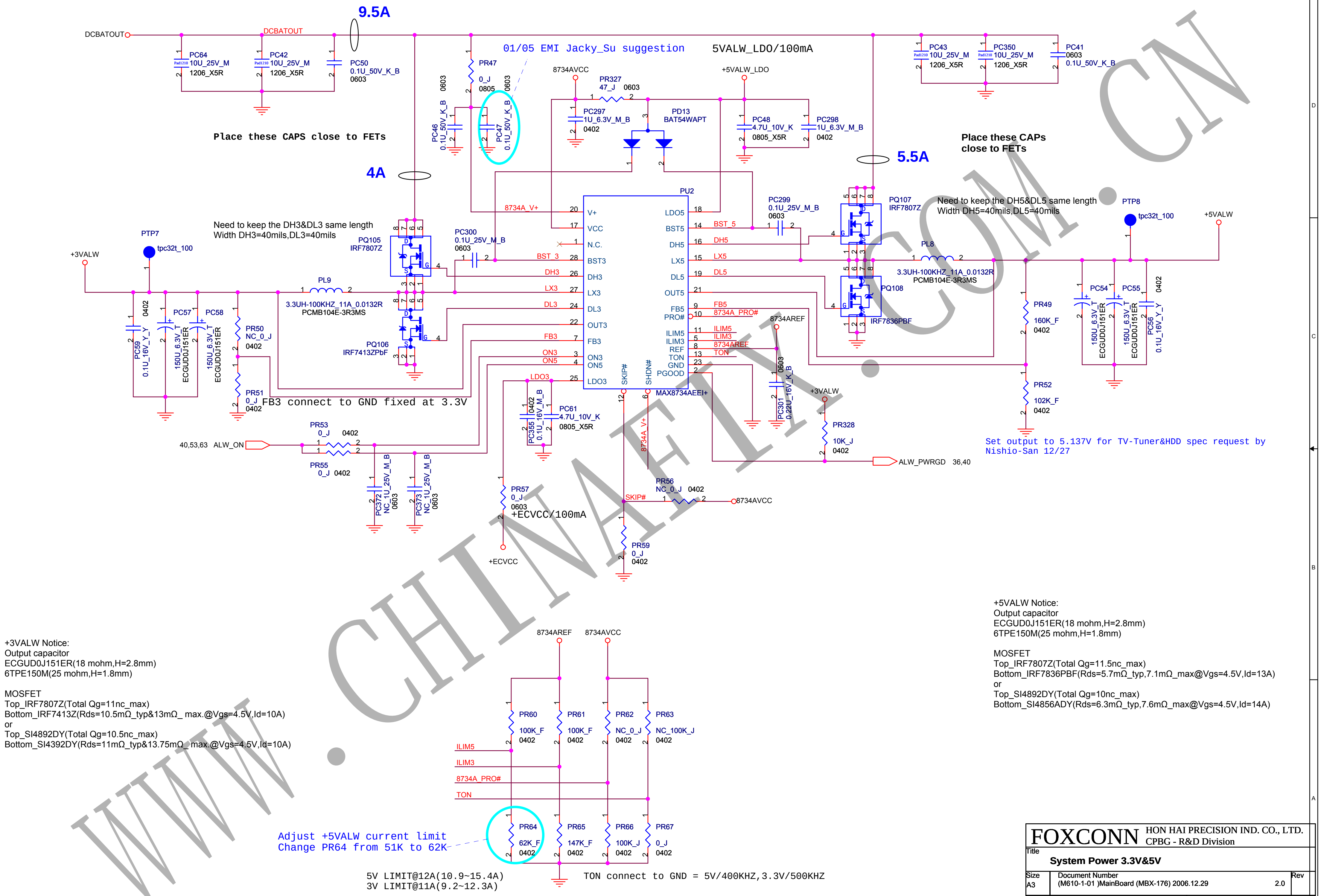


FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	Power Design Diagram-ZG		
Size A2	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29		Rev 2.0
Date:	Thursday, May 10, 2007	Sheet 62 of 77	



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

Title	DCIN & Charger	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 63 of 77	



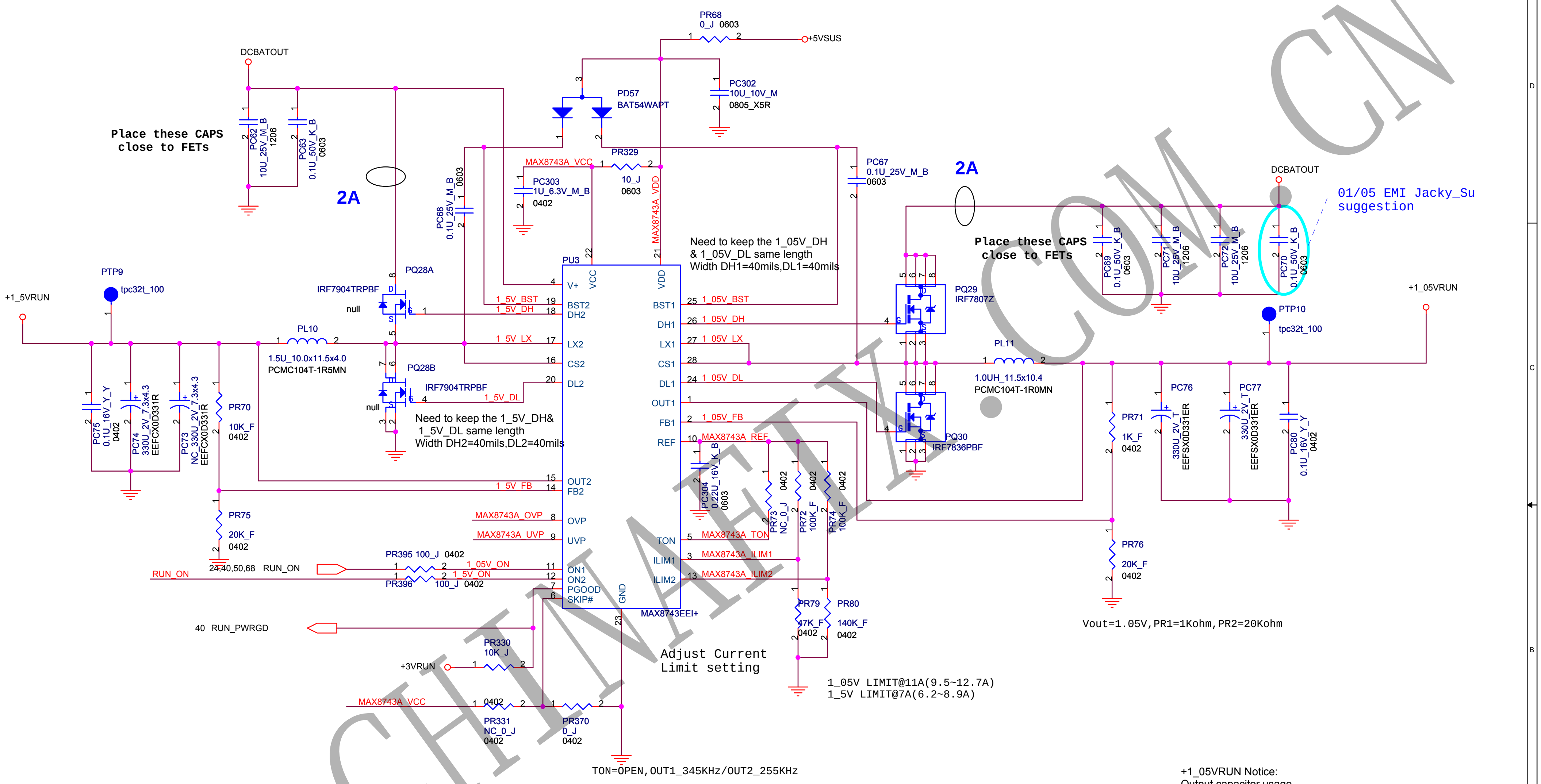
+3VALW Notice:
Output capacitor
ECGUD0J151ER(18 mohm,H=2.8mm)
6TPE150M(25 mohm,H=1.8mm)

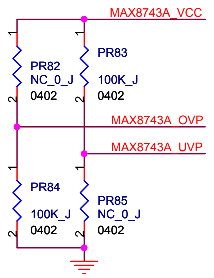
MOSFET
Top_IRF7807Z(Total Qg=11nc_max)
Bottom_IRF7413Z(Rds=10.5mΩ_typ&13mΩ_ max.@Vgs=4.5V,Id=10A)
or
Top_SI4892DY(Total Qg=10.5nc_max)
Bottom_SI4392DY(Rds=11mΩ_typ&13.75mΩ_ max.@Vgs=4.5V,Id=10A)

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

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

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	System Power 3.3V&5V	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29	Rev 2.0
Date:	Thursday, May 10, 2007	Sheet 64 of 77





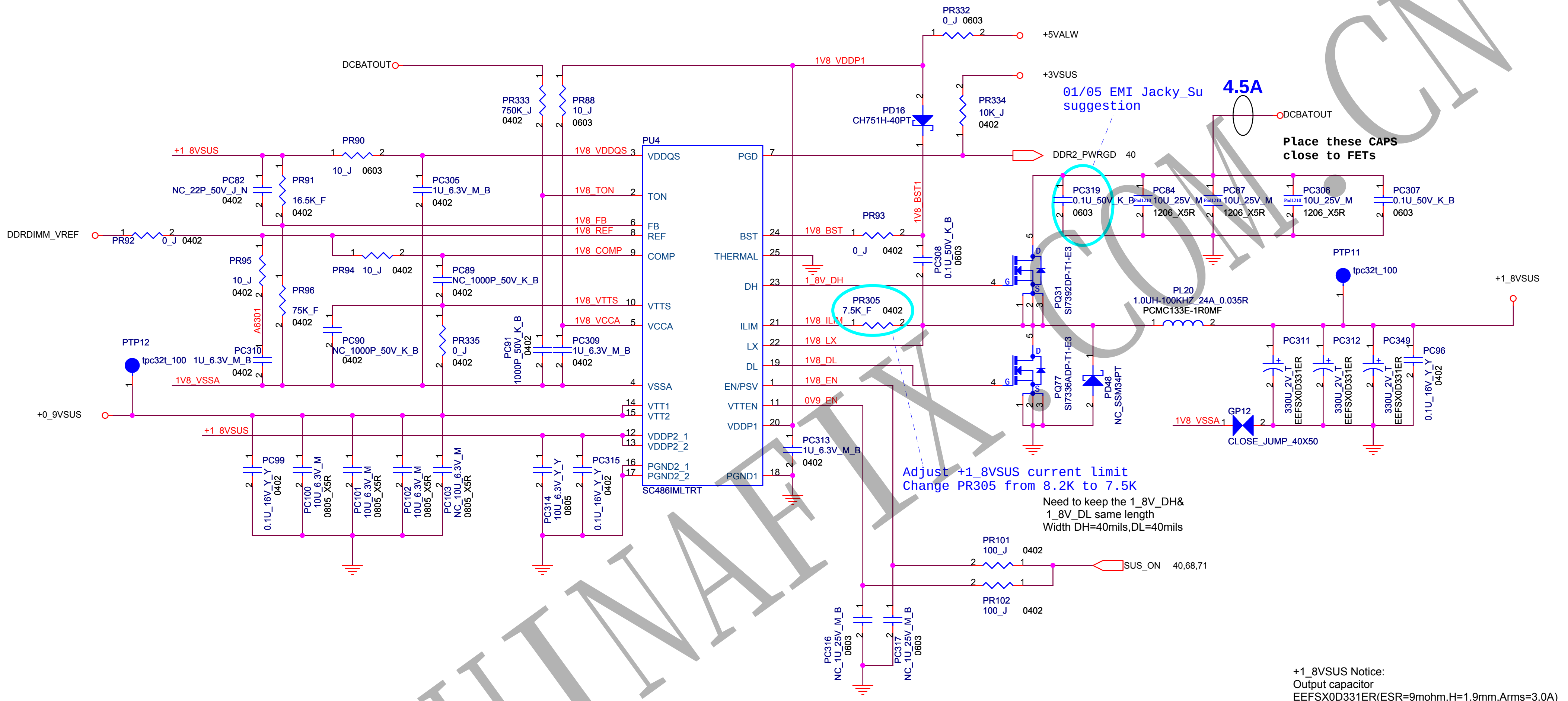
+1_5VRUN Notice:
Output capacitor
EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1A)

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

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

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

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title	1.5V/1.05V	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29	Rev 2.0
Date: Thursday, May 10, 2007	Sheet 65 of 77	

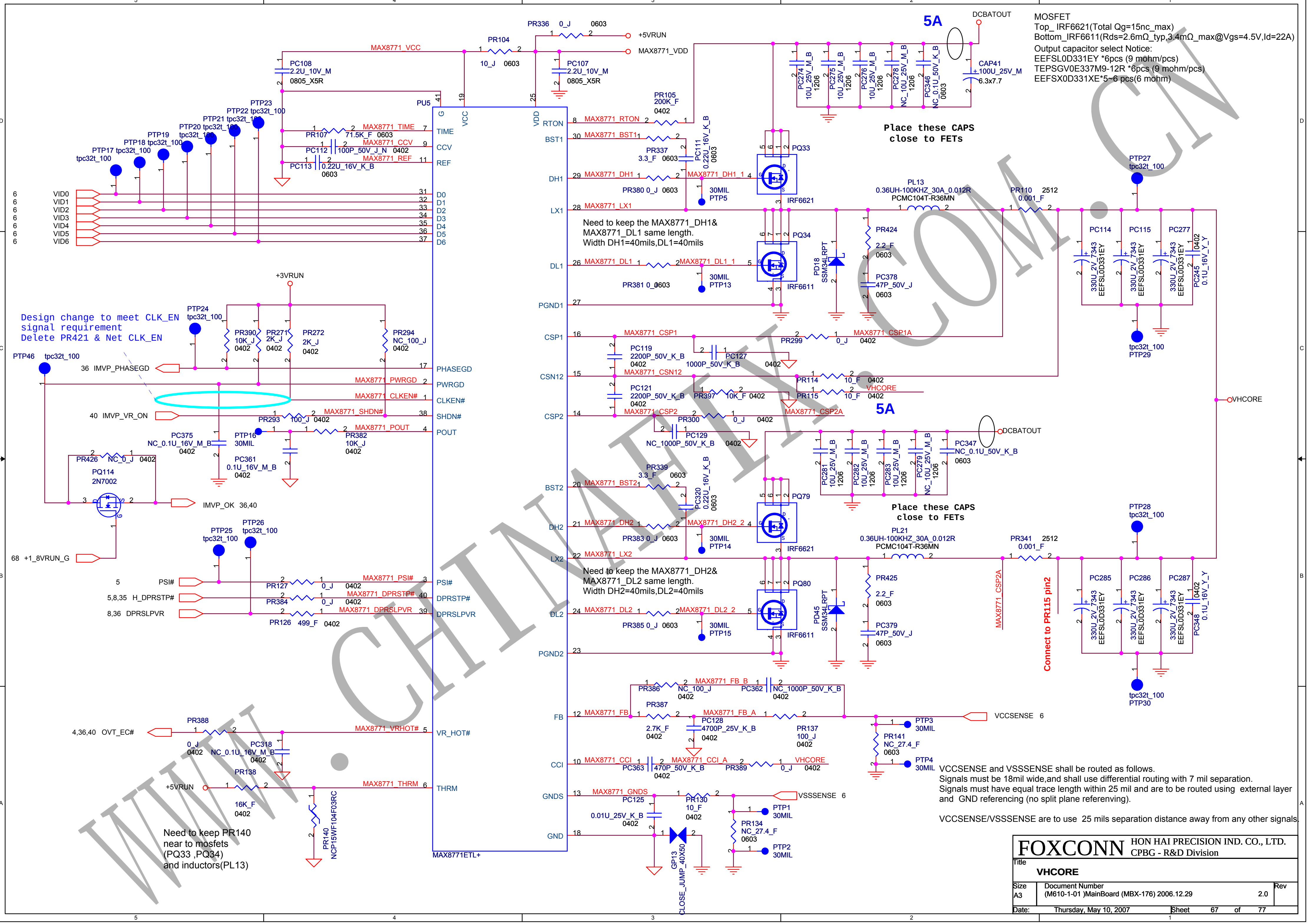


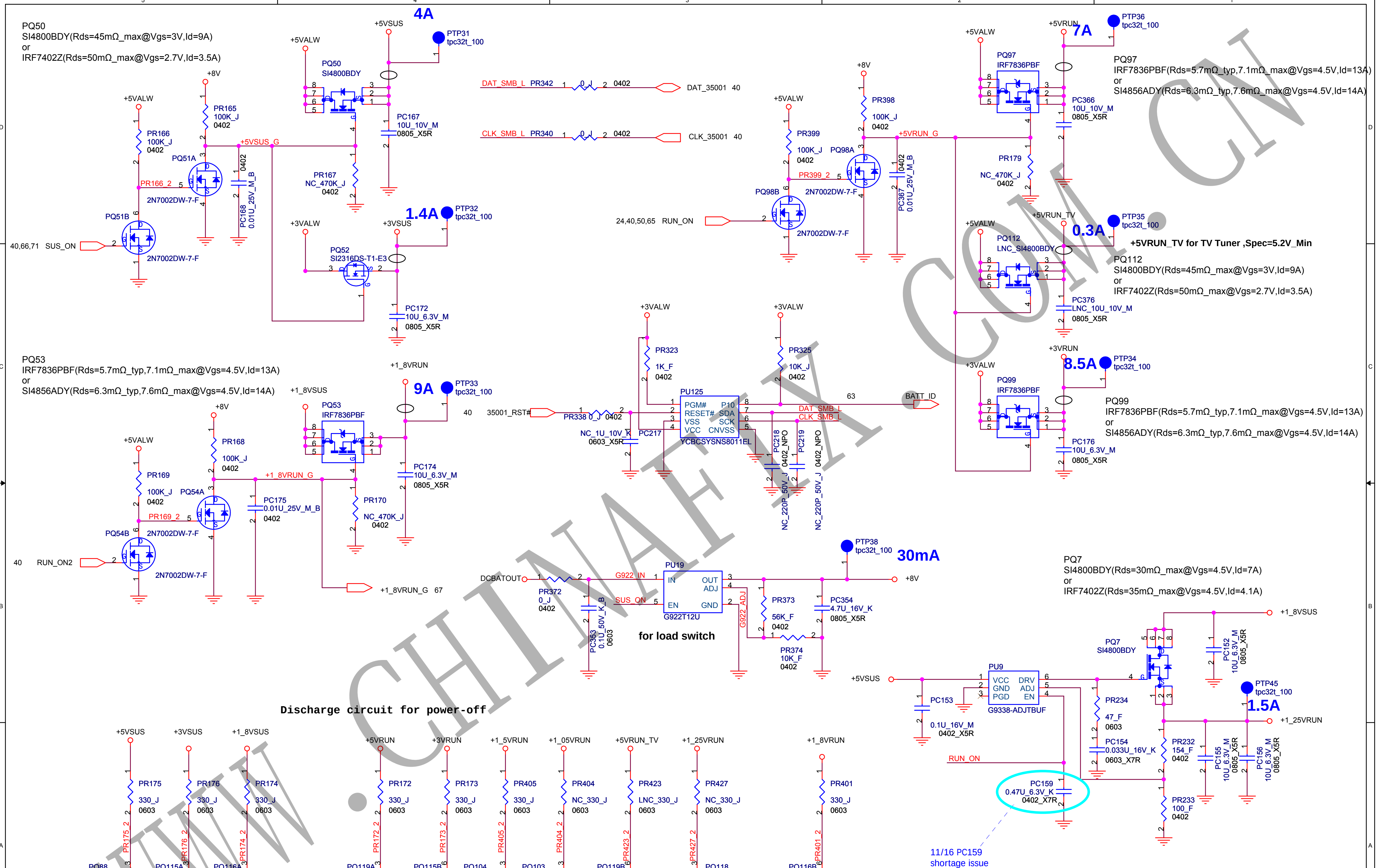
+1_8VSUS Notice:
Output capacitor
EEFSX0D331ER(ESR=9mohm,H=1.9mm,Arms=3.0A)
2R5TPE330M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

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

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

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division	
Title: DDRII 1.8V/0.9V		
Size: A3	Document Number: (M610-1-01)MainBoard (MBX-176) 2006.12.29	Rev: 2.0
Date: Thursday, May 10, 2007	Sheet 66 of 77	


MOSFET
Top_ IRF6621(Total Qg=15nc_max)
Bottom_IRF6611(Rds=2.6mΩ_typ,3.4mΩ_max@Vgs=4.5V,Id=22A)
Output capacitor select Notice:
EEFSL0D331EY *6pcs (9 mohm/pcs)
TEPSGV0E337M9-12R *6pcs (9 mohm/pcs)
EEFSX0D331XE*5~6 pcs(6 mohm)
5A
DCBATOUT
+5VRUN
MAX8771_VDD
MAX8771_VCC
Place these CAPS close to FETs
Need to keep the MAX8771_DH1& MAX8771_DL1 same length. Width DH1=40mils,DL1=40mils
Need to keep the MAX8771_DH2& MAX8771_DL2 same length. Width DH2=40mils,DL2=40mils
Design change to meet CLK_EN signal requirement
Delete PR421 & Net CLK_EN
+3VRUN
IMVP_PHASEGD
IMVP_VR_ON
IMVP_OK 36,40
+1_8VRUN_G
PSI#
H_DPRSTP#
DPRSLPVR
OVT_EC#
VCCSENSE
VSSSENSE
VHCORE
Connect to PR115 pin2
MAX8771ETL+
PU5
IRF6621
IRF6611
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.
Need to keep PR140 near to mosfets (PQ33 ,PQ34) and inductors(PL13)
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
VHCORE
Size A3
Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29
Rev 2.0
Date: Thursday, May 10, 2007
Sheet 67 of 77

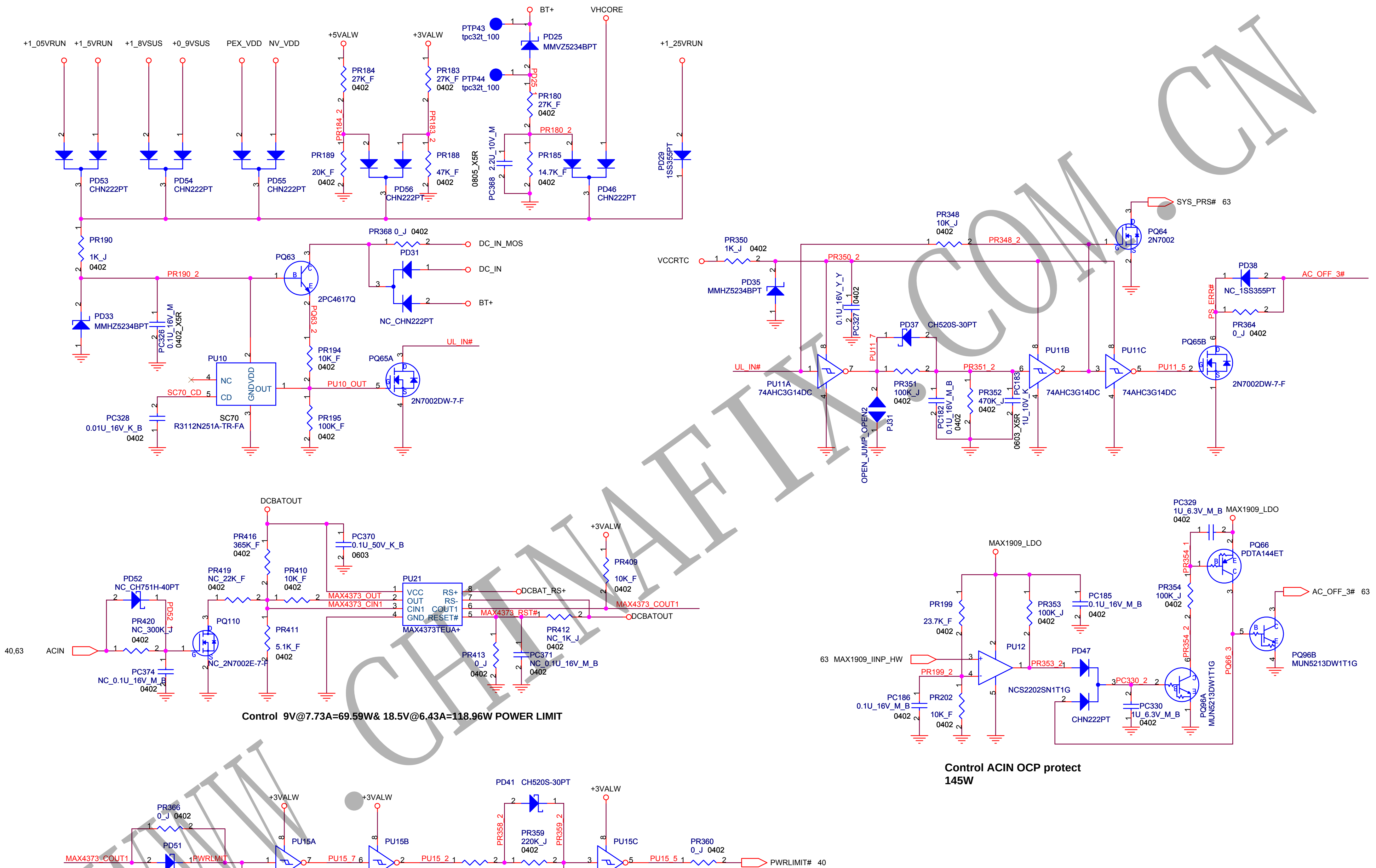


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: Other power plan

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

Date: Thursday, May 10, 2007 Sheet 68 of 77

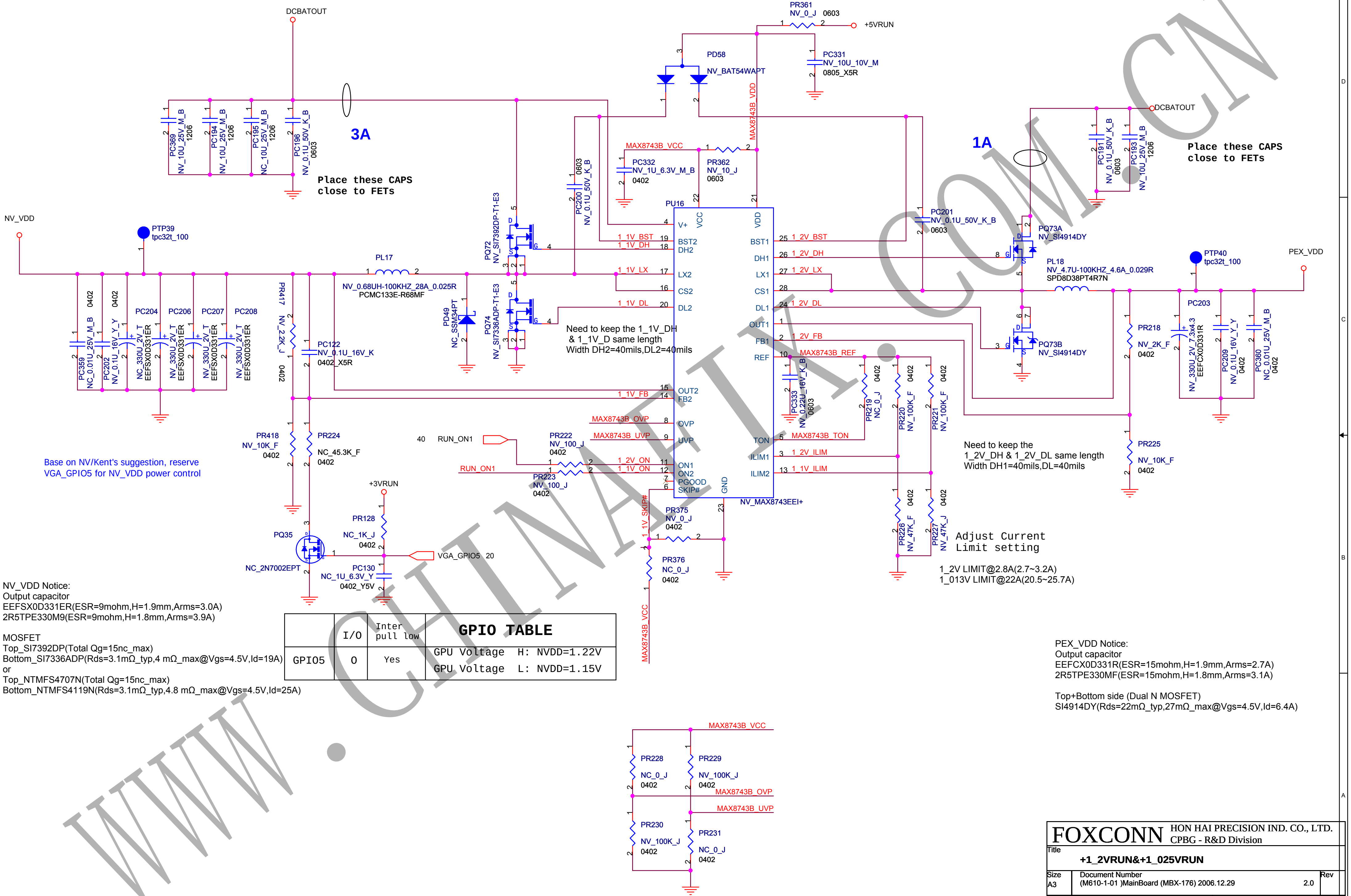


FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: **OVP protection**

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

Date: Thursday, May 10, 2007 Sheet 69 of 77



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

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

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

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

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

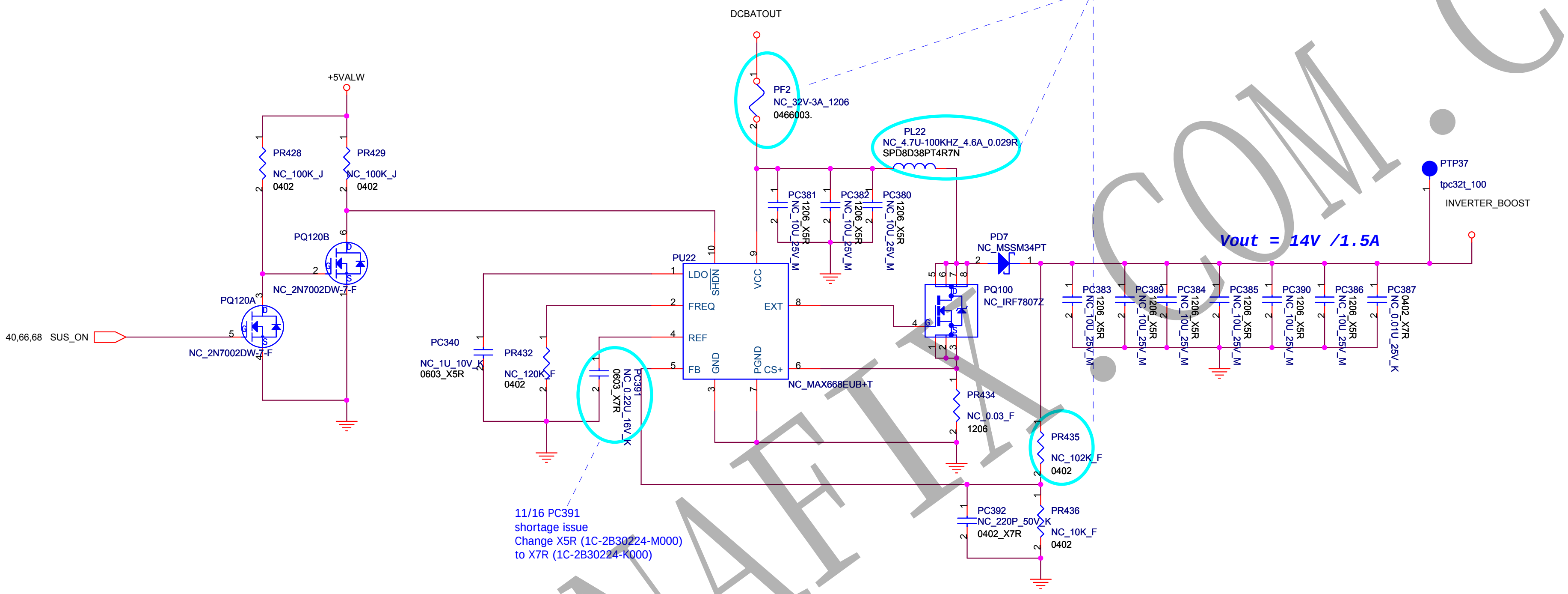
FOXCONN HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division

Title: +1_2VRUN&+1_025VRUN

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

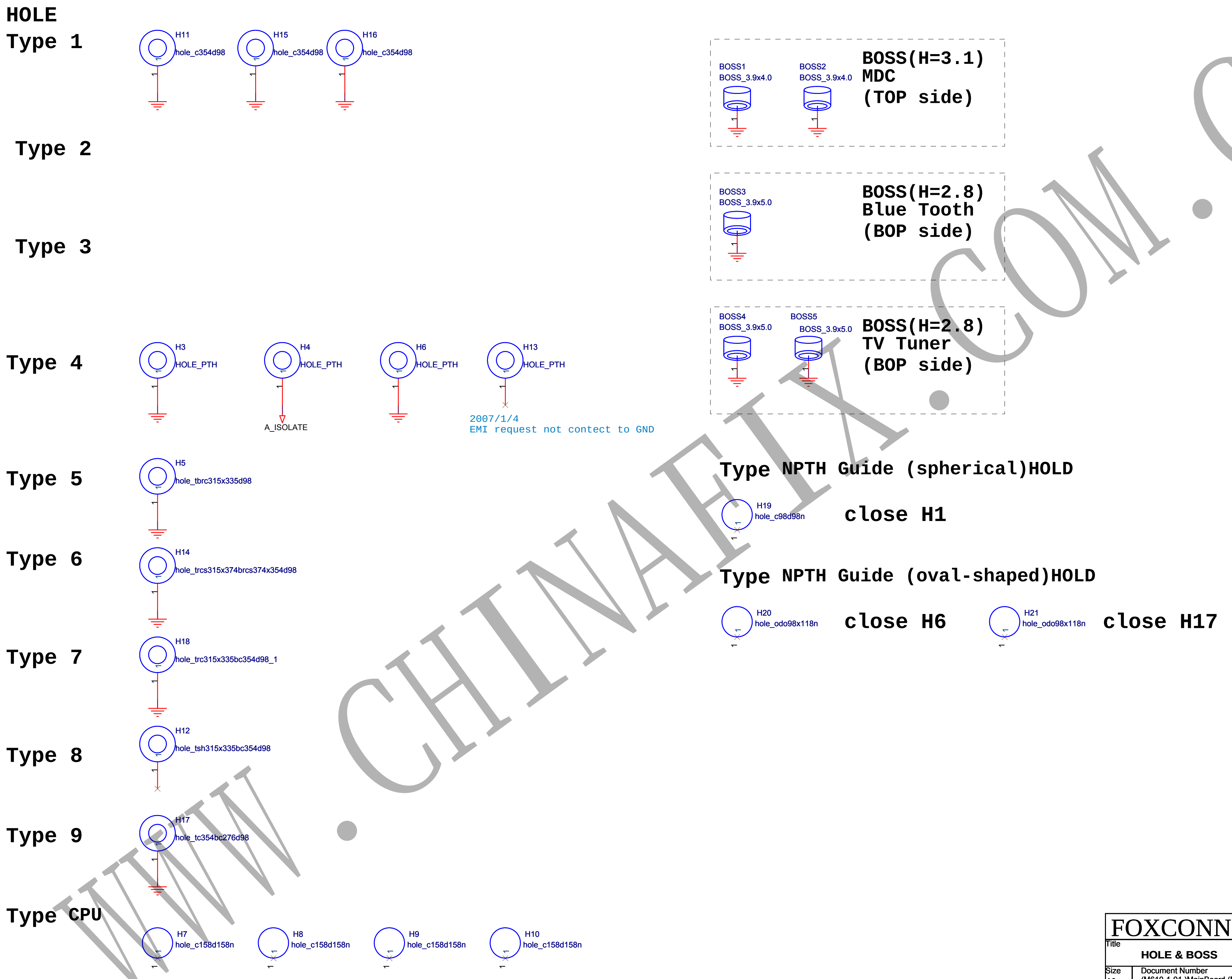
Date: Thursday, May 10, 2007 | Sheet 70 of 77

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



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

FOXCONN	HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division		
Title	STEP_UP		
Size Custom	Document Number (M610-1-01)MainBoard (MBX-176) 2006.12.29		Rev 2.0
Date:	Thursday, May 10, 2007	Sheet 71 of 77	



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

Title	HOLE & BOSS	
Size A3	Document Number (M610-1-01)MainBoard (MBX-176) 2007.1.4	Rev 2.0
Date:	Thursday, May 10, 2007	Sheet 72 of 77

1.(page18)NB8M-GT Device ID setting mismatch between VBIOS and H/W Straps
Change R231 value from NC_ to NV8MH_
Change R232 value from NV_ to NV8P_

2.(Page25)NVIDIA update NB8X VRAM termination value
Change R1900 from 50ohm to 40ohm
Change R272 from 40ohm to 30ohm

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

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

5.(page20)NVIDIA FAE suggestion:
Reserve NV_I2CS bus connected to EC for NB8X's internal thermal sensor.
Backup R2328 (NC)/ R2329 (NC)

6.(Page32)Cost down evaluation
Change R2193,R2194 from NC_ to NV8P8MH_,
Change R1940,C1616,U136 from NV8P8MH_ to NC

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

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

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

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

11.(Page35,36)ICH8 datasheet error, GPIO34 is not truer GPIO Pin, BIOS can't control it's action
Change EC_OUT from ICH8 GPIO26 to GPIO34
ICH8 pin AH27(GPIO26) add TP1051
ICH8 pin AG14(GPIO34) del TP869, link to X-BUS conn.

12.(Page50)MOR not agree use ENE chip for second source
Change Express Card Power Switch (U36) from ENE P2231TF to TI TPS2231PW

13.(The spec CK505 CLK_EN is high enable,
not low enable, correct "#"mark wrong
on schematic,Change ICH8 pin E1
/U18 pin 56 net name from CLK_EN#
to CLK_EN

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

15.(Page53)Base on MOR side request to add HW thermal protection circuit ,HW thermal shut down tempature
setting 115 degree . Layout place close CPU .
back up U161 (GMT,G709T1Uf)
back up R2335(18K),R2334(10K),R2336(0 ohm),R2338(0 ohm),R2337(0 ohm),,C1948(0.1uf)

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

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

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

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

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

21.(Page71)
Boost cirsuit design change.
Add PF2 (32V-3A_1206) fuse for boost circuit,
Change PL22 from 8UH-100KHZ_2.5A_0.07R to 4.7U-100KHZ_4.6A_0.029R.
Change PR435 from 95.3K to 102K

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

20.(Page 25)07/01/04 Add 45.3ohm and 24.9ohm resistor for NB8M-GT

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

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

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

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

25.(Page31/40)07/01/05 Restore System ID control for Logo_LED select
1.Delete Pull high resistor
2.Restire R2286,R2287

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

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

28.07/01/05 For EMI improvement
1.(Page64) change PC47 from 4.7U NC to 0.1U stuff
2.(Page65) Add PC70 0.1U Cap
3.(Page)Add PC319 0.1U Cap

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

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

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

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

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

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

DVT Change Circuit

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

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

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

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

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

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

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

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

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

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

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

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

PVT Change Circuit

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

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

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

16.(Page 49) 07/01/29 Change Q154 from 17-2N7020-0000 to 17-2N7002E-SP00.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MP Change Circuit

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

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

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

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

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

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

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