# Schematics Page Index (Title / Revision / Change Date)

| Page | Title of Schematics Page | Rev. | Date |
|---|---|---|---|
| 01 | Schematics Page Index | 0.30 | 06/6/21 |
| 02 | Block Diagram | 0.30 | 06/6/21 |
| 03 | Yonah(HOST BUS) 1/2 | 0.30 | 06/6/21 |
| 04 | Yonah(HOST BUS) 2/3 | 0.30 | 06/6/21 |
| 05 | Yonah(Power/Gnd) 3/3 | 0.30 | 06/6/21 |
| 06 | CALISTOGA (HOST) 1/7 | 0.30 | 06/6/21 |
| 07 | CALISTOG (DMI) 2/7 | 0.30 | 06/6/21 |
| 08 | CALIST (GRAPHIC) 3/7 | 0.30 | 06/6/21 |
| 09 | CALISTOGA (DDRII) 4/7 | 0.30 | 06/6/21 |
| 10 | CALIST (POWER,VCC) 5/7 | 0.30 | 06/6/21 |
| 11 | CALIST (VCC CORE) 6/7 | 0.30 | 06/6/21 |
| 12 | CALIST (VSS) 7/7 | 0.30 | 06/6/21 |
| 13 | DDRII(SO-DIMM_0) 1/3 | 0.30 | 06/6/21 |
| 14 | DDRII(SO-DIMM_1) 2/3 | 0.30 | 06/6/21 |
| 15 | DDRII(Termination) 3/3 | 0.30 | 06/6/21 |
| 16 | VGA(PCI-E/STRAP) 1/7 | 0.30 | 06/6/21 |
| 17 | VGA(PCI-E/STRAP) 2/7 | 0.30 | 06/6/21 |
| 18 | VGA(GDDR3) 3/7 | 0.30 | 06/6/21 |
| 19 | VGA(TMDS/LVDS) 4/7 | 0.30 | 06/6/21 |
| 20 | VGA(SS) 5/7 | 0.30 | 06/6/21 |
| 21 | VGA(MULTIUSE) 6/7 | 0.30 | 06/6/21 |
| 22 | VGA(TV/CRT) 7/7 | 0.30 | 06/6/21 |
| 23 | VRAM(GDDR3) | 0.30 | 06/6/21 |
| 24 | VRAM(POWERBYPASS) | 0.30 | 06/6/21 |
| 25 | LVDS / S_VIDEO | 0.30 | 06/6/21 |
| 26 | ICH7-M( PCI/USB ) 1/5 | 0.30 | 06/6/21 |
| 27 | ICH7-M( LPC,IDE,SATA )2/5 | 0.30 | 06/6/21 |
| 28 | ICH7-M( GPIO) 3/5 | 0.30 | 06/6/21 |
| 29 | ICH7-M( POWER) 4/5 | 0.30 | 06/6/21 |
| 30 | ICH7-M( GND) 5/5 | 0.30 | 06/6/21 |
| 31 | SATA HDD/CD-ROM | 0.30 | 06/6/21 |
| 32 | EC+KBC | 0.30 | 06/6/21 |
| 33 | Flash ROM/XBUS | 0.30 | 06/6/21 |
| 34 | Mini_Card/BT | 0.30 | 06/6/21 |
| 35 | FAN/HW THERMAL PROTECT | 0.30 | 06/6/21 |
| 36 | EXPRESS/OIDE/TP | 0.30 | 06/6/21 |
| 37 | PCI (PCI BUS) | 0.30 | 06/6/21 |
| 38 | PCI ( ILINK) | 0.30 | 06/6/21 |
| 39 | PCI (MS) | 0.30 | 06/6/21 |
| 40 | PCI ( PCMCIA) | 0.30 | 06/6/21 |
| 41 | USB2.0 | 0.30 | 06/6/21 |
| 42 | CRT | 0.30 | 06/6/21 |
| 43 | DB CONNS & LED | 0.30 | 06/6/21 |
| 44 | Power Design Diagram | 0.30 | 06/6/21 |
| 45 | DC_IN/Charger (MAX1909) | 0.30 | 06/6/21 |
| 46 | SYSPWR(+3VALW/+5VALW) | 0.30 | 06/6/21 |
| 47 | SYSPWR(+1_5VRUN/+1_05VRUN) | 0.30 | 06/6/21 |
| 48 | VHCORE(ISL6262) | 0.30 | 06/6/21 |
| 49 | Others power plan | 0.30 | 06/6/21 |
| 50 | OVP protection | 0.30 | 06/6/21 |
| 51 | VGAPWR(VGACORE&IO) | 0.30 | 06/6/21 |
| 52 | DDR2PWR(+1_8V_SUS/+0_9VRUN) | 0.30 | 06/6/21 |
| 53 | CLOCK GEN | 0.30 | 06/6/21 |
| 54 | HOLE | 0.30 | 06/6/21 |
| 55 | POWER SEQUENCE | 0.30 | 06/6/21 |
| 56 | History | 0.30 | 06/6/21 |

| P. Leader | Check by | Design by |
|---|---|---|
| | | |

**PCB P/N:** 1P-0066700-8010 - Unimicro

1P-0066201-8010 - NANYA

**Project Code & Schematics Subject:** MS60 Main Board

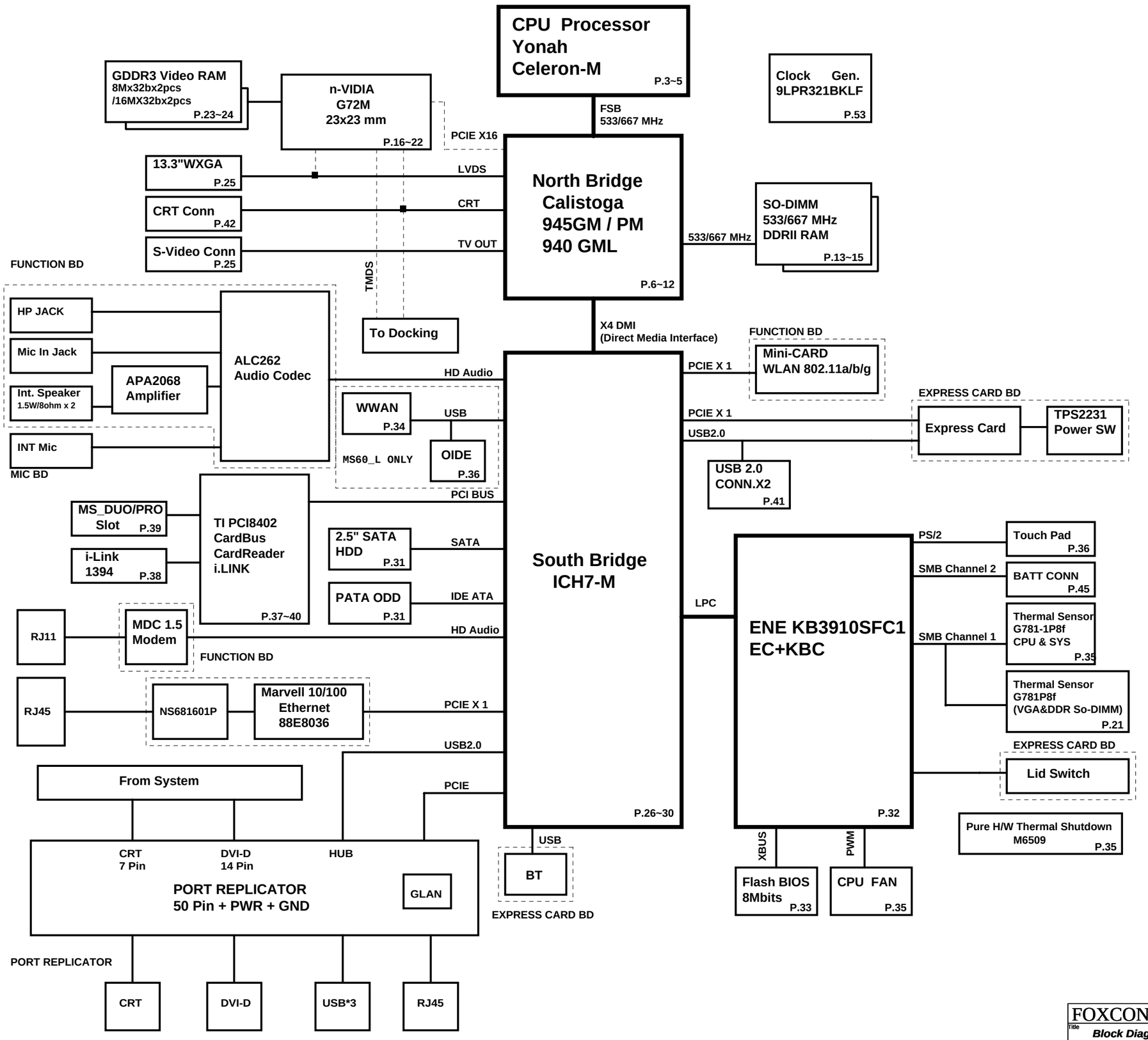
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: ***Index Page***

Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 1 of 56

# MS60 (CALISTOGA PM/GM+Gfx Block Diagram)




**SYSTEM DC/DC** MAX8734 P.46

| INPUTS | OUTPUTS |
|---|---|
| DCBATOUT | +5VALW<br>+5VALW_LDO<br>+3VALW<br>+ECVCC |

**SYSTEM DC/DC** MAX8743 P.47

| INPUTS | OUTPUTS |
|---|---|
| DCBATOUT | +1_5VRUN<br>+1_05VRUN |

**SC486** P.52

| | |
|---|---|
| DCBATOUT | +1_8V_S3_SUS<br>+0_9VRUN |

**CPU DC/DC** ISL6262 P.48

| INPUTS | OUTPUTS |
|---|---|
| DCBATOUT | VHCORE |

**AMP DC/DC** MAX1616 P.49

| INPUTS | OUTPUTS |
|---|---|
| DCBATOUT | +8VRUN |

**SC411** P.51

| INPUTS | OUTPUTS |
|---|---|
| DCBATOUT | NV_VDD |

**GMT966** P.51

| | |
|---|---|
| +1_5VRUN | PEX_VDD |

**MAXIM CHARGER** MAX1909 P.45

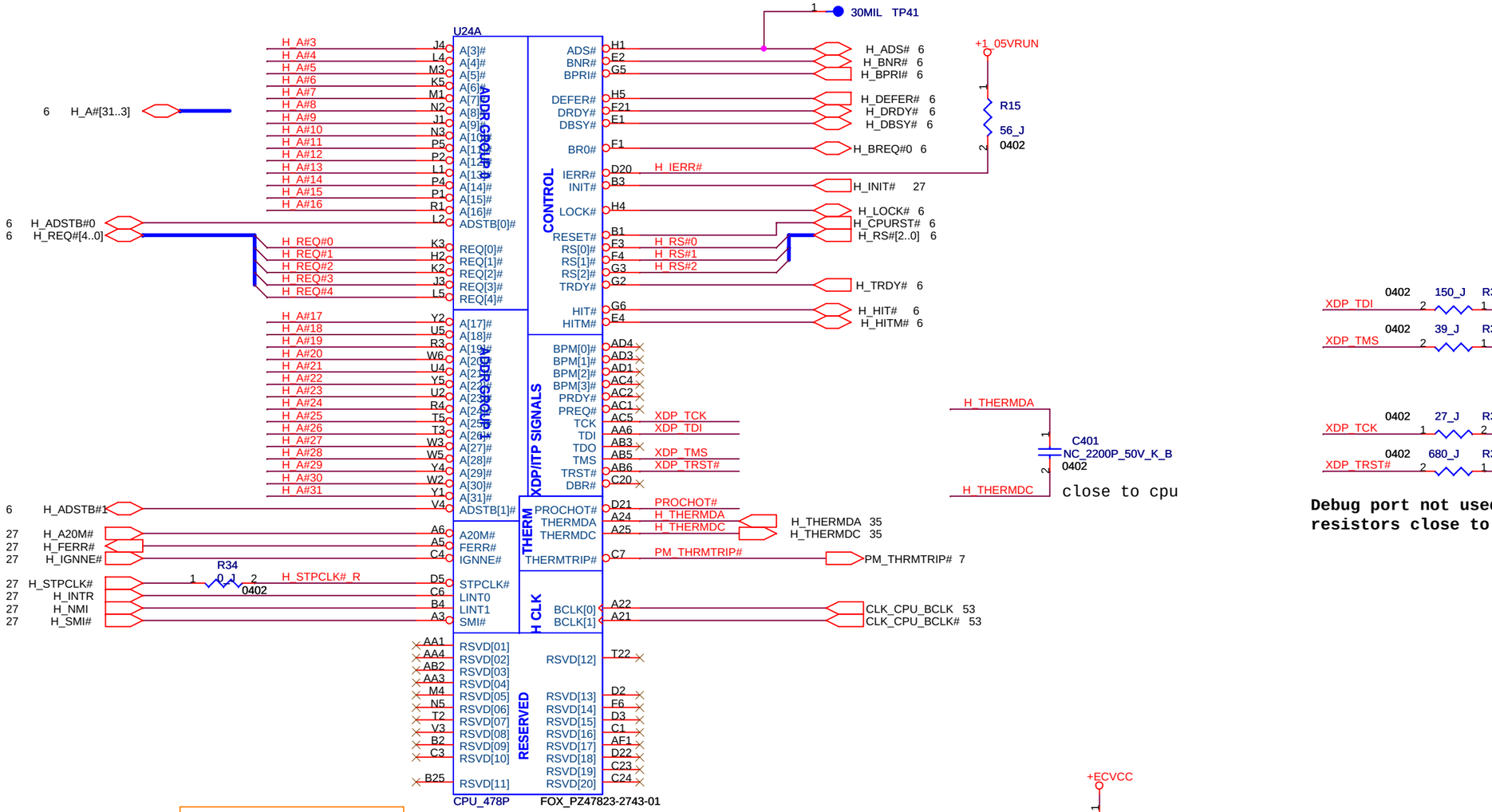
| INPUTS | OUTPUTS |
|---|---|
| AD+ | BT+<br>DCBATOUT |

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

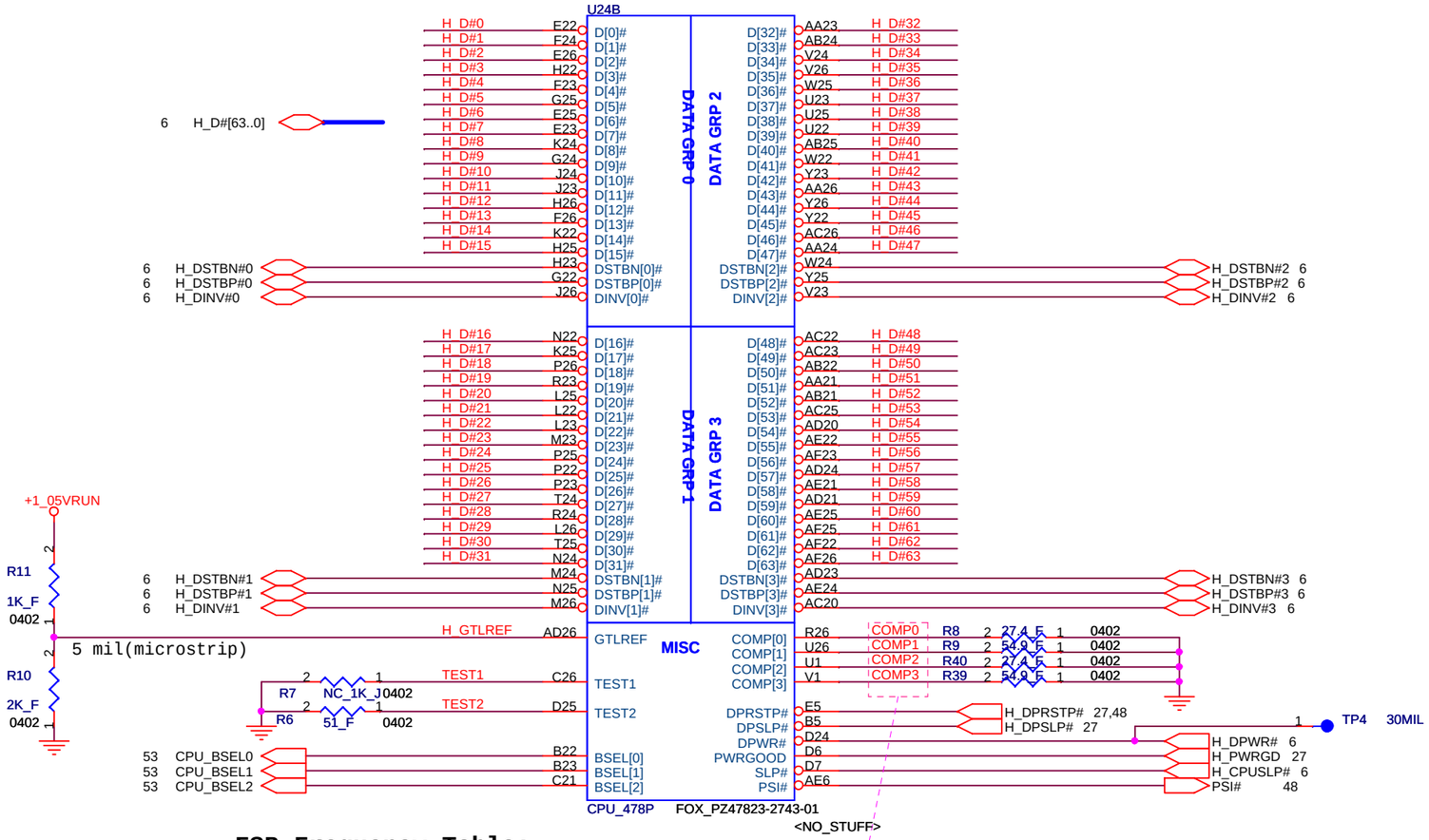
Title: *Block Diagram (All)*

Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 2 of 56




| | | | |
|---|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | | |
| Title | *Yonah (HOST BUS) 1/3* | | |
| Size A3 | Document Number **MS60-1-01 (MBX-159)** | | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 3 of 56 | | |




**Place close to CPU**

Layout Note:
Zo=55 ohm, 0.5"
max for GTLREF.

Layout Note:
Comp0,2 connect with Zo=27.4 ohm, make trace length shorter then 0.5".
Comp1,3 connect with Zo=55 ohm, make trace length shorter then 0.5".

## FSB Frequency Table:

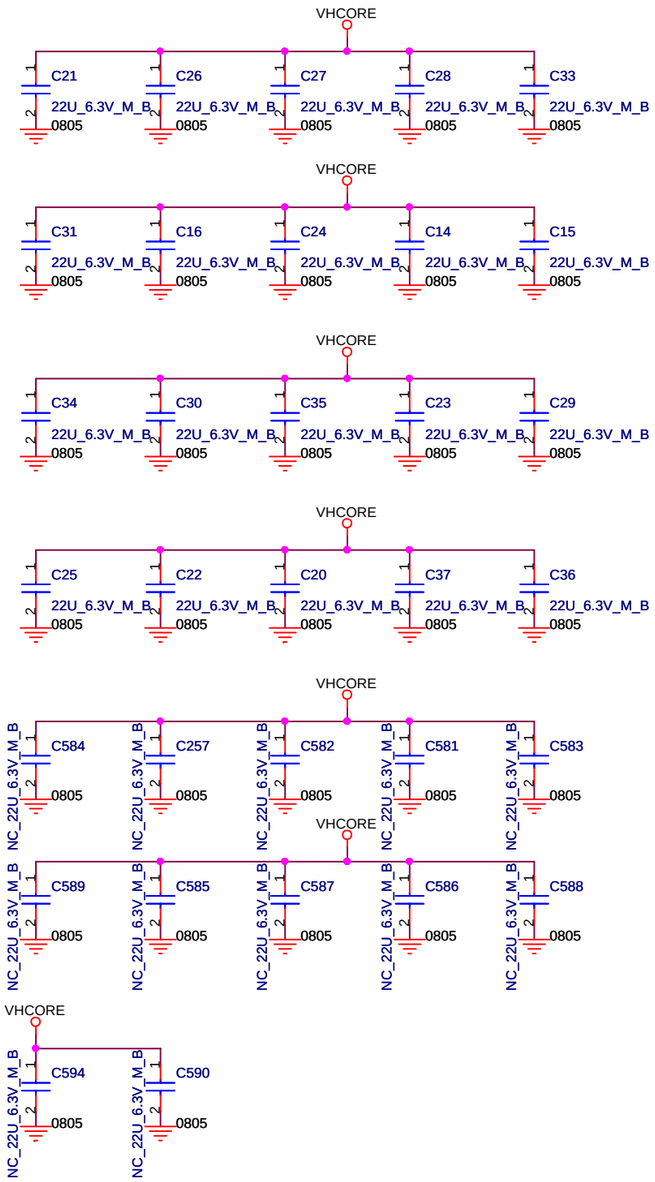
| BSEL[2:0] | Freq.(MHz) |
|---|---|
| L L L | Reserve |
| L L H | 133 |
| L H L | Reserve |
| L H H | 166 |

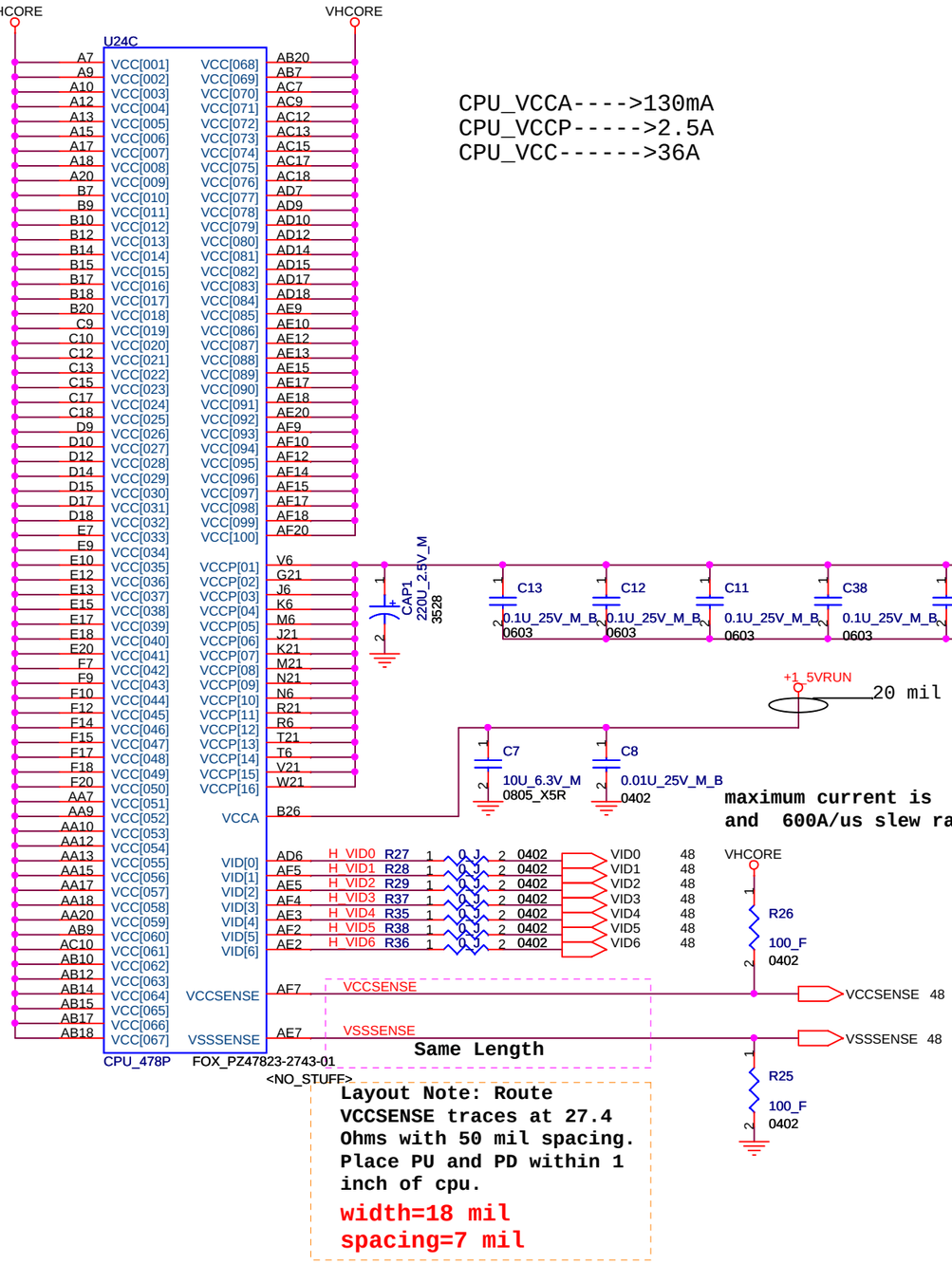
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: *Yonah (HOST BUS) 2/3*

Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 4 of 56



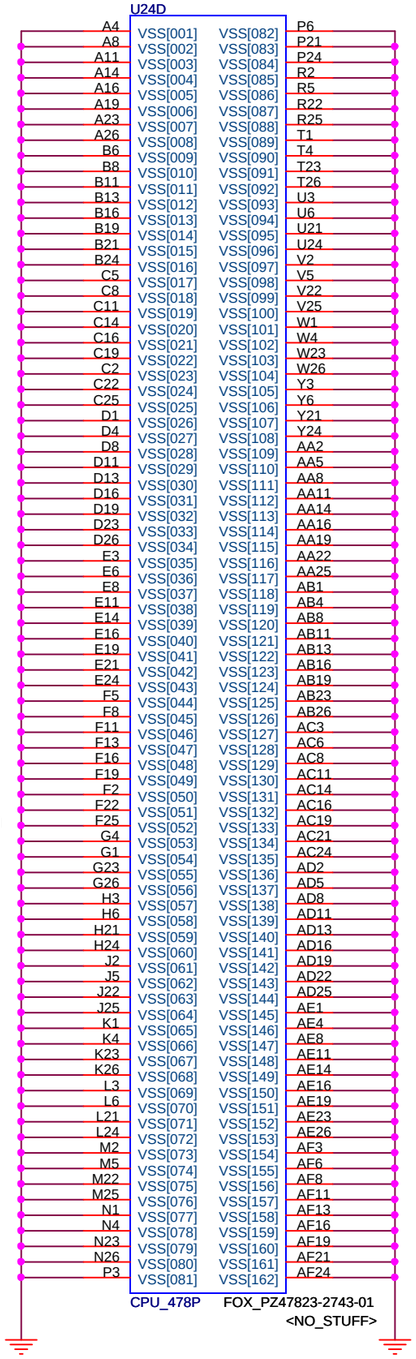

CPU_VCCA---->130mA
CPU_VCCP----->2.5A
CPU_VCC------>36A

**maximum current is 130mA for CPU_VCCA in Merom and 600A/us slew rate for CPU_VCCA**

**Same Length**

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

**width=18 mil**
**spacing=7 mil**





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

Title: *Yonah (POWER/GROUND) 3/3*

Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 5 of 56

W/S = 10/20mil

H_XRCOMP
R361
24.9_F
0402

+1_05VRUN
R357
54.9_F
0402
H_XSCOMP

+1_05VRUN
R354
221_F
0402
W/S = 10/20mil
H_XSWING
R126
100_F
0402
C101
0.1U_16V_M_B
0402

W/S = 10/20mil
H_YRCOMP
R175
24.9_F
0402

+1_05VRUN
R164
54.9_F
0402
H_YSCOMP

+1_05VRUN
R166
221_F
0402
W/S = 10/20mil
H_YSWING
R167
100_F
0402
C229
0.1U_16V_M_B
0402

4 H_D#[63..0]

53 CLK_MCH_BCLK
53 CLK_MCH_BCLK#

U27A

| | | | |
|---|---|---|---|
| H_D#0 | F1 | H_D#_0 | |
| H_D#1 | J1 | H_D#_1 | |
| H_D#2 | H1 | H_D#_2 | |
| H_D#3 | J6 | H_D#_3 | |
| H_D#4 | H3 | H_D#_4 | |
| H_D#5 | K2 | H_D#_5 | |
| H_D#6 | G1 | H_D#_6 | |
| H_D#7 | G2 | H_D#_7 | |
| H_D#8 | K9 | H_D#_8 | |
| H_D#9 | K1 | H_D#_9 | |
| H_D#10 | K7 | H_D#_10 | |
| H_D#11 | J8 | H_D#_11 | |
| H_D#12 | H4 | H_D#_12 | |
| H_D#13 | J3 | H_D#_13 | |
| H_D#14 | K11 | H_D#_14 | |
| H_D#15 | G4 | H_D#_15 | |
| H_D#16 | T10 | H_D#_16 | |
| H_D#17 | W11 | H_D#_17 | |
| H_D#18 | T3 | H_D#_18 | |
| H_D#19 | U7 | H_D#_19 | |
| H_D#20 | U9 | H_D#_20 | |
| H_D#21 | U11 | H_D#_21 | |
| H_D#22 | T11 | H_D#_22 | |
| H_D#23 | W9 | H_D#_23 | |
| H_D#24 | T1 | H_D#_24 | |
| H_D#25 | T8 | H_D#_25 | |
| H_D#26 | T4 | H_D#_26 | |
| H_D#27 | W7 | H_D#_27 | |
| H_D#28 | U5 | H_D#_28 | |
| H_D#29 | T9 | H_D#_29 | |
| H_D#30 | W6 | H_D#_30 | |
| H_D#31 | T5 | H_D#_31 | |
| H_D#32 | AB7 | H_D#_32 | |
| H_D#33 | AA9 | H_D#_33 | |
| H_D#34 | W4 | H_D#_34 | |
| H_D#35 | W3 | H_D#_35 | |
| H_D#36 | Y3 | H_D#_36 | |
| H_D#37 | Y7 | H_D#_37 | |
| H_D#38 | W5 | H_D#_38 | |
| H_D#39 | Y10 | H_D#_39 | |
| H_D#40 | AB8 | H_D#_40 | |
| H_D#41 | W2 | H_D#_41 | |
| H_D#42 | AA4 | H_D#_42 | |
| H_D#43 | AA7 | H_D#_43 | |
| H_D#44 | AA2 | H_D#_44 | |
| H_D#45 | AA6 | H_D#_45 | |
| H_D#46 | AA10 | H_D#_46 | |
| H_D#47 | Y8 | H_D#_47 | |
| H_D#48 | AA1 | H_D#_48 | |
| H_D#49 | AB4 | H_D#_49 | |
| H_D#50 | AC9 | H_D#_50 | |
| H_D#51 | AB11 | H_D#_51 | |
| H_D#52 | AC11 | H_D#_52 | |
| H_D#53 | AB3 | H_D#_53 | |
| H_D#54 | AC2 | H_D#_54 | |
| H_D#55 | AD1 | H_D#_55 | |
| H_D#56 | AD9 | H_D#_56 | |
| H_D#57 | AC1 | H_D#_57 | |
| H_D#58 | AD7 | H_D#_58 | |
| H_D#59 | AC6 | H_D#_59 | |
| H_D#60 | AB5 | H_D#_60 | |
| H_D#61 | AD10 | H_D#_61 | |
| H_D#62 | AD4 | H_D#_62 | |
| H_D#63 | AC8 | H_D#_63 | |
| H_XRCOMP | E1 | H_XRCOMP | |
| H_XSCOMP | E2 | H_XSCOMP | |
| H_XSWING | E4 | H_XSWING | |
| H_YRCOMP | Y1 | H_YRCOMP | |
| H_YSCOMP | U1 | H_YSCOMP | |
| H_YSWING | W1 | H_YSWING | |
| | AG2 | H_CLKIN | |
| | AG1 | H_CLKIN# | |

HOST

| | | | |
|---|---|---|---|
| H_A#_3 | H9 | H_A#3 | |
| H_A#_4 | C9 | H_A#4 | |
| H_A#_5 | E11 | H_A#5 | |
| H_A#_6 | G11 | H_A#6 | |
| H_A#_7 | F11 | H_A#7 | |
| H_A#_8 | G12 | H_A#8 | |
| H_A#_9 | F9 | H_A#9 | |
| H_A#_10 | H11 | H_A#10 | |
| H_A#_11 | J12 | H_A#11 | |
| H_A#_12 | G14 | H_A#12 | |
| H_A#_13 | D9 | H_A#13 | |
| H_A#_14 | J14 | H_A#14 | |
| H_A#_15 | H13 | H_A#15 | |
| H_A#_16 | J15 | H_A#16 | |
| H_A#_17 | F14 | H_A#17 | |
| H_A#_18 | D12 | H_A#18 | |
| H_A#_19 | A11 | H_A#19 | |
| H_A#_20 | C11 | H_A#20 | |
| H_A#_21 | A12 | H_A#21 | |
| H_A#_22 | A13 | H_A#22 | |
| H_A#_23 | E13 | H_A#23 | |
| H_A#_24 | G13 | H_A#24 | |
| H_A#_25 | F12 | H_A#25 | |
| H_A#_26 | B12 | H_A#26 | |
| H_A#_27 | B14 | H_A#27 | |
| H_A#_28 | C12 | H_A#28 | |
| H_A#_29 | A14 | H_A#29 | |
| H_A#_30 | C14 | H_A#30 | |
| H_A#_31 | D14 | H_A#31 | |
| H_ADS# | E8 | H_ADS# | 3 |
| H_ADSTB#_0 | B9 | H_ADSTB#0 | 3 |
| H_ADSTB#_1 | C13 | H_ADSTB#1 | 3 |
| H_VREF_0 | J13 | | |
| H_BNR# | C6 | H_BNR# | 3 |
| H_BPRI# | F6 | H_BPRI# | 3 |
| H_BREQ#0 | C7 | H_BREQ#0 | 3 |
| H_CPURST# | B7 | H_CPURST# | 3 |
| H_DBSY# | A7 | H_DBSY# | 3 |
| H_DEFER# | C3 | H_DEFER# | 3 |
| H_DPWR# | J9 | H_DPWR# | 4 |
| H_DRDY# | H8 | H_DRDY# | 3 |
| H_VREF_1 | K13 | | |
| H_DINV#_0 | J7 | H_DINV#0 | |
| H_DINV#_1 | W8 | H_DINV#1 | |
| H_DINV#_2 | U3 | H_DINV#2 | |
| H_DINV#_3 | AB10 | H_DINV#3 | |
| H_DSTBN#_0 | K4 | H_DSTBN#0 | |
| H_DSTBN#_1 | T7 | H_DSTBN#1 | |
| H_DSTBN#_2 | Y5 | H_DSTBN#2 | |
| H_DSTBN#_3 | AC4 | H_DSTBN#3 | |
| H_DSTBP#_0 | K3 | H_DSTBP#0 | |
| H_DSTBP#_1 | T6 | H_DSTBP#1 | |
| H_DSTBP#_2 | AA5 | H_DSTBP#2 | |
| H_DSTBP#_3 | AC5 | H_DSTBP#3 | |
| H_HIT# | D3 | H_HIT# | 3 |
| H_HITM# | D4 | H_HITM# | 3 |
| H_LOCK# | B3 | H_LOCK# | 3 |
| H_REQ#_0 | D8 | H_REQ#0 | |
| H_REQ#_1 | G8 | H_REQ#1 | |
| H_REQ#_2 | B8 | H_REQ#2 | |
| H_REQ#_3 | F8 | H_REQ#3 | |
| H_REQ#_4 | A8 | H_REQ#4 | |
| H_RS#_0 | B4 | H_RS#0 | |
| H_RS#_1 | E6 | H_RS#1 | |
| H_RS#_2 | D6 | H_RS#2 | |
| H_SLPCPU# | E3 | H_CPUSLP# | |
| H_TRDY# | E7 | | |

H_A#[3..31] 3

H_DINV#[3..0] 4

H_DSTBN#[3..0] 4

H_DSTBP#[3..0] 4

H_REQ#[4..0] 3

H_RS#[2..0] 3

H_CPUSLP# 4
H_TRDY# 3

CALISTOGA

| | | |
|---|---|---|
| GM | QG88CGM | 12-0G88CGM-0000 |
| PM | QG88CPM | 12-0G88CPM-0000 |
| GML | 940GML-QK60-A3 | 12-940GML0-A300 |

+1_05VRUN
R159
100_F
0402
C142
0.1U_16V_M_B
0402
R158
200_F
0402
H_VREF 20 mil

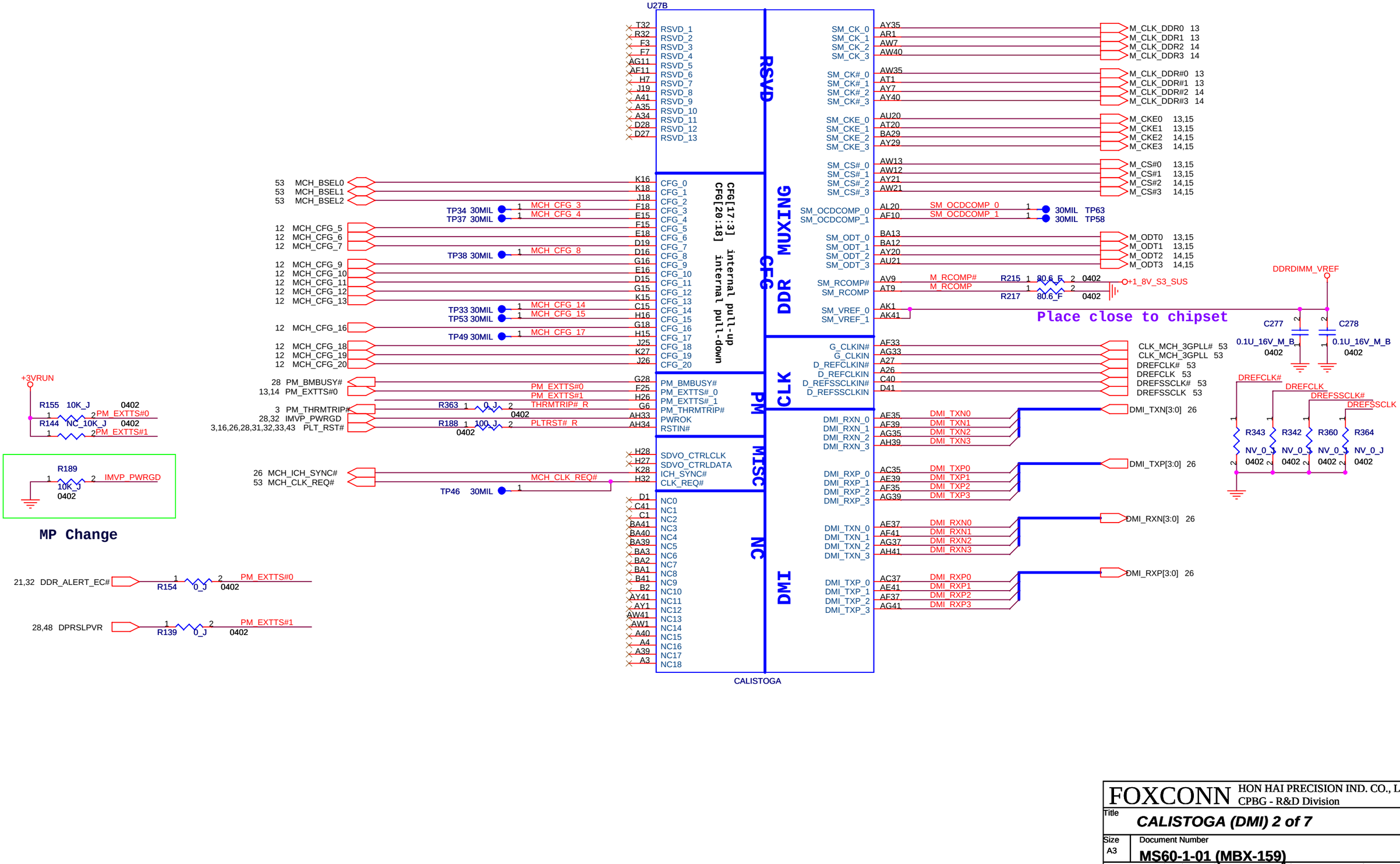
Place Cap. near GMCH within 100 mils.

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

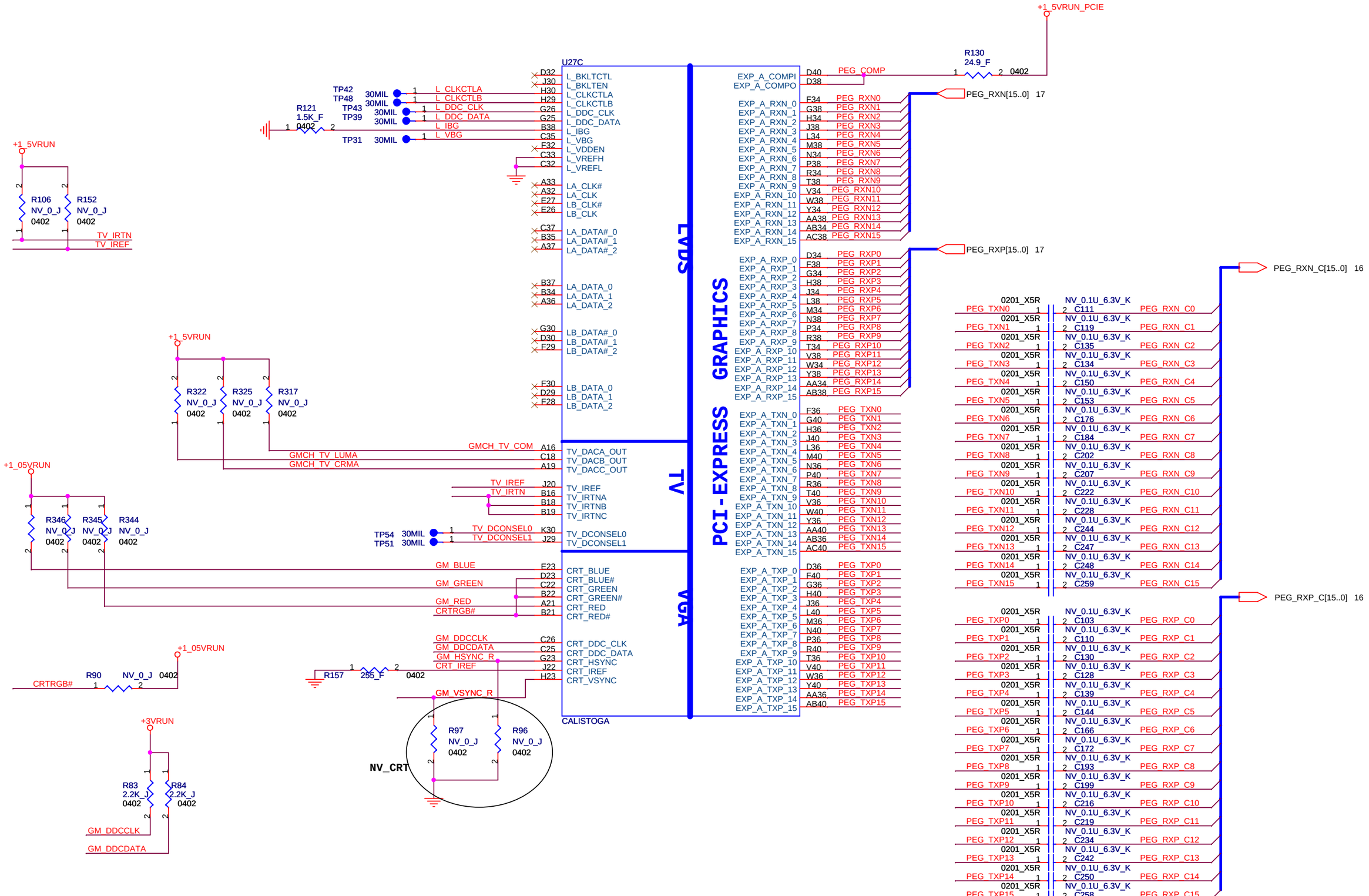
Title: CALISTOHA (HOST)

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 6 of 56




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | CALISTOGA (DMI) 2 of 7 | |
| Size A3 | Document Number MS60-1-01 (MBX-159) | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 7 of 56 | |

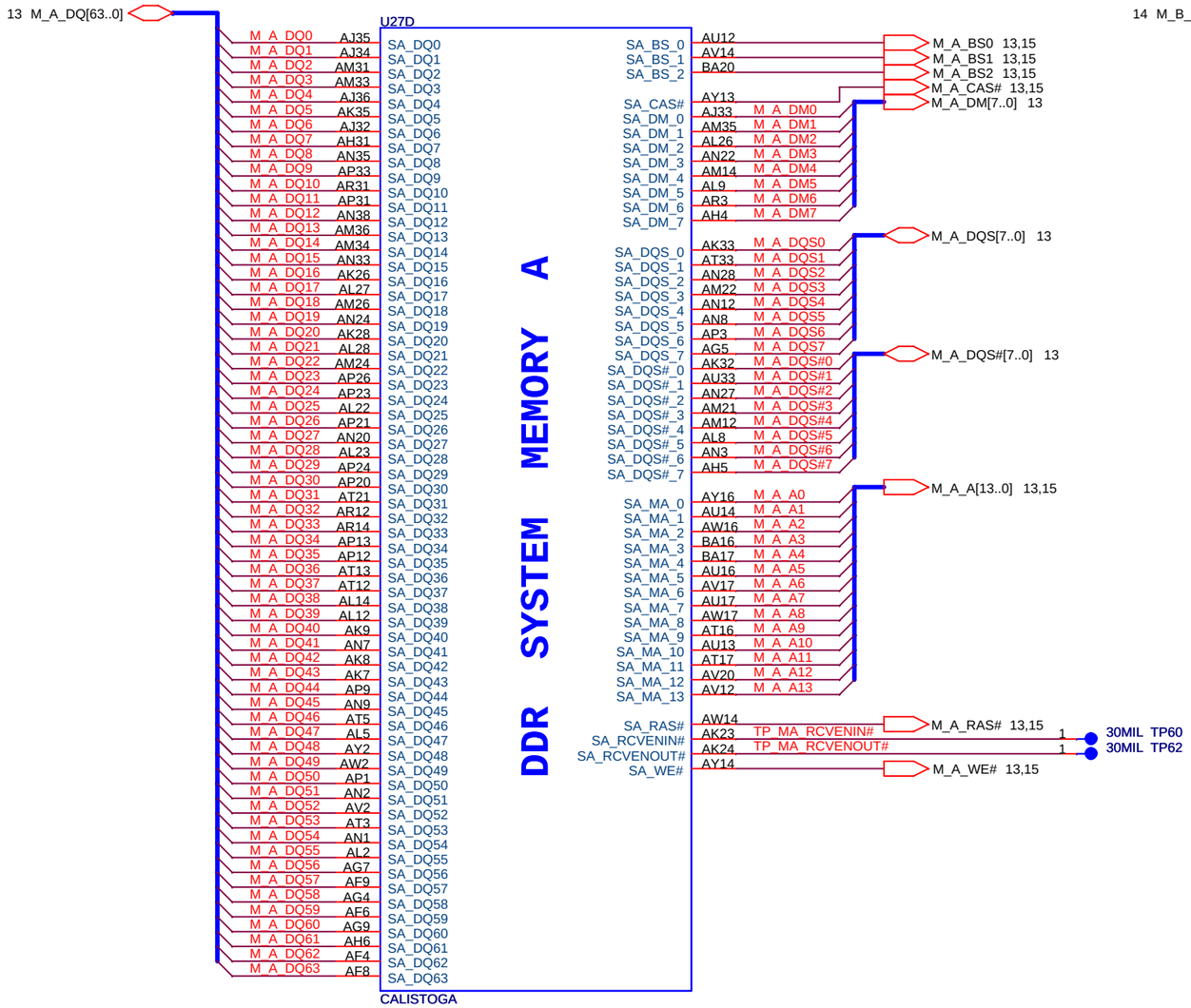


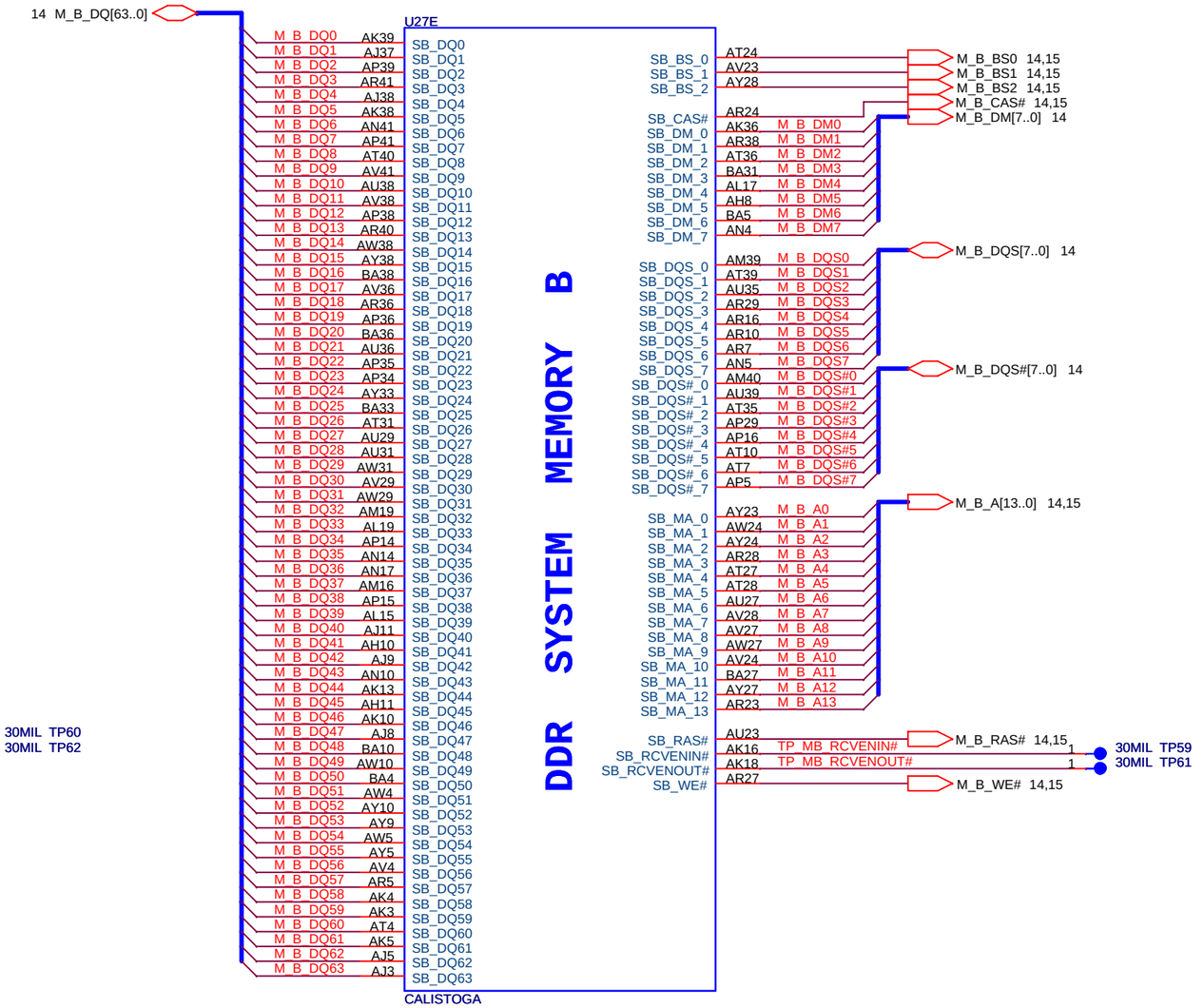

FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: CALISTOGA (DMI) 3 of 7

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 8 of 56



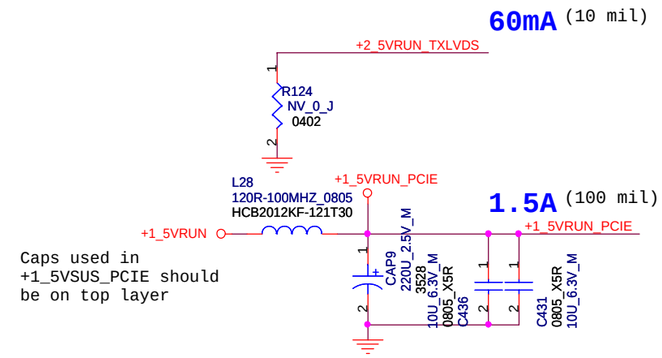




FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

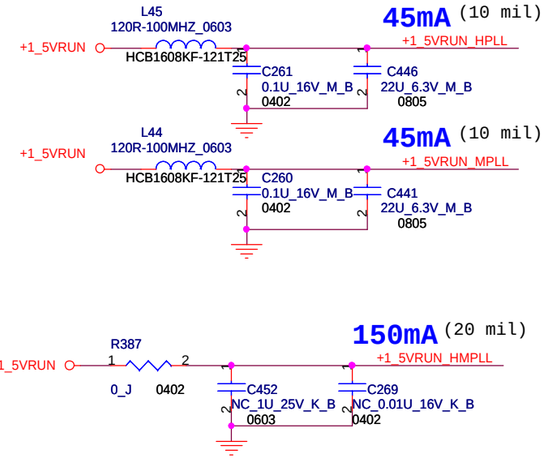
Title: CALISTOGA (DDRII) 4 of 7

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 9 of 56

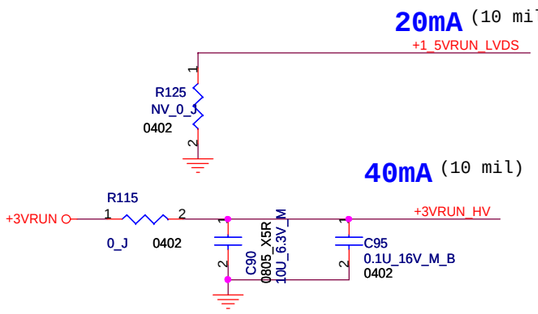


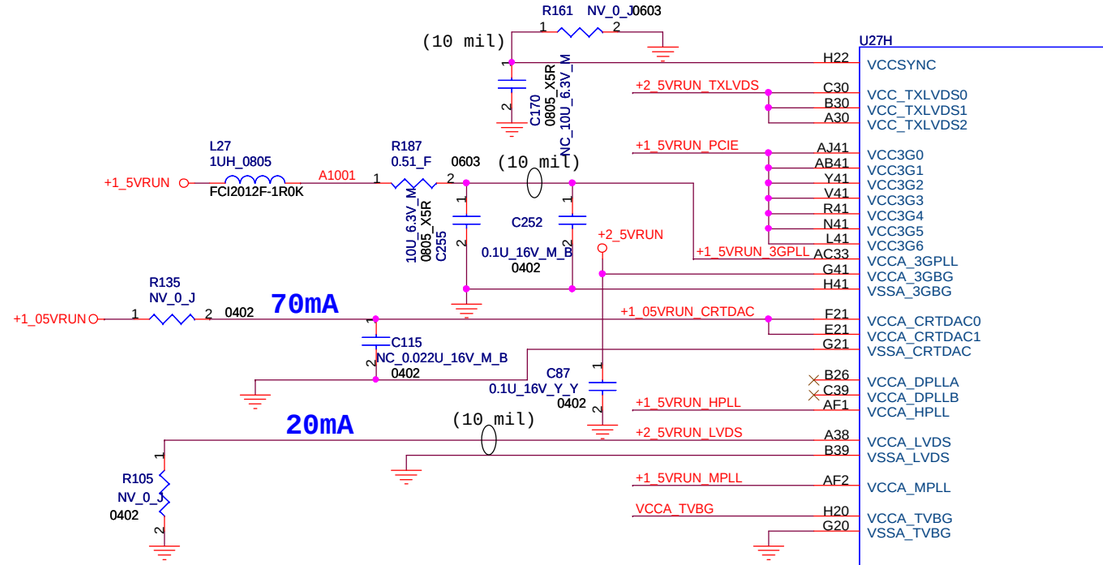

NOTE:
0.1UF caps in
1.5SxPLL need to be
located as edge caps
within 200mils

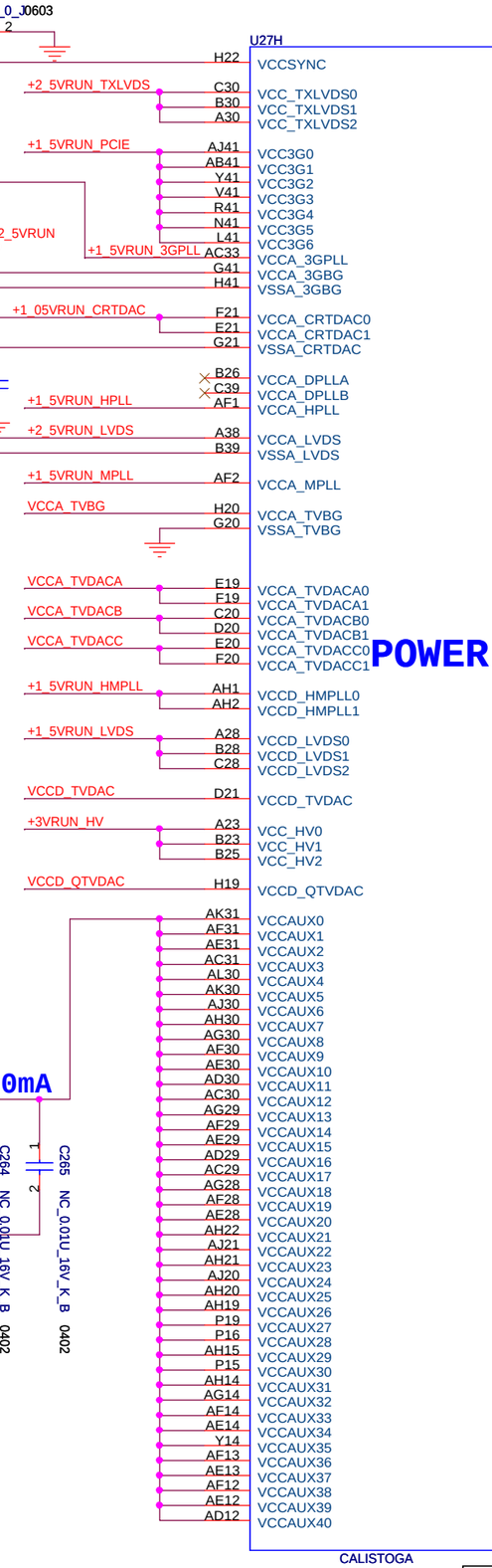


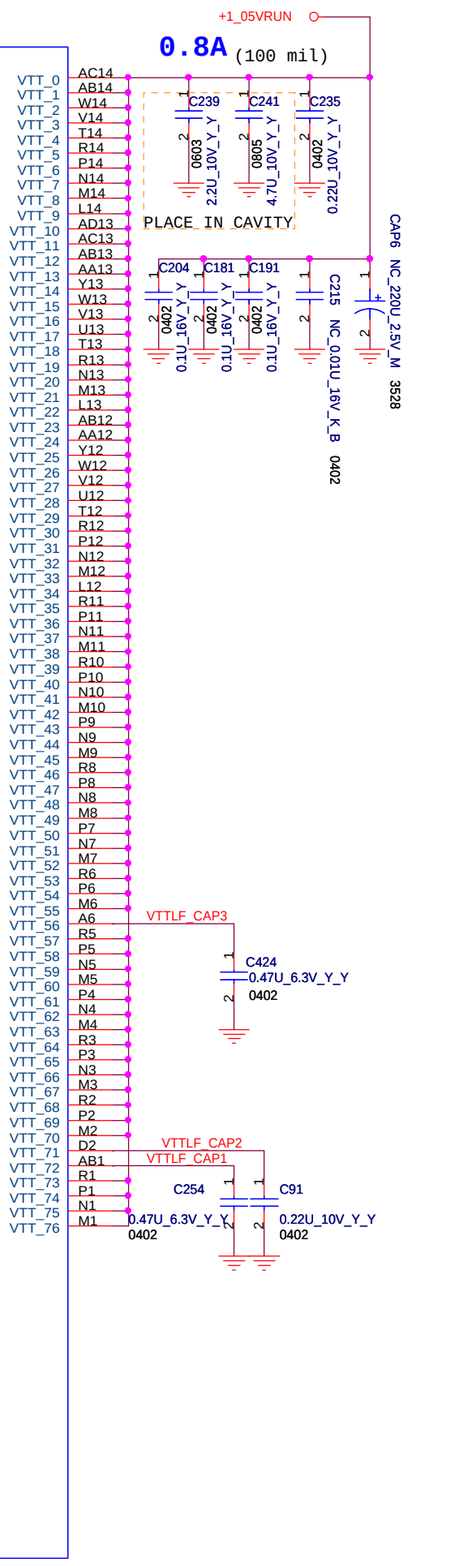


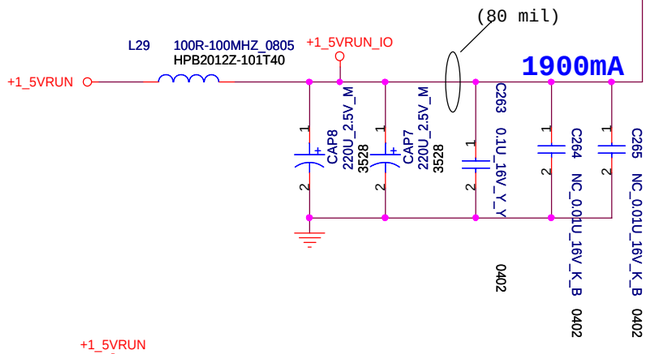


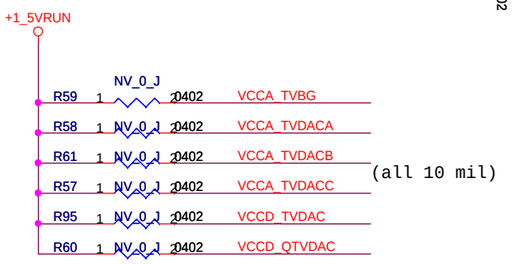


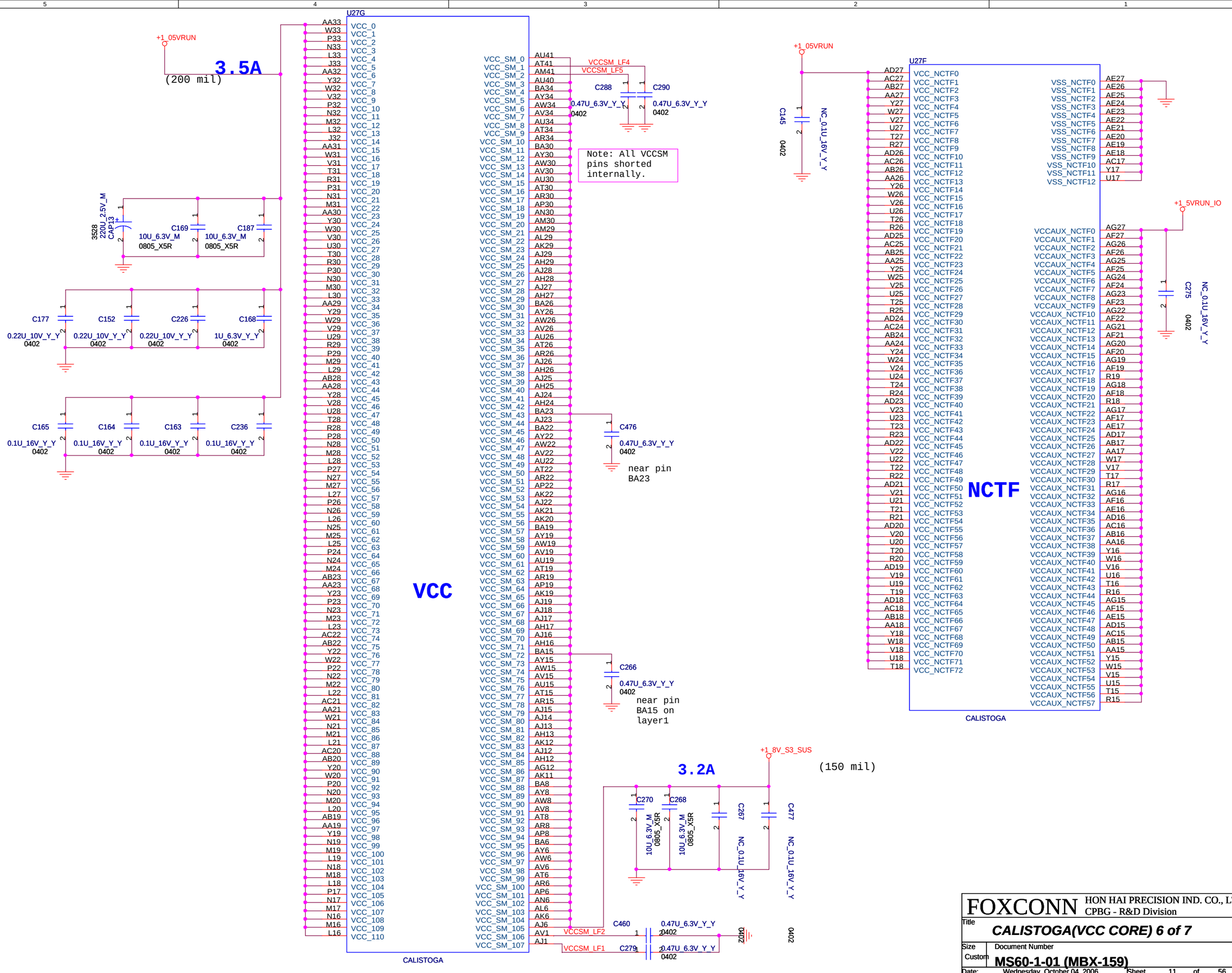




## GMCH TV-OUT Disable

| | | | |
|---|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | | |
| Title | CALISTOGA(POWER,VCC) 5 of 7 | | |
| Size: Custom | Document Number: MS60-1-01 (MBX-159) | | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 10 of 56 | | |




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | CALISTOGA(VCC CORE) 6 of 7 | |
| Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 11 of 56 | |

7 MCH_CFG_5 — 1 — 30MIL TP45

| MCH_CFG_5 | Low = DMIx2<br>High = DMIx4 |
|---|---|

7 MCH_CFG_6 — 1 — 30MIL TP40

| MCH_CFG_6 | Low = Moby Dick<br>High = Calistoga |
|---|---|

DDR2 select (default high)

7 MCH_CFG_7 — 1 — 30MIL TP36

| MCH_CFG_7<br>(CPU Strap) | Low = RSVD<br>High = Mobile Yonah processor |
|---|---|

7 MCH_CFG_9 — 1 — R153 — 2 — NC_2.2K_J 0402

| MCH_CFG_9<br>(PCIE Graphics Lane) | Low = Reverse Lane<br>High = Normal operation |
|---|---|

**For layout convenience**

7 MCH_CFG_10 — 1 — 30MIL TP35

| **MCH_CFG_10<br>(HOST PLL VCC SELECT)** | Low = RESERVED<br>High = MOBILITY |
|---|---|

7 MCH_CFG_11 — 1 — R128 — 2 — NC_2.2K_J 0402

| MCH_CFG_11<br>(PSB 4x CLK ENABLE) | Low = Reserved<br>High= Calistoga |
|---|---|

7 MCH_CFG_12 — 1 — 30MIL TP47
7 MCH_CFG_13 — 1 — 30MIL TP55

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

7 MCH_CFG_16 — 1 — 30MIL TP44

| MCH_CFG_16<br>(FSB Dynamic ODT) | Low = Dynamic ODT Disabled<br>High = Dynamic ODT Enable |
|---|---|

| MCH_CFG_18<br>(VCC_CORE Select) | Low = 1.05V(default)<br>High = 1.5V |
|---|---|

+3VRUN — 1 — R156 — 2 — NC_2.2K_J 0402 — 7 MCH_CFG_18

| MCH_CFG_19<br>(DMI LANE REVERSAL) | Low = Normal(default)<br>High = LANES REVERSED |
|---|---|

+3VRUN — 1 — R151 — 2 — NC_2.2K_J 0402 — 7 MCH_CFG_19

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

7 MCH_CFG_20 — 1 — 30MIL TP52

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

Check CALISTOGA version , after A2 version , if systec can't boot up then NC the pull low R

U27I

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

VSS

CALISTOGA

U27J

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

VSS

CALISTOGA

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

Title: ***CALISTOGA(VSS) 7 of 7***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 12 of 56

# 1.8V per DIMM=3.08A

DDR2_VREF

C344 0.1U_16V_M_B 0402

C345 2.2U_10V_Y_Y 0603

**0.1 µF and 2.2 µF placed close to VREF pins**

+1_8V_S3_SUS

+1_8V_S3_SUS

CN25

| | | | | | |
|---|---|---|---|---|---|
| | DDR2_VREF | 1 | VREF | VSS46 | 2 | |
| | | 3 | VSS47 | DQ4 | 4 | M_A_DQ4 |
| M_A_DQ0 | | 5 | DQ0 | DQ5 | 6 | M_A_DQ5 |
| M_A_DQ1 | | 7 | DQ1 | VSS15 | 8 | |
| | | 9 | VSS37 | DM0 | 10 | M_A_DM0 |
| M_A_DQS#0 | | 11 | DQS#0 | VSS5 | 12 | |
| M_A_DQS0 | | 13 | DQS0 | DQ6 | 14 | M_A_DQ6 |
| | | 15 | VSS48 | DQ7 | 16 | M_A_DQ7 |
| M_A_DQ2 | | 17 | DQ2 | VSS16 | 18 | |
| M_A_DQ3 | | 19 | DQ3 | DQ12 | 20 | M_A_DQ12 |
| | | 21 | VSS38 | DQ13 | 22 | M_A_DQ13 |
| M_A_DQ8 | | 23 | DQ8 | VSS17 | 24 | |
| M_A_DQ9 | | 25 | DQ9 | DM1 | 26 | M_A_DM1 |
| | | 27 | VSS49 | VSS53 | 28 | |
| M_A_DQS#1 | | 29 | DQS#1 | CK0 | 30 | M_CLK_DDR0 7 |
| M_A_DQS1 | | 31 | DQS1 | CK0# | 32 | M_CLK_DDR#0 7 |
| | | 33 | VSS39 | VSS41 | 34 | |
| M_A_DQ10 | | 35 | DQ10 | DQ14 | 36 | M_A_DQ14 |
| M_A_DQ11 | | 37 | DQ11 | DQ15 | 38 | M_A_DQ15 |
| | | 39 | VSS50 | VSS54 | 40 | |
| | | 41 | VSS18 | VSS20 | 42 | |
| M_A_DQ16 | | 43 | DQ16 | DQ20 | 44 | M_A_DQ20 |
| M_A_DQ17 | | 45 | DQ17 | DQ21 | 46 | M_A_DQ21 |
| | | 47 | VSS1 | VSS6 | 48 | |
| M_A_DQS#2 | | 49 | DQS#2 | NC3 | 50 | DDR2_EXTTS#0 1 — R469 NC_0_J 0402 — 2 PM_EXTTS#0 7,14 |
| M_A_DQS2 | | 51 | DQS2 | DM2 | 52 | M_A_DM2 |
| | | 53 | VSS19 | VSS21 | 54 | |
| M_A_DQ18 | | 55 | DQ18 | DQ22 | 56 | M_A_DQ22 |
| M_A_DQ19 | | 57 | DQ19 | DQ23 | 58 | M_A_DQ23 |
| | | 59 | VSS22 | VSS24 | 60 | |
| M_A_DQ24 | | 61 | DQ24 | DQ28 | 62 | M_A_DQ28 |
| M_A_DQ25 | | 63 | DQ25 | DQ29 | 64 | M_A_DQ29 |
| | | 65 | VSS23 | VSS25 | 66 | |
| M_A_DM3 | | 67 | DM3 | DQS#3 | 68 | M_A_DQS#3 |
| | | 69 | NC4 | DQS3 | 70 | M_A_DQS3 |
| | | 71 | VSS9 | VSS10 | 72 | |
| M_A_DQ26 | | 73 | DQ26 | DQ30 | 74 | M_A_DQ30 |
| M_A_DQ27 | | 75 | DQ27 | DQ31 | 76 | M_A_DQ31 |
| | | 77 | VSS4 | VSS8 | 78 | |
| 7,15 M_CKE0 | | 79 | CKE0 | CKE1 | 80 | M_CKE1 7,15 |
| | | 81 | VDD7 | VDD8 | 82 | |
| 9,15 M_A_BS2 | | 83 | NC1 | A15 | 84 | |
| | | 85 | A16_BA2 | A14 | 86 | |
| | | 87 | VDD9 | VDD11 | 88 | |
| M_A_A12 | | 89 | A12 | A11 | 90 | M_A_A11 |
| M_A_A9 | | 91 | A9 | A7 | 92 | M_A_A7 |
| M_A_A8 | | 93 | A8 | A6 | 94 | M_A_A6 |
| | | 95 | VDD5 | VDD4 | 96 | |
| M_A_A5 | | 97 | A5 | A4 | 98 | M_A_A4 |
| M_A_A3 | | 99 | A3 | A2 | 100 | M_A_A2 |
| M_A_A1 | | 101 | A1 | A0 | 102 | M_A_A0 |
| | | 103 | VDD10 | VDD12 | 104 | |
| M_A_A10 | | 105 | A10/AP | BA1 | 106 | M_A_BS1 9,15 |
| 9,15 M_A_BS0 | | 107 | BA0 | RAS# | 108 | M_A_RAS# 9,15 |
| 9,15 M_A_WE# | | 109 | WE# | S0# | 110 | M_CS#0 7,15 |
| | | 111 | VDD2 | VDD1 | 112 | |
| 9,15 M_A_CAS# | | 113 | CAS# | ODT0 | 114 | M_ODT0 7,15 |
| 7,15 M_CS#1 | | 115 | S1# | A13 | 116 | M_A_A13 |
| | | 117 | VDD3 | VDD6 | 118 | |
| 7,15 M_ODT1 | | 119 | ODT1 | NC2 | 120 | |
| | | 121 | VSS11 | VSS12 | 122 | |
| M_A_DQ32 | | 123 | DQ32 | DQ36 | 124 | M_A_DQ36 |
| M_A_DQ33 | | 125 | DQ33 | DQ37 | 126 | M_A_DQ37 |
| | | 127 | VSS26 | VSS28 | 128 | |
| M_A_DQS#4 | | 129 | DQS#4 | DM4 | 130 | M_A_DM4 |
| M_A_DQS4 | | 131 | DQS4 | VSS42 | 132 | |
| | | 133 | VSS2 | DQ38 | 134 | M_A_DQ38 |
| M_A_DQ34 | | 135 | DQ34 | DQ39 | 136 | M_A_DQ39 |
| M_A_DQ35 | | 137 | DQ35 | VSS55 | 138 | |
| | | 139 | VSS27 | DQ44 | 140 | M_A_DQ44 |
| M_A_DQ40 | | 141 | DQ40 | DQ45 | 142 | M_A_DQ45 |
| M_A_DQ41 | | 143 | DQ41 | VSS43 | 144 | |
| | | 145 | VSS29 | DQS#5 | 146 | M_A_DQS#5 |
| M_A_DM5 | | 147 | DM5 | DQS5 | 148 | M_A_DQS5 |
| | | 149 | VSS51 | VSS56 | 150 | |
| M_A_DQ42 | | 151 | DQ42 | DQ46 | 152 | M_A_DQ46 |
| M_A_DQ43 | | 153 | DQ43 | DQ47 | 154 | M_A_DQ47 |
| | | 155 | VSS40 | VSS44 | 156 | |
| M_A_DQ48 | | 157 | DQ48 | DQ52 | 158 | M_A_DQ52 |
| M_A_DQ49 | | 159 | DQ49 | DQ53 | 160 | M_A_DQ53 |
| | | 161 | VSS52 | VSS57 | 162 | |
| | | 163 | NCTEST | CK1 | 164 | M_CLK_DDR1 7 |
| | | 165 | VSS30 | CK1# | 166 | M_CLK_DDR#1 7 |
| M_A_DQS#6 | | 167 | DQS#6 | VSS45 | 168 | |
| M_A_DQS6 | | 169 | DQS6 | DM6 | 170 | M_A_DM6 |
| | | 171 | VSS31 | VSS32 | 172 | |
| M_A_DQ50 | | 173 | DQ50 | DQ54 | 174 | M_A_DQ54 |
| M_A_DQ51 | | 175 | DQ51 | DQ55 | 176 | M_A_DQ55 |
| | | 177 | VSS33 | VSS35 | 178 | |
| M_A_DQ56 | | 179 | DQ56 | DQ60 | 180 | M_A_DQ60 |
| M_A_DQ57 | | 181 | DQ57 | DQ61 | 182 | M_A_DQ61 |
| | | 183 | VSS3 | VSS7 | 184 | |
| M_A_DM7 | | 185 | DM7 | DQS#7 | 186 | M_A_DQS#7 |
| | | 187 | VSS34 | DQS7 | 188 | M_A_DQS7 |
| M_A_DQ58 | | 189 | DQ58 | VSS36 | 190 | |
| M_A_DQ59 | | 191 | DQ59 | DQ62 | 192 | M_A_DQ62 |
| | | 193 | VSS14 | DQ63 | 194 | M_A_DQ63 |
| 14,28,43,53 SMB_DATA_SB | | 195 | SDA | VSS13 | 196 | |
| 14,28,43,53 SMB_CLK_SB | | 197 | SCL | SA0 | 198 | SA0_DIM0 — R471 10K_J 0402 |
| +3VRUN | | 199 | VDD(SPD) | SA1 | 200 | SA1_DIM0 — R470 10K_J 0402 |
| | | 201 | GND1 | GND2 | 202 | |
| | | 203 | NPTH1 | NPTH2 | 204 | |

PC4800 DDR2 SDRAM SO-DIMM (200P)

DDR2 SO-DIMM_2x100P

FOX_AS0A426_N2RN_7F

**DIMM_0**

C523 2.2U_10V_Y_Y 0603

C517 0.1U_16V_M_B 0402

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

M_A_DM[0..7] 9
M_A_DQ[0..63] 9
M_A_DQS[0..7] 9
M_A_DQS#[0..7] 9
M_A_A[0..13] 9,15

DDRDIMM_VREF +1_8V_S3_SUS

DDR2_VREF — R287 0_J 0402 — R286 NC_10K_F 0402

DDR2_VREF — (20 mil) — DDR2_VREF

C364 0.1U_16V_M_B 0402

R288 NC_10K_F 0402

**Close to DIMM**

+1_8V_S3_SUS

**Place these Caps near So-Dimm0.**

C519 2.2U_10V_Y_Y 0603
C562 2.2U_10V_Y_Y 0603
C521 2.2U_10V_Y_Y 0603
C518 2.2U_10V_Y_Y 0603
C358 2.2U_10V_Y_Y 0603

+1_8V_S3_SUS

**Place these Caps near So-Dimm0.**

C520 0.1U_16V_Y_Y 0402
C360 0.1U_16V_Y_Y 0402
C522 0.1U_16V_Y_Y 0402
C516 0.1U_16V_Y_Y 0402

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

Title: ***DDR(II)SO-DIMM_0***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 13 of 56

1.8V per DIMM=3.08A

DDR2_VREF

C363 0.1U_16V_M_B 0402

C362 2.2U_10V_Y_Y 0603

**0.1 µF and 2.2 µF placed close to VREF pins**

+1_8V_S3_SUS

+1_8V_S3_SUS

CN26

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | VREF | VSS46 | 2 | | | |
| | 3 | VSS47 | DQ4 | 4 | M_B_DQ4 | | |
| M_B_DQ0 | 5 | DQ0 | DQ5 | 6 | M_B_DQ5 | | |
| M_B_DQ1 | 7 | DQ1 | VSS15 | 8 | | | |
| | 9 | VSS37 | DM0 | 10 | M_B_DM0 | | |
| M_B_DQS#0 | 11 | DQS#0 | VSS5 | 12 | | | |
| M_B_DQS0 | 13 | DQS0 | DQ6 | 14 | M_B_DQ6 | | |
| | 15 | VSS48 | DQ7 | 16 | M_B_DQ7 | | |
| M_B_DQ2 | 17 | DQ2 | VSS16 | 18 | | | |
| M_B_DQ3 | 19 | DQ3 | DQ12 | 20 | M_B_DQ12 | | |
| | 21 | VSS38 | DQ13 | 22 | M_B_DQ13 | | |
| M_B_DQ8 | 23 | DQ8 | VSS17 | 24 | | | |
| M_B_DQ9 | 25 | DQ9 | DM1 | 26 | M_B_DM1 | | |
| | 27 | VSS49 | VSS53 | 28 | | | |
| M_B_DQS#1 | 29 | DQS#1 | CK0 | 30 | M_CLK_DDR3 7 | | |
| M_B_DQS1 | 31 | DQS1 | CK0# | 32 | M_CLK_DDR#3 7 | | |
| | 33 | VSS39 | VSS41 | 34 | | | |
| M_B_DQ10 | 35 | DQ10 | DQ14 | 36 | M_B_DQ14 | | |
| M_B_DQ11 | 37 | DQ11 | DQ15 | 38 | M_B_DQ15 | | |
| | 39 | VSS50 | VSS54 | 40 | | | |
| | 41 | VSS18 | VSS20 | 42 | | | |
| M_B_DQ16 | 43 | DQ16 | DQ20 | 44 | M_B_DQ20 | | |
| M_B_DQ17 | 45 | DQ17 | DQ21 | 46 | M_B_DQ21 | | |
| | 47 | VSS1 | VSS6 | 48 | | | |
| M_B_DQS#2 | 49 | DQS#2 | NC3 | 50 | PM_EXTTS#0_DIMM2 | R509 1 NC_0_1 2 0402 | PM_EXTTS#0 7,13 |
| M_B_DQS2 | 51 | DQS2 | DM2 | 52 | M_B_DM2 | | |
| | 53 | VSS19 | VSS21 | 54 | | | |
| M_B_DQ18 | 55 | DQ18 | DQ22 | 56 | M_B_DQ22 | | |
| M_B_DQ19 | 57 | DQ19 | DQ23 | 58 | M_B_DQ23 | | |
| | 59 | VSS22 | VSS24 | 60 | | | |
| M_B_DQ24 | 61 | DQ24 | DQ28 | 62 | M_B_DQ28 | | |
| M_B_DQ25 | 63 | DQ25 | DQ29 | 64 | M_B_DQ29 | | |
| | 65 | VSS23 | VSS25 | 66 | | | |
| M_B_DM3 | 67 | DM3 | DQS#3 | 68 | M_B_DQS#3 | | |
| | 69 | NC4 | DQS3 | 70 | M_B_DQS3 | | |
| | 71 | VSS9 | VSS10 | 72 | | | |
| M_B_DQ26 | 73 | DQ26 | DQ30 | 74 | M_B_DQ30 | | |
| M_B_DQ27 | 75 | DQ27 | DQ31 | 76 | M_B_DQ31 | | |
| | 77 | VSS4 | VSS8 | 78 | | | |
| 7,15 M_CKE2 | 79 | CKE0 | CKE1 | 80 | M_CKE3 7,15 | | |
| | 81 | VDD7 | VDD8 | 82 | | | |
| 9,15 M_B_BS2 | 83 | NC1 | A15 | 84 | | | |
| | 85 | A16_BA2 | A14 | 86 | | | |
| | 87 | VDD9 | VDD11 | 88 | | | |
| M_B_A12 | 89 | A12 | A11 | 90 | M_B_A11 | | |
| M_B_A9 | 91 | A9 | A7 | 92 | M_B_A7 | | |
| M_B_A8 | 93 | A8 | A6 | 94 | M_B_A6 | | |
| | 95 | VDD5 | VDD4 | 96 | | | |
| M_B_A5 | 97 | A5 | A4 | 98 | M_B_A4 | | |
| M_B_A3 | 99 | A3 | A2 | 100 | M_B_A2 | | |
| M_B_A1 | 101 | A1 | A0 | 102 | M_B_A0 | | |
| | 103 | VDD10 | VDD12 | 104 | | | |
| M_B_A10 | 105 | A10/AP | BA1 | 106 | M_B_BS1 9,15 | | |
| 9,15 M_B_BS0 | 107 | BA0 | RAS# | 108 | M_B_RAS# 9,15 | | |
| 9,15 M_B_WE# | 109 | WE# | S0# | 110 | M_CS#2 7,15 | | |
| | 111 | VDD2 | VDD1 | 112 | | | |
| 9,15 M_B_CAS# | 113 | CAS# | ODT0 | 114 | M_ODT2 7,15 | | |
| 7,15 M_CS#3 | 115 | S1# | A13 | 116 | M_B_A13 | | |
| | 117 | VDD3 | VDD6 | 118 | | | |
| 7,15 M_ODT3 | 119 | ODT1 | NC2 | 120 | | | |
| | 121 | VSS11 | VSS12 | 122 | | | |
| M_B_DQ32 | 123 | DQ32 | DQ36 | 124 | M_B_DQ36 | | |
| M_B_DQ33 | 125 | DQ33 | DQ37 | 126 | M_B_DQ37 | | |
| | 127 | VSS26 | VSS28 | 128 | | | |
| M_B_DQS#4 | 129 | DQS#4 | DM4 | 130 | M_B_DM4 | | |
| M_B_DQS4 | 131 | DQS4 | VSS42 | 132 | | | |
| | 133 | VSS2 | DQ38 | 134 | M_B_DQ38 | | |
| M_B_DQ34 | 135 | DQ34 | DQ39 | 136 | M_B_DQ39 | | |
| M_B_DQ35 | 137 | DQ35 | VSS55 | 138 | | | |
| | 139 | VSS27 | DQ44 | 140 | M_B_DQ44 | | |
| M_B_DQ40 | 141 | DQ40 | DQ45 | 142 | M_B_DQ45 | | |
| M_B_DQ41 | 143 | DQ41 | VSS43 | 144 | | | |
| | 145 | VSS29 | DQS#5 | 146 | M_B_DQS#5 | | |
| M_B_DM5 | 147 | DM5 | DQS5 | 148 | M_B_DQS5 | | |
| | 149 | VSS51 | VSS56 | 150 | | | |
| M_B_DQ42 | 151 | DQ42 | DQ46 | 152 | M_B_DQ46 | | |
| M_B_DQ43 | 153 | DQ43 | DQ47 | 154 | M_B_DQ47 | | |
| | 155 | VSS40 | VSS44 | 156 | | | |
| M_B_DQ48 | 157 | DQ48 | DQ52 | 158 | M_B_DQ52 | | |
| M_B_DQ49 | 159 | DQ49 | DQ53 | 160 | M_B_DQ53 | | |
| | 161 | VSS52 | VSS57 | 162 | | | |
| | 163 | NCTEST | CK1 | 164 | M_CLK_DDR2 7 | | |
| | 165 | VSS30 | CK1# | 166 | M_CLK_DDR#2 7 | | |
| M_B_DQS#6 | 167 | DQS#6 | VSS45 | 168 | | | |
| M_B_DQS6 | 169 | DQS6 | DM6 | 170 | M_B_DM6 | | |
| | 171 | VSS31 | VSS32 | 172 | | | |
| M_B_DQ50 | 173 | DQ50 | DQ54 | 174 | M_B_DQ54 | | |
| M_B_DQ51 | 175 | DQ51 | DQ55 | 176 | M_B_DQ55 | | |
| | 177 | VSS33 | VSS35 | 178 | | | |
| M_B_DQ56 | 179 | DQ56 | DQ60 | 180 | M_B_DQ60 | | |
| M_B_DQ57 | 181 | DQ57 | DQ61 | 182 | M_B_DQ61 | | |
| | 183 | VSS3 | VSS7 | 184 | | | |
| M_B_DM7 | 185 | DM7 | DQS#7 | 186 | M_B_DQS#7 | | |
| | 187 | VSS34 | DQS7 | 188 | M_B_DQS7 | | |
| M_B_DQ58 | 189 | DQ58 | VSS36 | 190 | | | |
| M_B_DQ59 | 191 | DQ59 | DQ62 | 192 | M_B_DQ62 | | |
| | 193 | VSS14 | DQ63 | 194 | M_B_DQ63 | | |
| 13,28,43,53 SMB_DATA_SB | 195 | SDA | VSS13 | 196 | | | |
| 13,28,43,53 SMB_CLK_SB | 197 | SCL | SA0 | 198 | SA0_DIM1 | R508 10K_J 2 1 0402 | |
| | 199 | VDD(SPD) | SA1 | 200 | SA1_DIM1 | R507 10K_J 2 1 0402 | +3VRUN |
| +3VRUN | 201 | GND1 | GND2 | 202 | | | |
| | 203 | NPTH1 | NPTH2 | 204 | | | |

PC4800 DDR2 SDRAM SO-DIMM (200P)

9.2mm

DDR2 SO-DIMM_2x100P

FOX_AS0A426_NARN_7F

DIMM_1

C365 2.2U_10V_Y_Y 0603

C372 0.1U_16V_M_B 0402

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

M_B_DM[0..7] 9
M_B_DQ[0..63] 9
M_B_DQS[0..7] 9
M_B_DQS#[0..7] 9
M_B_A[0..13] 9,15

**Place these Caps near So-Dimm1.**

+1_8V_S3_SUS

C359 2.2U_10V_Y_Y 0603

C357 2.2U_10V_Y_Y 0603

C376 2.2U_10V_Y_Y 0603

C563 2.2U_10V_Y_Y 0603

C377 2.2U_10V_Y_Y 0603

**Place these Caps near So-Dimm1.**

+1_8V_S3_SUS

C564 0.1U_16V_Y_Y 0402

C375 0.1U_16V_Y_Y 0402

C378 0.1U_16V_Y_Y 0402

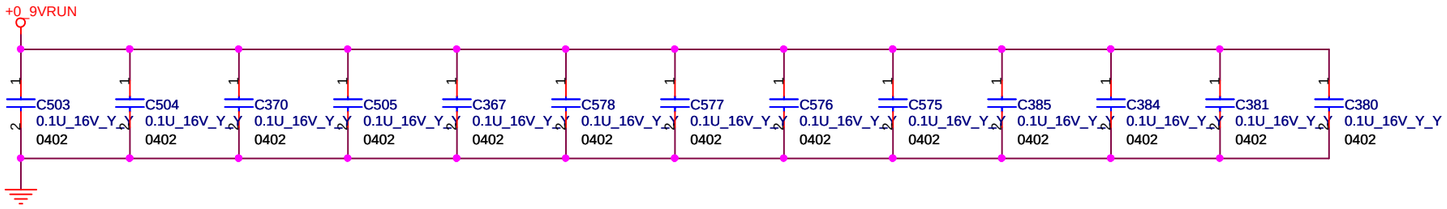
C374 0.1U_16V_Y_Y 0402

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

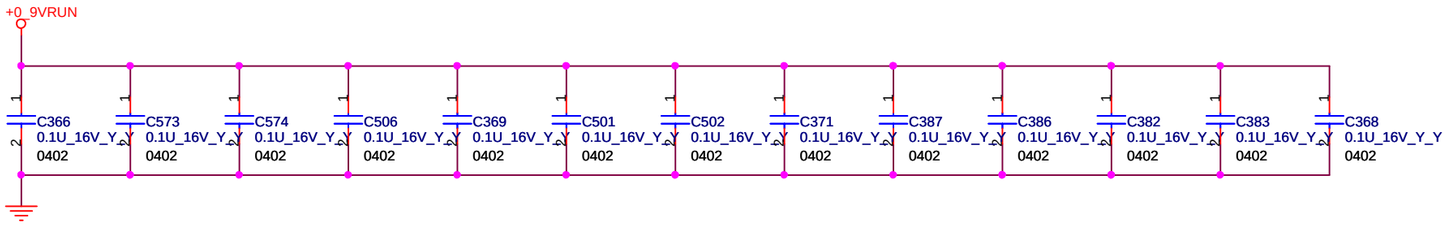
Title: *DDR(II)SO-DIMM_1*

| Size | Document Number | Rev |
|---|---|---|
| Custom | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 14 of 56



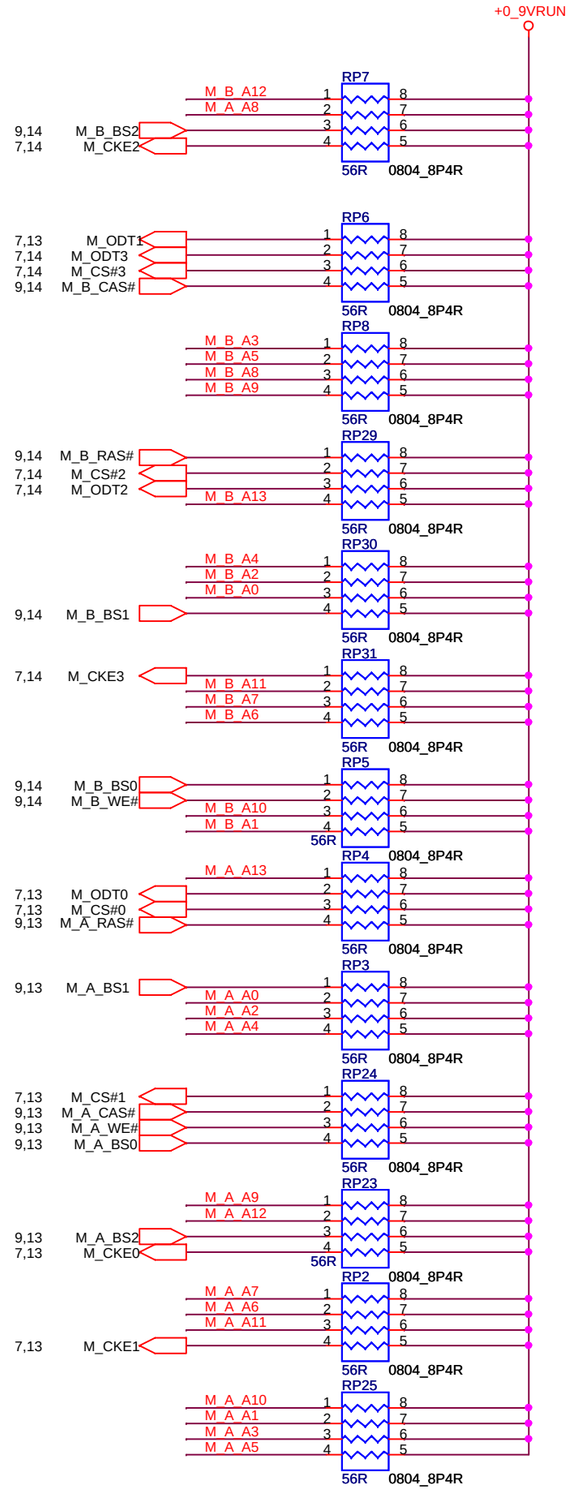

**Layout note: Place 1 cap close to every 1 R-pack terminated to +0_9VRUN**




**Layout note: Place 1 cap close to every 1 R-pack terminated to +0_9VRUN**

9,13 M_A_A[0..13]

9,14 M_B_A[0..13]

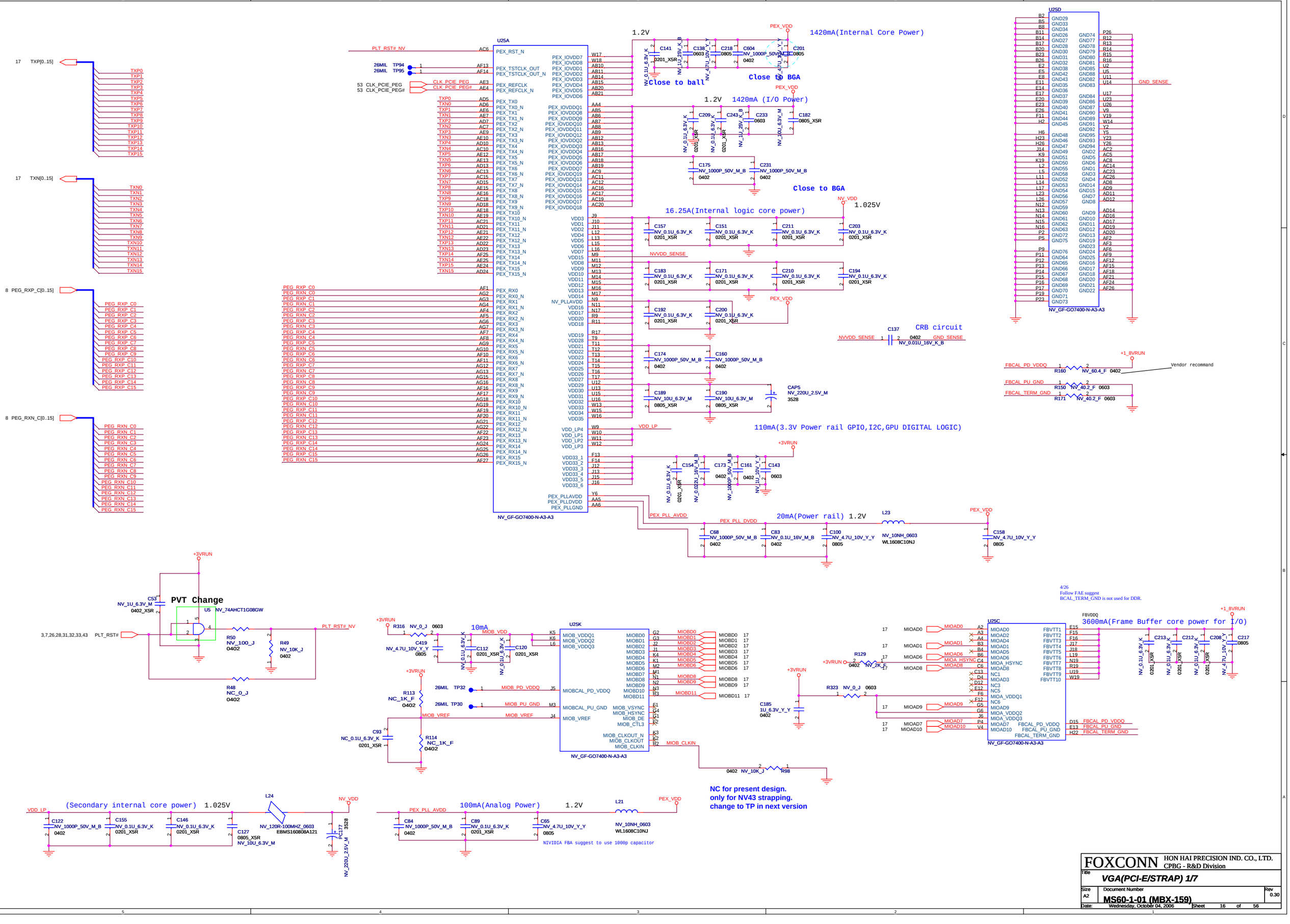



FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: ***DDR(II)Termination***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 15 of 56


U25A
NV_GF-GO7400-N-A3-A3
PEX_RST_N
PEX_TSTCLK_OUT
PEX_TSTCLK_OUT_N
PEX_REFCLK
PEX_REFCLK_N
PEX_TX0
PEX_TX0_N
PEX_TX1
PEX_TX1_N
PEX_TX2
PEX_TX2_N
PEX_TX3
PEX_TX3_N
PEX_TX4
PEX_TX4_N
PEX_TX5
PEX_TX5_N
PEX_TX6
PEX_TX6_N
PEX_TX7
PEX_TX7_N
PEX_TX8
PEX_TX8_N
PEX_TX9
PEX_TX9_N
PEX_TX10
PEX_TX10_N
PEX_TX11
PEX_TX11_N
PEX_TX12
PEX_TX12_N
PEX_TX13
PEX_TX13_N
PEX_TX14
PEX_TX14_N
PEX_TX15
PEX_TX15_N
PEX_RX0
PEX_RX0_N
PEX_RX1
PEX_RX1_N
PEX_RX2
PEX_RX2_N
PEX_RX3
PEX_RX3_N
PEX_RX4
PEX_RX4_N
PEX_RX5
PEX_RX5_N
PEX_RX6
PEX_RX6_N
PEX_RX7
PEX_RX7_N
PEX_RX8
PEX_RX8_N
PEX_RX9
PEX_RX9_N
PEX_RX10
PEX_RX10_N
PEX_RX11
PEX_RX11_N
PEX_RX12
PEX_RX12_N
PEX_RX13
PEX_RX13_N
PEX_RX14
PEX_RX14_N
PEX_RX15
PEX_RX15_N
PLT_RST# NV
26MIL TP94
26MIL TP95
53 CLK_PCIE_PEG
53 CLK_PCIE_PEG#
CLK_PCIE_PEG
CLK_PCIE_PEG#
17 TXP[0..15]
17 TXN[0..15]
8 PEG_RXP_C[0..15]
8 PEG_RXN_C[0..15]
PEX_IOVDD7
PEX_IOVDD8
PEX_IOVDD1
PEX_IOVDD2
PEX_IOVDD3
PEX_IOVDD4
PEX_IOVDD5
PEX_IOVDD6
PEX_IOVDDQ1
PEX_IOVDDQ8
PEX_IOVDDQ9
PEX_IOVDDQ10
PEX_IOVDDQ11
PEX_IOVDDQ12
PEX_IOVDDQ2
PEX_IOVDDQ3
PEX_IOVDDQ4
PEX_IOVDDQ5
PEX_IOVDDQ6
PEX_IOVDDQ7
PEX_IOVDDQ19
PEX_IOVDDQ13
PEX_IOVDDQ14
PEX_IOVDDQ15
PEX_IOVDDQ16
PEX_IOVDDQ17
PEX_IOVDDQ18
VDD3
VDD1
VDD2
VDD4
VDD5
VDD6
VDD7
VDD15
VDD8
VDD9
VDD10
VDD11
VDD12
VDD13
VDD14
NV_PLLAVDD
VDD16
VDD17
VDD20
VDD18
VDD19
VDD28
VDD21
VDD22
VDD23
VDD24
VDD25
VDD26
VDD27
VDD29
VDD30
VDD31
VDD32
VDD33
VDD34
VDD35
VDD_LP4
VDD_LP1
VDD_LP2
VDD_LP3
VDD33_1
VDD33_2
VDD33_3
VDD33_4
VDD33_5
VDD33_6
PEX_PLLAVDD
PEX_PLLDVDD
PEX_PLLGND
1.2V
1420mA(Internal Core Power)
Close to ball
Close to BGA
1.2V 1420mA (I/O Power)
Close to BGA
16.25A(Internal logic core power)
1.025V
NVVDD_SENSE
CRB circuit
VDD_LP
110mA(3.3V Power rail GPIO,I2C,GPU DIGITAL LOGIC)
+3VRUN
20mA(Power rail) 1.2V
PEX_PLL_AVDD
PEX_PLL_DVDD
U25D
NV_GF-GO7400-N-A3-A3
GND_SENSE
+1_8VRUN
FBCAL_PD_VDDQ
FBCAL_PU_GND
FBCAL_TERM_GND
Vendor recommand
PVT Change
U5 NV_74AHCT1G08GW
PLT_RST#
PLT_RST#_NV
10mA
MIOB_VDD
MIOB_PD_VDDQ
MIOB_PU_GND
MIOB_VREF
MIOB_CLKIN
U25K
NV_GF-GO7400-N-A3-A3
NC for present design.
only for NV43 strapping.
change to TP in next version
4/26
Follow FAE suggest
BCAL_TERM_GND is not used for DDR.
FBVDDQ
3600mA(Frame Buffer core power for I/O)
U25C
NV_GF-GO7400-N-A3-A3
(Secondary internal core power) 1.025V
100mA(Analog Power) 1.2V
NIVIDIA FBA suggest to use 1000p capacitor
FOXCONN
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
Title
VGA(PCI-E/STRAP) 1/7
Size A2
Document Number MS60-1-01 (MBX-159)
Rev 0.30
Date: Wednesday, October 04, 2006
Sheet 16 of 56

8 PEG_RXP[0..15]

TXP[0..15] 16

| | | | | | |
|---|---|---|---|---|---|
| PEG_RXP0 | C88 | NV_0.1U_6.3V_K | 0201_X5R | TXP0 |
| PEG_RXP1 | C104 | NV_0.1U_6.3V_K | 0201_X5R | TXP1 |
| PEG_RXP2 | C116 | NV_0.1U_6.3V_K | 0201_X5R | TXP2 |
| PEG_RXP3 | C126 | NV_0.1U_6.3V_K | 0201_X5R | TXP3 |
| PEG_RXP4 | C133 | NV_0.1U_6.3V_K | 0201_X5R | TXP4 |
| PEG_RXP5 | C140 | NV_0.1U_6.3V_K | 0201_X5R | TXP5 |
| PEG_RXP6 | C148 | NV_0.1U_6.3V_K | 0201_X5R | TXP6 |
| PEG_RXP7 | C167 | NV_0.1U_6.3V_K | 0201_X5R | TXP7 |
| PEG_RXP8 | C179 | NV_0.1U_6.3V_K | 0201_X5R | TXP8 |
| PEG_RXP9 | C195 | NV_0.1U_6.3V_K | 0201_X5R | TXP9 |
| PEG_RXP10 | C205 | NV_0.1U_6.3V_K | 0201_X5R | TXP10 |
| PEG_RXP11 | C225 | NV_0.1U_6.3V_K | 0201_X5R | TXP11 |
| PEG_RXP12 | C230 | NV_0.1U_6.3V_K | 0201_X5R | TXP12 |
| PEG_RXP13 | C240 | NV_0.1U_6.3V_K | 0201_X5R | TXP13 |
| PEG_RXP14 | C249 | NV_0.1U_6.3V_K | 0201_X5R | TXP14 |
| PEG_RXP15 | C253 | NV_0.1U_6.3V_K | 0201_X5R | TXP15 |

8 PEG_RXN[0..15]

TXN[0..15] 16

| | | | | | |
|---|---|---|---|---|---|
| PEG_RXN0 | C98 | NV_0.1U_6.3V_K | 0201_X5R | TXN0 |
| PEG_RXN1 | C113 | NV_0.1U_6.3V_K | 0201_X5R | TXN1 |
| PEG_RXN2 | C123 | NV_0.1U_6.3V_K | 0201_X5R | TXN2 |
| PEG_RXN3 | C132 | NV_0.1U_6.3V_K | 0201_X5R | TXN3 |
| PEG_RXN4 | C136 | NV_0.1U_6.3V_K | 0201_X5R | TXN4 |
| PEG_RXN5 | C147 | NV_0.1U_6.3V_K | 0201_X5R | TXN5 |
| PEG_RXN6 | C156 | NV_0.1U_6.3V_K | 0201_X5R | TXN6 |
| PEG_RXN7 | C180 | NV_0.1U_6.3V_K | 0201_X5R | TXN7 |
| PEG_RXN8 | C188 | NV_0.1U_6.3V_K | 0201_X5R | TXN8 |
| PEG_RXN9 | C206 | NV_0.1U_6.3V_K | 0201_X5R | TXN9 |
| PEG_RXN10 | C214 | NV_0.1U_6.3V_K | 0201_X5R | TXN10 |
| PEG_RXN11 | C232 | NV_0.1U_6.3V_K | 0201_X5R | TXN11 |
| PEG_RXN12 | C238 | NV_0.1U_6.3V_K | 0201_X5R | TXN12 |
| PEG_RXN13 | C245 | NV_0.1U_6.3V_K | 0201_X5R | TXN13 |
| PEG_RXN14 | C251 | NV_0.1U_6.3V_K | 0201_X5R | TXN14 |
| PEG_RXN15 | C256 | NV_0.1U_6.3V_K | 0201_X5R | TXN15 |

TVMODE
NTSC (01)

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

Strap for GDDR3-136ball

| | | |
|---|---|---|
| 0001 | 16Mx32 | Infineon |
| 0010 | 16Mx32 | Hynix |
| 0011 | 16Mx32 | Samsung |
| 0101 | 8Mx32 | Infineon |
| 0110 | 8Mx32 | Hynix |
| 0111 | 8Mx32 | Samsung |

SUBVENDOR

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

PANEL ID CONFIG
NC

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

3GIO_PADCFG[2:0]
001 for G7X

G72M/G73M
PCI_DEVID[3:0]="1000"->8

CRYSTAL
10 (27M Hz)

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

ROM_TYPE NC

00 PARALLEL
01 SERIAL_AT25F
10 SERIAL_SST45VF
11 LPC

+3VRUN

| | | | | | |
|---|---|---|---|---|---|
| MIOAD7 | R74 | NC_2K_J | 0402 | R55 | NV_2K_J 0402 |
| MIOAD10 | R75 | NV_2K_J | 0402 | R56 | NC_2K_J 0402 |

RAM_CFG0

| | | | | | |
|---|---|---|---|---|---|
| MIOBD0 | R104 | NV_2K_J | 0402 | R103 | NC_2K_J 0402 |

RAM_CFG1

| | | | | | |
|---|---|---|---|---|---|
| MIOBD1 | R117 | NC_2K_J | 0402 | R116 | NV_2K_J 0402 |

RAM_CFG2

| | | | | | |
|---|---|---|---|---|---|
| MIOBD8 | R337 | NC_2K_J | 0402 | R319 | NV_2K_J 0402 |

RAM_CFG3

| | | | | | |
|---|---|---|---|---|---|
| MIOBD9 | R338 | NV_2K_J | 0402 | R320 | NC_2K_J 0402 |

SUBVENDOR

| | | | | | |
|---|---|---|---|---|---|
| MIOAD1 | R352 | NV_2K_J | 0402 | R353 | NC_2K_J 0402 |

| | | | | | |
|---|---|---|---|---|---|
| PEX_PLL_EN_TERM | MIOAD0 | R350 | NV_2K_J | 0402 | R351 NC_2K_J 0402 |
| 3GIO_PADCFG0 | MIOAD6 | R358 | NC_NV_2K_J | 0402 | R359 NV_2K_J 0402 |
| 3GIO_PADCFG1 | MIOAD8 | R355 | NV_2K_J | 0402 | R356 NC_NV_2K_J 0402 |
| 3GIO_PADCFG2 | MIOAD9 | R123 | NV_2K_J | 0402 | R122 NC_2K_J 0402 |

PCI_DEVID 0

| | | | | | |
|---|---|---|---|---|---|
| MIOBD4 | R94 | NV_2K_J | 0402 | R93 | NC_2K_J 0402 |

PCI_DEVID 1

| | | | | | |
|---|---|---|---|---|---|
| MIOBD5 | R339 | NV_2K_J | 0402 | R321 | NC_2K_J 0402 |

PCI_DEVID 2

| | | | | | |
|---|---|---|---|---|---|
| MIOBD3 | R347 | NV_2K_J | 0402 | R348 | NC_2K_J 0402 |

PCI_DEVID 3

| | | | | | |
|---|---|---|---|---|---|
| MIOBD11 | R336 | NC_2K_J | 0402 | R318 | NV_2K_J 0402 |

CRYSTAL 0

| | | | | | |
|---|---|---|---|---|---|
| MIOBD2 | R88 | NV_2K_J | 0402 | R87 | NC_2K_J 0402 |

CRYSTAL 1

| | | | | | |
|---|---|---|---|---|---|
| MIOBD6 | R73 | NC_2K_J | 0402 | R54 | NV_2K_J 0402 |

MIOAD0
MIOAD1
MIOAD6
MIOAD7
MIOAD8
MIOAD9
MIOAD10

MIOAD0 16
MIOAD1 16
MIOAD6 16
MIOAD7 16
MIOAD8 16
MIOAD9 16
MIOAD10 16

MIOBD0
MIOBD1
MIOBD2
MIOBD3
MIOBD4
MIOBD5
MIOBD6
MIOBD8
MIOBD9
MIOBD11

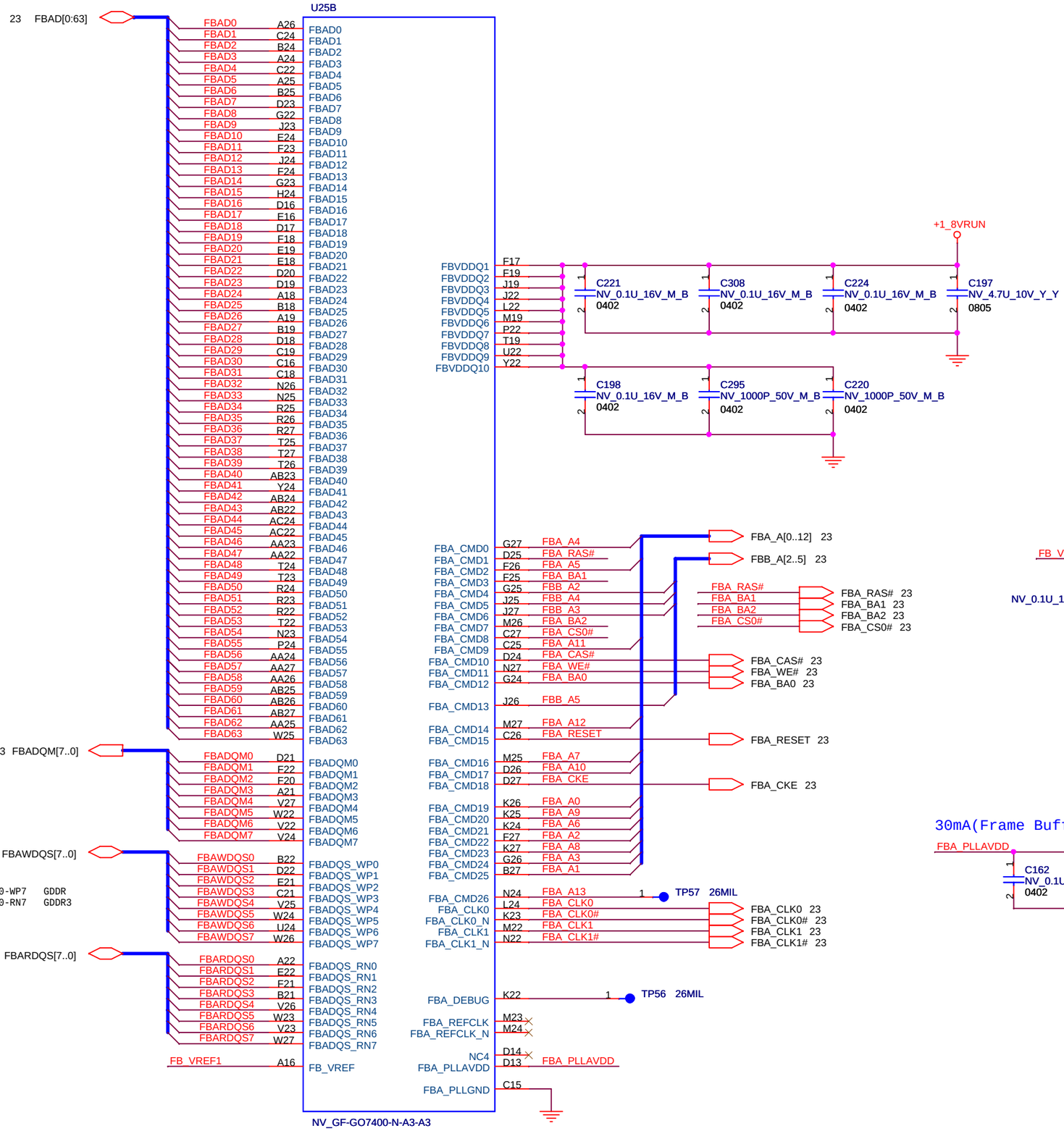
MIOBD0 16
MIOBD1 16
MIOBD2 16
MIOBD3 16
MIOBD4 16
MIOBD5 16
MIOBD6 16
MIOBD8 16
MIOBD9 16
MIOBD11 16

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

Title: VGA(PCI-E/STRAP) 2/7

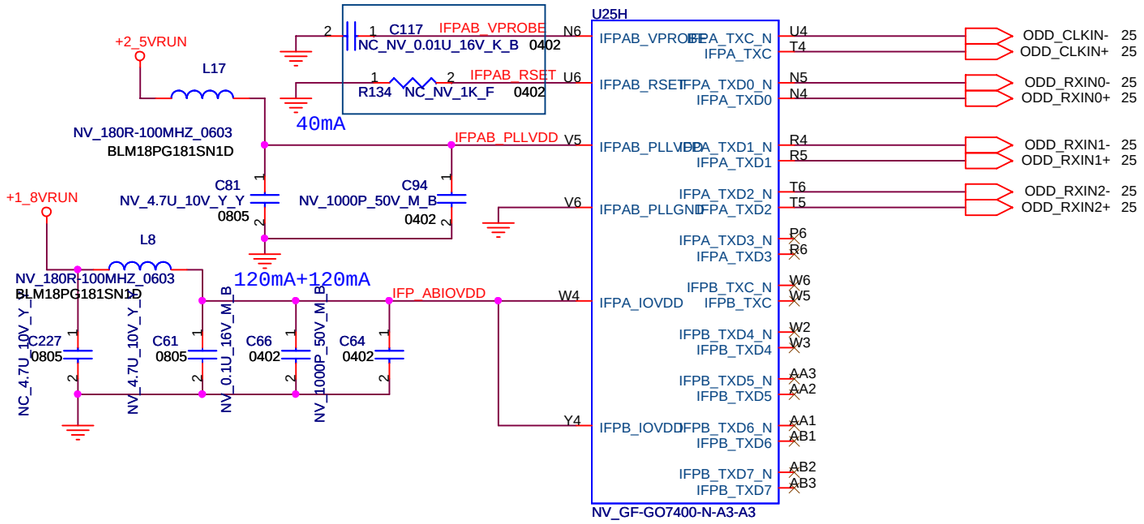
Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

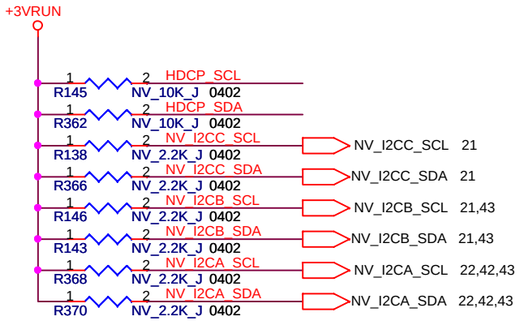
Date: Wednesday, October 04, 2006 | Sheet 17 of 56

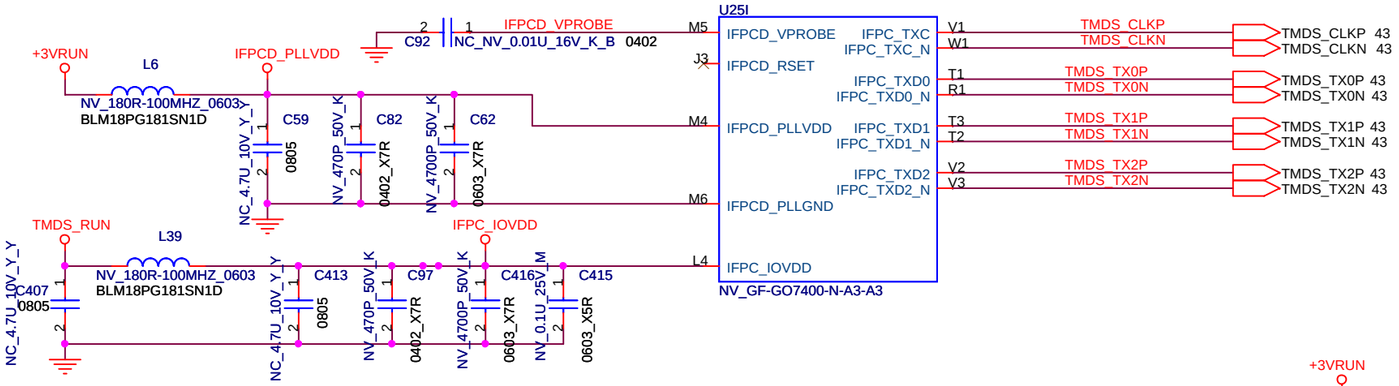


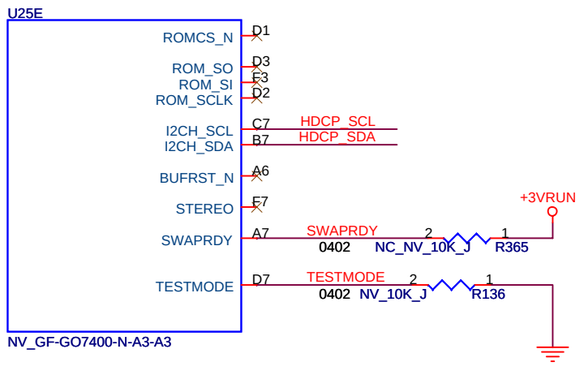

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | VGA(GDDR3) 3/7 | |
| Size A3 | Document Number MS60-1-01 (MBX-159) | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 18 of 56 | |

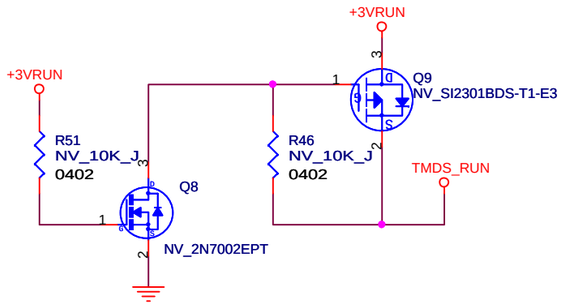
## UN STUFF FOR G7X

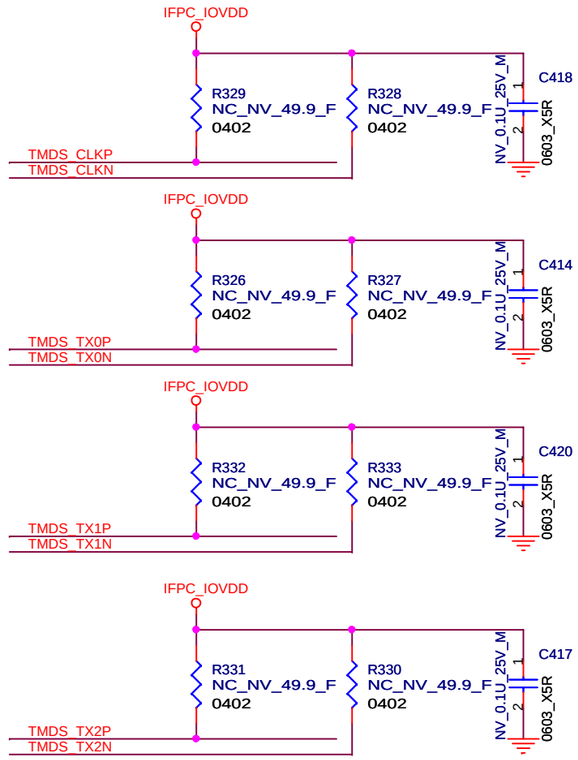


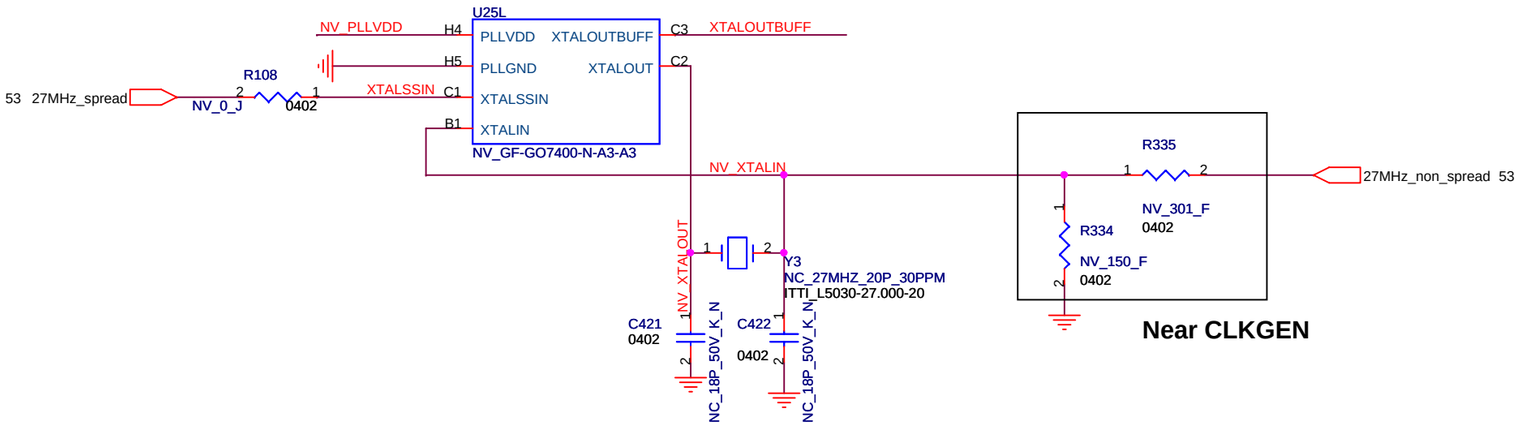



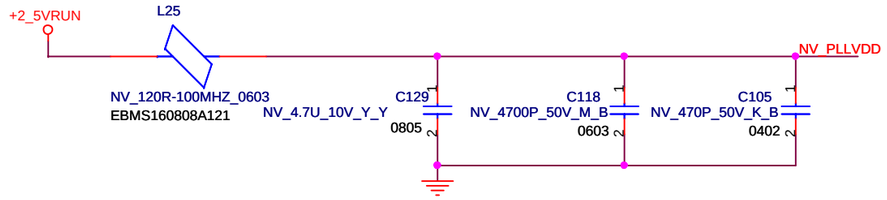



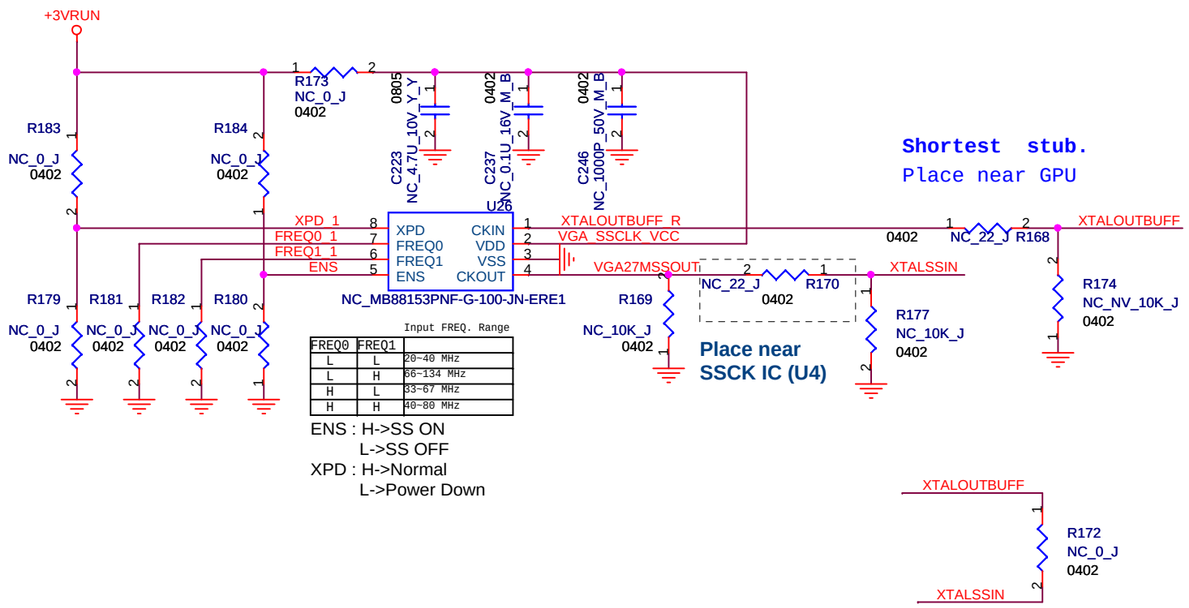



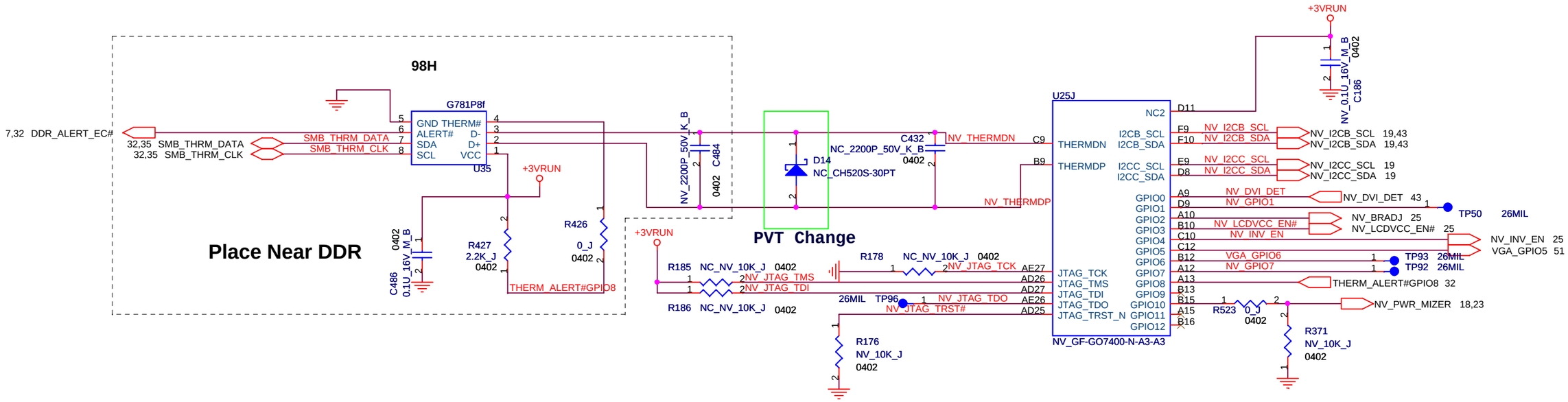

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | VGA(TMDS/LVDS) 4/7 | |
| Size A3 | Document Number MS60-1-01 (MBX-159) | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 19 of 56 | |




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title | ***VGA(SS) 5/7*** | |
| Size<br>A3 | Document Number<br>**MS60-1-01 (MBX-159)** | Rev<br>0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 20 of 56 | |




| PWR_MIZER LEVEL | H | L |
|---|---|---|
| Vref | 50% FBVDDQ | 70% FBVDDQ |

**Check Spec.**

## GPIO TABLE

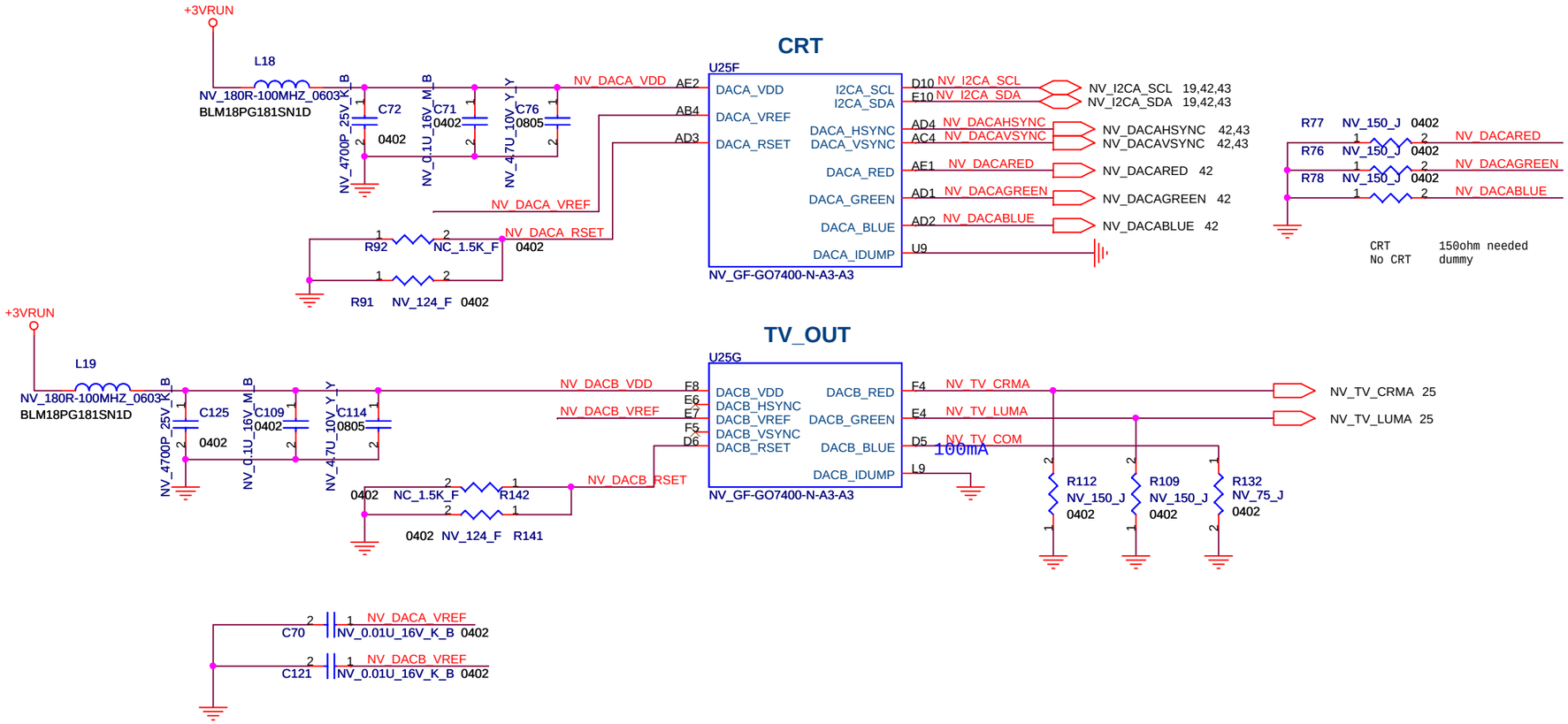
| | I/O | Inter pull low | | |
|---|---|---|---|---|
| GPIO0 | I | Yes | DVI Hot Plug Detect 0 (HPD0) | |
| GPIO1 | I | Yes | Hot Plug Detect 1 (HPD1) | |
| GPIO2 | O | Yes | Panel Brightness (PWM) | **Active High** |
| GPIO3 | O | No | Panel Power | **Active Low** |
| GPIO4 | O | Yes | Panel Backlight On/Off | **Active High** |
| GPIO5 | O | Yes | GPU Voltage CTL0 H: NVDD=1.1V | |
| GPIO6 | O | Yes | | |
| 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 | Power Mizer control signal | |
| GPIO11 | O | No **(Low)** | Rset switch control. H:SVIDEO(69.8) L:HDTV(88.7) | |
| GPIO12 | O | No | Available for general use. | |

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

Title: *VGA(MULTIUSE) 6/7*

Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 21 of 56




| DACA | VGA-CRT | | | I2CA |
|---|---|---|---|---|
| DACA-RED | R | | | |
| DACA-GREEN | G | | | |
| DACA-BLUE | B | | | |
| DACA-HSYNC | HSYNC | | | |
| DACA-VSYNC | VSYNC | | | |
| | VGA-DDCCLK | | | SCL |
| | VGA-DDCDATA | | | SDA |
| DACB | S-VIDEO | COMPOSITE | D-CONNECTOR | I2CC |
| DACB-RED | C | | PR | |
| DACB-GREEN | Y | | Y | |
| DACB-BLUE | | COMPOSITE | PB | |
| | | | LINE1 | SCL |
| | | | LINE2 | SDA |
| | | | LINE3 | |
| DACC | DVI-I | | | I2CB |
| DACC-RED | R | | | |
| DACC-GREEN | G | | | |
| DACC-BLUE | B | | | |
| DACC-HSYNC | HSYNC | | | |
| DACC-VSYNC | VSYNC | | | |
| | DVI-DDCCLK | | | SCL |
| | DVI-DDCDATA | | | SDA |

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

Title: VGA(TV/CRT ) 7/7

Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 22 of 56

# Address / Command on Die termination is set to 120 ohm.

**DLL POWER --- Add decoupling C and L ?**

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

**For 16Mx32 Bit stuff**
**8Mx32 Bit no stuff**

**For 8Mx32 Bit Stuff**
**16Mx32 Bit no stuff**

**VRAM_VREF is 70%FBVDDQ for GDDR3 1.26V**

**VRAM_VREF is 70%FBVDDQ for GDDR3**

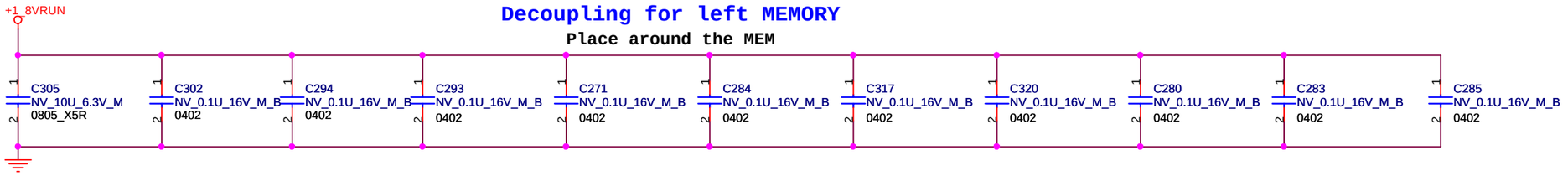
FBAD[0:63] 18
FBADQM[7..0] 18
FBARDQS[7..0] 18
FBAWDQS[7..0] 18

18,21 NV_PWR_MIZER

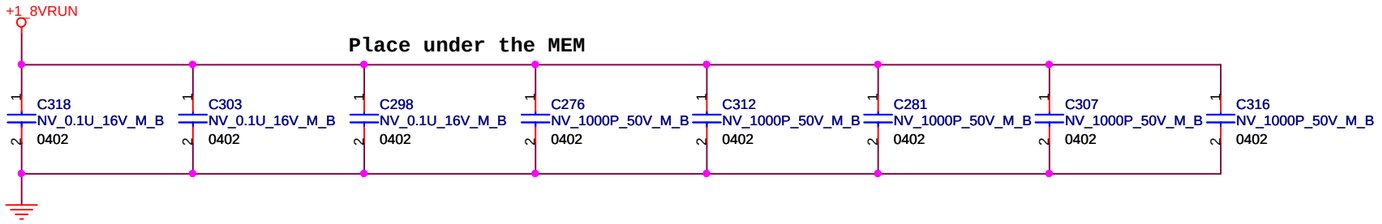
| | | | |
|---|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | | |
| Title | VRAM(GDDR3) | | |
| Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 | |
| Date: Wednesday, October 04, 2006 | Sheet 23 of 56 | | |

## Decoupling for left MEMORY

**Place around the MEM**

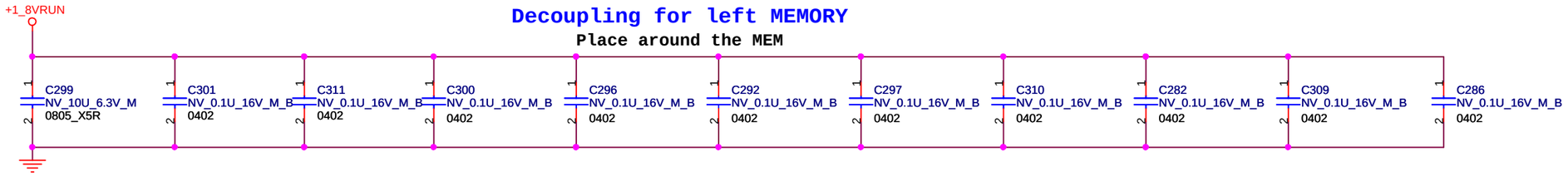



**Place under the MEM**

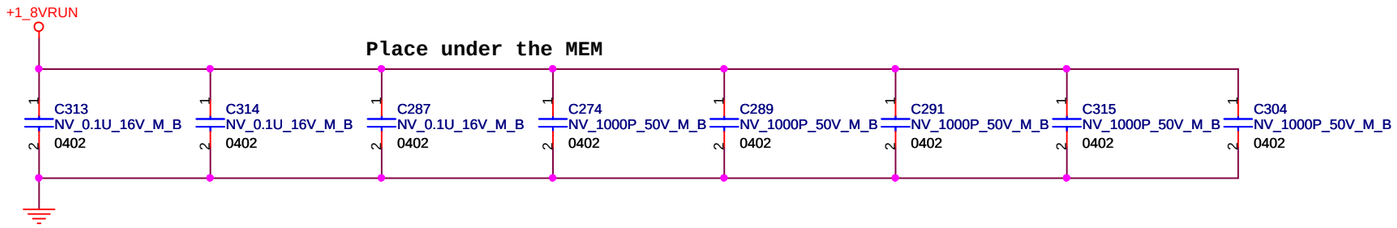



## Decoupling for left MEMORY

**Place around the MEM**




**Place under the MEM**




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

Title: ***VRAM(POWERBYPASS)***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 24 of 56

# LVDS

19 ODD_RXIN1-
19 ODD_RXIN1+
19 ODD_CLKIN-
19 ODD_CLKIN+

ODD_RXIN1-
ODD_RXIN1+
ODD_CLKIN-
ODD_CLKIN+

19 ODD_RXIN0-
19 ODD_RXIN0+
19 ODD_RXIN2-
19 ODD_RXIN2+

ODD_RXIN0-
ODD_RXIN0+
ODD_RXIN2-
ODD_RXIN2+

## PANEL ID

SW1
HDS404-E_SW-SLIDE

LCDID0 28
LCDID1 28
LCDID2 28
WWAN_PRS# 32

GP13
OPEN_JUMP_40X58

BIOS_CRISIS#

Place under KB

| Size | 13.3" wide | | |
|---|---|---|---|
| Vendor | AUO | SHARP | |
| Type | | | |
| Panel ID Check[2..0] | 001 | 010 | |

LCDVCC_LVDS

F19
6V-1.1A_1206
SMD1206P110TF

TP75 30MIL
TP74 30MIL
TP68 30MIL
TP67 30MIL

CN11
CTB_20P
FOX_GS12201-1011-9F

ODD_RXIN0-
ODD_RXIN0+
ODD_RXIN1-
ODD_RXIN1+
ODD_RXIN2-
ODD_RXIN2+
ODD_CLKIN-
ODD_CLKIN+

## LVDS CONNECTOR

C334 NC_10P_50V_J_N 0402 ODD_CLKIN-
C332 NC_10P_50V_J_N 0402 ODD_CLKIN+

For EMI

+3VRUN

R478 0402 10K_J
BIOS_CRISIS#
BIOS_CRISIS# 28

+3VRUN
U11
32 INV_ENABLE_EC
74AHCT1G08GW
INV_ENABLE
R202 10K_J 0402

+3VRUN
U10
32,43 SFLID#
21 NV_INV_EN
74AHCT1G08GW
INV_ENABLE_1

PVT Change

PVT Change

# LCD POWER

+3VRUN
R417 10K_J 0402
21 NV_LCDVCC_EN#

+3VRUN
C478 4.7U_6.3V_K 0805_X5R

U33
IN1 IN2 OUT1 OUT2 OUT3 OC EN GND
G548B2P1U

C479 0.1U_16V_Y_Y 0402

LCDVCC
L51 120-100MHZ_1206 BLM31PG121SN1L

LCDVCC_LVDS
C497 4.7U_10V_Y_Y 0805
C496 0.1U_16V_Y_Y 0402
R433 330_J 0805
Q33 2N7002EPT

+5VRUN
L49 120-100MHZ_1206 BLM31PG121SN1L
+5V_RUN_INVERTER

DCBATOUT
L48 NC_120-100MHZ_1206 BLM31PG121SN1L

2A

C458 10U_25V_M_B 1206
C455 0.1U_50V_K_B 0603

DISCHARGE
INV_ENABLE
INV_BRADJ

C450 0.1U_16V_Y_Y 0402

CN9
FOX_HS8206E
HEADER CONN_6P

+3VRUN
R376 NV_10K_J 0402
U28
32 BRADJ_EC
NC_0_J 0402
R379
BRADJPWM_LPF
NV_74AHCT1G08GW
R378 10K_J 0402
21 NV_BRADJ
NV_0_J 0402
R377

PVT Change

# S-VIDEO

+3VRUN
R392 10K_J 0402

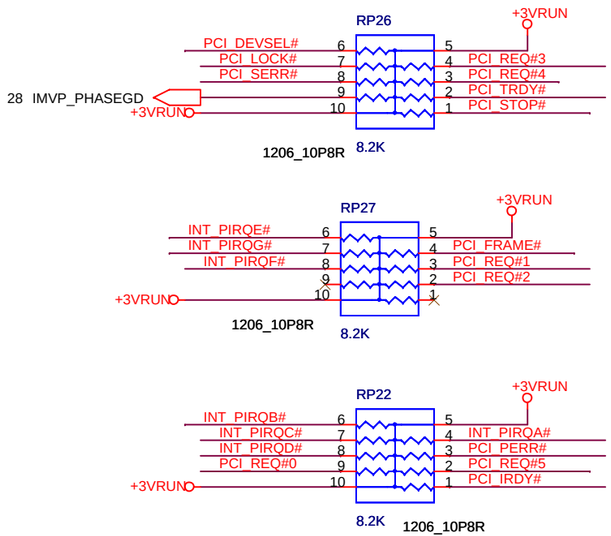
FOX_MH11747-BR2D-4F
S-VIDEO_4P
TV_CRMA
TV_LUMA
CN23
S_DETECT# 42

C449 22P_50V_K_N 0402
22 NV_TV_CRMA
L47 120R-100MHZ_0402 MMZ1005D121CT
TV_CRMA_2
C448 0.1U_16V_M_B 0402
TV_CRMA
R386 150_F 0603
C451 220P_50V_J_N 0402
C453 330P_50V_K_B 0402
R381 10K_J 0402

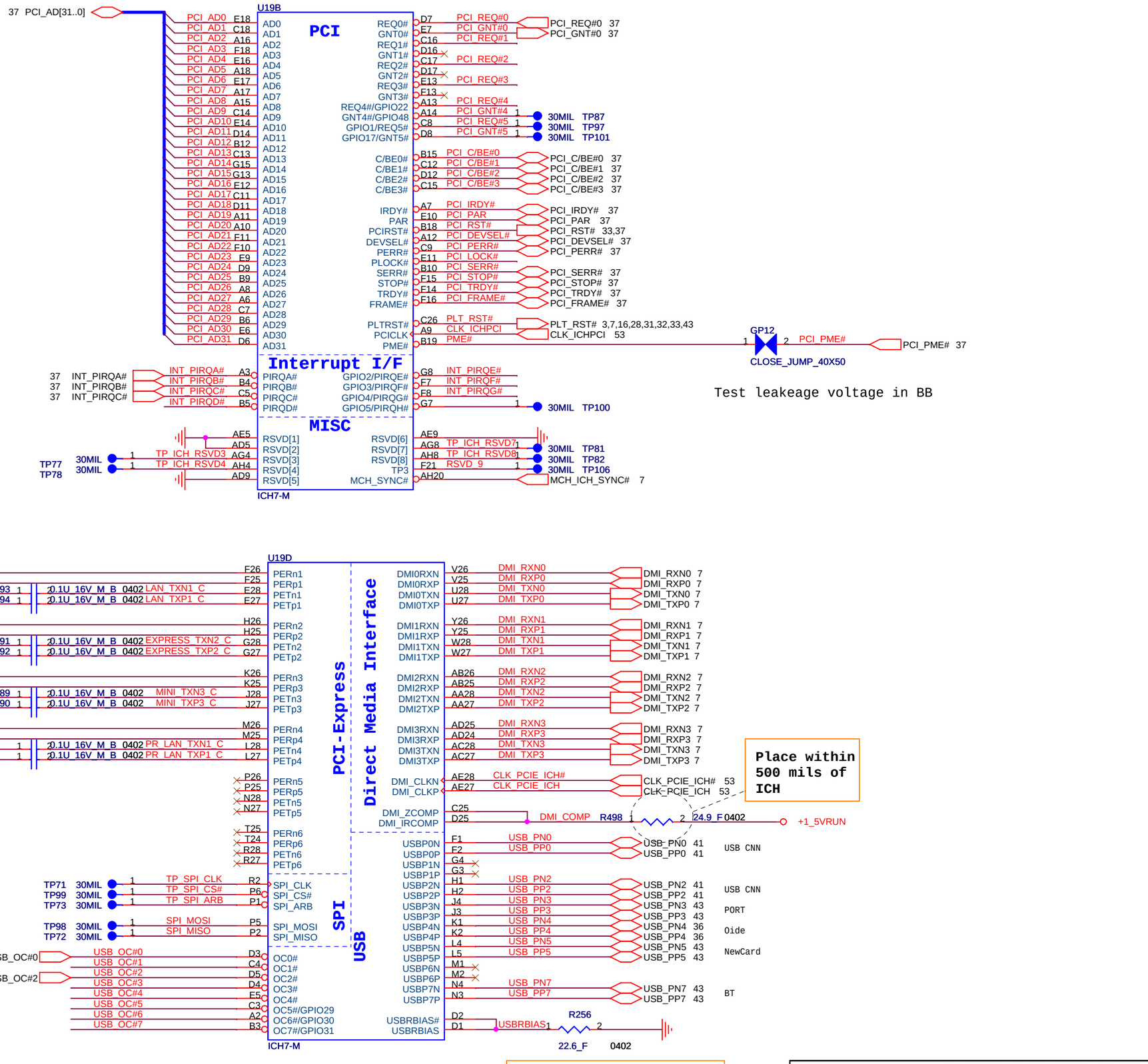
C461 22P_50V_K_N 0402
22 NV_TV_LUMA
L50 120R-100MHZ_0402 MMZ1005D121CT
TV_LUMA
R395 150_F 0603
C465 220P_50V_J_N 0402
C463 330P_50V_K_B 0402

# INVERTER CONNECTOR

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title | *LVDS / S_VIDEO* | |
| Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 25 of 56 | |




PCI Pullups




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | ICH7-M( PCI/DMI/USB/PCIE ) 1/5 | |
| Size A3 | Document Number MS60-1-01 (MBX-159) | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 26 of 56 | |

RTCRST#

VccRTC

Min :
5ms

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

+ECVCC

D5
CH500H-40PT

VCCRTC

C396
1U_6.3V_M_B
0402

32.768KHZ_12.5P_10PPM
Q13MC3061001800
Y1

C340 0402 15P_50V_K_N CLK_32KX1

C339 15P_50V_K_N 0402 CLK_32KX2

6 mils

R255
10M_J
0402

R428 20K_J 0402

C493
1U_25V_K_B
0603

R291
510_F
0402

R290
1M_J
0402

R292
510_F
0402

CN17
A3504
HEADER_2P
FOX_HS8202E

R460
NC_10K_J
0402

+3VRUN

R516
0_J
0402

IAC_BITCLK
IAC_SYNC
IAC_RESET#
ACZ_SDATAIN0
ACZ_MDC_SDATAIN1
TP_ACZ_SDIN2
TP70 30MIL
IAC_SDATAO

SATA_LED#

SATA_RXN0
SATA_RXP0
SATA_TXN0
SATA_TXP0

C491 C490 C488 C489 3900P_25V_K_B0603

SATA_RXN0_C
SATA_RXP0_C
SATA_TXN0_C
SATA_TXP0_C

TP79 30MIL
TP80 30MIL
SATA_TXN2
SATA_TXP2

CLK_PCIE_SATA#
CLK_PCIE_SATA

R445 24.9_F 0402 A3502

IDE_PDIOR#
IDE_PDIOW#
IDE_PDDACK#
INT_IRQ14
IDE_PDIORDY
IDE_PDDREQ

VCCRTC
R437
332K_F
0402
INTVRMEN

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

Distance between the ICH-7M and C on the "P" signal should be identical distance between the ICH-7M and C on the "N" signal for same pair

U19A

RTCX1 AB1
RTCX2 AB2
RTCRST# AA3
INTRUDER# Y5
INTVRMEN W4

EE_CS W1
EE_SHCLK Y1
EE_DOUT Y2
EE_DIN W3

LAN_CLK V3
LAN_RSTSYNC U3
LAN_RXD0 U5
LAN_RXD1 V4
LAN_RXD2 T5

LAN_TXD0 U7
LAN_TXD1 V6
LAN_TXD2 V7

ACZ_BIT_CLK U1
ACZ_SYNC R6
ACZ_RST# R5
ACZ_SDIN0 T2
ACZ_SDIN1 T3
ACZ_SDIN2 T1
ACZ_SDOUT T4

SATALED# AF18

SATA0RXN AF3
SATA0RXP AE3
SATA0TXN AG2
SATA0TXP AH2

SATA2RXN AF7
SATA2RXP AE7
SATA2TXN AG6
SATA2TXP AH6

SATA_CLKN AF1
SATA_CLKP AE1

SATARBIASN AH10
SATARBIASP AG10

DIOR# AF15
DIOW# AH15
DDACK# AF16
IDEIRQ AH16
IORDY AG16
DDREQ AE15

RTC
LPC
CPU
LAN
AC-97/AZALIA
SATA
IDE

ICH7-M

LAD0 AA6 LPC_AD0 — LPC_AD0 32,33
LAD1 AB5 LPC_AD1 — LPC_AD1 32,33
LAD2 AC4 LPC_AD2 — LPC_AD2 32,33
LAD3 Y6 LPC_AD3 — LPC_AD3 32,33

LDRQ0# AC3 LPC_DRQ#0 — LPC_DRQ#0 33
LDRQ1#/GPIO23 AA5

LFRAME# AB3 LPC_FRAME# — LPC_FRAME# 32,33

A20GATE AE22 H_A20GATE
A20M# AH28 H_A20M# — H_A20M# 3

CPUSLP# AG27 TP_CPUSLP# 1 — 30MIL TP91

TP1/DPRSTP# AF24 — R497 1 0_J 2 0402 — H_DPRSTP# 4,48
TP2/DPSLP# AH25 — R496 1 0_J 2 0402 — H_DPSLP# 4

FERR# AG26 — R503 1 2 56_J 0402 — +1_05VRUN — H_FERR# 3

GPIO49/CPUPWRGD AG24 H_PWRGD — H_PWRGD 4

IGNNE# AG22 H_IGNNE# — H_IGNNE# 3
INIT3_3V# AG21 FWH_INIT# — FWH_INIT# 33
INIT# AF22 H_INIT# — H_INIT# 3
INTR AF25 H_INTR — H_INTR 3

RCIN# AG23 H_RCIN#

NMI AH24 H_NMI — H_NMI 3
SMI# AF23 H_SMI# 3

STPCLK# AH22 H_STPCLK# — H_STPCLK# 3

THERMTRIP# AF26 PM_THRMTRIP# 1

+1_05VRUN
R502
56_J
0402

IDE_PDD[0..15] — IDE_PDD[0..15] 31

DD0 AB15 IDE_PDD0
DD1 AE14 IDE_PDD1
DD2 AG13 IDE_PDD2
DD3 AF13 IDE_PDD3
DD4 AD14 IDE_PDD4
DD5 AC13 IDE_PDD5
DD6 AD12 IDE_PDD6
DD7 AC12 IDE_PDD7
DD8 AE12 IDE_PDD8
DD9 AF12 IDE_PDD9
DD10 AB13 IDE_PDD10
DD11 AC14 IDE_PDD11
DD12 AE14 IDE_PDD12
DD13 AH13 IDE_PDD13
DD14 AH14 IDE_PDD14
DD15 AC15 IDE_PDD15

DA0 AH17 IDE_PDA0 — IDE_PDA0 31
DA1 AE17 IDE_PDA1 — IDE_PDA1 31
DA2 AF17 IDE_PDA2 — IDE_PDA2 31

DCS1# AE16 IDE_PDCS1# — IDE_PDCS1# 31
DCS3# AD16 IDE_PDCS3# — IDE_PDCS3# 31

+3VRUN
R490
10K_J
0402

R492 10K_J 0402 H_RCIN#

Q31
2N7002EPT
EC_H_RCIN# 32

Q30
2N7002EPT

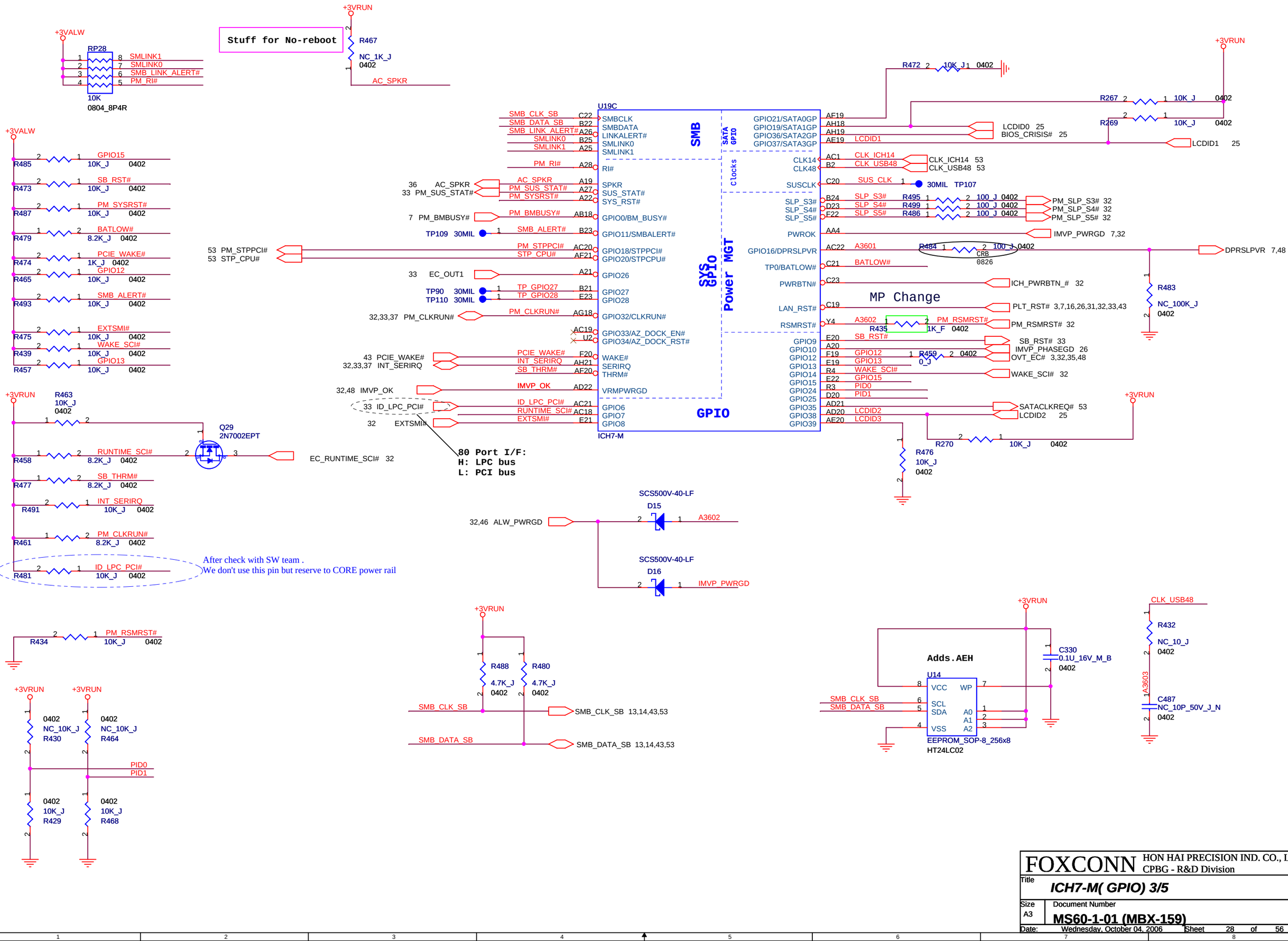
R482 H_A20GATE 8.2K_J 0402
EC_H_A20GATE 32

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

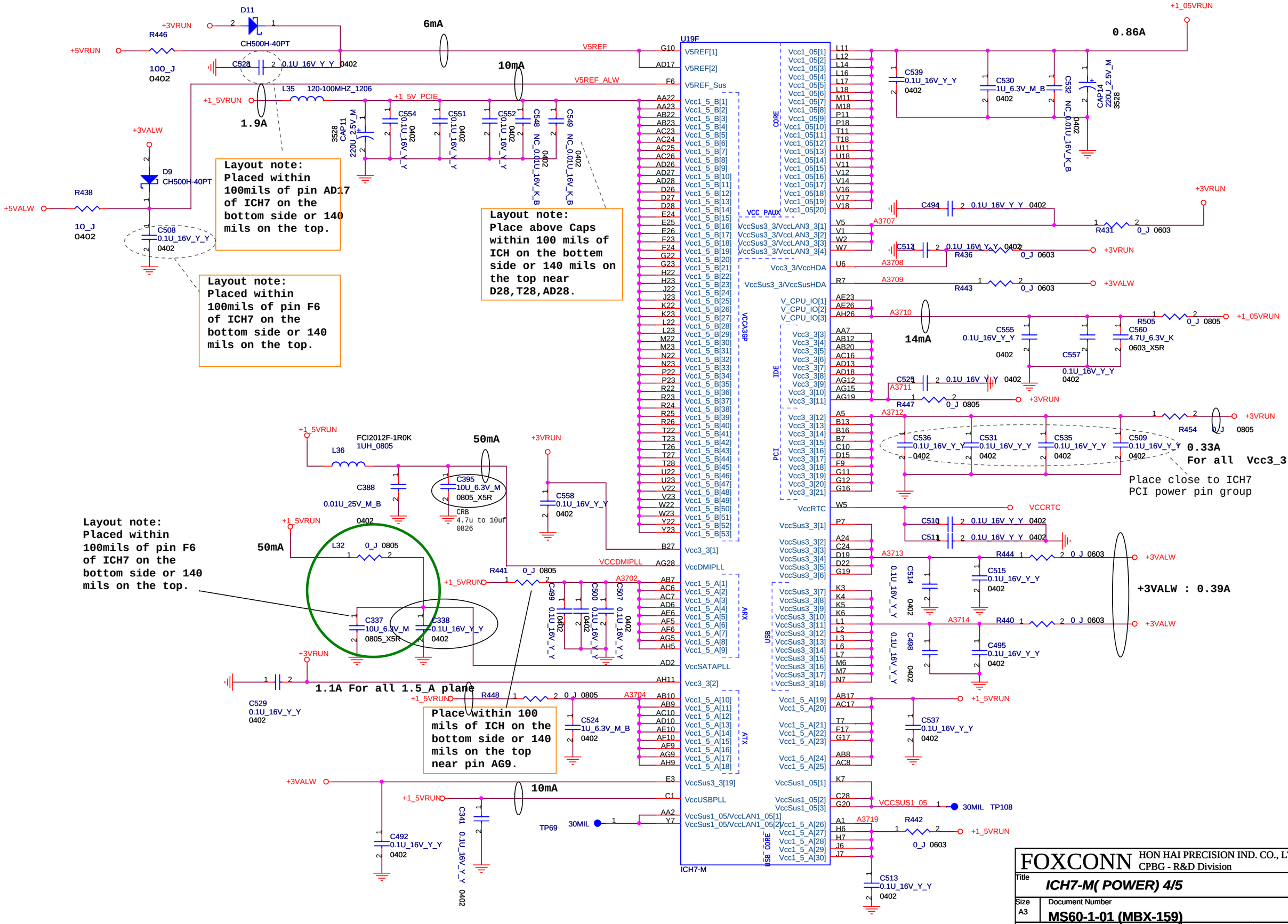
Title: ICH7-M( LPC,IDE,SATA ) 2/5

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

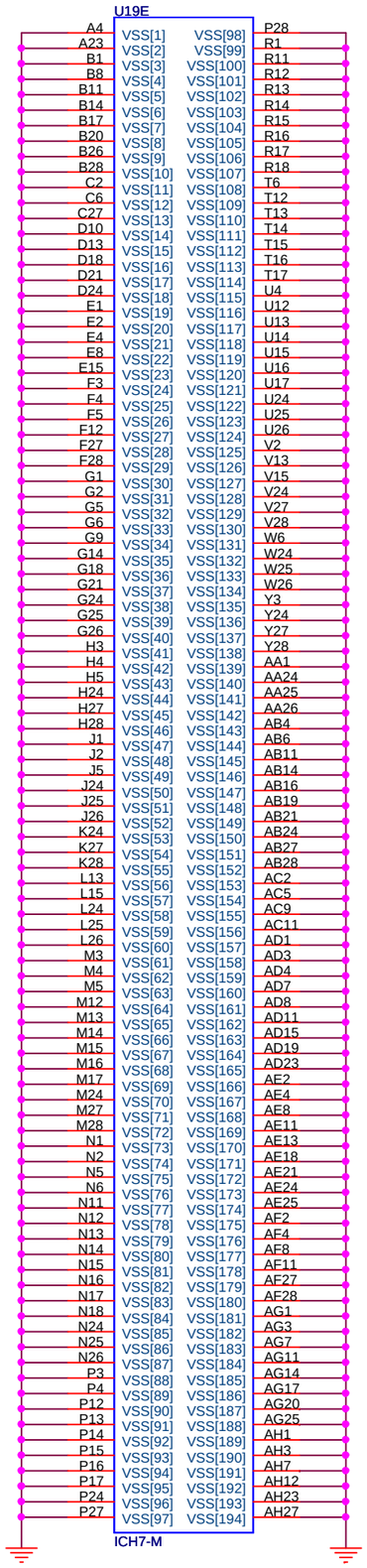
Date: Wednesday, October 04, 2006 Sheet 27 of 56




| | |
|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division |
| Title | *ICH7-M( GPIO) 3/5* |
| Size: A3 | Document Number: **MS60-1-01 (MBX-159)** |
| Rev | 0.30 |
| Date: | Wednesday, October 04, 2006 |
| Sheet | 28 of 56 |

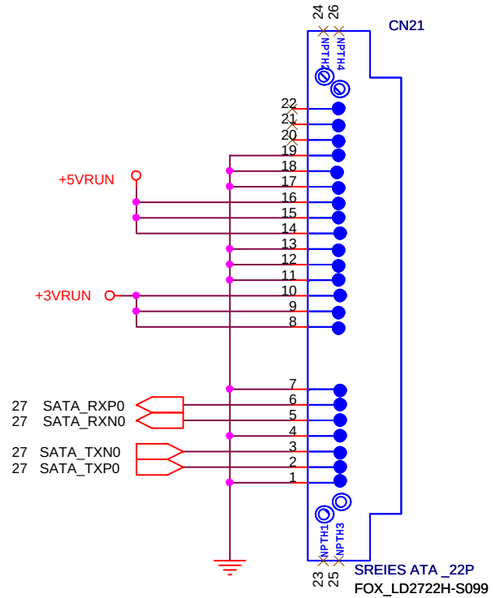


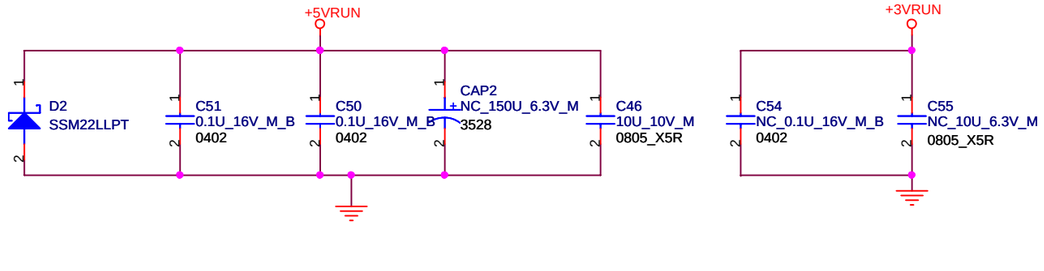

| | |
|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division |
| Title | ICH7-M( POWER) 4/5 |
| Size | A3 |
| Document Number | MS60-1-01 (MBX-159) |
| Rev | 0.30 |
| Date: | Wednesday, October 04, 2006 |
| Sheet | 29 of 56 |

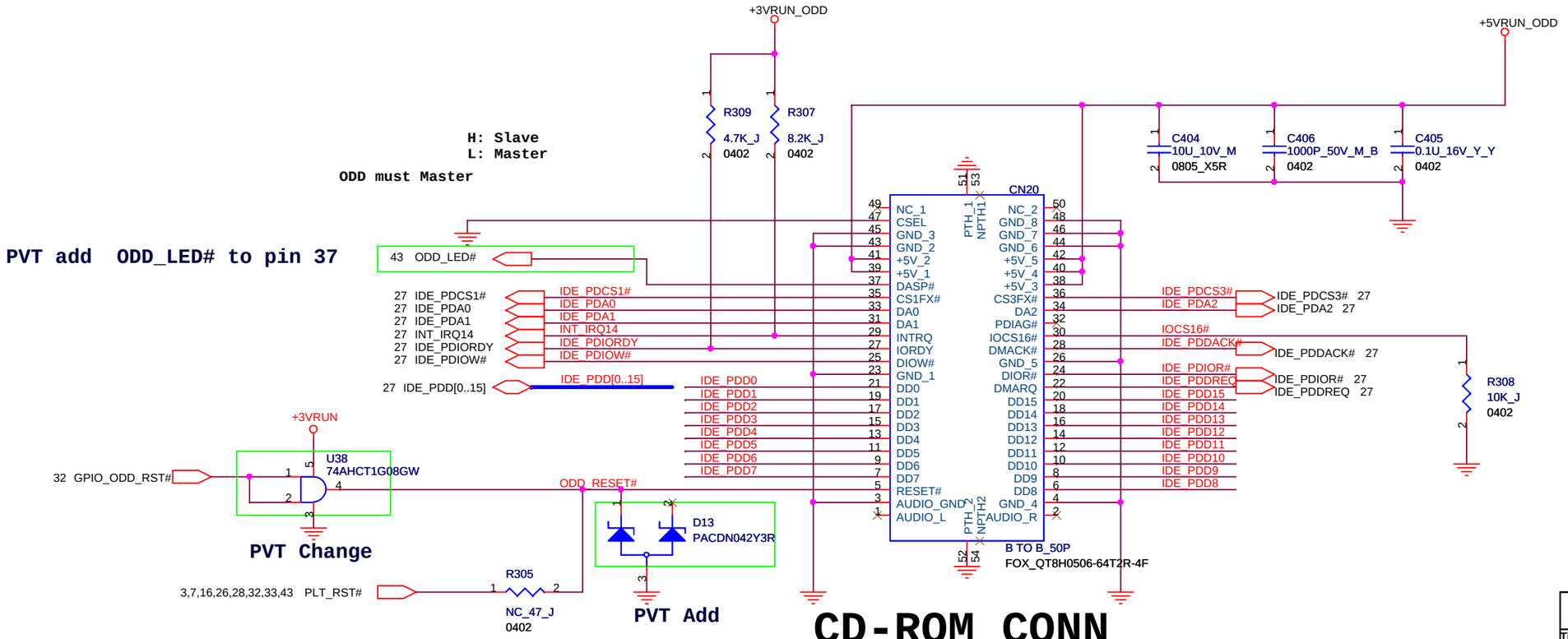



| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title | ***ICH7-M( GND) 5/5*** | |
| Size: A3 | Document Number: **MS60-1-01 (MBX-159)** | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 30 of 56 | |

# SATA HDD CONN




# CD-ROM CONN

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | *SATA HDD/CD-ROM* | |
| Size A3 | Document Number **MS60-1-01 (MBX-159)** | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 31 of 56 | |

Consider short FB after BB test.

FOX_GB21240-0002-7F
FPC CONN_24P
CN4

RP1 10K 0804_8P4R

U16 KB3910SFC1

FOR EMI

PVT Change

PVT Add

MODEL ID check with software define

| M-ID | 0 | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|---|
| MS60-L | 1 | 0 | 1 | 1 | 1 | 0 | 940GML |
| MS60-H | 0 | 1 | 1 | 1 | 1 | 0 | 945PM |
| MS60-M | 1 | 1 | 1 | 1 | 1 | 0 | 945GM |
| MS61-L | 1 | 0 | 0 | 1 | 1 | 0 | 940GML |
| MS61-H | 0 | 1 | 0 | 1 | 1 | 0 | 945PM |
| MS61-M | 1 | 1 | 0 | 1 | 1 | 0 | 945GM |

M-ID 5: 0- MS60 and the following MS60 type
1- MS70 and the following MS70 type
M-ID 2~4: 1- Reserved
M-ID 1: 0- Intel 940 series
1- Intel 945 series
M-ID 0: 0- External Gfx.
1- Internal Gfx.
M-ID3: 0- MS61 type

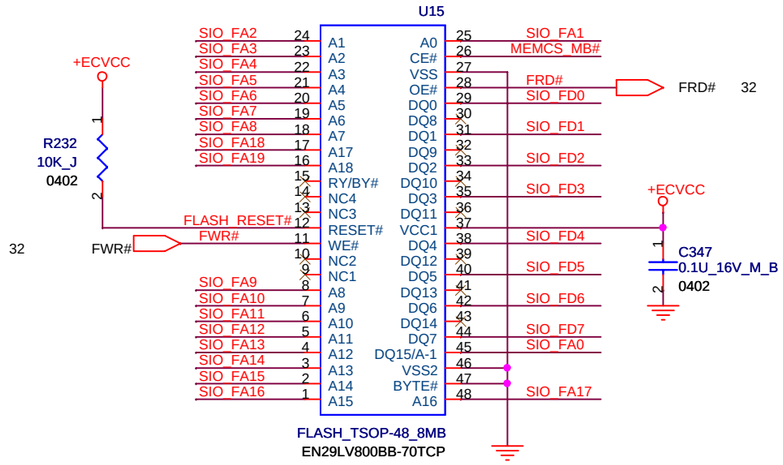
MP Add

MP Add

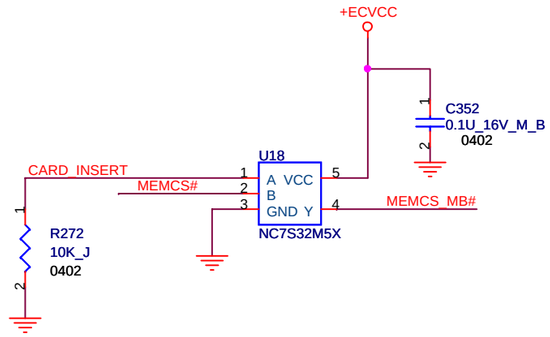
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
|---|---|---|
| Title: EC+KBC | | |
| Size: A2 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 32 of 56 | |

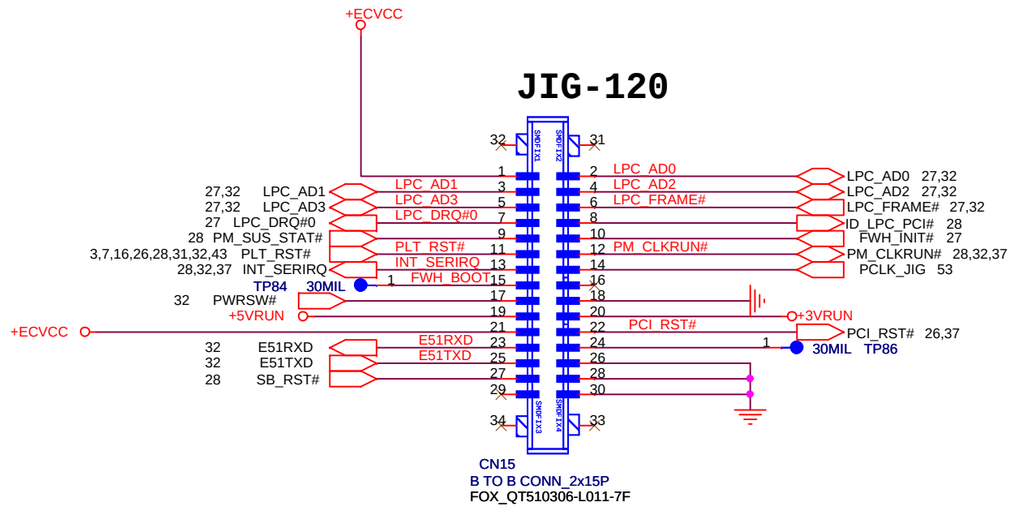
32 SIO_FA[19..0]

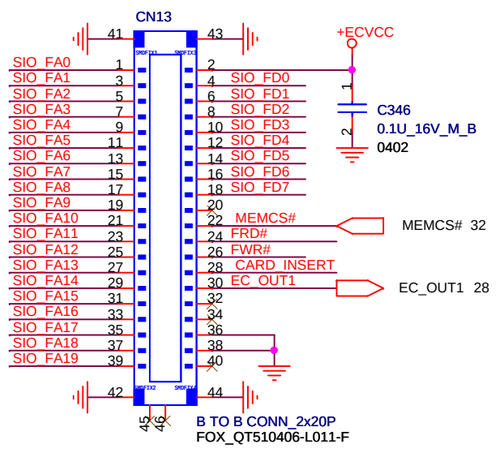
32 SIO_FD[7..0]




# BIOS ROM




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

Title: **Flash ROM/X-Bus CONN**

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 33 of 56

# WWAN FOR MS60-L ONLY !!

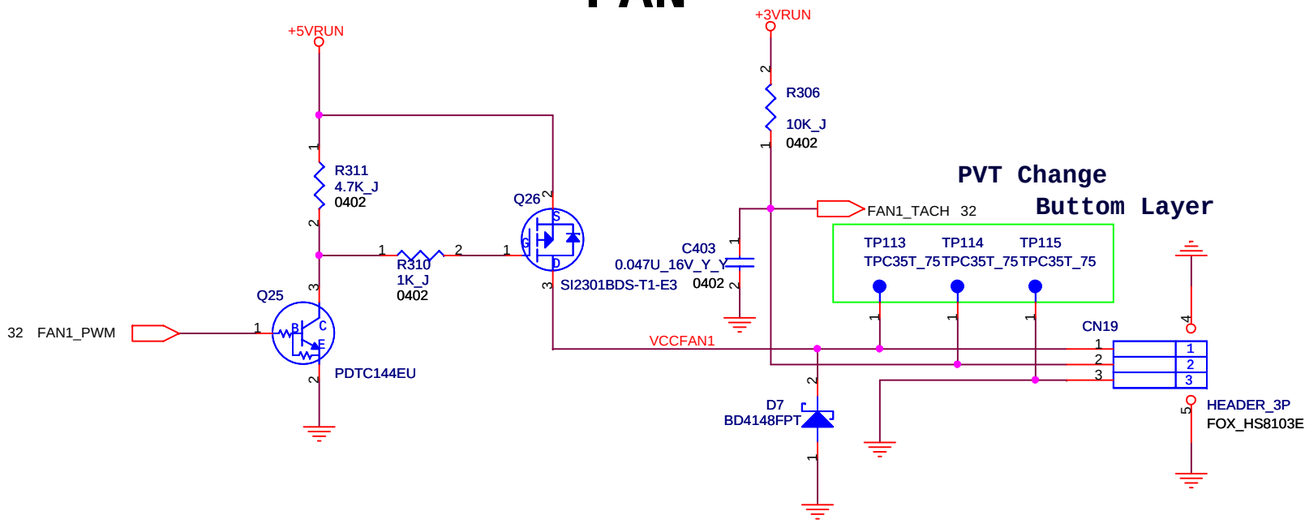
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: ***WWAN***

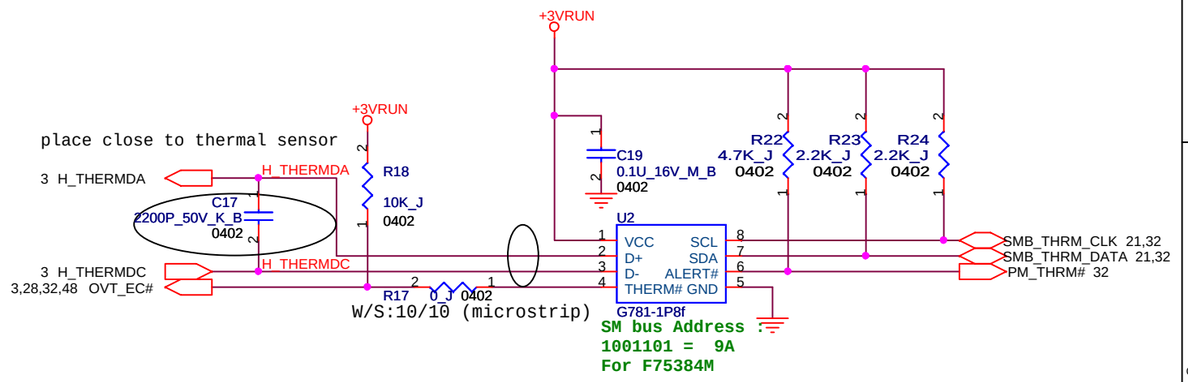
| Size | Document Number | Rev |
|---|---|---|
| Custom | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 34 of 56

# FAN

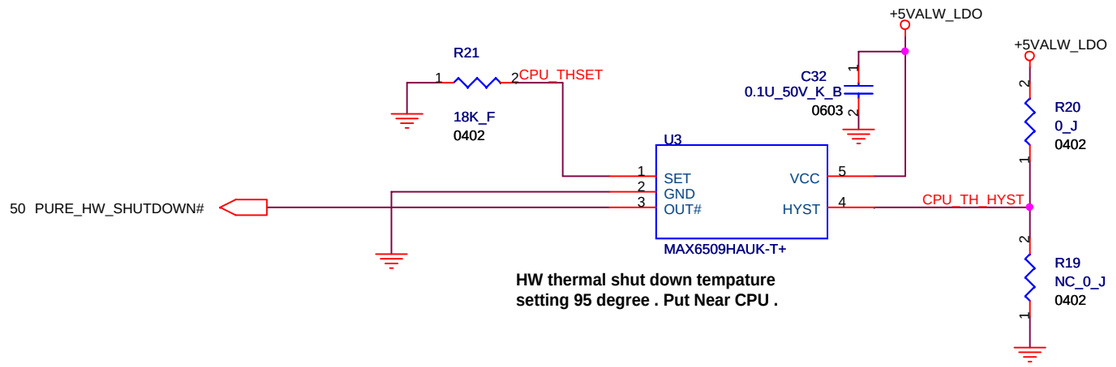



# CPU SENSOR




**Place Thermal-Sensor near CPU & GMCH.**

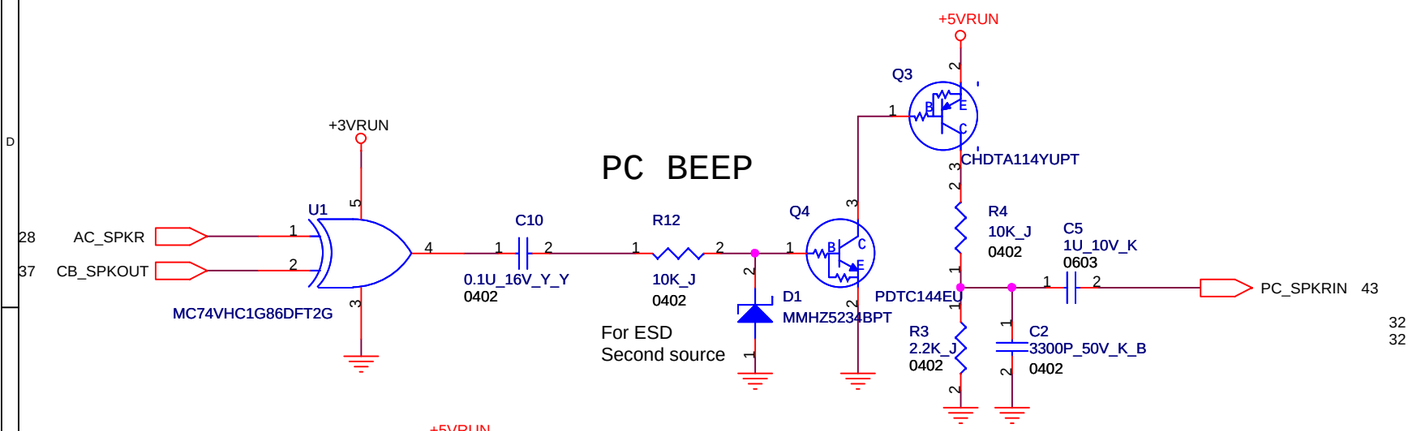
# HW THERMAL PROTECTION



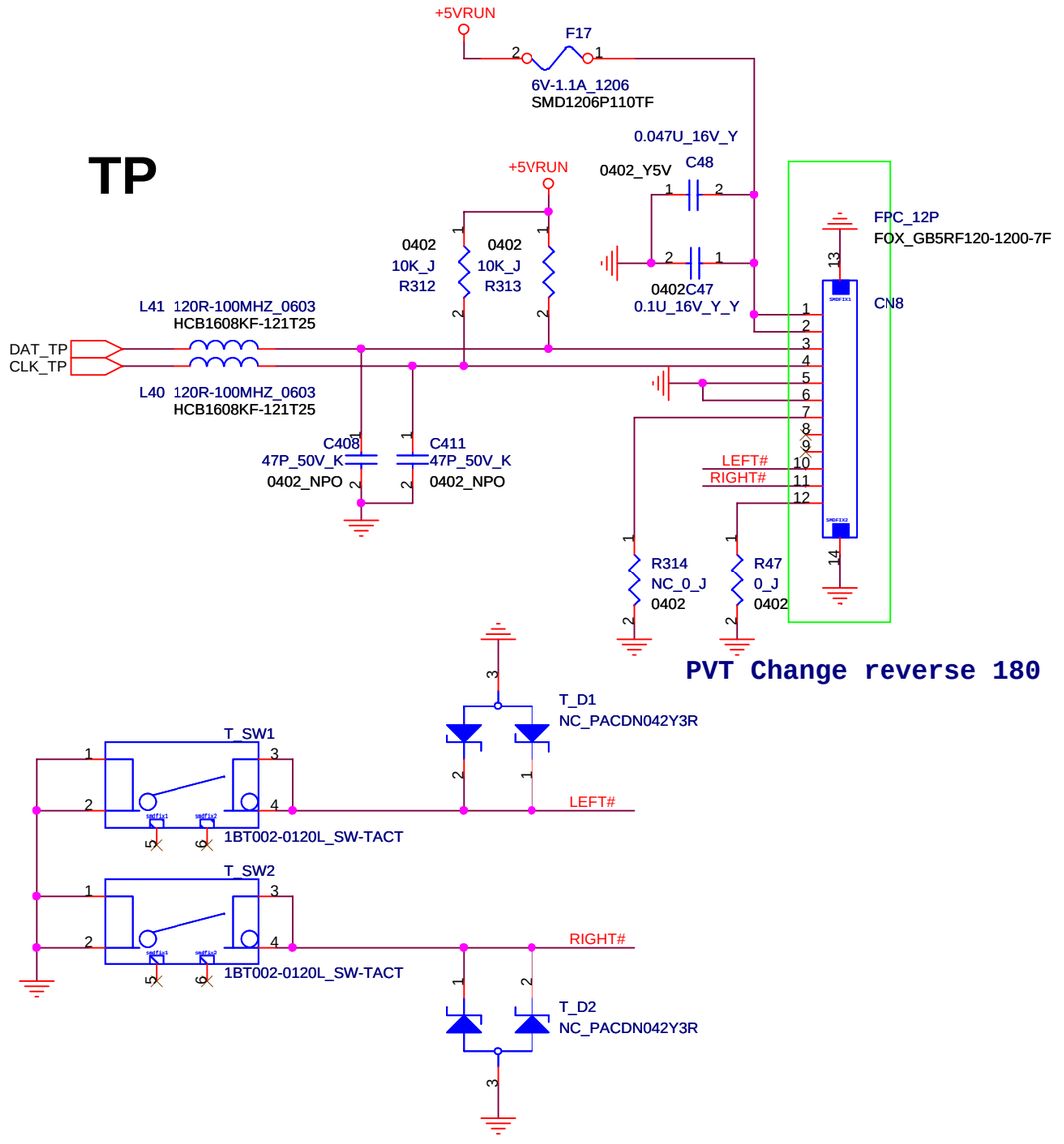

**HW thermal shut down tempature setting 95 degree . Put Near CPU .**

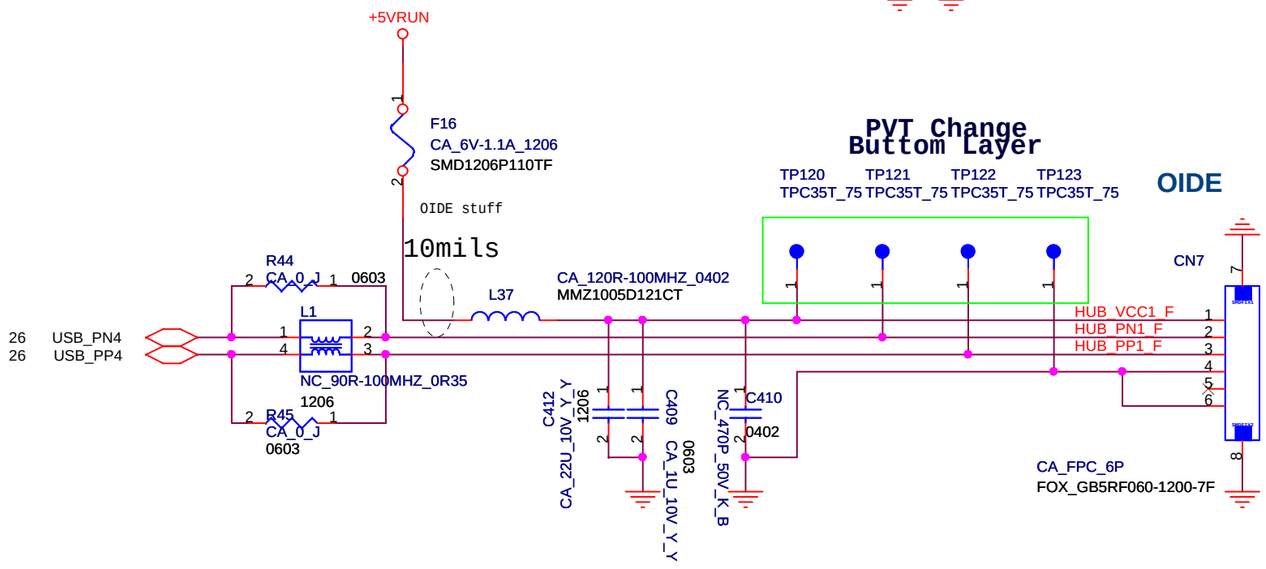
| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title: *FAN/HW THERMAL PROTECT* | | |
| Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 35 of 56 | |

# PC BEEP

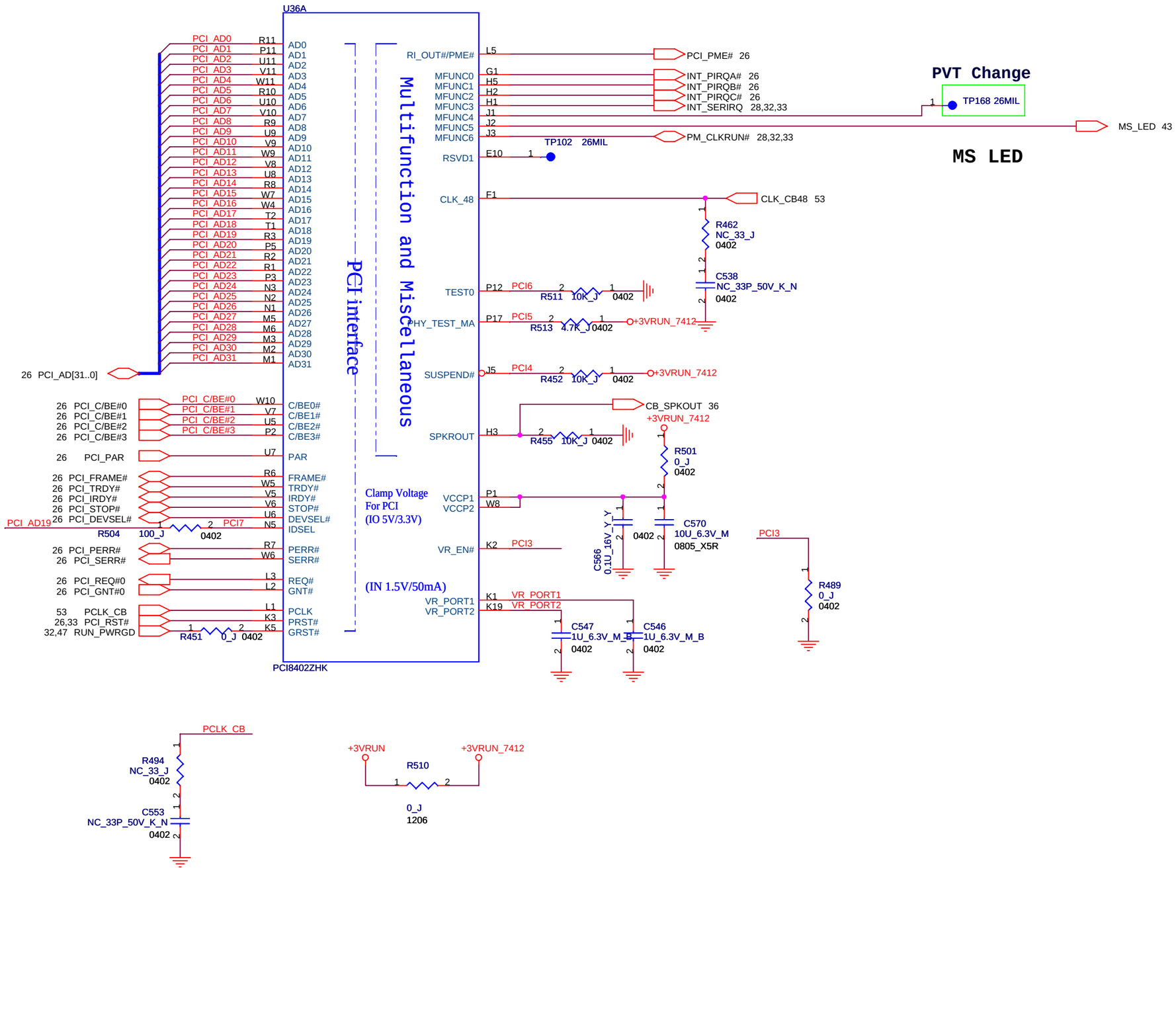



# TP




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title: ***OIDE/TP*** | | |
| Size: Custom | Document Number: **MS60-1-01 (MBX-159)** | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 36 of 56 | |




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | *PCI (PCI BUS)* | |
| Size A3 | Document Number **MS60-1-01 (MBX-159)** | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 37 of 56 | |

# iLink CONN.

**This array must be placed close to AVDD(Pin P13,P14,U15) They must be tied to a low-impedance GND.**

**Close to IC**

**This capacitor should be placed between Pin P15 and Pin R17 .**

This capacitor must be placed to IC pin

Resistors should be placed on the SCL and SDA terminals

**Place near PCI8402**

**5/9 Add test Pad**

**Change to NC**

**L: R/W**
**H: Read only**

IEEE 1394a

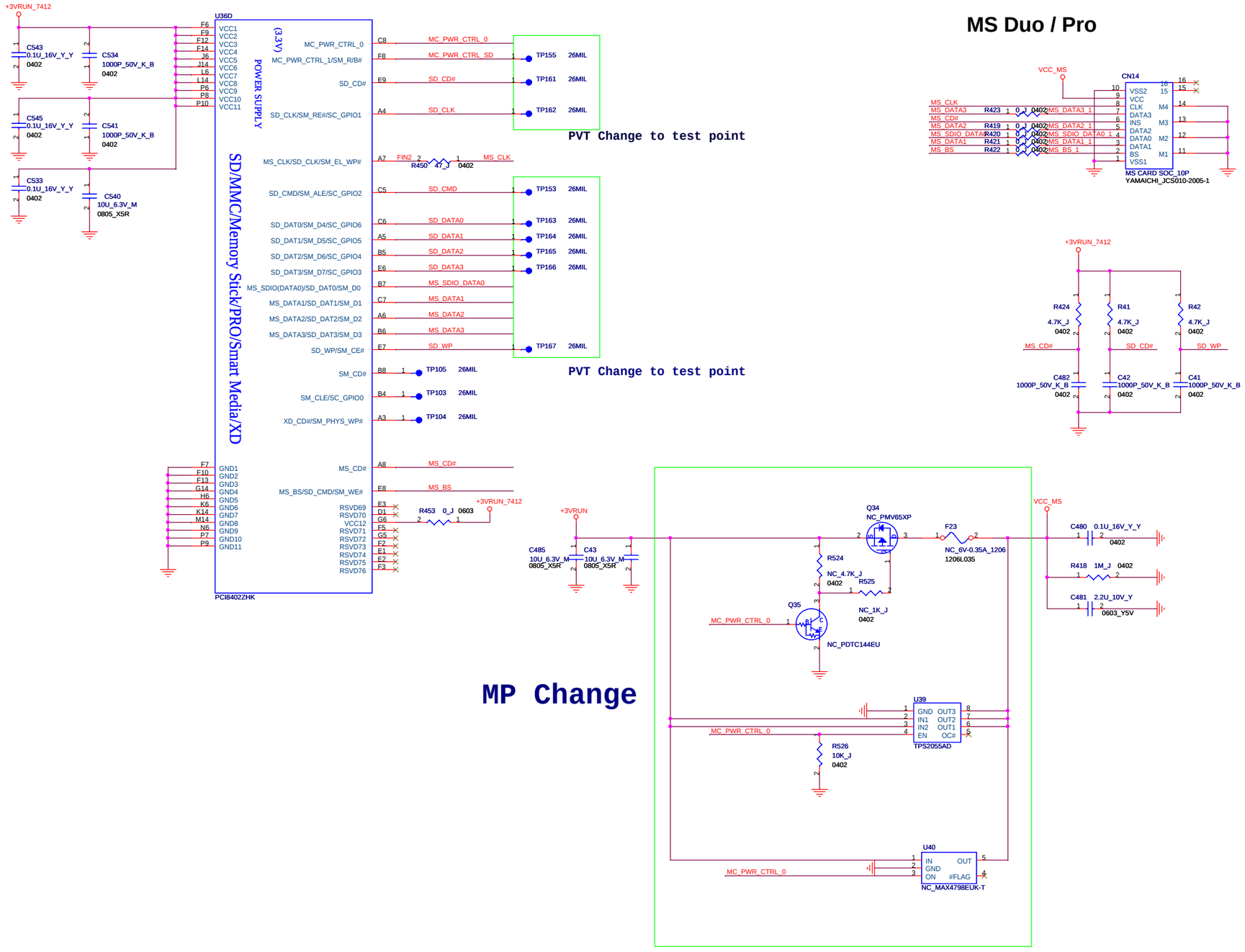
PCI8402ZHK

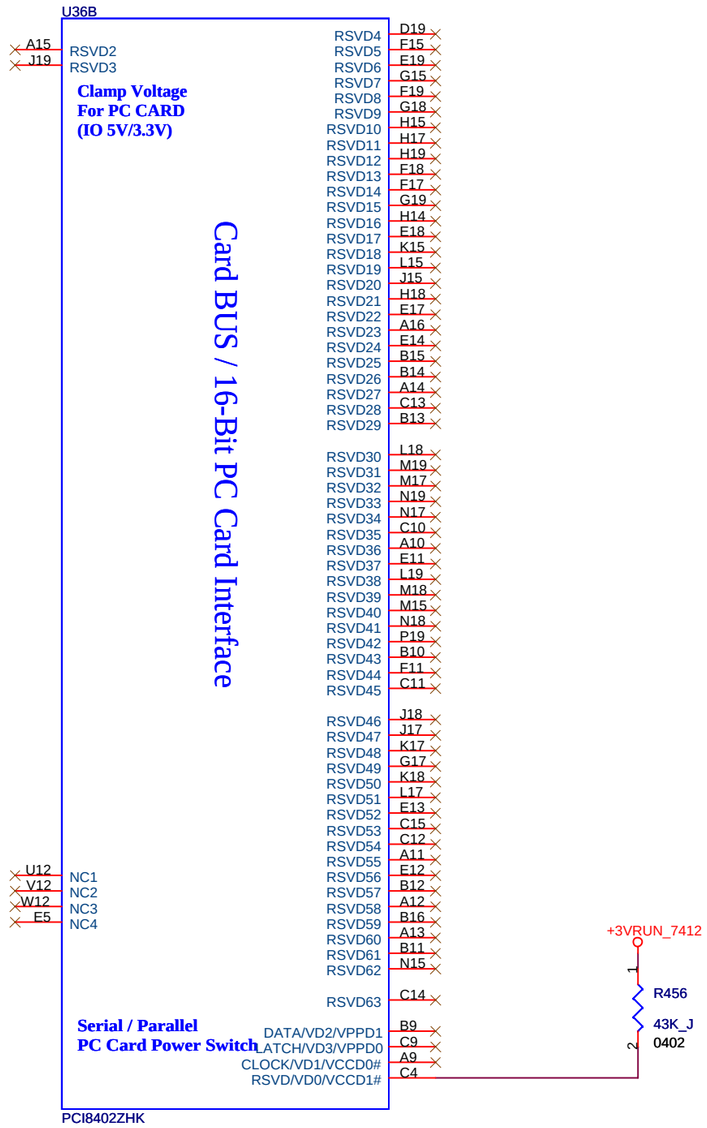
24.576MHZ_16P_30PPM
ITTI_L5030-24.576-16

EEPROM_SOP-8_256x8
HT24LC02

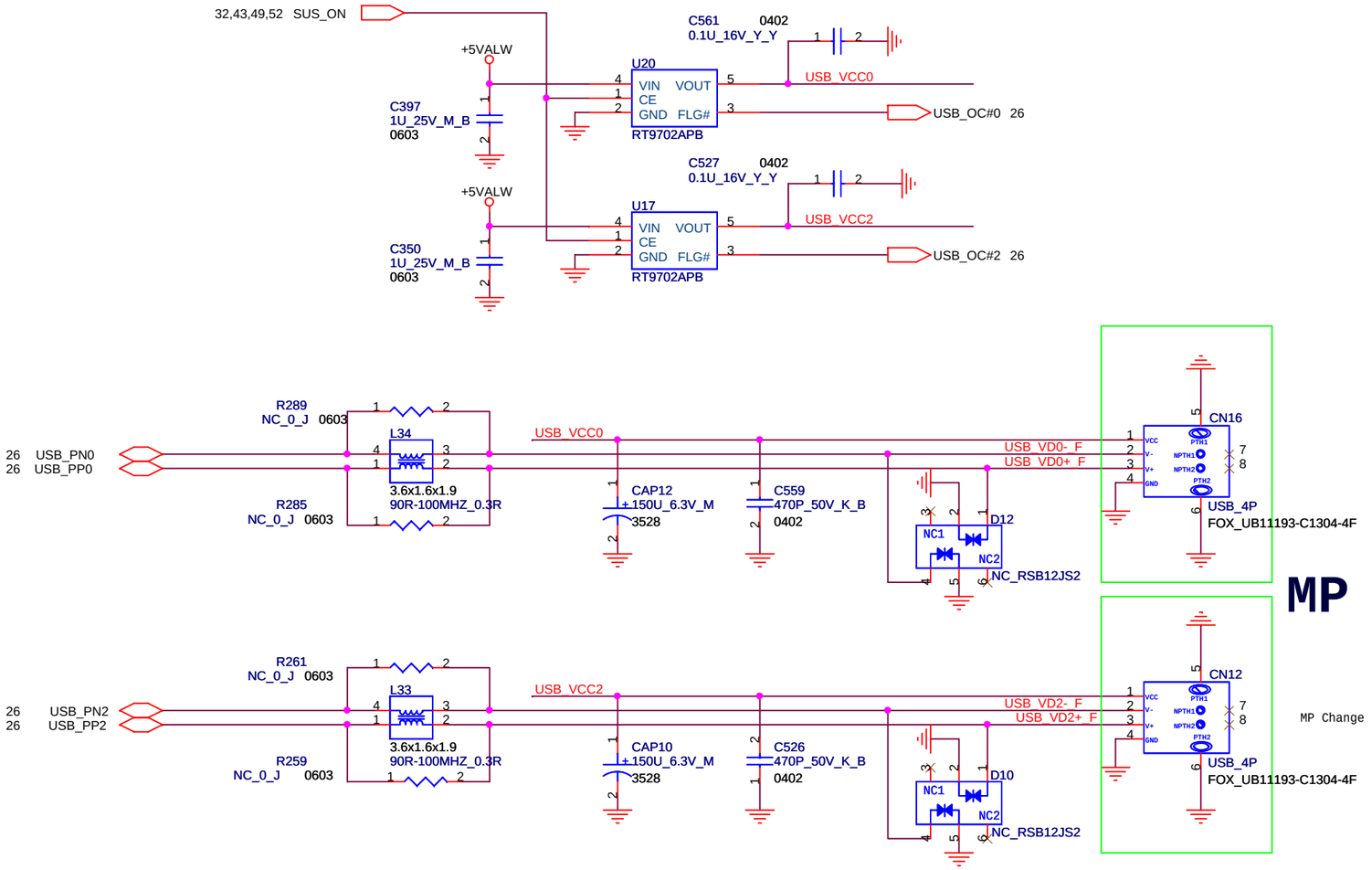
FOX_UV31413-WS23P-7F
1394_4P

| | | | |
|---|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | | |
| Title | PCI ( ILINK) | | |
| Size A3 | Document Number MS60-1-01 (MBX-159) | | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 38 of 56 | | |


+3VRUN_7412
U36D
PCI8402ZHK
SD/MMC/Memory Stick/PRO/Smart Media/XD
POWER SUPPLY
(3.3V)
VCC1
VCC2
VCC3
VCC4
VCC5
VCC6
VCC7
VCC8
VCC9
VCC10
VCC11
GND1
GND2
GND3
GND4
GND5
GND6
GND7
GND8
GND9
GND10
GND11
C543 0.1U_16V_Y_Y 0402
C534 1000P_50V_K_B 0402
C545 0.1U_16V_Y_Y 0402
C541 1000P_50V_K_B 0402
C533 0.1U_16V_Y_Y 0402
C540 10U_6.3V_M 0805_X5R
MC_PWR_CTRL_0
MC_PWR_CTRL_1/SM_R/B#
SD_CD#
SD_CLK/SM_RE#/SC_GPIO1
MS_CLK/SD_CLK/SM_EL_WP#
SD_CMD/SM_ALE/SC_GPIO2
SD_DAT0/SM_D4/SC_GPIO6
SD_DAT1/SM_D5/SC_GPIO5
SD_DAT2/SM_D6/SC_GPIO4
SD_DAT3/SM_D7/SC_GPIO3
MS_SDIO(DATA0)/SD_DAT0/SM_D0
MS_DATA1/SD_DAT1/SM_D1
MS_DATA2/SD_DAT2/SM_D2
MS_DATA3/SD_DAT3/SM_D3
SD_WP/SM_CE#
SM_CD#
SM_CLE/SC_GPIO0
XD_CD#/SM_PHYS_WP#
MS_CD#
MS_BS/SD_CMD/SM_WE#
RSVD69
RSVD70
VCC12
RSVD71
RSVD72
RSVD73
RSVD74
RSVD75
RSVD76
MC_PWR_CTRL_0
SD_CD#
SD_CLK
TP155 26MIL
TP161 26MIL
TP162 26MIL
FIN2
R450 47_J 0402
MS_CLK
SD_CMD
SD_DATA0
SD_DATA1
SD_DATA2
SD_DATA3
TP153 26MIL
TP163 26MIL
TP164 26MIL
TP165 26MIL
TP166 26MIL
MS_SDIO_DATA0
MS_DATA1
MS_DATA2
MS_DATA3
SD_WP
TP167 26MIL
TP105 26MIL
TP103 26MIL
TP104 26MIL
MS_CD#
MS_BS
R453 0_J 0603
+3VRUN_7412
PVT Change to test point
PVT Change to test point
MS Duo / Pro
VCC_MS
CN14
VSS2
VCC
CLK
DATA3
INS
DATA2
DATA0
DATA1
BS
VSS1
M4
M3
M2
M1
MS CARD SOC_10P
YAMAICHI_JCS010-2005-1
MS_CLK
MS_DATA3
MS_CD#
MS_DATA2
MS_SDIO_DATA0
MS_DATA1
MS_BS
R423 0_J 0402
R419 0_J 0402
R420 0_J 0402
R421 0_J 0402
R422 0_J 0402
MS_DATA3_1
MS_DATA2_1
MS_SDIO_DATA0_1
MS_DATA1_1
MS_BS_1
+3VRUN_7412
R424 4.7K_J 0402
R41 4.7K_J 0402
R42 4.7K_J 0402
MS_CD#
SD_CD#
SD_WP
C482 1000P_50V_K_B 0402
C42 1000P_50V_K_B 0402
C41 1000P_50V_K_B 0402
MP Change
+3VRUN
C485 10U_6.3V_M 0805_X5R
C43 10U_6.3V_M 0805_X5R
Q34
NC_PMV65XP
F23
NC_6V-0.35A_1206
1206L035
VCC_MS
C480 0.1U_16V_Y_Y 0402
R524
NC_4.7K_J 0402
R525
NC_1K_J 0402
R418 1M_J 0402
C481 2.2U_10V_Y 0603_Y5V
Q35
MC_PWR_CTRL_0
NC_PDTC144EU
U39
GND
IN1
IN2
EN
OUT3
OUT2
OUT1
OC#
TPS2055AD
R526 10K_J 0402
U40
IN
GND
ON
OUT
#FLAG
NC_MAX4798EUK-T

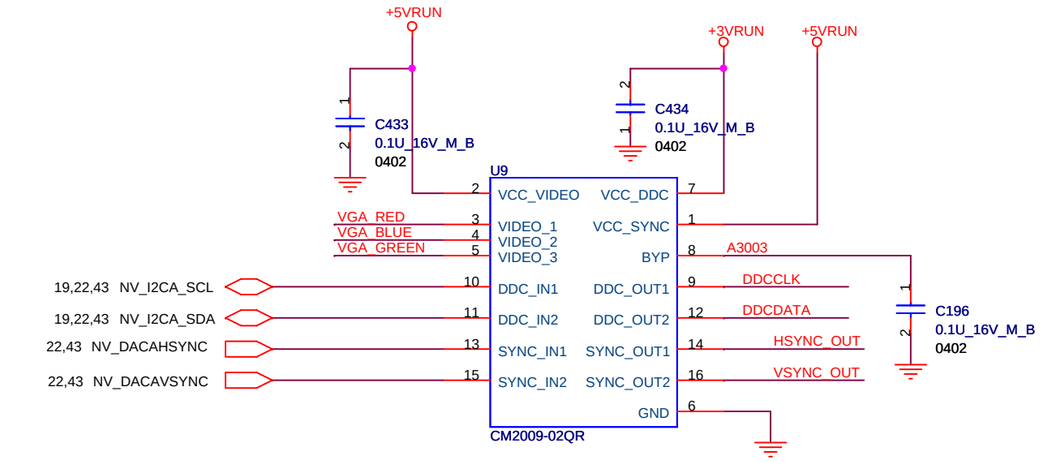


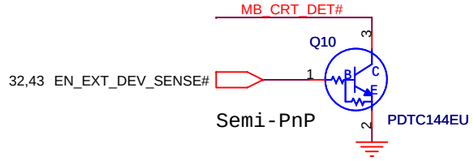

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title | ***PCI ( PCMCIA)*** | |
| Size<br>A3 | Document Number<br>**MS60** | Rev<br>0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 40 of 56 | |

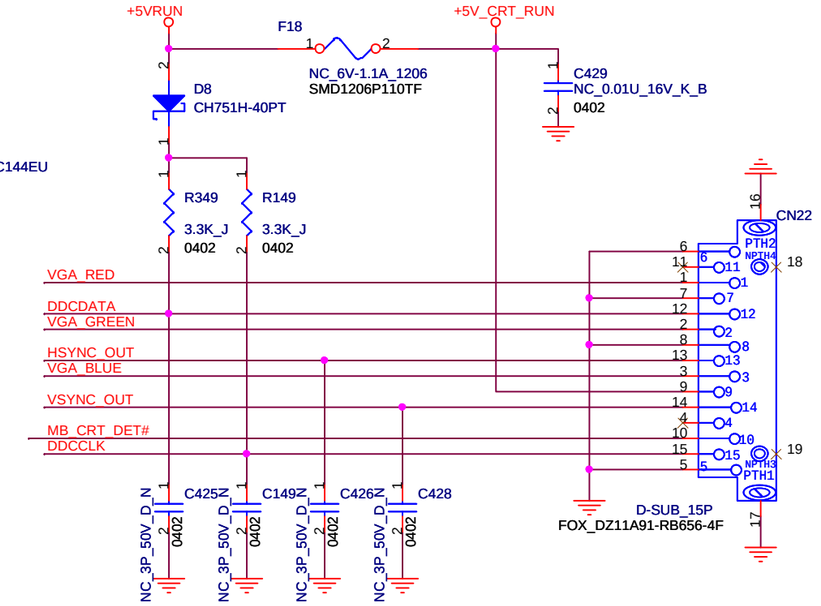


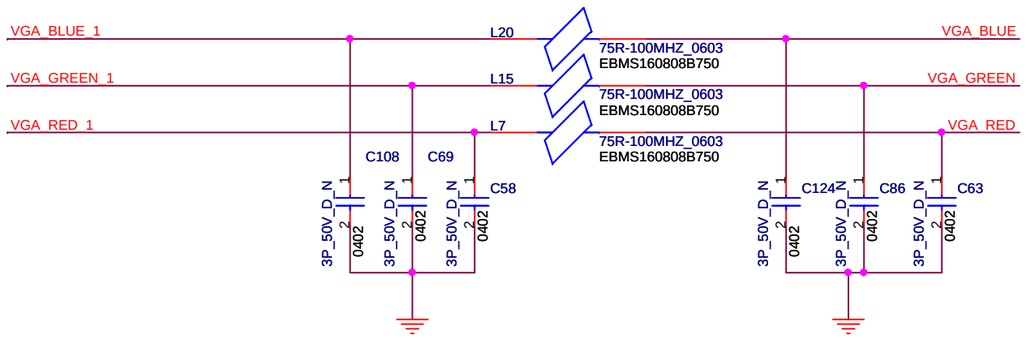

**MP Change**

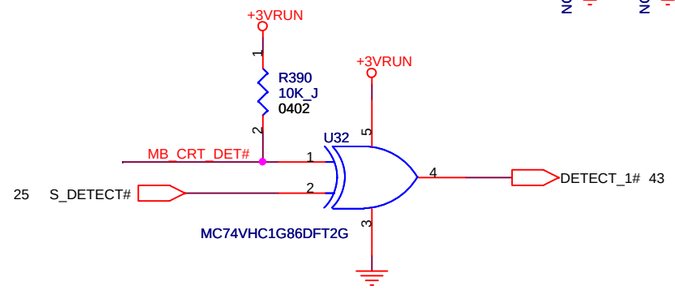
| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title | ***USB2.0/DOCKING CONN.*** | |
| Size A3 | Document Number **MS60-1-01 (MBX-159)** | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 41 of 56 | |

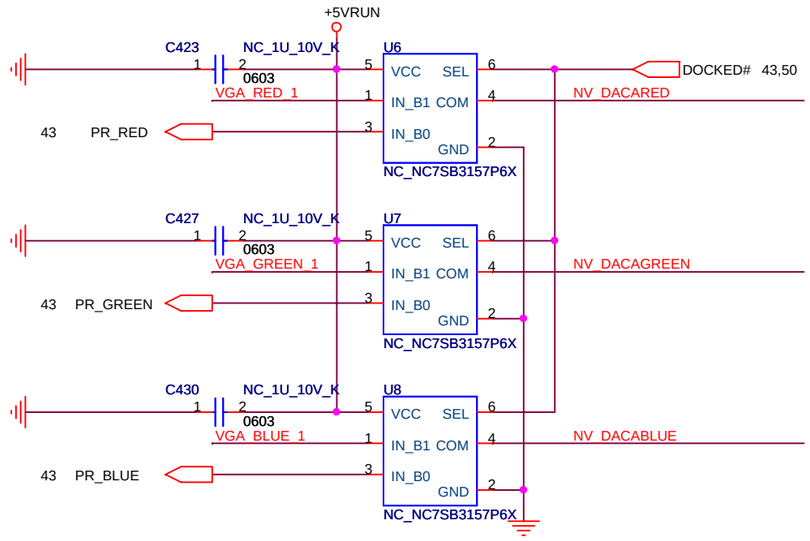


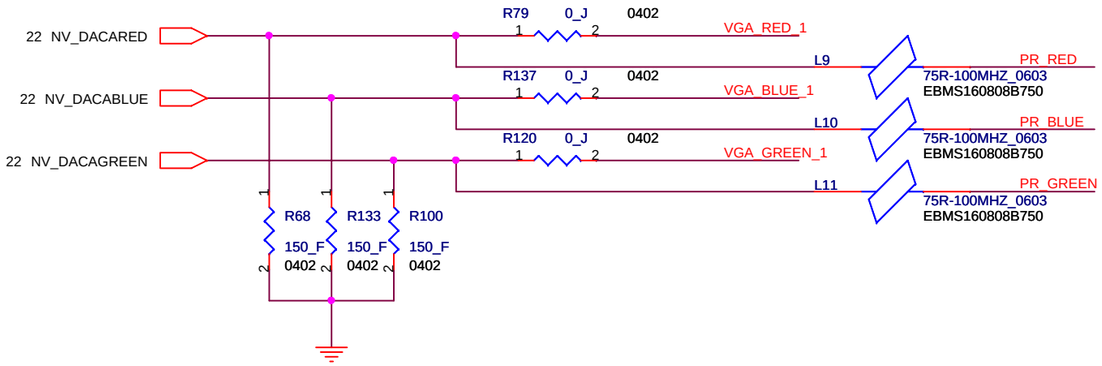



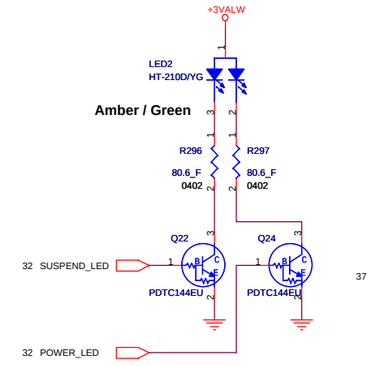



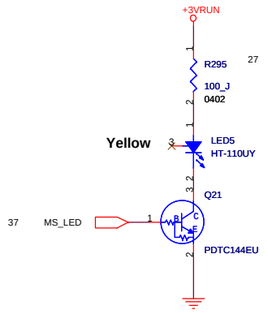



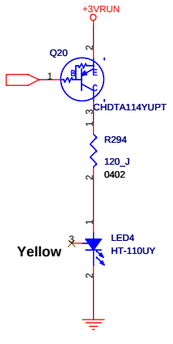



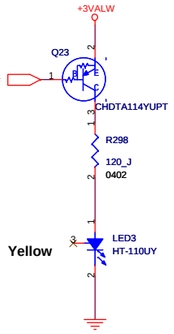



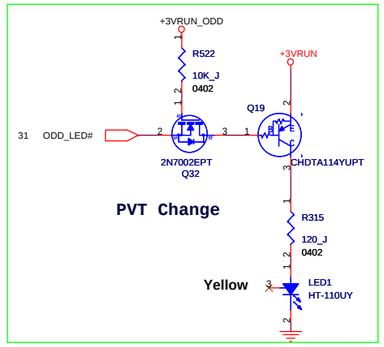

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD.<br>CPBG - R&D Division | |
| Title: CRT | | |
| Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 42 of 56 | |

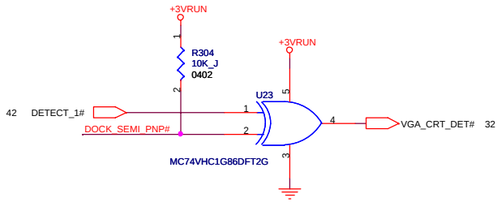


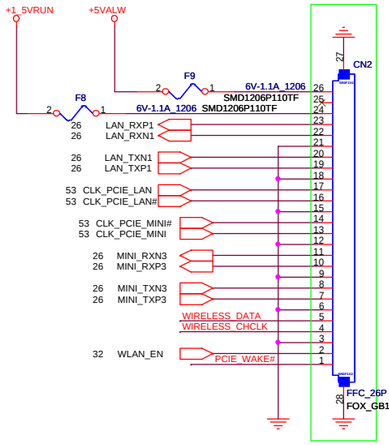



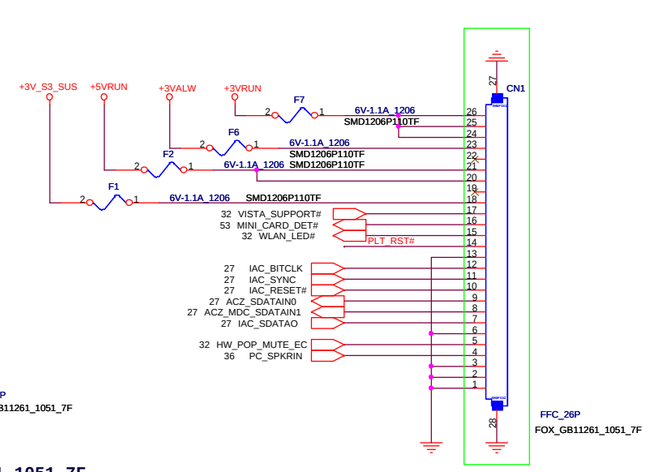



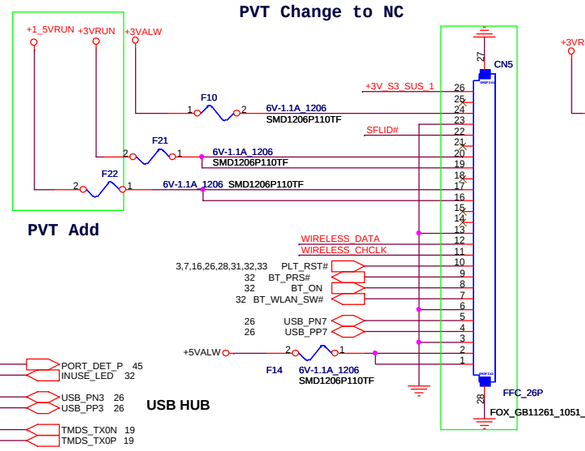




PVT Change to GB11261_1051_7F

PVT Change to NC

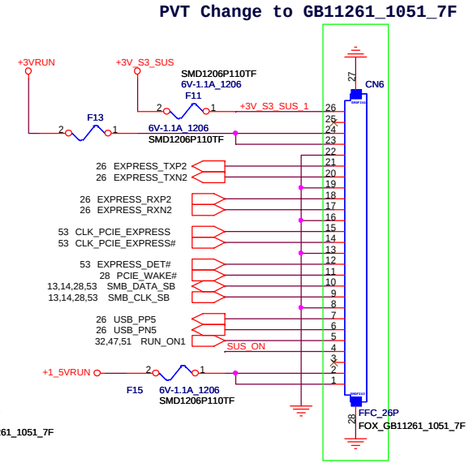



PVT Change to GB11261_1051_7F

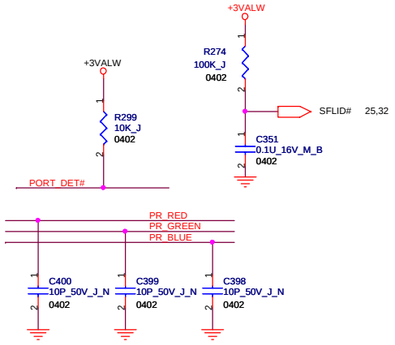


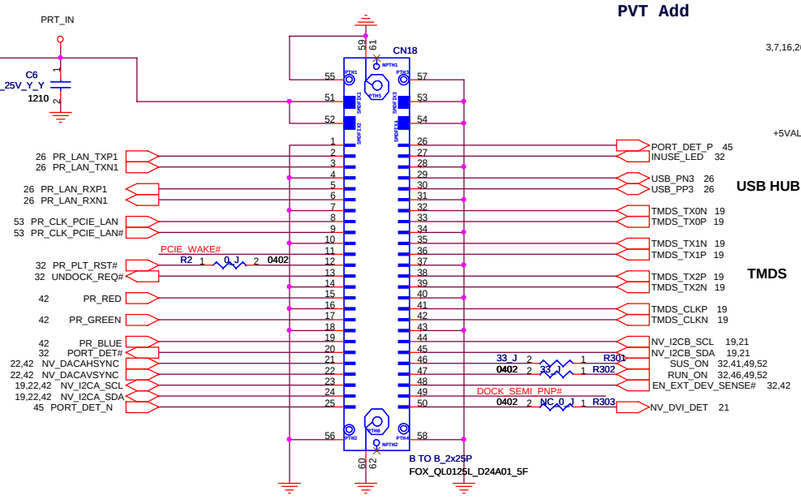

USB HUB

PVT Change to GB11261_1051_7F

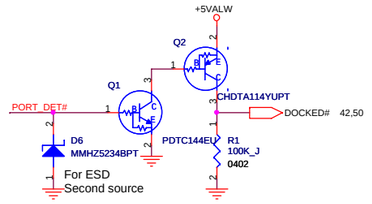



PVT Change to GB11261_1051_7F




TMDS




# Replicator Port

| | | | |
|---|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | | |
| Title | DB CONN & LED | | |
| Size A2 | Document Number MS60-1-01 (MBX-159) | | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | | Sheet 43 of 56 | |

Adaptor

19.5V / 90W

DCBATOUT

MAXIM

MAX8734

Switch Mode

FOR System

ON5

ON3

LDO5

LDO3

PGOOD

32,45,46 ALW_ON

ALW_ON

+5VALW/6A

32,43,46,49,52 RUN_ON

N-Channel transistor

+5VRUN/5.3A

+3VALW/6A

+5VALW_LDO

+ECVCC

ALW_PWRGD 28,32,46

SUS_ON

N-Channel transistor

+3VSUS/1.5A

RUN_ON

N-Channel transistor

+3VRUN/5.5A

RUN_ON

G923

LDO

+2_5VRUN/200mA

MAXIM

MAX1909

Battery Charger

Switch Mode

ENCHG#

DCBATOUT

MAXIM

MAX8743

Switch Mode

FOR System

ON1

ON2

PGOOD

32,43,47,51 RUN_ON1

+1_05VRUN/8A

+1_5VRUN/6.5A

RUN_PWRGD 32,37,47

RUN_ON1

GMT966

LDO

PEX_VDD(1.2V)/0.9A

MAX1616EUK+

LDO

32,41,43,49,52 SUS_ON

+8V For Load switch/30mA

DCBATOUT

INTERSIL

ISL6262

Switch Mode

FOR CPU Core

VR_ON

CLKEN#

PGOOD

32,48 IMVP_VR_ON

CLK_EN# 48,53

IMVP_OK 28,32,48

VHCORE/36A

DCBATOUT

SEMTECH

SC486

Switch Mode

1_8V_EN

0_9V_EN

EN/PSV

VTTEN

PGOOD

+1_8VSUS/14A

32,49 RUN_ON2

N-Channel MOSFET

+1_8VRUN/2A

+0_9VRUN/3A

Battery

BPS2A

Li-ion

12.6V

4800mAH

SEMTECH

SC411

Switch Mode

RUN_ON1

EN/PSV

NV_VDD(1.1V)/10A

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

Title: Power Design Diagram

Size: A3 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 44 of 56

7A

10A

10A

1.5A

7A

PVT Change

PVT add

PVT Change

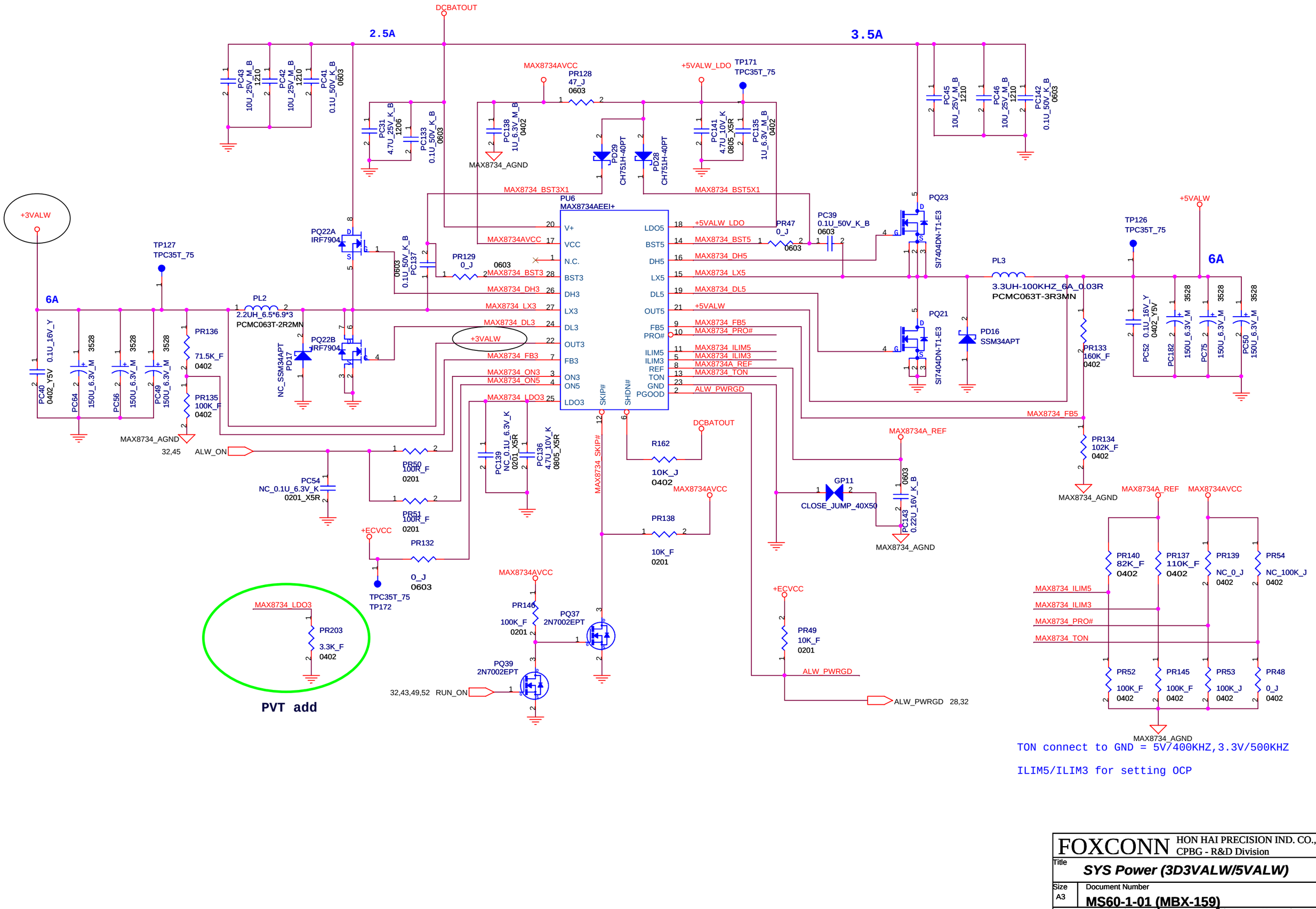
PVT Change

PVT Change.

for DC_IN trace and close to PC8.PD1.PC7.PQ6. separetely.

Iin=(0.075/RS1)*(Vcls/Vref) ==> Iin=3.57A

| | |
|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division |
| Title | DC_IN/CHARGER(MAX1909) |
| Size: Custom | Document Number: MS60-1-01 (MBX-159) |
| Rev | 0.30 |
| Date: | Wednesday, October 04, 2006 |
| Sheet | 45 of 56 |



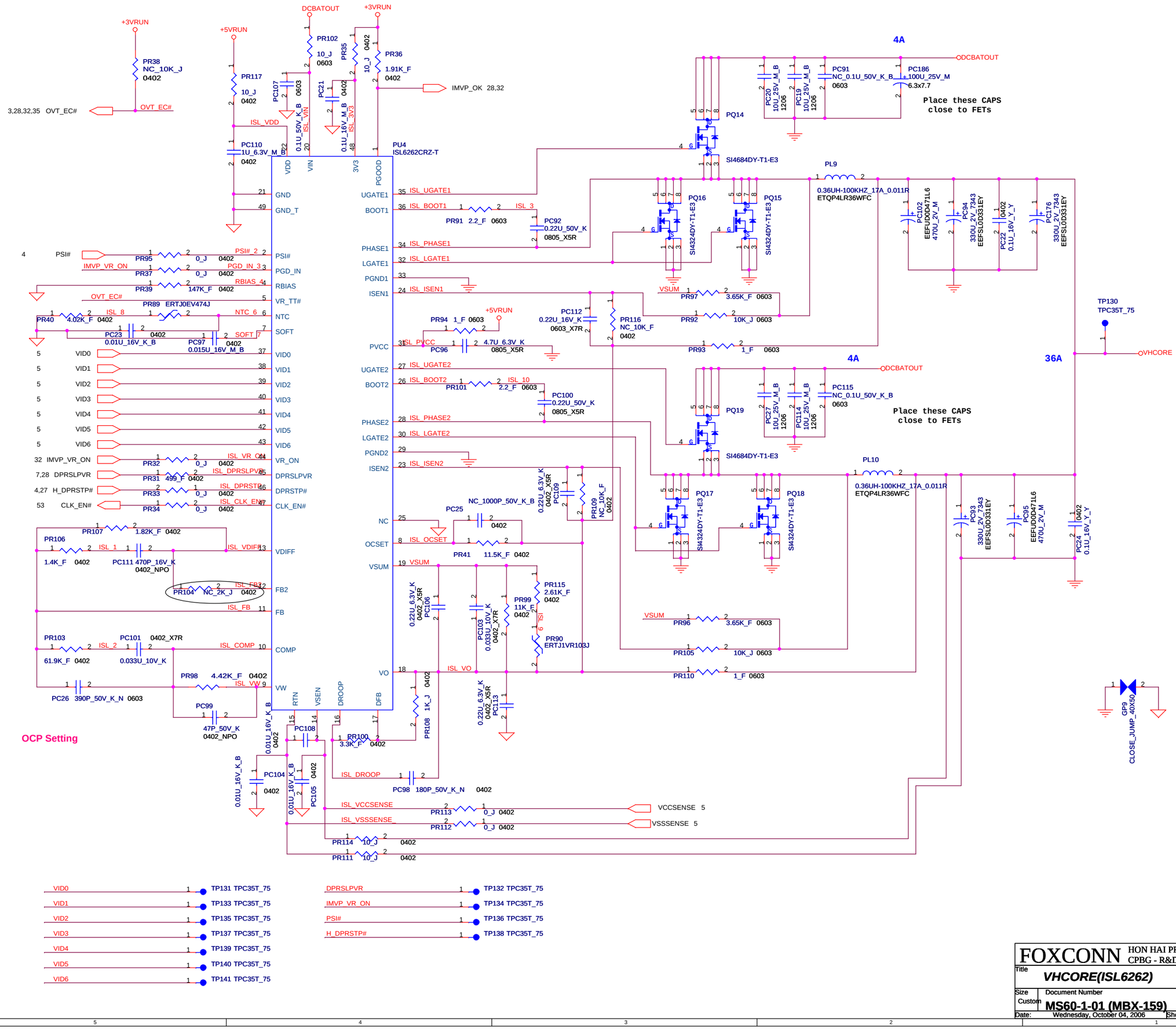

FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: SYS Power (3D3VALW/5VALW)

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 46 of 56

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | *SYSPower(+1_5VRUN/+1_05VRUN)* | |
| Size A3 | Document Number **MS60-1-01 (MBX-159)** | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 47 of 56 | |

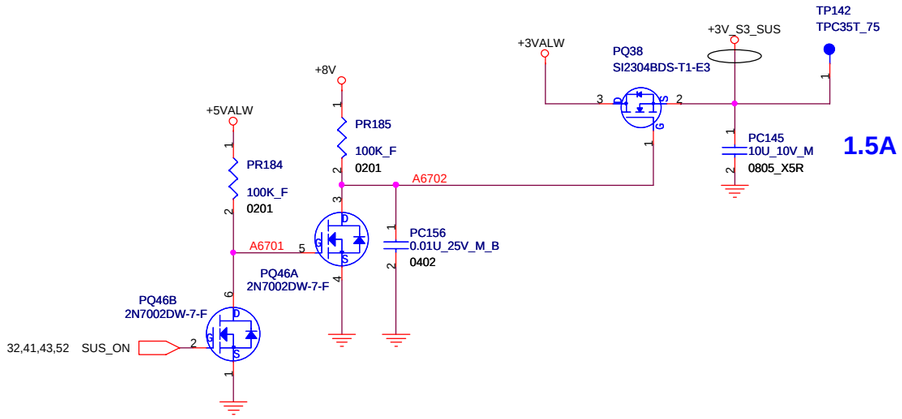


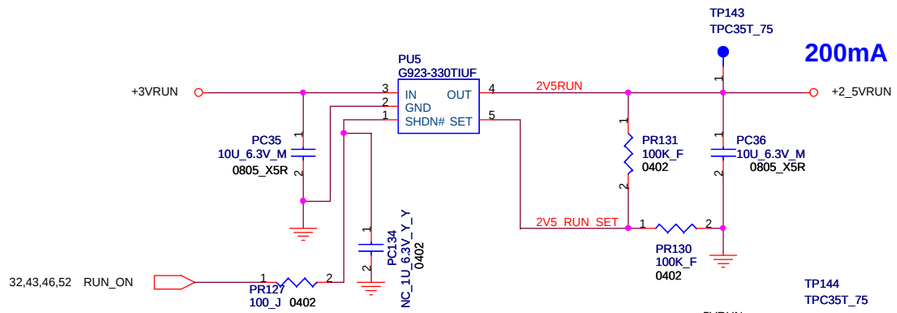

FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

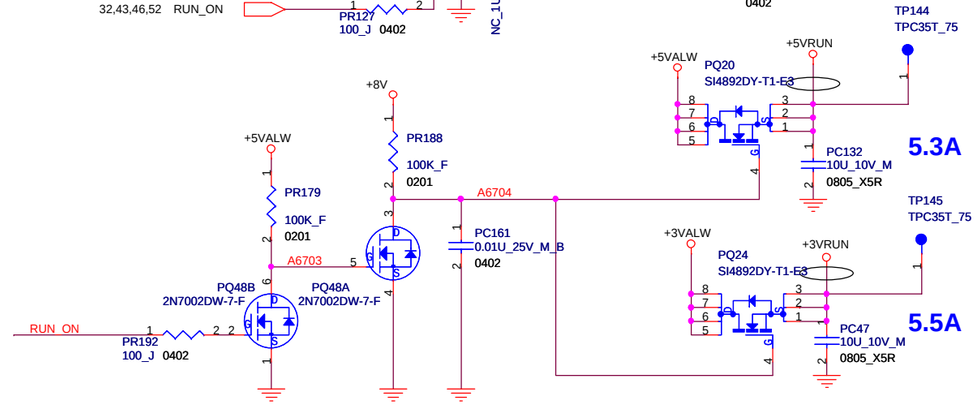
Title: *VHCORE(ISL6262)*

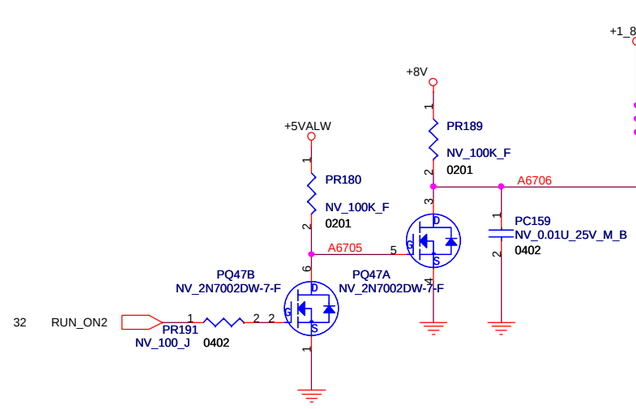
Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 48 of 56

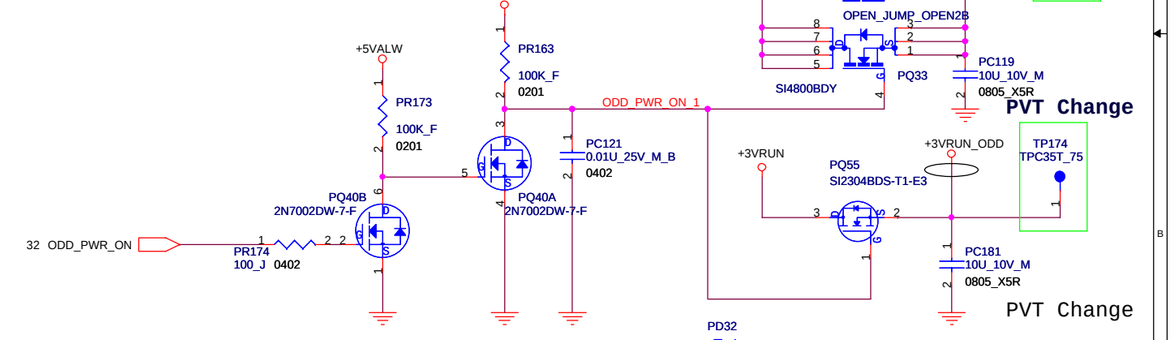


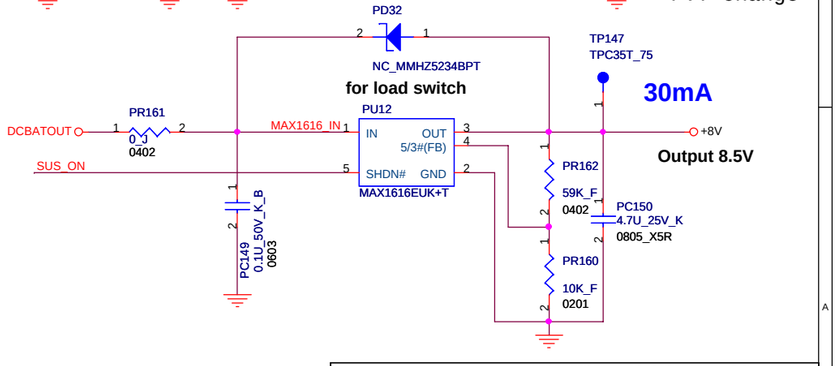



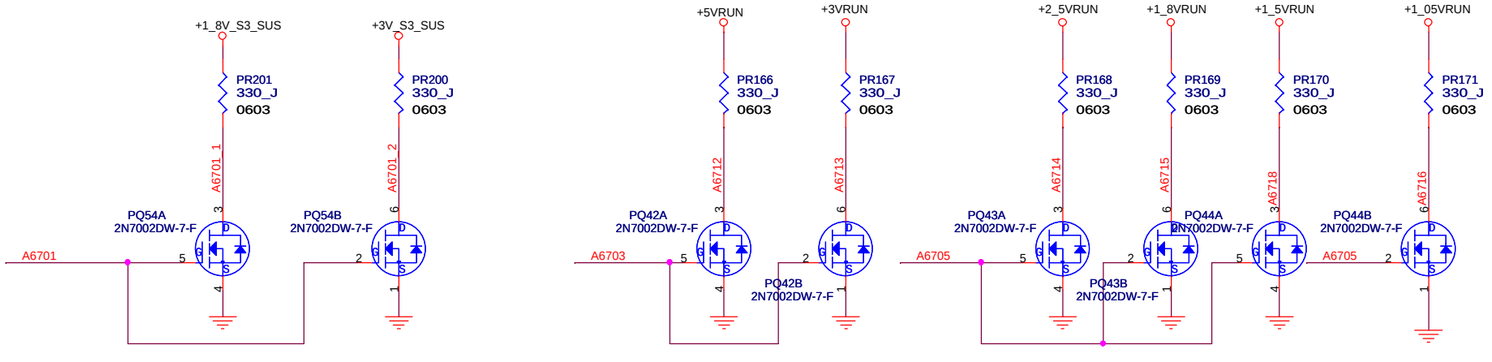



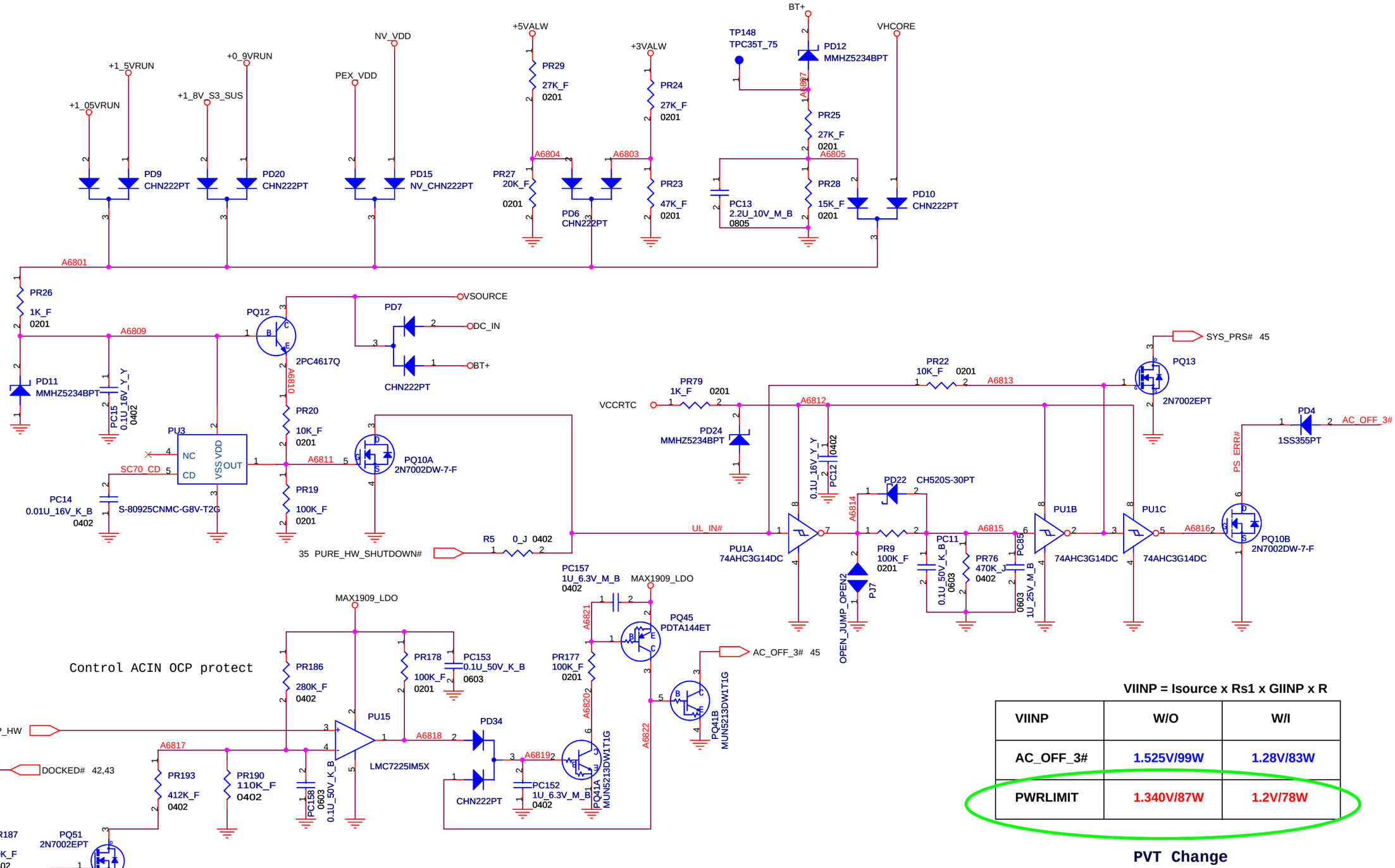

**Discharge circuit for power-off**




| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | *Other power plan-ZG* | |
| Size: Custom | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 49 of 56 | |




Control ACIN OCP protect

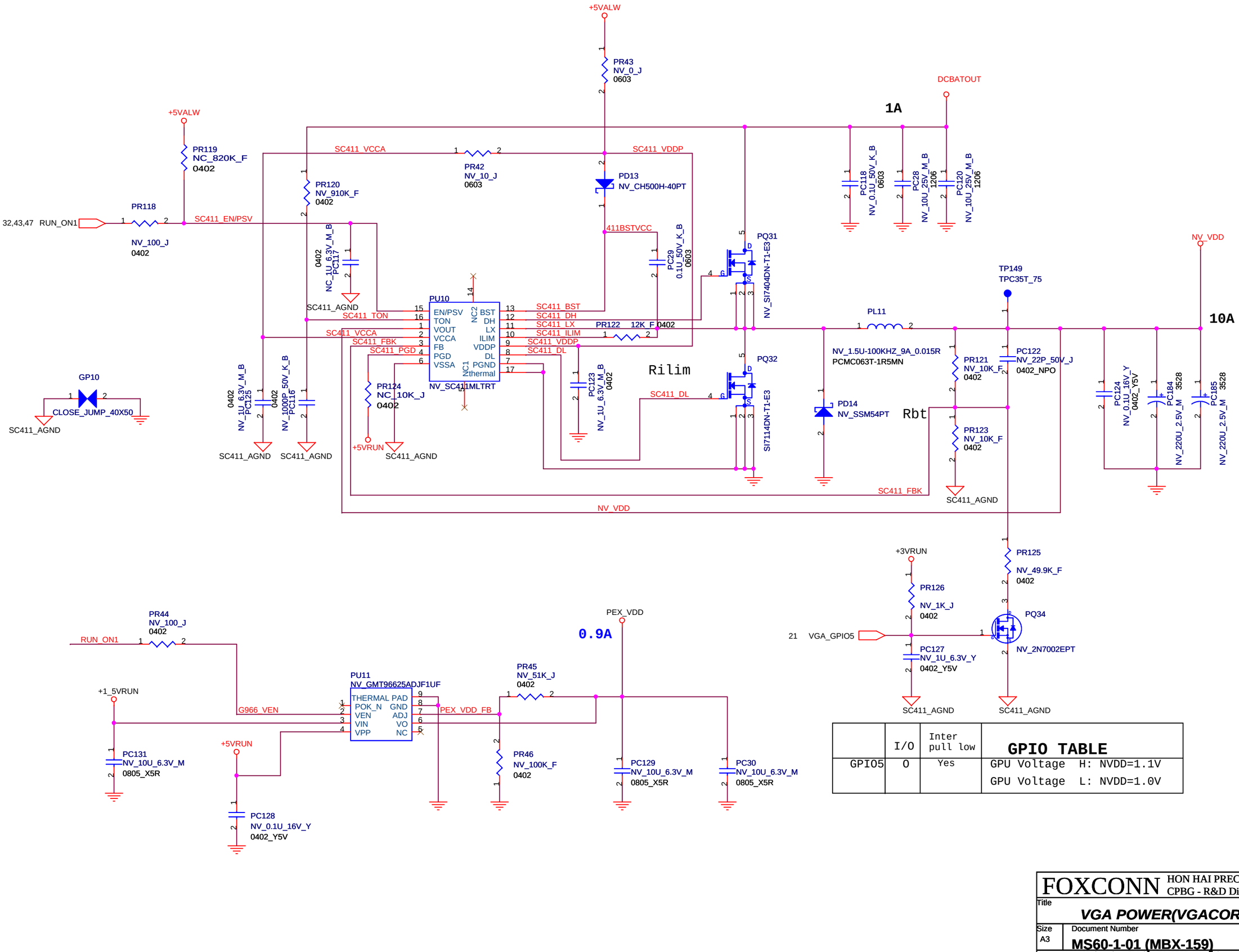
PVT Change

VIINP = Isource x Rs1 x GIINP x R

| VIINP | W/O | W/I |
|---|---|---|
| AC_OFF_3# | 1.525V/99W | 1.28V/83W |
| PWRLIMIT | 1.340V/87W | 1.2V/78W |

PVT Change

| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title | OVP protection-ZG | |
| Size A3 | Document Number MS60-1-01 (MBX-159) | Rev 0.30 |
| Date: Wednesday, October 04, 2006 | Sheet 50 of 56 | |



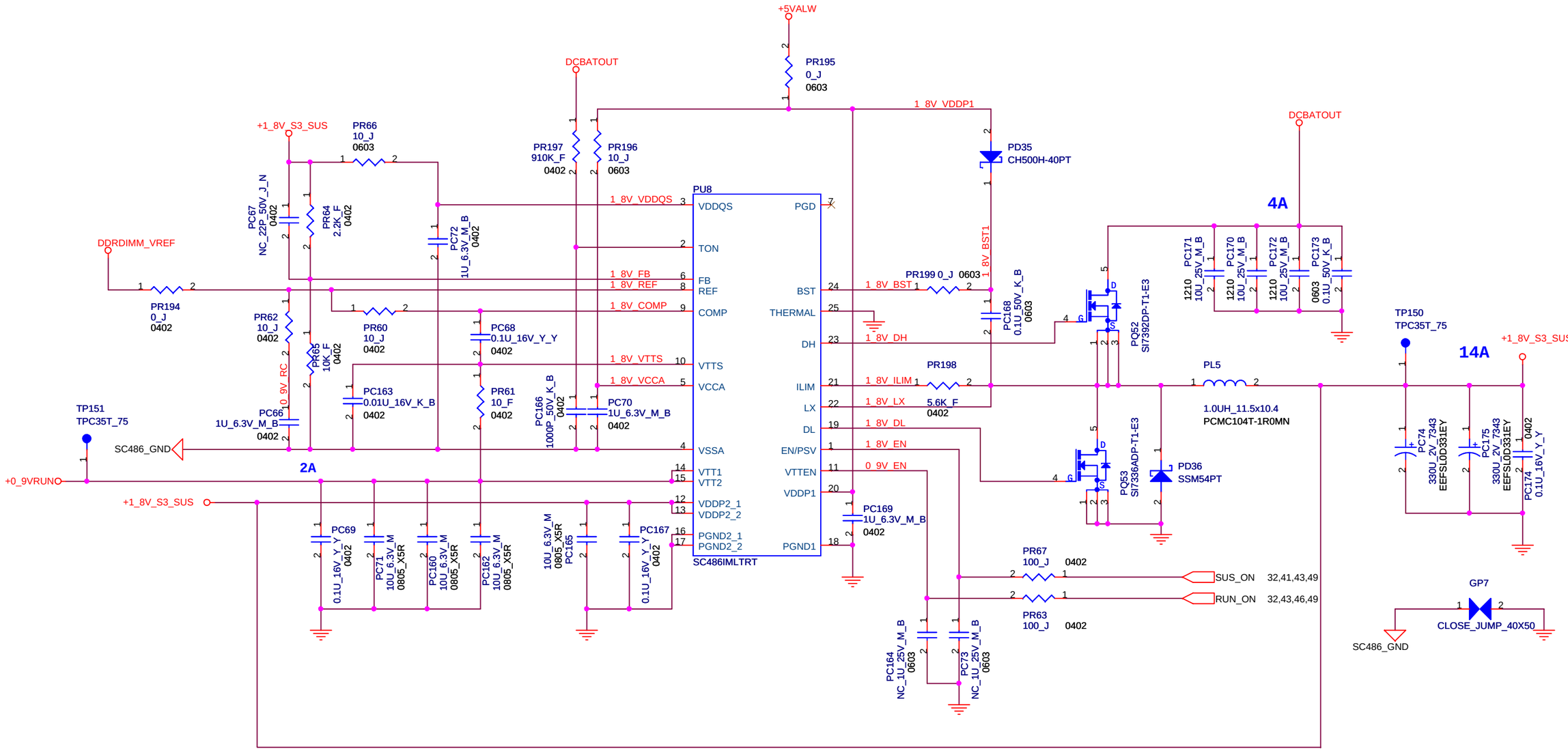

| | I/O | Inter pull low | GPIO TABLE |
|---|---|---|---|
| GPIO5 | O | Yes | GPU Voltage H: NVDD=1.1V<br>GPU Voltage L: NVDD=1.0V |

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

Title: *VGA POWER(VGACORE&IO)*

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS60-1-01 (MBX-159) | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 51 of 56




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

Title: ***DDR2Power(+1_8V_S3_SUS/+0_9VRUN)***

| Size | Document Number | Rev |
|---|---|---|
| A3 | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 52 of 56

close to clk gen (For EMI)

NC_10P_50V_E_N C459 0402 — CLK_CB48
NC_10P_50V_E_N C462 0402 — CLK_USB48
NC_10P_50V_E_N C474 0402 — CLK_KBCPCI
NC_10P_50V_E_N C473 0402 — PCLK_CB
NC_10P_50V_E_N C470 0402 — CLK_ICHPCI
NC_10P_50V_E_N C472 0402 — CLK_ICH14
NC_10P_50V_E_N C471 0402 — PCLK_JIG

Y4
ITTI_L5030-14.31818-20
14.318MHZ_20P_30PPM
C467 33P_50V_J_N
C469 33P_50V_J_N

Length as short as possible.

U29
ICS9LPR321BKLF

| | | | |
|---|---|---|---|
| 3 | VDD48 | | |
| 9 | VDDLCD | | |
| 17 | VDDSRC_1 | | |
| 39 | VDDCPU_1 | | |
| 26 | VDDSRC_2 | | |
| 34 | VDDSRC_3 | | |
| 43 | VDDCPU_2 | | |
| 48 | VDDREF | | |
| 61 | VDDPCI | | |
| 50 | X1 | U2_XTALIN | |
| 49 | X2 | U2_XTALOUT | |
| 4 | FSLA/USB_48MHz | SELPSB0_CLK | |
| 63 | FSLB/PCICLK3 | R_CLK_BSEL1 | |
| 60 | *ITP_EN/PCICLK2 | R_CLK_KBCPCI | |
| 59 | *PLL_SEL1/PCICLK1 | R_PCLK_CB | |
| 58 | PCICLK0 | R_PCLK_JIG | |
| 64 | *PLL_SEL2/PCICLK_F1 | R_CLK_ICHPCI | |
| 46 | SCLK | | |
| 47 | SDATA | | |
| 5 | GND_1 | | |
| 10 | GND_2 | | |
| 51 | GND_3 | | |
| 62 | GND_4 | | |
| 18 | GNDSRC_1 | | |
| 21 | GNDSRC_2 | LCDCLK_SST/SRCCLKT1LP | |
| 22 | GNDSRC_3 | LCDCLK_SSC/SRCCLKC1LP | |
| 25 | GNDSRC_4 | | |
| 33 | GNDSRC_5 | 27MHz_FIX/SRCCLKT0LP | |
| 40 | GNDCPU | 27MHz_SS/SRCCLKC0LP | |
| 65 | THERMAL PAD | | |
| 32 | SRCCLKT7LP | | |
| 31 | SRCCLKC7LP | | |
| 1 | PCI_STOP# | PM_STPPCI# 28 | |
| 54 | CPU_STOP# | STP_CPU# 28 | |
| 42 | CPUCLKT1LP | R_CLK_MCH_BCLK | CLK_MCH_BCLK 6 |
| 41 | CPUCLKC1LP | R_CLK_MCH_BCLK# | CLK_MCH_BCLK# 6 |
| 45 | CPUCLKT0LP | R_CLK_CPU_BCLK | CLK_CPU_BCLK 3 |
| 44 | CPUCLKC0LP | R_CLK_CPU_BCLK# | CLK_CPU_BCLK# 3 |
| 38 | CPUCLKT2_ITP/SRCCLKT8LP | R_CLK_LAN | CLK_PCIE_LAN 43 |
| 37 | CPUCLKC2_ITP/SRCCLKC8LP | R_CLK_LAN# | CLK_PCIE_LAN# 43 |
| 57 | *CLKREQG# | PCIE_LAN_CLKREQ# | |
| 30 | SRCCLKT6LP | PR_CLK_PCIE_LAN_1 | PR_CLK_PCIE_LAN 43 |
| 29 | SRCCLKC6LP | PR_CLK_PCIE_LAN# | PR_CLK_PCIE_LAN# 43 |
| 56 | *CLKREQF# | | PR_LAN_REQ# 32 |
| 28 | SRCCLKT5LP | R_CLK_MCH_3GPLL | CLK_MCH_3GPLL 7 |
| 27 | SRCCLKC5LP | R_CLK_MCH_3GPLL# | CLK_MCH_3GPLL# 7 |
| 55 | *CLKREQE# | MCH_CLK_REQ# | |
| 23 | SRCCLKT4LP | R_CLK_PCIE_EXP | CLK_PCIE_EXPRESS 43 |
| 24 | SRCCLKC4LP | R_CLK_PCIE_EXP# | CLK_PCIE_EXPRESS# 43 |
| 35 | *CLKREQB# | EXPRESS_DET# | |
| 19 | SRCCLKT3LP | R_CLK_PCIE_MINI | CLK_PCIE_MINI 43 |
| 20 | SRCCLKC3LP | R_CLK_PCIE_MINI# | CLK_PCIE_MINI# 43 |
| 52 | *CLKREQD# | MINI_CARD_DET# | |
| 15 | SATAT/SRCCLKT2LP | R_CLK_PCIE_SATA | CLK_PCIE_SATA 27 |
| 16 | SATAC/SRCCLKC2LP | R_CLK_PCIE_SATA# | CLK_PCIE_SATA# 27 |
| 36 | *CLKREQC# | SATACLKREQ# | |
| 13 | | R_DREFSSCLK | |
| 14 | | R_DREFSSCLK# | |
| 11 | 27MHz_non_spread | | 27MHz_non_spread 20 |
| 12 | 27MHz_spread | | 27MHz_spread 20 |
| 8 | *CLKREQA# | A0503 | |
| 6 | DOTT_96MHz | DOT96 | DREFCLK 7 |
| 7 | DOTC_96MHz | DOT96# | DREFCLK# 7 |
| 2 | Vtt_PwrGd#/PD | | CLK_EN# 48 |
| 53 | *PLL_SEL0/REFOUT | R_CLK_ICH14 | CLK_ICH14 28 |

+V3.3S_CLKVDD
C445 0.1U_16V_Y_Y 0402
C456 0.1U_16V_Y_Y 0402
C468 0.1U_16V_Y_Y 0402
C454 0.1U_16V_Y_Y 0402
C444 0.1U_16V_Y_Y 0402
C457 0.1U_16V_Y_Y 0402
C464 0.1U_16V_Y_Y 0402
C466 0.1U_16V_Y_Y 0402
C442 0.1U_16V_Y_Y 0402

L_+3VRUN_410M
L43 120R-100MHZ_0805 HCB2012KF-121T30
L42 120R-100MHZ_0805 HCB2012KF-121T30
C439 10U_6.3V_M 0805_X5R
C443 10U_6.3V_M 0805_X5R
+3VRUN
C437 0.1U_16V_Y_Y 0402
C438 0.1U_16V_Y_Y 0402
30 mil
30 mil

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

CALISTOGA Chip
HOST
CPU

+3VRUN
R403 NC_10K_J 0402 — R_CLK_ICH14
R414 NC_10K_J 0402 — R_PCLK_CB
R399 NV_10K_J 0402 — R_CLK_ICHPCI
R400 CA_2.2K_J 0402

ICH7M SATA

Nvidia Graphic

CALISTOGA DOT96

ICH7 DMI
26 CLK_PCIE_ICH — R_CLK_PCIE_ICH 32
26 CLK_PCIE_ICH# — R_CLK_PCIE_ICH# 31
RP10 33 0404_4P2R

+3VRUN
R380 NC_10K_J 0402 — EXPRESS_DET# 43
R413 NC_10K_J 0402 — PCIE_LAN_CLKREQ#
R518 0_J 0402
R404 10K_J 0402 — PR_LAN_REQ#
R411 NC_10K_J 0402 — MINI_CARD_DET# 43
R383 NC_10K_J 0402 — SATACLKREQ# 28
R412 NC_10K_J 0402 — MCH_CLK_REQ# 7

RP16 0404_4P2R CA_33
R_DREFSSCLK — DREFSSCLK 7
R_DREFSSCLK# — DREFSSCLK# 7
CALISTOGA SSCK

RP15 0404_4P2R NV_33
CLK_PCIE_PEG 16
CLK_PCIE_PEG# 16
Nvidia Graphic

SM bus Address :
1101001 (ICH7)
For clock generator

CLKREQ with internal pull-up resistor
No Stuff Pull-up Resistor
(R69,R40,R41,R70,R1126,R1127)
If EVT ok, del them in DVT

R519 22_F 0402
R520 22_F 0402
R402 33_F 0402

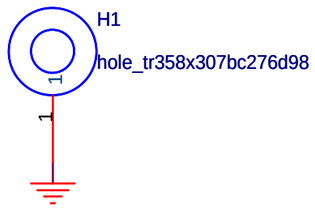
4 CPU_BSEL0 — R397 0_J 0402 — MCH_BSEL0 7
R398 NC_0_J 0402
4 CPU_BSEL1 — R415 0_J 0402 — MCH_BSEL1 7
4 CPU_BSEL2 — R13 0_J 0402 — MCH_BSEL2 7

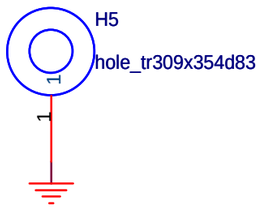
**FSB Frequency Table:**

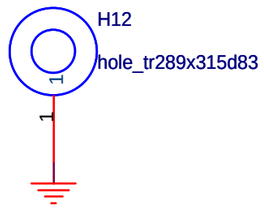
| FSLB | FSLA | CPU | SRC[7:0] | PCI |
|---|---|---|---|---|
| 0 | 0 | 100 | 100 | 33 |
| 0 | 1 | 133 | 100 | 33 |
| 1 | 0 | 200 | 100 | 33 |
| 1 | 1 | 166 | 100 | 33 |

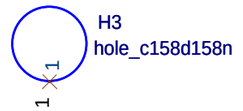
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

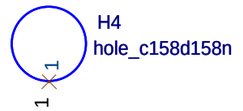
Title: CLOCK GEN
Size: A3
Document Number: MS60-1-01 (MBX-159)
Rev: 0.30
Date: Wednesday, October 04, 2006
Sheet 53 of 56

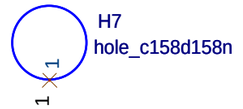


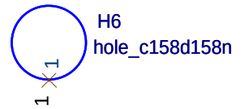



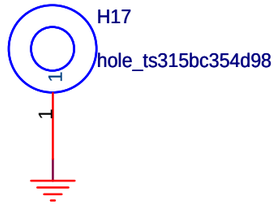



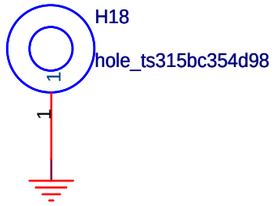



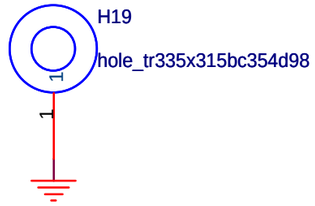



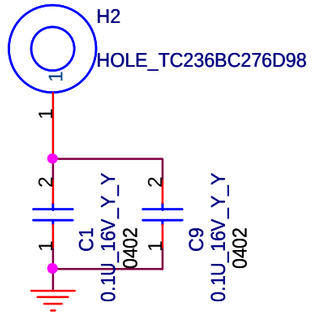



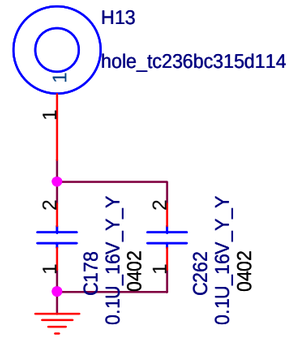



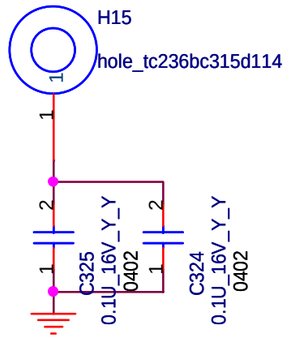



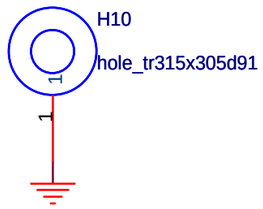



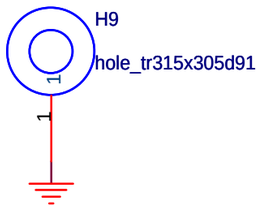



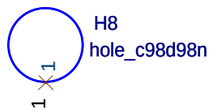



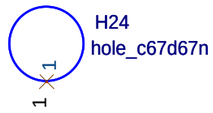



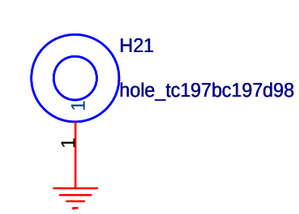



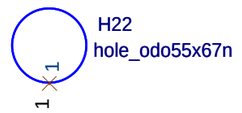



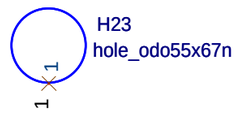



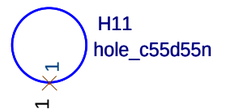



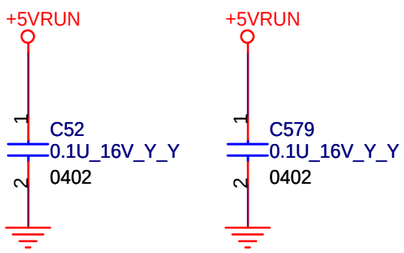



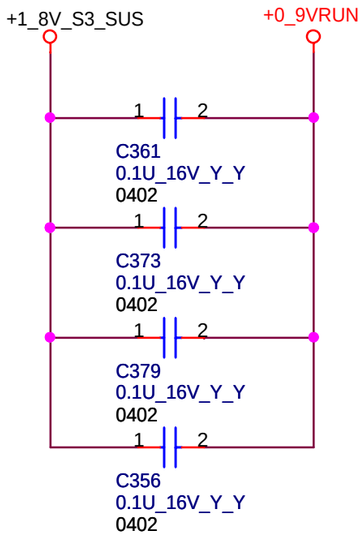



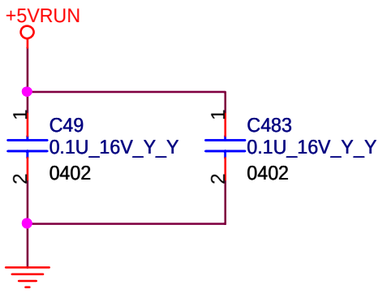

## FOR EMI

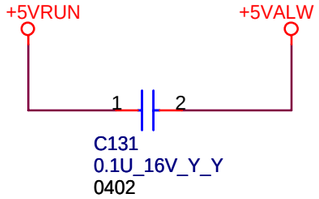









FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

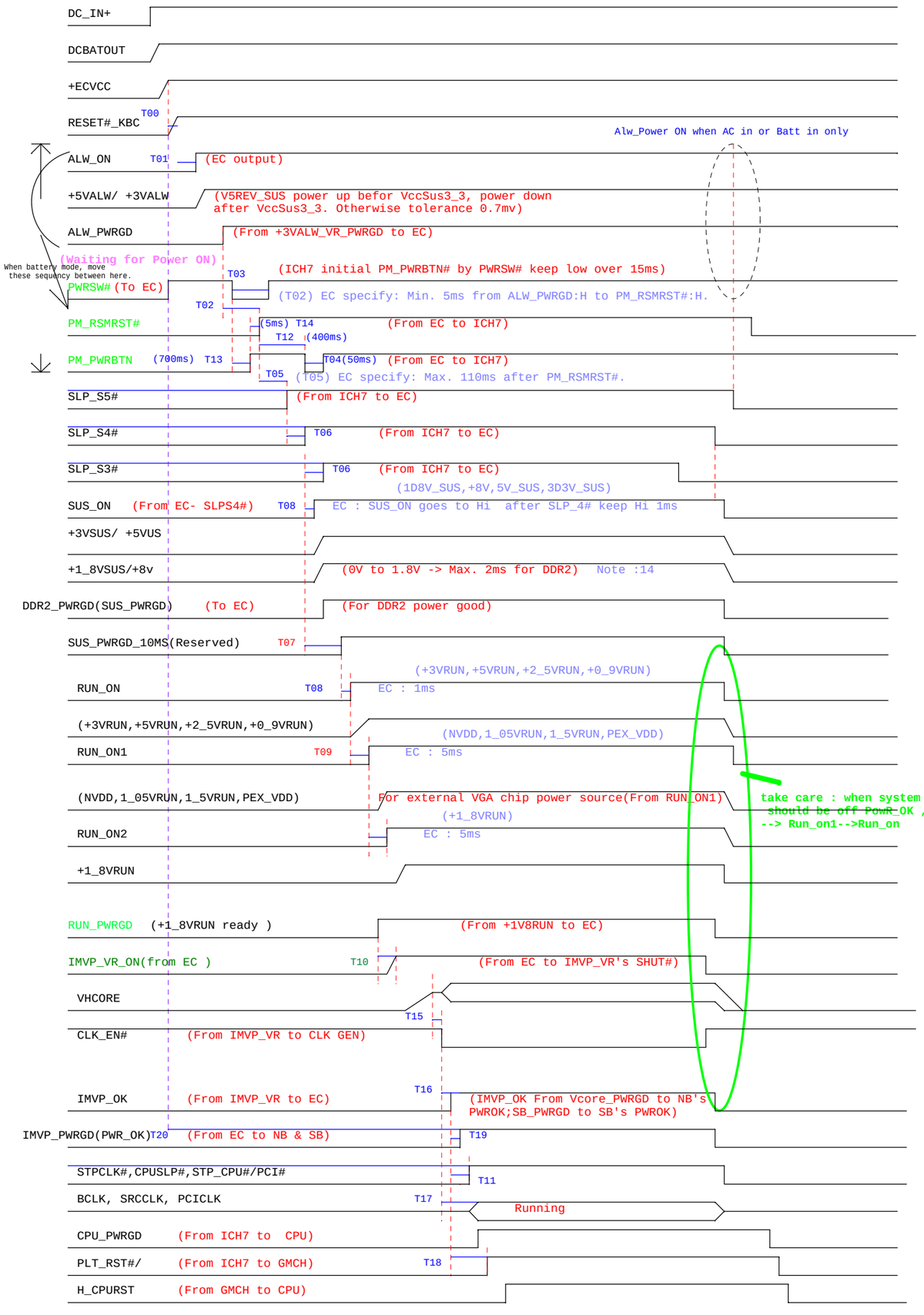
Title: **HOLE**

| Size | Document Number | Rev |
|---|---|---|
| A4 | **MS60-1-01 (MBX-159)** | 0.30 |

Date: Wednesday, October 04, 2006 Sheet 54 of 56

# MS60 Power On Sequerce Timing

Version : 0.0
Modified date : 2/14/2006



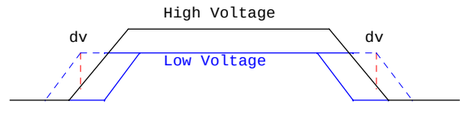

**NOTE :** ( EC KB3910 Min. response time is 1ms)

1. T00 : R=47K , C = 0.1uF is ENE recommand value please refer to KB3910B0-AN4A-200
2. T01 : 5ms is for ALW VCC supplies must never be active while the ECVCC supply is inactive.(Please refer to Intel 16971 Page 300 of t200 timing)
   PS : For KB3910 timing : After ECRST# goes to high ,EC must be check sum and initialized register.For MS01, we measure the T01 Min. 200ms is needed.In MS10 , we will measure this timing again.
3. T02 : ALW_PWRGD:H to PM_RSMRST#:H at least 5ms (Please refer to 16971 Page 300 of t205 timing)
4. T04 : For MS01 SPEC Min. is 50 ms(Normal SPEC is 20ms)
5. T05 : RSMRST# active High to SLP_S5# avtive High Max. is 110ms(Please reference Intel 16971 Page 301of t232 timing
6. T06(Please reference Intel 16971 Page 301 of t234 timing
7. T07 : For MS01 current SPEC Min. is 25 ms(Please refer Intel 16971Page 301 t208 SPEC is Min 10ms )
8. T08 : For MS01 current SPEC Min. is 1 ms(1ms is EC KB3910 at least response time)
9. T09 : For MS01 current SPEC
10. T10 :Please refer to Intel 16971 Page 300 of t214 timing
11. T11 :Please refer to Intel 16971 Page 303 of t216 timing
12. T12 : PM_RSMRST# ACTIVE HIGH TO PM_PWRBTN# ACTIVE LOW is 400ms(Normal SPEC is 110ms;Please reference Intel 16971 Page 301of t232 timing)
13. T13 : For MS01 current SPEC Min. is 700 ms(Normal SPEC is 1ms that EC can response)
14. T14 : For MS01 current SPEC Min. is 5 ms
15. DDR2 1.8V from 0V to 2V Max. is 2 ms please refer to Intel 16981 Page 304
16. IMVP_OK is same with SB_PWRGD(reserved And Gate with SYS_PWRGD)
17. In G7X power sequence :3VRUN-->NVDD,PEX_VDD-->1_8VRUN
18. T15 : Please refer to MAX8771 datasheet
20. T16: Please refer to MAX8771 datasheet
21. T17 : Please refer to Intel CK410(14690) page 53
22. T18 : The ICH7 drives PLTRST# active a mininum of 1ms when initiated through the Reset Control register I/O Register CF9h)
23. CPUPWRGD is an output signal that presents a logical AND of the ICH7's PWROK and VRMPWRGD signals
24. T20 : From ECRST# L->H to IMVP_PWRGD L->H. If EC's 32KHz is not stable, LPC I/F will hang. So the 1sec must be guaranteed.(Requested by Doi's san 05/13)

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

R/C delay (47K/ 0.1uF)

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




| T00 | T01 | T02 | T03 | T04 | T05 | T06 | T07 | T08 | T09 | T10 |
|---|---|---|---|---|---|---|---|---|---|---|
| within 10ns~2ms | Min. 5 ms | Min. 10 ms | Min. 40ms | Min. 50ms | Max. 110ms | 1 - 2 RTCCLK | Min. 25 ms | 1ms | Min. 10ms | Min. 99ms |

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

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

Title: **Power Sequence**

Size: C | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 55 of 56

<1>2006/3/28 remove U36.SW no need to program for present application.

<2>2006/3/28 Change PR5 from 13K to common parts 10KOhm.

<3>2006/3/29 Change USB CONN. CN16 & CN40 for ID requirement.
P/N : FOX_UB11193-C1301-4F

<4>2006/3/29 Change ODD CONN. CN21 for ID requirement.
P/N : FOXCONN_QTBH0506_6472R_4F

<5>2006/3/29 Change PC359,PC360 to 10uF
P/N : 1C-2B70106-M100

<6>2006/3/29 update new HDD CONN CN24.
P/N : 2N-0022002-F0G0

<7>2006/3/29 update new DC-IN CONN PCN1.
P/N : FOX_GS53020-00580-7F

<8>2006/3/29 update new BTY CONN PCN2.
P/N : FOXCONN_BP34063_86012_7F

<9>2006/3/30 U18.U19.U21.R277.R300.R315change to NC according to Customer's feedback.

<10>2006/3/30 R269,R273,R276,R286,R287,R300 change to Populate according to Customer's feedback.

<11>2006/3/30 New add INV_ENABLE_EC logic dur to BIOS Code merge issue.add new component :
U53.U54 P/N : 14-74AHC1G-0B00
R762 P/N : 1R-0000103-J200
R763 P/N : 1R-0000000-J200
R764 P/N : 1R-0000104-J200
Delete R176.R177

<12>2006/3/31 Add C20,C21,C22,C31,C33,C68 for EMI slution.
P/N : 1C-2Y20104-Y000

<13>2006/3/31 Add R5 for Customer feedback.
P/N : 1R-0000000-J200

<14>2006/3/31 Dummy R482,R483 for Customer feedback.

<15>2006/3/31 Modify MS PWR Circuit for Customer feedback.add new component :
U55.U56 P/N : 15-RT9702A-0000
C521.C522 P/N : 1C-2Y20104-Y000
R569.R573 P/N : 1R-0000105-J200
C870.C871 P/N : 1C-2Y30225-Y000
C535.C751 P/N : 1C-2B70106-M100
Deleted Component :
Q12.Q13.Q20.Q21.C535.C527.C521.C751.C753.C752.R486.R476.R568.R569

<16>2006/3/31 CN2 Pin11 change to +3V_S3_SUS for Customer feedback.

<17>2006/4/3 CN20.CN32.CN33 Pin assignment modified due to Customer's concern.

<18>2006/4/3 CN31.CN32.CN33 CN34 Connector change.
P/N : GB11261_1051_7F

<19>2006/4/3 L17 & L19 updated according to Customer feedback
P/N : 1L-DCS0603-1000

<20>2006/4/4 Add PWR_MIZER circuit.
U6J GPIO10 with new signal "NV_PWR_MIZER"
new Components added and modified as below :
10K Ohm -- R130.R766 -- P/N : 1R-0000103-J200
7.5K Ohm -- R765.R767.R768.R769.R770 -- P/N : 1R-0000752-F200
4.3K Ohm -- R128 -- P/N : 1R-0000432-F200
2N7002EPT -- Q54.Q55.Q56.Q57.Q58 -- P/N : 17-2N7002E-PT00

<21>2006/4/4 CN10 Pin4.5.6 change to Test pad according to customer's feedback.

<22>2006/4/4 D6.D7.D8 change to Q59.Q60.Q61
P/N : 17-2N7002E-PT00

<23>2006/4/4 R64,R67,R65,R75,R99,R94,R97,R109 change to populate.
P/N : 1R-0000121-J200

<24>2006/4/4 new add Q62 for WLAN LED Logic
P/N : 17-2N7002E-PT00

<25>2006/4/4 NC F1 and C859 according to customer's feedback.

<26>2006/4/4 delete R482.R483 according to customer's feedback.

<27>2006/4/6 add H3 ~ H20

<28>2006/4/6 Update BTY Connector PCN2 for ME requirement.
P/N : 2N-0006001-MKX0

<29>2006/4/6 R278.R289.R270 change to 750hm and circuit modified as customer's feedback.
P/N : 1R-0000750-F200

<30>2006/4/6 R543 change to 750hm as customer's feedback.
P/N : 1R-0000750-F300

<31>2006/4/6 R553 change to 750hm as customer's feedback.
P/N : 1R-0000750-J200

<32>2006/4/6 R99.R94.R97.R109.R67.R64.R65.R75 change to NC as customer's feedback.
add R66.R69.R98.R101 change to 120Ohm.
P/N : 1R-0000121-J200

<33>2006/4/6 CN34 Pin23 change to +5VALW as customer's feedback.

<34>2006/4/6 CN31 Pin1.2 change to +3V_S3_SUS as customer's feedback.

<35>2006/4/6 add 1A Fuse F4.F5.F9.F11.F15.F17.F18.F19
P/N : 1M-F32V1A0-F000

<36>2006/4/6 add 0.5A Fuse F2.F3.F6.F7.F8.F10.F12.F13.F14.F16.F18
P/N : 1M-F32V0A5-F000

<37>2006/4/6 add C872 according to MS20 lesson learn.
P/N : 1C-2B20102-M000

<38>2006/4/6 CN34 Pin23.24 change to +3VRUN.

<39>2006/4/6 add C71.C74.C87 for EMI.
P/N : 1C-2Y20104-Y000

<40>2006/4/6 add C85.C188.C199.C208.C213.C214
P/N : 1C-2Y20104-Y000

<40>2006/4/7 add C215.C216.C217.C218.C219 for EMI solution.
P/N : 1C-2Y20104-Y000

<41>2006/4/7 R118.R119.R351 change to populate as customer's feedback.

<42>2006/4/7 Y1.C104.C107.C492.C497.C501.R433.R434.R427.R428.R429.R430.R132.
R133.R134.R136.R117 change to NC as customer's feedback.

<43>2006/4/7 R439.R443 change to 0 Ohm as customer's feedback.
P/N : 1R-0000000-J200

<44>2006/4/7 update Net name EN_EXT_DEV_SENSE# as customer's feedback.

<45>2006/4/10 Modify ODD PWR Circuit for Customer feedback.add new component :
PQ183 P/N : 17-2N7002D-W000
P8115 P/N : 1R-0000101-J200
PR103.PR114 P/N : 1R-0000104-F100
PC87 P/N : 1C-2B20103-M000
PQ38 P/N : 17-S14808-DY00
PC76 P/N : 1C-2B70106-M200

<46>2006/4/10 Modify VGA PWR Circuit for Customer feedback.add new component :
PR273 P/N : 1R-0000103-F200
PR773 P/N : 1R-0004992-F200
PQ20 P/N : 17-2N7002E-PT00
PR774 P/N : 1R-0000102-J200
PC873 P/N : 1C-2Y20105-Y000

<47>2006/4/10 add H21~H24.

<48>2006/4/10 Rename Schematic Part referene.
new version since 4/11

<49>2006/4/11 change R68.R133.R100
P/N : 1R-0000151-F200

<50>2006/4/11 PR111.PR114 change to NC according to PWR team's suggestion in EVT.

<51>2006/4/11 Modify ODD reset circuit as customer's feedback.
Add U37 P/N : 15-MAX809S-0000
Add R516 P/N : 1R-0000104-J200
NC R305

<52>2006/4/11 Remove C257 for EMI comment.

<53>2006/4/11 add ODD Reset RC.
Add R517 P/N : 1R-0000103-J200
Add C580 P/N : 1C-2Y20104-Y000

<54>2006/4/14 change R197.R198.R199.R200 to 60.4Ohm
P/N : 1R-0006004X-F200

<55>2006/4/14 add R518 for 0Ohm
P/N : 1R-0000000-J200

<56>2006/4/14 CN7.C409.C412.L37.F16.R44.R45 change to CA from NV to fit configuration.

<57>2006/4/27 PR111.PR114 change to Populate from NC according to PWR team's suggestion in EVT.
P/N : 1R-0000100-J200

<58>2006/5/24 PWR/SUS LED control signal swap to fit the correct definition.

<59>2006/5/24 DC_IN connector connection swap to fit the correct definition.

<60>2006/5/24 WWAN Connector remark with "CA".

<61>2006/5/24 add more 12pcs 10uF capacitor for CPU usage reseving.
P/N : 1C-2B70226-M100

<62>2006/5/24 R47 change to populate for T/P rotation.

<63>2006/5/24 L21.L23 change to 1L-DWL10-C100 from 1L-DCS0603.

<64>2006/5/24 add new GPIO07 VISTA SUPPORT for Audio mute concern as customer's comment.

<65>2006/6/1 change both USB connector according to ME requirement.
P/N : 1N-0004000-FEG0

<66>2006/6/1 change both INV connector according to ME requirement.
P/N : 1N-0006001-MLT0

<67>2006/6/1 change TP connector according to ME requirement.
P/N : 1N-0012001-F0T0

<68>2006/6/1 change OIDE connector according to ME requirement.
P/N : 1N-0006000-F0T0

<69>2006/6/1 change OIDE connector according to ME requirement.
P/N : 1N-0006000-F0T0

<70>2006/6/2 Delete GPIO8 and GNDing CN3 Pin1 for WWAN removing.

<71>2006/6/2 Delete H14 & H16 for WWAN removing.

<72>2006/6/2 Delete R264.R271 for Debug BD LED.

<73>2006/6/5 Delete RST_IC circuit and replace with PLT_RST#.

<74>2006/6/5 Delete all GM VGA related circuit in Page8/10/25/42.

<75>2006/6/8 change PORT_DET# from EC Pin81 to Pin176 for Noise decreasing.

<76>2006/6/9 PC127 change to Populate to improve VGA power feedback.

<77>2006/6/9 add +3VRUN_ODD for ODD connector.also new power plane control for this.

<78>2006/6/9 add R323 & C185 for VGA improvement.

<79>2006/6/9 add R238 1K ohm for customer's comment.
P/N : 1R-0000102-J200

<80>2006/6/13 remove RP13 and replace with R519/R520 for WLAN issue improving.
P/N : 1R-0000220-F200

<81>2006/6/15 reserve R264/R271 for VRAM.
P/N : 1R-0000000-J200

<82>2006/6/15 Change PQ32 for VGA Power modification.
P/N : 17-S17114D-NT00

<83>2006/6/15 Change USB connector footprint to FOX_UB11193_C1301_4F.
but actually will populate with BOM Connector that is FOX_UB11193_C1304_4F

<84>2006/7/18 Change TP connector to reverse 180.

<85>2006/7/18 add ODD_LED# to pin 37

<86>2006/7/18 Remove SD signal for Jugar comment.

<87>2006/7/18 add R521

<88>2006/7/19 change PD1 from SM15.TC to PESD15VS2UT.215(16-PESD15V-S200).

<89>2006/7/19 dd one test point in P+ and P- (place on bottom side).

<90>2006/7/19 add test points in net +ECVCC and +5VALW_LDO.

<91>2006/7/19 remove PJ1,PJ2,PJ3,PJ4,PJ5,PJ6,PJ9 .

<92>2006/7/20 add test points TP173,TP174 in net +5VRUN_ODD and +3VRUN_ODD.

<93>2006/7/25 add PD37 and PR203 for Power improvement.

<94>2006/7/27 change PC89 to (1C-2B30224-M000).

<95>2006/7/27 add C605 for NV_PWR_MIZER.

<96>2006/8/01 add C606 and C607 to 1C-2N20030-D000.

<97>2006/8/01 change R263 and R265 to (1R-0000222-J200).

<98>2006/8/01 add PC6 and PC7 to 1C-2N20030-D000.

<99>2006/8/01 add D13 to 16-PACDN04-2Y00 for ESD protector.

<100>2006/8/01 add PC186 to 1C-10X0107-M403 for PWR.

<101>2006/8/01 Change PC186 P/N:1C-10X0107-M403 to 1C-1XX0107-M400 for PWR.

<102>2006/8/02 Change R189 to 1R-0000102-J200.

<103>2006/8/03 remove R425.

<104>2006/8/03 add D14 to 16-CH520S3-0P00.

<105>2006/8/03 add GP14 to OPEN_JUMP_40X58.

<106>2006/8/03 Change U5,U10,U11,U22,U28,U38 to 14-74AHCT1-G000.

<107>2006/8/03 Change H2 to 1X-HOLE000-0282.

<108>2006/8/03 add H24.

<109>2006/8/04 add R522 to 1R-0000103-J200 .

<110>2006/8/04 add Q32 to 17-2N7002E-PT00 .

<111>2006/8/04 Change CN1,CN2,CN5,CN6 to GB11261_1051_7F.

<112>2006/8/07 add CN1 PIN3 to 3VRUN .

<113>2006/8/07 add Q33 .

<114>2006/8/07 Change Battery Conn Vender P/N to BP34067-B6012-7F.

<115>2006/8/08 Change R433 to 330.

<116>2006/8/08 add CN5 PIN26 to +3V_S3_SUS .

<117>2006/8/08 add CN5 PIN19,20 to 3VRUN .

<118>2006/8/08 add CN5 PIN16,17 to 1.5VRUN .

<119>2006/8/08 Change RR8 to 19.1K.

<120>2006/8/08 Change PR181 to 100K.

<121>2006/8/08 Change PR183 to 127K.

<122>2006/8/08 add F20,F21,F22 to 1M-F06V1A1-F000.

<123>2006/8/08 del F20

<124>2006/8/08 add R523 .

<125>2006/8/08 Would R303 NC ,DVI Hot Plug Detect" is implemented by not Gfx but EC as usual.

<126>2006/8/08 Change RR8 to 22.1K.

<127>2006/8/11 Change RR15 to 1R-0000203-F100.

<128>2006/8/11 Change RR183 to 1R-0002153-F200.

<129>2006/9/04 add D15,D16 to 16-SCS500V-4000.

<130>2006/9/04 add Q34 to 17-PMV65XP-0000

<131>2006/9/04 add Q35 to 17-PDTC144-EU00

<132>2006/9/04 add R524 to 1R-0000472-J200

<133>2006/9/04 add R525 to 1R-0000102-J200.

<134>2006/9/04 add F23 to 1M-F006A35-F000

<135>2006/9/04 add U39 to 15-TPS2055-0000.

<136>2006/9/04 add U40 to 15-MAX4798-0000.

<137>2006/9/04 add R526,R527 to 1R-0000103-J200.

<138>2006/9/04 del R521,U34.

<139>2006/9/04 Change CN12,CN16 to 1N-0004000-FEG0.

<140>2006/9/04 Change R189 to 1R-0000103-J200.

<141>2006/9/05 del TP1,TP2,TP3,TP5,TP6,TP7,TP8,TP9

<142>2006/9/05 del TP10,TP11,TP12,TP13,TP14,TP15,TP16,TP17,TP18,TP19

<143>2006/9/05 del TP20,TP21,TP22,TP23,TP25,TP26,TP27,TP28,TP29

<144>2006/9/05 del R527

<145>2006/9/06 Change PR136 to 1R-0007152-F200.

<146>2006/9/09 add R527 to 100k

<147>2006/9/09 add R528 to 10k

<148>2006/9/11 Change R296,R297 to 1R-000806X-F200

<149>2006/9/11 Change PC106,PC109,PC113 TO 1C-2B20224-K101

<150>2006/9/11 Change PC89 to 1C-2B30224-K000.

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

File: History

Size: A0 | Document Number: MS60-1-01 (MBX-159) | Rev: 0.30

Date: Wednesday, October 04, 2006 | Sheet 56 of 56