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

**Project Code & Schematics Subject:** MS21 MP Main Board (TYPE 2)

**PCB P/N:** 1P-0068100-8011 (FUBAI)
1P-0068500-8011 (Hannstar)

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

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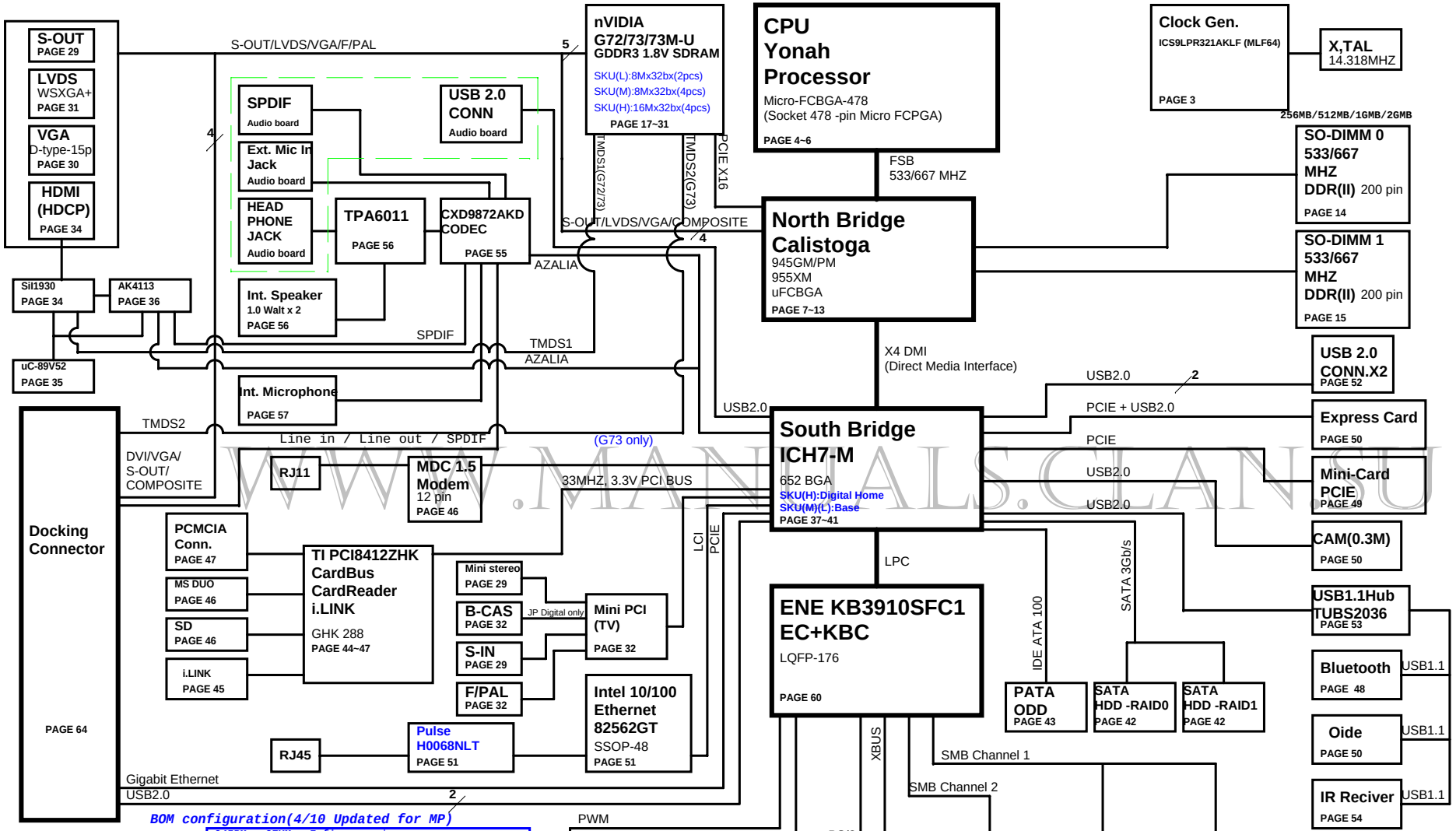
# MS21(CALISTOGA PM+Gfx Block Diagram)

Red texts:
New modified






*BOM configuration(4/10 Updated for MP)*

*Remove CA_ configuration*

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

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

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| | | |
|---|---|---|
| Title | Block Diagram | |
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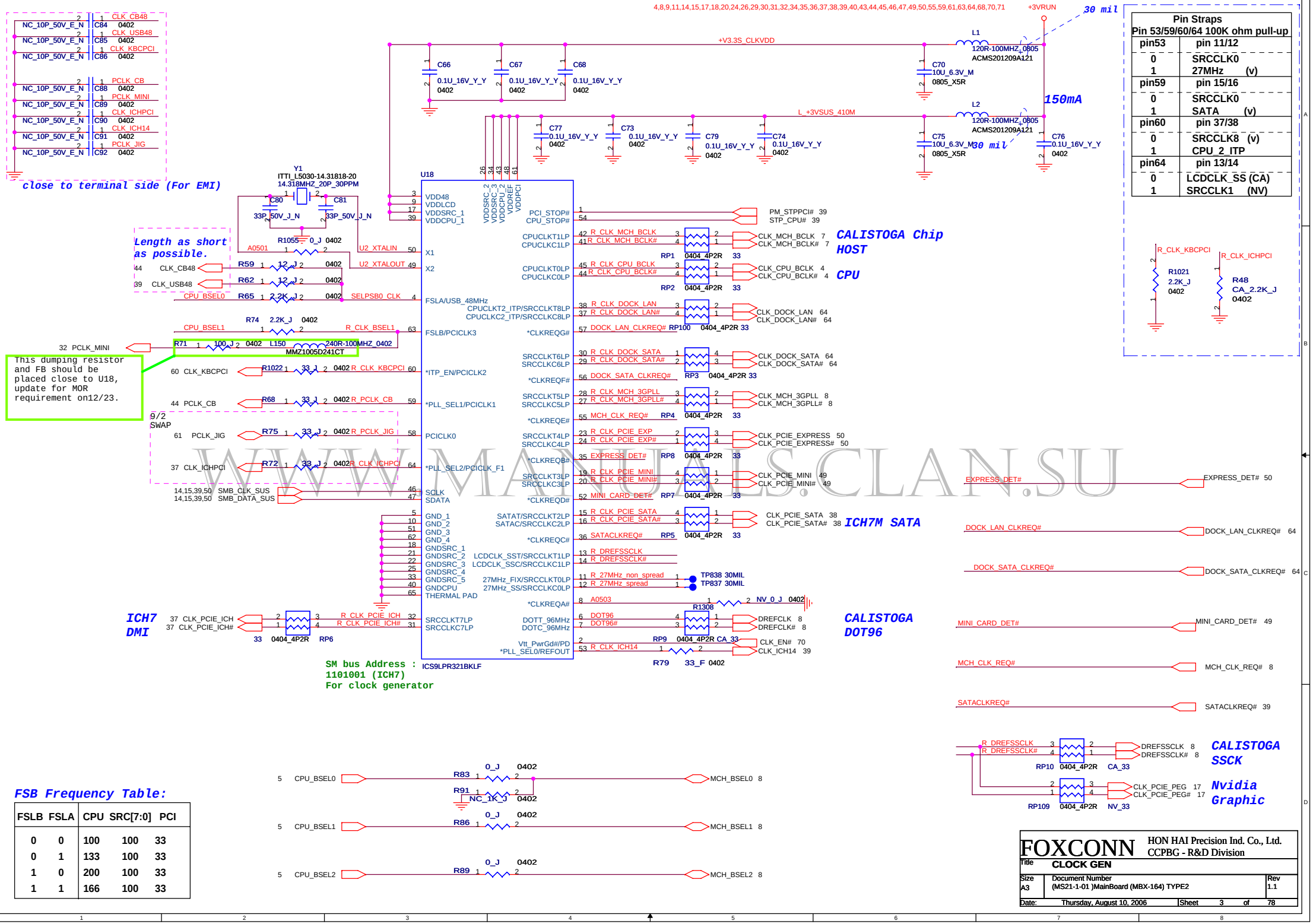

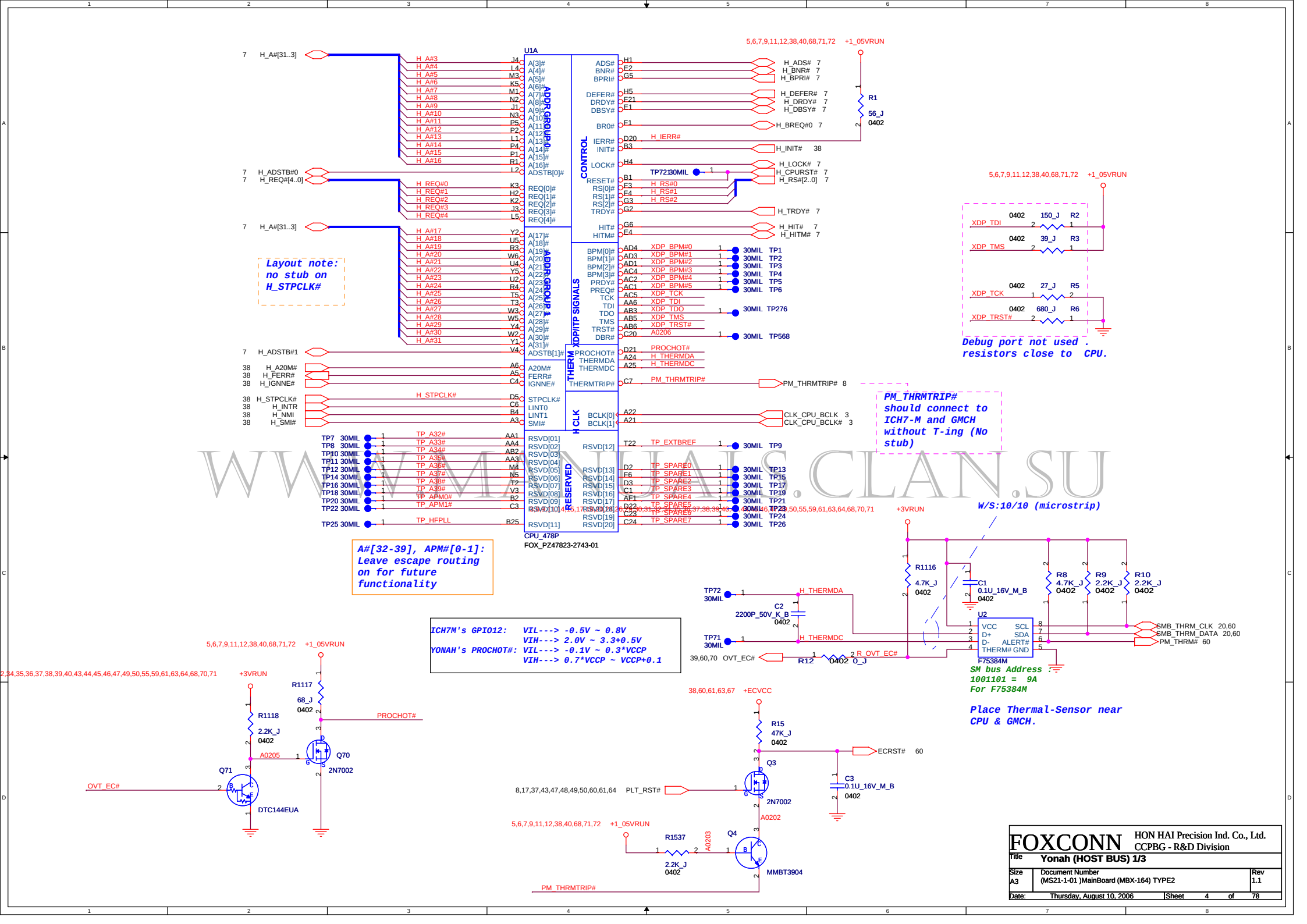

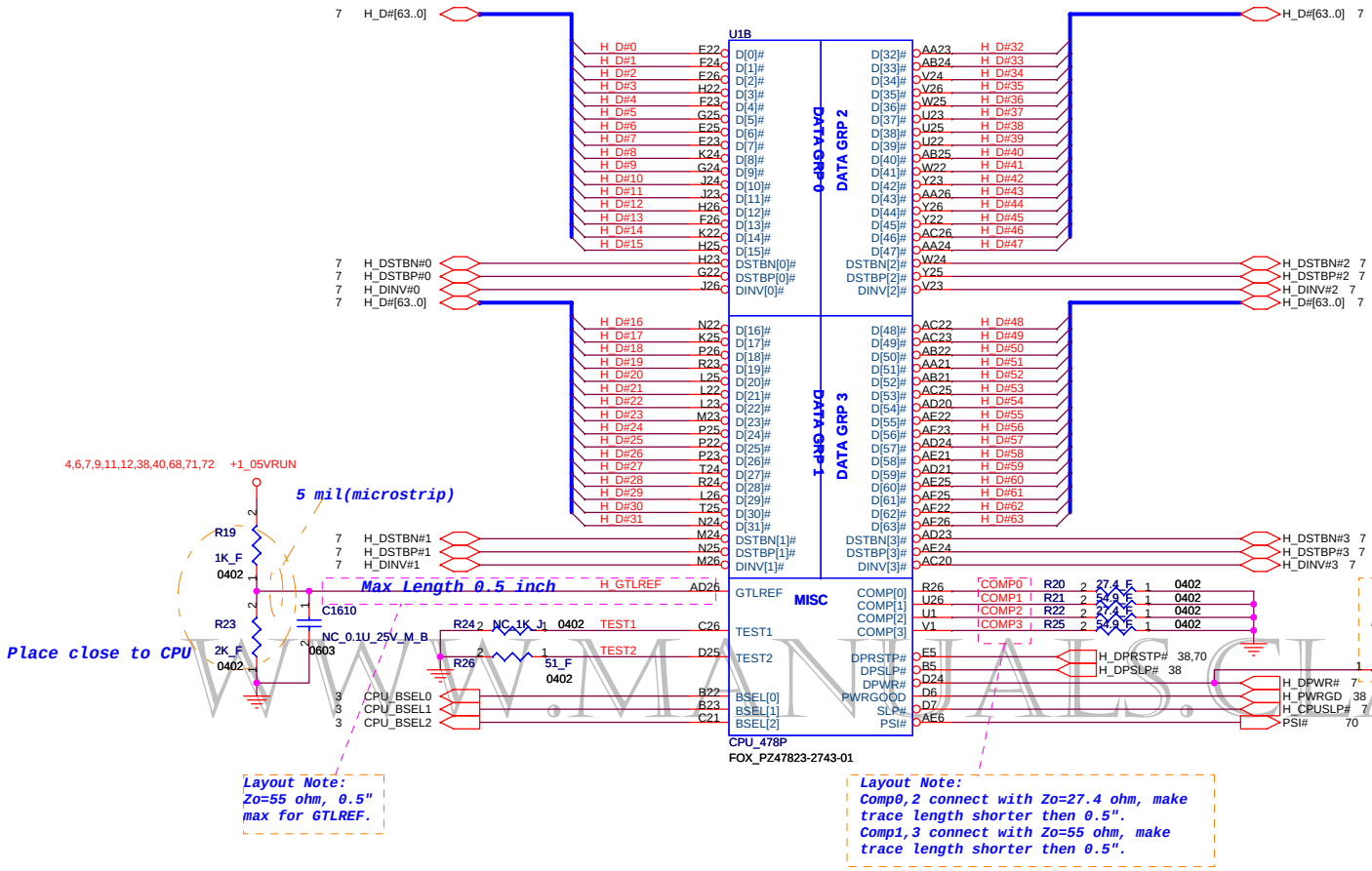




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|---|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | | |
| Title | Yonah (HOST BUS) 2/3 | | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | | Rev 1.1 |
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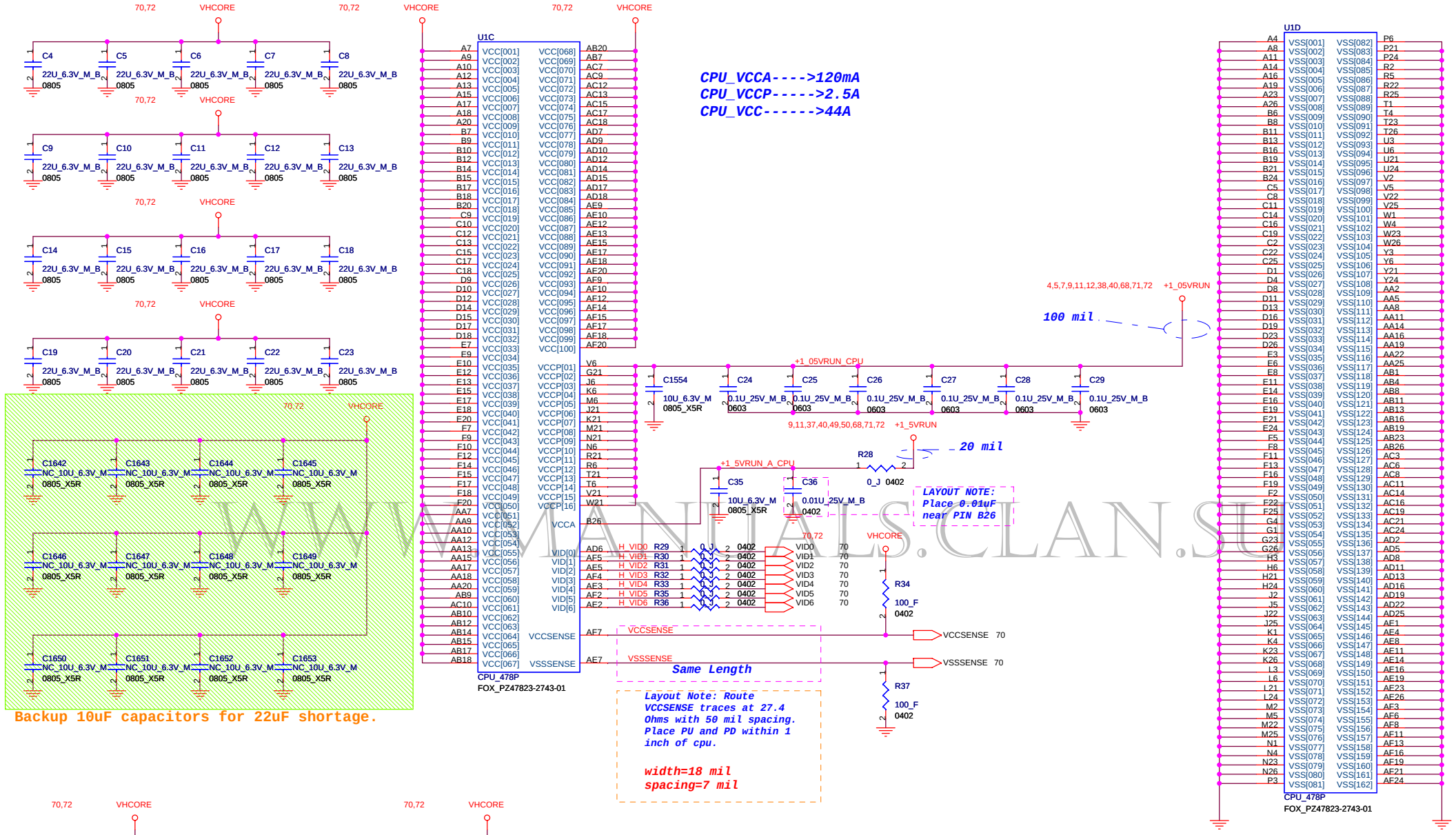




| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | Yonah (POWER/GROUND) 3/3 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
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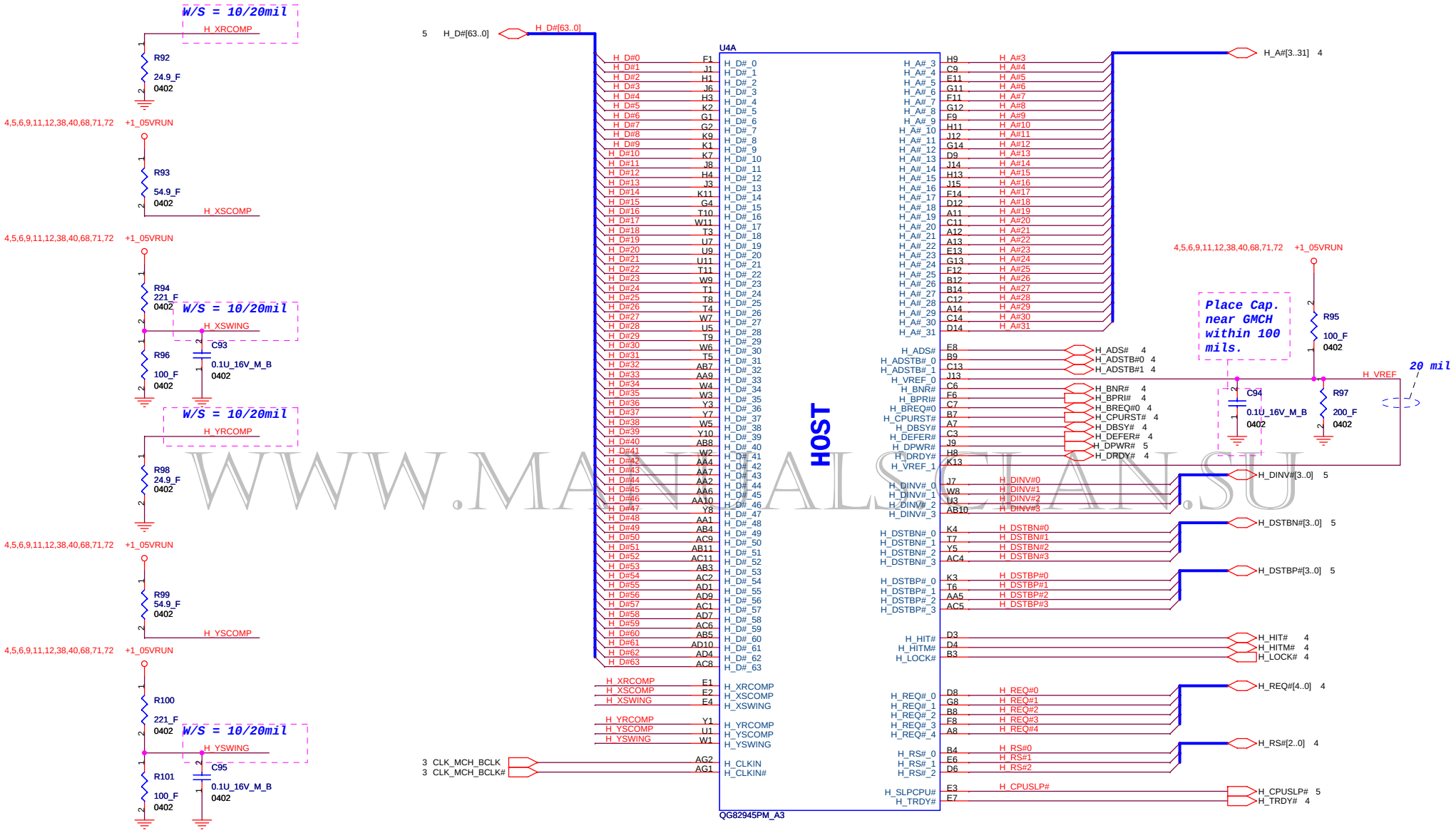




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| | | |
|---|---|---|
| Title | CALISTOGA (HOST) 1 of 7 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
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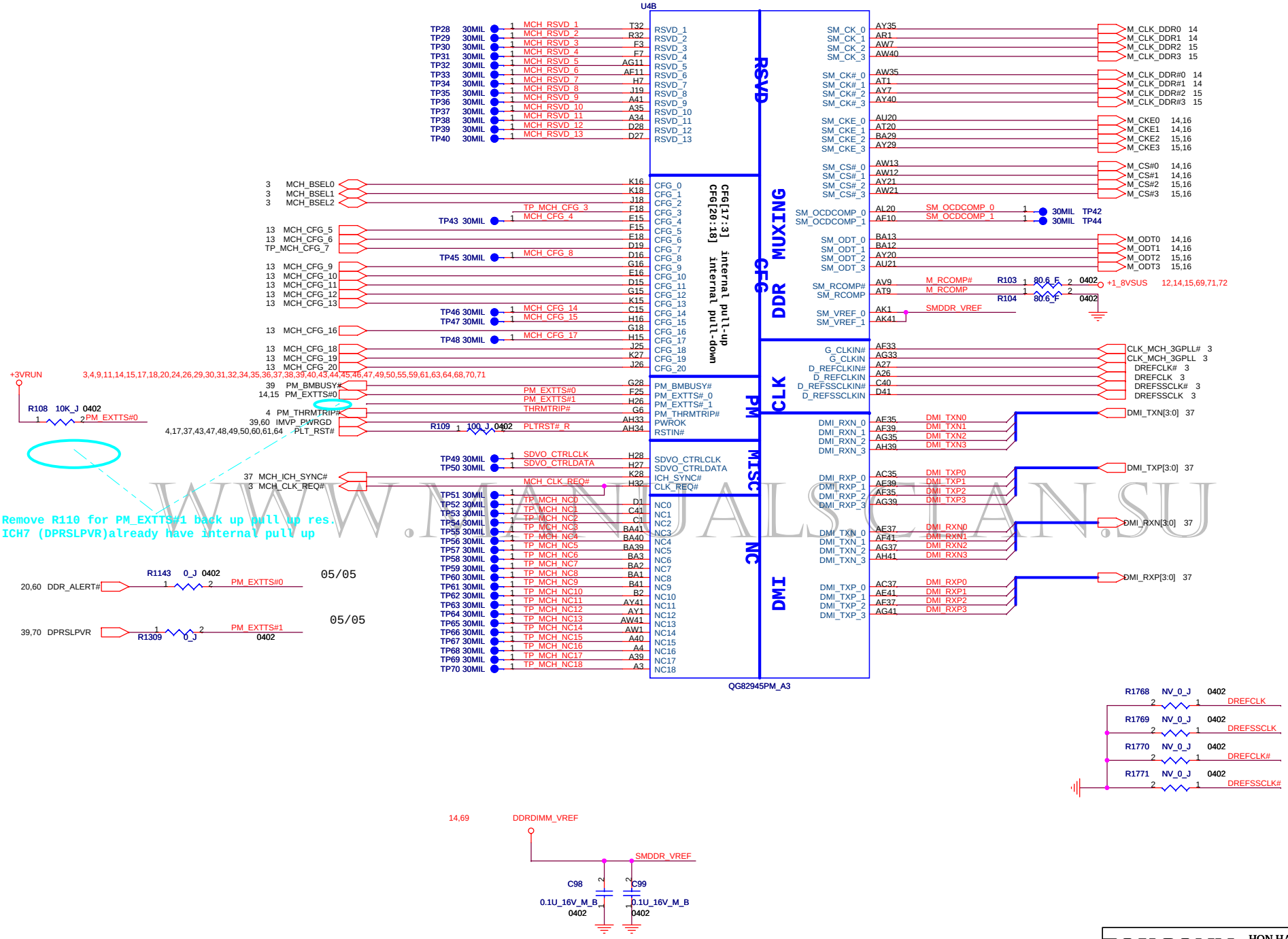




| | |
|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division |
| Title | CALISTOGA (DMI) 2 of 7 |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 |
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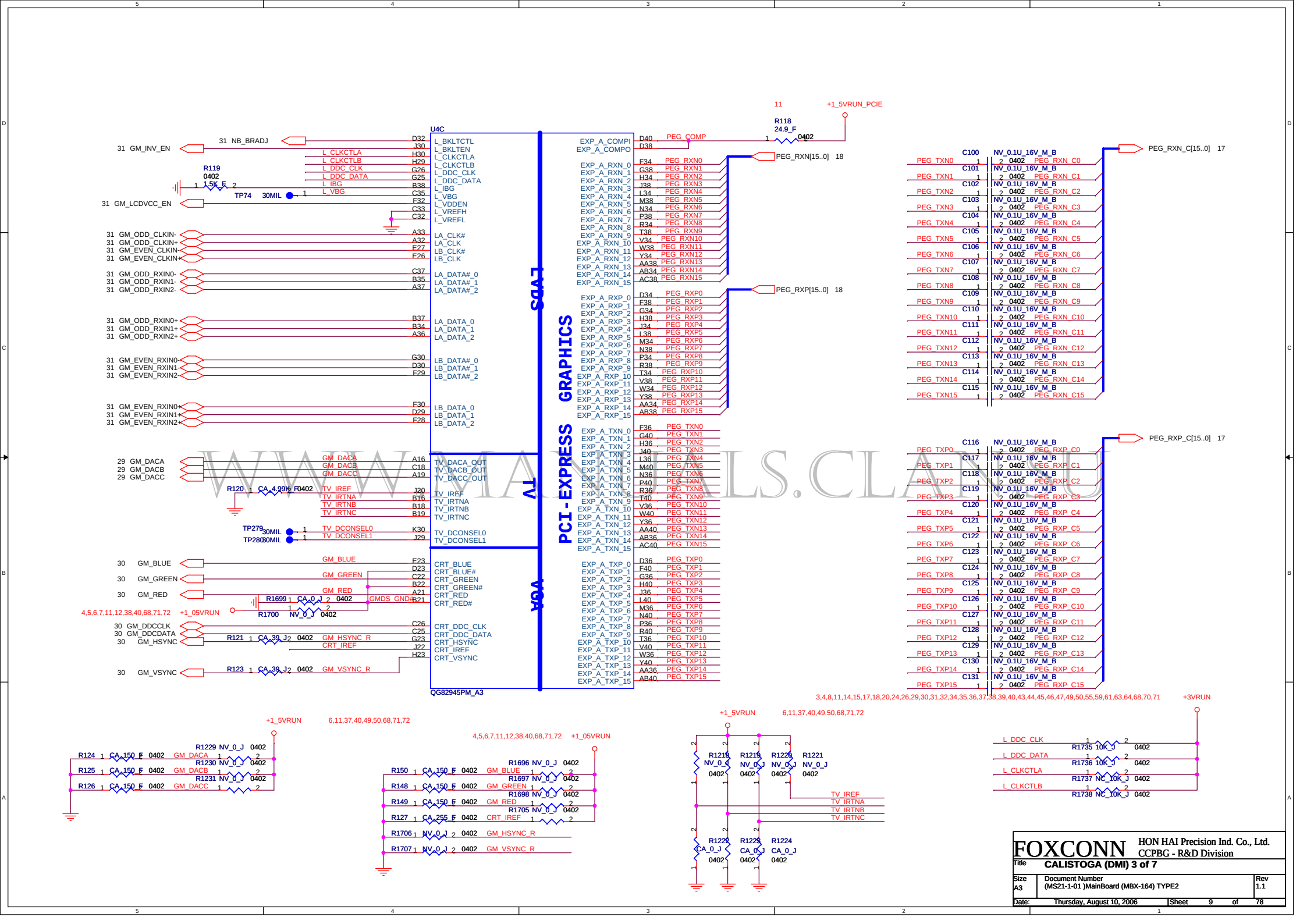




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| | | |
|---|---|---|
| Title | CALISTOGA (DMI) 3 of 7 | |
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| | | |
|---|---|---|
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| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
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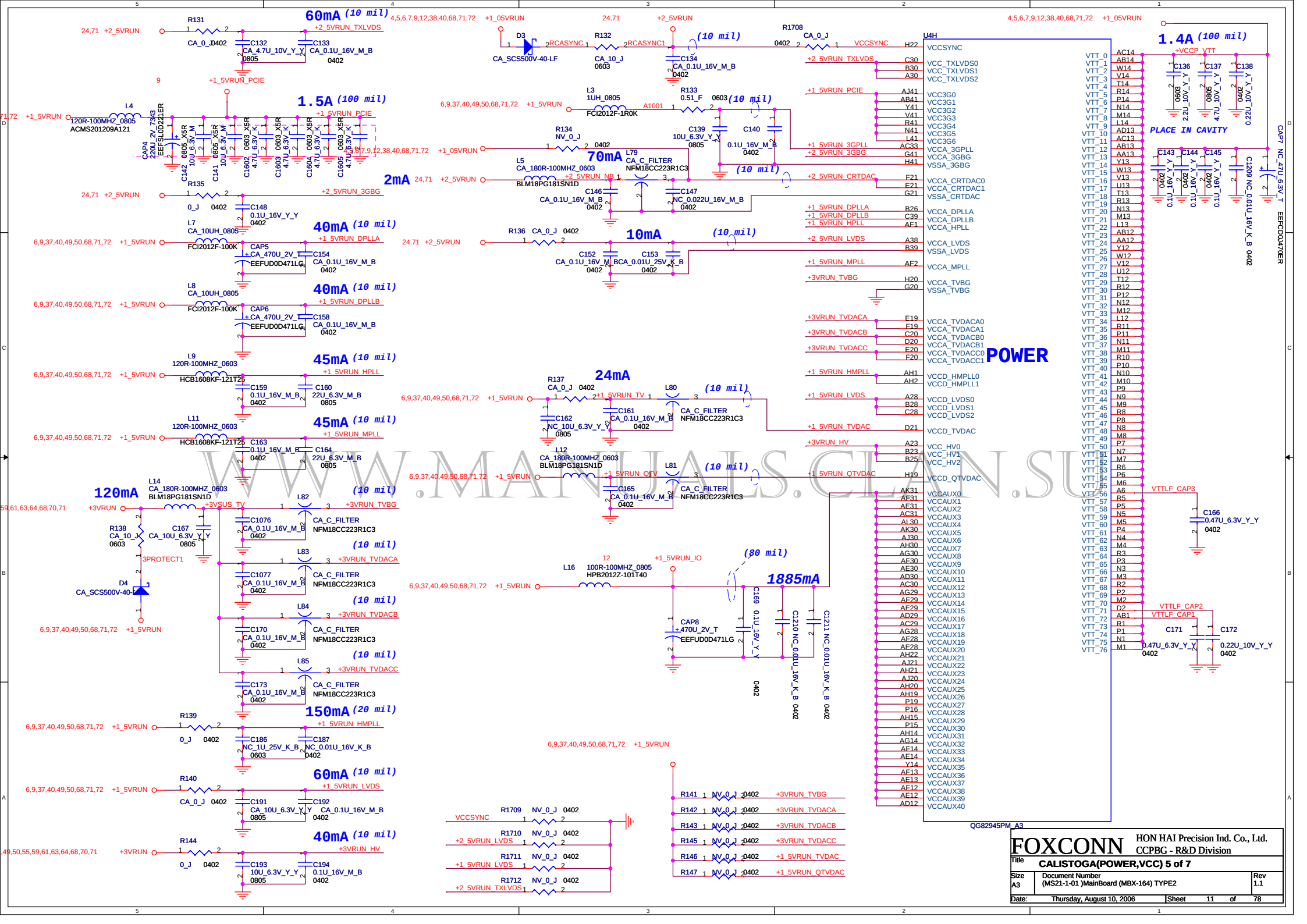

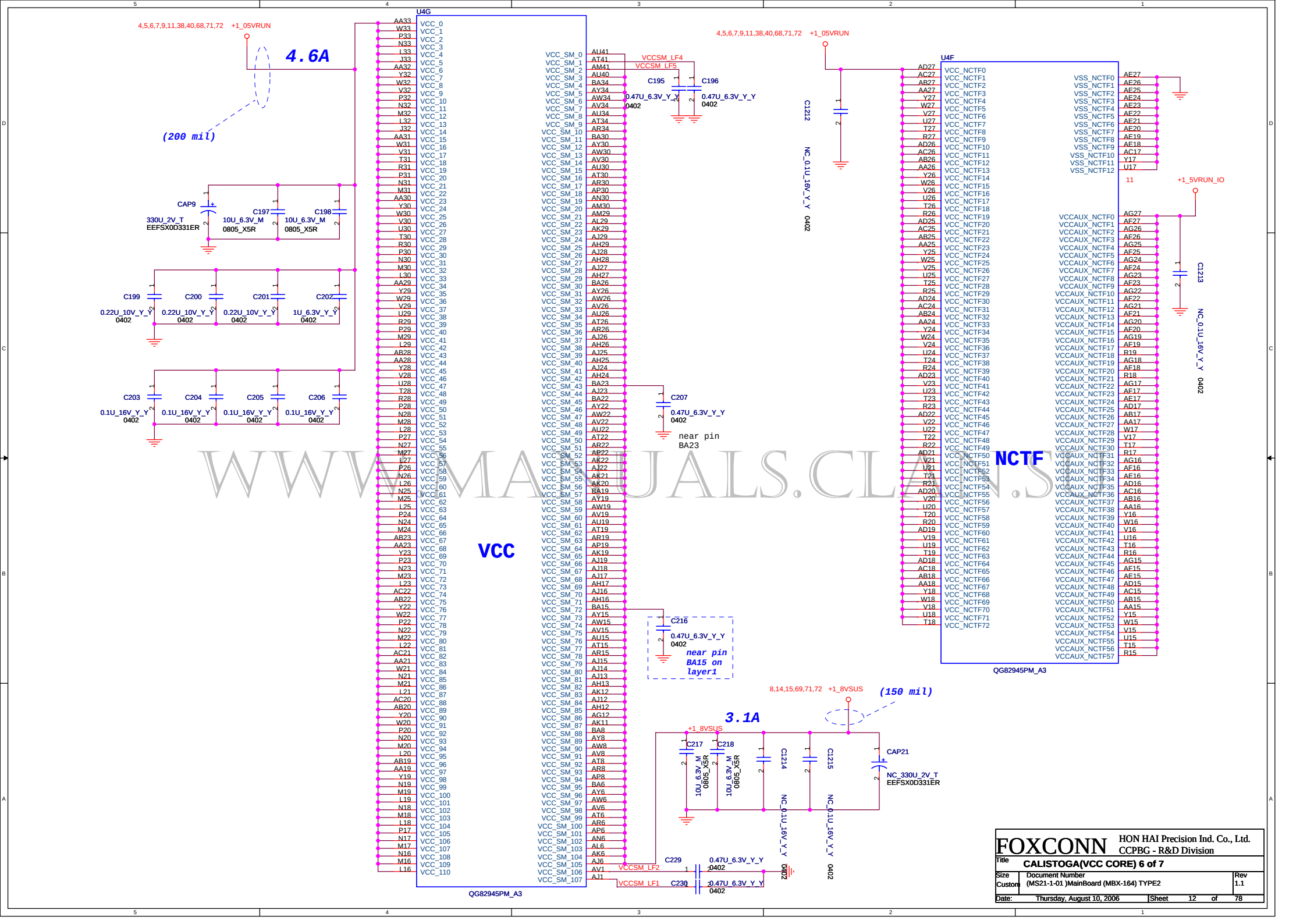




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| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division |
| Title | CALISTOGA(VCC CORE) 6 of 7 |
| Size / Custom | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 / Rev 1.1 |
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8 MCH_CFG_5 — 1 — 30MIL TP554

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

8 MCH_CFG_6 — 1 — 30MIL TP556

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

DDR2 select (default high)

8 TP_MCH_CFG_7 — TP_MCH_CFG_7

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

8 MCH_CFG_9 — 1 — 30MIL TP559

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

For layout convenience

8 MCH_CFG_10 — 1 — 30MIL TP560

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

8 MCH_CFG_11

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

R162 NC_2.2K_J 0402

8 MCH_CFG_12 — 1 — 30MIL TP562
8 MCH_CFG_13 — 1 — 30MIL TP563

| 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) |
|---|---|

8 MCH_CFG_16 — 1 — 30MIL TP564

| 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 |
|---|---|

8 MCH_CFG_18 — 1 — 30MIL TP555

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

8 MCH_CFG_19 — 1 — 30MIL TP558

| 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 |
|---|---|

8 MCH_CFG_20 — 1 — 30MIL TP561

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

U4I

VSS

QG82945PM_A3

U4J

VSS

QG82945PM_A3



| | | | |
|---|---|---|---|
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| Title | CALISTOGA(VSS) 7 of 7 | | |
| Size<br>A3 | Document Number<br>(MS21-1-01 )MainBoard (MBX-164) TYPE2 | | Rev<br>1.1 |
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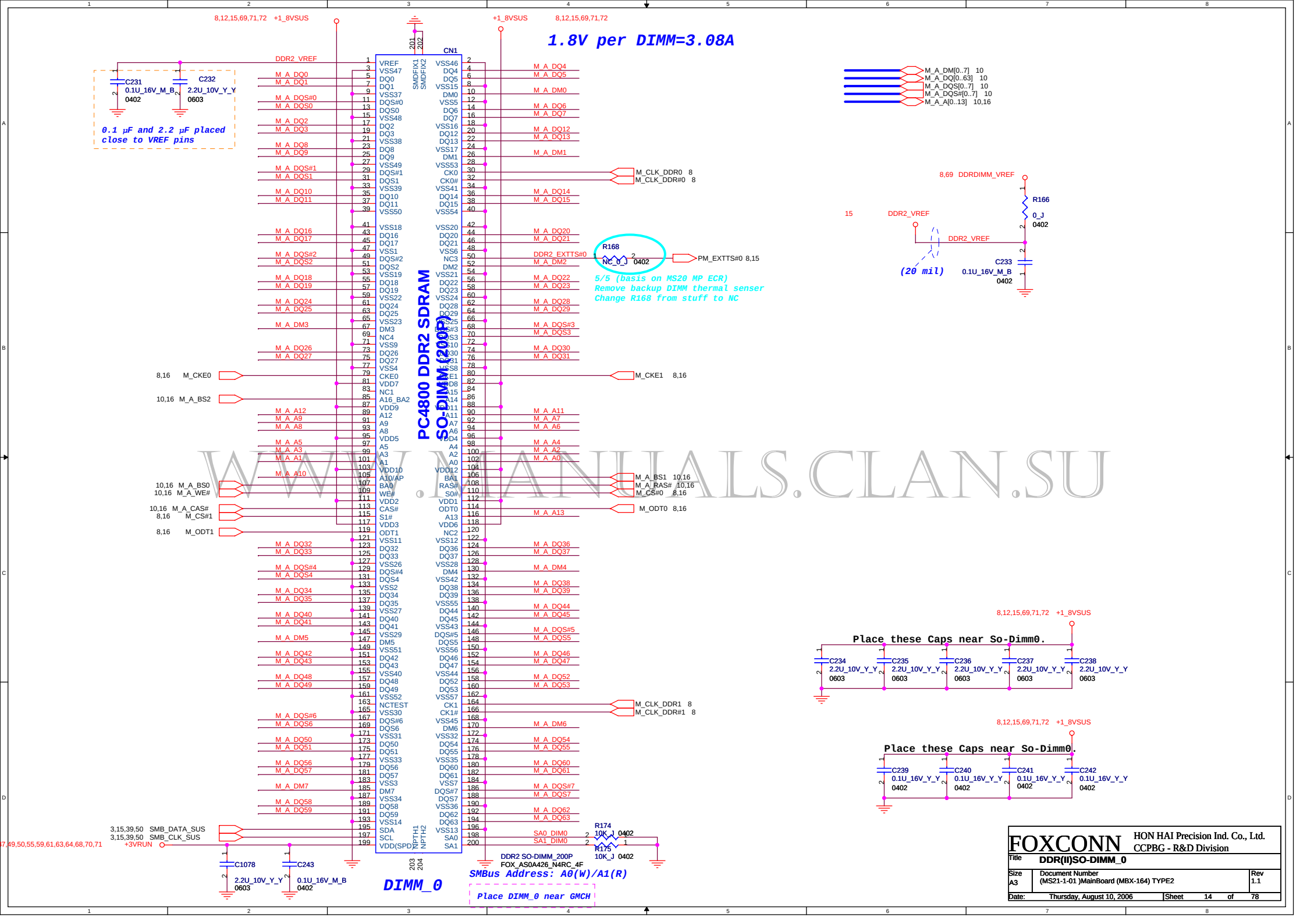

14 DDR2_VREF

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

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

**1.8V per DIMM=3.08A**

C1661 0.1U_16V_M_B 0402
C244 0.1U_16V_M_B 0402
C245 2.2U_10V_Y_Y 0603

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

CN2

PC4800 DDR2 SDRAM SO-DIMM (200P)

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

SMDFIX1 SMDFIX2 201 202 NPTH1 NPTH2 203 204

DDR2 S0-DIMM_200P
FOX_AS0A426_N4SC_4F

R1627 1 NC_0_J 2 0402 PM_EXTTS#0 8,14

*5/5 (basis on MS20 MP ECR)*
*Remove backup DIMM thermal senser*
*Change R1627 from stuff to NC*

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

8,16 M_CKE2
10,16 M_B_BS2
10,16 M_B_BS0
10,16 M_B_WE#
10,16 M_B_CAS#
8,16 M_CS#3
8,16 M_ODT3

3,14,39,50 SMB_DATA_SUS
3,14,39,50 SMB_CLK_SUS

+3VRUN

R177 10K_J 2 1 0402
R178 10K_J 2 1 0402 +3VRUN

C1079 2.2U_10V_Y_Y 0603
C255 0.1U_16V_M_B 0402

**DIMM_1**

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

*DIMM_1 is placed farther from the GMCH than DIMM_0*

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

*Place these Caps near So-Dimm1.*

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

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

*Place these Caps near So-Dimm1.*

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



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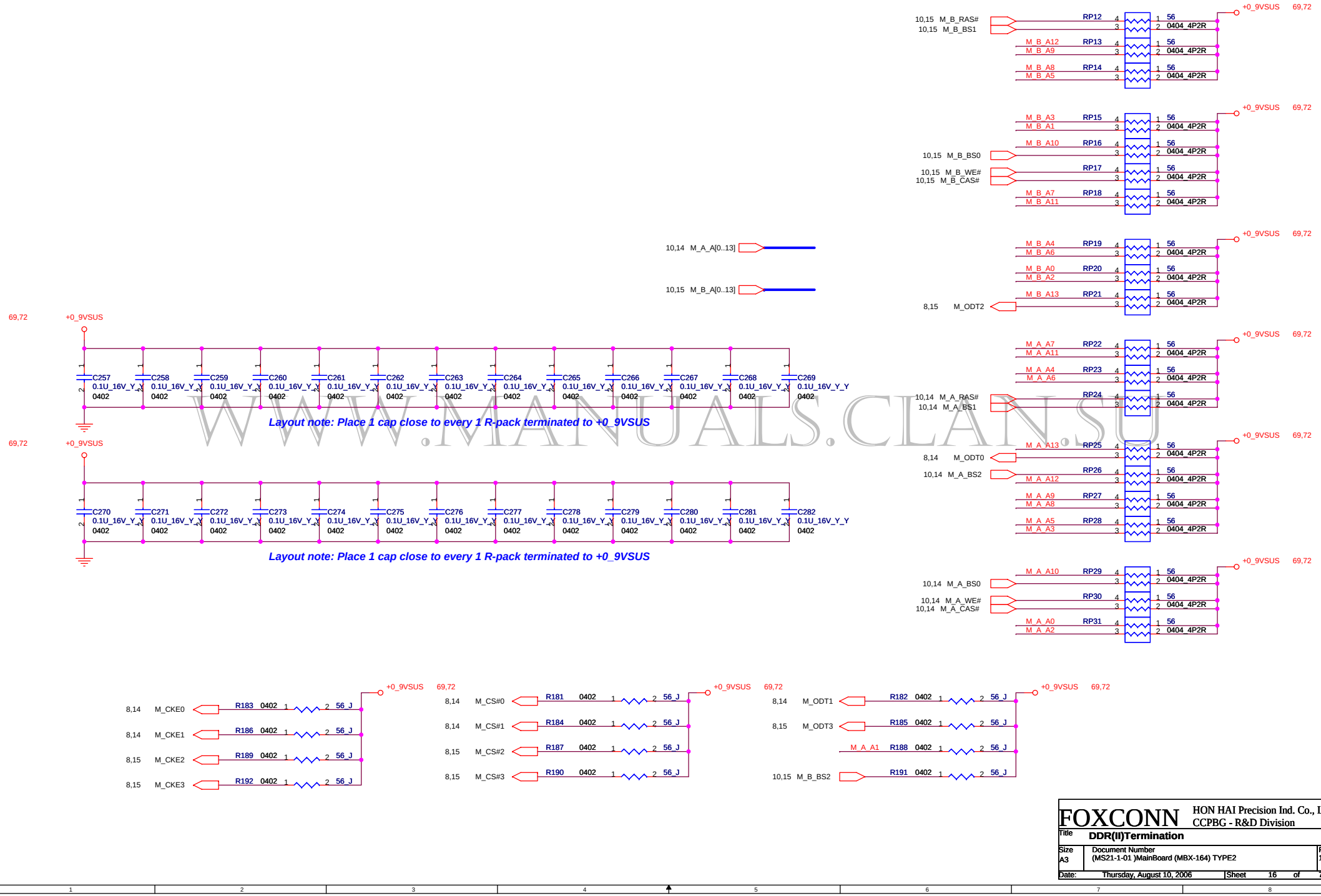
| | | |
|---|---|---|
| Title | DDR(II)SO-DIMM_1 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 15 of 78 | |






FOXCONN HON HAI Precision Ind. Co., Ltd.
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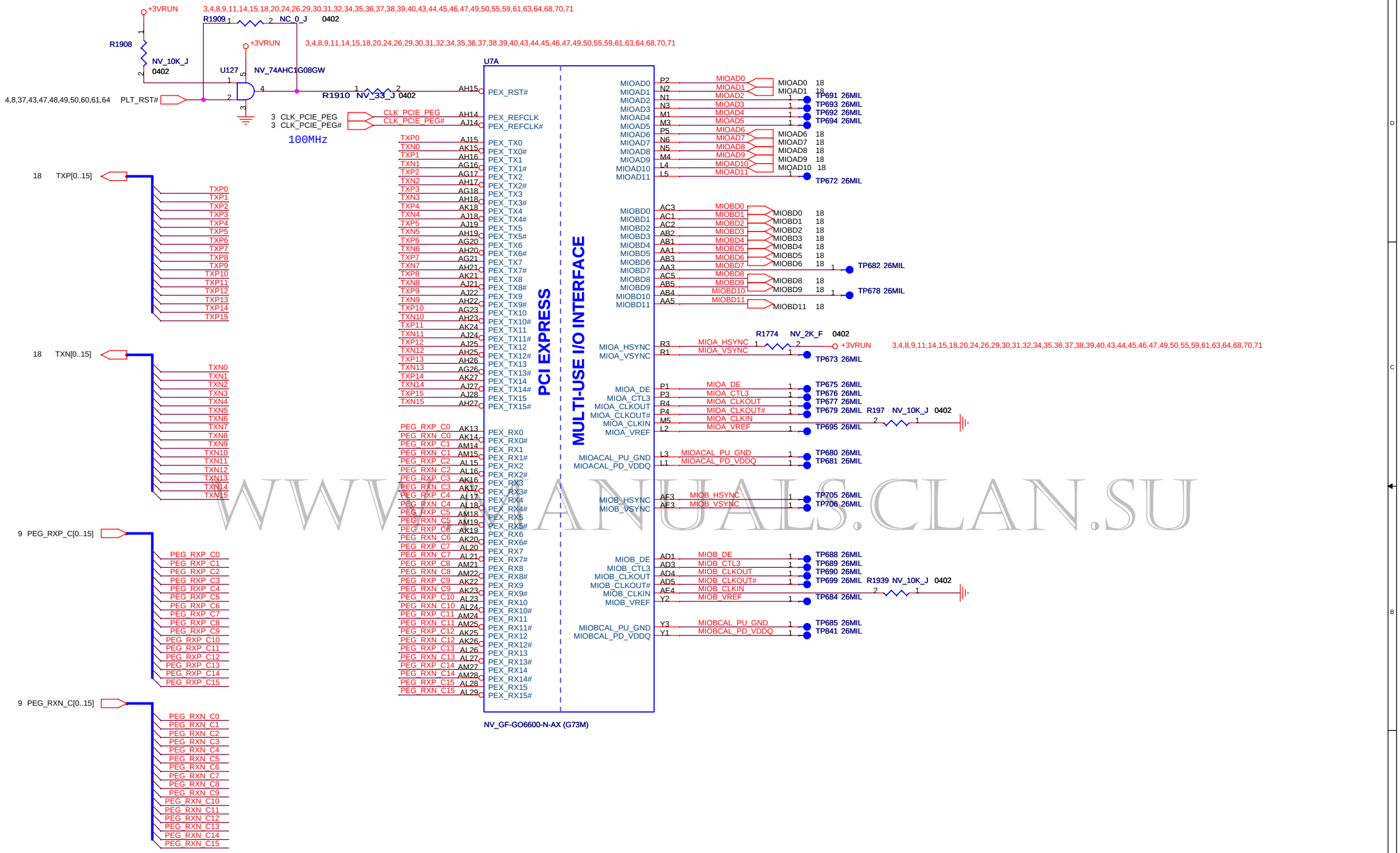
| | | |
|---|---|---|
| Title | DDR(II)Termination | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 16 of 78 | |






| | |
|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division |
| Title | VGA (PCI EXPRESS) 1 OF 8 |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 |
| Rev | 1.1 |
| Date: | Thursday, August 10, 2006 |
| Sheet | 17 of 78 |

9 PEG_RXP[0..15]

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

TXP[0..15] 17

9 PEG_RXN[0..15]

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

TXN[0..15] 17

**TVMODE(NV43M/G7X)**
**NTSC (01)**

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

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

**0101 8Mx32Infineon**
**0110 8Mx32Hynix**
**0111 8Mx32Samsung**

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

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

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

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

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

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

**ROM_TYPE(NV43M/G7X) NC**
**MIOBD10,MIOBD_HSYNC**

**00 PARALLEL**
**01 SERIAL_AT25F**
**10 SERIAL_SST45VF**
**11 LPC**

MIOAD6 MIOAD8 MIOAD9 → MIOAD6 17, MIOAD8 17, MIOAD9 17

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

+3VRUN

17 MIOAD7 — MIOAD7 — R200 NV_2K_J 0402

R201 NV_2K_J 0402 — MIOAD10 — MIOAD10 17

**PVT modify**

**RAM_CFG0** — MIOBD0 — R203 NVH_2K_J 0402 — R204 NVIS_2K_J 0402

**RAM_CFG1** — MIOBD1 — R205 NVI_2K_J 0402 — R206 NVHS_2K_J 0402

**RAM_CFG2** — MIOBD8 — R207 NV16M_2K_J 0402 — R208 NV8M_2K_J 0402

**RAM_CFG3** — MIOBD9 — R209 NV_2K_J 0402 — R210 NC_2K_J 0402

**SUBVENDOR** — R211 NV_2K_J 0402 — MIOAD1 — MIOAD1 17

**PEX_PLL_EN_TERM** — R223 NV_2K_J 0402 — MIOAD0 — MIOAD0 17

**10/13 FAE suggest to use 001**

**3GIO_PADCFG0** — MIOAD6 — R225 NC_2K_J 0402 — R226 NV_2K_J 0402

**3GIO_PADCFG1** — MIOAD8 — R227 NV_2K_J 0402 — R228 NC_2K_J 0402

**3GIO_PADCFG2** — MIOAD9 — R229 NV_2K_J 0402 — R230 NC_2K_J 0402

**PCI_DEVID 0** — MIOBD4 — R231 NV7273_2K_J 0402 — R232 NV73U_2K_J 0402

**PCI_DEVID 1** — MIOBD5 — R233 NV_2K_J 0402 — R234 NC_2K_J 0402

**PCI_DEVID 2** — MIOBD3 — R235 NV_2K_J 0402 — R236 NC_2K_J 0402

**PCI_DEVID 3** — MIOBD11 — R237 NC_2K_J 0402 — R238 NV_2K_J 0402

**CRYSTAL 0** — MIOBD2 — R241 NV_2K_J 0402 — MIOBD2 17

**CRYSTAL 1** — 17 MIOBD6 — MIOBD6 — R244 NV_2K_J 0402



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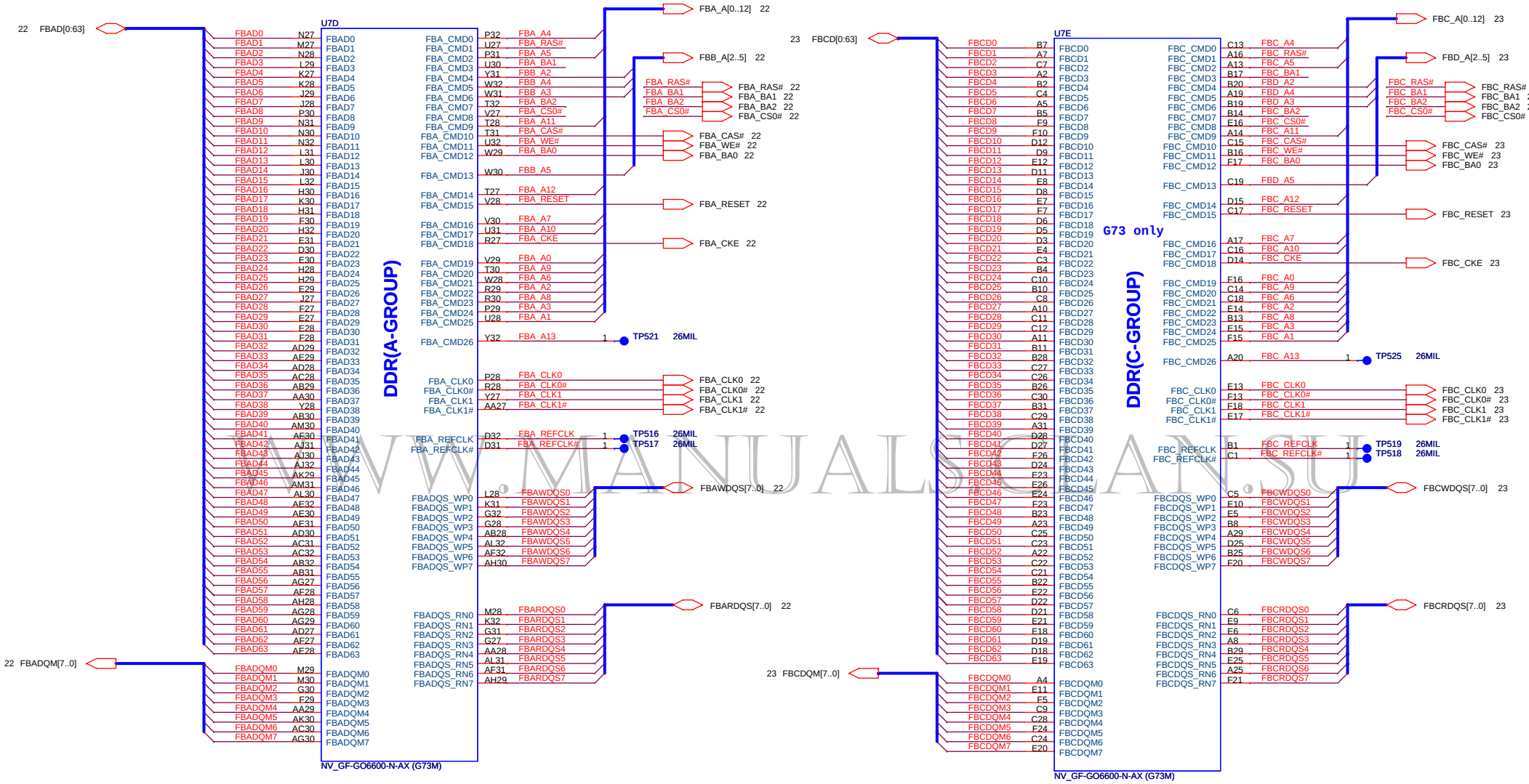
Title: VGA (PCI-EXPRESS/STRAP) 2 OF 8

Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 18 of 78






| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | VGA (GDDR) 3 OF 8 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 19 of 78 | |

SM bus Address :
1001100(EC)
For F75383M

HDCP

U7F

I2C

GENERAL SIGNALS

ROM

GPIO

TEST SIGNAL

CRYSTAL

NV_GF-GO6600-N-AX (G73M)

F75383M(VERISION:0.28P)

From EC

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

7/28
change Y2 Value
from Normal to NV

HDCP ROM

Tis chip can use MK1726 or P1819B

R316 place near GPU
R317 place near spectrum chip

SPREAD SPECTRUM SETTING FOR MK

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

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

SPREAD SPECTRUM SETTING FOR P1819B

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

nVidia support Down -1.25%

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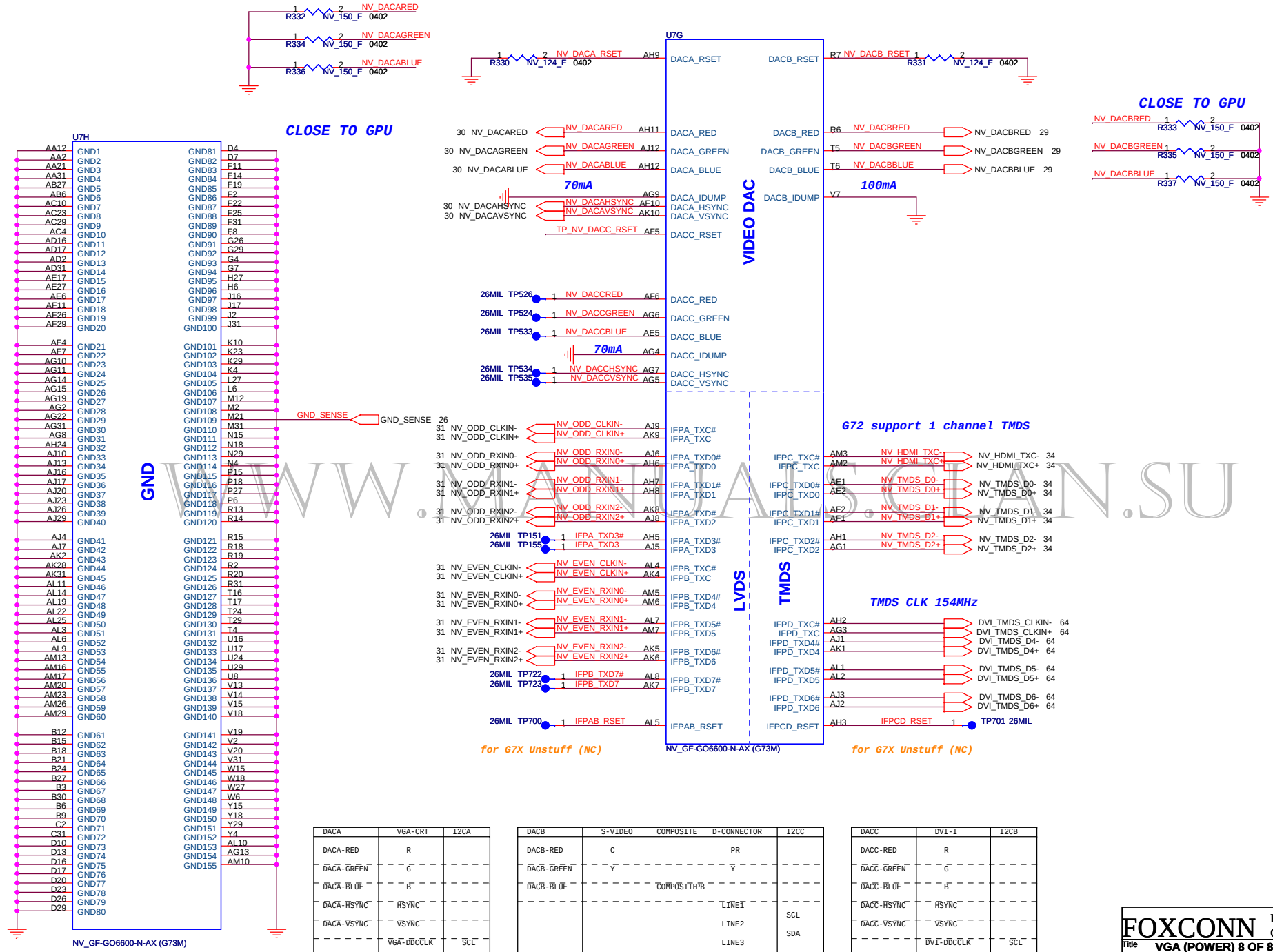
Title: VGA (POWER) 7 OF 8
Size: A3
Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2
Rev: 1.1
Date: Thursday, August 10, 2006
Sheet 20 of 78




| 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 | | |
| | | | LINE1 | SCL |
| | | | LINE2 | SDA |
| | | | LINE3 | |

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

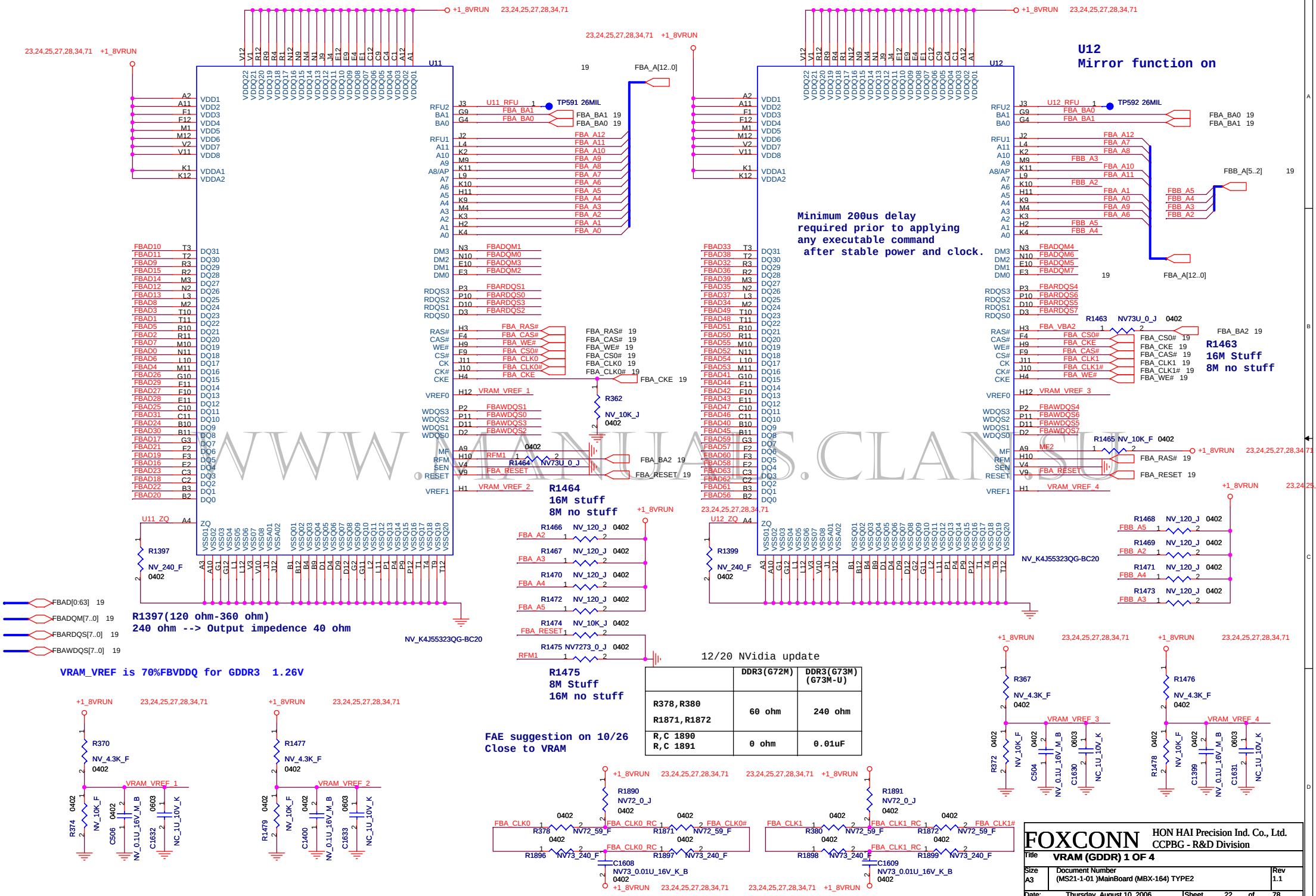


FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

Title: VGA (POWER) 8 OF 8

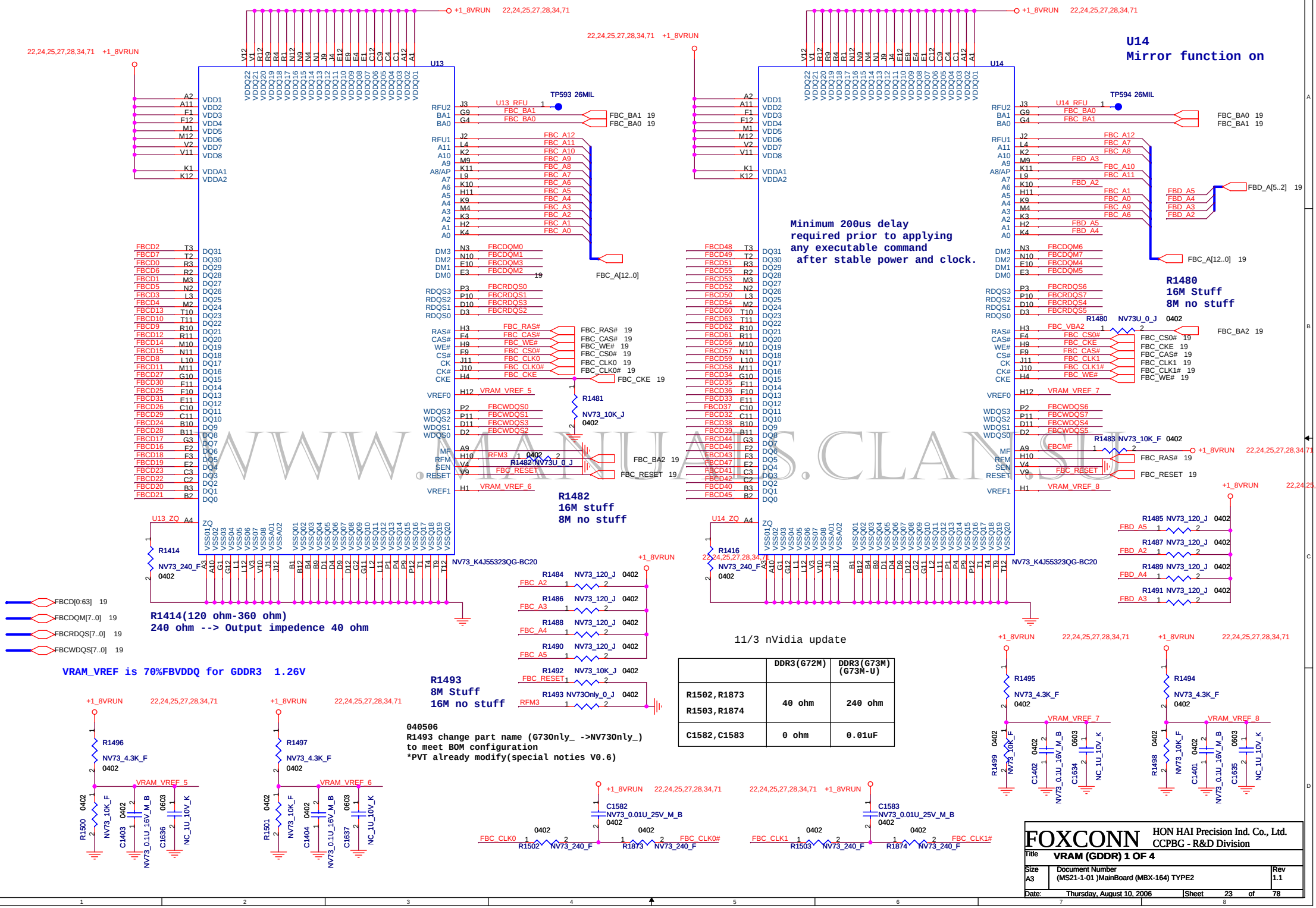
Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 21 of 78






| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
|---|---|---|
| Title | VRAM (GDDR) 1 OF 4 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 22 of 78 | |

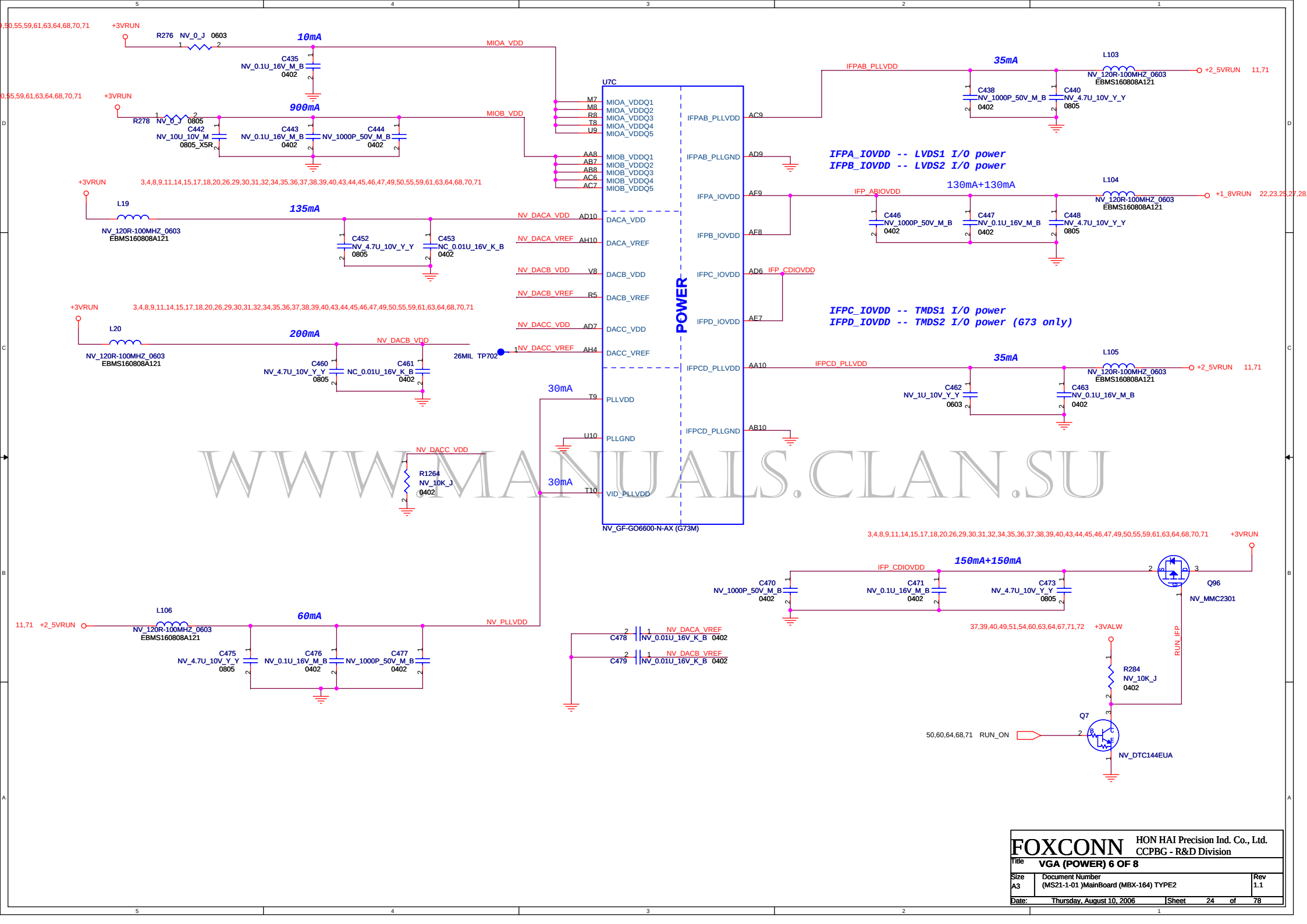



| | DDR3(G72M) | DDR3(G73M) (G73M-U) |
|---|---|---|
| R1502,R1873<br>R1503,R1874 | 40 ohm | 240 ohm |
| C1582,C1583 | 0 ohm | 0.01uF |



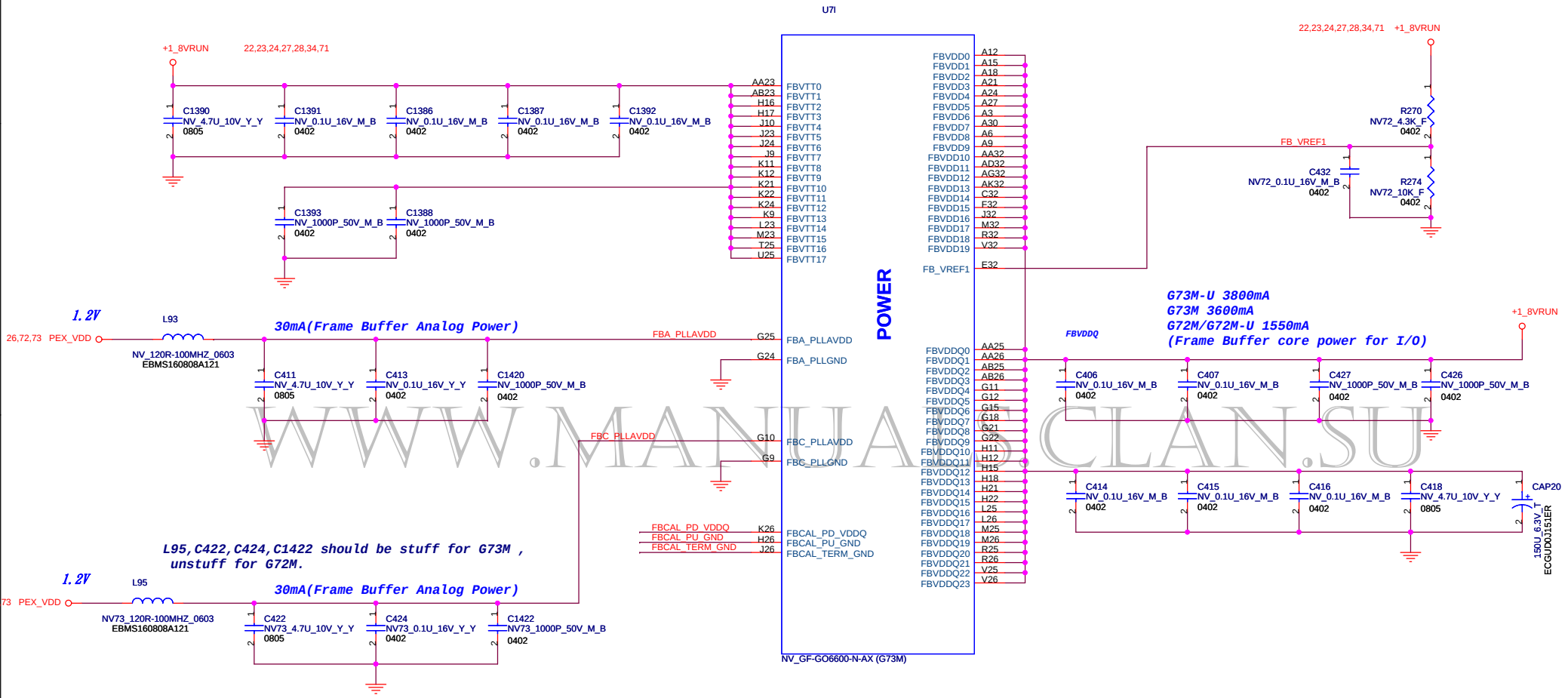
FOXCONN HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division

| | | |
|---|---|---|
| Title | VRAM (GDDR) 1 OF 4 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 23 of 78 | |




| | |
|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. |
| | CCPBG - R&D Division |
| Title | VGA (POWER) 6 OF 8 |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 |
| Rev | 1.1 |
| Date: | Thursday, August 10, 2006 |
| Sheet | 24 of 78 |

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






*11/3 nVidia update*

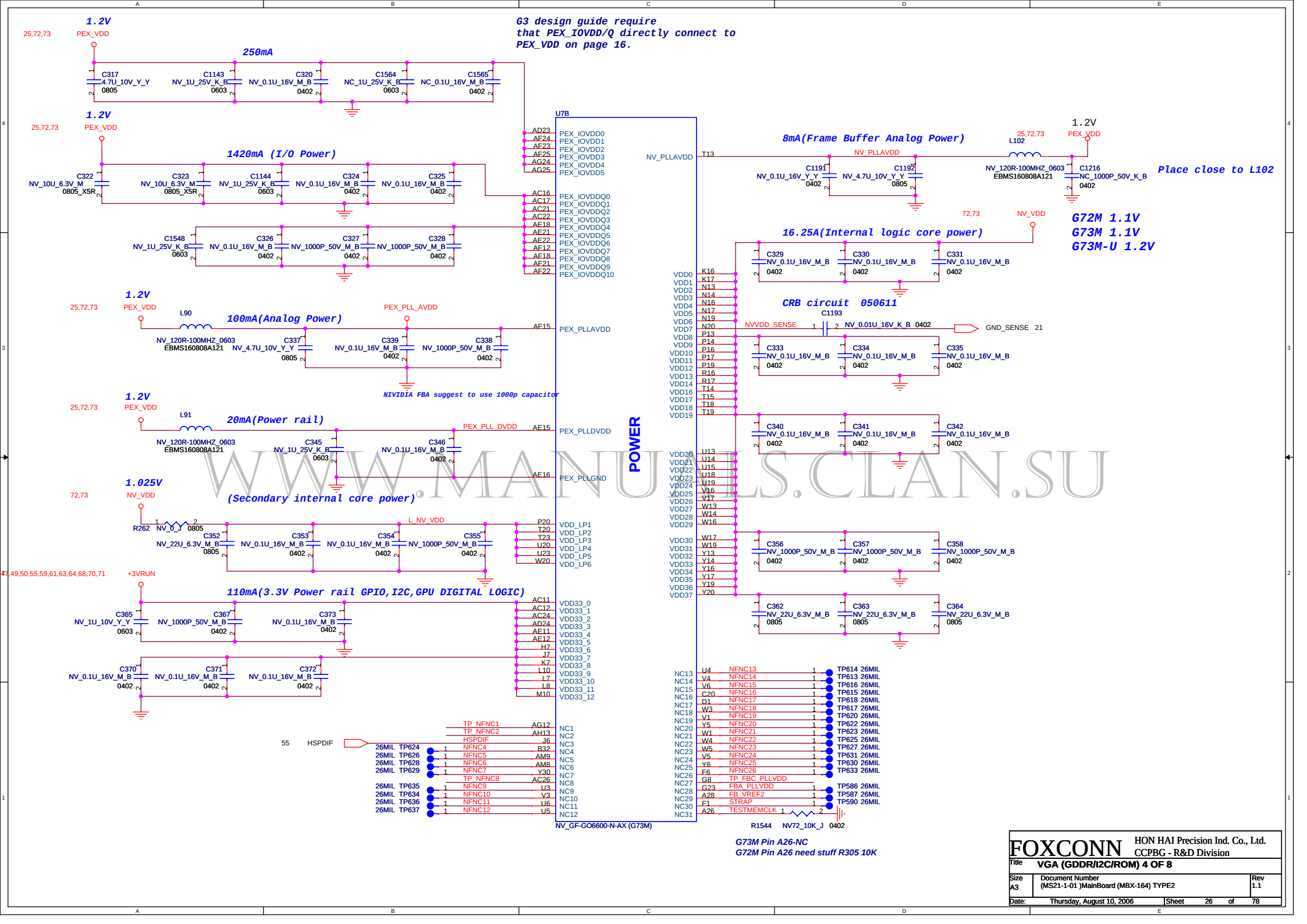
| | DDR1 | DDR3(G72M) | DDR3(G73M) |
|---|---|---|---|
| FBCAL_PD_VDDQ | 40 ohm | 60 ohm | 50 ohm |
| FBCAL_PU_GND | 30 ohm | 40 ohm | 40 ohm |
| FBCAL_TERM_GND | NC | 40 ohm | 40 ohm |

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

Title: VGA (POWER) 5 OF 8

Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 25 of 78



## Decoupling for Tright MEMORY

Place around the MEM

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

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

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

1.2A

C524 NV_1000P_50V_M_B 0402
C525 NV_1000P_50V_M_B 0402

## Decoupling for Tleft MEMORY

Place around the MEM

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

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



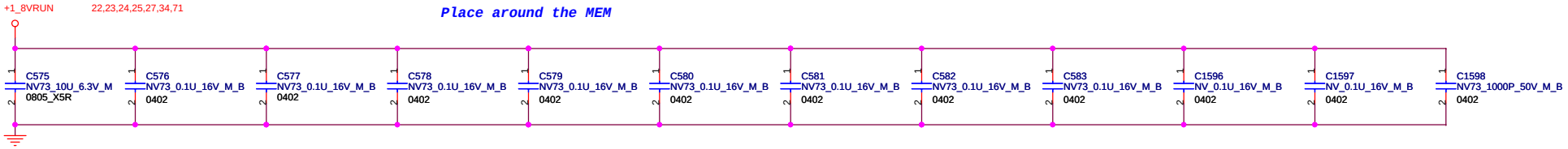
+1_8VRUN 22,23,24,25,28,34,71

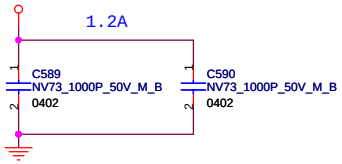
C554 NV_1000P_50V_M_B 0402
C555 NV_1000P_50V_M_B 0402

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | VRAM (GDDR) 3 OF 4 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 27 of 78 | |

## Decoupling for Bright MEMORY

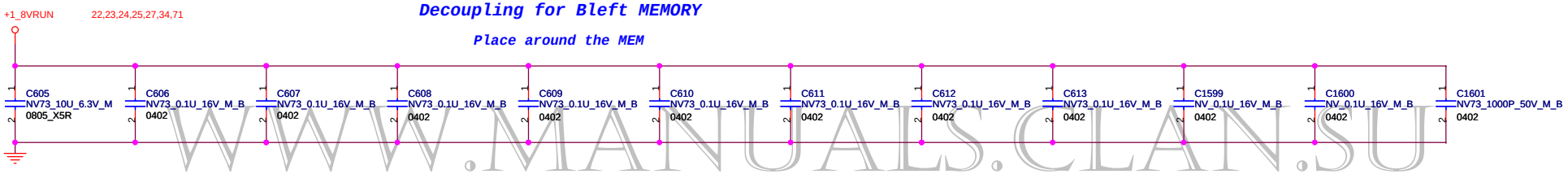
Place around the MEM

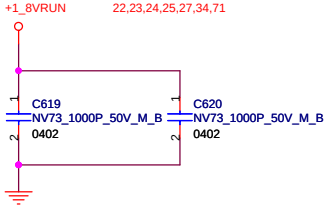



## Decoupling for Bleft MEMORY

Place around the MEM






| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | VRAM (POWERBYPASS) 4 OF 4 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 28 of 78 | |

# S-VIDEO ANALOG SWITCH

H : S-VIDEO&CVBS
L : PORT REPLICATOR

30,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73,74 +5VRUN

C691 1U_10V_Y_Y 0603

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

U77 SN74CBT3257PW

| | | | | |
|---|---|---|---|---|
| DACB_RED_COM | 4 | 1A | 1B1 | 2 |
| | | | 1B2 | 3 |
| DACB_GREEN_COM | 7 | 2A | 2B1 | 5 |
| | | | 2B2 | 6 |
| 30 GM_OR_NV_DDCCLK | 9 | 3A | 3B2 | 10 |
| | | | 3B1 | 11 |
| 30 GM_OR_NV_DDCDATA | 12 | 4A | 4B2 | 13 |
| | | | 4B1 | 14 |
| 30,64 DOCKED# | 1 | S | OE# | 15 |
| | | | GND | 8 |

VCC 16

TVD_COUT 2 — TV_S_C_OUT 3 — TVD_COUT 64
TVD_YOUT 5 — TV_S_Y_OUT 6 — TVD_YOUT 64

COME TO DOCKING

30 GM_OR_NV_DDCCLK — MB_DDCCLK 30 / PR_DDCCLK 64
30 GM_OR_NV_DDCDATA — MB_DDCDATA 30 / PR_DDCDATA 64

30,64 DOCKED#

# S-VIDEO

These compoent close to S-Video connector within 700 mil

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

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

Y_OUT
C_OUT

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

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

2006/8/7
change D60,D61,D81 Value from NV to Normal

B_SVD_DET# — D81 SM05.TCT
C_OUT — D61 SM05.TCT
Y_OUT — D60 SM05.TCT

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

30,34,35,38,40,42,43,47,55,56,57,61,63,70,71,73,74 +5VRUN

R1546 NV_2.2K_J 0402 — NV_HDMI_DET_3 34
R1545 NV_2.2K_J 0402
Q115 NV_DTC144EUA
Q116 NV_DTC144EUA
34,35 NV_HDMI_DET_5



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

64 DOCK_SEMI_PNP

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

# Semi-PnP

NC_MC74VHC1G86DFT2G
U108 MC74VHC1G86DFT2G
U73 MC74VHC1G86DFT2G
R1911 10K_J 0402
R1548 10K_J 0402
NV_HDMI_DET_3
AND5
AND4
EXT_DEV_SENSE 60
Semi-PnP(EC IN)

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

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

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

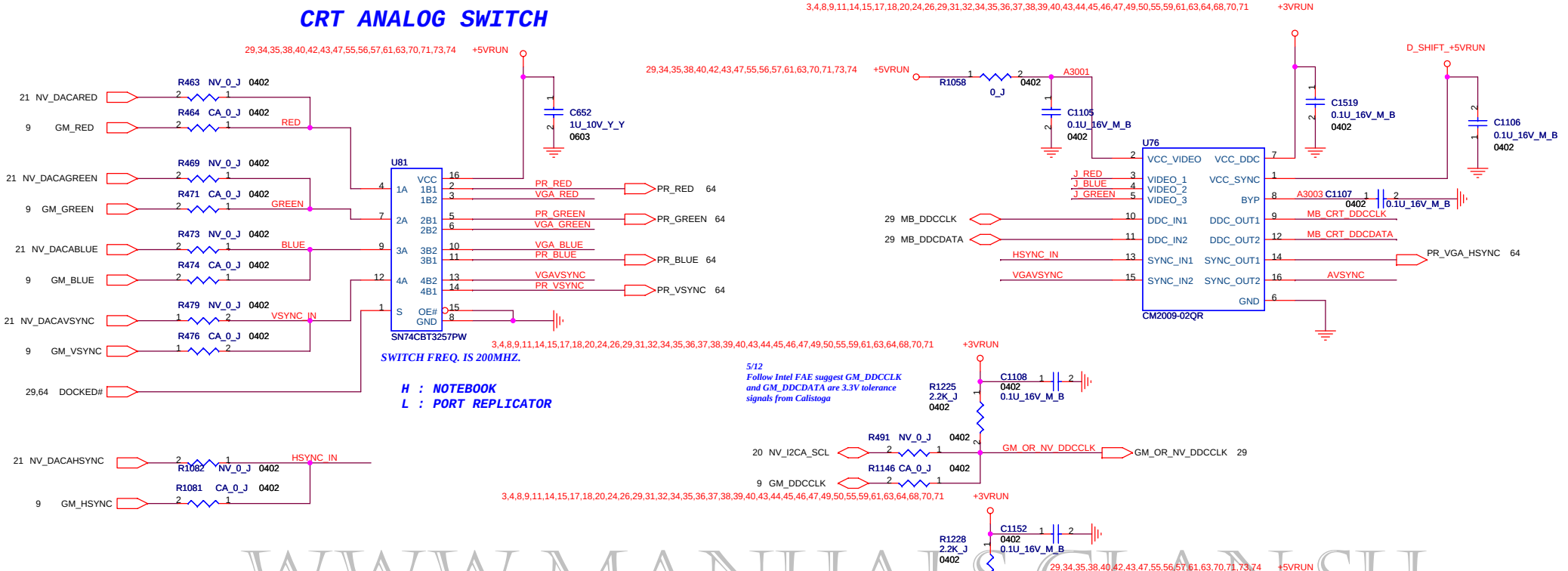
R1076 10K_J 0402
R1077 10K_J 0402
SEMI5

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

U72 MC74VHC1G86DFT2G

| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
|---|---|---|
| Title | S-VIDEO/Semi-PnP | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 29 of 78 | |

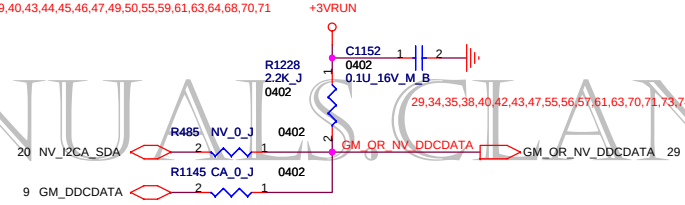
# CRT ANALOG SWITCH





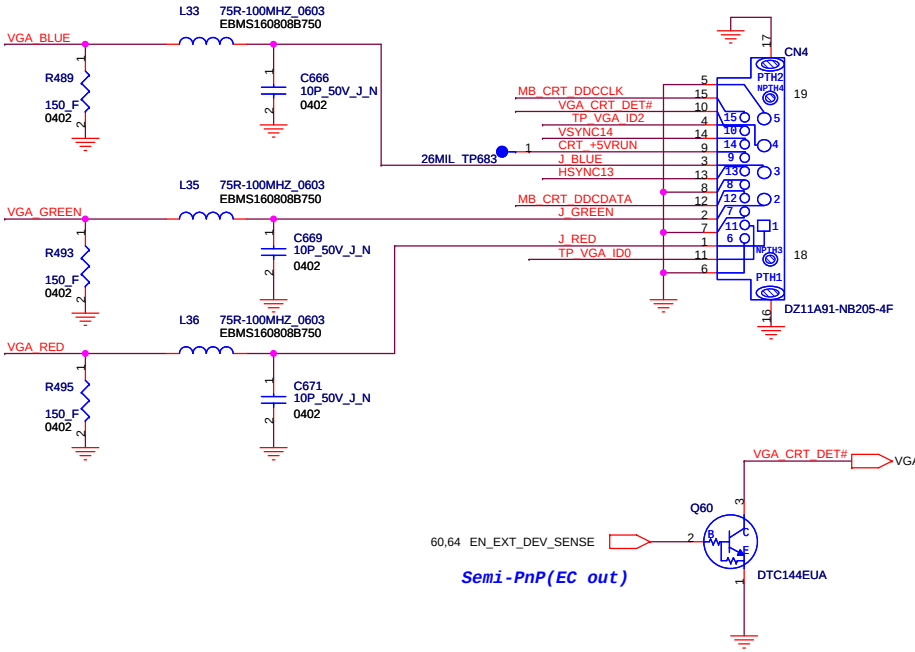


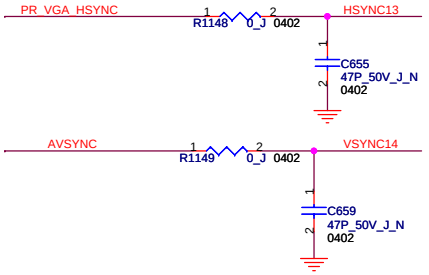


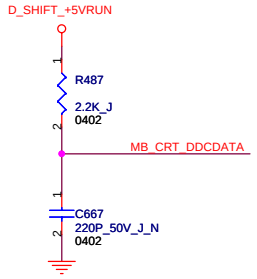



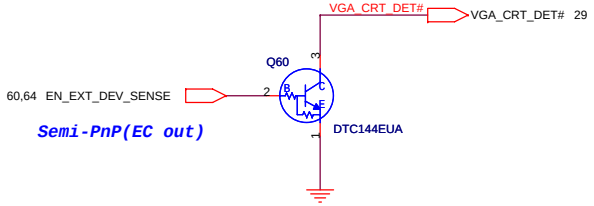



# CRT CONNECTOR




| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title: CRT | | |
| Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 30 of 78 | |

# LVDS

Group1 Group2

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

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

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

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

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

21 NV_EVEN_RXIN0- 21 NV_EVEN_RXIN0+ — 0404_4P2R RP86 (NV_0) / RP87 (CA_0) — EVEN_RXIN0- EVEN_RXIN0+ — GM_EVEN_RXIN0- 9 GM_EVEN_RXIN0+ 9

21 NV_EVEN_RXIN1- 21 NV_EVEN_RXIN1+ — 0404_4P2R RP88 (NV_0) / RP89 (CA_0) — EVEN_RXIN1- EVEN_RXIN1+ — GM_EVEN_RXIN1- 9 GM_EVEN_RXIN1+ 9

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

2006/6/26
(Del inverter boost circuit , after change , the inverter circuit is the same with MS20 MP)
Detail change list
Delete PR426&PR427 and change
C604-1,C1557-1,C1558-1,CN49pin1,pin2
net name INVERTER_VCC to net DCBATOUT.

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

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

Place C640 and C1558 close to CN49.

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

2A

CN49 — INV_ENABLE — INV_BRADJ — B TO B HEADER CONN_6P FOX_HS8106E

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

U106 74AHC1G08GW

39 INV_EN_EC — INV_EN_EC — BRADJPWM_LPF

NB_BRADJ — R1268 CA_0_J 0402

20 NV_BRADJ — R1269 NV_0_J 0402

R1549 10K_J 0402

U106,U15,U16 can use ON (MC74VHC1G08DFT2G)
H.H. PN:14-MC74VHC-1604

# LVDS CONNECTOR

LCDVCC — GAMMA_CTRL — LVDS_GPIO 37

EVEN_RXIN0+ EVEN_RXIN0- — EVEN_RXIN1+ EVEN_RXIN1- — EVEN_RXIN2- EVEN_RXIN2+ — EVEN_CLKIN+ EVEN_CLKIN- — ODD_CLKIN+ ODD_CLKIN- — ODD_RXIN2+ ODD_RXIN2- — ODD_RXIN1+ ODD_RXIN1- — ODD_RXIN0+ ODD_RXIN0-

CN3 — FPC RECEPTCAL CONN_30P — FOX_GS12301-1011A-9F

# INVERTER CONNECTOR

LCDVCC — R1937 NC_0_J 0402 — GAMMA_CTRL — R1938 0_J 0402



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

U16 74AHC1G08GW

60,63 LIDIN#

20 NV_INV_EN — (3.3V tolerant) — R1724 — R458 CA_100K_J 0402 — CA_0_J 0402

9 GM_INV_EN

U15 74AHC1G08GW

39 INV_EN_EC — INV_ENABLE — INV_ENABLE 60,74

R1550 10K_J 0402

LCDVCC

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

Place C650 close to CN3

,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

R459 2K_J 0402

Current limit is from 1.1A to 2.1A.

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

Q10 CA_DTC144EUA

9 GM_LCDVCC_EN

20 NV_LCDVCC_EN#

U17 G548B2P1U — C647 0.1U_16V_M_B 0402 — C1151 0402 NV_0.1U_16V_Y_Y

LCDVCC — R461 62_J 0805

DISCHARGE

Q135 MMC2301 — R1857 47K_J 0402

+3VRUN — R1856 4.7K_J 0402

Q141 MMBT3904 — R1892 0402 10K_J — NV_LCDVCC_EN# 20

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

## PANEL ID

SW1 HDS404-E_SW-SLIDE

LCDID0 39 — LCDID1 39 — LCDID2 39 — FAN_SEL 60

FAN_SEL:
H: Foxconn FAN
L: MOR cooling unit

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

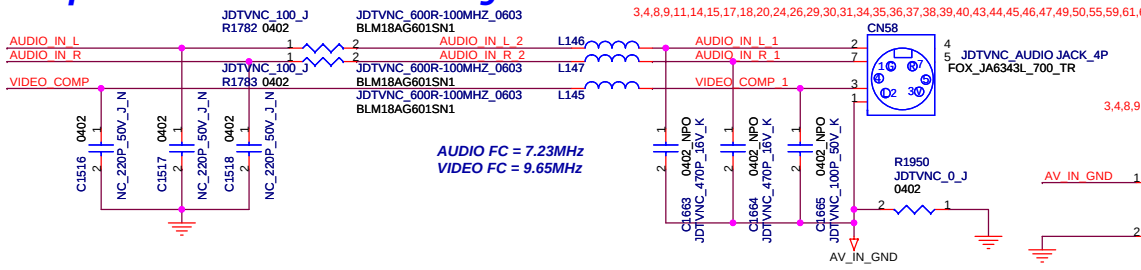
FOXCONN — HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division

Title: LVDS

Size: A3 — Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 — Rev: 1.1

Date: Thursday, August 10, 2006 — Sheet 31 of 78

# Special mini stereo jack




3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71

+3VRUN

# TV TUNER CONN

+5VRUN_TV (5.2V)

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71

R1392 NC_0_J 0402 3.3VAUX_R

D96 JDTVNC_SM05.TCT

CN56 MINI PCI CONN_2x62P FOX_AS0B126-S52N-1F

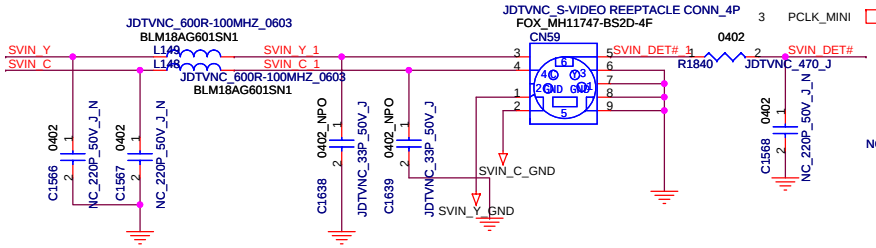
| | | | |
|---|---|---|---|
| TIP | 1 | RING | 2 |
| 8PMJ-3 | 3 | 8PMJ-1 | 4 |
| 8PMJ-6 | 5 | 8PMJ-2 | 6 |
| 8PMJ-7 | 7 | 8PMJ-4 | 8 |
| 8PMJ-8 | 9 | 8PMJ-5 | 10 |
| LED1_GRNP | 11 | LED2_YELP | 12 |
| LED1_GRNN | 13 | LED2_YELN | 14 |
| CHSGND | 15 | RESERVED_5 | 16 |
| INTB# | 17 | 5V_2 | 18 |
| 3.3V_1 | 19 | INTA# | 20 |
| SVIN_Y | 21 | SVIN_C | 22 |
| SVIN_Y_GND | 23 | 3.3VAUX_1 | 24 |
| CLK | 25 | RST# | 26 |
| GROUND_2 | 27 | 3.3V_5 | 28 |
| REQ# | 29 | GNT# | 30 |
| 3.3V_2 | 31 | SVIN_C_GND | 32 |
| AD31 | 33 | PME# | 34 |
| AD29 | 35 | RESERVED_7 | 36 |
| GROUND_3 | 37 | AD30 | 38 |
| AD27 | 39 | 3.3V_6 | 40 |
| AD25 | 41 | AD28 | 42 |
| RESERVED_2 | 43 | AD26 | 44 |
| C/BE3# | 45 | AD24 | 46 |
| AD23 | 47 | IDSEL | 48 |
| GROUND_4 | 49 | GROUND_11 | 50 |
| AD21 | 51 | AD22 | 52 |
| AD19 | 53 | AD20 | 54 |
| GROUND_5 | 55 | PAR | 56 |
| AD17 | 57 | AD18 | 58 |
| C/BE2# | 59 | AD16 | 60 |
| IRDY# | 61 | GROUND_12 | 62 |
| 3.3V_3 | 63 | FRAME# | 64 |
| CLKRUN# | 65 | TRDY# | 66 |
| SERR# | 67 | STOP# | 68 |
| GROUND_6 | 69 | 3.3V_7 | 70 |
| PERR# | 71 | DEVSEL# | 72 |
| C/BE1# | 73 | GROUND_13 | 74 |
| AD14 | 75 | AD15 | 76 |
| GROUND_7 | 77 | AD13 | 78 |
| AD12 | 79 | AD11 | 80 |
| AD10 | 81 | GROUND_14 | 82 |
| GROUND_8 | 83 | AD9 | 84 |
| AD8 | 85 | C/BE0# | 86 |
| AD7 | 87 | 3.3V_8 | 88 |
| 3.3V_4 | 89 | AD6 | 90 |
| AD5 | 91 | AD4 | 92 |
| VIDEO_COMP | 93 | AD2 | 94 |
| AD3 | 95 | AD0 | 96 |
| 5V_1 | 97 | THERMAL_CONTROL | 98 |
| AD1 | 99 | SVIN_SNS# | 100 |
| VIDEO_COMP_GND | 101 | GROUND_15 | 102 |
| AC_SYNC | 103 | M66EN | 104 |
| AC_SDATA_IN | 105 | AC_SDATA_OUT | 106 |
| AC_BIT_CLK | 107 | AC_CODEC_ID0# | 108 |
| AC_CODEC_ID1# | 109 | AC_RESET# | 110 |
| MOD_AUDIO_MON | 111 | AUDIO_IN_R | 112 |
| AUDIO_GND_R | 113 | GROUND_16 | 114 |
| SYS_AUDIO_OUT | 115 | SYS_AUDIO_IN | 116 |
| SYS_AUDIO_OUT GND | 117 | SYS_AUDIO_IN GND | 118 |
| AUDIO_GND_L | 119 | AUDIO_GND | 120 |
| AUDIO_IN_L | 121 | MCPIACT# | 122 |
| 5V | 123 | 3.3VAUX_2 | 124 |
| | 125 | | 126 |
| | 127 | | 128 |

NPTH1 SMDFIX1 SMDFIX2 NPTH2

C1368 0.1U_16V_Y_Y 0402

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

# S-VIDEO IN




PCLK_MINI

R1841 NC_33_J 0402

C1569 NC_33P_50V_K_N 0402

| | | |
|---|---|---|
| 37 | INT_PIRQD# | INT_PIRQD# |
| | SVIN_Y | |
| | SVIN_Y_GND | |
| | PCLK_MINI | |
| 37 | PCI_REQ#3 | PCI_REQ#3 |
| | PCI_AD31 | |
| | PCI_AD29 | |
| | PCI_AD27 | |
| | PCI_AD25 | |
| 37,44 | PCI_C/BE#3 | PCI_C/BE#3 |
| | PCI_AD23 | |
| | PCI_AD21 | |
| | PCI_AD19 | |
| | PCI_AD17 | |
| 37,44 | PCI_C/BE#2 | PCI_C/BE#2 |
| 37,44 | PCI_IRDY# | PCI_IRDY# |
| 39,44,60,61 | PM_CLKRUN# | PM_CLKRUN# |
| 37,44 | PCI_SERR# | PCI_SERR# |
| 37,44 | PCI_PERR# | PCI_PERR# |
| 37,44 | PCI_C/BE#1 | PCI_C/BE#1 |
| | PCI_AD14 | |
| | PCI_AD12 | |
| | PCI_AD10 | |
| | PCI_AD8 | |
| | PCI_AD7 | |
| | PCI_AD5 | |
| | VIDEO_COMP | |
| | PCI_AD3 | |
| | PCI_AD1 | |

TV-TUNER not support CLKRUN

+5VRUN_TV (5.2V)

+5VRUN_TV

C1369 0.1U_16V_Y_Y 0402

AV_IN_GND

AUDIO_IN_L

+5VRUN_TV (5.2V) 71 +5VRUN_TV

C1395 0.1U_16V_Y_Y 0402

| | | |
|---|---|---|
| | INT_PIRQG# | INT_PIRQG# 37 |
| | SVIN_C | |
| | 3.3VAUX_R | |
| | PCI_RST# | PCI_RST# 37,44,61 |
| | PCI_GNT#3 | PCI_GNT#3 37 |
| | SVIN_C_GND | |
| | PCI_PME# | PCI_PME# 37,44 |
| | REC_LED | REC_LED 63 |
| | PCI_AD30 | |
| | PCI_AD28 | |
| | PCI_AD26 | |
| | PCI_AD24 | |
| | MINI_IDSEL | R1393 PCI_AD20 |
| | PCI_AD22 | 100_J 0402 |
| | PCI_AD20 | |
| | PCI_PAR | PCI_PAR 37,44 |
| | PCI_AD18 | |
| | PCI_AD16 | |
| | PCI_FRAME# | PCI_FRAME# 37,44 |
| | PCI_TRDY# | PCI_TRDY# 37,44 |
| | PCI_STOP# | PCI_STOP# 37,44 |
| | PCI_DEVSEL# | PCI_DEVSEL# 37,44 |
| | PCI_AD15 | |
| | PCI_AD13 | |
| | PCI_AD11 | |
| | PCI_AD9 | |
| | PCI_C/BE#0 | PCI_C/BE#0 37,44 |
| | PCI_AD6 | |
| | PCI_AD4 | |
| | PCI_AD2 | |
| | PCI_AD0 | |
| | THERMAL_CTL_1 | TP703 26MIL |
| | SVIN_DET# | |
| | AUDIO_IN_R | |
| | 3.3VAUX_R | |

PCI_AD[31..0] 37,44

D82 AUDIO_IN_R JDTVNC_SM05.TCT
D84 VIDEO_COMP JDTVNC_SM05.TCT
D77 SVIN_Y JDTVNC_SM05.TCT
D97 SVIN_Y_GND JDTVNC_SM05.TCT
D83 AUDIO_IN_L JDTVNC_SM05.TCT
D85 SVIN_DET# JDTVNC_SM05.TCT
D76 SVIN_C JDTVNC_SM05.TCT
D98 SVIN_C_GND JDTVNC_SM05.TCT

B-CAS connentor (Close to TV Tuner)

CN67 FFC_10P FOX_GB5RF100-1200-7F

| | |
|---|---|
| BCAS_SW1 | 10 |
| BCAS_SW0 | 9 |
| BCAS_RST | 8 |
| BCAS_GND | 7 |
| BCAS_CLK | 6 |
| BCAS_GND | 5 |
| BCAS_IO | 4 |
| BCAS_GND | 3 |
| BCAS_VCC | 2 |
| BCAS_VCC | 1 |

FFC CONNECT TO TV TUNER BOARD (FOR JP DIAGITAL)

CN66 FFC_10P FOX_GB5RF100-1200-7F

| | |
|---|---|
| BCAS_SW1 | 10 |
| BCAS_SW0 | 9 |
| BCAS_RST | 8 |
| BCAS_GND | 7 |
| BCAS_CLK | 6 |
| BCAS_GND | 5 |
| BCAS_IO | 4 |
| BCAS_GND | 3 |
| BCAS_VCC | 2 |
| BCAS_VCC | 1 |

BFT Test Pad

| | | |
|---|---|---|
| BCAS_SW1 | TP725 | tpc32t_100 |
| BCAS_SW0 | TP727 | tpc32t_100 |
| BCAS_RST | TP726 | tpc32t_100 |
| BCAS_CLK | TP728 | tpc32t_100 |
| BCAS_IO | TP729 | tpc32t_100 |
| BCAS_GND | TP731 | tpc32t_100 |
| BCAS_VCC | TP730 | tpc32t_100 |

3,4,8,9,11,14,15,17,18,20,24,26,29,30,31,34,35,36,37,38,39,40,43,44,45,46,47,49,50,55,59,61,63,64,68,70,71 +3VRUN

C1370 C1371 C1372 C1375 C1376 C1377 0.1U_16V_Y_Y 0402

CN66,CN67 Change from MOLEX to FOXCONN



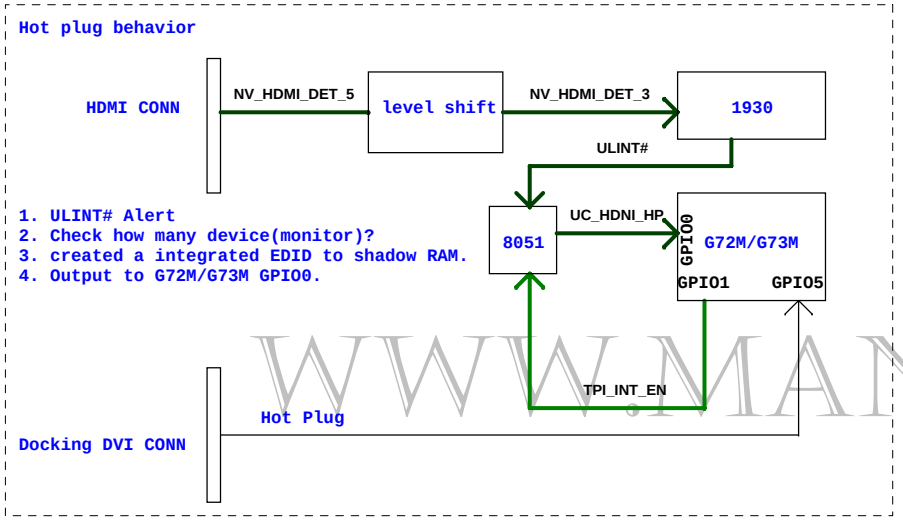
FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

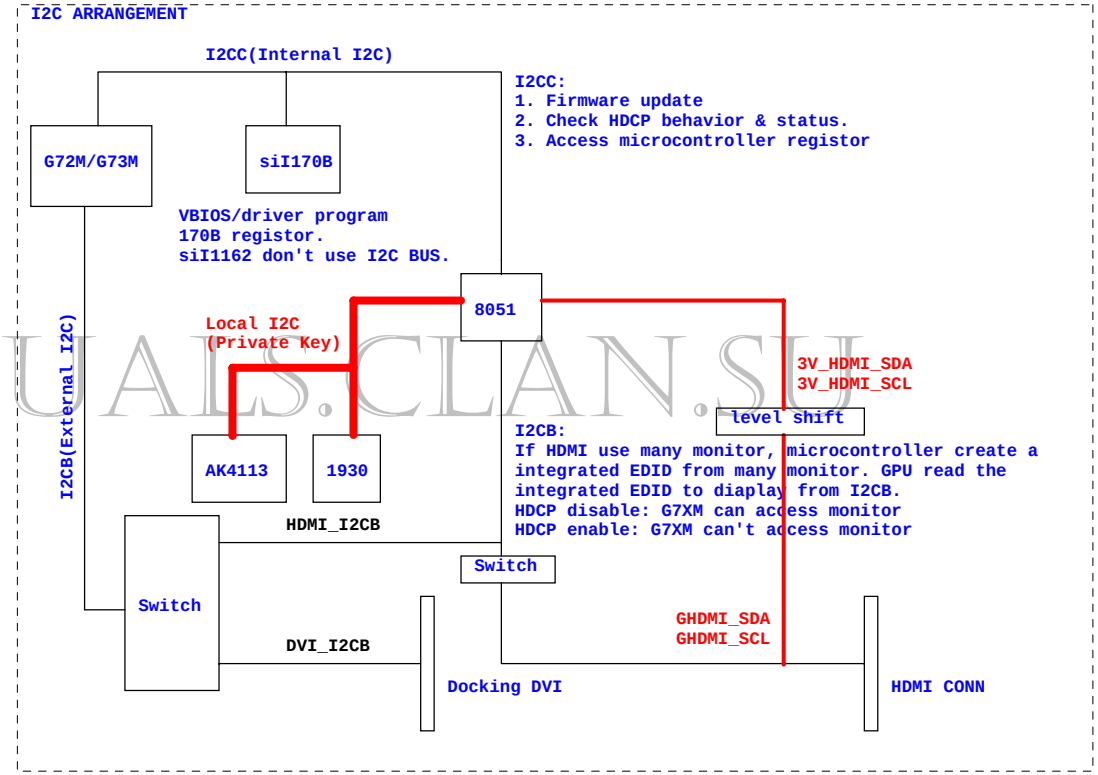
Title: MINI-PCI CONN.

Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 32 of 78

# Hot plug behavior & I2C ARRANGEMENT block diagram






| | | |
|---|---|---|
| Title | Hot plug behavior & I2C ARRANGEMENT block diagram | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 33 of 78 | |

VCC: 150mA
AVCC: 2mA
SPVCC: 35mA
SVCC: 300mA
PVCC1: 70mA
PVCC2: 15mA
OVCC: 20mA
EXT_SWING: Fine tune HDMI data output swing.
EXT_RES: Fine tune TMDS eye diagram waveform.
U117
Sil1930
S1I1930CTU
null
HDMI CONN_19P
FOX_QJ51193_ESB3_7F
NC_RClamp0514M
5/14
US Silicon Image ATC test HDMI DDC capacitance fail(>50pF)change U128 no stuff
Basis on MS20 MP ECR
U128 VCC add back up res.(R1962)no stuff
Close to sii1930
package 0603
For special layout.
Data line to GND capacitor need less than 10pF.
FAE suggest to use TDK common chock.
WWW.MANUALS.CLAN.SU
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
Title: HDMI Sil1930
Size: A3
Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2
Rev: 1.1
Date: Thursday, August 10, 2006
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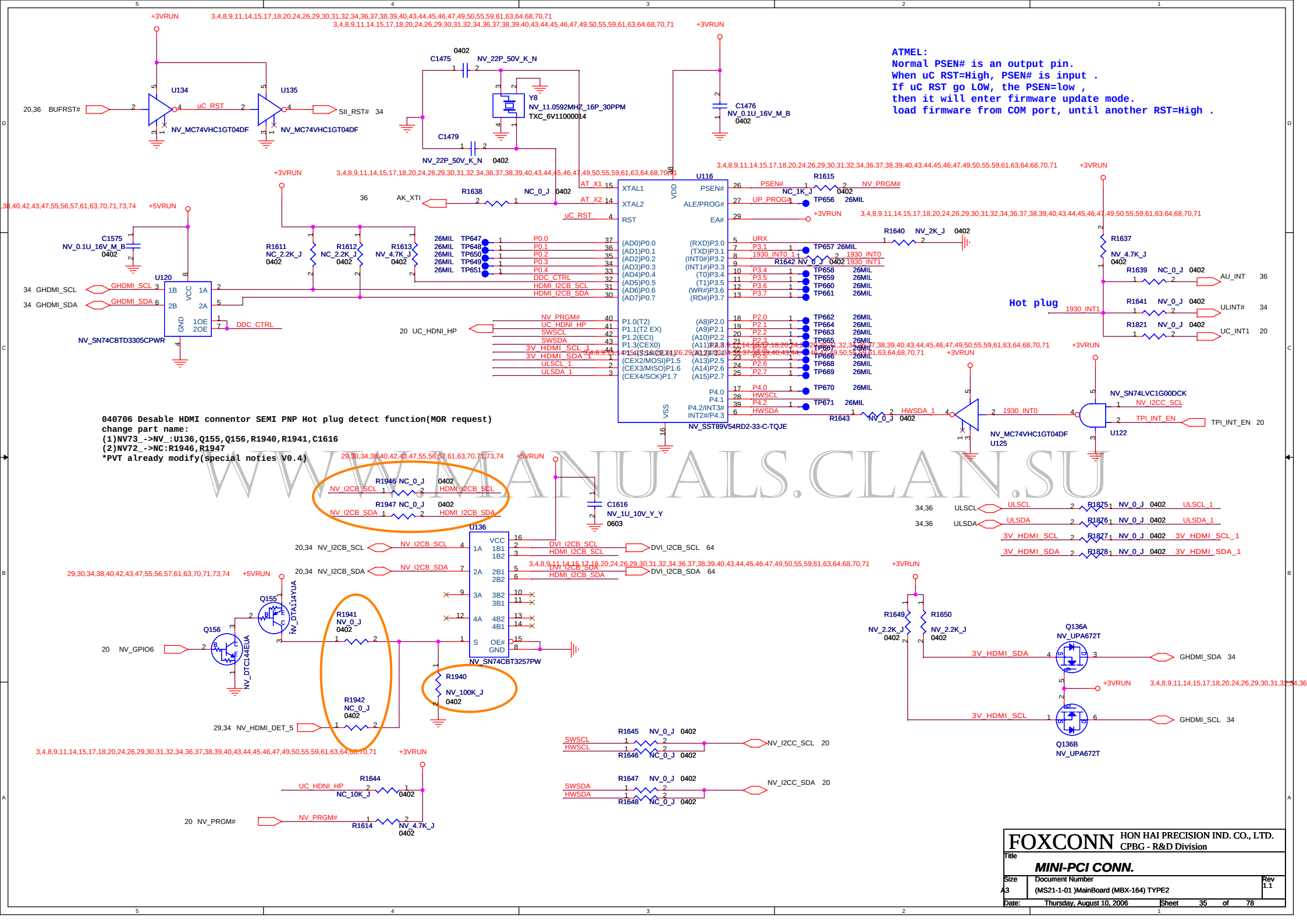
ATMEL:
Normal PSEN# is an output pin.
When uC RST=High, PSEN# is input .
If uC RST go LOW, the PSEN=low ,
then it will enter firmware update mode.
load firmware from COM port, until another RST=High .
040706 Desable HDMI connentor SEMI PNP Hot plug detect function(MOR request)
change part name:
(1)NV73_->NV_:U136,Q155,Q156,R1940,R1941,C1616
(2)NV72_->NC:R1946,R1947
*PVT already modify(special noties V0.4)
Hot plug
U116
NV_SST89V54RD2-33-C-TQJE
U120
NV_SN74CBTD3305CPWR
U136
NV_SN74CBT3257PW
U122
NV_SN74LVC1G00DCK
U125
NV_MC74VHC1GT04DF
Q155
NV_DTA114YUA
Q156
NV_DTC144EUA
Q136A
NV_UPA672T
Q136B
NV_UPA672T
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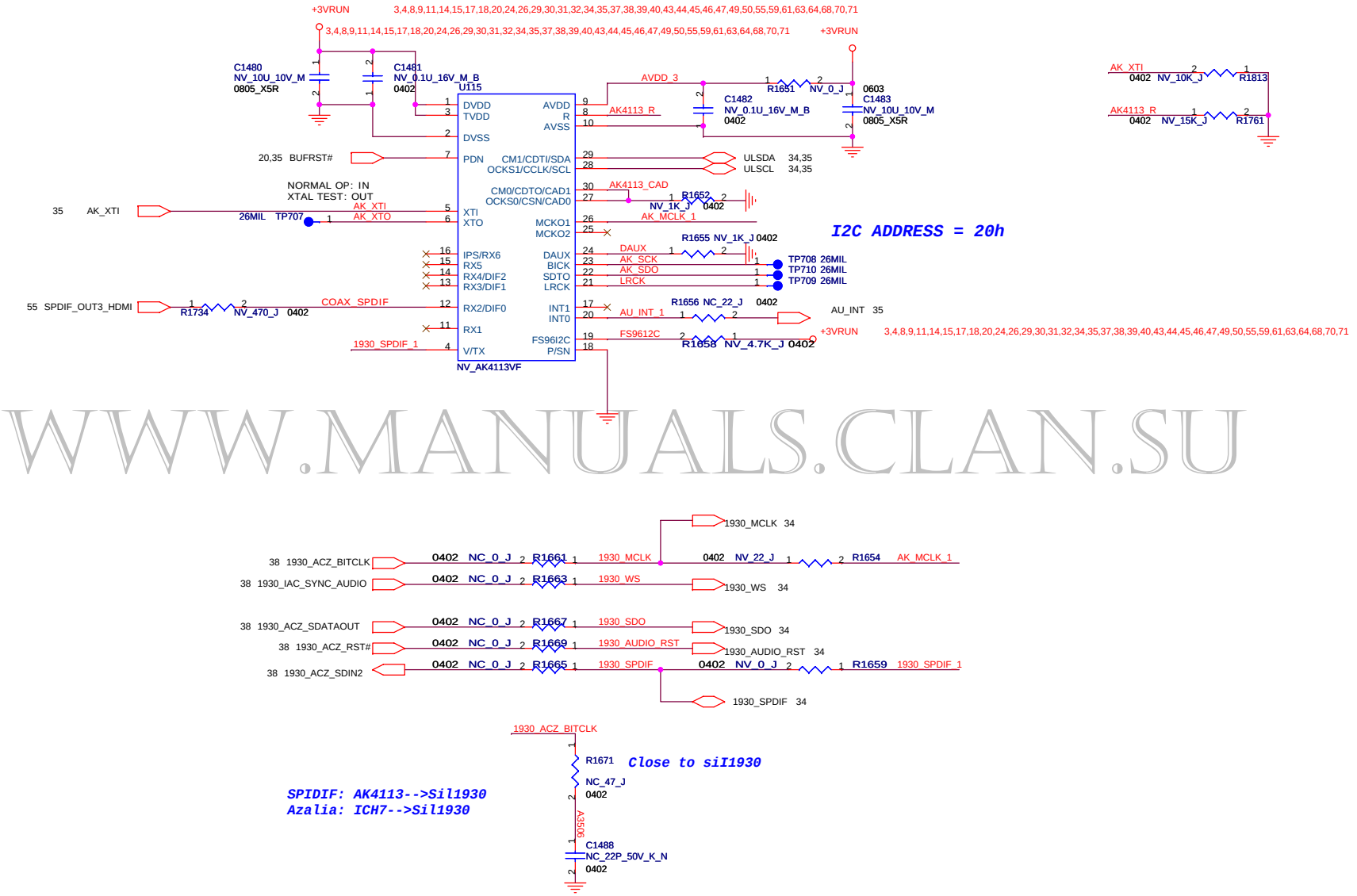
HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division
MINI-PCI CONN.
(MS21-1-01 )MainBoard (MBX-164) TYPE2
Thursday, August 10, 2006
Sheet 35 of 78



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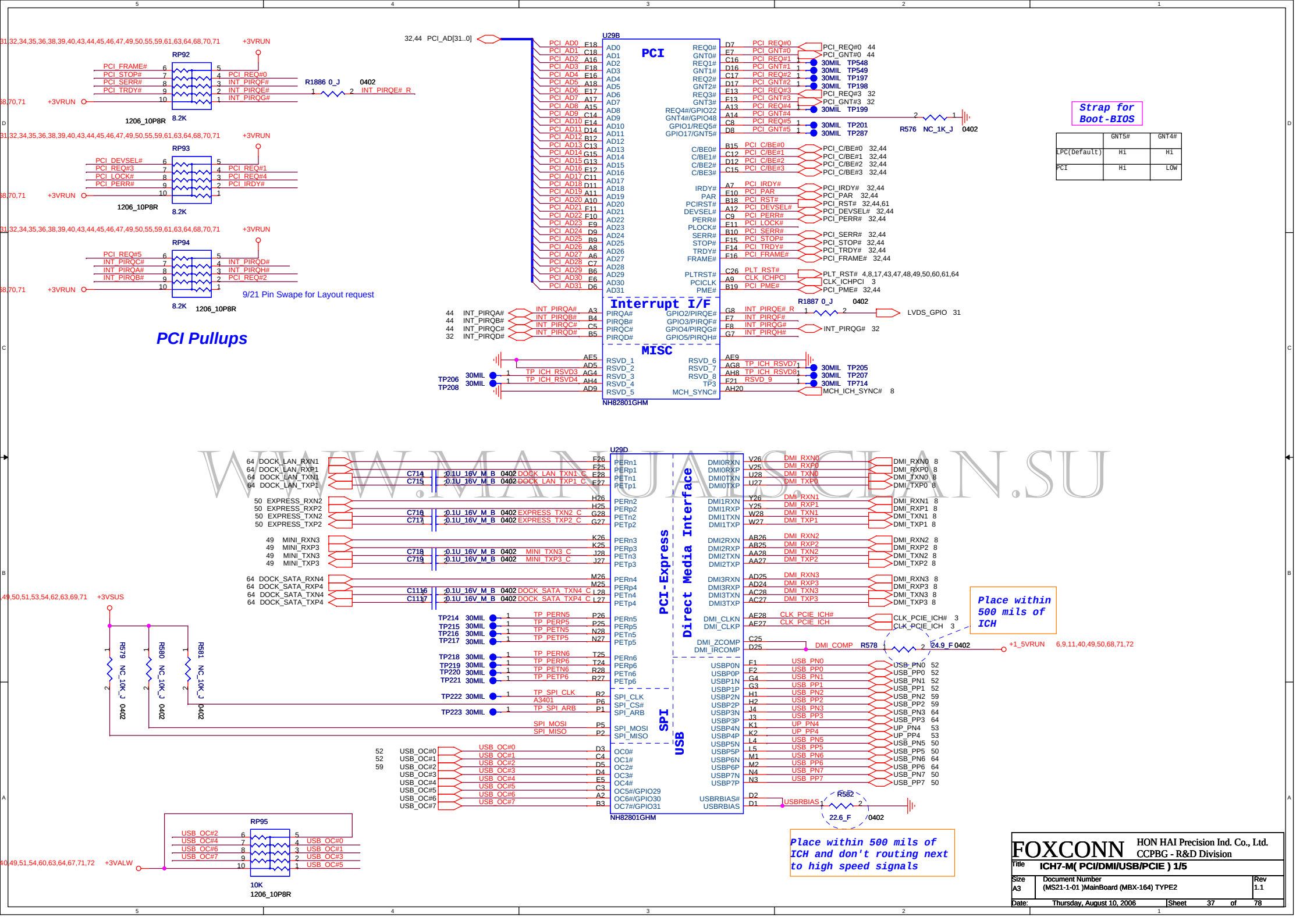
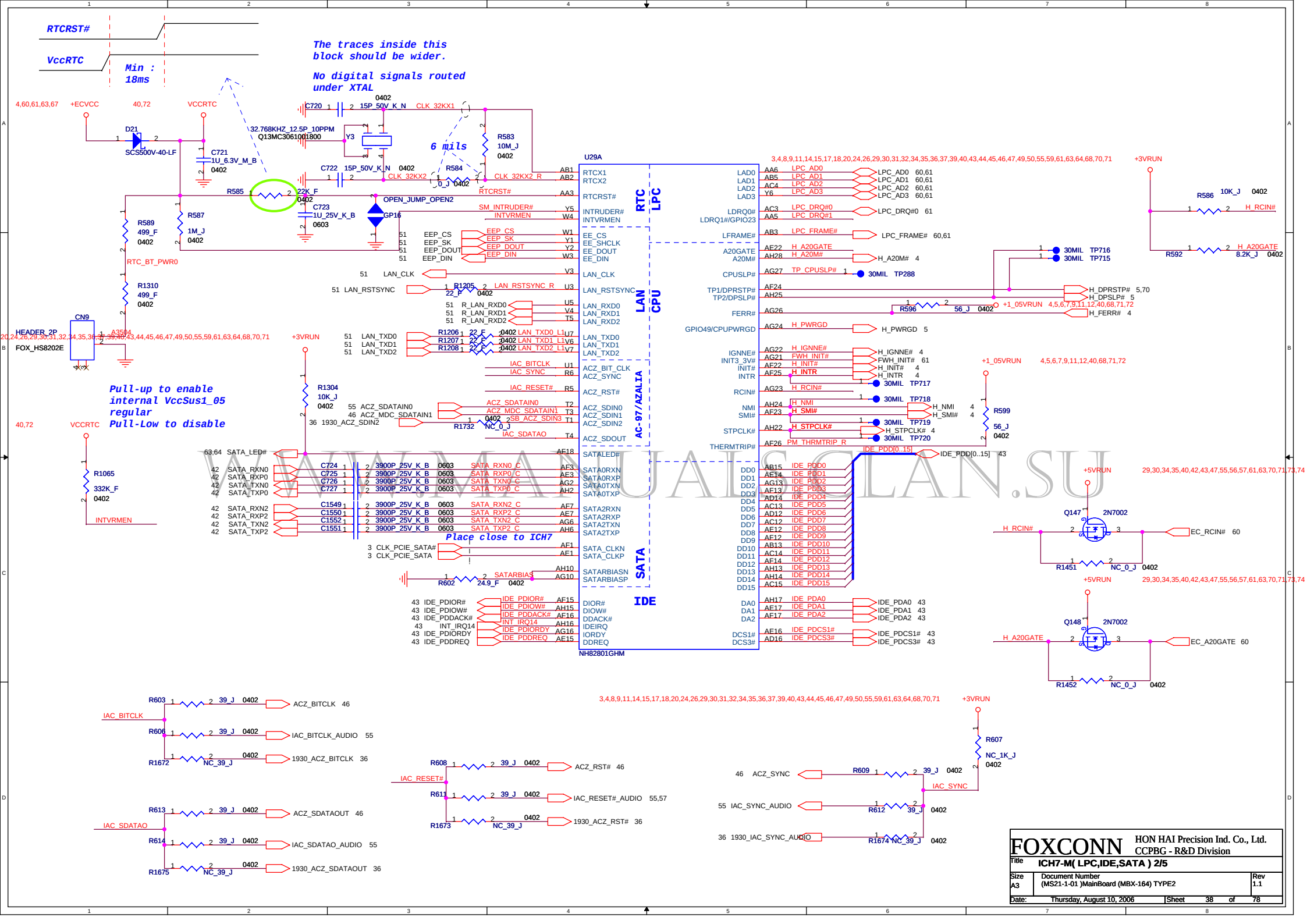
Title: HDMI UCODEC

Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

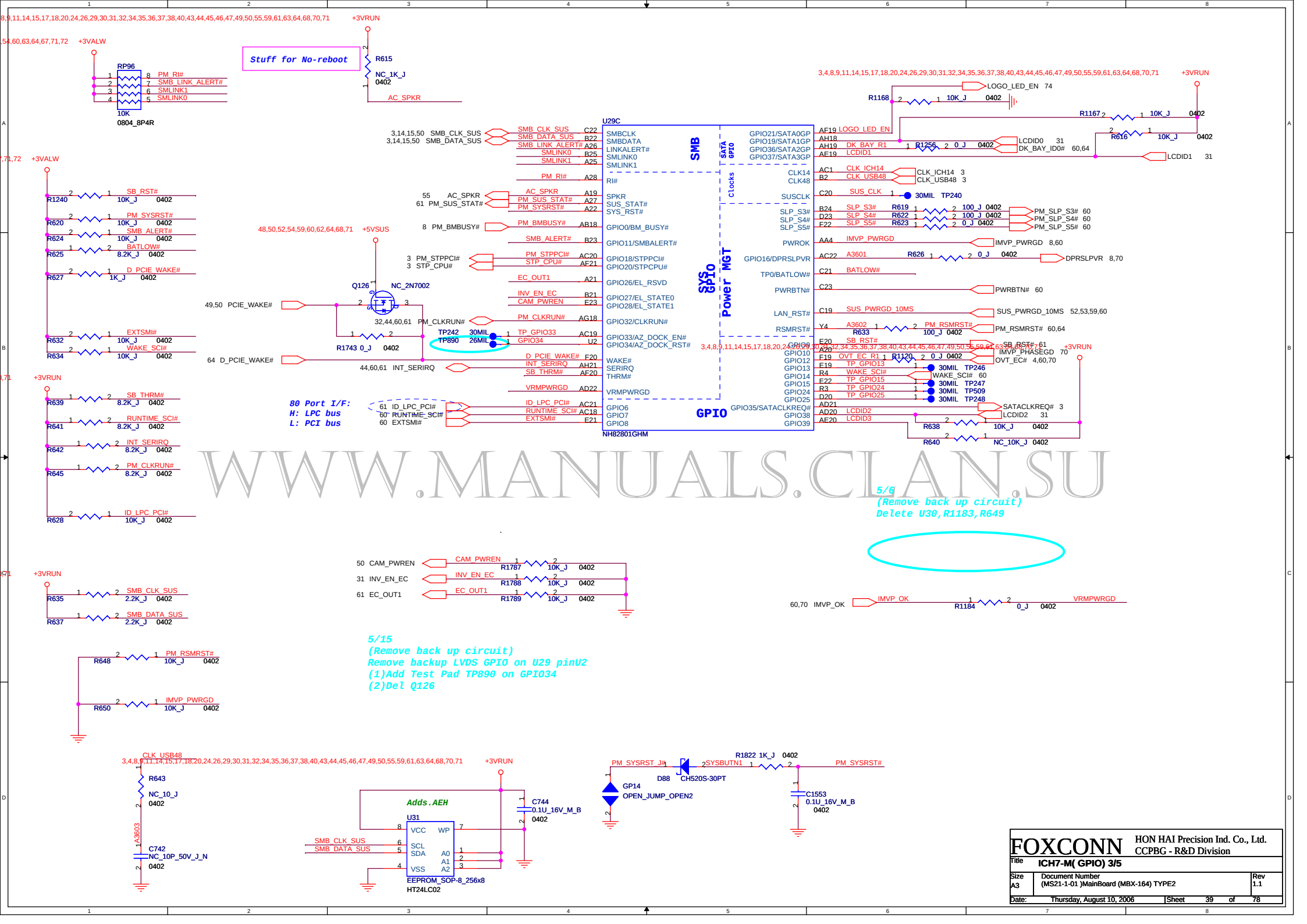
Date: Thursday, August 10, 2006 | Sheet 36 of 78

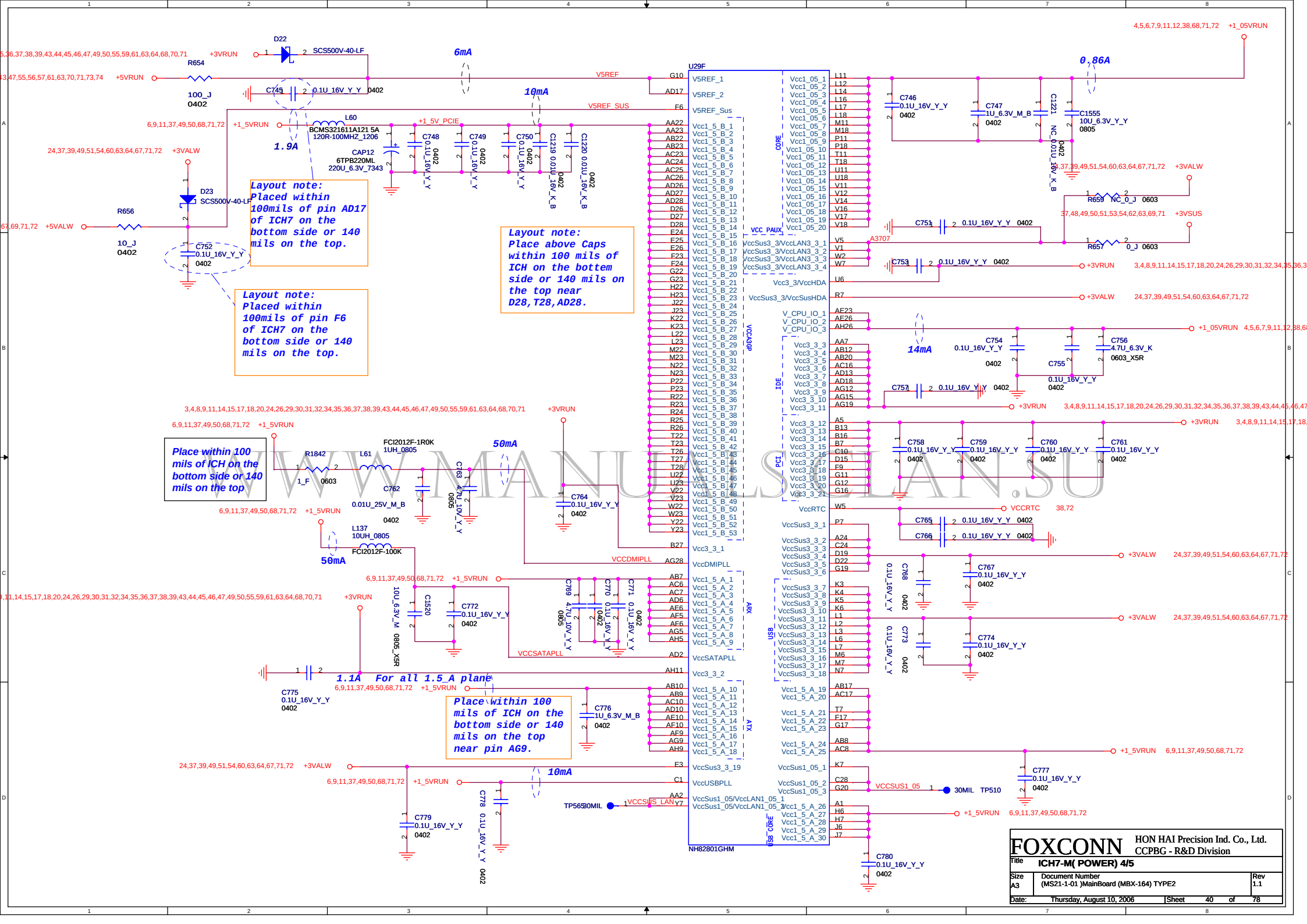


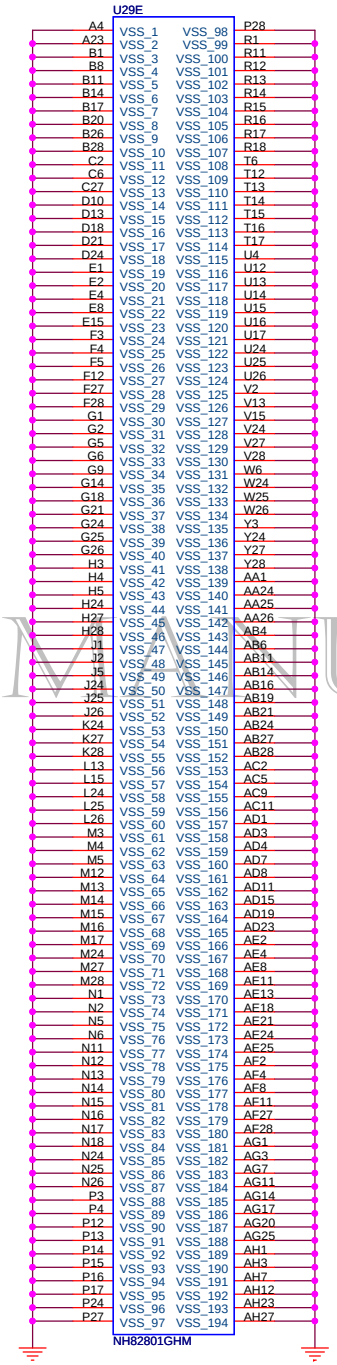





| | |
|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division |
| Title | ICH7-M( LPC,IDE,SATA ) 2/5 |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 |
| Rev | 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 38 of 78 |



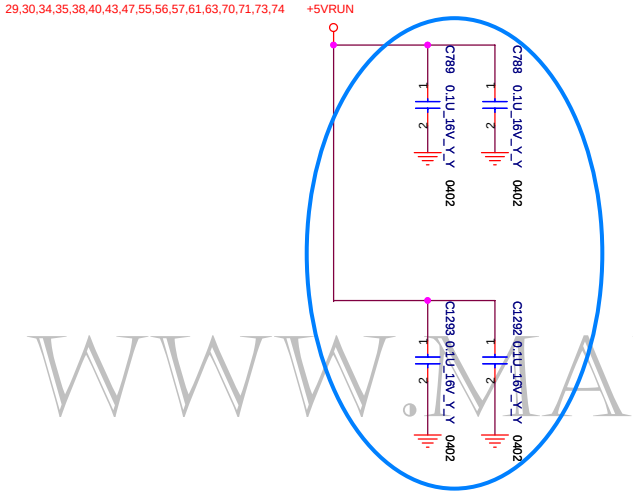


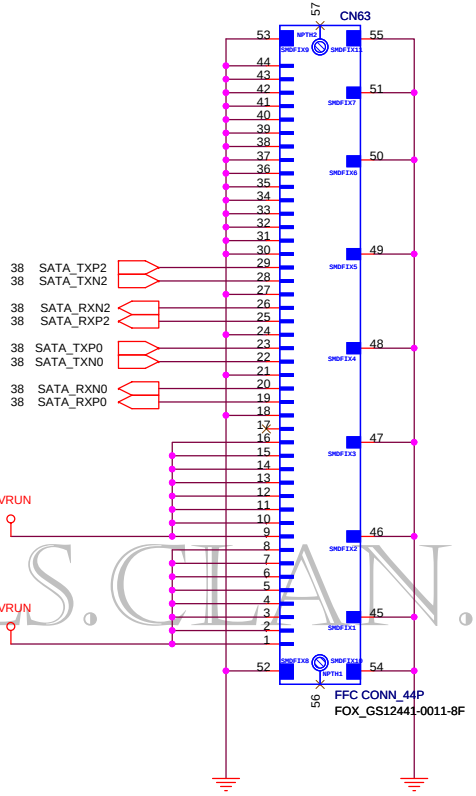





| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | ICH7-M( GND) 5/5 | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 41 of 78 | |

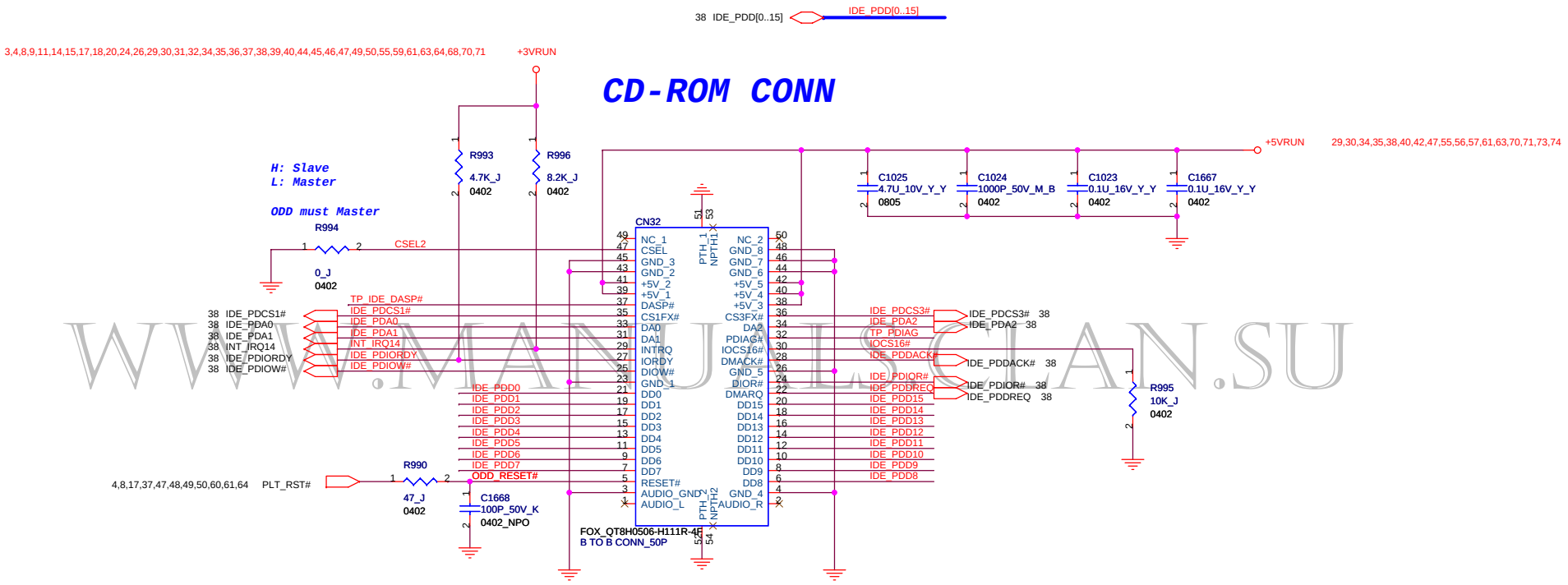
5/6
For power droup cause  0.16V voltage loss Issue
(1)F7,F8,F19,F20 no stuff
(2)Co-layout normal open gap GP17~GP18 with fuse
*5/27 Delete SATA HDD Fuse backup circuit*
*(1)Remove F7,F8,F19,F20 Pad*
*(2)Remove GP17~GP18 open gap*



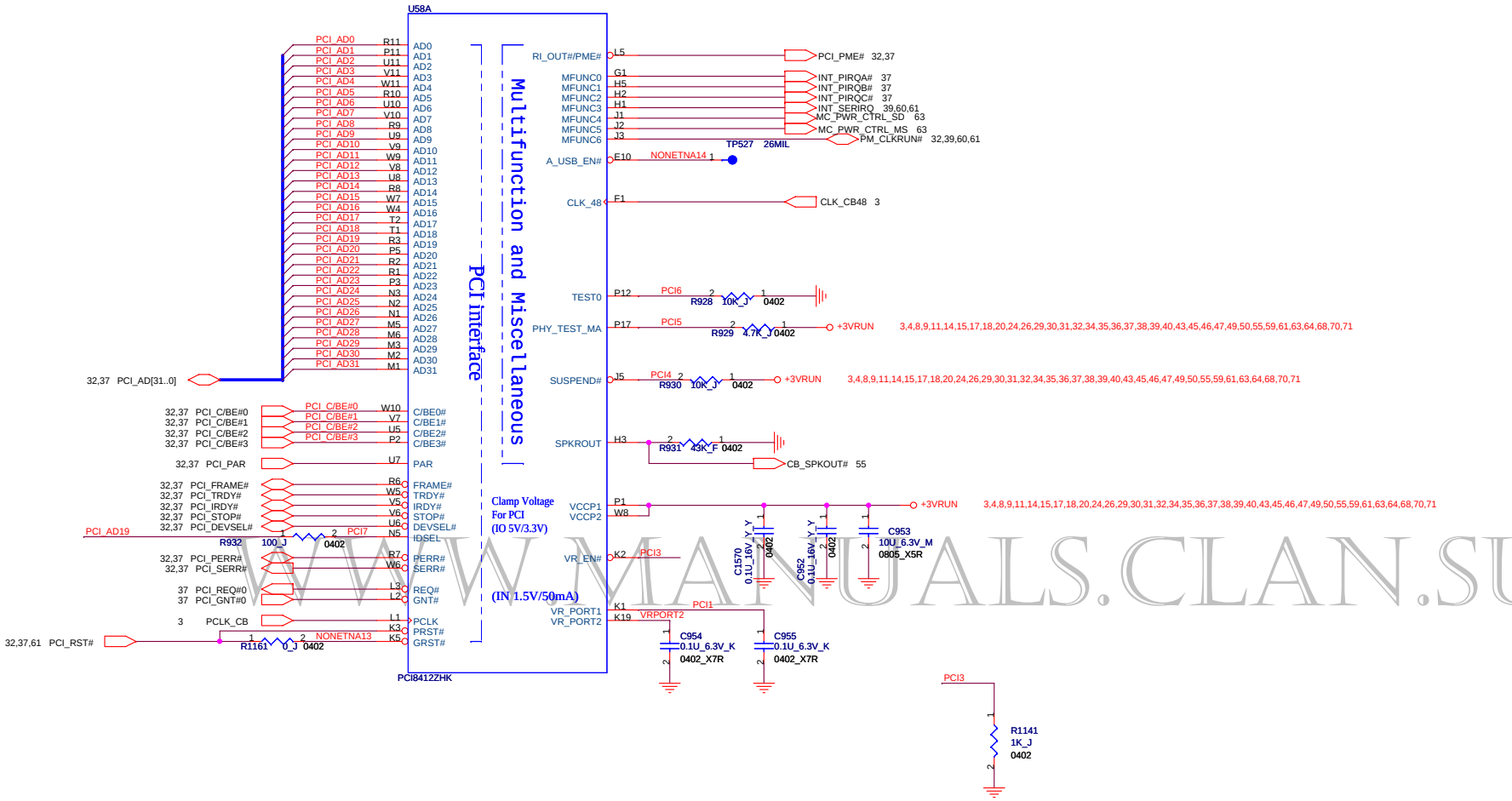



| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title: SATA HDD RAID | | |
| Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 42 of 78 | |






| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | PATA CD-ROM | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 43 of 78 | |



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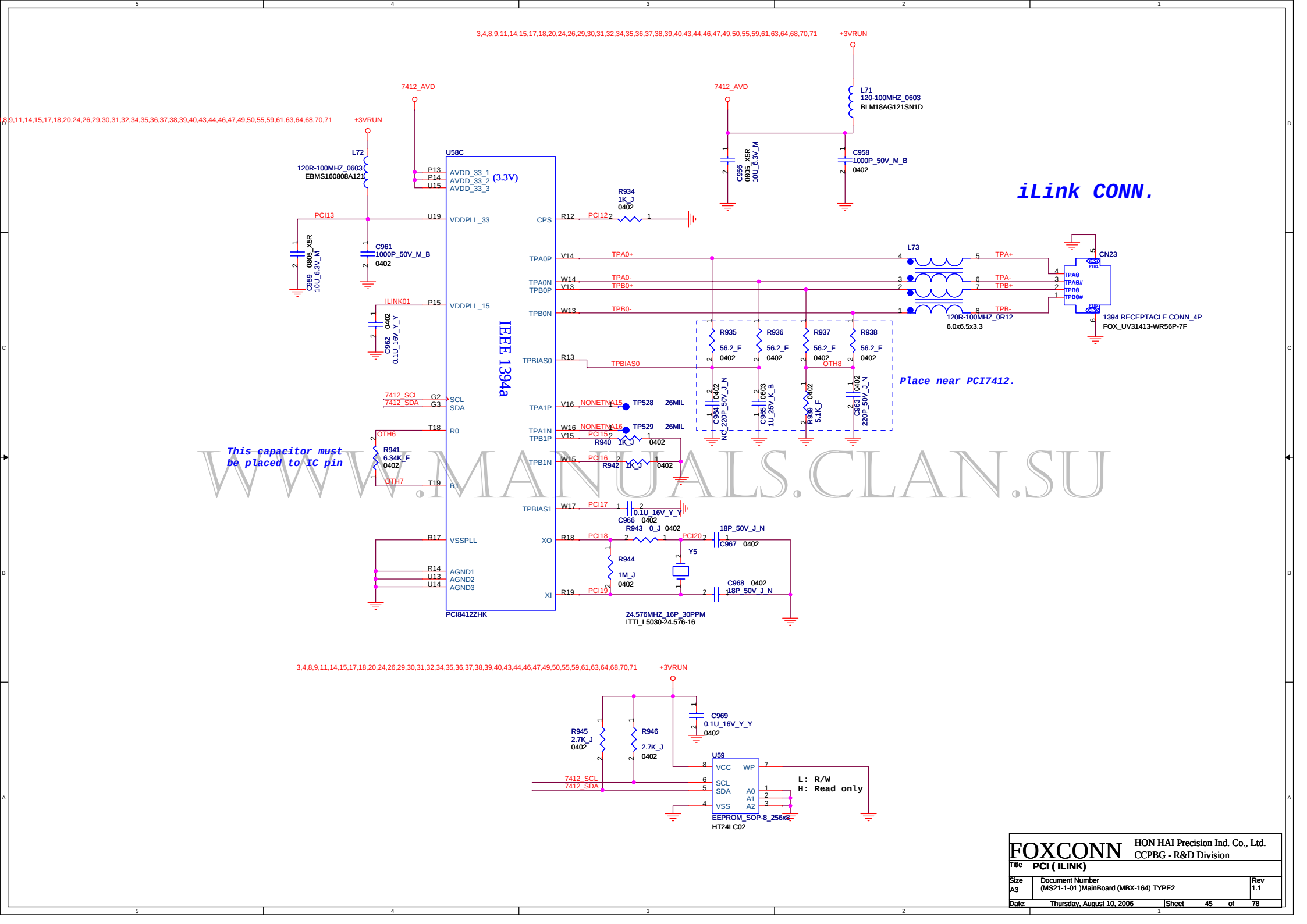
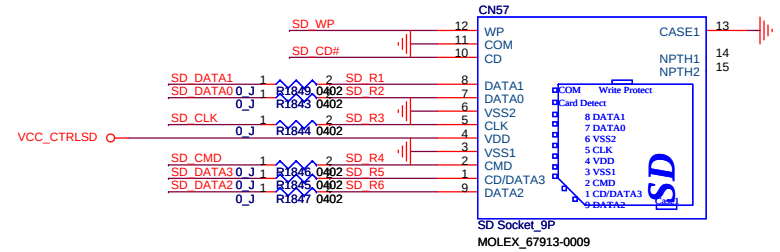
CCPBG - R&D Division

| | | |
|---|---|---|
| Title | PCI (PCI BUS) | |
| Size: Custom | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 44 of 78 | |

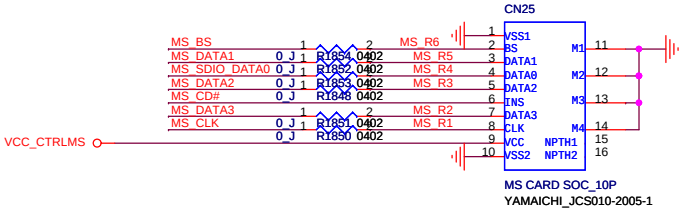



| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | PCI ( ILINK) | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 45 of 78 | |

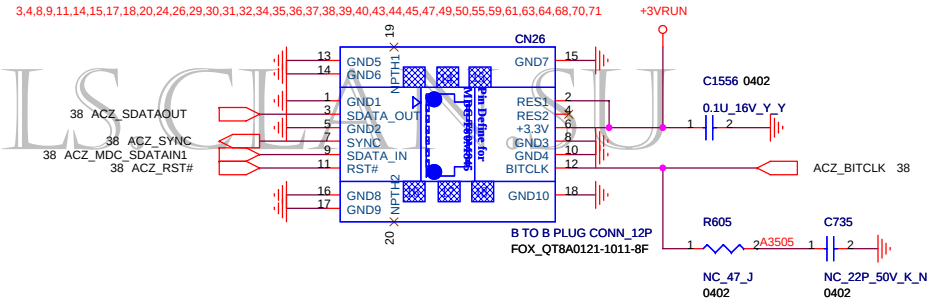
# SD CONN.

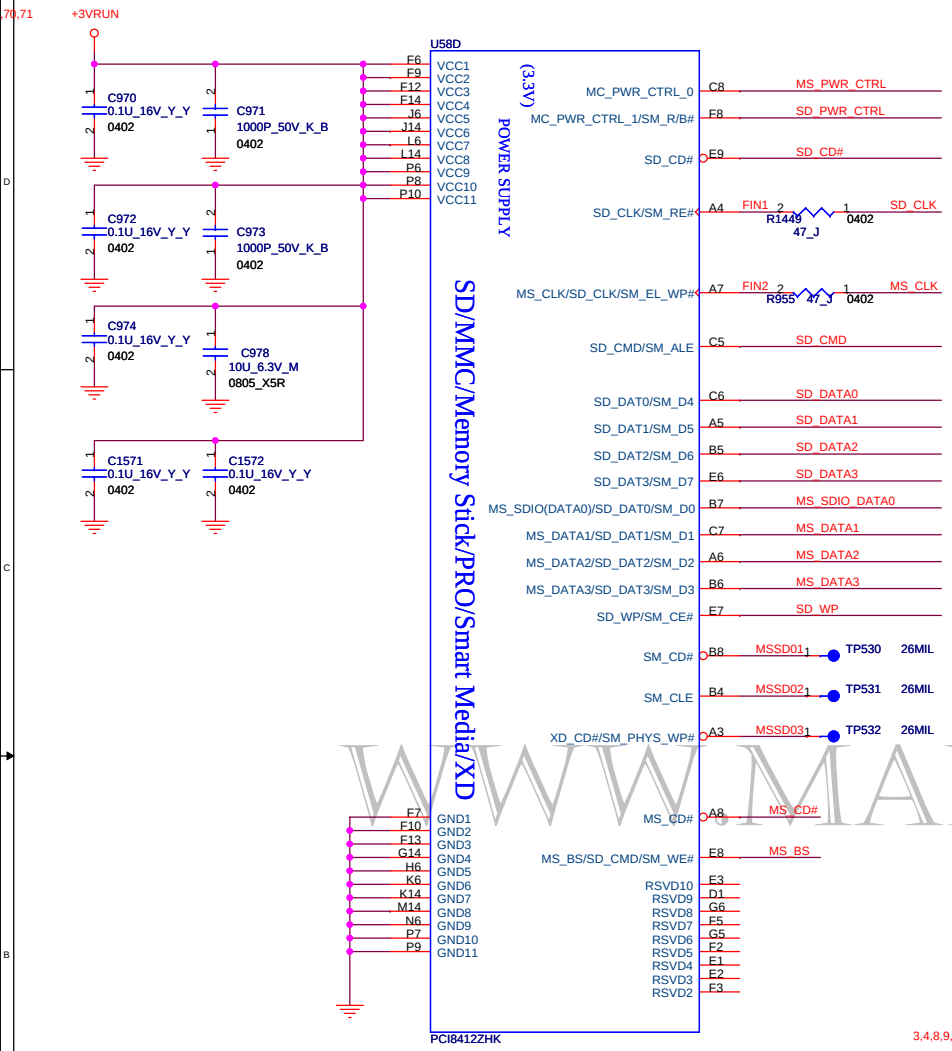


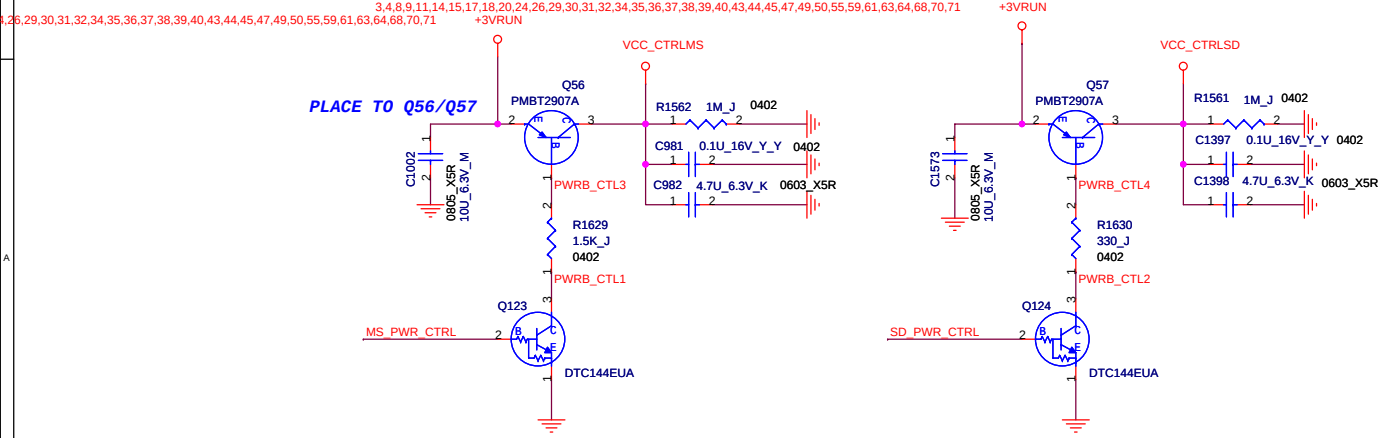

# MS STD/DUO CONN.

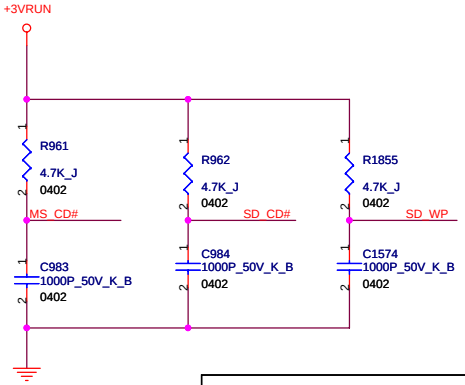



# MDC CONN.

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CCPBG - R&D Division

| | | |
|---|---|---|
| Title | PCI (MS-DUO/MDC) | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
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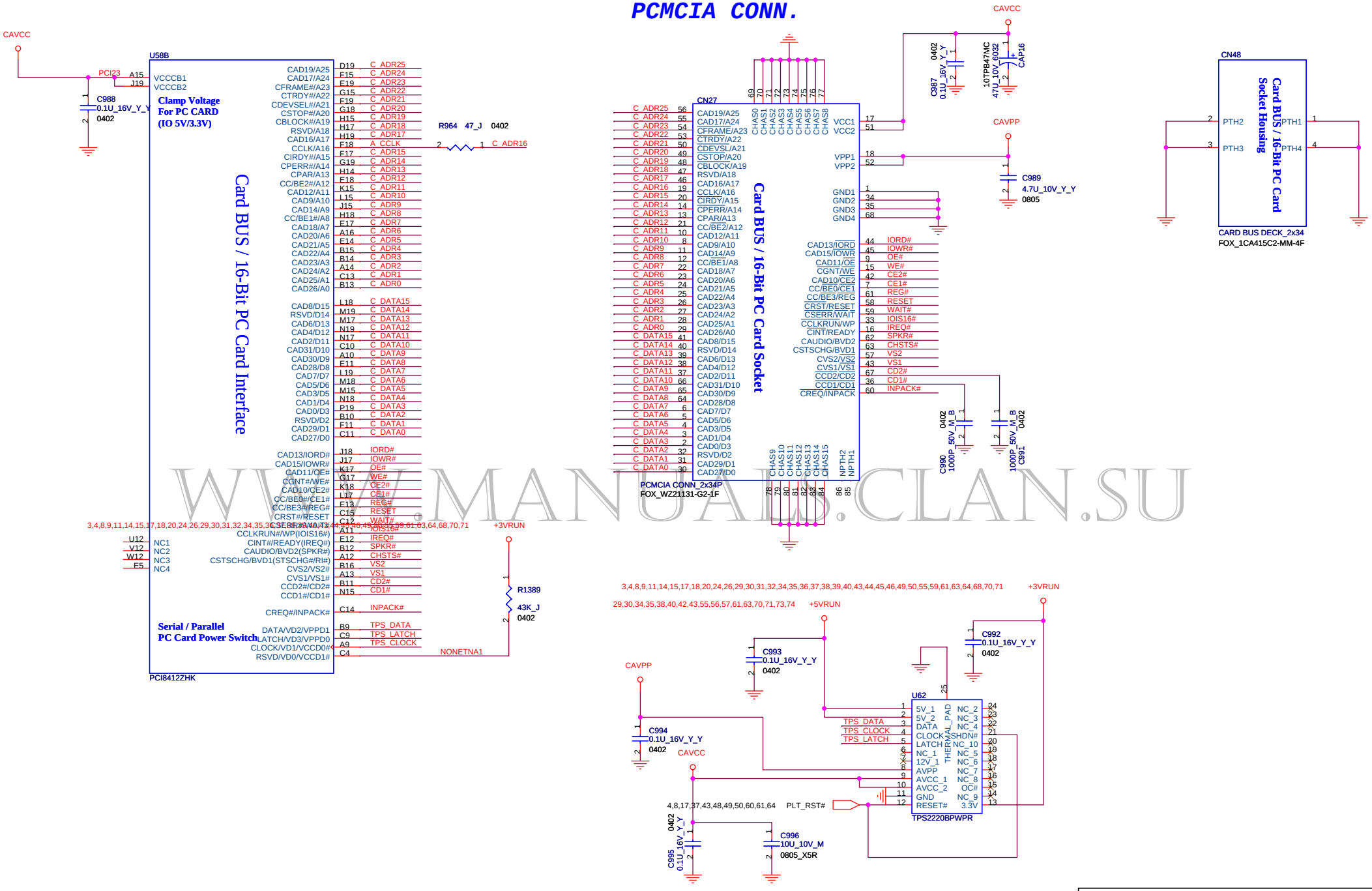
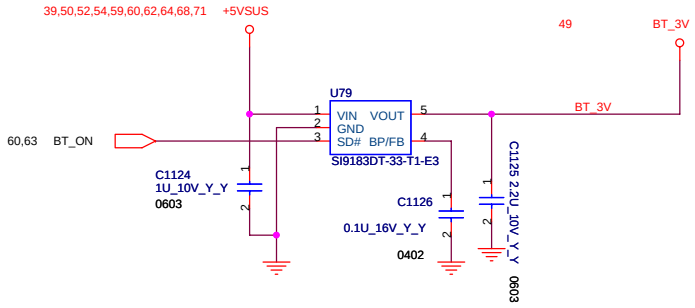
# PCMCIA CONN.

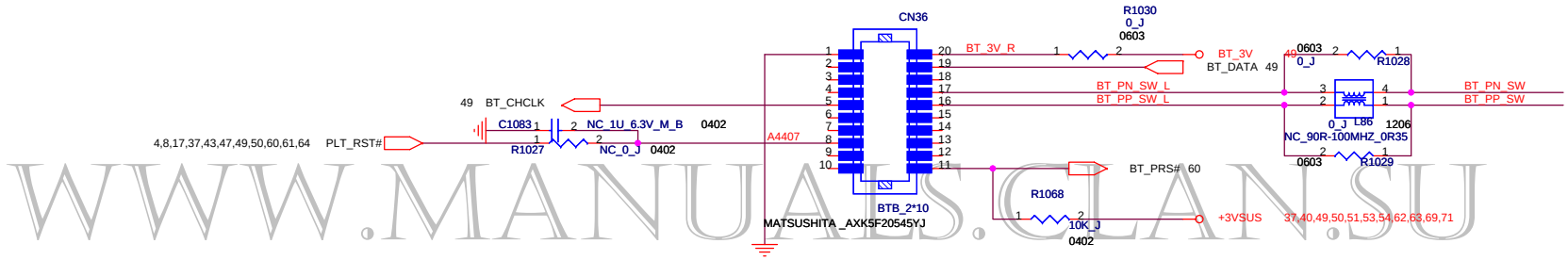




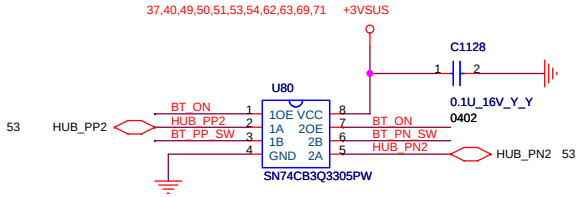

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | PCI ( PCMCIA) | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 47 of 78 | |



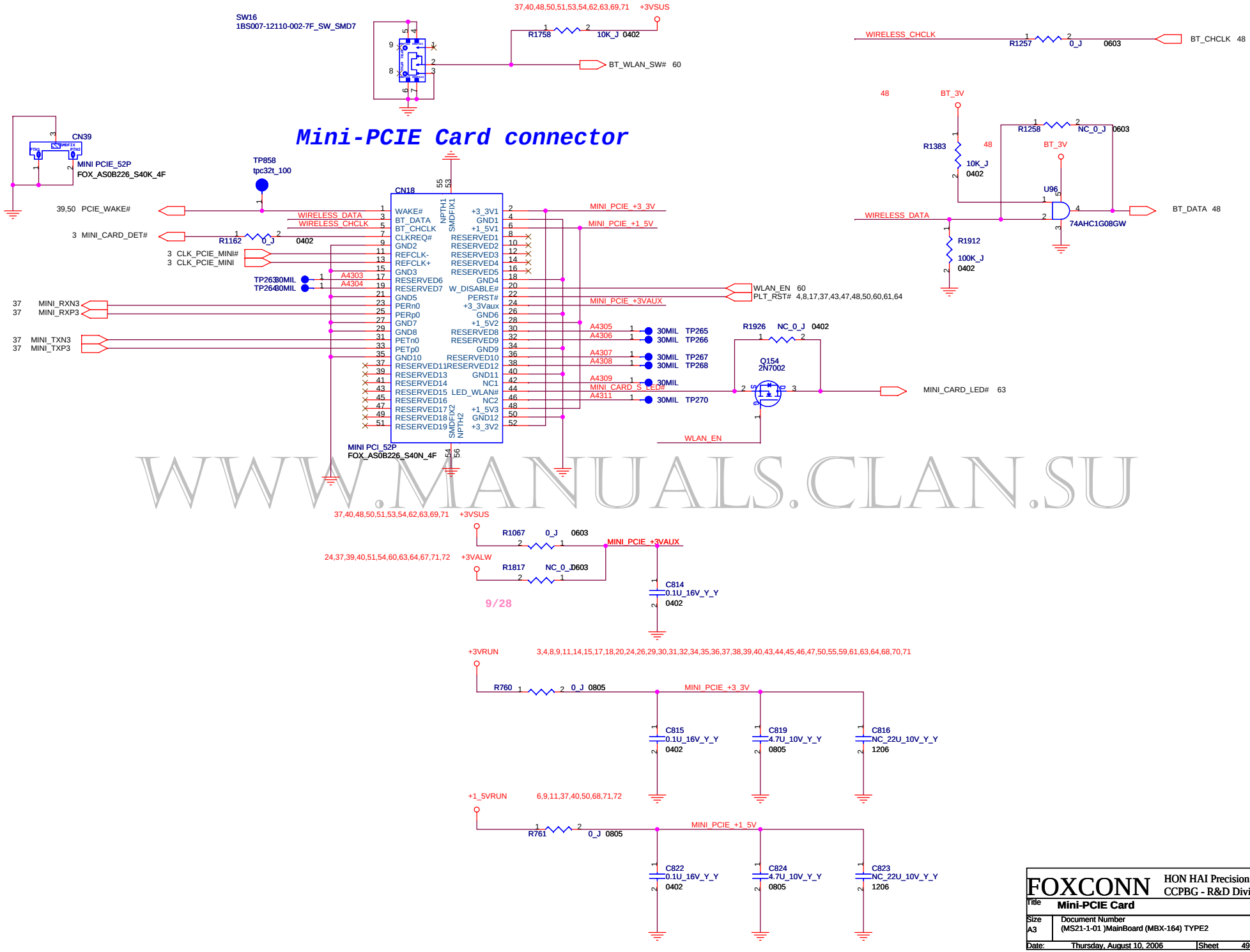

# Bluetooth connector





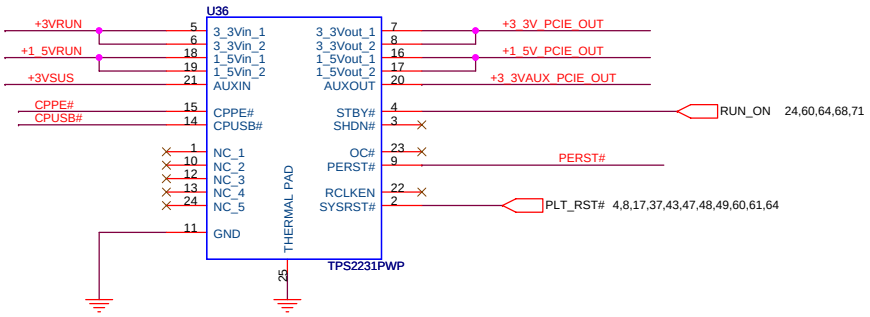

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title: FAN/Bluetooth | | |
| Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 48 of 78 | |

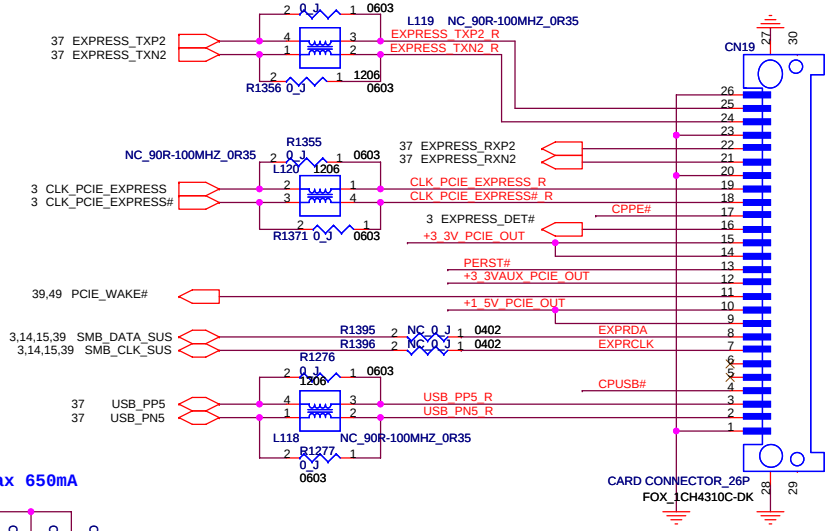


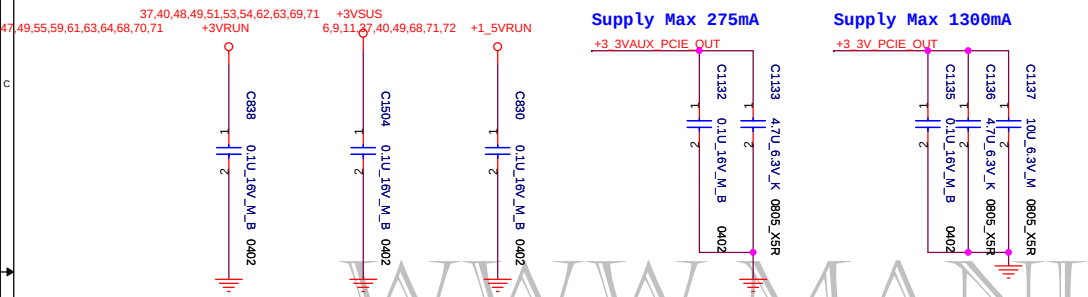

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | Mini-PCIE Card | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 49 of 78 | |

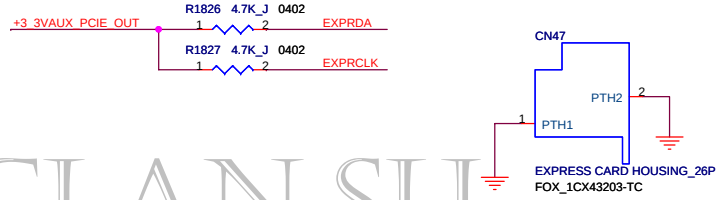
# EXPRESS Card

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



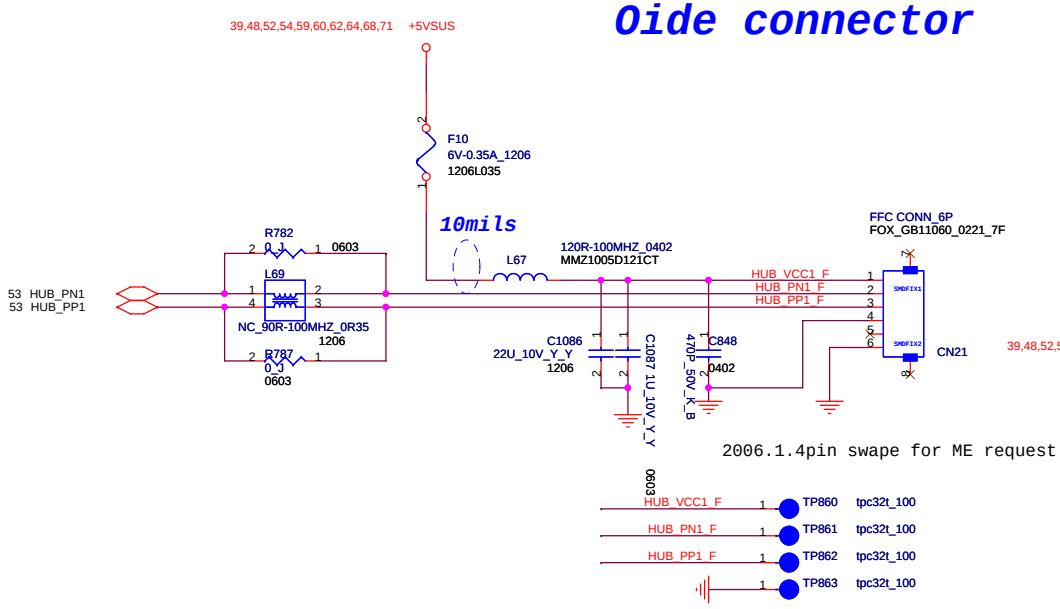



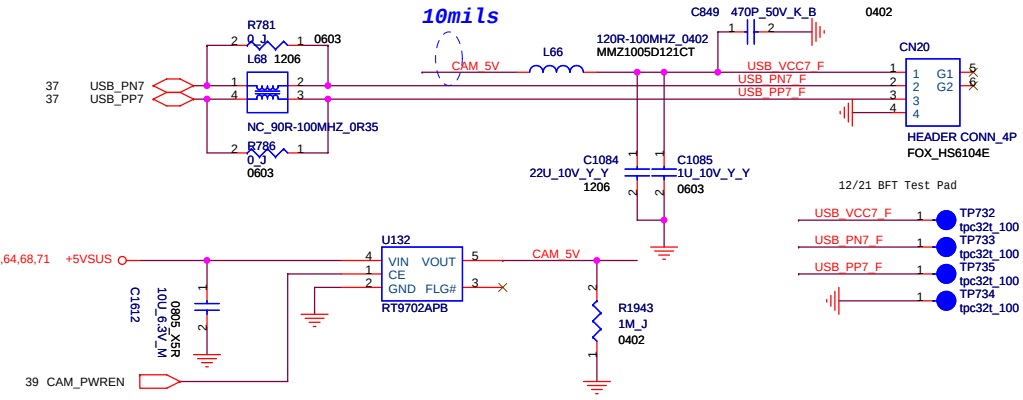






# Oide connector

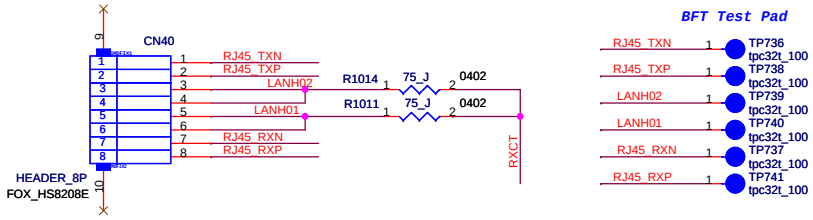



# CAMERA connector



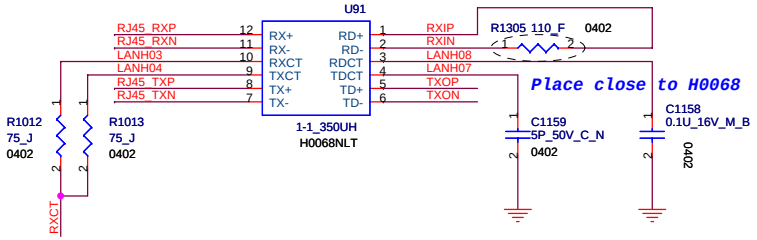

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | EXPRESS/CAM/OIDE | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 50 of 78 | |

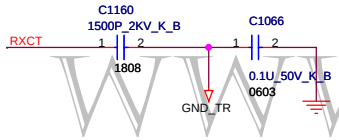
# LAN connector

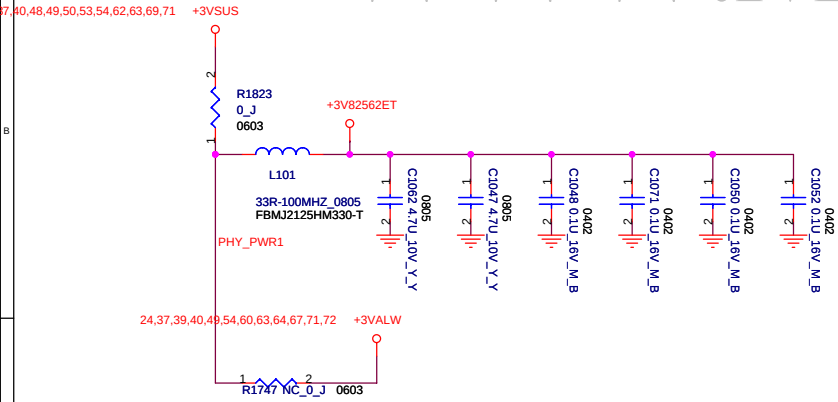


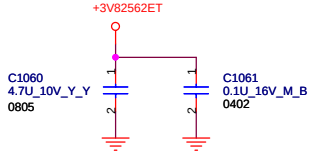




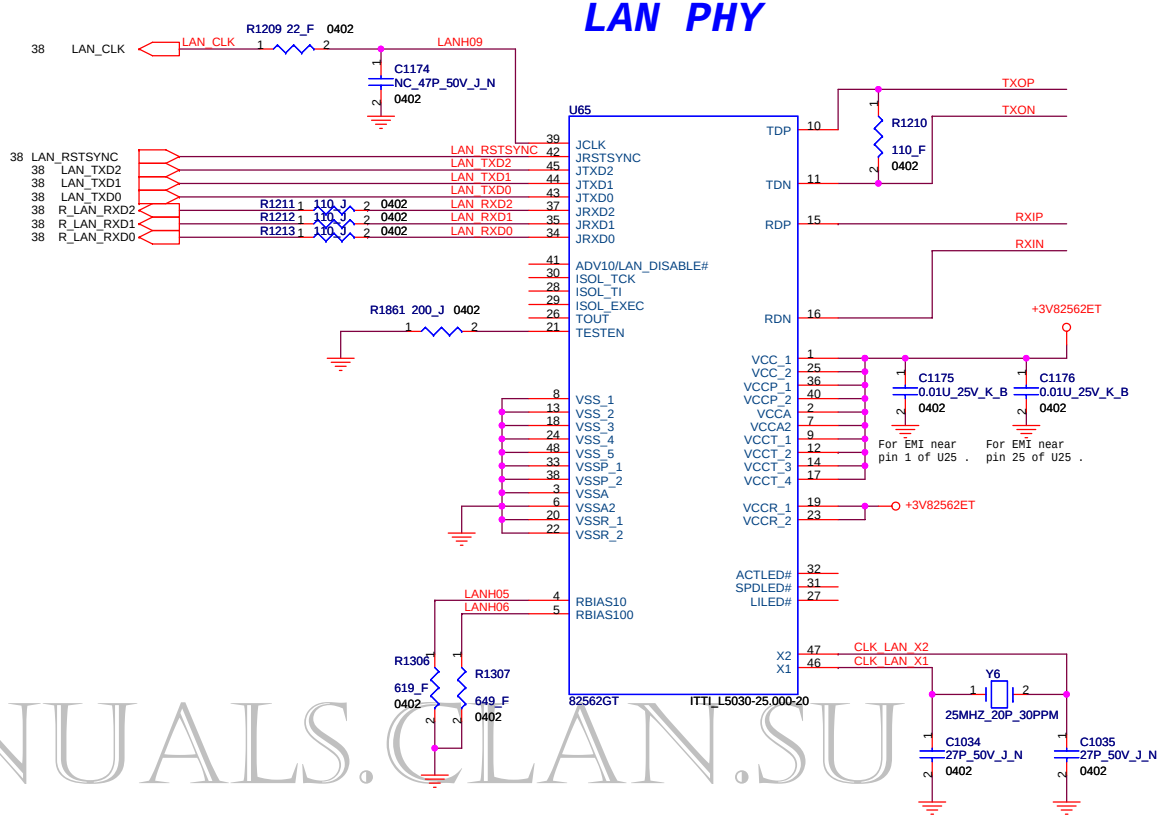


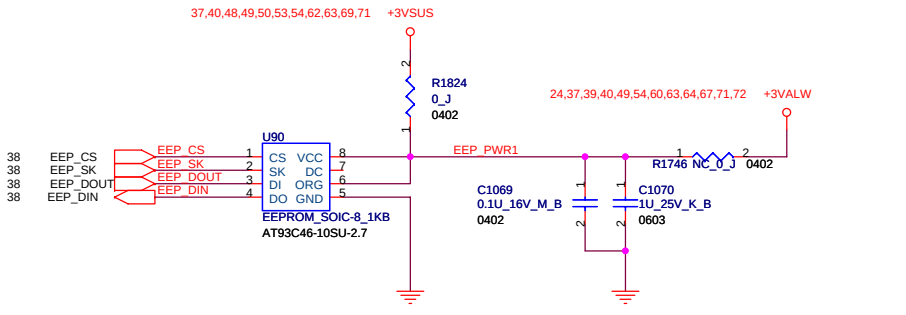




# LAN PHY



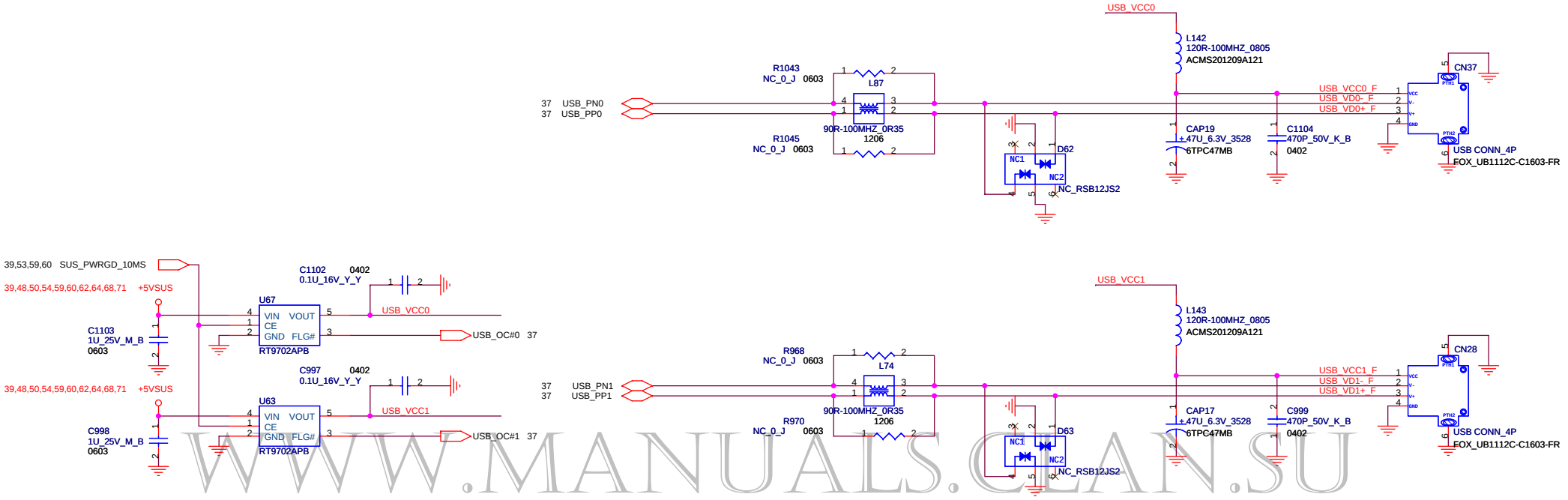




*Default for S3 waking up event ,*
*backup for S4 waking up event*



| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title: LAN | | |
| Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 51 of 78 | |

# USB connector *2

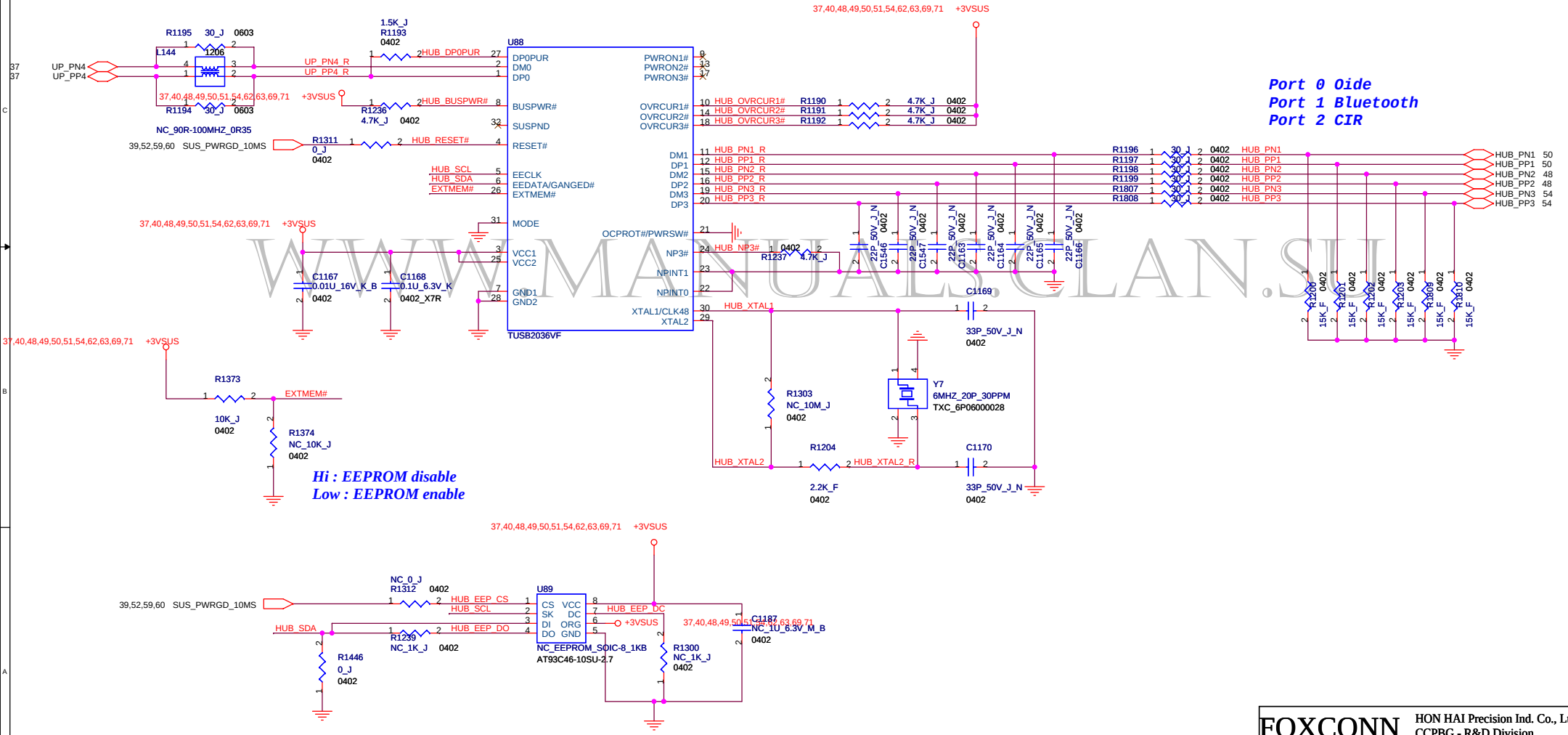





| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | USB2.0/DOCKING CONN. | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 52 of 78 | |

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

# USB 1.1 HUB

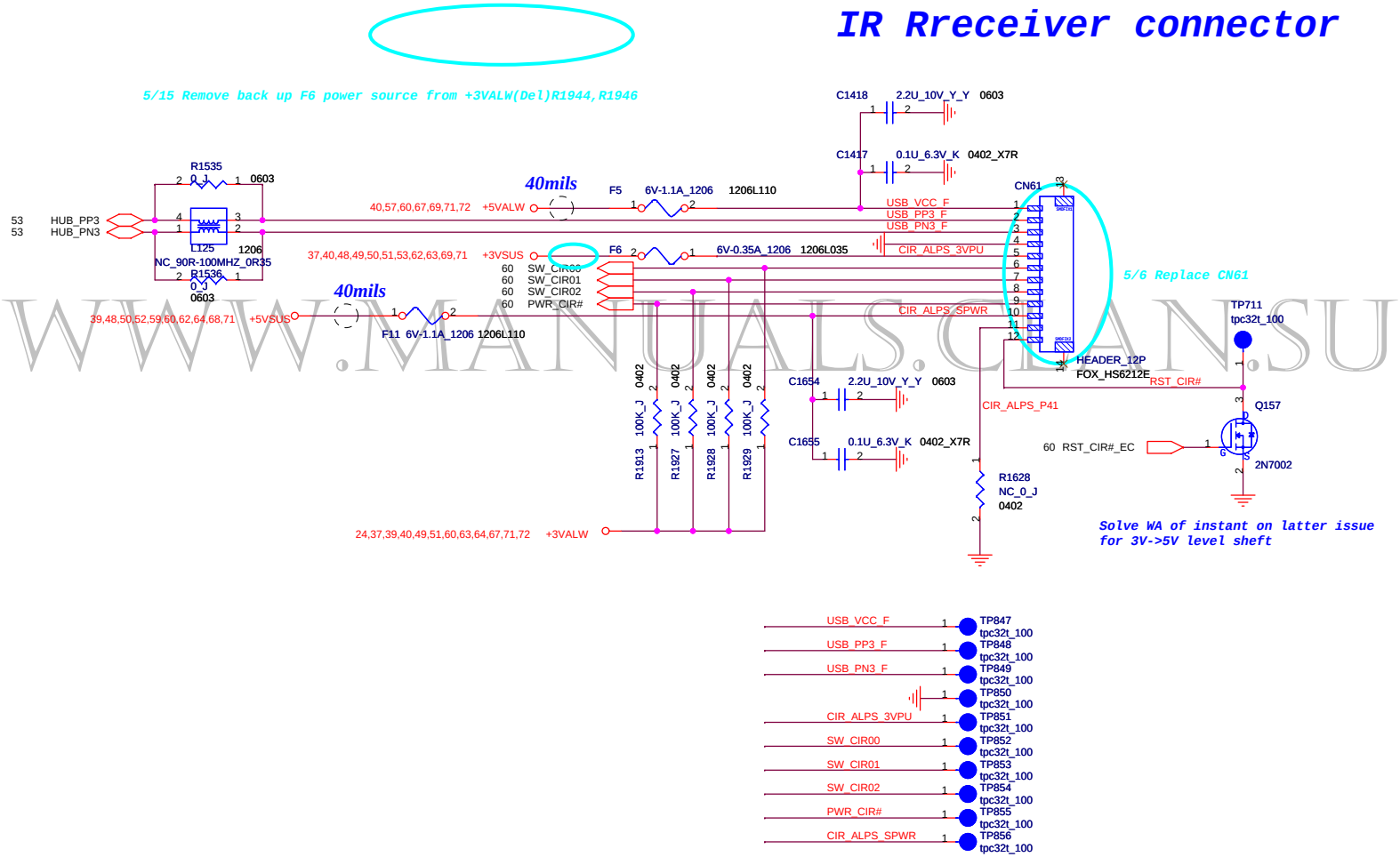






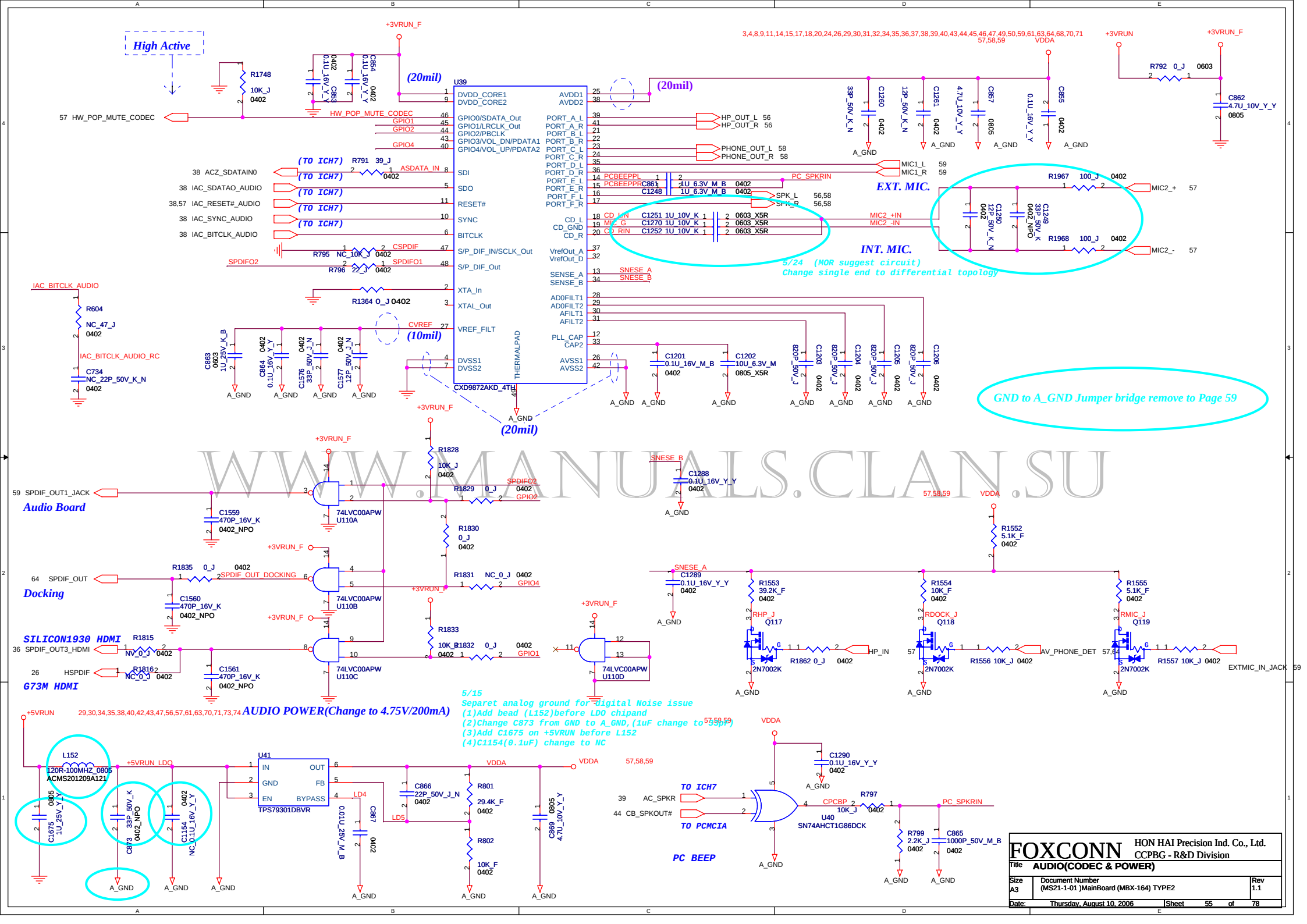


| | | | |
|---|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | | |
| Title | USB HUB | | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 53 of 78 | | |






| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | LED/LID SW#/Touch PAD | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 54 of 78 | |


High Active
U39
CXD9872AKD_4TH
(20mil)
(10mil)
(TO ICH7)
EXT. MIC.
INT. MIC.
5/24 (MOR suggest circuit)
Change single end to differential topology
GND to A_GND Jumper bridge remove to Page 59
Audio Board
Docking
SILICON1930 HDMI
G73M HDMI
AUDIO POWER(Change to 4.75V/200mA)
5/15
Separet analog ground for digital Noise issue
(1)Add bead (L152)before LDO chipand
(2)Change C873 from GND to A_GND,(1uF change to 33pF)
(3)Add C1675 on +5VRUN before L152
(4)C1154(0.1uF) change to NC
TO ICH7
TO PCMCIA
PC BEEP
WWW.MANUALS.CLAN.SU
FOXCONN
HON HAI Precision Ind. Co., Ltd.
CCPBG - R&D Division
AUDIO(CODEC & POWER)
Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2
Rev 1.1
Thursday, August 10, 2006
Sheet 55 of 78

050806: Shoei CAP will EOL
CAP24,CAP25(SP CAP) change to Stuff
CAP22,CAP23(Shoei CAP) change to No Stuff

Max 1.7A

55,57,61,63,70,71,73,74 +5VRUN

+5VAMP

L70 120R-100MHZ_1206 BCMS321611A121 5A

C876 10U_6.3V_M 0805_X5R

C1291 NC_10U_6.3V_M 0805_X5R

C878 0.1U_16V_M_B 0402

C879 0.1U_16V_M_B 0402

C880 10U_6.3V_M 0402

C877 10U_6.3V_M 0805_X5R

A_GND

CAP24 100U_6.3V_T ECGUD0J101ER

CAP25 100U_6.3V_T ECGUD0J101ER

CAP22 NC_100U_6.3V_M 9.3*3.6

CAP23 NC_100U_6.3V_M 9.3*3.6

CO-Layout for EOL backup

55 HP_OUT_R

55 HP_OUT_L

HP_OUT_R HP_R

HP_OUT_L HP_L

R847 10K_J 0402

R852 10K_J 0402

R1250 22_J 0402

R1251 22_J 0402

R1284 22_J 0402

R1285 22_J 0402

R1863 22_J 0402

R1864 22_J 0402

HP_R_MU1 HP_L_MU2 HP_R_MU5 HP_L_MU6

HP_R_JACK HP_L_JACK

HP_R_JACK 59

HP_L_JACK 59

To Audio Board

Q77 PBSS2515E.115

Q143 PBSS2515E.115

Q78 PBSS2515E.115

Q144 PBSS2515E.115

MU3 MU4 MU7 MU8

R1252 1K_J 0402

R1253 1K_J 0402

R1866 1K_J 0402

R1865 1K_J 0402

57 MUTE_TR

MUTE_TR

050806: PBSS2515F.115 will EOL
Q77,Q78,Q143,Q144 change to PBSS2515E.115



# INTERNAL SPEAKER

050806:(Improve the voice of speaker up to 0.94W).
Add damping Resistors R1953 on AMP_SRIN,R1954 on AMP_SLIN
then speaker amp output won't be distorted.
For speaker loudness issue.

2006/6/26
Modify internal speaker AMP gain setting,change R1953/R1954
from 4.7K (AMP output 1.12W) to 5.1Kohm(AMP output0.98W)
to fit in speaker (1.0W)spec.

+5VAMP

U68 TPA6011A4PWPRG4

55,58 SPK_R

55,58 SPK_L

C1617 2.2U_10V_Y_Y 0603

C1618 0.1U_16V_Y_Y 0402

C1620 0.1U_16V_Y_Y 0402

C1619 2.2U_10V_Y_Y 0603

R1953 5.1K_F 0402

R1954 5.1K_F 0402

AMP_SRIN AMP_RIN AMP_LIN AMP_SLIN AMP_BP AMP_RHP AMP_LHP

RLINEIN RIN LIN LLINEIN BYPASS SHUTDOWN# RHPIN LHPIN

PVDD2 PVDD1 VDD PGND1 PGND2 AGND Thermal Pad

ROUT- ROUT+ LOUT- LOUT+ SE/BTL# HP/LINE# VOLUME SEDIFF SEMAX FADE#

INT_SPK_R- INT_SPK_R+ INT_SPK_L- INT_SPK_L+

R1930 10K_J 0402

R1931 0_J 0402

HP_IN_DET 57

AMP_VOL

C1625 33P_50V_K_N 0402

C1626 0.47U_6.3V_K_B 0402

C1627 0.01U_16V_K_B 0402

C1628 0.1U_16V_Y_Y 0402

C1629 0.1U_16V_Y_Y 0402

C1621 NC_33P_50V_K_N 0402

C1622 NC_33P_50V_K_N 0402

C1623 NC_33P_50V_K_N 0402

C1624 NC_33P_50V_K_N 0402

(20mil)

050806:(Improve the voice of speaker up to 0.94W).
Change R1932 from 6.8K to 5.6K,then amp gain
change from 8dB to 10dB For speaker loudness issue

R1932 5.6K_F 0402

R1933 10K_F 0402

050806:(Improve the voice of speaker up to 0.94W).
EMI team confirm whether
it is ok to use 0ohm resistor replacing bead

INT_SPK_L+ INT_SPK_L- INT_SPK_R- INT_SPK_R+

R1963 0_J 0402

R1964 0_J 0402

R1966 0_J 0402

R1965 0_J 0402

(20mil) (20mil)

JSPK1 HEADER_4P FOX_HS8104E

BFT Test Pad

INT_SPK_L+ TP742 tpc32t_100

INT_SPK_L- TP743 tpc32t_100

INT_SPK_R- TP744 tpc32t_100

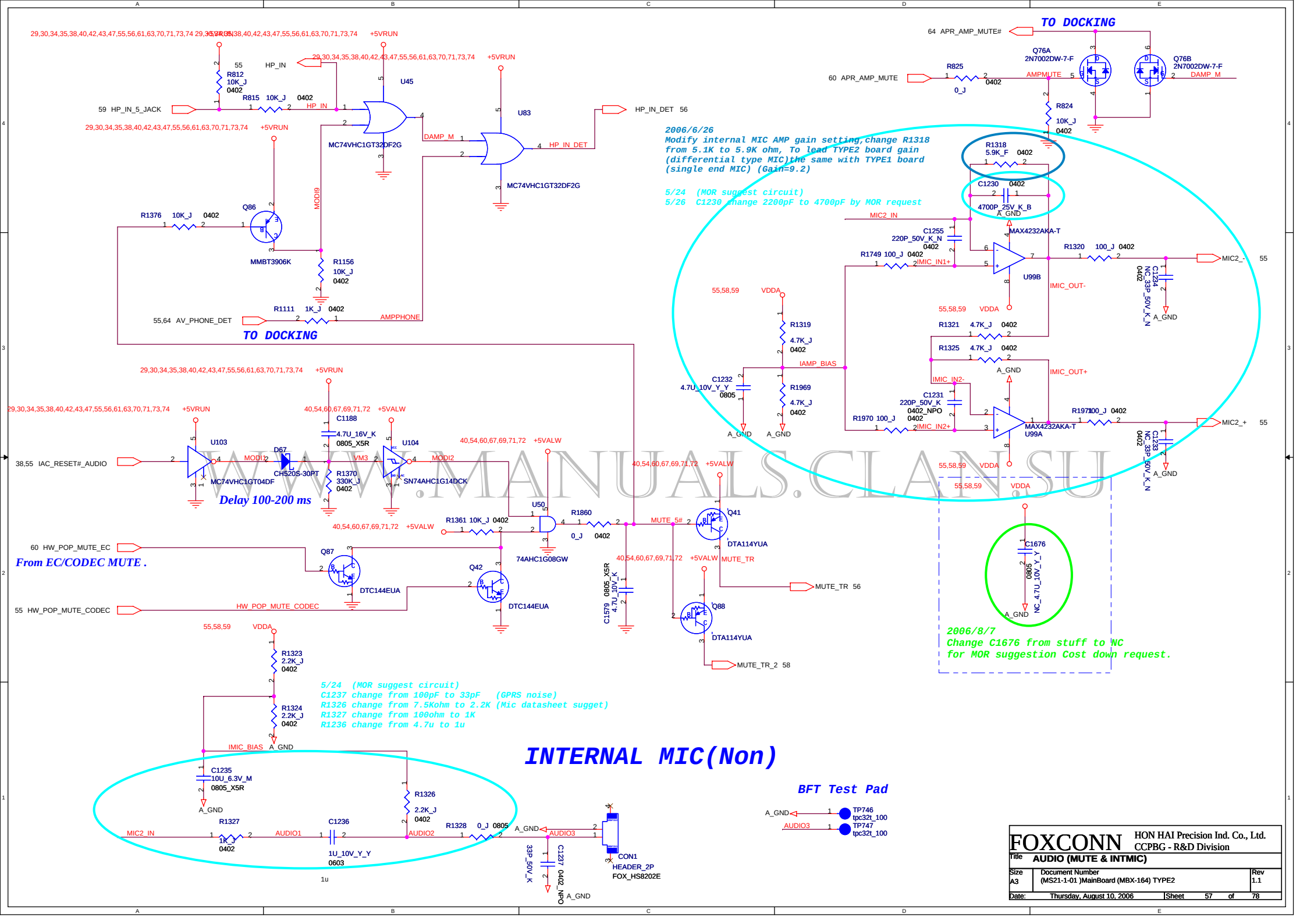
INT_SPK_R+ TP745 tpc32t_100

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

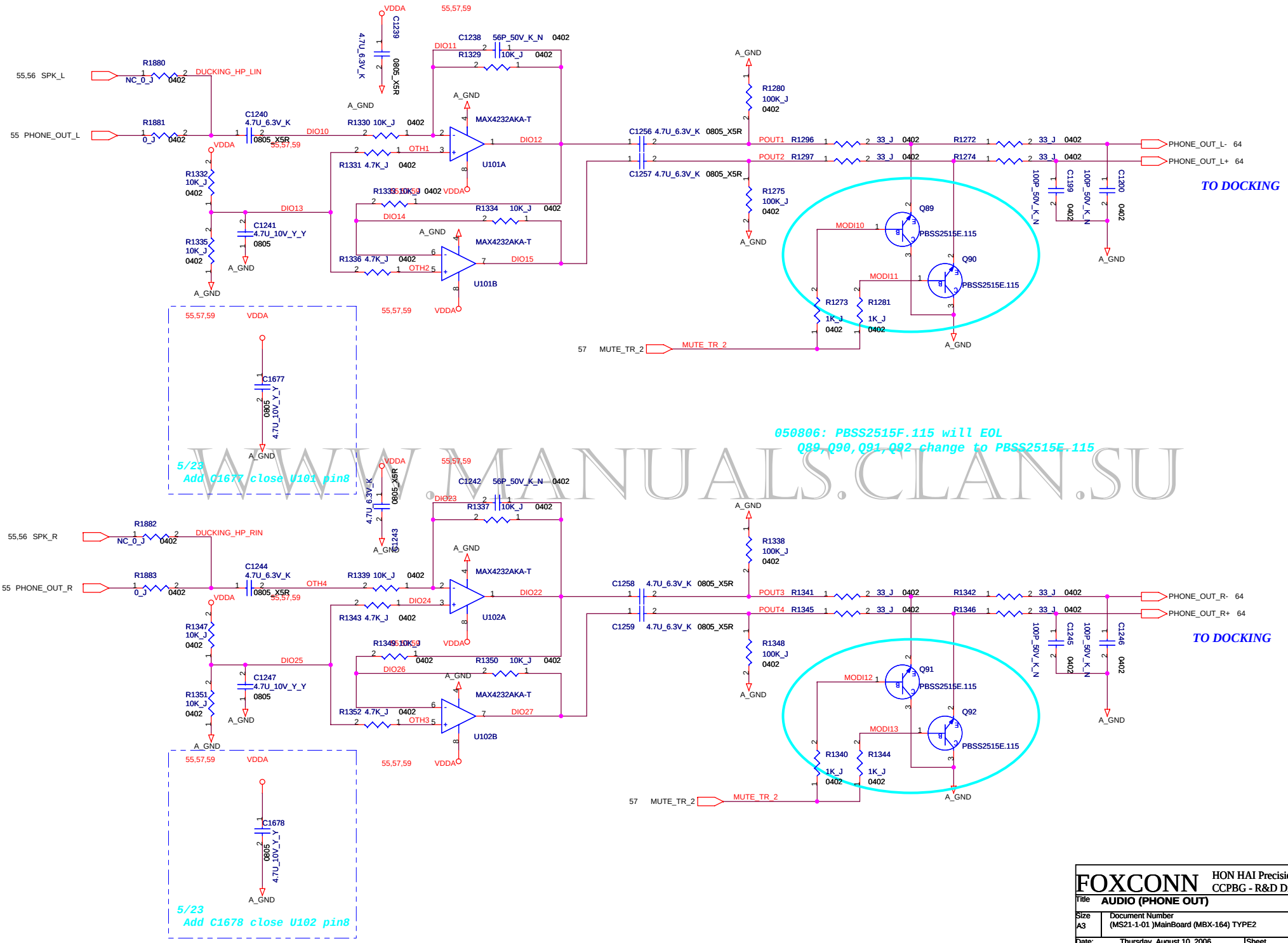
Title AUDIO( AMP & HP & SPK)

Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1

Date: Thursday, August 10, 2006 | Sheet 56 of 78



## PHONE OUT

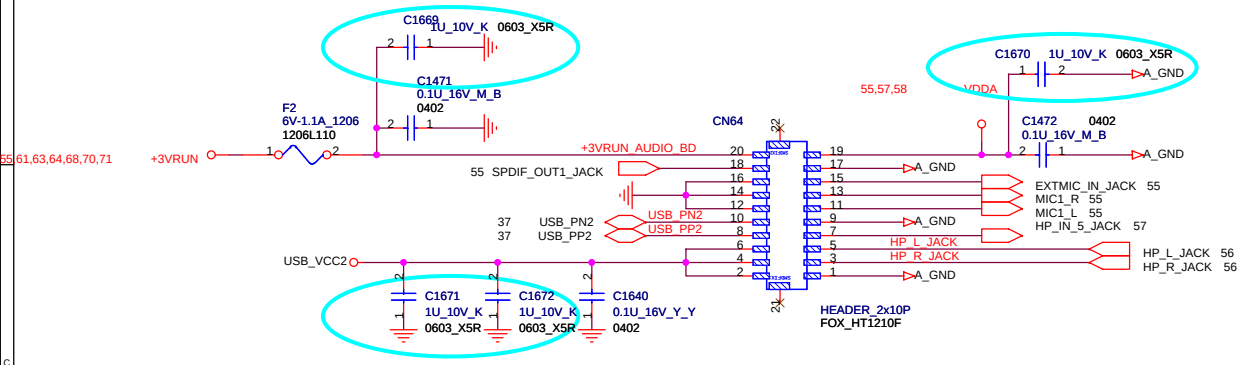


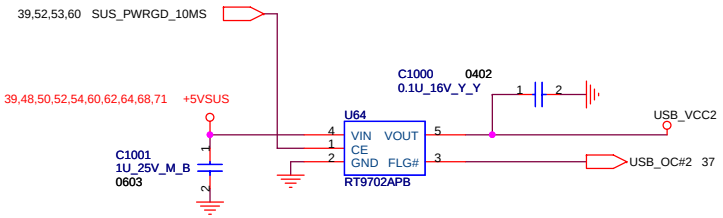



| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | AUDIO (PHONE OUT) | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 58 of 78 | |

# Audio Board connector

050806: (To improve SNR issue)
Add 1uF capacitors close CN64 :C1671,C1672 on USB_VCC2,
C1669 on +3VRUN_AUDIO_BD, and C1670 on VDDA .



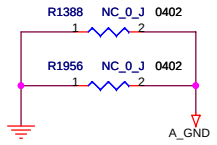




5/6
Separet analog ground for digital Noise issue:
(1)Remove GP3 (Close Jumper)not bridge between GND and A_GND
(2)Backup two jumper resistors for bridge between GND and A_GND
(C1388,C1966 on Screw hole H3,C1957,C1959 on screw hole H5)
(3)Isolate screw hole H4,add 100pF capacitors C1673,C1674 for EMI,Zener diode D100 for ESD
(4)Add jumper resistor for Return patch R1955 close L70(+5VAMP) & R1958 close U41(+5VRUN) &1960 close codec.

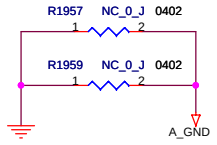


**Backup two jumper resistors for bridge between GND and A_GND**

Close screw hole H3

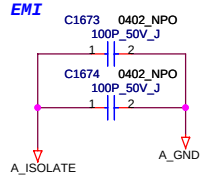



Close screw hole H5

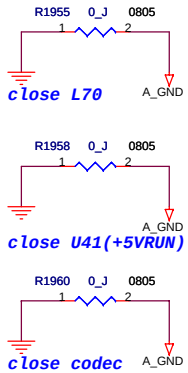



**Isolate screw hole H4, and add EMI/ESD solution**

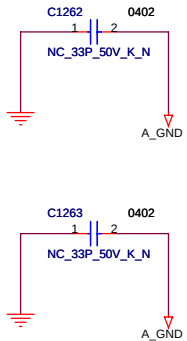
EMI



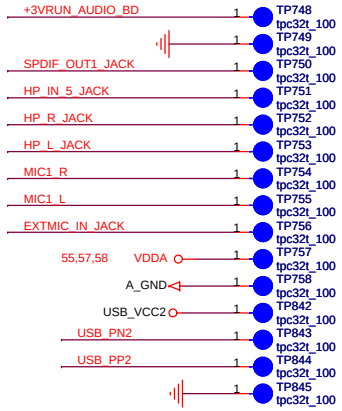

**Add jumper resistor for Return patch**



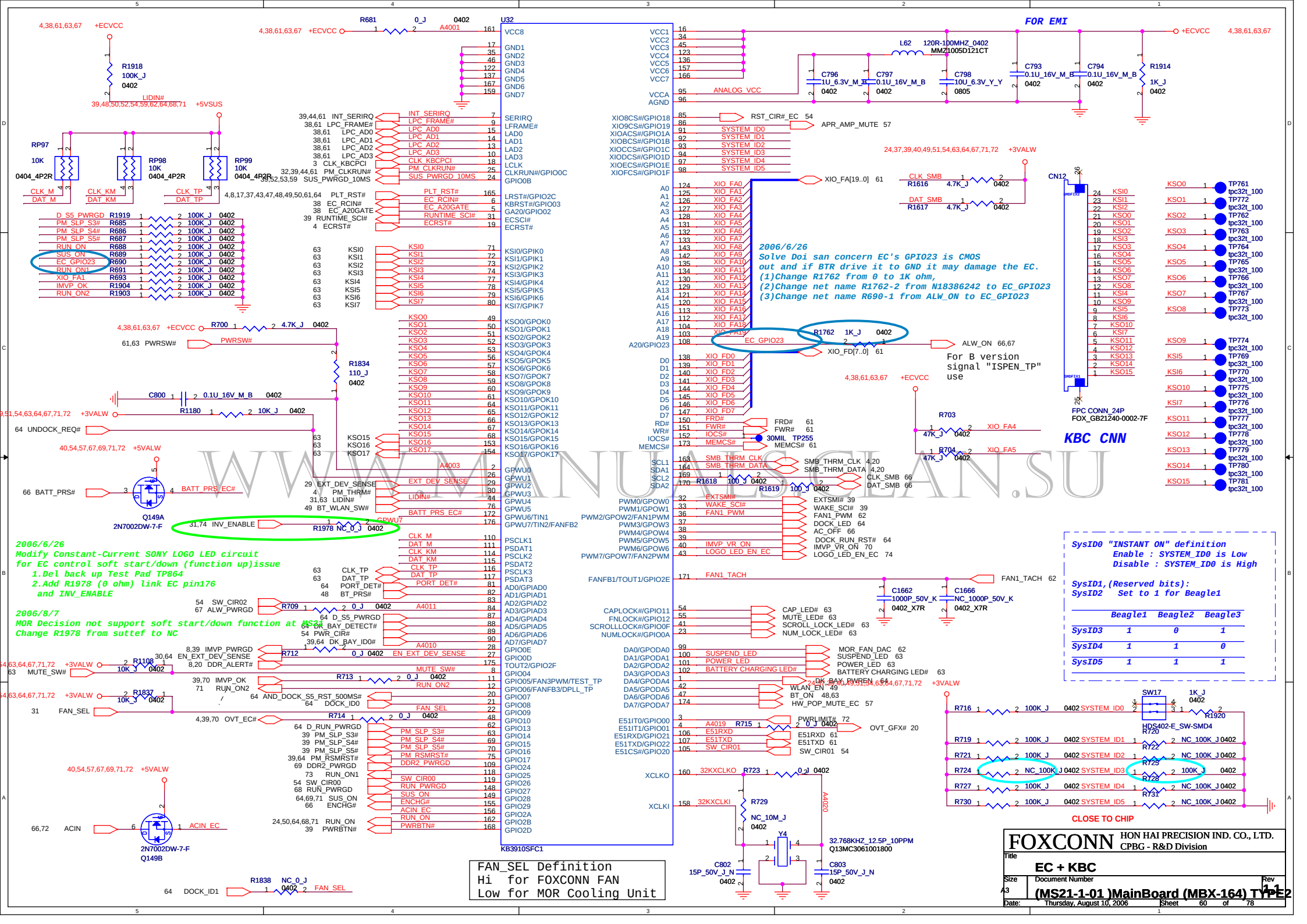

**Original EMI back up solution to continue with MS20(bridge between GND and A_GND)**



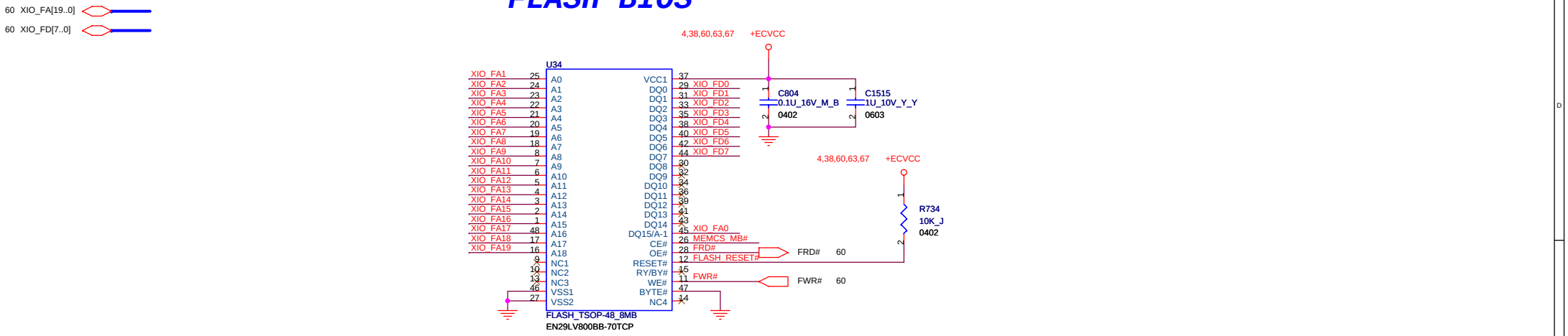

BFT Test Pad



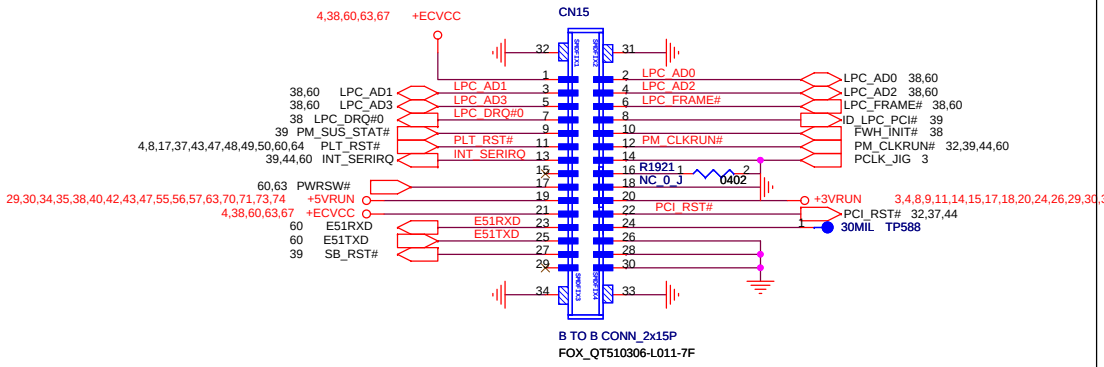

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | Touch Pad & LED Board | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 59 of 78 | |



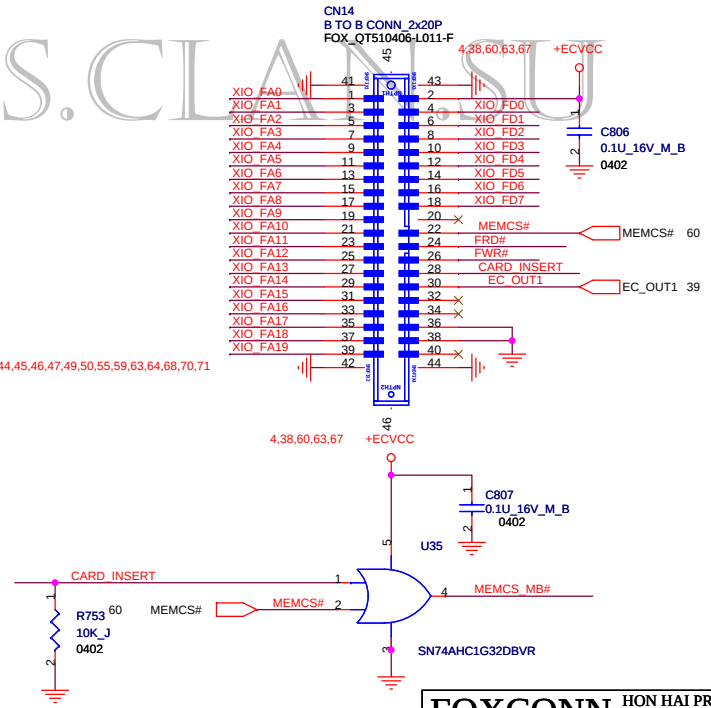
# FLASH BIOS




# JIG-120




# X-BUS





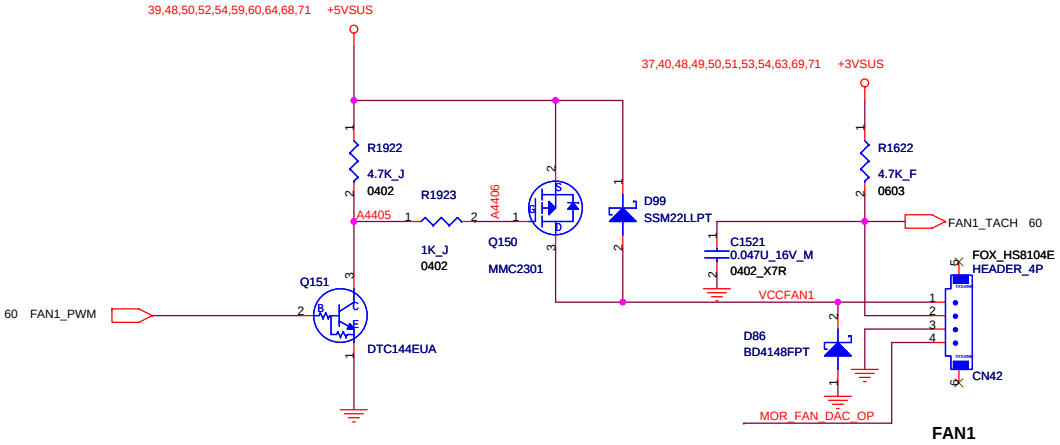

FOXCONN HON HAI PRECISION IND. CO., LTD.
CPBG - R&D Division

Title: Flash ROM + Jig-120 + XBUS

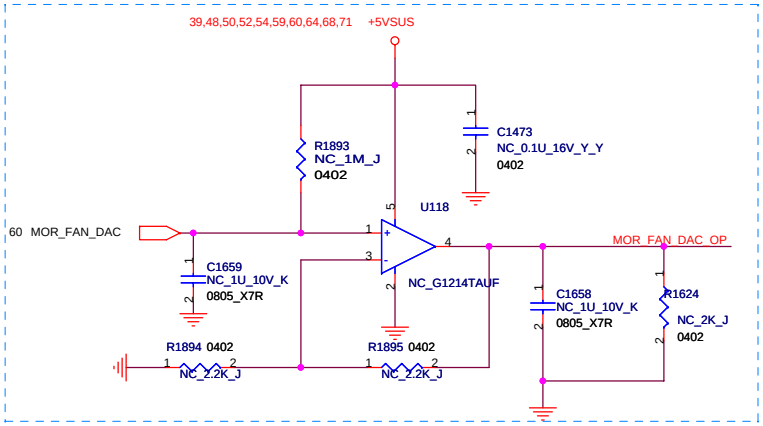
Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 61 of 78

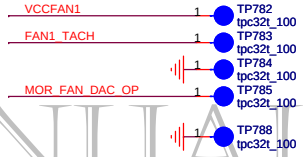
# FAN(FAN1+MOR FAN)




FAN1

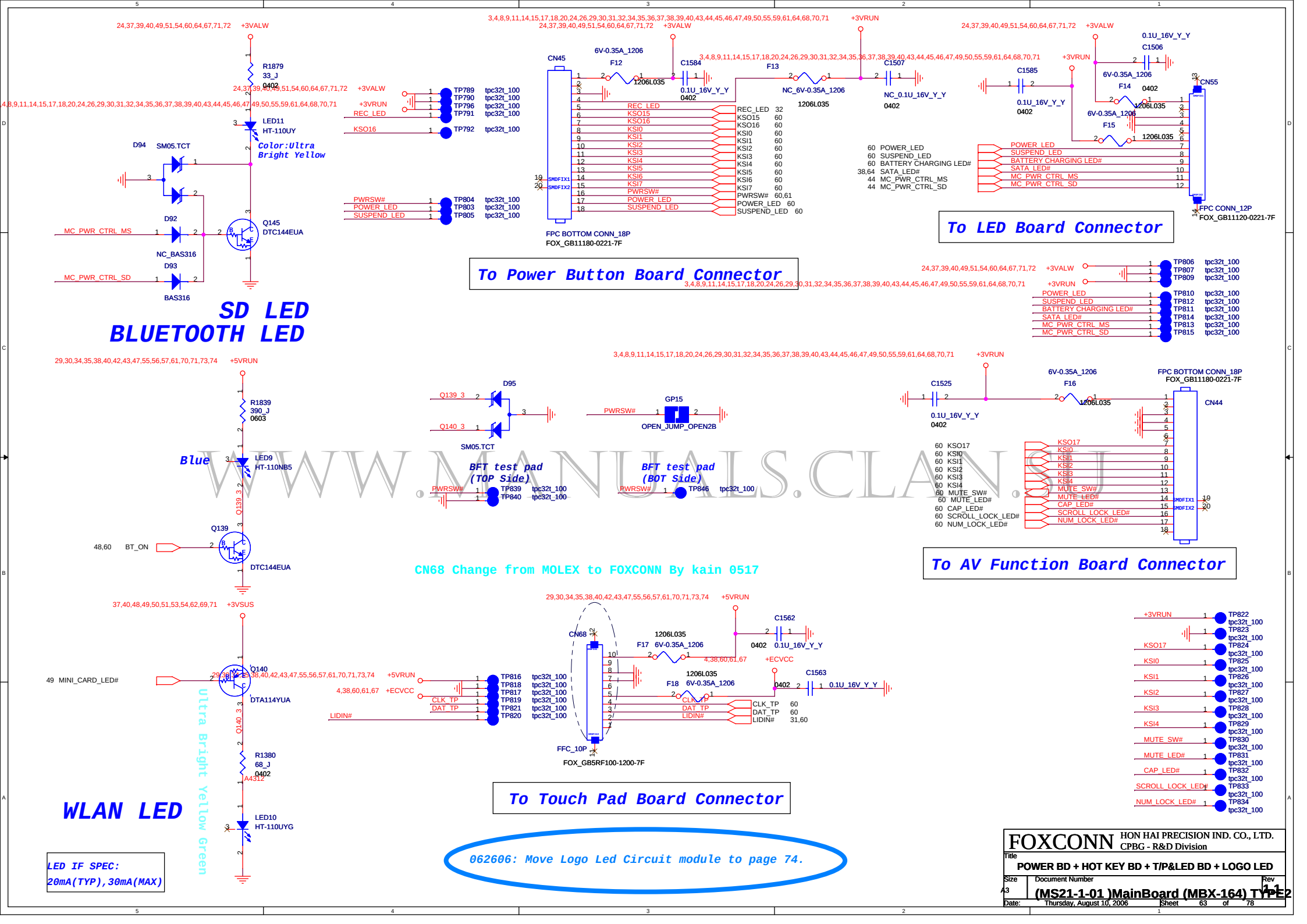



6/28 MOR fan circuit modify to backup
(NC)U118
(NC)R1893
(NC)R1894
(NC)R1895
(NC)R1624
(NC)C1473

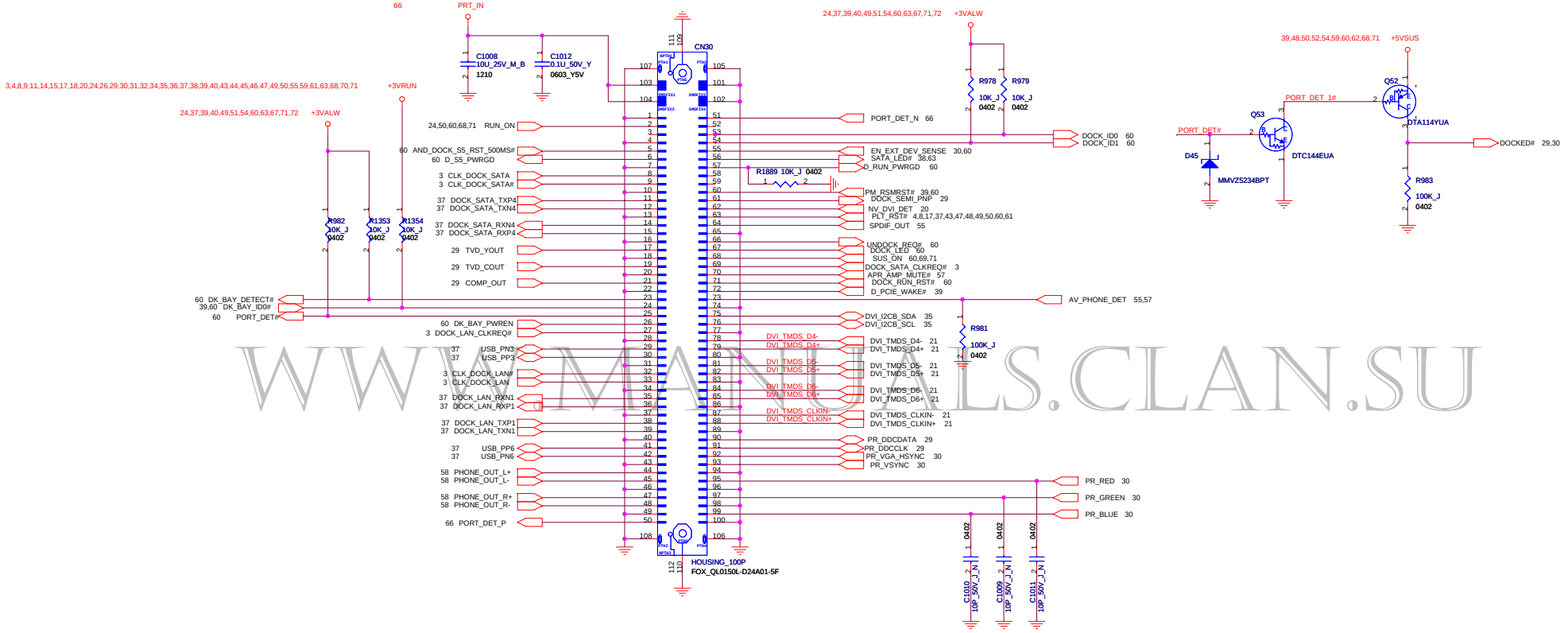





| | | |
|---|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division | |
| Title: FAN | | |
| Size: A3 | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 62 of 78 | |

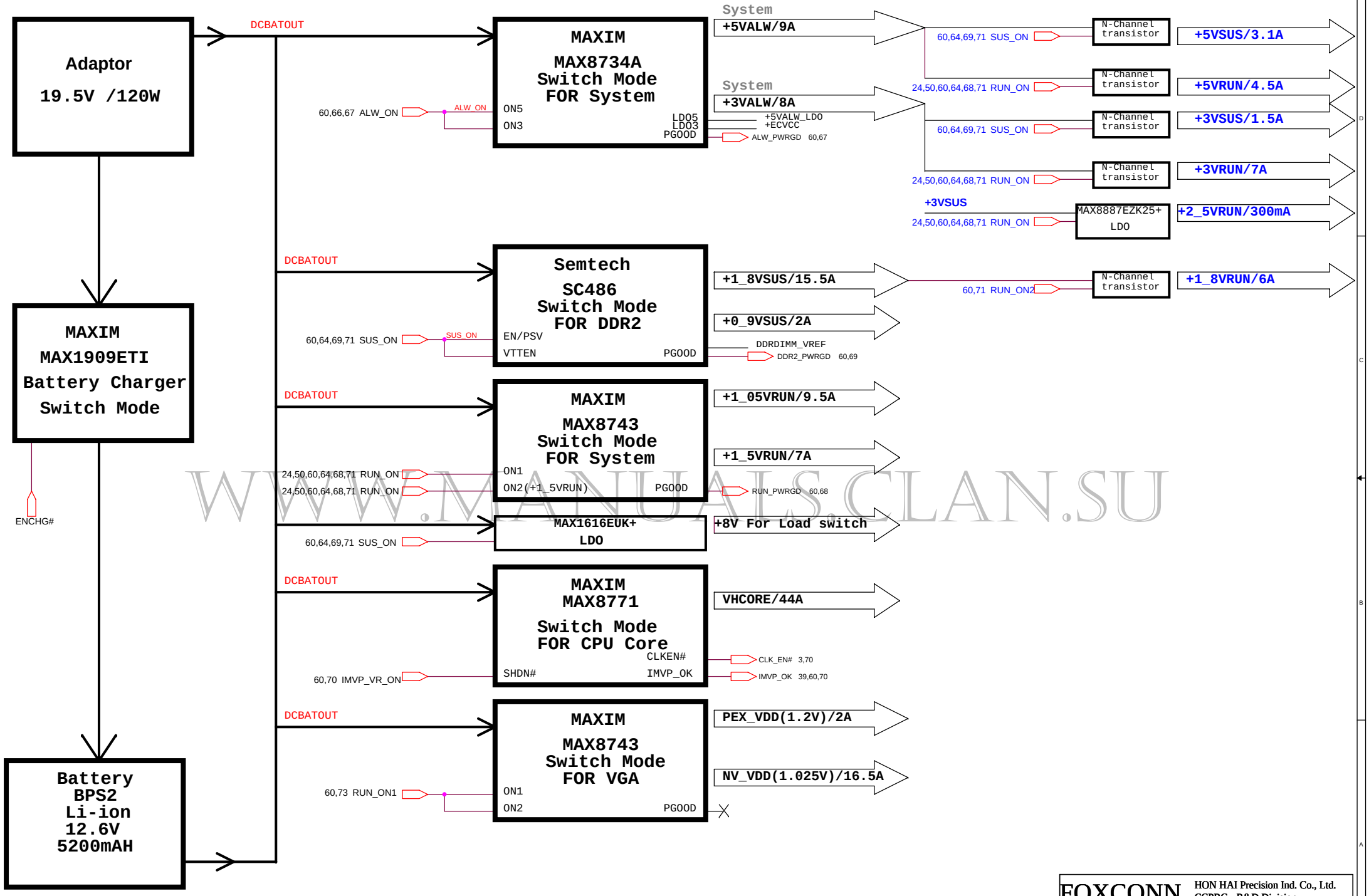



| | |
|---|---|
| FOXCONN | HON HAI PRECISION IND. CO., LTD. CPBG - R&D Division |
| Title | POWER BD + HOT KEY BD + T/P&LED BD + LOGO LED |
| Size | A3 |
| Document Number | (MS21-1-01 )MainBoard (MBX-164) TYPE2 |
| Rev | 1.1 |
| Date: | Thursday, August 10, 2006 |
| Sheet | 63 of 78 |



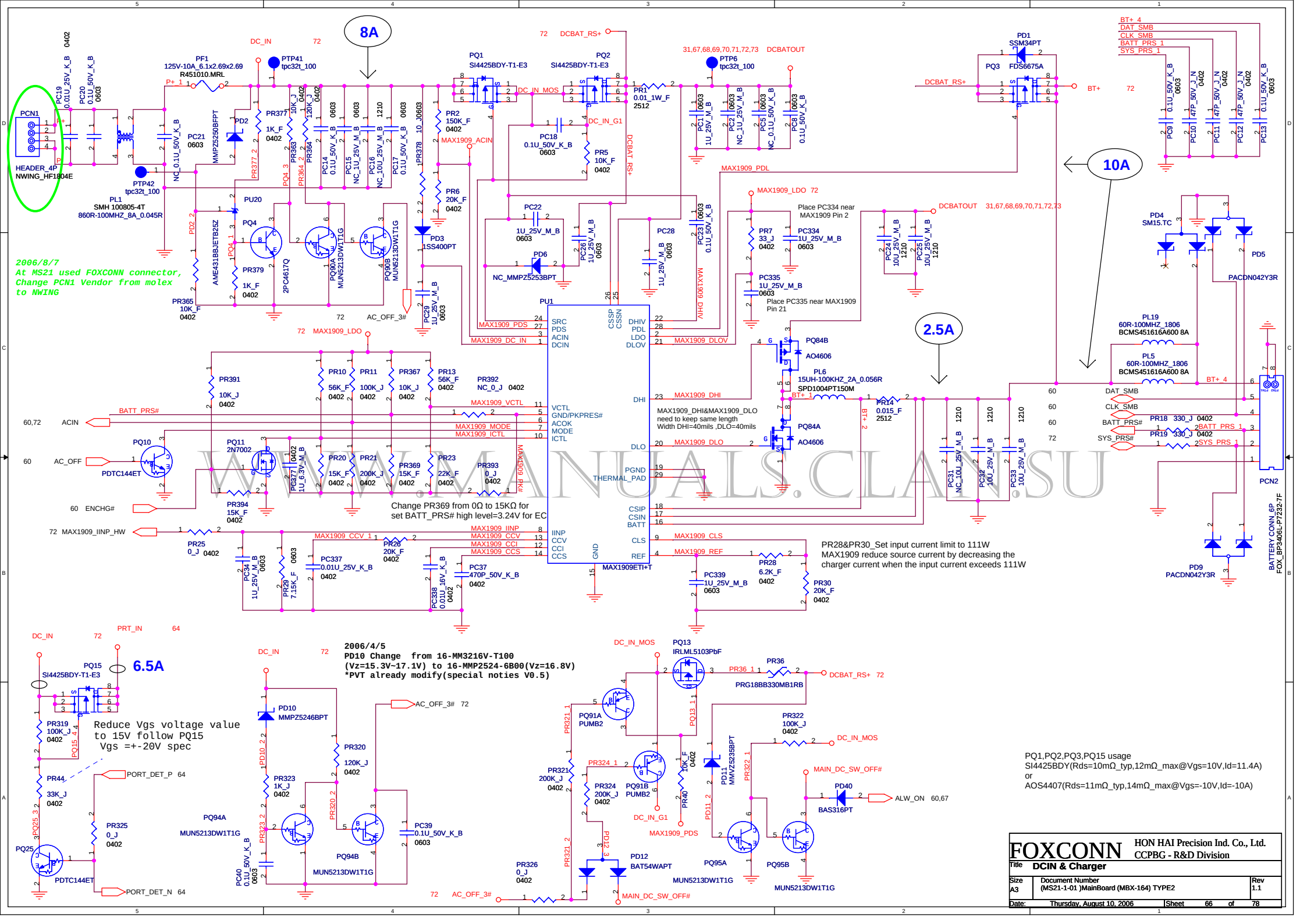



| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title: DOCKING CONN. | | |
| Size: C | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 64 of 78 | |

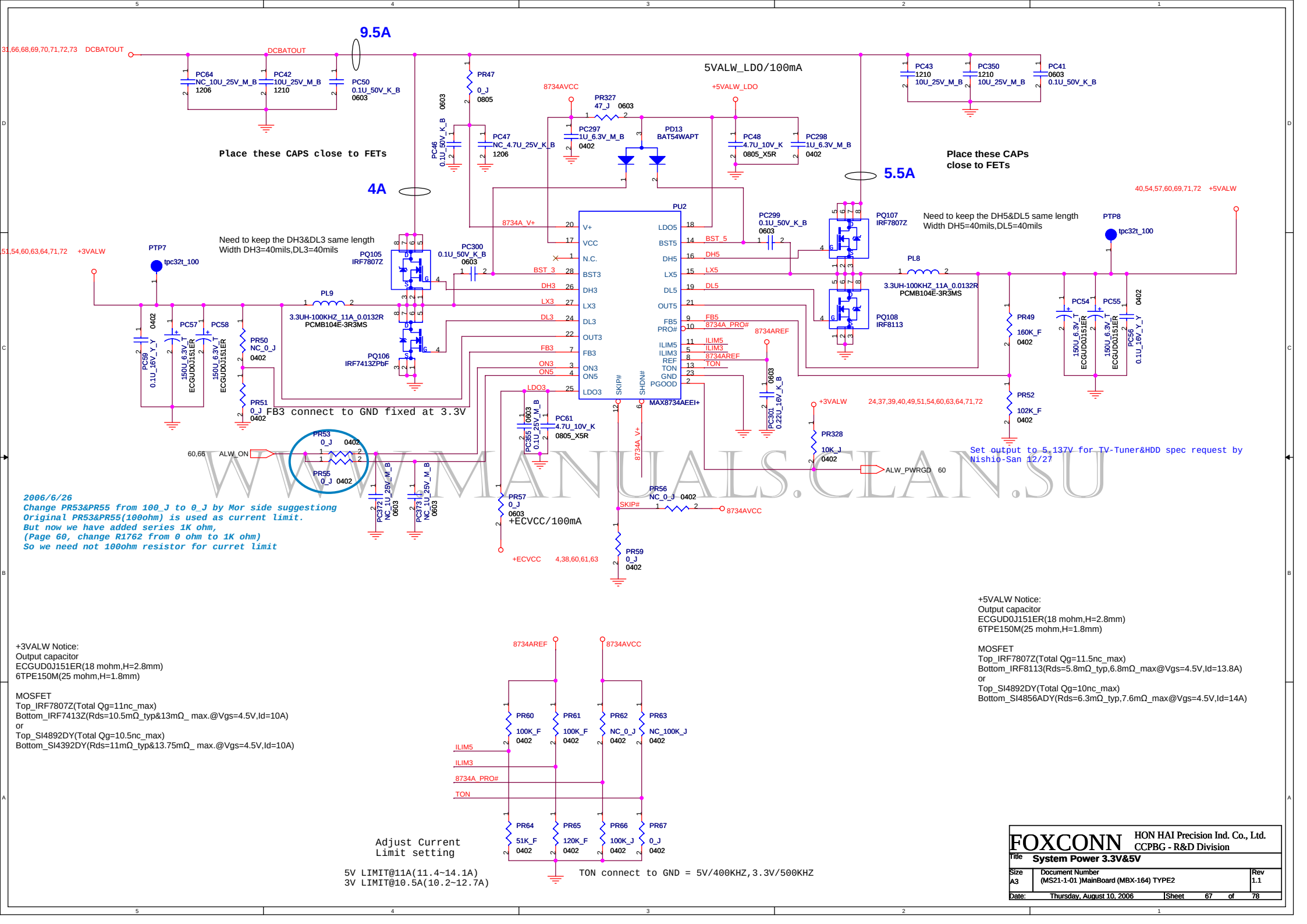


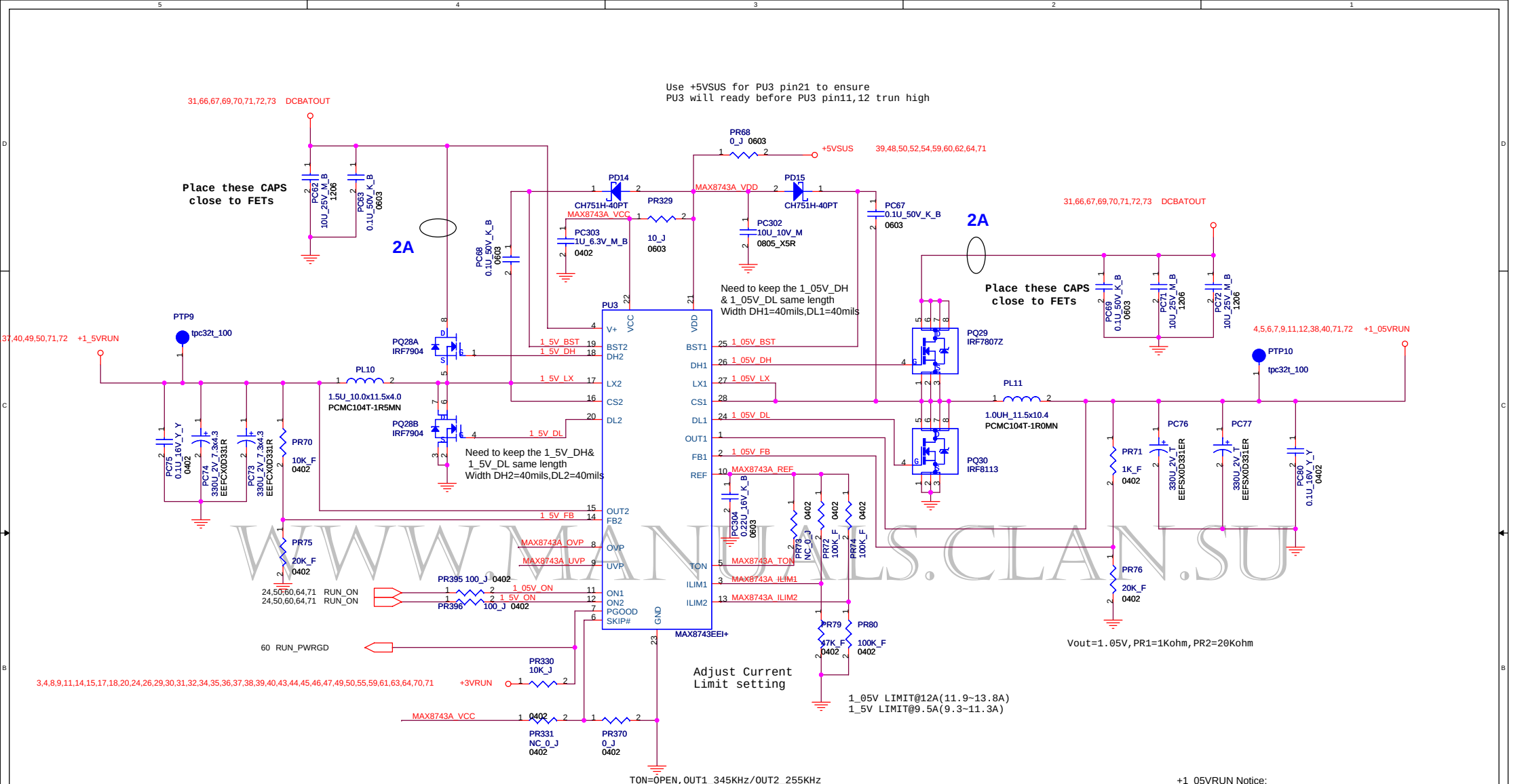



| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | Power Design Diagram-ZG | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 65 of 78 | |




2006/8/7
At MS21 used FOXCONN connector,
Change PCN1 Vendor from molex
to NWING







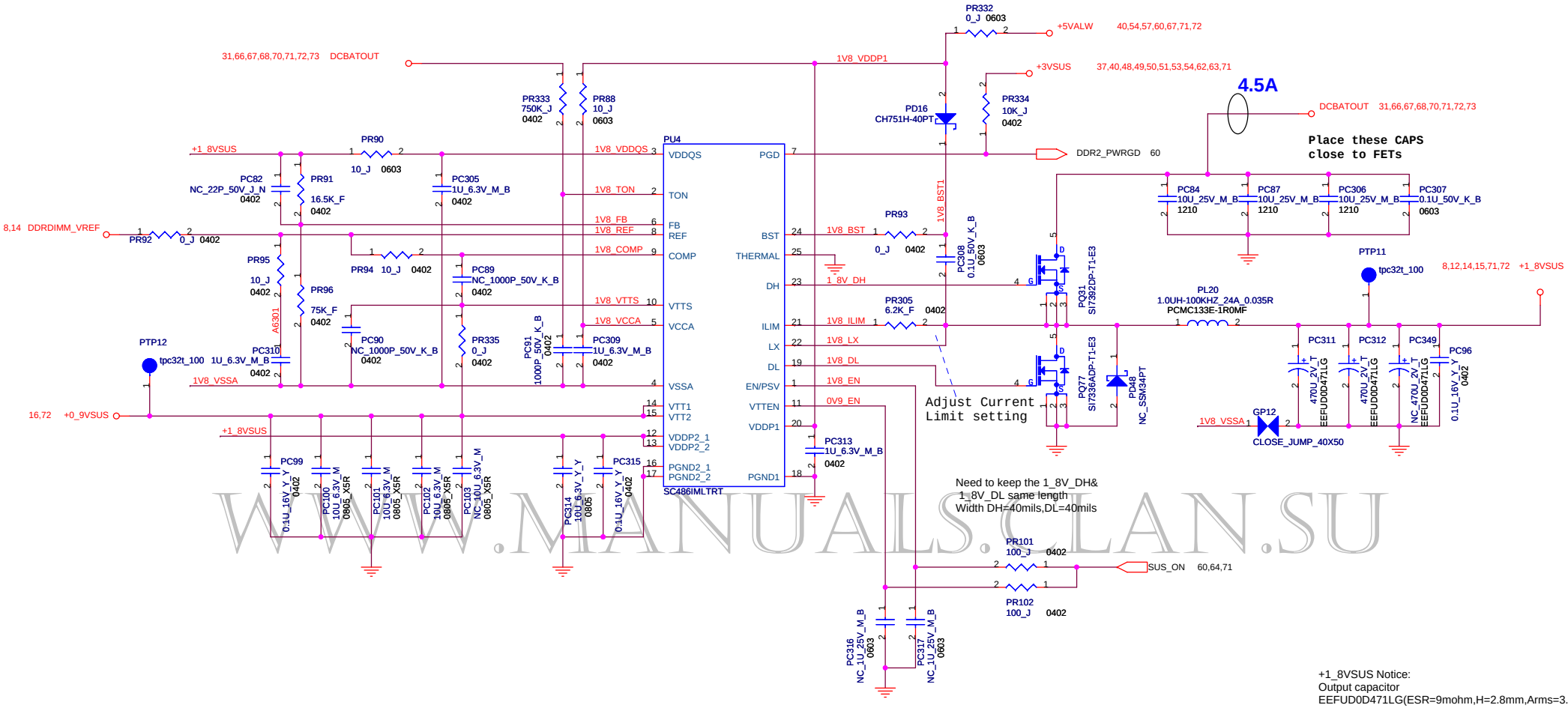

+1_5VRUN Notice:
Output capacitor
EEFCX0D331R(ESR=15 mohm,H=1.9mm,Arms=2.7A)
2R5TPE330MF(ESR=15 mohm,H=1.8mm,Arms=3.1A)

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

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

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

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | 1.5V/1.05V | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 68 of 78 | |



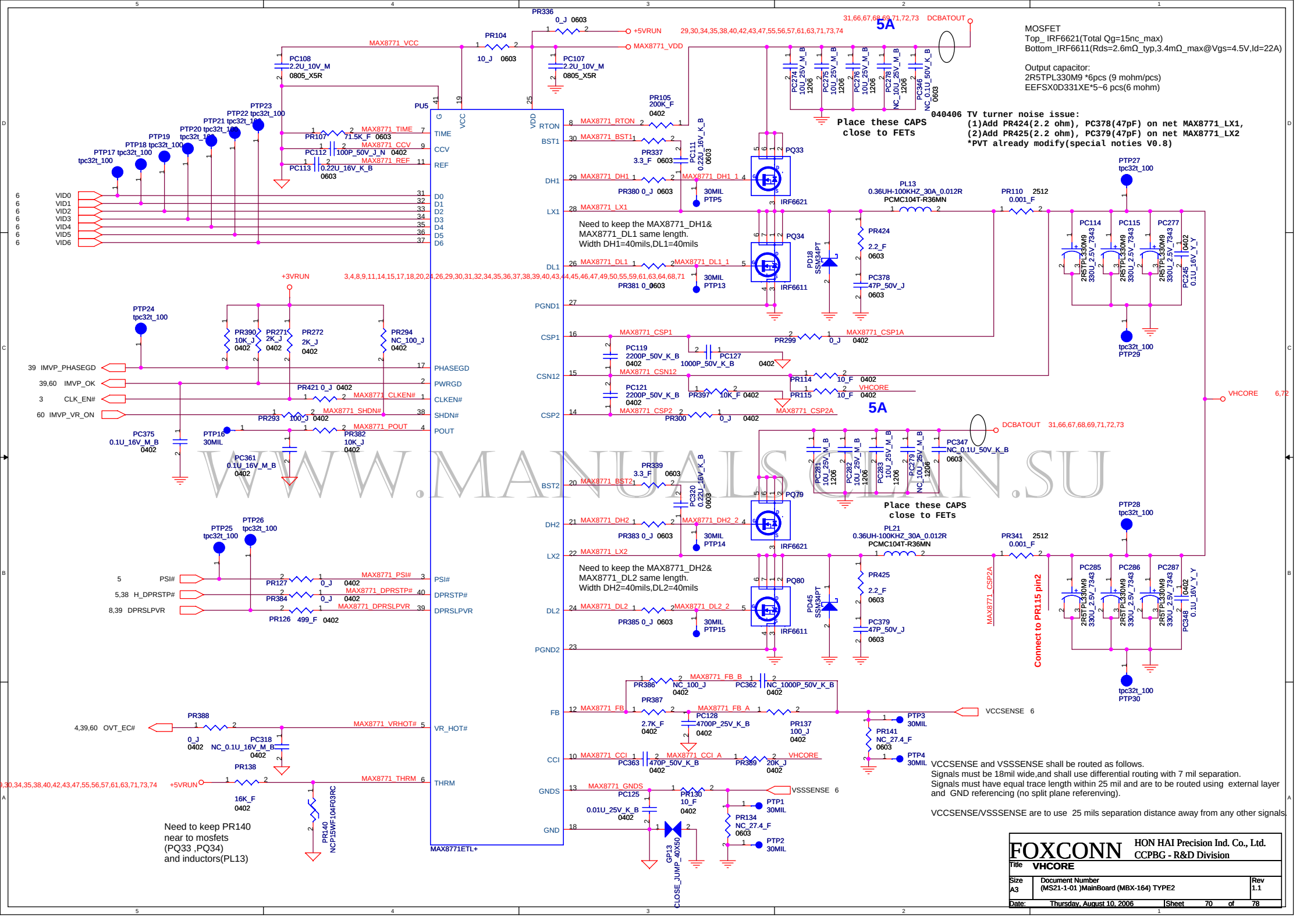


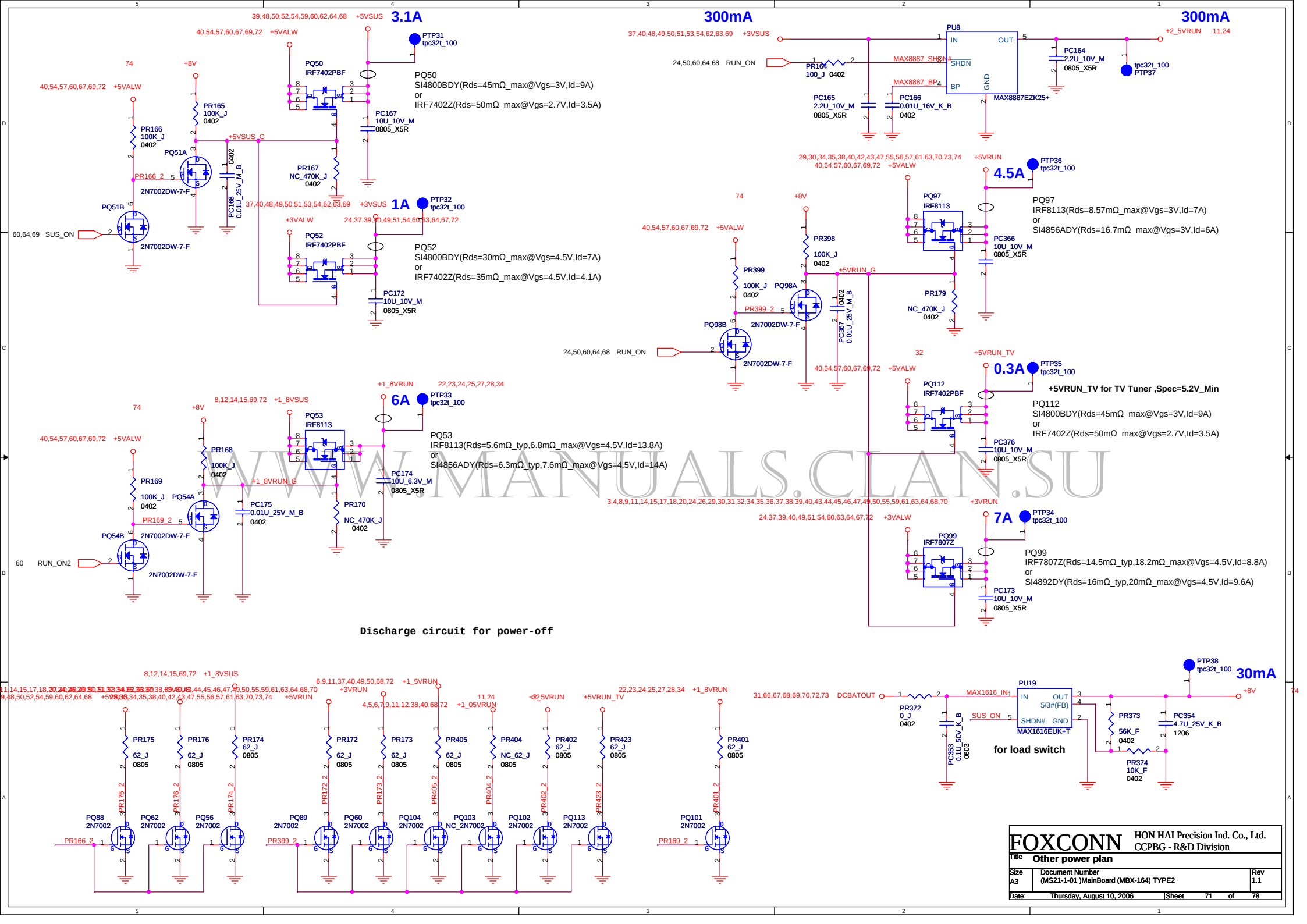

+1_8VSUS Notice:
Output capacitor
EEFUD0D471LG(ESR=9mohm,H=2.8mm,Arms=3.4A)
2R5TPE470M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

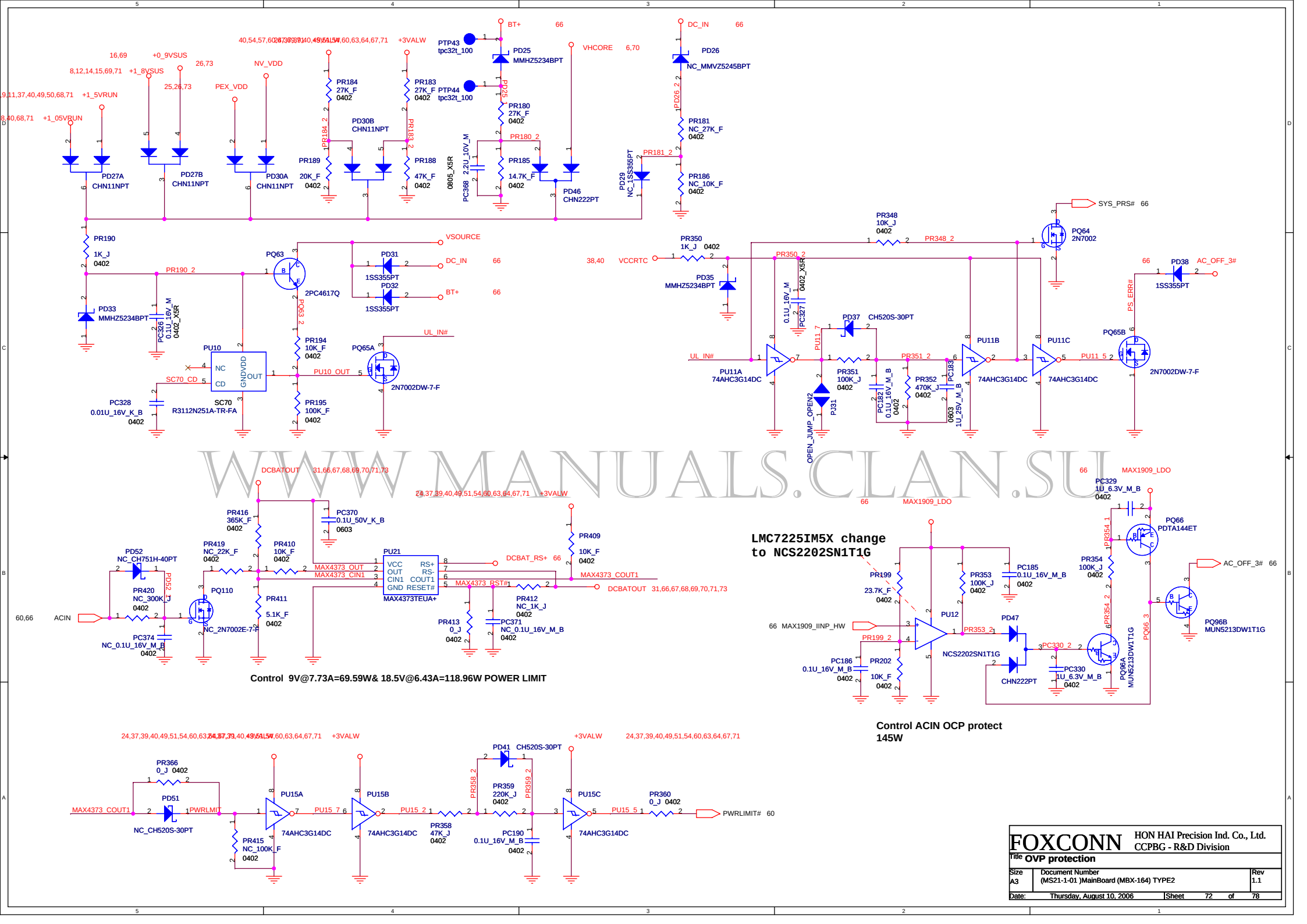
MOSFET
Top_SI7392DP(Total Qg=15nc_max)
Bottom_SI7336ADP(Rds=3.1mΩ_typ,4.0mΩ_max@19A)
or
Top_NTMFS4707N(Total Qg=15nc_max)
Bottom_NTMFS4119N(Rds=3.1mΩ_typ,4.8mΩ_max@25A)

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

| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | DDRII 1.8V/0.9V | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 69 of 78 | |










| | |
|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division |
| Title | OVP protection |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 |
| Rev | 1.1 |
| Date: | Thursday, August 10, 2006 |
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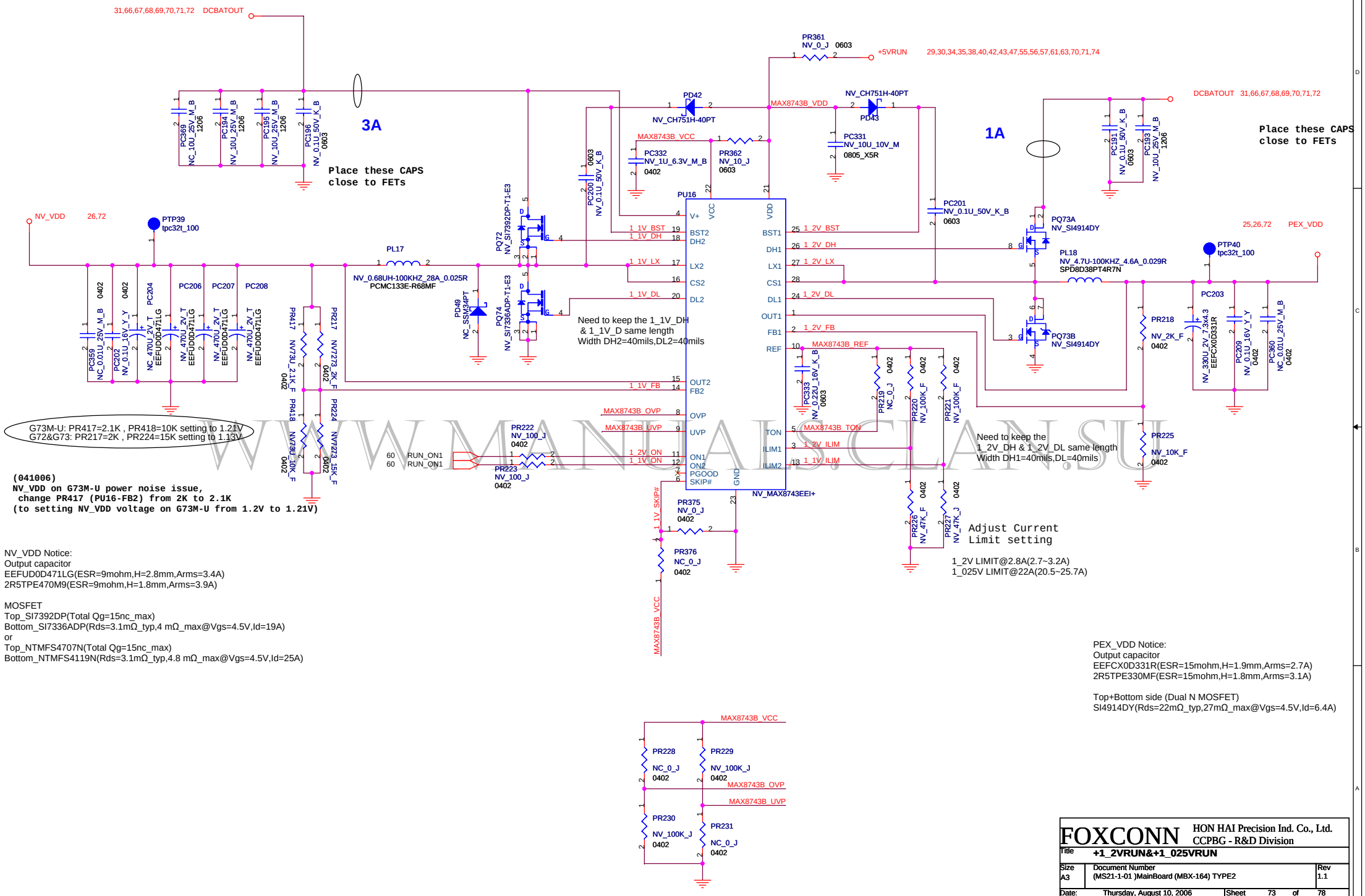



NV_VDD Notice:
Output capacitor
EEFUD0D471LG(ESR=9mohm,H=2.8mm,Arms=3.4A)
2R5TPE470M9(ESR=9mohm,H=1.8mm,Arms=3.9A)

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

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

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



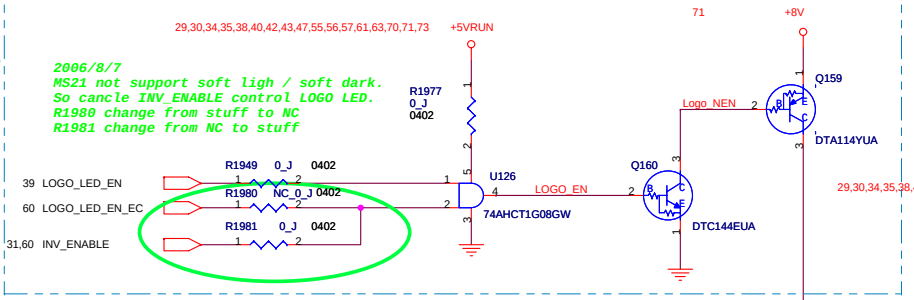
| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | +1_2VRUN&+1_025VRUN | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 73 of 78 | |

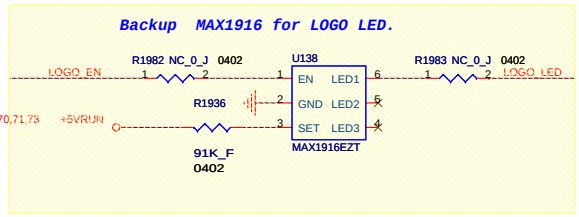
# Constant-Current SONY LOGO LED

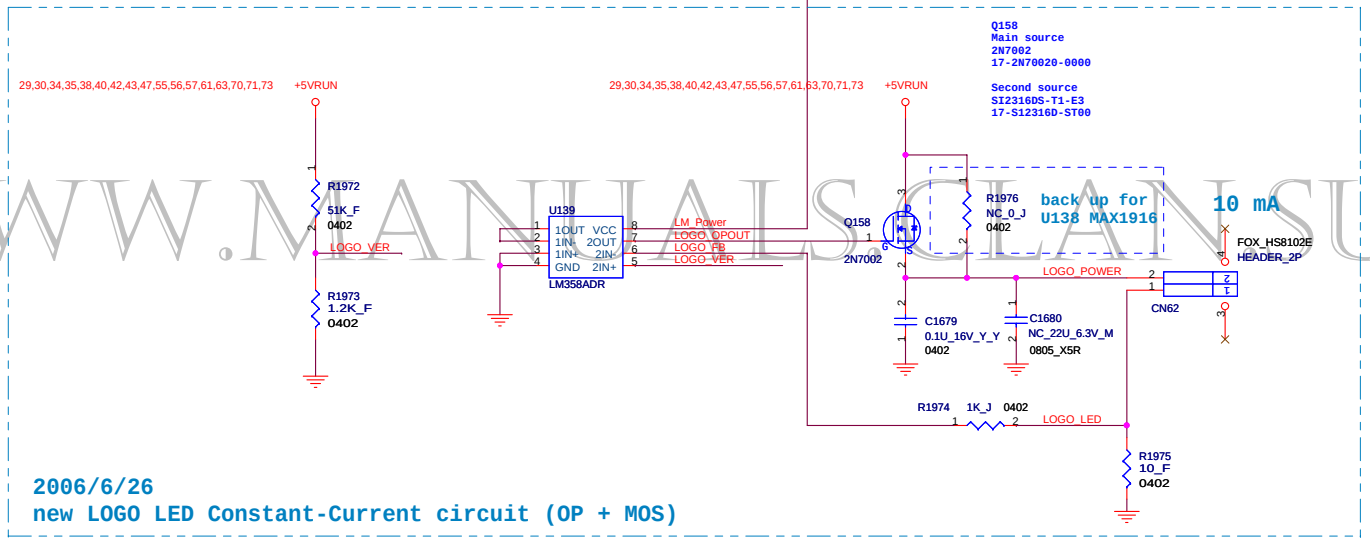
2006/6/26
Modify Constant-Current SONY LOGO LED circuit
A for U138 cost issue
1.Back up:U138(MAX1916EZT),R1936 (91K ohm,0402),R1982(0R,NC),R1983(0R,NC)
2.Remove back up solution U139(GMT,G5920TB1Uf),C1660(0.1u)
3.Add new Constant-Current circuit (OP + MOS)
51K ohm: R1972 ,
1.2K ohm: R1973 ,
1k ohm:R1974 ,
10 ohm: R1975
(NC)0 ohm: R1976(for back up U138 MAX1916)
0.1uF,16V: C1679
(NC)22uF,6.3V: C1680
OP LM358 ADR : U139
N-MOS 2N7002: Q158
N-MOS DTA114YUA:Q159
P-MOS DTC144EUA:Q160

B for EC control soft start/down (function up)issue
1.Del R1948(back up LOGO_LED_EN_EC to U126 pin1)
2.Serial (Back up) R1981 between INV_ENABLE to U126 pin2
3.Move net LOGO_LED_EN_EC from R1948 pin1 to R1980 pin1
4.Add R1977 between +5VRUN to U126 pin5(VCC)
5.Add R1980 between Logo_led_en_ec to U126 pin2

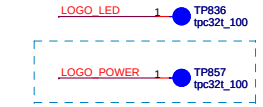
2006/6/26
EC & SB control soft start/down




2006/6/26
new LOGO LED Constant-Current circuit (OP + MOS)




2006/6/26
(1)remove TP835(GND Test Pad)
(2)add TP857(LOGO_POWER)

2006/6/26
(Del inverter boost circuit , after change ,the inverter circuit is the same with MS20 MP)
Detail location
10U_25V_M*9pcs(PC380,PC381,PC382,PC383,PC384,PC385,PC386,PC389,PC390),
0.01U_25V_K*1pcs(PC387),1U_25V_M*1pcs(PC388),0.22U_16V_M*1pcs(PC391),
220P_50V_K*1pcs(PC392),SKS30-04AT-G*1pcs(PD53),8UH-100KHZ_2.5A_0.07R*1pcs(PL22),
2N7002*2pcs(PQ9114,PQ116),FDS6680A*1pcs(PQ117),120K_F*1pcs(PR432),
0.03_F*1pcs(PR434)95.3K_F*1pcs(PR435),10K_F*1pcs(PR436),MAX668EUB+T*1pcs(PU22),



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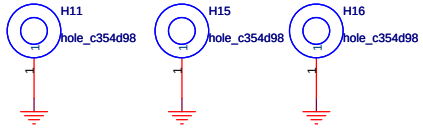
| | | |
|---|---|---|
| Title | Logo LED | |
| Size: Custom | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 74 of 78 | |

# HOLE

## Type 1




## Type 2

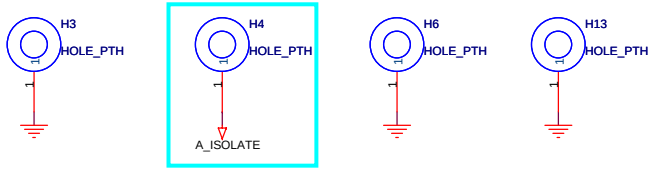
*2005/10/24*
*Remove Screw Hole H2 P/N 1X-HOLE000-0108*
*beacuse the Hole overlay with CN32 and layout will*
*modify component screw shipe*

## Type 3

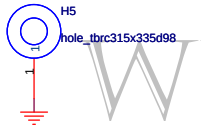
*2005/10/24*
*Remove Screw Hole H1 P/N 1X-HOLE000-0110*
*beacuse the Hole overlay with CN32 and layout will*
*modify component screw shipe*

*2006/5/6*
*Separet analog ground for digital Noise issue:*
*Isolate screw hole H4 Change H4 net name from*
*A_GND to A_ISOLATE*

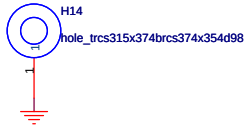
## Type 4



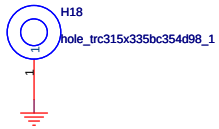

## Type 5



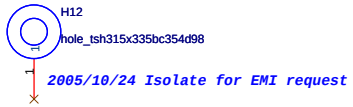

## Type 6




## Type 7

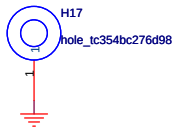



## Type 8

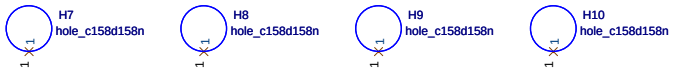


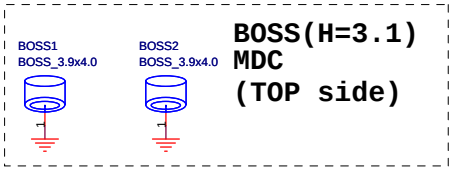

*2005/10/24 Isolate for EMI request*

## Type 9

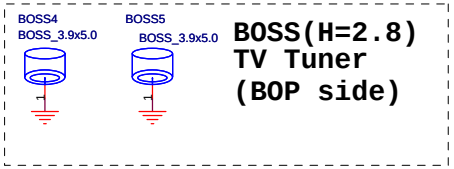



## Type CPU



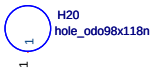




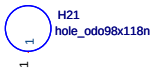

## Type NPTH Guide (spherical)HOLD


close H1

## Type NPTH Guide (oval-shaped)HOLD




close H6




close H17



| | | |
|---|---|---|
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| Title | HOLE & BOSS | |
| Size A3 | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 75 of 78 | |

# MS20 MP to MS21 DVT Change History

**(2006/5/23)**

(川) 01.(Page08) Remove R110 for PM_EXTTS#1 back up pull up res.ICH7 (DPRSLPVR)already have internal pull up
(川) 02.(Page14) Remove backup DIMM thermal senser Change R168 from stuff to NC(basis on MS20 MP ECR)
(川) 03.(Page15) Remove backup DIMM thermal senser Change R1627 from stuff to NC(basis on MS20 MP ECR)
(閻) 04.(Page34) US Silicon Image ATC test HDMI DDC capacitance fail(>50pF)change U128 no stuff Basis on MS20 MP ECR
add back up res.(R1962)no stuff for U128 VCC
(才) 05.(Page39) Delete U30,R1183,R649 (backup circuit)
(寶) 06.(Page42) For power droup cause 0.16V voltage loss Issue(1)F7,F8,F19,F20 no stuff(2)Co-layout GP17~GP20 with fuse
(葉) 07.(Page55) Separet analog ground for digital Noise issue
(1)Add bead (L152)before LDO chipand
(2)Change C873 from GND to A_GND
(3)Add C1675 on +5VRUN before L152
(葉) 08.(Page56) Shoei CAP will EOL. CAP24,CAP25(SP CAP) change to Stuff; CAP22,CAP23(Shoei CAP) change to No Stuff
(葉) 09.(Page56) PBSS2515F.115 will EOL ,Q77,Q78,Q143,Q144 change to PBSS2515E.115
(葉) 10.(Page56) Improve the voice of speaker up to 0.94W
(1)Add damping Resistors R1953 on SRIN,R1954 on AMP_SLIN then speaker amp output won't be distorted.
(2)Change R1932 from 6.8K to 5.6K, then amp gain change from 8dB to 10dB.
(葉) 11.(Page57) PBSS2515F.115 will EOL Q89,Q90,Q91,Q92 change to PBSS2515E.115
(葉) 12.(Page59) Improve SNR issue,Add 1uF capacitors close CN64 :C1671,C1672 on USB_VCC2,C1669 on +3VRUN_AUDIO_BD,
and C1670 on VDDA .
(葉) 13.(Page59) Separet analog ground for digital Noise issue:
(1)Remove GP3 (Close Jumper)not bridge between GND and A_GND
(2)Backup two jumper resistors for bridge between GND and A_GND
(C1388,C1966 on Screw hole H3,C1957,C1959 on screw hole H5)
(3)Isolate screw hole H4,add 100pF capacitors C1673,C1674 for EMI,Zener diode D100 for ESD
(4)Add jumper resistor for Return patch R1955 close L70(+5VAMP) & R1958 close U41(+5VRUN),& R1960 close codec
(才) 14.(Page39) Remove back up circuit LVDS GPIO on U29 pinU2(1)Add Test Pad TP890 on GPIO34(2)Del Q126
(寶) 15.(Page54) Remove back up F6 power source from +3VALW (Del)R1944,R1946
(青) 16.(Page67) Reserve PC64(10U_25V_M_B 1206) for 1210 size shortage. Change PR57 from 0805 size to 0603 size for 0603 size rated
current is also enough.
(青) 17.(Page70) Add PC375 (0.1uF) to avoid IMVP_OK signal 700mV pulse when power on. Change PC107/PC108 from 2.2U_16V_M to 2.2U_10V_M
for 2.2U_16V_M shortage.
(青) 18.(Page71) Change PC164/PC165 from 2.2U_16V_M to 2.2U_10V_M for 2.2U_16V_M shortage.
(青) 19.(Page71) Change PC368 from 2.2U_16V_M to 2.2U_10V_M for 2.2U_16V_M shortage. Change PU12 from LMC7225IM5X to NCS2202SN1T1G for
LMC7225IM5X shortage.
(才) 20.(Page60) Modify system ID setting. R725 from stuff change to NC,R726 from NC change to stuff
(閻) 21.(Page32) CN66,CN67 Change from MOLEX(1N-0010000-MWG0) to FOXCONN(1N-0010000-F0T0)
(寶) 22.(Page63) CN68 Change from MOLEX(1N-0010000-MWG0) to FOXCONN(1N-0010000-F0T0)
(葉) 23.(Page57) Add C1676 (4.7 uF/bupass cap) close A_ U99 pin8
(葉) 24.(Page58) Add C1677,C1678 (4.7 uF/bupass cap) close A_ U101,U102 pin8
(青) 25.(Page74) Add Inverter Boost Circuit

**(2006/5/24)**

(葉) 1.(Page55) According to MOR suggest Change Int MIC topology from single end to differential
(1) C1251 change from 33pF 0402 to 1uF 0603
(2) C1252 change from 12pF 0402 to 1uF 0603
(3) C1270 change from 0.1F 0402 to 1uF 0603
(4) Add R1967, R1968 100 ohm 0402
2.(Page57) According to MOR suggest Change Int MIC topology from single end to differential
(1) C1231 change from 4.7uF 0805 to 220pF 0402
(2) C1232 change from 1uF 0805 to 4.7uF 0805
(3) C1233 change from 4.7uF 0805 to NC_33pF 0402
(4) C1234 change from 100pF 0402 to NC_33pF 0402
(5) C1237 change from 100pF 0402 to 33pF 0402
(6) R1318 change from 10Kohm 0402 to 5.1Kohm 0402
(7) R1319 change from 1Kohm 0402 to 4.7Kohm 0402
(8) R1320 change from 33ohm 0402 to 100ohm 0402
(9) R1321 change from NC_0ohm 0402 to 4.7Kohm 0402
(10) R1325 change from 47Kohm 0402 to 4.7Kohm 0402
(11) R1326 change from 7.5Kohm 0402 to 2.2Kohm 0402
(12) R1327 change from 100ohm 0402 to 1Kohm 0402
(13) Add R1970, R1971 100 ohm 0402
(14) Add R1969 4.7 Kohm 0402
(15) R1236 change from 4.7u to 1u

**(2006/5/26)**

(葉) (1) C1230 change from 2200pF to 4700 pF by MOR request

# MS21 DVT to MS21 PVT Change History

**(2006/6/26)**

(才) 01.(Page60) Solve Doi san concern EC's GPIO23 is CMOS out and if BTR drive it to GND it may damage the EC.
(1)Change R1762 from 0 to 1K ohm,
(2)Change net name R1762-2 from N18386242 to EC_GPIO23
(3)Change net name R690-1 from ALW_ON to EC_GPIO23

(閻) 02.(Page31) Del inverter boost circuit , after change ,the inverter circuit is the same with MS20 MP
(1)Delete PR426&PR427
(2)change C604-1,C1557-1,C1558-1,CN49 pin1,pin2 net name INVERTER_VCC to net DCBATOUT.

(寶) 03.(Page74) Del inverter boost circuit , after change ,the inverter circuit is the same with MS20 MP
Delete 10U_25V_M*9pcs(PC380,PC381,PC382,PC383,PC384,PC385,PC386,PC389,PC390),
0.01U_25V_K*1pcs (PC387),1U_25V_M*1pcs(PC388),0.22U_16V_M*1pcs(PC391),
220P_50V_K*1pcs(PC392),SKS30-04AT-G*1pcs(PD53),8UH-100KHZ_2.5A_0.07R*1pcs(PL22),
2N7002*2pcs(PQ114,PQ116),FDS6680A*1pcs(PQ117),120K_F*1pcs(PR432),
0.03_F*1pcs(PR434)95.3K_F*1pcs(PR435),10K_F*1pcs(PR436),MAX668EUB+T*1pcs(PU22),
100K_J*1pcs (PR428) 100K_J*1pcs (PR429)

(青) 04.(Page67)Change PR53&PR55 from 100_J to 0_J by Mor side suggestiong
Original PR53&PR55(100ohm) is used as current limit.But now we have added series 1K ohm,
(Page 60, change R1762 from 0 ohm to 1K ohm) So we need not 100ohm resistor for curret limit

(葉) 05.(Page56) Modify internal speaker AMP gain setting,change R1953/R1954 from 4.7K (AMP output 1.12W) to
5.1Kohm(AMP output0.98W) to fit in speaker (1.0W)spec.

(葉) 06.(Page57) Modify internal MIC AMP gain setting,change R1318 from 5.1K to 5.9K ohm, To lead TYPE2 board gain
(differential type MIC)the same with TYPE1 board single end MIC) (Gain=9.2)

(才) 07.(Page60) Modify Constant-Current SONY LOGO LED circuit for EC control soft start/down (function up)issue
(1).Del back up Test Pad TP864
(2).Add R1978 (0 ohm) link EC pin176 and INV_ENABLE

(寶) 08.(Page74) Modify Constant-Current SONY LOGO LED circuit
A.for U138 cost issue
1.Back up:U138(MAX1916EZT),R1936 (91K ohm,0402),R1982(0R,NC),R1983(0R,NC)
2.Remove back up solution U139(GMT,G5920TB1UF),C1660(0.1u)
3.Add new Constant-Current circuit (OP + MOS)
51K ohm: R1972 ,
1.2K ohm: R1973 ,
1k ohm:R1974 ,
10 ohm: R1975
(NC)0 ohm: R1976(for back up U138 MAX1916)
0.1uF,16V: C1679
(NC)22uF,6.3V: C1680
OP LM358_ADR : U139
N-MOS 2N7002: Q158
N-MOS DTA114YUA:Q159
P-MOS DTC144EUA:Q160
B.for EC control soft start/down (function up)issue
1.Del R1948(back up LOGO_LED_EN_EC to U126 pin1)
2.Serial (Back up) R1981 between INV_ENABLE to U126 pin2
3.Move net LOGO_LED_EN_EC from R1948 pin1 to R1980 pin1
4.Add R1977 between +5VRUN to U126 pin5(VCC)
5.Add R1980 between Logo_led_en_ec to U126 pin2

(寶) 09.(Page 42) Delete SATA HDD Fuse backup circuit
(1)Remove F7,F8,F19,F20 Pad
(2)Remove GP17~GP18 open gap

(才) 10. (Page 62) MOR fan circuit modify to backup
(NC)U118 (NC)R1893
(NC)R1624 (NC)C1473
(NC)R1894 (NC)R1895

# MS21 PVT to MS21 MP Change History

(寶) 01.(Page74) MS21 not support soft ligh / soft dark. So cancle INV_ENABLE control LOGO LED.
R1980 change from stuff to NC
R1981 change from NC to stuff

(才) 02.(Page60) MS21 not support soft ligh / soft dark. So cancle INV_ENABLE control LOGO LED.
R1978 Change from stuff to NC

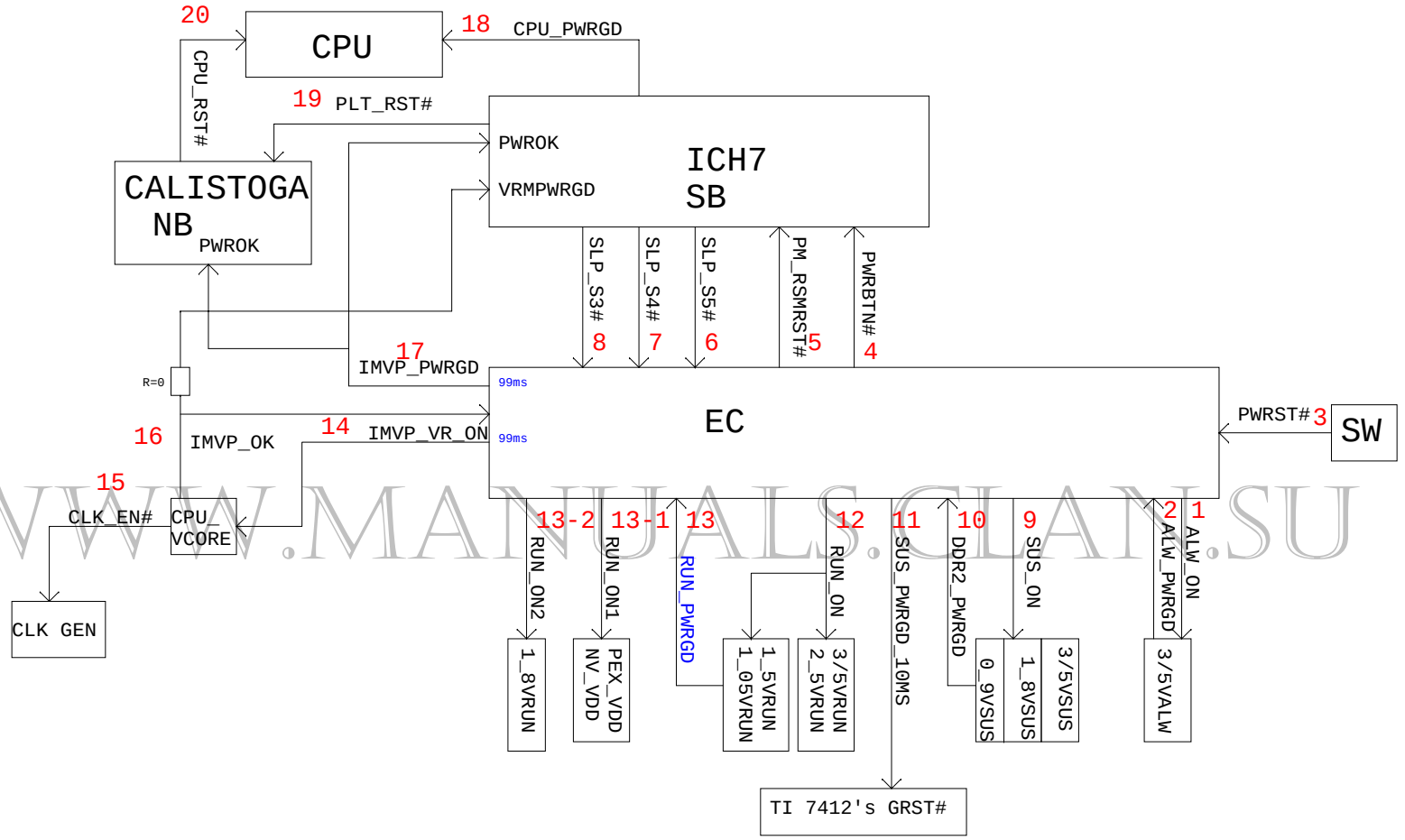
(葉) 03.(Page57) Change C1676 from stuff to NC for MOR suggestion Cost down request.

(青) 04.(Page66) At MS21 PCN1 used FOXCONN connector, Change PCN1 Vendor from molex to NWING

(良) 05.(Page29) Change D60,D61,D81 Value from NV to Normal

(良) 06.(Page20) Change Y2 Value from Normal to NV

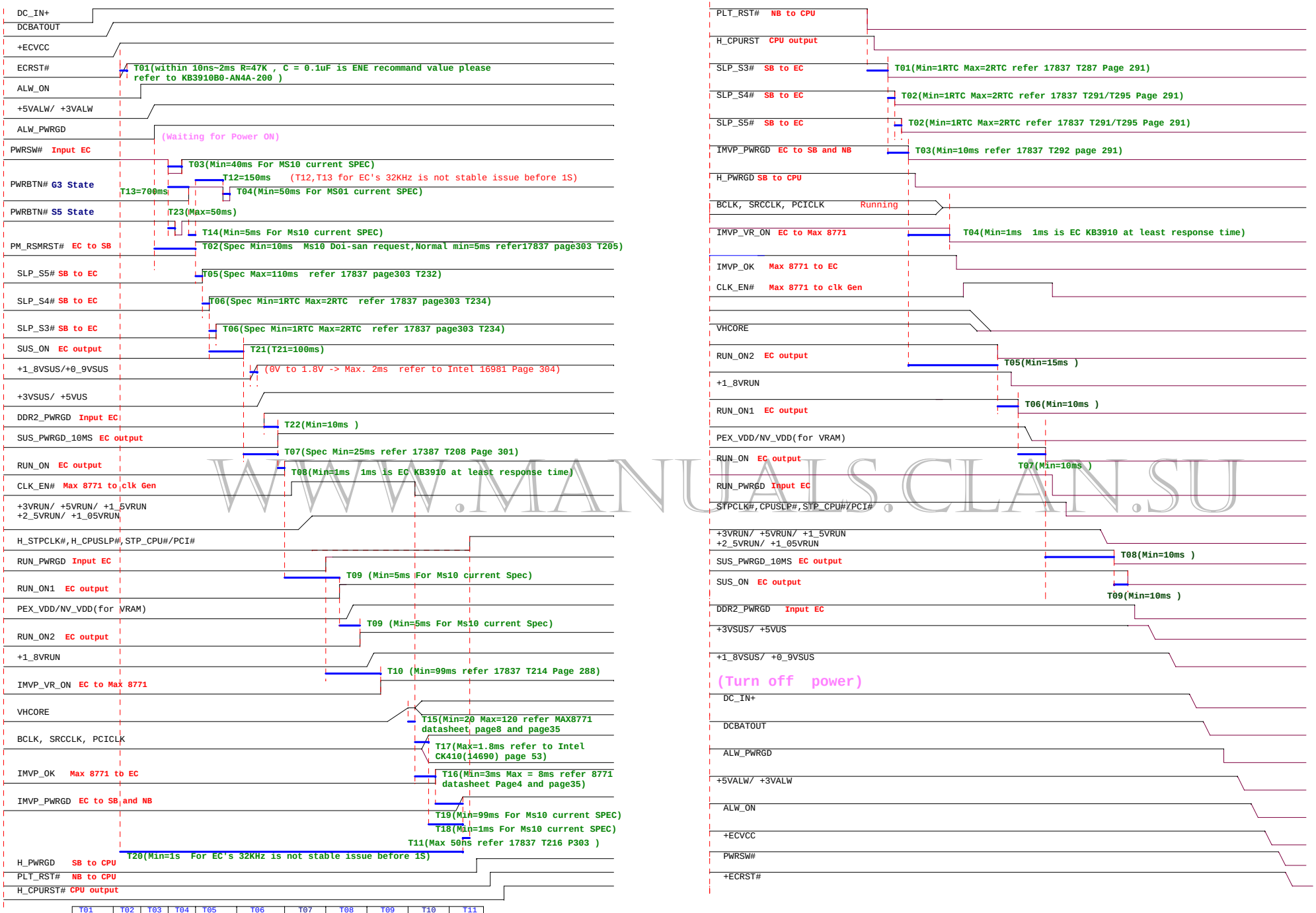
# MS21 Power On Sequerce Block Diagram






| | | |
|---|---|---|
| FOXCONN | HON HAI Precision Ind. Co., Ltd. CCPBG - R&D Division | |
| Title | MS21 Power On Sequerce Block Diagram | |
| Size C | Document Number (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev 1.1 |
| Date: Thursday, August 10, 2006 | Sheet 77 of 78 | |

# Power On/Off Sequerce Specification




| T01 | T02 | T03 | T04 | T05 | T06 | T07 | T08 | T09 | T10 | T11 |
|---|---|---|---|---|---|---|---|---|---|---|
| within 10ns~2ms | Min. 10 ms | Min. 40ms | Min. 50ms | Max. 110ms | 1 - 2 RTCCLK | Min. 25 ms | Min. 1ms | Min. 10ms | Min. 99ms | Max. 50ns |

| T12 | T13 | T14 | T15 | T16 | T17 | T18 | T19 | T20 | T21 | T22 | T23 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Min. 150ms | Min 700ms | Min 5ms | Min : 20us Max : 120us | Min : 3ms Max : 8ms | Max 1.8ms | Min 1ms | Min. 99ms | Min. 1s | 100ms | Min. 10ms | Max 50ms |

| T01 | T02 | T03 | T04 | T05 | T06 | T07 | T08 | T09 |
|---|---|---|---|---|---|---|---|---|
| 1 - 2 RTCCLK | 1 - 2 RTCCLK | Min. 10ms | Min. 1ms | Min. 15ms | Min. 10ms | Min. 10ms | Min. 10ms | Min. 10ms |



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Title: MS21 Power On Sequerce Timing specification

Size: C | Document Number: (MS21-1-01 )MainBoard (MBX-164) TYPE2 | Rev: 1.1

Date: Thursday, August 10, 2006 | Sheet 78 of 78