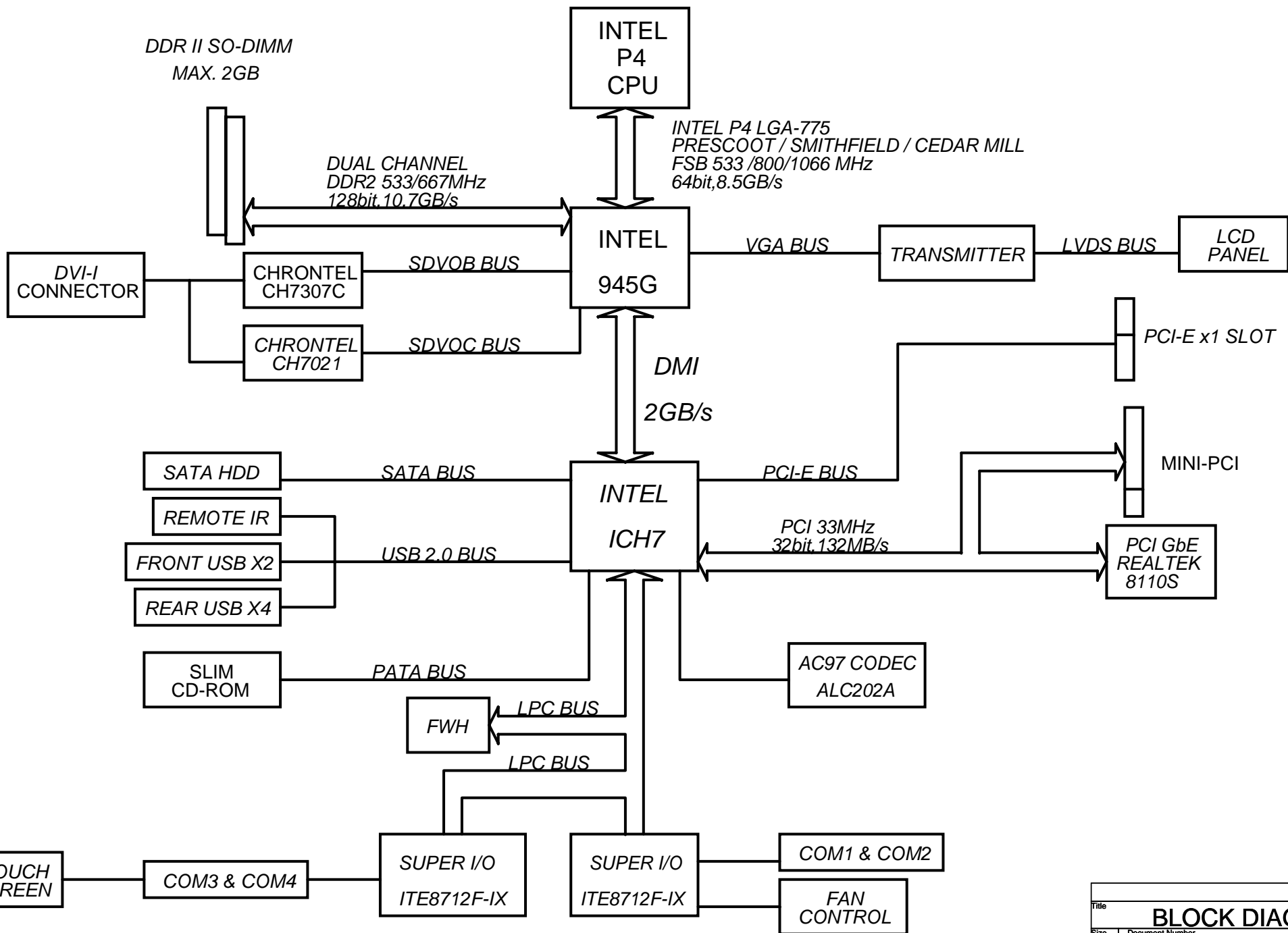
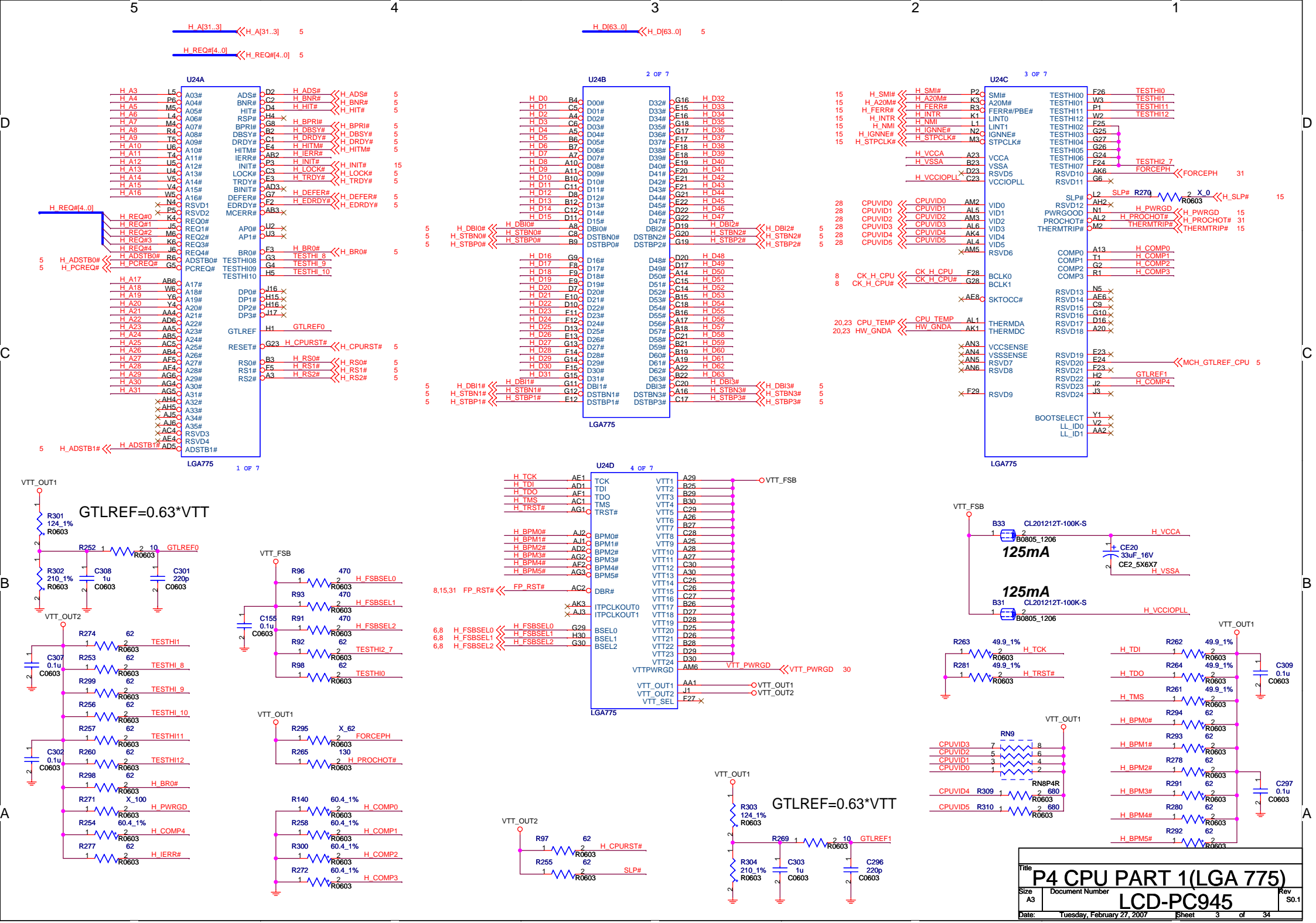


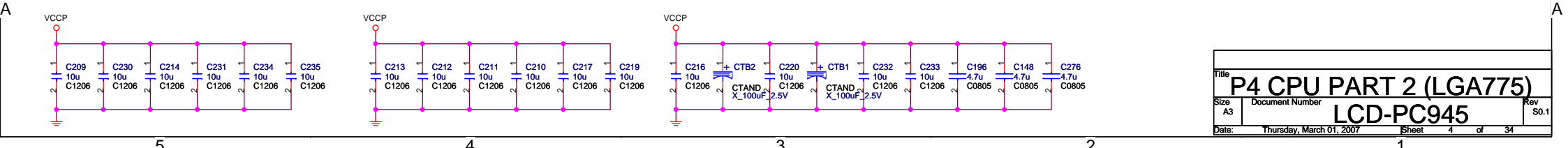
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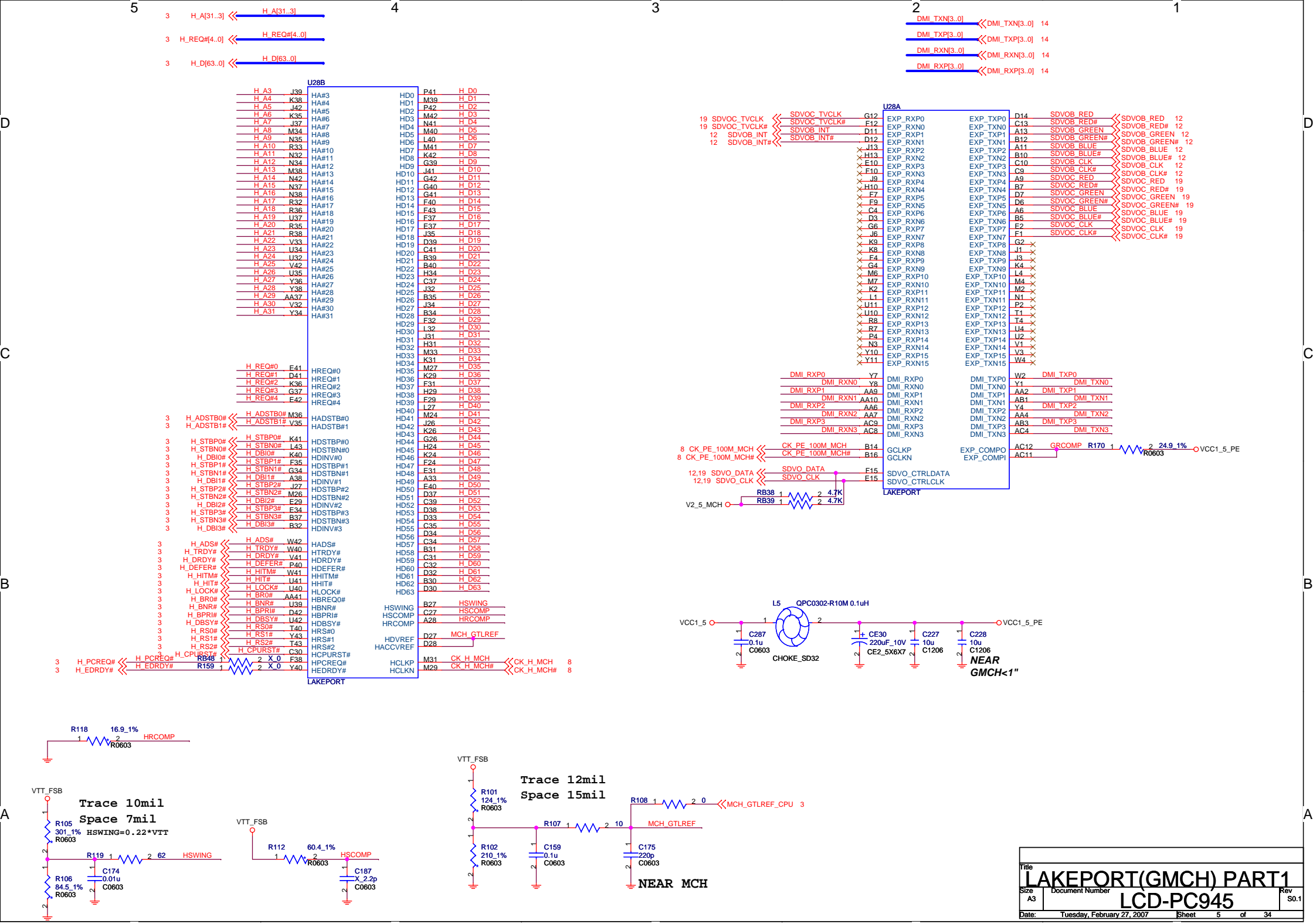
# LCD-PC945 REFERENCE SCHEMATIC

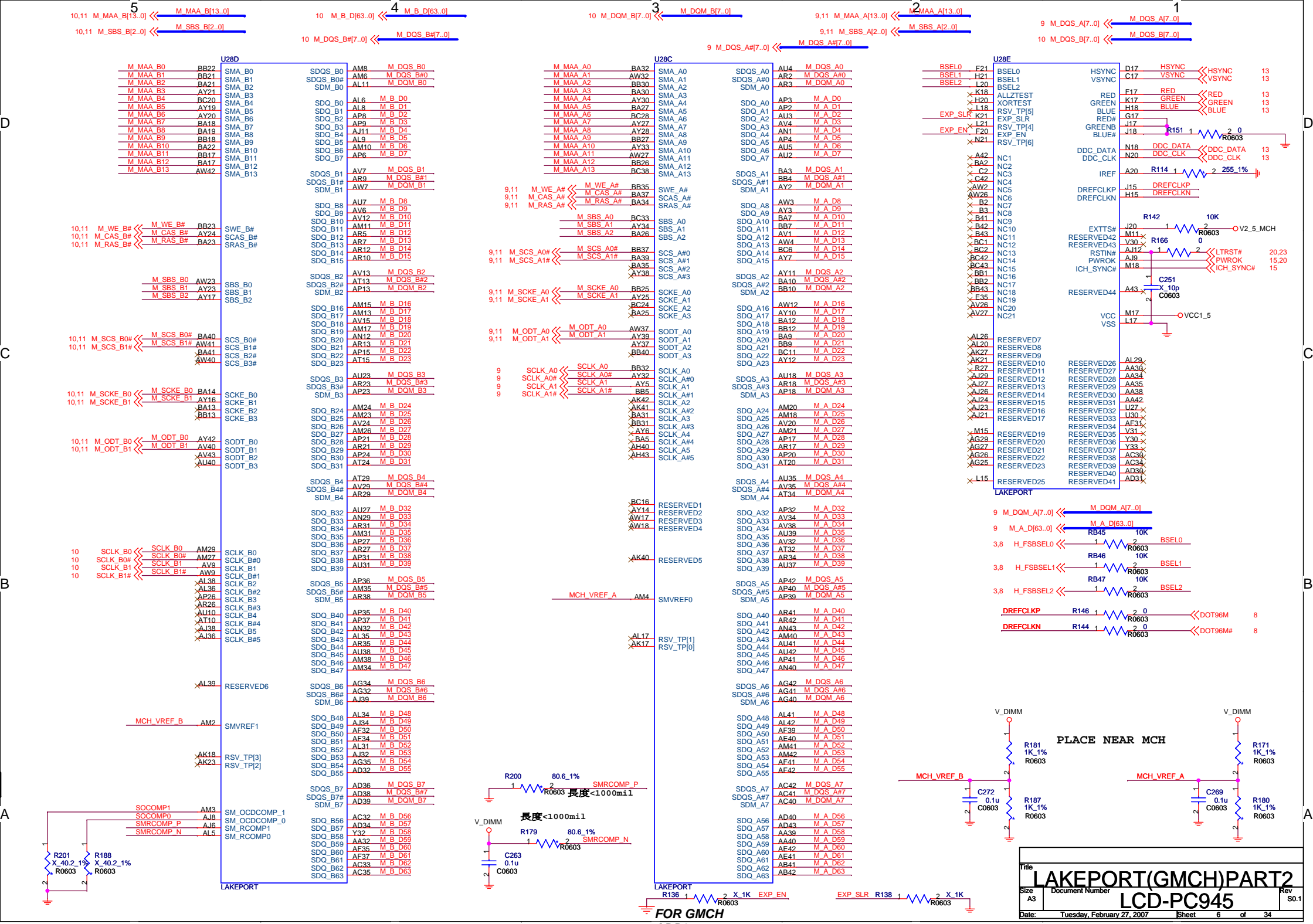
PAGE 01	INDEX SHEET
PAGE 02	BLOCK DIAGRAM
PAGE 03	P4 CPU PART 1(LGA775)
PAGE 04	P4 CPU PART 2(LGA775)
PAGE 05	LAKEPORT(GMCH)PART 1
PAGE 06	LAKEPORT(GMCH)PART 2
PAGE 07	LAKEPORT(GMCH)PART 3
PAGE 08	CLOCK(RTM862-487)
PAGE 09	DDR2 CHANNEL A SO-DIMM
PAGE 10	DDR2 CHANNEL B SO-DIMM
PAGE 11	DDR2 TERMINATION
PAGE 12	CH7307 & DVI CONNECTOR
PAGE 13	VGA CONNECTOR
PAGE 14	ICH7 PART 1
PAGE 15	ICH7 PART 2
PAGE 16	ICH7 PART 3
PAGE 17	IDE & SATA
PAGE 18	MINI PCI/VCC/VCC3
PAGE 19	CH7021
PAGE 20	LPC SIO 1
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PAGE 23	FWH & H/W MONITOR & FAN CTL
PAGE 24	PCI GIGALAN(RTL8110S)
PAGE 25	USB & RJ-45 CONNECTOR
PAGE 26	AC97 CDEC(ALC202A)
PAGE 27	AUDIO CONNECTOR
PAGE 28	CPU VCORE(VRD10.1)
PAGE 29	DISCRETE POWER 1
PAGE 30	DISCRETE POWER 2
PAGE 31	PCI-E SLOT & FPT
PAGE 32	TRANSMITTER
PAGE 33	PANEL DC-DC POWER



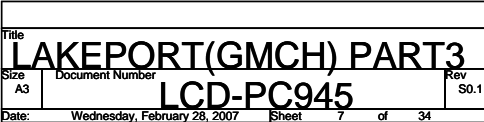


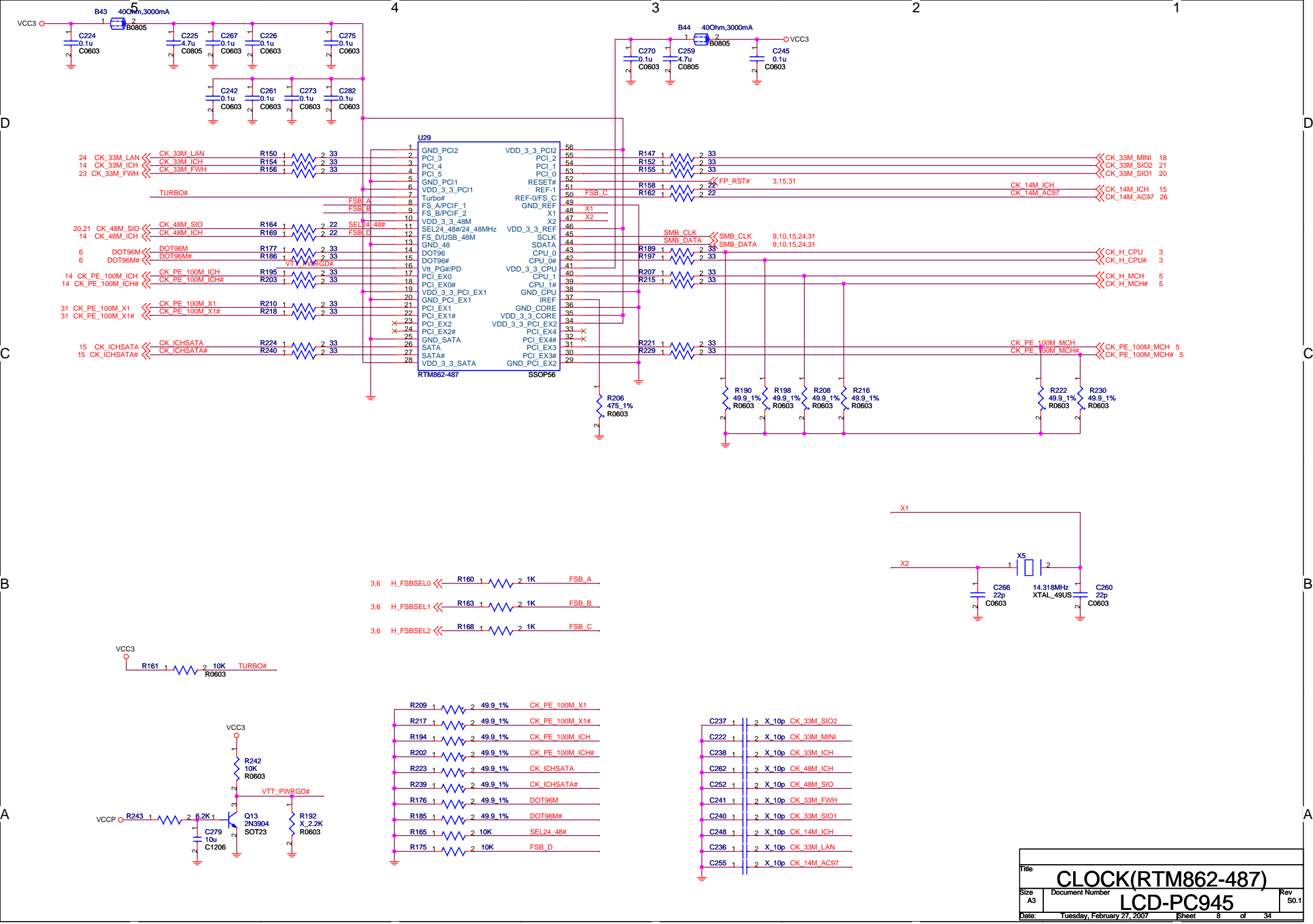














6,11 M\_MAA\_A[13..0] << M\_MAA\_A[13..0]  
6 M\_A\_D[63..0] << M\_A\_D[63..0]  
6 M\_DQS\_A[7..0] << M\_DQS\_A[7..0]  
6 M\_DQS\_A#[7..0] << M\_DQS\_A#[7..0]  
6 M\_DQM\_A[7..0] << M\_DQM\_A[7..0]  
6,11 M\_SBS\_A[2..0] << M\_SBS\_A[2..0]

M\_MAA\_A0 102 A0  
M\_MAA\_A1 101 A1  
M\_MAA\_A2 100 A2  
M\_MAA\_A3 99 A3  
M\_MAA\_A4 98 A4  
M\_MAA\_A5 97 A5  
M\_MAA\_A6 94 A6  
M\_MAA\_A7 92 A7  
M\_MAA\_A8 93 A8  
M\_MAA\_A9 91 A9  
M\_MAA\_A10 105 A10/AP  
M\_MAA\_A11 90 A11  
M\_MAA\_A12 89 A12  
M\_MAA\_A13 116 A13  
X 86 A14  
X 84 A15  
X 85 A16/BA2  
M\_SBS\_A2 85  
M\_SBS\_A0 107 BA0  
M\_SBS\_A1 106 BA1  
M\_SCS\_A0# 110 S0#  
M\_SCS\_A1# 115 S1#  
SCLK\_A1 30 CK0  
SCLK\_A1# 32 CK0#  
SCLK\_A0 164 CK1#  
SCLK\_A0# 166 CK1#  
M\_SCKE\_A0 79 CKE0  
M\_SCKE\_A1 80 CKE1  
M\_CAS\_A# 113 CAS#  
M\_RAS\_A# 108 RAS#  
M\_WE\_A# 109 WE#  
SA0 198 SA0  
SMB\_CLK 200 SMB\_CLK  
SMB\_DATA 197 SMB\_DATA  
SCL 195 SCL  
SDA 195 SDA  
M\_ODT\_A0 114 ODT0  
M\_ODT\_A1 119 ODT1  
DM0 10 DM0  
M\_DQM\_A1 26 DM1  
M\_DQM\_A2 52 DM2  
M\_DQM\_A3 67 DM3  
M\_DQM\_A4 130 DM4  
M\_DQM\_A5 147 DM5  
M\_DQM\_A6 170 DM6  
M\_DQM\_A7 185 DM7  
M\_DQS\_A0 13 DQS0  
M\_DQS\_A#0 11 DQS#0  
M\_DQS\_A1 31 DQS1  
M\_DQS\_A#1 29 DQS#1  
M\_DQS\_A2 51 DQS2  
M\_DQS\_A#2 49 DQS#2  
M\_DQS\_A3 70 DQS3  
M\_DQS\_A#3 68 DQS#3  
M\_DQS\_A4 131 DQS4  
M\_DQS\_A#4 129 DQS#4  
M\_DQS\_A5 148 DQS5  
M\_DQS\_A#5 146 DQS#5  
M\_DQS\_A6 169 DQS6  
M\_DQS\_A#6 167 DQS#6  
M\_DQS\_A7 188 DQS7  
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DDR2\_SODIMM\_200P

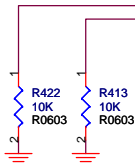
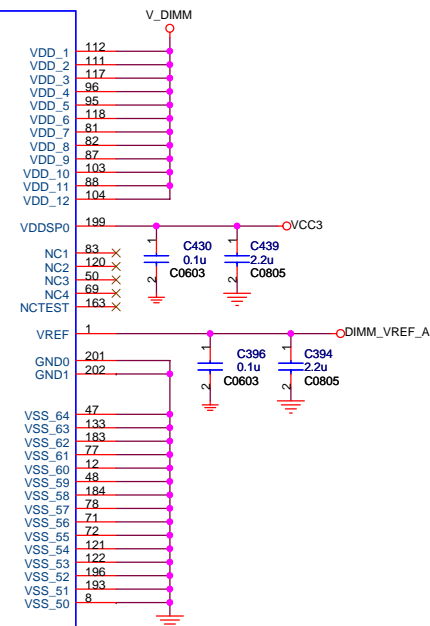
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DQ0 5 M\_A\_D4  
DQ1 7 M\_A\_D5  
DQ2 17 M\_A\_D6  
DQ3 19 M\_A\_D7  
DQ4 4 M\_A\_D1  
DQ5 6 M\_A\_D0  
DQ6 14 M\_A\_D3  
DQ7 23 M\_A\_D2  
DQ8 25 M\_A\_D13  
DQ9 35 M\_A\_D10  
DQ10 37 M\_A\_D11  
DQ11 20 M\_A\_D9  
DQ12 22 M\_A\_D8  
DQ13 36 M\_A\_D14  
DQ14 38 M\_A\_D15  
DQ15 43 M\_A\_D20  
DQ16 45 M\_A\_D21  
DQ17 55 M\_A\_D19  
DQ18 57 M\_A\_D18  
DQ19 44 M\_A\_D17  
DQ20 46 M\_A\_D16  
DQ21 56 M\_A\_D23  
DQ22 58 M\_A\_D22  
DQ23 61 M\_A\_D29  
DQ24 63 M\_A\_D28  
DQ25 73 M\_A\_D30  
DQ26 75 M\_A\_D31  
DQ27 62 M\_A\_D24  
DQ28 64 M\_A\_D25  
DQ29 74 M\_A\_D27  
DQ30 76 M\_A\_D26  
DQ31 123 M\_A\_D32  
DQ32 125 M\_A\_D33  
DQ33 135 M\_A\_D34  
DQ34 137 M\_A\_D35  
DQ35 124 M\_A\_D36  
DQ36 126 M\_A\_D37  
DQ37 134 M\_A\_D38  
DQ38 136 M\_A\_D39  
DQ39 141 M\_A\_D43  
DQ40 143 M\_A\_D42  
DQ41 151 M\_A\_D45  
DQ42 153 M\_A\_D44  
DQ43 140 M\_A\_D47  
DQ44 142 M\_A\_D46  
DQ45 154 M\_A\_D40  
DQ46 156 M\_A\_D41  
DQ47 157 M\_A\_D48  
DQ48 159 M\_A\_D49  
DQ49 173 M\_A\_D50  
DQ50 175 M\_A\_D51  
DQ51 158 M\_A\_D52  
DQ52 180 M\_A\_D53  
DQ53 174 M\_A\_D54  
DQ54 176 M\_A\_D55  
DQ55 179 M\_A\_D56  
DQ56 181 M\_A\_D57  
DQ57 189 M\_A\_D58  
DQ58 191 M\_A\_D59  
DQ59 180 M\_A\_D60  
DQ60 182 M\_A\_D61  
DQ61 192 M\_A\_D62  
DQ62 194 M\_A\_D63  
DQ63

DDR2\_200  
SL\_SODDR200

DDR1B  
VSS\_1 18  
VSS\_2 24  
VSS\_3 41  
VSS\_4 53  
VSS\_5 42  
VSS\_6 54  
VSS\_7 59  
VSS\_8 65  
VSS\_9 60  
VSS\_10 66  
VSS\_11 127  
VSS\_12 139  
VSS\_13 128  
VSS\_14 145  
VSS\_15 165  
VSS\_16 172  
VSS\_17 177  
VSS\_18 178  
VSS\_19 187  
VSS\_20 178  
VSS\_21 190  
VSS\_22 9  
VSS\_23 33  
VSS\_24 155  
VSS\_25 155  
VSS\_26 34  
VSS\_27 132  
VSS\_28 156  
VSS\_29 168  
VSS\_30 2  
VSS\_31 27  
VSS\_32 3  
VSS\_33 15  
VSS\_34 2  
VSS\_35 149  
VSS\_36 161  
VSS\_37 28  
VSS\_38 39  
VSS\_39 40  
VSS\_40 138  
VSS\_41 150  
VSS\_42 162

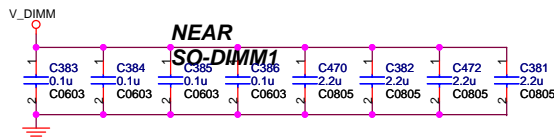
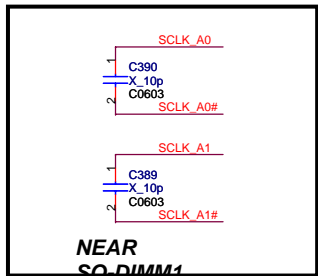
DDR2\_SODIMM\_200P

DDR2\_200  
SL\_SODDR200



8,10,15,24,31 SMB\_CLK << SMB\_CLK  
8,10,15,24,31 SMB\_DATA << SMB\_DATA

6,11 M\_ODT\_A0 << M\_ODT\_A0  
6,11 M\_ODT\_A1 << M\_ODT\_A1



6,11 M\_MAA\_B[13..0] << M\_MAA\_B[13..0]  
6 M\_B\_D[63..0] << M\_B\_D[63..0]  
6 M\_DQS\_B[7..0] << M\_DQS\_B[7..0]  
6 M\_DQM\_B[7..0] << M\_DQM\_B[7..0]  
6,11 M\_SBS\_B[2..0] << M\_SBS\_B[2..0]  
6 M\_DQS\_B# [7..0] << M\_DQS\_B# [7..0]

M\_MAA\_B0 102 A0  
M\_MAA\_B1 101 A1  
M\_MAA\_B2 100 A2  
M\_MAA\_B3 99 A3  
M\_MAA\_B4 98 A4  
M\_MAA\_B5 97 A5  
M\_MAA\_B6 94 A6  
M\_MAA\_B7 92 A7  
M\_MAA\_B8 93 A8  
M\_MAA\_B9 91 A9  
M\_MAA\_B10 105 A10/AP  
M\_MAA\_B11 90 A11  
M\_MAA\_B12 89 A12  
M\_MAA\_B13 116 A13  
X 86 A14  
X 84 A15  
M\_SBS\_B2 85 A16/BA2

M\_SBS\_B0 107 BA0  
M\_SBS\_B1 106 BA1  
M\_SCS\_B0# 110 S0#  
M\_SCS\_B1# 115 S1#  
SCLK\_B1 30 CK0  
SCLK\_B0 164 CK1  
SCLK\_B0# 166 CK1#  
M\_SCKE\_B0 79 CKE0  
M\_SCKE\_B1 80 CKE1  
M\_CAS\_B# 113 CAS#  
M\_RAS\_B# 108 RAS#  
M\_WE\_B# 109 WE#

8,9,15,24,31 SMB\_CLK << SMB\_CLK  
8,9,15,24,31 SMB\_DATA << SMB\_DATA  
M\_ODT\_B0 114 ODT0  
M\_ODT\_B1 119 ODT1

M\_DQM\_B0 10 DM0  
M\_DQM\_B1 26 DM1  
M\_DQM\_B2 52 DM2  
M\_DQM\_B3 67 DM3  
M\_DQM\_B4 130 DM4  
M\_DQM\_B5 147 DM5  
M\_DQM\_B6 170 DM6  
M\_DQM\_B7 185 DM7

M\_DQS\_B0 13 DQS0  
M\_DQS\_B#0 11 DQS#0  
M\_DQS\_B1 31 DQS1  
M\_DQS\_B#1 29 DQS#1

M\_DQS\_B2 51 DQS2  
M\_DQS\_B#2 49 DQS#2

M\_DQS\_B3 70 DQS3  
M\_DQS\_B#3 68 DQS#3

M\_DQS\_B4 131 DQS4  
M\_DQS\_B#4 129 DQS#4

M\_DQS\_B5 148 DQS5  
M\_DQS\_B#5 146 DQS#5

M\_DQS\_B6 169 DQS6  
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M\_DQS\_B7 188 DQS7  
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DDR2\_SODIMM\_200P

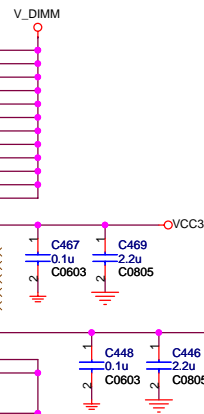
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DQ2 17 M\_B\_D6  
DQ3 19 M\_B\_D7  
DQ4 4 M\_B\_D1  
DQ5 6 M\_B\_D0  
DQ6 14 M\_B\_D3  
DQ7 16 M\_B\_D2  
DQ8 23 M\_B\_D12  
DQ9 25 M\_B\_D13  
DQ10 35 M\_B\_D10  
DQ11 37 M\_B\_D11  
DQ12 22 M\_B\_D8  
DQ13 36 M\_B\_D14  
DQ14 38 M\_B\_D15  
DQ15 43 M\_B\_D20  
DQ16 45 M\_B\_D21  
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DQ25 73 M\_B\_D28  
DQ26 75 M\_B\_D27  
DQ27 62 M\_B\_D25  
DQ28 64 M\_B\_D24  
DQ29 74 M\_B\_D30  
DQ30 76 M\_B\_D31  
DQ31 123 M\_B\_D32  
DQ32 125 M\_B\_D33  
DQ33 135 M\_B\_D34  
DQ34 137 M\_B\_D35  
DQ35 124 M\_B\_D36  
DQ36 126 M\_B\_D37  
DQ37 134 M\_B\_D38  
DQ38 136 M\_B\_D39  
DQ39 141 M\_B\_D42  
DQ40 143 M\_B\_D40  
DQ41 151 M\_B\_D41  
DQ42 153 M\_B\_D46  
DQ43 140 M\_B\_D44  
DQ44 142 M\_B\_D45  
DQ45 152 M\_B\_D47  
DQ46 154 M\_B\_D43  
DQ47 157 M\_B\_D48  
DQ48 159 M\_B\_D49  
DQ49 173 M\_B\_D50  
DQ50 175 M\_B\_D51  
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DQ57 189 M\_B\_D58  
DQ58 191 M\_B\_D59  
DQ59 180 M\_B\_D60  
DQ60 182 M\_B\_D61  
DQ61 192 M\_B\_D62  
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DQ63

DDR2\_200  
SL\_SODDR200H92

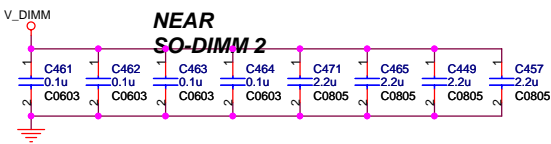
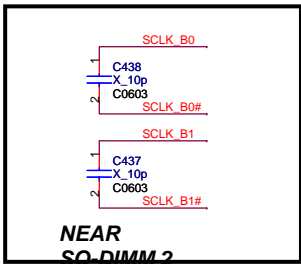
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VSS\_2 24  
VSS\_3 41  
VSS\_4 53  
VSS\_5 42  
VSS\_6 54  
VSS\_7 59  
VSS\_8 65  
VSS\_9 60  
VSS\_10 66  
VSS\_11 23  
VSS\_12 127  
VSS\_13 139  
VSS\_14 128  
VSS\_15 145  
VSS\_16 171  
VSS\_17 172  
VSS\_18 177  
VSS\_19 187  
VSS\_20 178  
VSS\_21 190  
VSS\_22 9  
VSS\_23 21  
VSS\_24 33  
VSS\_25 155  
VSS\_26 34  
VSS\_27 132  
VSS\_28 144  
VSS\_29 156  
VSS\_30 168  
VSS\_31 2  
VSS\_32 3  
VSS\_33 15  
VSS\_34 27  
VSS\_35 39  
VSS\_36 149  
VSS\_37 161  
VSS\_38 28  
VSS\_39 40  
VSS\_40 138  
VSS\_41 150  
VSS\_42 162

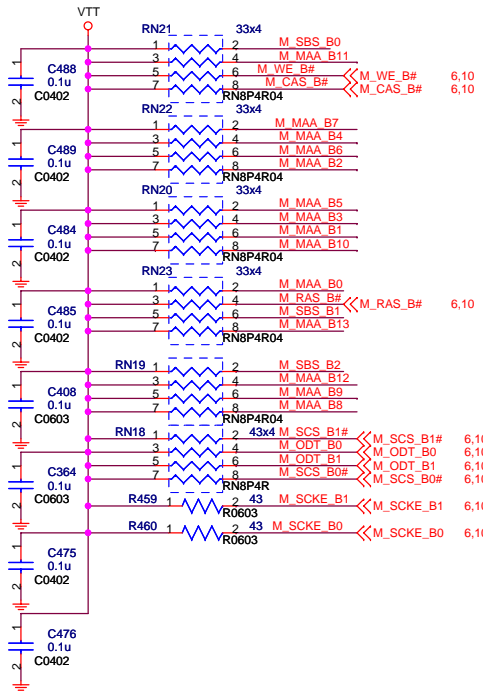
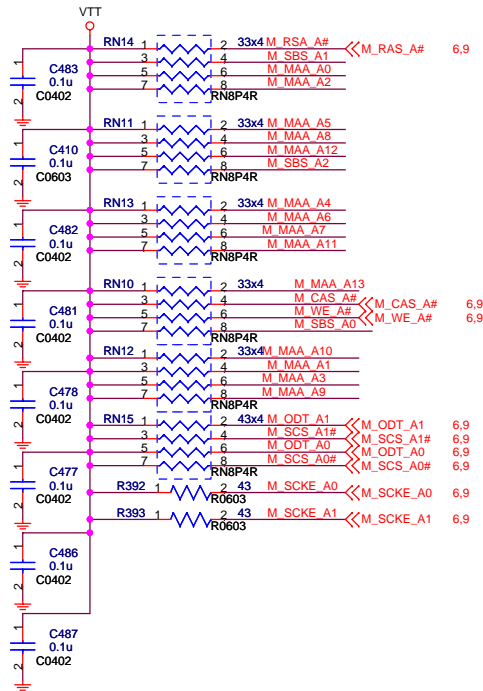
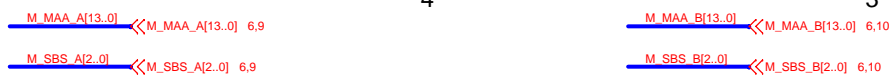
DDR2\_SODIMM\_200P

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VDD\_2 111  
VDD\_3 117  
VDD\_4 96  
VDD\_5 95  
VDD\_6 118  
VDD\_7 81  
VDD\_8 82  
VDD\_9 87  
VDD\_10 103  
VDD\_11 88  
VDD\_12 104  
VDDSP0 199  
NC1 83  
NC2 120  
NC3 50  
NC4 69  
NC5 163  
VREF 1  
GND0 201  
GND1 202  
VSS\_64 47  
VSS\_63 133  
VSS\_62 183  
VSS\_61 77  
VSS\_60 12  
VSS\_59 48  
VSS\_58 184  
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VSS\_51 8

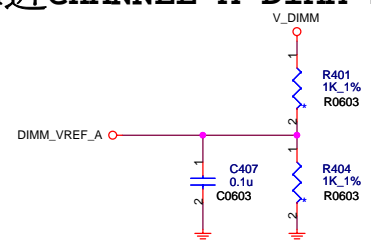


DDR2\_200  
SL\_SODDR200H92

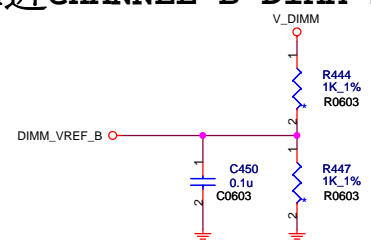




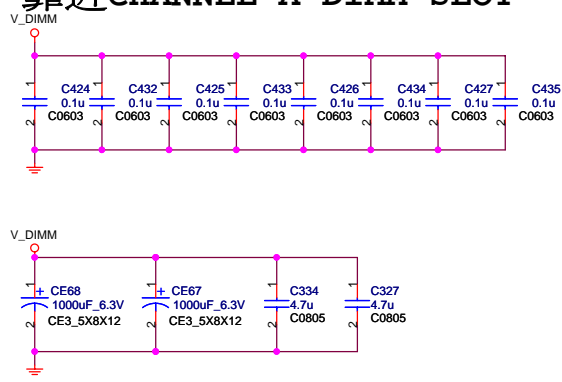
## 靠近CHANNEL A DIMM SLOT



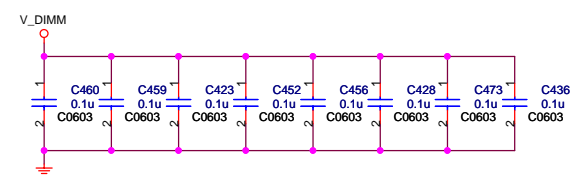
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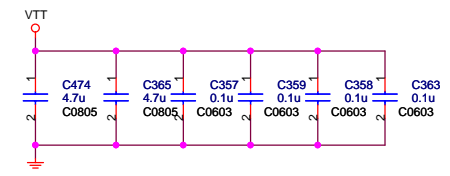
## 靠近CHANNEL A DIMM SLOT



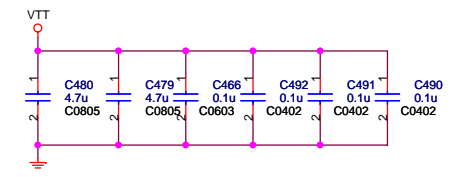
## 靠近CHANNEL B DIMM SLOT



## 靠近CHANNEL A VTT ISLAND

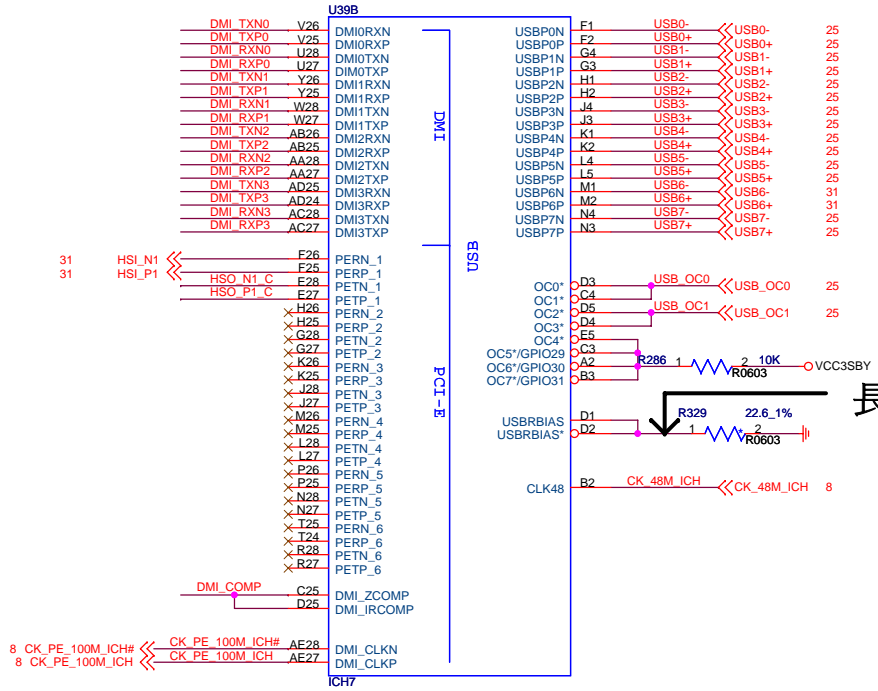
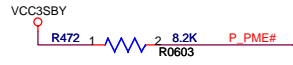
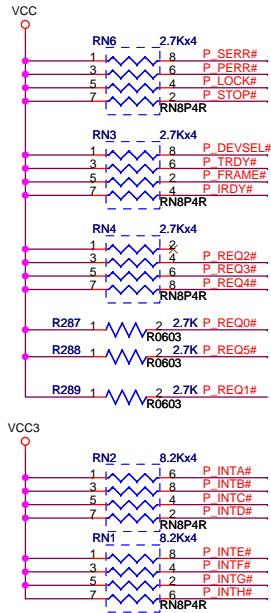
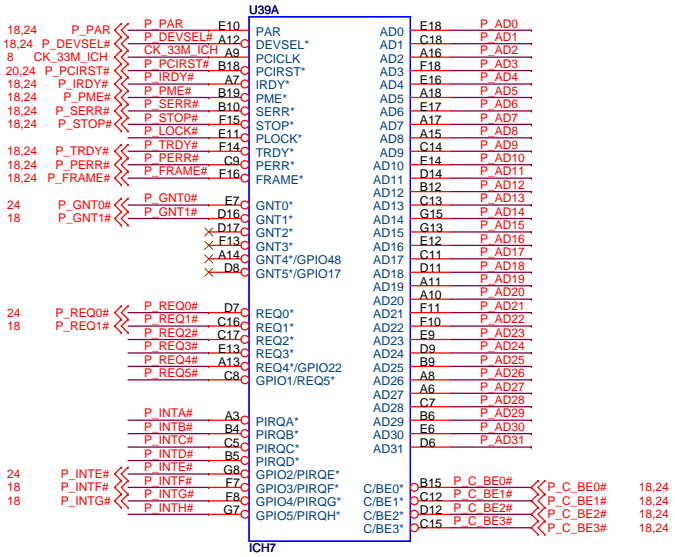


## 靠近CHANNEL B VTT ISLAND

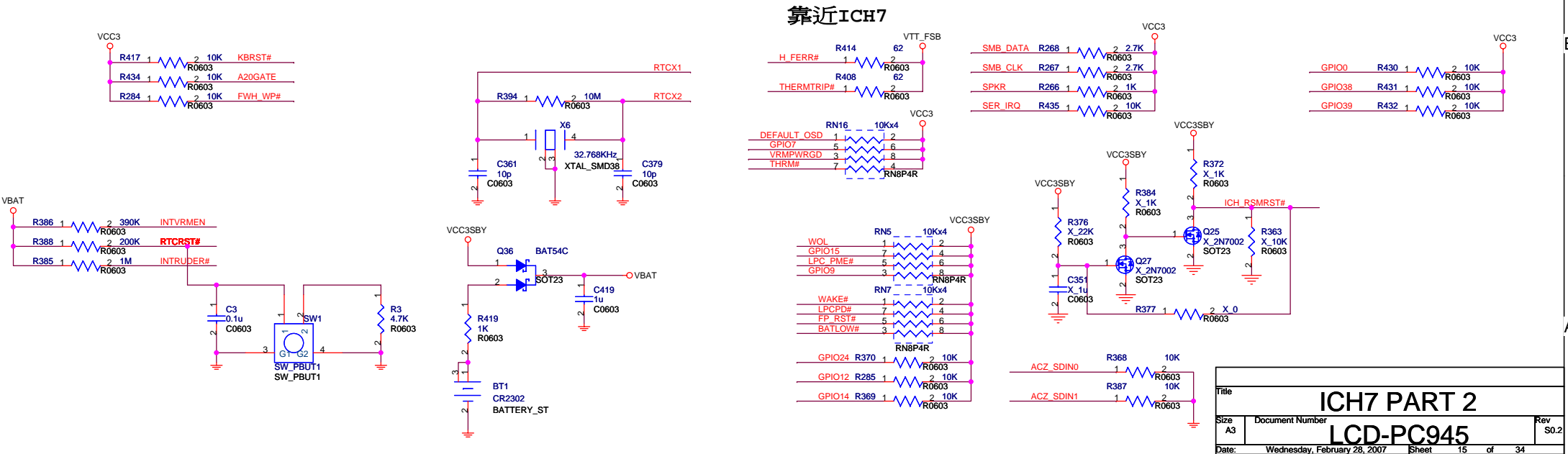
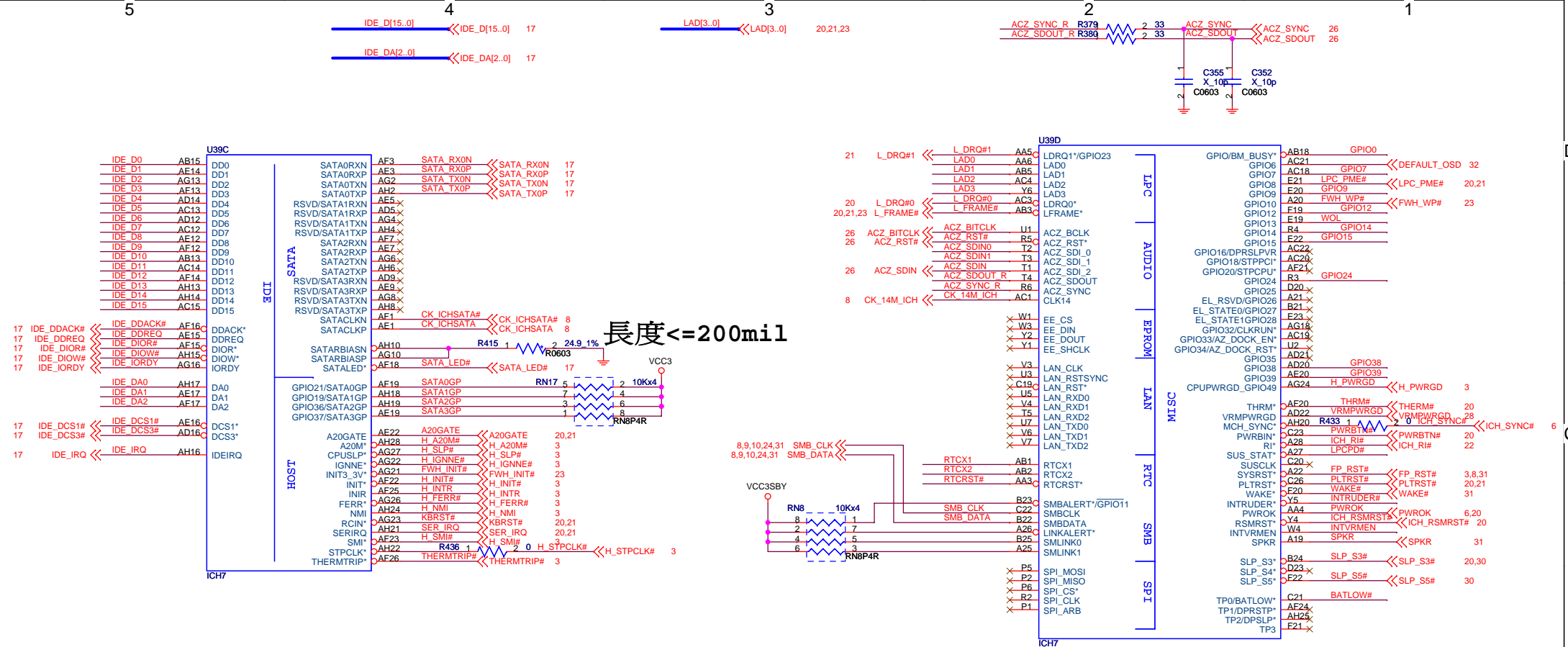






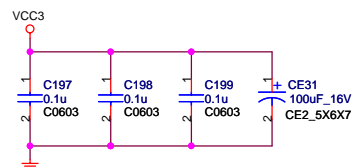
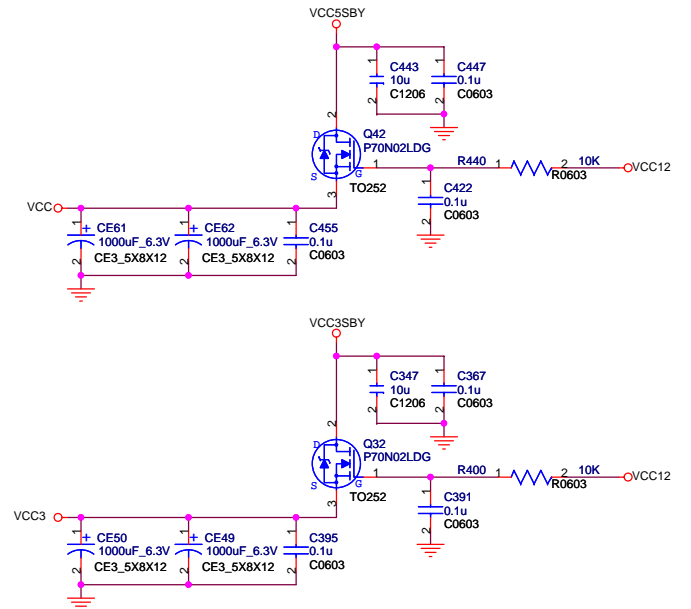
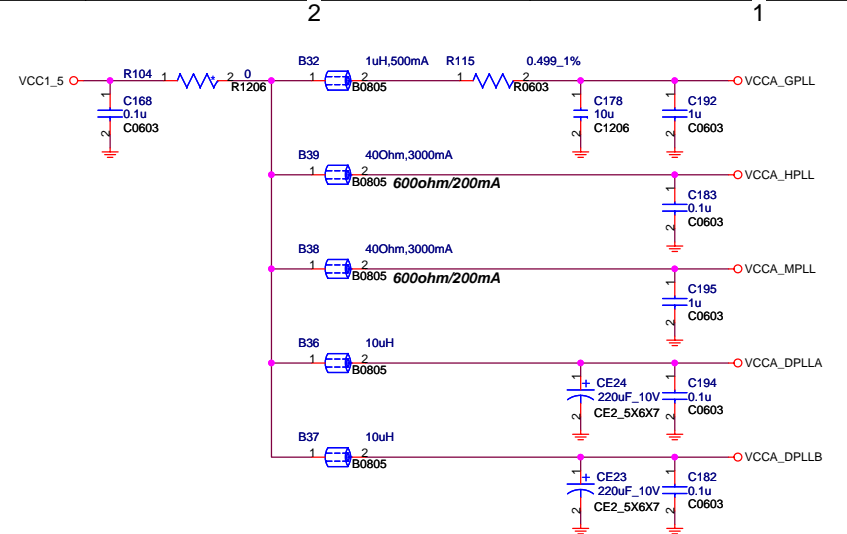
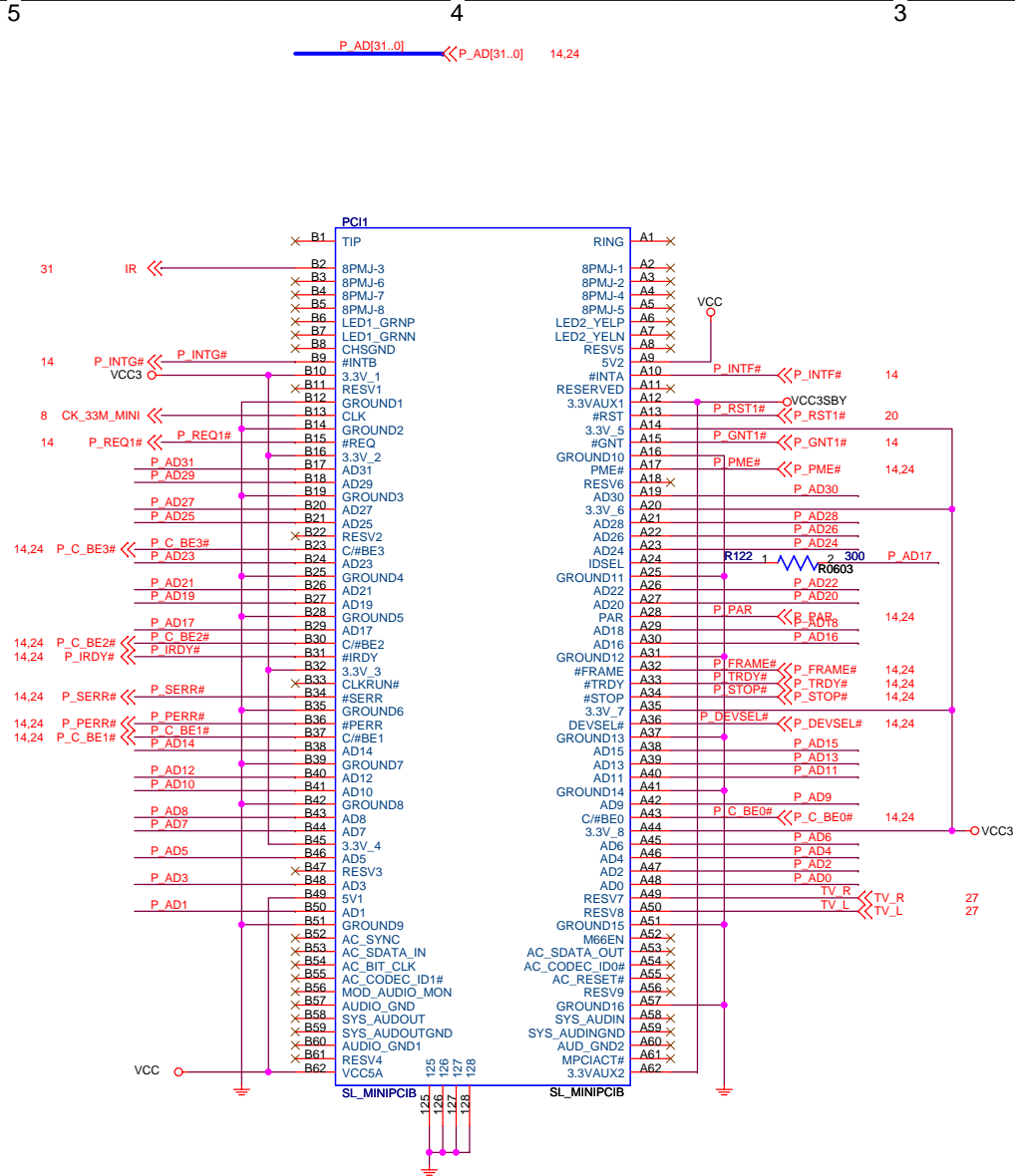




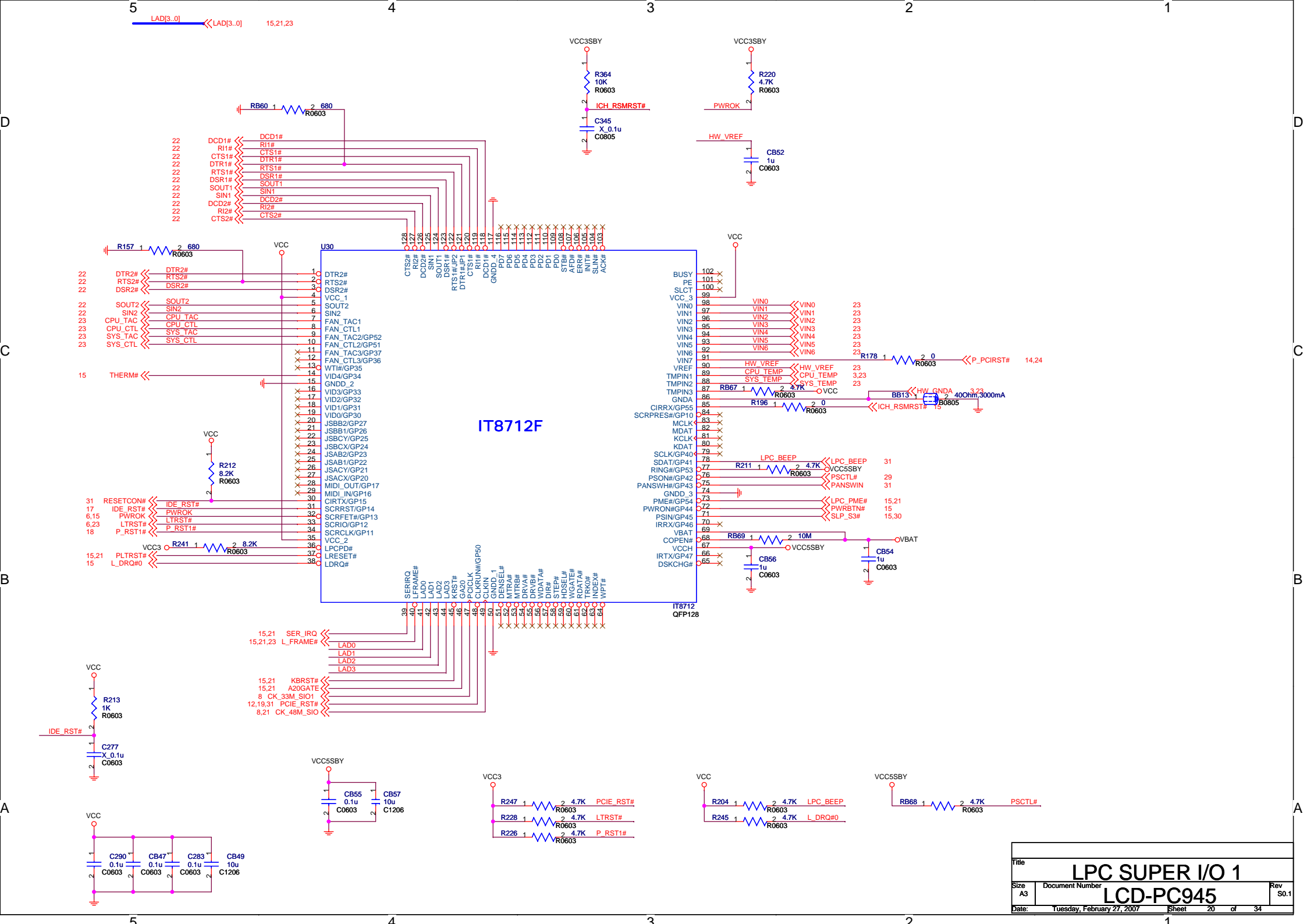








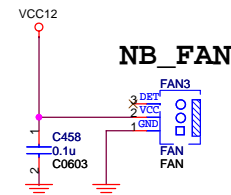
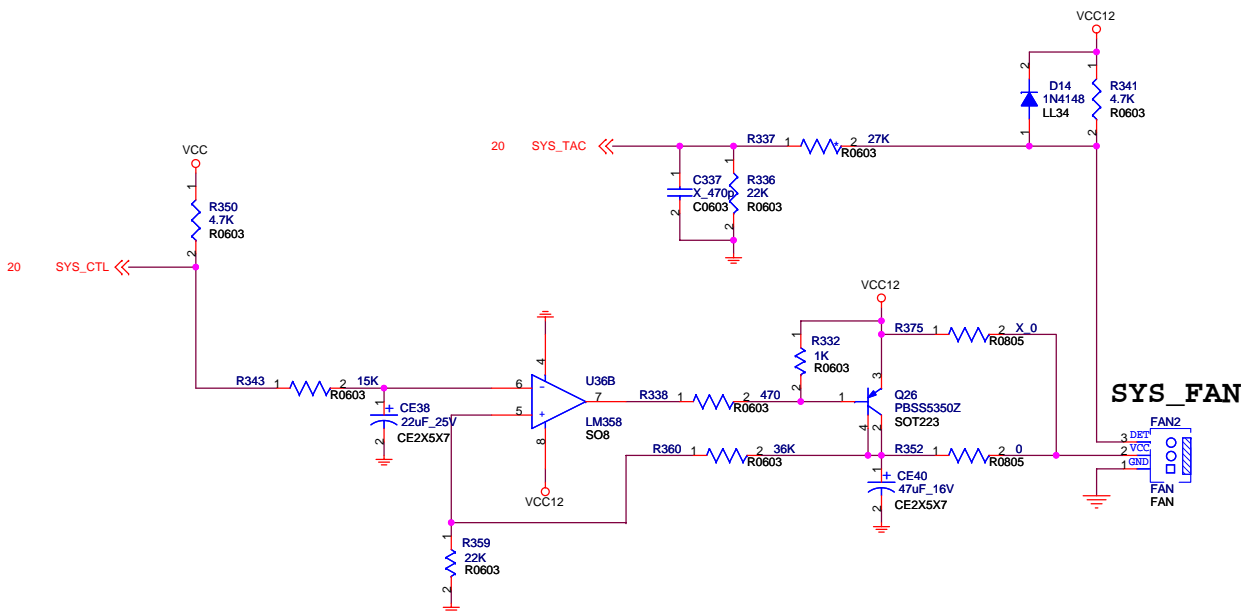
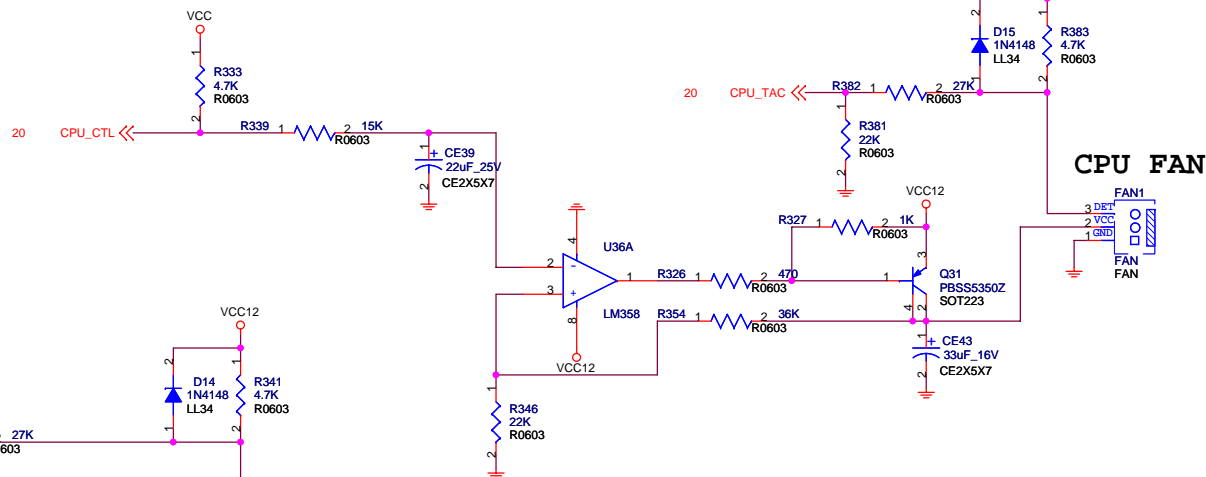
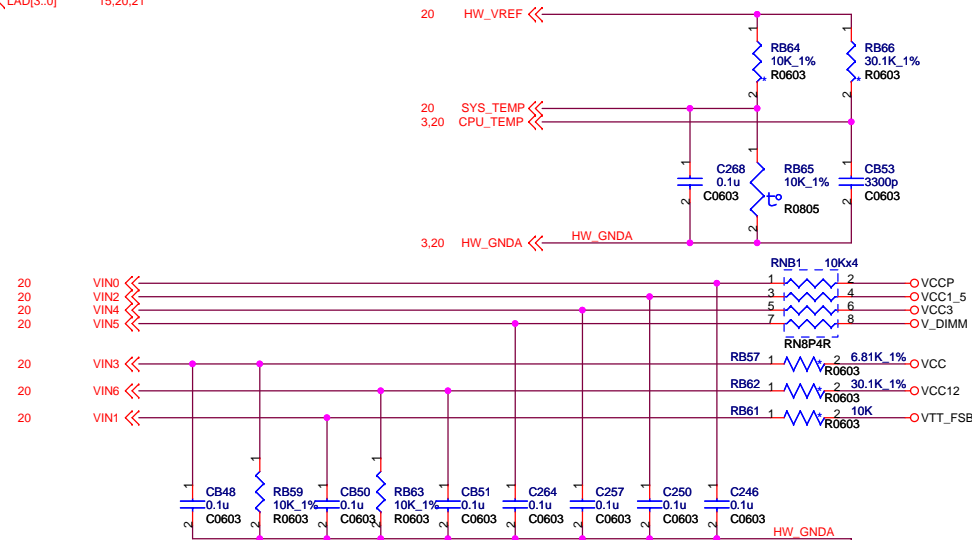
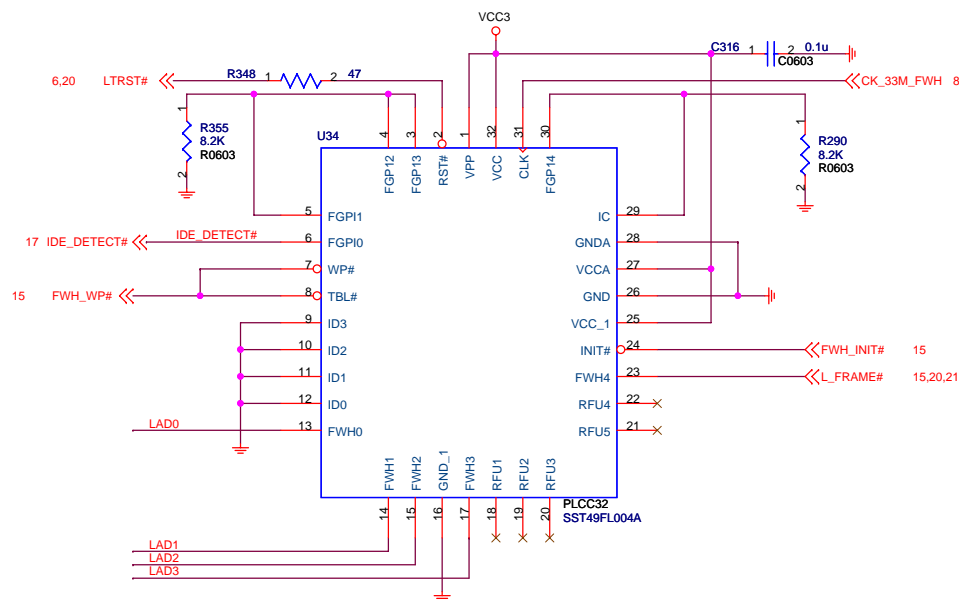


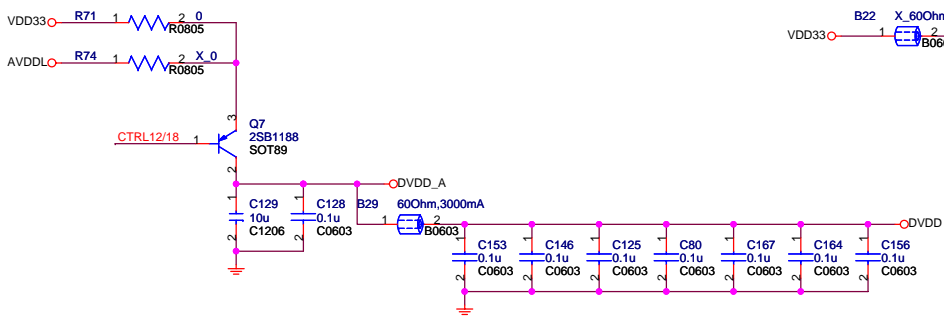
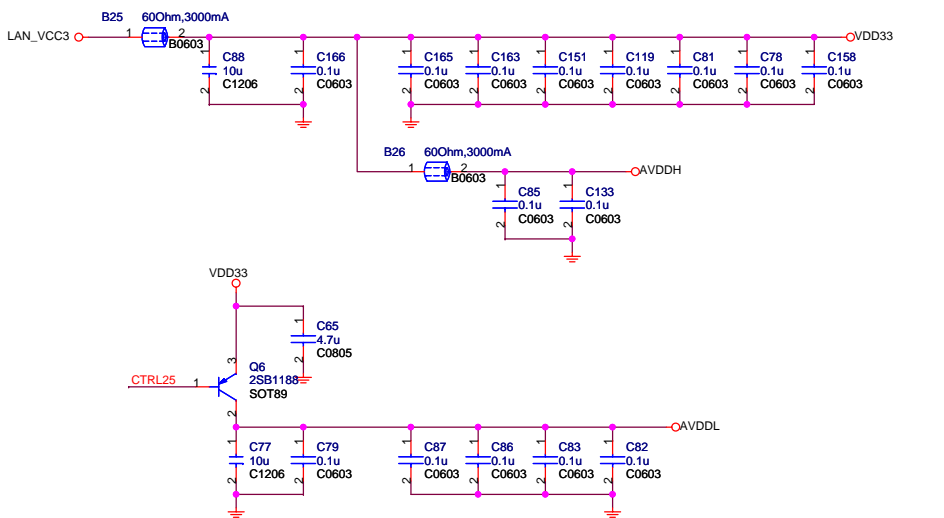




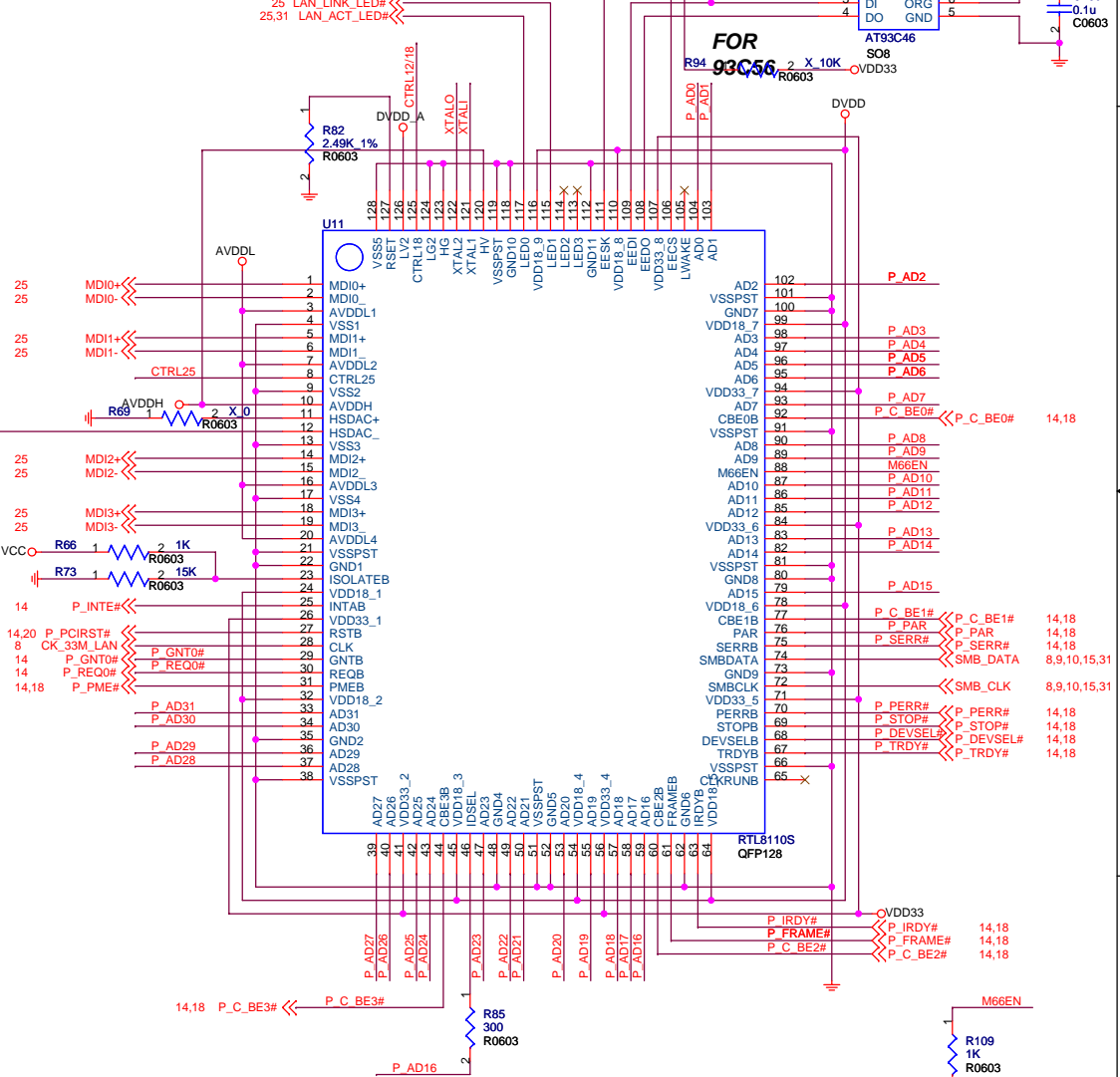
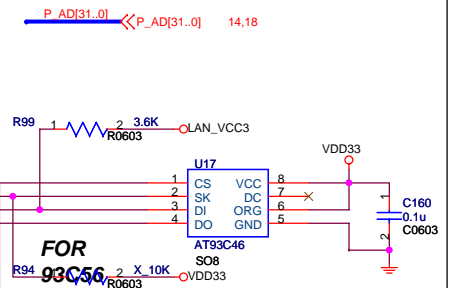
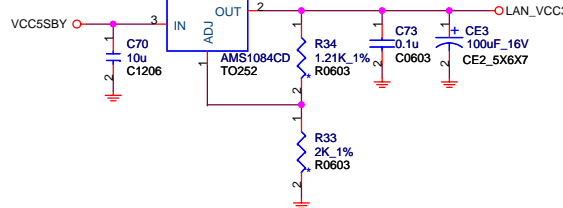




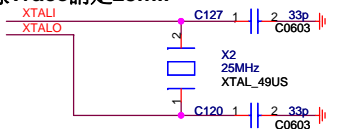




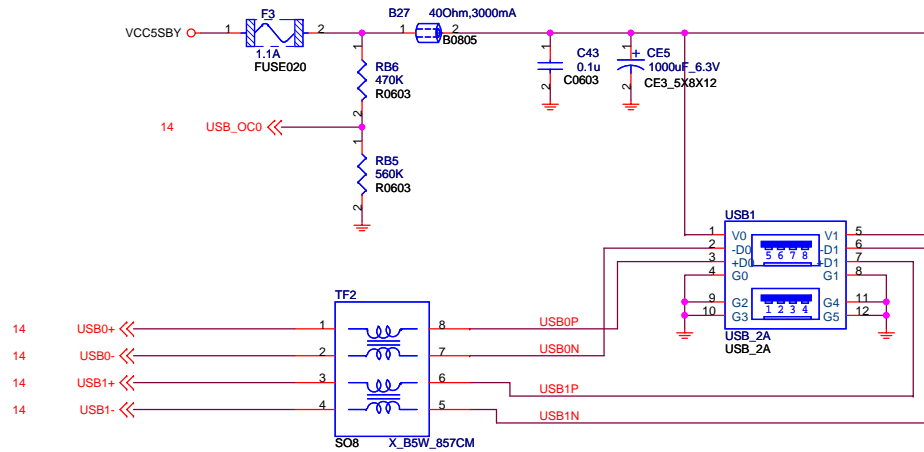
$$V_{out} = 1.25V * (1 + 200/121) = 3.32V$$



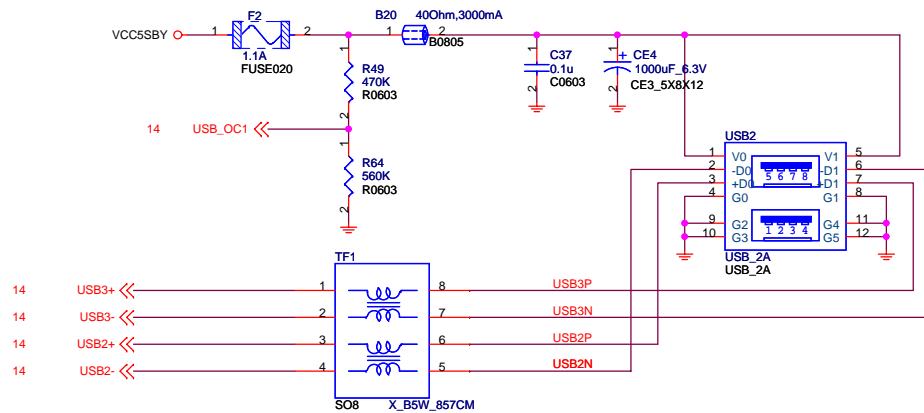
走線Trace請走25mil



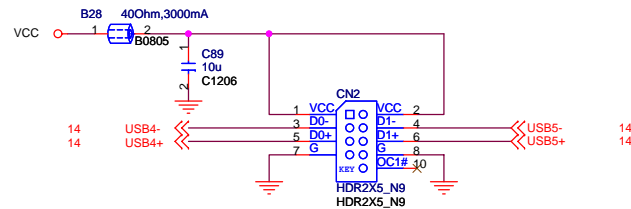
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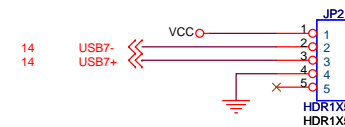
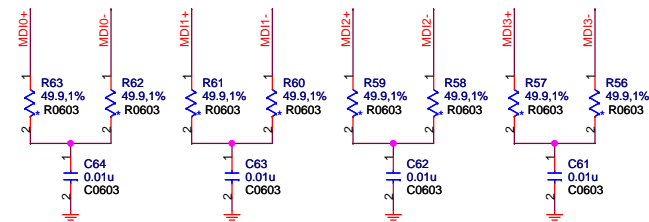
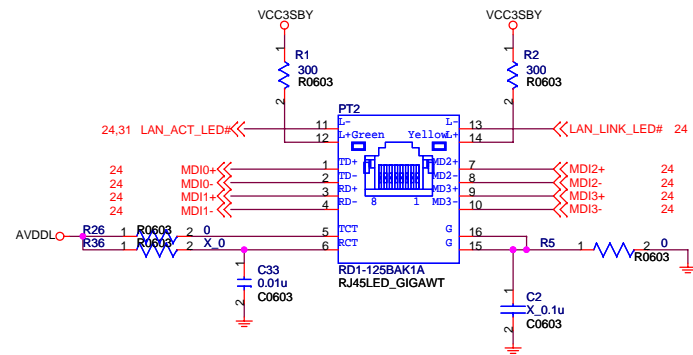
兩端直接短路



兩端直接短路



FRONT USB



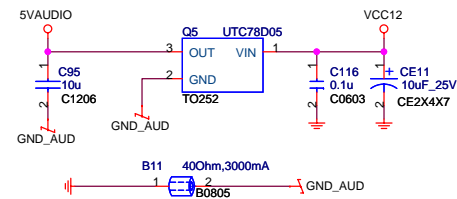
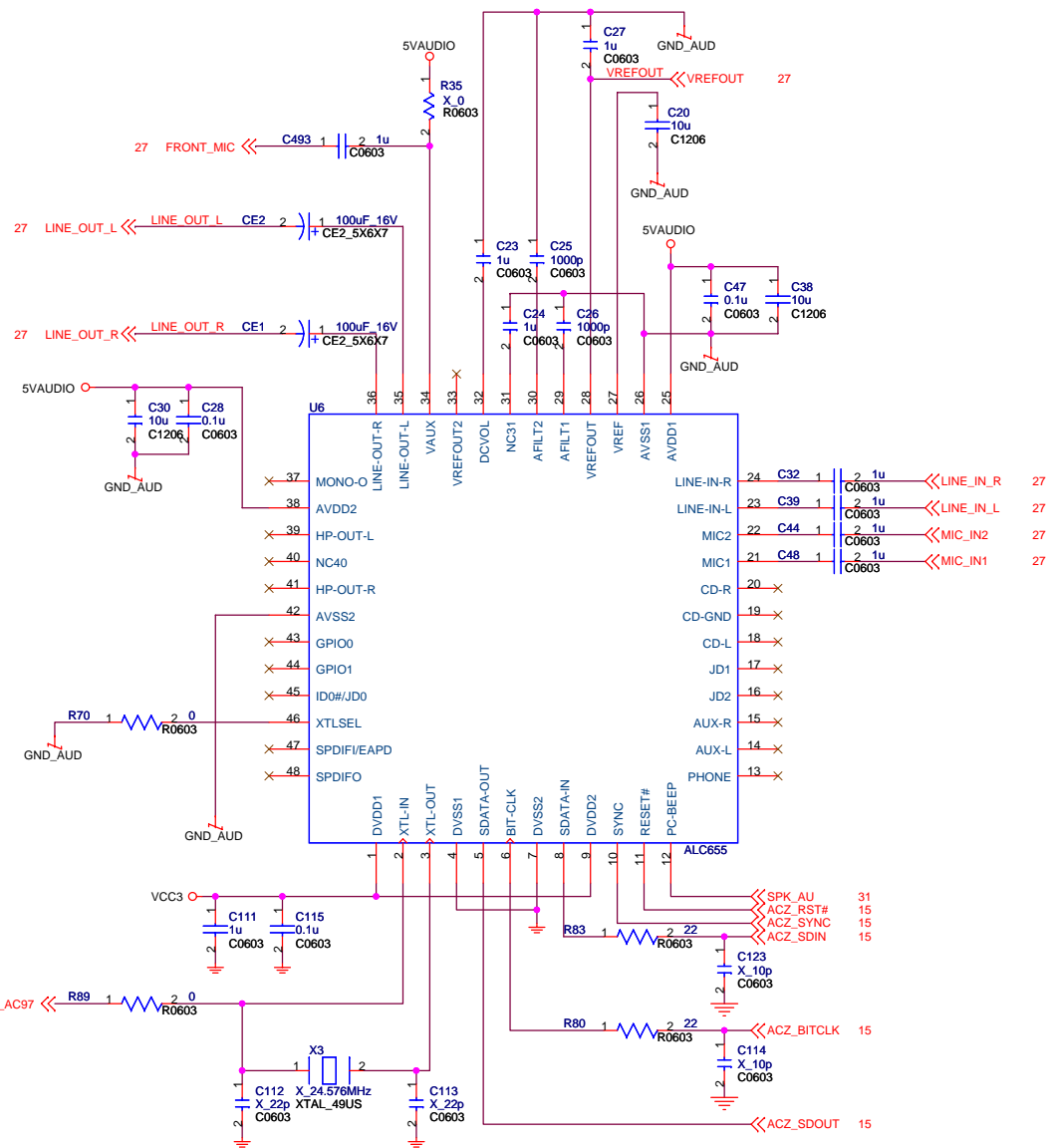
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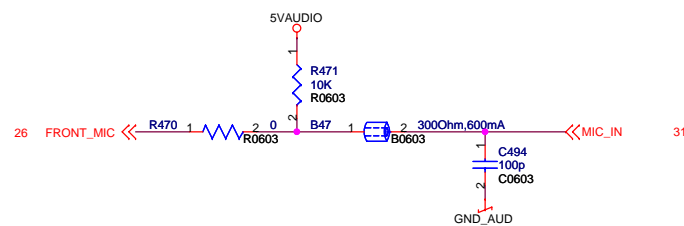
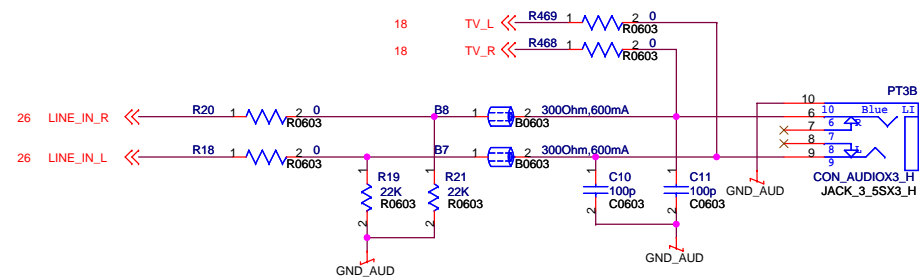
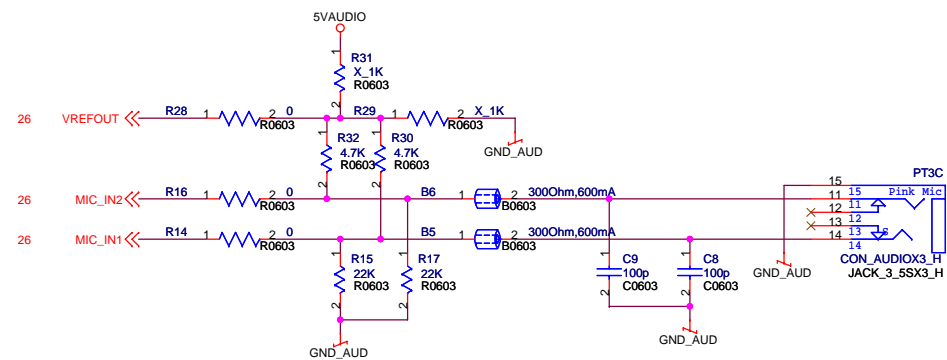
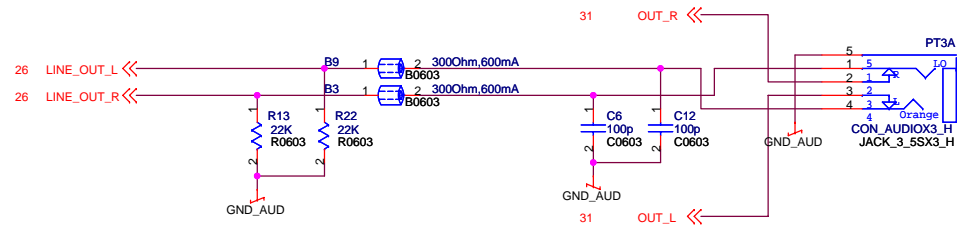
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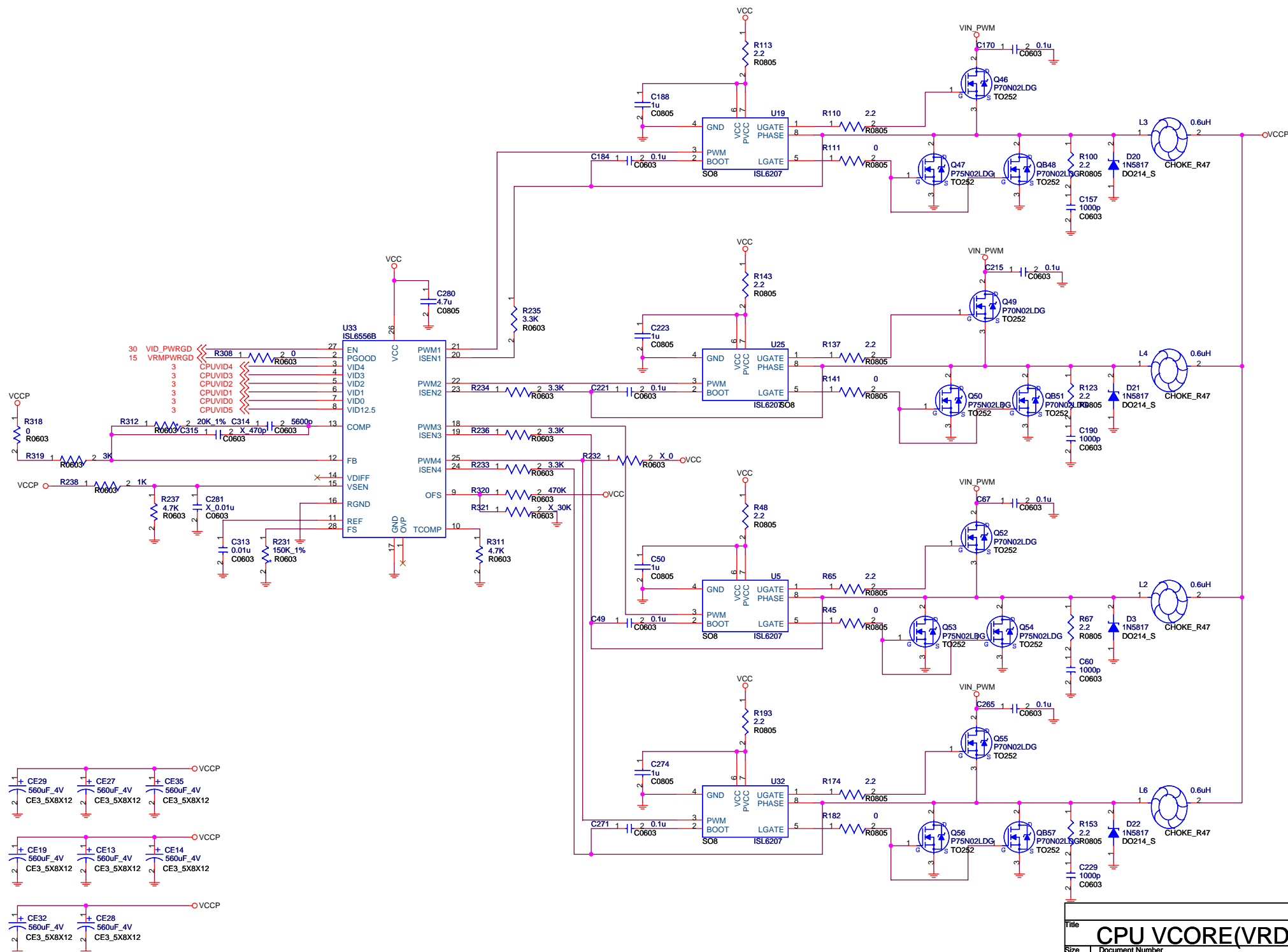
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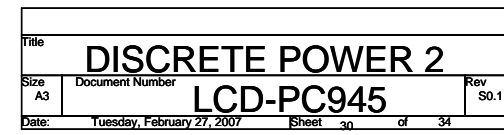


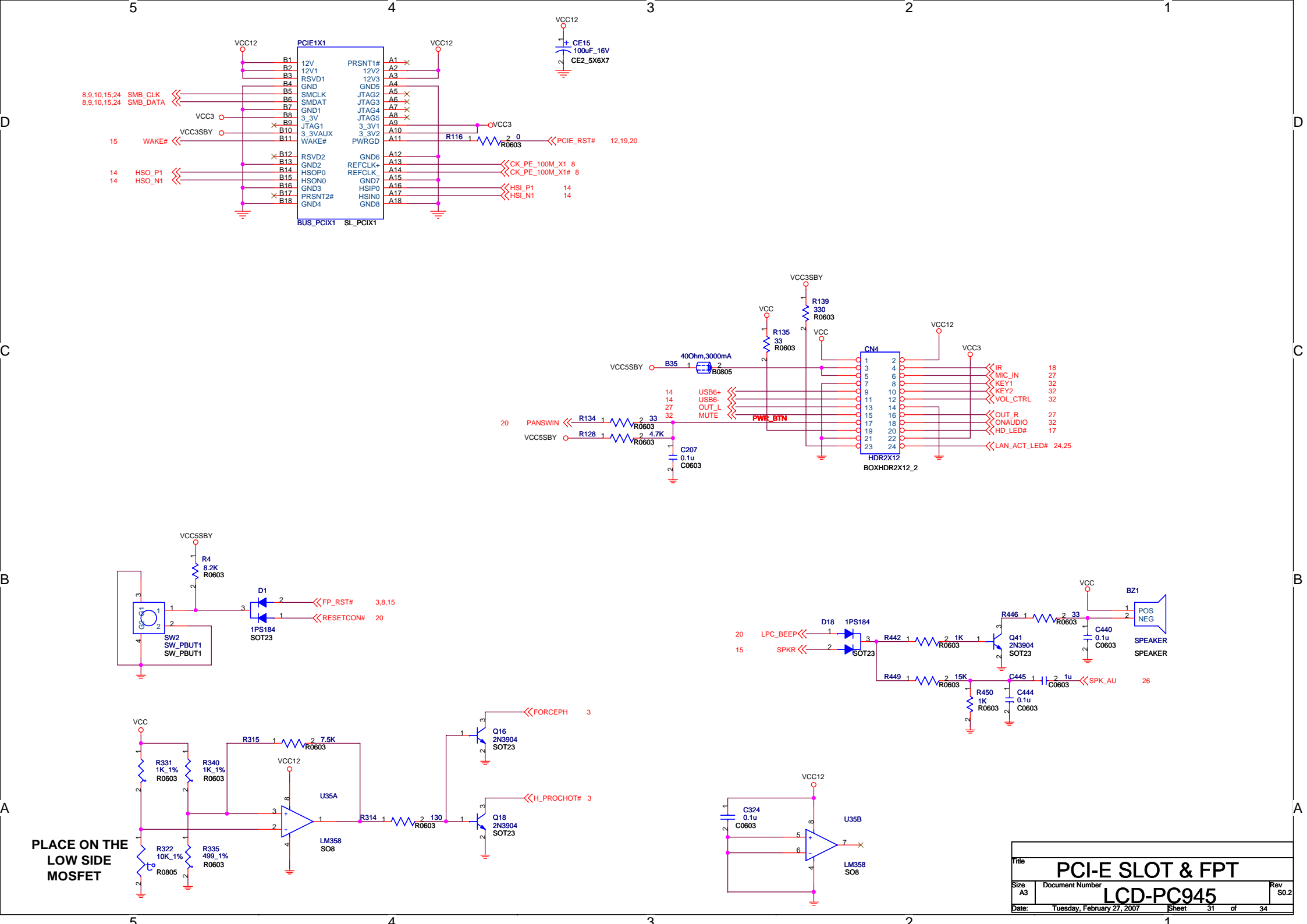


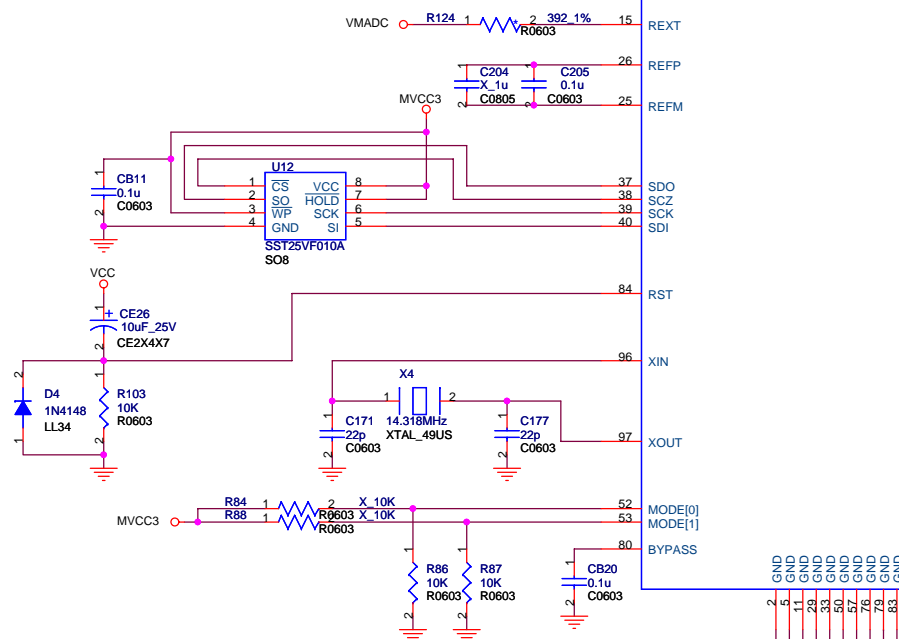
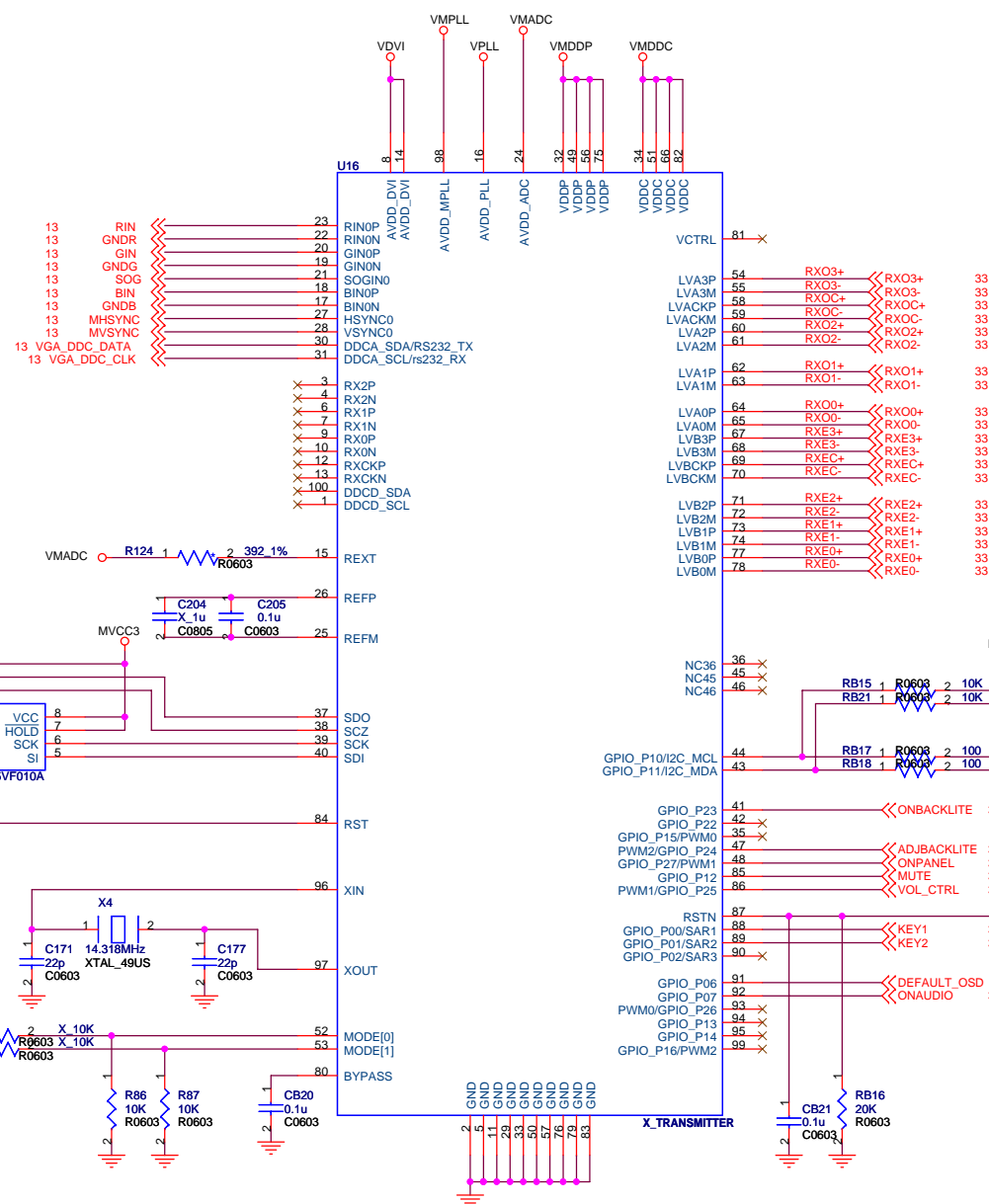
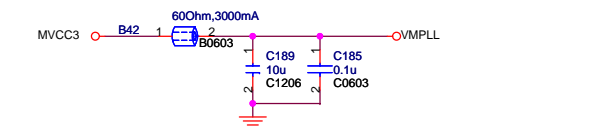
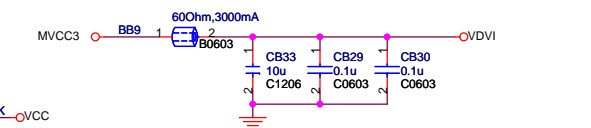
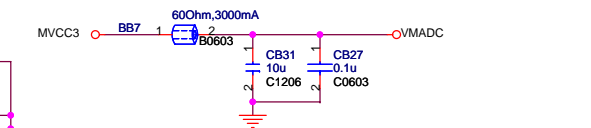
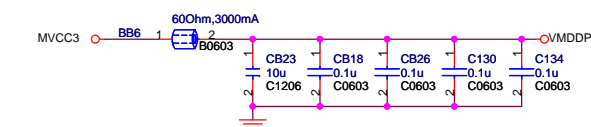
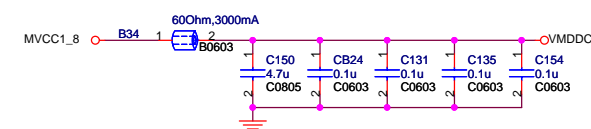
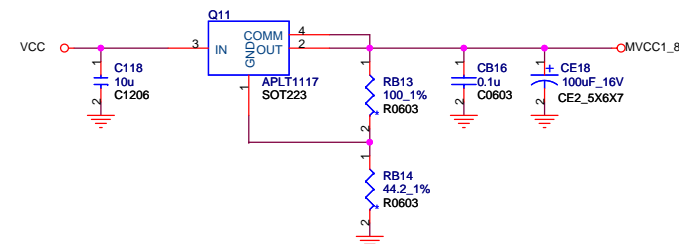
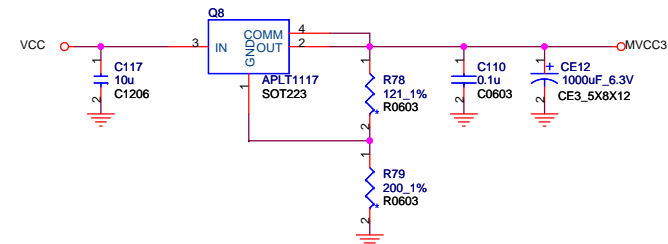
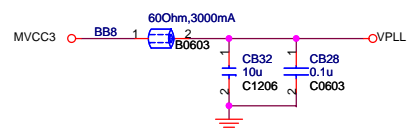






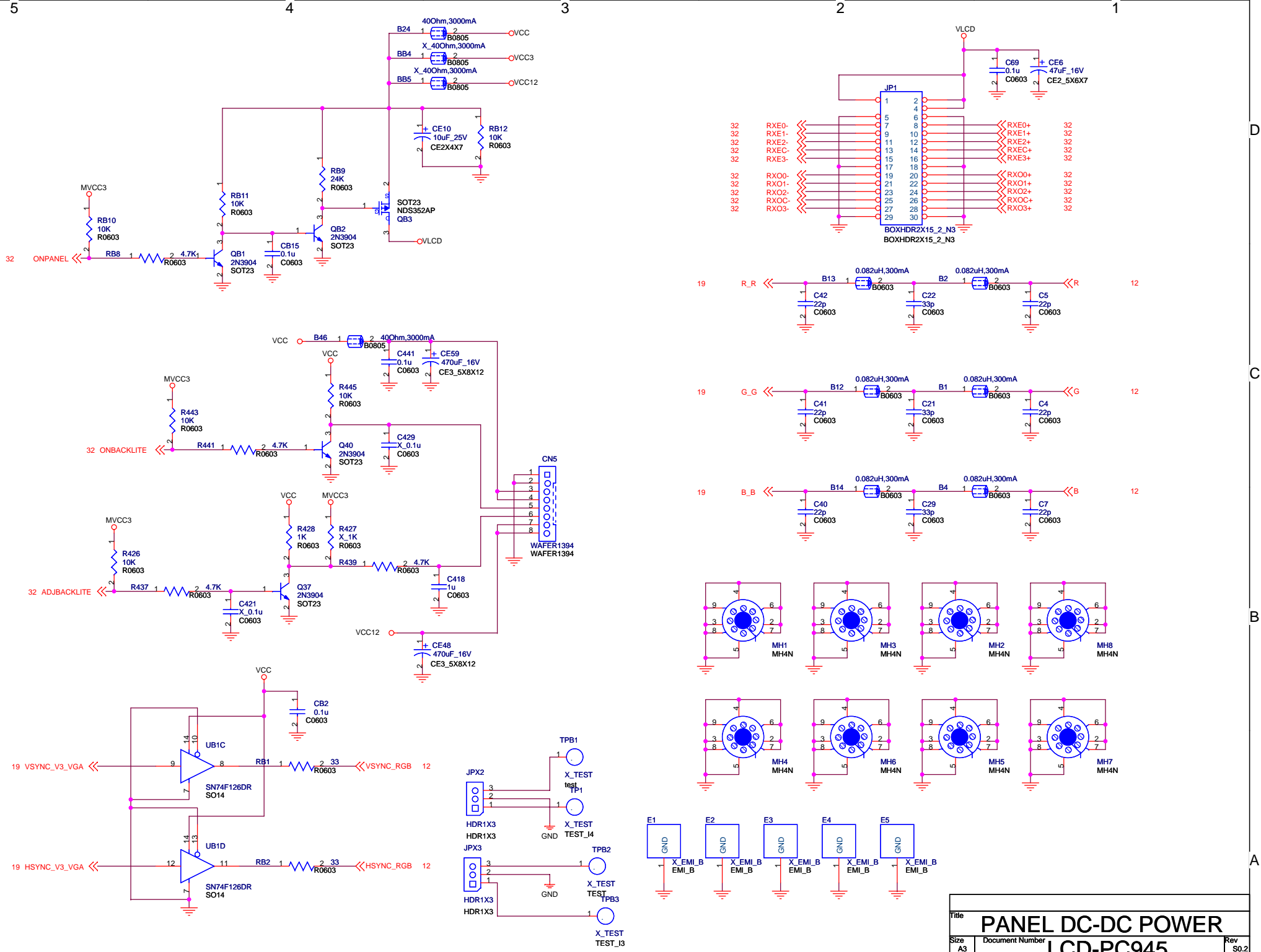


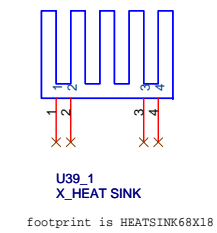
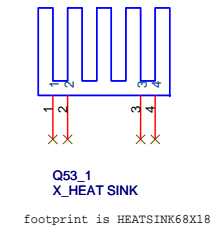
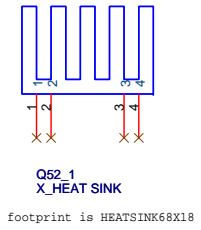
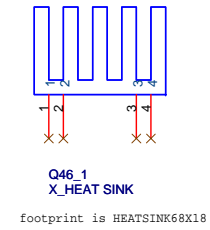
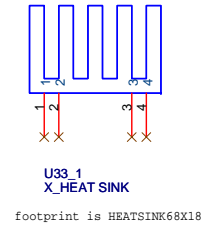
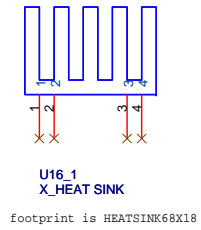
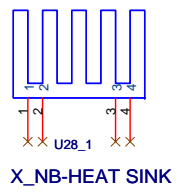
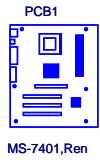




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