

Model Name: GA-X99-UD3

Rev 1.0

SHEET

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SHEET

TITLE

| | |
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Gigabyte Technology

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| Title | | | |
| Cover Sheet | | | |
| Size | Document Number | Rev | |
| Custom | GA-X99-UD3 | 1.0 | |
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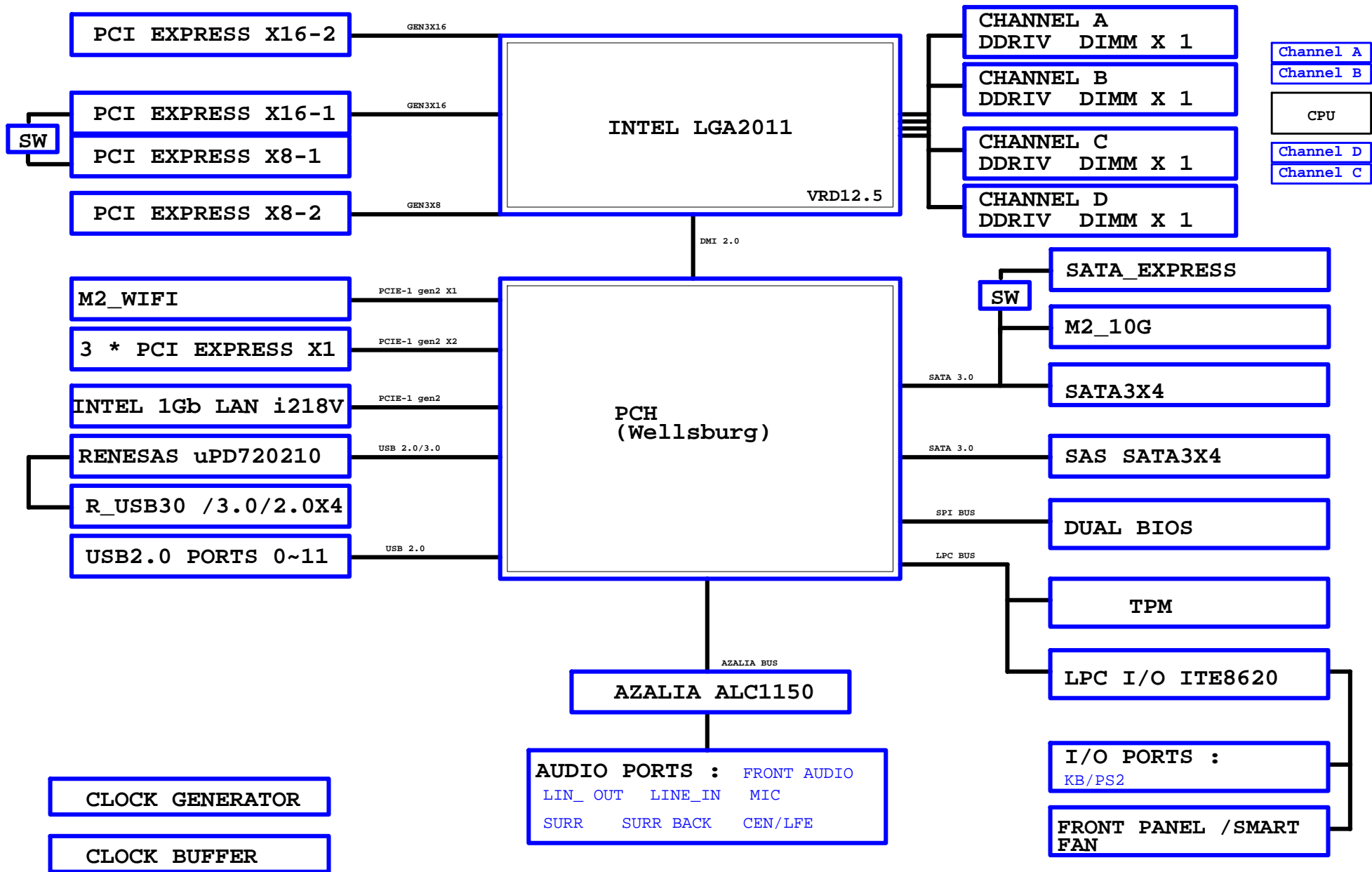
Component value change history

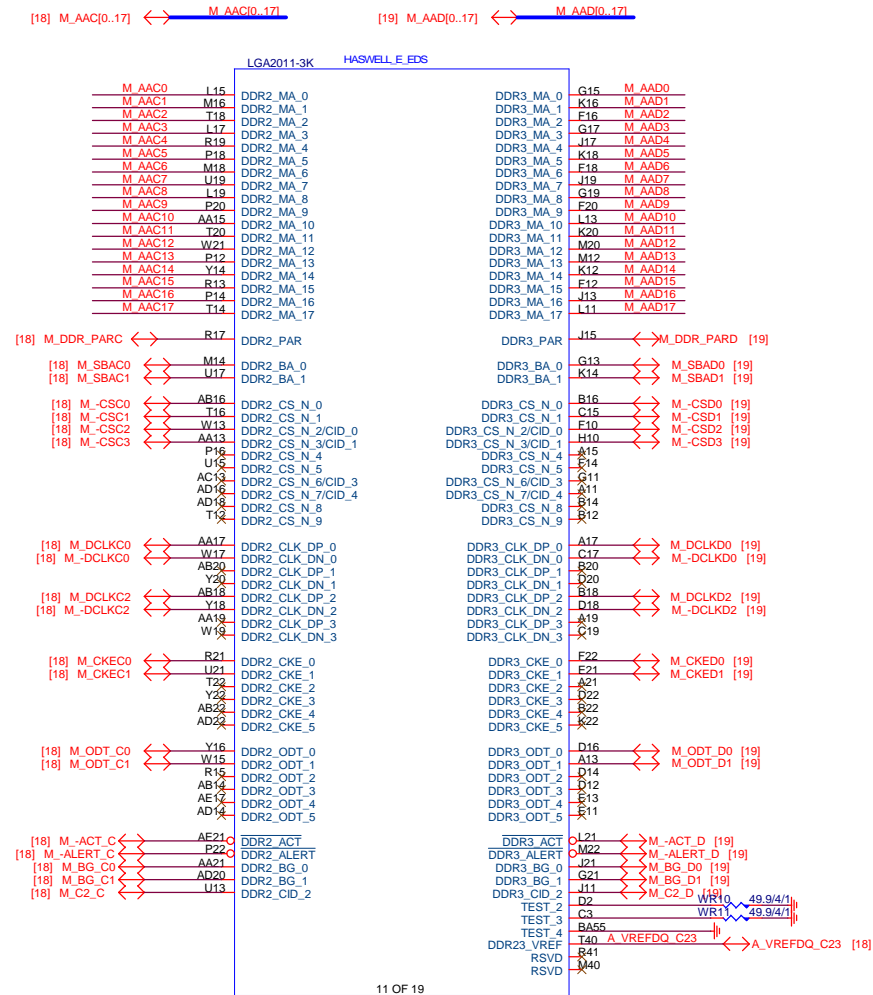
[illegible]

Circuit or PCB layout change

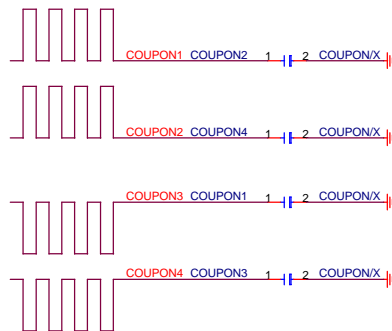
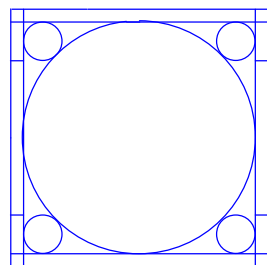
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BLOCK DIAGRAM





LGA2011-3
ILM_BP/2011/CSP12KRC-0F2011-61R]



| Gigabyte Technology | | | |
|---------------------|-------------------------|-------|---------|
| Title | | | |
| CPU LGA2011-A | | | |
| Size | Document Number | Rev | |
| Custom | GA-X99-UD3 | 1.0 | |
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CHANNEL A

| LGA2011-3F | | HASWELL_E_EDS | |
|------------|------|---------------|---------------|
| M DA0 | BU7 | DDR0_DQ_0 | BY6 M_DQSA0 |
| M DA1 | BT6 | DDR0_DQ_1 | BY6 M_-DQSA0 |
| M DA2 | CA8 | DDR0_DQ_2 | |
| M DA3 | CB8 | DDR0_DQ_3 | BY12 M_DQSA1 |
| M DA4 | BT8 | DDR0_DQ_4 | BY11 M_-DQSA1 |
| M DA5 | BU8 | DDR0_DQ_5 | |
| M DA6 | CA7 | DDR0_DQ_6 | CH10 M_DQSA2 |
| M DA7 | CB6 | DDR0_DQ_7 | CG11 M_-DQSA2 |
| M DA8 | BT12 | DDR0_DQ_8 | |
| M DA9 | BU11 | DDR0_DQ_9 | CK14 M_DQSA3 |
| M DA10 | BW13 | DDR0_DQ_10 | CL13 M_-DQSA3 |
| M DA11 | BY14 | DDR0_DQ_11 | |
| M DA12 | BT14 | DDR0_DQ_12 | CK30 M_DQSA4 |
| M DA13 | BU15 | DDR0_DQ_13 | CM30 M_-DQSA4 |
| M DA14 | CA11 | DDR0_DQ_14 | |
| M DA15 | BY12 | DDR0_DQ_15 | CD30 M_DQSA5 |
| M DA16 | CE9 | DDR0_DQ_16 | CF30 M_-DQSA5 |
| M DA17 | CF8 | DDR0_DQ_17 | |
| M DA18 | CK10 | DDR0_DQ_18 | CC37 M_DQSA6 |
| M DA19 | CL11 | DDR0_DQ_19 | CE37 M_-DQSA6 |
| M DA20 | CD10 | DDR0_DQ_20 | |
| M DA21 | CE11 | DDR0_DQ_21 | CJ37 M_DQSA7 |
| M DA22 | CK8 | DDR0_DQ_22 | CL37 M_-DQSA7 |
| M DA23 | CJ8 | DDR0_DQ_23 | |
| M DA24 | CE13 | DDR0_DQ_24 | CV10 |
| M DA25 | CG15 | DDR0_DQ_25 | CT10 |
| M DA26 | CM14 | DDR0_DQ_26 | |
| M DA27 | CH14 | DDR0_DQ_27 | BV8 |
| M DA28 | CC13 | DDR0_DQ_28 | BW9 |
| M DA29 | CD14 | DDR0_DQ_29 | |
| M DA30 | CM12 | DDR0_DQ_30 | BU13 |
| M DA31 | CL13 | DDR0_DQ_31 | BV14 |
| M DA32 | CK28 | DDR0_DQ_32 | |
| M DA33 | CH28 | DDR0_DQ_33 | CG9 |
| M DA34 | CK32 | DDR0_DQ_34 | CH8 |
| M DA35 | CH32 | DDR0_DQ_35 | |
| M DA36 | CL27 | DDR0_DQ_36 | CG13 |
| M DA37 | CJ27 | DDR0_DQ_37 | CF14 |
| M DA38 | CL31 | DDR0_DQ_38 | |
| M DA39 | CJ31 | DDR0_DQ_39 | CL29 |
| M DA40 | CD28 | DDR0_DQ_40 | CV29 |
| M DA41 | CB28 | DDR0_DQ_41 | |
| M DA42 | CD32 | DDR0_DQ_42 | CE29 |
| M DA43 | CB32 | DDR0_DQ_43 | CC29 |
| M DA44 | CE27 | DDR0_DQ_44 | |
| M DA45 | CG27 | DDR0_DQ_45 | CF36 |
| M DA46 | CE31 | DDR0_DQ_46 | CD36 |
| M DA47 | CC31 | DDR0_DQ_47 | |
| M DA48 | CE35 | DDR0_DQ_48 | CM36 |
| M DA49 | CC35 | DDR0_DQ_49 | CK36 |
| M DA50 | CE38 | DDR0_DQ_50 | |
| M DA51 | CC39 | DDR0_DQ_51 | CU9 |
| M DA52 | CE34 | DDR0_DQ_52 | CV9 |
| M DA53 | CD34 | DDR0_DQ_53 | |
| M DA54 | CF38 | DDR0_DQ_54 | |
| M DA55 | CD38 | DDR0_DQ_55 | |
| M DA56 | CL35 | DDR0_DQ_56 | |
| M DA57 | CJ35 | DDR0_DQ_57 | |
| M DA58 | CL39 | DDR0_DQ_58 | |
| M DA59 | CJ39 | DDR0_DQ_59 | |
| M DA60 | CM34 | DDR0_DQ_60 | |
| M DA61 | CK34 | DDR0_DQ_61 | |
| M DA62 | CM38 | DDR0_DQ_62 | |
| M DA63 | CK38 | DDR0_DQ_63 | |
| CT8 | | DDR0_ECC_0 | |
| CV8 | | DDR0_ECC_1 | |
| CW13 | | DDR0_ECC_2 | |
| CU13 | | DDR0_ECC_3 | |
| CP8 | | DDR0_ECC_4 | |
| CN8 | | DDR0_ECC_5 | |
| CP10 | | DDR0_ECC_6 | |
| CR13 | | DDR0_ECC_7 | |

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CHANNEL B

| LGA2011-3G | | HASWELL_E_EDS | |
|------------|------|---------------|---------------|
| M DB0 | BV4 | DDR1_DQ_0 | BY4 M_DQSB0 |
| M DB1 | BU1 | DDR1_DQ_1 | BW3 M_-DQSB0 |
| M DB2 | CA3 | DDR1_DQ_2 | |
| M DB3 | CB4 | DDR1_DQ_3 | CJ5 M_DQSB1 |
| M DB4 | BT4 | DDR1_DQ_4 | CH6 M_-DQSB1 |
| M DB5 | BT2 | DDR1_DQ_5 | |
| M DB6 | CA1 | DDR1_DQ_6 | CT4 M_DQSB2 |
| M DB7 | BY2 | DDR1_DQ_7 | CV4 M_-DQSB2 |
| M DB8 | CE3 | DDR1_DQ_8 | |
| M DB9 | CF4 | DDR1_DQ_9 | DB10 M_DQSB3 |
| M DB10 | CL5 | DDR1_DQ_10 | DC9 M_-DQSB3 |
| M DB11 | CM4 | DDR1_DQ_11 | |
| M DB12 | CE5 | DDR1_DQ_12 | CT30 M_DQSB4 |
| M DB13 | CF6 | DDR1_DQ_13 | CV30 M_-DQSB4 |
| M DB14 | CK6 | DDR1_DQ_14 | |
| M DB15 | CL3 | DDR1_DQ_15 | DD32 M_DQSB5 |
| M DB16 | CR3 | DDR1_DQ_16 | DB32 M_-DQSB5 |
| M DB17 | CV2 | DDR1_DQ_17 | |
| M DB18 | CT6 | DDR1_DQ_18 | DB37 M_DQSB6 |
| M DB19 | CB6 | DDR1_DQ_19 | CJ37 M_-DQSB6 |
| M DB20 | CR1 | DDR1_DQ_20 | |
| M DB21 | CP2 | DDR1_DQ_21 | DB38 M_DQSB7 |
| M DB22 | CJ5 | DDR1_DQ_22 | DA37 M_-DQSB7 |
| M DB23 | CR5 | DDR1_DQ_23 | |
| M DB24 | DA7 | DDR1_DQ_24 | DB14 |
| M DB25 | DB8 | DDR1_DQ_25 | DA13 |
| M DB26 | DE11 | DDR1_DQ_26 | |
| M DB27 | DC11 | DDR1_DQ_27 | BV2 |
| M DB28 | DA5 | DDR1_DQ_28 | BW1 |
| M DB29 | CE6 | DDR1_DQ_29 | |
| M DB30 | DE9 | DDR1_DQ_30 | CH4 |
| M DB31 | DE10 | DDR1_DQ_31 | CG3 |
| M DB32 | CT28 | DDR1_DQ_32 | |
| M DB33 | CP28 | DDR1_DQ_33 | CW3 |
| M DB34 | CT32 | DDR1_DQ_34 | CU3 |
| M DB35 | CP32 | DDR1_DQ_35 | |
| M DB36 | CU27 | DDR1_DQ_36 | DC7 |
| M DB37 | CR27 | DDR1_DQ_37 | DD8 |
| M DB38 | CU31 | DDR1_DQ_38 | |
| M DB39 | CR31 | DDR1_DQ_39 | CU29 |
| M DB40 | DA29 | DDR1_DQ_40 | CR29 |
| M DB41 | DB30 | DDR1_DQ_41 | |
| M DB42 | DC33 | DDR1_DQ_42 | DA31 |
| M DB43 | DE34 | DDR1_DQ_43 | CY32 |
| M DB44 | DB28 | DDR1_DQ_44 | |
| M DB45 | CY28 | DDR1_DQ_45 | CV36 |
| M DB46 | DA33 | DDR1_DQ_46 | CT36 |
| M DB47 | DE33 | DDR1_DQ_47 | |
| M DB48 | CU35 | DDR1_DQ_48 | DD36 |
| M DB49 | CR35 | DDR1_DQ_49 | DE37 |
| M DB50 | CU39 | DDR1_DQ_50 | |
| M DB51 | CR39 | DDR1_DQ_51 | CW13 |
| M DB52 | CV34 | DDR1_DQ_52 | Y14 |
| M DB53 | CT34 | DDR1_DQ_53 | |
| M DB54 | CV38 | DDR1_DQ_54 | |
| M DB55 | CT39 | DDR1_DQ_55 | |
| M DB56 | DC37 | DDR1_DQ_56 | |
| M DB57 | DE36 | DDR1_DQ_57 | |
| M DB58 | DC39 | DDR1_DQ_58 | |
| M DB59 | DA39 | DDR1_DQ_59 | |
| M DB60 | DC35 | DDR1_DQ_60 | |
| M DB61 | DB36 | DDR1_DQ_61 | |
| M DB62 | DE38 | DDR1_DQ_62 | |
| M DB63 | DE39 | DDR1_DQ_63 | |
| CU13 | | DDR1_ECC_0 | |
| CV13 | | DDR1_ECC_1 | |
| DD13 | | DDR1_ECC_2 | |
| DF14 | | DDR1_ECC_3 | |
| CR13 | | DDR1_ECC_4 | |
| CT14 | | DDR1_ECC_5 | |
| DC13 | | DDR1_ECC_6 | |
| DE13 | | DDR1_ECC_7 | |

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[16] M_DA[0..63] <-- M_DA[0..63]

[16] M_DQSA[0..7] <-- M_DQSA[0..7]

[16] M_-DQSA[0..7] <-- M_-DQSA[0..7]

[17] M_DB[0..63] <-- M_DB[0..63]

[17] M_DQSB[0..7] <-- M_DQSB[0..7]

[17] M_-DQSB[0..7] <-- M_-DQSB[0..7]

Gigabyte Technology

| | | |
|---------------|-------------------------|---------------|
| Title | | |
| CPU LGA2011-A | | |
| Size | Document Number | Rev |
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CHANNEL C

LGA2011-3H HASWELL_E_EDS

| | | | | | |
|--------|------|------------|----------------|------|----------|
| M DC0 | AD38 | DDR2_DQ_0 | DDR2_DQS_DP_0 | V38 | M_DQSC0 |
| M DC1 | AA37 | DDR2_DQ_1 | DDR2_DQS_DN_0 | W37 | M_-DQSC0 |
| M DC2 | R37 | DDR2_DQ_2 | | | |
| M DC3 | Y38 | DDR2_DQ_3 | DDR2_DQS_DP_1 | U31 | M_DQSC1 |
| M DC4 | AE37 | DDR2_DQ_4 | DDR2_DQS_DN_1 | V32 | M_-DQSC1 |
| M DC5 | AC38 | DDR2_DQ_5 | | | |
| M DC6 | T38 | DDR2_DQ_6 | | AB32 | M_DQSC2 |
| M DC7 | U37 | DDR2_DQ_7 | DDR2_DQS_DP_2 | AD32 | M_-DQSC2 |
| M DC8 | V34 | DDR2_DQ_8 | | | |
| M DC9 | U33 | DDR2_DQ_9 | | U25 | M_DQSC3 |
| M DC10 | V30 | DDR2_DQ_10 | DDR2_DQS_DP_3 | W25 | M_-DQSC3 |
| M DC11 | T30 | DDR2_DQ_11 | DDR2_DQS_DN_3 | | |
| M DC12 | U35 | DDR2_DQ_12 | | N7 | M_DQSC4 |
| M DC13 | R35 | DDR2_DQ_13 | DDR2_DQS_DP_4 | P8 | M_-DQSC4 |
| M DC14 | T32 | DDR2_DQ_14 | DDR2_DQS_DN_4 | | |
| M DC15 | W31 | DDR2_DQ_15 | | AB10 | M_DQSC5 |
| M DC16 | AD34 | DDR2_DQ_16 | DDR2_DQS_DP_5 | Y10 | M_-DQSC5 |
| M DC17 | AB34 | DDR2_DQ_17 | | | |
| M DC18 | AD30 | DDR2_DQ_18 | DDR2_DQS_DP_6 | AH12 | M_DQSC6 |
| M DC19 | AB30 | DDR2_DQ_19 | DDR2_DQS_DN_6 | AJ13 | M_-DQSC6 |
| M DC20 | AC35 | DDR2_DQ_20 | | | |
| M DC21 | AA35 | DDR2_DQ_21 | DDR2_DQS_DP_7 | AJ7 | M_DQSC7 |
| M DC22 | AE31 | DDR2_DQ_22 | DDR2_DQS_DN_7 | AH8 | M_-DQSC7 |
| M DC23 | AC31 | DDR2_DQ_23 | | | |
| M DC24 | U27 | DDR2_DQ_24 | DDR2_DQS_DP_8 | AC25 | |
| M DC25 | R27 | DDR2_DQ_25 | DDR2_DQS_DN_8 | AE25 | |
| M DC26 | U23 | DDR2_DQ_26 | | | |
| M DC27 | R23 | DDR2_DQ_27 | DDR2_DQS_DP_9 | AB38 | |
| M DC28 | V28 | DDR2_DQ_28 | DDR2_DQS_DN_9 | AC37 | |
| M DC29 | T28 | DDR2_DQ_29 | | | |
| M DC30 | V24 | DDR2_DQ_30 | DDR2_DQS_DP_10 | T34 | |
| M DC31 | T24 | DDR2_DQ_31 | DDR2_DQS_DN_10 | R33 | |
| M DC32 | N8 | DDR2_DQ_32 | | | |
| M DC33 | K8 | DDR2_DQ_33 | DDR2_DQS_DP_11 | AC33 | |
| M DC34 | R7 | DDR2_DQ_34 | DDR2_DQS_DN_11 | AA33 | |
| M DC35 | P6 | DDR2_DQ_35 | | | |
| M DC36 | J8 | DDR2_DQ_36 | DDR2_DQS_DP_12 | V26 | |
| M DC37 | L3 | DDR2_DQ_37 | DDR2_DQS_DN_12 | X26 | |
| M DC38 | K6 | DDR2_DQ_38 | | | |
| M DC39 | M6 | DDR2_DQ_39 | DDR2_DQS_DP_13 | M8 | |
| M DC40 | U8 | DDR2_DQ_40 | DDR2_DQS_DN_13 | L7 | |
| M DC41 | W11 | DDR2_DQ_41 | | | |
| M DC42 | AA11 | DDR2_DQ_42 | DDR2_DQS_DP_14 | V8 | |
| M DC43 | AB8 | DDR2_DQ_43 | DDR2_DQS_DN_14 | X9 | |
| M DC44 | T10 | DDR2_DQ_44 | | | |
| M DC45 | U11 | DDR2_DQ_45 | DDR2_DQS_DP_15 | AH16 | |
| M DC46 | AA9 | DDR2_DQ_46 | DDR2_DQS_DN_15 | AJ15 | |
| M DC47 | Y8 | DDR2_DQ_47 | | | |
| M DC48 | AE11 | DDR2_DQ_48 | | AH10 | |
| M DC49 | AE12 | DDR2_DQ_49 | DDR2_DQS_DP_16 | AJ9 | |
| M DC50 | AK12 | DDR2_DQ_50 | DDR2_DQS_DN_16 | | |
| M DC51 | AL13 | DDR2_DQ_51 | | AD26 | |
| M DC52 | AG15 | DDR2_DQ_52 | DDR2_DQS_DP_17 | AB26 | |
| M DC53 | AE14 | DDR2_DQ_53 | DDR2_DQS_DN_17 | | |
| M DC54 | AK14 | DDR2_DQ_54 | | | |
| M DC55 | AL15 | DDR2_DQ_55 | | | |
| M DC56 | AG9 | DDR2_DQ_56 | | | |
| M DC57 | AG7 | DDR2_DQ_57 | | | |
| M DC58 | AK10 | DDR2_DQ_58 | | | |
| M DC59 | AL9 | DDR2_DQ_59 | | | |
| M DC60 | AE7 | DDR2_DQ_60 | | | |
| M DC61 | AE9 | DDR2_DQ_61 | | | |
| M DC62 | AK8 | DDR2_DQ_62 | | | |
| M DC63 | AL7 | DDR2_DQ_63 | | | |
| AC22 | | DDR2_ECC_0 | | | |
| AA22 | | DDR2_ECC_1 | | | |
| AC23 | | DDR2_ECC_2 | | | |
| AA23 | | DDR2_ECC_3 | | | |
| AD28 | | DDR2_ECC_4 | | | |
| AB28 | | DDR2_ECC_5 | | | |
| AD24 | | DDR2_ECC_6 | | | |
| AB24 | | DDR2_ECC_7 | | | |

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[18] M_DC[0..63] <— M_DC[0..63]

[18] M_DQSC[0..7] <— M_DQSC[0..7]

[18] M_-DQSC[0..7] <— M_-DQSC[0..7]

CHANNEL D

LGA2011-3I HASWELL_E_EDS

| | | | | | |
|--------|-----|------------|----------------|-----|----------|
| M DD0 | D38 | DDR3_DQ_0 | DDR3_DQS_DP_0 | E37 | M_DQSD0 |
| M DD1 | B38 | DDR3_DQ_1 | DDR3_DQS_DN_0 | C37 | M_-DQSD0 |
| M DD2 | L37 | DDR3_DQ_2 | | | |
| M DD3 | M38 | DDR3_DQ_3 | DDR3_DQS_DP_1 | B32 | M_DQSD1 |
| M DD4 | C39 | DDR3_DQ_4 | DDR3_DQS_DN_1 | A33 | M_-DQSD1 |
| M DD5 | J39 | DDR3_DQ_5 | | | |
| M DD6 | G37 | DDR3_DQ_6 | | M32 | M_DQSD2 |
| M DD7 | K38 | DDR3_DQ_7 | DDR3_DQS_DP_2 | K32 | M_-DQSD2 |
| M DD8 | A35 | DDR3_DQ_8 | DDR3_DQS_DN_2 | | |
| M DD9 | B34 | DDR3_DQ_9 | DDR3_DQS_DP_3 | E25 | M_DQSD3 |
| M DD10 | G31 | DDR3_DQ_10 | DDR3_DQS_DN_3 | G25 | M_-DQSD3 |
| M DD11 | E31 | DDR3_DQ_11 | | | |
| M DD12 | F34 | DDR3_DQ_12 | DDR3_DQS_DP_4 | H2 | M_DQSD4 |
| M DD13 | E35 | DDR3_DQ_13 | DDR3_DQS_DN_4 | G3 | M_-DQSD4 |
| M DD14 | D32 | DDR3_DQ_14 | | | |
| M DD15 | E33 | DDR3_DQ_15 | DDR3_DQS_DP_5 | E7 | M_DQSD5 |
| M DD16 | K34 | DDR3_DQ_16 | DDR3_DQS_DN_5 | C7 | M_-DQSD5 |
| M DD17 | M34 | DDR3_DQ_17 | | | |
| M DD18 | K30 | DDR3_DQ_18 | DDR3_DQS_DP_6 | AK2 | M_DQSD6 |
| M DD19 | M30 | DDR3_DQ_19 | DDR3_DQS_DN_6 | AJ1 | M_-DQSD6 |
| M DD20 | J35 | DDR3_DQ_20 | | | |
| M DD21 | L35 | DDR3_DQ_21 | DDR3_DQS_DP_7 | AB4 | M_DQSD7 |
| M DD22 | L31 | DDR3_DQ_22 | DDR3_DQS_DN_7 | AA5 | M_-DQSD7 |
| M DD23 | N31 | DDR3_DQ_23 | | | |
| M DD24 | F28 | DDR3_DQ_24 | DDR3_DQS_DP_8 | L25 | |
| M DD25 | E27 | DDR3_DQ_25 | DDR3_DQS_DN_8 | N25 | |
| M DD26 | F24 | DDR3_DQ_26 | | | |
| M DD27 | E23 | DDR3_DQ_27 | DDR3_DQS_DP_9 | E38 | |
| M DD28 | G29 | DDR3_DQ_28 | DDR3_DQS_DN_9 | H38 | |
| M DD29 | F29 | DDR3_DQ_29 | | | |
| M DD30 | C25 | DDR3_DQ_30 | DDR3_DQS_DP_10 | C35 | |
| M DD31 | B24 | DDR3_DQ_31 | DDR3_DQS_DN_10 | D34 | |
| M DD32 | K4 | DDR3_DQ_32 | | | |
| M DD33 | H4 | DDR3_DQ_33 | DDR3_DQS_DP_11 | J33 | |
| M DD34 | J1 | DDR3_DQ_34 | DDR3_DQS_DN_11 | L33 | |
| M DD35 | L1 | DDR3_DQ_35 | | | |
| M DD36 | P4 | DDR3_DQ_36 | DDR3_DQS_DP_12 | E26 | |
| M DD37 | N3 | DDR3_DQ_37 | DDR3_DQS_DN_12 | D26 | |
| M DD38 | K2 | DDR3_DQ_38 | | | |
| M DD39 | R3 | DDR3_DQ_39 | DDR3_DQS_DP_13 | M4 | |
| M DD40 | E9 | DDR3_DQ_40 | DDR3_DQS_DN_13 | L3 | |
| M DD41 | F8 | DDR3_DQ_41 | | | |
| M DD42 | E5 | DDR3_DQ_42 | DDR3_DQS_DP_14 | B8 | |
| M DD43 | F6 | DDR3_DQ_43 | DDR3_DQS_DN_14 | D8 | |
| M DD44 | C9 | DDR3_DQ_44 | | | |
| M DD45 | A9 | DDR3_DQ_45 | DDR3_DQS_DP_15 | AH4 | |
| M DD46 | D6 | DDR3_DQ_46 | DDR3_DQS_DN_15 | AJ5 | |
| M DD47 | G7 | DDR3_DQ_47 | | | |
| M DD48 | AG3 | DDR3_DQ_48 | DDR3_DQS_DP_16 | V6 | |
| M DD49 | AG1 | DDR3_DQ_49 | DDR3_DQS_DN_16 | W5 | |
| M DD50 | AL3 | DDR3_DQ_50 | | | |
| M DD51 | AL5 | DDR3_DQ_51 | DDR3_DQS_DP_17 | M26 | |
| M DD52 | AG5 | DDR3_DQ_52 | DDR3_DQS_DN_17 | K26 | |
| M DD53 | AE3 | DDR3_DQ_53 | | | |
| M DD54 | AJ3 | DDR3_DQ_54 | | | |
| M DD55 | AL1 | DDR3_DQ_55 | | | |
| M DD56 | V4 | DDR3_DQ_56 | | | |
| M DD57 | W3 | DDR3_DQ_57 | | | |
| M DD58 | AC5 | DDR3_DQ_58 | | | |
| M DD59 | AE5 | DDR3_DQ_59 | | | |
| M DD60 | U5 | DDR3_DQ_60 | | | |
| M DD61 | V6 | DDR3_DQ_61 | | | |
| M DD62 | AC3 | DDR3_DQ_62 | | | |
| M DD63 | AB6 | DDR3_DQ_63 | | | |
| L27 | | DDR3_ECC_0 | | | |
| J27 | | DDR3_ECC_1 | | | |
| L23 | | DDR3_ECC_2 | | | |
| J23 | | DDR3_ECC_3 | | | |
| K28 | | DDR3_ECC_4 | | | |
| M28 | | DDR3_ECC_5 | | | |
| M24 | | DDR3_ECC_6 | | | |
| K24 | | DDR3_ECC_7 | | | |

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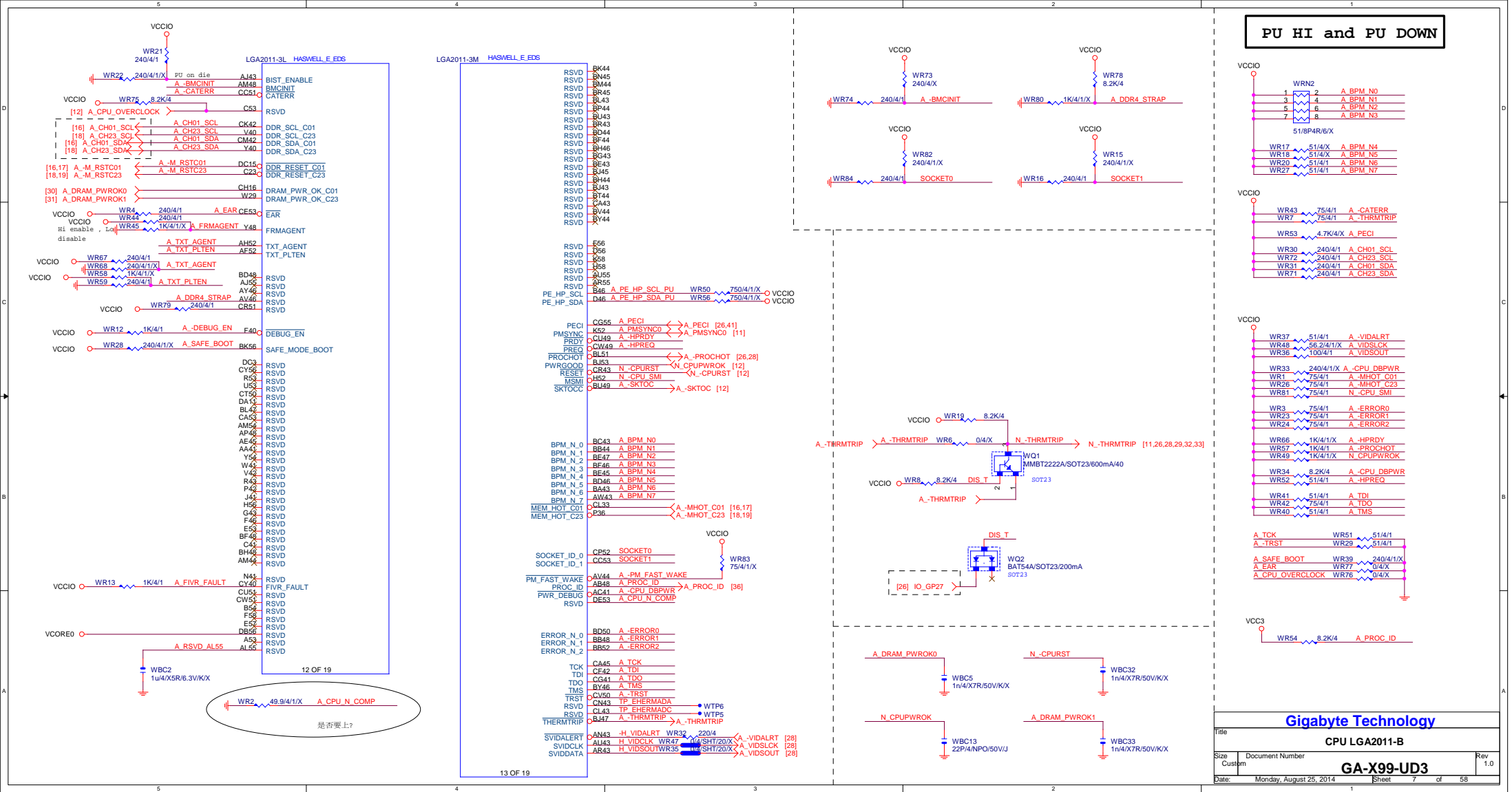
[19] M_DD[0..63] <— M_DD[0..63]

[19] M_DQSD[0..7] <— M_DQSD[0..7]

[19] M_-DQSD[0..7] <— M_-DQSD[0..7]

Gigabyte Technology

| | | | | | |
|--------|--|--|-------------------------|--|--|
| Title | | | CPU LGA2011-A | | |
| Size | | | Document Number | | |
| Custom | | | GA-X99-UD3 | | |
| Date: | | | Monday, August 25, 2014 | | |
| | | | Sheet 6 of 58 | | |
| | | | Rev 1.0 | | |



| IGA2011-3E | | HASWELL_E_DS | |
|------------|----------------|----------------|------|
| B3J5 | QPIO_DRX_DP_0 | RSVD | DE65 |
| B3J5 | QPIO_DRX_DN_0 | RSVD | DE64 |
| BH50 | QPIO_DRX_DP_1 | RSVD | DE57 |
| BF50 | QPIO_DRX_DN_1 | RSVD | DE58 |
| | | RSVD | DE46 |
| | | RSVD | DE45 |
| BE53 | QPIO_DRX_DP_2 | QPIO_CLKRX_DP | SK58 |
| BG53 | QPIO_DRX_DN_2 | QPIO_CLKRX_DN | SK58 |
| | | QPIO_CLUTX_DP | DE44 |
| | | QPIO_CLUTX_DN | DE44 |
| BE56 | QPIO_DRX_DP_3 | QPIO_CLKRX_DP | DE53 |
| BG56 | QPIO_DRX_DN_3 | QPIO_CLKRX_DN | DE53 |
| | | QPIO_CLUTX_DP | DE54 |
| BF56 | QPIO_DRX_DP_4 | QPIO_CLUTX_DN | DE54 |
| BH56 | QPIO_DRX_DN_4 | | |
| | | QPIO_DTX_DP_0 | DE50 |
| BF54 | QPIO_DRX_DP_5 | QPIO_DTX_DN_0 | DE49 |
| BH54 | QPIO_DRX_DN_5 | | |
| | | QPIO_DTX_DP_1 | DE52 |
| BF50 | QPIO_DRX_DP_6 | QPIO_DTX_DN_1 | DE51 |
| BH50 | QPIO_DRX_DN_6 | | |
| | | QPIO_DTX_DP_2 | DE53 |
| BD56 | QPIO_DRX_DP_7 | QPIO_DTX_DN_2 | |
| BF56 | QPIO_DRX_DN_7 | | |
| | | QPIO_DTX_DP_3 | DE54 |
| BE52 | QPIO_DRX_DP_8 | QPIO_DTX_DN_3 | DE54 |
| BG52 | QPIO_DRX_DN_8 | QPIO_DTX_DP_3 | |
| | | QPIO_DTX_DP_4 | DE55 |
| BM56 | QPIO_DRX_DP_9 | QPIO_DTX_DN_4 | DE55 |
| BF56 | QPIO_DRX_DN_9 | | |
| | | QPIO_DTX_DP_5 | DE58 |
| BL56 | QPIO_DRX_DP_10 | QPIO_DTX_DN_5 | DE58 |
| BH56 | QPIO_DRX_DN_10 | | |
| | | QPIO_DTX_DP_6 | DE48 |
| BM54 | QPIO_DRX_DP_11 | QPIO_DTX_DN_6 | DE47 |
| BF54 | QPIO_DRX_DN_11 | | |
| | | QPIO_DTX_DP_7 | DE57 |
| BL53 | QPIO_DRX_DP_12 | QPIO_DTX_DN_7 | DE57 |
| BH53 | QPIO_DRX_DN_12 | | |
| | | QPIO_DTX_DP_8 | DE56 |
| BM56 | QPIO_DRX_DP_13 | QPIO_DTX_DN_8 | DE56 |
| BF56 | QPIO_DRX_DN_13 | | |
| | | QPIO_DTX_DP_9 | DE46 |
| BN54 | QPIO_DRX_DP_14 | QPIO_DTX_DN_9 | DE45 |
| BR54 | QPIO_DRX_DN_14 | | |
| | | QPIO_DTX_DP_10 | DE46 |
| BM50 | QPIO_DRX_DP_15 | QPIO_DTX_DN_10 | DE46 |
| BF50 | QPIO_DRX_DN_15 | | |
| | | QPIO_DTX_DP_11 | DE52 |
| BN49 | QPIO_DRX_DP_16 | QPIO_DTX_DN_11 | DE52 |
| BR49 | QPIO_DRX_DN_16 | | |
| | | QPIO_DTX_DP_12 | DE47 |
| BG48 | QPIO_DRX_DP_17 | QPIO_DTX_DN_12 | DE47 |
| BJ48 | QPIO_DRX_DN_17 | | |
| | | QPIO_DTX_DP_13 | DE50 |
| BM48 | QPIO_DRX_DP_18 | QPIO_DTX_DN_13 | DE49 |
| BP48 | QPIO_DRX_DN_18 | | |
| | | QPIO_DTX_DP_14 | DE47 |
| BN42 | QPIO_DRX_DP_19 | QPIO_DTX_DN_14 | DE47 |
| BR42 | QPIO_DRX_DN_19 | | |
| | | QPIO_DTX_DP_15 | DE48 |
| | | QPIO_DTX_DN_15 | DE48 |
| CK44 | QPIO_DRX_DP_0 | QPIO_DTX_DP_16 | DE50 |
| CM44 | QPIO_DRX_DN_0 | QPIO_DTX_DN_16 | DE50 |
| | | QPIO_DTX_DP_17 | DE52 |
| CL46 | QPIO_DRX_DP_1 | QPIO_DTX_DN_17 | DE52 |
| CM46 | QPIO_DRX_DN_1 | | |
| | | QPIO_DTX_DP_18 | DE51 |
| CL48 | QPIO_DRX_DP_2 | QPIO_DTX_DN_18 | DE51 |
| CM48 | QPIO_DRX_DN_2 | | |
| | | QPIO_DTX_DP_19 | DE49 |
| CK48 | QPIO_DRX_DP_3 | QPIO_DTX_DN_19 | DE49 |
| CM48 | QPIO_DRX_DN_3 | | |
| | | QPIO_DTX_DP_0 | DE41 |
| CL48 | QPIO_DRX_DP_4 | QPIO_DTX_DN_0 | DE41 |
| CM48 | QPIO_DRX_DN_4 | | |
| | | QPIO_DTX_DP_1 | DE42 |
| CK50 | QPIO_DRX_DP_5 | QPIO_DTX_DN_1 | DE42 |
| CM50 | QPIO_DRX_DN_5 | | |
| | | QPIO_DTX_DP_2 | DE41 |
| CL53 | QPIO_DRX_DP_6 | QPIO_DTX_DN_2 | DE41 |
| CN53 | QPIO_DRX_DN_6 | | |
| | | QPIO_DTX_DP_3 | DE43 |
| CT50 | QPIO_DRX_DP_7 | QPIO_DTX_DN_3 | DE43 |
| CV50 | QPIO_DRX_DN_7 | | |
| | | QPIO_DTX_DP_4 | DE44 |
| CR53 | QPIO_DRX_DP_8 | QPIO_DTX_DN_4 | DE44 |
| CU53 | QPIO_DRX_DN_8 | | |
| | | QPIO_DTX_DP_5 | DE42 |
| CP54 | QPIO_DRX_DP_9 | QPIO_DTX_DN_5 | DE42 |
| CT54 | QPIO_DRX_DN_9 | | |
| | | QPIO_DTX_DP_6 | DE45 |
| CU56 | QPIO_DRX_DP_10 | QPIO_DTX_DN_6 | DE45 |
| CR56 | QPIO_DRX_DN_10 | | |
| | | QPIO_DTX_DP_7 | DE46 |
| CV56 | QPIO_DRX_DP_11 | QPIO_DTX_DN_7 | DE46 |
| CT56 | QPIO_DRX_DN_11 | | |
| | | QPIO_DTX_DP_8 | DE43 |
| CU53 | QPIO_DRX_DP_12 | QPIO_DTX_DN_8 | DE43 |
| CR53 | QPIO_DRX_DN_12 | | |
| | | QPIO_DTX_DP_9 | DE47 |
| CT58 | QPIO_DRX_DP_13 | QPIO_DTX_DN_9 | DE47 |
| CP58 | QPIO_DRX_DN_13 | | |
| | | QPIO_DTX_DP_10 | DE48 |
| CM56 | QPIO_DRX_DP_14 | QPIO_DTX_DN_10 | DE48 |
| CK56 | QPIO_DRX_DN_14 | | |
| | | QPIO_DTX_DP_11 | DE45 |
| CJ56 | QPIO_DRX_DP_15 | QPIO_DTX_DN_11 | DE45 |
| CL56 | QPIO_DRX_DN_15 | | |
| | | QPIO_DTX_DP_12 | DE49 |
| CD54 | QPIO_DRX_DP_16 | QPIO_DTX_DN_12 | DE49 |
| CF54 | QPIO_DRX_DN_16 | | |
| | | QPIO_DTX_DP_13 | DE50 |
| CD56 | QPIO_DRX_DP_17 | QPIO_DTX_DN_13 | DE50 |
| CF56 | QPIO_DRX_DN_17 | | |
| | | QPIO_DTX_DP_14 | DE47 |
| CD56 | QPIO_DRX_DP_18 | QPIO_DTX_DN_14 | DE47 |
| CF56 | QPIO_DRX_DN_18 | | |
| | | QPIO_DTX_DP_15 | DE51 |
| CC56 | QPIO_DRX_DP_19 | QPIO_DTX_DN_15 | DE51 |
| CE56 | QPIO_DRX_DN_19 | | |
| | | QPIO_DTX_DP_16 | DE52 |
| | | QPIO_DTX_DN_16 | DE52 |
| | | QPIO_DTX_DP_17 | DE48 |
| | | QPIO_DTX_DN_17 | DE48 |
| | | QPIO_DTX_DP_18 | DE46 |
| | | QPIO_DTX_DN_18 | DE46 |
| | | QPIO_DTX_DP_19 | DE44 |
| | | QPIO_DTX_DN_19 | DE44 |

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| LGA2011-38 HASWELL E DES | | | | | |
|--------------------------|------|------------------|------------------|------|---------------|
| PA EXP A RXPO | N55 | PE2A, RX, DP, 0 | PE2A, TX, DP, 0 | AR49 | PA EXP A TXPO |
| PA EXP A RXNP | L56 | PE2A, RX, DN, 0 | PE2A, TX, DN, 0 | AN49 | PA EXP A TXNP |
| PA EXP A RXPI | V54 | PE2A, RX, DP, 1 | PE2A, TX, DP, 1 | AP50 | PA EXP A TXPI |
| PA EXP A RXNI | TS4 | PE2A, RX, DN, 1 | PE2A, TX, DN, 1 | AM50 | PA EXP A TXNI |
| PA EXP A RXPD | V56 | PE2A, RX, DP, 2 | PE2A, TX, DP, 2 | AR51 | PA EXP A TXPD |
| PA EXP A RXND | T56 | PE2A, RX, DN, 2 | PE2A, TX, DN, 2 | AN51 | PA EXP A TXND |
| PA EXP A RXPP | W55 | PE2A, RX, DP, 3 | PE2A, TX, DP, 3 | AP52 | PA EXP A TXPP |
| PA EXP A RXNP | US5 | PE2A, RX, DN, 3 | PE2A, TX, DN, 3 | AM52 | PA EXP A TXNP |
| PA EXP A RXPI | AD54 | PE2B, RX, DP, 4 | PE2B, TX, DP, 4 | AJ53 | PA EXP A TXPI |
| PA EXP A RXNI | AB54 | PE2B, RX, DN, 4 | PE2B, TX, DN, 4 | AK53 | PA EXP A TXNI |
| PA EXP A RXPD | AD56 | PE2B, RX, DP, 5 | PE2B, TX, DP, 5 | AK54 | PA EXP A TXPD |
| PA EXP A RXND | AB56 | PE2B, RX, DN, 5 | PE2B, TX, DN, 5 | AM54 | PA EXP A TXND |
| PA EXP A RXPP | AE55 | PE2B, RX, DP, 6 | PE2B, TX, DP, 6 | AN53 | PA EXP A TXPP |
| PA EXP A RXNP | AC56 | PE2B, RX, DN, 6 | PE2B, TX, DN, 6 | AM53 | PA EXP A TXNP |
| PA EXP A RXPI | AE57 | PE2B, RX, DP, 7 | PE2B, TX, DP, 7 | AT54 | PA EXP A TXPI |
| PA EXP A RXNI | AE57 | PE2B, RX, DN, 7 | PE2B, TX, DN, 7 | AP55 | PA EXP A TXNI |
| PA EXP A RXPD | AK56 | PE2C, RX, DP, 8 | PE2C, TX, DP, 8 | AV52 | PA EXP A TXPD |
| PA EXP A RXND | AH56 | PE2C, RX, DN, 8 | PE2C, TX, DN, 8 | AV52 | PA EXP A TXND |
| PA EXP A RXPP | AM58 | PE2C, RX, DP, 9 | PE2C, TX, DP, 9 | BA53 | PA EXP A TXPP |
| PA EXP A RXNP | AK58 | PE2C, RX, DN, 9 | PE2C, TX, DN, 9 | AW53 | PA EXP A TXNP |
| PA EXP A RXPI | AL57 | PE2C, RX, DP, 10 | PE2C, TX, DP, 10 | BR54 | PA EXP A TXPI |
| PA EXP A RXNI | AJ57 | PE2C, RX, DN, 10 | PE2C, TX, DN, 10 | AY54 | PA EXP A TXNI |
| PA EXP A RXPD | AL57 | PE2C, RX, DP, 11 | PE2C, TX, DP, 11 | BA51 | PA EXP A TXPD |
| PA EXP A RXND | AR57 | PE2C, RX, DN, 11 | PE2C, TX, DN, 11 | AW51 | PA EXP A TXND |
| PA EXP A RXPD | AV58 | PE2D, RX, DP, 12 | PE2D, TX, DP, 12 | AV50 | PA EXP A TXPD |
| PA EXP A RXND | AT58 | PE2D, RX, DN, 12 | PE2D, TX, DN, 12 | AV50 | PA EXP A TXND |
| PA EXP A RXPI | AT56 | PE2D, RX, DP, 13 | PE2D, TX, DP, 13 | BA49 | PA EXP A TXPI |
| PA EXP A RXNP | AP56 | PE2D, RX, DN, 13 | PE2D, TX, DN, 13 | AW49 | PA EXP A TXNP |
| PA EXP A RXPD | BA57 | PE2D, RX, DP, 14 | PE2D, TX, DP, 14 | AY48 | PA EXP A TXPD |
| PA EXP A RXND | AY58 | PE2D, RX, DN, 14 | PE2D, TX, DN, 14 | AW48 | PA EXP A TXND |
| PA EXP A RXPP | BB56 | PE2D, RX, DP, 15 | PE2D, TX, DP, 15 | BA47 | PA EXP A TXPP |
| PA EXP A RXNP | AY56 | PE2D, RX, DN, 15 | PE2D, TX, DN, 15 | AW47 | PA EXP A TXNP |

| | | | |
|----------------------|---|---------------------|------|
| PA_EXP_A_RXPI[0..15] | » | PA_EXP_A_RXP[0..15] | [20] |
| PA_EXP_A_RXNI[0..15] | » | PA_EXP_A_RXN[0..15] | [20] |
| PA_EXP_A_TXPI[0..15] | » | PA_EXP_A_TXP[0..15] | [20] |
| PA_EXP_A_TXNI[0..15] | » | PA_EXP_A_TXN[0..15] | [20] |

| | | LGA2011-3A | | HASWELL_E_DS | |
|------|---------------|------------|--------------|--------------|---------------|
| [23] | PG_EXP_C_RXP0 | F51 | PE1A_RX_DP_0 | | PE1A_TX_DP_0 |
| [23] | PG_EXP_C_RXN0 | C51 | PE1A_RX_DN_0 | | PE1A_TX_DP_N0 |
| [23] | PG_EXP_C_RXP1 | F52 | PE1A_RX_DP_1 | | PE1A_TX_DP_1 |
| [23] | PG_EXP_C_RXN1 | D52 | PE1A_RX_DN_1 | | PE1A_TX_DP_N1 |
| [23] | PG_EXP_C_RXP2 | F54 | PE1A_RX_DP_2 | | PE1A_TX_DP_2 |
| [23] | PG_EXP_C_RXN2 | D54 | PE1A_RX_DN_2 | | PE1A_TX_DP_N2 |
| [23] | PG_EXP_C_RXP3 | G55 | PE1A_RX_DP_3 | | PE1A_TX_DP_3 |
| [23] | PG_EXP_C_RXN3 | E55 | PE1A_RX_DN_3 | | PE1A_TX_DP_N3 |
| [23] | PG_EXP_C_RXP4 | I53 | PE1B_RX_DP_4 | | PE1B_TX_DP_4 |
| [23] | PG_EXP_C_RXN4 | J53 | PE1B_RX_DN_4 | | PE1B_TX_DP_N4 |
| [23] | PG_EXP_C_RXP5 | M54 | PE1B_RX_DP_5 | | PE1B_TX_DP_5 |
| [23] | PG_EXP_C_RXN5 | K54 | PE1B_RX_DN_5 | | PE1B_TX_DP_N5 |
| [23] | PG_EXP_C_RXP6 | I57 | PE1B_RX_DP_6 | | PE1B_TX_DP_6 |
| [23] | PG_EXP_C_RXN6 | J57 | PE1B_RX_DN_6 | | PE1B_TX_DP_N6 |
| [23] | PG_EXP_C_RXP7 | M56 | PE1B_RX_DP_7 | | PE1B_TX_DP_7 |
| [23] | PG_EXP_C_RXN7 | K56 | PE1B_RX_DN_7 | | PE1B_TX_DP_N7 |

| | LGA2011-3D | HASWELL_E_FDS |
|----------------------------------|--------------|---------------|
| [13] A_DMI_0TXP < A_DMI_0TXP E45 | DMI_TX_DP_0 | DML_RX_DP_0 |
| [13] A_DMI_0TXN < A_DMI_0TXN C45 | DMI_TX_DP_n | DML_RX_DP_n |
| [13] A_DMI_1TXP < A_DMI_1TXP B44 | DMI_TX_DP_1 | DML_RX_DP_1 |
| [13] A_DMI_1TXN < A_DMI_1TXN D44 | DMI_TX_DP_n1 | DML_RX_DP_n1 |
| [13] A_DMI_2TXP < A_DMI_2TXP E43 | DMI_TX_DP_2 | DML_RX_DP_2 |
| [13] A_DMI_2TXN < A_DMI_2TXN D43 | DMI_TX_DP_n2 | DML_RX_DP_n2 |
| [13] A_DMI_3TXP < A_DMI_3TXP D42 | DMI_TX_DP_3 | DML_RX_DP_3 |
| [13] A_DMI_3TXN < A_DMI_3TXN B42 | DMI_TX_DP_n3 | DML_RX_DP_n3 |
| | | BCLK0 |
| | | BCLK1_K0 |
| | | BCLK1_K1 |
| | | BCLK1_K2 |

| LG2011-30+SWELL E, FDS | | | | | |
|------------------------|------|--------------|--------------|------|----------------|
| PB EXP B RX10 | AH44 | PE3A, RX, DP | PE3A, TX, DP | K50 | PB EXP B TX10 |
| PB EXP B RX20 | AE44 | PE3A, RX, DN | PE3A, TX, DN | H50 | PB EXP B TX20 |
| PB EXP B RX11 | AJ45 | PE3A, RX, DP | | L51 | PB EXP B TX11 |
| PB EXP B RX21 | AG45 | PE3A, RX, DN | PE3A, TX, DN | J51 | PB EXP B TX21 |
| PB EXP B RX12 | AH46 | PE3A, RX, DP | | L47 | PB EXP B TX12 |
| PB EXP B RX22 | AE46 | PE3A, RX, DN | PE3A, TX, DN | R47 | PB EXP B TX22 |
| PB EXP B RX13 | AC49 | PE3A, RX, DP | | T48 | PB EXP B TX13 |
| PB EXP B RX23 | AE49 | PE3A, RX, DN | PE3A, TX, DN | P48 | PB EXP B TX23 |
| PB EXP B RX14 | AB50 | PE3B, RX, DP | PE3B, TX, DP | T52 | PB EXP B TX14 |
| PB EXP B RX24 | YS50 | PE3B, RX, DN | PE3B, TX, DN | P52 | PB EXP B TX24 |
| PB EXP B RX15 | AB52 | PE3B, RX, DP | | U51 | PB EXP B TX15 |
| PB EXP B RX25 | YS52 | PE3B, RX, DN | PE3B, TX, DN | R51 | PB EXP B TX25 |
| PB EXP B RX16 | AC53 | PE3B, RX, DP | | T50 | PB EXP B TX16 |
| PB EXP B RX26 | AS53 | PE3B, RX, DN | PE3B, TX, DN | P50 | PB EXP B TX26 |
| PB EXP B RX17 | AC51 | PE3B, RX, DP | | U49 | PB EXP B TX17 |
| PB EXP B RX27 | AS51 | PE3B, RX, DN | PE3B, TX, DN | R49 | PB EXP B TX27 |
| PB EXP B RX18 | AH48 | PE3C, RX, DP | PE3C, TX, DP | T46 | PB EXP B TX18 |
| PB EXP B RX28 | AE48 | PE3C, RX, DN | PE3C, TX, DN | P46 | PB EXP B TX28 |
| PB EXP B RX19 | AJ51 | PE3C, RX, DP | | U45 | PB EXP B TX19 |
| PB EXP B RX29 | AG51 | PE3C, RX, DN | PE3C, TX, DN | R45 | PB EXP B TX29 |
| PB EXP B RX101 | AH50 | PE3C, RX, DP | | AC47 | PB EXP B TX101 |
| PB EXP B RX110 | AF50 | PE3C, RX, DN | PE3C, TX, DN | AA47 | PB EXP B TX110 |
| PB EXP B RX111 | AJ49 | PE3C, RX, DP | | AB46 | PB EXP B TX111 |
| PB EXP B RX111 | AG49 | PE3C, RX, DN | PE3C, TX, DN | Y46 | PB EXP B TX111 |
| PB EXP B RX112 | AJ47 | PE3D, RX, DP | PE3D, TX, DP | AC45 | PB EXP B TX112 |
| PB EXP B RX12 | AG47 | PE3D, RX, DN | PE3D, TX, DN | AA45 | PB EXP B TX112 |
| PB EXP B RX113 | AR47 | PE3D, RX, DP | PE3D, TX, DP | AB44 | PB EXP B TX113 |
| PB EXP B RX113 | AN47 | PE3D, RX, DN | PE3D, TX, DN | Y44 | PB EXP B TX113 |
| PB EXP B RX114 | AP46 | PE3D, RX, DP | PE3D, TX, DP | AA43 | PB EXP B TX114 |
| PB EXP B RX14 | AM46 | PE3D, RX, DN | PE3D, TX, DN | AC43 | PB EXP B TX114 |
| PB EXP B RX115 | AR45 | PE3D, RX, DP | PE3D, TX, DP | P44 | PB EXP B TX115 |
| PB EXP B RX15 | AN45 | PE3D, RX, DN | PE3D, TX, DN | T44 | PB EXP B TX115 |

| | | | |
|----------------------|----------------------------|---------------------------|---------------------------|
| <u>PB_RXP[8..15]</u> | → PB_EXP_B_RXP[8..15] [21] | <u>PB_EXP_B_RXP[0..7]</u> | → PB_EXP_B_RXP[0..7] [22] |
| <u>RXN[8..15]</u> | → PB_EXP_B_RXN[8..15] [21] | <u>PB_EXP_B_RXN[0..7]</u> | → PB_EXP_B_RXN[0..7] [22] |
| <u>B_TXP[8..15]</u> | → PB_EXP_B_TXP[8..15] [21] | <u>PB_EXP_B_TXP[0..7]</u> | → PB_EXP_B_TXP[0..7] [22] |
| <u>B_TXN[8..15]</u> | → PB_EXP_B_TXN[8..15] [21] | <u>PB_EXP_B_TXN[0..7]</u> | → PB_EXP_B_TXN[0..7] [22] |

PCIEX16:18/5/7/5/18(breakout min 10/4/4/4/10) 外層
Impedance=85 +- 17.5%

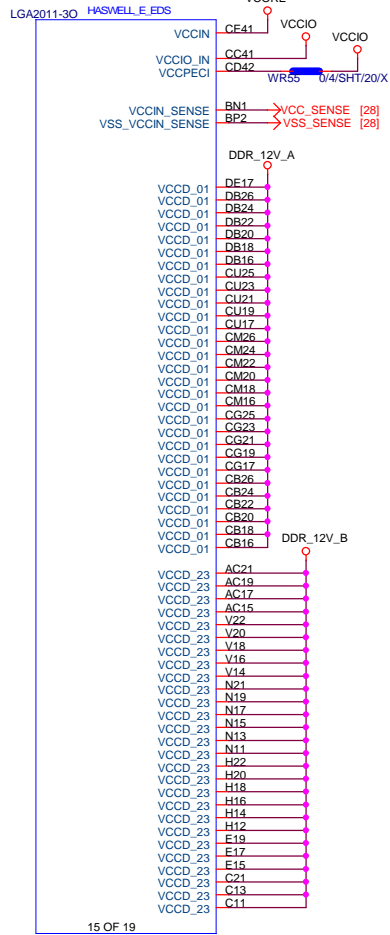
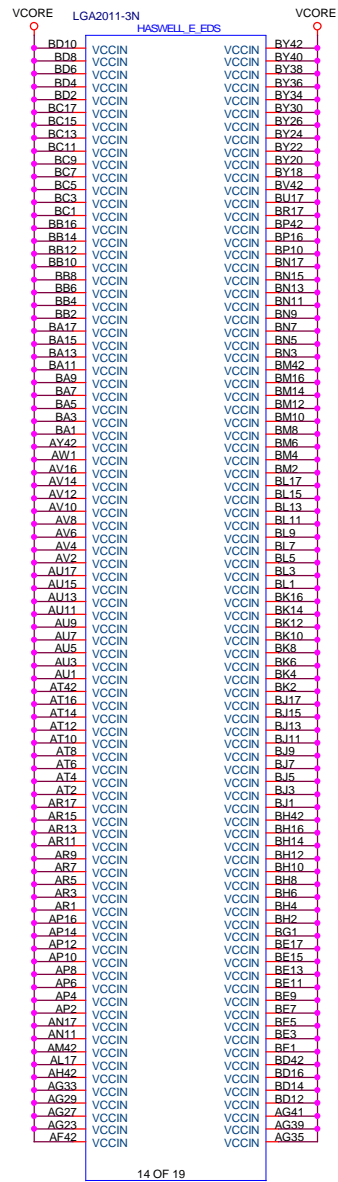
PCIEX16:20/5/6.5/5/20(breakout min 10/4/4/4/10) 內層
Impedance=85 +- 12%

| | | | |
|---|-----------|-------------|------|
| 0 | D_M1_0RXP | A_D_M1_0RXP | [13] |
| 0 | D_M1_0RXN | A_D_M1_0RXN | [13] |
| 1 | D_M1_1RXP | A_D_M1_1RXP | [13] |
| 9 | D_M1_1RXN | A_D_M1_1RXN | [13] |
| 8 | D_M1_2RXP | A_D_M1_2RXP | [13] |
| 8 | D_M1_2RXN | A_D_M1_2RXN | [13] |
| 7 | D_M1_3RXP | A_D_M1_3RXP | [13] |
| 7 | D_M1_3RXN | A_D_M1_3RXN | [13] |

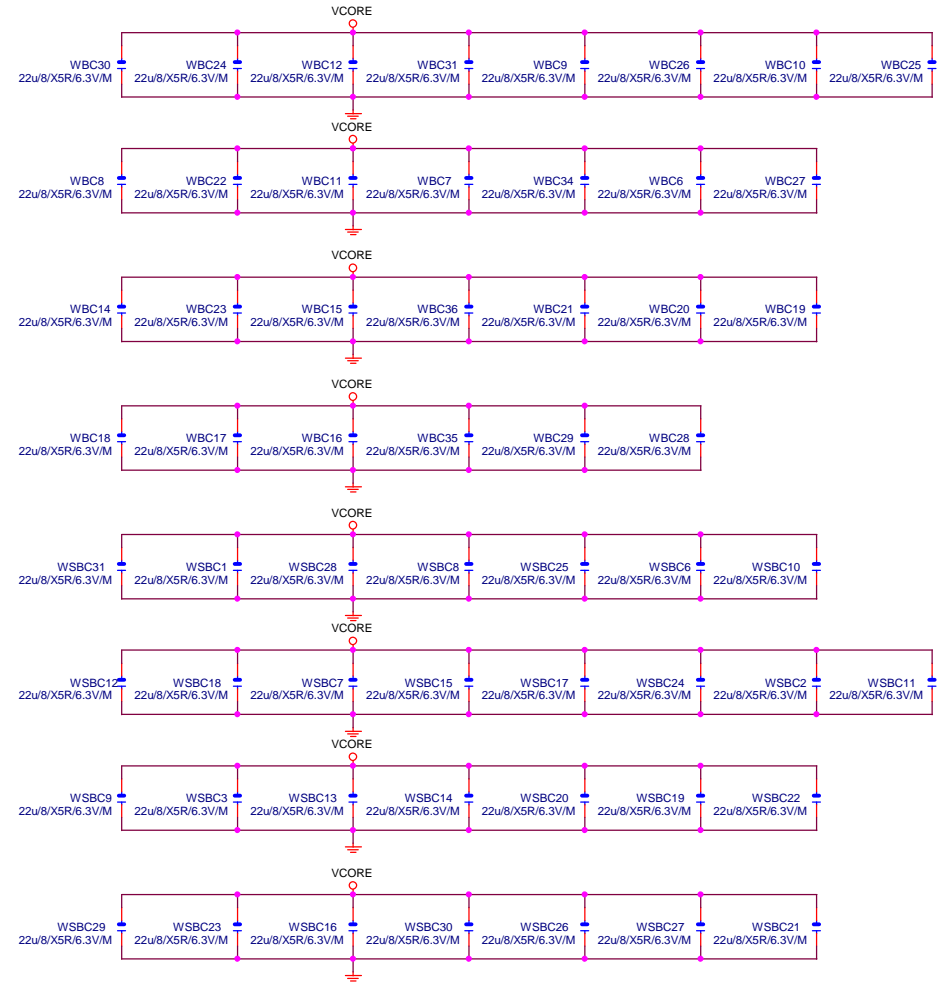
| | | |
|-----|-------------|------|
| [41 | N_CPU_BCLK0 | [40] |
| 41 | N_CPU_BCLK0 | [40] |
| [45 | N_CPU_BCLK1 | [40] |
| 45 | N_CPU_BCLK1 | [40] |

DMI:12/4/4/4/12(breakout min 10/4/4/4/10) 外層
Impedance=85 +- 15%

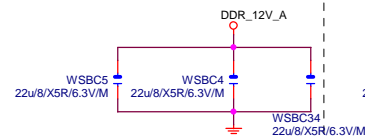
DMI:12/4/4/4/12(breakout min 10/4/4/4/10) 内層
Impedance=85 +- 15%



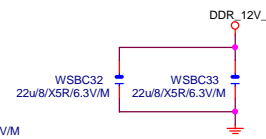
VCORE



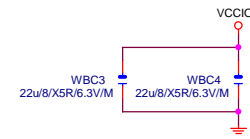
DDR_12V_A



DDR_12V_B



VCCIO



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| | | | | |
|--------|--|--|-------------------------|---------------|
| Title | | | CPU LGA2011-C | |
| Size | | | Document Number | |
| Custom | | | GA-X99-UD3 | |
| Date: | | | Monday, August 25, 2014 | Sheet 9 of 58 |

LGA2011-3P

HASWELL_E_EDS

| | | |
|------|-----|--------|
| CB56 | VSS | AY12 |
| CB54 | VSS | CB52 |
| CB4 | VSS | CB50 |
| CB6 | VSS | CB48 |
| CB4 | VSS | CB46 |
| CC49 | VSS | CB44 |
| CC47 | VSS | CB42 |
| CC45 | VSS | CB40 |
| CC43 | VSS | CB38 |
| CC41 | VSS | CB36 |
| CC3 | VSS | CB34 |
| CC7 | VSS | CB30 |
| CC5 | VSS | CB28 |
| CC3 | VSS | CB26 |
| BB58 | VSS | CB24 |
| BB50 | VSS | CB22 |
| AY44 | VSS | CB20 |
| AY16 | VSS | CB18 |
| AY14 | VSS | CB16 |
| CG45 | VSS | CB14 |
| CG43 | VSS | CB12 |
| CG39 | VSS | CB10 |
| CG37 | VSS | CB8 |
| CG35 | VSS | CB6 |
| CG33 | VSS | CB4 |
| CG31 | VSS | CB2 |
| CG29 | VSS | CB0 |
| CG27 | VSS | CB-2 |
| CG7 | VSS | CB-4 |
| CG5 | VSS | CB-6 |
| CF32 | VSS | CB-8 |
| CF28 | VSS | CB-10 |
| CF12 | VSS | CB-12 |
| CF10 | VSS | CB-14 |
| CE45 | VSS | CB-16 |
| CE43 | VSS | CB-18 |
| CE33 | VSS | CB-20 |
| CE15 | VSS | CB-22 |
| CE7 | VSS | CB-24 |
| CD40 | VSS | CB-26 |
| CD12 | VSS | CB-28 |
| BB46 | VSS | CB-30 |
| BB42 | VSS | CB-32 |
| BU10 | VSS | CB-34 |
| BU51 | VSS | CB-36 |
| BU47 | VSS | CB-38 |
| BU45 | VSS | CB-40 |
| BU5 | VSS | CB-42 |
| BU3 | VSS | CB-44 |
| BT56 | VSS | CB-46 |
| BT54 | VSS | CB-48 |
| BT52 | VSS | CB-50 |
| BT50 | VSS | CB-52 |
| BT48 | VSS | CB-54 |
| BT46 | VSS | CB-56 |
| BT42 | VSS | CB-58 |
| BT16 | VSS | CB-60 |
| BT10 | VSS | CB-62 |
| BR57 | VSS | CB-64 |
| BR55 | VSS | CB-66 |
| BR53 | VSS | CB-68 |
| BR15 | VSS | CB-70 |
| BR13 | VSS | CB-72 |
| BR11 | VSS | CB-74 |
| BR9 | VSS | CB-76 |
| BR7 | VSS | CB-78 |
| BR5 | VSS | CB-80 |
| BR3 | VSS | CB-82 |
| BR1 | VSS | CB-84 |
| BP58 | VSS | CB-86 |
| BP14 | VSS | CB-88 |
| BP12 | VSS | CB-90 |
| BP8 | VSS | CB-92 |
| BP6 | VSS | CB-94 |
| BP4 | VSS | CB-96 |
| BN67 | VSS | CB-98 |
| BN43 | VSS | CB-100 |
| BL57 | VSS | CB-102 |
| BL49 | VSS | CB-104 |
| BL45 | VSS | CB-106 |
| BK54 | VSS | CB-108 |
| BK52 | VSS | CB-110 |

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LGA2011-3Q

HASWELL_E_EDS

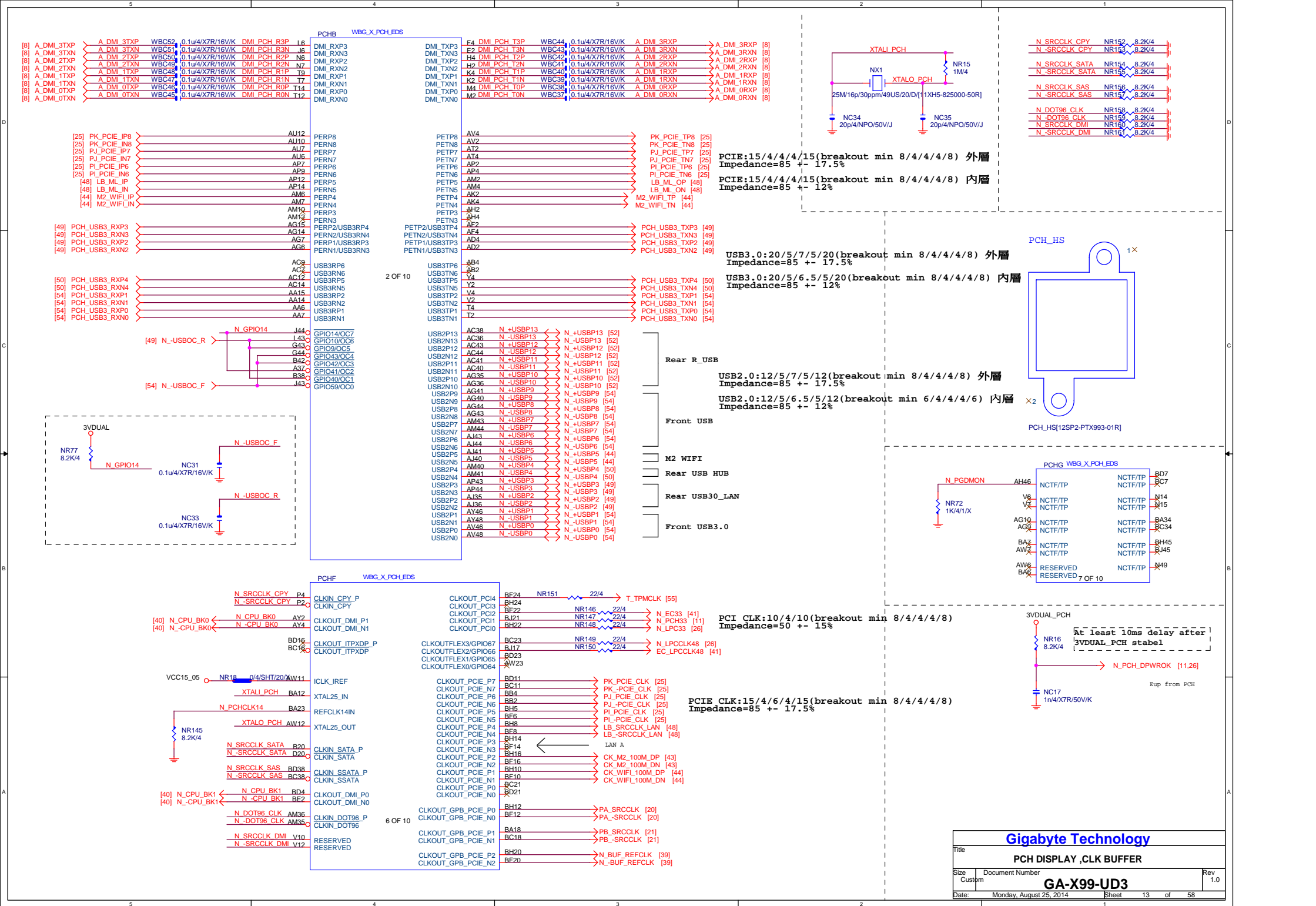
| | | |
|-----|-----|--------|
| AW7 | VSS | AT46 |
| AW5 | VSS | AT44 |
| AW3 | VSS | AT42 |
| AW1 | VSS | AT40 |
| AW5 | VSS | AT38 |
| AW3 | VSS | AT36 |
| AW1 | VSS | AT34 |
| AW5 | VSS | AT32 |
| AW3 | VSS | AT30 |
| AW1 | VSS | AT28 |
| AW5 | VSS | AT26 |
| AW3 | VSS | AT24 |
| AW1 | VSS | AT22 |
| AW5 | VSS | AT20 |
| AW3 | VSS | AT18 |
| AW1 | VSS | AT16 |
| AW5 | VSS | AT14 |
| AW3 | VSS | AT12 |
| AW1 | VSS | AT10 |
| AW5 | VSS | AT8 |
| AW3 | VSS | AT6 |
| AW1 | VSS | AT4 |
| AW5 | VSS | AT2 |
| AW3 | VSS | AT0 |
| AW1 | VSS | AT-2 |
| AW5 | VSS | AT-4 |
| AW3 | VSS | AT-6 |
| AW1 | VSS | AT-8 |
| AW5 | VSS | AT-10 |
| AW3 | VSS | AT-12 |
| AW1 | VSS | AT-14 |
| AW5 | VSS | AT-16 |
| AW3 | VSS | AT-18 |
| AW1 | VSS | AT-20 |
| AW5 | VSS | AT-22 |
| AW3 | VSS | AT-24 |
| AW1 | VSS | AT-26 |
| AW5 | VSS | AT-28 |
| AW3 | VSS | AT-30 |
| AW1 | VSS | AT-32 |
| AW5 | VSS | AT-34 |
| AW3 | VSS | AT-36 |
| AW1 | VSS | AT-38 |
| AW5 | VSS | AT-40 |
| AW3 | VSS | AT-42 |
| AW1 | VSS | AT-44 |
| AW5 | VSS | AT-46 |
| AW3 | VSS | AT-48 |
| AW1 | VSS | AT-50 |
| AW5 | VSS | AT-52 |
| AW3 | VSS | AT-54 |
| AW1 | VSS | AT-56 |
| AW5 | VSS | AT-58 |
| AW3 | VSS | AT-60 |
| AW1 | VSS | AT-62 |
| AW5 | VSS | AT-64 |
| AW3 | VSS | AT-66 |
| AW1 | VSS | AT-68 |
| AW5 | VSS | AT-70 |
| AW3 | VSS | AT-72 |
| AW1 | VSS | AT-74 |
| AW5 | VSS | AT-76 |
| AW3 | VSS | AT-78 |
| AW1 | VSS | AT-80 |
| AW5 | VSS | AT-82 |
| AW3 | VSS | AT-84 |
| AW1 | VSS | AT-86 |
| AW5 | VSS | AT-88 |
| AW3 | VSS | AT-90 |
| AW1 | VSS | AT-92 |
| AW5 | VSS | AT-94 |
| AW3 | VSS | AT-96 |
| AW1 | VSS | AT-98 |
| AW5 | VSS | AT-100 |
| AW3 | VSS | AT-102 |
| AW1 | VSS | AT-104 |
| AW5 | VSS | AT-106 |
| AW3 | VSS | AT-108 |
| AW1 | VSS | AT-110 |

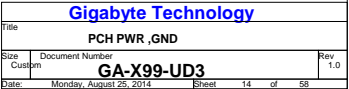
17 OF 19

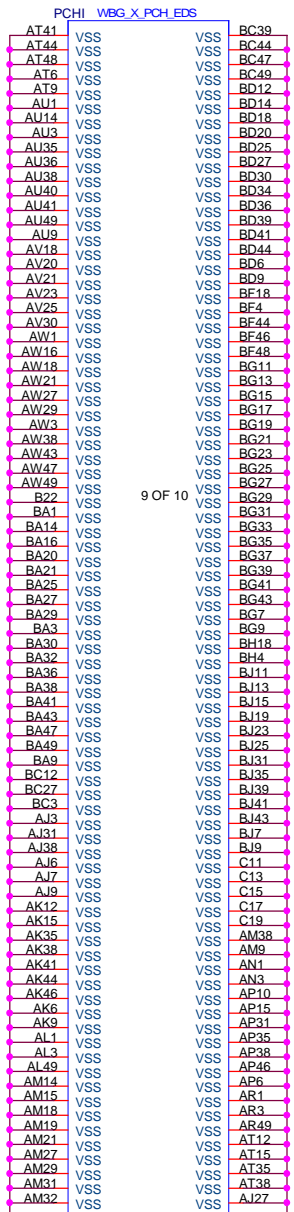
LGA2011-3R

HASWELL_E_EDS

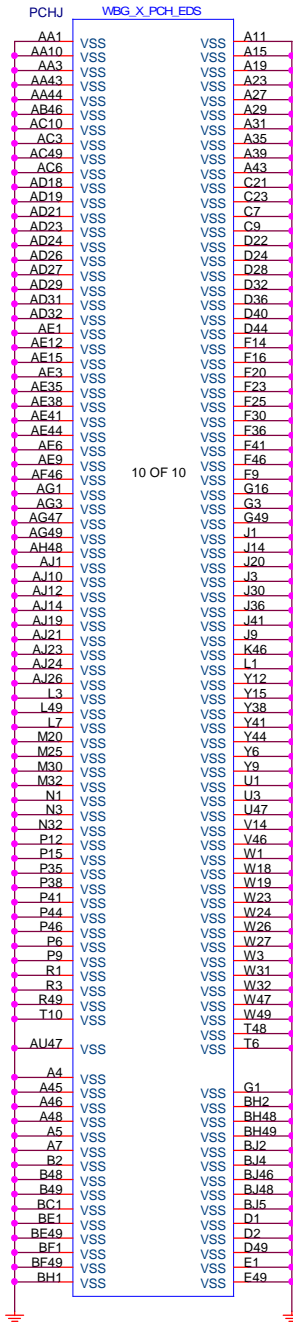
| | | |
|------|-----|-------|
| DA9 | VSS | DA3 |
| DA0 | VSS | DA2 |
| DB34 | VSS | CV50 |
| DB12 | VSS | CV48 |
| DB6 | VSS | CV46 |
| DA55 | VSS | CV44 |
| DA53 | VSS | CV42 |
| DA51 | VSS | CV38 |
| DA49 | VSS | CV36 |
| DA47 | VSS | CV34 |
| DA45 | VSS | CV30 |
| DA43 | VSS | CV12 |
| DA41 | VSS | CV10 |
| DA35 | VSS | CV8 |
| P24 | VSS | CV4 |
| P10 | VSS | CV2 |
| N49 | VSS | CW157 |
| N47 | VSS | CW155 |
| N45 | VSS | CW153 |
| DF52 | VSS | CW139 |
| DF50 | VSS | CW137 |
| DF48 | VSS | CW135 |
| DF46 | VSS | CW133 |
| DF44 | VSS | CW131 |
| DF42 | VSS | CW129 |
| DF40 | VSS | CW127 |
| DF12 | VSS | CW115 |
| DF8 | VSS | CW17 |
| DE35 | VSS | CW15 |
| DE15 | VSS | CW1 |
| DE7 | VSS | CV58 |
| DD40 | VSS | CV54 |
| DD38 | VSS | CV40 |
| DD34 | VSS | CV32 |
| DD12 | VSS | CV28 |
| DD10 | VSS | CV12 |
| DD6 | VSS | CV6 |
| DD55 | VSS | CU133 |
| DC53 | VSS | CU115 |
| DC5 | VSS | CU7 |
| DB58 | VSS | CU1 |
| NS3 | VSS | CT40 |
| NS1 | VSS | CT12 |
| CR49 | VSS | CT2 |
| CR47 | VSS | CM28 |
| CR45 | VSS | CM10 |
| CR41 | VSS | CM8 |
| CR33 | VSS | CM6 |
| CR9 | VSS | CL15 |
| CR7 | VSS | CL11 |
| CP56 | VSS | CL9 |
| CP50 | VSS | CL7 |
| CP48 | VSS | CK54 |
| CP46 | VSS | CK52 |
| CP44 | VSS | CK40 |
| CP42 | VSS | CK12 |
| CP38 | VSS | CK4 |
| CP36 | VSS | CL51 |
| CP34 | VSS | CL49 |
| CP30 | VSS | CL47 |
| CP14 | VSS | CL45 |
| CP12 | VSS | CL43 |
| CP4 | VSS | CL41 |
| CN57 | VSS | CL33 |
| CN55 | VSS | CL115 |
| CN53 | VSS | CL7 |
| CN39 | VSS | CH3 |
| CN37 | VSS | CH5 |
| CN35 | VSS | CH54 |
| CN33 | VSS | CH52 |
| CN31 | VSS | CH50 |
| CN29 | VSS | CH48 |
| CN27 | VSS | CH46 |
| CN13 | VSS | CH44 |
| CN11 | VSS | CH42 |
| CN7 | VSS | CH40 |
| CN5 | VSS | CH38 |
| CN3 | VSS | CH36 |
| CM54 | VSS | CH34 |
| CM52 | VSS | CH30 |
| CM40 | VSS | CH12 |
| CM32 | VSS | CS53 |







L1117LG/N/SOT223/1A

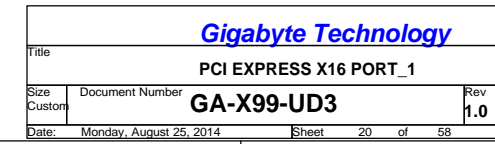


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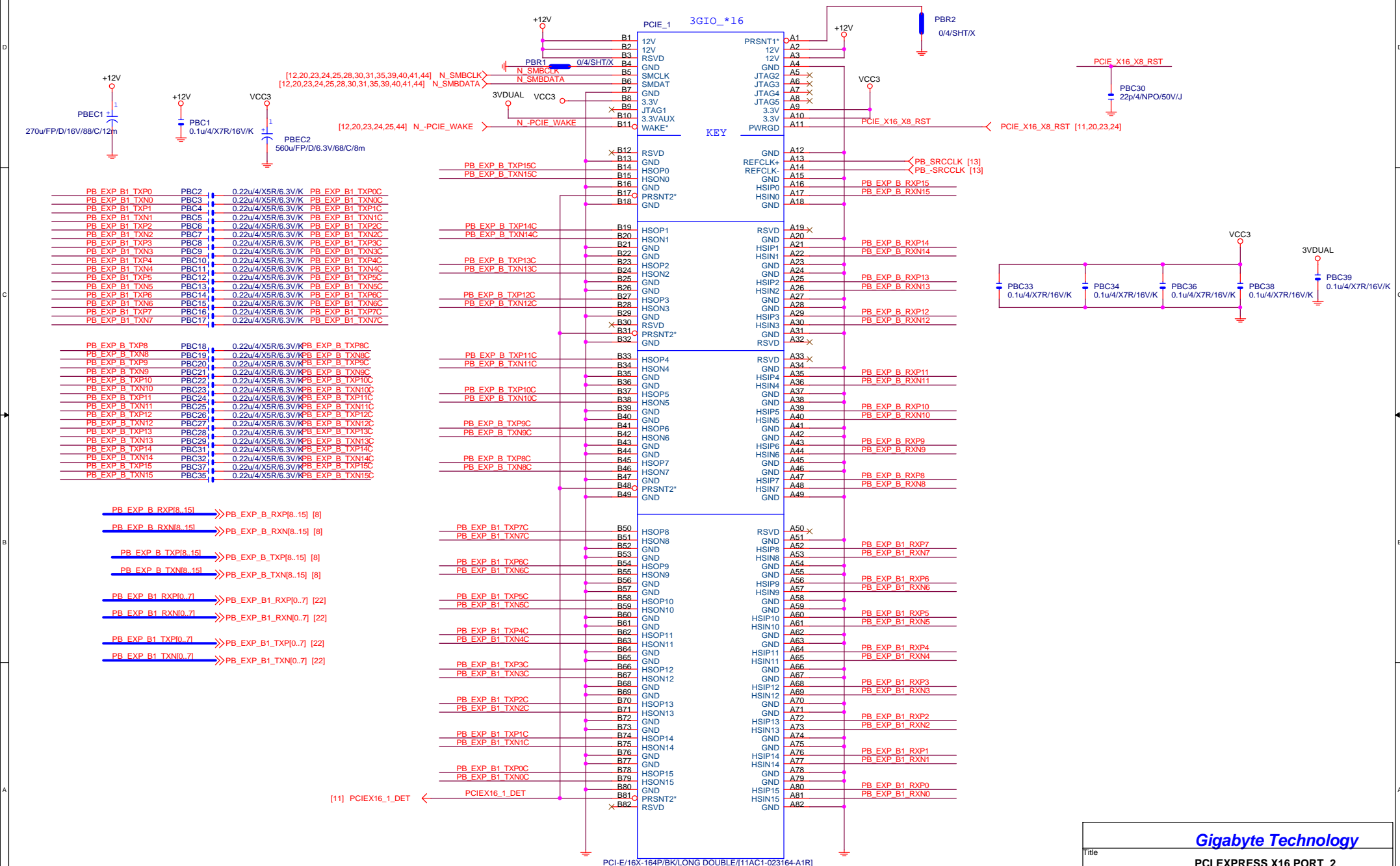
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| Title | | | |
| PCH PWR ,GND | | | |
| Size | Document Number | | Rev |
| Custom | GA-X99-UD3 | | 1.0 |
| Date: | Monday, August 25, 2014 | Sheet | 15 of 58 |

| | | | |
|----------------------------|-------------------|--|------------|
| <i>Gigabyte Technology</i> | | | |
| Title | | | |
| DDRIII CHANNEL A/B | | | |
| Size | Document Number | | Rev |
| Custom | GA-X99-UD3 | | 1.0 |
| Date: | Sheet 17 of 58 | | |

PCIE_2 3GIO_*16

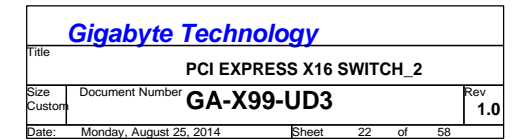
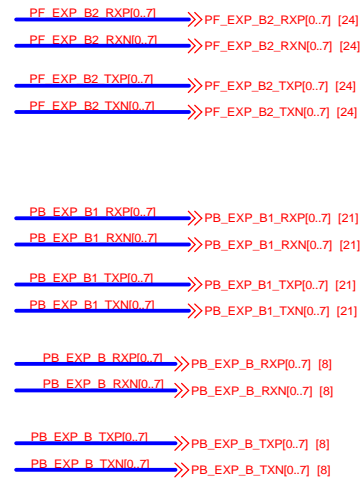


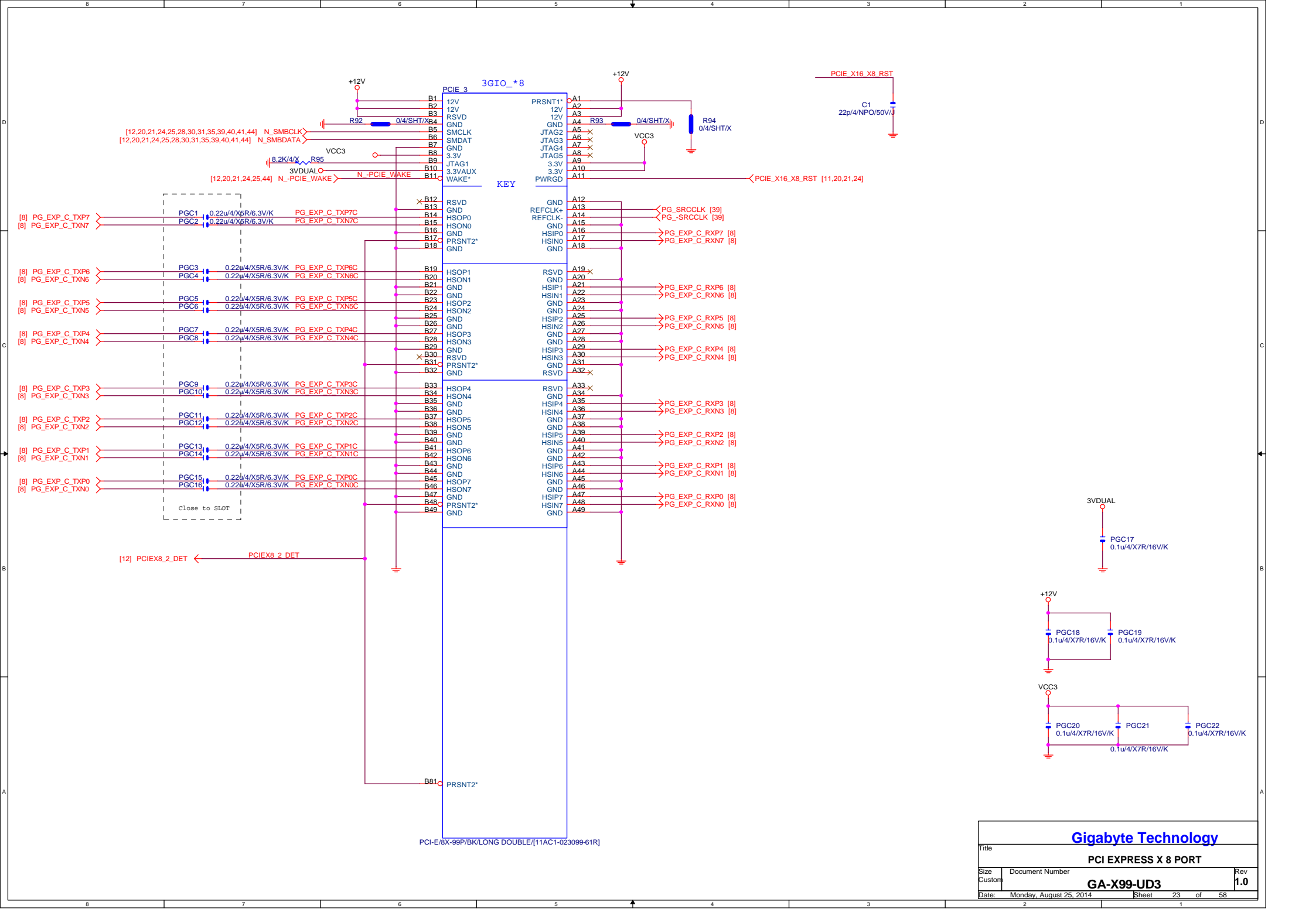
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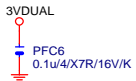
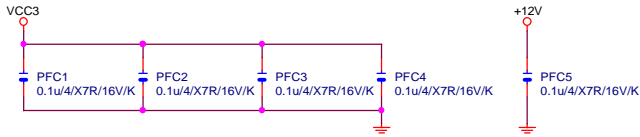


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| | | | | | |
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| Title | | | | PCI EXPRESS X16 PORT_2 | |
| Size | | | | GA-X99-UD3 | |
| Date: | | | | Monday, August 25, 2014 | Sheet 21 of 58 |
| Rev | | | | 1.0 | |







[12,20,21,23,25,28,30,31,35,39,40,41,44] N_SMBCLK
[12,20,21,23,25,28,30,31,35,39,40,41,44] N_SMBDATA

[12,20,21,23,25,44] N_-PCIE_WAKE

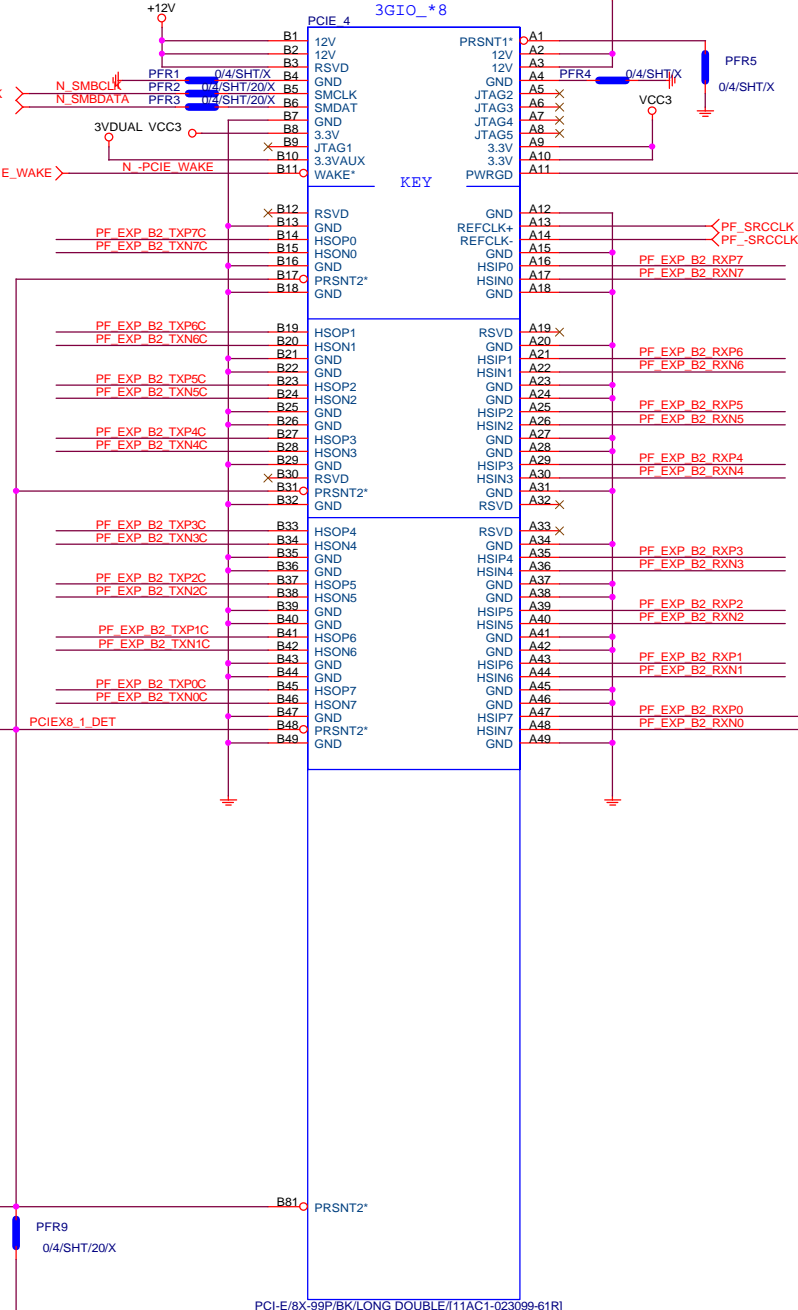
PF_EXP_B2_TXP0.7I >> PF_EXP_B2_TXP[0..7] [22]
PF_EXP_B2_TXN0.7I >> PF_EXP_B2_TXN[0..7] [22]

| | | | |
|----------------|-------|--------------------|-----------------|
| PF_EXP_B2_TXP0 | PFC7 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP0C |
| PF_EXP_B2_TXN0 | PFC8 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN0C |
| PF_EXP_B2_TXP1 | PFC9 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP1C |
| PF_EXP_B2_TXN1 | PFC10 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN1C |
| PF_EXP_B2_TXP2 | PFC11 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP2C |
| PF_EXP_B2_TXN2 | PFC12 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN2C |
| PF_EXP_B2_TXP3 | PFC13 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP3C |
| PF_EXP_B2_TXN3 | PFC14 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN3C |
| PF_EXP_B2_TXP4 | PFC15 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP4C |
| PF_EXP_B2_TXN4 | PFC16 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN4C |
| PF_EXP_B2_TXP5 | PFC17 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP5C |
| PF_EXP_B2_TXN5 | PFC18 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN5C |
| PF_EXP_B2_TXP6 | PFC19 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP6C |
| PF_EXP_B2_TXN6 | PFC20 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN6C |
| PF_EXP_B2_TXP7 | PFC21 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXP7C |
| PF_EXP_B2_TXN7 | PFC22 | 0.22u/4/X5R/6.3V/K | PF_EXP_B2_TXN7C |

[11] PCIE_X8_1_DET

[22] PE_16_8_SWB

SEC_2x8_B [26]



PCIE_X16_X8_RST < PCIE_X16_X8_RST [11,20,21,23]

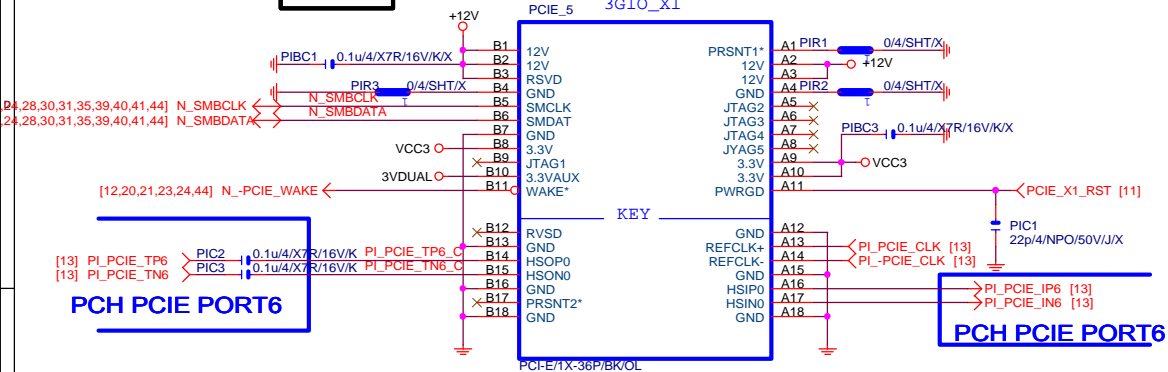
PF_EXP_B2_RXP[0..7] >> PF_EXP_B2_RXP[0..7] [22]
PF_EXP_B2_RXN[0..7] >> PF_EXP_B2_RXN[0..7] [22]

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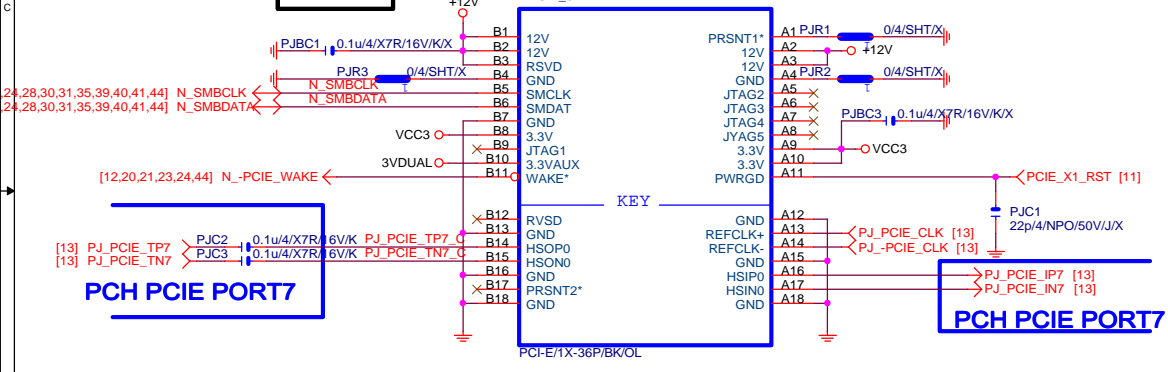
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| Title | | | PCI EXPRESS X8_2 | |
| Size | | Document Number | GA-X99-UD3 | Rev 1.0 |
| Date: | | Monday, August 25, 2014 | Sheet 24 | of 58 |

PCIEX1 SLOT

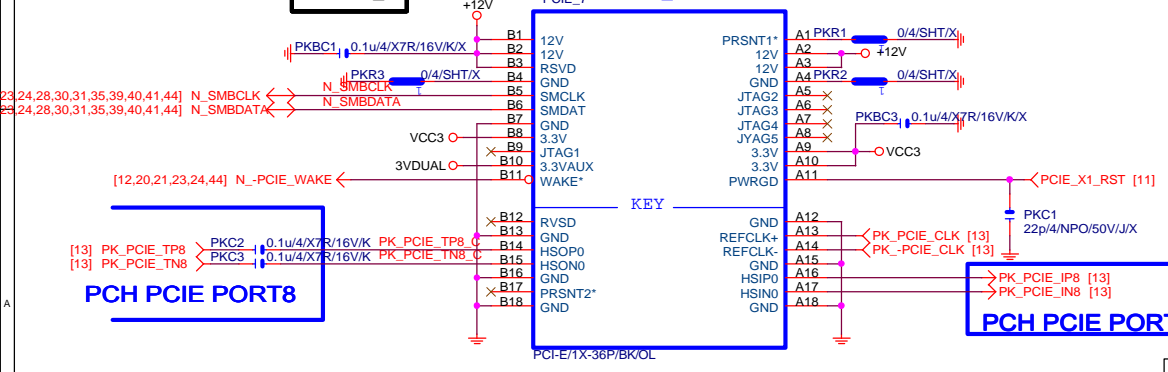
PCIEX1_1



PCIEX1_2

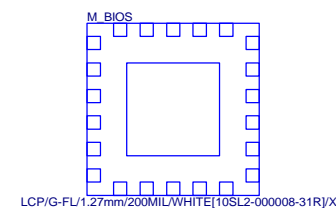
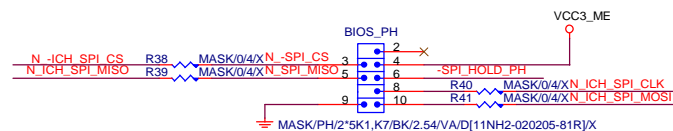


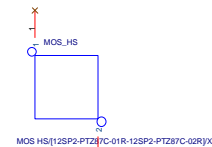
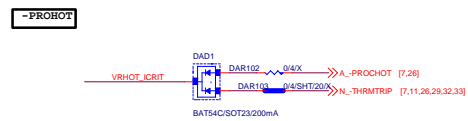
PCIEX1_3

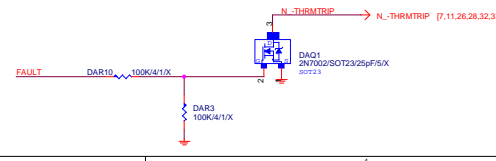
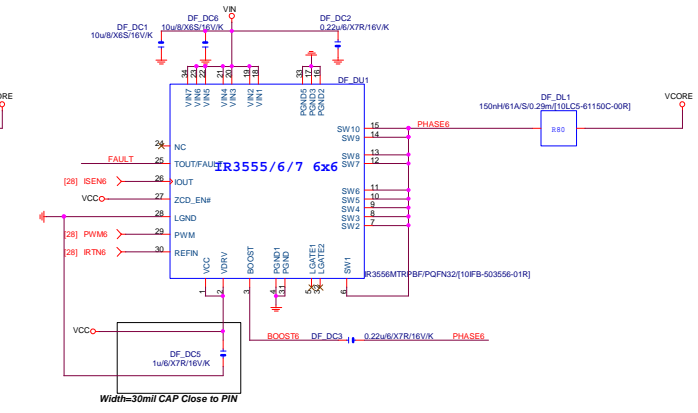
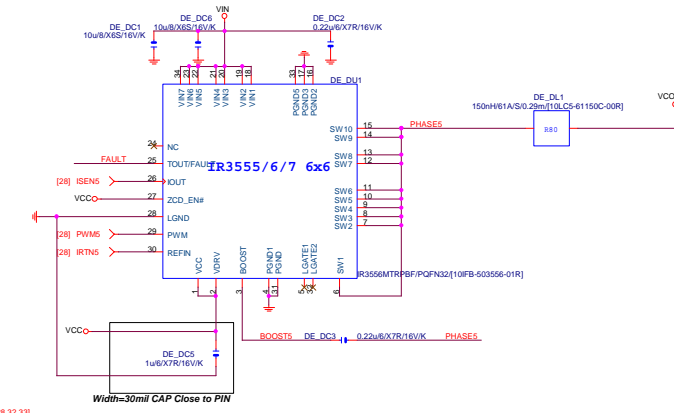
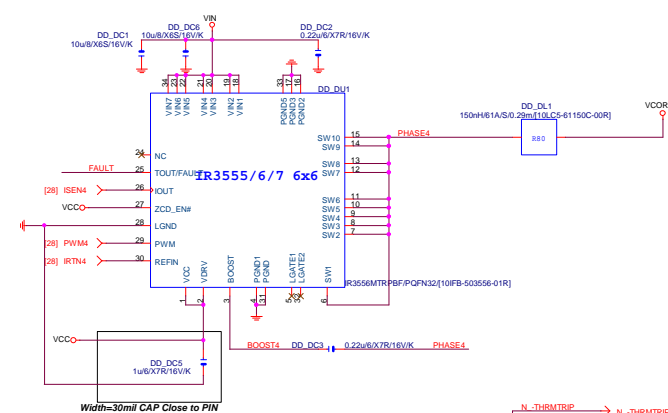
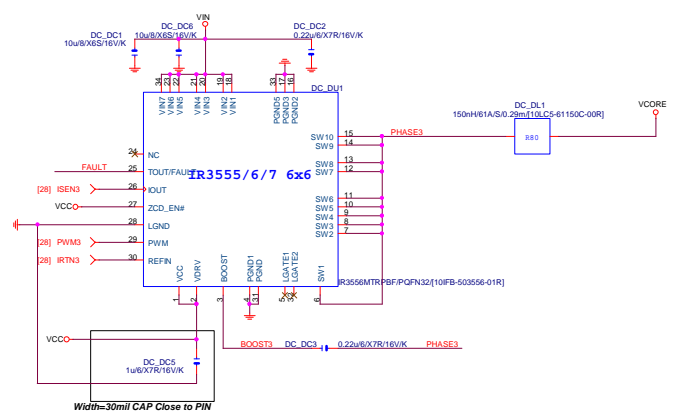
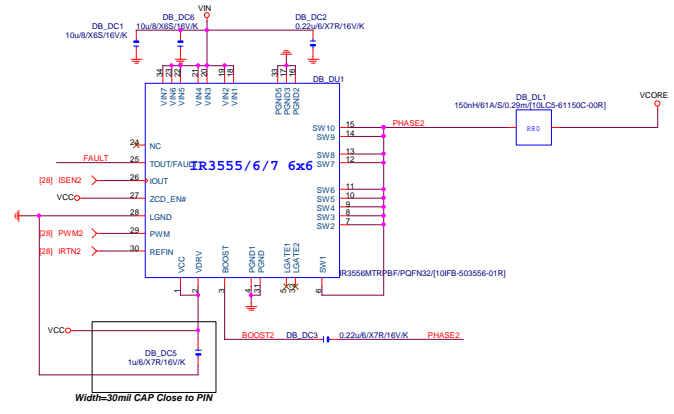
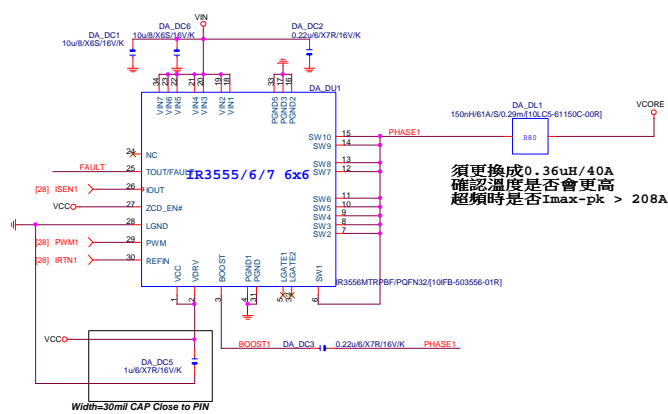


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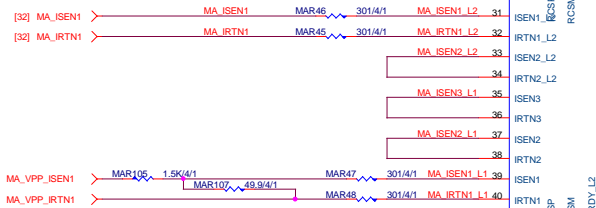
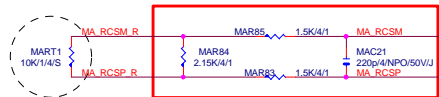
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| Title | | | PCIE_X1 1,2,3 |
| Size | Document Number | GA-X99-UD3 | |
| Custom | | Rev | 1.0 |
| Date: | Monday, August 25, 2014 | Sheet | 25 of 58 |



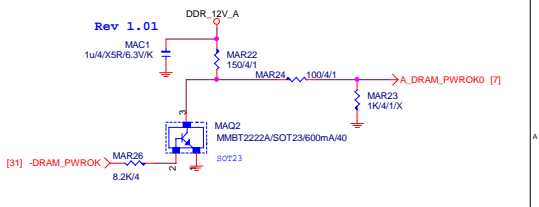
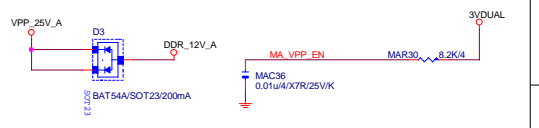
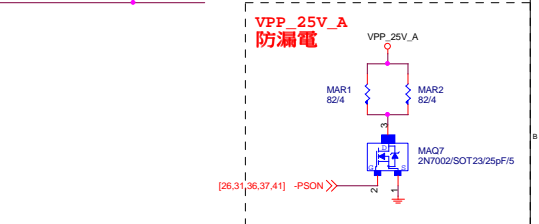
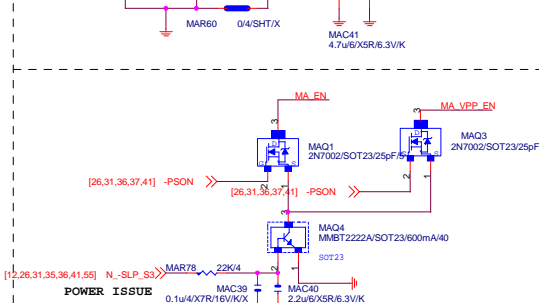
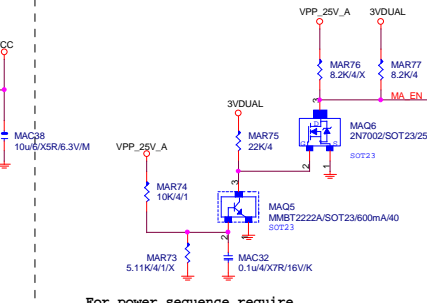
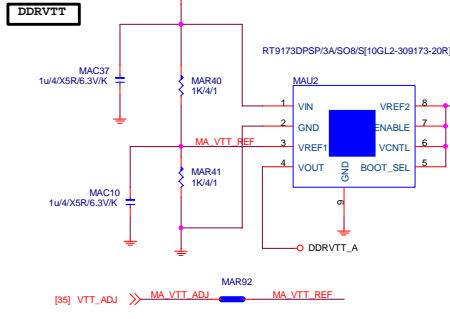
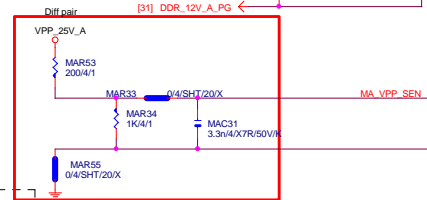




Close to DDR_12V_A
output inductor
MAAL1



should be routed as
differential pair,
7mil width,8mil
spacing



Close to DDR_12V_B
output inductor MBL1

Close to VPP_25V_B
output inductor
MBL2

should be routed as
differential pair,
7mil width, 8mil
spacing

For power sequence require

POWER ISSUE
[12,26,30,35,36,41,55] N_SLP_S3

Addr: 74h

VPP_25V_B
防漏電

Rev 1.01

GIGABYTE

| | | | |
|-------|-----------------|-------------------------|-----------------------------|
| Title | | | DDR_A& CPU_VTT POWER IR3570 |
| Size | Document Number | GA-X99-UD3 | |
| C | | Rev | 1.0 |
| Date: | | Monday, August 25, 2014 | Sheet 31 of 58 |

DDR_A(3553)

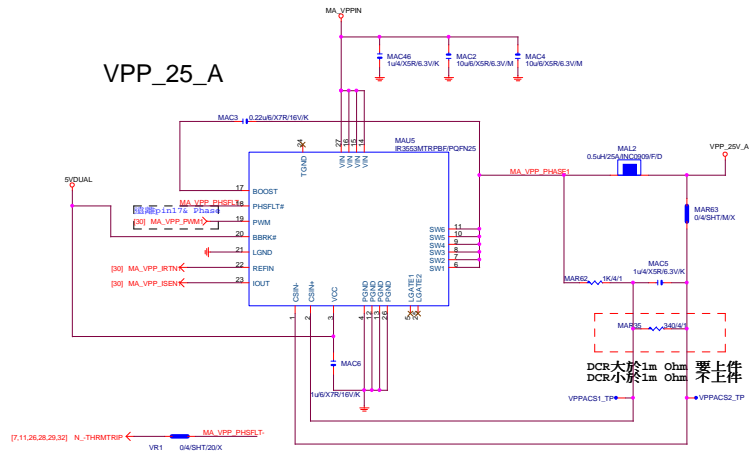


DDR_B

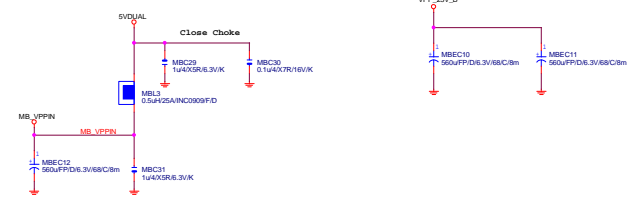
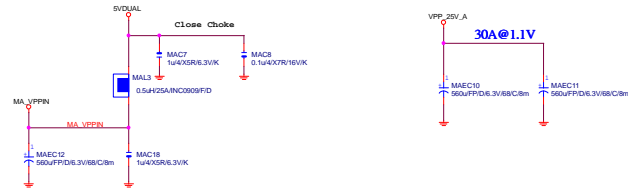
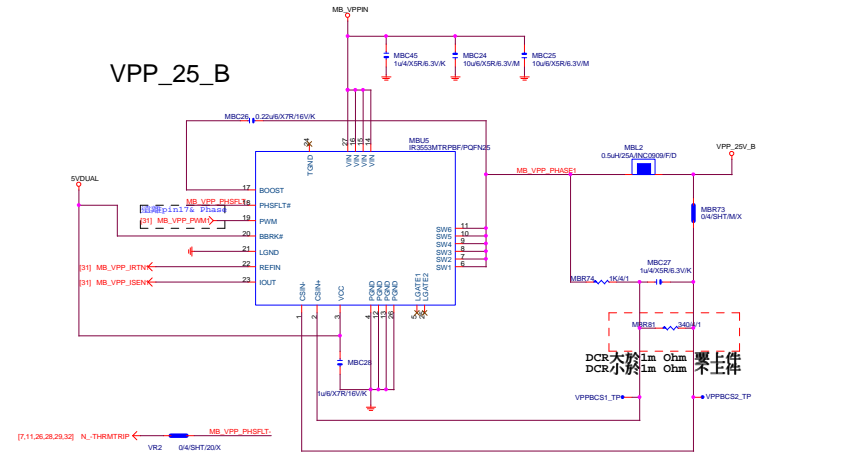
DDR_B(3553)



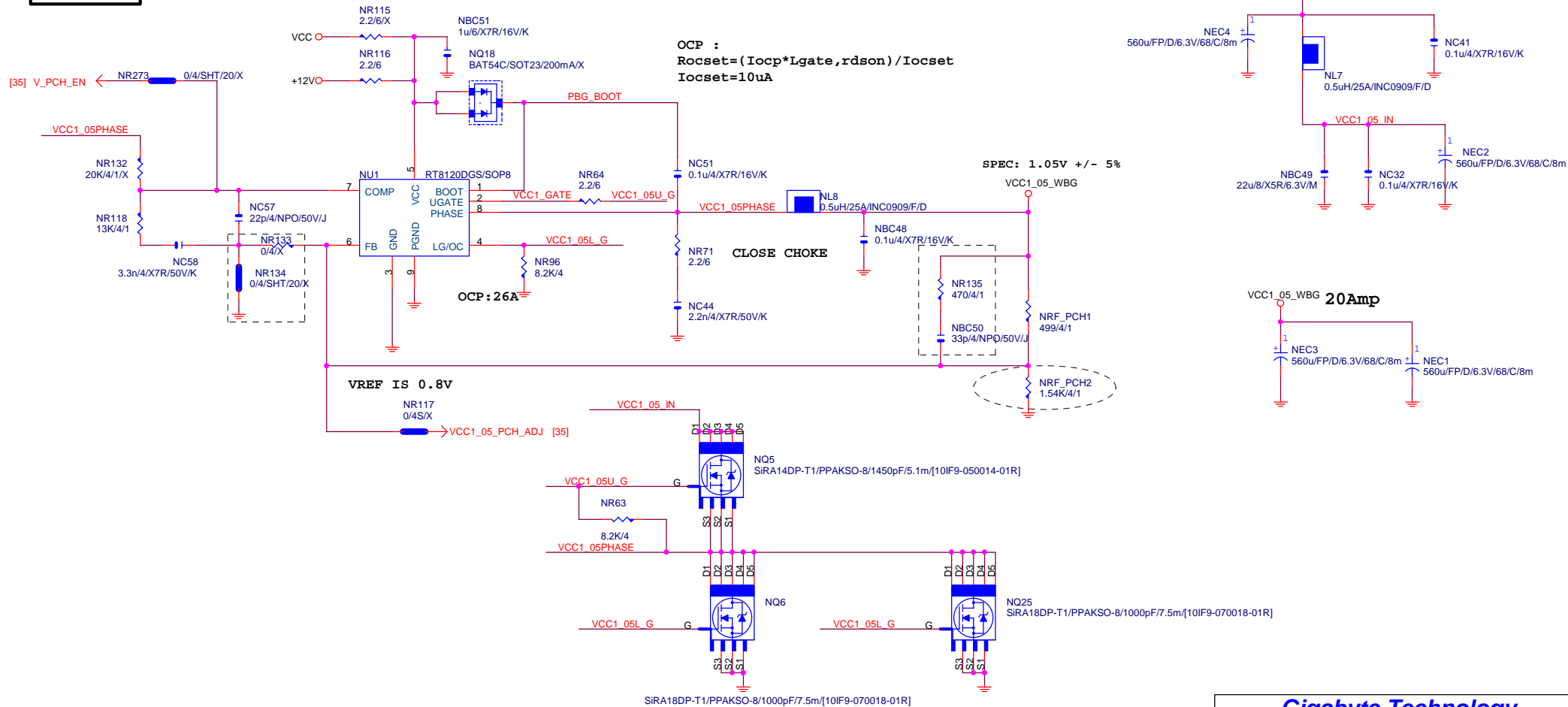
VPP_25_A



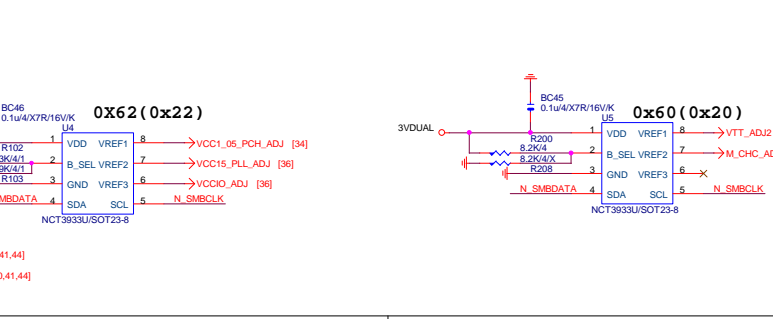
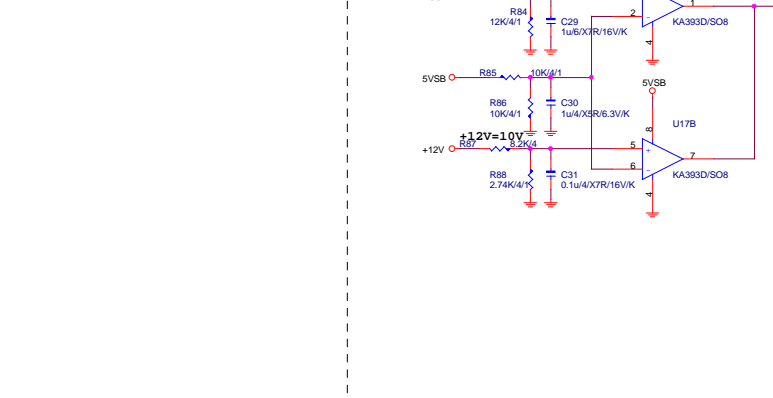
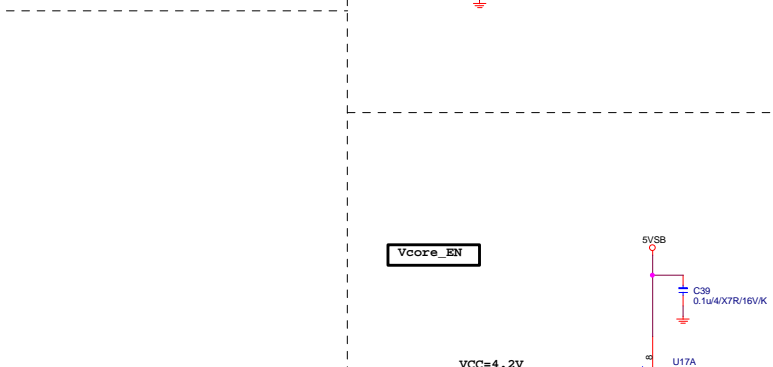
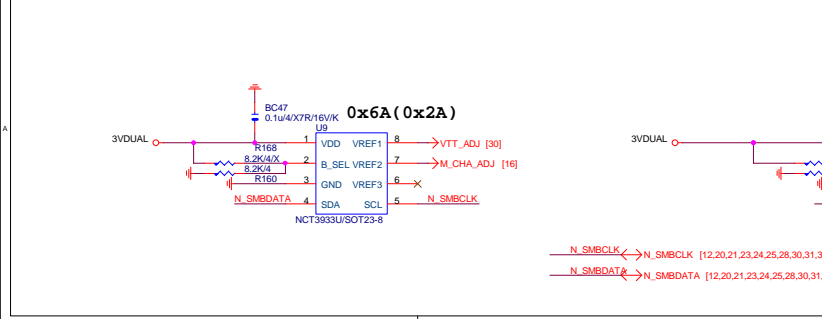
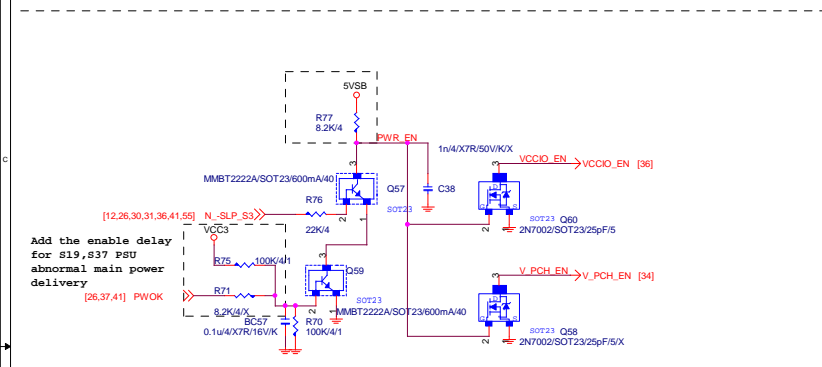
VPP_25_B



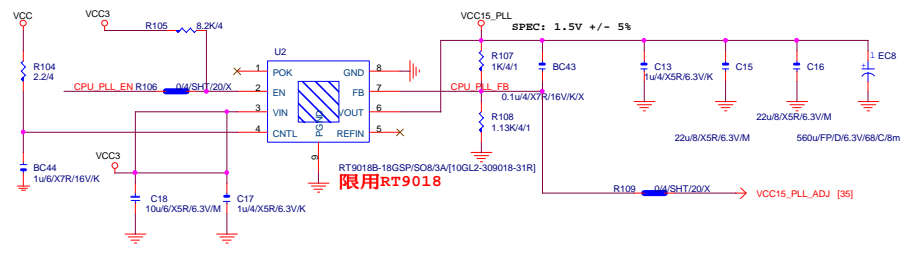
PBG_1.1V



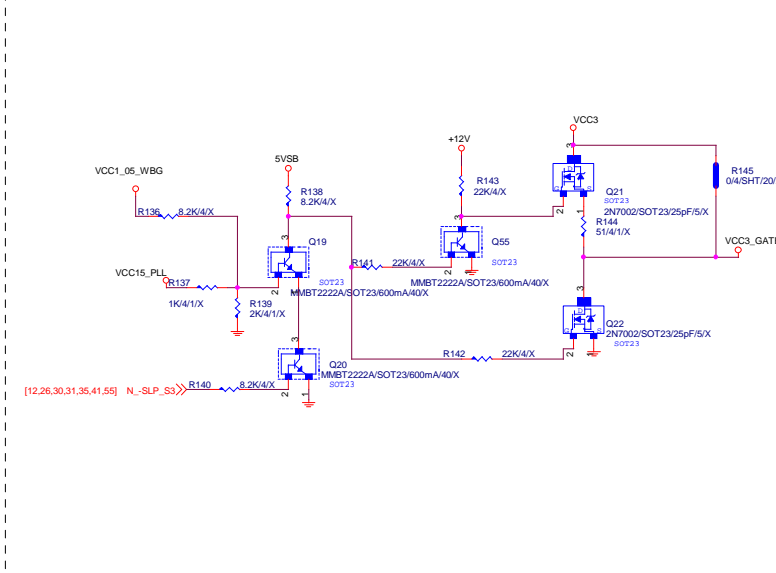
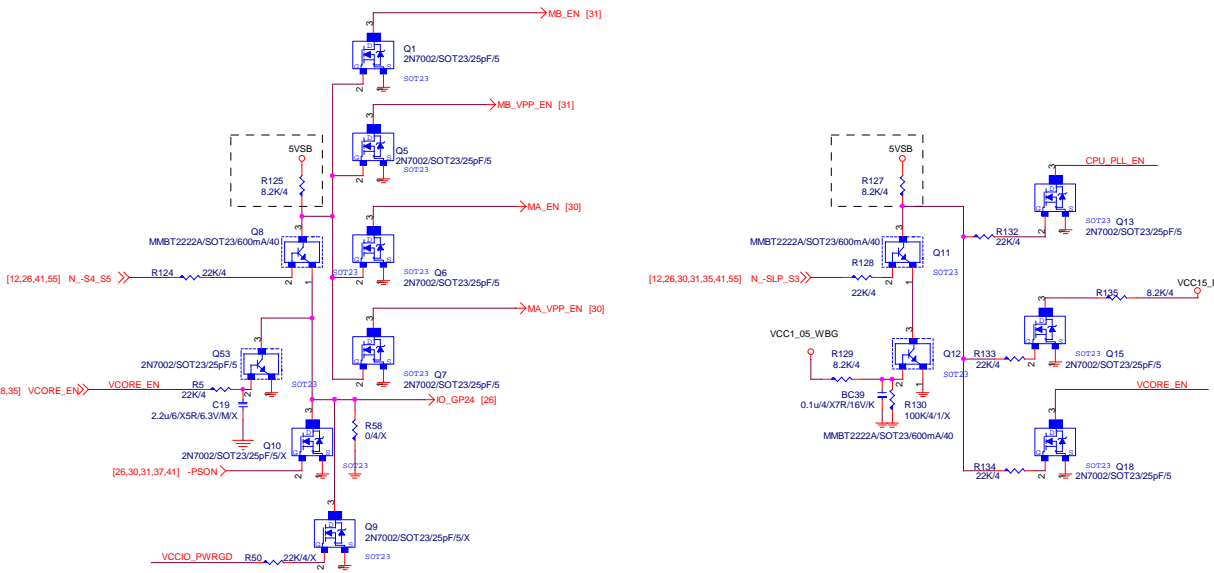
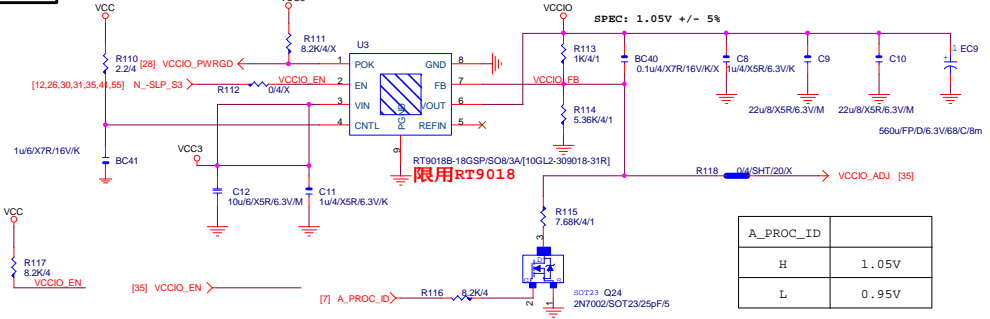
| | | | |
|---------------------|-------------------------|-------------|----------|
| Gigabyte Technology | | | |
| Title | | ISL6545 PCH | |
| Size | Document Number | GA-X99-UD3 | |
| Custom | | | |
| Date: | Monday, August 25, 2014 | Sheet | 34 of 58 |



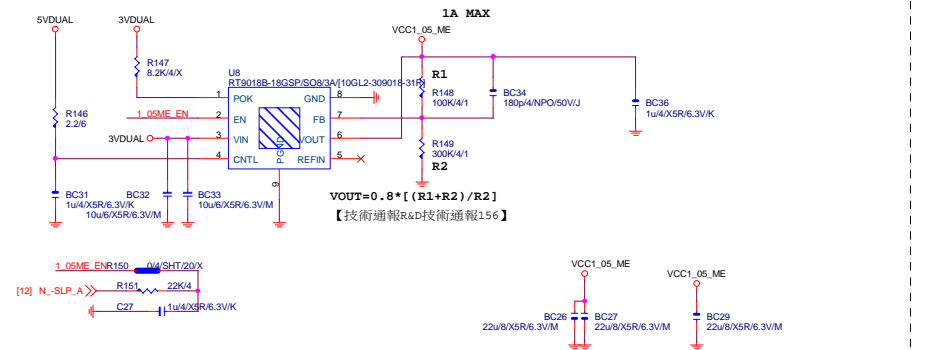
VCC15_PLL



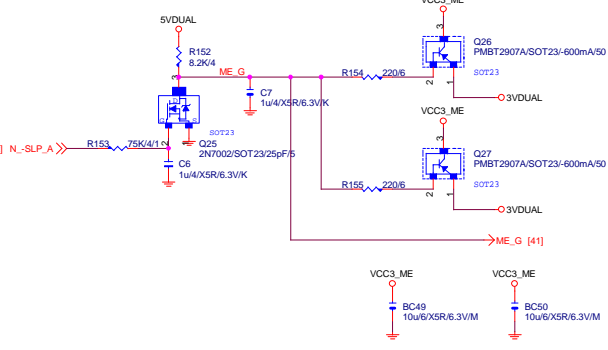
VCCIO



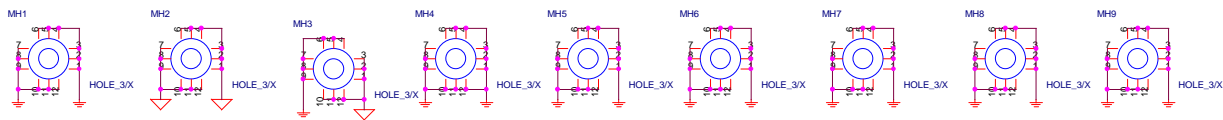
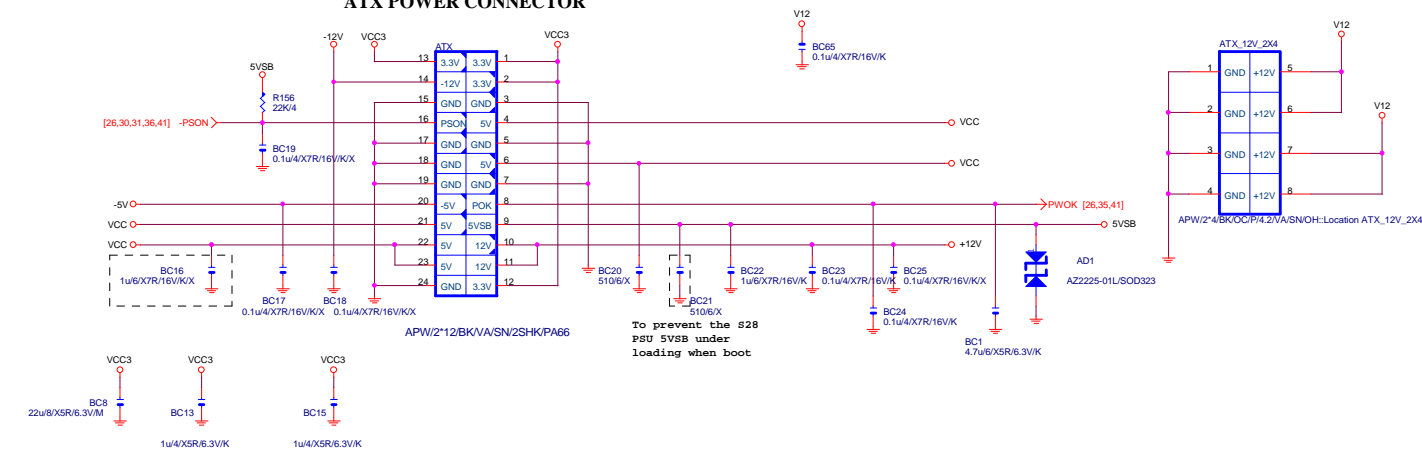
VCC1_05_ME



VCC3_ME

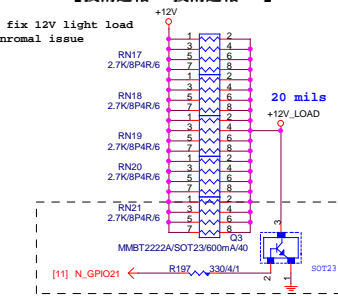


ATX POWER CONNECTOR

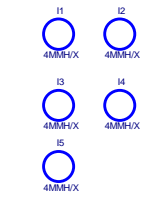
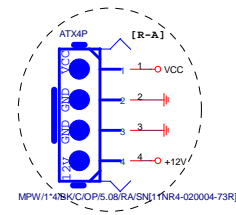


【技術通報R&D技術通報153】

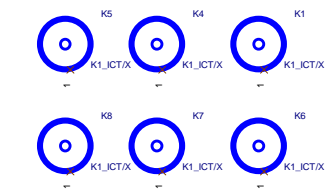
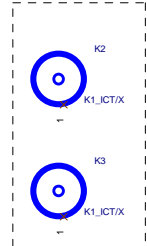
To fix 12V light load abnormal issue



OVER CLOCKING

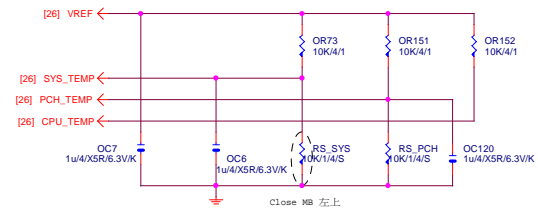


For CPU

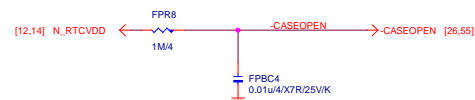


| INPUT | | | | OUTPUT | |
|-------|----|---------|------|-----------|-----------|
| PR | CL | CLOCK | DATA | Q | -Q |
| L | H | X | X | H | L |
| H | L | X | X | L | H |
| L | L | X | X | H | H |
| H | H | Rising | H | H | L |
| H | H | Rising | L | L | H |
| H | H | L | X | No Change | No Change |
| H | H | H | X | No Change | No Change |
| H | H | Falling | X | No Change | No Change |

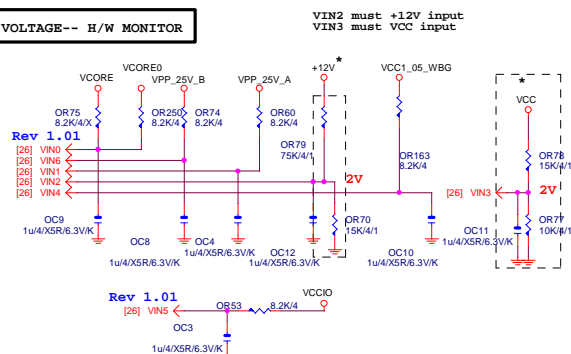
TEMP H/W MONITOR



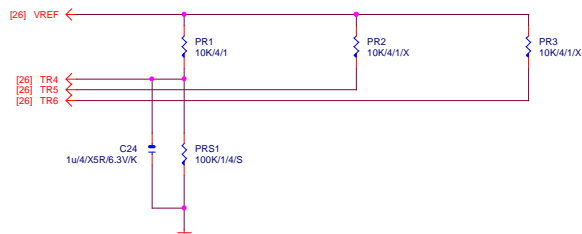
CASE OPEN



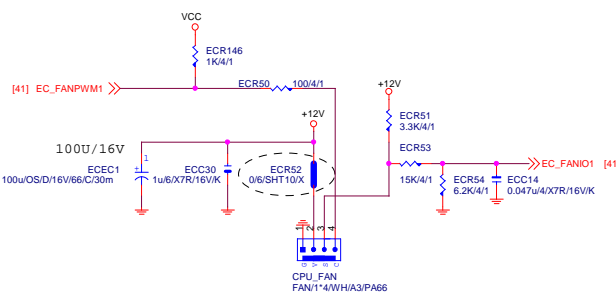
VOLTAGE-- H/W MONITOR



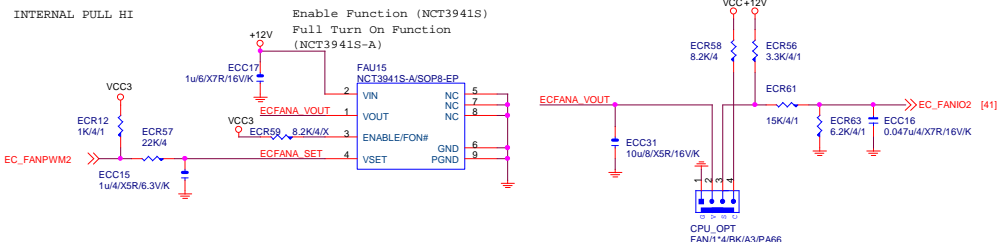
8620 PROCHOT



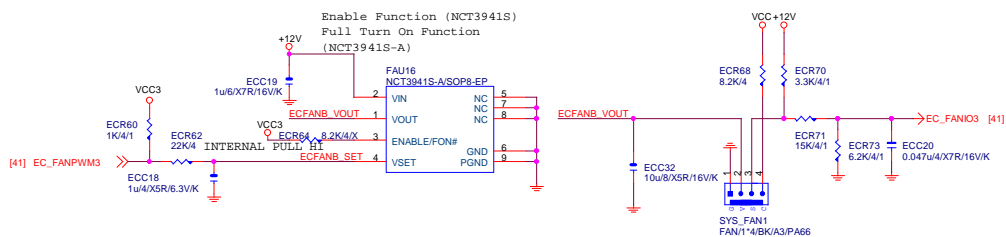
CPU SMART FAN



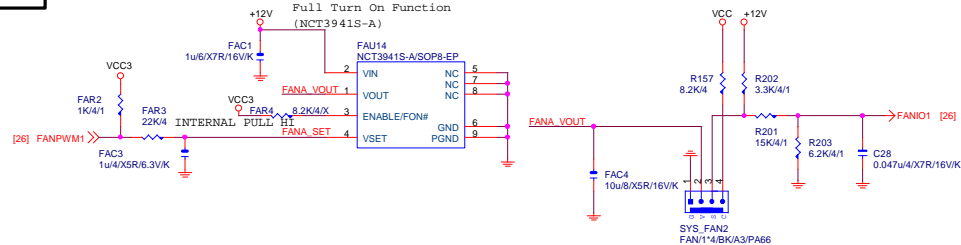
CPUOPT FAN



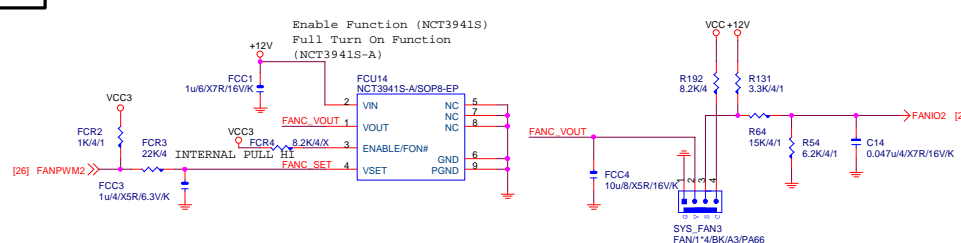
SYS FAN1



SYS FAN2

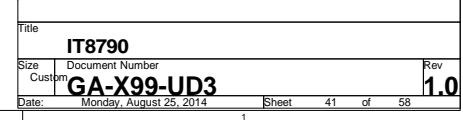


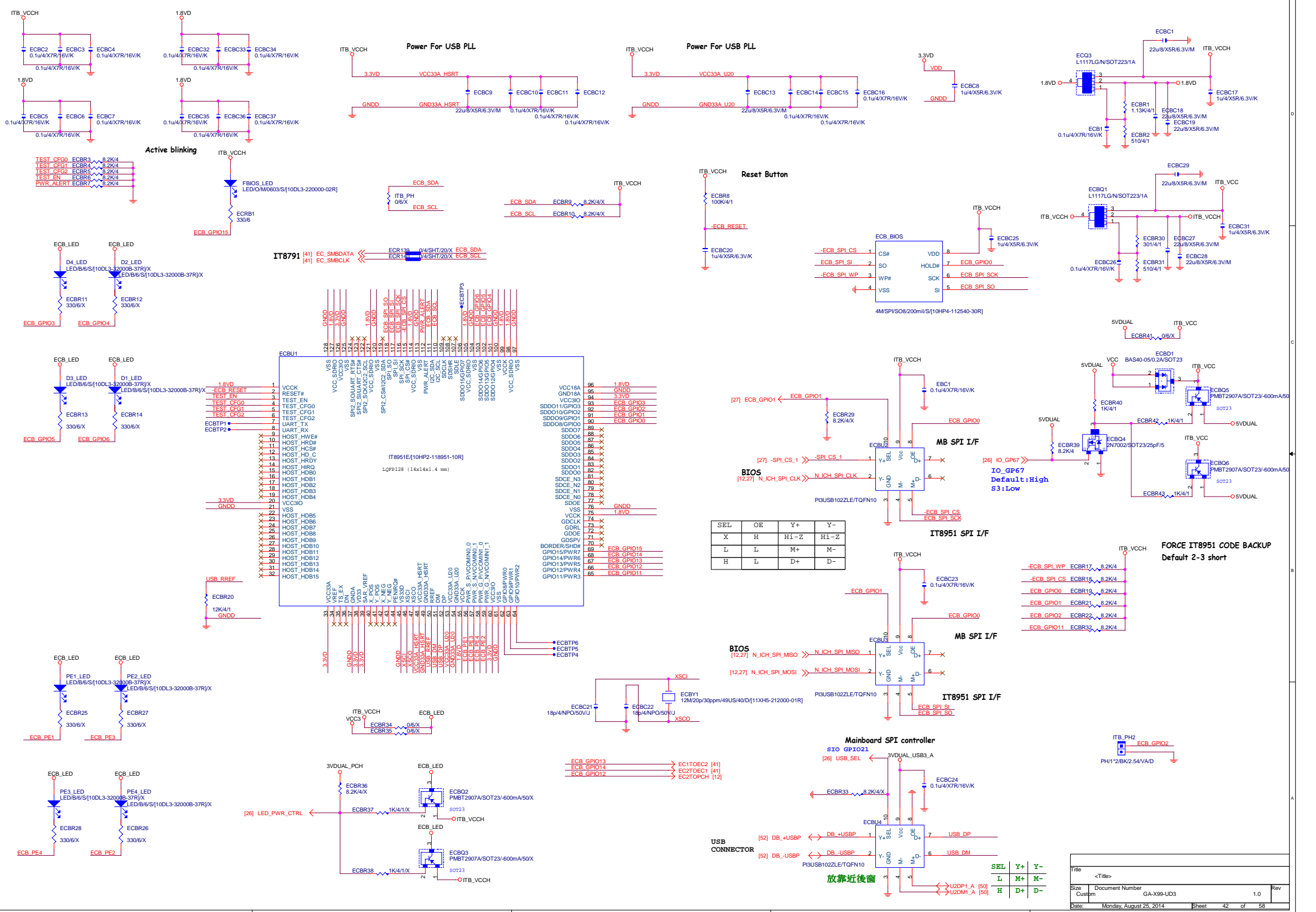
SYS FAN3



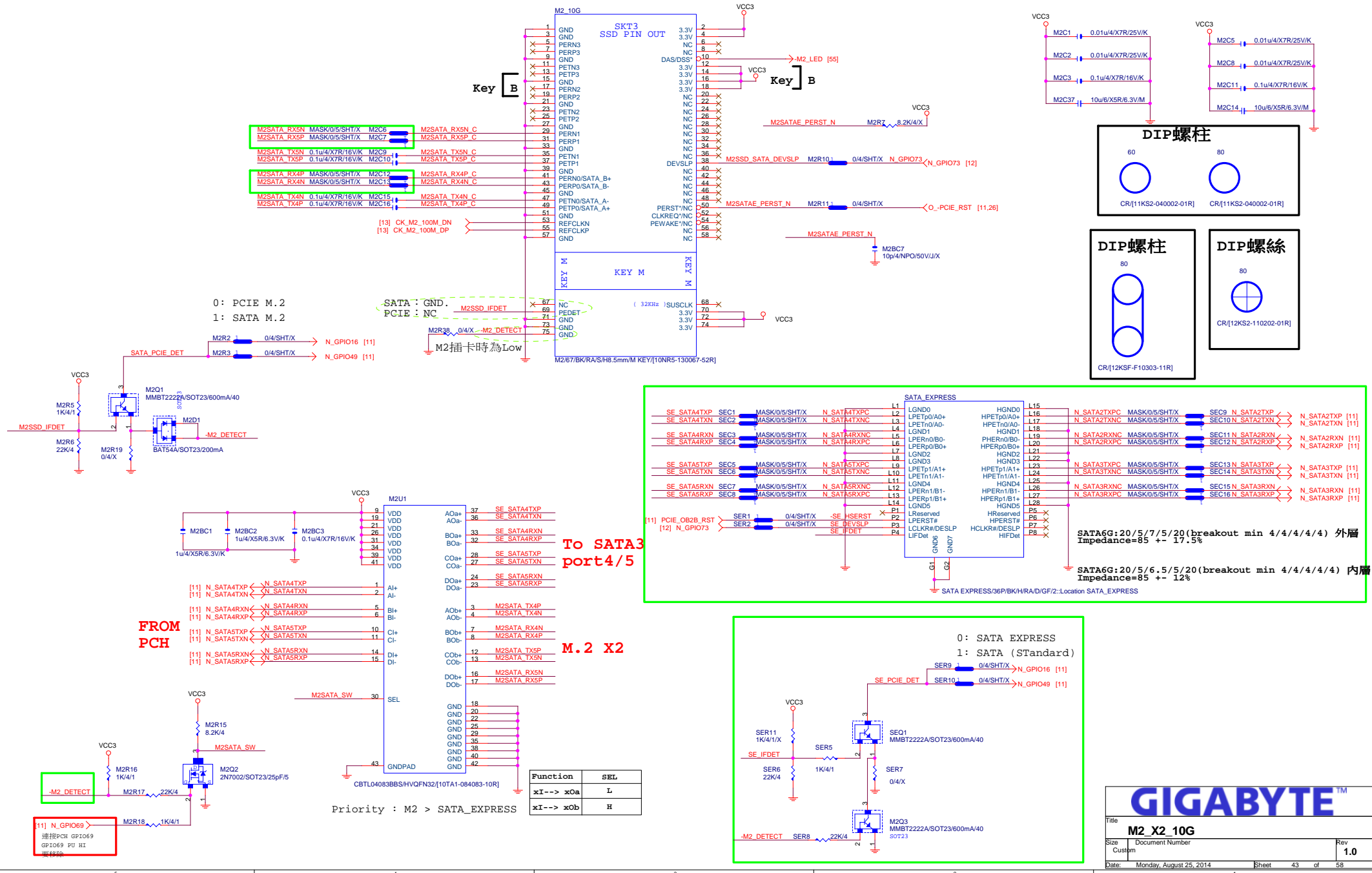
Gigabyte Technology

| | | |
|-------|--------|-------------------------|
| Title | | HWM,FAN CTRL |
| Size | Custom | Document Number |
| Date | | Monday, August 25, 2014 |
| Sheet | | 38 of 58 |
| Rev | | 1.0 |





| | |
|--------|-------------------------|
| Title | <Title> |
| Size | Document Number |
| Custom | GA-X99-UD3 |
| Date | Monday, August 25, 2014 |
| Sheet | 42 of 58 |



請選擇適用的USBport :
SOC/UD7/UD5/G1/G7 : USB4
;UD3/G5:USB6

PCIe:15/4/4/4/15(breakout min 8/4/4/4/8) 外層
Impedance=85 +- 17.5%

PCIe:15/4/4/4/15(breakout min 8/4/4/4/8) 內層
Impedance=85 +- 12%

WIFI use PCIe port4 in X99

DIP螺絲

30



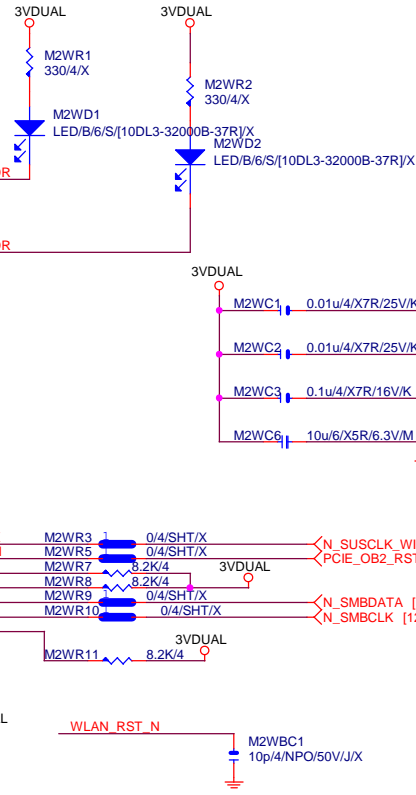
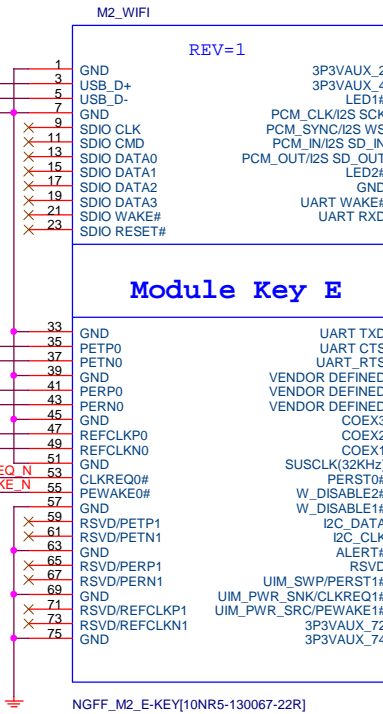
CR/[12KS2-110202-01R]

SMD螺柱

30



CR/[10KS2-040109-01R]
should be SMD level



GIGABYTE™

| | | |
|---------|-------------------------|----------------|
| Title | | |
| M2_WIFI | | |
| Size | Document Number | Rev |
| B | | 1.0 |
| Date: | Monday, August 25, 2014 | Sheet 44 of 58 |

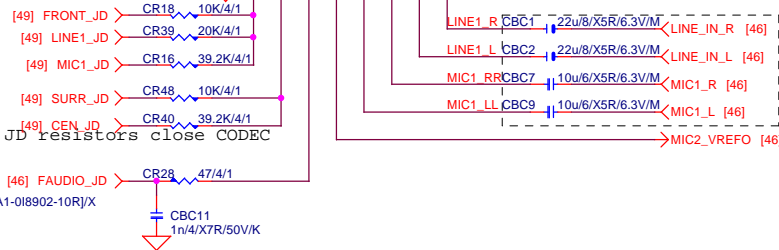
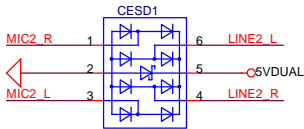
Thermal pad is DGND

Thermal pad is DGND

Digital Area

Analog Area

SMOATR1 MASK/0/6/X
0/6/X For AGND/GND
moat under Codec
Body



EAPD: Default L
H : ON
L : OFF

Close to ALC1150

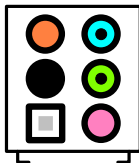
鍍黑鎳金屬外罩+
GND切割

AUDIO_HS[11NH1-00297S-03R]

Gigabyte Technology

| | | | |
|--------|------------------------------------|------------|----------|
| Title | HD AUDIO ALC887B-VD2/VT1708SNT2021 | | |
| Size | Document Number | GA-X99-UD3 | Rev |
| Custom | | | 1.0 |
| Date: | Monday, August 25, 2014 | Sheet | 45 of 58 |

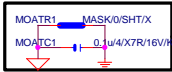
AZALIA JACK



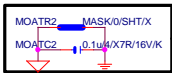
Audio jack -> USB(各打2 VIA hole)



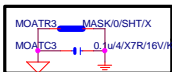
Under Audio jack(各打2 VIA hole)



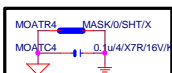
Near F_AUDIO(各打2 VIA hole)



Near Codec (各打2 VIA hole)

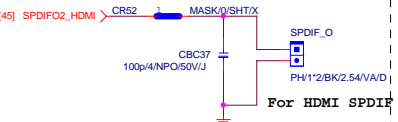


Near R_AUDIO(各打2 VIA hole)

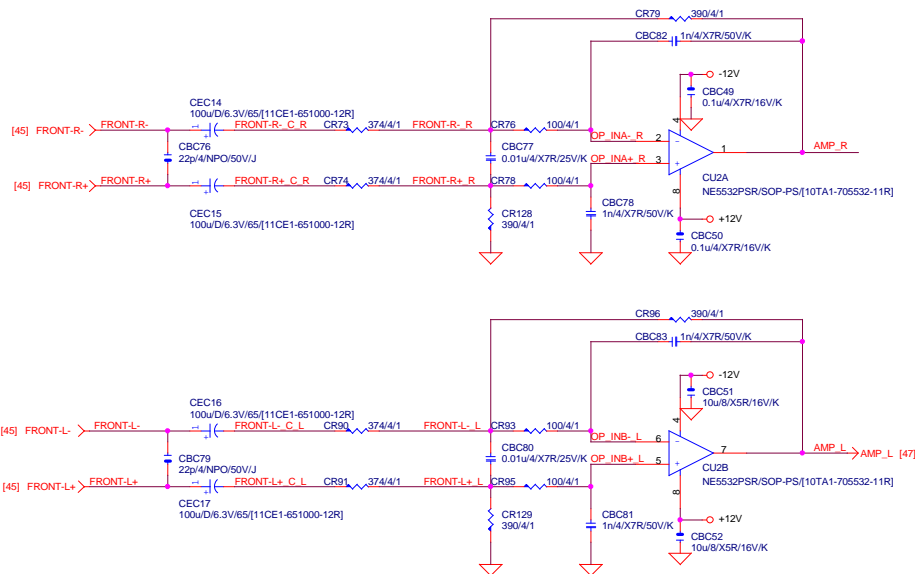


Near AMP (各打2 VIA hole)

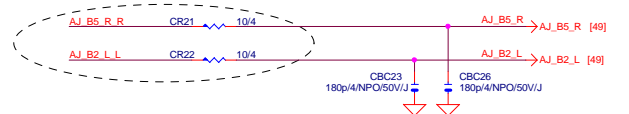
SPDIF OUT



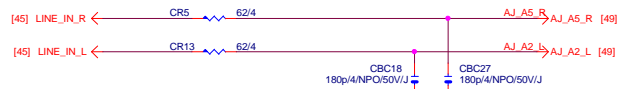
Differential to Single-End AMPLIFIED



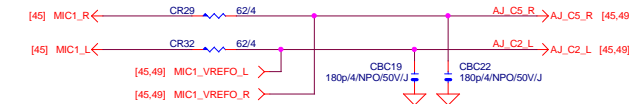
LINE-OUT



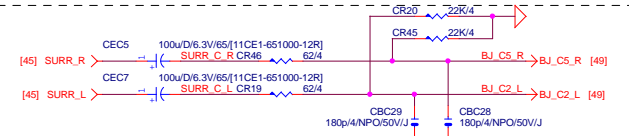
LINE-IN



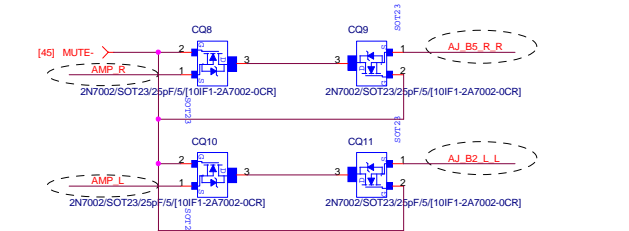
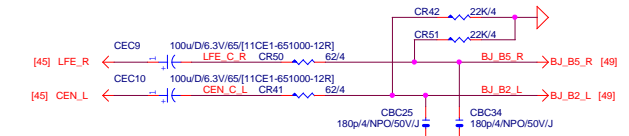
MIC-IN



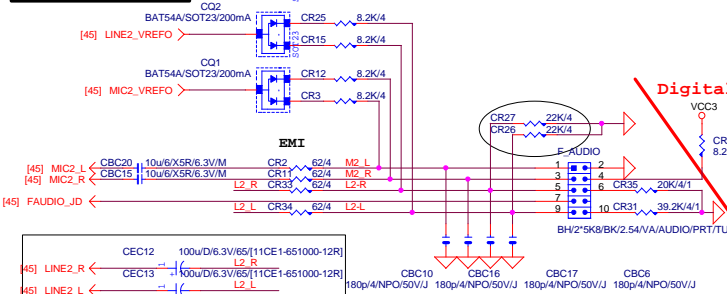
SURROUND



CEN/LFE

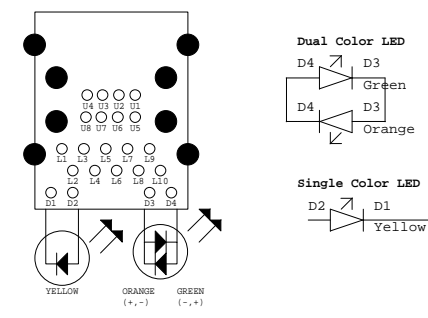
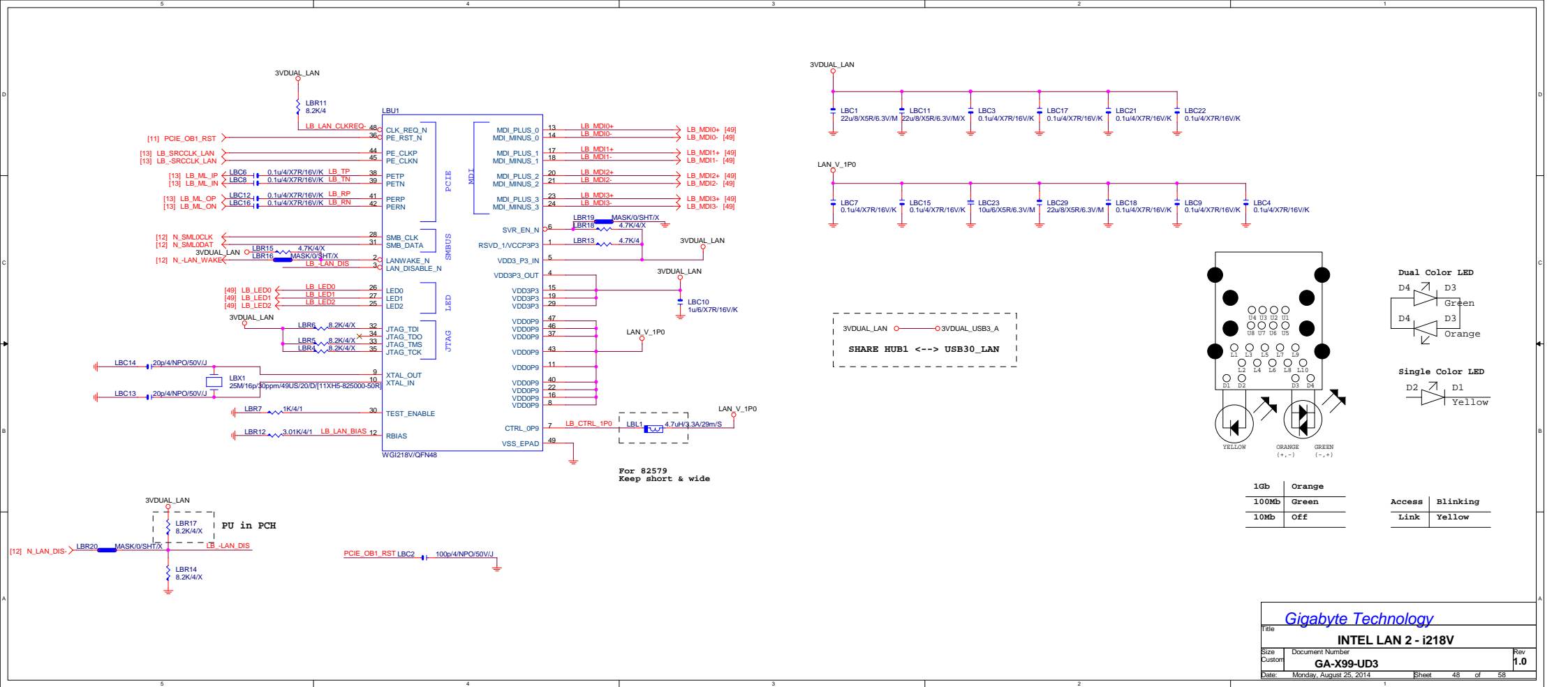


AZALIA FRONT PANEL

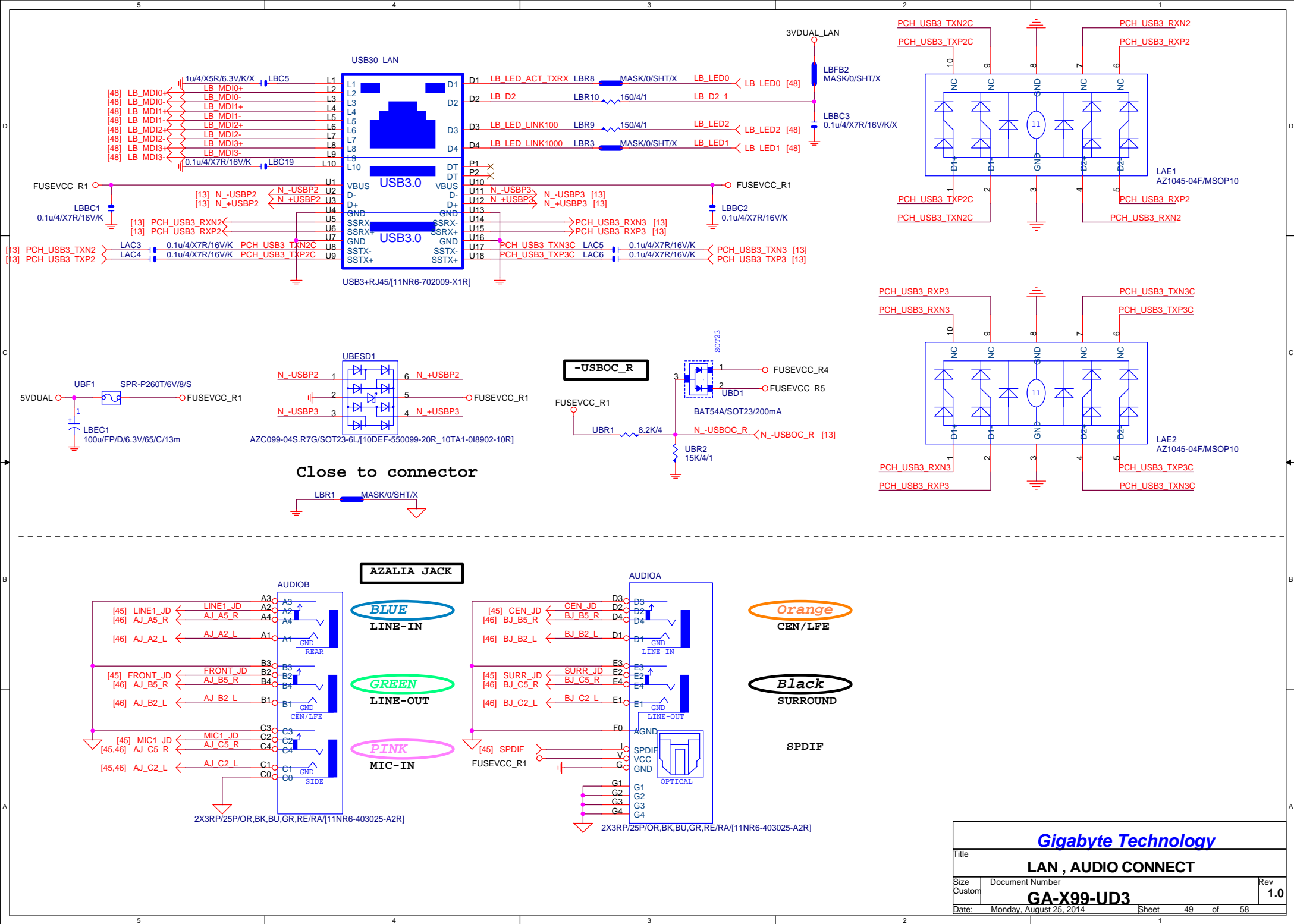


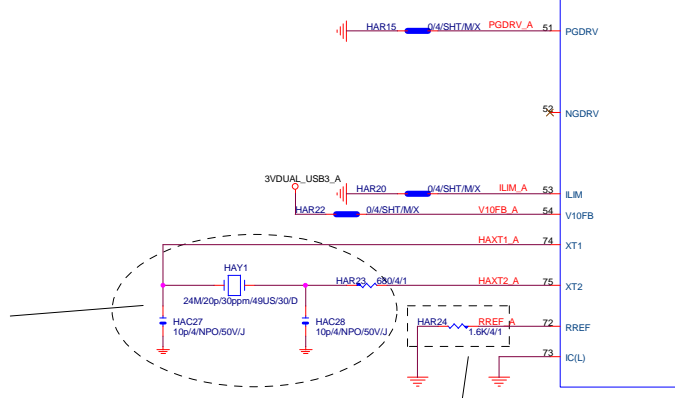
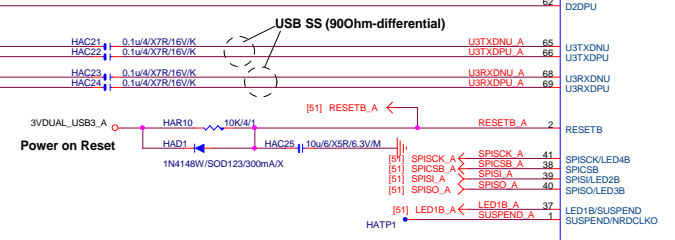
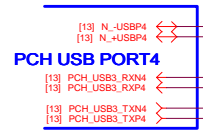
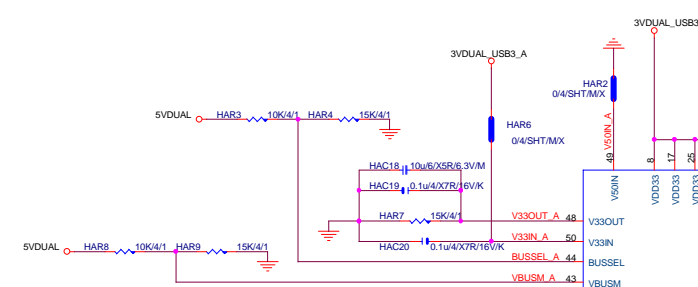
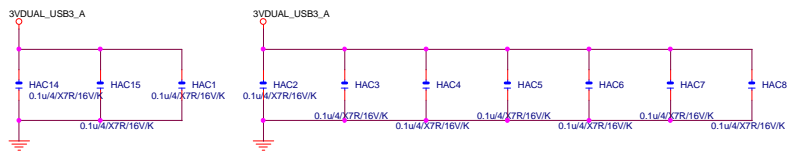
Gigabyte Technology

| | | | |
|-------|--|-------------------------|--|
| Title | | AUDIO JACK | |
| Size | | GA-X99-UD3 | |
| Date | | Monday, August 25, 2014 | |
| Sheet | | 46 of 58 | |



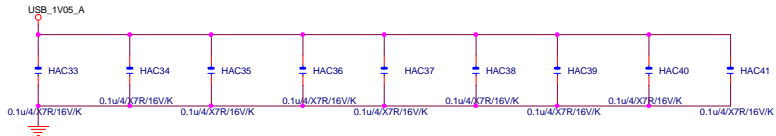
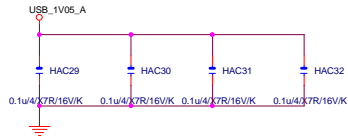
| | | | |
|-------|--------|--------|----------|
| 1Gb | Orange | Access | Blinking |
| 100Mb | Green | Link | Yellow |
| 10Mb | Off | | |



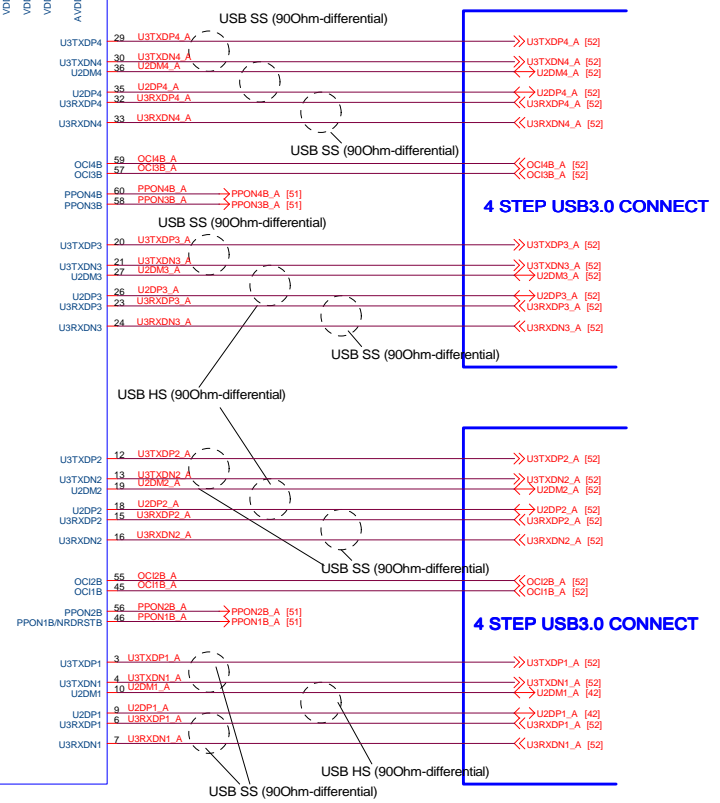


Put close to U1
Do check with crystal vendor
if the value of C31, C32 and
R31 are all appropriate.

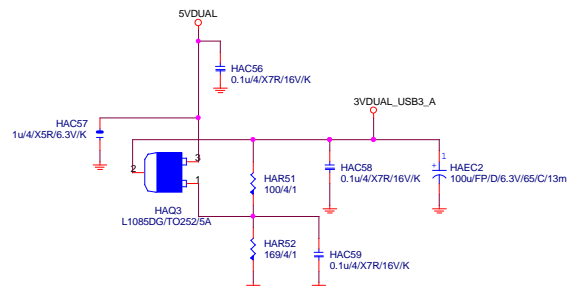
Put close to U1
Short and broad connection to GND
Don't split R32 into multiple
resistors.



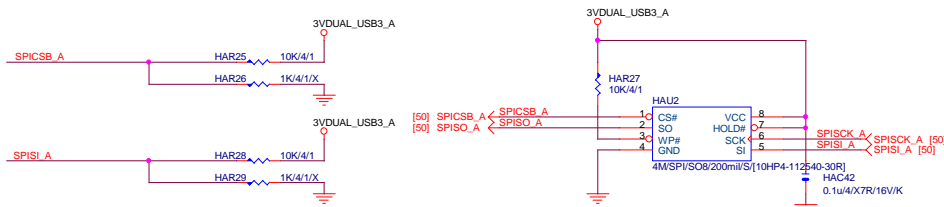
uPD720210



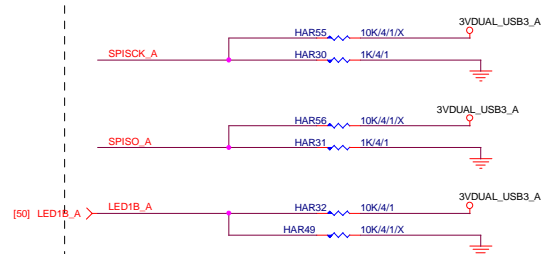
3VDUAL_USB_1



External SPI ROM ; SPI ROM attached mode

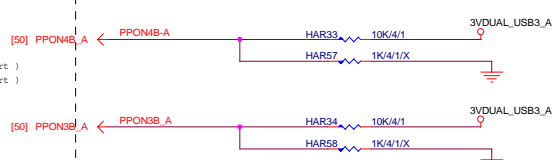


Battery Charging



Number of Ports ; 4Ports mode

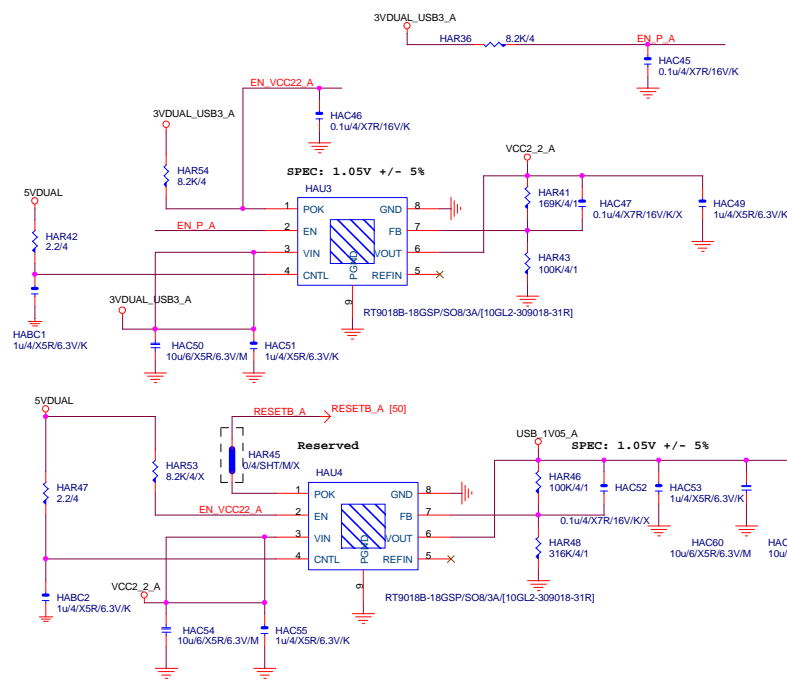
PPON3B / PPON4B : H / H (4 port)
PPON3B / PPON4B : L / L (2 port)



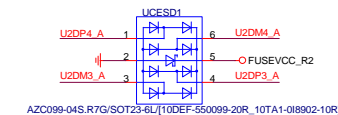
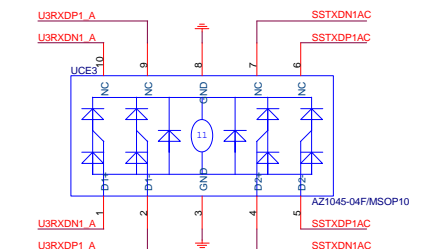
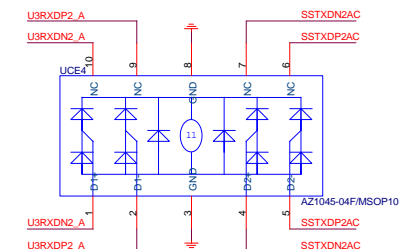
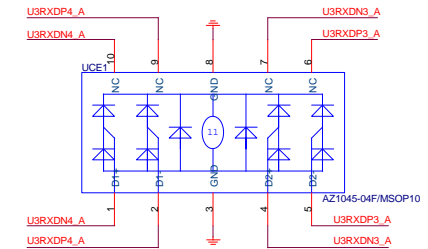
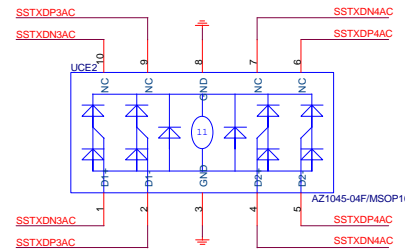
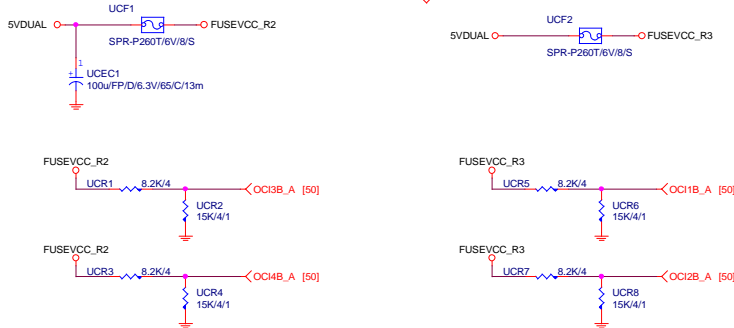
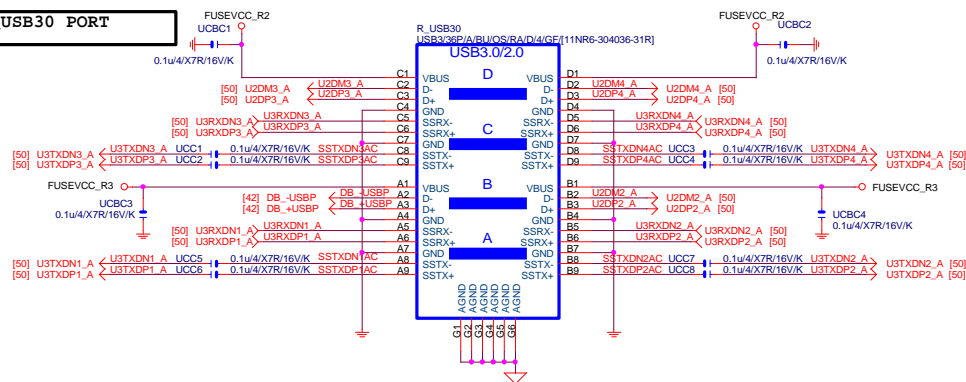
VBUS Power Control ; Individual mode



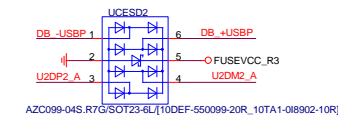
PPON1B Pin Function ; Port1 PPONB mode



R_USB30 PORT

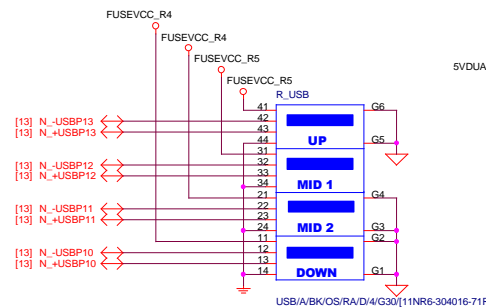


Close to connector

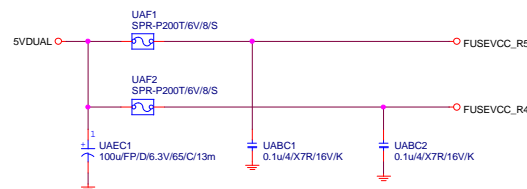


Close to connector

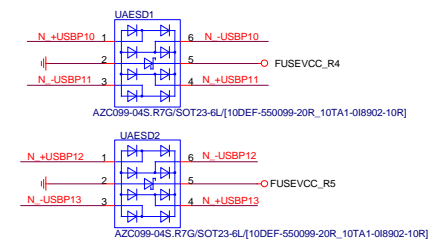
R_USB



USB20 FUSE

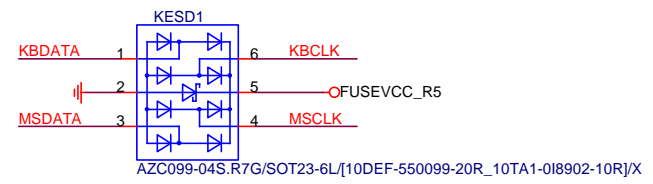
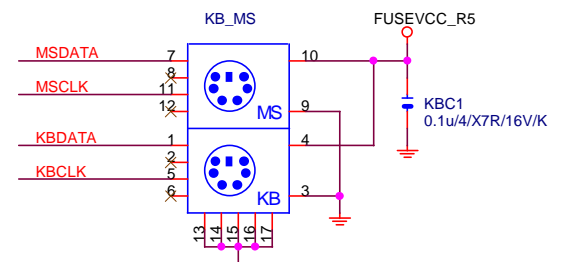
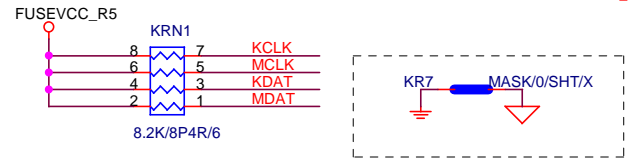
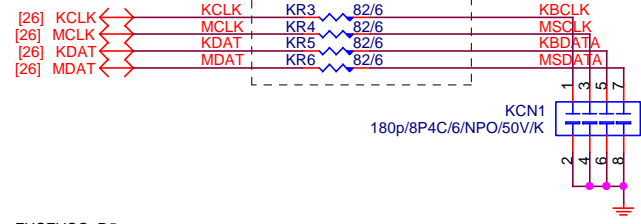


USB20 ESD PROTECT

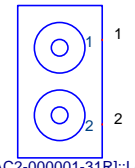


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|---------------------|-------------------------|-------|----------|
| Gigabyte Technology | | | |
| Title | | | |
| R_USB30 , R_USB3 | | | |
| Size | Document Number | Rev | |
| Custom | GA-X99-UD3 | 1.0 | |
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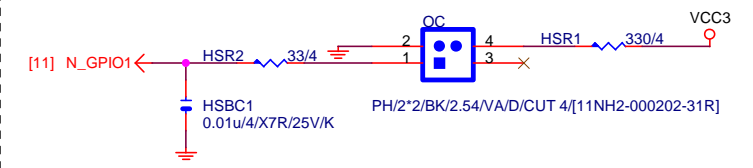


ANTENNA_BRACKET



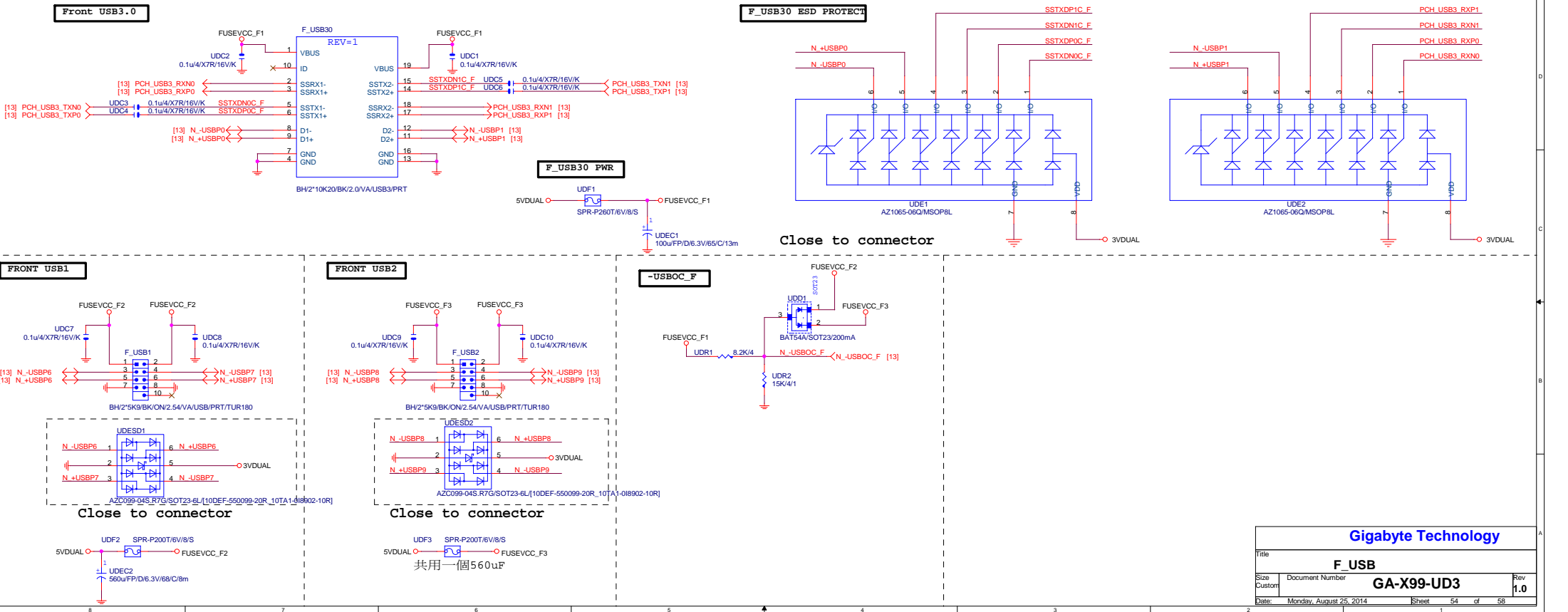
WIFI-BRACKET_Vertical/[12AC2-000001-31R]:::Location ANTENNA_BRACKET

4GHz

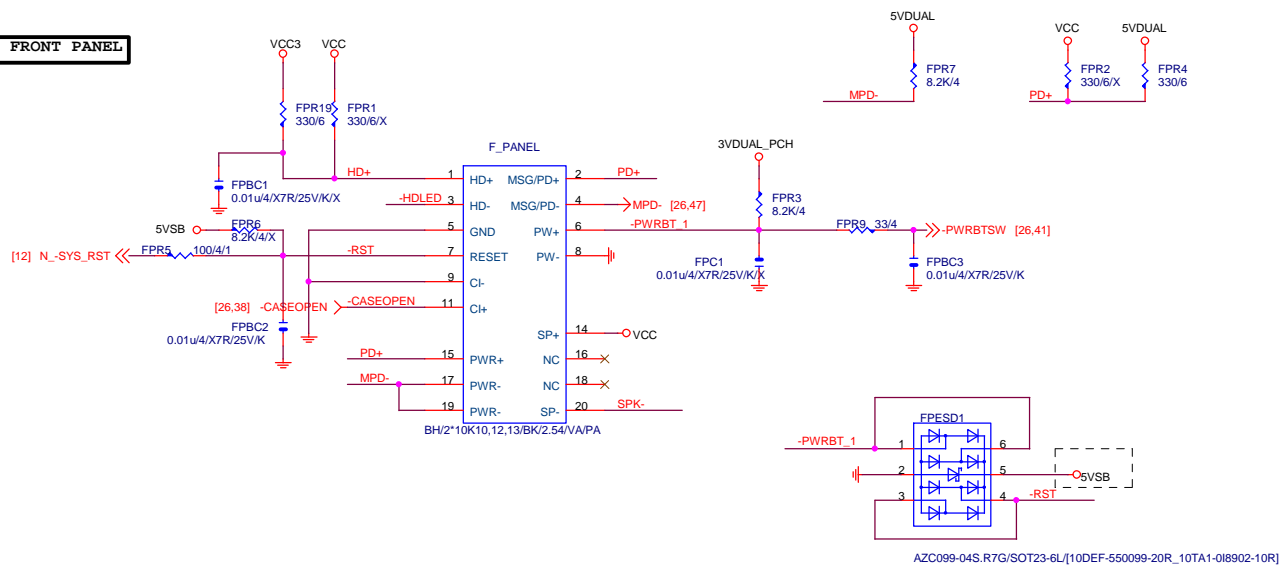


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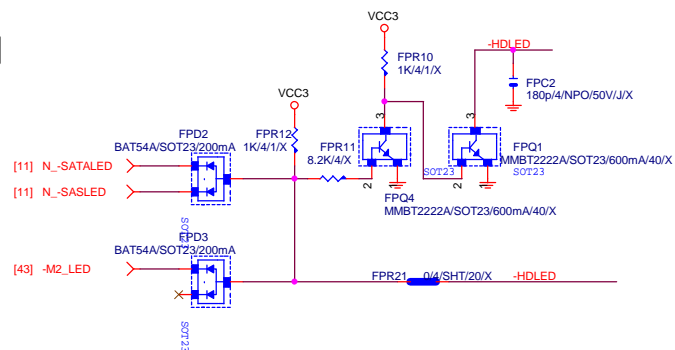
| | | |
|------------------------|-------------------------|----------------|
| Title | | |
| USB DAC-UP , PS2 ,WIFI | | |
| Size | Document Number | Rev |
| Custom | GA-X99-UD3 | 1.0 |
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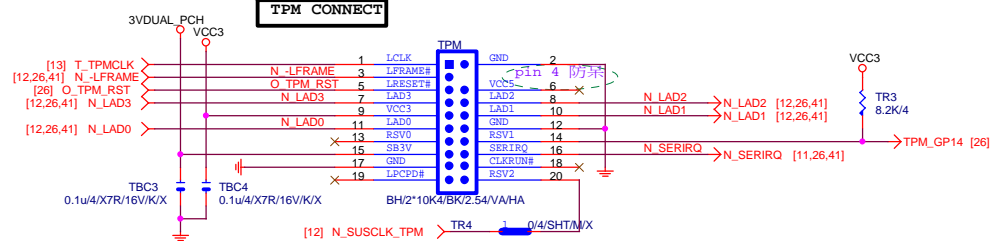
INTEL FRONT PANEL



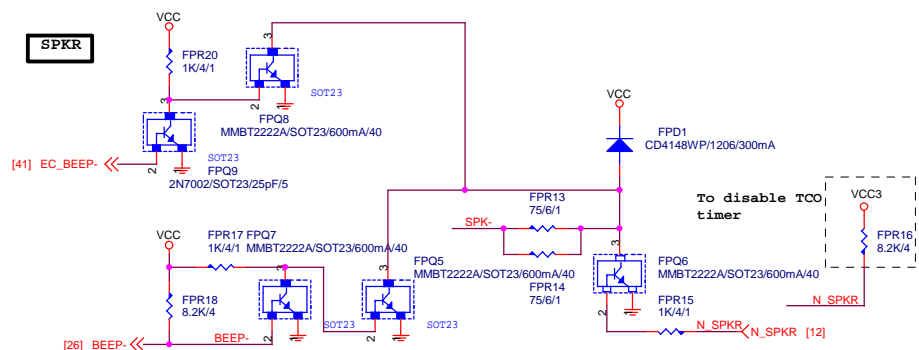
SATA LED



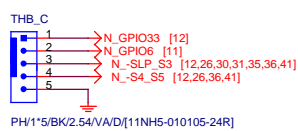
TPM CONNECT



SPKR



Thunderbolt



| | | | | |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|



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| Gigabyte Technology | | | |
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| dB | VINx |
|-----|-------|
| 30 | 1.30V |
| 35 | 1.45V |
| 40 | 1.60V |
| 45 | 1.75V |
| 50 | 1.90V |
| 55 | 2.05V |
| 60 | 2.20V |
| 65 | 2.35V |
| 70 | 2.50V |
| 75 | 2.65V |
| 80 | 2.80V |
| 85 | 2.95V |
| 90 | 3.10V |
| 95 | 3.25V |
| 100 | 3.33V |

PCH GPIO

| PIN NAME | POWER WELL | USAGE | AFTER PLTRST | S3/S5 | NOTES |
|----------|------------|----------|-----------------|-------|-----------------------------|
| GP[0] | VCC3 | -ICH_PSI | IN | | 8.2K P/U TO VCC3 |
| GP[1] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[2] | VCC3 | -PIRQE | IN | | 8.2K P/U TO VCC3 |
| GP[3] | VCC3 | -PIRQF | IN | | 8.2K P/U TO VCC3 |
| GP[4] | VCC3 | -PIRQG | IN | | 8.2K P/U TO VCC3 |
| GP[5] | VCC3 | -PIRQH | IN | | 8.2K P/U TO VCC3 |
| GP[6] | VCC3 | GPIO6 | IN | | 8.2K P/U TO VCC3 |
| GP[7] | VCC3 | GPIO7 | IN | | 8.2K P/U TO VCC3 |
| GP[8] | 3VDUAL | GPIO8 | OUT | | 8.2K P/U TO 3VDUAL |
| GP[9] | 3VDUAL | -USBOC5 | IN | | USB OVER-CURRENT |
| GP[10] | 3VDUAL | -USBOC6 | IN | | USB OVER-CURRENT |
| GP[11] | 3VDUAL | GPIO11 | IN | | 8.2K P/U TO 3VDUAL |
| GP[12] | 3VDUAL | GPIO12 | OUT | | 8.2K P/U TO 3VDUAL |
| GP[13] | 3VDUAL | -LPCPME | IN | | 8.2K P/U TO 3VDUAL |
| GP[14] | 3VDUAL | GPIO14 | IN | | 8.2K P/U TO 3VDUAL |
| GP[15] | 3VDUAL | SPARE | OUT | | 8.2K P/U TO 3VDUAL (N/A) |
| GP[16] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[17] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[18] | VCC3 | -SPI_WP0 | OUT | | 8.2K P/U TO VCC3 |
| GP[19] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[20] | VCC3 | -SPI_WP1 | OUT | | 8.2K P/U TO VCC3 |
| GP[21] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[22] | VCC3 | SPARE | IN | | 1K P/U TO VCC3 |
| GP[23] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[24] | 3VDUAL | -SKTOC | IN | | 8.2K P/U TO 3VDUAL (N/A) |
| GP[25] | 3VDUAL | GPIO25 | OUT | | 8.2K P/U TO 3VDUAL |
| GP[26] | 3VDUAL | SPARE | OUT | | 8.2K P/U TO 3VDUAL |
| GP[27] | 3VDUAL_PCH | SPARE | OUT | | 8.2K P/U TO 3VDUAL_PCH |
| GP[28] | 3VDUAL | GPIO28 | OUT | | 8.2K P/U TO 3VDUAL |
| GP[29] | 3VDUAL | SPARE | OUT | | 8.2K P/U TO 3VDUAL (N/A) |
| GP[30] | 3VDUAL | -S_WARN | OUT | | CONNECT TO -S_ACK |
| GP[31] | 3VDUAL_PCH | SPARE | IN | | 8.2K P/U TO 3VDUAL_PCH(N/A) |
| GP[32] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[33] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[34] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[35] | VCC3 | -ACZ_DET | OUT | | 8.2K P/U TO VCC3 |
| GP[36] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3(N/A) |
| GP[37] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[38] | VCC3 | SPARE | IN | | 1K P/U TO VCC3 |

| PIN NAME | POWER WELL | USAGE | AFTER PLTRST | S3/S5 | NOTES |
|----------|------------|---------|-----------------|-------|-------------------------|
| GP[39] | VCC3 | SPARE | IN | | 1K P/U TO VCC3 |
| GP[40] | 3VDUAL | -USBOC1 | IN | | USB OVER-CURRENT |
| GP[41] | 3VDUAL | -USBOC2 | IN | | USB OVER-CURRENT |
| GP[42] | 3VDUAL | -USBOC3 | IN | | USB OVER-CURRENT |
| GP[43] | 3VDUAL | -USBOC4 | IN | | USB OVER-CURRENT |
| GP[44] | 3VDUAL | SPARE | IN | | 1K P/U TO 3VDUAL |
| GP[45] | 3VDUAL | SPARE | IN | | 1K P/U TO 3VDUAL |
| GP[46] | 3VDUAL | SPARE | IN | | 1K P/U TO 3VDUAL |
| GP[47] | 3VDUAL | SPARE | IN | | 1K P/U TO 3VDUAL |
| GP[48] | VCC3 | SPARE | IN | | 1K P/U TO VCC3 |
| GP[49] | VCC3 | SPARE | IN | | 8.2K P/U TO VCC3 |
| GP[50] | VCC3 | -REQ1 | OUT | | 8.2K P/U TO VCC3 |
| GP[51] | VCC3 | -GNT1 | OUT | | 1K P/U TO VCC3 |
| GP[52] | VCC3 | -REQ2 | OUT | | 8.2K P/U TO VCC3 |
| GP[53] | VCC3 | -GNT2 | IN | | 8.2K P/U TO VCC3(N/A) |
| GP[54] | VCC3 | -REQ3 | IN | | 8.2K P/U TO VCC3 |
| GP[55] | VCC3 | -GNT3 | IN | | 8.2K P/U TO VCC3(N/A) |
| GP[56] | 3VDUAL | SPARE | IN | | 8.2K P/U TO 3VDUAL |
| GP[57] | 3VDUAL | SPARE | IN | | 8.2K P/U TO 3VDUAL |
| GP[58] | 3VDUAL | SML1CLK | OUT | | 8.2K P/U TO 3VDUAL |
| GP[59] | 3VDUAL | -USBOC0 | IN | | USB OVER-CURRENT |
| GP[60] | 3VDUAL | SML0ART | OUT | | 1K P/U TO 3VDUAL |
| GP[61] | 3VDUAL | SPARE | OUT | | 8.2K P/U TO 3VDUAL |
| GP[62] | 3VDUAL | SUSCLK | OUT | | 8.2K P/U TO 3VDUAL(N/A) |
| GP[63] | 3VDUAL | -SLP_S5 | OUT | | 8.2K P/U TO 3VDUAL(N/A) |
| GP[64] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[65] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[66] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[67] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[68] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[69] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[70] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[71] | VCC3 | SPARE | OUT | | 8.2K P/U TO VCC3 |
| GP[72] | 3VDUAL | SPARE | OUT | | 8.2K P/U TO 3VDUAL |
| GP[73] | 3VDUAL | SPARE | OUT | | 8.2K P/U TO 3VDUAL |
| GP[74] | 3VDUAL | SML1ART | OUT | | 1K P/U TO 3VDUAL |
| GP[75] | 3VDUAL | SML1DAT | IN/OUT | | 8.2K P/U TO 3VDUAL |
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Gigabyte Technology

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|---------------|-------------------------|--|----------------|
| Title | | | |
| PCH GPIO LIST | | | |
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