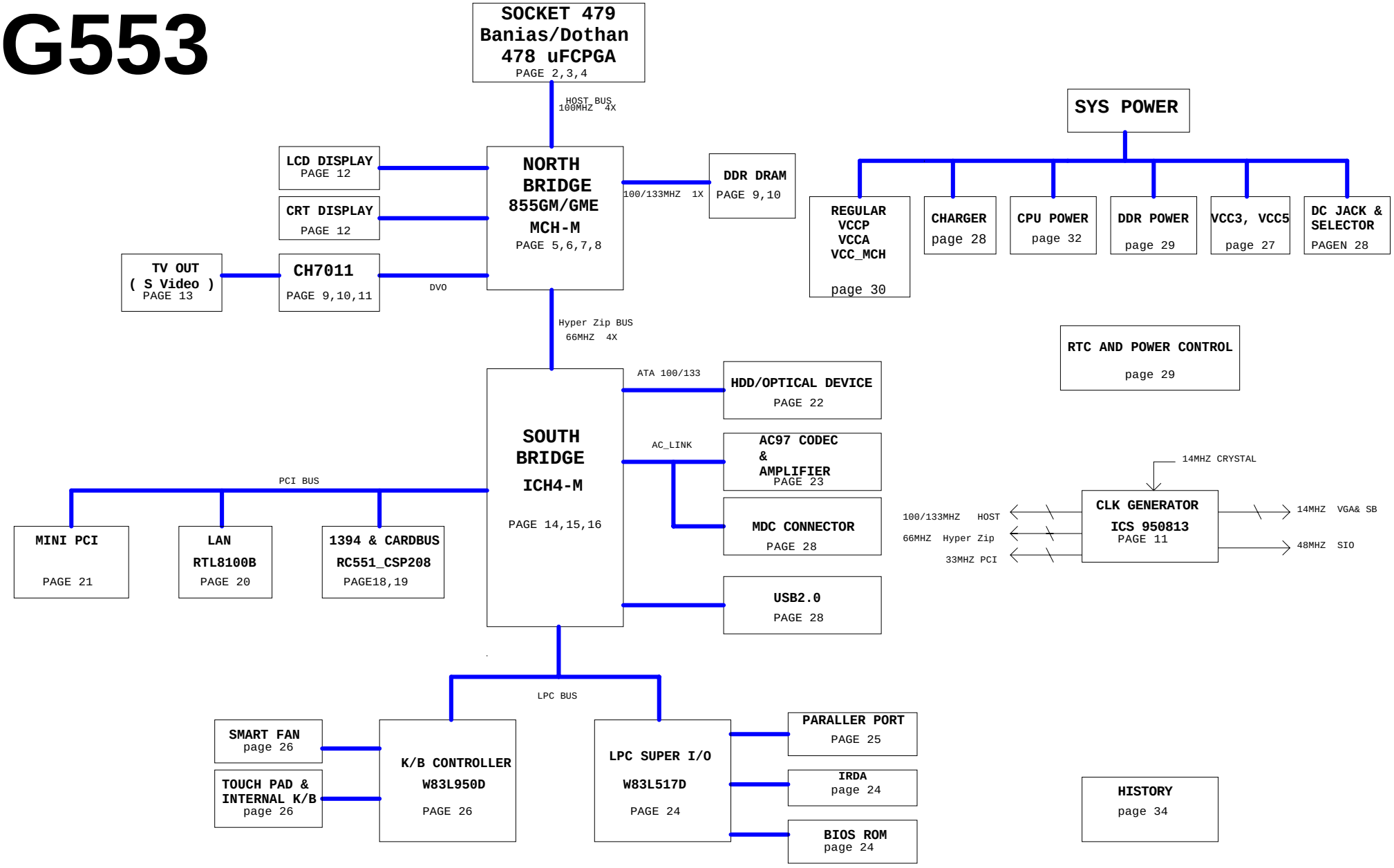
# G553




| PAGE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REV | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| DATE | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 |

| PAGE | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REV | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | |
| DATE | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | 2003 11/10 | | |

| Approved by | Checked by | Designed by |
|---|---|---|
| | | |

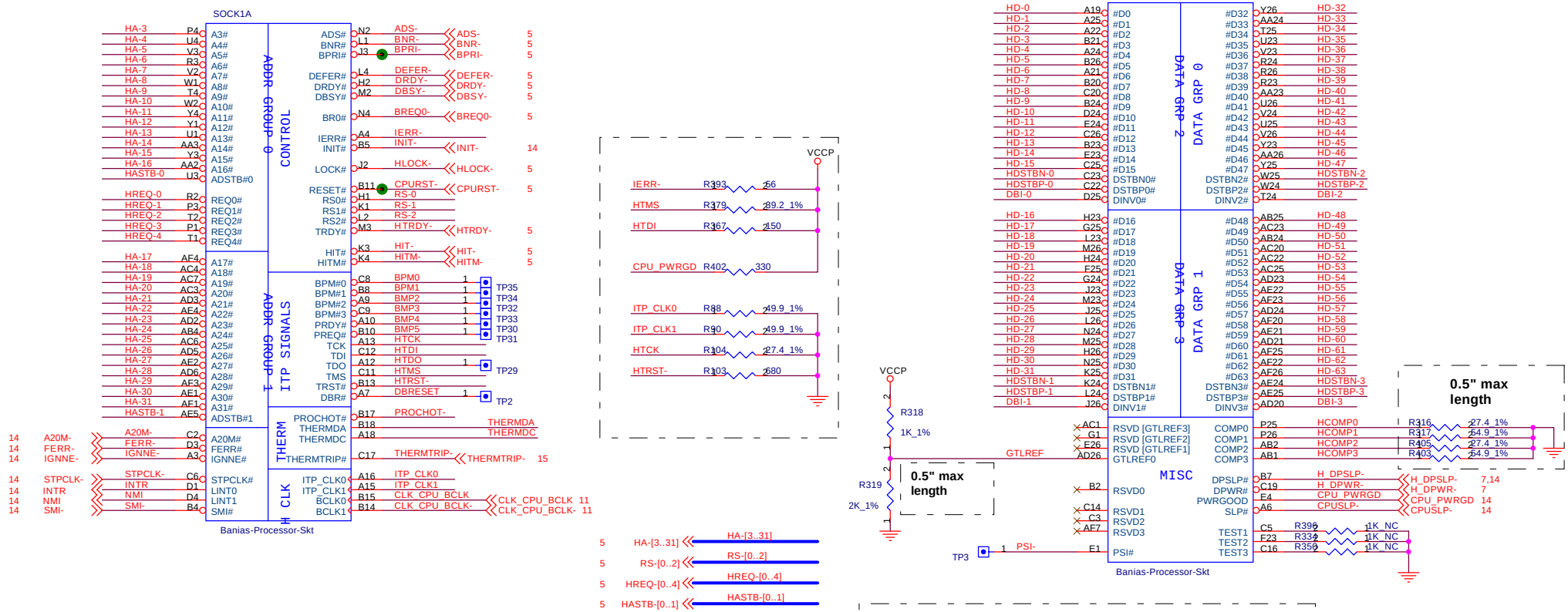
ELITEGROUP COMPUTER SYSTEM CO., LTD.

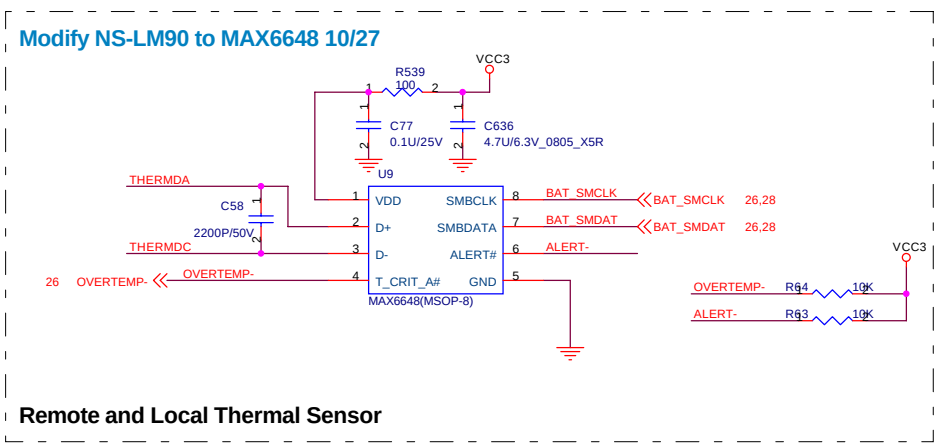
P.Leader

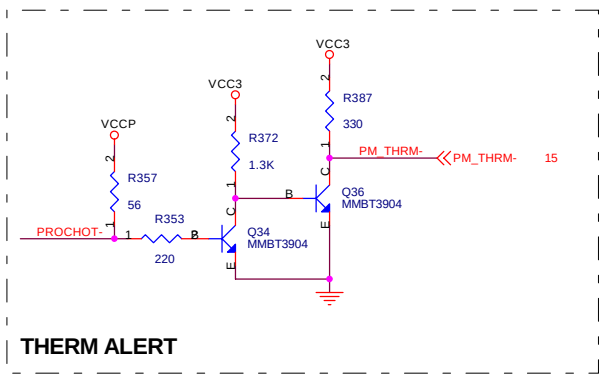
Title: G553 BLOCK DIAGRAM

Size: C | Document Number: G553-1-4-01 | Rev: 1.0

Date: Monday, November 10, 2003 | Sheet 1 of 34

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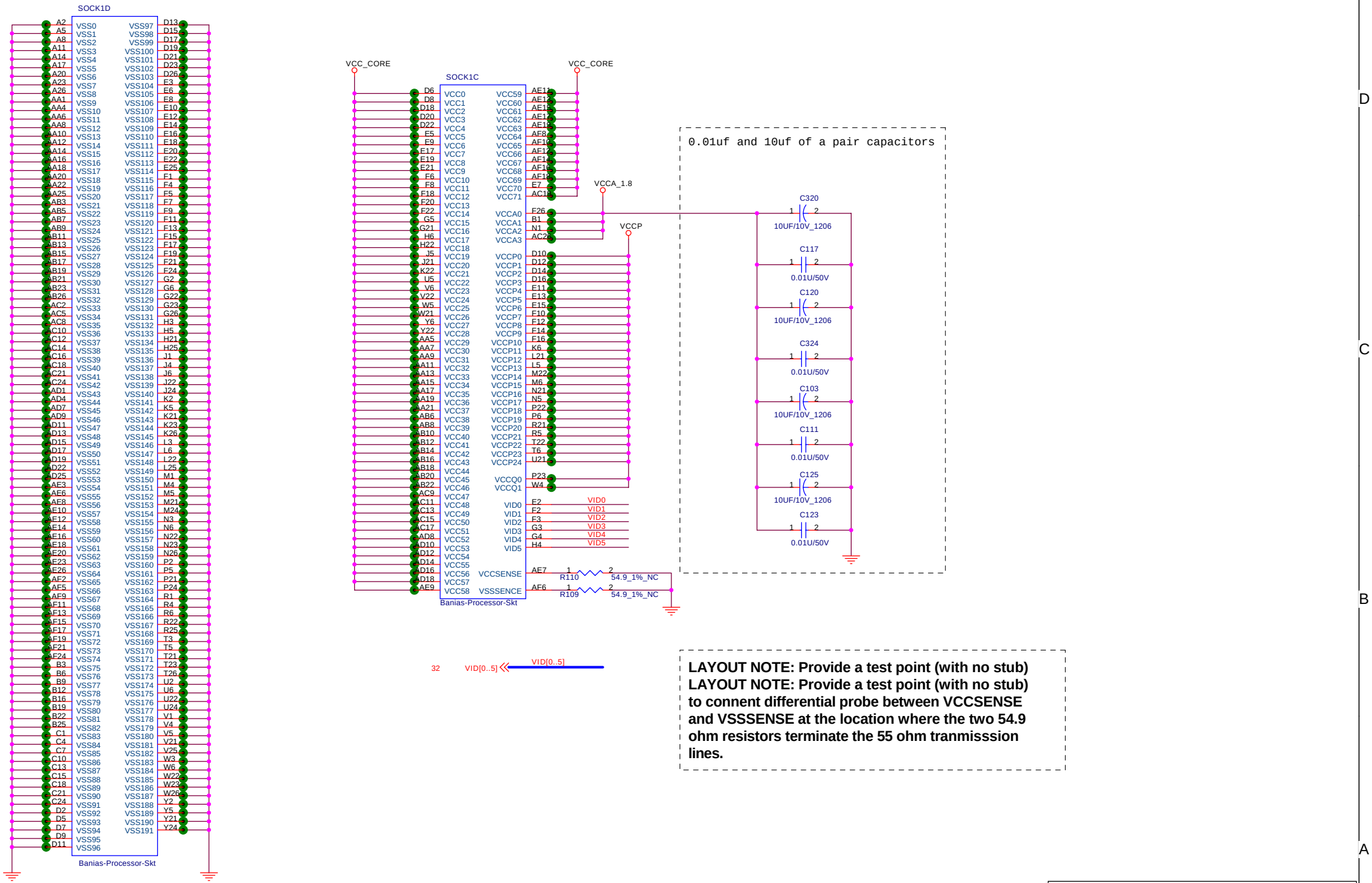
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | |
| Title | G553 Banias-1 |
| Size: A3 | Document Number: G551-1-4-01 |
| Rev: 1.0 | |
| Date: Monday, November 10, 2003 | Sheet 2 of 34 |

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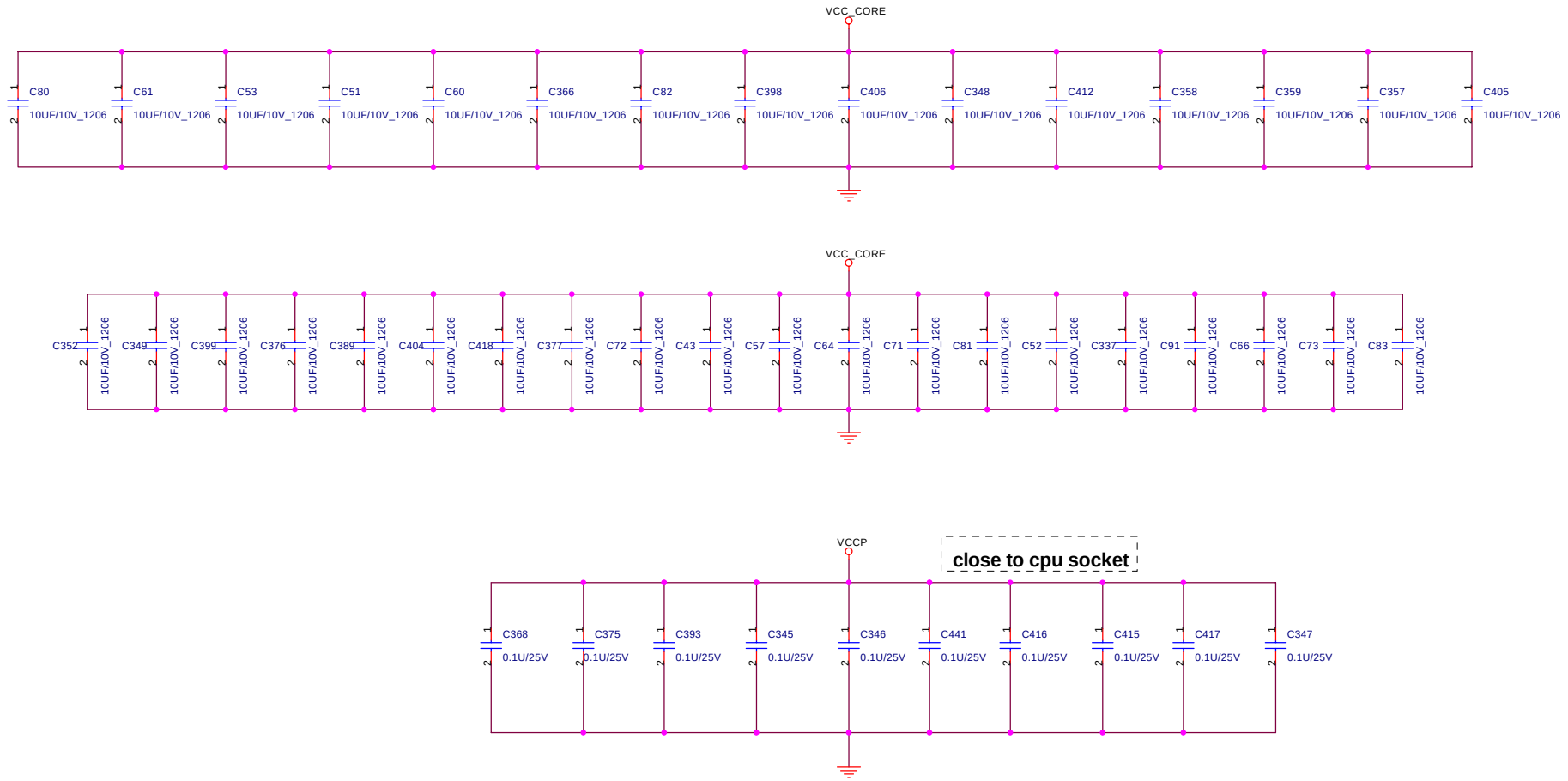
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 Banias-2 | | |
| Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 3 of 34 | |

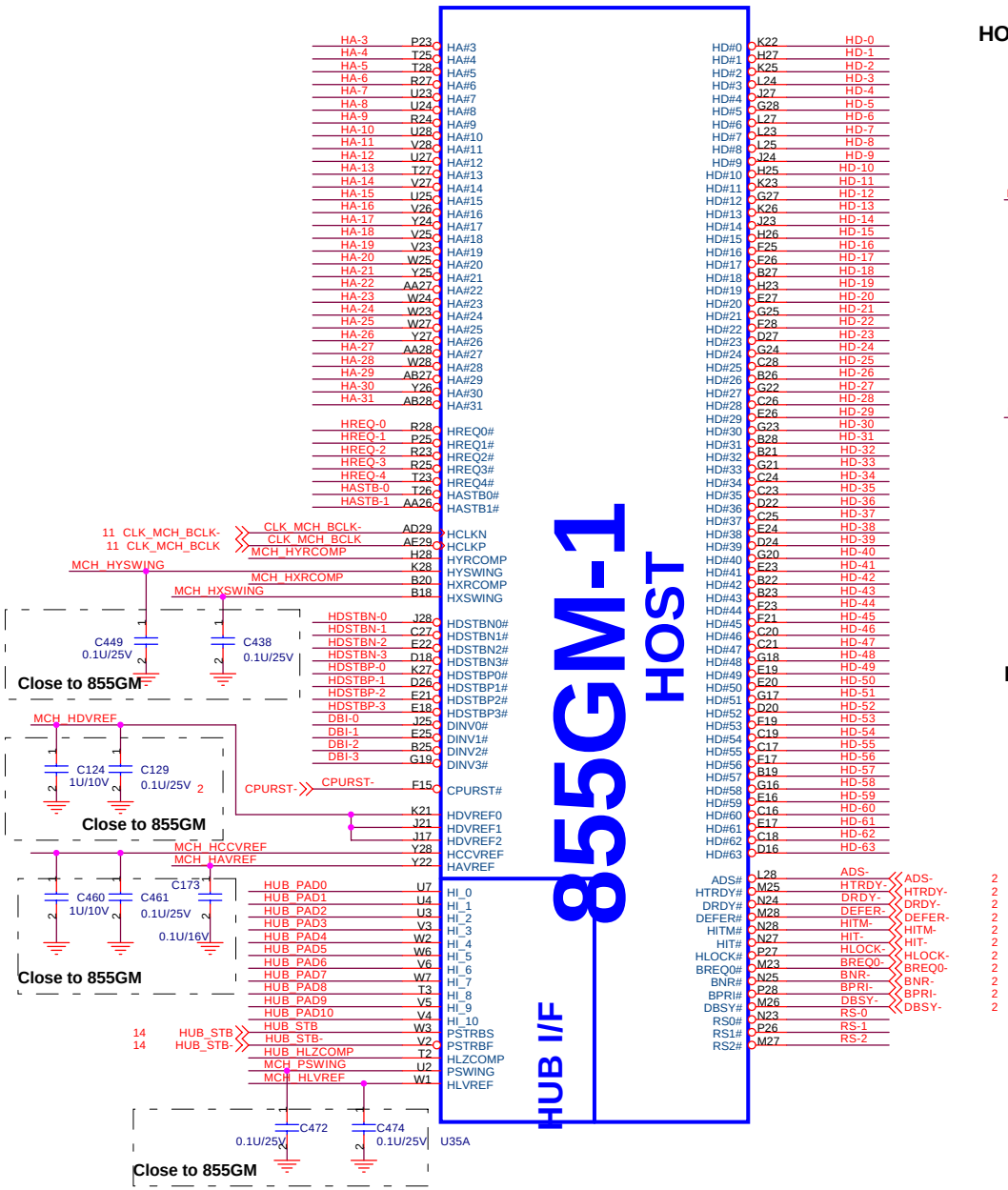



| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 Banias-3 | | |
| Size: B | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 4 of 34 | |

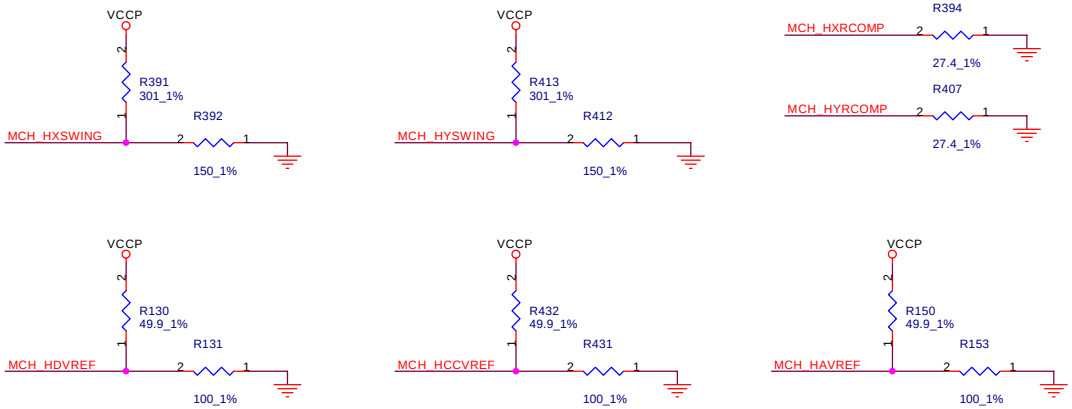
# GMCH Compensation & Reference Voltages

2 HDSTBP-[0..3] HDSTBP-[0..3]
2 HDSTBN-[0..3] HDSTBN-[0..3]
2 DBI-[0..3] DBI-[0..3]
2 HD-[0..63] HD-[0..63]
2 HASTB-[0..1] HASTB-[0..1]

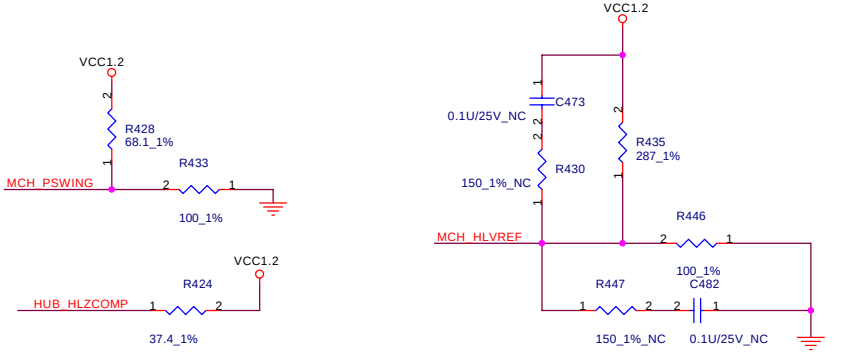
2 HA-[3..31] HA-[3..31]
2 HREQ-[0..4] HREQ-[0..4]
2 RS-[0..2] RS-[0..2]
14 HUB_PAD[0..10] HUB_PAD[0..10]




## HOST




## Hub Interface




| | 855GM | 855GME |
|---|---|---|
| R428 | 49.9_1% | 68.1_1% |
| R424 | 27.4_1% | 37.4_1% |
| R435 | 243_1% | 287_1% |

| | |
|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | |
| Title | G553 855GM (HOST/AGP) |
| Size A3 | Document Number G553-1-4-01 |
| Rev | 1.0 |
| Date: | Monday, November 10, 2003 |
| Sheet | 5 of 34 |

## DDR Serirs Termination

| | | | | | |
|---|---|---|---|---|---|
| MD2 | RP33D | 5 | 4 | 10_8P4R_0402 | /RMD2 |
| MD3 | RP33A | 8 | 1 | 10_8P4R_0402 | /RMD3 |
| MD7 | RP33B | 7 | 2 | 10_8P4R_0402 | /RMD7 |
| MD6 | RP33C | 6 | 3 | 10_8P4R_0402 | /RMD6 |
| MD4 | RP15A | 8 | 1 | 10_8P4R_0402 | /RMD4 |
| MD1 | RP15B | 7 | 2 | 10_8P4R_0402 | /RMD1 |
| MD0 | RP15C | 6 | 3 | 10_8P4R_0402 | /RMD0 |
| MD5 | RP15D | 5 | 4 | 10_8P4R_0402 | /RMD5 |
| MD11 | RP14A | 8 | 1 | 10_8P4R_0402 | /RMD11 |
| MD14 | RP14B | 7 | 2 | 10_8P4R_0402 | /RMD14 |
| MD8 | RP14C | 6 | 3 | 10_8P4R_0402 | /RMD8 |
| MD12 | RP14D | 5 | 4 | 10_8P4R_0402 | /RMD12 |
| MD13 | RP32A | 8 | 1 | 10_8P4R_0402 | /RMD13 |
| MD9 | RP32B | 7 | 2 | 10_8P4R_0402 | /RMD9 |
| MD15 | RP32C | 6 | 3 | 10_8P4R_0402 | /RMD15 |
| MD10 | RP32D | 5 | 4 | 10_8P4R_0402 | /RMD10 |
| MD20 | RP31A | 8 | 1 | 10_8P4R_0402 | /RMD20 |
| MD17 | RP31B | 7 | 2 | 10_8P4R_0402 | /RMD17 |
| MD18 | RP31C | 6 | 3 | 10_8P4R_0402 | /RMD18 |
| MD19 | RP31D | 5 | 4 | 10_8P4R_0402 | /RMD19 |
| MD23 | RP13A | 8 | 1 | 10_8P4R_0402 | /RMD23 |
| MD21 | RP13B | 7 | 2 | 10_8P4R_0402 | /RMD21 |
| MD22 | RP13C | 6 | 3 | 10_8P4R_0402 | /RMD22 |
| MD16 | RP13D | 5 | 4 | 10_8P4R_0402 | /RMD16 |
| MD24 | RP30A | 8 | 1 | 10_8P4R_0402 | /RMD24 |
| MD28 | RP30B | 7 | 2 | 10_8P4R_0402 | /RMD28 |
| MD25 | RP30C | 6 | 3 | 10_8P4R_0402 | /RMD25 |
| MD26 | RP30D | 5 | 4 | 10_8P4R_0402 | /RMD26 |
| MD31 | RP12A | 8 | 1 | 10_8P4R_0402 | /RMD31 |
| MD27 | RP12B | 7 | 2 | 10_8P4R_0402 | /RMD27 |
| MD29 | RP12C | 6 | 3 | 10_8P4R_0402 | /RMD29 |
| MD30 | RP12D | 5 | 4 | 10_8P4R_0402 | /RMD30 |
| MD35 | RP11A | 8 | 1 | 10_8P4R_0402 | /RMD35 |
| MD34 | RP11B | 7 | 2 | 10_8P4R_0402 | /RMD34 |
| MD36 | RP11C | 6 | 3 | 10_8P4R_0402 | /RMD36 |
| MD37 | RP11D | 5 | 4 | 10_8P4R_0402 | /RMD37 |
| MD32 | RP37A | 8 | 1 | 10_8P4R_0402 | /RMD32 |
| MD33 | RP37B | 7 | 2 | 10_8P4R_0402 | /RMD33 |
| MD38 | RP37C | 6 | 3 | 10_8P4R_0402 | /RMD38 |
| MD39 | RP37D | 5 | 4 | 10_8P4R_0402 | /RMD39 |
| MD42 | RP10A | 8 | 1 | 10_8P4R_0402 | /RMD42 |
| MD43 | RP10B | 7 | 2 | 10_8P4R_0402 | /RMD43 |
| MD47 | RP10C | 6 | 3 | 10_8P4R_0402 | /RMD47 |
| MD44 | RP10D | 5 | 4 | 10_8P4R_0402 | /RMD44 |
| MD45 | RP36A | 8 | 1 | 10_8P4R_0402 | /RMD45 |
| MD41 | RP36B | 7 | 2 | 10_8P4R_0402 | /RMD41 |
| MD40 | RP36C | 6 | 3 | 10_8P4R_0402 | /RMD40 |
| MD46 | RP36D | 5 | 4 | 10_8P4R_0402 | /RMD46 |
| MD54 | RP8A | 8 | 1 | 10_8P4R_0402 | /RMD54 |
| MD50 | RP8B | 7 | 2 | 10_8P4R_0402 | /RMD50 |
| MD48 | RP8C | 6 | 3 | 10_8P4R_0402 | /RMD48 |
| MD53 | RP8D | 5 | 4 | 10_8P4R_0402 | /RMD53 |
| MD52 | RP35A | 8 | 1 | 10_8P4R_0402 | /RMD52 |
| MD49 | RP35B | 7 | 2 | 10_8P4R_0402 | /RMD49 |
| MD55 | RP35C | 6 | 3 | 10_8P4R_0402 | /RMD55 |
| MD51 | RP35D | 5 | 4 | 10_8P4R_0402 | /RMD51 |
| MD60 | RP34A | 8 | 1 | 10_8P4R_0402 | /RMD60 |
| MD56 | RP34B | 7 | 2 | 10_8P4R_0402 | /RMD56 |
| MD59 | RP34C | 6 | 3 | 10_8P4R_0402 | /RMD59 |
| MD58 | RP34D | 5 | 4 | 10_8P4R_0402 | /RMD58 |
| MD63 | RP9A | 8 | 1 | 10_8P4R_0402 | /RMD63 |
| MD62 | RP9B | 7 | 2 | 10_8P4R_0402 | /RMD62 |
| MD57 | RP9C | 6 | 3 | 10_8P4R_0402 | /RMD57 |
| MD61 | RP9D | 5 | 4 | 10_8P4R_0402 | /RMD61 |

| | | | | | |
|---|---|---|---|---|---|
| /RDQS0 | R492 | 2 | 1 | 10_1%_0402 | M_DQS0 |
| /RDQS1 | R495 | 2 | 1 | 10_1%_0402 | M_DQS1 |
| /RDQS2 | R503 | 2 | 1 | 10_1%_0402 | M_DQS2 |
| /RDQS3 | R502 | 2 | 1 | 10_1%_0402 | M_DQS3 |
| /RDQS4 | R500 | 2 | 1 | 10_1%_0402 | M_DQS4 |
| /RDQS5 | R498 | 2 | 1 | 10_1%_0402 | M_DQS5 |
| /RDQS6 | R496 | 2 | 1 | 10_1%_0402 | M_DQS6 |
| /RDQS7 | R494 | 2 | 1 | 10_1%_0402 | M_DQS7 |

| | | | | | |
|---|---|---|---|---|---|
| /RDM0 | R507 | 2 | 1 | 10_1%_0402 | M_DM0 |
| /RDM1 | R506 | 2 | 1 | 10_1%_0402 | M_DM1 |
| /RDM2 | R504 | 2 | 1 | 10_1%_0402 | M_DM2 |
| /RDM3 | R501 | 2 | 1 | 10_1%_0402 | M_DM3 |
| /RDM4 | R499 | 2 | 1 | 10_1%_0402 | M_DM4 |
| /RDM5 | R497 | 2 | 1 | 10_1%_0402 | M_DM5 |
| /RDM6 | R495 | 2 | 1 | 10_1%_0402 | M_DM6 |
| /RDM7 | R493 | 2 | 1 | 10_1%_0402 | M_DM7 |

U35B

| | | | | | |
|---|---|---|---|---|---|
| MD0 | AF2 | SDQ0 | SMA0 | AC18 | M_A0 |
| MD1 | AE3 | SDQ1 | SMA1 | AD14 | M_A1 |
| MD2 | AF4 | SDQ2 | SMA2 | AD13 | M_A2 |
| MD3 | AH2 | SDQ3 | SMA3 | AD17 | M_A3 |
| MD4 | AD3 | SDQ4 | SMA4 | AD11 | M_A4 |
| MD5 | AE2 | SDQ5 | SMA5 | AC13 | M_A5 |
| MD6 | AG4 | SDQ6 | SMA6 | AD8 | M_A6 |
| MD7 | AH3 | SDQ7 | SMA7 | AD7 | M_A7 |
| MD8 | AD6 | SDQ8 | SMA8 | AC6 | M_A8 |
| MD9 | AG5 | SDQ9 | SMA9 | AC5 | M_A9 |
| MD10 | AG7 | SDQ10 | SMA10 | AC19 | M_A10 |
| MD11 | AE8 | SDQ11 | SMA11 | AD5 | M_A11 |
| MD12 | AF5 | SDQ12 | SMA12 | AB5 | M_A12 |
| MD13 | AH4 | SDQ13 | | | |
| MD14 | AF7 | SDQ14 | | | |
| MD15 | AH6 | SDQ15 | | | |
| MD16 | AF8 | SDQ16 | SMA_B1 | AD16 | M_AB1 |
| MD17 | AG8 | SDQ17 | SMA_B2 | AC12 | M_AB2 |
| MD18 | AH9 | SDQ18 | SMA_B4 | AF11 | M_AB4 |
| MD19 | AG10 | SDQ19 | SMA_B5 | AD10 | M_AB5 |
| MD20 | AH7 | SDQ20 | | | |
| MD21 | AD9 | SDQ21 | | | |
| MD22 | AF10 | SDQ22 | SCKE0 | AC7 | CKE0 |
| MD23 | AE11 | SDQ23 | SCKE1 | AB7 | CKE1 |
| MD24 | AH10 | SDQ24 | SCKE2 | AC9 | CKE2 |
| MD25 | AH11 | SDQ25 | SCKE3 | AC10 | CKE3 |
| MD26 | AG13 | SDQ26 | SCS0# | AD23 | /RCS-0 |
| MD27 | AF14 | SDQ27 | SCS1# | AD26 | /RCS-1 |
| MD28 | AG11 | SDQ28 | SCS2# | AC22 | /RCS-2 |
| MD29 | AD12 | SDQ29 | SCS3# | AC25 | /RCS-3 |
| MD30 | AF13 | SDQ30 | | | |
| MD31 | AH13 | SDQ31 | SBA0 | AD22 | M_BS0 |
| MD32 | AH16 | SDQ32 | SBA1 | AD20 | M_BS1 |
| MD33 | AG17 | SDQ33 | | | |
| MD34 | AF19 | SDQ34 | | | |
| MD35 | AE20 | SDQ35 | SRAS# | AC21 | M_RAS- |
| MD36 | AD18 | SDQ36 | SCAS# | AC24 | M_CAS- |
| MD37 | AE18 | SDQ37 | SWE# | AD25 | M_WE- |
| MD38 | AH18 | SDQ38 | | | |
| MD39 | AG19 | SDQ39 | | | |
| MD40 | AH20 | SDQ40 | SCK0 | AB2 | M_CLK0 |
| MD41 | AG20 | SDQ41 | SCK#0 | AA2 | M_CLK-0 |
| MD42 | AF22 | SDQ42 | SCK1 | AC26 | M_CLK1 |
| MD43 | AH22 | SDQ43 | SCK#1 | AB25 | M_CLK-1 |
| MD44 | AF20 | SDQ44 | SCK2 | AC3 | M_CLK2 |
| MD45 | AH19 | SDQ45 | SCK#2 | AD4 | M_CLK-2 |
| MD46 | AH21 | SDQ46 | SCK3 | AC2 | M_CLK3 |
| MD47 | AG22 | SDQ47 | SCK#3 | AD2 | M_CLK-3 |
| MD48 | AE23 | SDQ48 | SCK4 | AB23 | M_CLK4 |
| MD49 | AH23 | SDQ49 | SCK#4 | AB24 | M_CLK-4 |
| MD50 | AE24 | SDQ50 | SCK5 | AA3 | M_CLK5 |
| MD51 | AH25 | SDQ51 | SCK#5 | AB4 | M_CLK-5 |
| MD52 | AG23 | SDQ52 | | | |
| MD53 | AF23 | SDQ53 | | | |
| MD54 | AF25 | SDQ54 | SDQS0 | AG2 | M_DQS0 |
| MD55 | AG25 | SDQ55 | SDQS1 | AH5 | M_DQS1 |
| MD56 | AH26 | SDQ56 | SDQS2 | AH8 | M_DQS2 |
| MD57 | AE26 | SDQ57 | SDQS3 | AE12 | M_DQS3 |
| MD58 | AG28 | SDQ58 | SDQS4 | AH17 | M_DQS4 |
| MD59 | AF28 | SDQ59 | SDQS5 | AE21 | M_DQS5 |
| MD60 | AG26 | SDQ60 | SDQS6 | AH24 | M_DQS6 |
| MD61 | AF26 | SDQ61 | SDQS7 | AH27 | M_DQS7 |
| MD62 | AE27 | SDQ62 | SDQS8 | AD15 | |
| MD63 | AD27 | SDQ63 | SDM0 | AF6 | M_DM0 |
| | AG14 | SDQ64 | SDM1 | AE5 | M_DM1 |
| | AE14 | SDQ65 | SDM2 | AF9 | M_DM2 |
| | AE17 | SDQ66 | SDM3 | AH12 | M_DM3 |
| | AG16 | SDQ67 | SDM4 | AD19 | M_DM4 |
| | AH14 | SDQ68 | SDM5 | AD21 | M_DM5 |
| | AE15 | SDQ69 | SDM6 | AD24 | M_DM6 |
| | AF16 | SDQ70 | SDM7 | AH28 | M_DM7 |
| | AF17 | SDQ71 | SDM8 | AH15 | |

855GM-2

DDR SYSTEM MEMORY

SM_VREF_MCH — AJ24 SMVREF

100P/50V C202, 1000P/50V C517, C511 0.1U/25V

Close to 855GM

SRCVENOUT# AC15, SRCVENIN AC16 — R164 0_0402_NC

SMRCOMP AB1 — MCH_SMRCOMP

SMVREF0 AJ22 — MCH_SMVSWINGL

SMVREF1 AJ19 — MCH_SMVSWINGH

C197 0.1U/25V, C195 0.1U/25V, C476 0.1U/25V

Close to 855GM

/RMD[0..63] /RMD[0..63] 9,10
/RDQS[0..7] /RDQS[0..7] 9,10
/RCS-[0..3] /RCS-[0..3] 9,10
CKE[0..3] CKE[0..3] 9,10
M_A[6..12] M_A[6..12] 9,10
/RDM[0..7] /RDM[0..7] 9,10
M_CLK[0..5] M_CLK[0..5] 9
M_CLK-[0..5] M_CLK-[0..5] 9

## System Memory

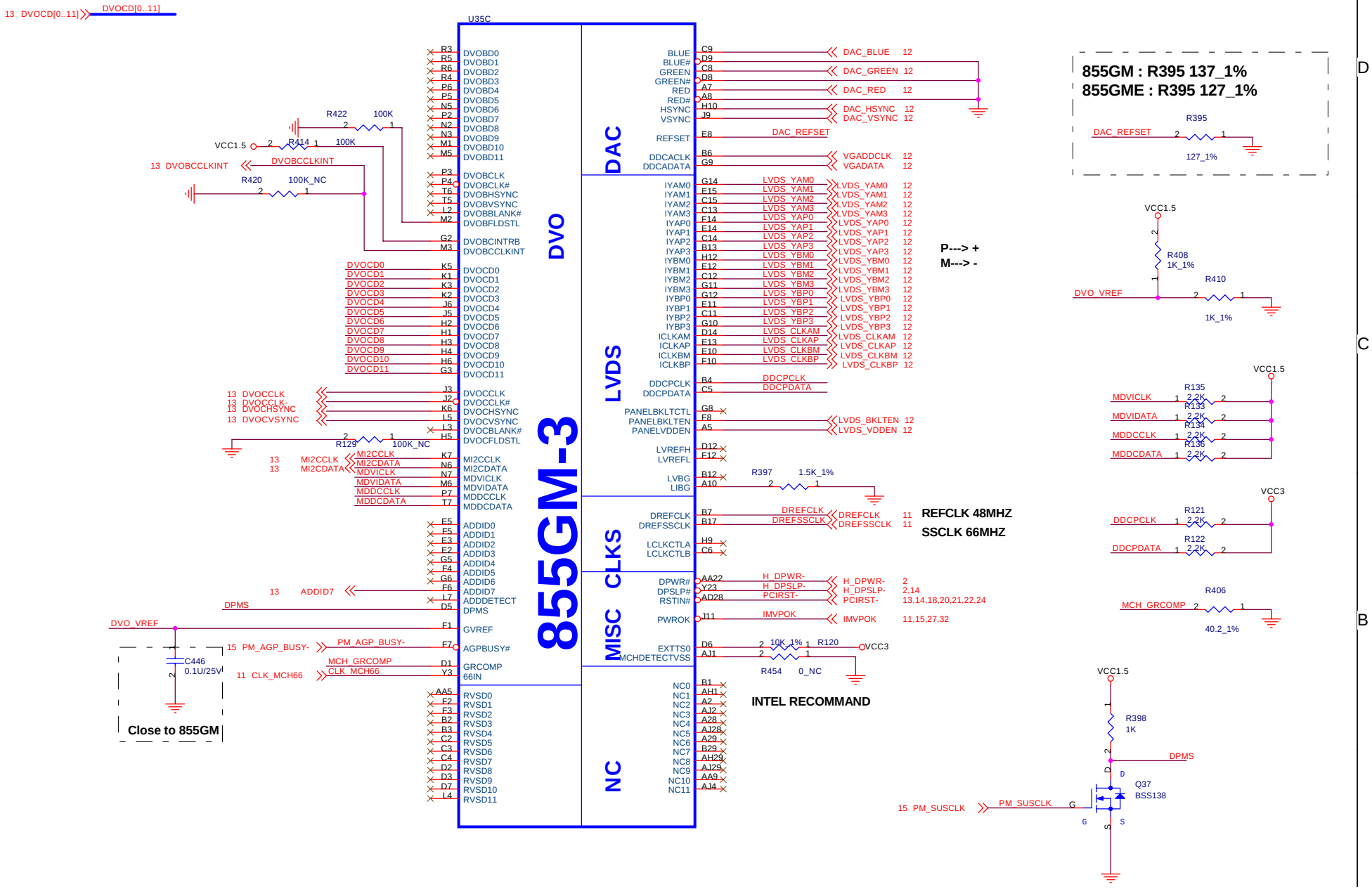
VCC_DIMM — R177 1K_1% — R472 1K_1% — SM_VREF_MCH

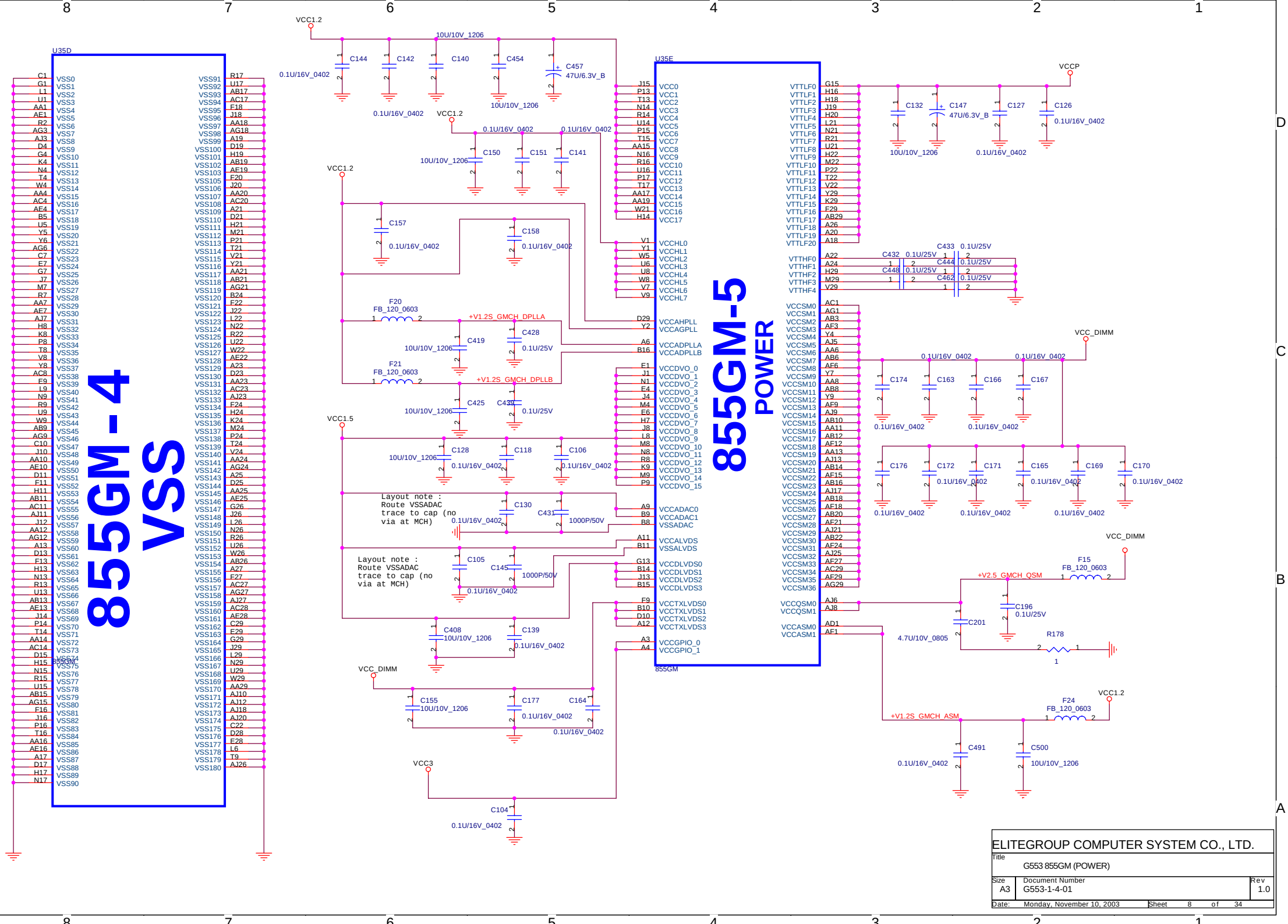
VCC_DIMM — R176 604_1% — R173 150_1% — MCH_SMVSWINGL

VCC_DIMM — R175 150_1% — R172 604_1% — MCH_SMVSWINGH

VCC_DIMM — R450 60.4_1% — C485 0.1U/25V — R448 60.4_1% — MCH_SMRCOMP

| | |
|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | |
| Title | G553 855GM-2 (RAM CONTROLLER) |
| Size A3 | Document Number G553-1-4-01 |
| Rev | 1.0 |
| Date: Monday, November 10, 2003 | Sheet 6 of 34 |


855GM-3
DVO
DAC
LVDS
CLKS
MISC
NC
U35C
855GM : R395 137_1%
855GME : R395 127_1%
P---> +
M---> -
REFCLK 48MHZ
SSCLK 66MHZ
INTEL RECOMMAND
Close to 855GM
ELITEGROUP COMPUTER SYSTEM CO., LTD.
G553 855GM (HYPERZIP/VGA)
Size B
Document Number G553-1-4-01
Rev 1.0
Date: Monday, November 10, 2003
Sheet 7 of 34


855GM-4
VSS
U35D
855GM
U35E
855GM-5
POWER
VCC1.2
VCC1.5
VCC_DIMM
VCCP
VCC3
+V1.2S_GMCH_DPLLA
+V1.2S_GMCH_DPLLB
+V2.5_GMCH_QSM
+V1.2S_GMCH_ASM
Layout note : Route VSSADAC trace to cap (no via at MCH)
Layout note : Route VSSADAC trace to cap (no via at MCH)
ELITEGROUP COMPUTER SYSTEM CO., LTD.
Title
G553 855GM (POWER)
Size
A3
Document Number
G553-1-4-01
Rev
1.0
Date:
Monday, November 10, 2003
Sheet
8
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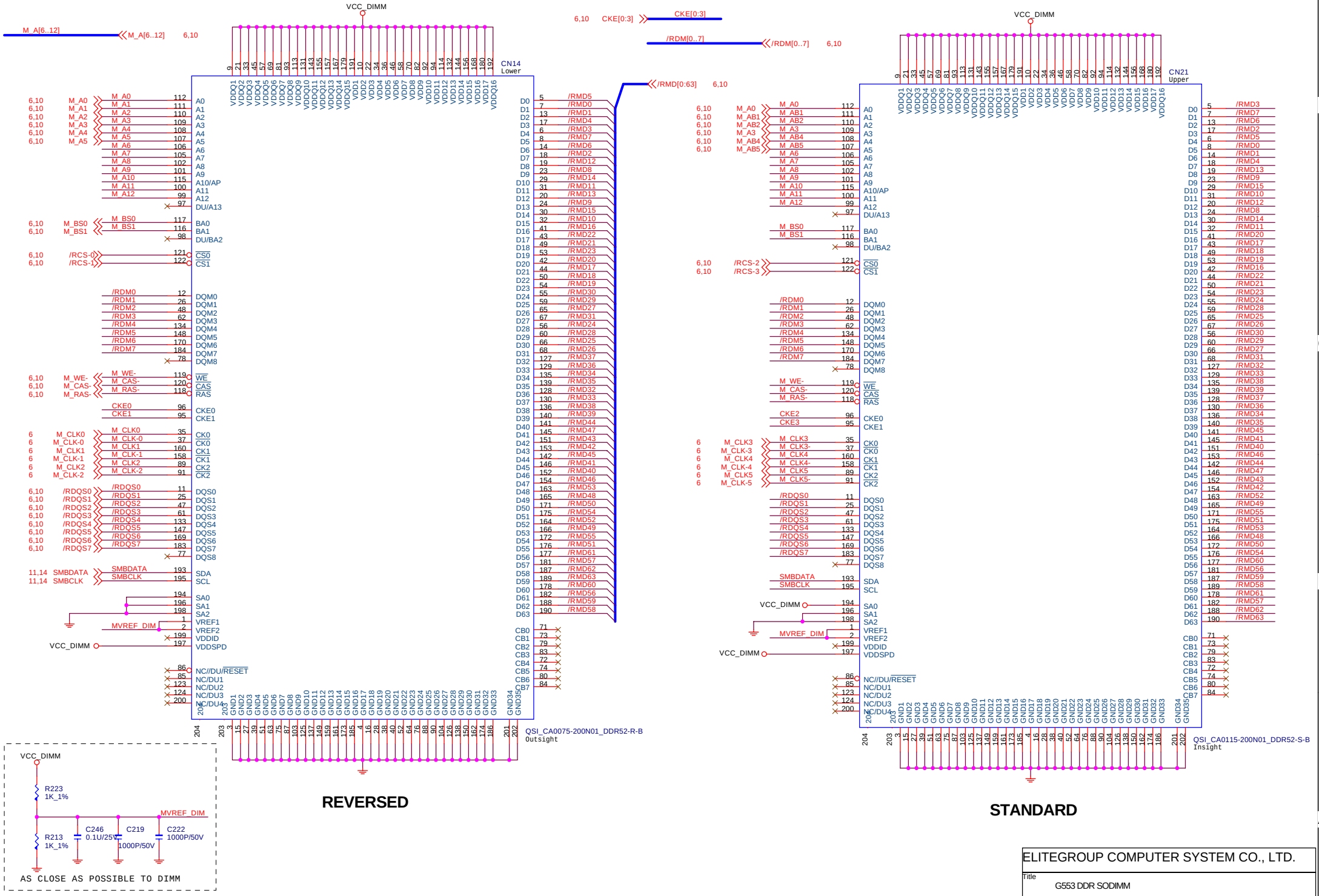
34




| | |
|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | |
| Title | G553 DDR SODIMM |
| Size: A3 | Document Number: G553-1-4-01 |
| Rev | 1.0 |
| Date: Monday, November 10, 2003 | Sheet 9 of 34 |

# DDR Parallel Termination

/RMD[0..63] /RMD[0..63] 6,9
/RDQS[0..7] /RDQS[0..7] 6,9
M_A[6..12] M_A[6..12] 6,9
/RCS-[0..3] /RCS-[0..3] 6,9
CKE[0..3] CKE[0..3] 6,9
M_BS[0..1] M_BS[0..1] 6,9
/RDM[0..7] /RDM[0..7] 6,9

DDR_VTT

RP41 56_8P4R_0402 /RCS-2, M_WE-, M_BS0, M_A10 — M_WE- 6,9
RP42 56_8P4R_0402 M_A1, M_A3, M_A5, M_A7 — M_A1 6,9; M_A3 6,9; M_A5 6,9
RP44 56_8P4R_0402 M_A9, M_A12
C247 10UF/10V_1206
RP19 56_8P4R_0402 M_BS1, M_RAS-, M_CAS-, /RCS-3 — M_RAS- 6,9; M_CAS- 6,9
RP20 56_8P4R_0402 M_A6, M_A4, M_A2, M_A0 — M_A4 6,9; M_A2 6,9; M_A0 6,9
RP21 56_8P4R_0402 M_A11, M_A8
RP43 56_8P4R_0402 M_AB1, M_AB2, M_AB4, M_AB5 — M_AB1 6,9; M_AB2 6,9; M_AB4 6,9; M_AB5 6,9
R244 56.2_1%_0402 /RCS-0
R243 56.2_1%_0402 /RCS-1
R509 R508 R507 R506 56_0402 /RDM0 /RDM1 /RDM2 /RDM3
R505 R504 R502 R503 56_0402 /RDM4 /RDM5 /RDM6 /RDM7

DDR_VTT

RP22 56_8P4R_0402 CKE0 CKE2 CKE1 CKE3

DDR_VTT

C272 C269 C266 C271 C267 C265 0.1U/16V_0402

DDR_VTT

C261 C248 C270 C607 C262 C250 C249 C256 C268 C263 C255 C254 C251 C252 C253 C258 C257 C259 C260 0.1U/16V_0402

DDR_VTT

C603 C604 C605 C619 C614 C616 C617 C610 C611 C599 C600 C608 C609 C595 0.1U/16V_0402

DDR_VTT

RP26 RP25 RP47 RP24 RP46 RP45 RP23 RP18 RP40 RP27 RP49 RP39 RP17 RP38 RP16 56_8P4R_0402
/RMD5 /RMD0 /RMD1 /RMD4 /RMD2 /RMD6 /RMD7 /RMD3 /RMD12 /RMD8 /RMD14 /RMD11 /RMD10 /RMD15 /RMD9 /RMD13 /RMD16 /RMD22 /RMD21 /RMD23 /RMD19 /RMD18 /RMD17 /RMD20 /RMD26 /RMD25 /RMD28 /RMD24 /RMD30 /RMD29 /RMD27 /RMD31 /RMD37 /RMD36 /RMD34 /RMD35 /RMD39 /RMD38 /RMD33 /RMD32 /RMD44 /RMD47 /RMD43 /RMD42 /RMD46 /RMD40 /RMD41 /RMD45 /RMD51 /RMD55 /RMD49 /RMD52 /RMD53 /RMD48 /RMD50 /RMD54 /RMD58 /RMD59 /RMD56 /RMD60 /RMD61 /RMD57 /RMD62 /RMD63

R247 R248 R246 R245 R242 R241 R240 R239 56.2_1%_0402 /RDQS0 /RDQS1 /RDQS2 /RDQS3 /RDQS4 /RDQS5 /RDQS6 /RDQS7

VCC_DIMM

DIMM DECOUPLING

C573 C569 C572 C568 C232 C230 C229 C235 C576 C236 C238 C237 C228 C571 C241 C231 C239 C565 C566 C240 C575 C564 C183 C227 C570 C234 C567 C574 C242 C577 C233 0.1U/16V_0402

DDR_VTT

C606 C596 C594 C599 C602 C613 C273 C264 C593 C597 C601 C612 C618 C615 0.1U/16V_0402

ELITEGROUP COMPUTER SYSTEM CO., LTD.

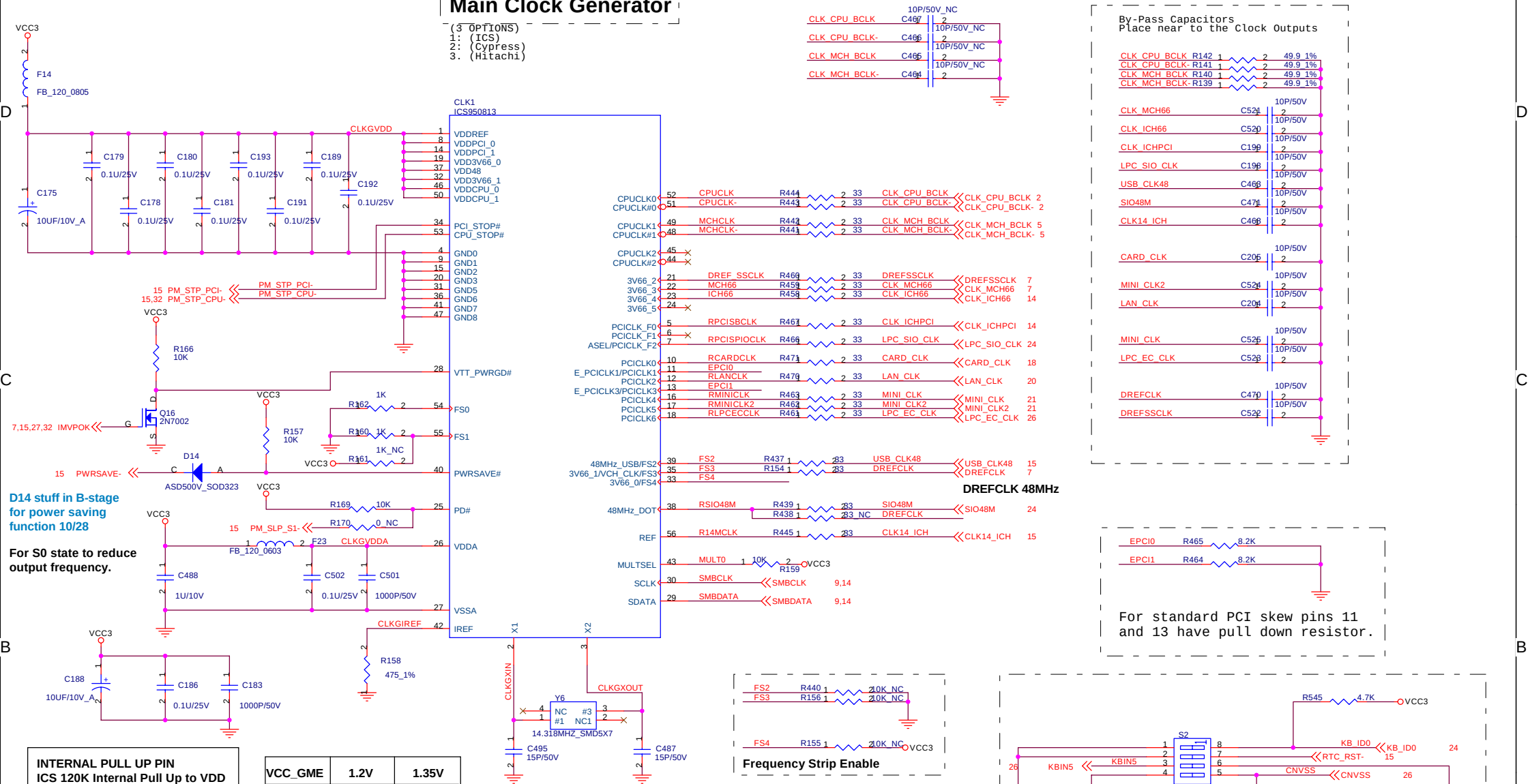
Title: G553 DDR_RES VTT

Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0

Date: Monday, November 10, 2003 | Sheet 10 of 34

# Main Clock Generator

(3 OPTIONS)
1: (ICS)
2: (Cypress)
3. (Hitachi)




**D14 stuff in B-stage for power saving function 10/28**

**For S0 state to reduce output frequency.**

**INTERNAL PULL UP PIN**
**ICS 120K Internal Pull Up to VDD**
**CPU_STOP#**
**PCI_STOP#**
**PWRSAVE#**
**MULTSEL#**
**PD#**

| VCC_GME | 1.2V | 1.35V |
|---|---|---|
| S2-Pin1 | O | X |
| S2-Pin8 | X | O |

| | CPU | AGP | PCI |
|---|---|---|---|
| General | 100MHZ | 66MHZ | 33MHZ |
| PWRSAVE# | 80MHZ | 53MHZ | 26MHZ |

FS0:0
FS1:0 — Defult

FS2:0
FS3:0
FS4:1 — Frequency Strip

**DREFCLK 48MHz**

**Frequency Strip Enable**

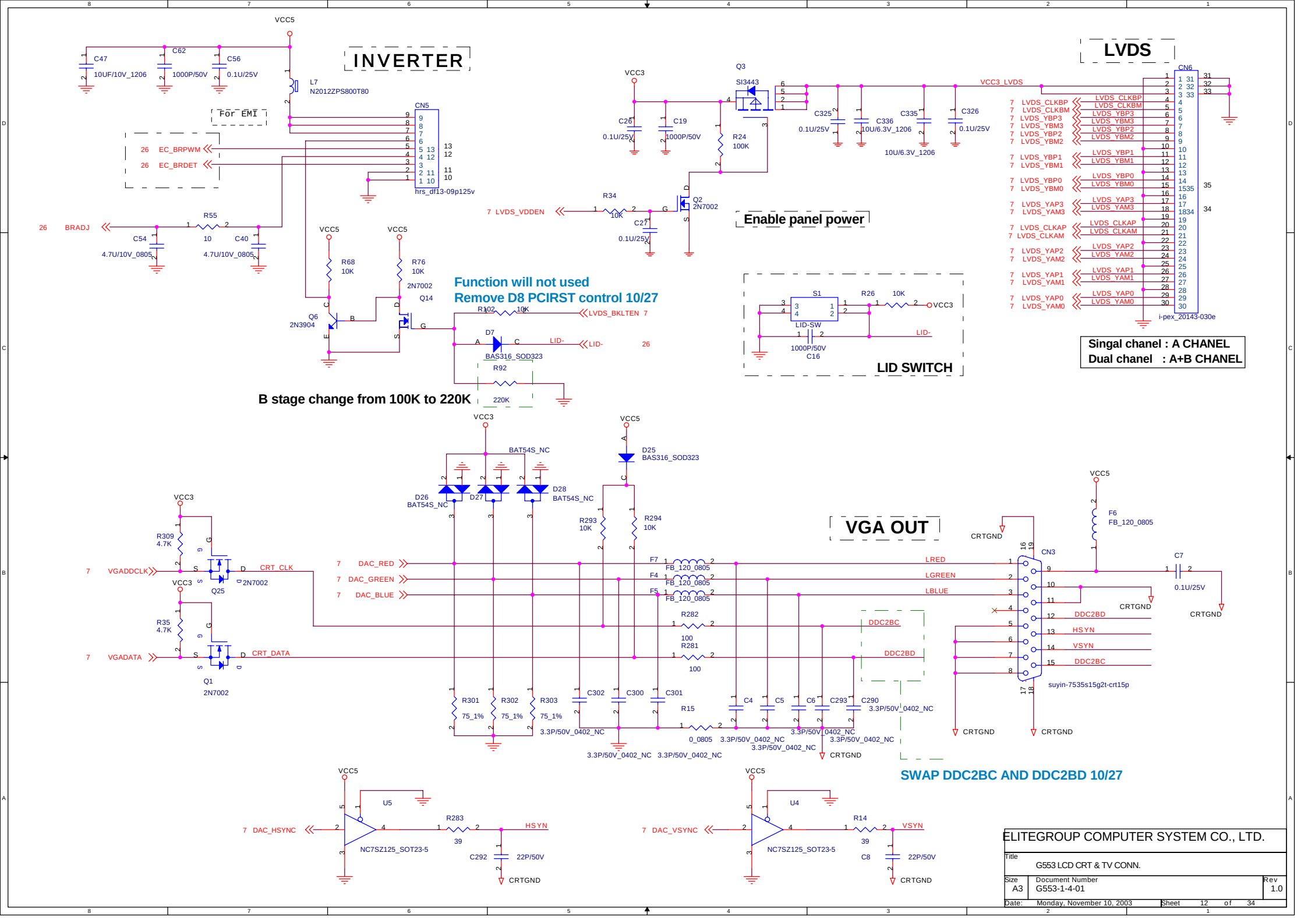
**PANEL ID SW & KB ID1**

**EC PROGRAM & RTC RESET & KBID0**

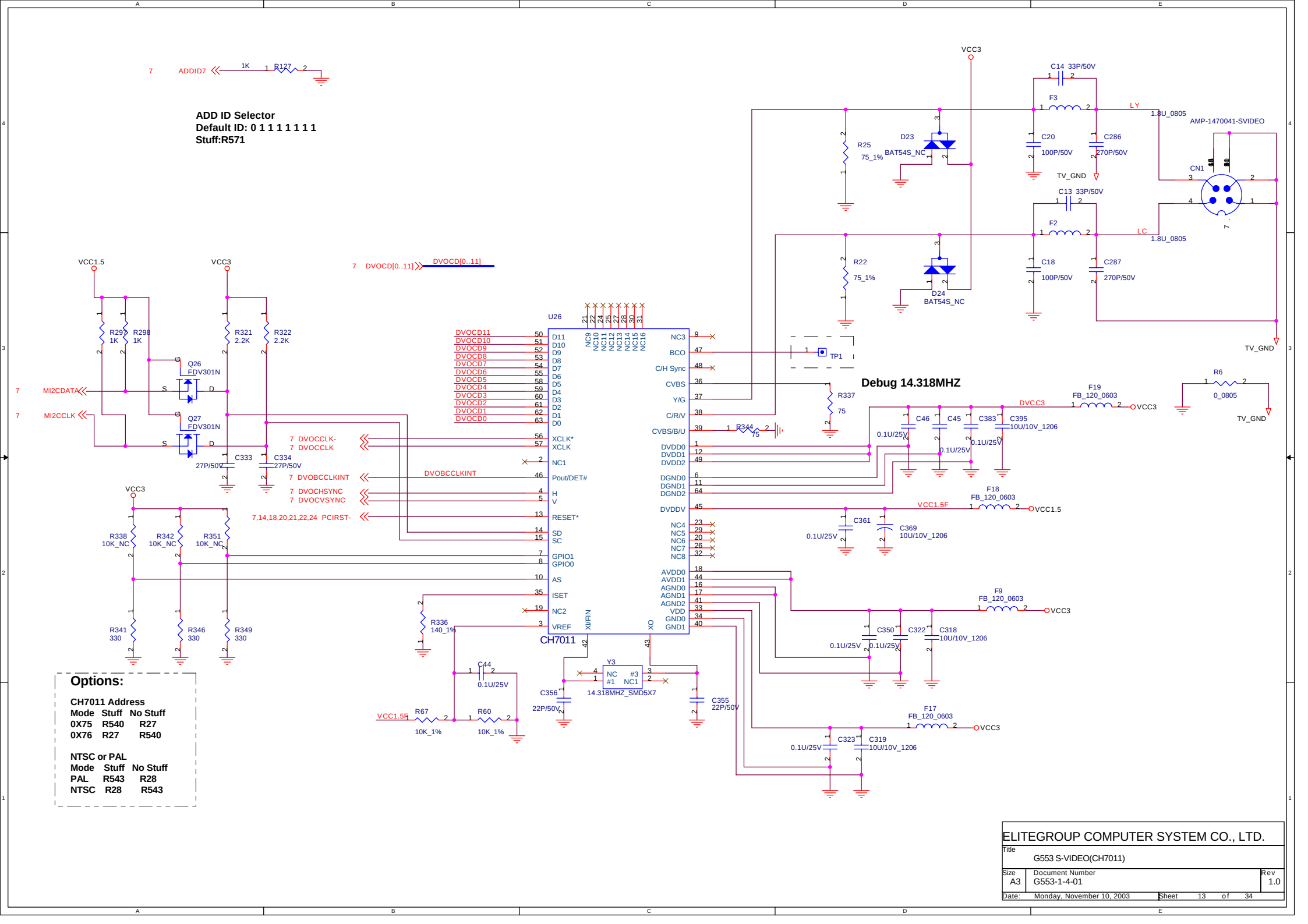
By-Pass Capacitors
Place near to the Clock Outputs

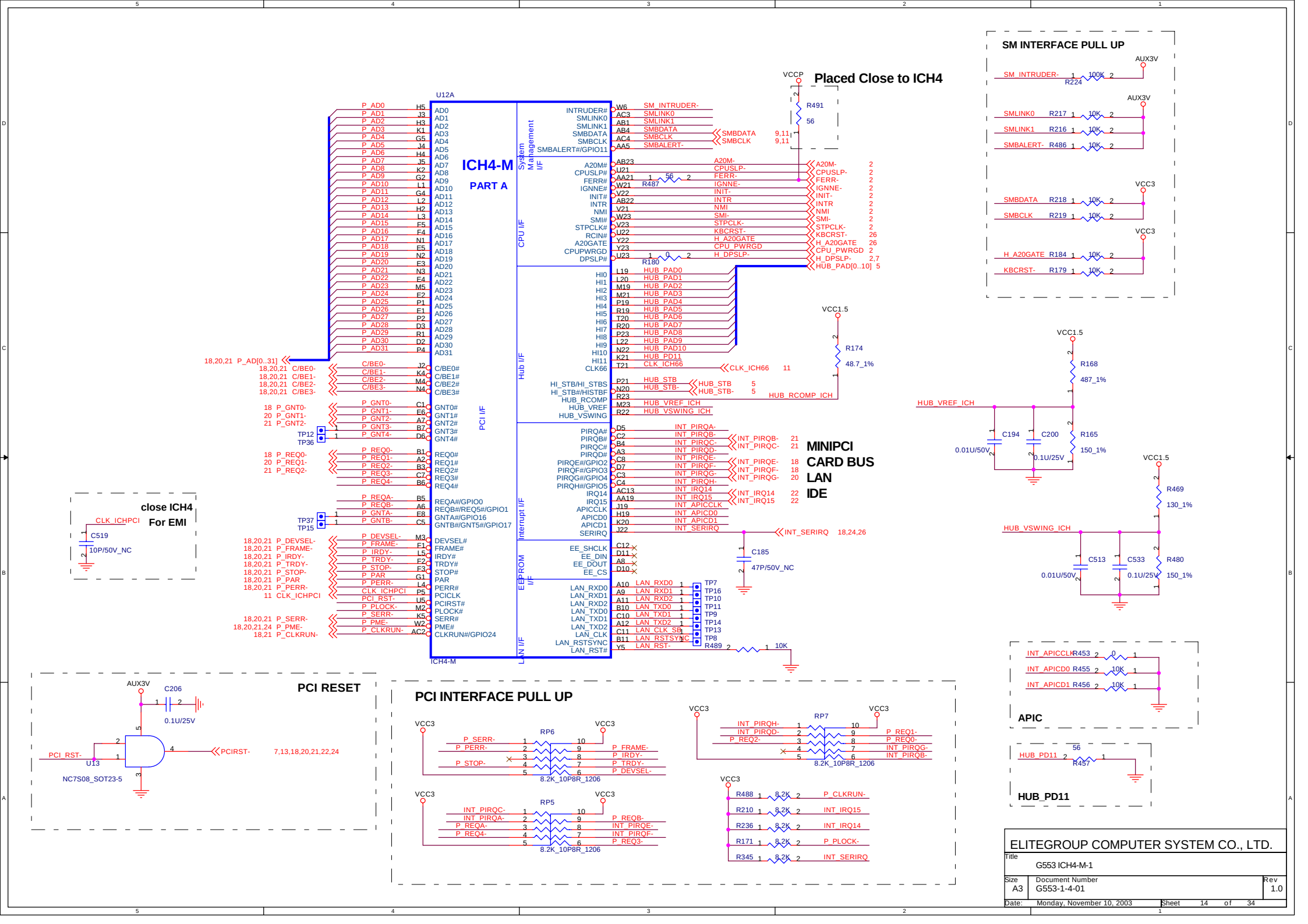
For standard PCI skew pins 11 and 13 have pull down resistor.

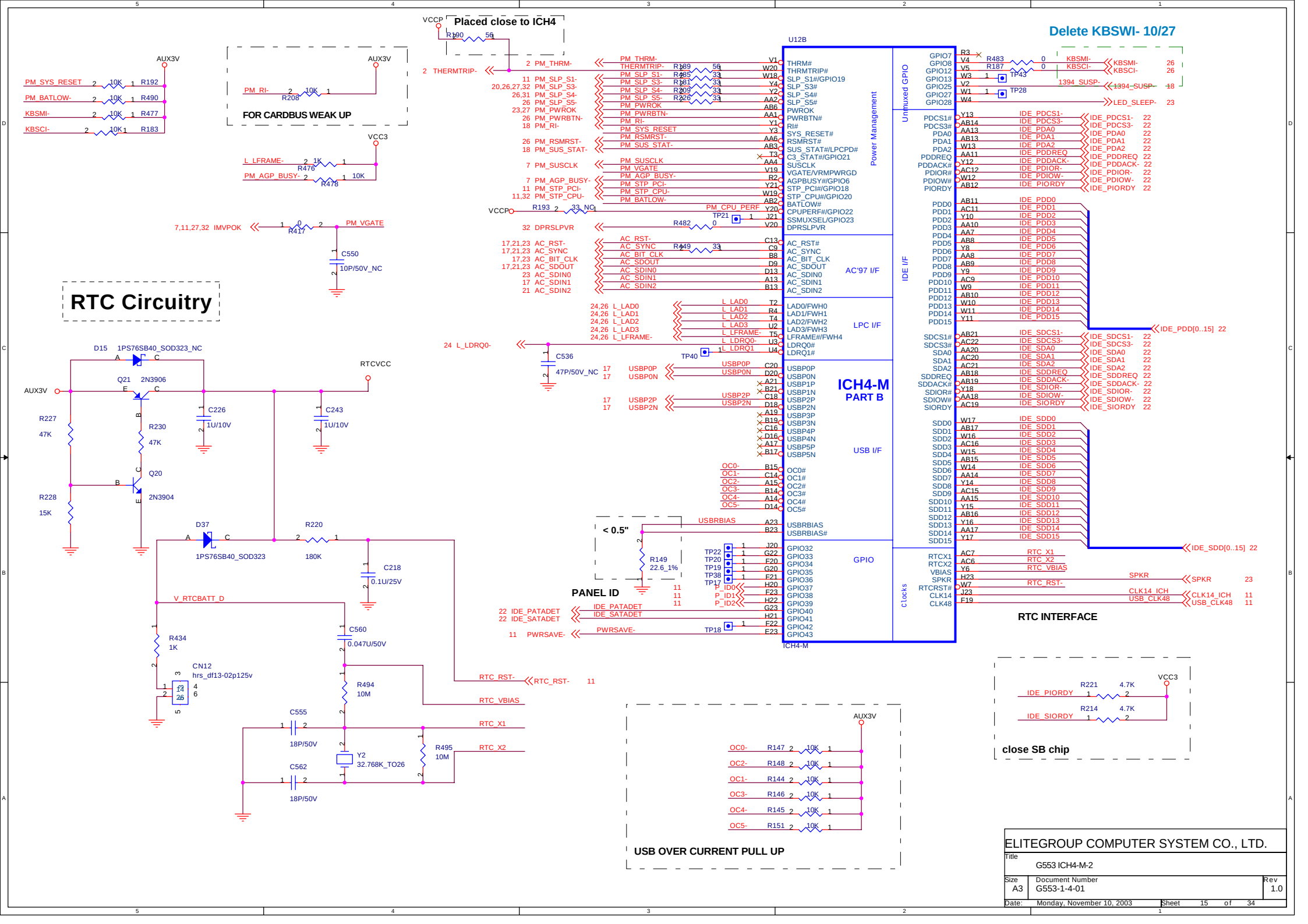
| | |
|---|---|
| Company | ELITEGROUP COMPUTER SYSTEM CO., LTD. |
| Title | G553 CLOCK GENERATOR |
| Size | A3 |
| Document Number | G553-1-4-01 |
| Rev | 1.0 |
| Date: | Monday, November 10, 2003 |
| Sheet | 11 of 34 |

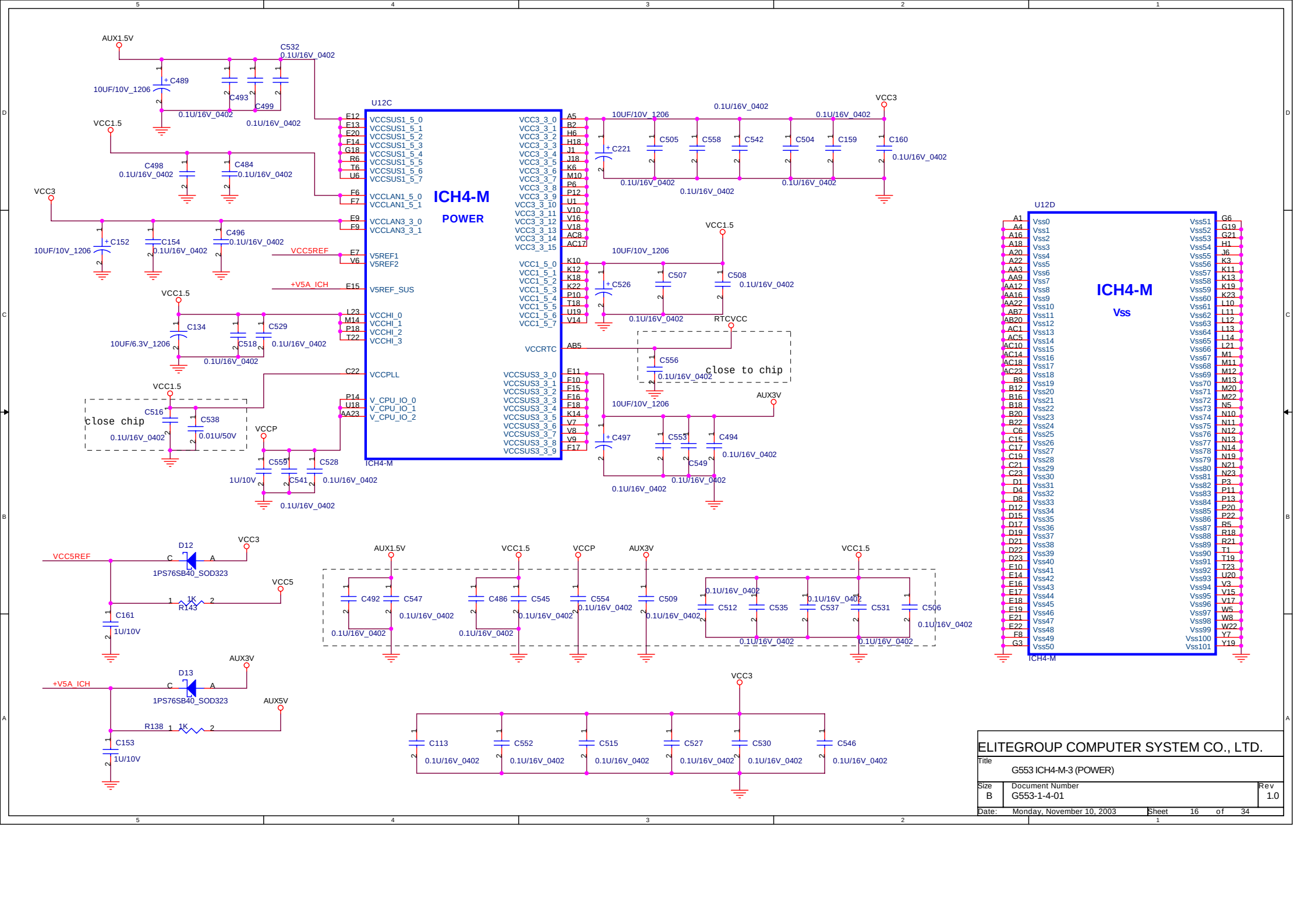



| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 LCD CRT & TV CONN. | | |
| Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 12 of 34 | |

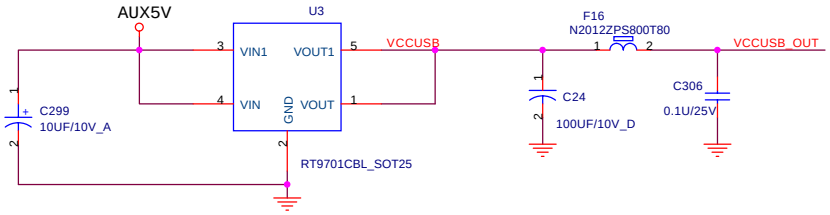

ADDID7
1K
R127
ADD ID Selector
Default ID: 0 1 1 1 1 1 1 1
Stuff:R571
VCC3
C14 33P/50V
F3
LY
1.8U_0805
AMP-1470041-SVIDEO
R25
75_1%
D23
BAT54S_NC
C20
100P/50V
C286
270P/50V
TV_GND
CN1
C13 33P/50V
F2
LC
1.8U_0805
R22
75_1%
D24
BAT54S_NC
C18
100P/50V
C287
270P/50V
TV_GND
VCC1.5
VCC3
DVOCD[0..11]
R298 1K
R321 2.2K
R322 2.2K
Q26 FDV301N
Q27 FDV301N
MI2CDATA
MI2CCLK
C333 27P/50V
C334 27P/50V
U26
DVOCD11
DVOCD10
DVOCD9
DVOCD8
DVOCD7
DVOCD6
DVOCD5
DVOCD4
DVOCD3
DVOCD2
DVOCD1
DVOCD0
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
XCLK*
XCLK
NC1
Pout/DET#
H
V
RESET*
SD
SC
GPIO1
GPIO0
AS
ISET
NC2
VREF
XI/FIN
XO
NC3
BCO
C/H Sync
CVBS
Y/G
C/R/V
CVBS/B/U
DVDD0
DVDD1
DVDD2
DGND0
DGND1
DGND2
DVDDV
NC4
NC5
NC6
NC7
NC8
AVDD0
AVDD1
AGND0
AGND1
AGND2
VDD
GND0
GND1
CH7011
7 DVOCCLK-
7 DVOCCLK
7 DVOBCCLKINT
7 DVOCHSYNC
7 DVOCVSYNC
7,14,18,20,21,22,24 PCIRST-
DVOBCCLKINT
R338 10K_NC
R342 10K_NC
R351 10K_NC
R341 330
R346 330
R349 330
R336 140_1%
C44 0.1U/25V
R67 10K_1%
R60 10K_1%
VCC1.5F
Y3
14.318MHZ_SMD5X7
C356 22P/50V
C355 22P/50V
TP1
Debug 14.318MHZ
R337 75
R344 75
C46 0.1U/25V
C45 0.1U/25V
C383 0.1U/25V
C395 10U/10V_1206
DVCC3
F19 FB_120_0603
R6 0_0805
F18 FB_120_0603
C361 0.1U/25V
C369 10U/10V_1206
F9 FB_120_0603
C350 0.1U/25V
C322 0.1U/25V
C318 10U/10V_1206
F17 FB_120_0603
C323 0.1U/25V
C319 10U/10V_1206
Options:
CH7011 Address
Mode Stuff No Stuff
0X75 R540 R27
0X76 R27 R540
NTSC or PAL
Mode Stuff No Stuff
PAL R543 R28
NTSC R28 R543
ELITEGROUP COMPUTER SYSTEM CO., LTD.
Title
G553 S-VIDEO(CH7011)
Size A3
Document Number G553-1-4-01
Rev 1.0
Date: Monday, November 10, 2003
Sheet 13 of 34


ICH4-M
PART A
U12A
Placed Close to ICH4
MINIPCI
CARD BUS
LAN
IDE
close ICH4
For EMI
PCI RESET
PCI INTERFACE PULL UP
SM INTERFACE PULL UP
APIC
HUB_PD11
ELITEGROUP COMPUTER SYSTEM CO., LTD.
G553 ICH4-M-1
G553-1-4-01
Monday, November 10, 2003

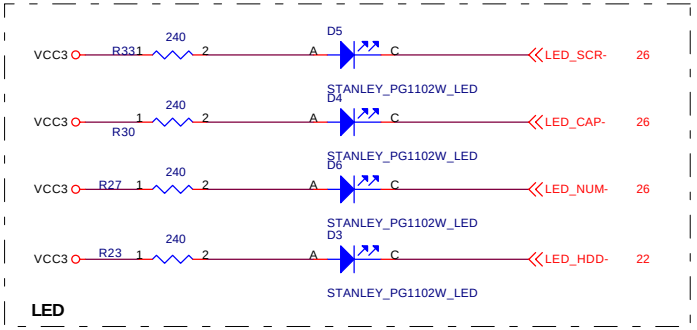

Placed close to ICH4
Delete KBSWI- 10/27
RTC Circuitry
FOR CARDBUS WEAK UP
PANEL ID
< 0.5"
USB OVER CURRENT PULL UP
RTC INTERFACE
close SB chip
ICH4-M
PART B
Power Management
AC'97 I/F
LPC I/F
USB I/F
GPIO
Clocks
Unmuxed GPIO
IDE I/F
ELITEGROUP COMPUTER SYSTEM CO., LTD.
G553 ICH4-M-2
G553-1-4-01
Monday, November 10, 2003

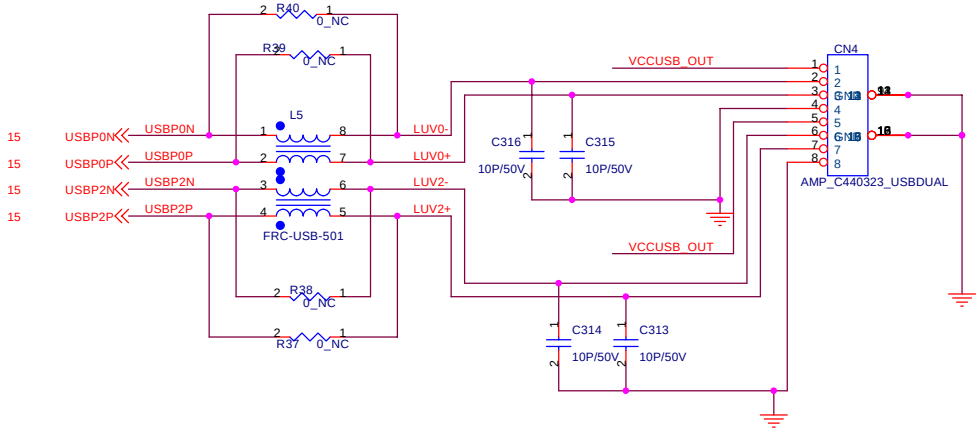

U12C
ICH4-M
POWER
VCCSUS1_5_0
VCCSUS1_5_1
VCCSUS1_5_2
VCCSUS1_5_3
VCCSUS1_5_4
VCCSUS1_5_5
VCCSUS1_5_6
VCCSUS1_5_7
VCCLAN1_5_0
VCCLAN1_5_1
VCCLAN3_3_0
VCCLAN3_3_1
V5REF1
V5REF2
V5REF_SUS
VCCHI_0
VCCHI_1
VCCHI_2
VCCHI_3
VCCPLL
V_CPU_IO_0
V_CPU_IO_1
V_CPU_IO_2
VCC3_3_0
VCC3_3_1
VCC3_3_2
VCC3_3_3
VCC3_3_4
VCC3_3_5
VCC3_3_6
VCC3_3_7
VCC3_3_8
VCC3_3_9
VCC3_3_10
VCC3_3_11
VCC3_3_12
VCC3_3_13
VCC3_3_14
VCC3_3_15
VCC1_5_0
VCC1_5_1
VCC1_5_2
VCC1_5_3
VCC1_5_4
VCC1_5_5
VCC1_5_6
VCC1_5_7
VCCRTC
VCCSUS3_3_0
VCCSUS3_3_1
VCCSUS3_3_2
VCCSUS3_3_3
VCCSUS3_3_4
VCCSUS3_3_5
VCCSUS3_3_6
VCCSUS3_3_7
VCCSUS3_3_8
VCCSUS3_3_9
AUX1.5V
VCC1.5
VCC3
VCC5REF
+V5A_ICH
VCCP
AUX3V
AUX5V
RTCVCC
VCC5
close chip
close to chip
C532 0.1U/16V_0402
C489 10UF/10V_1206
C493 0.1U/16V_0402
C499 0.1U/16V_0402
C498 0.1U/16V_0402
C484 0.1U/16V_0402
C152 10UF/10V_1206
C154 0.1U/16V_0402
C496 0.1U/16V_0402
C134 10UF/6.3V_1206
C529
C518 0.1U/16V_0402
C516
C538 0.01U/50V
C555 1U/10V
C541 0.1U/16V_0402
C528 0.1U/16V_0402
C221 10UF/10V_1206
C505 0.1U/16V_0402
C558 0.1U/16V_0402
C542 0.1U/16V_0402
C504 0.1U/16V_0402
C159 0.1U/16V_0402
C160 0.1U/16V_0402
C526 10UF/10V_1206
C507 0.1U/16V_0402
C508 0.1U/16V_0402
C556 0.1U/16V_0402
C497 10UF/10V_1206
C553
C549
C494 0.1U/16V_0402
D12 1PS76SB40_SOD323
R143 1K
C161 1U/10V
D13 1PS76SB40_SOD323
R138 1K
C153 1U/10V
C492 0.1U/16V_0402
C547 0.1U/16V_0402
C486 0.1U/16V_0402
C545 0.1U/16V_0402
C554 0.1U/16V_0402
C509 0.1U/16V_0402
C512 0.1U/16V_0402
C535 0.1U/16V_0402
C537 0.1U/16V_0402
C531 0.1U/16V_0402
C506 0.1U/16V_0402
C113 0.1U/16V_0402
C552 0.1U/16V_0402
C515 0.1U/16V_0402
C527 0.1U/16V_0402
C530 0.1U/16V_0402
C546 0.1U/16V_0402
U12D
ICH4-M
Vss
Vss0
Vss1
Vss2
Vss3
Vss4
Vss5
Vss6
Vss7
Vss8
Vss9
Vss10
Vss11
Vss12
Vss13
Vss14
Vss15
Vss16
Vss17
Vss18
Vss19
Vss20
Vss21
Vss22
Vss23
Vss24
Vss25
Vss26
Vss27
Vss28
Vss29
Vss30
Vss31
Vss32
Vss33
Vss34
Vss35
Vss36
Vss37
Vss38
Vss39
Vss40
Vss41
Vss42
Vss43
Vss44
Vss45
Vss46
Vss47
Vss48
Vss49
Vss50
Vss51
Vss52
Vss53
Vss54
Vss55
Vss56
Vss57
Vss58
Vss59
Vss60
Vss61
Vss62
Vss63
Vss64
Vss65
Vss66
Vss67
Vss68
Vss69
Vss70
Vss71
Vss72
Vss73
Vss74
Vss75
Vss76
Vss77
Vss78
Vss79
Vss80
Vss81
Vss82
Vss83
Vss84
Vss85
Vss86
Vss87
Vss88
Vss89
Vss90
Vss91
Vss92
Vss93
Vss94
Vss95
Vss96
Vss97
Vss98
Vss99
Vss100
Vss101
ELITEGROUP COMPUTER SYSTEM CO., LTD.
Title
G553 ICH4-M-3 (POWER)
Size B
Document Number G553-1-4-01
Rev 1.0
Date: Monday, November 10, 2003
Sheet 16 of 34

**Note :**
**Add Capacitor on AUX5V trace**

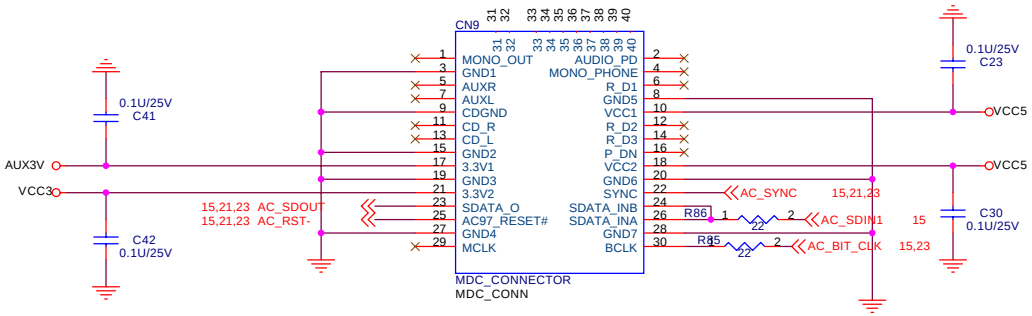



**POWER trace above 80 mils**



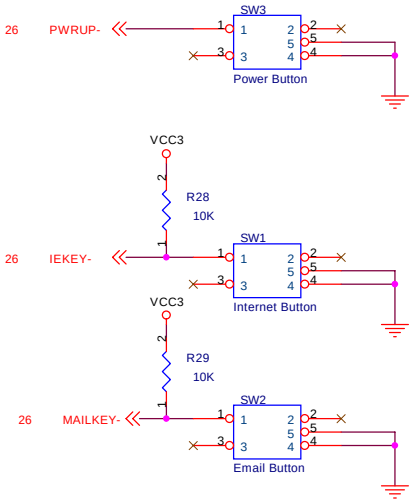




## Modem Daughter Card Connector



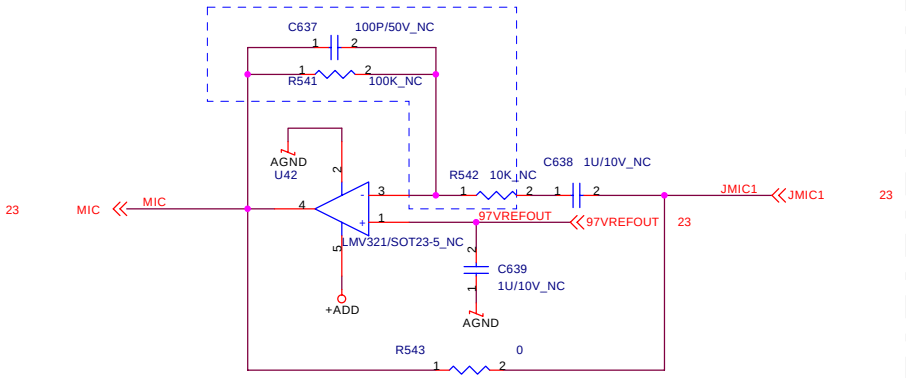

**For two brand MDC, Pin 24 and Pin 26 must be shoot 10/27**

pin 1 & 4 to press




**Add MIC Pre-AMP circuit for special customer request 10/27**

+20dB Gain



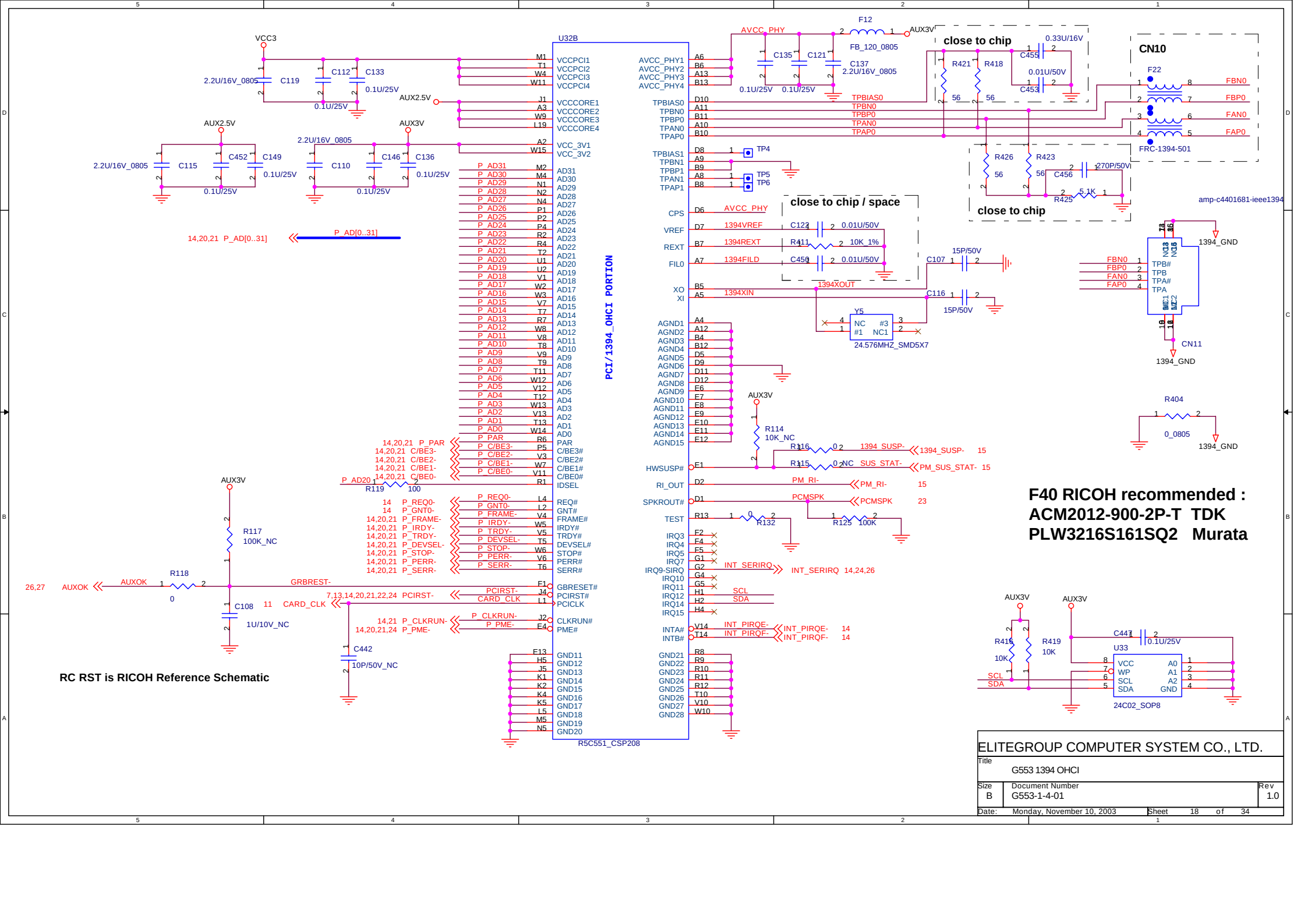


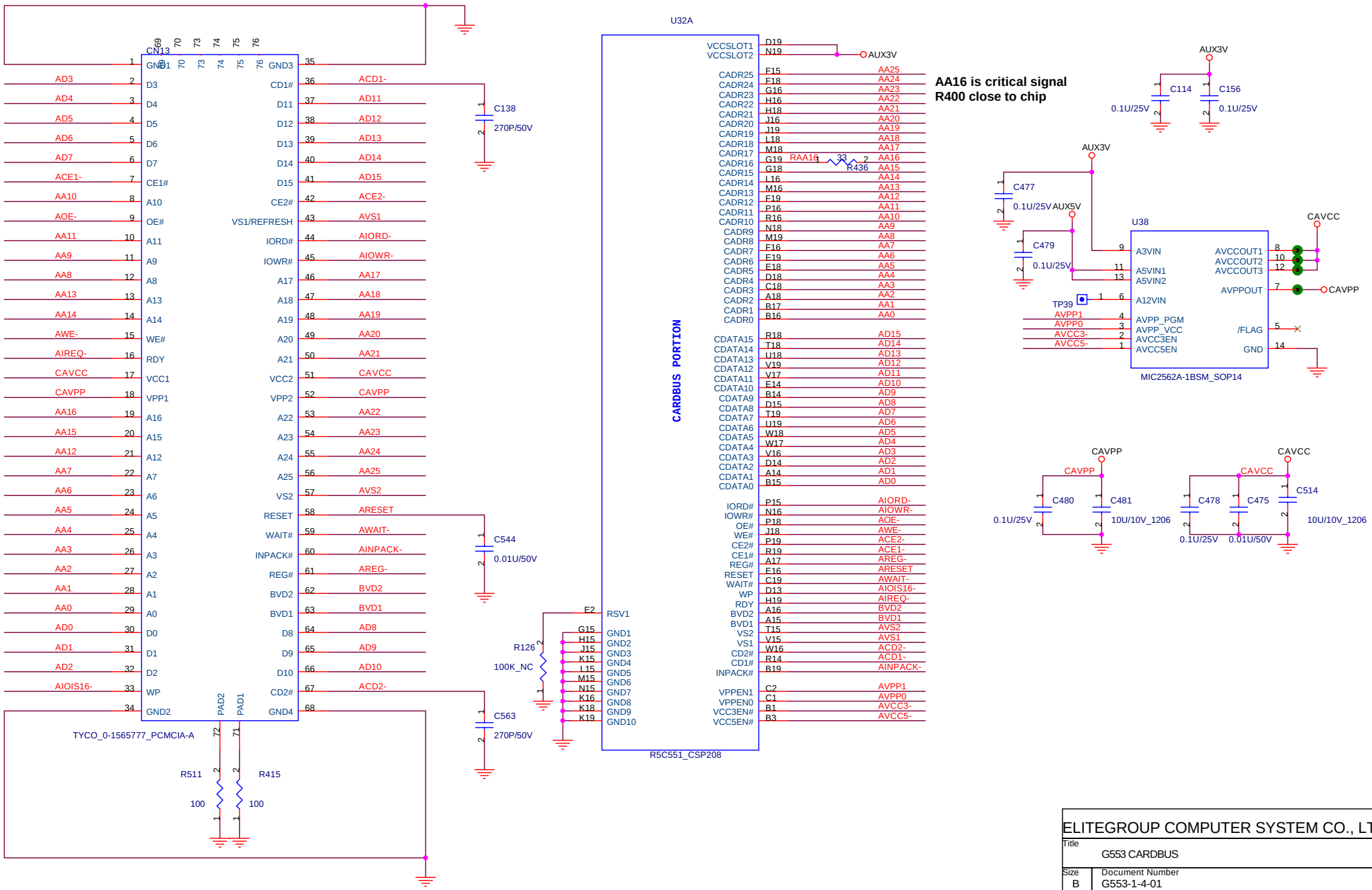
ELITEGROUP COMPUTER SYSTEM CO., LTD.

Title: G553 USB & LED & MDC CONN

Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0

Date: Monday, November 10, 2003 | Sheet 17 of 34


U32B
PCI/1394_OHCI PORTION
R5C551_CSP208
close to chip
close to chip / space
close to chip
CN10
F22
FRC-1394-501
amp-c4401681-ieee1394
1394_GND
CN11
F40 RICOH recommended :
ACM2012-900-2P-T TDK
PLW3216S161SQ2 Murata
RC RST is RICOH Reference Schematic
24C02_SOP8
ELITEGROUP COMPUTER SYSTEM CO., LTD.
Title
G553 1394 OHCI
Size
B
Document Number
G553-1-4-01
Rev
1.0
Date: Monday, November 10, 2003
Sheet 18 of 34


CN13
TYCO_0-1565777_PCMCIA-A
U32A
CARDBUS PORTION
R5C551_CSP208
AA16 is critical signal
R400 close to chip
U38
MIC2562A-1BSM_SOP14
ELITEGROUP COMPUTER SYSTEM CO., LTD.
Title
G553 CARDBUS
Size
B
Document Number
G553-1-4-01
Rev
1.0
Date: Monday, November 10, 2003
Sheet 19 of 34

**Lay out Rule :**

1. Tx+/- and Rx+/- length : +-100mil
2. Through hole less .
3. Tx+/- ——————
   GND ——————
   Rx+/- ——————

   Ground separates Tx/Rx .

Close to RTL8100B

Close to NS0013

Realtek suggest 0.01uF/2KV

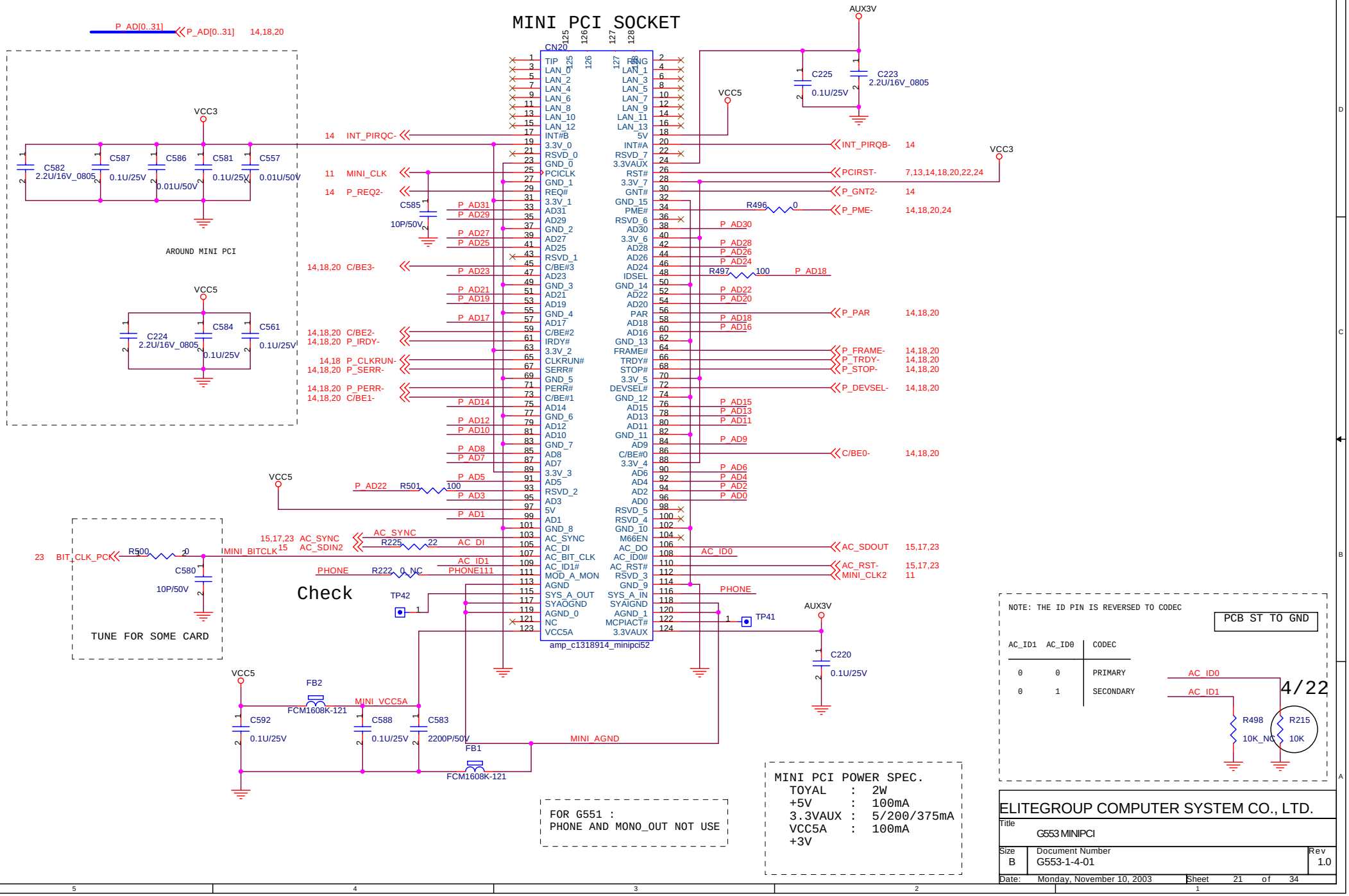
For wake on LAN used

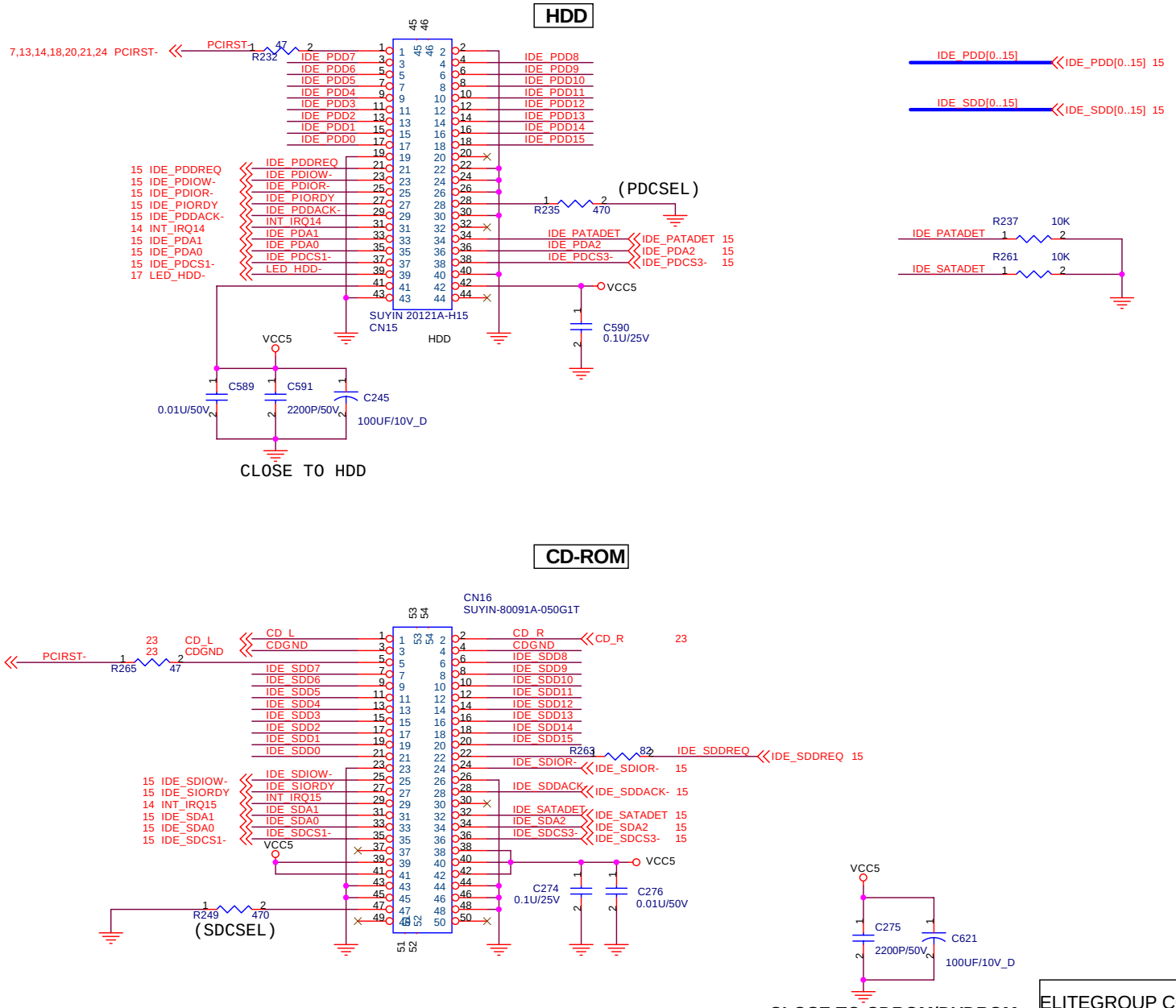
PLACE OVERLAY

Vo=1.25(1+R2/R1)

| | |
|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | |
| Title: G553 LAN | |
| Size: B | Document Number: G553-1-4-01 — Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 20 of 34 |

# MINI PCI SOCKET






| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 HDD & CDROM CONN. | | |
| Size: B | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 22 of 34 | |

## MIC IN AMP CIRCUIT

## TO MINI PCI BIT CLOCK

ON : EXT 14.318M
OFF : EXT OR INT 24.576M

AD18XX MUST ADD ONE CAP ON PIN34

B stage Modify 10/27

## PC BEEP CIRCUIT

Modify PM_PWROK to mute beep noise 10/27

Modify EAPD to mute beep noise 10/27

Modify KBCS- to reduce soft-start noise 10/27

## SPDIF OUT PROTECT

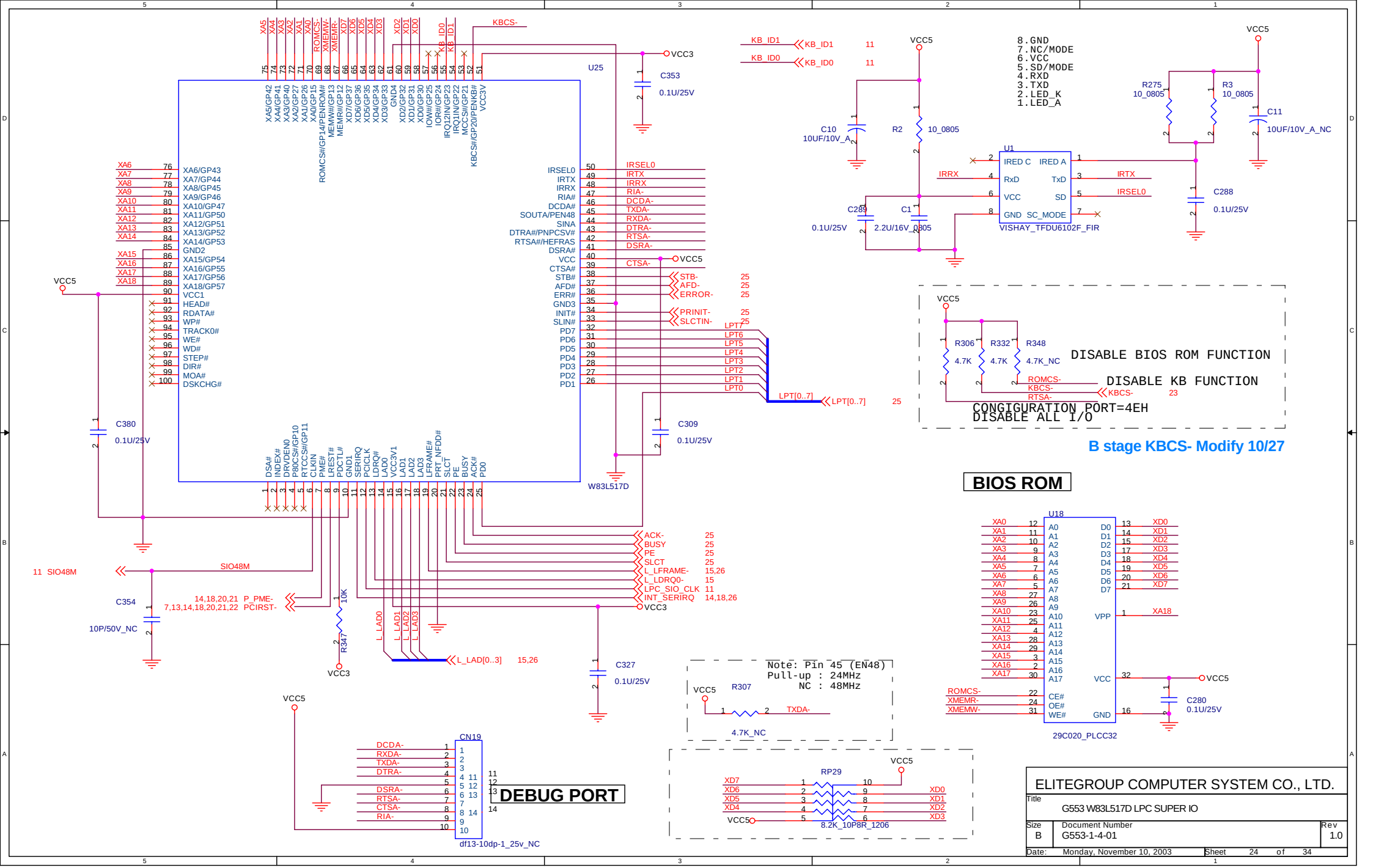
## TO SPEAKER CONN

ELITEGROUP COMPUTER SYSTEM CO., LTD.

Title: G553 AC97(ALC202) & AMPLIFIER

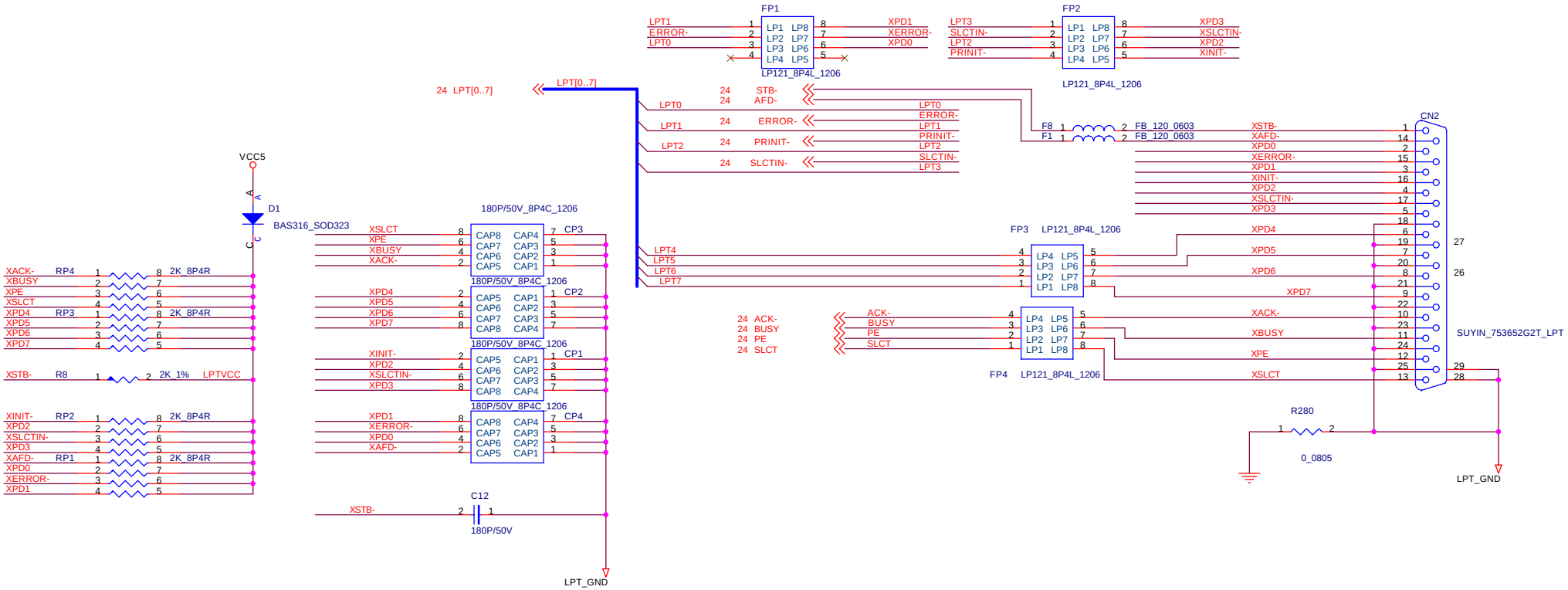
Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0

Date: Monday, November 10, 2003 | Sheet 23 of 34




ELITEGROUP COMPUTER SYSTEM CO., LTD.

| | | |
|---|---|---|
| Title | G553 W83L517D LPC SUPER IO | |
| Size: B | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 24 of 34 | |




| | |
|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | |
| Title | G553 PRINTER PORT |
| Size: A3 | Document Number: G553-1-4-01 |
| Rev: 1.0 | |
| Date: Monday, November 10, 2003 | Sheet 25 of 34 |

EC Rework 10/27
Modify EC_BRPWM to pin27
Modify BATTONE to pin12
Modify PM_RSMRST to pin13
Modify LID- to pin78
Modify ON3_5 to pin10
Modify PM_SLP_S5- to pin34

U41
W83L950D
W83L950D_LQFP80

S/W DEBUG PORT

SYSTEM THERM SENSOR

CPU
FAN CONTROL

Modify LED_CHG- 10/27

Modify BRADJ Buffer 10/27

EC LATCH CIRCUIT

TOUCH PAD

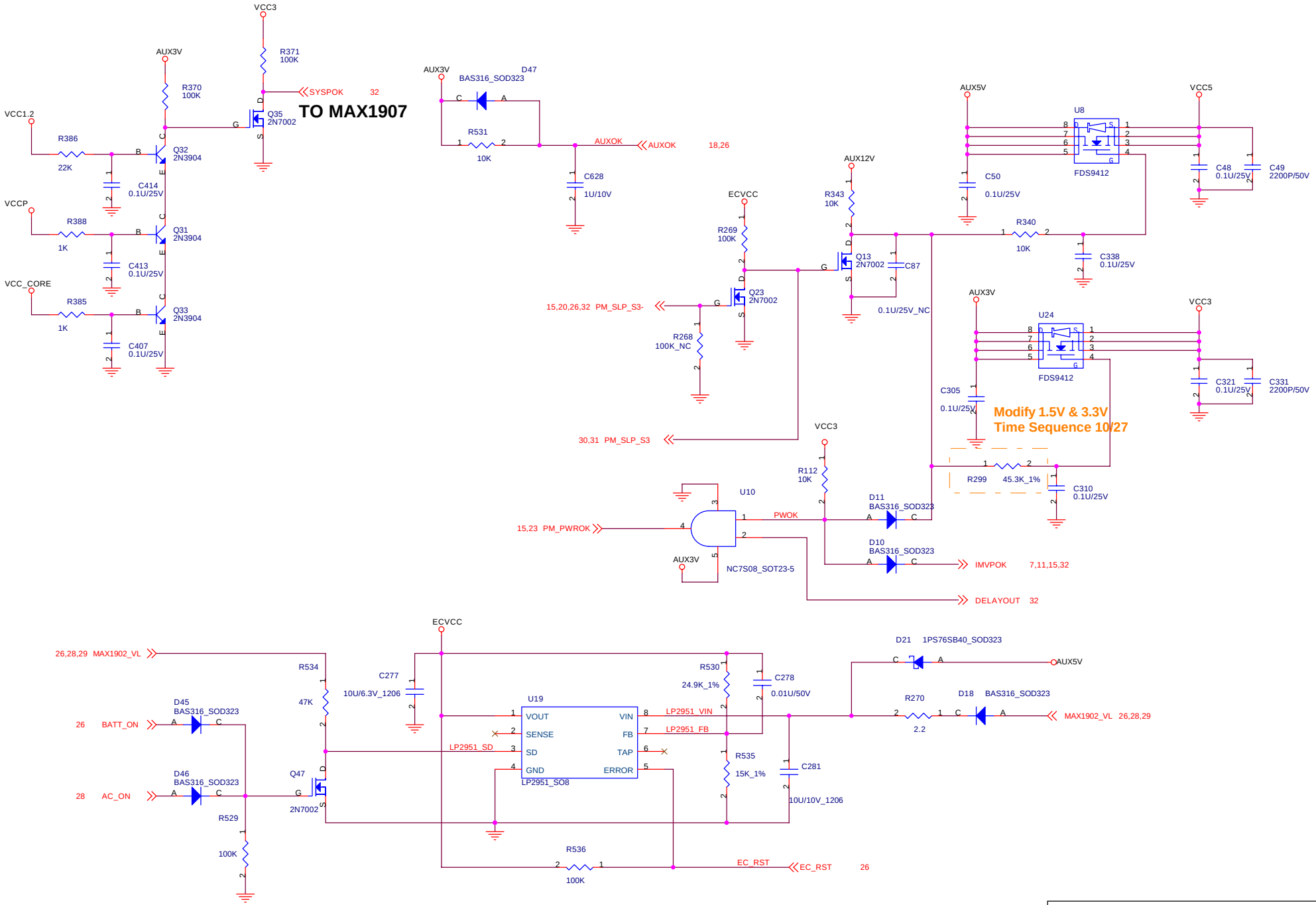
CN17
amp_1470046-4-24_bot

AMP_1470047-4-4_TOP

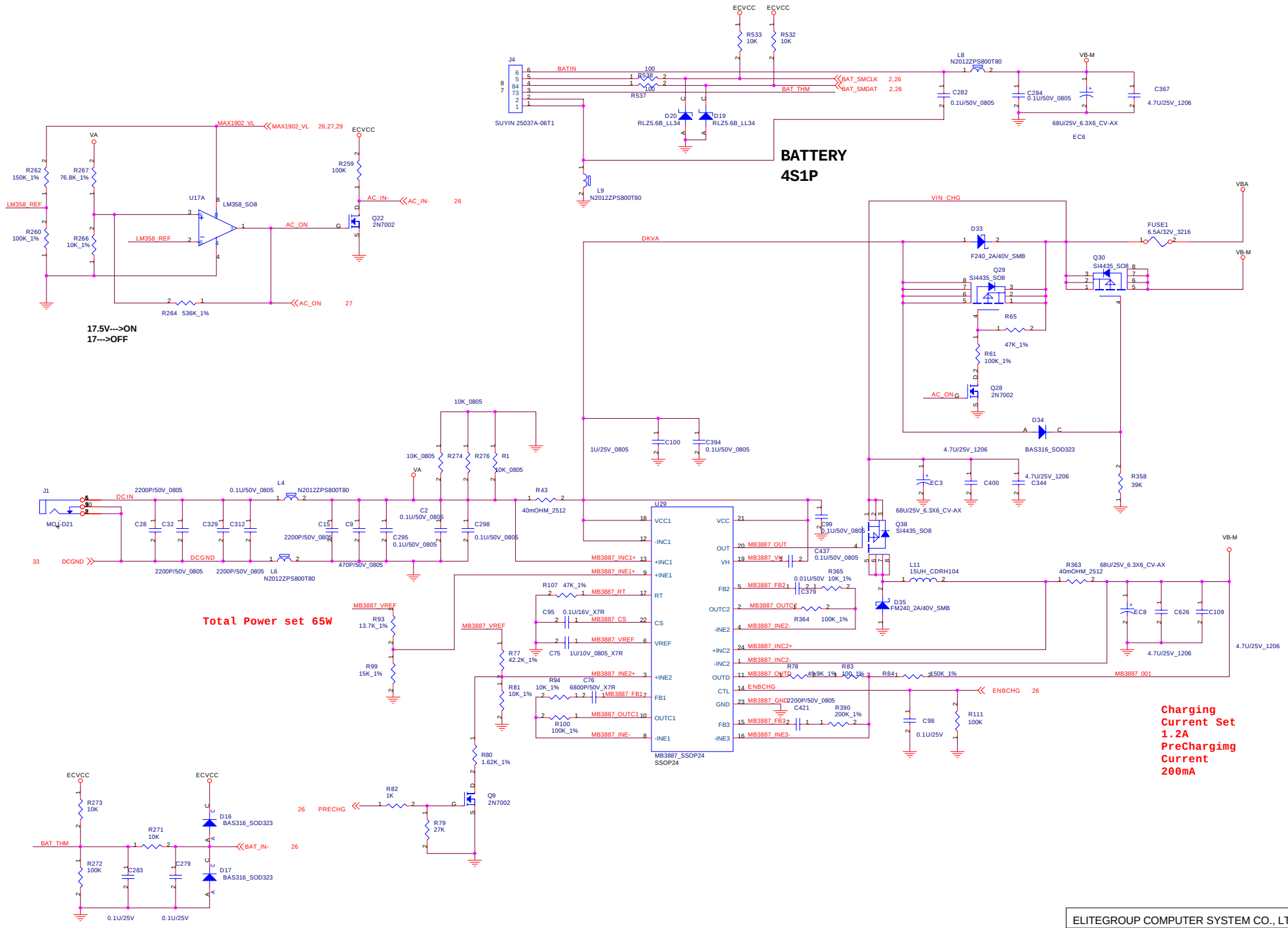
CP5
CP6
CP7
CP8
CP9
CP10
180P/50V_8P4C_1206

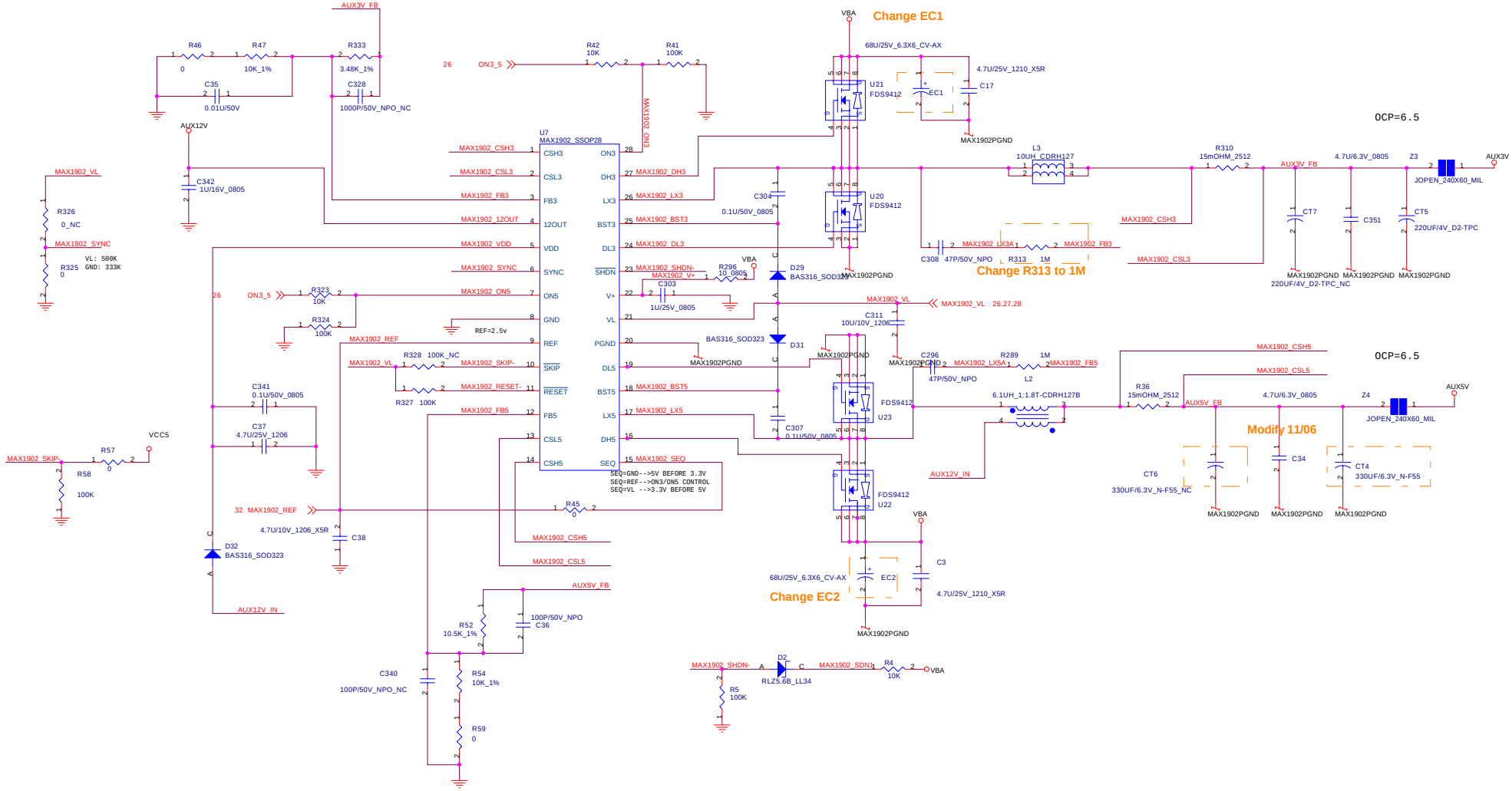
ELITEGROUP COMPUTER SYSTEM CO., LTD.

Title: G553 KBC ( W83L950D )
Size: C
Document Number: G553-1-4-01
Rev: 1.0
Date: Monday, November 10, 2003
Sheet 26 of 34

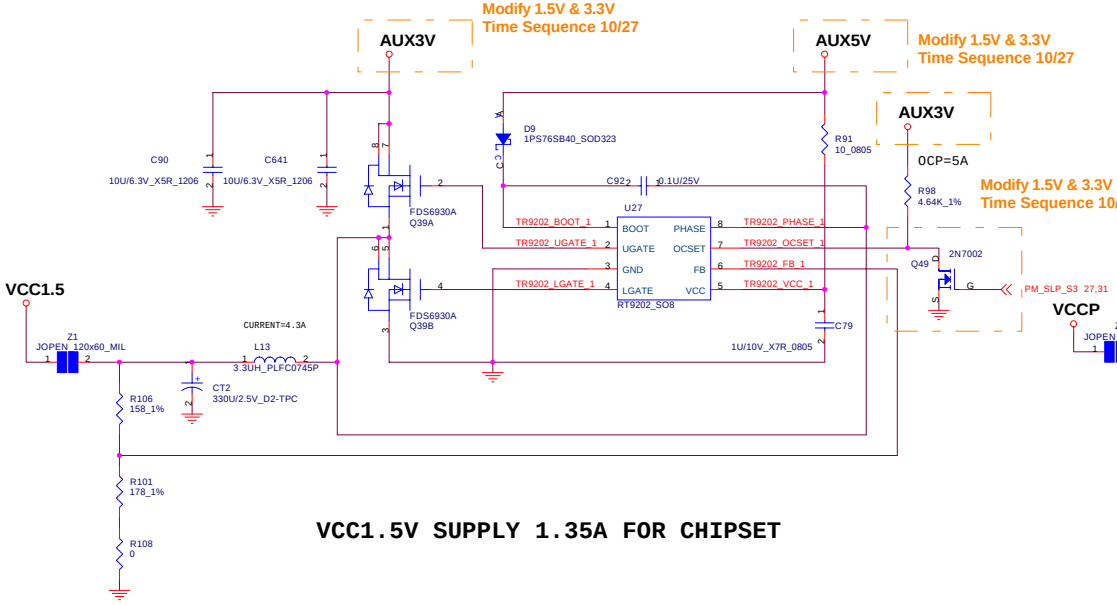



| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 RTC & POWER SW | | |
| Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 27 of 34 | |

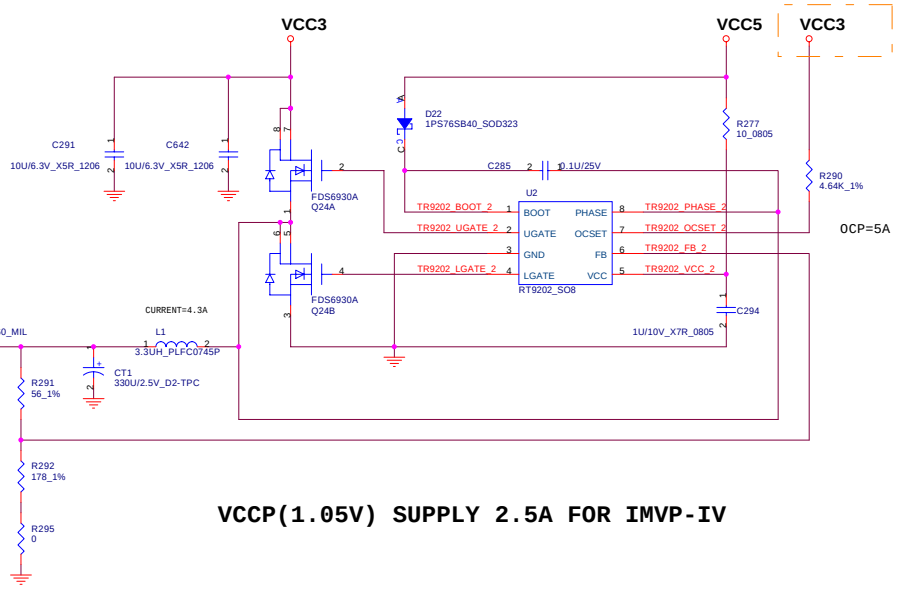

BATTERY
4S1P
17.5V--->ON
17--->OFF
Total Power set 65W
Charging Current Set 1.2A
PreChargimg Current 200mA
SUYIN 25037A-06T1
MB3887_SSOP24
SSOP24
ELITEGROUP COMPUTER SYSTEM CO., LTD.
Title
G553 CHARGER(MB3887)
Size C
Document Number G553-1-4-01
Rev 1.0
Date: Monday, November 10, 2003
Sheet 28 of 34



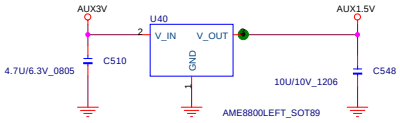

| | | |
|---|---|---|
| Title | G553 SYSTEM POWER | |
| Size C | Document Number <Doc> | Rev 1.0 |
| Date: Monday, November 10, 2003 | Sheet 29 of 34 | |



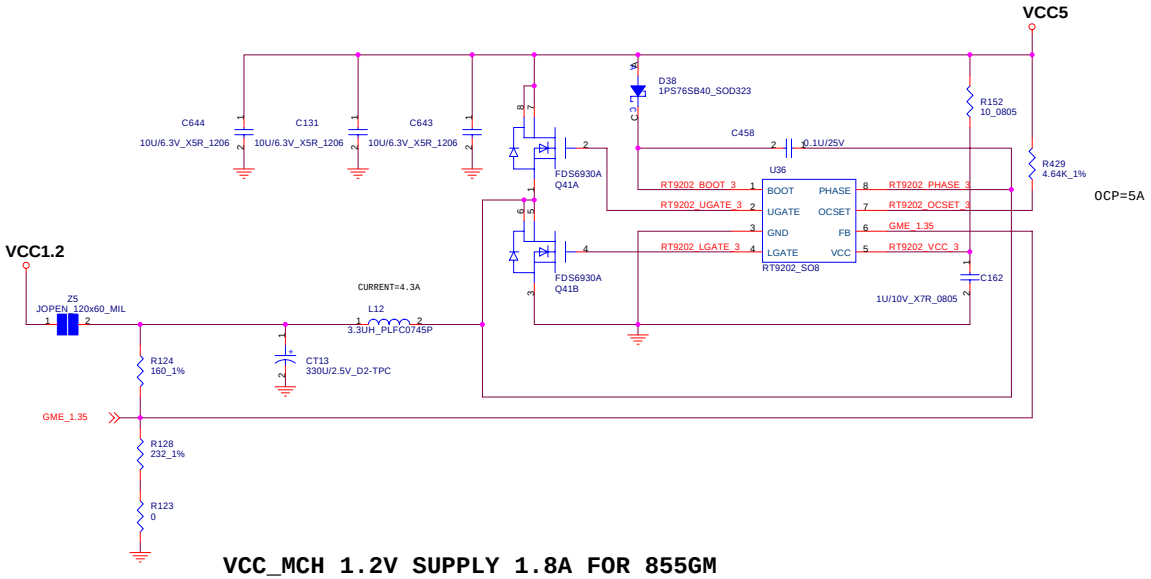

**VCC1.5V SUPPLY 1.35A FOR CHIPSET**



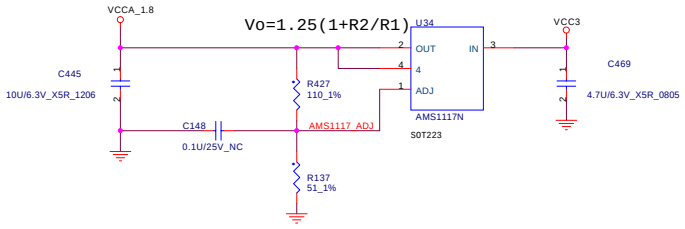

**VCCP(1.05V) SUPPLY 2.5A FOR IMVP-IV**




**AUX1.5V SUPPLY 100mA for ICH4-M**

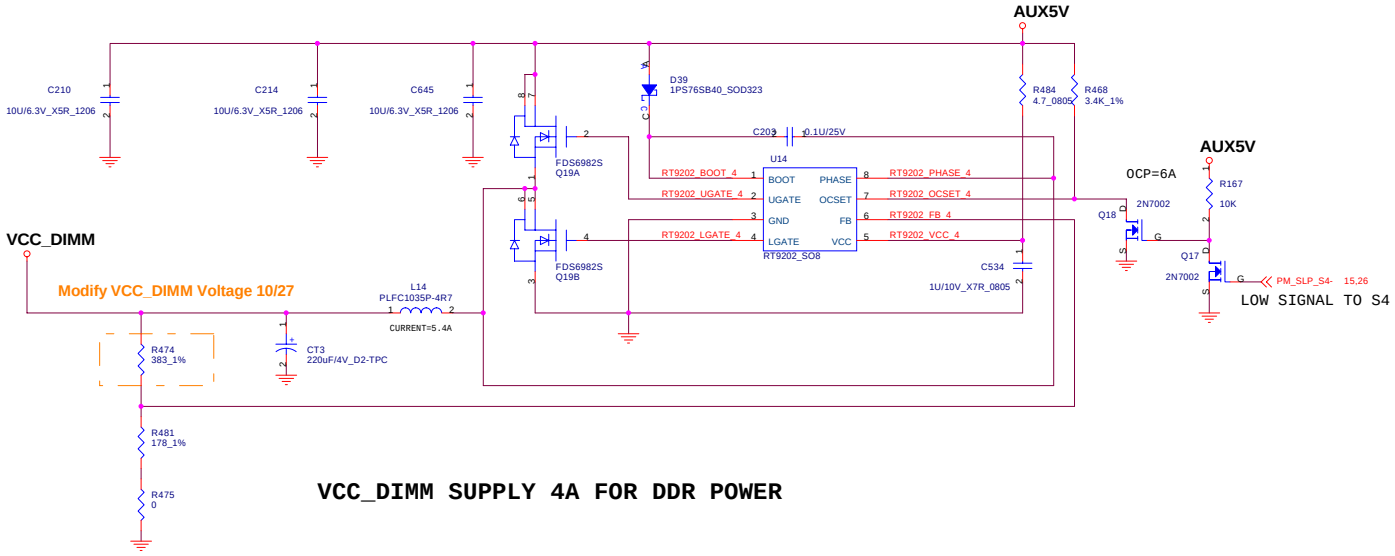



**VCC_MCH 1.2V SUPPLY 1.8A FOR 855GM**
**VCC_MCH 1.35V SUPPLY 1.8A FOR 855GME**

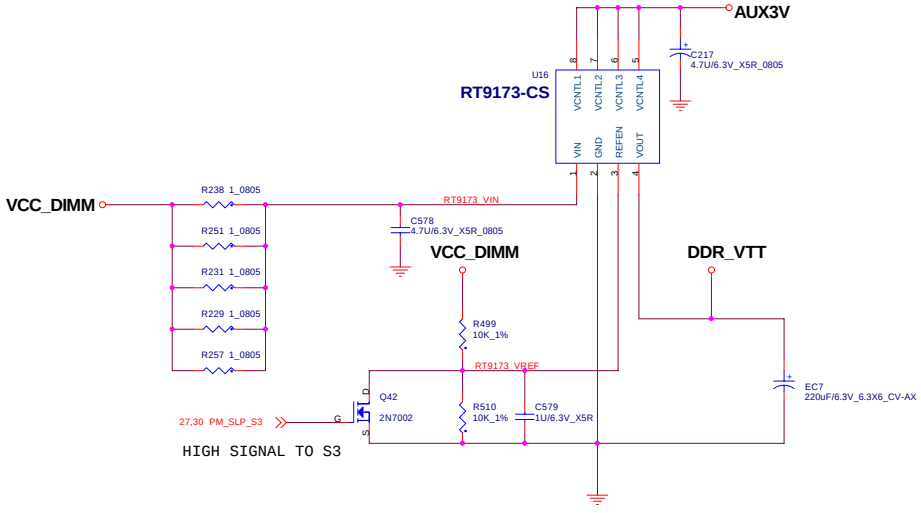



**VCCA(1.8V) SUPPLY 600mA FOR Banias (PLL VOLTAGE)**
**VCCA(1.5V & 1.8V) SUPPLY FOR DOTHAN (PLL VOLTAGE)**

| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 CHIPSET POWER | | |
| Size: C | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 30 of 34 | |

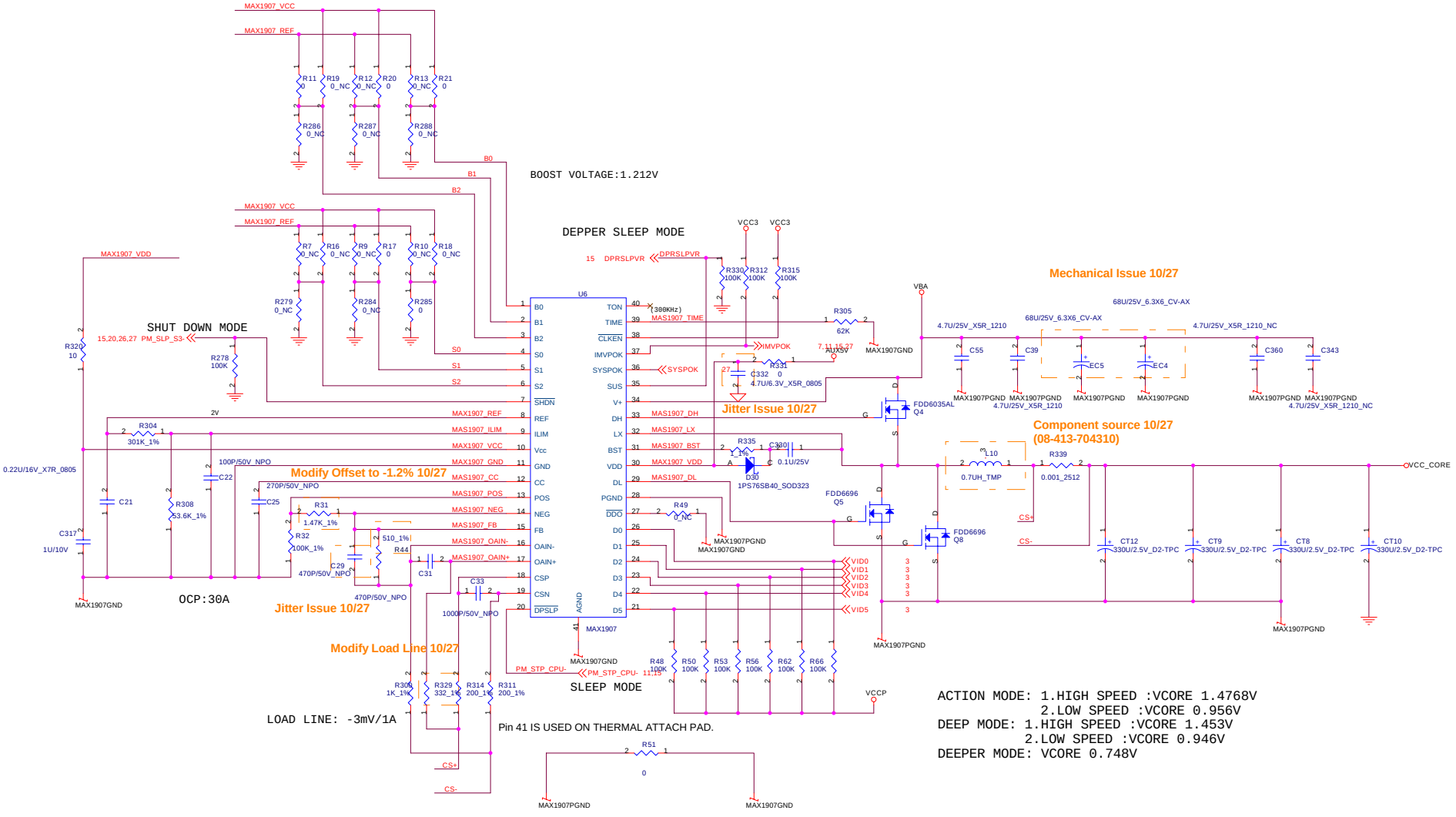



## VCC_DIMM SUPPLY 4A FOR DDR POWER

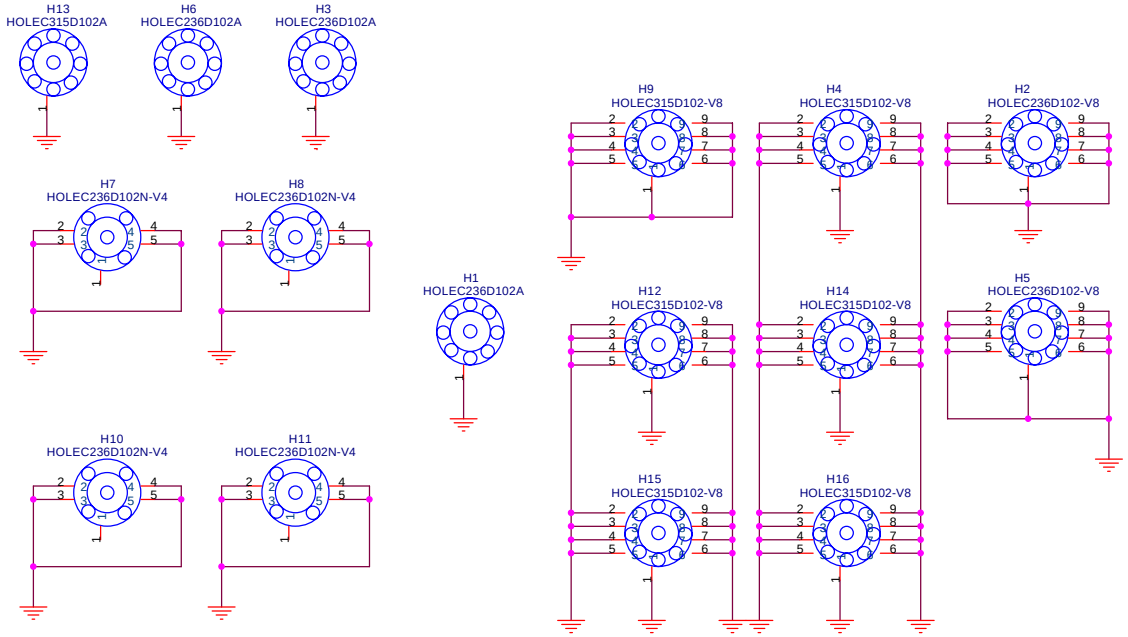


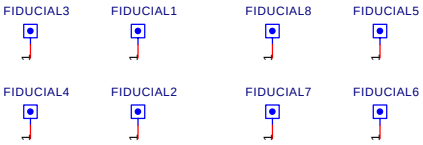

## VTT1.25V for DDR

| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 DDR POWER | | |
| Size: C | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 31 of 34 | |

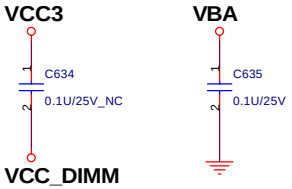



| | | | |
|---|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | | |
| Title: G553 MAX1907(VCORE) | | | |
| Size: C | Document Number: G553-1-4-01 | | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 32 of 34 | | |



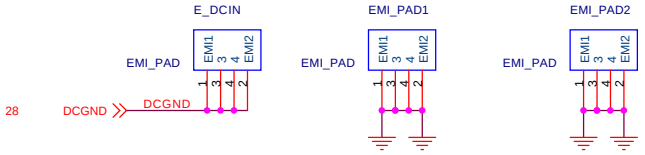




# EMI SOLUTION










| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 SCREW | | |
| Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 33 of 34 | |

0.0 : Initial Release. 2003/9/18 15-F44-010010

1.0 : Initial Release. 2003/11/10 15-F44-011000

| | | |
|---|---|---|
| ELITEGROUP COMPUTER SYSTEM CO., LTD. | | |
| Title: G553 HISTORY | | |
| Size: A3 | Document Number: G553-1-4-01 | Rev: 1.0 |
| Date: Monday, November 10, 2003 | Sheet 34 of 34 | |