649-M3 Rev: 1.0

Revision History :

1. Ver A: Modified 649-M2 from DDR to DDRII.
2. Ver 1.0: Modified voltage regulator and co-lay 655/880.

Page Index

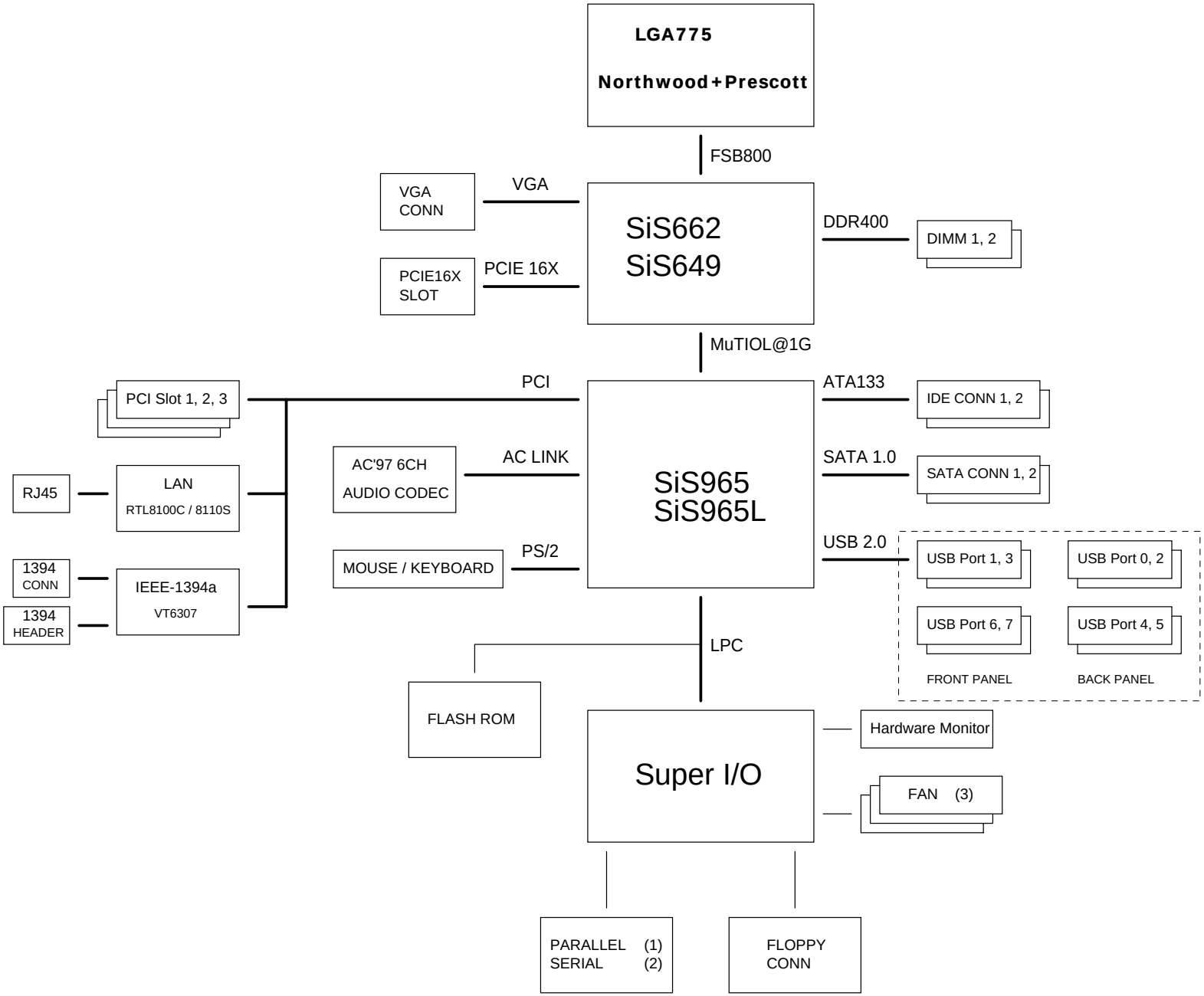
Update note:

1. Page 5, modified R162 from 100 to 49.9.
2. Page 7, modified R126 from 14 to 10.
   . Page 7, modified R117 from 100 to 120.
   . Page 7, modified R756 from 619 to 261.
   . Page 7, modified SR1 from 100 to 49.9.
   . Page 7, modified SR4 from 169 to 100.
3. Page 15, modified R840, R841, and R842 from 1K to 4.7K. and R843, R844, and R845 from 4.7K to 1K.
4. Page7, modified R804 from 124 to 150.
5. Page7, modified R805 from 500 to 680.
6. Page 34, modified PWM.
7. Page 8, R810 pull high to Vcc3.
8. Page 12, delete 965 KB/MS controller.
   . Page 12, modified R873, R874 from 1K to 4.7K.
9. Page 15, modified R73 from 22 to 33.
10. Page 15, modified C68 from 10p to 22p.
    . Page 15, modified C101 from 10p to 22p.
11. Page 21, add U26~U29 four ESD IC.
    . Page 21, add C1014 and C1016 for EMI.
12. Page 24, add D705~D708 four surge IC.
13. Page 26, add D703 and D704 for preventing pop noise.
14. Page 27, add C1018, C1019, and C1020 for EMI.
15. Page 27, add C1012(1U) to solve MIC issue.
16. Page 27, fine tune audio interface resistance and capacitance.
17. Page 28, changed ITE 8705 to ITE 8712.
18. Page 32, modified R288 from 200 to 187.
19. Page 33, use Q7 and Q8 to replace Vcc_Dual circuit.
20. Page 5, modified to support Smithfield.

	SIGNATURE	DATE
DESIGNER	LukeLin	
LAYOUT	ECS Layout team	
CHECK	LukeLin	
APPROVAL		

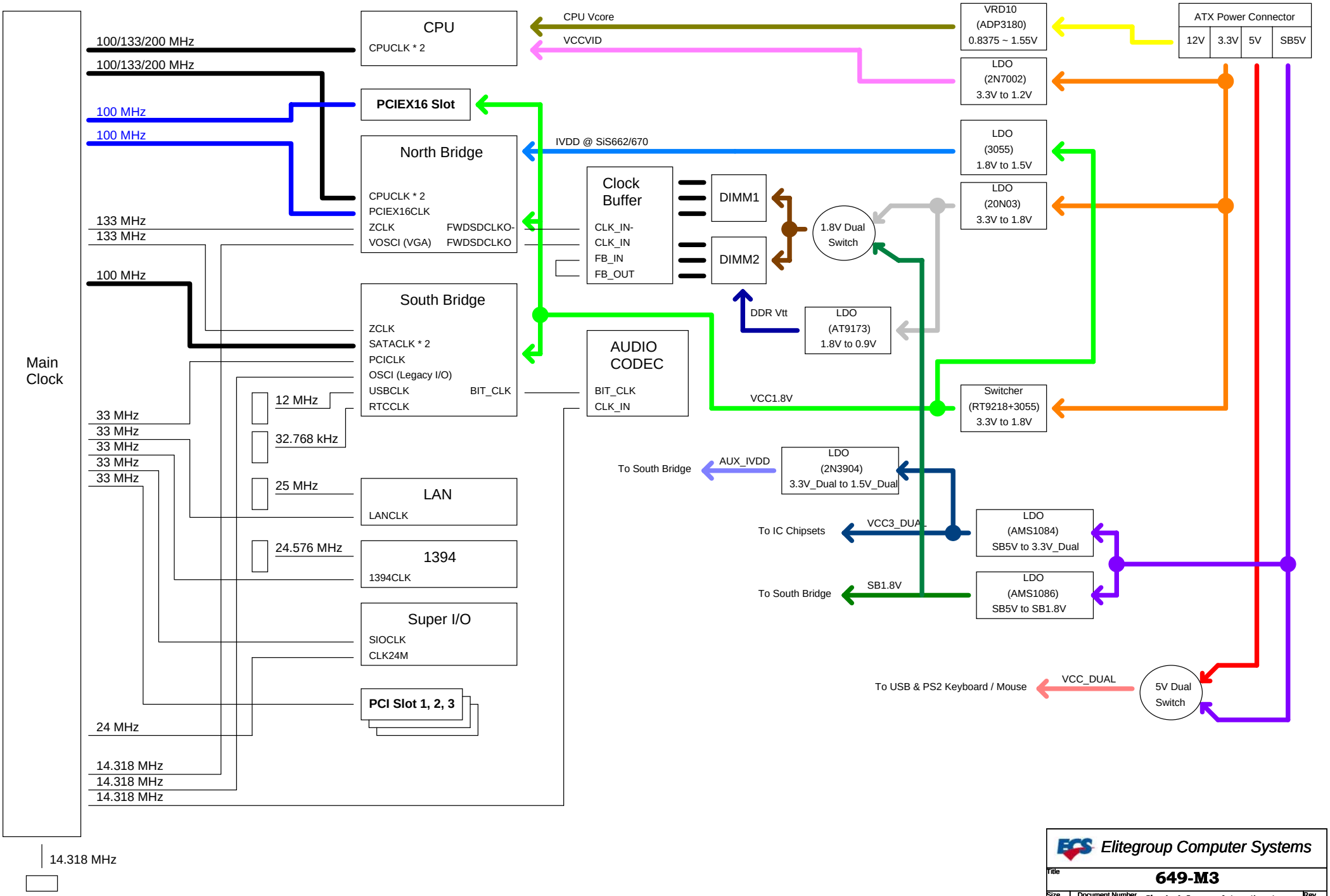
Elitegroup Computer Systems

Title: 649-M3		
Size: Custom	Document Number: Cover Sheet	Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 1 of 36	



Elitegroup Computer Systems

Title: 649-M3		
Size: Custom	Document Number: Block Diagram	Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 2 of 36	

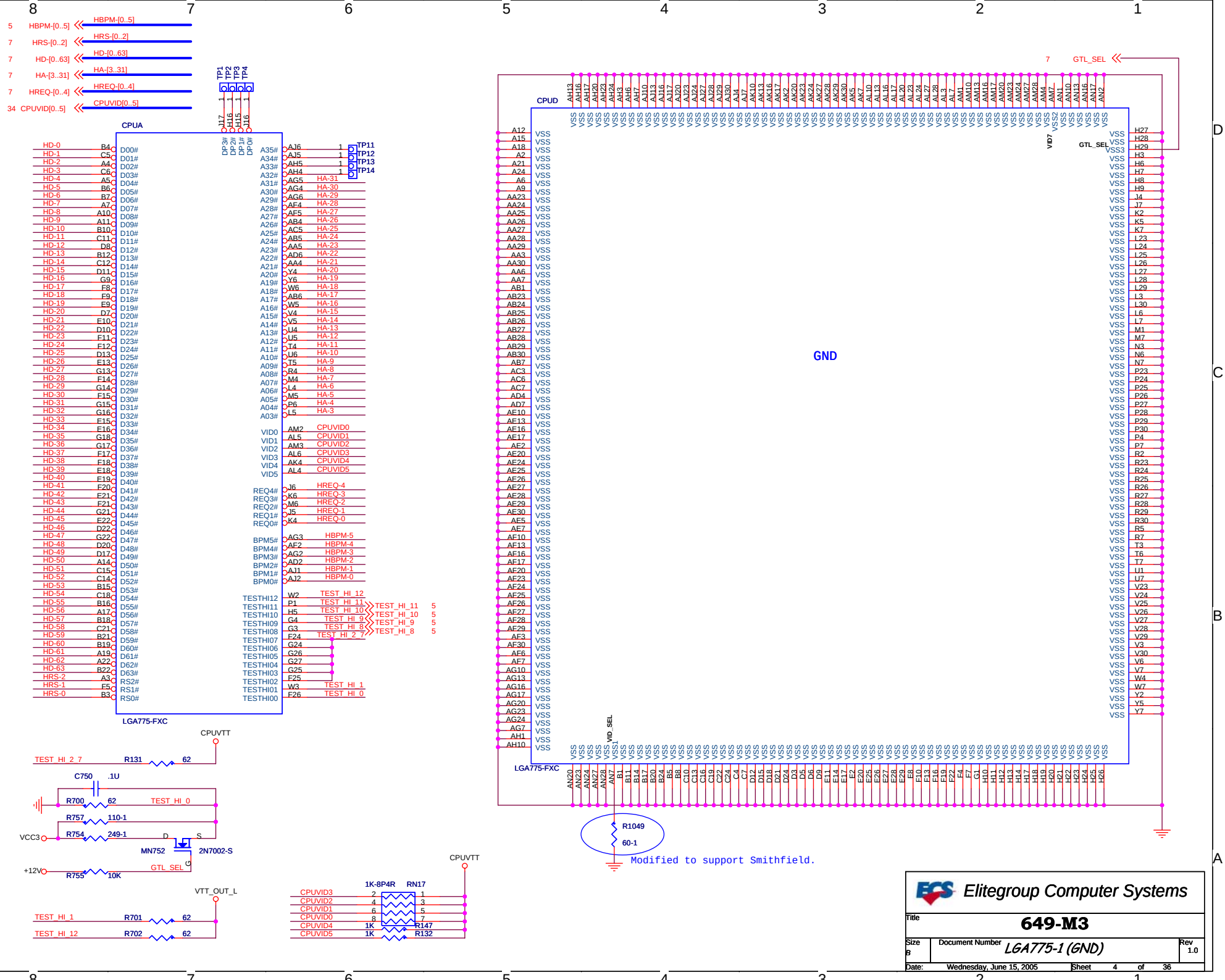


Elitegroup Computer Systems

Title: 649-M3

Size: Custom | Document Number: Clock & Power Distribution | Rev: 1.0

Date: Wednesday, June 15, 2005 | Sheet 3 of 36



Elitegroup Computer Systems

Title	649-M3	
Size: B	Document Number: LGA775-1 (GND)	Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 4 of 36	

Close to CPU
12-mil line minimum

P4PEE

L : RESET#, BR0#, PWRGD, TESTHI1,8,9,10,11,12 = VCCP

R : VTTPWRGD, VID[5:0], GTLREF, TMS, TDI, TDO, BPM[5:0], VREG = VTT_OUT

CPUVTT
L28 IND-4.7U-08
L29 IND-4.7U-08
R703 0-O
MC11 10U-10V-08
BC700 1U
BC701 1U

CPUB

VCCIOPLL C23
VCCA A23
VSSA B23
VCCSENSE AN3
VSSSENSE AN4
BCLK1 G28
BCLK0 F28
ADSTB1# AD5
ADSTB0# R6
DBI3# C20
DBI2# D19
DBI1# G11
DBI0# A8
DSTBP3# C17
DSTBP2# G19
DSTBP1# E12
DSTBP0# B8
DSTBN3# A16
DSTBN2# G20
DSTBN1# G12
DSTBN0# C8
DBR# AC2
COMP3 R1
COMP2 G2
COMP1 T1
COMP0 A13
RESERVED A20
RESERVED AC4
RESERVED AE3
RESERVED AE4
RESERVED AE6
ITP_CLK0 AK3
ITP_CLK1 AJ3
LL_ID0 V2
LL_ID1 AA2
SKTOCC# AE8
BOOTSELECT Y1
BSEL0 G29
BSEL1 H30
BSEL2 G30
GTLREF H1
LGA775-FXC

15 CPUCLK-1 CPUCLK1- CPUCLK1
15 CPUCLK1 CPUCLK1

HASTB-[0..1] 7
HDBI-[0..3] 7
HDSTBP-[0..3] 7
HDSTBN-[0..3] 7
HBPM-[0..5] 4

HASTB-1 HASTB-0
HDBI-3 HDBI-2 HDBI-1 HDBI-0
HDSTBP-3 HDSTBP-2 HDSTBP-1 HDSTBP-0
HDSTBN-3 HDSTBN-2 HDSTBN-1 HDSTBN-0

60 Ohm for Smithfield.
R704 60-1 COMP3
R705 60-1 COMP2
R173 60.4-1 COMP1
R164 60.4-1 COMP1
Please place these resistors close to CPU.

Modified to support Smithfield.
VTT_OUT_R
R1051 60-1-O
.1U-O BC1000
COMP7

TP22
R1058 0-O
LL_ID0

15 BSEL0
9,15 BSEL1
15 BSEL2

VID6 VCC_SENSE VSS_SENSE GTLREF2 GTLREF1 COMP4 COMP5 MSID1 MSID0 COMP6

34 VCC_SENSE
34 VSS_SENSE

TP7 TP8 TP9 TP10
HVREF 7

Modified to support Smithfield.
R1052 R1047 R1048 R1050 60-1-O
BC1002 .1U-O
BC1003 .1U-O
VTT_OUT_L
Please place these resistors close to CPU.

Put these caps near CPU
VTT_OUT_L
VTT_OUT_R
BC706 1U
BC702 1U
BC703 1U
BC704 1U

Wider than 12 mil
CPUGTLVREFB1
R1059 49.9-1
BC1004 1U
C1022 220P
R1054 100-1
VTT_OUT_R
VTT_OUT_R
Near CPU
no more than 1.5"

AP0# U2 1
AP1# U3 1
TP5 TP6

ADS# D2 HADS- HADS- 7
BNR# C2 HBNR- HBNR- 7
HIT# D4 HIT- HIT- 7
RSP# H4
PWRGOOD N1 PWRGD_CPU PWRGD_CPU 7
RESET# G23 CPURST- CPURST- 7
BR0# F3 HBREQ0- HBREQ0- 7
DBSY# B2 HDBSY- HDBSY- 7
DRDY# C1 HDRDY- HDRDY- 7
TRDY# E3 HTRDY- HTRDY- 7
HITM# E4 HITM- HITM- 7
MCERR# AB3
LOCK# C3 HLOCK- HLOCK- 7
BINIT# AD3

BPRI# G8 HBPRI- HBPRI- 7
DEFER# G7 HDEFER- HDEFER- 7
EDRDY# F2 EDRDY- EDRDY- 7
PC_REQ# G5 PCREQ- PCREQ- 7
IERR# AB2 IERR-

INIT# P3 INIT- INIT- 12
THERMTRIP# M2 THERMTRIP- THERMTRIP- 12
PROCHOT# AL2 PROCHOT- PROCHOT- 12
SLP# L2 CPUSLP- CPUSLP- 12
SMI# P2 SMI- SMI- 12
A20M# K3 A20M- A20M- 12
FERR#/PBE# R3 FERR- FERR- 12
LINT0 K1 INTR INTR 12
LINT1 L1 NMI NMI 12
IGNNE# N2 IGNNE- IGNNE- 12
STPCLK# M3 STPCLK- STPCLK- 12

TCK AE1 HTCK
TDI AD1 HTDI
TMS AC1 HTMS
TRST# AG1 HTRST-
TDO AF1 HTDO

THERMDA AL1 CPUTMP_A CPUTMP_A 28,31
THERMDC AK1 CPUTMP_C CPUTMP_C 28,31

VTTPWRGD AM6 VTTPWRGD VTTPWRGD 32,34
VTT_SEL F27 VTT_SEL
VTT_OUT J1 VTT_OUT_L VTT_OUT_L
VTT_OUT AA1 VTT_OUT_R VTT_OUT_R

Wider than 12 mil
R162 49.9-1
BC705 1U
C700 220P
R159 100-1
Near CPU
no more than 1.5"
Modified R162 from 100 to 49.9,
and R159 from 215 to 100.

VCC3
VTT_SEL R706 1K-O
CPUVTT
CPURST- R707 62
VTT_OUT_R VTT_OUT_R
IERR- R708 62

HTRST- HBPM-3 HTDO HBPM-4 RN25 56-8P4R
4 HBPM-3
4 HBPM-4

PROCHOT- HBPM-0 HBPM-1 HBPM-5 RN24 56-8P4R
4 HBPM-0
4 HBPM-1
4 HBPM-5

HTCK HBPM-2 HTDI HTMS RN26 56-8P4R
4 HBPM-2

VTT_OUT_L
STPCLK- R184 62

CPUSLP- NMI A20M- INTR RN700 56-8P4R

SMI- TEST_H1_11 INIT- IGNNE- RN701 56-8P4R
4 TEST_HI_11

R709 22
EDRDY- R710 62-O

TEST_HI_10 TEST_HI_9 HBREQ0- TEST_HI_8 RN16 56-8P4R
4 TEST_HI_10
4 TEST_HI_9
4 TEST_HI_8

PWRGD_CPU R130 100
FERR- R712 62
THERMTRIP- R182 62

Elitegroup Computer Systems			
Title: 649-M3			
Size: B	Document Number: LGA775-2 (Signals)	Rev: 1.0	
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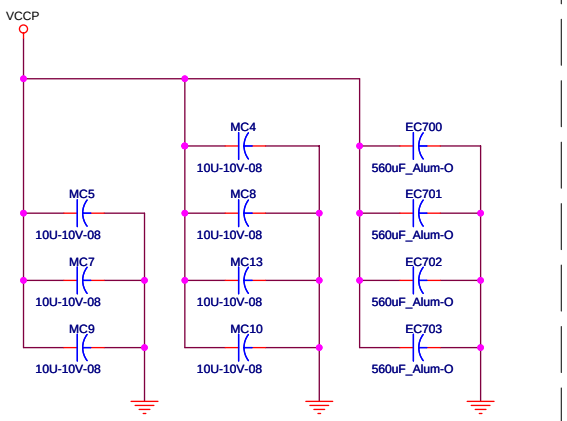
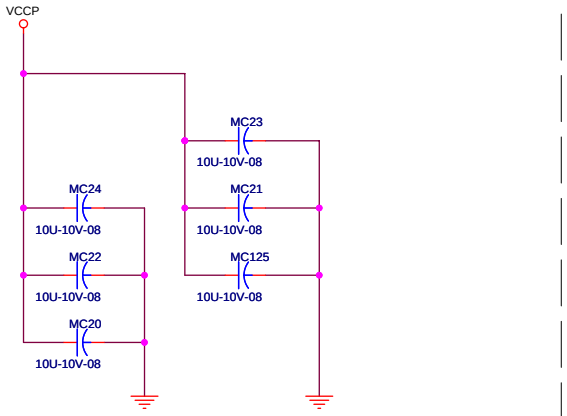
P.S. Choose X5R components instead of Y5V for all 22uF_1206 capacitors on this page.

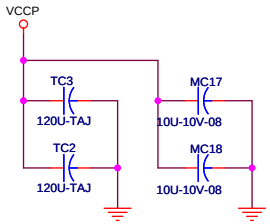
Put these capacitors at processor TOP SIDE

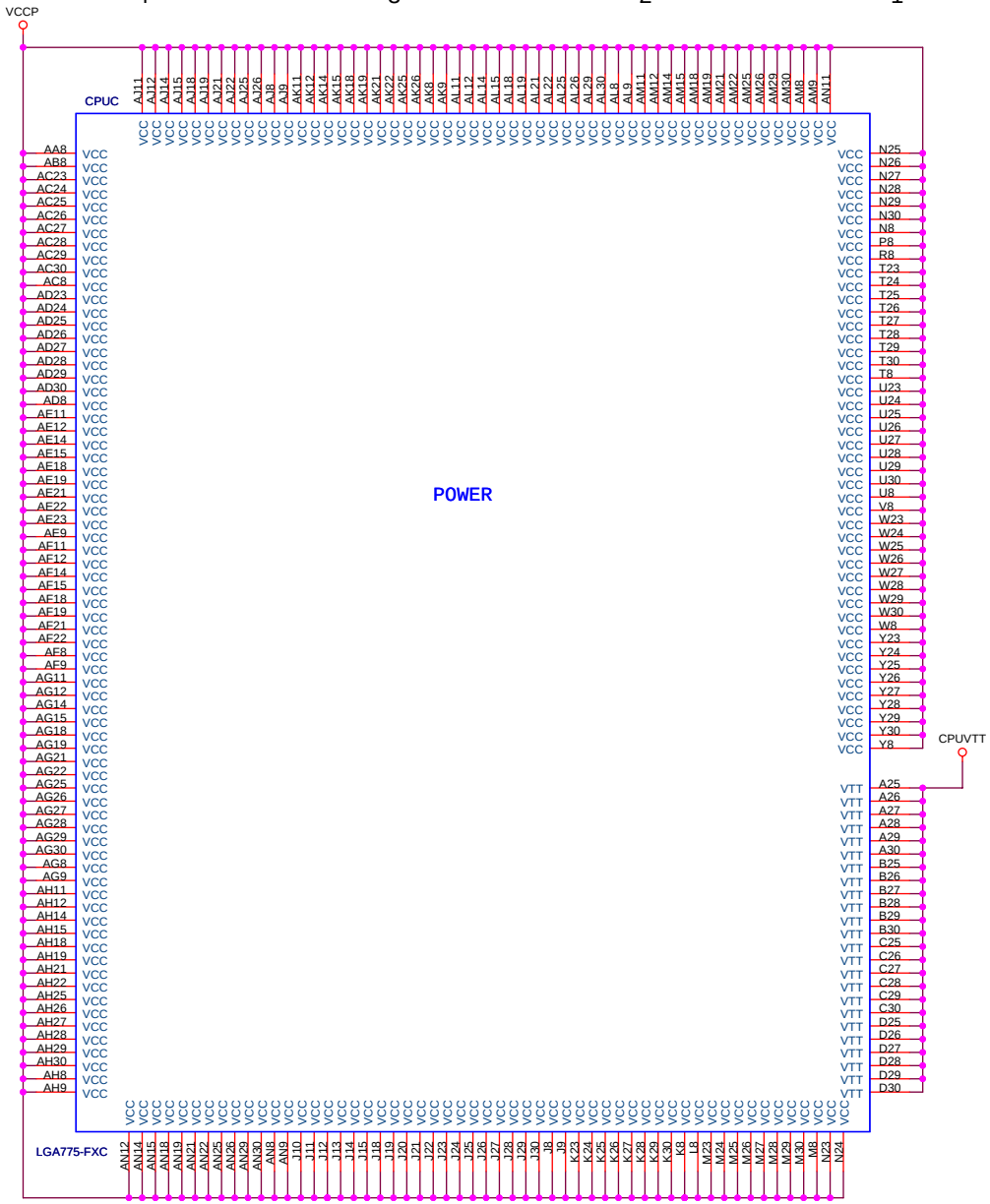


Put these capacitors at processor LEFT SIDE



Put these capacitors INSIDE PROCESSOR CAVITY





Elitegroup Computer Systems		
Title: 649-M3		
Size: B	Document Number: LGA755-3 (Power)	Rev: 1.0
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PCI Express

Host

U8A

SIS649_A1

Modified R126 from 14 to 10, and R117 from 100 to 120.

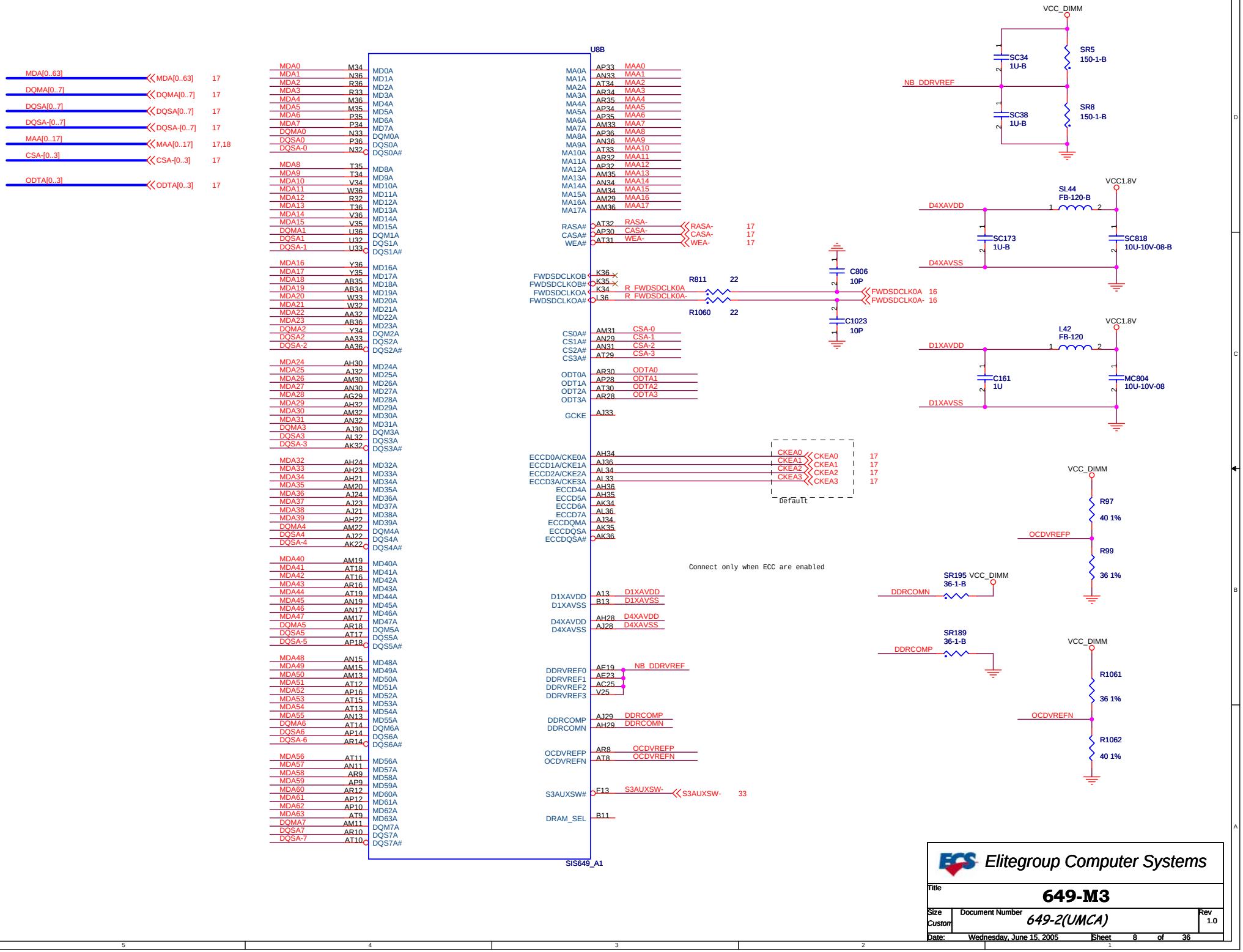
Modified R756 from 619 to 263, SR1 from 100 to 49.9, and SR4 from 169 to 100.

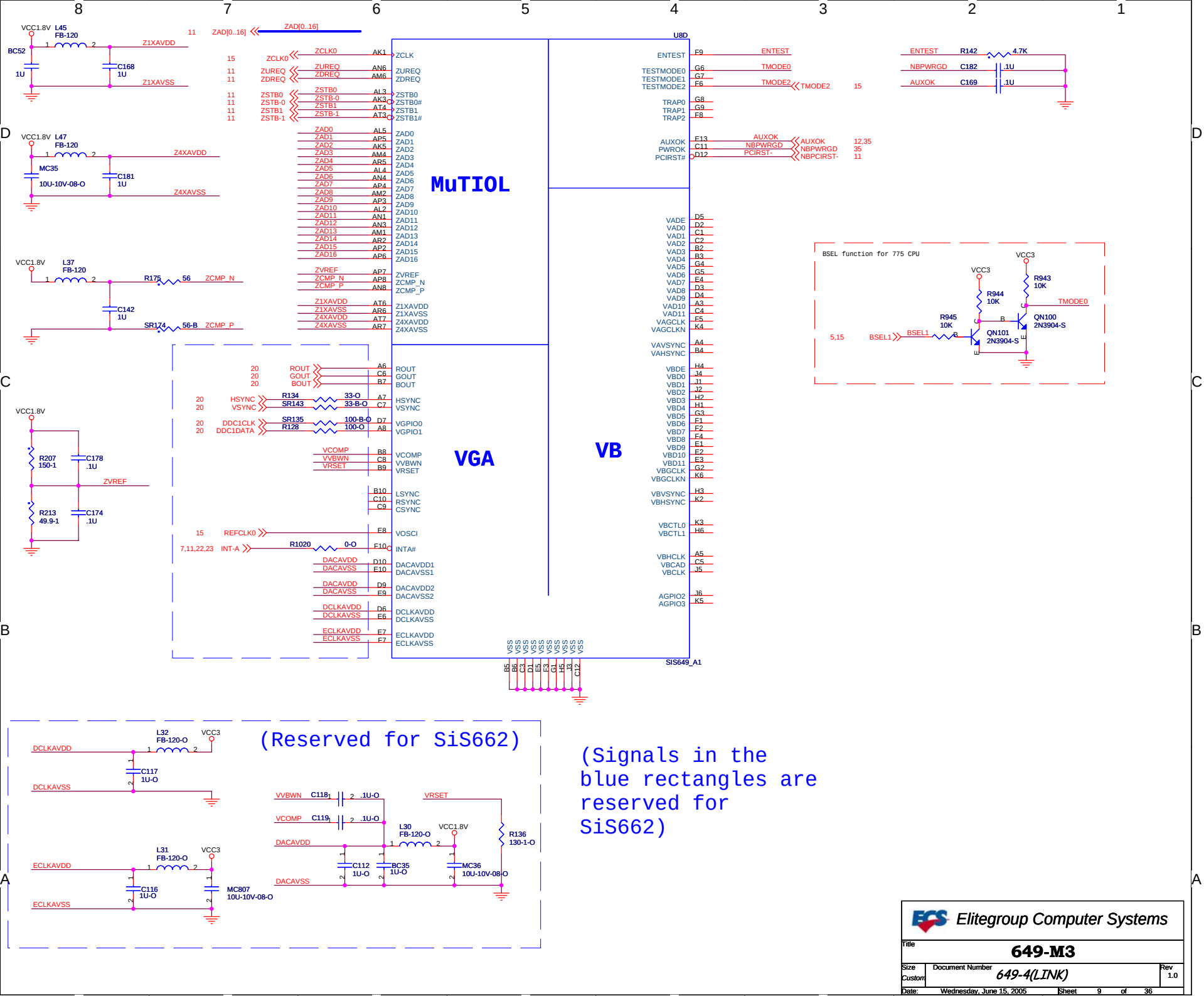
Modified R805 from 499 to 680.
Modified R804 from 124 to 150.

775 CPU only

Title	649-M3
Size	Custom
Document Number	Host/PCI-X
Rev	1.0
Date:	Thursday, June 16, 2005
Sheet	7 of 36

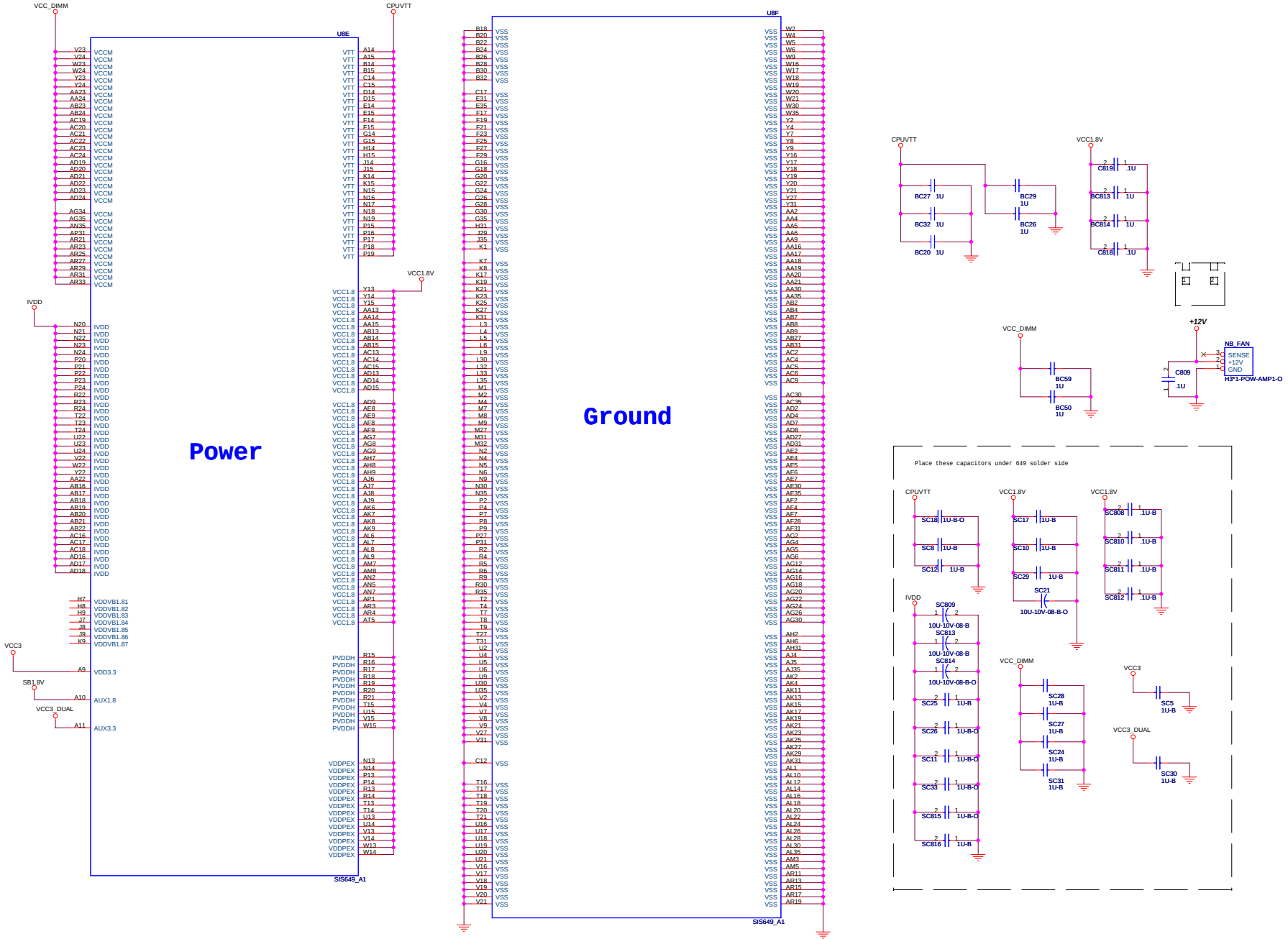
Elitegroup Computer Systems


MDA[0..63] MDA[0..63] 17
DQMA[0..7] DQMA[0..7] 17
DQSA[0..7] DQSA[0..7] 17
DQSA-[0..7] DQSA-[0..7] 17
MAA[0..17] MAA[0..17] 17,18
CSA-[0..3] CSA-[0..3] 17
ODTA[0..3] ODTA[0..3] 17
U8B
SIS649_A1
VCC_DIMM
SC34 1U-B
SR5 150-1-B
NB_DDRVREF
SC38 1U-B
SR8 150-1-B
VCC1.8V
SL44 FB-120-B
D4XAVDD
SC173 1U-B
SC818 10U-10V-08-B
D4XAVSS
C806 10P
R811 22
R1060 22
C1023 10P
FWDSDCLK0A 16
FWDSDCLK0A- 16
L42 FB-120
D1XAVDD
C161 1U
MC804 10U-10V-08
D1XAVSS
CKEA0 17
CKEA1 17
CKEA2 17
CKEA3 17
Default
Connect only when ECC are enabled
SR195 36-1-B
DDRCOMN
R97 40 1%
OCDVREFP
R99 36 1%
SR189 36-1-B
DDRCOMP
R1061 36 1%
OCDVREFN
R1062 40 1%
S3AUXSW- 33
Elitegroup Computer Systems
649-M3
649-2(UMCA)
Wednesday, June 15, 2005
Sheet 8 of 36

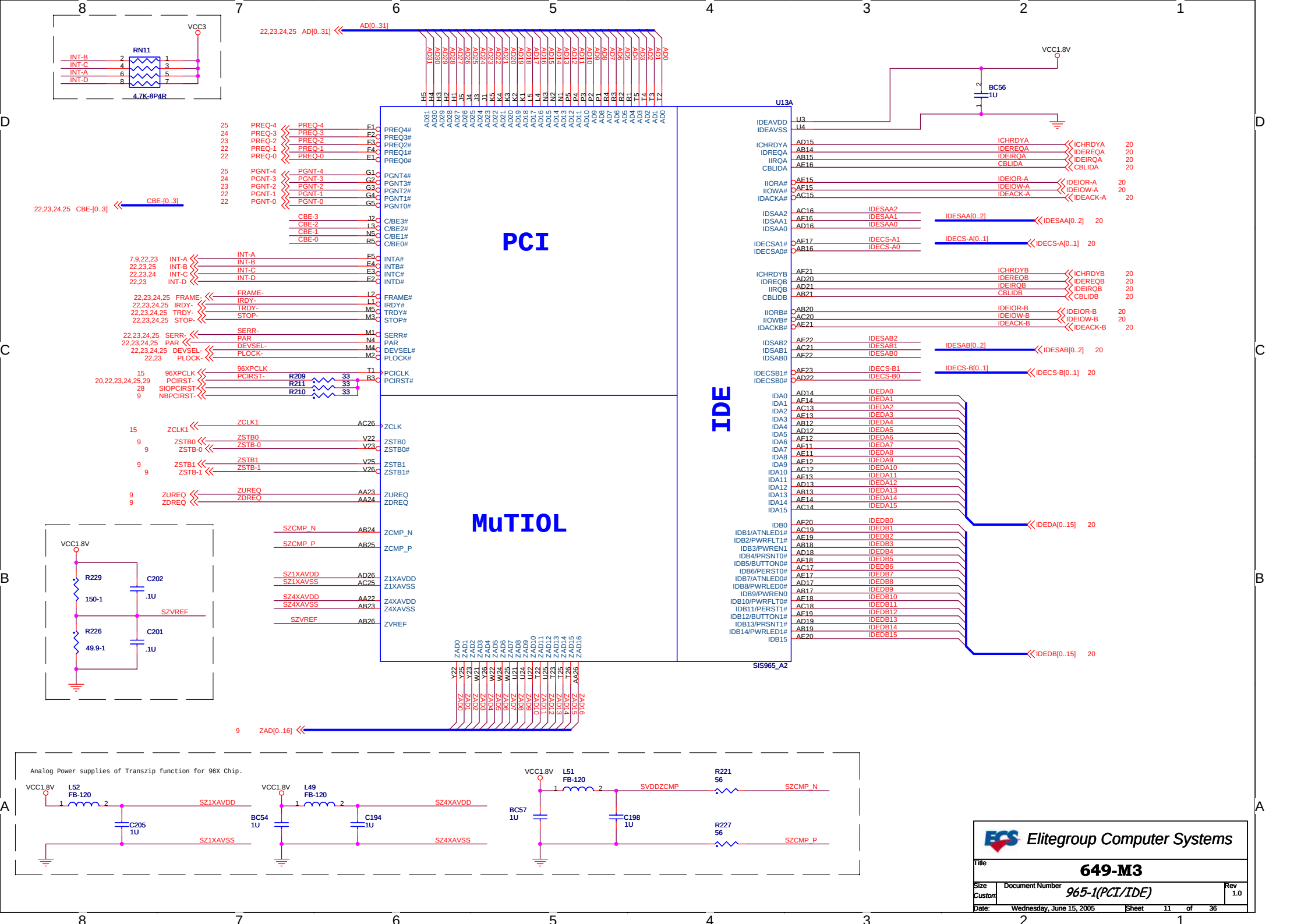


Elitegroup Computer Systems

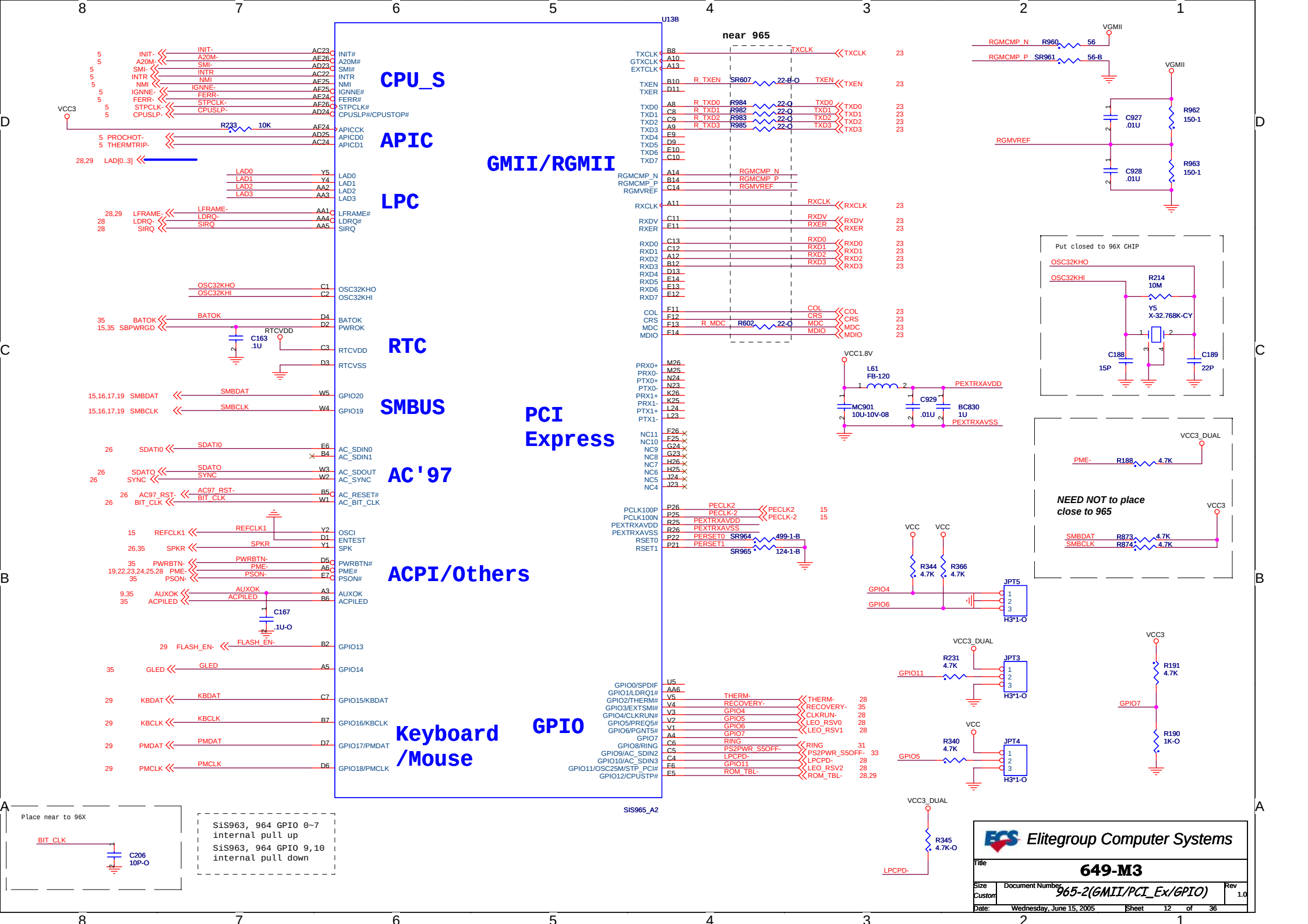
Title	649-M3		
Size: Custom	Document Number: 649-4(LINK)		Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 9 of 36		

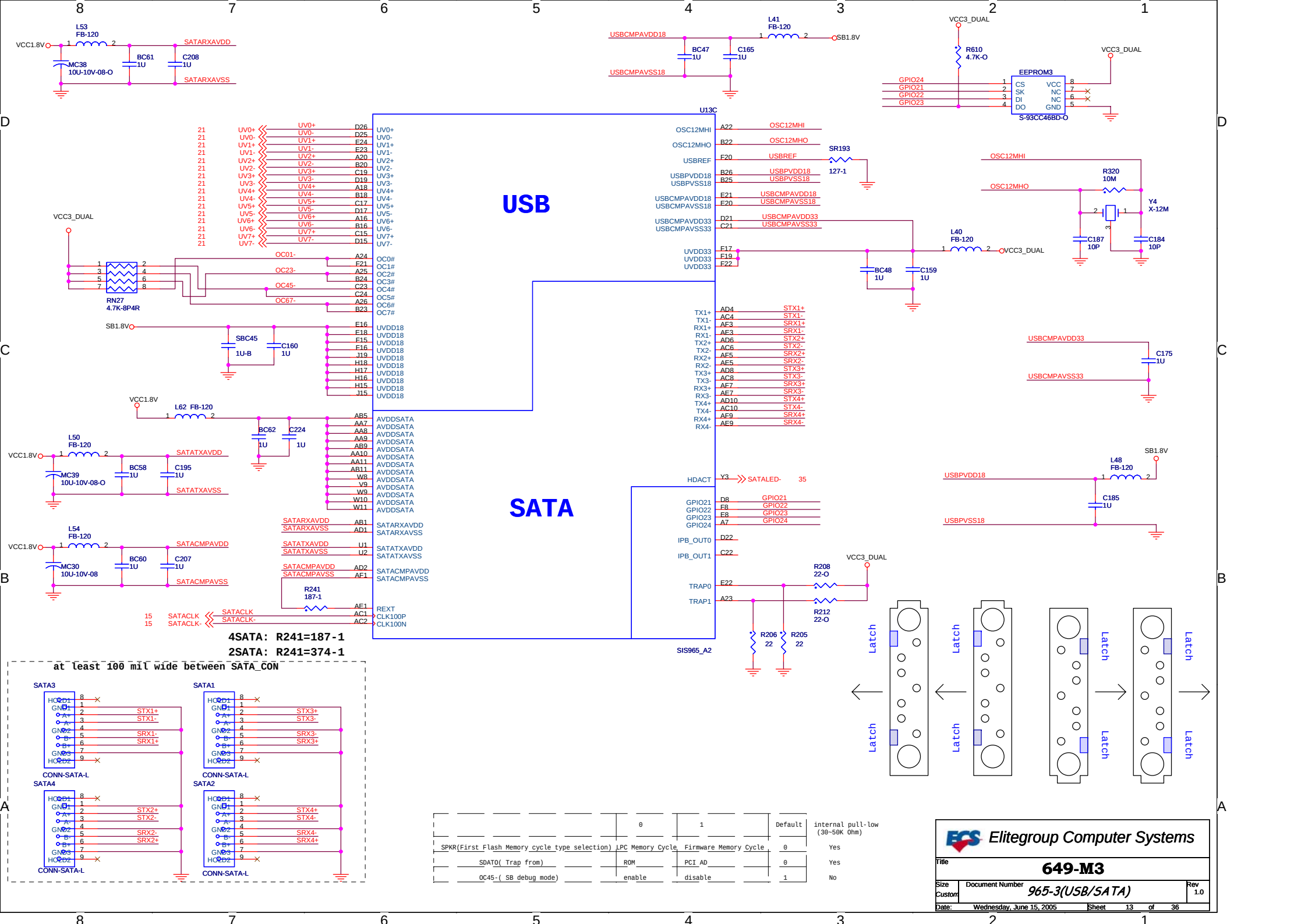


Elitegroup Computer Systems	
Title	649-M3
Size: Custom	Document Number: 649-4(Power)
Rev	1.0
Date: Wednesday, June 15, 2005	Sheet 10 of 36



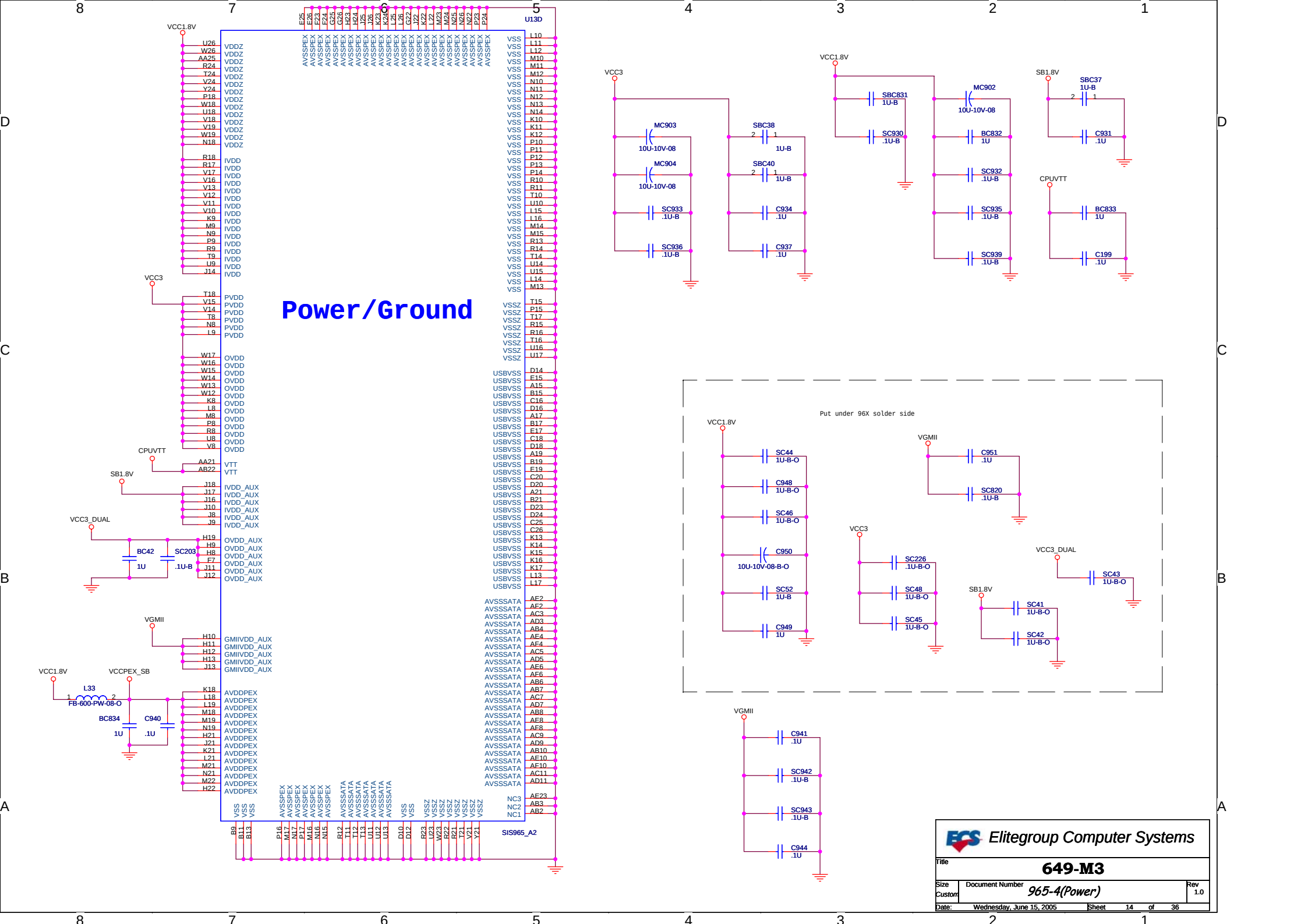
Elitegroup Computer Systems	
Title	649-M3
Size: Custom	Document Number: 965-1(PCI/IDE)
Rev: 1.0	
Date: Wednesday, June 15, 2005	Sheet 11 of 36


CPU_S
APIC
GMII/RGMII
LPC
RTC
SMBUS
PCI Express
AC'97
ACPI/Others
Keyboard /Mouse
GPIO
U13B
near 965
SIS965_A2
Put closed to 96X CHIP
NEED NOT to place close to 965
Place near to 96X
SiS963, 964 GPIO 0~7 internal pull up
SiS963, 964 GPIO 9,10 internal pull down
Elitegroup Computer Systems
649-M3
965-2(GMII/PCI_Ex/GPIO)
Wednesday, June 15, 2005



	0	1	Default	internal pull-low (30~50K Ohm)
SPKR(First Flash Memory cycle type selection)	LPC Memory Cycle	Firmware Memory Cycle	0	Yes
SDAT0(Trap from)	ROM	PCI AD	0	Yes
OC45-(SB debug mode)	enable	disable	1	No

Title	649-M3		
Size: Custom	Document Number: 965-3(USB/SATA)		Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 13 of 36		


Power/Ground
U13D
SIS965_A2
VCC1.8V
VCC3
CPUVTT
SB1.8V
VCC3_DUAL
VGMII
VCCPEX_SB
L33
FB-600-PW-08-O
BC42
1U
SC203
.1U-B
BC834
C940
.1U
MC903
10U-10V-08
MC904
SC933
.1U-B
SC936
SBC38
1U-B
SBC40
C934
.1U
C937
SBC831
SC930
MC902
BC832
1U
SC932
SC935
SC939
SBC37
C931
BC833
C199
Put under 96X solder side
SC44
1U-B-O
C948
SC46
C950
10U-10V-08-B-O
SC52
C949
SC226
SC48
SC45
C951
SC820
SC43
SC41
SC42
C941
SC942
SC943
C944
Elitegroup Computer Systems
649-M3
965-4(Power)
Custom
1.0
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Main Clock Generator

OPTIONS

1. ICS953401

PLACE TO EVERY POWER PIN

CLK1
ICS953401CF

Damping Resistors
Place near to the
Clock Outputs

By-Pass Capacitors
Place near to the Clock Outputs

Follow ICS suggestion.

REFCLK0 is for SiS662 VB

Frequency Selection

Modified R840, R841, and R842 from 1K to 4.7K, and
R843, R844, and R845 from 4.7K to 1K.

Clock Generator Table / Hardware Traping	FS4 / Low	FS3 / Low	FS2 / BSEL2	FS1 / BSEL1	FS0 / BSEL0
CPU=100 (BSEL[2:0]=101)	0	0	1	0	1
CPU=133 (BSEL[2:0]=001)	0	0	0	0	1
CPU=166 (BSEL[2:0]=011)	0	0	0	1	1
CPU=200 (BSEL[2:0]=010)	0	0	0	1	0
CPU=266 (BSEL[2:0]=000)	0	0	0	0	0
CPU=333 (BSEL[2:0]=100)	0	0	1	0	0
CPU=400 (BSEL[2:0]=110)	0	0	1	1	0

Elitegroup Computer Systems

Title: 649-M3

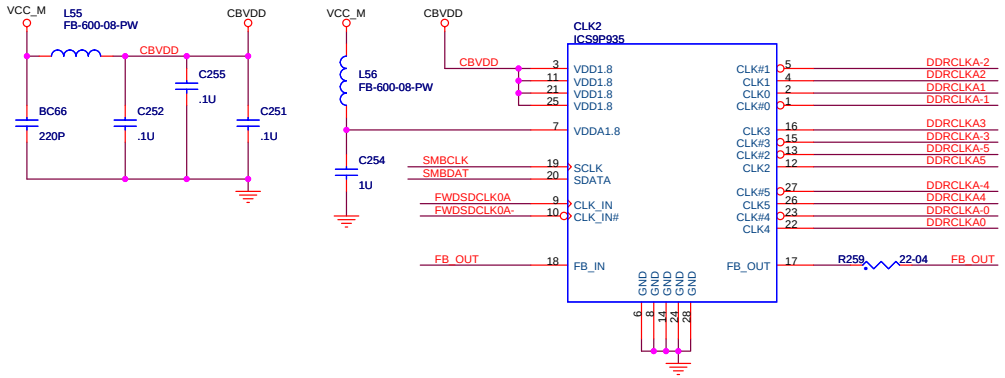
Size: B | Document Number: Clock Generator | Rev: 1.0

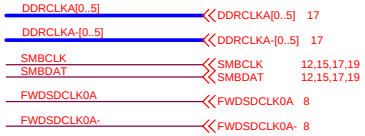
Date: Wednesday, June 15, 2005 | Sheet 15 of 36

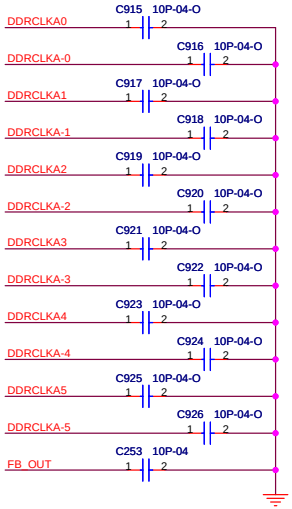
Clock Buffer (DDRII)

(5 OPTIONS)
1: (ICS) ICS93716
2: (Winbond)
3: (ICWorks)
4: (IMI)
5: (AMI)

By-Pass Capacitors
Place near to the Clock Buffer

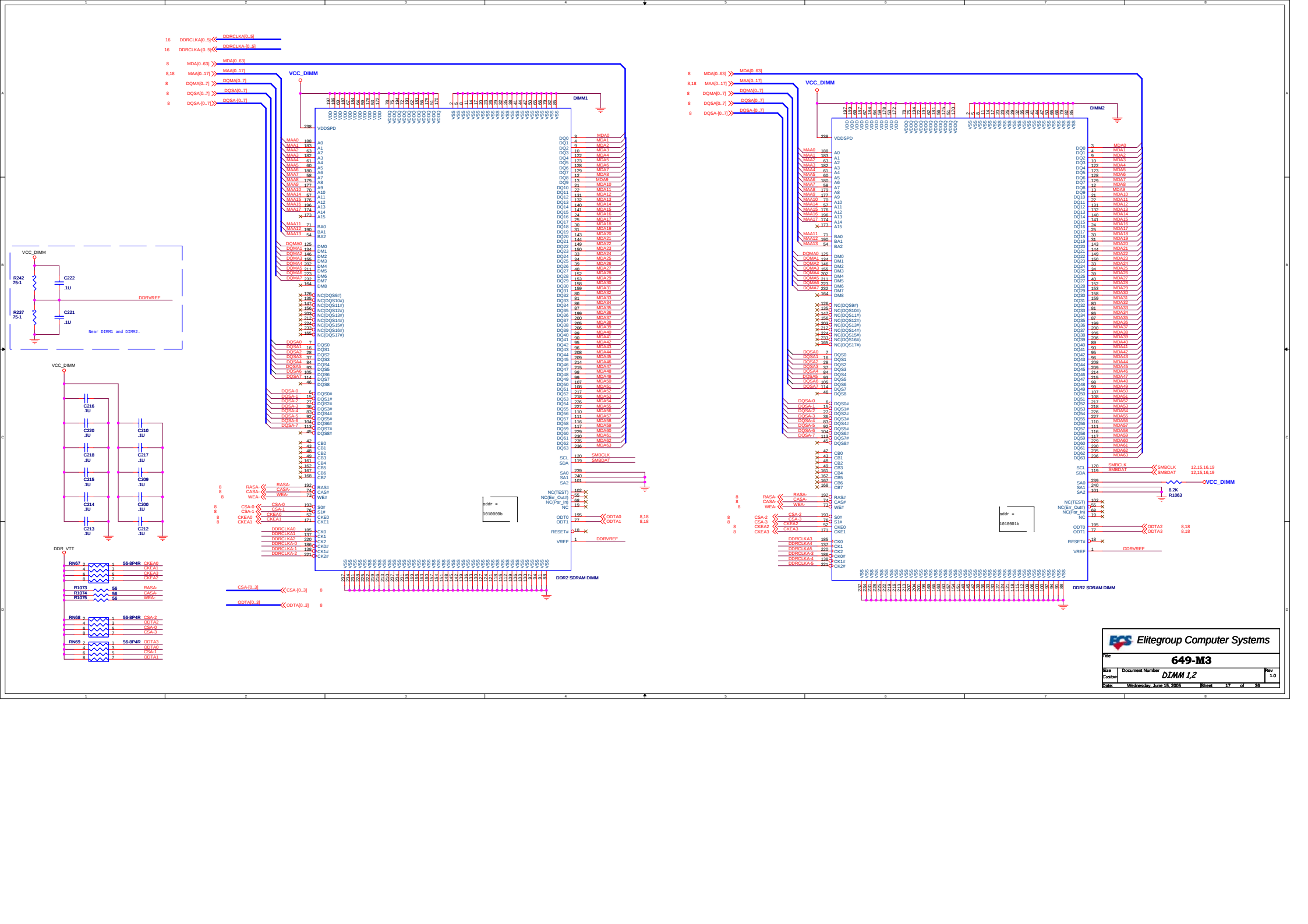






Elitegroup Computer Systems

Title: 649-M3		
Size: Custom	Document Number: Clock Buffer	Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 16 of 36	


VCC_DIMM
DDRVREF
R242 75-1
R237 75-1
C222 .1U
C221 .1U
Near DIMM1 and DIMM2.
C216 .1U
C220 .1U
C218 .1U
C215 .1U
C214 .1U
C213 .1U
C210 .1U
C217 .1U
C209 .1U
C200 .1U
C212 .1U
DDR_VTT
RN67 56-8P4R CKEA0 CKEA1 CKEA3 CKEA2
R1073 56 RASA-
R1074 56 CASA-
R1075 56 WEA-
RN68 56-8P4R CSA-2 ODTA2 CSA-0 CSA-3
RN69 56-8P4R ODTA3 ODTA0 CSA-1 ODTA1
DDRCLKA[0..5]
MDA[0..63]
MAA[0..17]
DQMA[0..7]
DQSA[0..7]
DIMM1
DDR2 SDRAM DIMM
addr = 1010000b
SMBCLK
SMBDAT
CSA[0..3]
ODTA[0..3]
DIMM2
addr = 1010001b
8.2K R1063
12,15,16,19
Elitegroup Computer Systems
649-M3
DIMM 1,2
Wednesday, June 15, 2005
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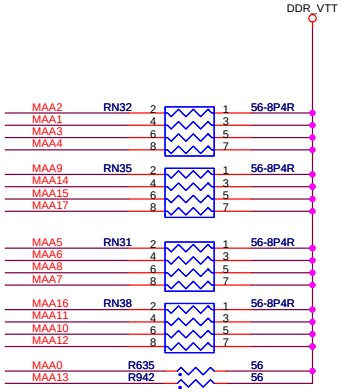
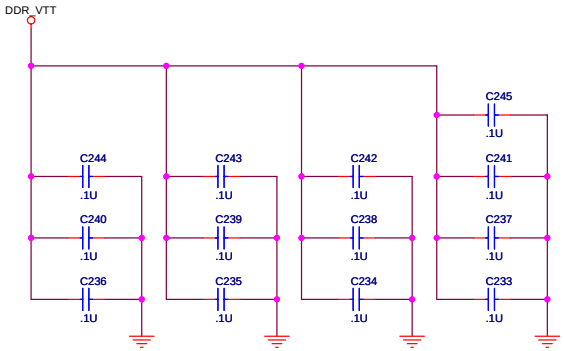
SSTL-2 Termination Resistors

	SDR		DDR		
		Rs		Rs	Rtt
MD/DQM(/DQS)	LV-CMOS	0/10/-	SSTL-2	10	33
MA/Control	LV-CMOS	10	SSTL-2	0	33
CS	LV-CMOS	0	SSTL-2	0	47
CKE	OD 3.3V		OD 2.5V		

MAA[0..17] MAA[0..17] 8,17

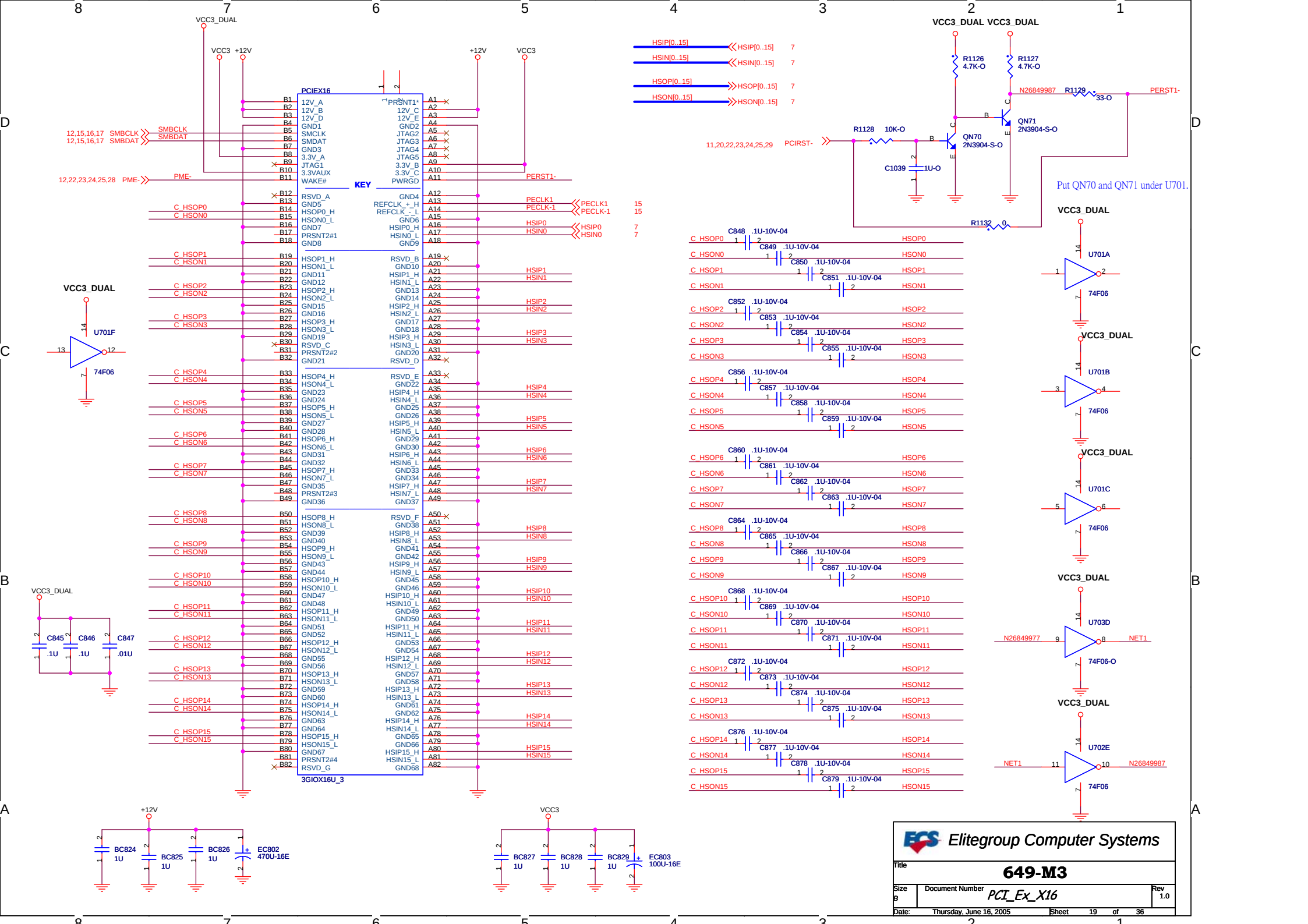


DECOUPLING CAPACITOR FOR SSTL-2 END TERMIANTION VTT ISLAND
0603 Package placed within 200mils of VTT Termination R-packs



Elitegroup Computer Systems

Title	649-M3	
Size: Custom	Document Number: DDRII Termination	Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 18 of 36	


PCIEX16
3GIOX16U_3
KEY
VCC3_DUAL
VCC3
+12V
SMBCLK
SMBDAT
PME-
PERST1-
PECLK1
PECLK-1
HSIP0
HSIN0
HSIP1
HSIN1
HSIP2
HSIN2
HSIP3
HSIN3
HSIP4
HSIN4
HSIP5
HSIN5
HSIP6
HSIN6
HSIP7
HSIN7
HSIP8
HSIN8
HSIP9
HSIN9
HSIP10
HSIN10
HSIP11
HSIN11
HSIP12
HSIN12
HSIP13
HSIN13
HSIP14
HSIN14
HSIP15
HSIN15
HSIP[0..15]
HSIN[0..15]
HSOP[0..15]
HSON[0..15]
PCIRST-
R1126 4.7K-O
R1127 4.7K-O
R1128 10K-O
R1129 33-O
R1132 0
QN70 2N3904-S-O
QN71 2N3904-S-O
C1039 1U-O
Put QN70 and QN71 under U701.
U701A
U701B
U701C
U701D
U701E
U701F
74F06
74F06-O
C845 .1U
C846 .1U
C847 .01U
BC824 1U
BC825 1U
BC826 1U
EC802 470U-16E
BC827 1U
BC828 1U
BC829 1U
EC803 100U-16E
C848 .1U-10V-04
C849 .1U-10V-04
C850 .1U-10V-04
C851 .1U-10V-04
C852 .1U-10V-04
C853 .1U-10V-04
C854 .1U-10V-04
C855 .1U-10V-04
C856 .1U-10V-04
C857 .1U-10V-04
C858 .1U-10V-04
C859 .1U-10V-04
C860 .1U-10V-04
C861 .1U-10V-04
C862 .1U-10V-04
C863 .1U-10V-04
C864 .1U-10V-04
C865 .1U-10V-04
C866 .1U-10V-04
C867 .1U-10V-04
C868 .1U-10V-04
C869 .1U-10V-04
C870 .1U-10V-04
C871 .1U-10V-04
C872 .1U-10V-04
C873 .1U-10V-04
C874 .1U-10V-04
C875 .1U-10V-04
C876 .1U-10V-04
C877 .1U-10V-04
C878 .1U-10V-04
C879 .1U-10V-04
Elitegroup Computer Systems
649-M3
PCI_Ex_X16
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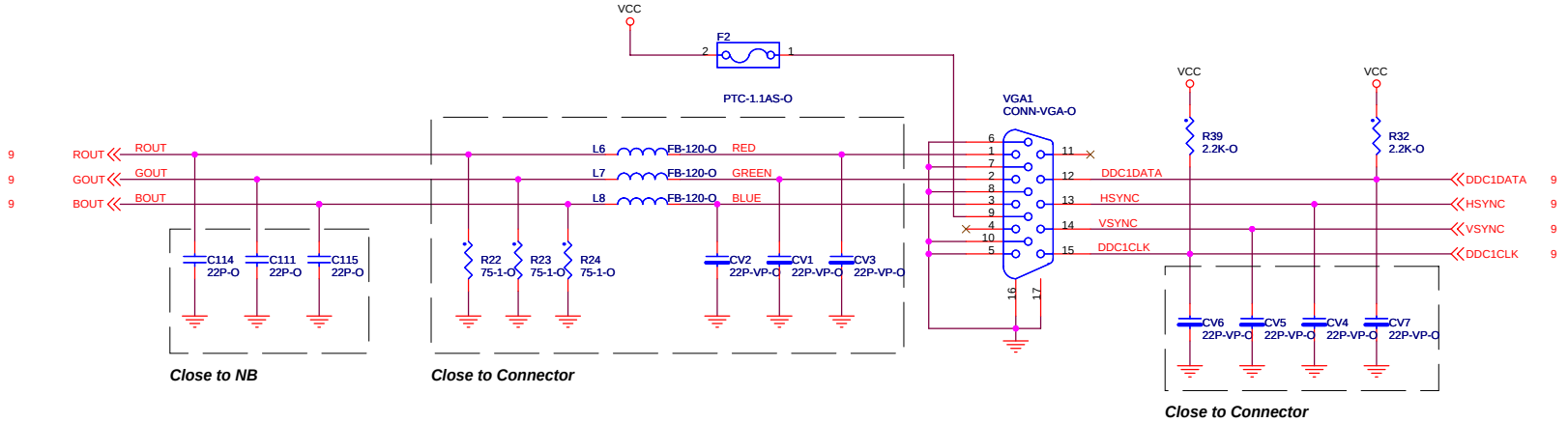
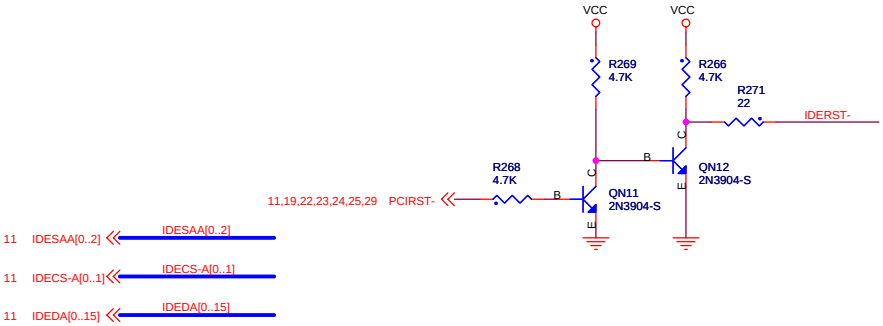
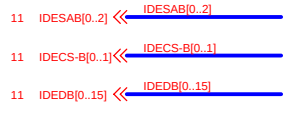
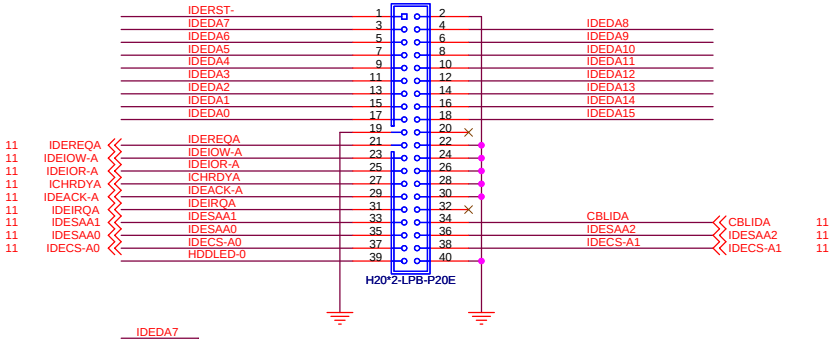


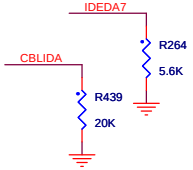


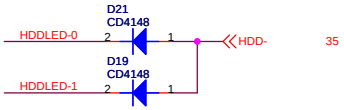


PRIMARY

IDE1

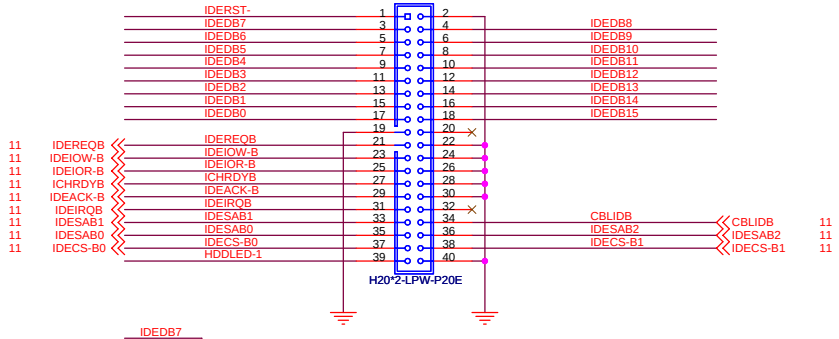


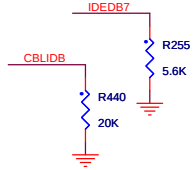




SECONDARY

IDE2





Elitegroup Computer Systems

Title	649-M3		
Size: Custom	Document Number: VGA / IDE		Rev: 1.0
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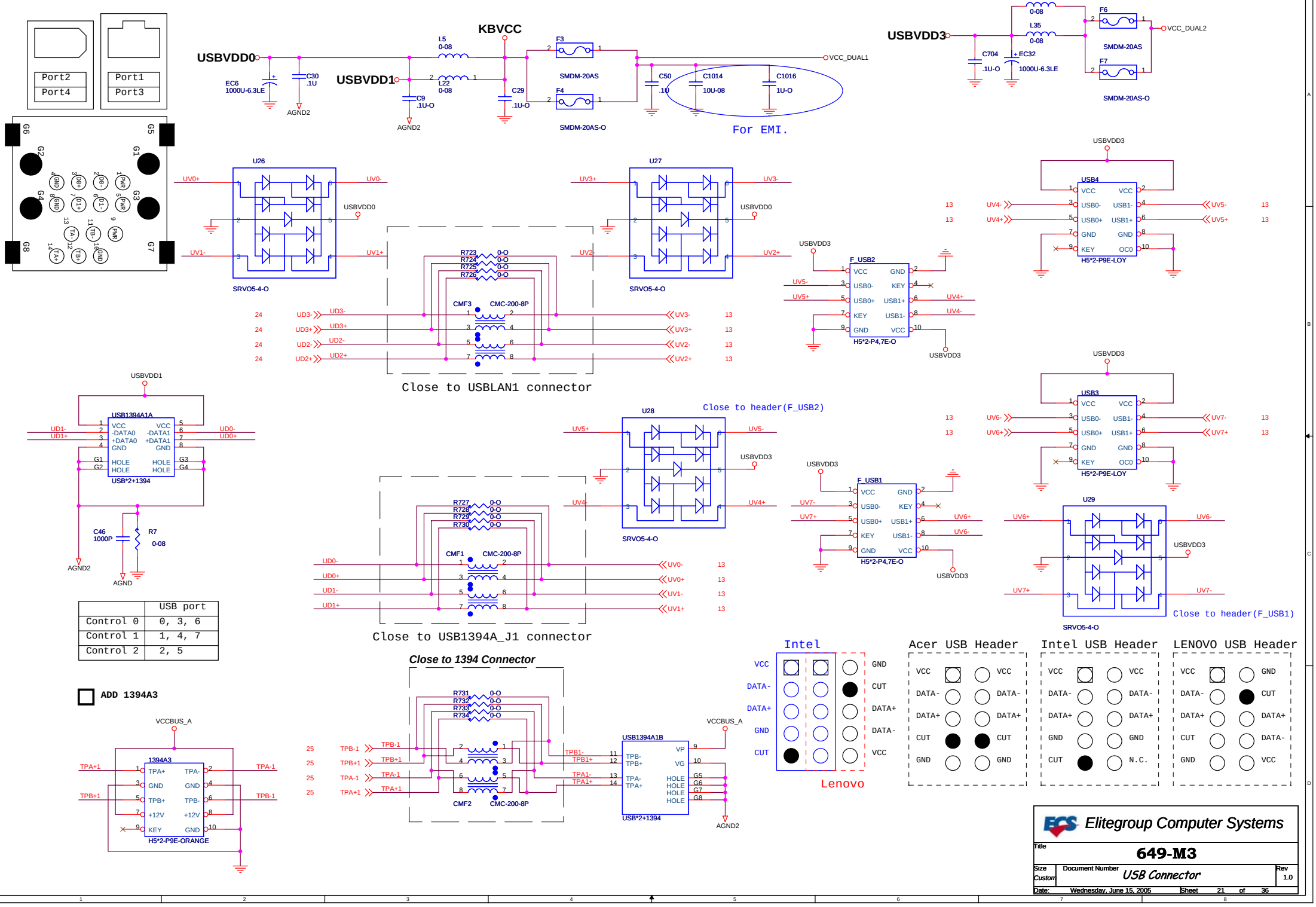

	USB port
Control 0	0, 3, 6
Control 1	1, 4, 7
Control 2	2, 5

Elitegroup Computer Systems

Title: 649-M3

Size: Custom | Document Number: USB Connector | Rev: 1.0

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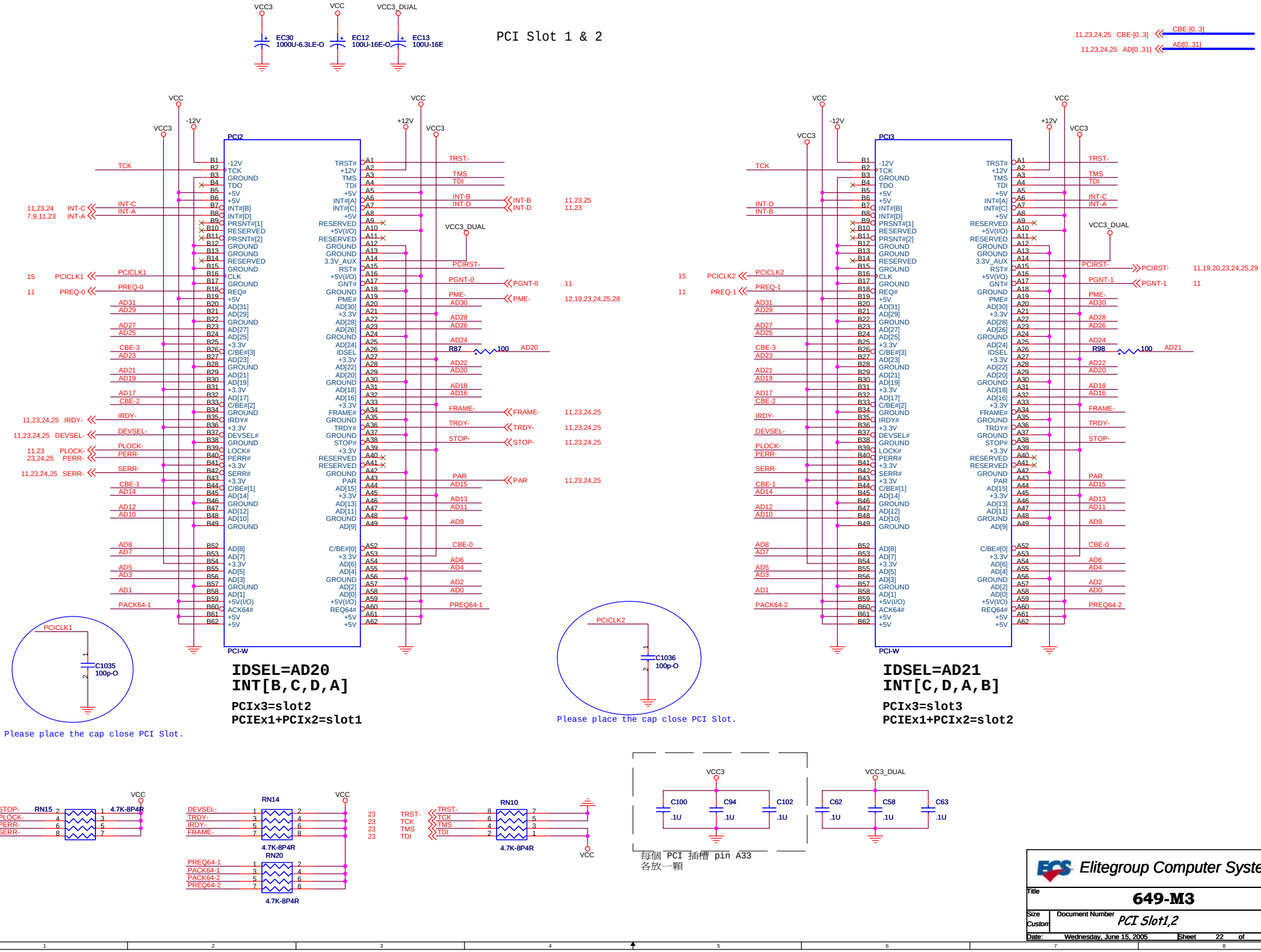
PCI Slot 1 & 2


VCC3
EC30
1000U-6.3LE-O
VCC
EC12
100U-16E-O
VCC3_DUAL
EC13
100U-16E
11,23,24,25 CBE-[0..3]
CBE-[0..3]
11,23,24,25 AD[0..31]
AD[0..31]
PCI2
PCI-W
IDSEL=AD20
INT[B,C,D,A]
PCIx3=slot2
PCIEx1+PCIx2=slot1
Please place the cap close PCI Slot.
C1035
100p-O
PCI3
PCI-W
IDSEL=AD21
INT[C,D,A,B]
PCIx3=slot3
PCIEx1+PCIx2=slot2
Please place the cap close PCI Slot.
C1036
100p-O
RN15
4.7K-8P4R
RN14
4.7K-8P4R
RN20
4.7K-8P4R
RN10
4.7K-8P4R
C100
C94
C102
C62
C58
C63
.1U
每個 PCI 插槽 pin A33
各放一顆
Elitegroup Computer Systems
Title
649-M3
Size
Custom
Document Number
PCI Slot1,2
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1.0
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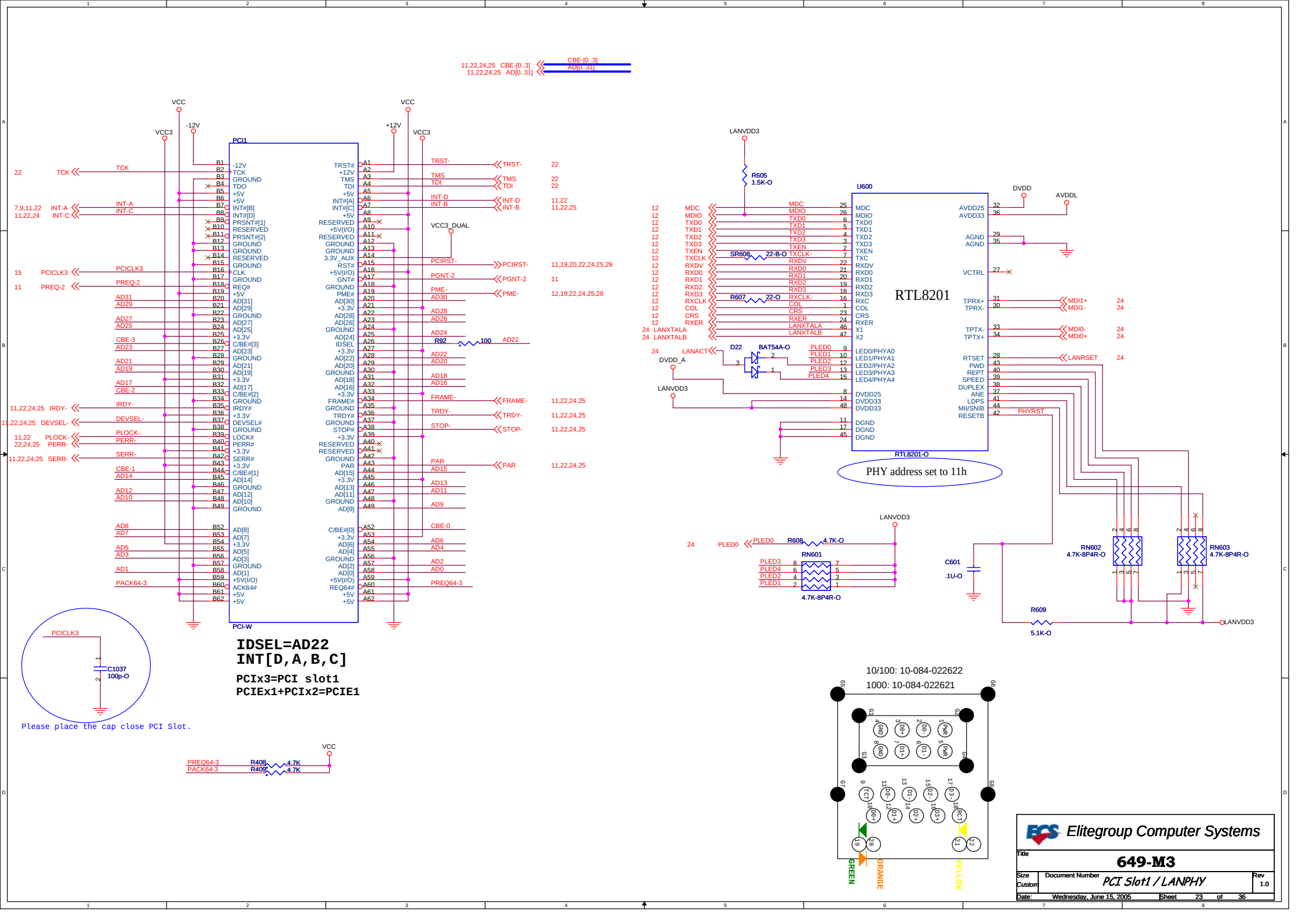
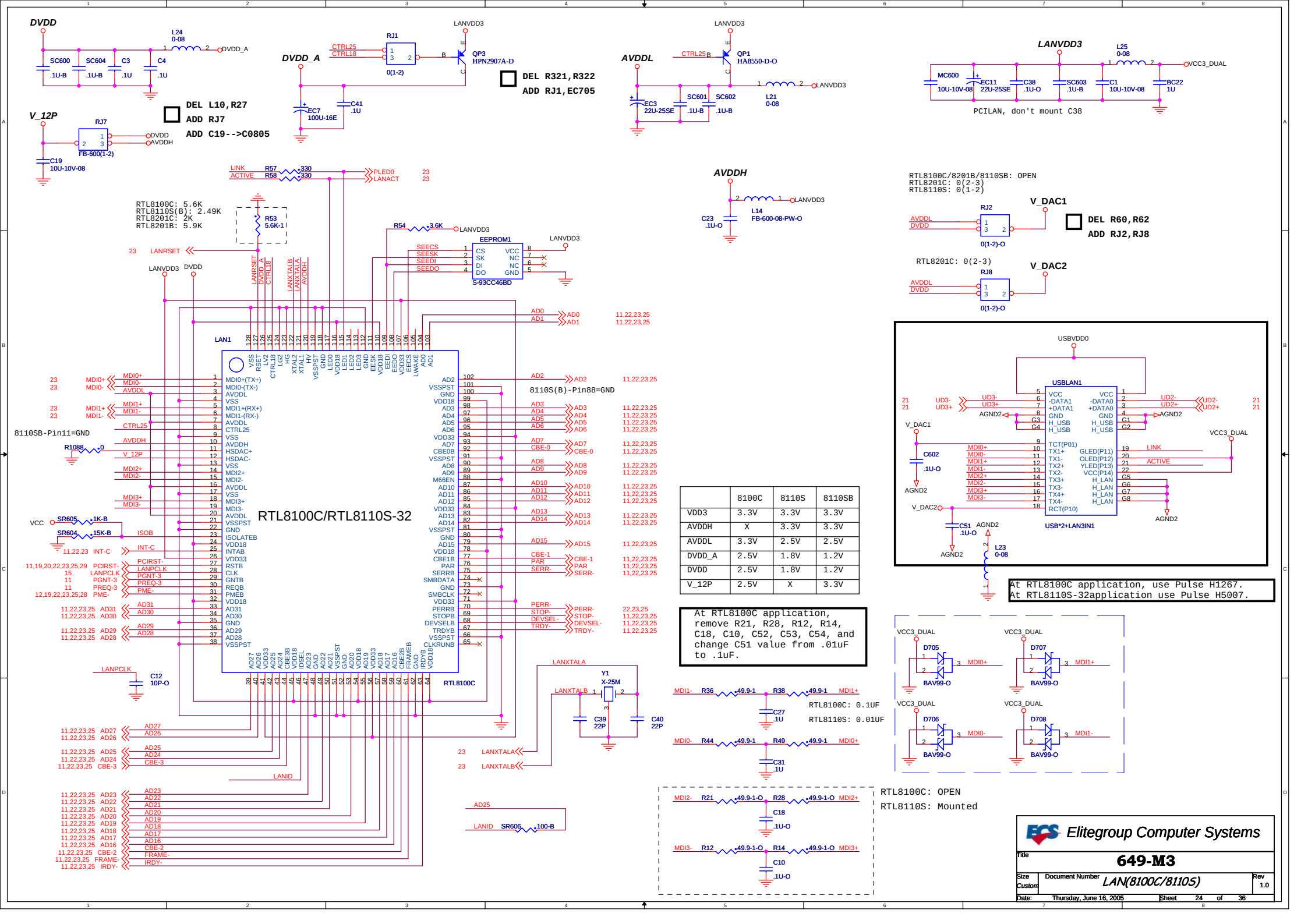

PCI1
PCI-W
RTL8201
U600
RTL8201-O
LANVDD3
VCC
VCC3
-12V
+12V
VCC3_DUAL
DVDD
AVDDL
DVDD_A
IDSEL=AD22
INT[D,A,B,C]
PCIx3=PCI slot1
PCIEx1+PCIx2=PCIE1
PHY address set to 11h
Please place the cap close PCI Slot.
10/100: 10-084-022622
1000: 10-084-022621
GREEN
ORANGE
YELLOW
Elitegroup Computer Systems
649-M3
PCI Slot1 / LANPHY
Wednesday, June 15, 2005



	8100C	8110S	8110SB
VDD3	3.3V	3.3V	3.3V
AVDDH	X	3.3V	3.3V
AVDDL	3.3V	2.5V	2.5V
DVDD_A	2.5V	1.8V	1.2V
DVDD	2.5V	1.8V	1.2V
V_12P	2.5V	X	3.3V

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Title	649-M3	
Size: Custom	Document Number: LAN(8100C/8110S)	Rev: 1.0
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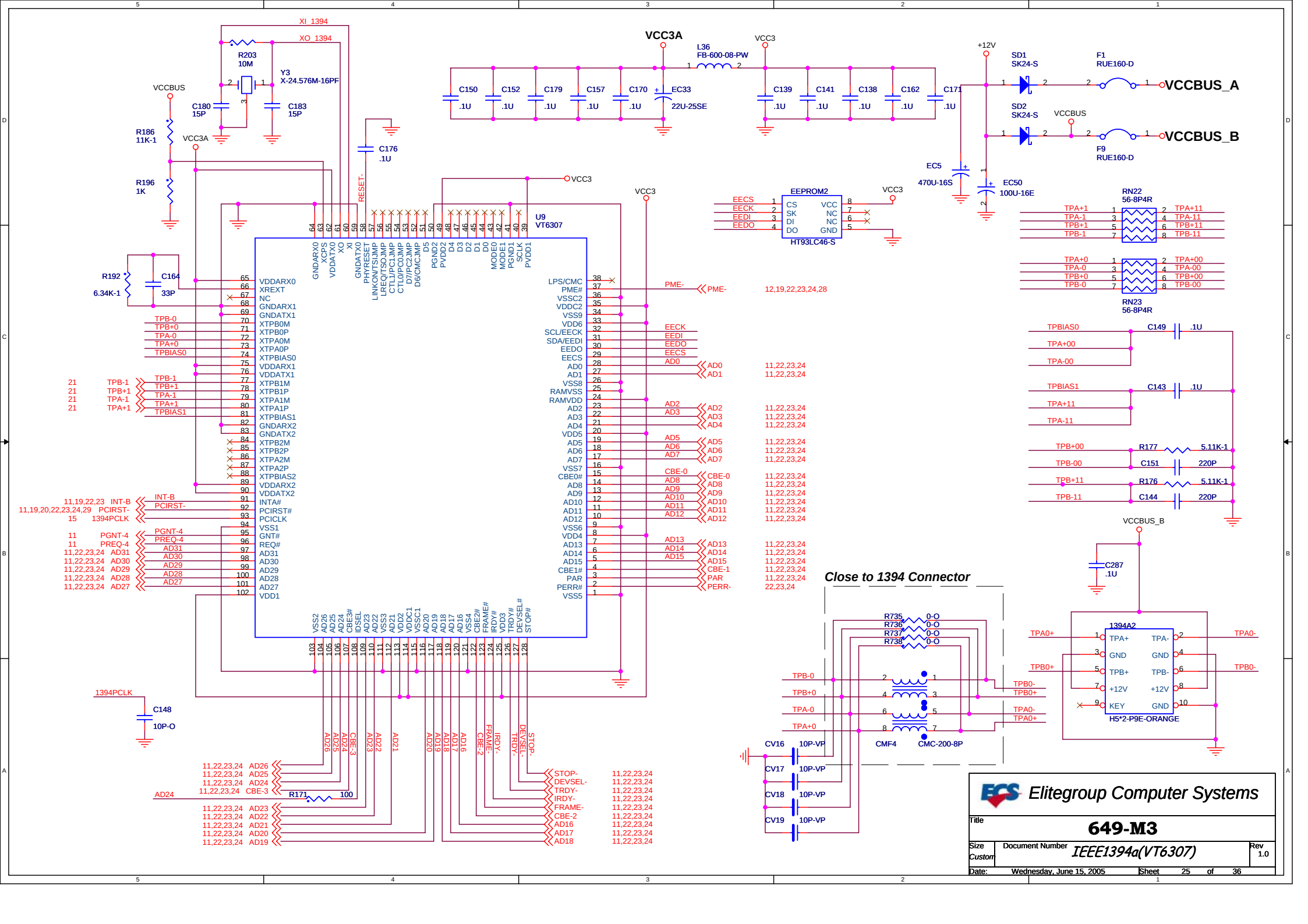
XI 1394
XO 1394
R203
10M
Y3
X-24.576M-16PF
VCCBUS
C180
15P
C183
15P
R186
11K-1
VCC3A
R196
1K
C176
.1U
VCC3A
L36
FB-600-08-PW
VCC3
C150 .1U
C152 .1U
C179 .1U
C157 .1U
C170 .1U
EC33
22U-25SE
C139 .1U
C141 .1U
C138 .1U
C162 .1U
C171 .1U
+12V
SD1
SK24-S
F1
RUE160-D
VCCBUS_A
SD2
SK24-S
VCCBUS
F9
RUE160-D
VCCBUS_B
EC5
470U-16S
EC50
100U-16E
EEPROM2
CS
SK
DI
DO
VCC
NC
NC
GND
HT93LC46-S
EECS
EECK
EEDI
EEDO
RN22
56-8P4R
RN23
56-8P4R
TPA+1
TPA-1
TPB+1
TPB-1
TPA+11
TPA-11
TPB+11
TPB-11
TPA+0
TPA-0
TPB+0
TPB-0
TPA+00
TPA-00
TPB+00
TPB-00
U9
VT6307
R192
6.34K-1
C164
33P
TPBIAS0
TPBIAS1
C149 .1U
C143 .1U
R177 5.11K-1
C151 220P
R176 5.11K-1
C144 220P
INT-B
PCIRST-
PGNT-4
PREQ-4
AD31
AD30
AD29
AD28
AD27
1394PCLK
C148
10P-O
C287
.1U
VCCBUS_B
Close to 1394 Connector
R735 0-O
R736 0-O
R737 0-O
R738 0-O
CMF4
CMC-200-8P
CV16 10P-VP
CV17 10P-VP
CV18 10P-VP
CV19 10P-VP
1394A2
H5*2-P9E-ORANGE
R171 100
Elitegroup Computer Systems
Title
649-M3
Size
Custom
Document Number
IEEE1394a(VT6307)
Rev
1.0
Date:
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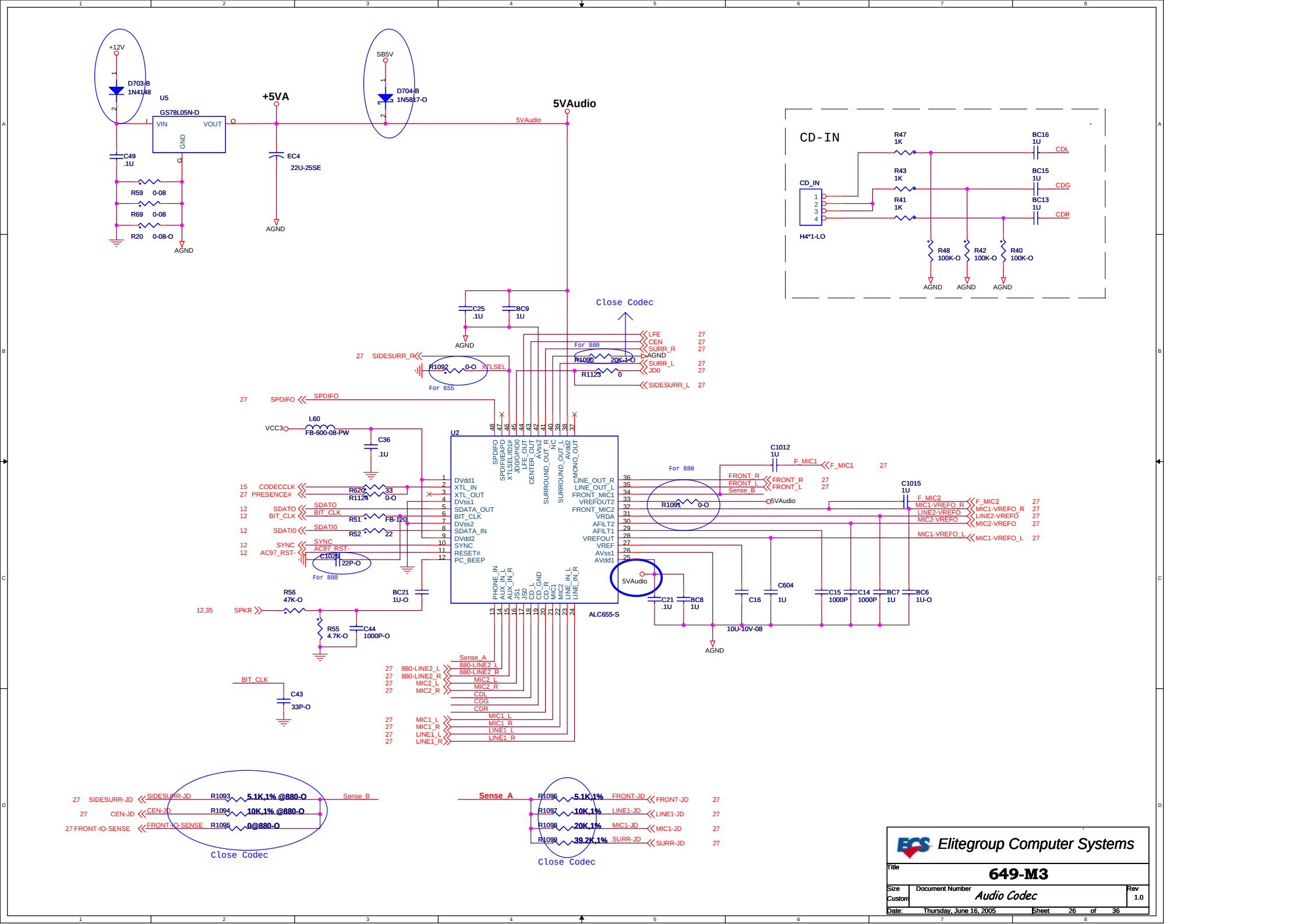
36



Elitegroup Computer Systems			
Title	649-M3		
Size: Custom	Document Number: Audio Codec		Rev: 1.0
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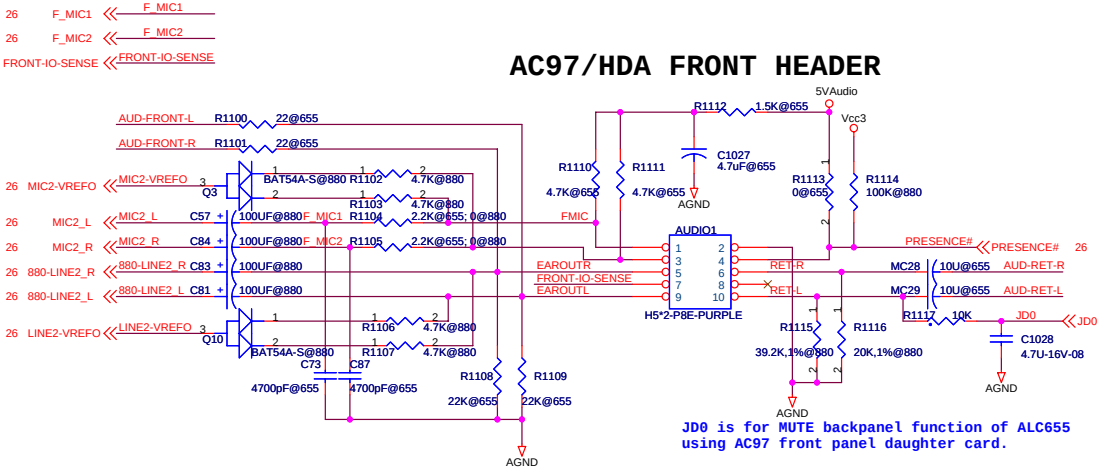
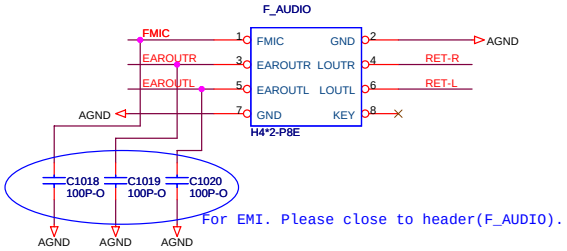
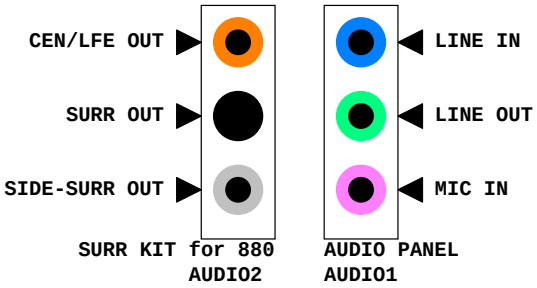
AC97/HDA FRONT HEADER

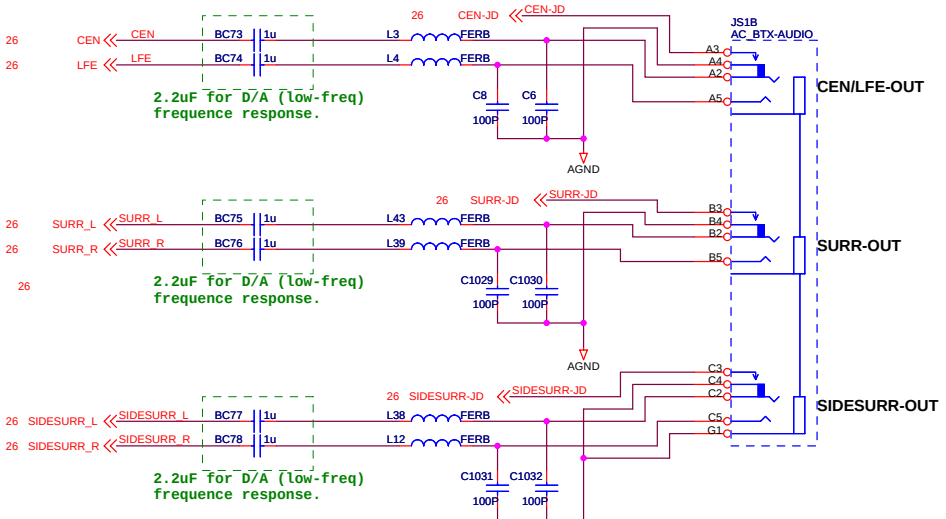


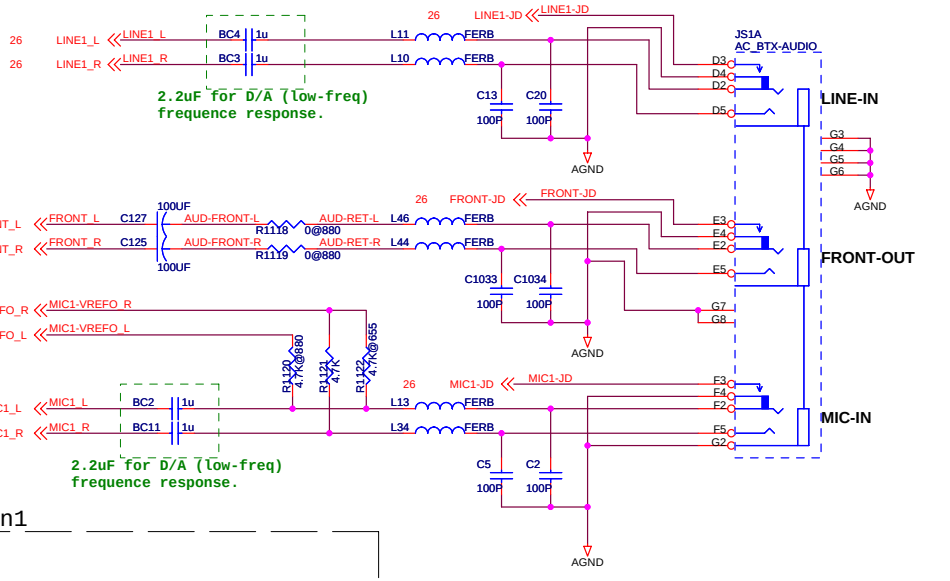
JD0 is for MUTE backpanel function of ALC655 using AC97 front panel daughter card.

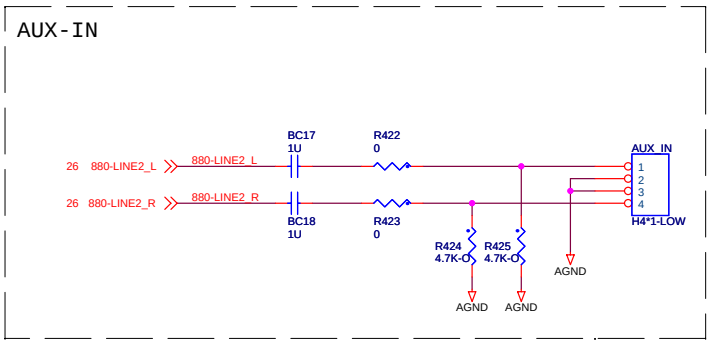


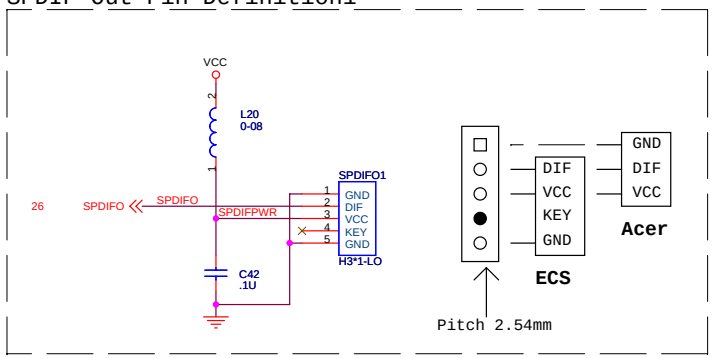
For EMI. Please close to header(F_AUDIO).











Elitegroup Computer Systems		
Title: 649-M3		
Size: Custom	Document Number: Audio Interface	Rev: 1.0
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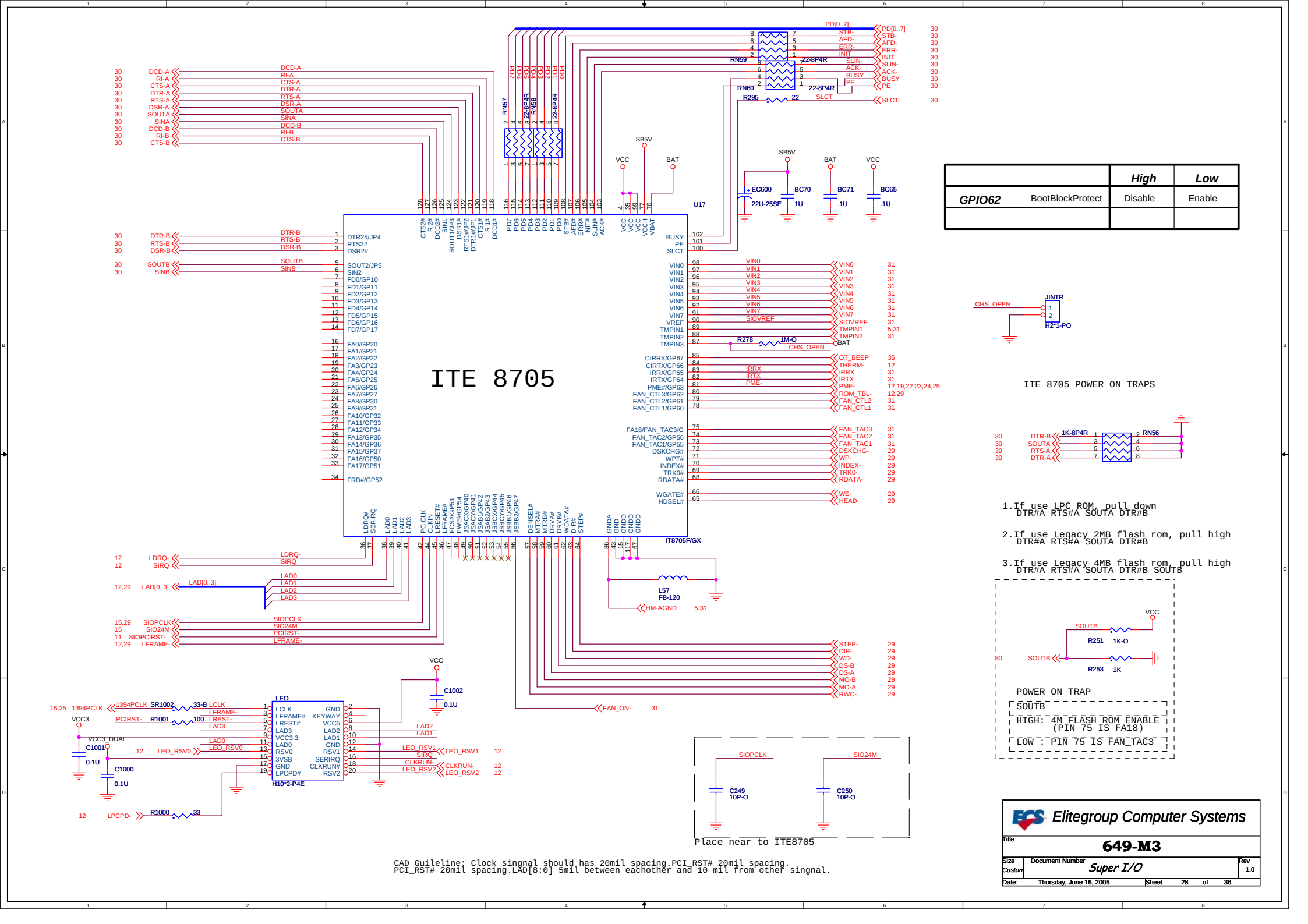

		High	Low
GPIO62	BootBlockProtect	Disable	Enable

CAD Guileline: Clock singnal should has 20mil spacing.PCI_RST# 20mil spacing.
PCI_RST# 20mil spacing.LAD[8:0] 5mil between eachother and 10 mil from other singnal.

Elitegroup Computer Systems

Title	649-M3		
Size: Custom	Document Number: Super I/O		Rev: 1.0
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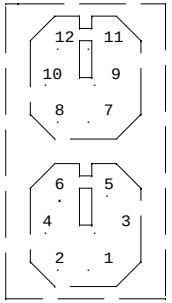
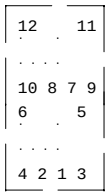
CONNECTOR VIEW

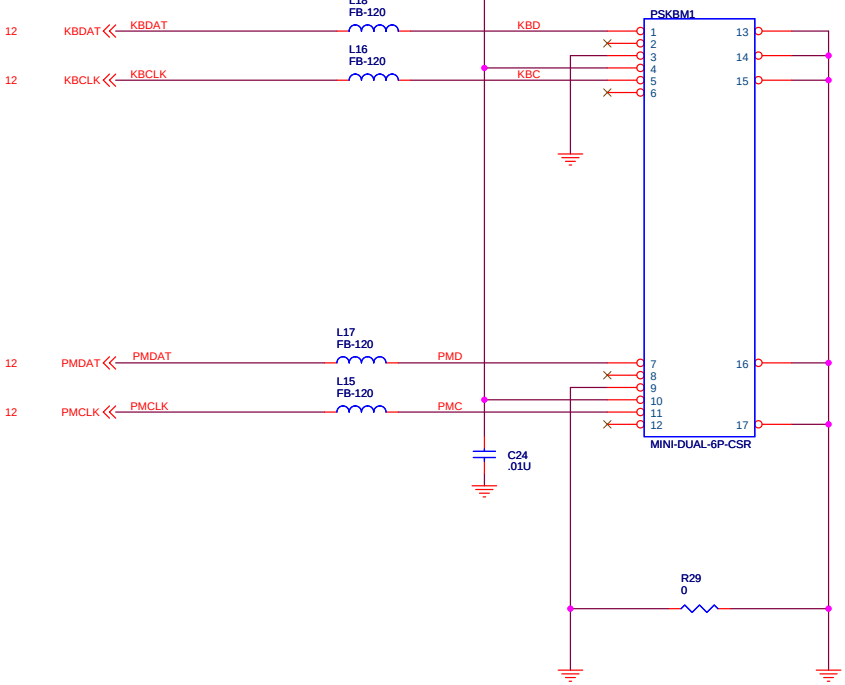


TOP VIEW

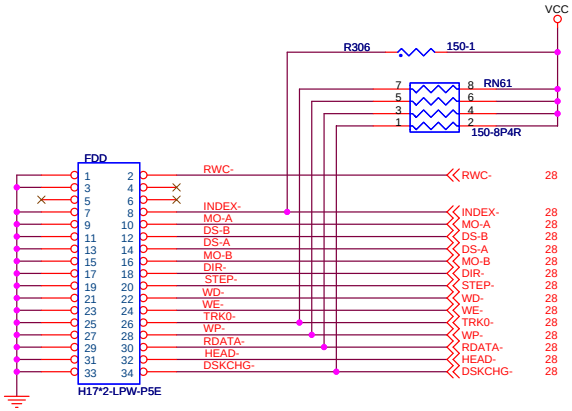


JP3	BIOS PROTECT
OPEN	DISABLE
SHORT	ENABLE

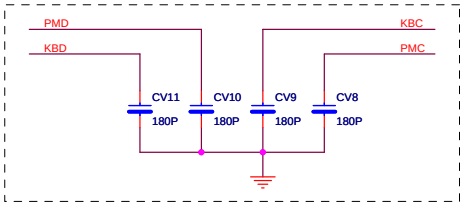
LPC INTERFACE ROM



FDC



PLACE NEAR CONNECTOR



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Title		
649-M3		
Size: Custom	Document Number: KB/MS/ROM/FDC/IR	Rev: 1.0
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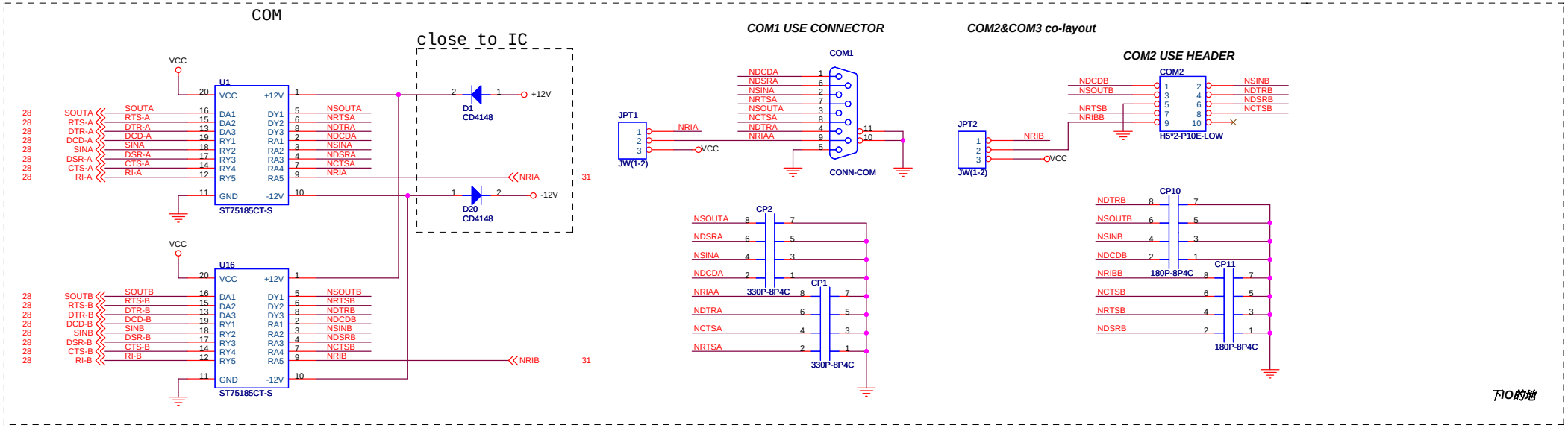
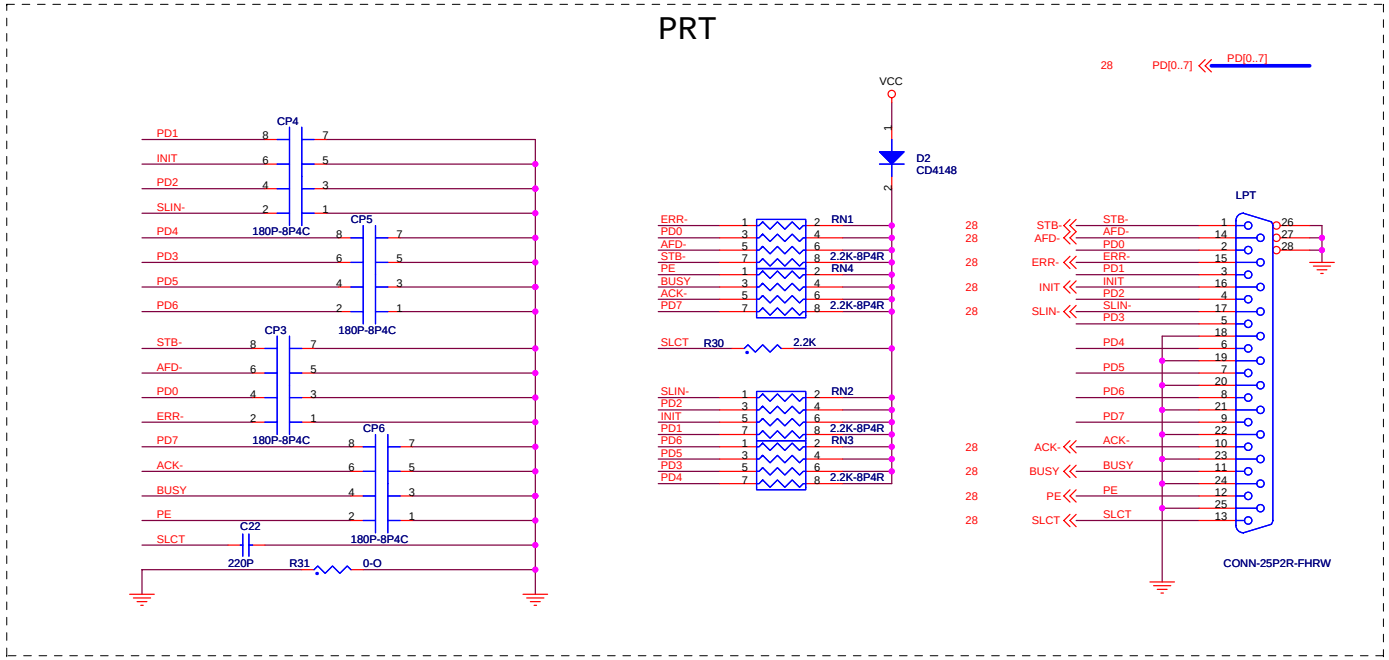
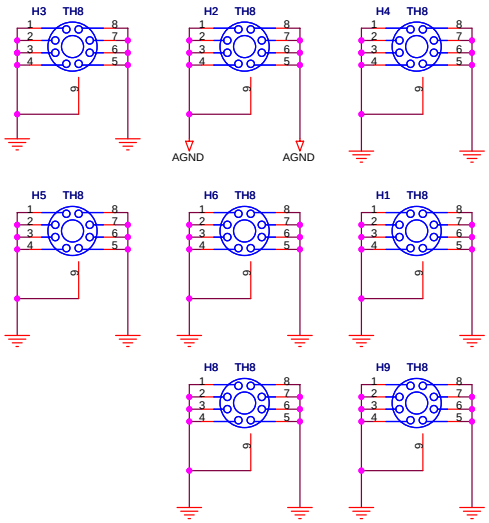






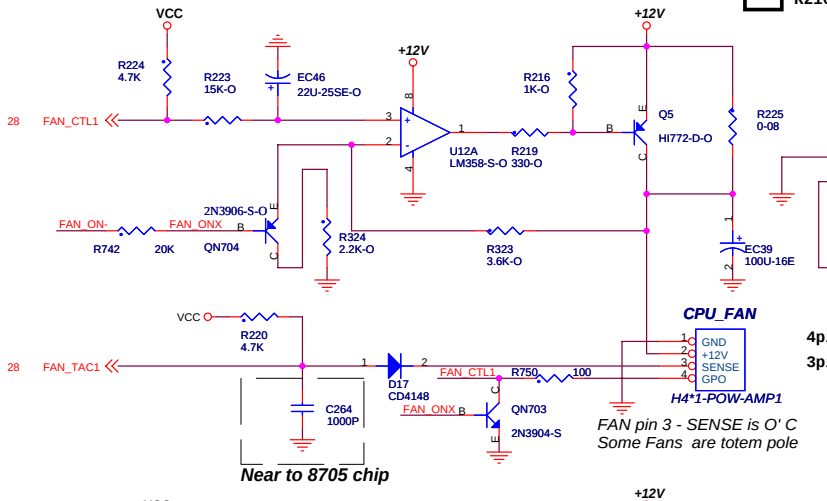
Elitegroup Computer Systems

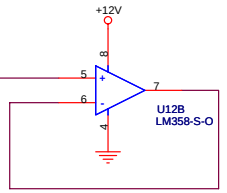
Title	649-M3	
Size: Custom	Document Number: COM 1,2 / LPT	Rev: 1.0
Date: Wednesday, June 15, 2005	Sheet 30 of 36	

Layout :

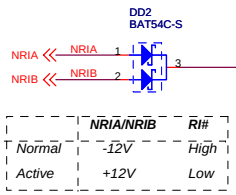
Power Signals : CPUFAN, CASEFAN, PWRFAN trace width should > 20 mil with current 200 mA .

ADD R223, EC46, R323, R324, R219, R216, R225, Q5, QN704

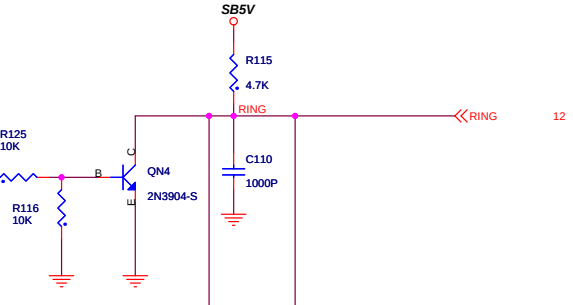




30 NRIA
30 NRIB

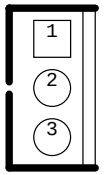


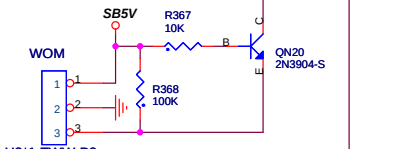
NRIA/NRIB	RI#
Normal	-12V	High
Active	+12V	Low

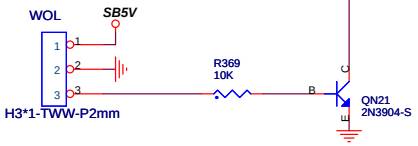


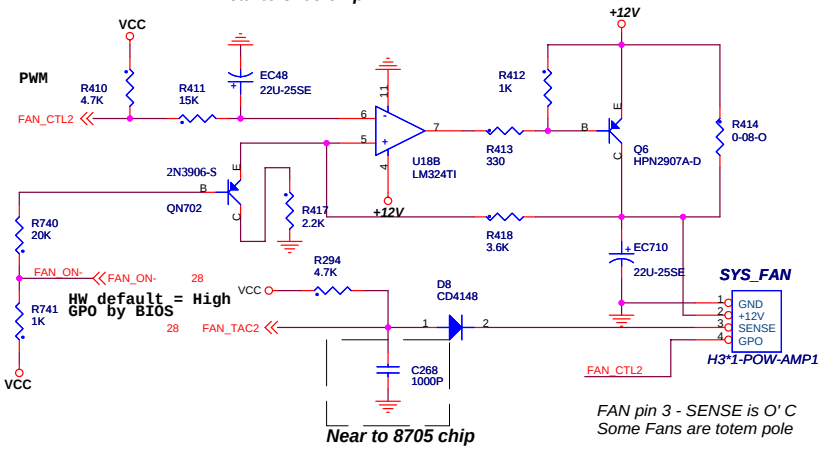
4pin header: SQN703, R750=100ohm, R225=0ohm-0805

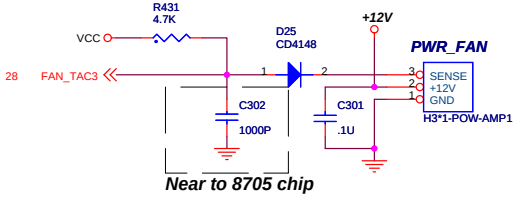
3pin header: R223, EC46, R216, R219, Q5, R324, QN704, R323

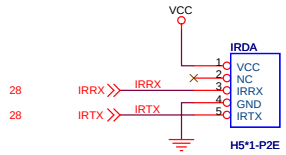




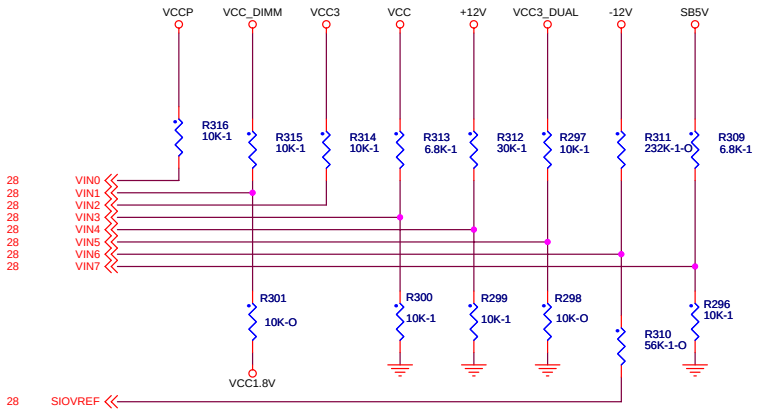






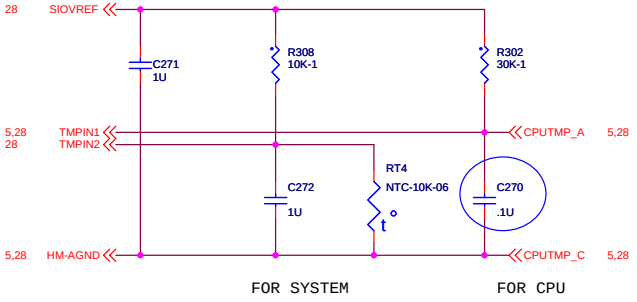


Voltage Monitor



Temperature Monitor

Choosing method of measuring temperature by either thermistor or diode



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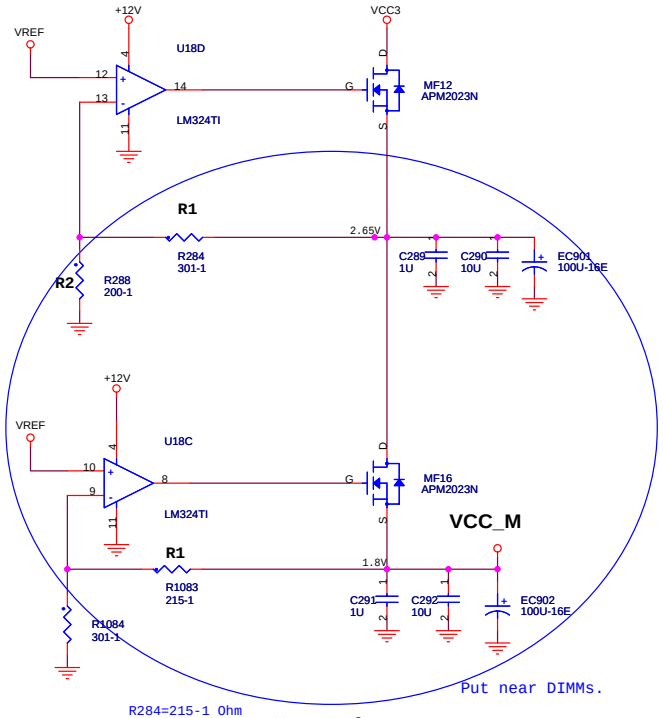


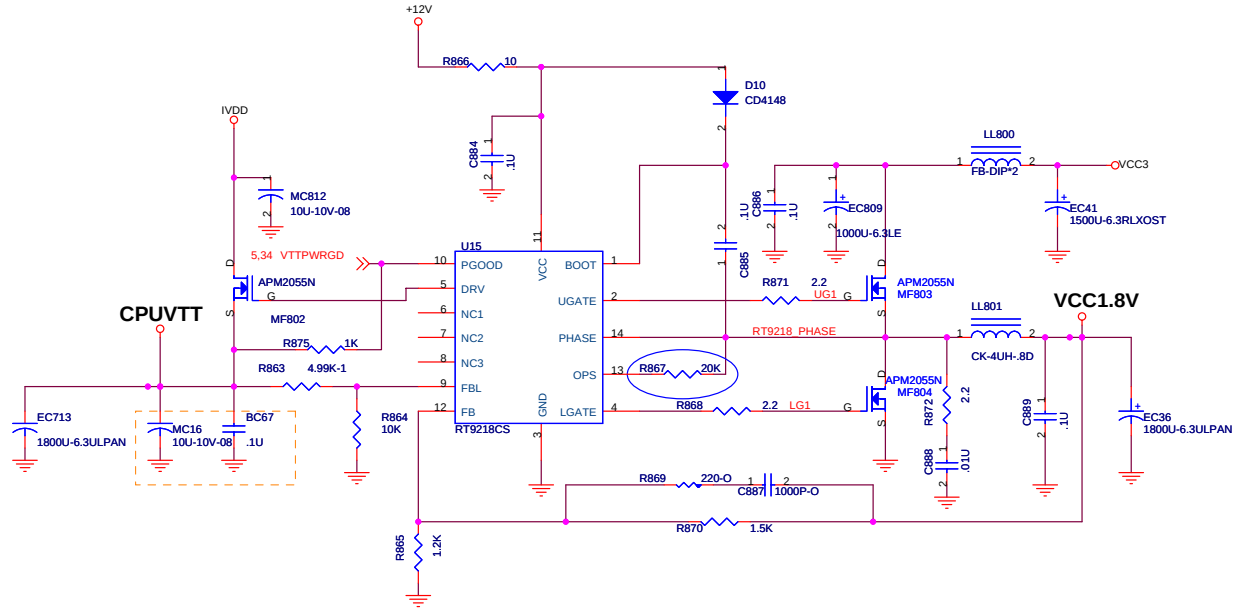
Put near DIMMs.

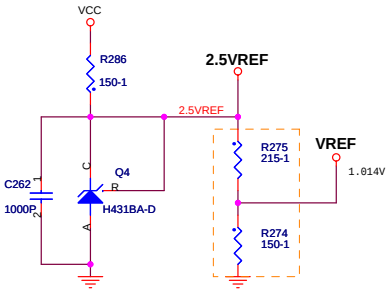
R284=215-1 Ohm

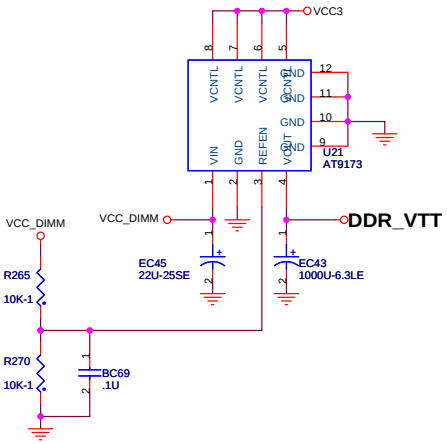
R288=301-1 Ohm

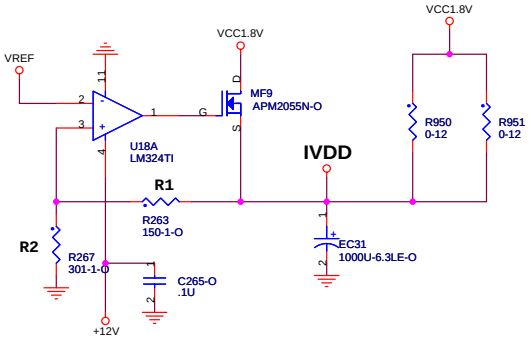
VCC_M=1.8V for DDRII

Vo=VREF(1 + R1/R2)





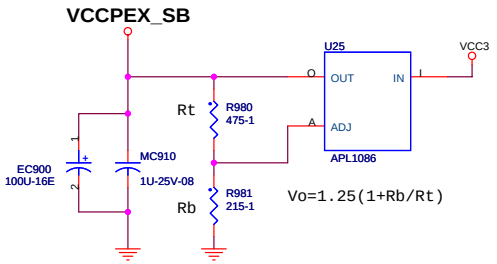




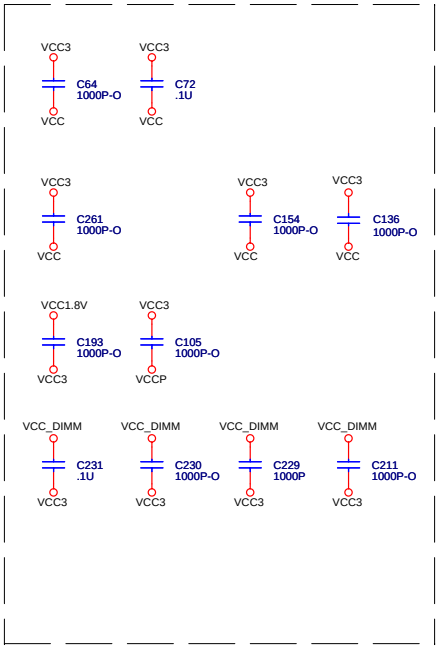
Put near SiS649.

Vo=VREF(1 + R1/R2)

VCC1.5V Max Power = 0.3(0.289+2.35)=0.7917W*



Vo=1.25(1+Rb/Rt)



平均分佈在POWER PLAN 和 PLAN 之間

Elitegroup Computer Systems

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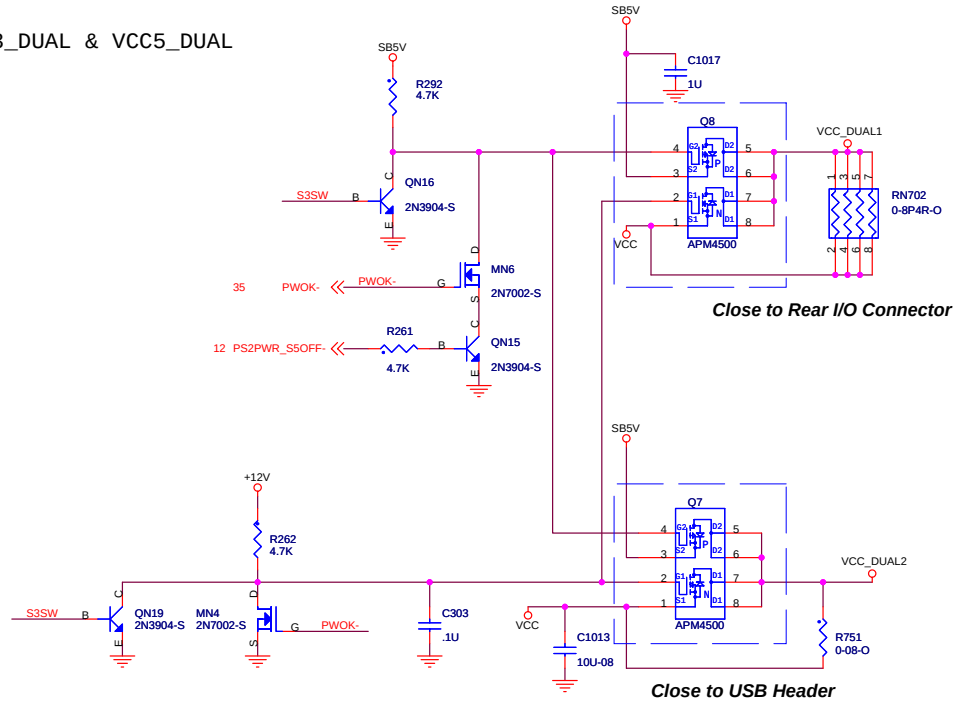
AUTO VOLTAGE SWITCH FOR ACPI STATE 3

1.IN S0,S1
THIS CIRCUIT PASSES THE NORMAL POWER

2.IN S3,S4,S5
THIS CIRCUIT PASSES THE STANDBY POWER

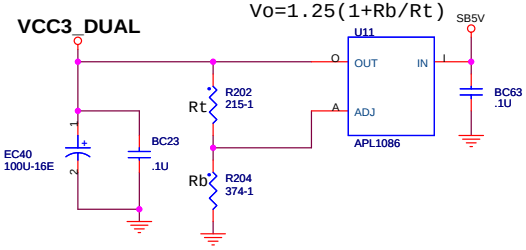
NOTE:
BECAUSE OF THE MAXIMUM CURRENT FROM POWER SUPPLY IS ONLY ABOUT 750~1000mA SO IF YOU WANT TO SUPPORT WAKE UP FROM S3 BY USB, YOU MUST HAVE A POWER SUPPLY WITH LARGER POWER.(ADDITIONAL 500mA PER USB PORT)

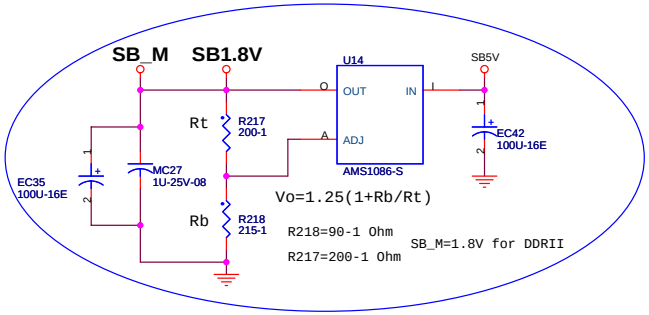
VCC3_DUAL & VCC5_DUAL



VCC3_DUAL

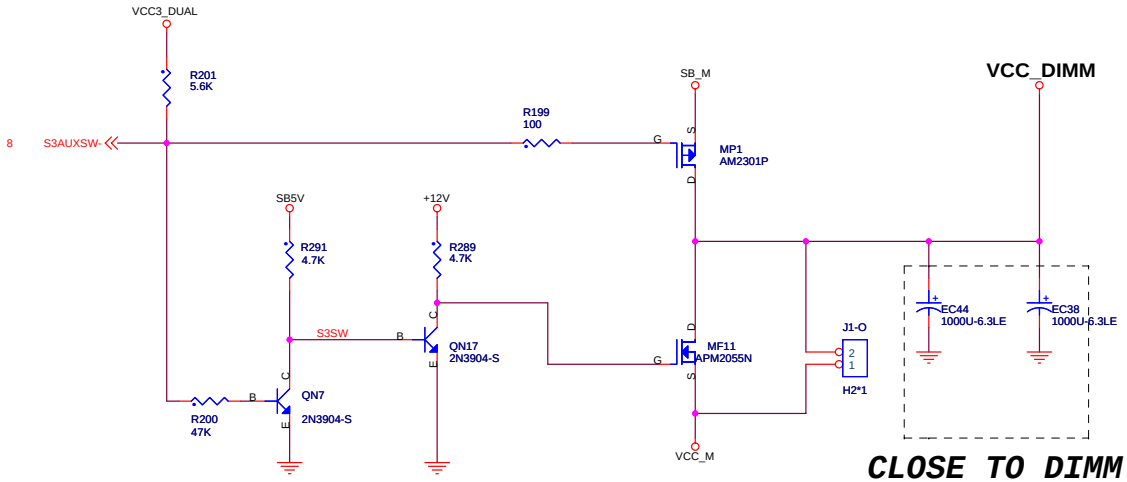
Vo=1.25(1+Rb/Rt)



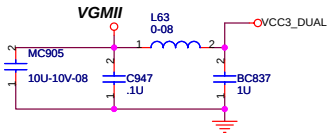


SB1.8V (For SB and DDRII) 800mA

VCC_DIMM



CLOSE TO DIMM



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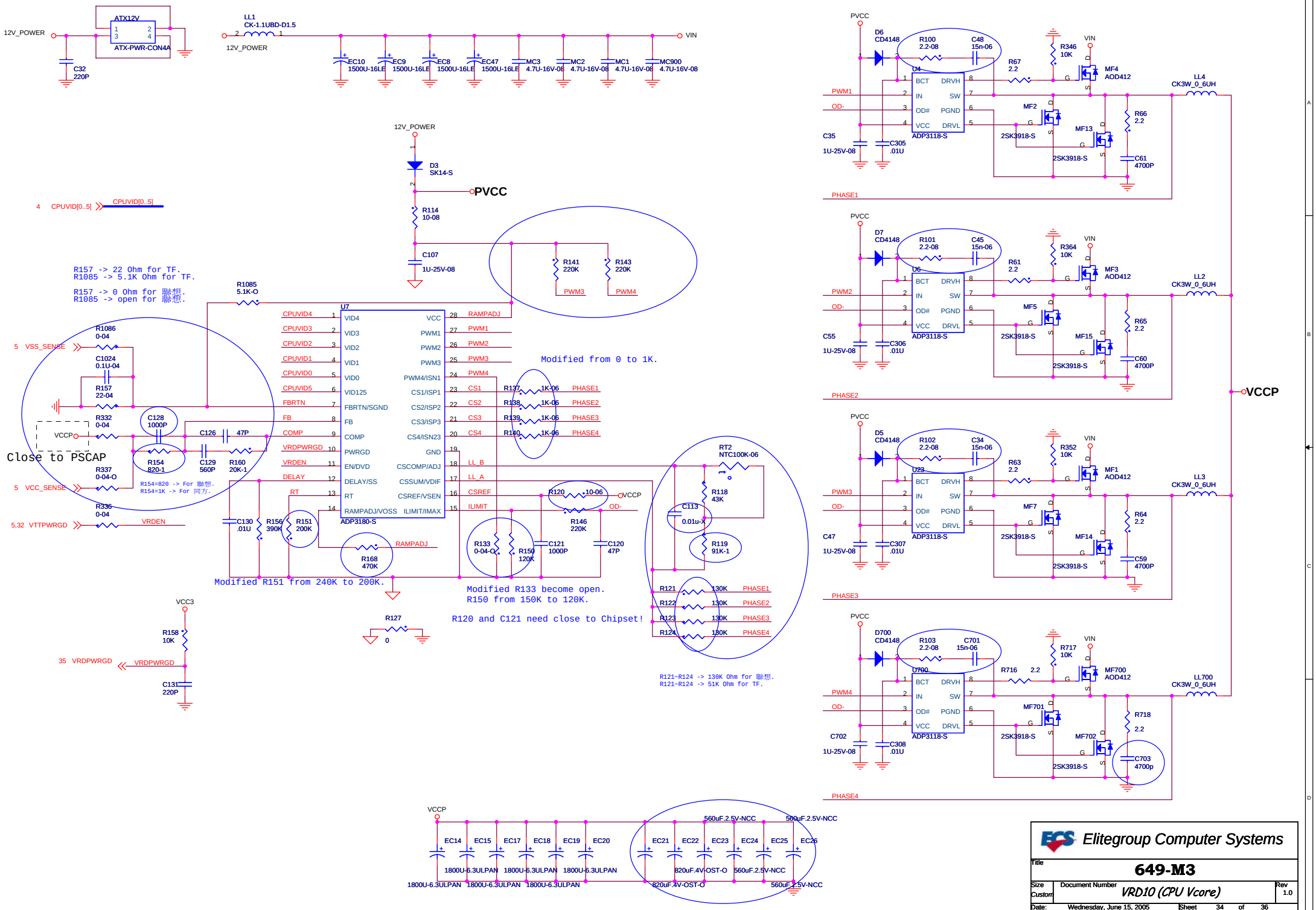
12V_POWER
ATX12V
ATX-PWR-CON4A
C32 220P
LL1 CK-1.1UBD-D1.5
VIN
EC10 1500U-16LE
EC9 1500U-16LE
EC8 1500U-16LE
EC47 1500U-16LE
MC3 4.7U-16V-08
MC2 4.7U-16V-08
MC1 4.7U-16V-08
MC900 4.7U-16V-08
D3 SK14-S
PVCC
R114 10-08
C107 1U-25V-08
R141 220K
R143 220K
PWM3
PWM4
CPUVID[0..5]
R157 -> 22 Ohm for TF.
R1085 -> 5.1K Ohm for TF.
R157 -> 0 Ohm for 聯想.
R1085 -> open for 聯想.
R1085 5.1K-O
U7
ADP3180-S
VID4
VID3
VID2
VID1
VID0
VID125
FBRTN/SGND
FB
COMP
PWRGD
EN/DVD
DELAY/SS
RT
RAMPADJ/VOSS
VCC
PWM1
PWM2
PWM3
PWM4/ISN1
CS1/ISP1
CS2/ISP2
CS3/ISP3
CS4/ISN23
GND
CSCOMP/ADJ
CSSUM/VDIF
CSREF/VSEN
ILIMIT/IMAX
RAMPADJ
LL_B
LL_A
CSREF
ILIMIT
R1086 0-04
C1024 0.1U-04
R157 22-04
R332 0-04
C128 1000P
C126 47P
R154 820-1
C129 560P
R160 20K-1
R337 0-04-O
R336 0-04
R154=820 -> For 聯想.
R154=1K -> For 阿方.
Close to PSCAP
VCCP
VSS_SENSE
VCC_SENSE
VTTPWRGD
VRDEN
C130 .01U
R156 390K
R151 200K
R168 470K
R127 0
Modified R151 from 240K to 200K.
Modified from 0 to 1K.
R137 1K-06 PHASE1
R138 1K-06 PHASE2
R139 1K-06 PHASE3
R140 1K-06 PHASE4
R120 10-06
R146 220K
R133 0-04-O
R150 120K
C121 1000P
C120 47P
Modified R133 become open.
R150 from 150K to 120K.
R120 and C121 need close to Chipset!
RT2 NTC100K-06
R118 43K
C113 0.01u-X
R119 91K-1
R121 130K PHASE1
R122 130K PHASE2
R123 130K PHASE3
R124 130K PHASE4
R121~R124 -> 130K Ohm for 聯想.
R121~R124 -> 51K Ohm for TF.
VCC3
R158 10K
VRDPWRGD
C131 220P
D6 CD4148
R100 2.2-08
C48 15n-06
R67 2.2
R346 10K
MF4 AOD412
LL4 CK3W_0_6UH
U4
ADP3118-S
BCT
DRVH
IN
SW
OD#
PGND
VCC
DRVL
PWM1
OD-
C35 1U-25V-08
C305 .01U
MF2
MF13
2SK3918-S
R66 2.2
C61 4700P
PHASE1
D7 CD4148
R101 2.2-08
C45 15n-06
R61 2.2
R364 10K
MF3 AOD412
LL2 CK3W_0_6UH
U6
PWM2
C55 1U-25V-08
C306 .01U
MF5
MF15
R65 2.2
C60 4700P
PHASE2
VCCP
D5 CD4148
R102 2.2-08
C34 15n-06
R63 2.2
R352 10K
MF1 AOD412
LL3 CK3W_0_6UH
U23
PWM3
C47 1U-25V-08
C307 .01U
MF7
MF14
R64 2.2
C59 4700P
PHASE3
D700 CD4148
R103 2.2-08
C701 15n-06
R716 2.2
R717 10K
MF700 AOD412
LL700 CK3W_0_6UH
U700
PWM4
C702 1U-25V-08
C308 .01U
MF701
MF702
R718 2.2
C703 4700p
PHASE4
EC14 1800U-6.3ULPAN
EC15 1800U-6.3ULPAN
EC17 1800U-6.3ULPAN
EC18 1800U-6.3ULPAN
EC19 1800U-6.3ULPAN
EC20 1800U-6.3ULPAN
EC21 820uF.4V-OST-O
EC22 560uF.2.5V-NCC
EC23 820uF.4V-OST-O
EC24 560uF.2.5V-NCC
EC25 560uF.2.5V-NCC
EC26 560uF.2.5V-NCC
Elitegroup Computer Systems
649-M3
VRD10 (CPU Vcore)
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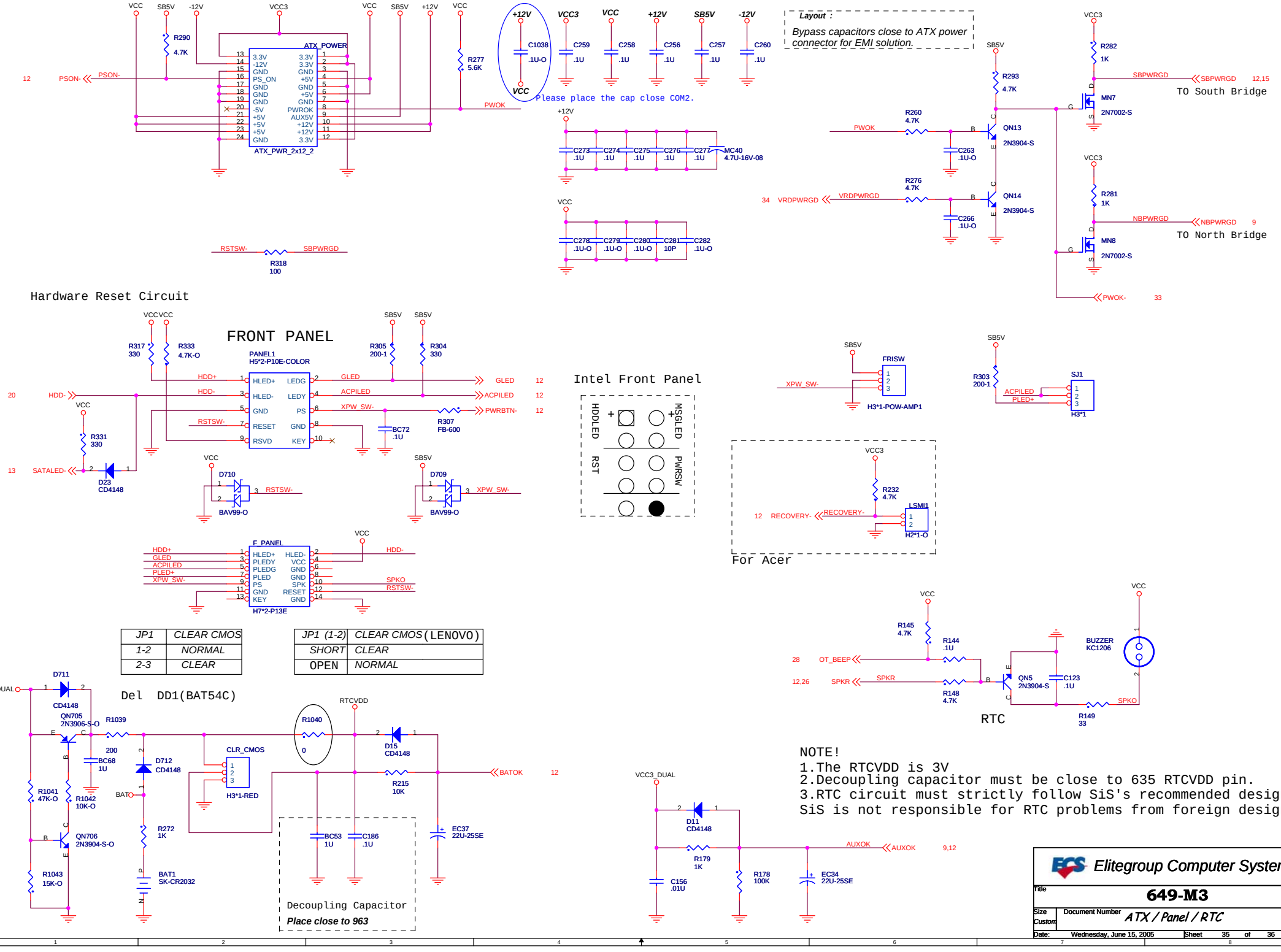
ATX_POWER
ATX_PWR_2x12_2
PSON-
PWOK
R290 4.7K
R277 5.6K
C1038 .1U-O
C259 .1U
C258 .1U
C256 .1U
C257 .1U
C260 .1U
Please place the cap close COM2.
C273 .1U
C274 .1U
C275 .1U
C276 .1U
C277 .1U
MC40 4.7U-16V-08
C278 .1U-O
C279 .1U-O
C280 .1U-O
C281 10P
C282 .1U-O
Layout :
Bypass capacitors close to ATX power connector for EMI solution.
R293 4.7K
R260 4.7K
QN13 2N3904-S
C263 .1U-O
R276 4.7K
QN14 2N3904-S
C266 .1U-O
R282 1K
MN7 2N7002-S
SBPWRGD
TO South Bridge
R281 1K
MN8 2N7002-S
NBPWRGD
TO North Bridge
VRDPWRGD
PWOK-
RSTSW-
R318 100
SBPWRGD
Hardware Reset Circuit
FRONT PANEL
PANEL1
H5*2-P10E-COLOR
R317 330
R333 4.7K-O
R305 200-1
R304 330
HDD+
HDD-
GLED
ACPILED
XPW_SW-
RSTSW-
PWRBTN-
R307 FB-600
BC72 .1U
R331 330
SATALED-
D23 CD4148
D710
D709
BAV99-O
Intel Front Panel
HDDLED
RST
MSGLED
PWRSW
F_PANEL
H7*2-P13E
SPKO
FRISW
H3*1-POW-AMP1
R303 200-1
SJ1
H3*1
R232 4.7K
LSMI1
H2*1-O
RECOVERY-
For Acer
JP1 | CLEAR CMOS
1-2 | NORMAL
2-3 | CLEAR
JP1 (1-2) | CLEAR CMOS(LENOVO)
SHORT | CLEAR
OPEN | NORMAL
VCC3_DUAL
D711 CD4148
Del DD1(BAT54C)
QN705 2N3906-S-O
R1039 200
BC68 1U
R1041 47K-O
R1042 10K-O
QN706 2N3904-S-O
R1043 15K-O
D712 CD4148
BAT
R272 1K
BAT1 SK-CR2032
CLR_CMOS
H3*1-RED
R1040 0
RTCVDD
D15 CD4148
R215 10K
BATOK
BC53 1U
C186 .1U
EC37 22U-25SE
Decoupling Capacitor
Place close to 963
R145 4.7K
R144 .1U
R148 4.7K
QN5 2N3904-S
C123 .1U
BUZZER KC1206
R149 33
OT_BEEP
SPKR
RTC
D11 CD4148
R179 1K
C156 .01U
R178 100K
EC34 22U-25SE
AUXOK
NOTE!
1.The RTCVDD is 3V
2.Decoupling capacitor must be close to 635 RTCVDD pin.
3.RTC circuit must strictly follow SiS's recommended design
SiS is not responsible for RTC problems from foreign designs.
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Size
Custom
Document Number
ATX / Panel / RTC
Rev
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1. BOM Attention

(1) South Bridge

Components \ Option	SIS964	SIS964L
U13	964	964L
R241	374	X
R71, R74	33	X
R72, R75	49.9	X
R331	330	X
D23	1N4148	X
SATA1	O	X
SATA2	O	X

(2) 661FX On-Board VGA

Components \ Option	Support	No Support
U8	661FX	648FX
L30, L31, L32	FB-120	X
C112, C116, C117, BC35	1U	X
C118, C119	.1U	X
MC36, MC37	10U	X
R136	130	X
R134, R143	33	X
R128, R135	100	X
VGA1	O	X
L6, L7, L8	FB-80	X
C111, C114, C115	22P	X
R22, R23, R24	75	X
R32, R39	2.2K	X
CV1~7	22P	X
F2	O	X
R234	475	169
R248	1K	301
R197	475	374
R198	215	200

(3) LAN

Components \ Option	8100C 10/100 Mbps	8110S 1Gbps	8110SB 1Gbps	8201BL 10/100 Mbps	8201CL 10/100 Mbps
LAN1	RTL8100C 01-230-100351	RTL8110S 01-230-110350	RTL8110SB	RTL8201BL 02-448-201861	RTL8201CL 02-462-201860
R53	5.6K-1	2.49K-1	2.49K-1	5.9K-1	2K-1
R12, R14, R21, R28	X	49.9	X	X	X
C10, C18	X	0.1u	X	X	X
C52, C53, C54	X	0.01u	X	X	X
C51	0.1u	0.01u	0.01u	X	0.1u
RJ2	X	(1-2) 0 ohm	X	X	(2-3) 0 ohm
R604	X	X	X	X	0 ohm
C601	X	X	X	X	0.1u
L14/ C23	X	0 ohm/ 0.1u	0 ohm/ 0.1u	X	X
RJ7/ C19	(1-2)FB-600 /10u-08	X	(2-3)FB-600 /10u-08	X	X
L21	0 ohm	X	X	0 ohm	0 ohm
QP1	X	HA8550	HA8550	X	X
RJ1	(1-2) 0 ohm	(2-3) 0 ohm	(2-3) 0 ohm	X	X
RJ8	X	X	X	X	(2-3) 0 ohm
QP3	HPN2907A	HA8550	HA8550	X	X
RN601, RN602, RN603	X	X	X	4.7K-8P4R	4.7K-8P4R
C601	X	X	X	0.1u	0.1u
R608/ R609	X	X	X	4.7K/ 10K ohm	4.7K/ 10K ohm
R605	X	X	X	1.5K ohm	1.5K ohm
R602, R603, R607	X	X	X	22 ohm	22 ohm
SR600/ SR601/ SR602/ SR603/ SR607/ SR608	X	X	X	22 ohm-B	22 ohm-B
SR606	150 ohm-B	150 ohm-B	150 ohm-B	X	X
SR604/ SR605	15K/ 1K ohm-B	15K/ 1K ohm-B	15K/ 1K ohm-B	X	X
Y600/ R600	X	X	X	Y-25M/ 0 ohm	Y-25M/ 0 ohm
C166/ C600	4.7K ohm/ X	4.7K ohm/ X	4.7K ohm/ X	22P	22P
R190/ R191	X / 1K ohm	X / 1K ohm	X / 1K ohm	1K ohm/ X	1K ohm/ X
EEPROM1/ EEPROM3	O / X	O / X	O / X	X / O	X / O
R54/ R610	3.6K ohm/ X	3.6K ohm/ X	3.6K ohm/ X	X / 4.7K ohm	X / 4.7K ohm

2. GPIO Function

GPIO \ Status		0	1	Jumper
GPIO5	* RESERVED	RESERVED	RESERVED	JPT4
GPIO6	* RESERVED	RESERVED	RESERVED	JPT5
GPIO7	* LAN Selection	LANPHY	PCILAN	
GPIO9	USB, PS/2 S4/S5 Wake Up	Disable	Enable	
GPIO10	DDR Voltage	2.54V	2.63V	
GPIO11	* WHQL	No Support	Support	JPT3
GPIO13	Flash Write Protect	Un-Protect	Protect	

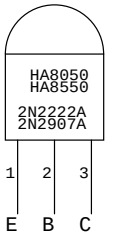
(1) "*" means that the function is selective and ECS may make changes at any time, without notice in this page.

(2) Jumper Setting (Header 3*1):

1: (1-2)

0: (2-3)

(3) Please see Page.12 for more detail jumper function.



CD4148 03-021-214890
(SUB)1N4148W 03-021-214840
(SUB)CDSN4148 03-021-214840

MOS:

AM2301P 03-050-530189 Vds=-20,Vgs=8, Id=-2.3, Rds=130m
AO3413 03-050-541382 Vds=20,Vgs=8,Id=3,Rds=97m
IRLML6402 03-050-540239 Vds=20,Vgs=12,Id=3.7,Rds=65m

APM2023N 03-050-702378 Vds=20,Vgs=12,Id=12.8,Rds=20m
AOD434 03-050-743482 Vds=20,Vgs=12,Id=18,Rds=15m
IPD20N03L 03-050-700359 Vds=30,Vgs=20,Id=30,Rds=20m
P45N02LD 03-050-750359 Vds=25,Vgs=20,Id=45,Rds=20m

APM2055N 03-050-705578 Vds=20,Vgs=16,Id=12,Rds=70m
P3055LD 03-050-705527 Vds=20,Vgs=20,Id=12,Rds=50m
STD1703L 03-050-770345 Vds=30,Vgs=20,Id=17,Rds=50m

Elitegroup Computer Systems

Title: 649-M3

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