

Schematics Version History Table :

Circuit Ver.	PCB Ver.	Total Page	Modificatory Page	Date
A	A	32	uATX 244mmx220mm	01/17/'06
1.0	1.0	32		02/17/'06

Page Title of Schematic :

Title	Page	Title	Page
Cover Sheet	1		
System Block Diagram	2		
P4 775P Part A	3		
P4 775P Part B	4		
P4 775P Part C	5		
P4 775P Part C	6		
P4 775P Part C	7		
Clock Generator	8		
I865(MCH)Part A	9		
I865(MCH)Part B	10		
DDR Serial Resistors	11		
DDIMM 1&2 (DDR SDRAMs)	12		
DDR SSTL-2 Terminations	13		
DDR Power	14		
AGP 8X Slot 1.5V	15		
ICH5 Part A	16		
ICH5 Part B	17		
ICH5 Part C	18		
IDE Connector	19		
USB/FWH	20		
LPC_FDD/KB/M	21		
I/O Ports	22		
H/W Monitor	23		
AC97 Codec	24		
Audio Interface	25		
ATX Power & Front Panel	26		
LAN/CNR	27		
775P Vcore DC-DC	28		
MIS DC-DC	29		
PCI Slot 1&2	30		
PCI Slot 3	31		
CNR	32		

DEVICE	IDSEL	INT#	REQ#	GNT#
PCI1	16	C/D/E/F	PREQ-1	PGNT-1
PCI2	17	D/E/F/G	PREQ-2	PGNT-2
PCI3	18	E/F/G/H	PREQ-3	PGNT-3
LAN	25	F	PREQ-4	PGNT-4

Clock Gen
ICS952647
48pin SSOP

intel
P4 Processor
775 pin

re.2.0 Prescott, Cedar Mill & Smithfield

BW : 4.1GB/s @ FSB : 533MHz & Freq : 133MHz
BW : 6.4GB/s @ FSB : 800MHz & Freq : 200MHz

BW : 2.1GB/s @ DDR : 200/266/333MHz & Freq : 133MHz
BW : 3.2GB/s @ DDR : 266/333/400MHz & Freq : 200MHz

BW : 1.066GB/s @ Freq : 66MHz
AGPI Slot 132p
8X / 1.5V
VGA (G only)

intel
iSP/G
932pin FC-BGA

DDIMM1 : DDR Socket 184P
DDIMM2 : DDR Socket 184P

BW : 266MB/s @ Freq : 66MHz

USB1 2 ports
USB2 2 ports
USB3 2 ports
USB4 2 ports
USBLAN 8 ports
IDE2 40pin
IDE1 40pin

USB V2.0

Up to Ultra ATA/100
Two IDE Channel

intel
ICH5
460pin EBGA

BW : 133MB/s @ Freq : 33MHz

SATA1 7Pin
SATA2 7pin

PCI1 Slot 120pin @ AD16
PCI2 Slot 120pin @ AD17
PCI3 Slot 120pin @ AD18

AC'97 & Lan I/F

Audio Codec
ALC655

Mic In
Line Out
Line In

intel
FWH
32pin PLCC

LPC bus

Super I/O
W83627EHF
128pin PQFP

Lan Chip
RTL8100C
100pin

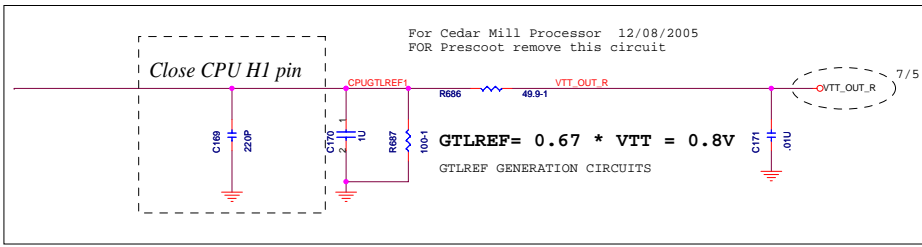
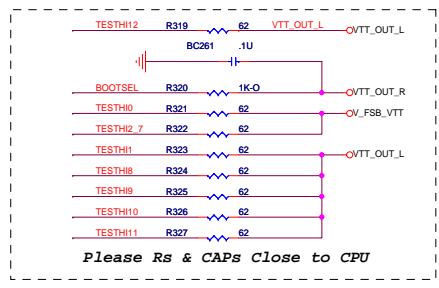
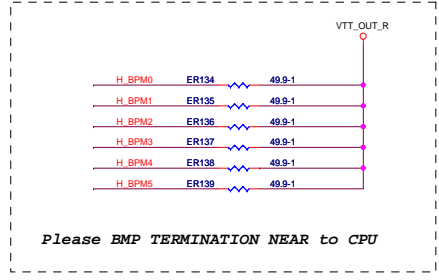
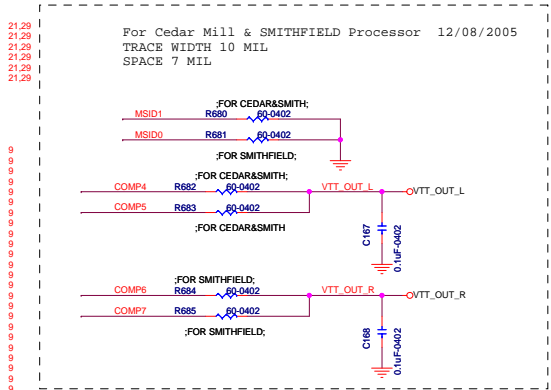
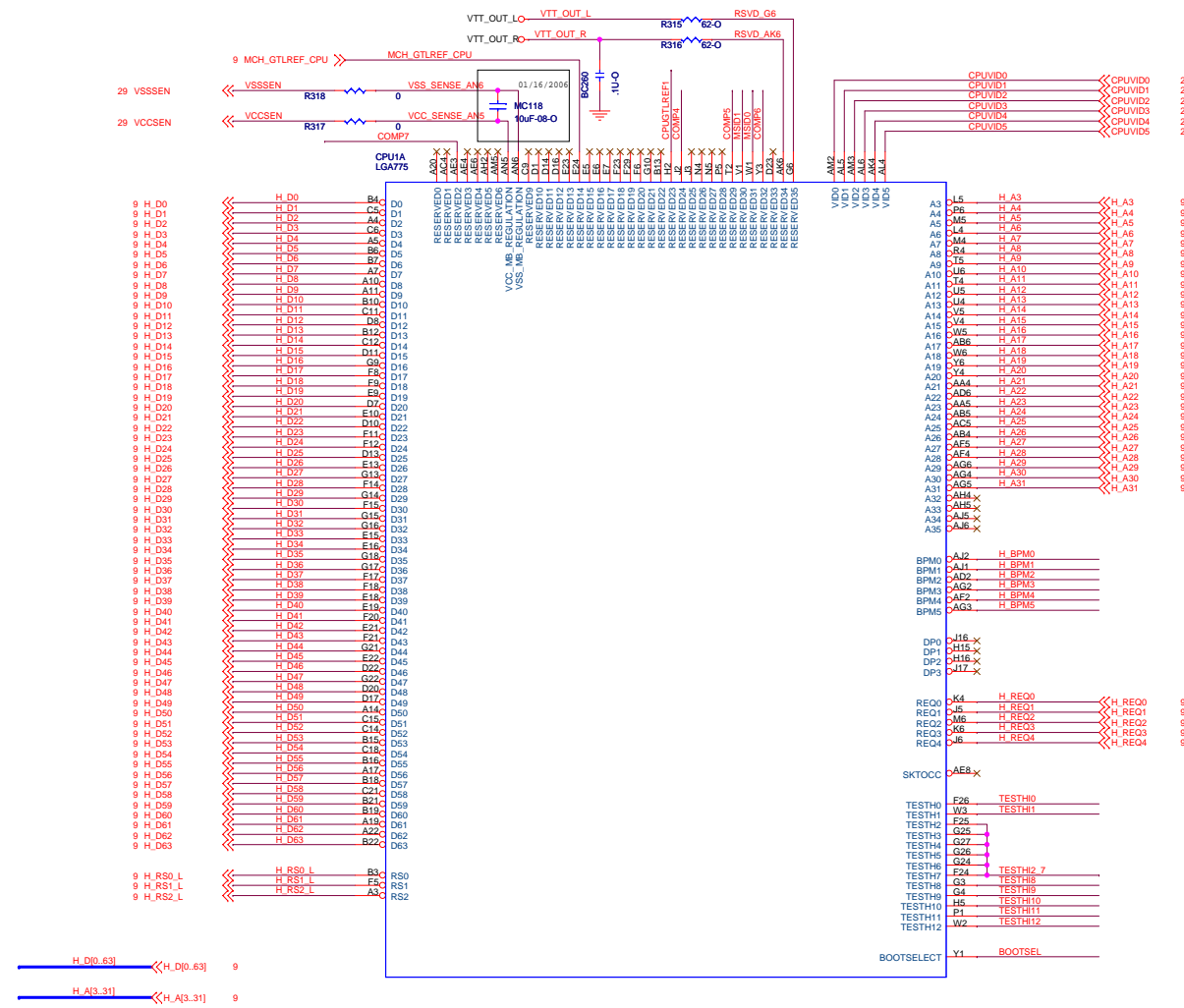
USBLAN
RJ45

ECS Elitegroup Computer Systems

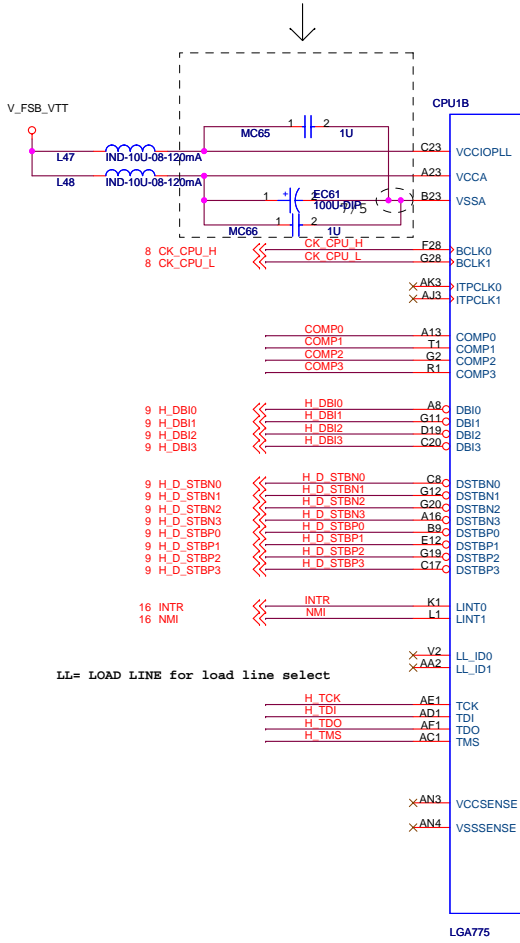
Title: **System Block Diagram**

Size B Document Number **865G-M8** Rev **1.0**

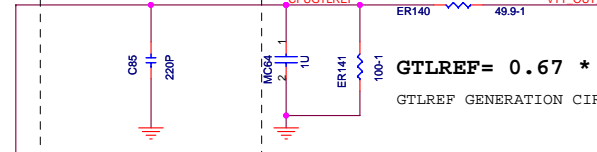
Date: Tuesday, February 21, 2006 Sheet 2 of 32



Place components as close as possible to Processor socket
trace width to cap must be no smaller than 12 Mils

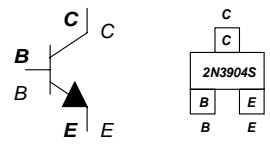
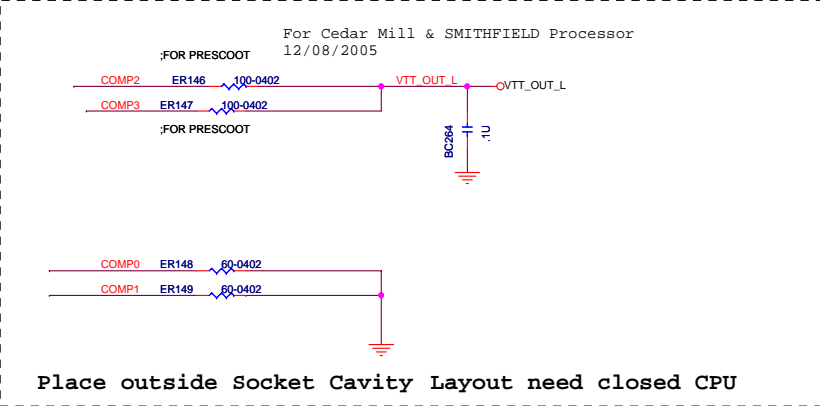
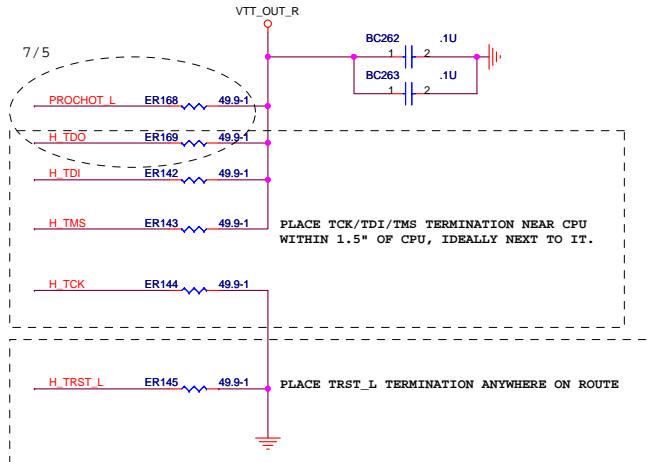
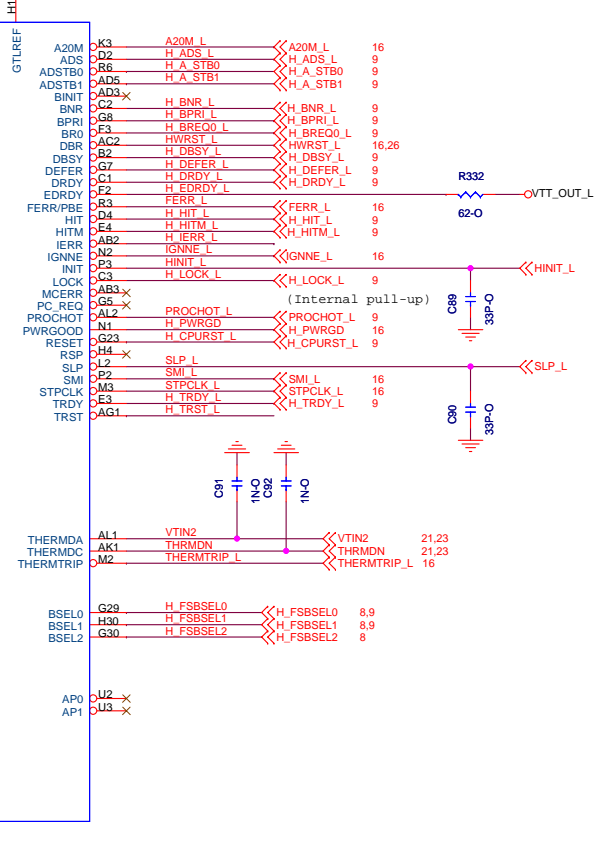
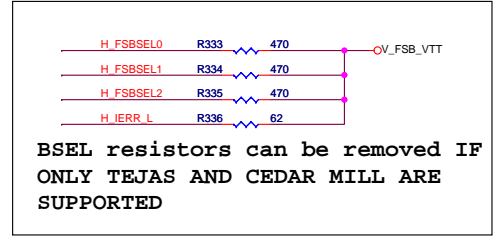
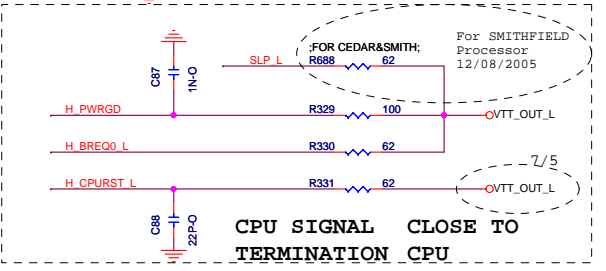


Close CPU H1 pin



$$GTLREF = 0.67 * VTT = 0.8V$$

GTLREF GENERATION CIRCUITS



litegroup Computer Systems


Title: **P4 LGA775P Part B**

Size: **865G-M8**

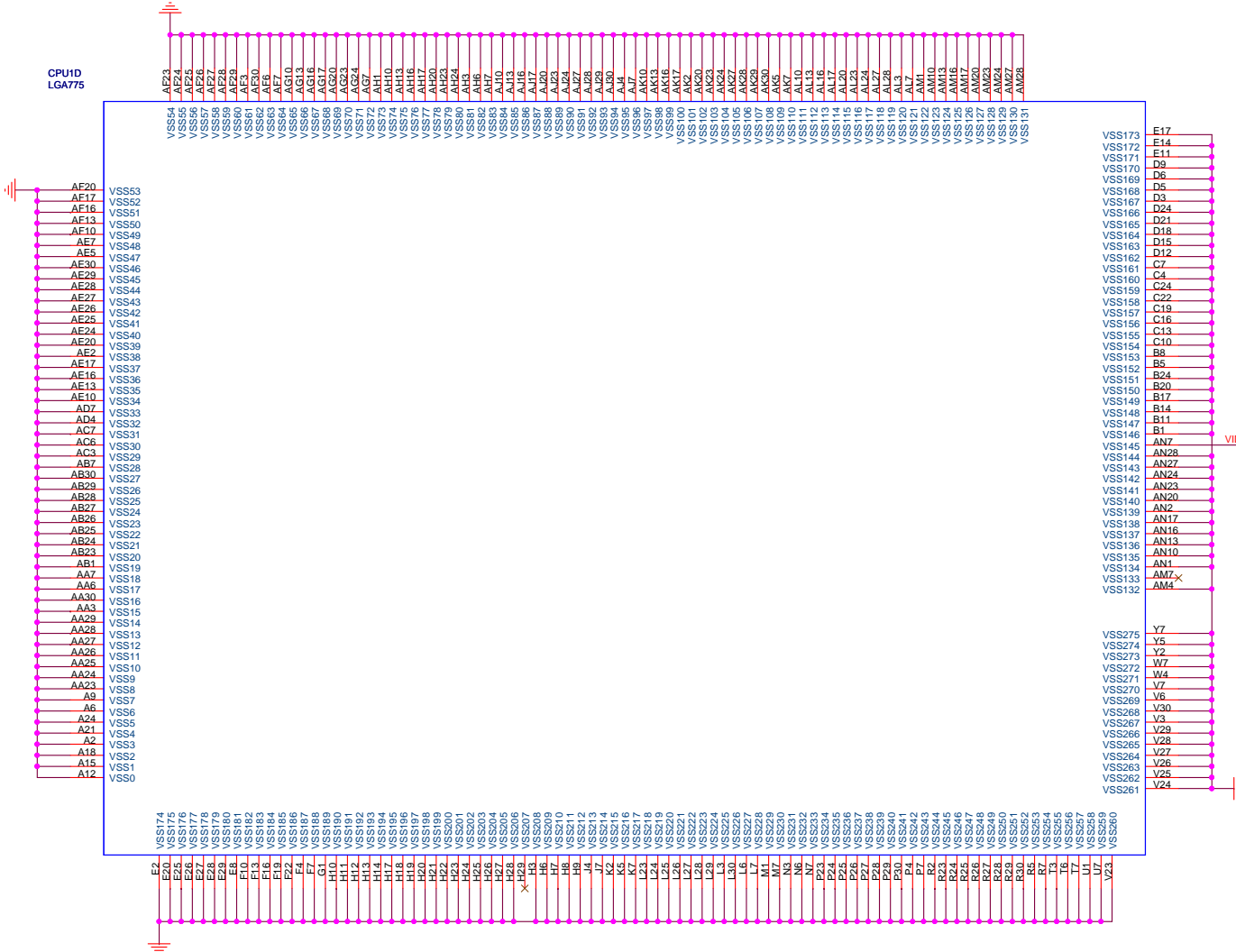
Date: Wednesday, February 22, 2006 Sheet 4 of 32



CPU1C
LGA775

 Elitegroup Computer Systems		
Title P4 LGA775P Part C		
Size Custom	Document Number 865G-M8	Rev 1.0
Date: Monday, February 20, 2006 Sheet 5 of 32		

CPUID
LGA775



For Cedar Mill & SMITHFIELD Processor 12/08/2005

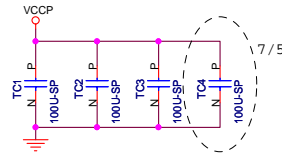
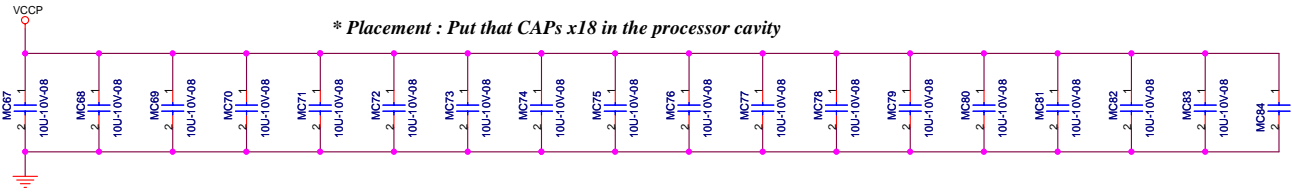
VID SELECT R691 6Q-0402
;FOR CEDAR&SMITH;

litegroup Computer Systems

Title: **P4 LGA775P Part D**

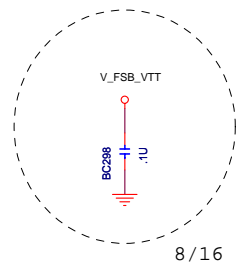
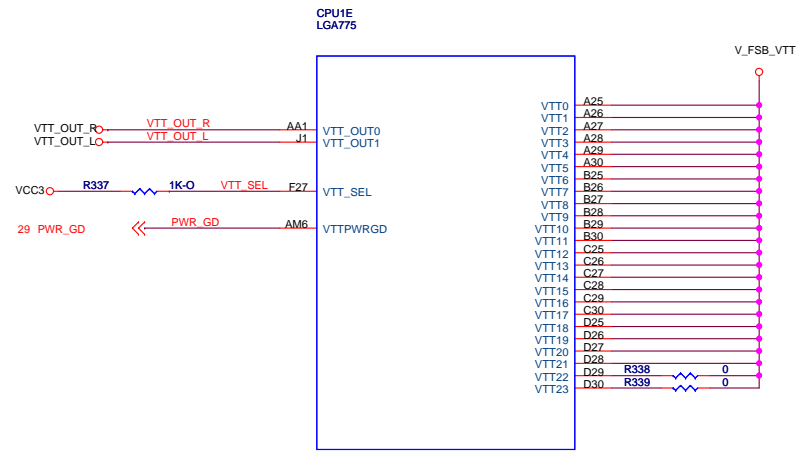
Size: Custom Document Number: **865G-M8** Rev: 1.0

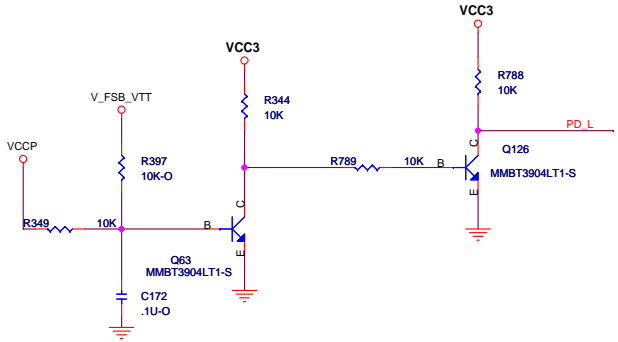
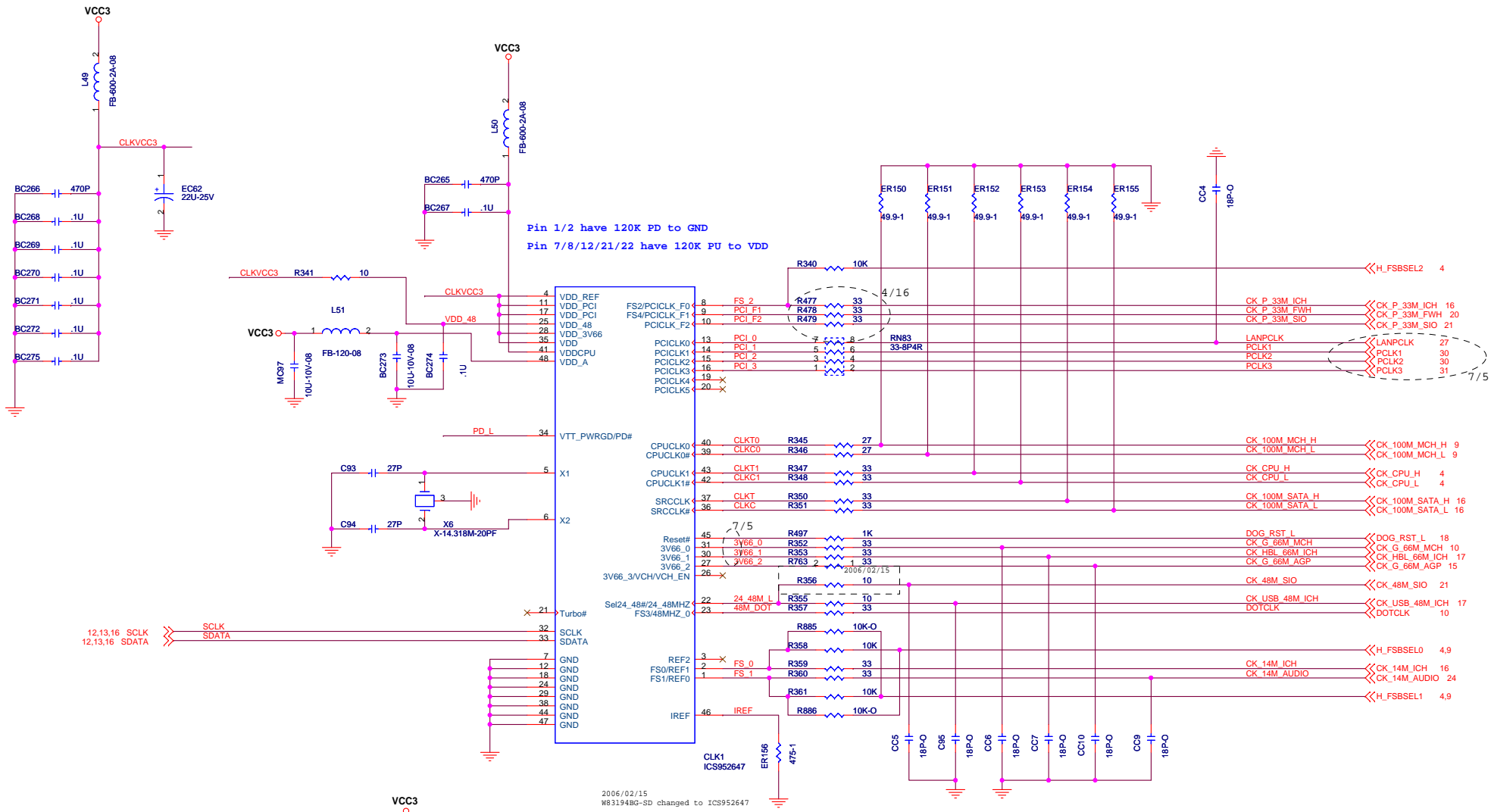
Date: Monday, February 20, 2006 Sheet 6 of 32

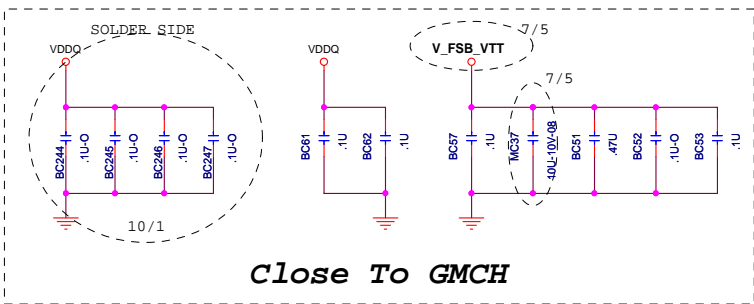
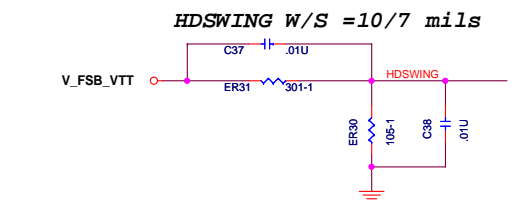
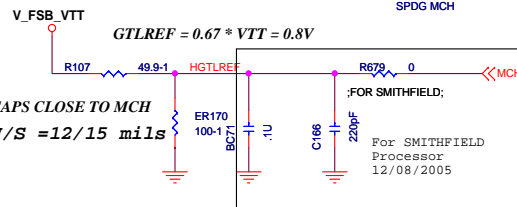
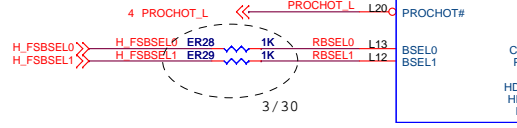
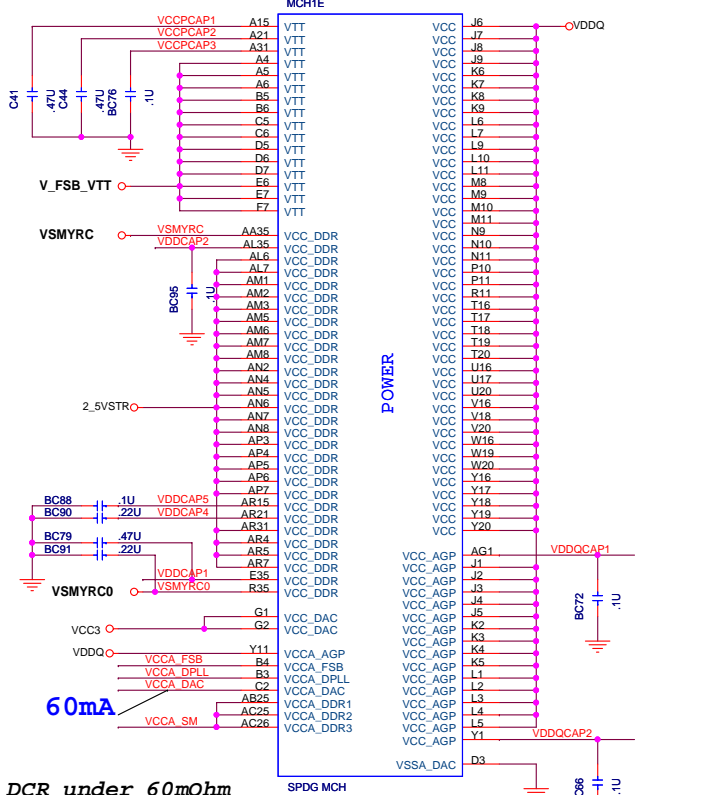
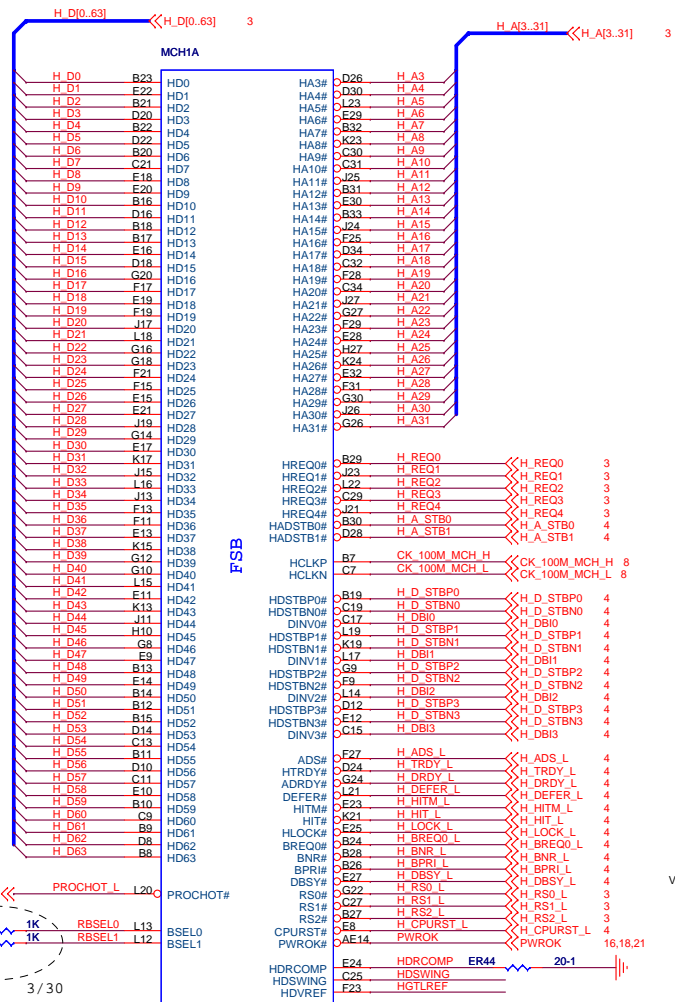


MC109,MC110 near to pin V26 & U27

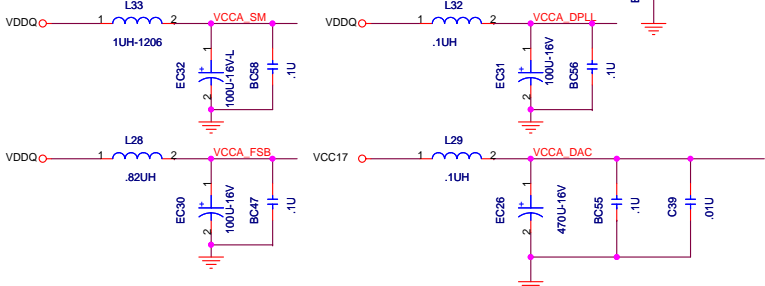
VTT_SEL=0 for the Tejas processor







DCR under 60mOhm



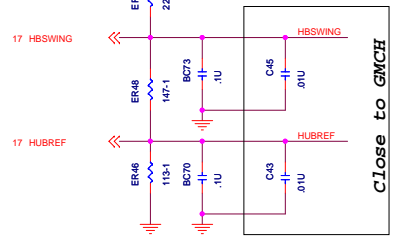
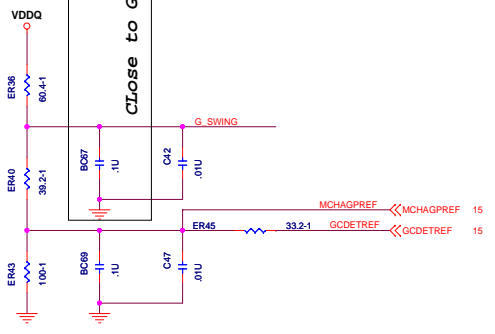
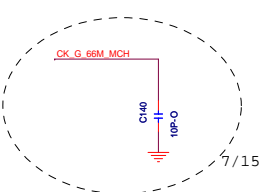
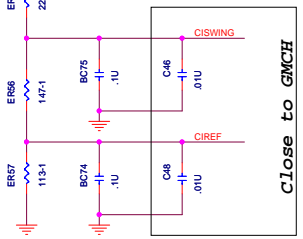
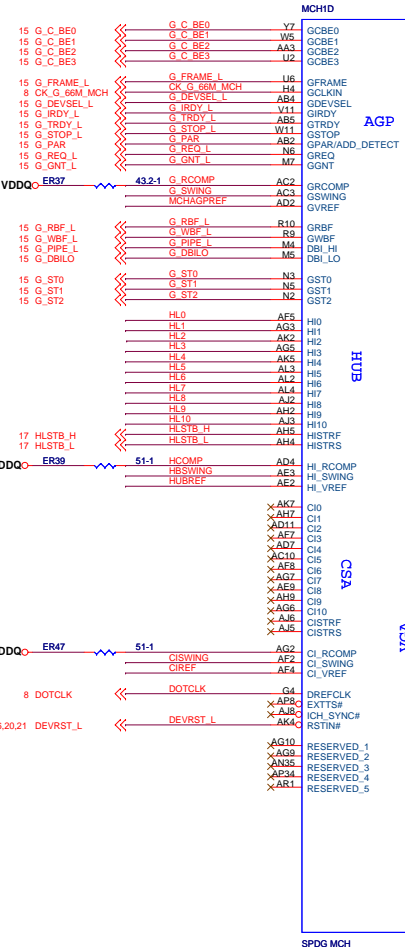
Close To GMCH

Elitegroup Computer Systems

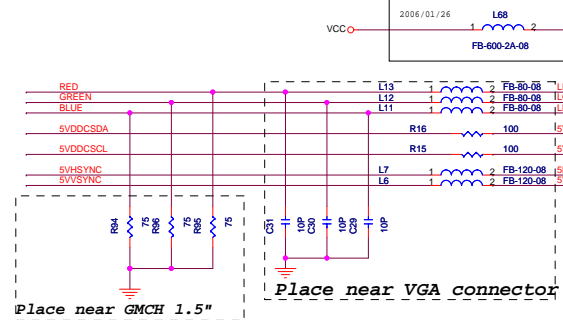
Title: **I (GMCH) Part A**

Size: Custom Document Number: **865G-M8** Rev: 1.0

Date: Wednesday, February 22, 2006 Sheet: 9 of 32

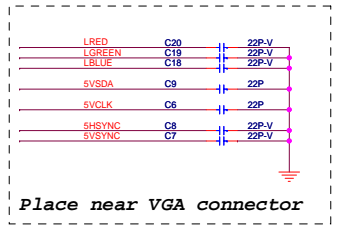


Divider place middle between GMCH and ICH5

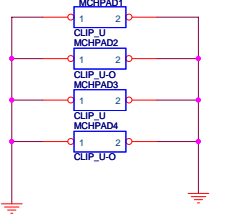
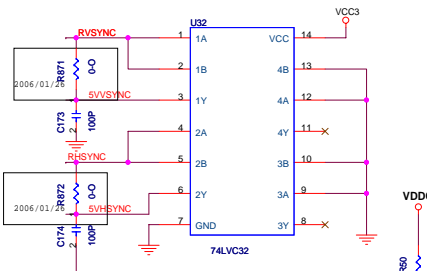


Place near GMCH 1.5"

Place near VGA connector



Place near VGA connector



11 CSA_L[0..1] << CSA_L[0..1] 11 CKEA_0[0..1] << CKEA_0[0..1]

11 MD_A[0..63] << MD_A[0..63]

11 MAAA_0[0..12] << MAAA_0[0..12]

11 MPD_A[0..7] << MPD_A[0..7]

11 DCLKA_L[0..2] << DCLKA_L[0..2]

11 DCLKA_H[0..2] << DCLKA_H[0..2]

11 DQS_L_A[0..7] << DQS_L_A[0..7]

MAAA 0 48 A0

MAAA 1 49 A1

MAAA 2 41 A2

MAAA 3 130 A3

MAAA 4 32 A4

MAAA 5 125 A5

MAAA 6 29 A6

MAAA 7 122 A7

MAAA 8 112 A8

MAAA 9 141 A9

MAAA 10 118 A10

MAAA 11 115 A11

MAAA 12 103 A12

MAAA 13 103 A13

11 SBSA_0 << SBSA_0 59 BA0

11 SBSA_1 << SBSA_1 52 BA1

CSA_L0 157 CS0

CSA_L1 158 CS1

CSA_L2 71 NC/CS2

CSA_L3 163 NC/CS3

MPD_A0 97 DQM0

MPD_A1 107 DQM1

MPD_A2 119 DQM2

MPD_A3 129 DQM3

MPD_A4 149 DQM4

MPD_A5 159 DQM5

MPD_A6 169 DQM6

MPD_A7 177 DQM7

MPD_A8 140 DQM8

11 SWE_L_A << SWE_L_A 63 WE

11 SCAS_L_A << SCAS_L_A 69 CAS

11 SRAS_L_A << SRAS_L_A 154 RAS

CKEA_0 21 CKE0

CKEA_1 111 CKE1

DCLKA_H1 16 CK0/DNU

DCLKA_L1 17 CK0/DNU

DCLKA_H0 137 CK1

DCLKA_L0 78 CK1

DCLKA_H2 75 CK2/DNU

DCLKA_L2 75 CK2/DNU

DQS_L_A0 5 DQS0

DQS_L_A1 14 DQS1

DQS_L_A2 25 DQS2

DQS_L_A3 36 DQS3

DQS_L_A4 56 DQS4

DQS_L_A5 67 DQS5

DQS_L_A6 78 DQS6

DQS_L_A7 86 DQS7

DQS_L_A8 87 DQS8

8,13,16 SDATA << SDATA 91 SDA

8,13,16 SCLK << SCLK 92 SCL

SA0 181

SA1 182

SA2 183

SDREFC 1 VREF

SDREFC 2 VDDID

SDREFC 3 VDDSPD

SDREFC 4 184

SDREFC 5 9

SDREFC 6 10

SDREFC 7 102

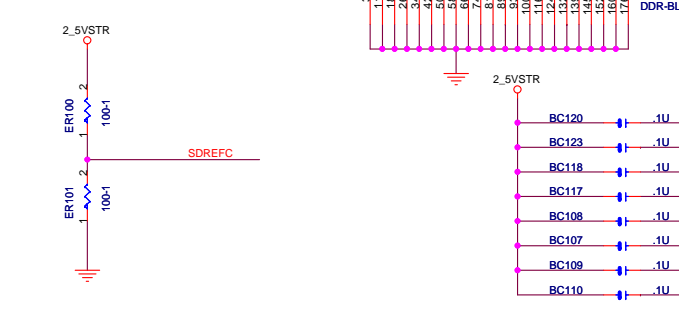
SDREFC 8 103

SDREFC 9 173

SDREFC 10 167

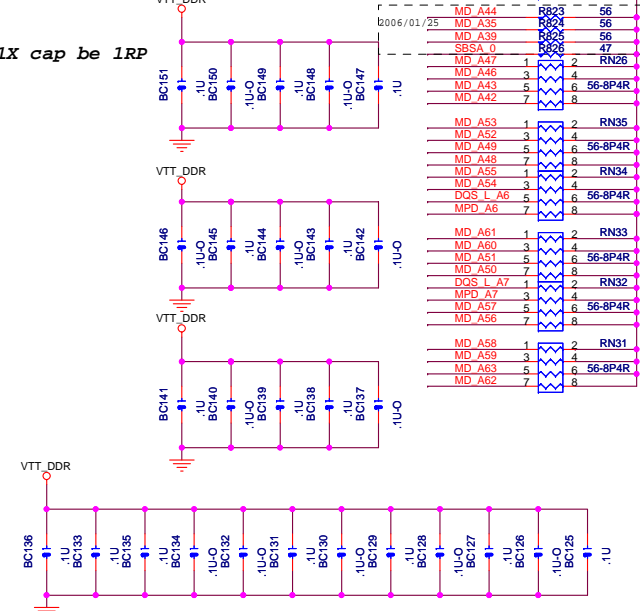
NC/FETEN 90

WP 90



Pin	Signal	Pin	Signal
D0	MD A0	D17	MD A18
D1	MD A1	D18	MD A19
D2	MD A2	D19	MD A20
D3	MD A3	D20	MD A21
D4	MD A4	D21	MD A22
D5	MD A5	D22	MD A23
D6	MD A6	D23	MD A24
D7	MD A7	D24	MD A25
D8	MD A8	D25	MD A26
D9	MD A9	D26	MD A27
D10	MD A10	D27	MD A28
D11	MD A11	D28	MD A29
D12	MD A12	D29	MD A30
D13	MD A13	D30	MD A31
D14	MD A14	D31	MD A32
D15	MD A15	D32	MD A33
D16	MD A16	D33	MD A34
D17	MD A17	D34	MD A35
D18	MD A18	D35	MD A36
D19	MD A19	D36	MD A37
D20	MD A20	D37	MD A38
D21	MD A21	D38	MD A39
D22	MD A22	D39	MD A40
D23	MD A23	D40	MD A41
D24	MD A24	D41	MD A42
D25	MD A25	D42	MD A43
D26	MD A26	D43	MD A44
D27	MD A27	D44	MD A45
D28	MD A28	D45	MD A46
D29	MD A29	D46	MD A47
D30	MD A30	D47	MD A48
D31	MD A31	D48	MD A49
D32	MD A32	D49	MD A50
D33	MD A33	D50	MD A51
D34	MD A34	D51	MD A52
D35	MD A35	D52	MD A53
D36	MD A36	D53	MD A54
D37	MD A37	D54	MD A55
D38	MD A38	D55	MD A56
D39	MD A39	D56	MD A57
D40	MD A40	D57	MD A58
D41	MD A41	D58	MD A59
D42	MD A42	D59	MD A60
D43	MD A43	D60	MD A61
D44	MD A44	D61	MD A62
D45	MD A45	D62	MD A63
D46	MD A46	D63	
D47	MD A47		
D48	MD A48		
D49	MD A49		
D50	MD A50		
D51	MD A51		
D52	MD A52		
D53	MD A53		
D54	MD A54		
D55	MD A55		
D56	MD A56		
D57	MD A57		
D58	MD A58		
D59	MD A59		
D60	MD A60		
D61	MD A61		
D62	MD A62		
D63	MD A63		

Put 1X cap be 1R2



Elitegroup Computer Systems

Title: **DDIMM 1&2 (DDR SDRAMs)**

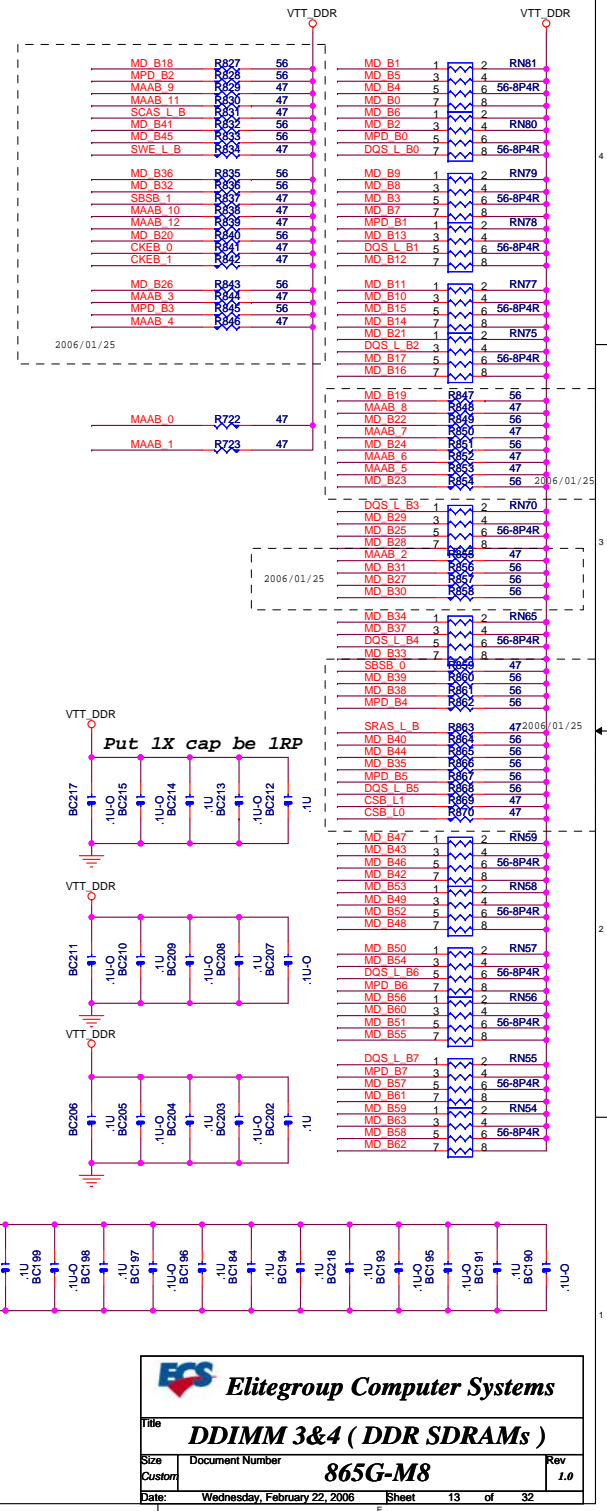
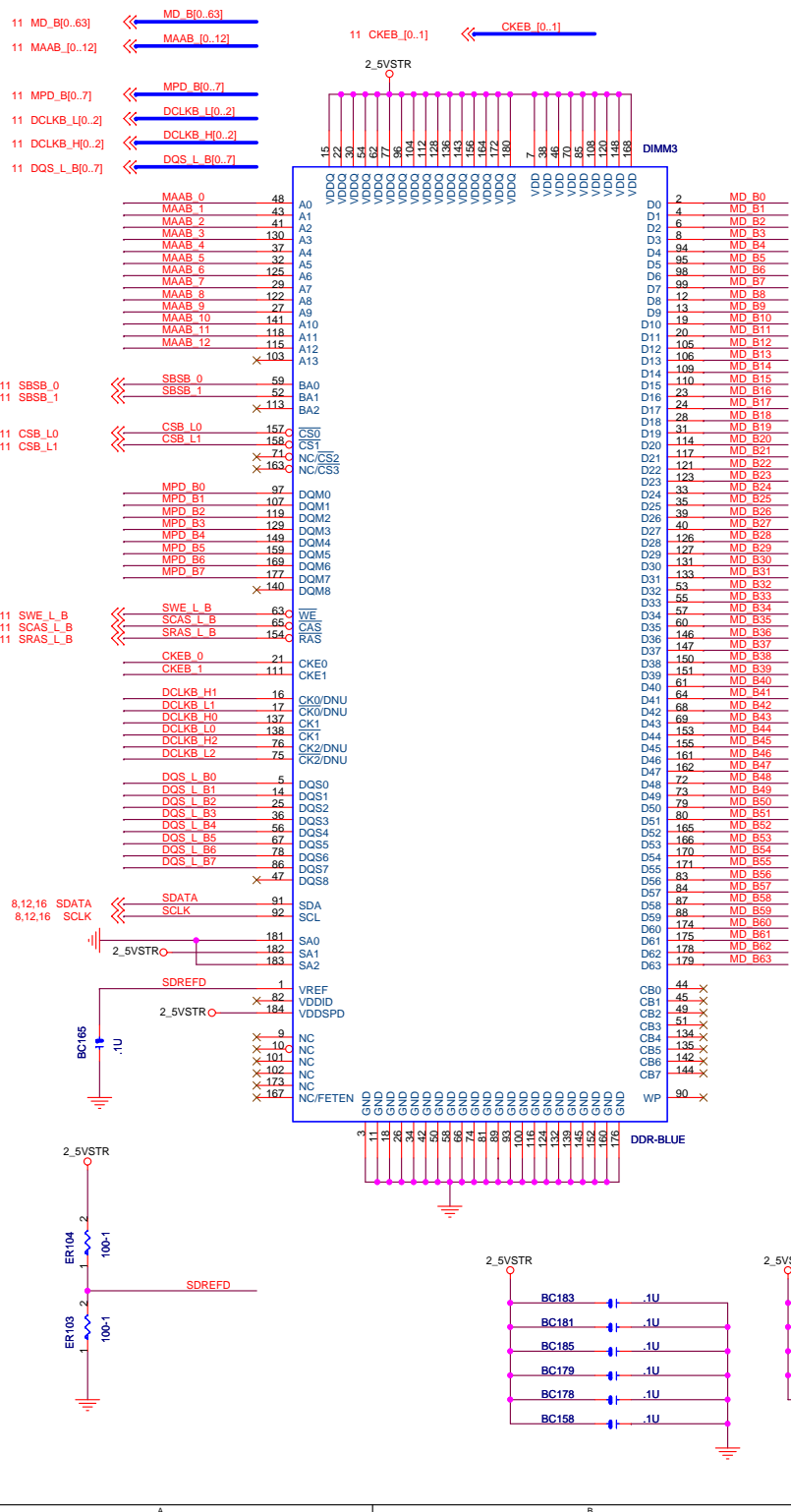
Size: Custom

Document Number: **865G-M8**

Date: Wednesday, February 22, 2006

Rev: 1.0

Sheet 12 of 32



Elitegroup Computer Systems

Title: **DDIMM 3&4 (DDR SDRAMs)**

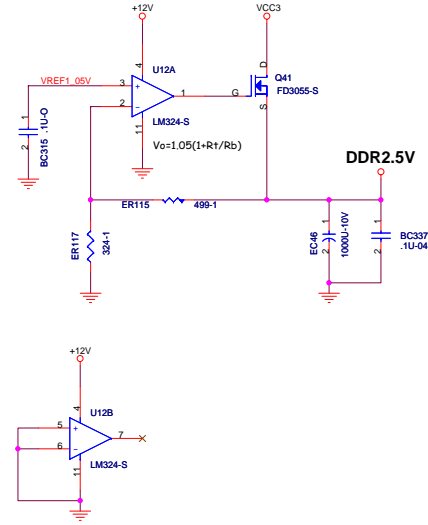
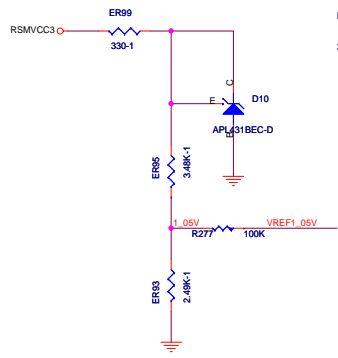
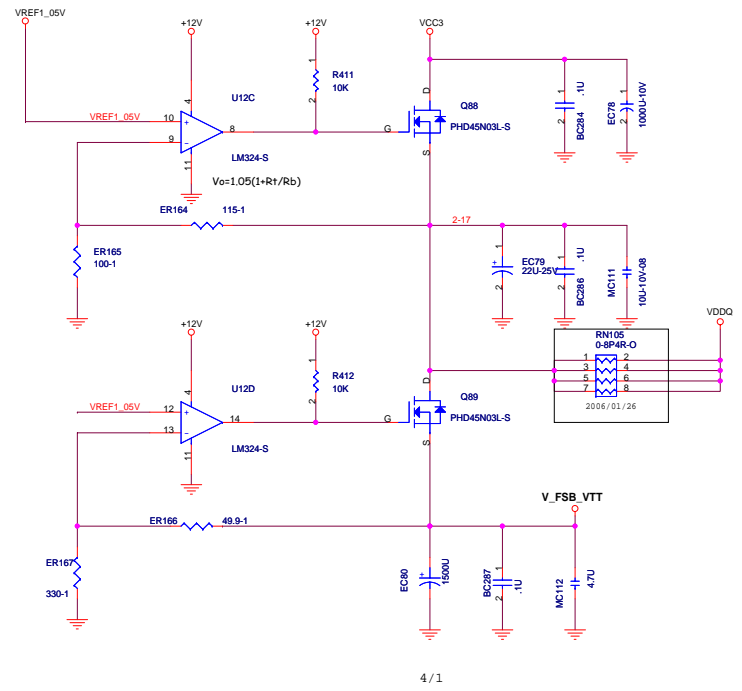
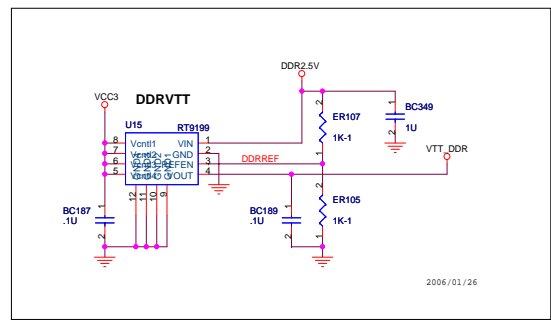
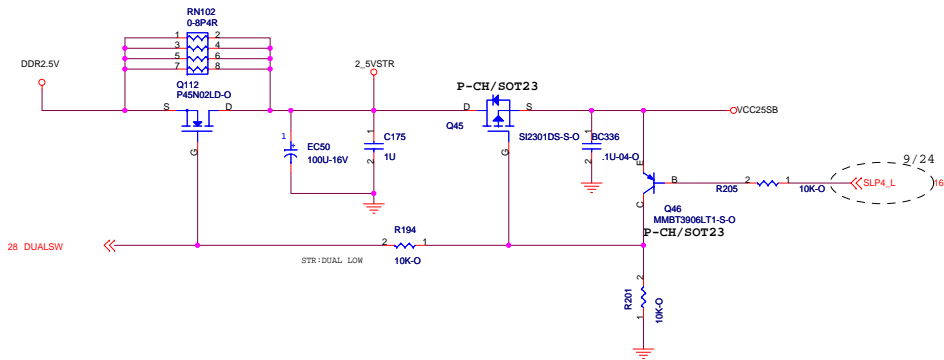
Size: Custom

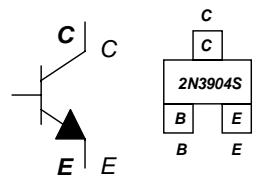
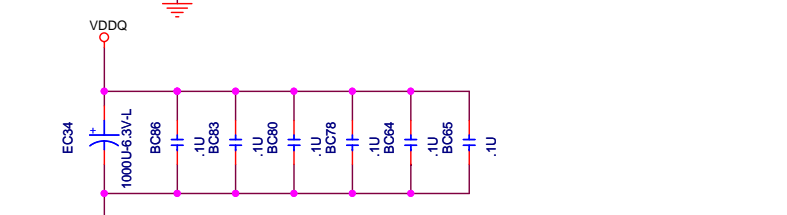
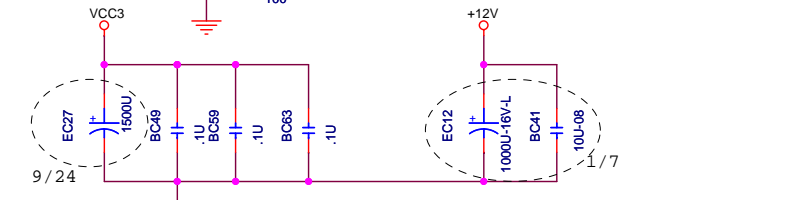
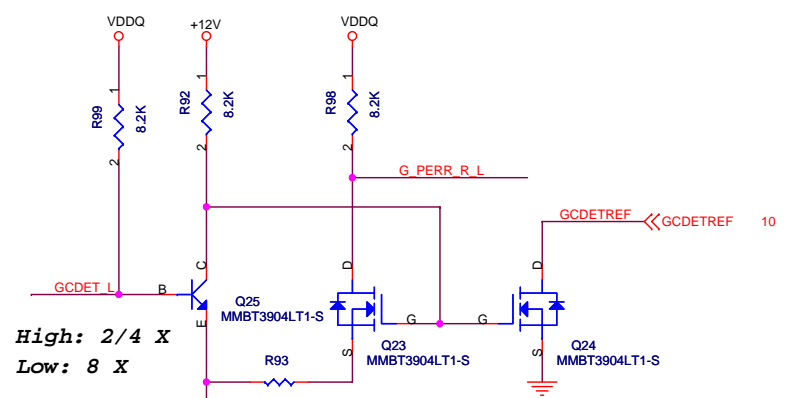
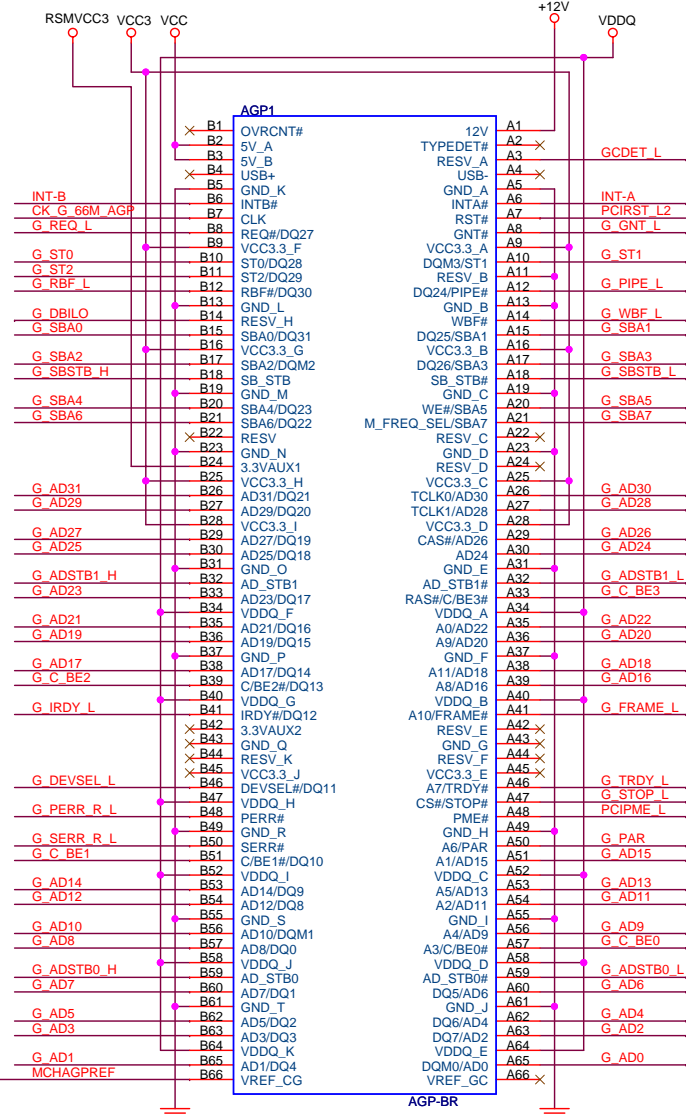
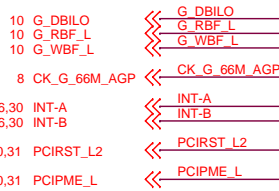
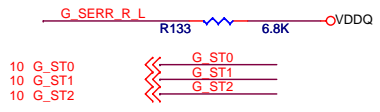
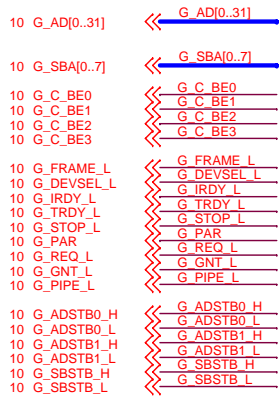
Document Number: **865G-M8**

Date: Wednesday, February 22, 2006

Sheet 13 of 32

Rev 1.0





Elitegroup Computer Systems

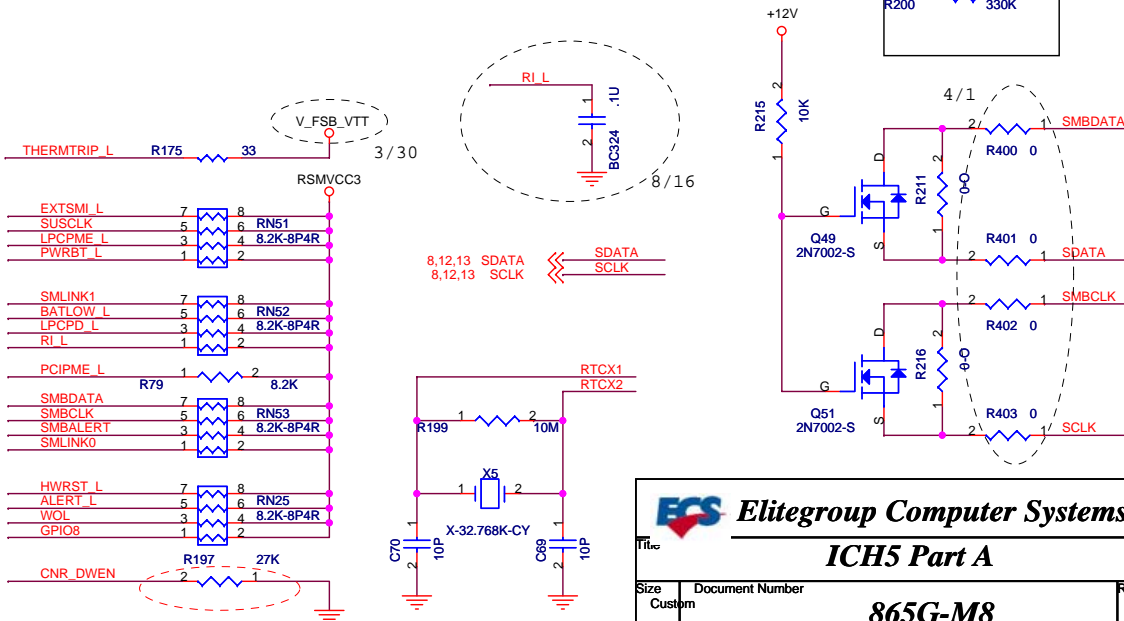
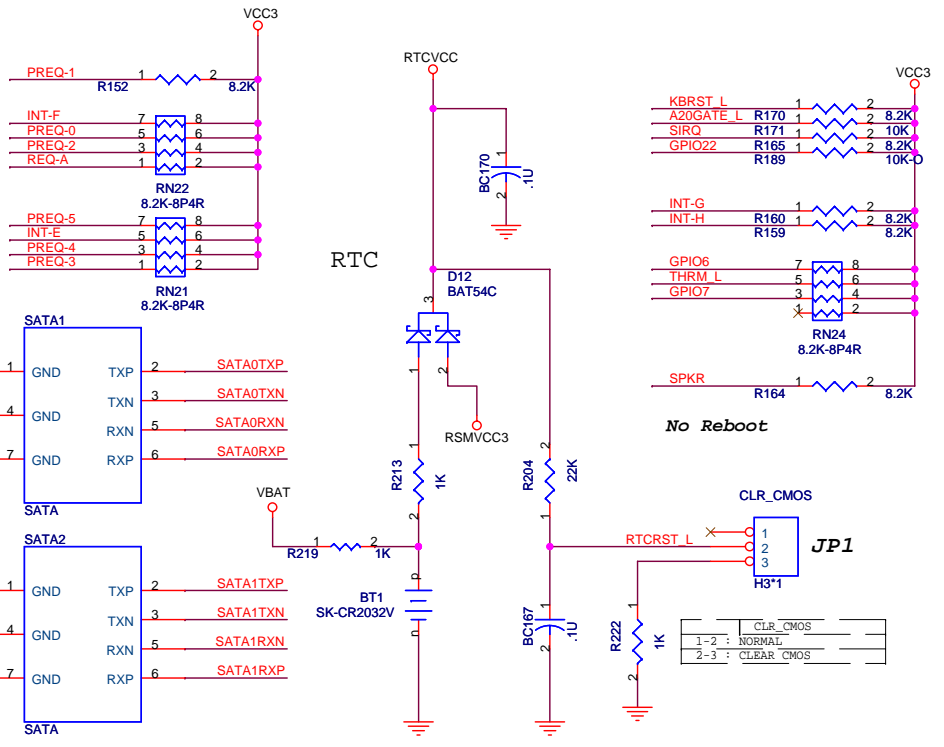
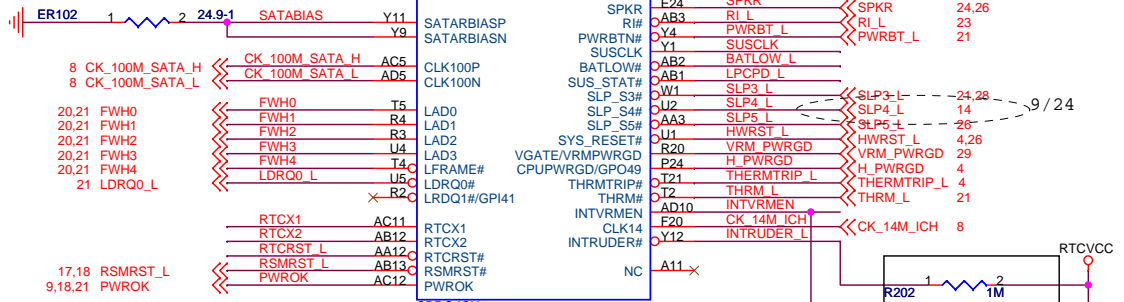
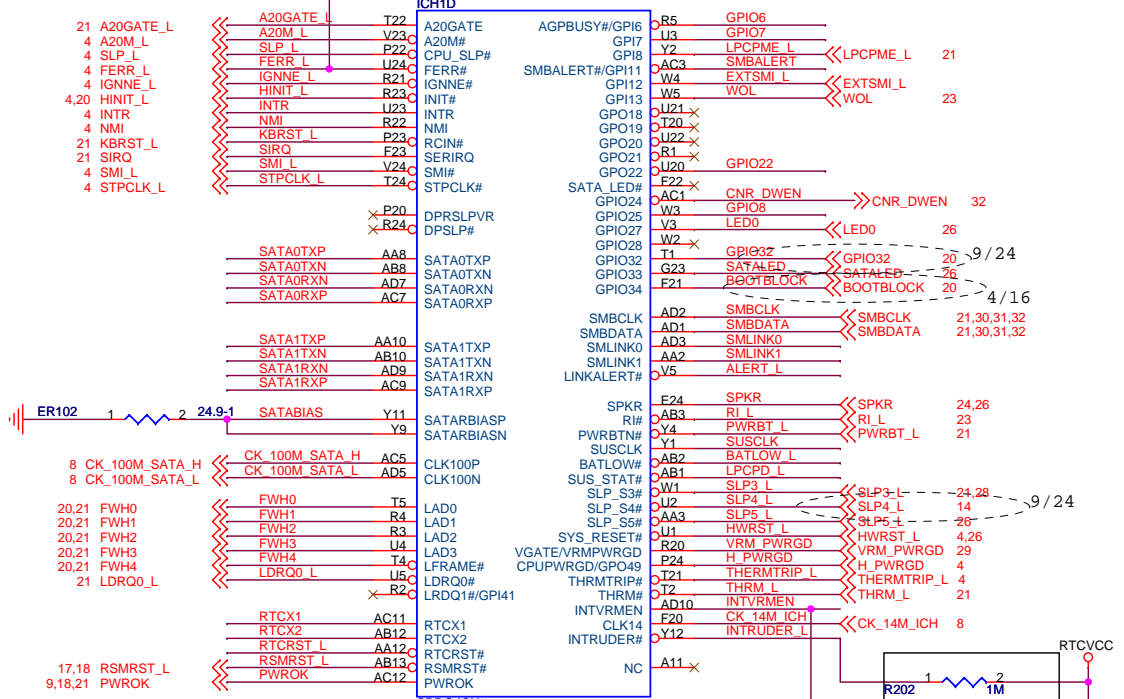
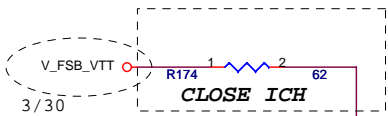
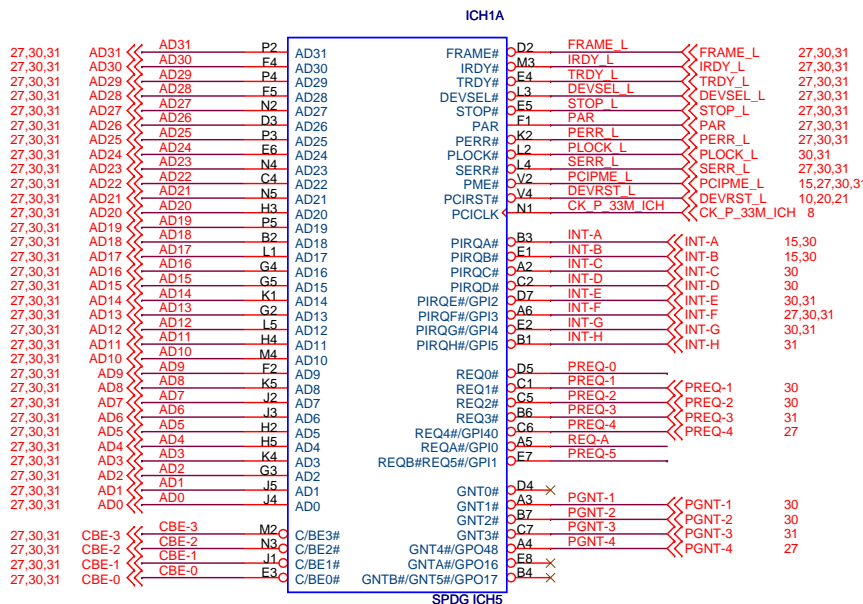
AGP Express

865G-M8

Rev 1.0

Date: Wednesday, February 22, 2006

Sheet 15 of 32



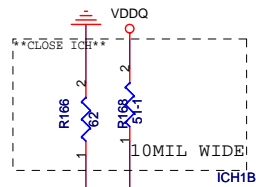
Elitegroup Computer Systems

ICH5 Part A

Size	Document Number	Rev
Custom		1.0

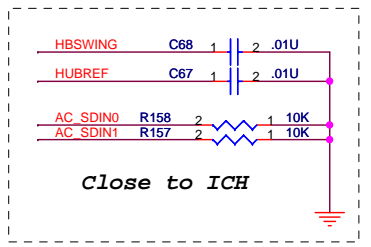
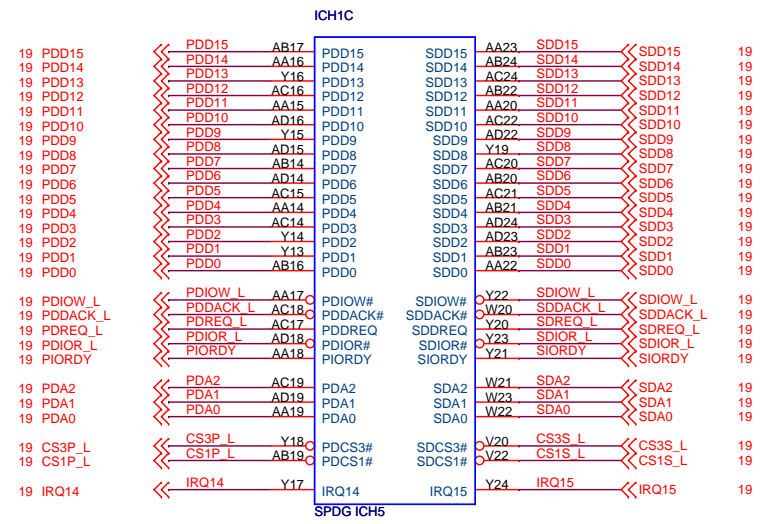
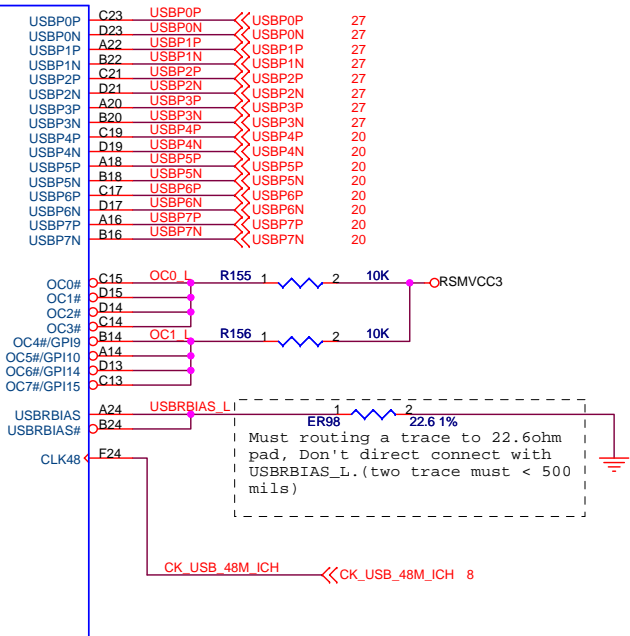
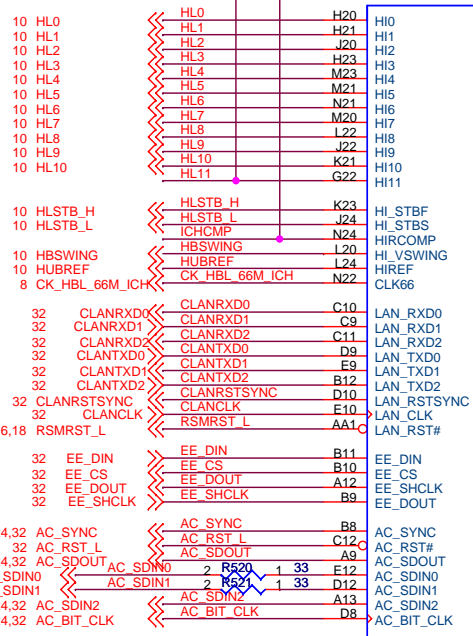
865G-M8

Date: Wednesday, February 22, 2006 Sheet 16 of 32



HL[0..10] << HL[0..10] 10

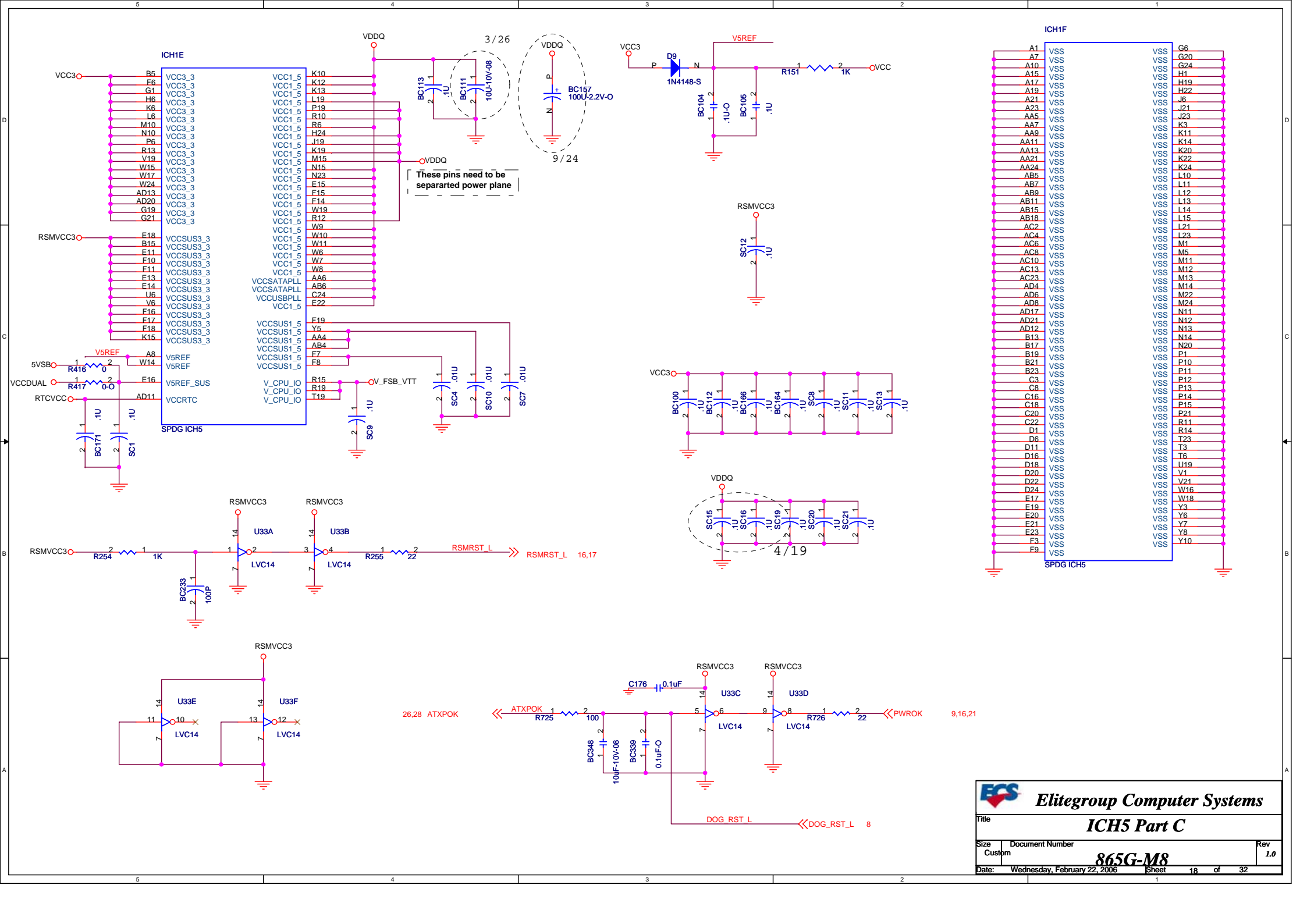
19 PDD[0..15] << PDD[0..15]
 19 SDD[0..15] << SDD[0..15]



ECS Elitegroup Computer Systems

ICH5 Part B

Size	Document Number	Rev
Custom	865G-M8	1.0
Date:	Wednesday, February 22, 2006	Sheet 17 of 32

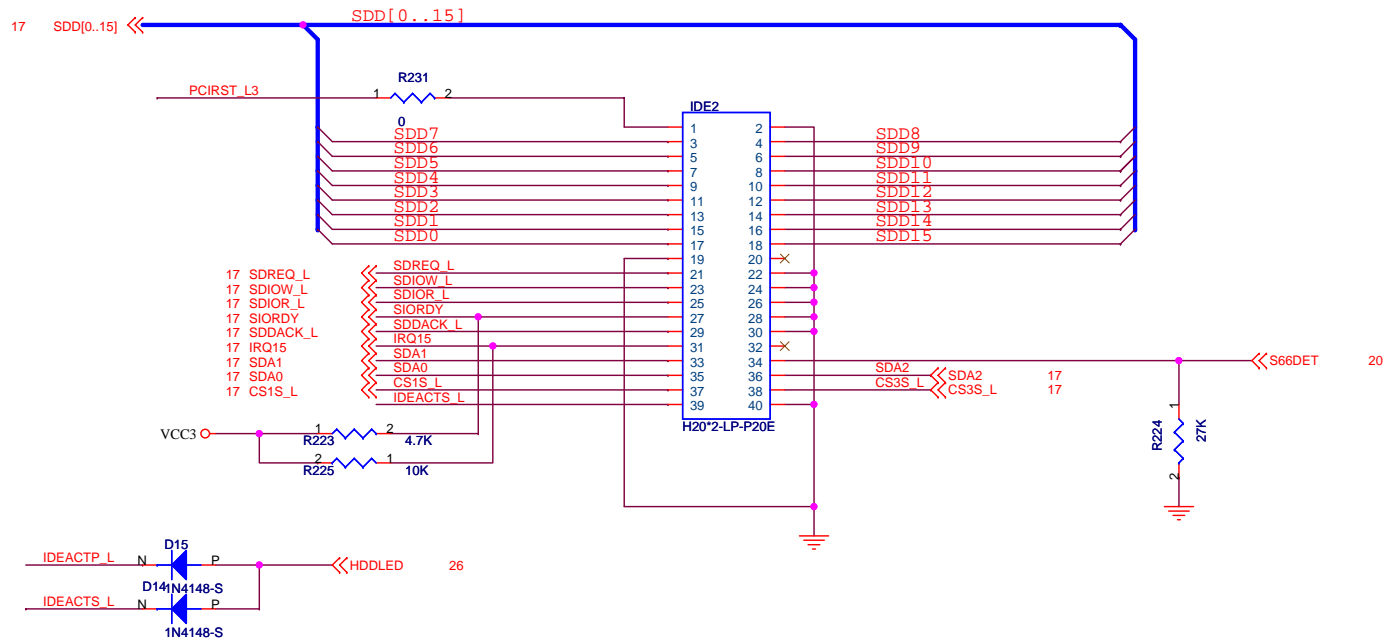
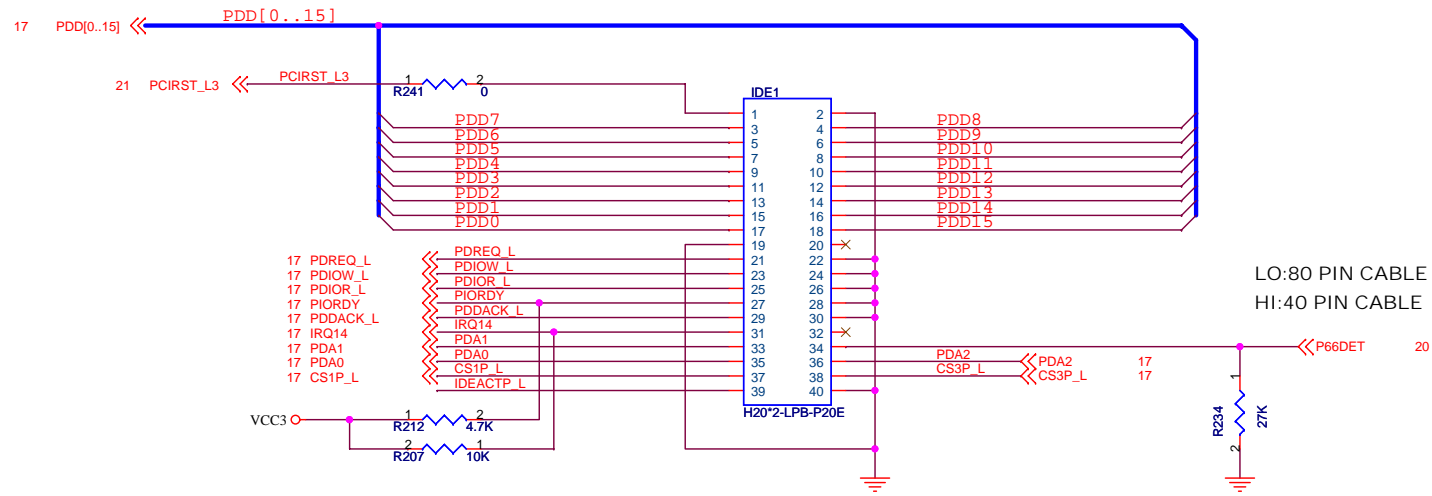


These pins need to be separated power plane


ECS Elitegroup Computer Systems

Title: **ICH5 Part C**

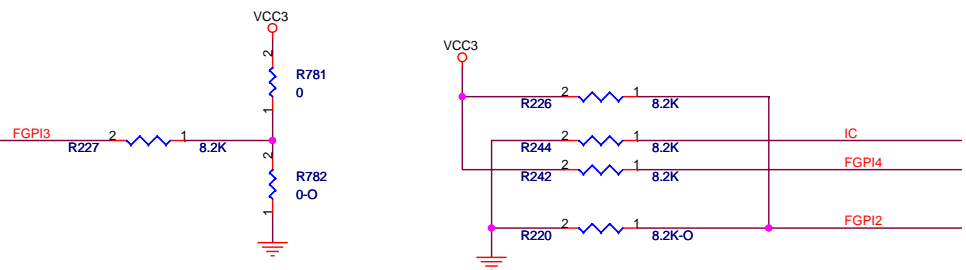
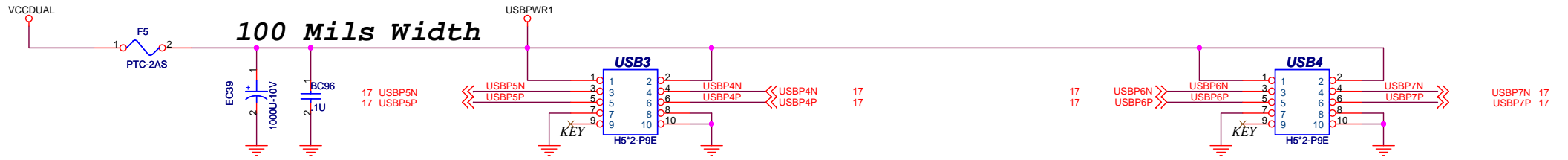
Size	Document Number	Rev
Custom	865G-M8	1.0
Date:	Wednesday, February 22, 2006	Sheet 18 of 32



MAX TRACE LENGTH IS 8"

 Elitegroup Computer Systems		
IDE Connector		
Size Custom	Document Number 865G-M8	Rev 1.0
Date: Wednesday, February 22, 2006 Sheet 19 of 32		

USB PORT INTERFACE



GPI2:

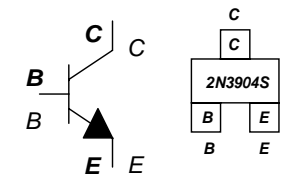
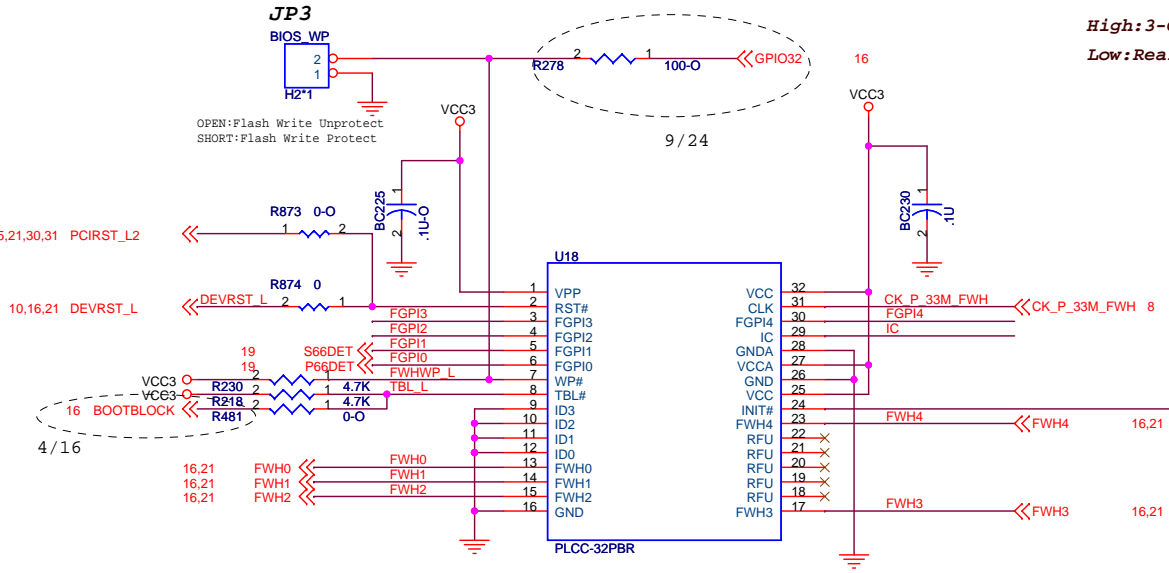
High:1394 Install
Low:1394 xxx

GPI3:

High:Suspend xxx
Low:suspend install

GPI4:

High:3-COM Lan Install
Low:Realtek PCI Lan install

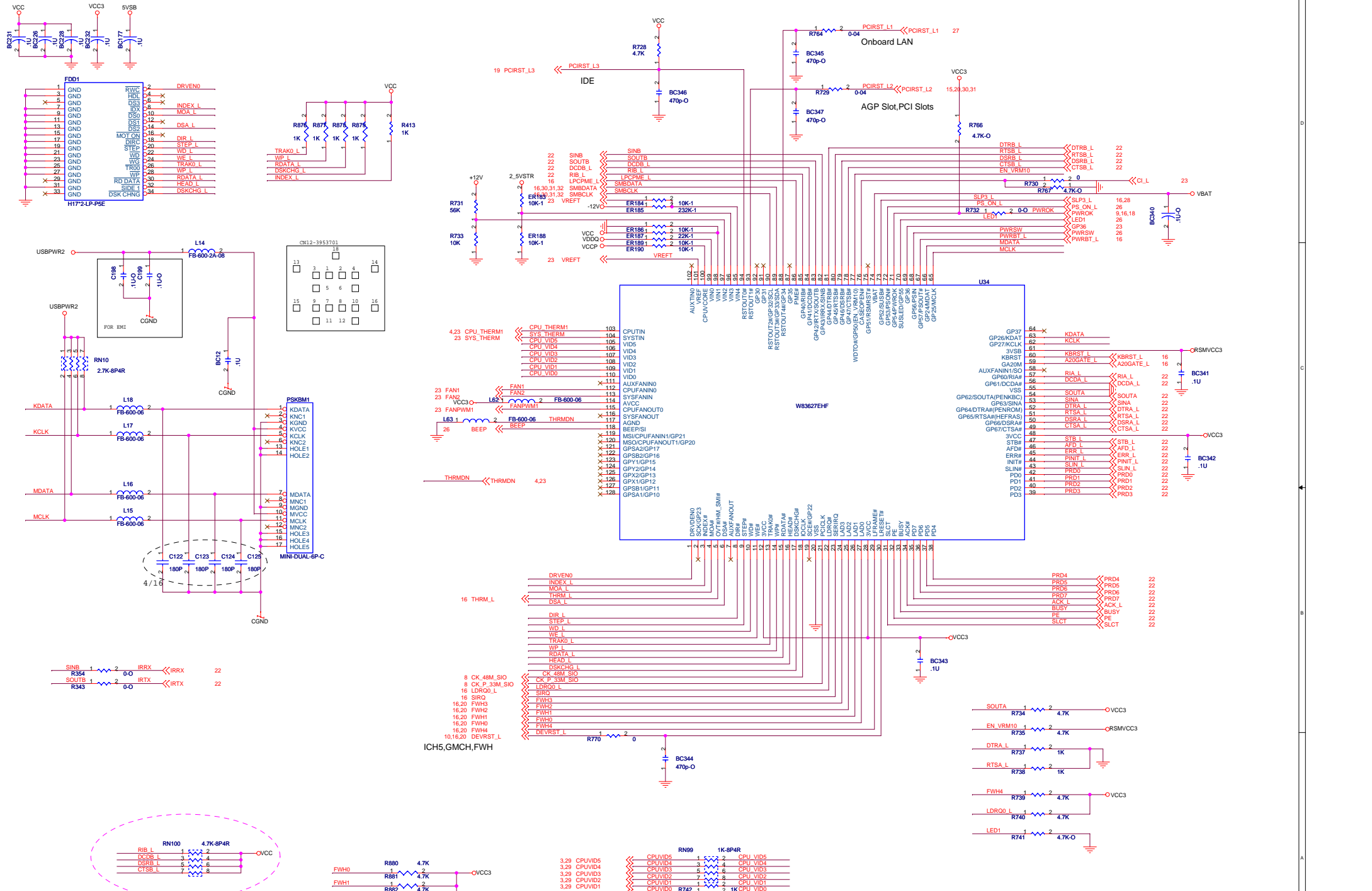


ECS Elitegroup Computer Systems

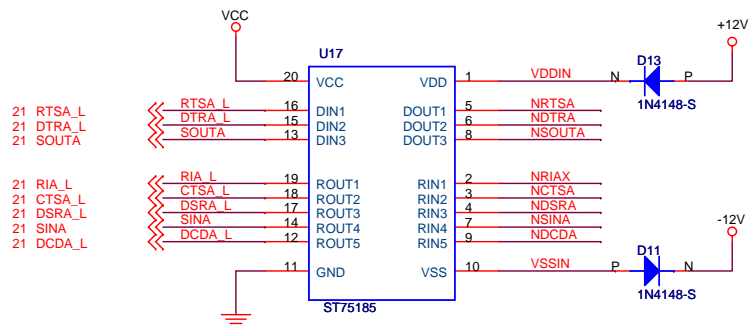
Title: **USB/FWH**

Size	Document Number	Rev
Custom	865G-M8	1.0

Date: Wednesday, February 22, 2006 Sheet 20 of 32



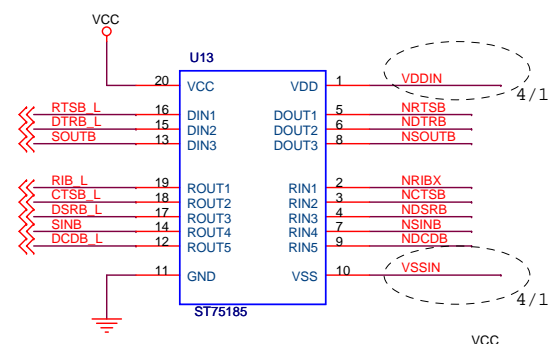
如果要加IR功能又沒有上U13時
請加這一串排阻堵IR noise



- 21 RTSA_L
- 21 DTRA_L
- 21 SOUTA

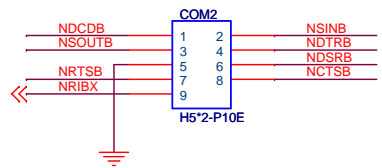
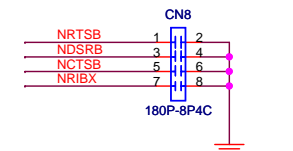
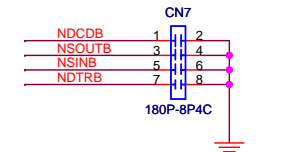
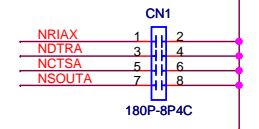
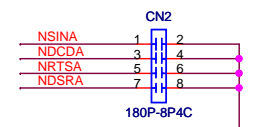
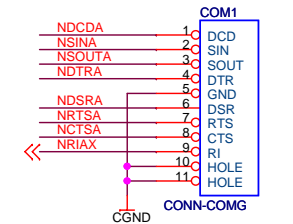
- 21 RIA_L
- 21 CTSA_L
- 21 DSRA_L
- 21 SINA
- 21 DCDA_L

- 21 RTSB_L
- 21 DTRB_L
- 21 SOUTB
- 21 RIB_L
- 21 CTSB_L
- 21 DSRB_L
- 21 SINB
- 21 DCDB_L



- RTSB_L
- DTRB_L
- SOUTB

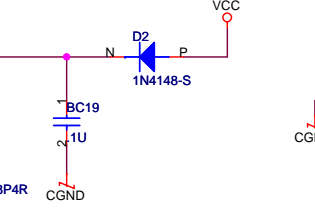
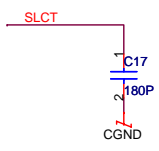
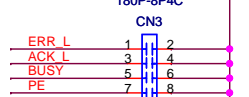
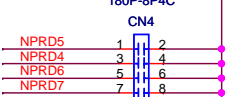
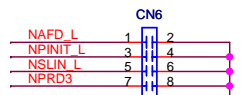
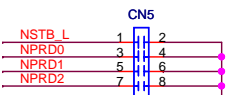
- RIB_L
- CTSB_L
- DSRB_L
- SINB
- DCDB_L



- 21 AFD_L
- 21 PINIT_L
- 21 SLIN_L
- 21 PRD3

- 21 STB_L
- 21 PRD0
- 21 PRD1
- 21 PRD2
- 21 PRD7
- 21 PRD6
- 21 PRD4
- 21 PRD5

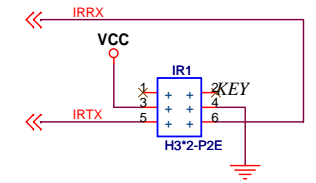
- 21 ERR_L
- 21 ACK_L
- 21 BUSY
- 21 PE
- 21 SLCT



- 23 NRIBX

- 21 IRRX

- 21 IRTX

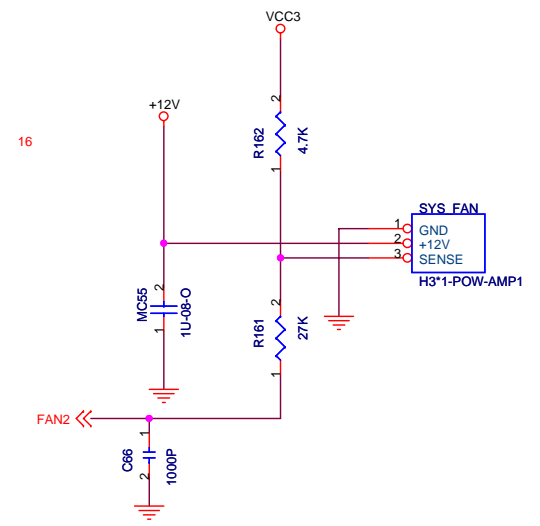
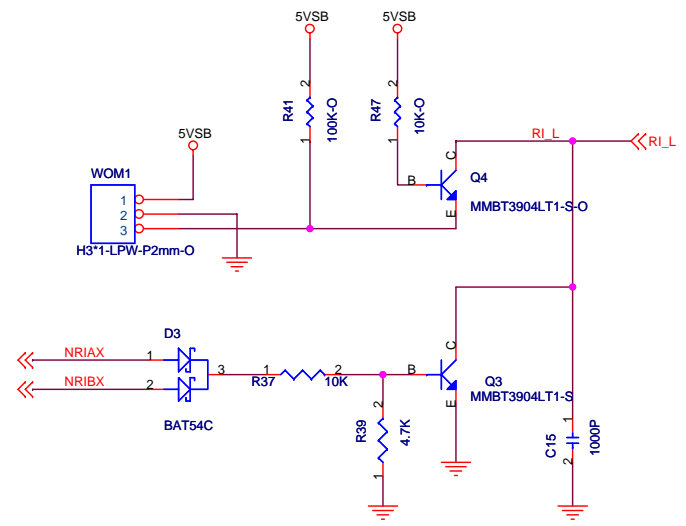
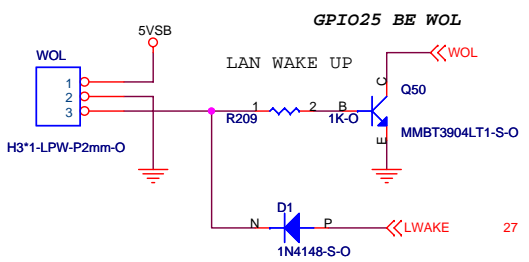
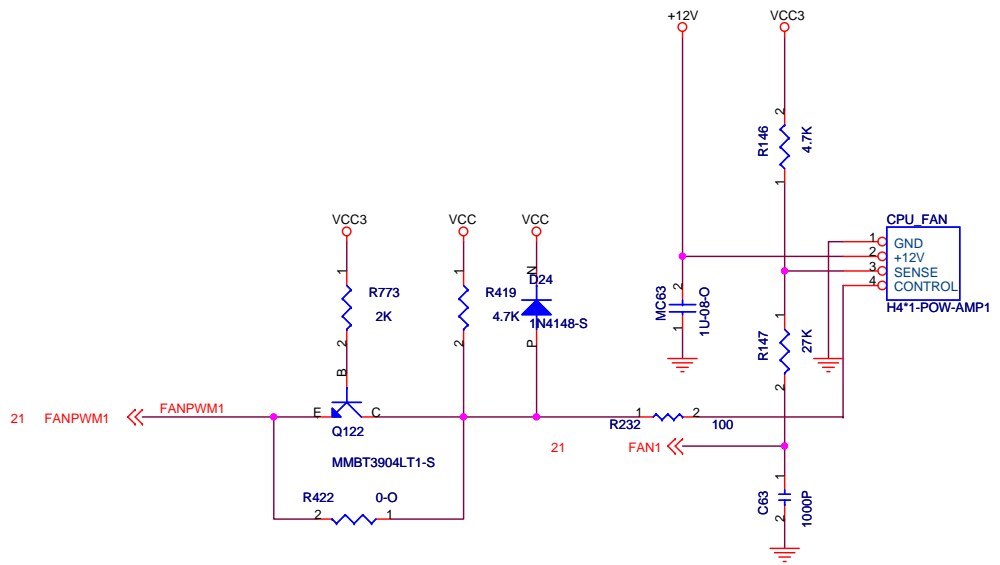


ECS Elitegroup Computer Systems

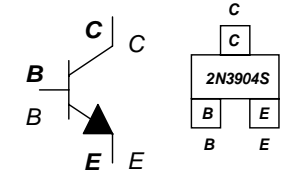
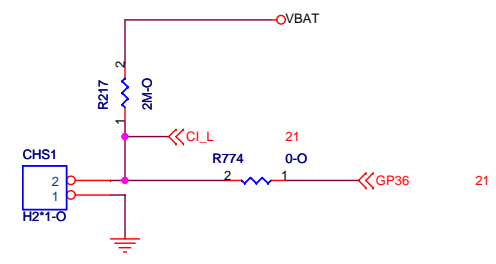
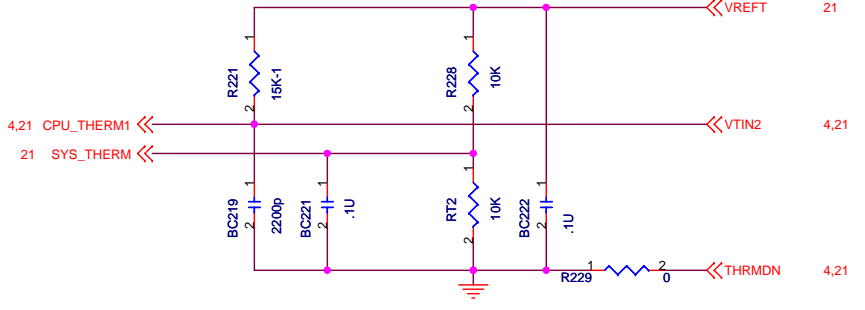
Title: I/O Ports

Size: Custom Document Number: 865G-M8 Rev: 1.0

Date: Wednesday, February 22, 2006 Sheet 22 of 32



THERM. SENSING

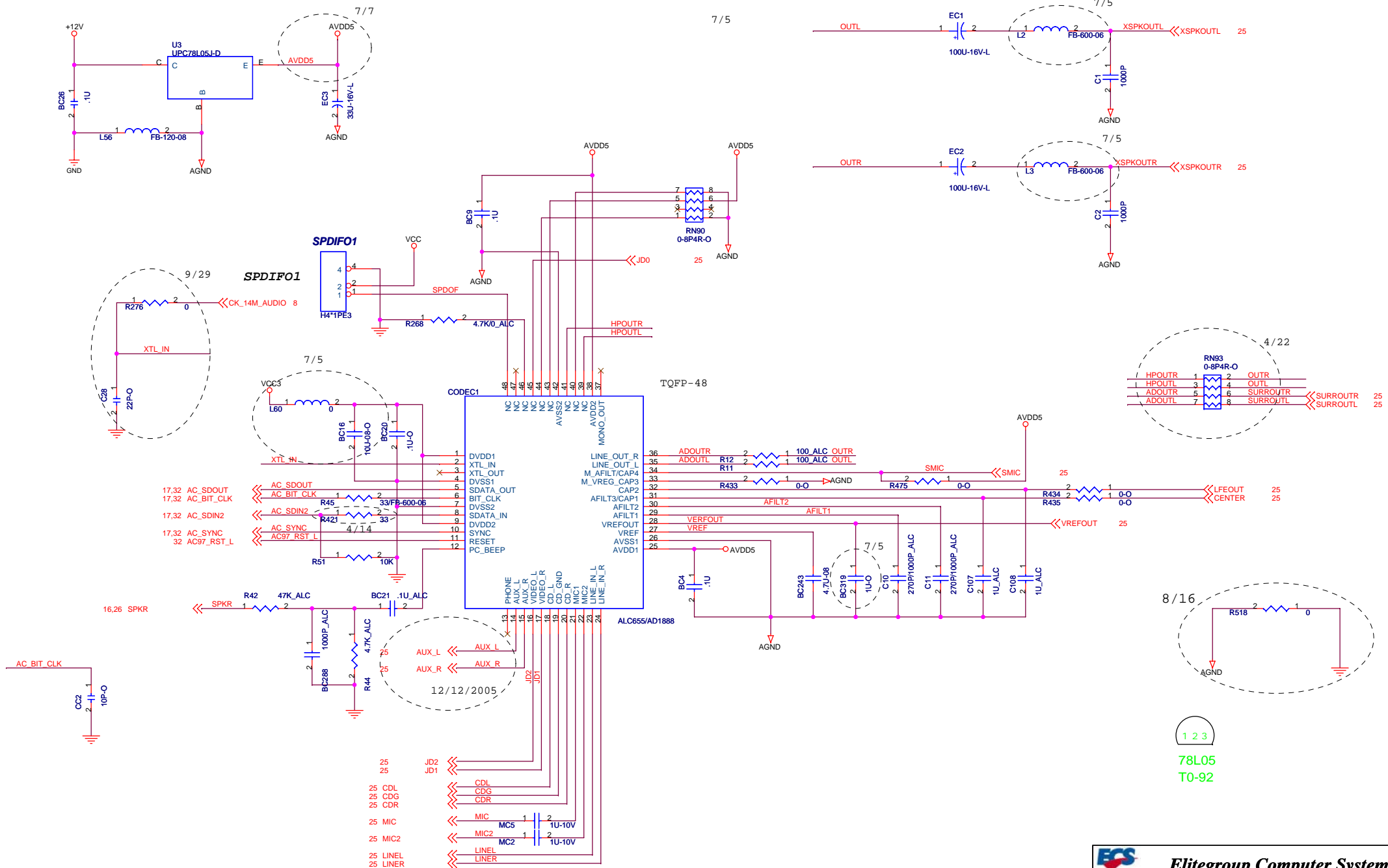


ECS Elitegroup Computer Systems

Title: **H/W Monitor**

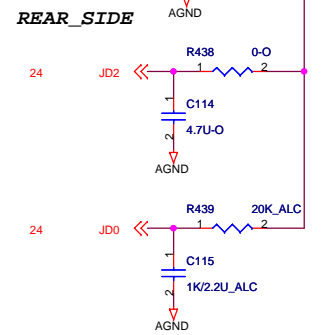
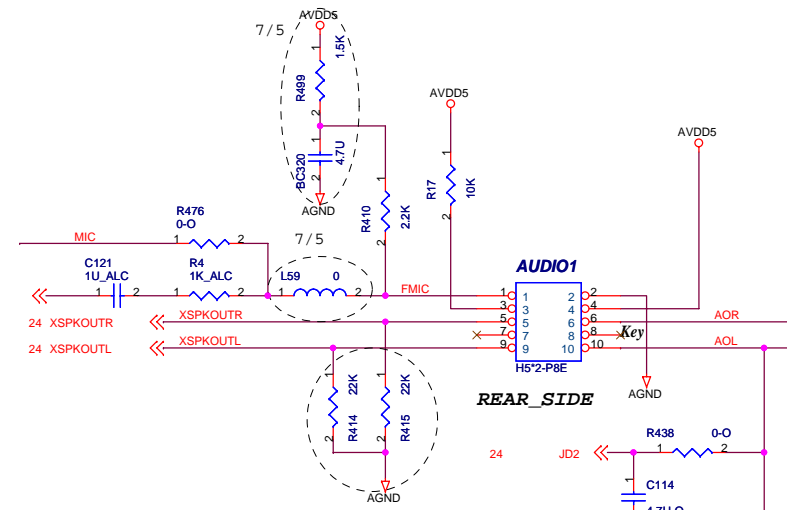
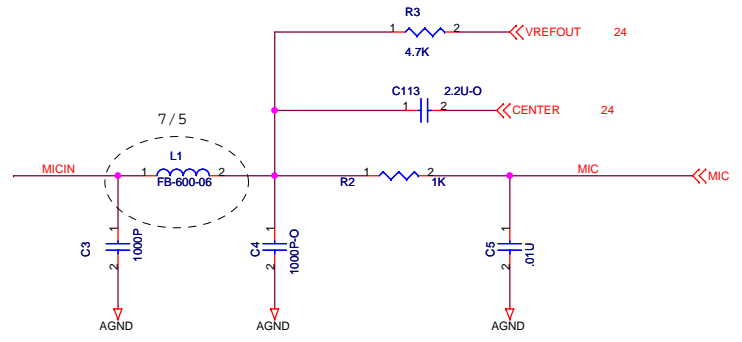
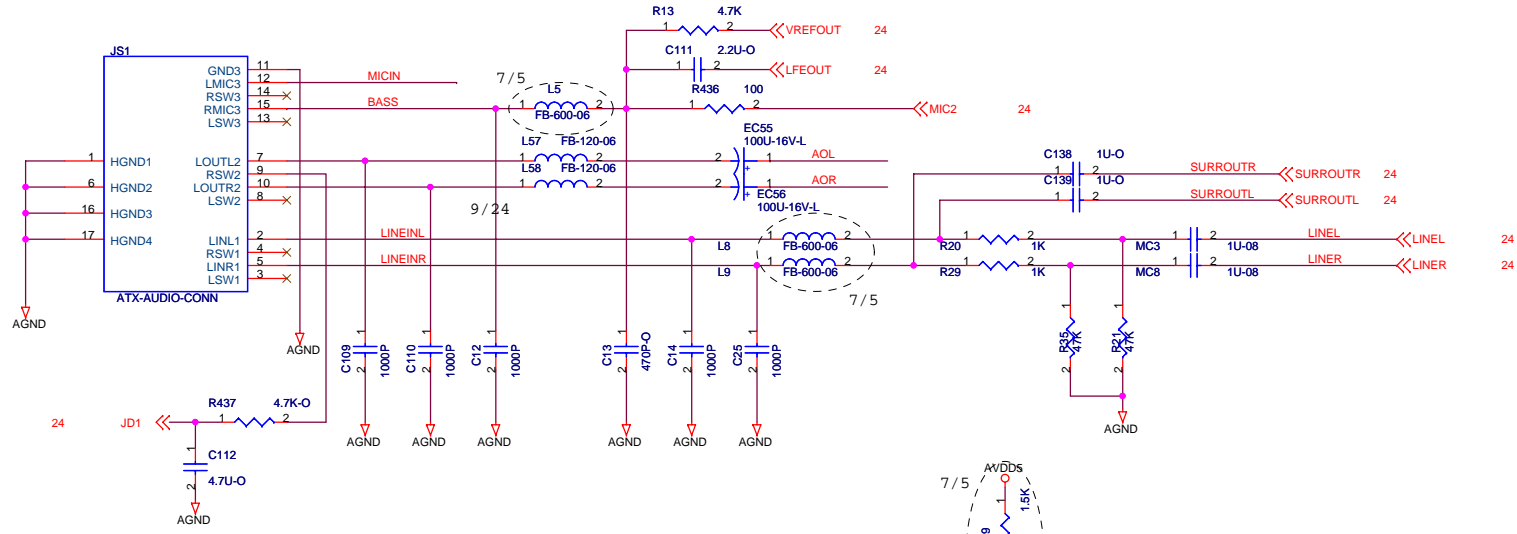
Size: Custom Document Number: **865G-M8** Rev: 1.0

Date: Wednesday, February 22, 2006 Sheet 23 of 32

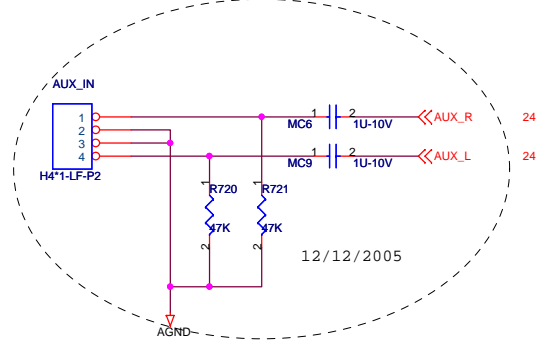
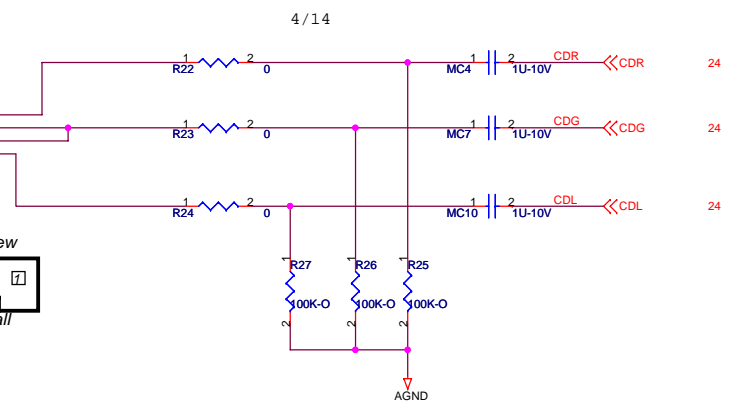
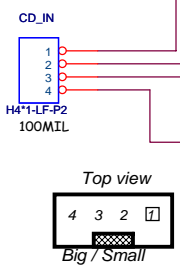


1 2 3

78L05
T0-92



SONY
Big Black
10-341-004008
(2.5mm)



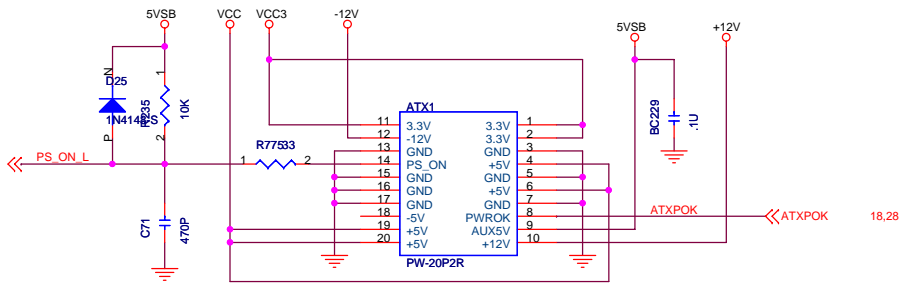
12/12/2005

Elitegroup Computer Systems

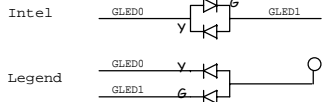
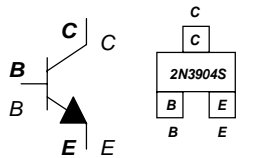
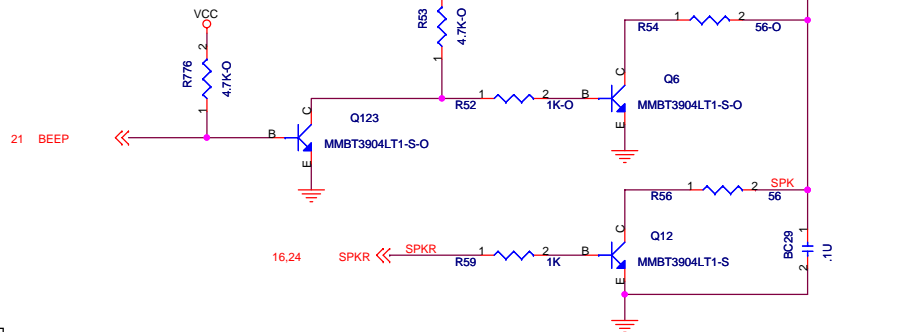
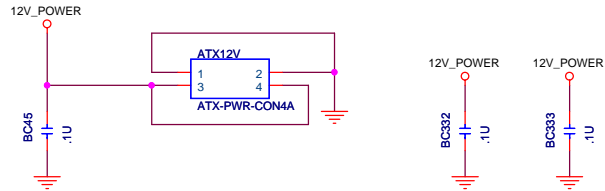
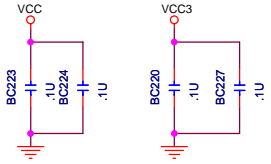
Title: **Audio Interface**

Size: Custom Document Number: **865G-M8** Rev: 1.0

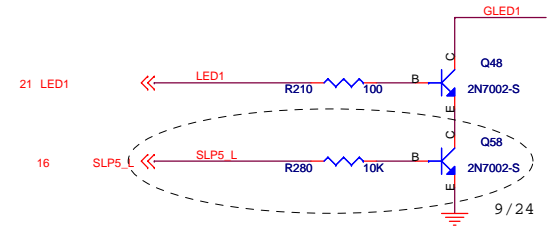
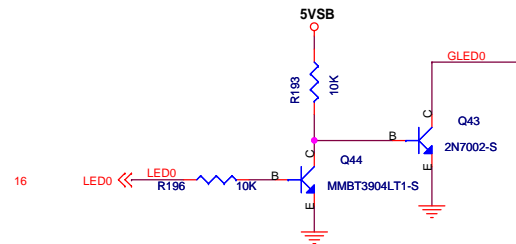
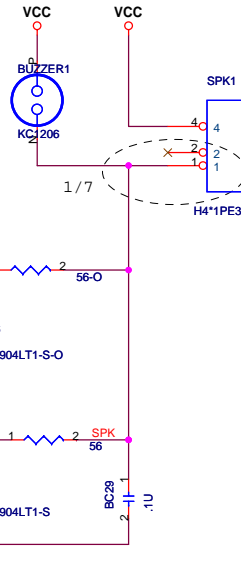
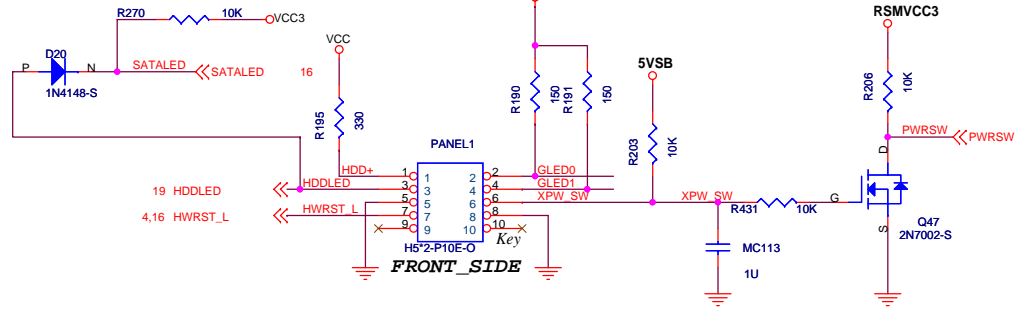
Date: Wednesday, February 22, 2006 Sheet 25 of 32



PWR CONN CAPS



	S0	S1	S3	S4,S5
PANEL1(4,2)	Green	G-blinking	Y-blinking	Dark
LPANEL1(3,5,7)	Green	G-blinking	G-blinking	Dark
LSJ1(1,2)	Dark	Dark	Light	Dark
SJ1(1,3)(2,3)	Light	Blinking	Blinking	Dark
GLED0	HIGH	HIGH	LOW	HIGH
GLED1	LOW	SWITCH	SWITCH	HIGH

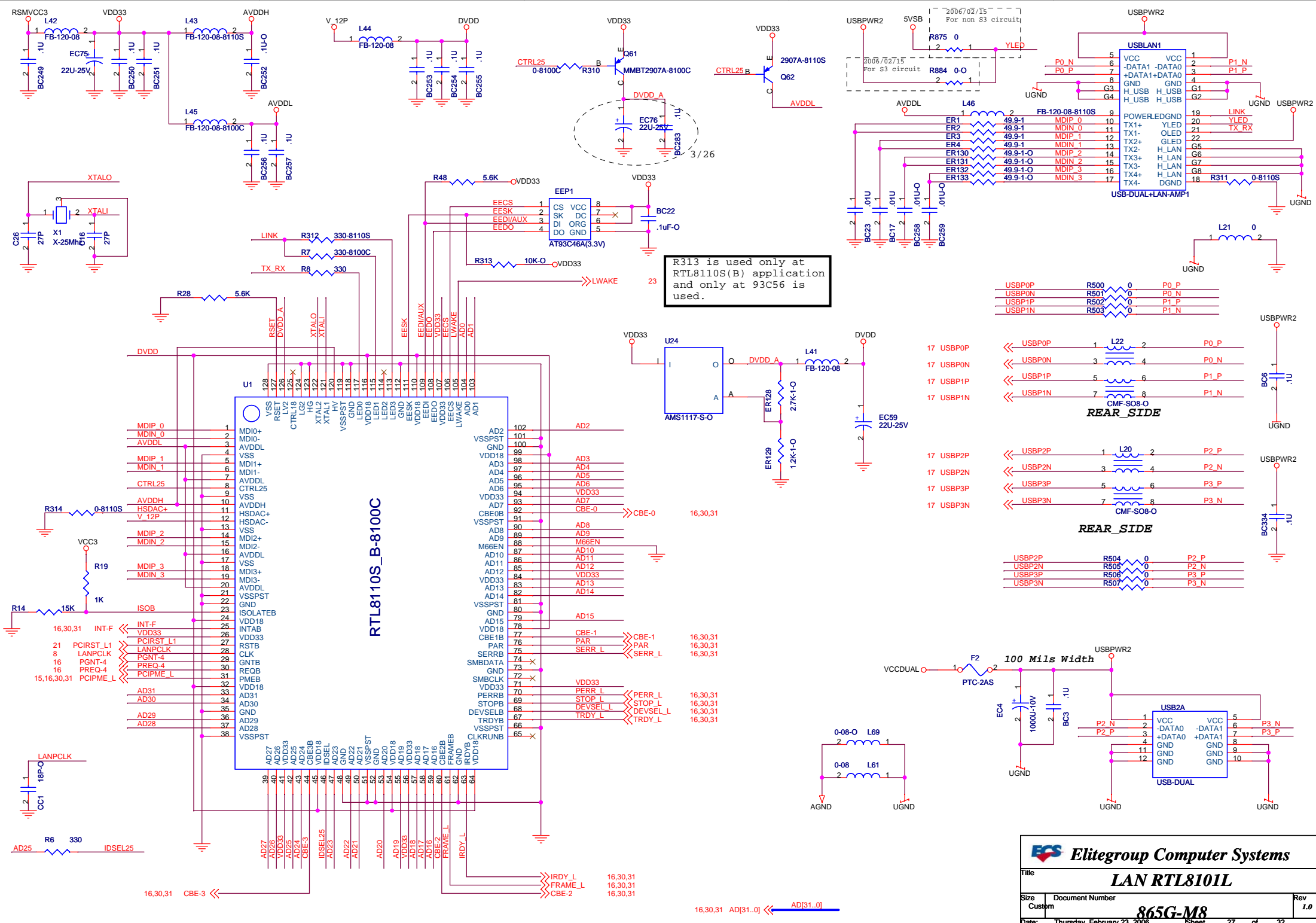


Elitegroup Computer Systems

Title: **ATX Power & Front Panel**

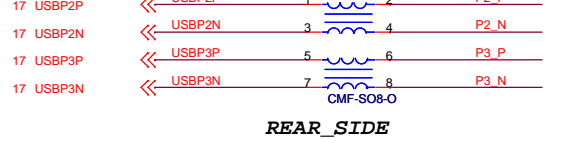
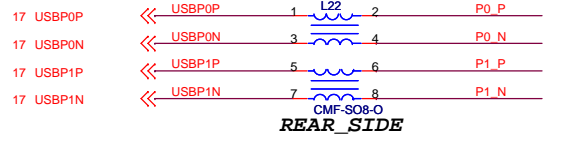
Size: Custom Document Number: **865G-M8** Rev: 1.0

Date: Wednesday, February 22, 2006 Sheet: 26 of 32

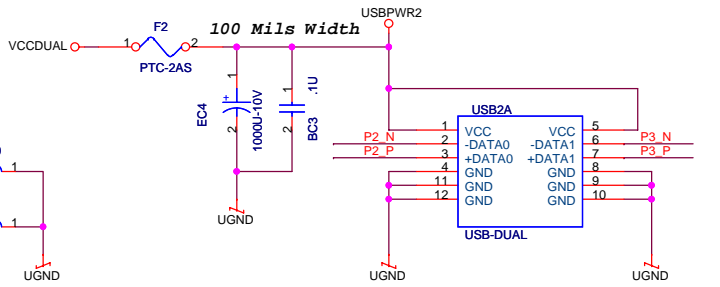


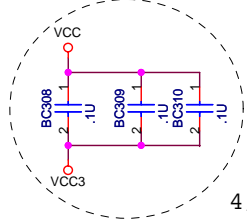
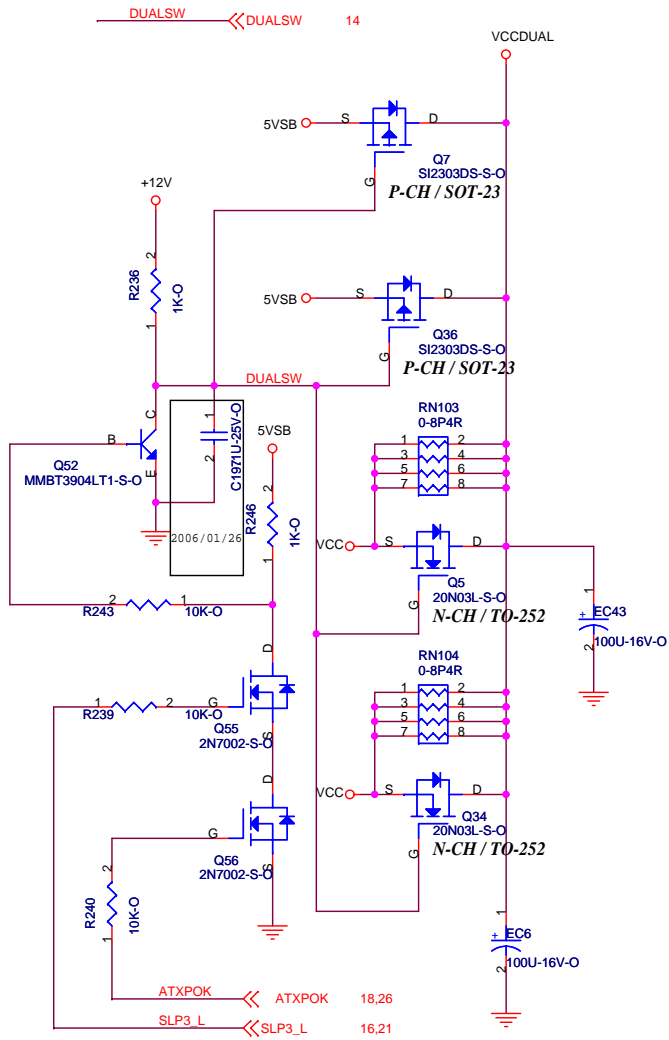
R313 is used only at RTL8110S(B) application and only at 93C56 is used.

USBP0P	R500	0	P0_P
USBP0N	R501	0	P0_N
USBP1P	R502	0	P1_P
USBP1N	R503	0	P1_N

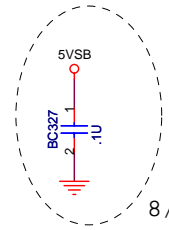


USBP2P	R504	0	P2_P
USBP2N	R505	0	P2_N
USBP3P	R506	0	P3_P
USBP3N	R507	0	P3_N

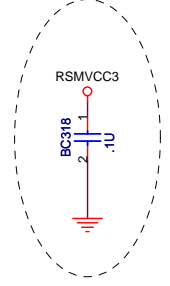




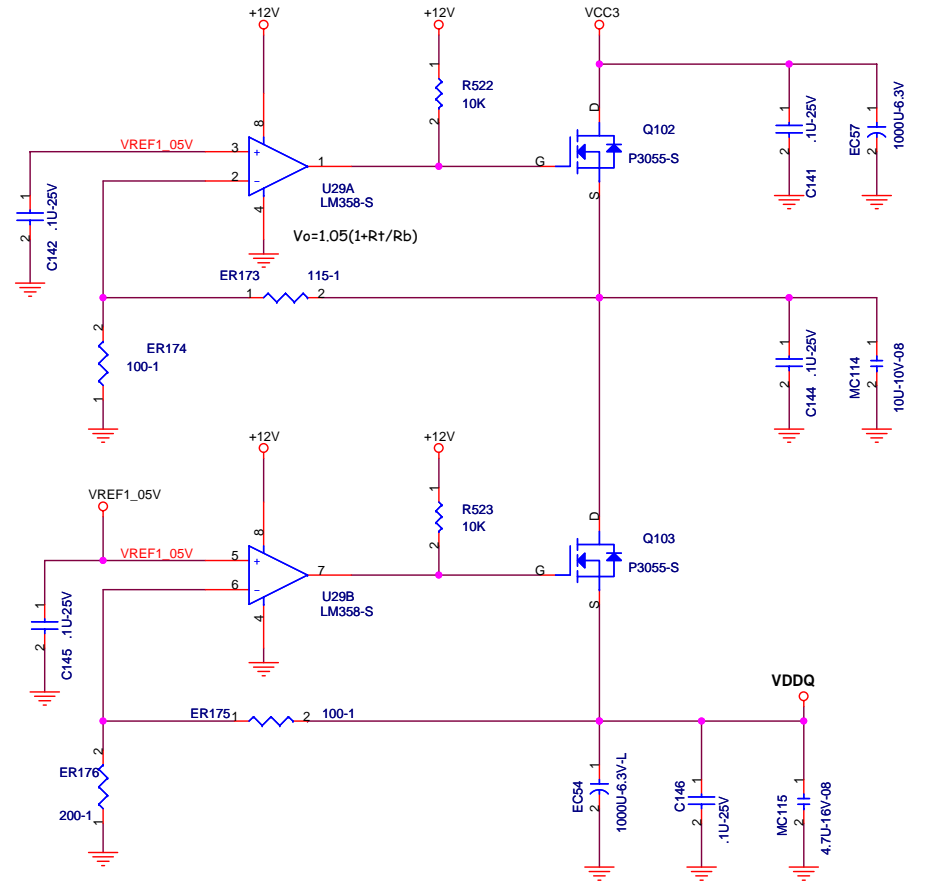
4/19



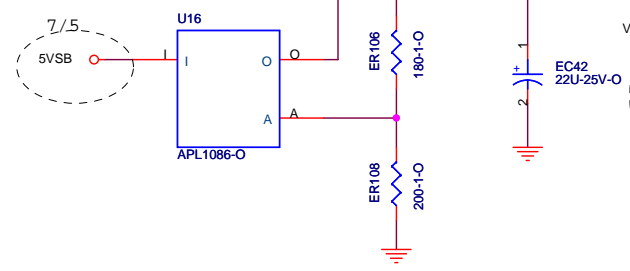
8/16



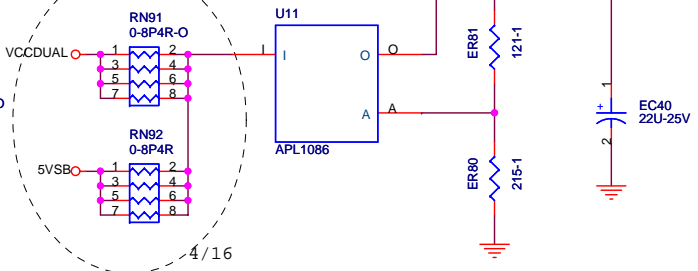
4/21



2.5V DUAL

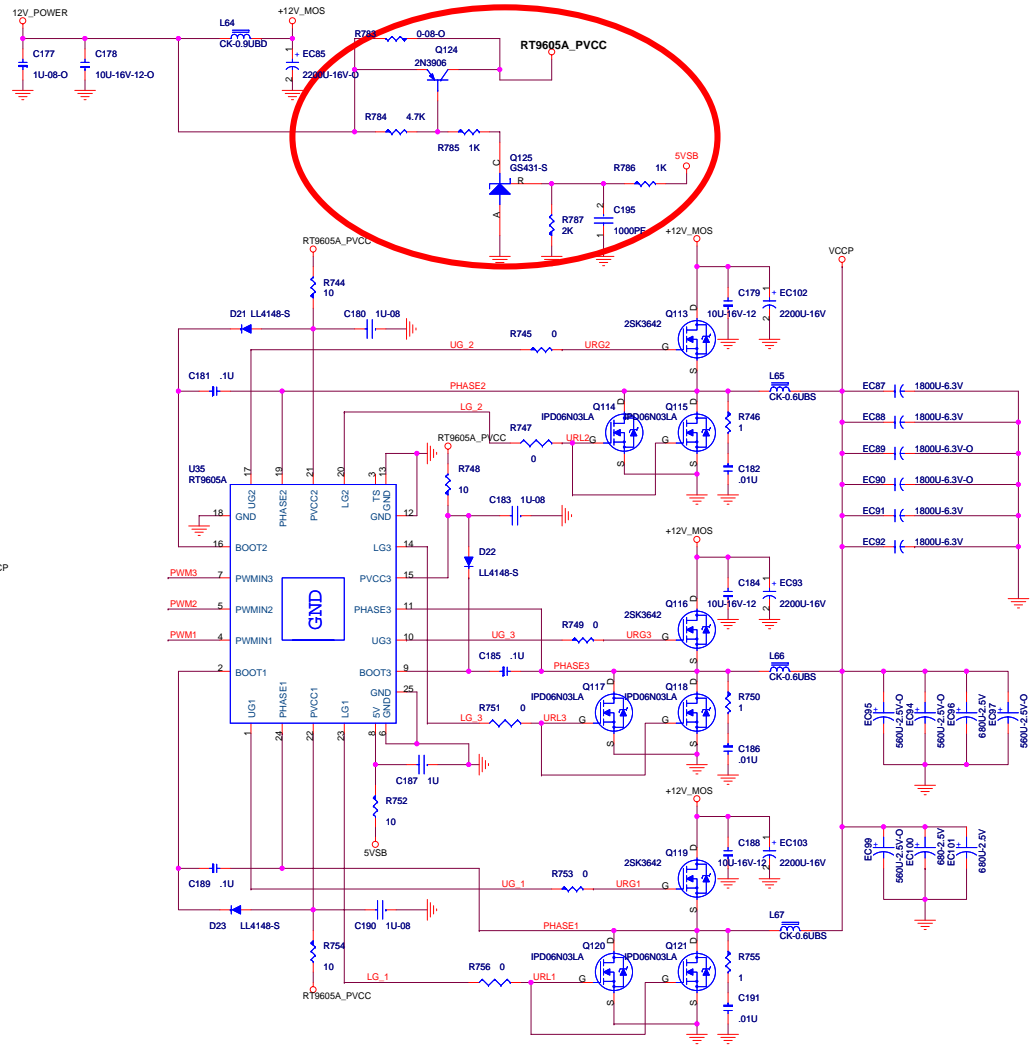
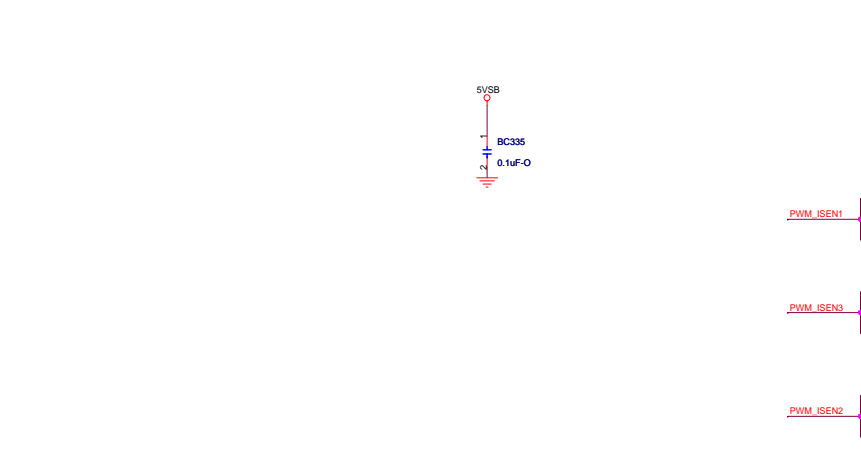
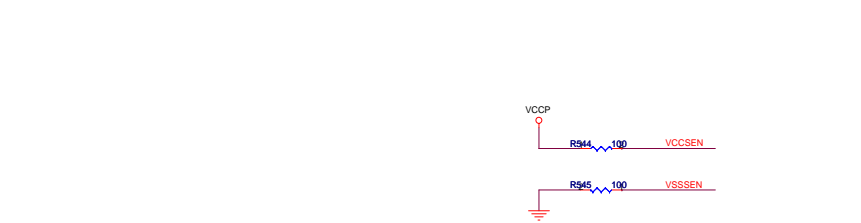
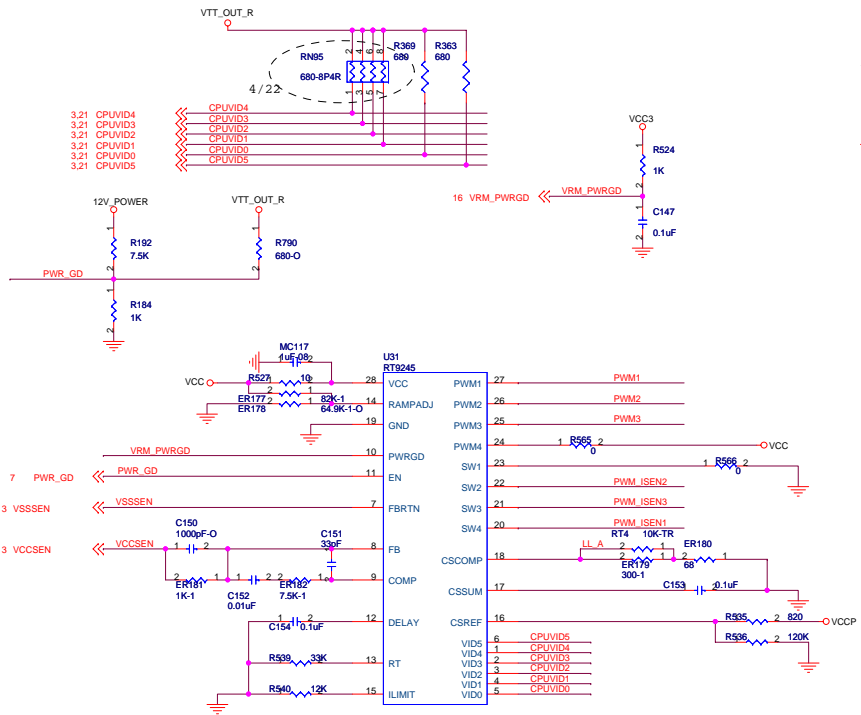


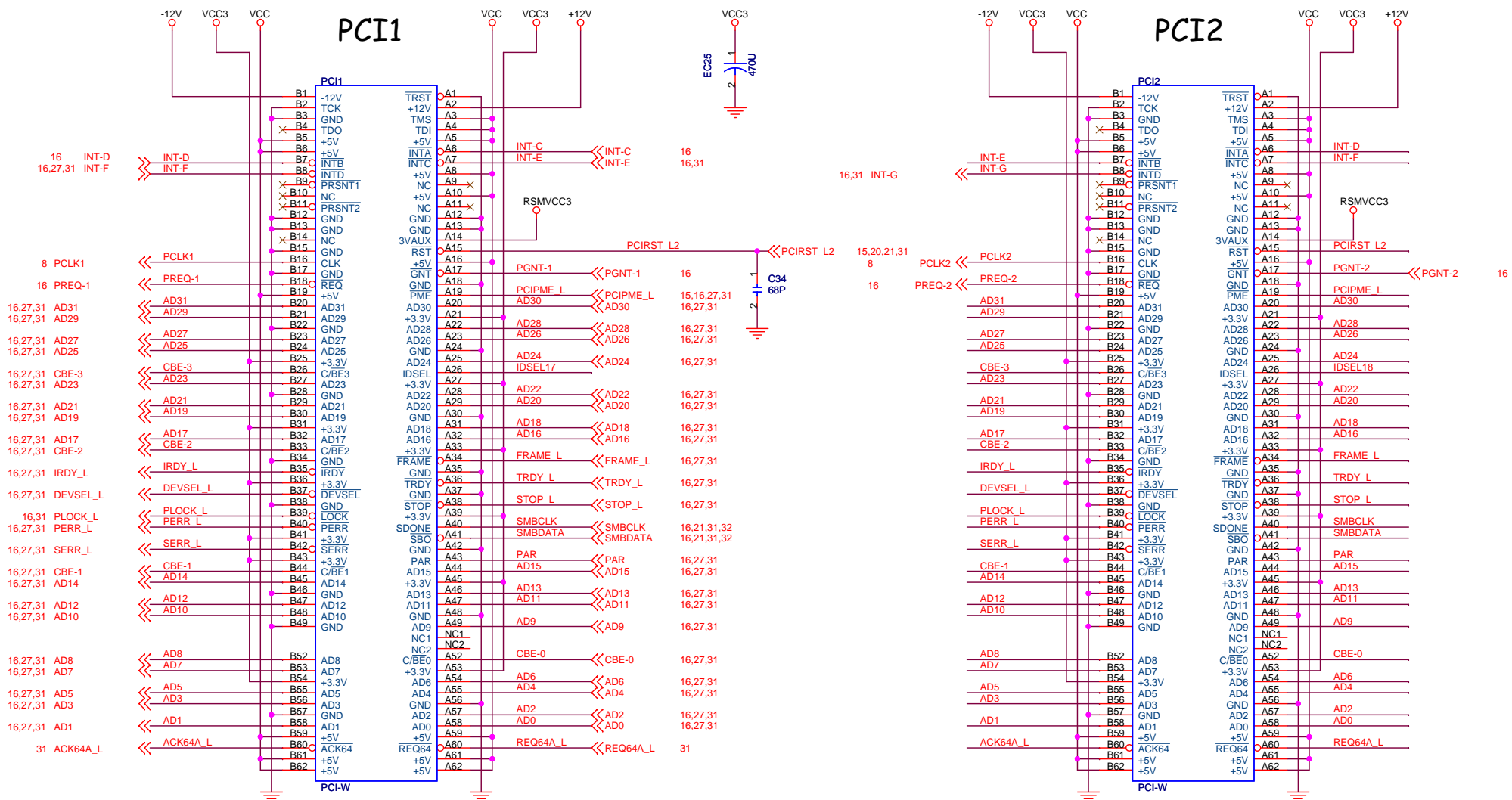
3.3V DUAL



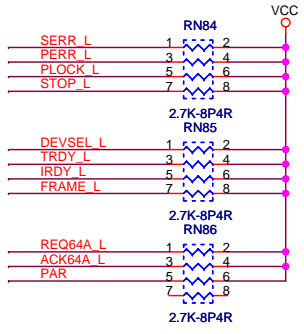
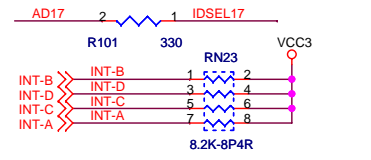
Elitegroup Computer Systems
MIS DC-DC
865G-M8
 Date: Wednesday, February 22, 2006 Sheet 28 of 32

Size Custom	Document Number	Rev 1.0
-------------	-----------------	---------

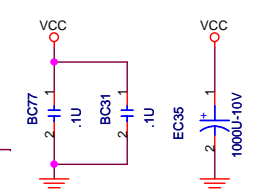
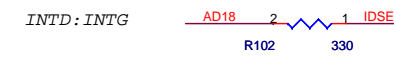




PCI1-INT : IDSEL=AD17
 INTA:INTC REQ=PREQ1#
 INTB:INTD GNT=PGNT1#
 INTC:INTE
 INTD:INTF



PCI2-INT : IDSEL=AD18
 INTA:INTD REQ=PREQ2#
 INTB:INTE GNT=PGNT2#
 INTC:INTF
 INTD:INTG



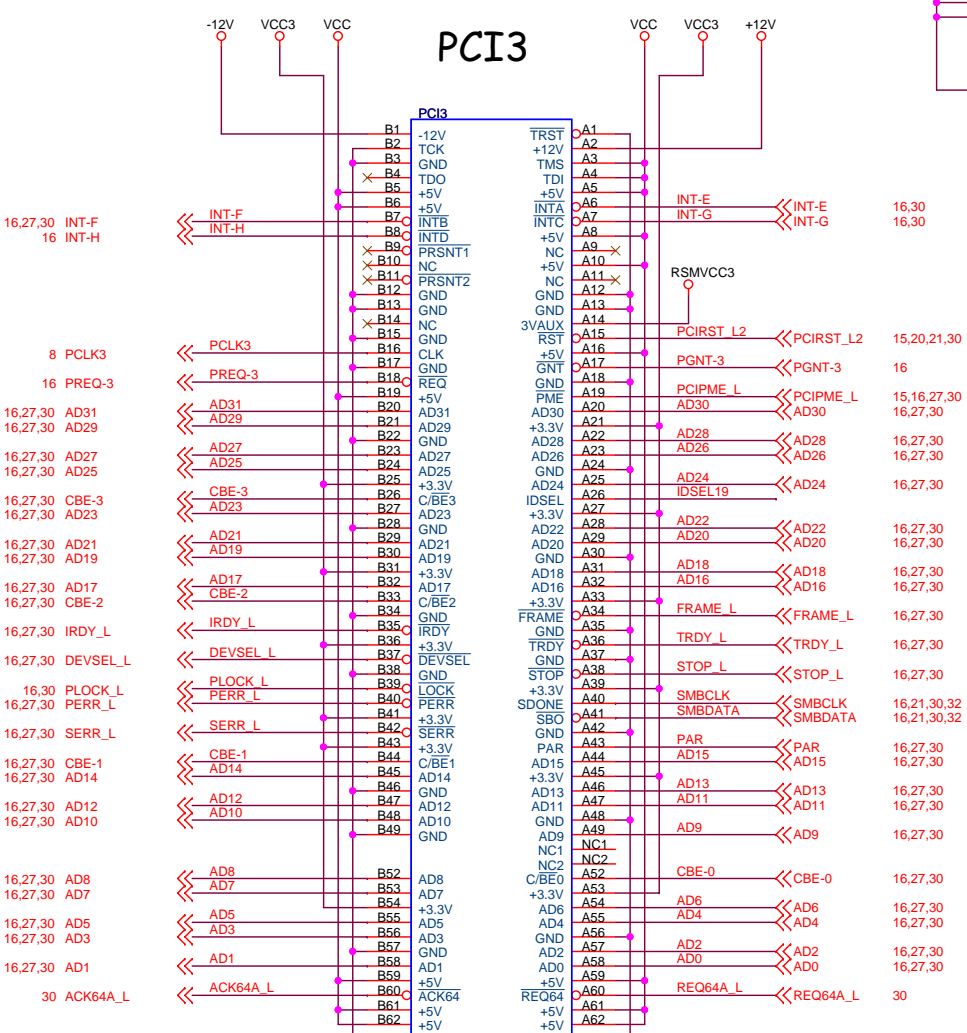
Elitegroup Computer Systems

Title: **PCI Slot 1&2**

Size: Custom Document Number: **865G-M8** Rev: 1.0

Date: Wednesday, February 22, 2006 Sheet 30 of 32

16,27,30 AD[31..0] << ADJ[31..0]



16,27,30 INT-F
16 INT-H

8 PCLK3
16 PREQ-3

16,27,30 AD31
16,27,30 AD29

16,27,30 AD27
16,27,30 AD25

16,27,30 CBE-3
16,27,30 AD23

16,27,30 AD21
16,27,30 AD19

16,27,30 AD17
16,27,30 CBE-2

16,27,30 IRDY_L

16,27,30 DEVSEL_L

16,30 PLOCK_L
16,27,30 PERR_L

16,27,30 SERR_L

16,27,30 CBE-1
16,27,30 AD14

16,27,30 AD12
16,27,30 AD10

16,27,30 AD8
16,27,30 AD7

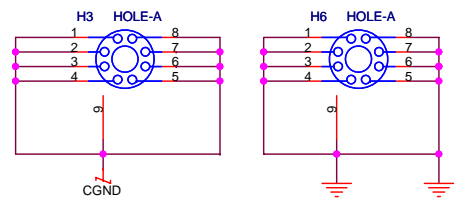
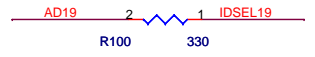
16,27,30 AD5
16,27,30 AD3

16,27,30 AD1

30 ACK64A_L

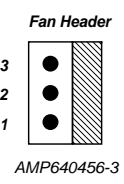
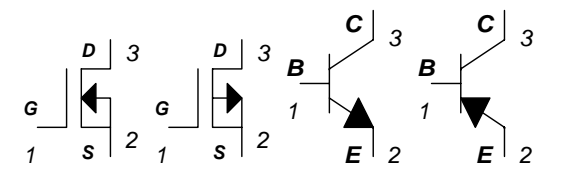
PCI3-INT:
INTA: INTE
INTB: INTF
INTC: INTG
INTD: INTH

PCI-W
IDSEL=AD19
REQ=PREQ2#
GNT=PGNT2#

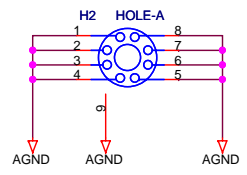
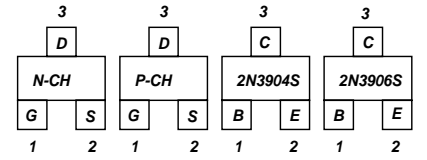


Top View

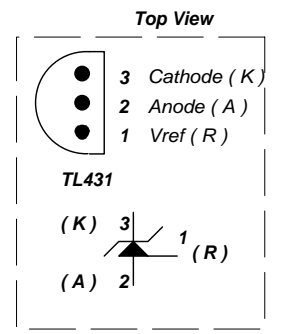
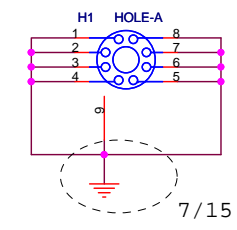
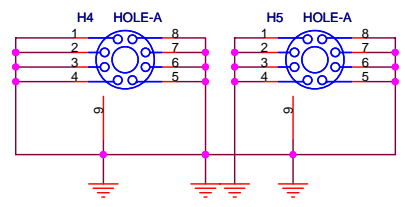
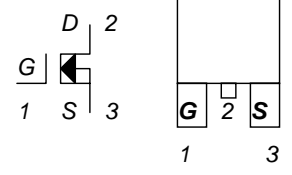
SOT-23



AMP640456-3



TO-263 / TO-252



TL431

ECS Elitegroup Computer Systems

Title: **PCI Slot 3**

Size B Document Number: **865G-M8** Rev 1.0

Date: Wednesday, February 22, 2006 Sheet 31 of 32

