

GA-M55plus-S3G

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	PROCESSOR HT INTERFACE
05	PROCESSOR DDR2 INTERFACE
06	PROCESSOR DDR2 INTERFACE
07	PROCESSOR CONTROL & DEBUG
08	DIMM 1,2
09	DIMM 3,4
10	DIMM TERMINATION
11	C51 CPU
12	C51 HT
13	C51 PCI-EXPRESS
14	C51 RGB
15	C51 PWR/GND
16	MCP51 HT BUS
17	MCP51 PCI BUS/CLOCK/RESET
18	MCP51 SATA/IDE
19	MCP51 AZILIA/USB
20	MCP51 RGMII
21	MCP51 PWR/GND
22	PCI EXPRESS X16 SLOT
23	F_USB1/F_USB2 CONN /PCI_E x1 SLOT
24	PCI 1,2,3 SLOT
25	PCI 4 SLOT

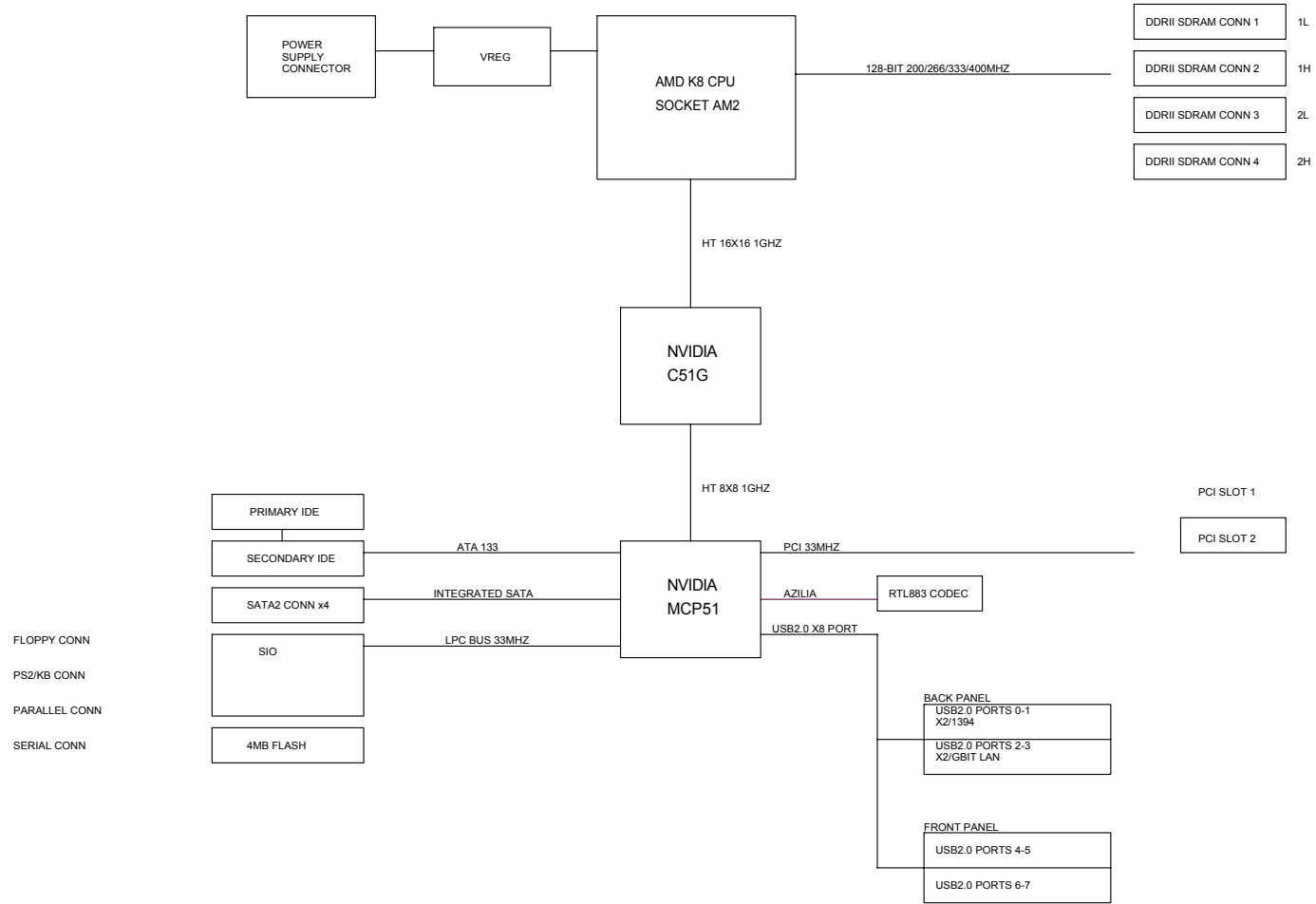
SHEET TITLE

26	CODEC ALC883
27	AUDIO JACK, L_OUT, F_AUDIO
28	H/W MONITOR & FAN CONTROL
29	IDE1/IDE2/FDD
30	PWM ISL6566
31	COMA, LPT PORT
32	DDR18V,DDRVTT,5VDAUL,VCC12, POWER
33	POWER SEQUENCE
34	BIOS ATX POWER CONNCTOR
35	FRONT PANEL
36	ITE 8716GB/CX
37	Marvell 88E1116
38	TI TSB43AB23 1394

Revision:2.1

GIGABYTE			
Title BLOCK DIAGRAM			
Size	Document Number	Rev	
Custom	GA-M55plus-S3G	2.1	
Date:	Monday, September 04, 2006	Sheet	1 of 38

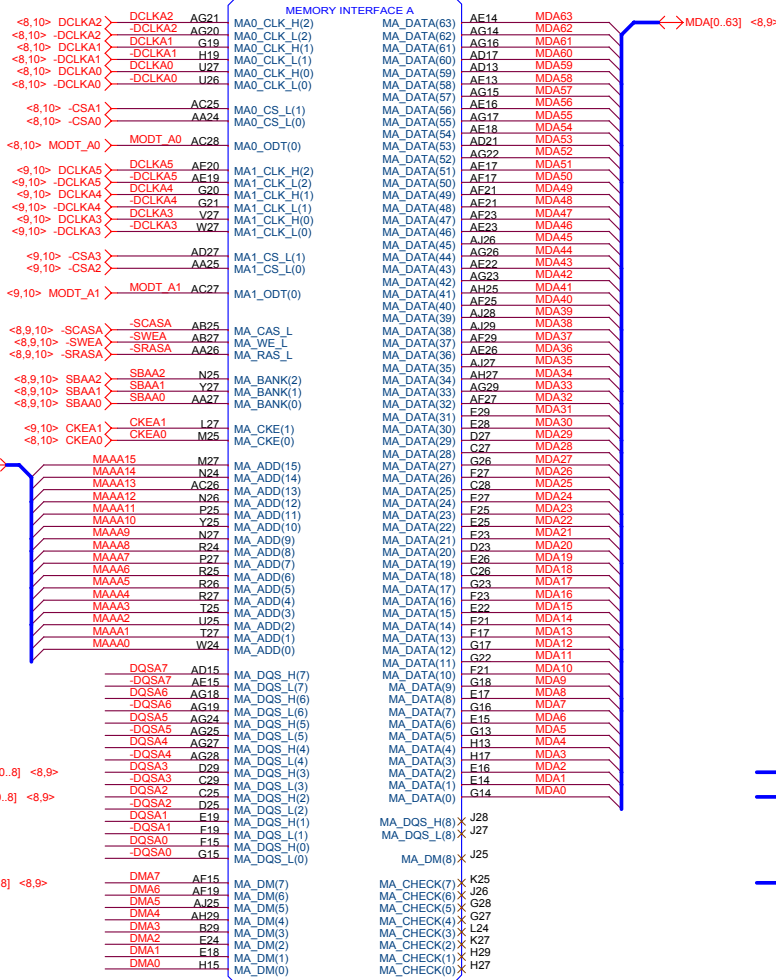
BLOCK DIAGRAM



GIGABYTE			
Title BLOCK DIAGRAM			
Size	Document Number	Rev	
Custom	GA-M55plus-S3G	2.1	
Date:	Monday, September 04, 2006	Sheet	3 of 38

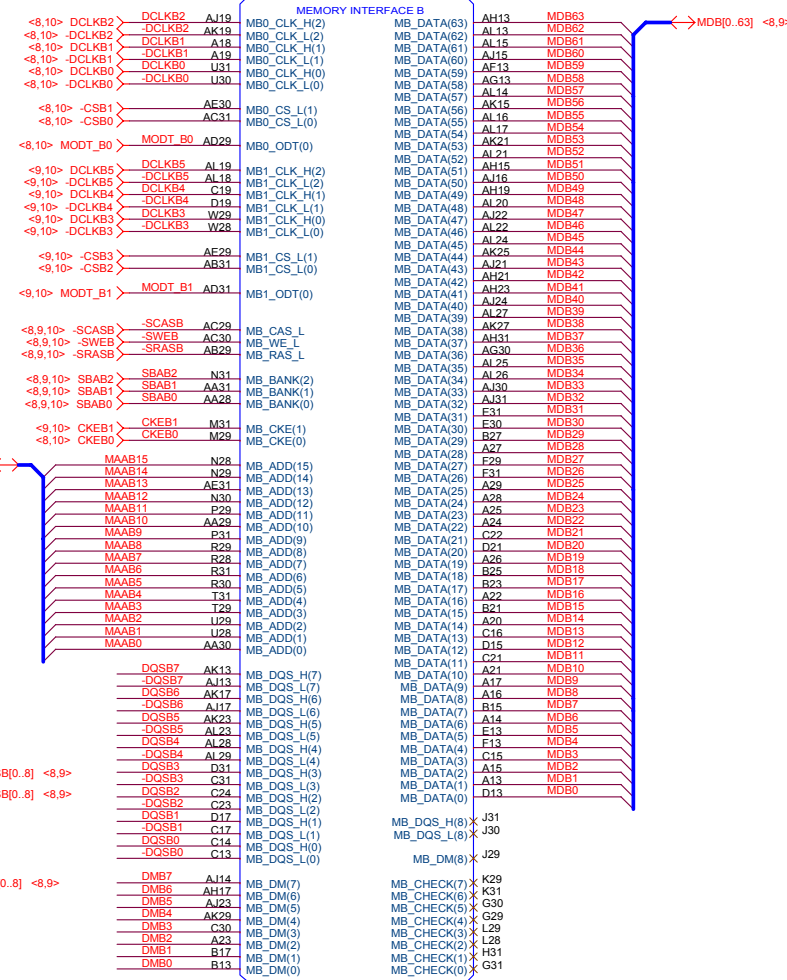
M2CPUB

MEMORY INTERFACE A



M2CPUC

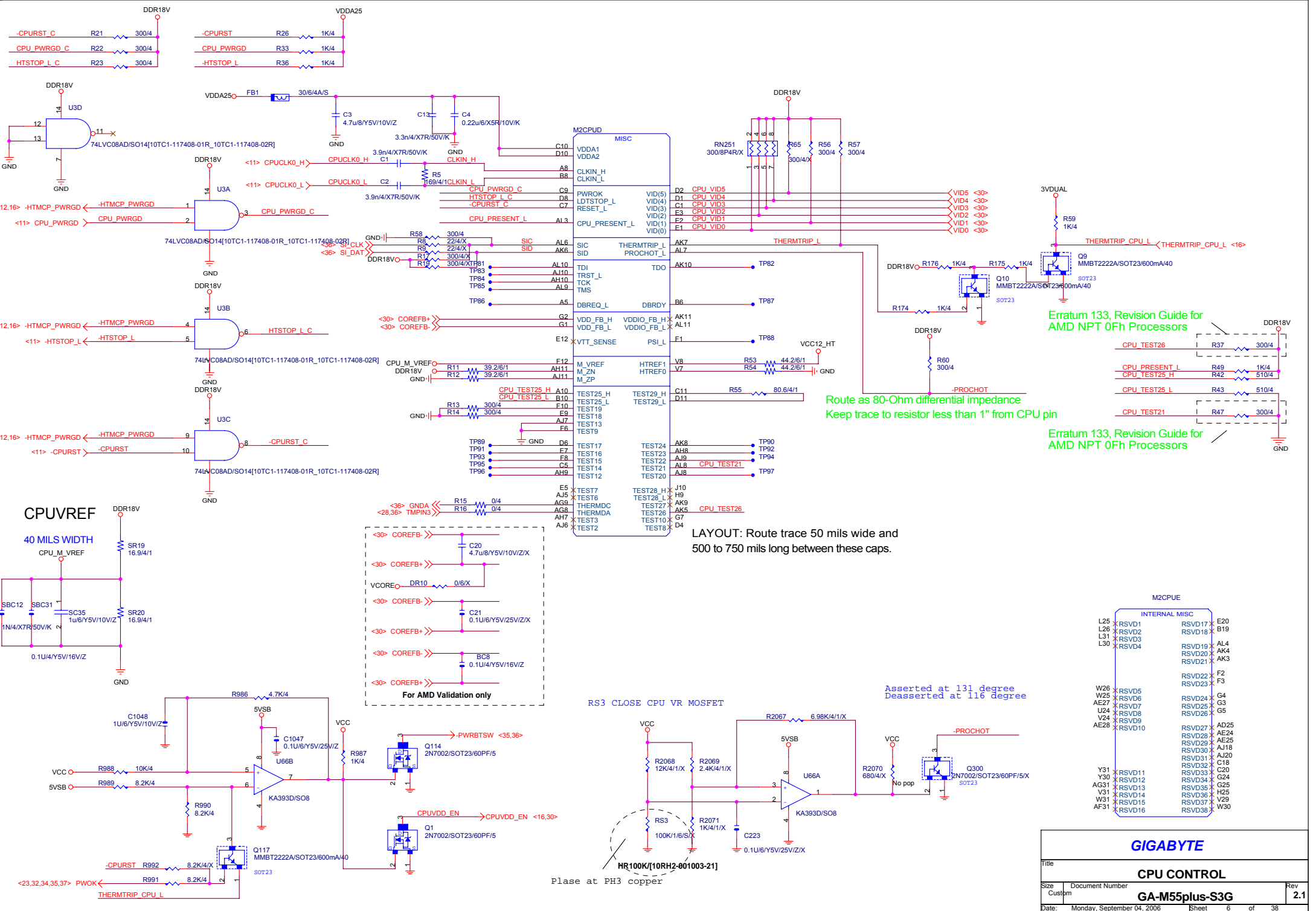
MEMORY INTERFACE B



GIGABYTE

CPU DDRII MEMORY

Title		
CPU DDRII MEMORY		
Size	Document Number	Rev
Custpm	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 5 of 38



Erratum 133, Revision Guide for AMD NPT 0Fh Processors

Erratum 133, Revision Guide for AMD NPT 0Fh Processors

Route as 80-Ohm differential impedance
Keep trace to resistor less than 1" from CPU pin

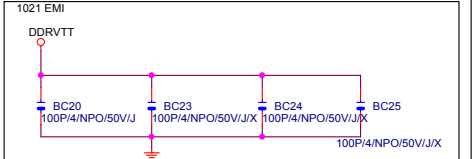
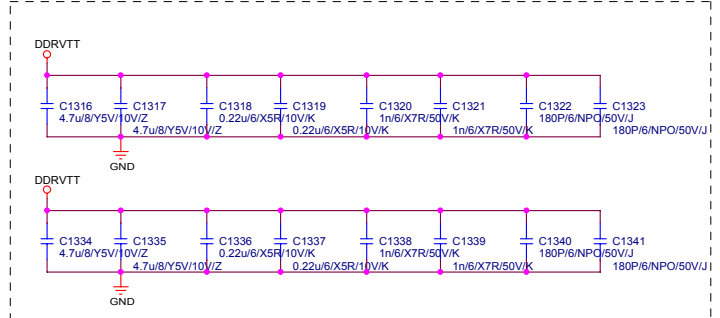
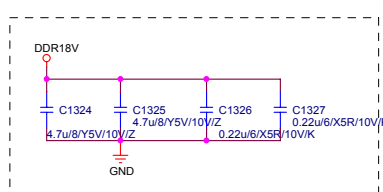
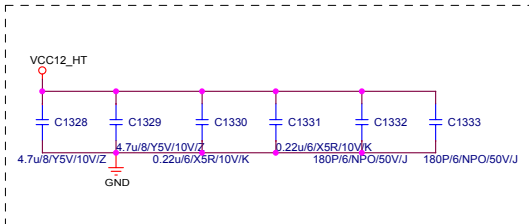
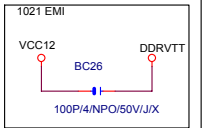
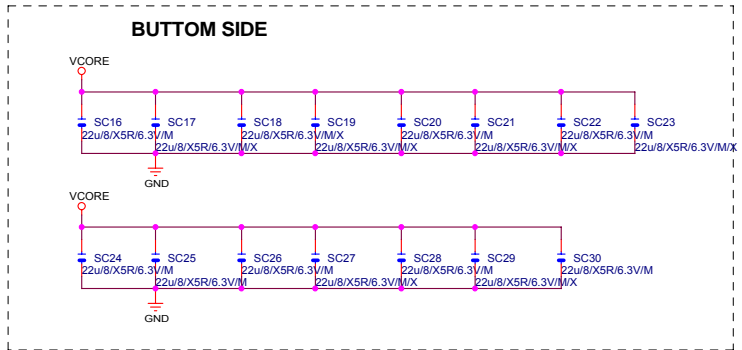
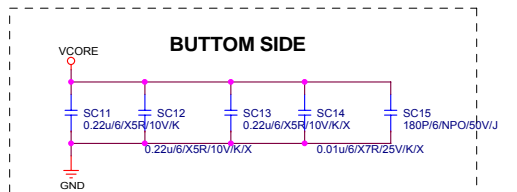
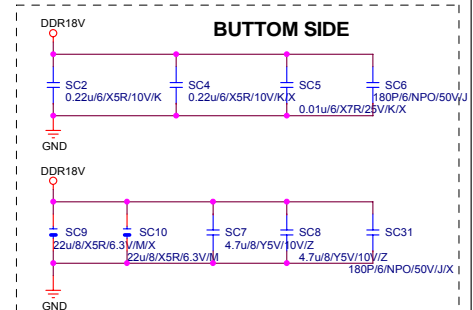
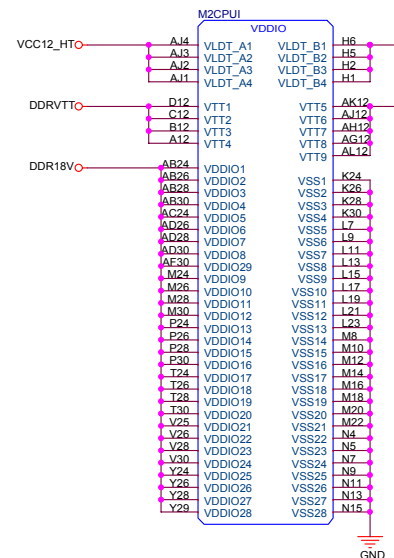
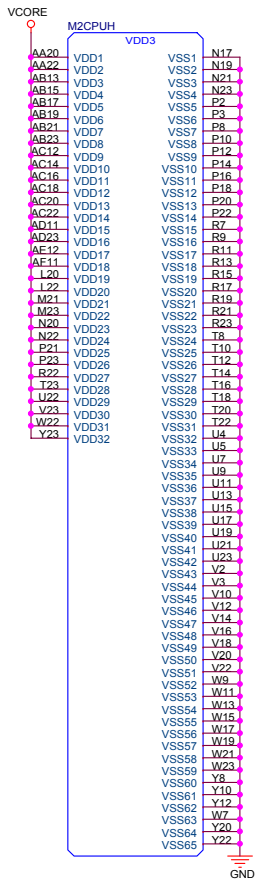
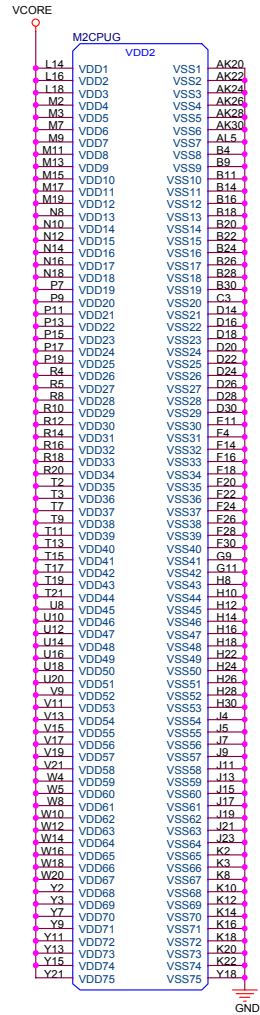
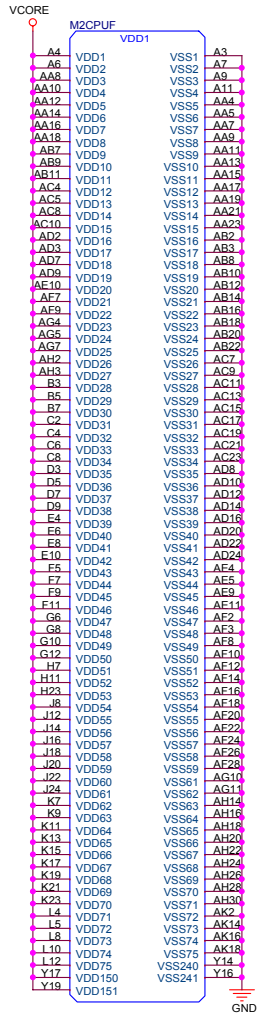
LAYOUT: Route trace 50 mils wide and 500 to 750 mils long between these caps.

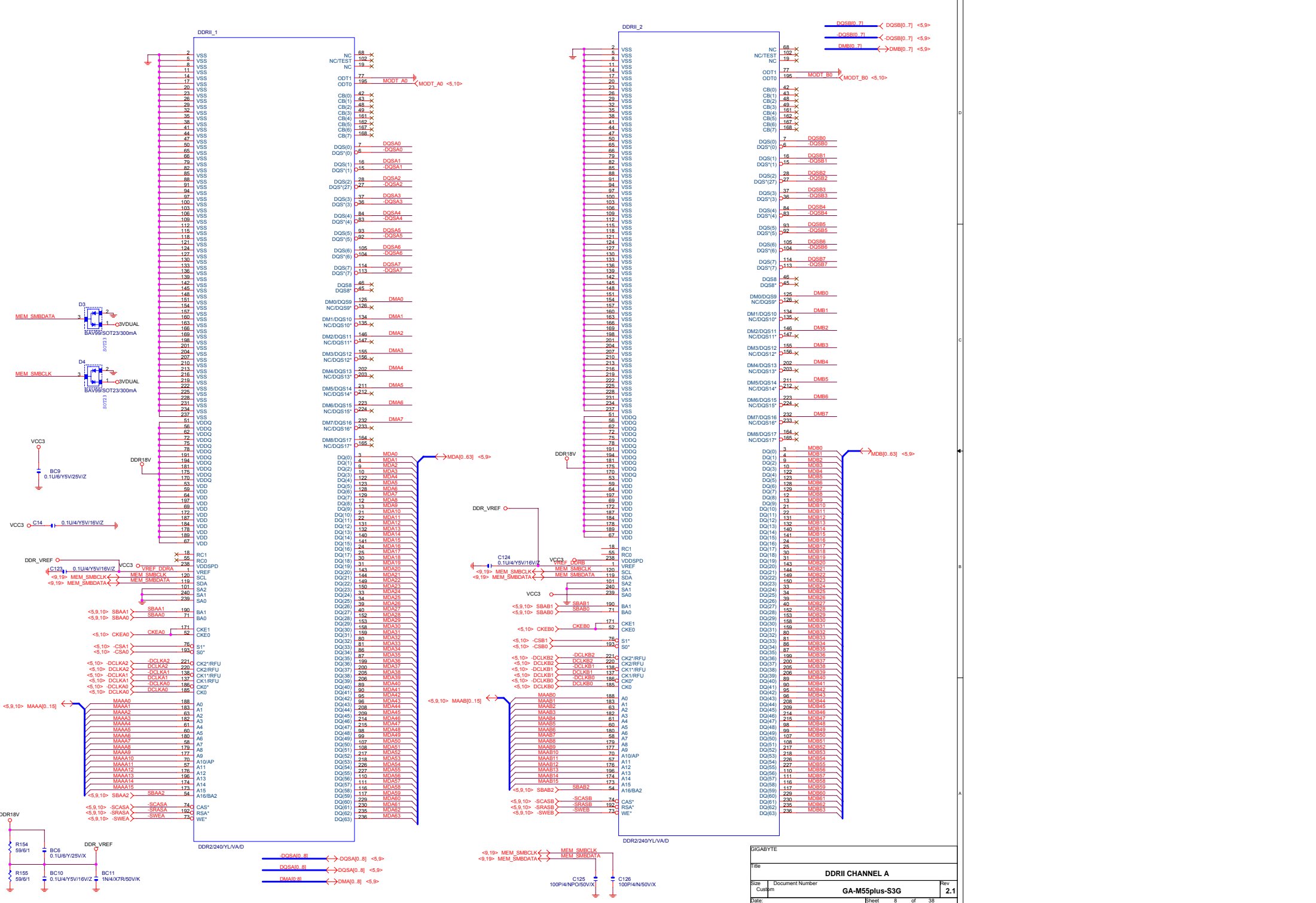
Asserted at 131 degree
Deasserted at 116 degree

HR100K(10RH2-001003-21)
Please at PH3 copper

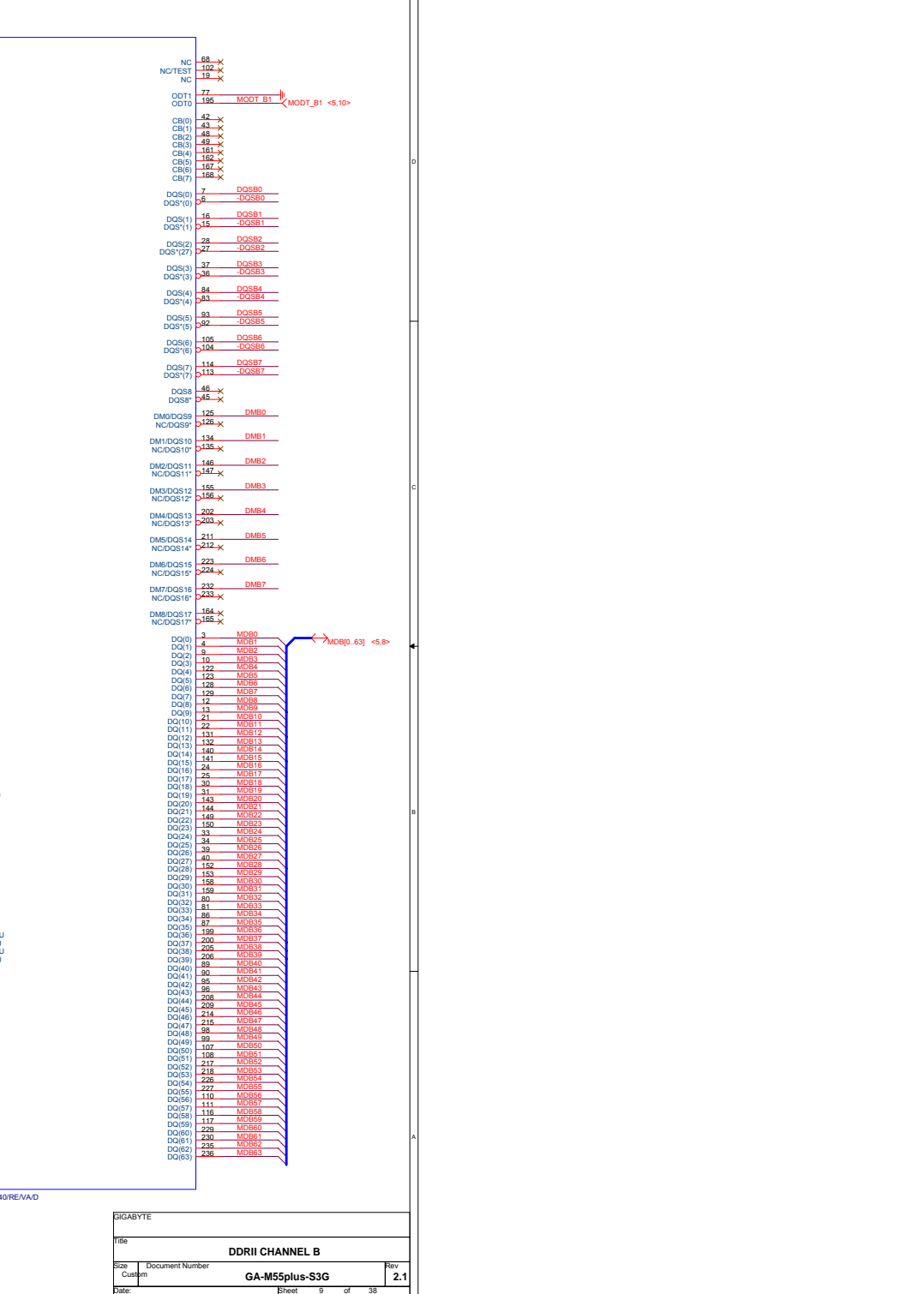
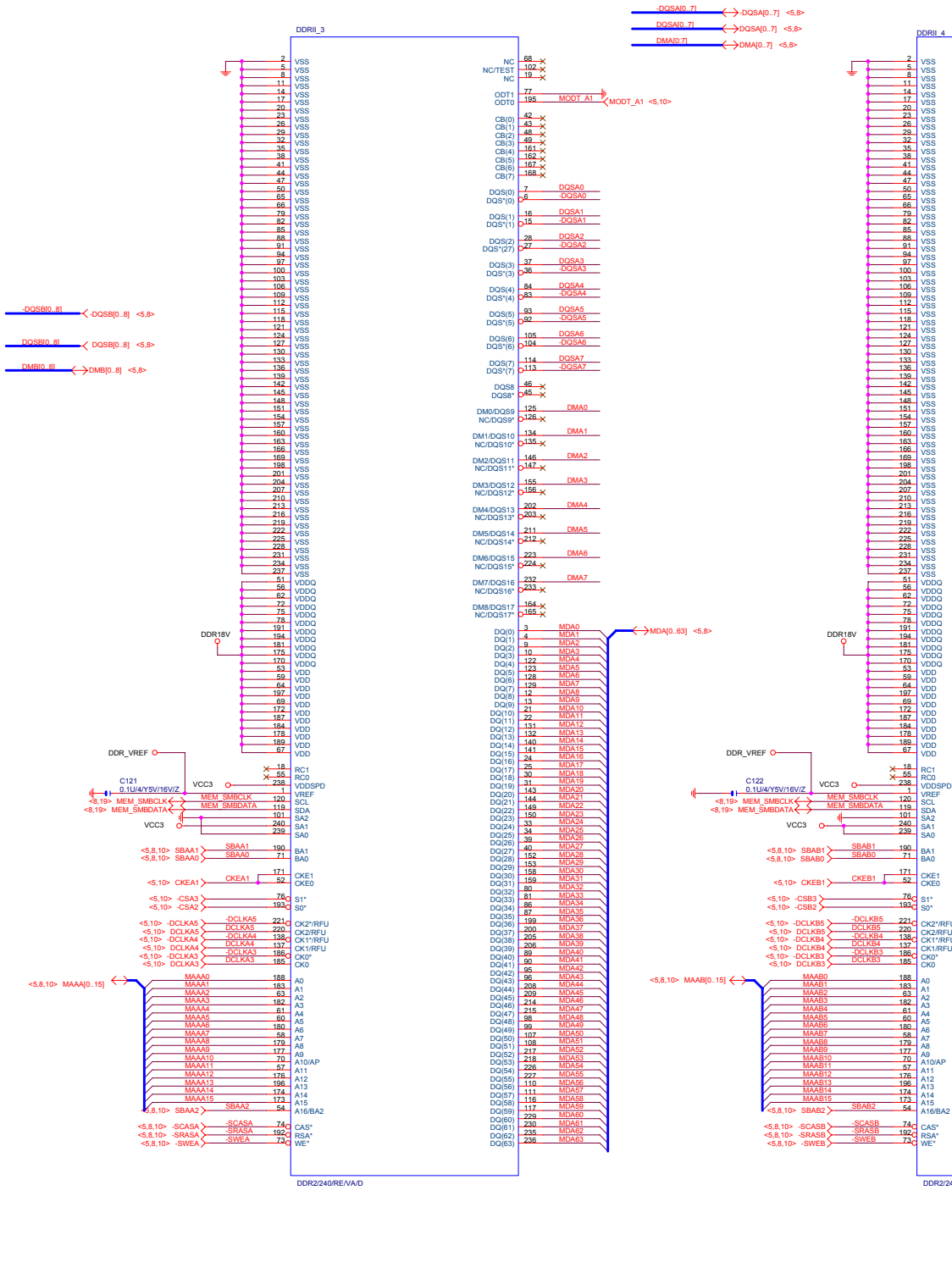
M2CPUE		
INTERNAL MISC		
L25	RSVD1	RSVD17
L26	RSVD2	RSVD18
L31	RSVD3	AL4
L30	RSVD4	RSVD20
		RSVD21
		RSVD22
		RSVD23
		F2
		F3
		RSVD24
		RSVD25
		RSVD26
		G5
		RSVD27
		AD25
		RSVD28
		AE25
		RSVD29
		AJ18
		RSVD30
		AJ20
		RSVD31
		C18
		RSVD32
		C20
		RSVD33
		G24
		AG31
		RSVD11
		RSVD12
		RSVD13
		RSVD35
		G25
		V24
		RSVD14
		RSVD15
		RSVD37
		V29
		AF31
		RSVD16
		RSVD38
		W30

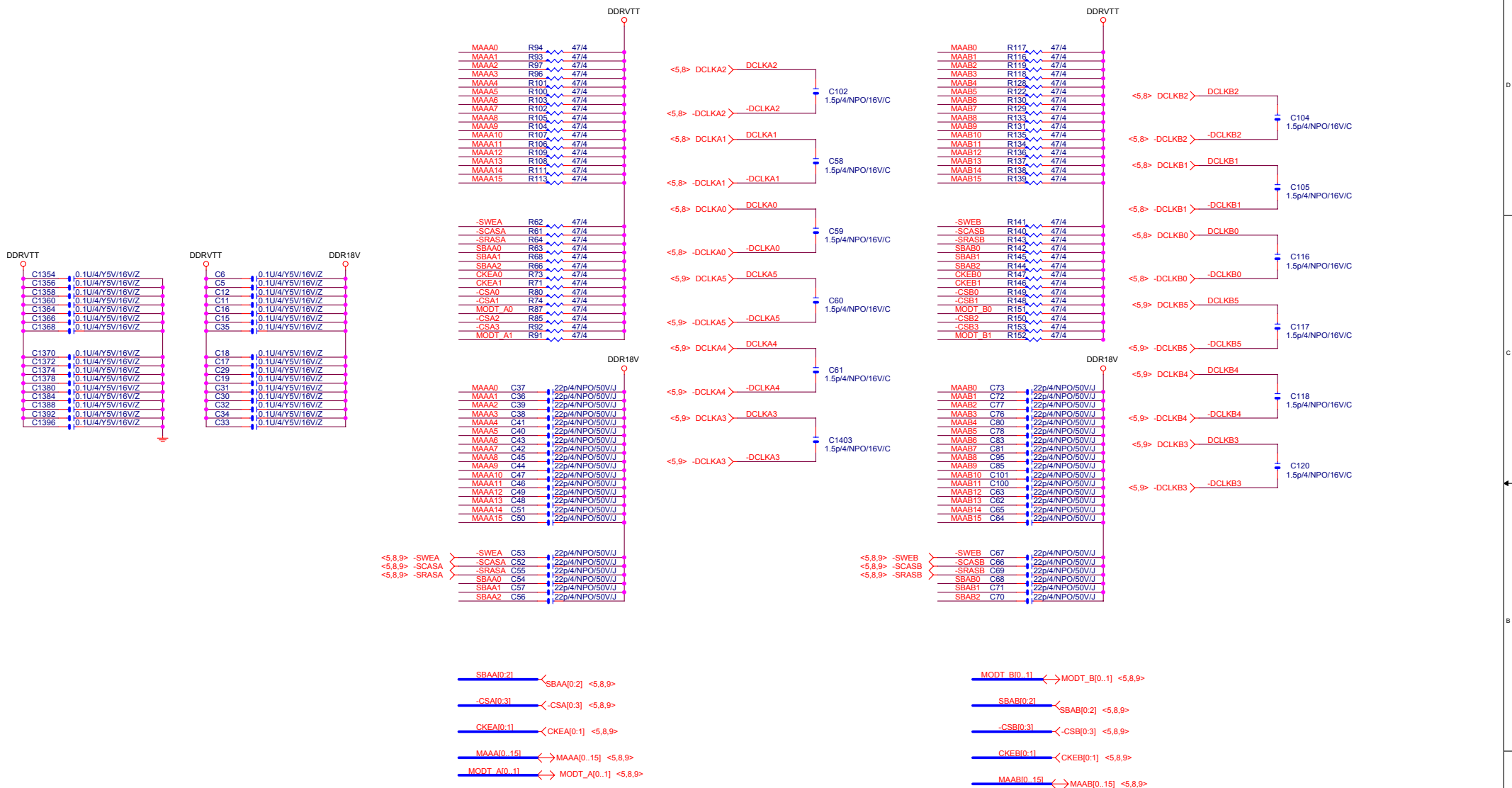
VLDT_RUN_B is connected to the VLDT_RUN power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.



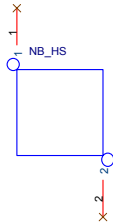


Title		DDR2 CHANNEL A	
Size	Document Number	Rev	
Custom	GA-M55plus-S3G	2.1	
Date:	Sheet	8	of 38



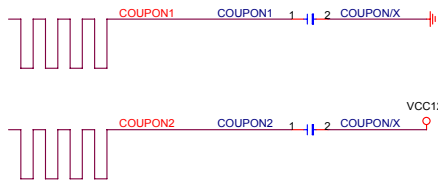
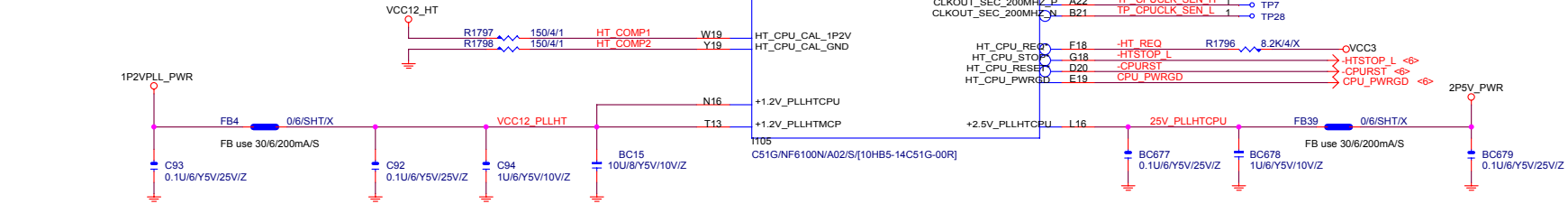


N.B HEATSINK



BGASINK_NB(12SP2-04E004-A1R_12SP2-04E004-A2R_12SP2-04E004-A3R_12SP2-04E004-A4R)

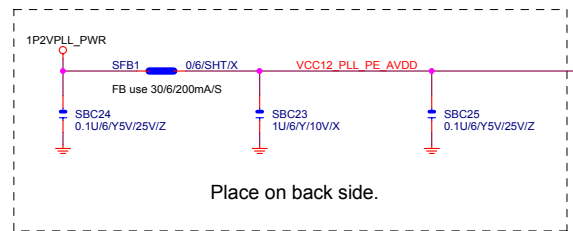
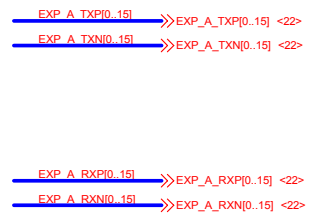
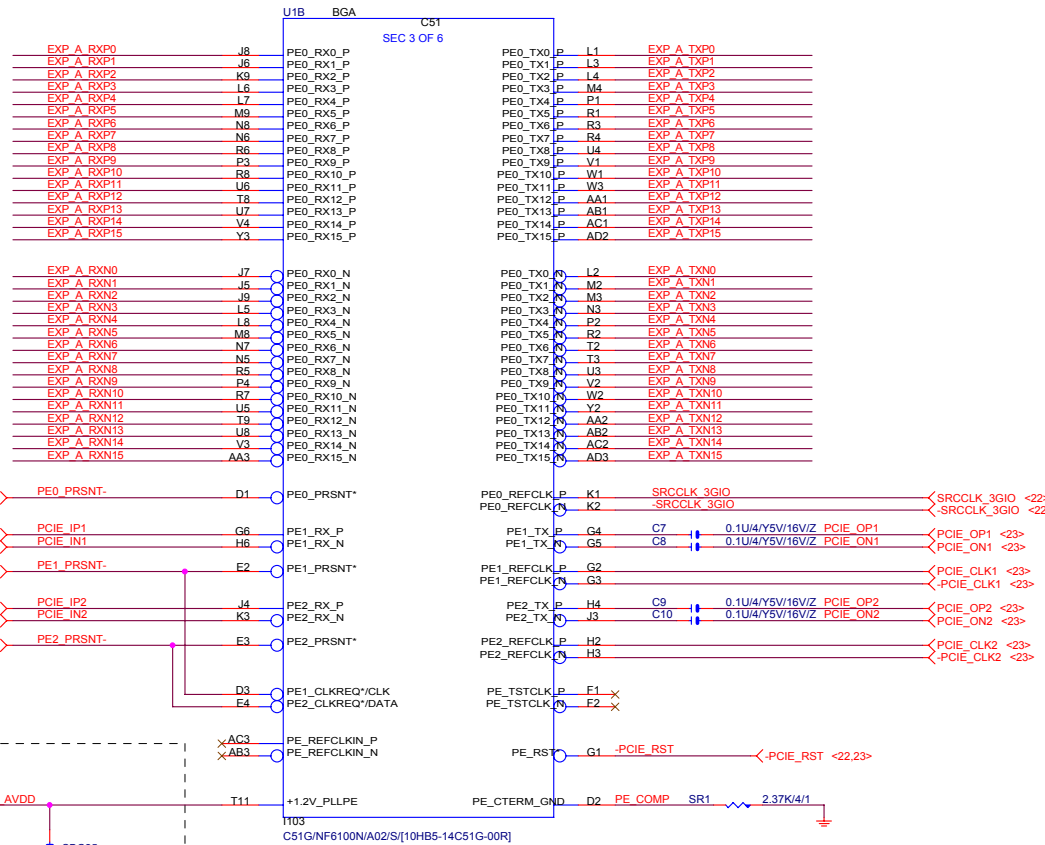
BGASINK_NB(12SP2-04F004-11_12SP2-04F004-12_12SP2-04F004-13)

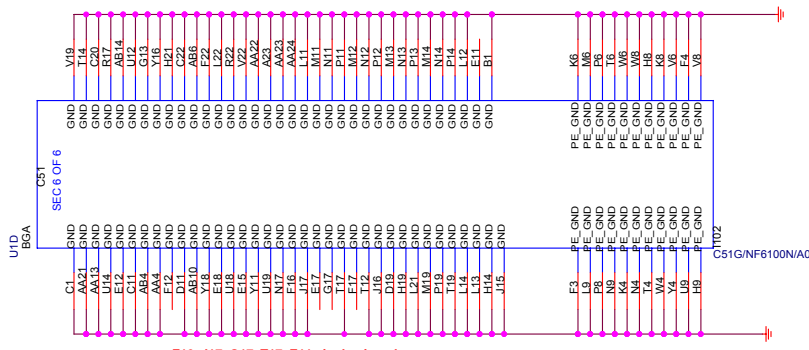
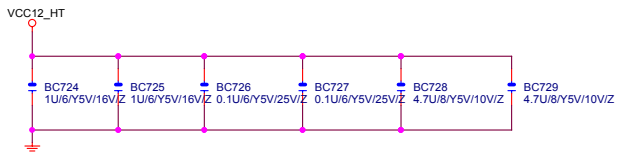
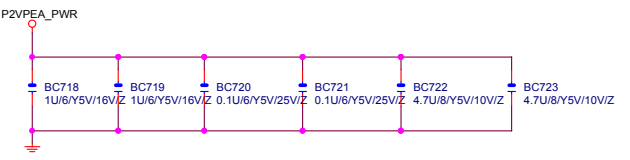
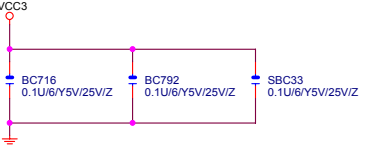
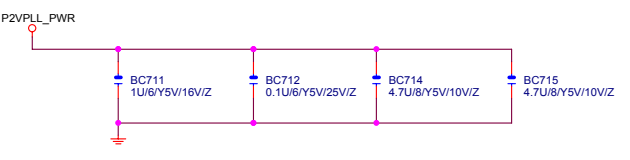
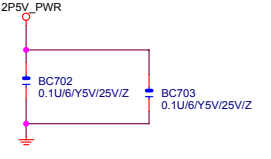
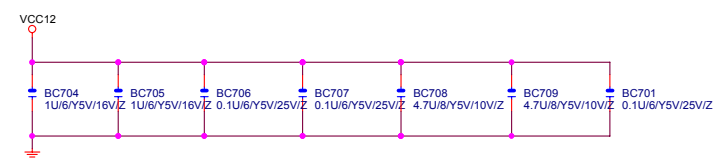
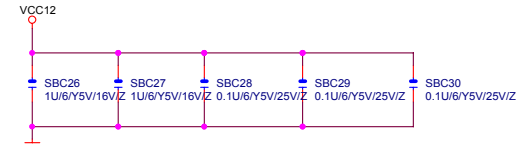
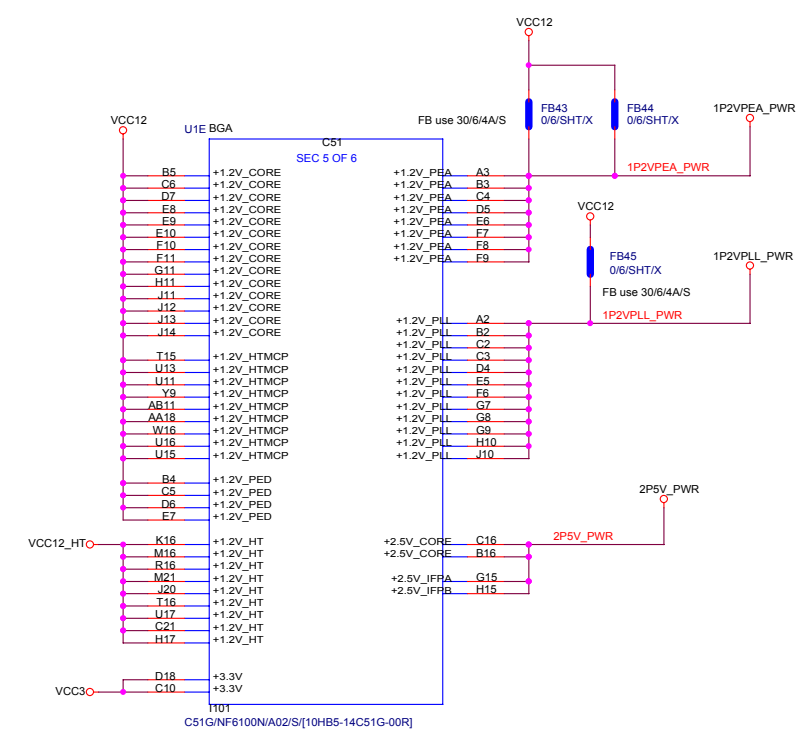


GIGABYTE			
C51-HOST			
Size	Document Number	Rev	
Custom	GA-M55plus-S3G	2.1	
Date:	Monday, September 04, 2006	Sheet	11 of 38



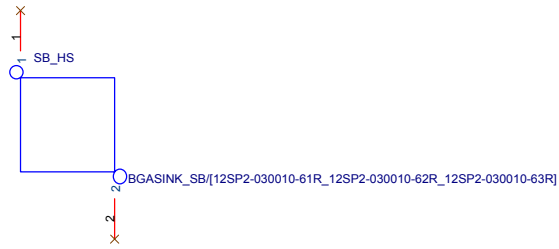
GIGABYTE		
Title C51-HT BUS		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 12 of 38





F12, J17, G17, T17, E11 single pin only.

GIGABYTE		
Title		
C51-PWR/GND		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 15 of 38

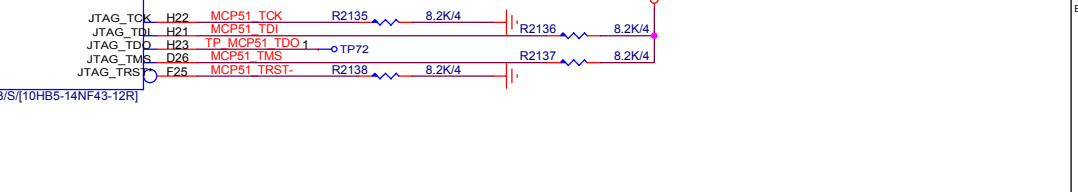
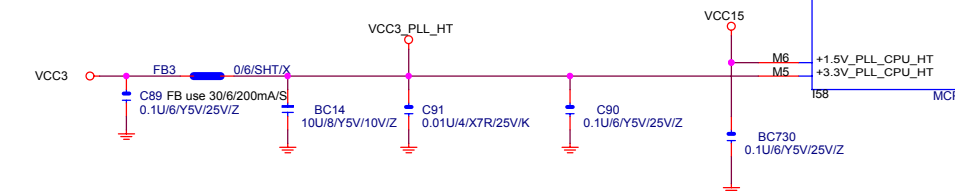
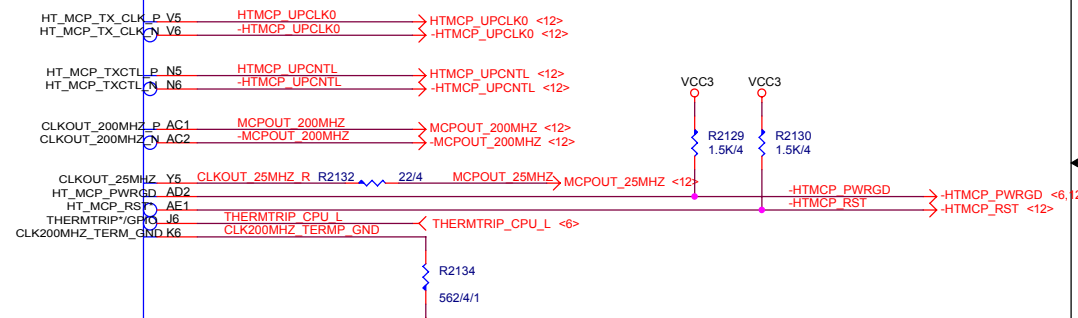
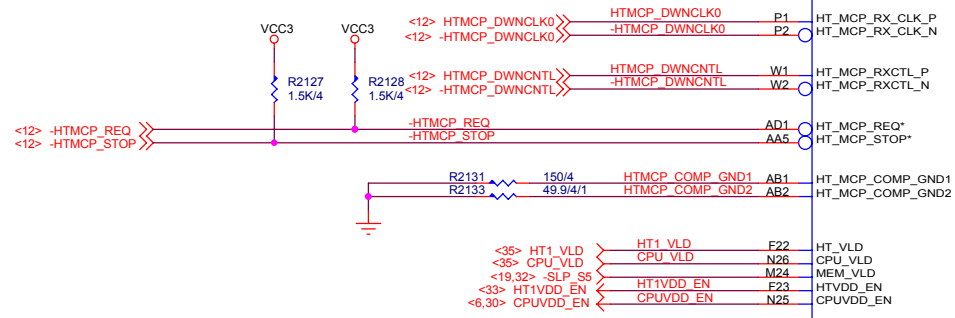
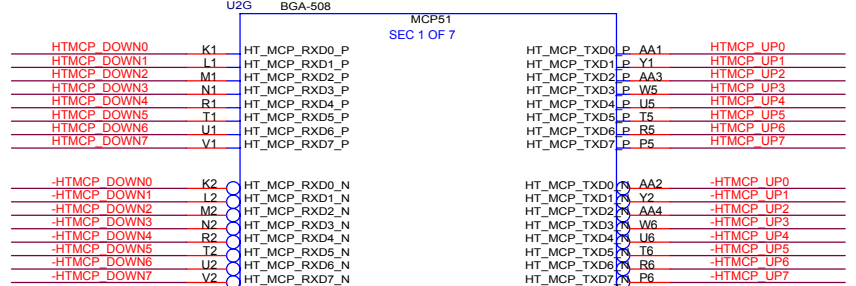


HTMCP_DOWN0..7I -> HTMCP_DOWN[0..7] <12>

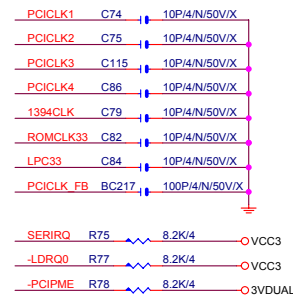
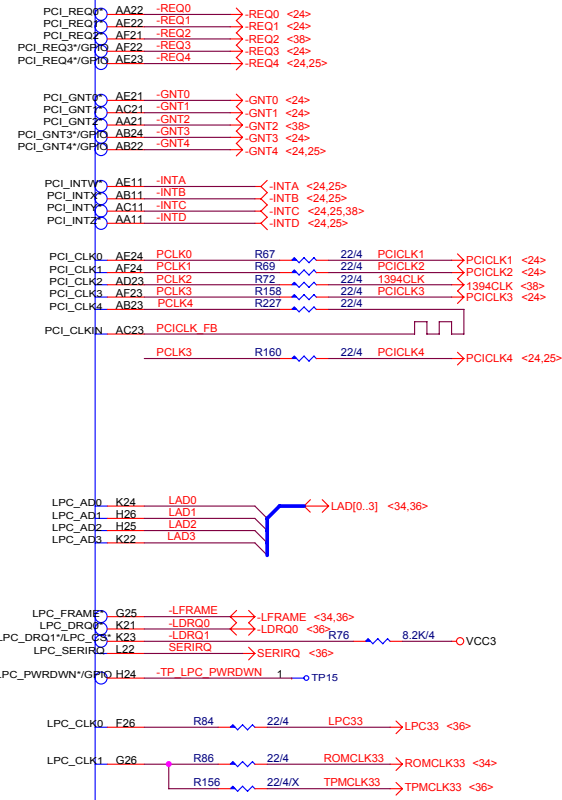
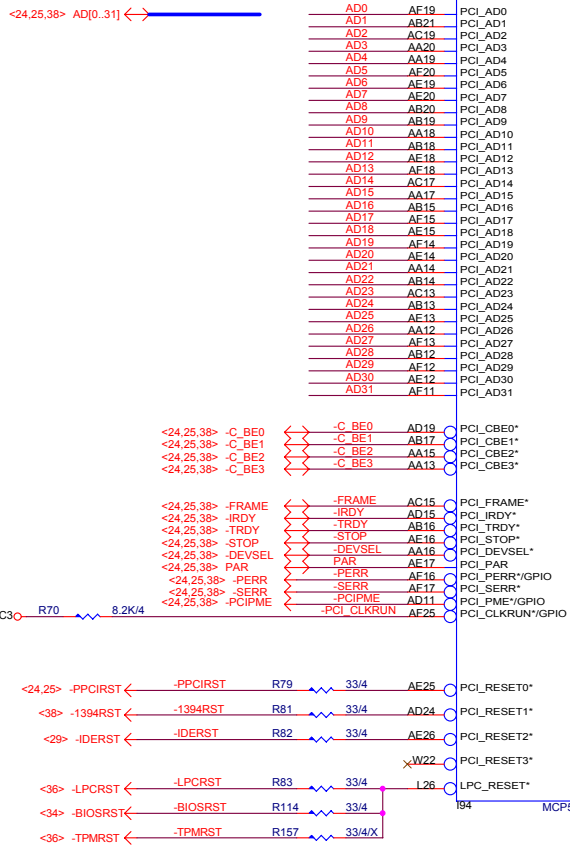
-HTMCP_DOWN0..7I -> -HTMCP_DOWN[0..7] <12>

HTMCP_UP0..7I -> HTMCP_UP[0..7] <12>

-HTMCP_UP0..7I -> -HTMCP_UP[0..7] <12>



GIGABYTE		
MCP51-HT BUS		
Title		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 16 of 38



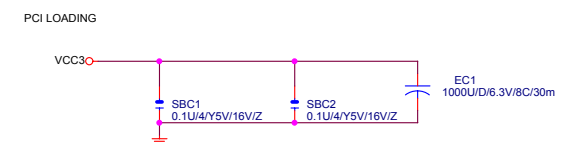
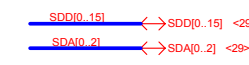
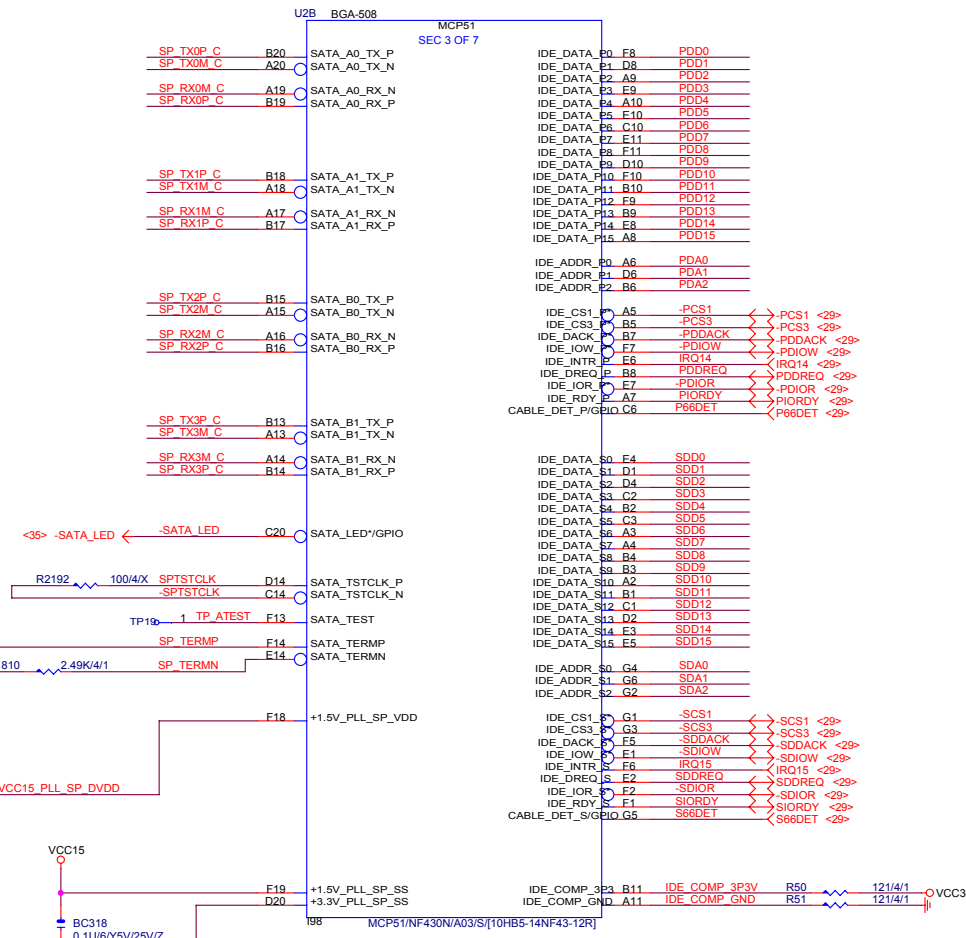
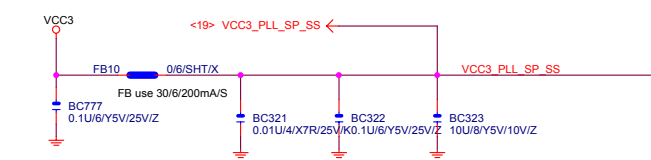
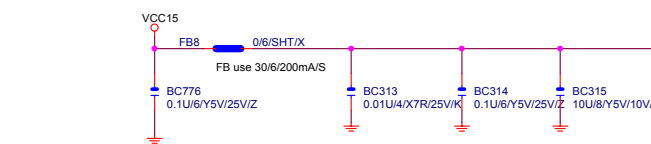
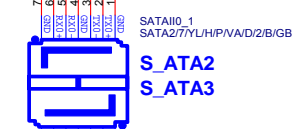
GIGABYTE		
Title MCP51-PCI BUS		
Size Custom	Document Number GA-M55plus-S3G	Rev 2.1
Date: Monday, September 04, 2006	Sheet 17	of 38

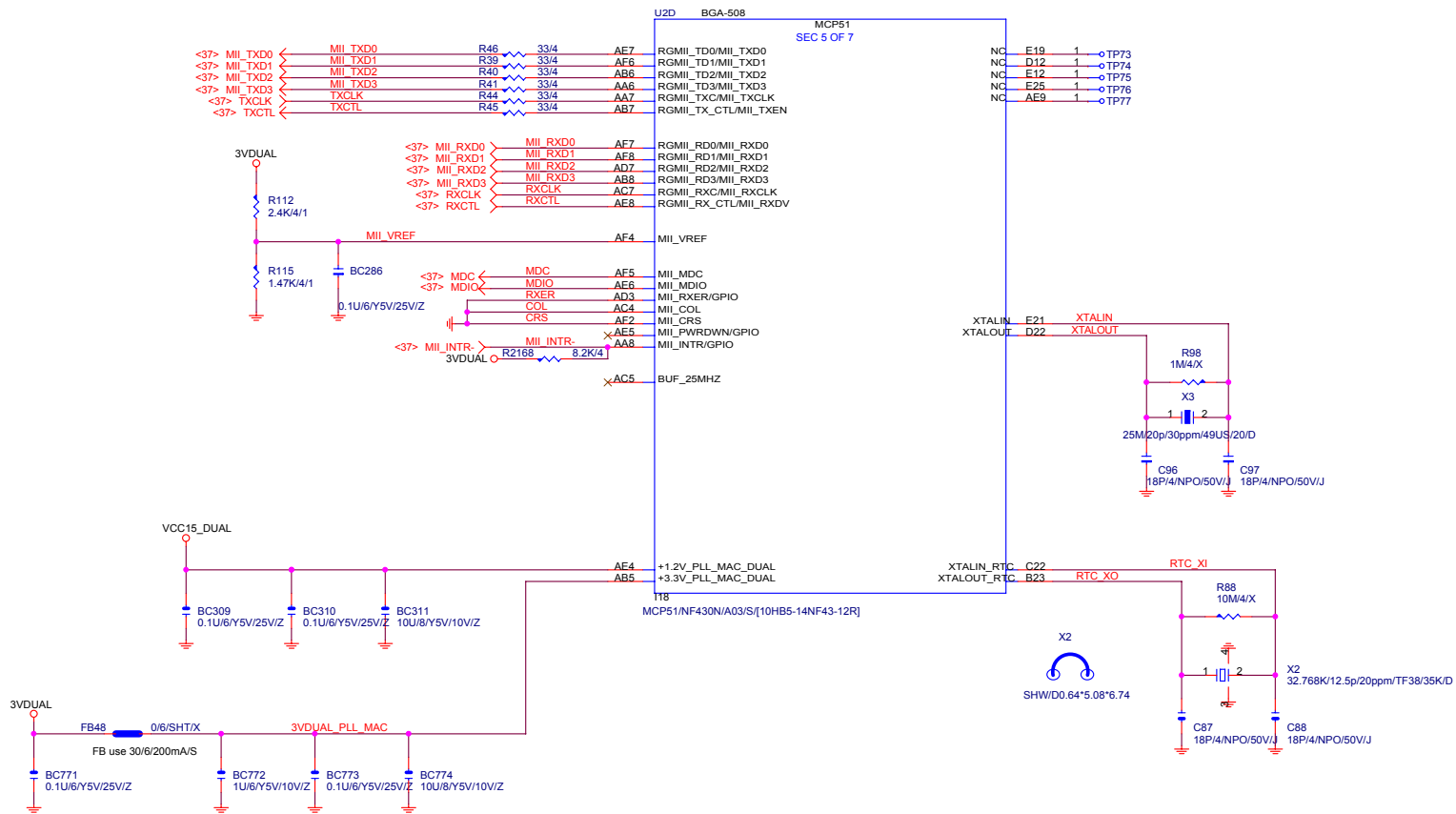
SP_TX2P_C	C1270	0.01U/4/X7R/16V/K
SP_TX2M_C	C1271	0.01U/4/X7R/16V/K
SP_RX2M_C	C1272	0.01U/4/X7R/16V/K
SP_RX2P_C	C1273	0.01U/4/X7R/16V/K

SP_TX3P_C	C1274	0.01U/4/X7R/16V/K
SP_TX3M_C	C1275	0.01U/4/X7R/16V/K
SP_RX3M_C	C1276	0.01U/4/X7R/16V/K
SP_RX3P_C	C1277	0.01U/4/X7R/16V/K

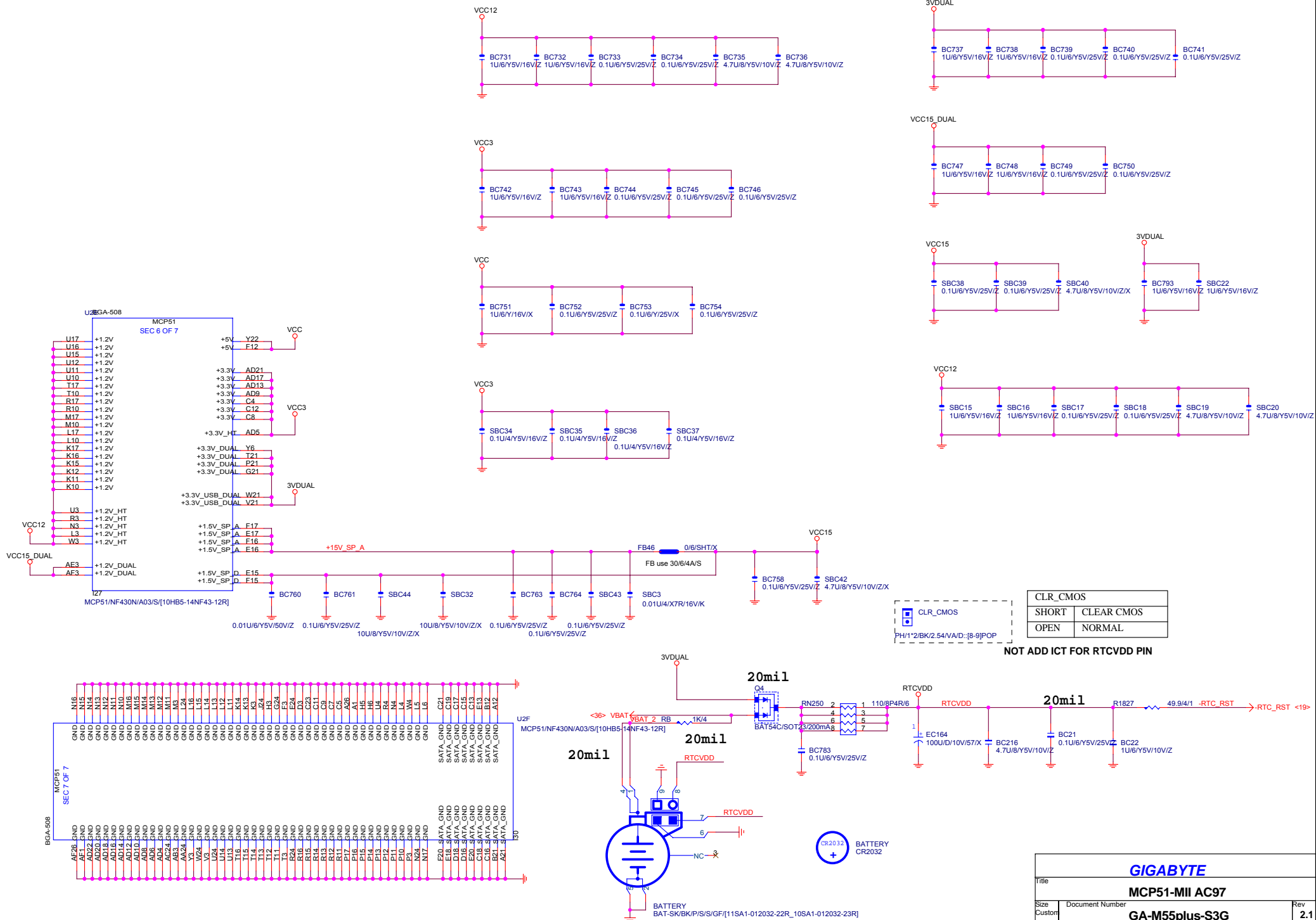
SP_TX0P_C	C1262	0.01U/4/X7R/16V/K
SP_TX0M_C	C1263	0.01U/4/X7R/16V/K
SP_RX0M_C	C1264	0.01U/4/X7R/16V/K
SP_RX0P_C	C1265	0.01U/4/X7R/16V/K

SP_TX1P_C	C1266	0.01U/4/X7R/16V/K
SP_TX1M_C	C1267	0.01U/4/X7R/16V/K
SP_RX1M_C	C1268	0.01U/4/X7R/16V/K
SP_RX1P_C	C1269	0.01U/4/X7R/16V/K





GIGABYTE		
MCP51-RGMII		
Title		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 20 of 38

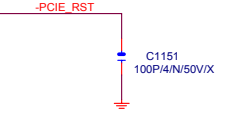


CLR_CMOS	
SHORT	CLEAR_CMOS
OPEN	NORMAL

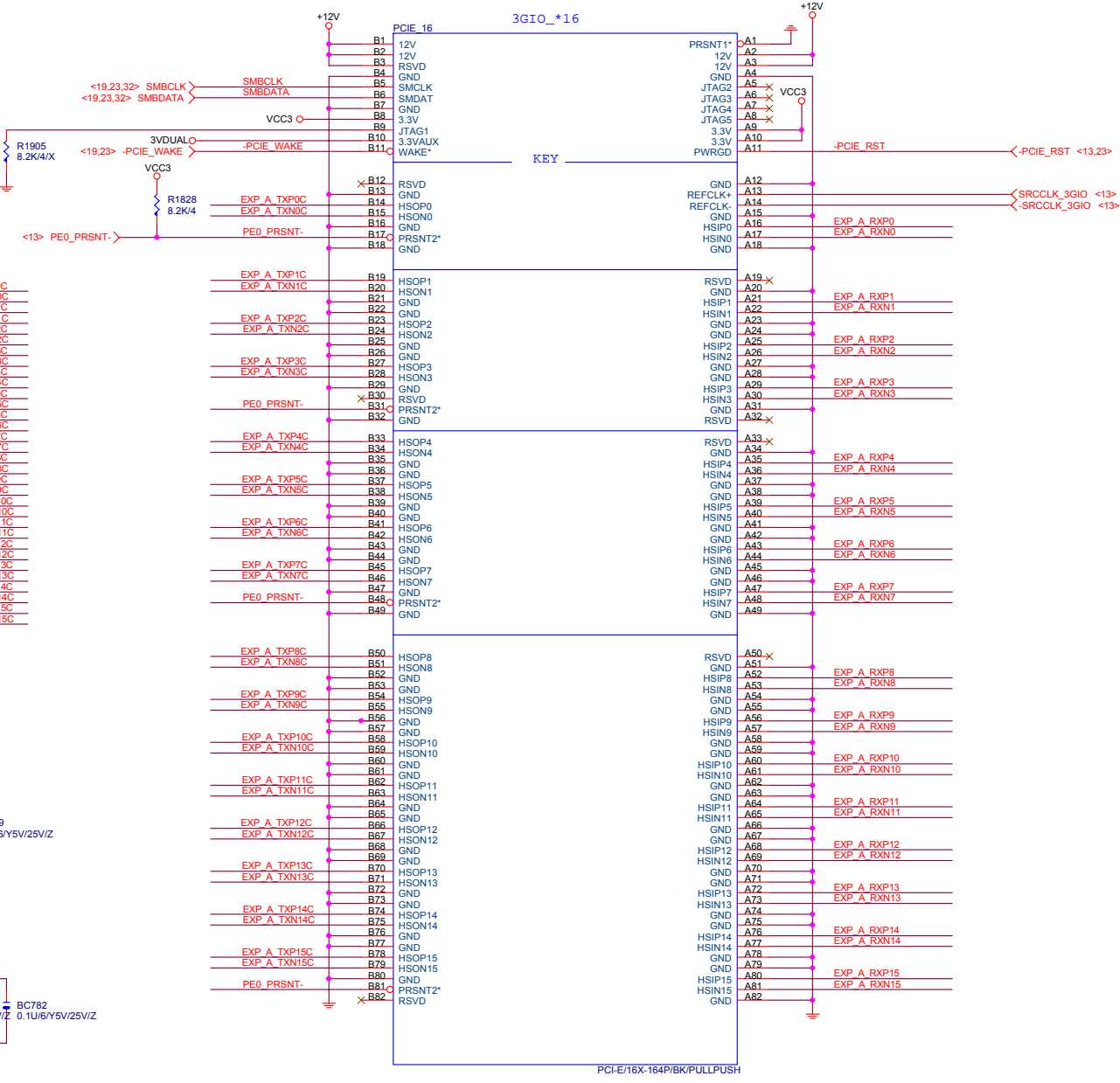
NOT ADD ICT FOR RTCVDD PIN

GIGABYTE		
MCP51-MII AC97		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 21 of 38

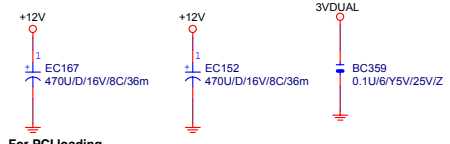
EXP_A_RXP0..15] >> EXP_A_RXP[0..15] <-13>
 EXP_A_RXN0..15] >> EXP_A_RXN[0..15] <-13>



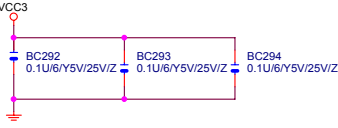
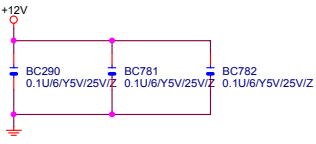
EXP_A_TXP0..15] >> EXP_A_TXP[0..15] <-13>
 EXP_A_TXN0..15] >> EXP_A_TXN[0..15] <-13>



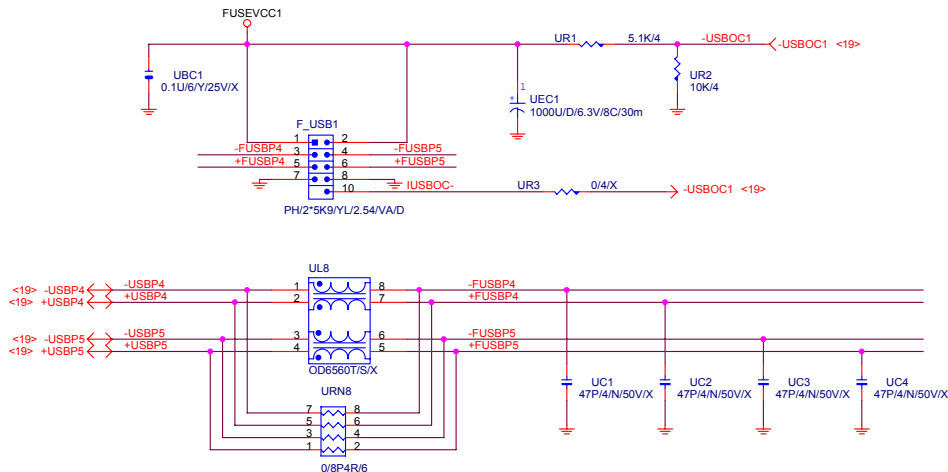
EXP_A_TXP0	C127	0.1U/4/Y5V/16V/Z	EXP_A_TXP0C
EXP_A_TXN0	C128	0.1U/4/Y5V/16V/Z	EXP_A_TXN0C
EXP_A_TXP1	C129	0.1U/4/Y5V/16V/Z	EXP_A_TXP1C
EXP_A_TXN1	C130	0.1U/4/Y5V/16V/Z	EXP_A_TXN1C
EXP_A_TXP2	C131	0.1U/4/Y5V/16V/Z	EXP_A_TXP2C
EXP_A_TXN2	C132	0.1U/4/Y5V/16V/Z	EXP_A_TXN2C
EXP_A_TXP3	C133	0.1U/4/Y5V/16V/Z	EXP_A_TXP3C
EXP_A_TXN3	C134	0.1U/4/Y5V/16V/Z	EXP_A_TXN3C
EXP_A_TXP4	C135	0.1U/4/Y5V/16V/Z	EXP_A_TXP4C
EXP_A_TXN4	C136	0.1U/4/Y5V/16V/Z	EXP_A_TXN4C
EXP_A_TXP5	C137	0.1U/4/Y5V/16V/Z	EXP_A_TXP5C
EXP_A_TXN5	C138	0.1U/4/Y5V/16V/Z	EXP_A_TXN5C
EXP_A_TXP6	C139	0.1U/4/Y5V/16V/Z	EXP_A_TXP6C
EXP_A_TXN6	C140	0.1U/4/Y5V/16V/Z	EXP_A_TXN6C
EXP_A_TXP7	C141	0.1U/4/Y5V/16V/Z	EXP_A_TXP7C
EXP_A_TXN7	C142	0.1U/4/Y5V/16V/Z	EXP_A_TXN7C
EXP_A_TXP8	C143	0.1U/4/Y5V/16V/Z	EXP_A_TXP8C
EXP_A_TXN8	C144	0.1U/4/Y5V/16V/Z	EXP_A_TXN8C
EXP_A_TXP9	C145	0.1U/4/Y5V/16V/Z	EXP_A_TXP9C
EXP_A_TXN9	C146	0.1U/4/Y5V/16V/Z	EXP_A_TXN9C
EXP_A_TXP10	C147	0.1U/4/Y5V/16V/Z	EXP_A_TXP10C
EXP_A_TXN10	C148	0.1U/4/Y5V/16V/Z	EXP_A_TXN10C
EXP_A_TXP11	C149	0.1U/4/Y5V/16V/Z	EXP_A_TXP11C
EXP_A_TXN11	C150	0.1U/4/Y5V/16V/Z	EXP_A_TXN11C
EXP_A_TXP12	C151	0.1U/4/Y5V/16V/Z	EXP_A_TXP12C
EXP_A_TXN12	C153	0.1U/4/Y5V/16V/Z	EXP_A_TXN12C
EXP_A_TXP13	C155	0.1U/4/Y5V/16V/Z	EXP_A_TXP13C
EXP_A_TXN13	C156	0.1U/4/Y5V/16V/Z	EXP_A_TXN13C
EXP_A_TXP14	C157	0.1U/4/Y5V/16V/Z	EXP_A_TXP14C
EXP_A_TXN14	C158	0.1U/4/Y5V/16V/Z	EXP_A_TXN14C
EXP_A_TXP15	C159	0.1U/4/Y5V/16V/Z	EXP_A_TXP15C
EXP_A_TXN15	C160	0.1U/4/Y5V/16V/Z	EXP_A_TXN15C



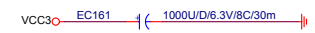
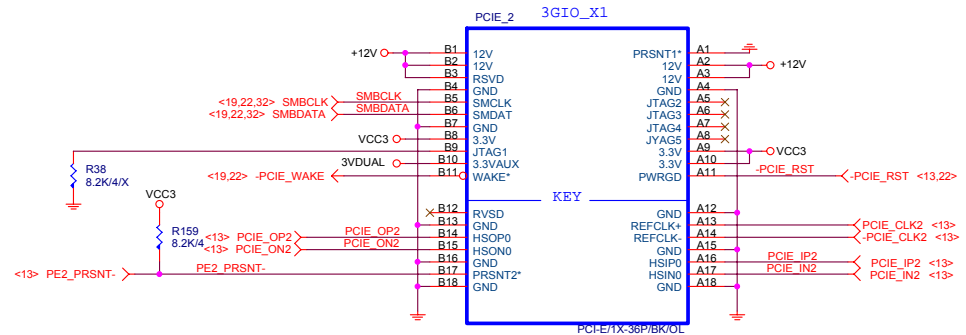
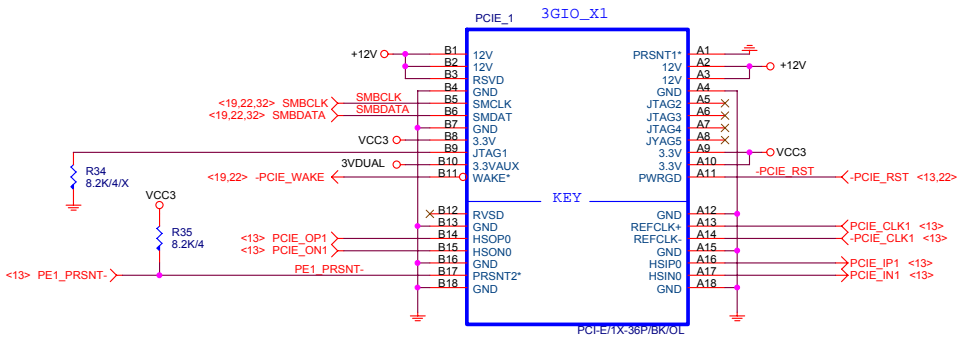
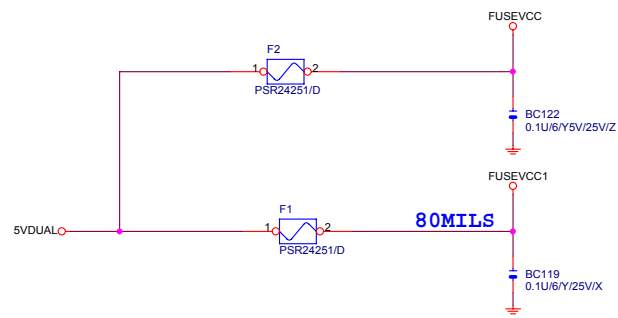
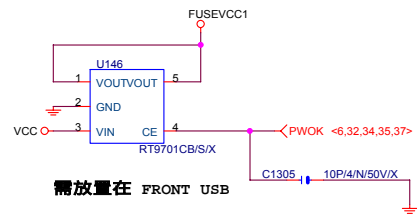
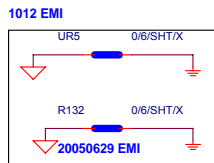
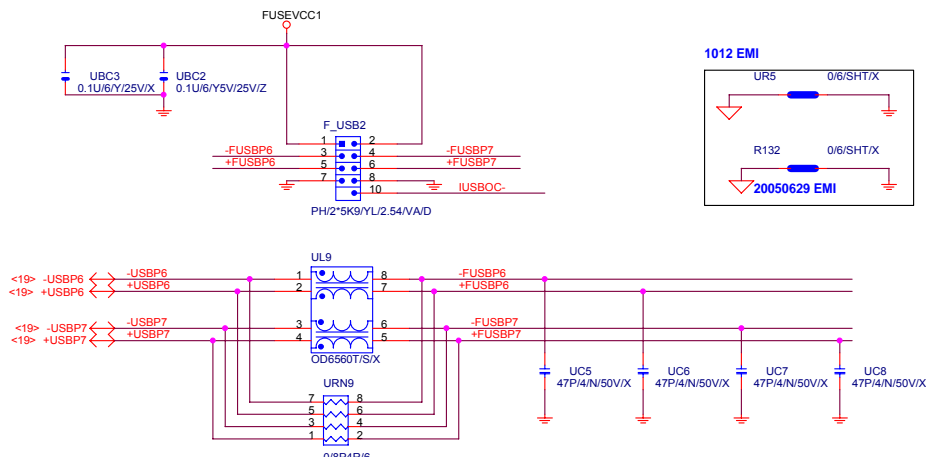
For PCI loading



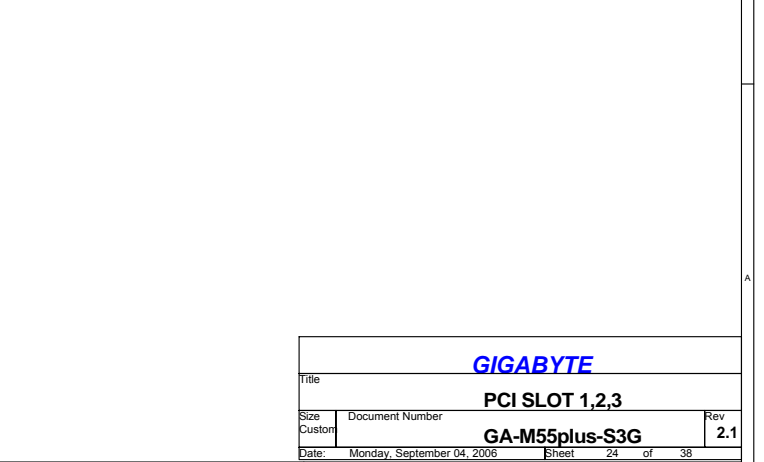
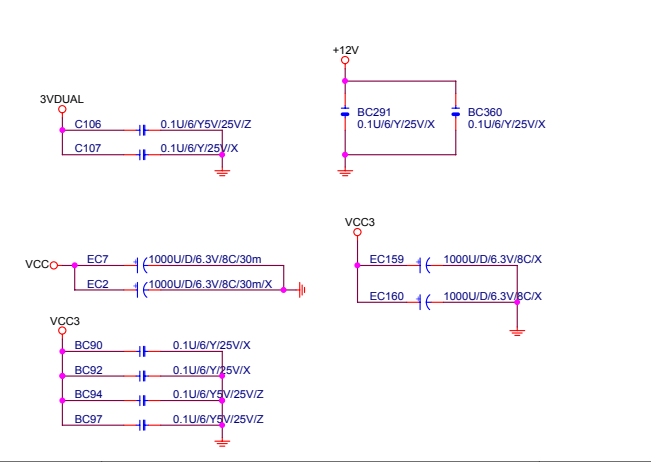
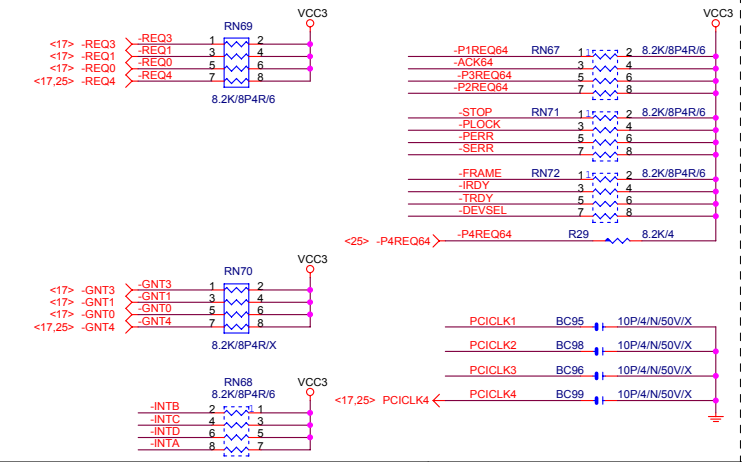
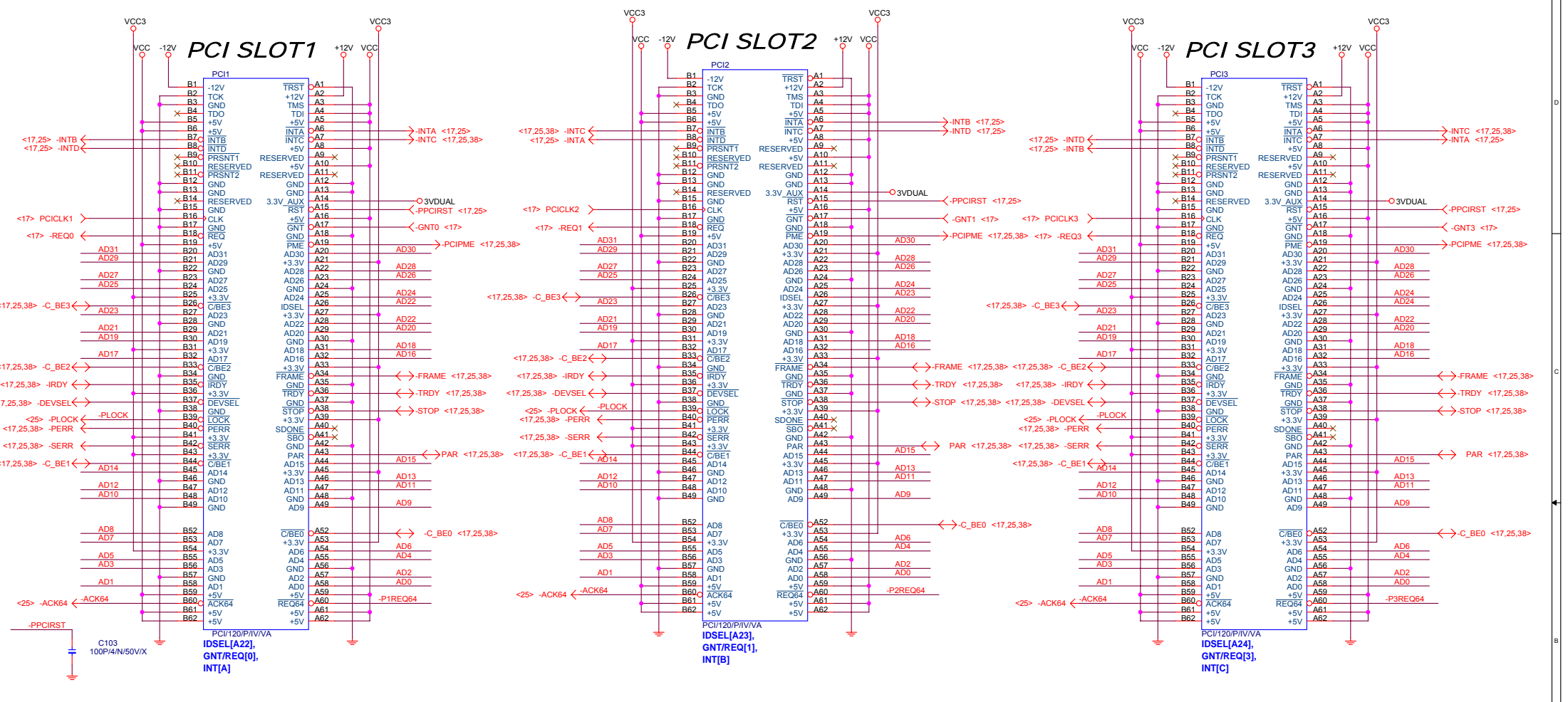
FRONT SIDE USB1



FRONT SIDE USB2



GIGABYTE		
USB PORT		
Title	Rev 2.1	
Size	Document Number	
Custom	GA-M55plus-S3G	
Date:	Sheet 23	of 38

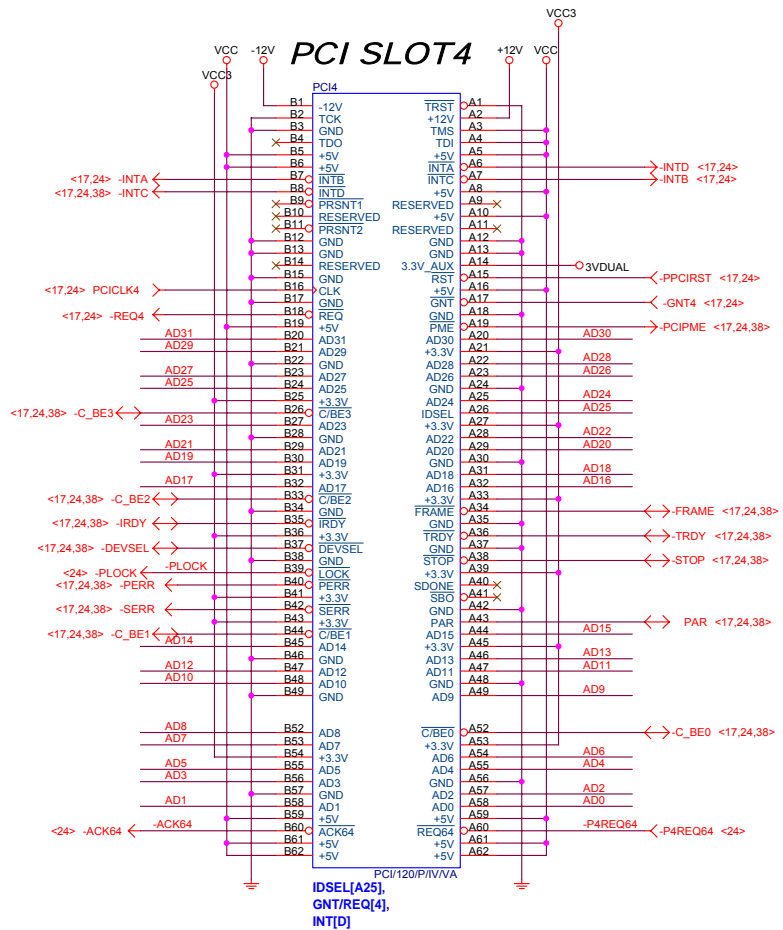


GIGABYTE		
PCI SLOT 1,2,3		
Title	Document Number	Rev
	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 24 of 38

PCI SLOT 4

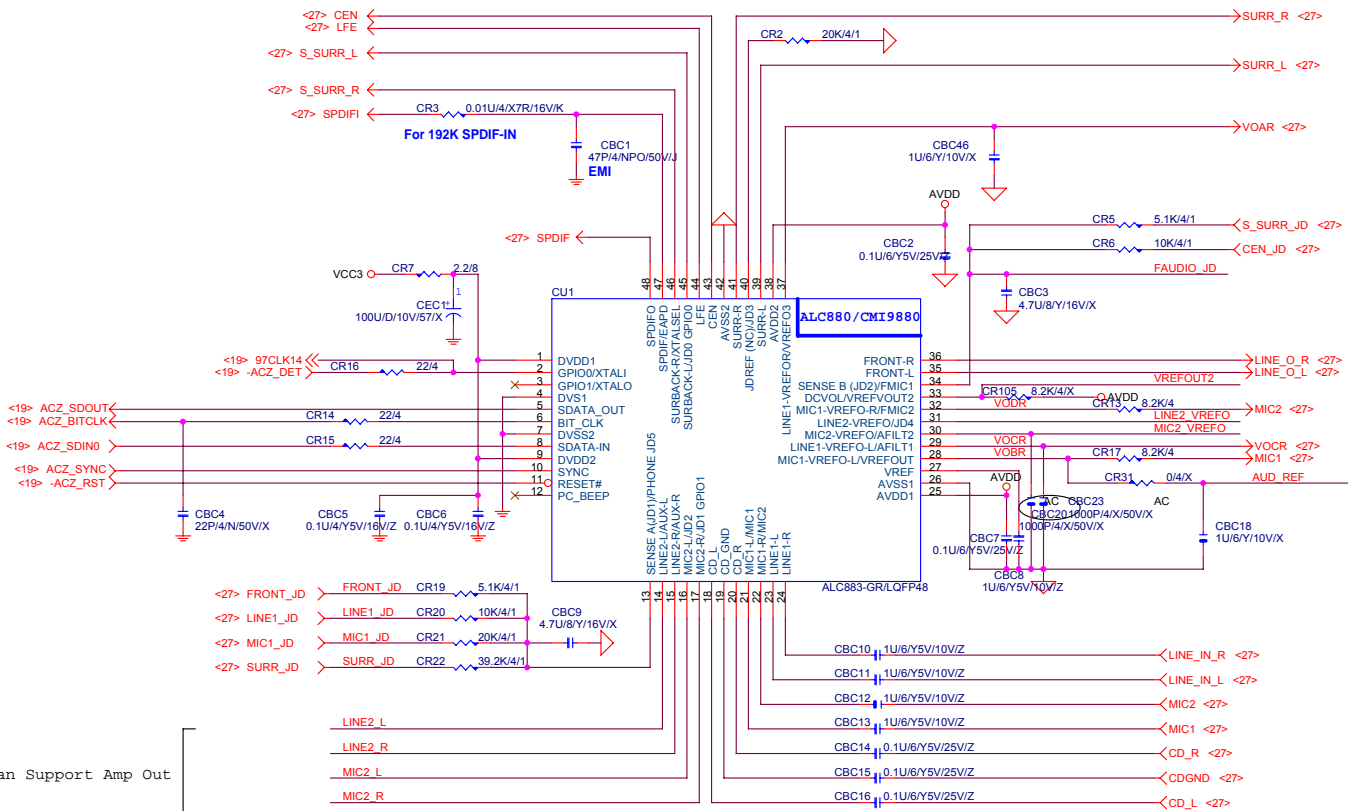
<17,24,38> AD[0..31] <-> AD[0..31]

PCI SLOT 4

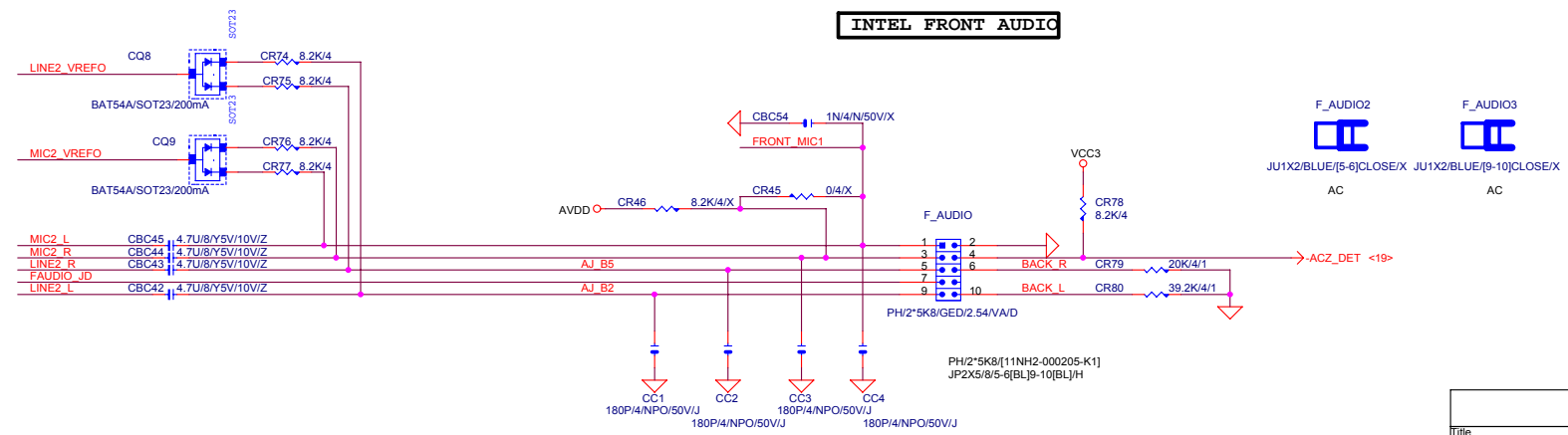


GIGABYTE

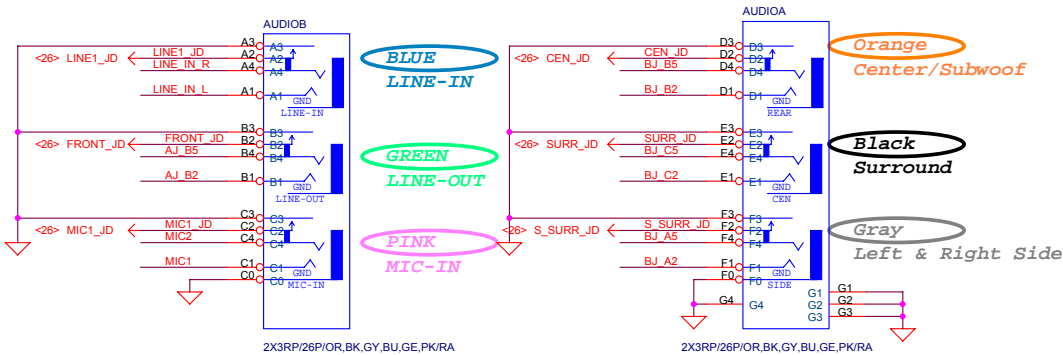
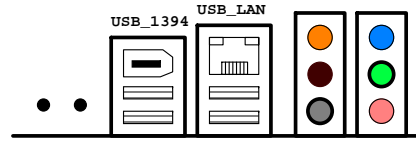
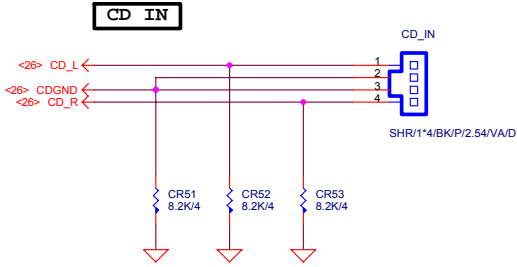
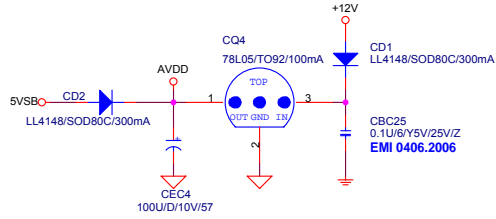
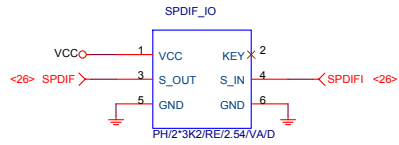
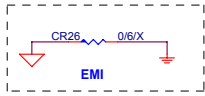
Title		
PCI SLOT 1,2,3		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 25 of 38



INTEL FRONT AUDIC



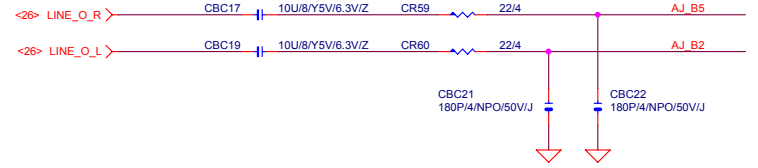
GIGABYTE		
AC97 ALC658		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 26 of 38



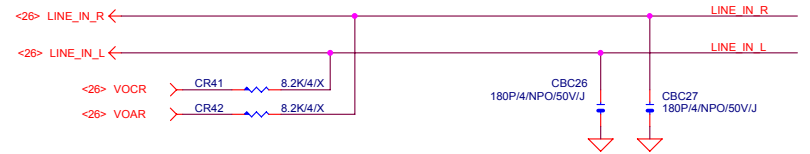
A3RJ13P/B/[11NR6-403006-01_11NR6-403006-02]
3RJ+15F/[11NR6-403004-11]

A3RJ13P/OBG/[11NR6-403006-71]
3RJ+15F/[11NR6-403004-31]

LINE OUT FRONT OUT



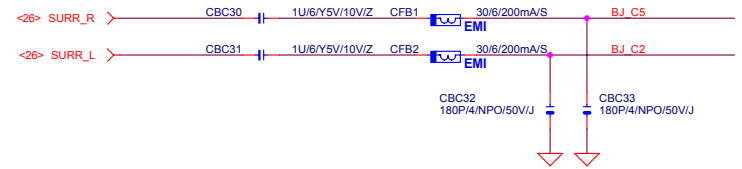
LINE-IN



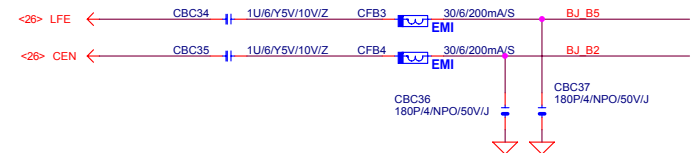
MIC



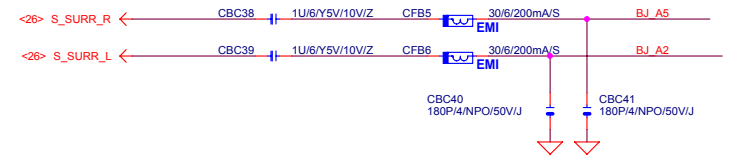
SURROUND



CEN/LFE

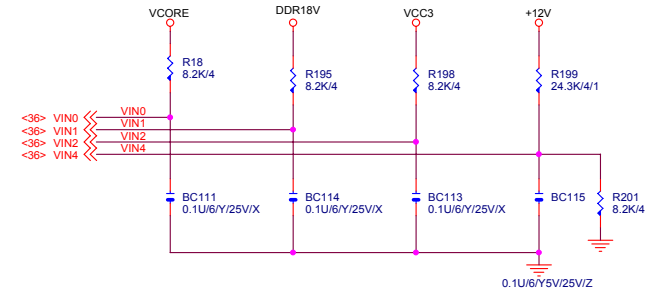
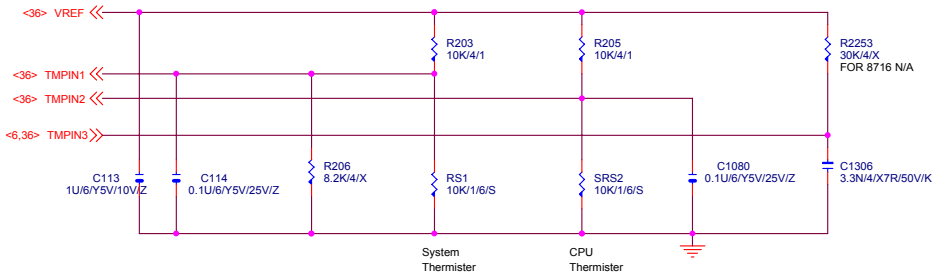


SURR BACK

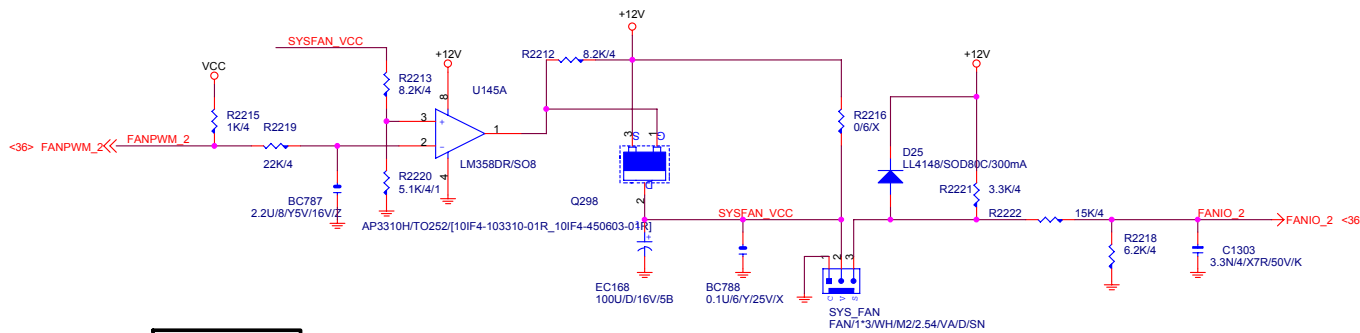


GIGABYTE		
AUDIO JACK		
Title	Rev	
Size	Document Number	2.1
Custom	GA-M55plus-S3G	
Date:	Monday, September 04, 2006	Sheet 27 of 38

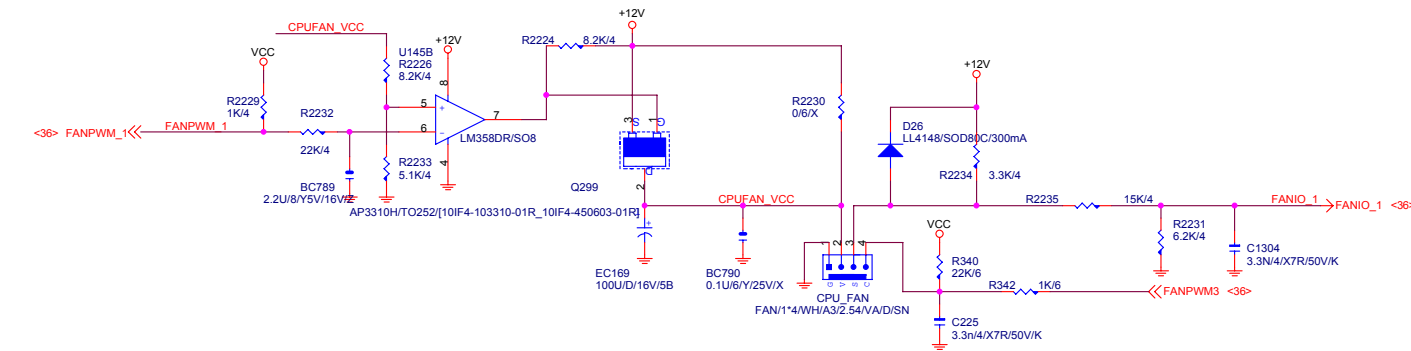
Hardware Monitor circuits



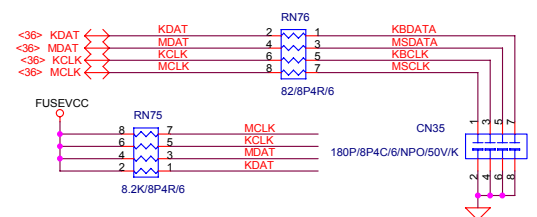
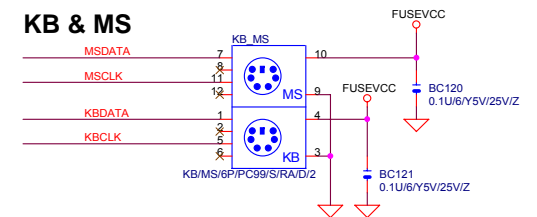
SYSTEM FAN



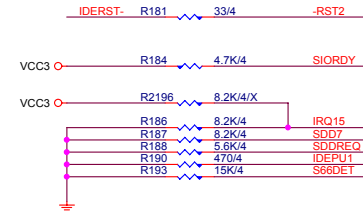
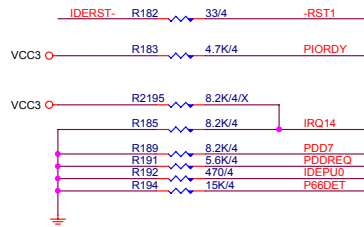
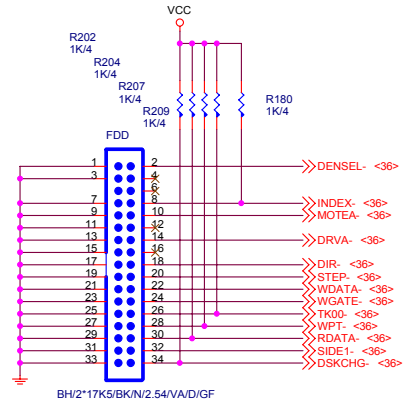
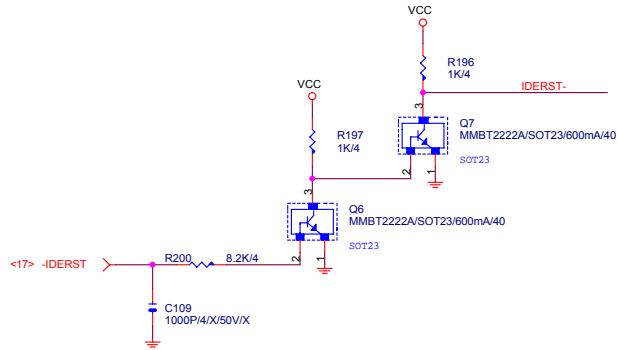
CPU FAN



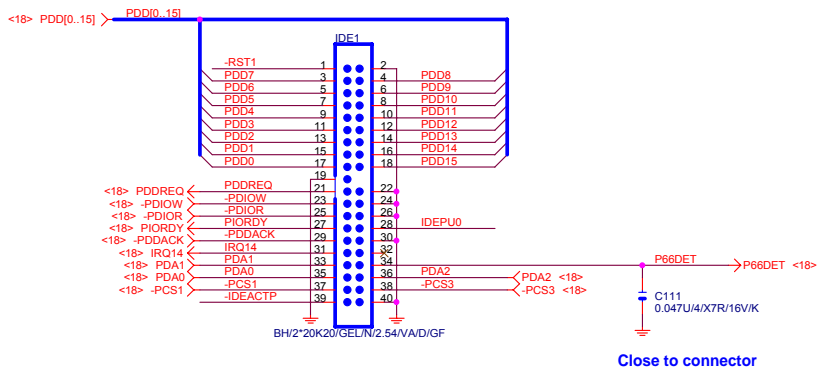
KB & MS



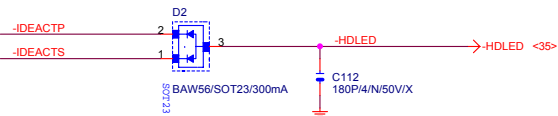
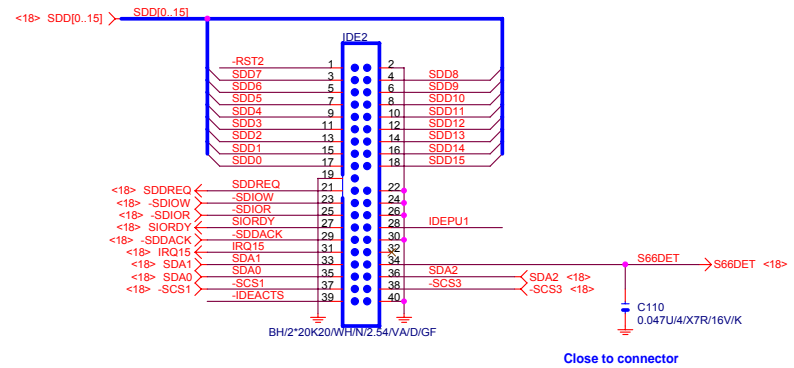
GIGABYTE		
Title: FAN/HWMO		
Size: Custom	Document Number: GA-M55plus-S3G	Rev: 2.1
Date: Monday, September 04, 2006	Sheet: 28	of 38



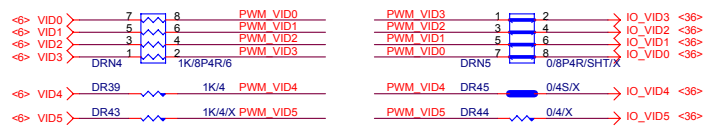
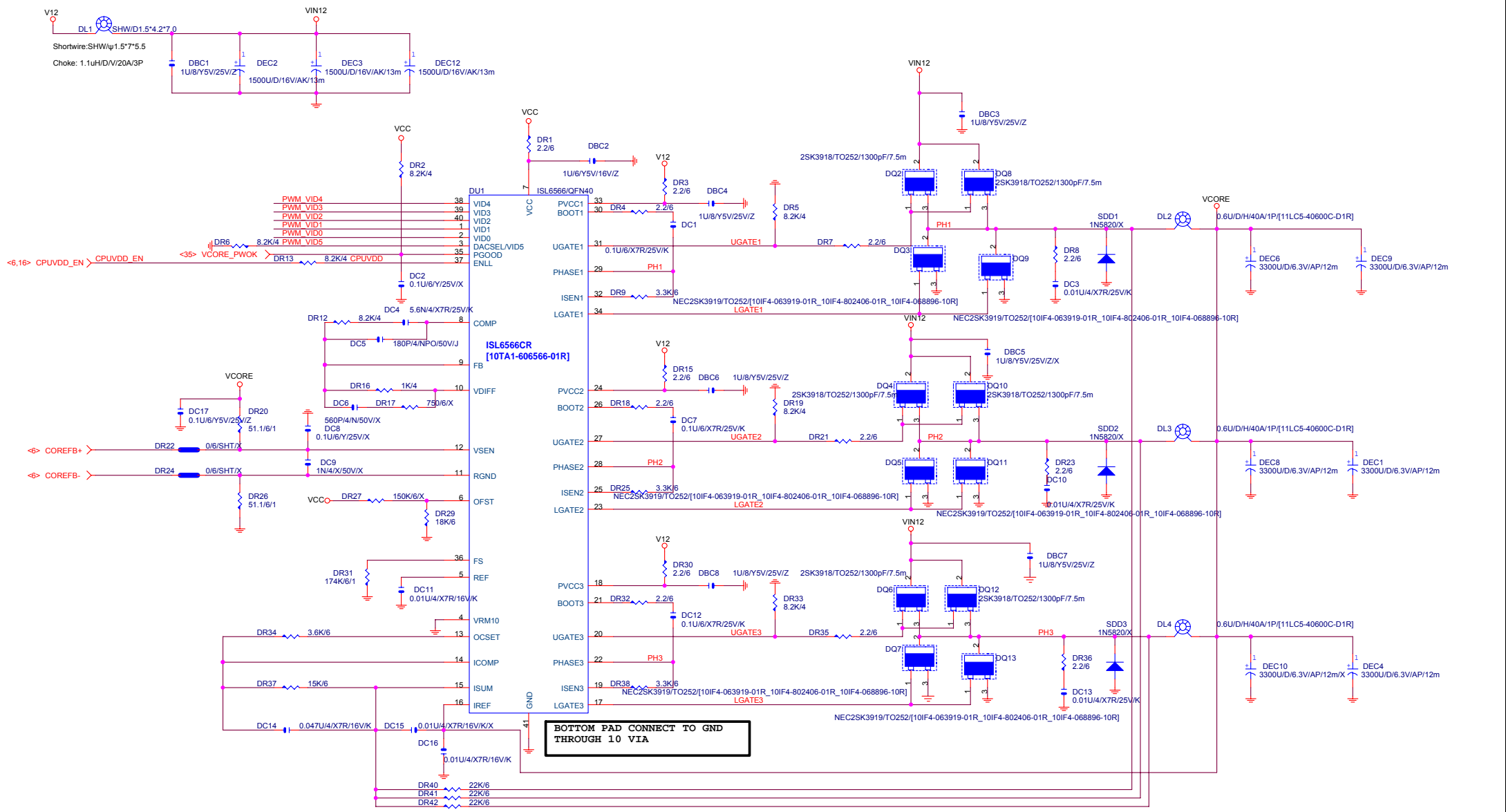
PRIMARY IDE CONNECTOR



SECONDARY IDE CONNECTOR



GIGABYTE		
IDE CONNECTOR		
Title		
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Sheet 29	of 38



GIGABYTE

Title: **VCORE (PWM ISL6559BC+6602B+6601B)**

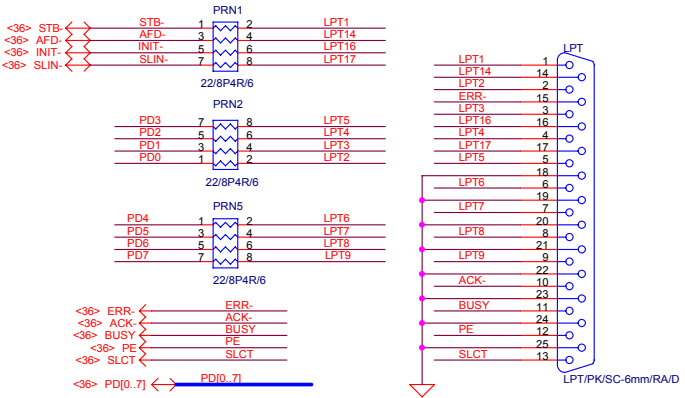
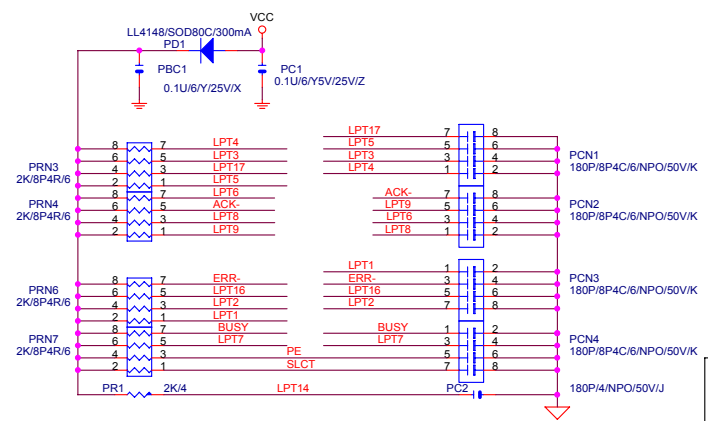
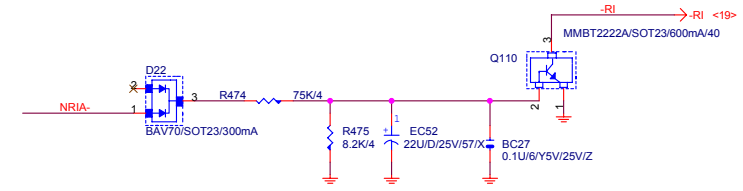
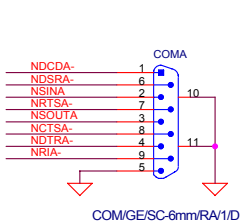
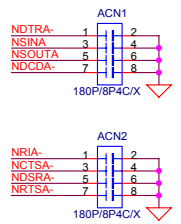
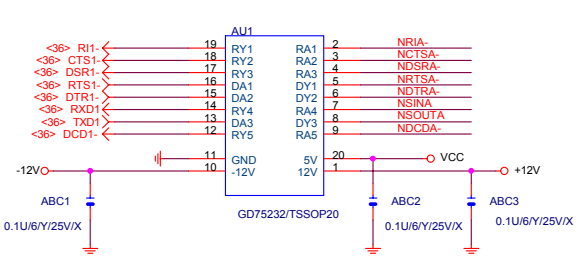
Size: Custom Document Number

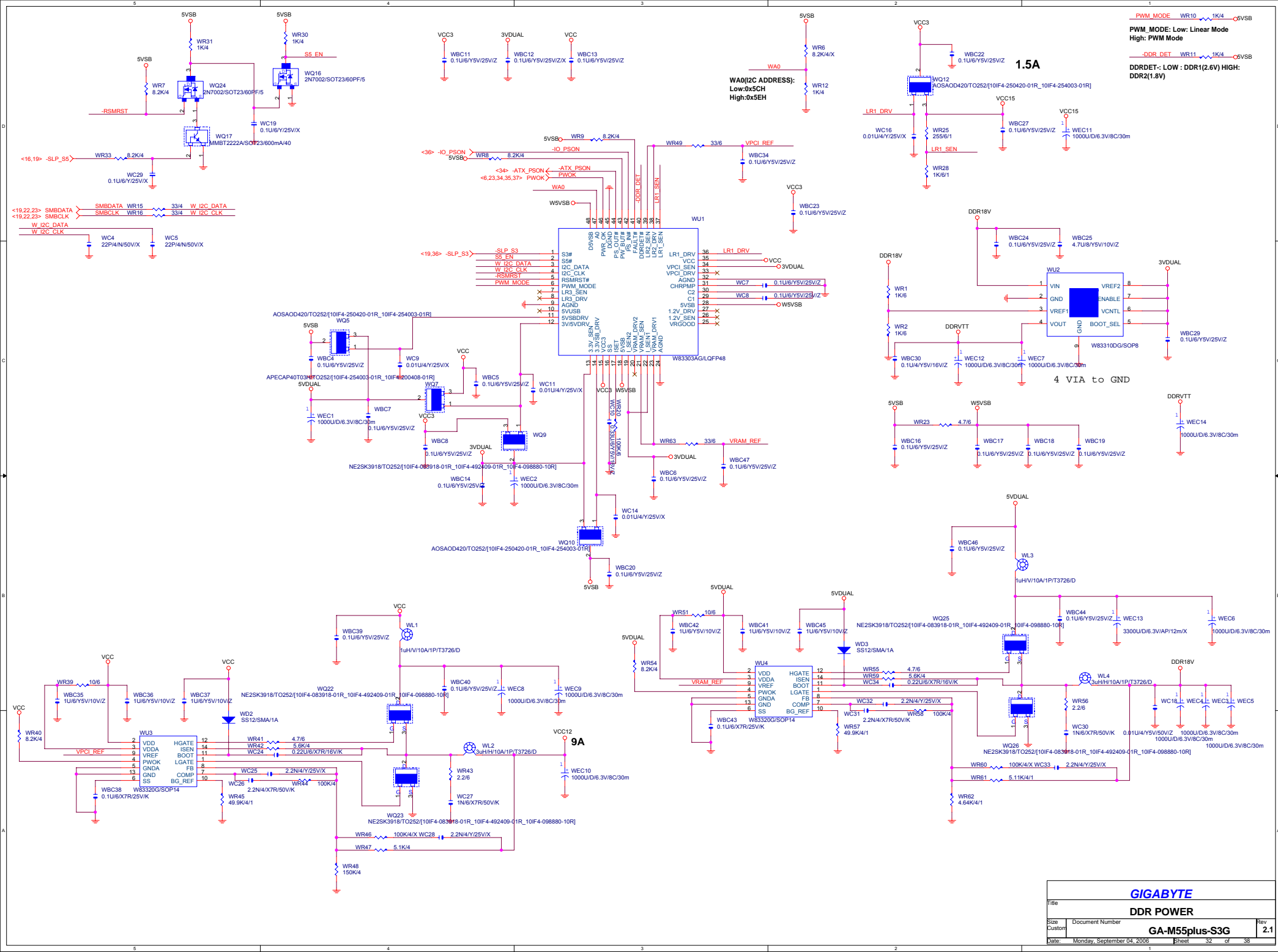
Date: Monday, September 04, 2006

Rev: 2.1

GA-M55plus-S3G

Sheet 30 of 38





PWM_MODE: Low: Linear Mode
 High: PWM Mode
 -DDR_DET: WR11 1K/4
 DDRDET: LOW: DDR1(2.6V) HIGH: DDR2(1.8V)

WA0(I2C ADDRESS):
 Low:0x5CH
 High:0x5EH

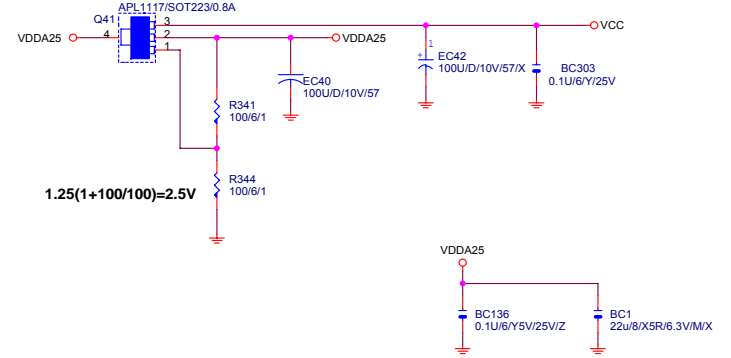
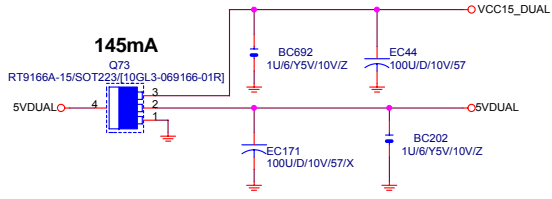
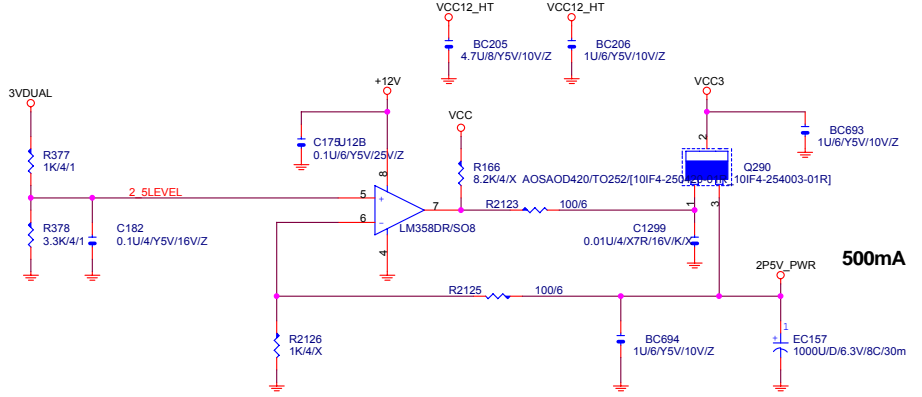
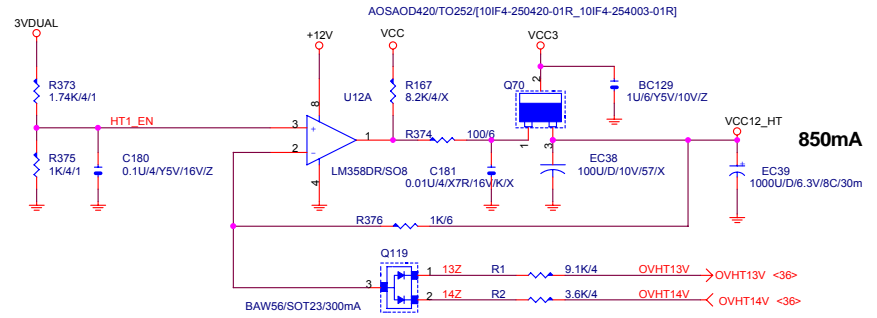
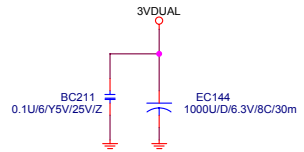
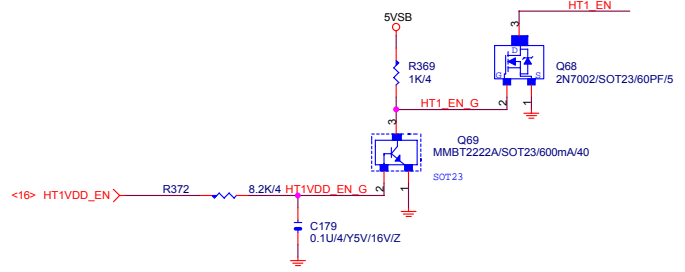
1.5A

4 VIA to GND

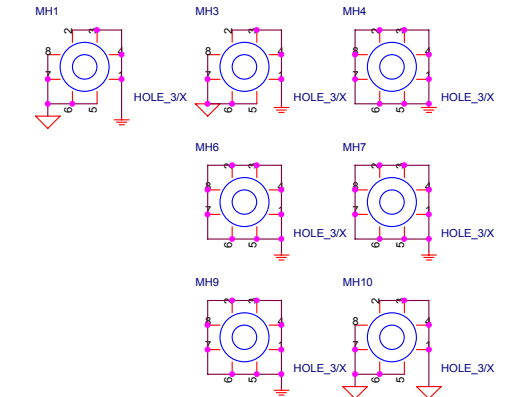
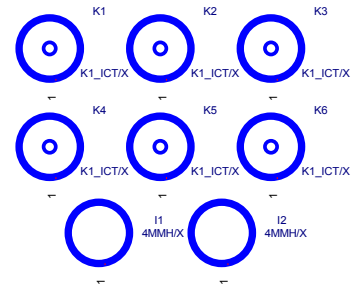
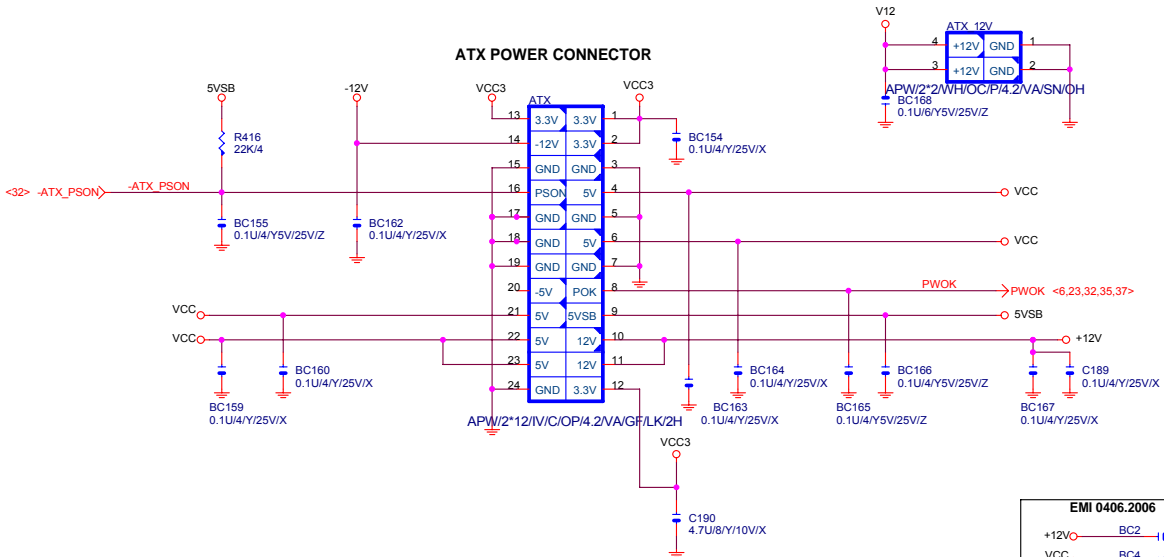
GIGABYTE

DDR POWER

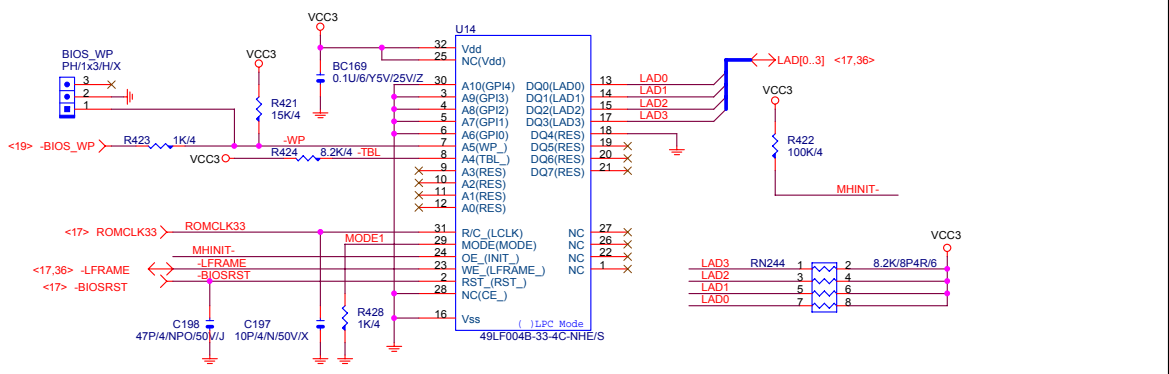
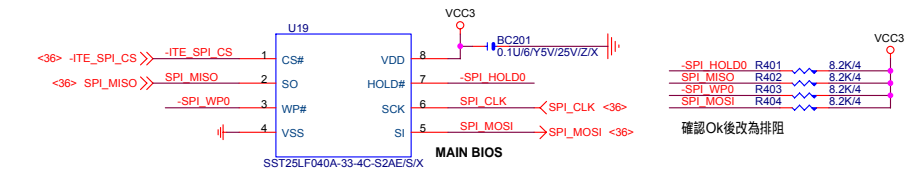
Title	Document Number	Rev
Size	GA-M55plus-S3G	2.1
Custom		
Date	Monday, September 04, 2006	Sheet 32 of 38

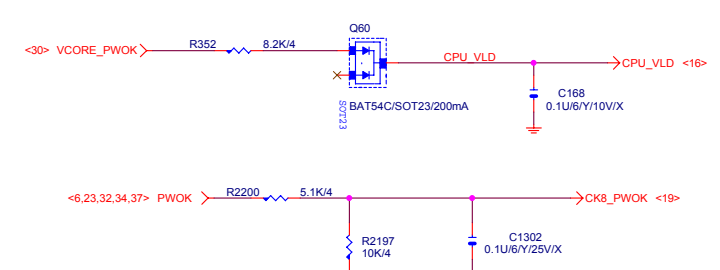
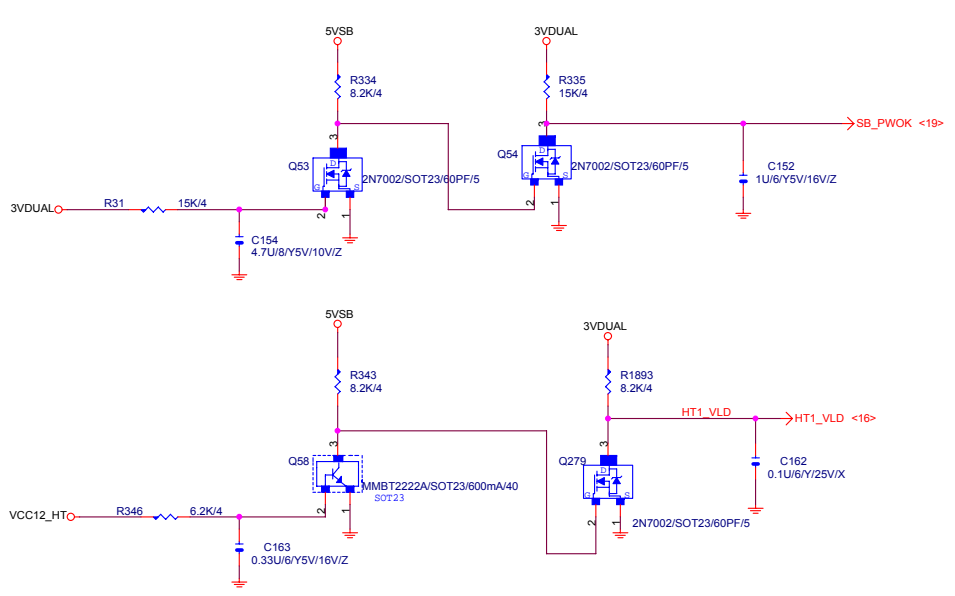
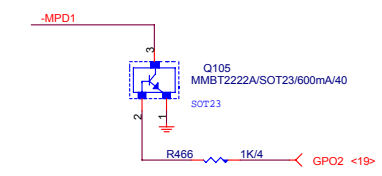
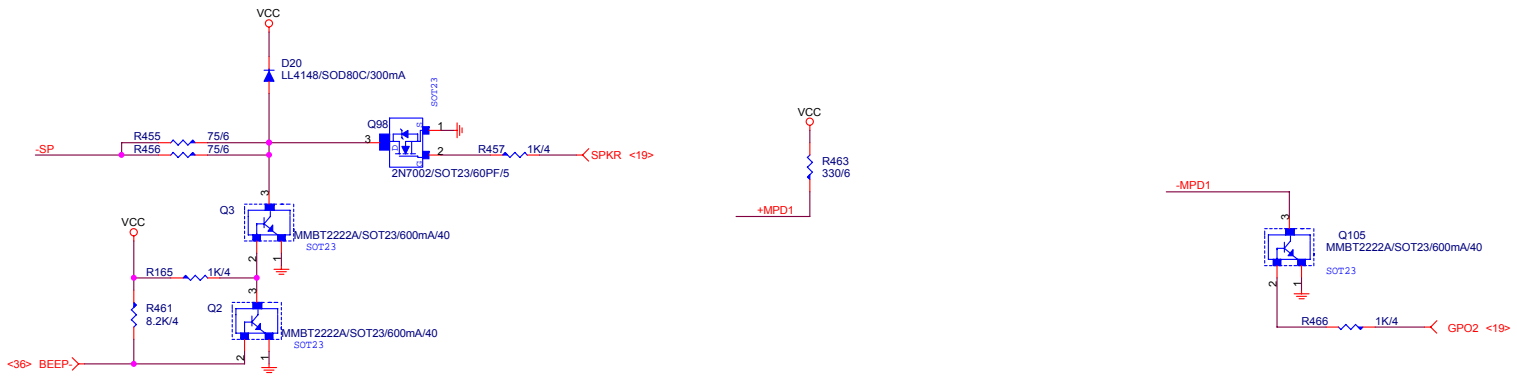
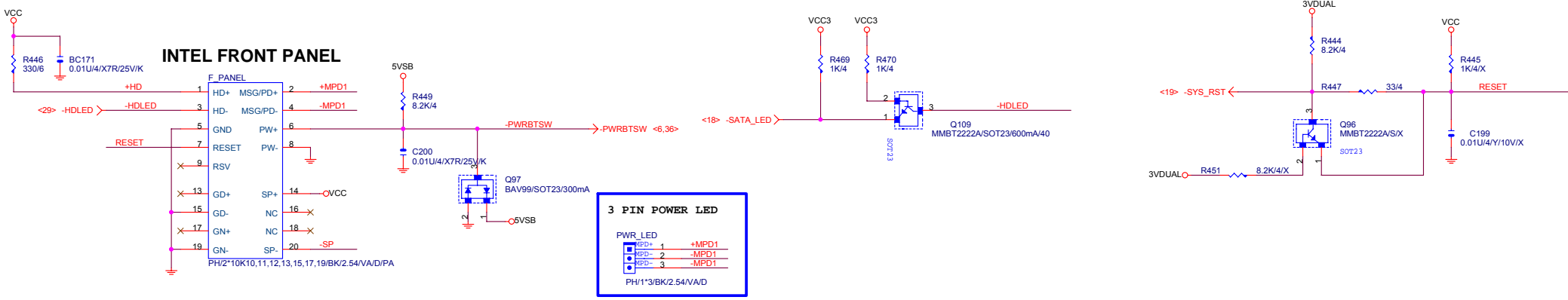


Title		
DDR/VDDQ/VCCVID/5VDUAL POWER		
Size	Document Number	Rev
	GA-M55plus-S3G	2.1
Date:	Monday, September 04, 2006	Sheet 33 of 38



EMI 0406.2006	
+12V	BC2 0.1U/6/Y/5V/25V/Z/X
VCC	BC4 0.1U/4/Y/5V/25V/Z/X
VCC	BC3 0.1U/4/Y/5V/25V/Z/X
VCC	BC5 0.1U/6/Y/5V/25V/Z/X
VCC	BC7 0.1U/6/Y/5V/25V/Z/X



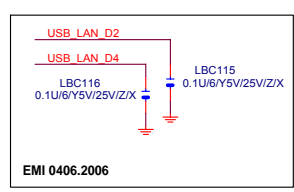
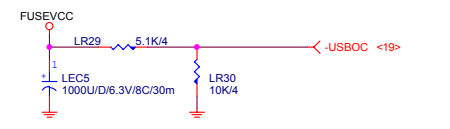
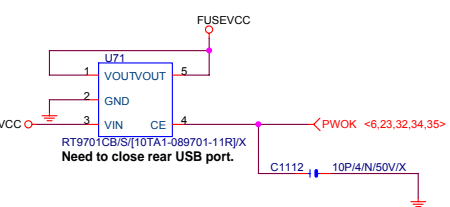
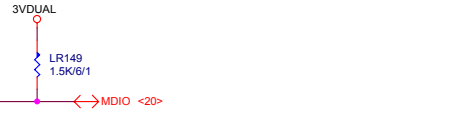
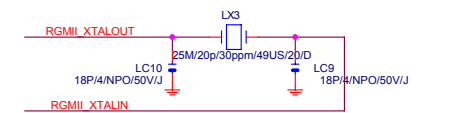
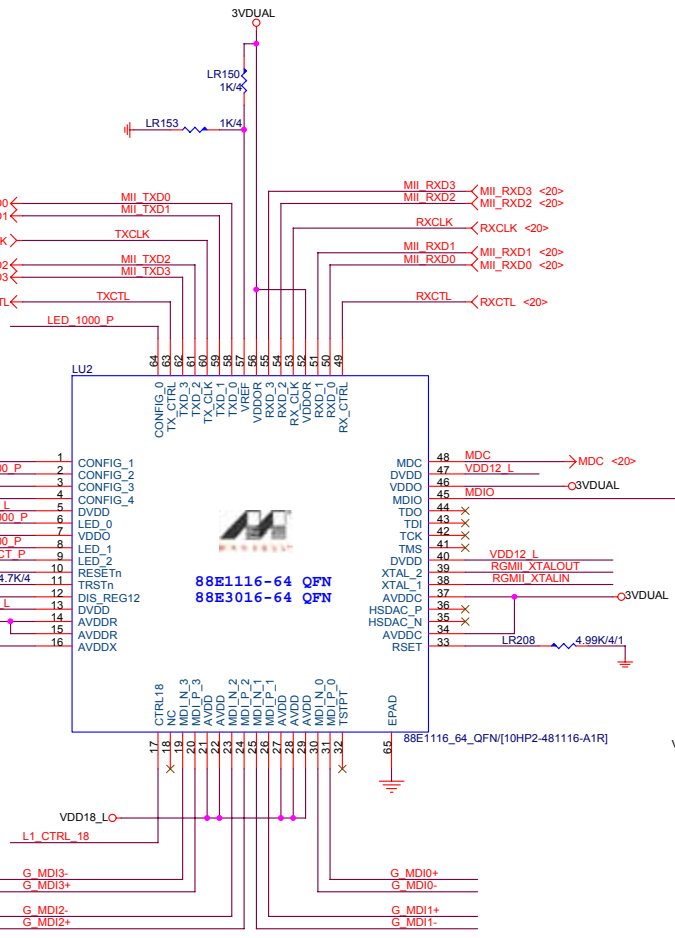
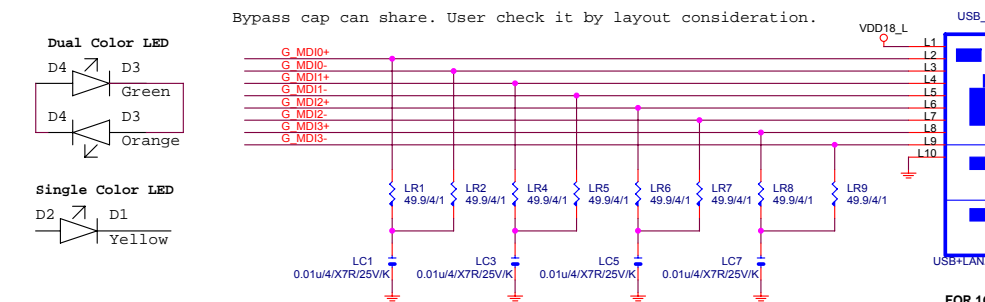
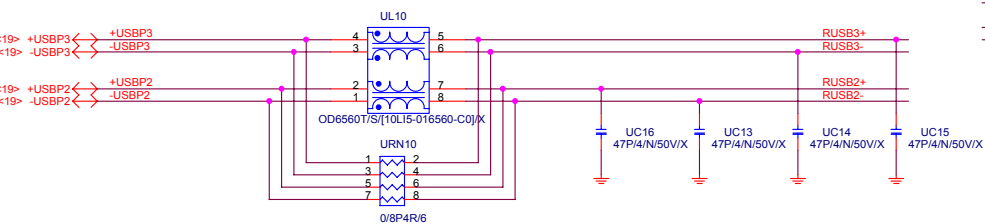
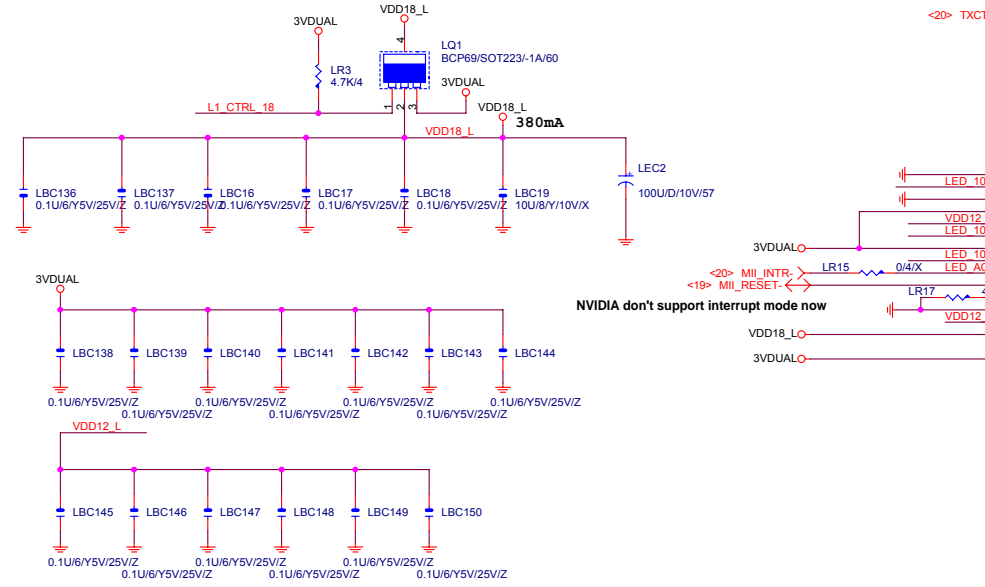


GIGABYTE		
Title	FRONT PANEL	
Size	Document Number	Rev
Custom	GA-M55plus-S3G	2.1
Date:	Sheet	35 of 38

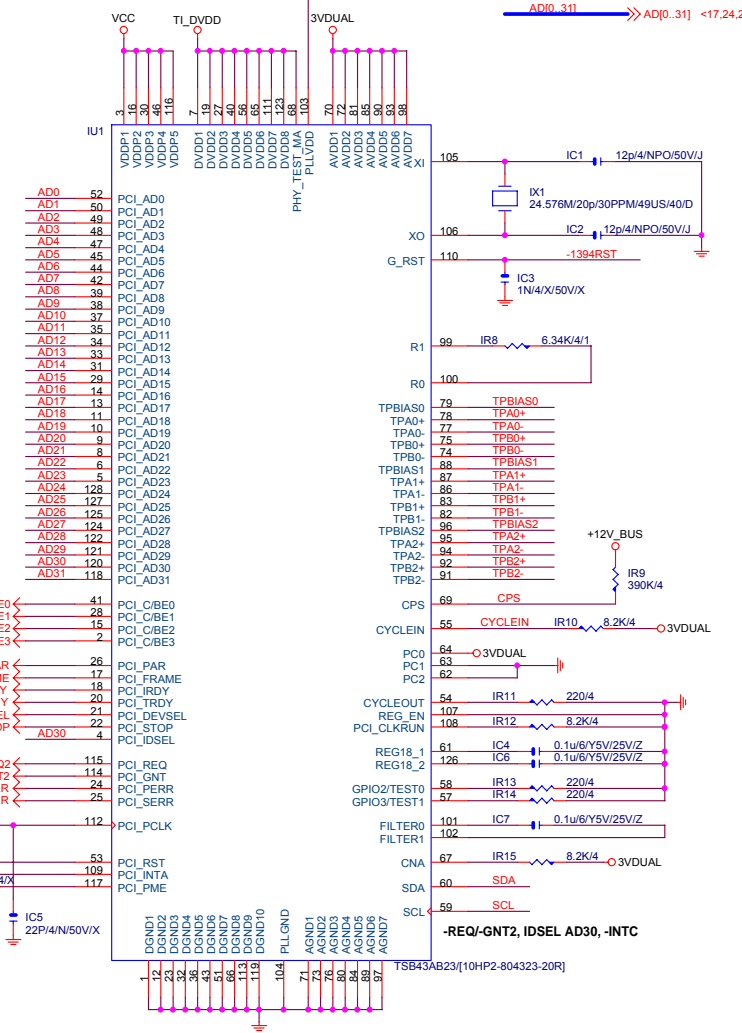
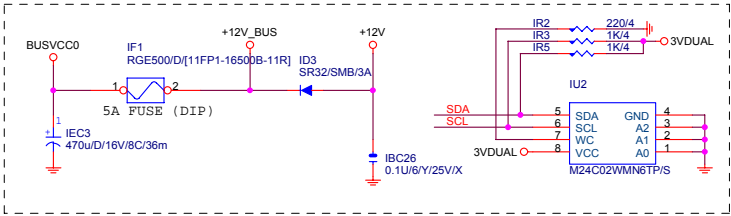
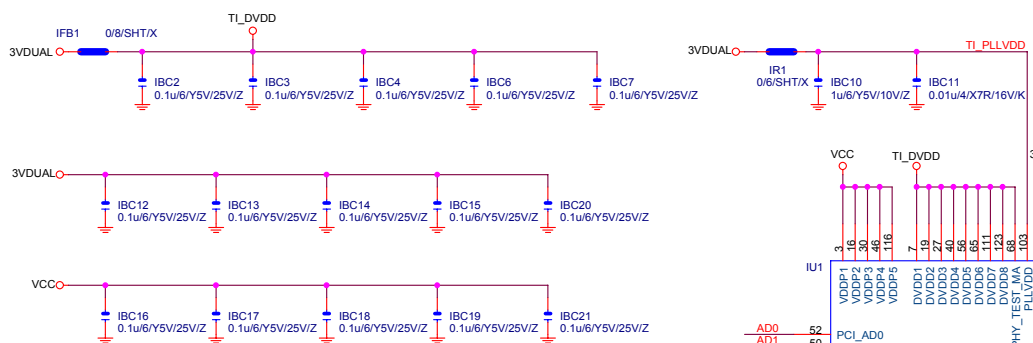
E1116 use external 2.5V single power supply.
 1.8V create by PNP and 1.2V use internal reg.

Hardware Configuration: See config_0:4

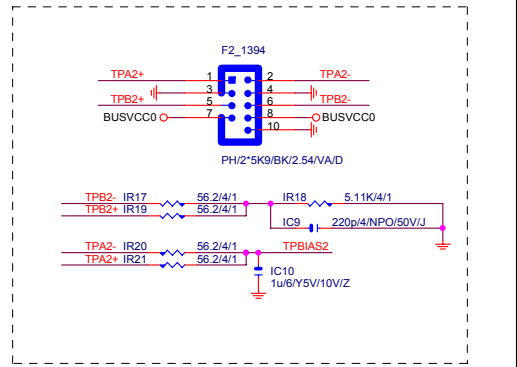
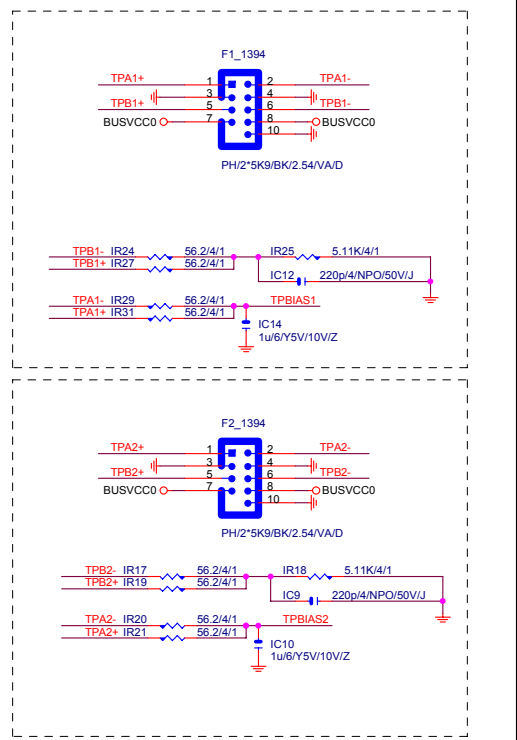
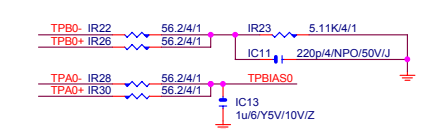
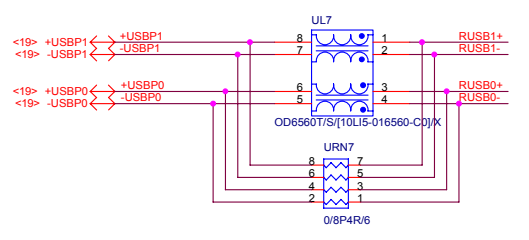
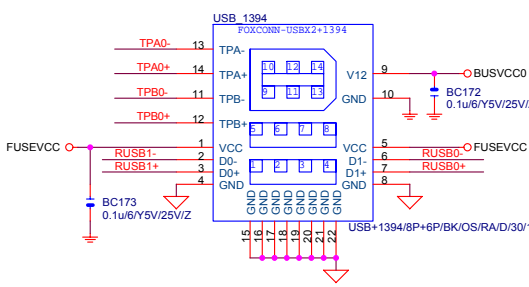
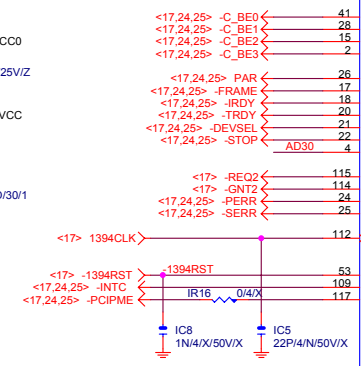
1. PHY address:00001
2. ENA_XC:Enable Auto-Crossover
3. RGMII_TX:Transmit clock not internally delayed
4. RGMII_RX:Receive clock transition when data transitions
5. Advertise all capabilities



Title		Marvell_88E1115_88E1116_88E3016	
Size	Document Number	Rev	
Custom	GA-M55plus-S3G	2.1	
Date:	Monday, September 04, 2006	Sheet	37 of 38



AD0	52	PCI_AD0
AD1	50	PCI_AD1
AD2	49	PCI_AD2
AD3	48	PCI_AD3
AD4	47	PCI_AD4
AD5	45	PCI_AD5
AD6	42	PCI_AD6
AD7	39	PCI_AD7
AD8	38	PCI_AD8
AD9	37	PCI_AD9
AD10	35	PCI_AD10
AD11	34	PCI_AD11
AD12	33	PCI_AD12
AD13	31	PCI_AD13
AD14	29	PCI_AD14
AD15	28	PCI_AD15
AD16	14	PCI_AD16
AD17	13	PCI_AD17
AD18	11	PCI_AD18
AD19	10	PCI_AD19
AD20	9	PCI_AD20
AD21	8	PCI_AD21
AD22	6	PCI_AD22
AD23	5	PCI_AD23
AD24	128	PCI_AD24
AD25	127	PCI_AD25
AD26	125	PCI_AD26
AD27	124	PCI_AD27
AD28	122	PCI_AD28
AD29	121	PCI_AD29
AD30	120	PCI_AD30
AD31	118	PCI_AD31



GIGABYTE			
Title TSB43AB23A 1394A			
Size	Document Number	Rev	
Custom	GA-M55plus-S3G	2.1	
Date:	Monday, September 04, 2006	Sheet	38 of 38