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MS-7365

ATX Version: 0A

CPU: Intel Pentium 4, Pentium D, Core2 Duo, Wolfdale, Kentsfield and Yorkfield processors in LGA775 Package.

System Chipset:

Intel Bearlake - Q/G/P (G33, P35, Q35/33North Bridge)
Intel ICH9 (South Bridge)

On Board Device:

CLOCK Gen -- ICS 9LPRS906
LPC Super I/O -- Fintek F71882F
LAN -- Realtek 8111 (PCIE)
HD Audio Codec -- ALC888
1394 Controller -- VT6308 (2-port)
PCIE to PATA/SATA Bridge -- Marvel 88SE6111

Main Memory:

Dual-channel DDR-III*2 DDR-II *2

Expansion Slots:

PCI EXPRESS X16 SLOT *1
PCI EXPRESS X1 SLOT * 3
PCI SLOT * 2

PWM: Intersil ISL6322CR (3Phases)

Configuration and BOM match up

Option	Function	Orcad Configure	BOM
STD		Cfg-7365-STD	601-7365-A10
A		Cfg-7365-A	601-7365-B10

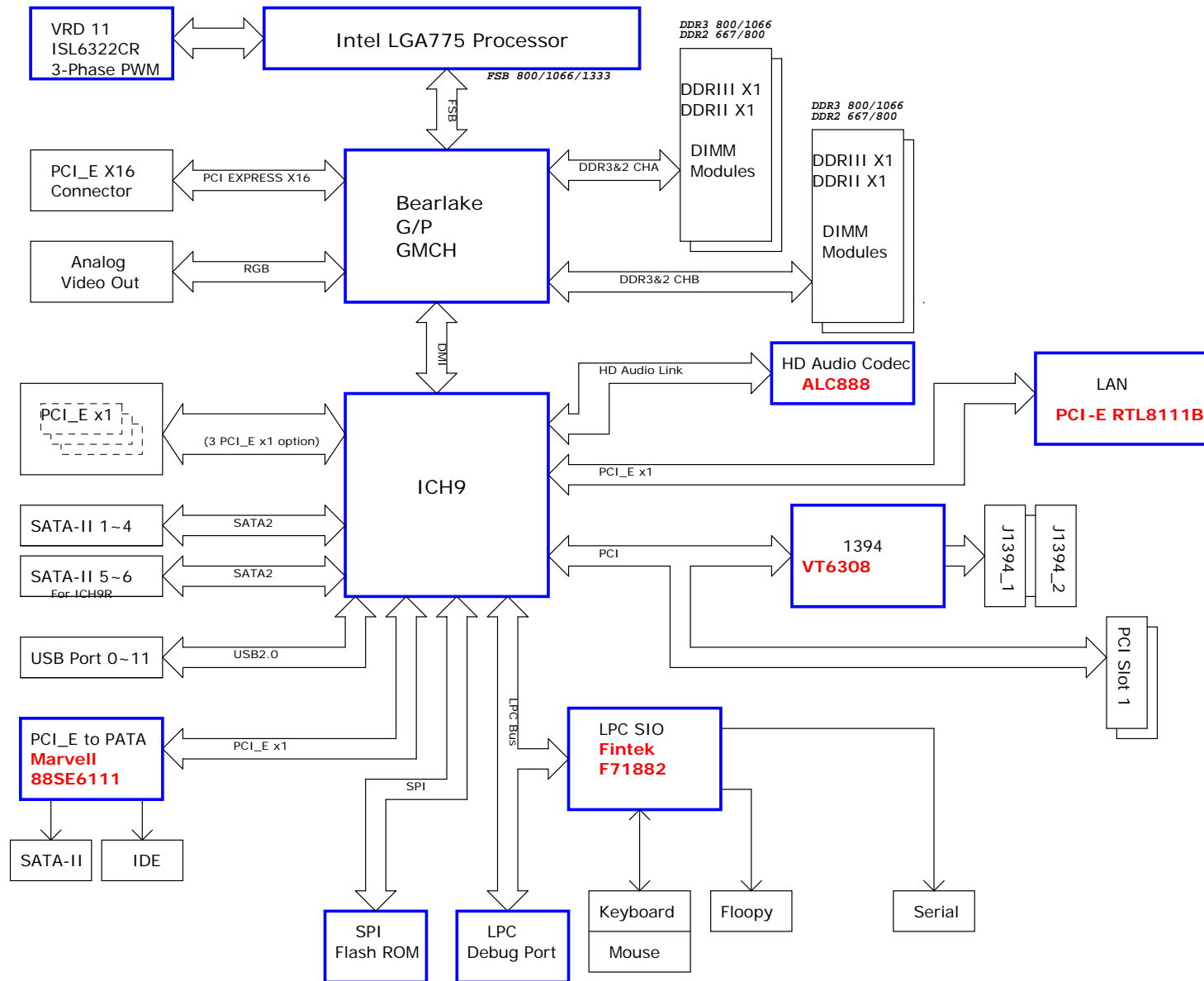


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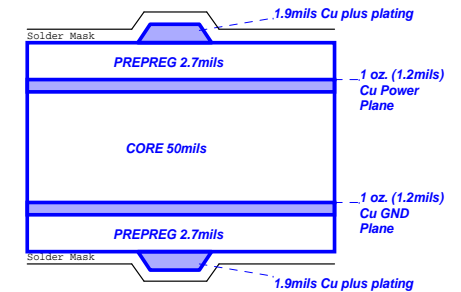
Size Custom	Document Description COVER SHEET	Rev 0A
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Block Diagram



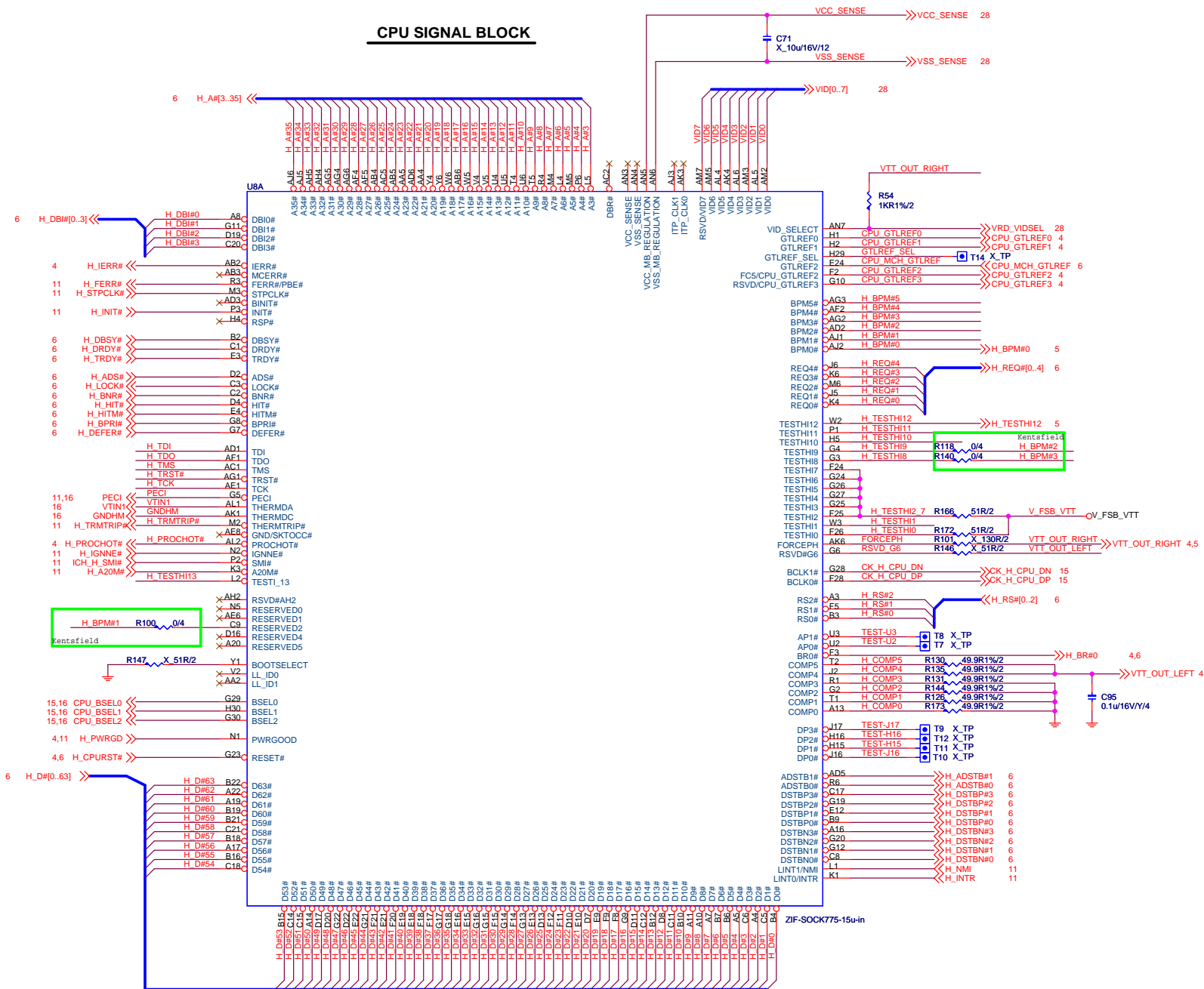
Board Stack-up

(1080 Prepreg Considerations)

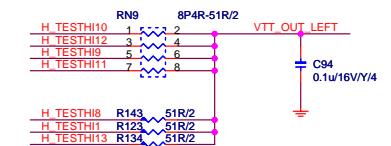
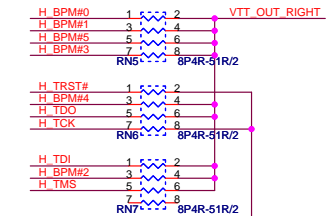
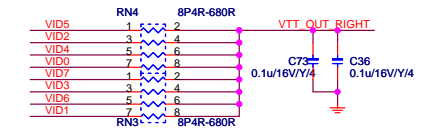


Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 90ohm : 15/4.5/7.5/4.5/15
 SATA - 95ohm : 15/4/8/4/15
 LAN - 100ohm : 15/4/8/4/15
 PCIE - 95ohm : 15/4/8/4/15
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

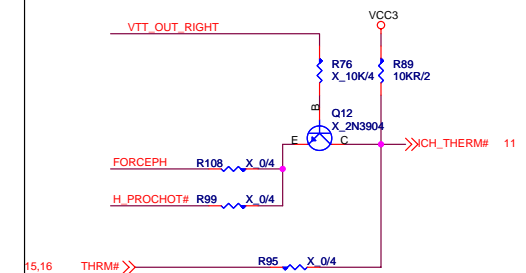
CPU SIGNAL BLOCK



PULL HIGHT PULL DOWN



Thermal TRIP



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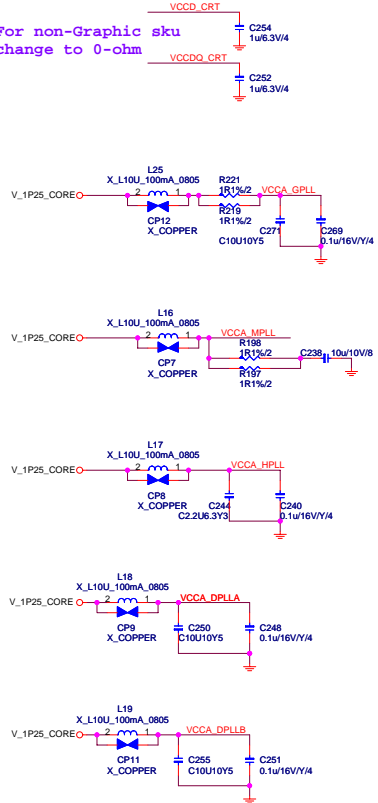
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Size Custom	Document Description LGA775 - Signal	Rev 0A
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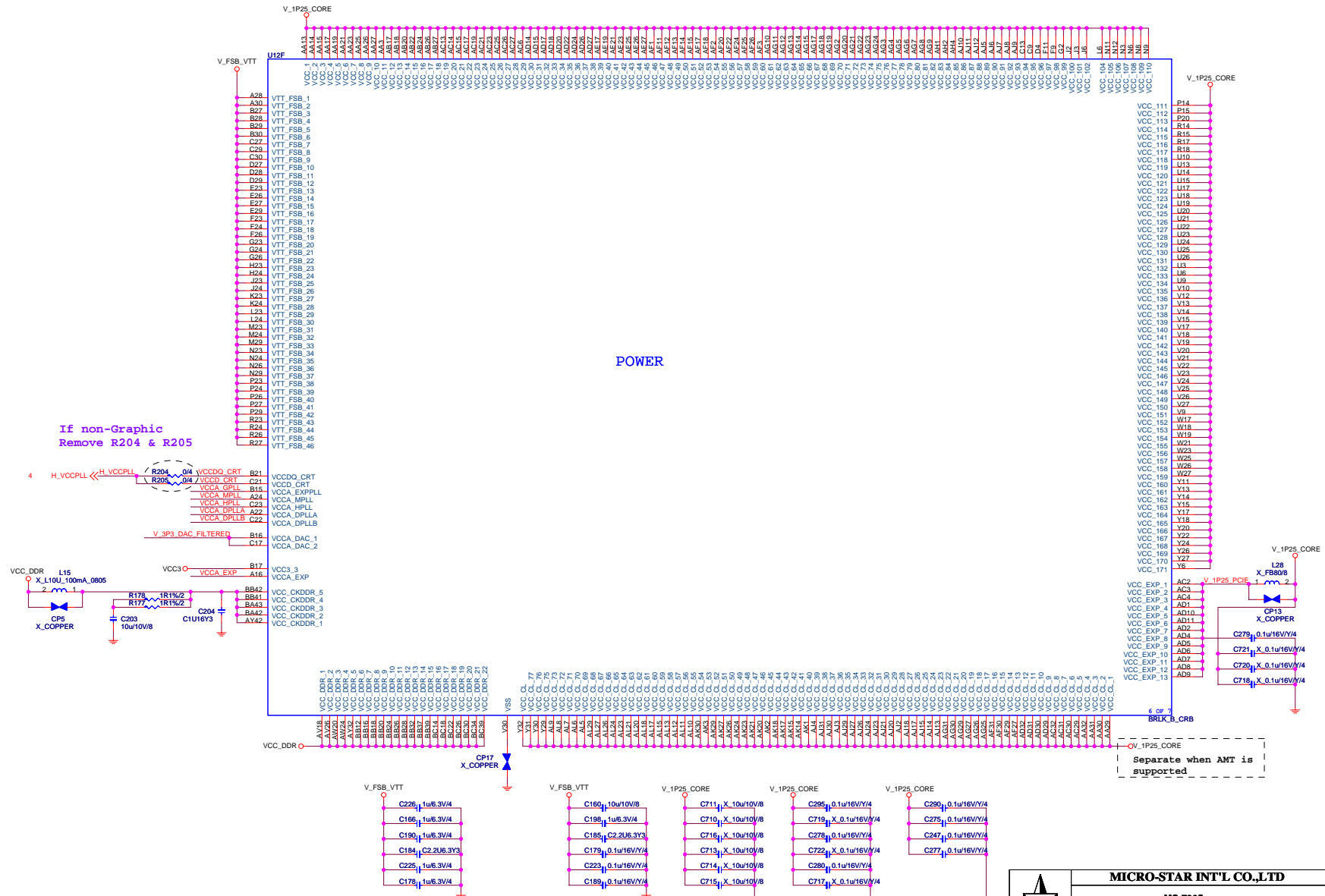
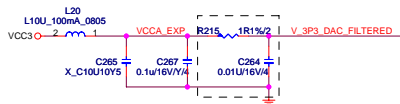
NB POWER

For non-Graphic sku
change to 0-ohm

For non-Graphic sku
change to 0-ohm



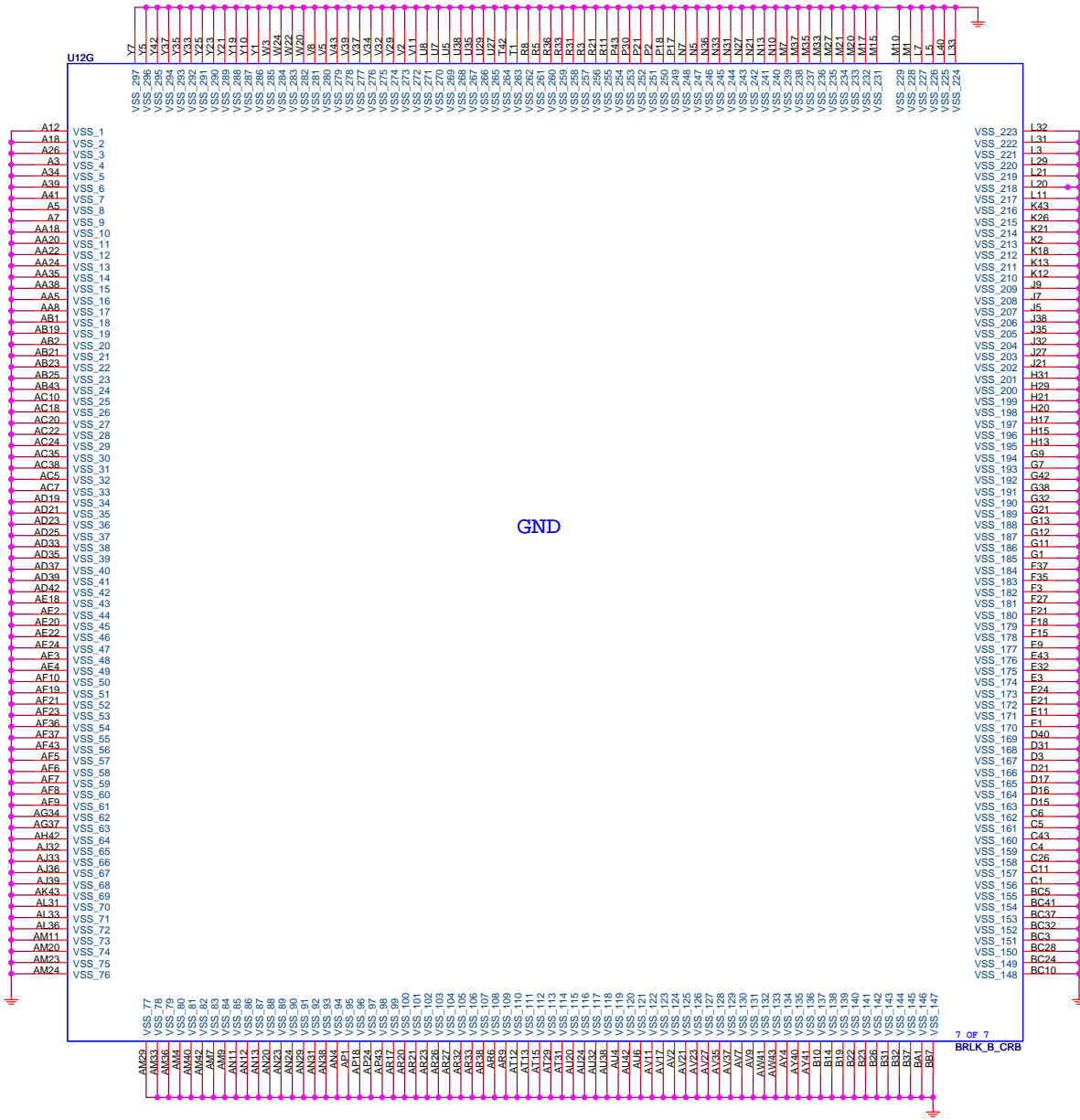
For non-Graphic SKU VCCA_R1
Remove R215

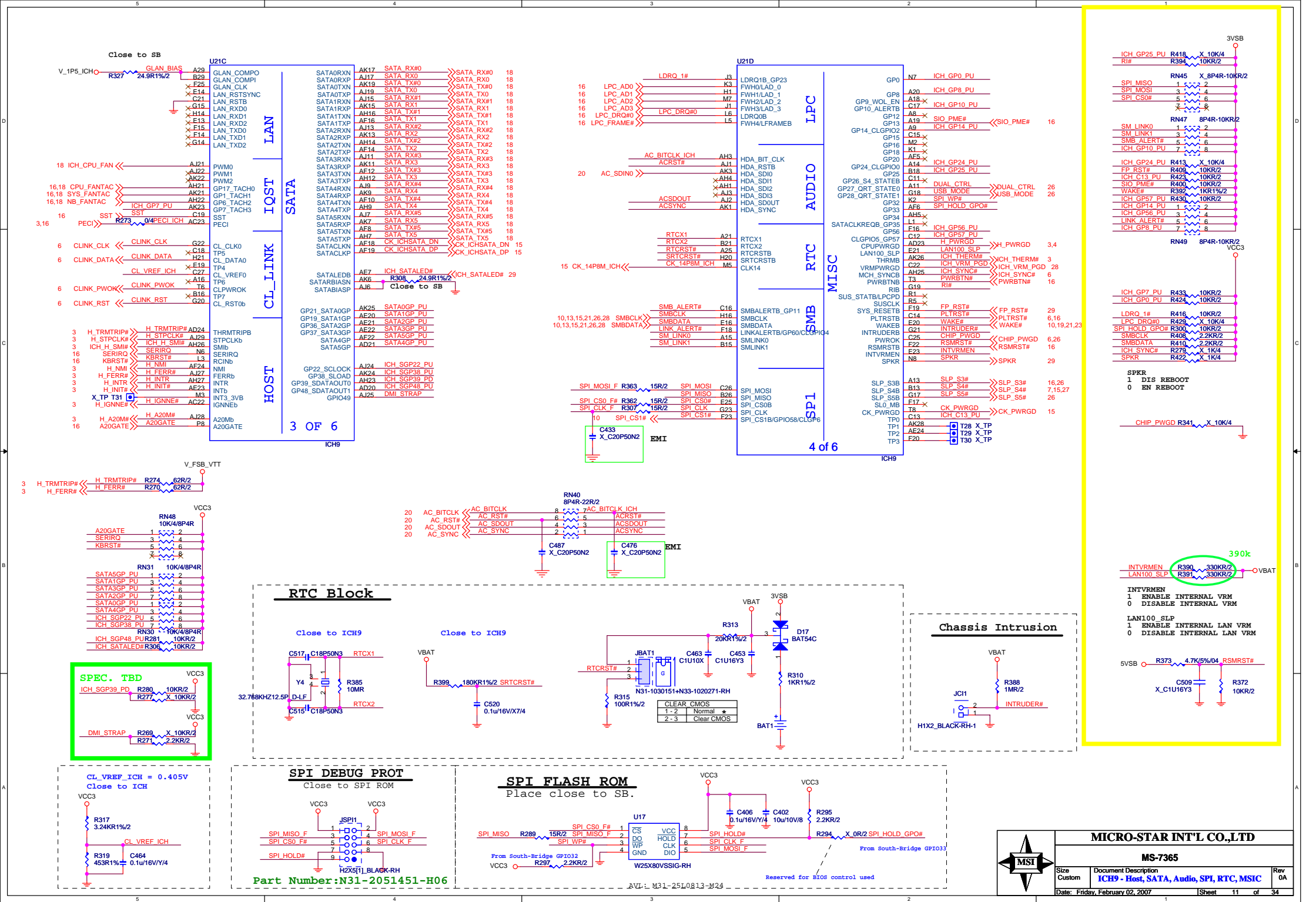


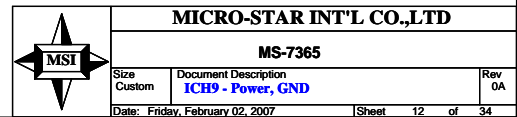
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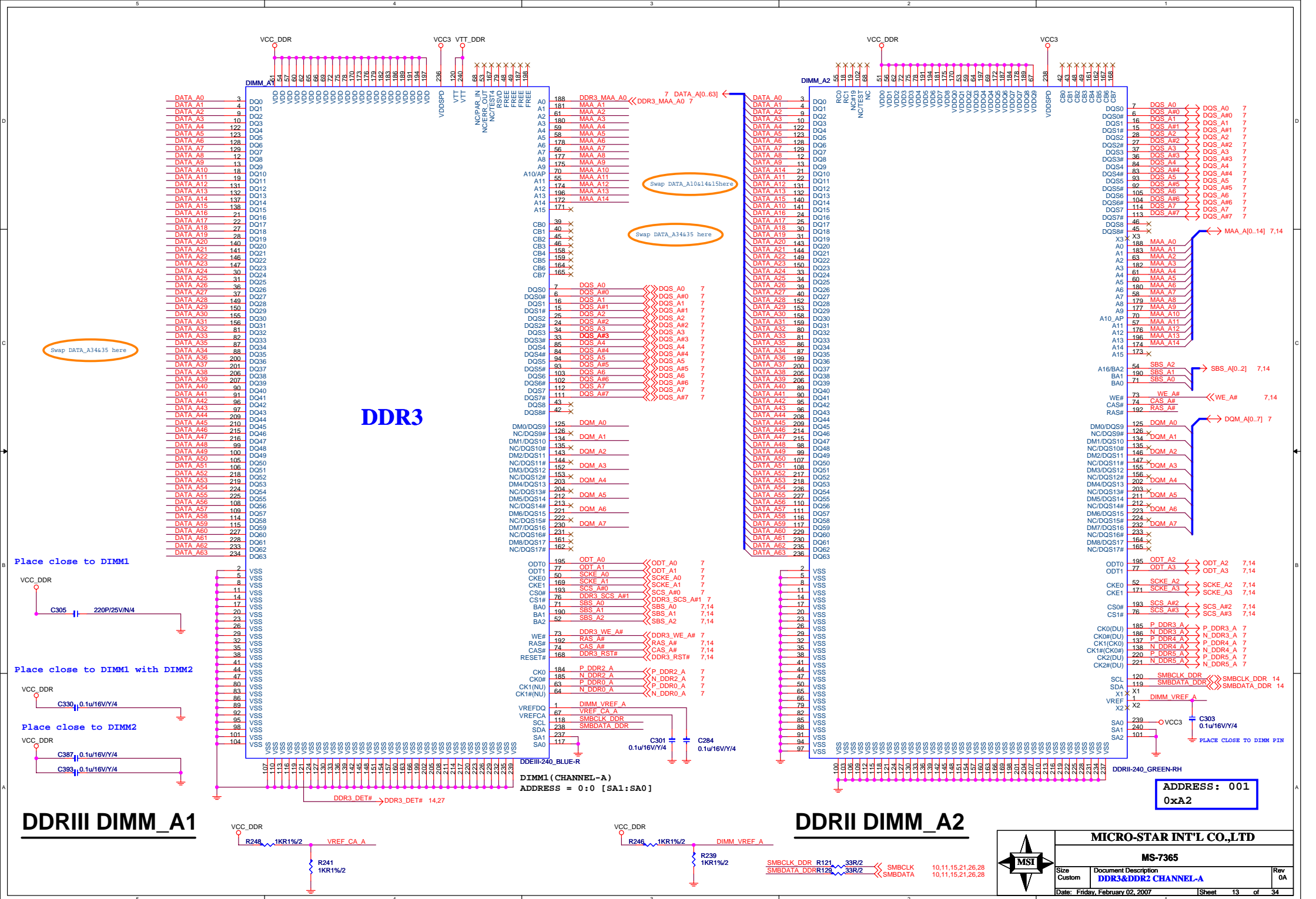
MS-7365

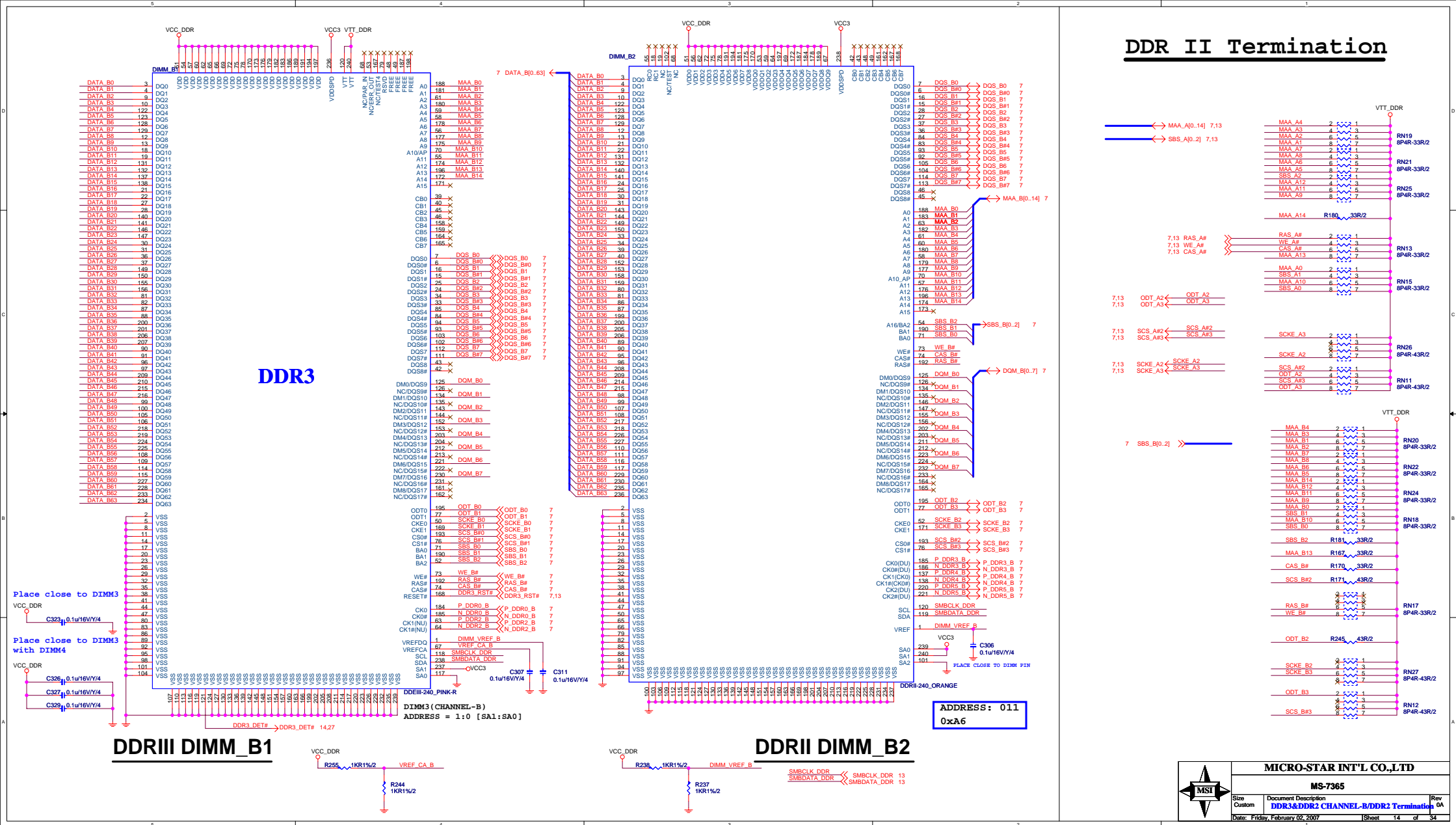
Size Custom	Document Description Bearlake - Power	Rev 0A
Date: Friday, February 02, 2007		Sheet 8 of 34







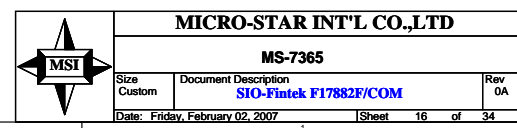
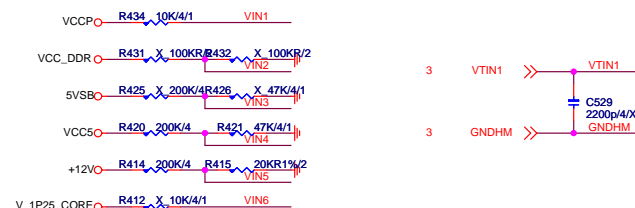
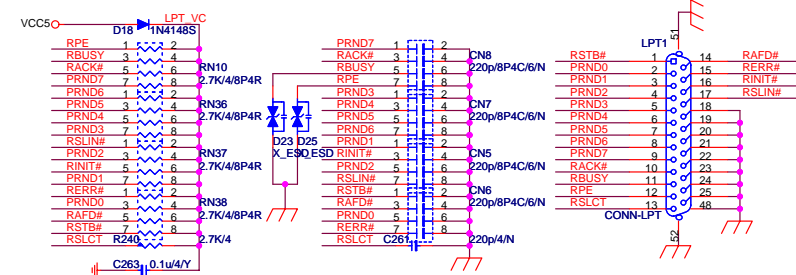




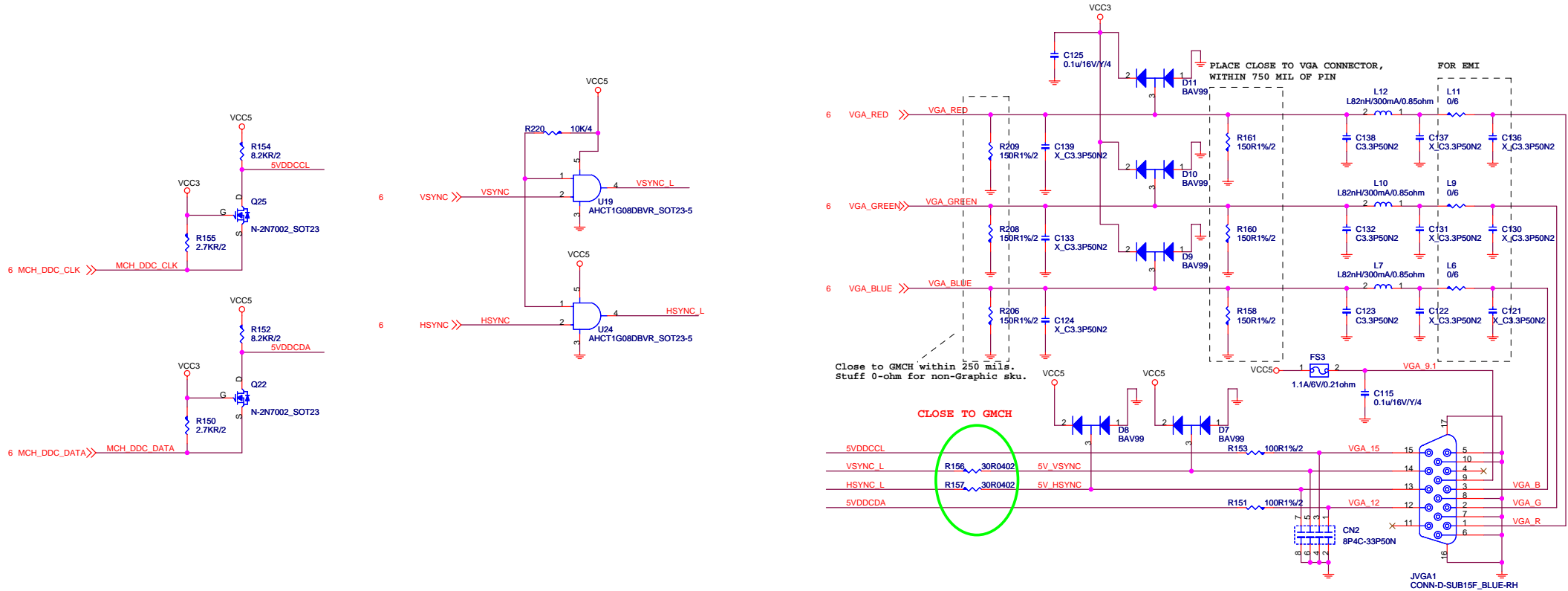
MICRO-STAR INT'L CO.,LTD

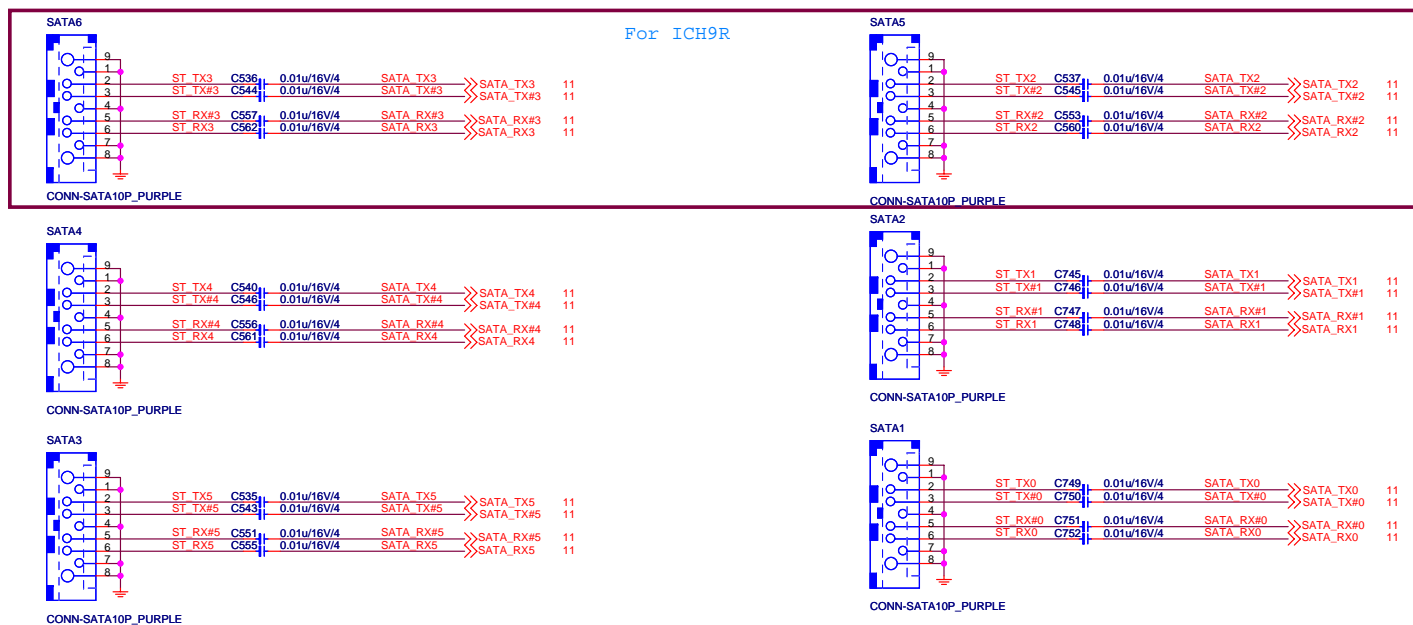
MS-7365

Size Custom	Document Description DDR3&DDR2 CHANNEL-B/DDR2 Termination	Rev 0A
Date: Friday, February 02, 2007	Sheet 14 of 34	

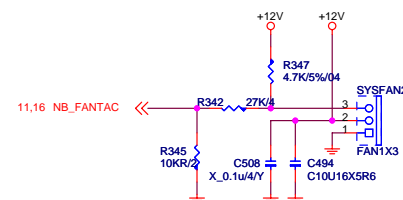
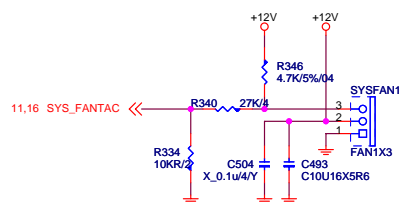
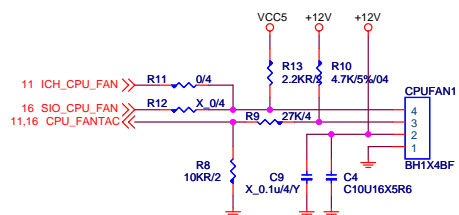


Video Connector





FAN-COUNTROL CIRCUIT

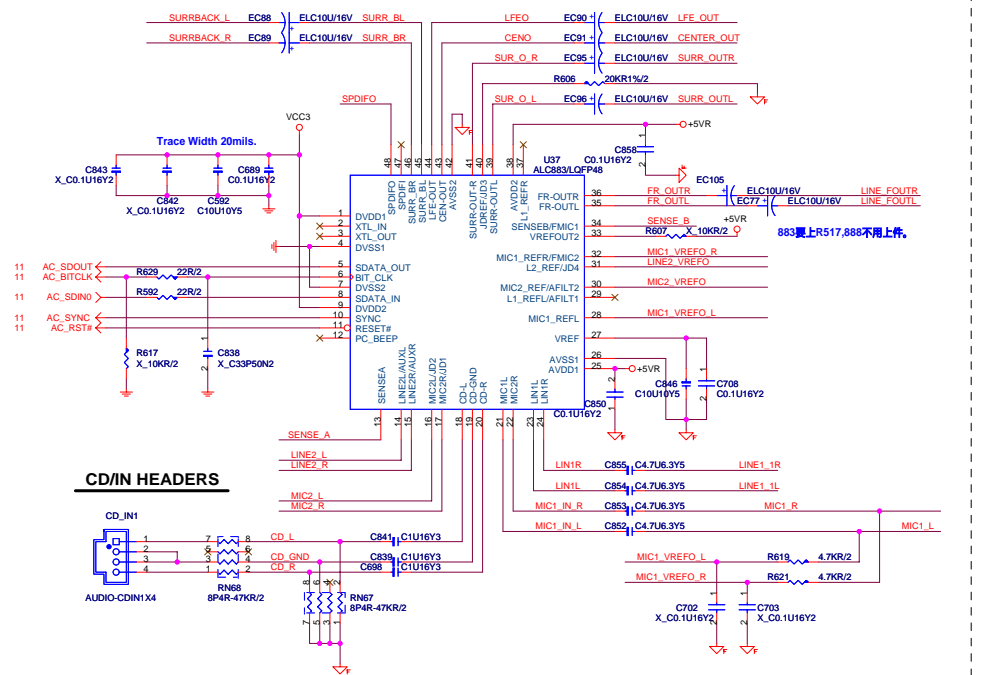


MICRO-STAR INT'L CO.,LTD

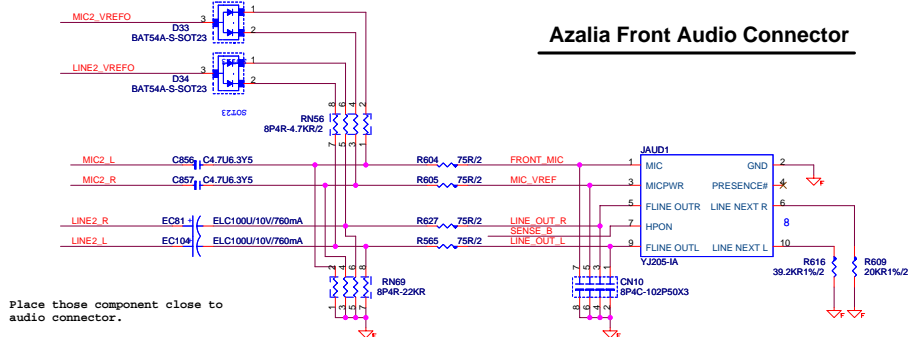
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Size	Document Description	Rev
Custom	SATA & e-SATA Ports and Fan Control	0A
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ALC888 CODEC

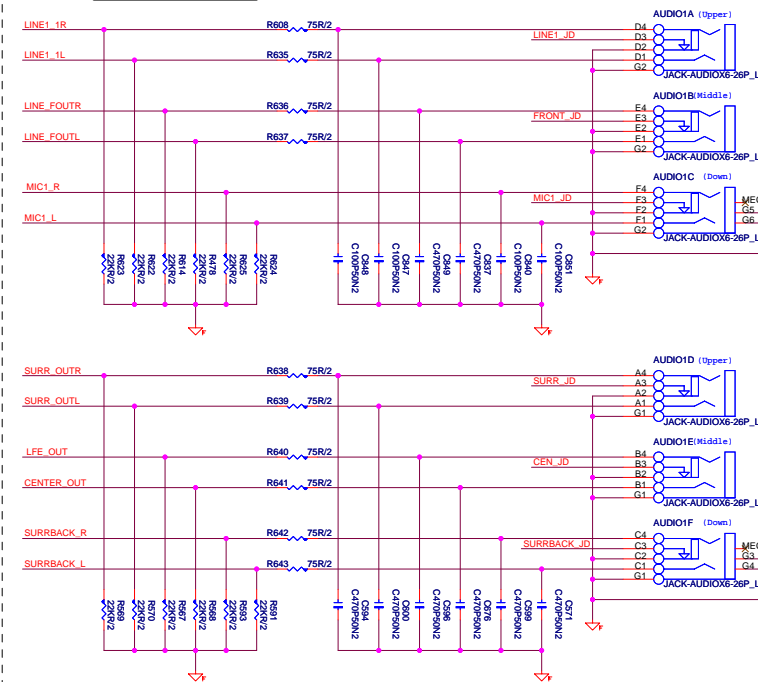


Azalia Front Audio Connector

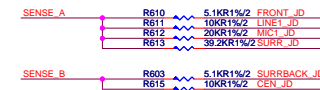


Place those component close to
audio connector.

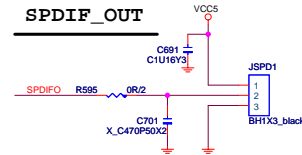
ALC883 JACK



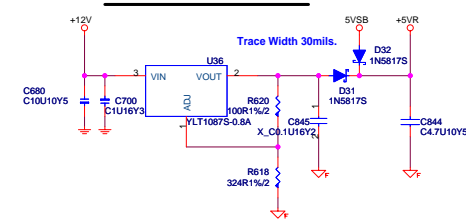
ALC883 JACK DETECT



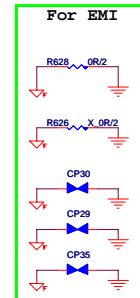
SPDIF_OUT



AUDIO CODE REGULATORS



For EMI



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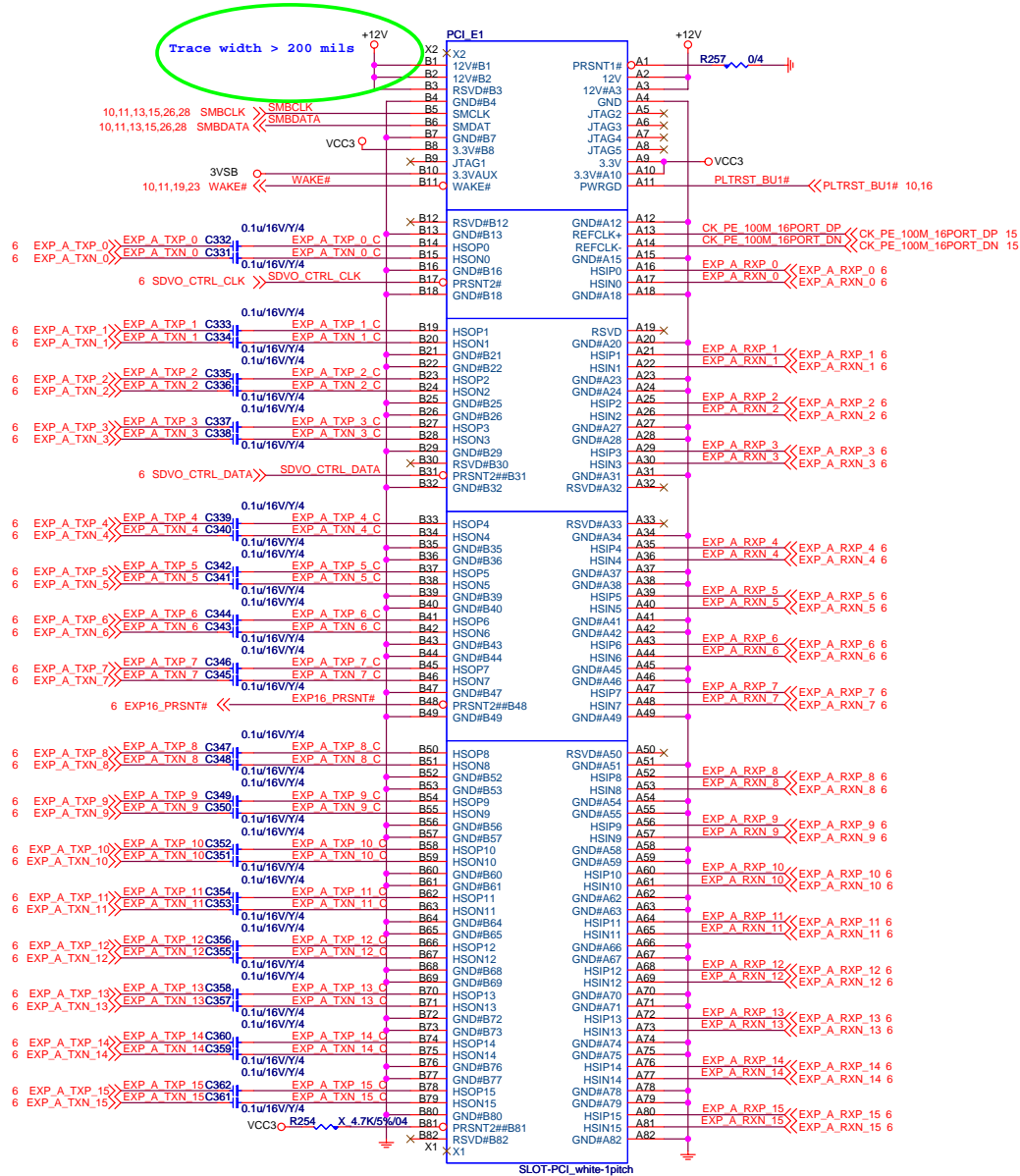
Size	Document Description
Custom	PC

PCIE_LAN_RTL8111E

Date: Monday, February 05, 2007

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PCI_Express X16 slot

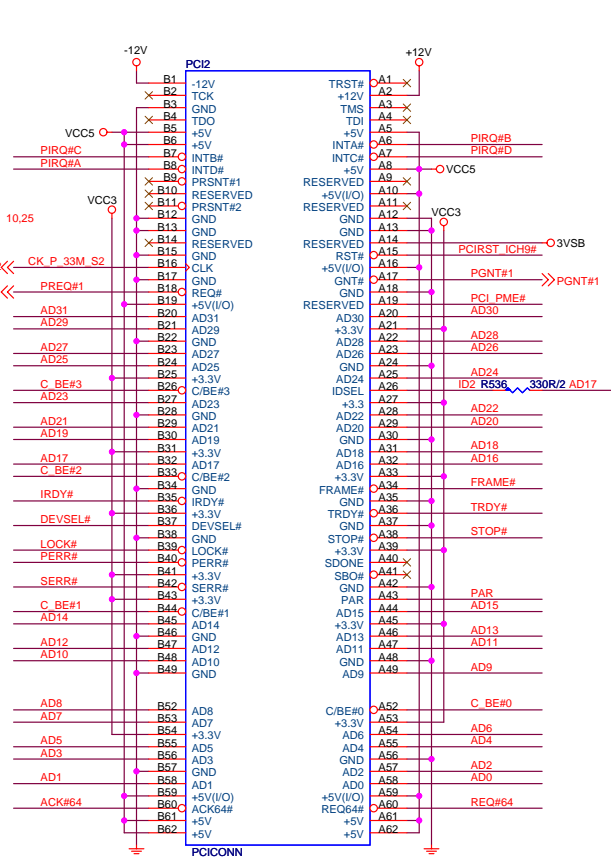


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Size	Document Description	Rev
Custom	PCIE x16, x4, x1 & Bus Switch	0A
Date:	Friday, February 02, 2007	Sheet 21 of 34

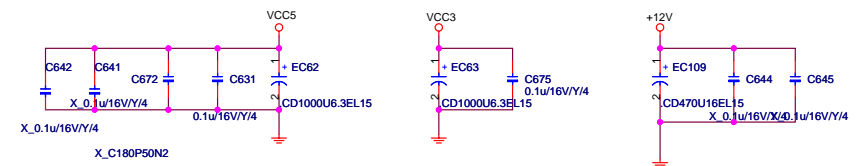
PCI SLOT 2 (PCI VER: 2.2 COMPLY)



PIRQ#B

10,25 C_BE#[3..0] << C_BE#[3..0]

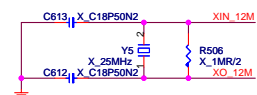
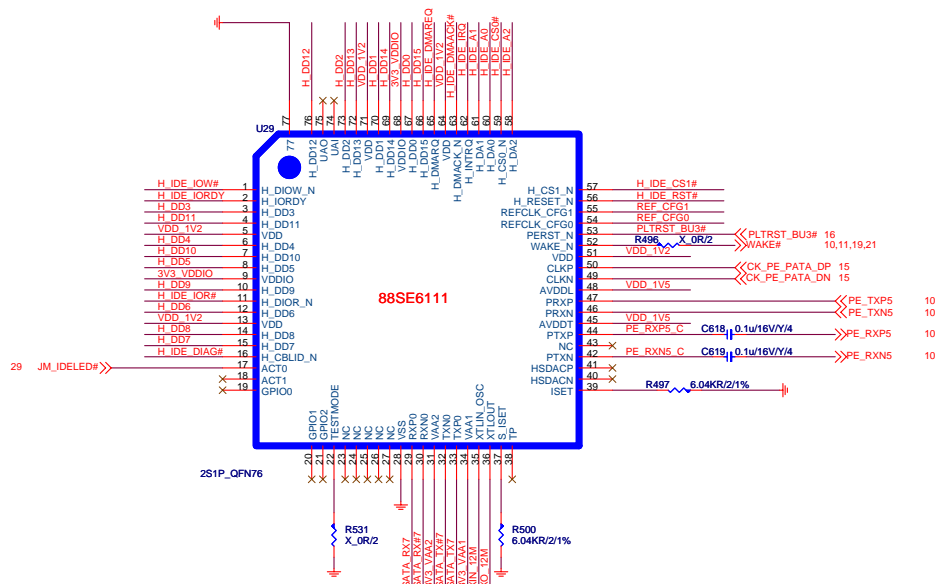
PCI SLOT DECOUPLING CAPACITORS



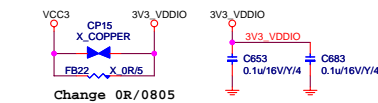
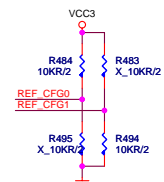
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Size Custom	Document Description PCI Slot 1 & 2	Rev 0A
Date: Friday, February 02, 2007	Sheet 22 of 34	

Hi-Speed PCIE to SATA/PATA Bridge

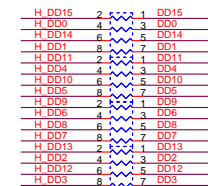
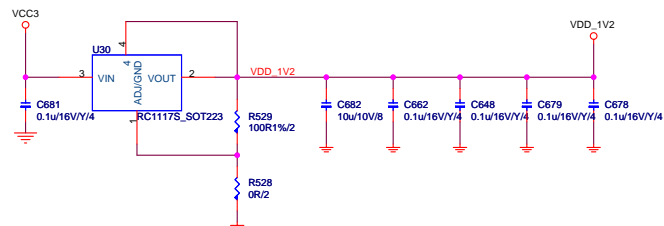
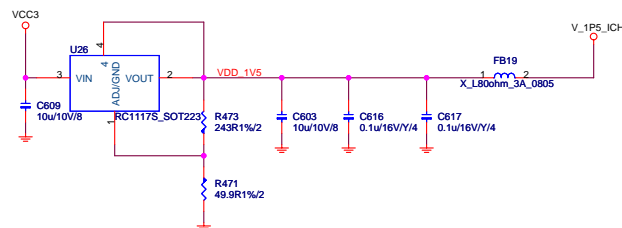
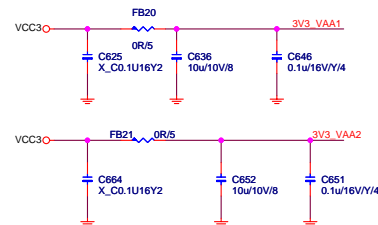


```
REF_CFG[1:0] =  
00:20MHz  
01:25MHz
```

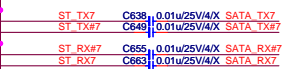
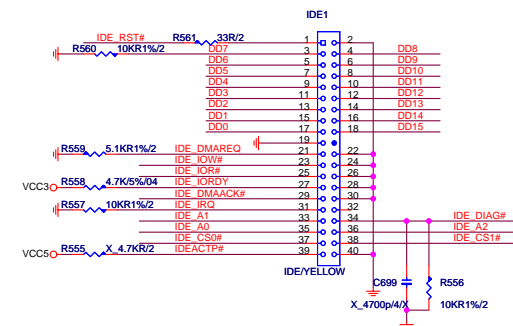
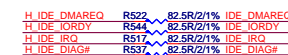


Change 0R/0805

L02-8008074-J07 FOR BEAD



RN60	8P4R-33R/2
RN64	8P4R-33R/2
RN65	8P4R-33R/2
RN62	8P4R-33R/2



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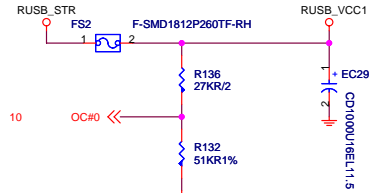
MS-7365

Size Custom	Document Description Marvell 88SE6111 PCIE to PATA/SATA	Rev 0
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Rear USB Connector

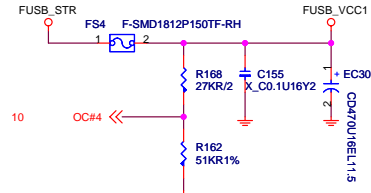
USB POWER FOR PORT 0,1

NEAR CONNECTOR

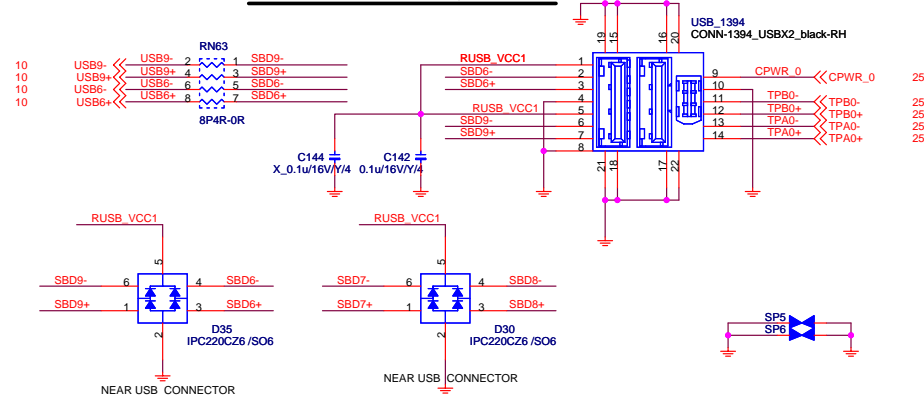


USB POWER FOR PORT 6,7,8,9

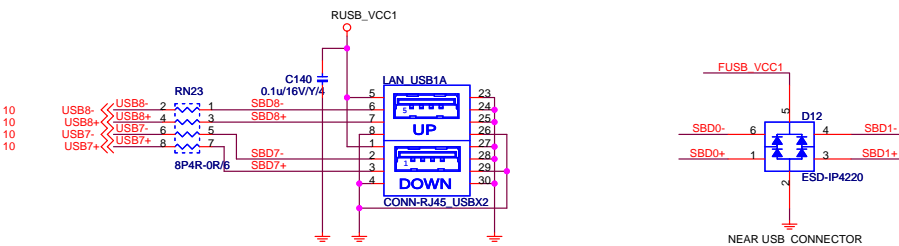
NEAR CONNECTOR



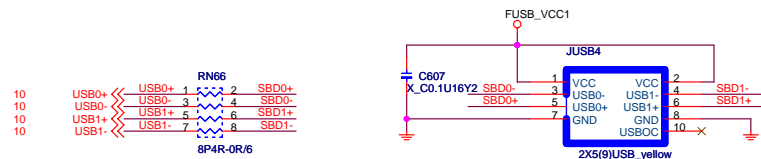
REAR USB PORT 0,1



REAR USB PORT 2,3 (With LAN)



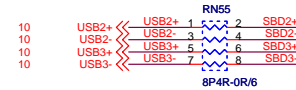
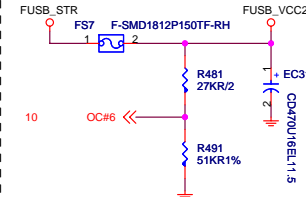
FRONT USB PORT 0,1



Front USB Connector

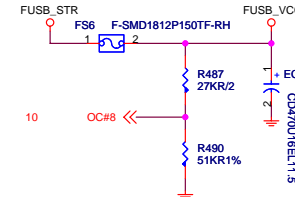
USB POWER FOR PORT 6,7

NEAR CONNECTOR

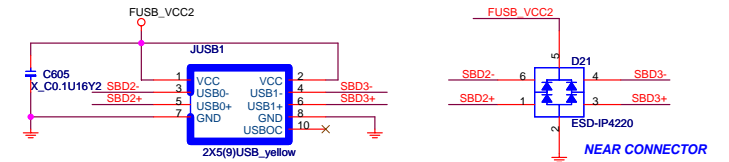


USB POWER FOR PORT 6,7

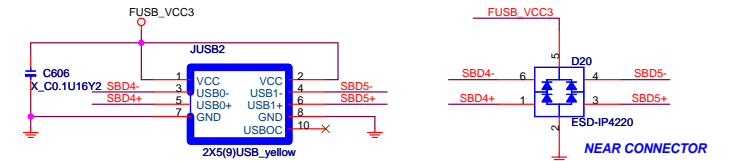
NEAR CONNECTOR



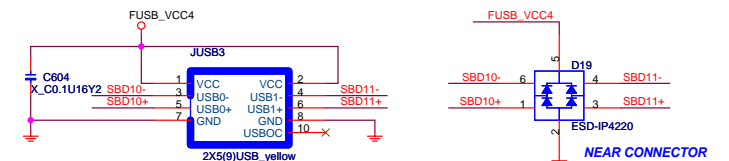
FRONT USB PORT 2,3



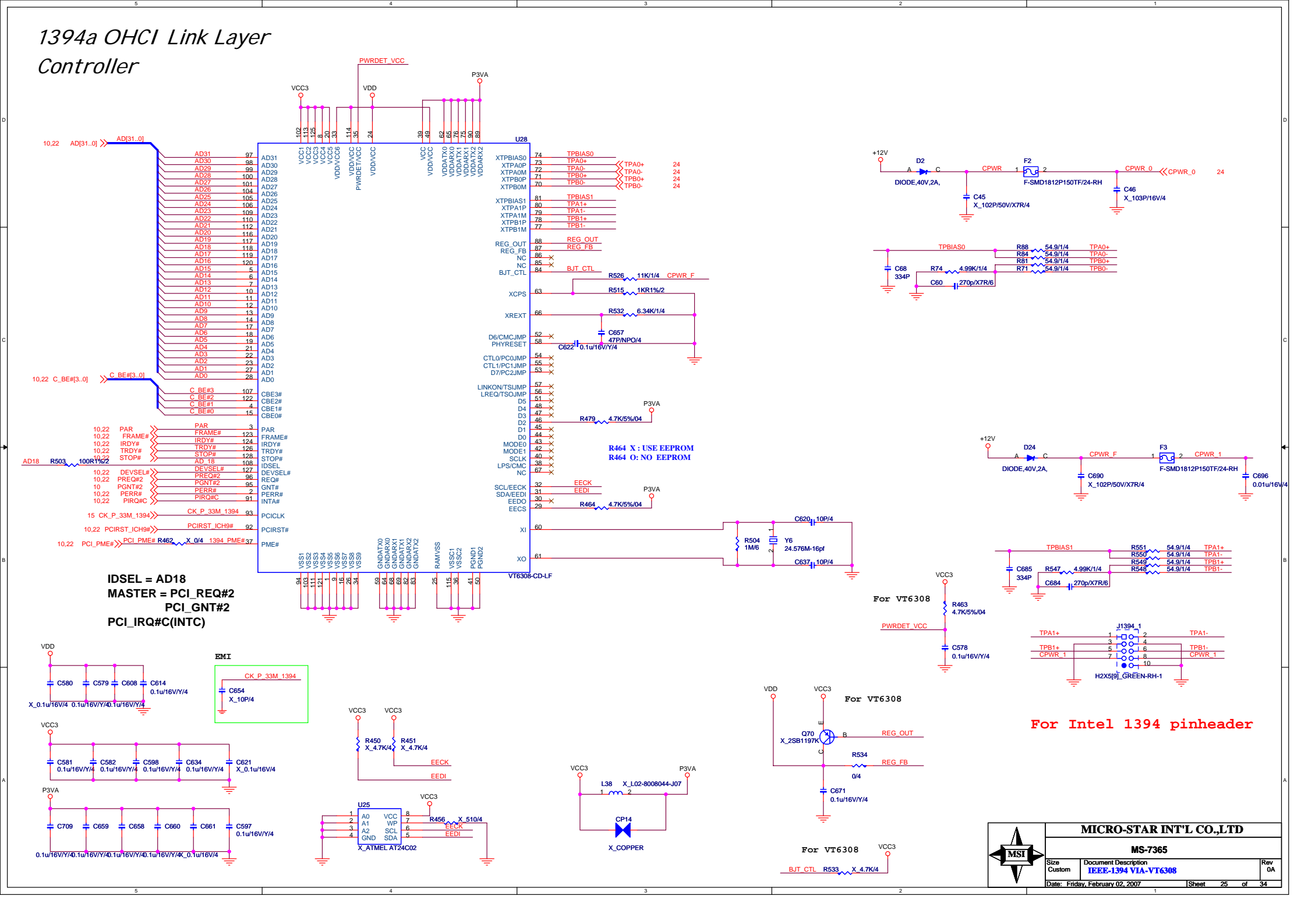
FRONT USB PORT 4,5



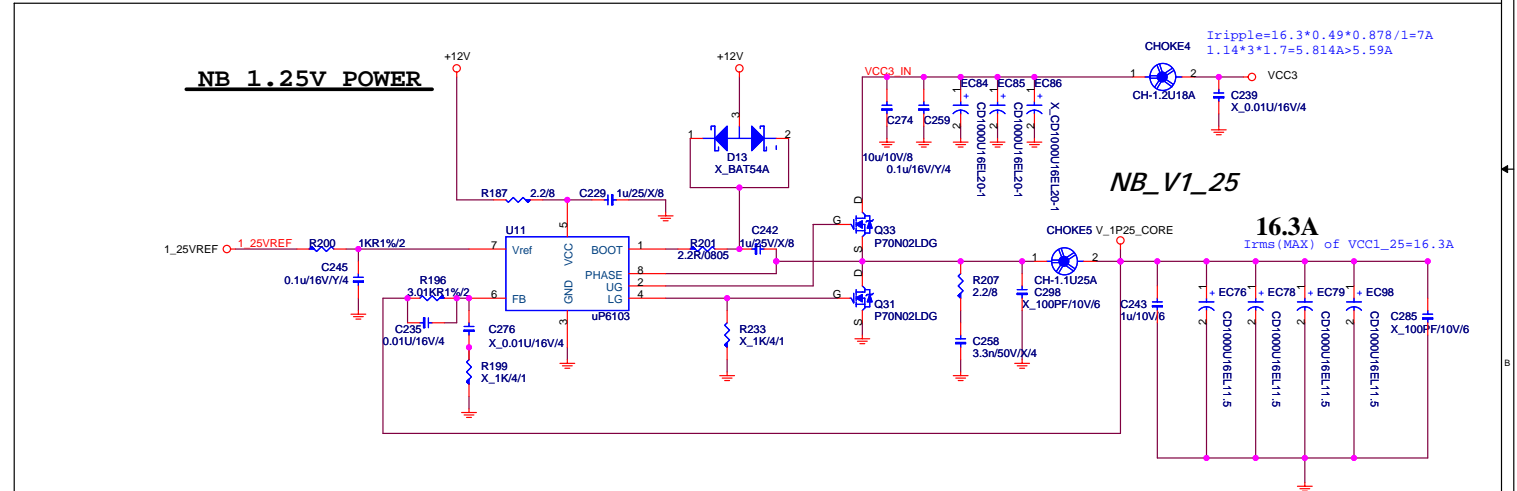
FRONT USB PORT 10,11



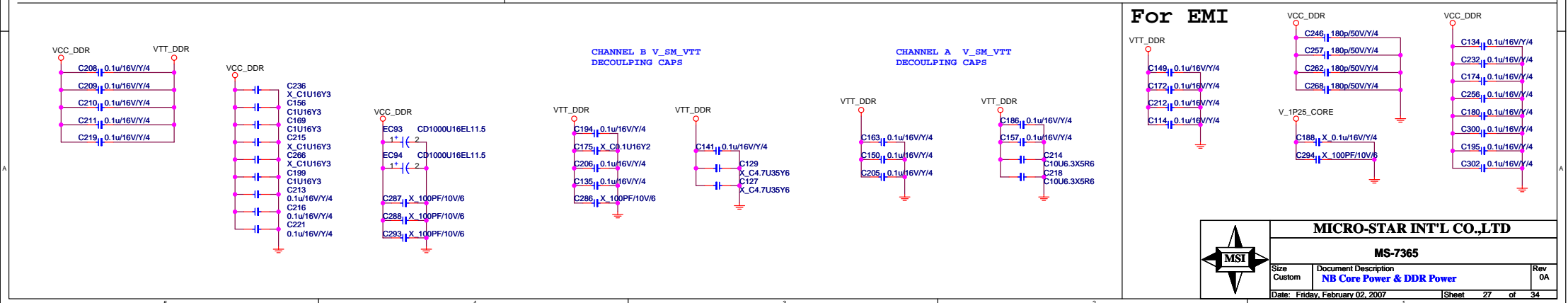
1394a OHCI Link Layer
Controller

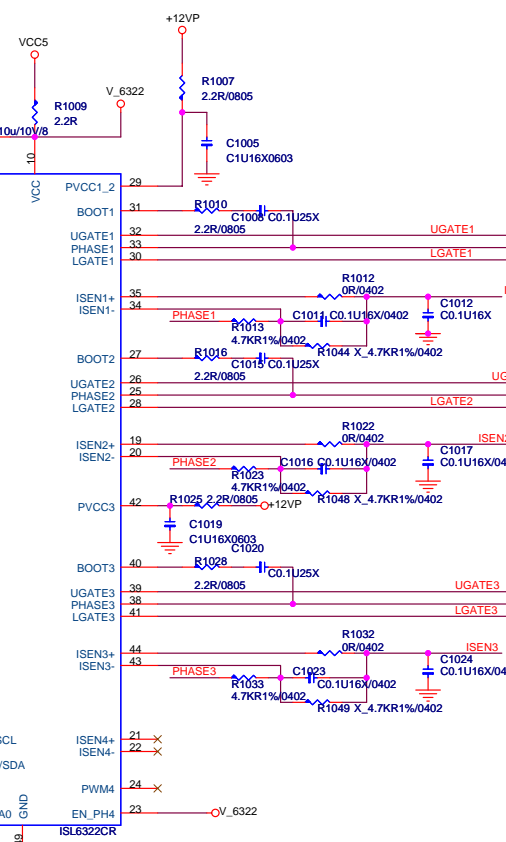
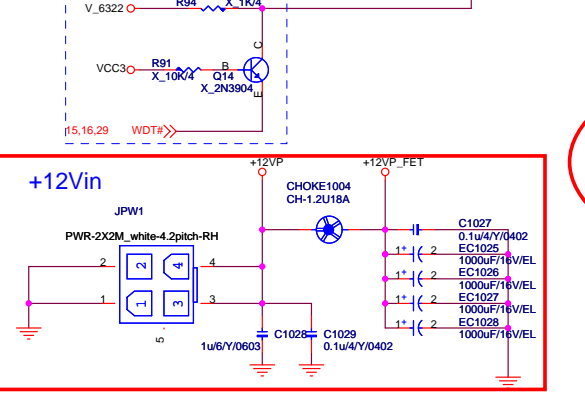
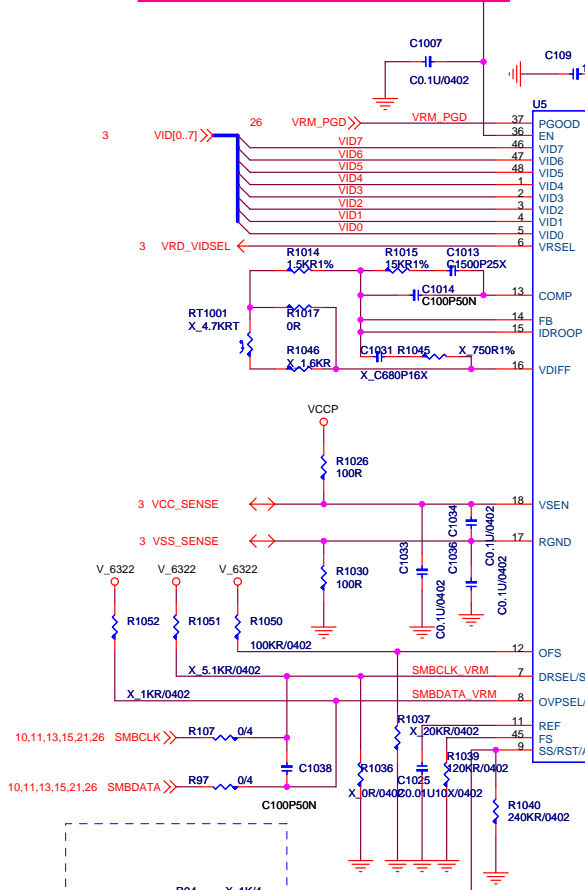
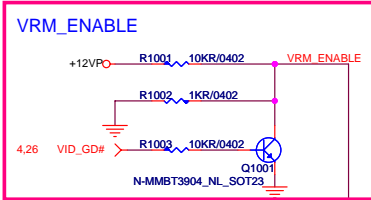


MICRO-STAR INT'L CO.,LTD			
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Size	Document Description	Rev	
Custom	IEEE-1394 VIA-VT6308	0A	
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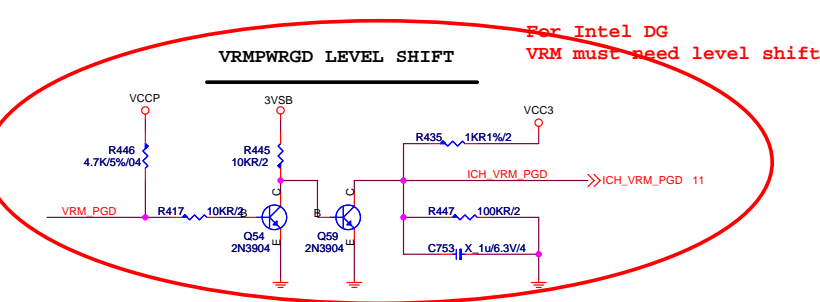
$$I_{ripple} = 15.5 \times 1.8 / (5 \times 0.8) = 6.98A$$
$$2.22 \times 3 \times 1.7 = 11.322A > 6.98A$$


DDR3_DET#	MCH_MTYPE	DDR3	DDR2	DDRVREF
0	0	On	Off	1.5V
1	1	Off	On	1.8V

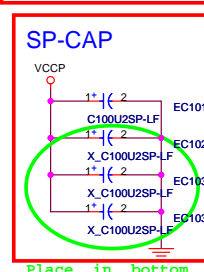
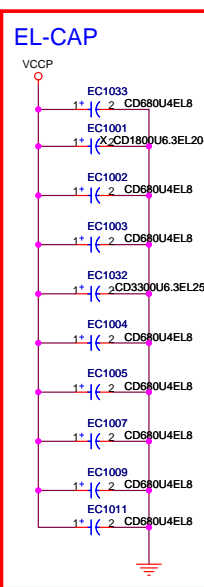
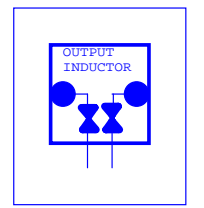
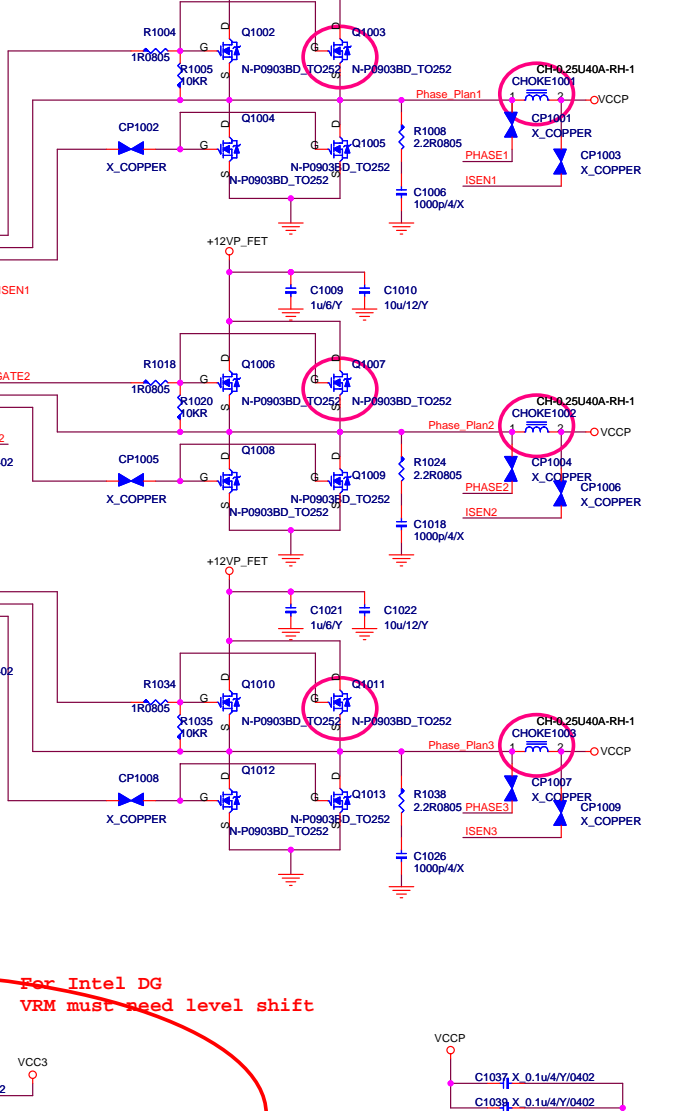




BOTTOM PAD CONNECT TO GND Through 8 VIAs

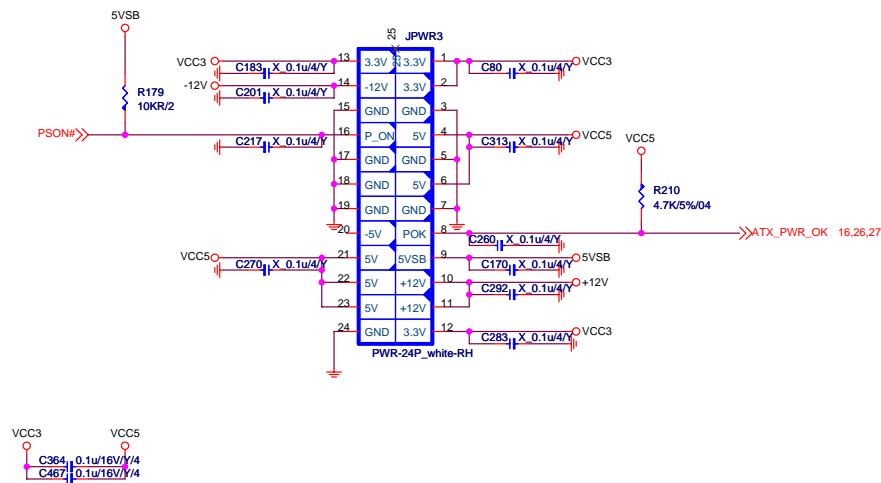


For Intel DG VRM must need level shift

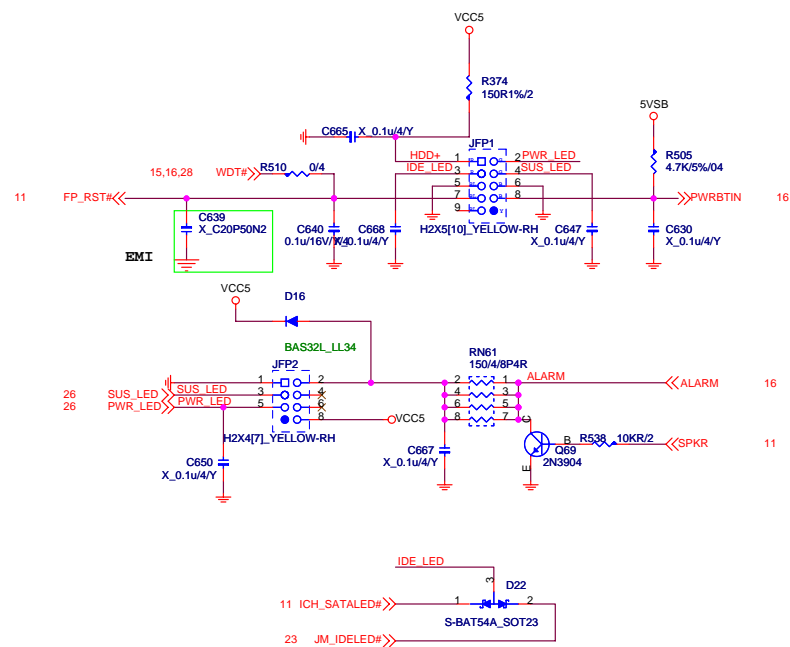


Place in bottom

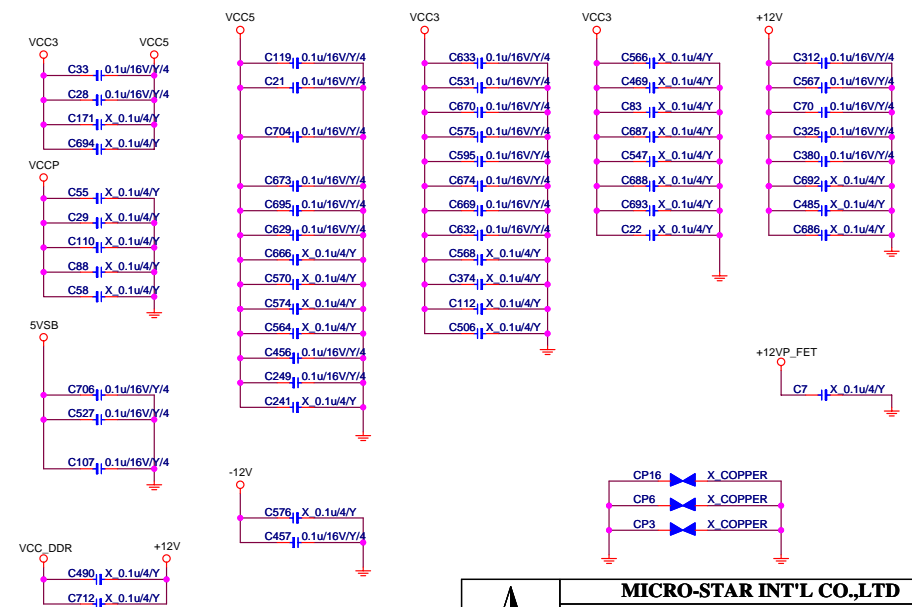
ATX POWER CONNECTOR



FRONT PANNEL



Cap. for EMI & Power



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Size Custom	Document Description ATX PWR-Connector & Front Panel	Rev 0A
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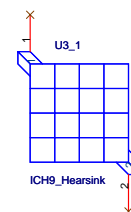
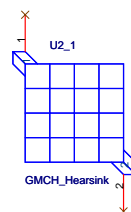
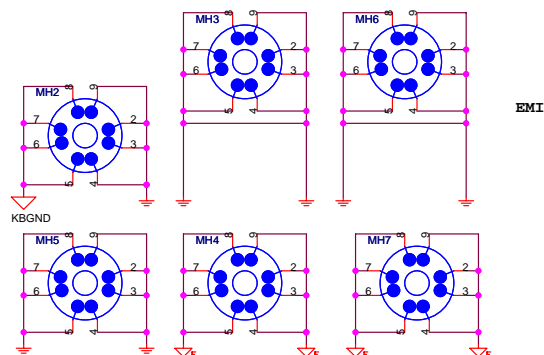
Optical Fiducial Marks-120



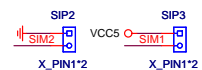
Optical Fiducial Marks-100



Mounting Holes



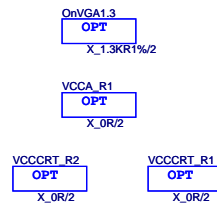
Simulation



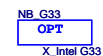
USB Connector for non 1394



Resistor for P35/G33 of VGA Part



For G33



For ICH9R



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LGA775-CPU		
0.8375V - 1.6000V Core	-	125A
1.2V FSB Vtt	-	4.6A

Bearlake-G (G33)		
1.2V FSB_VTT	-	1.2 A
1.25V Core	-	13.8A
1.25V DMI/PCI Exp.	-	2.47 A
1.5V VCC_DDR	-	3.3A
1.5V VCC_SMCLK	-	350mA
3.3V VCCA_DAC	-	66 mA
3.3V VCC33	-	15.8mA
1.25V Vcc CL	-	4.9A

ICH9		
1.05V Core	-	1.16A
1.25V DMI	-	41 mA
1.2V FSB_VTT	-	2 mA
1.5V_A USB/SATA/PLL	-	1.65A
1.5V_B PCI Exp.	-	0.65A
VCCRTC	-	6 uA
3.3V CL	-	19 mA
1.5V GbE LAN	-	87 mA
3.3V VccSus3_3	-	200mA
3.3V Vcc3_3	-	308mA
3.3V 10/100 LAN	-	19 mA
3.3V GbE LAN	-	1 mA
3.3V HDA	-	32 mA
3.3V SusHDA	-	33 mA

1394 Controller VT6308		
3.3V	-	156mA

HD Audio STAC9227		
3.3V AUDIO	-	32mA
5V AUDIO	-	200mA

CK505		
3.3V VDD_48/PCI/REF	-	250mA
0.3V - 1V CPU/SRC/DOT/PLL	-	80mA

RTL8111B		
3.3V_SB I/O & LED	-	668mA
1.8V EVDD/AVDD	-	198mA
1.5V VDD	-	367mA

ISL6306		
VCCP	VRD11/10.x	0.8375V-1.6000V
4-Phase Switch		

W83310DS		
VTT_DDR	0.75V Linear	0.83A

uP6103 SW-Power		
VCC_DDR	1.5V PWM	18.64A

uP6103 SW-Power		
V_1P25_CORE	1.25V PWM	21.21A

MS12 Controller		
V_1P05_ICH	1.05V Linear	1.16A
V_FSB_VTT	1.2V Linear	5.8A
V_1P5_ICH	(T0263)	
VCC3_SB	1.5V Linear	2.31A
5VDUAL1	3.3V Linear	2.5A
5V	Switch	6.35A
5VDIMM		
5V	Switch	6.99A

DDRIII x4 & TERMINATOR		
0.9V VTT_DDR	-	0.83A
1.5V VCC_DDR (S0,S1)	-	7.2A

PCI Express x16 slot		
+12V	-	5.5 A
+3.3Vaux (wake)	-	375mA
+3.3Vaux (no wake)	-	20mA
+3.3V	-	3.0A

PCI Express x 1 slot		
+12V	-	0.5 A
+3.3Vaux (wake)	-	375mA
+3.3Vaux (no wake)	-	20mA
+3.3V	-	3.0A

PCI Express x 4 slot		
+12V	-	5.5A
+3.3Vaux (wake)	-	375mA
+3.3Vaux (no wake)	-	20mA
+3.3V	-	3.0A

PCI slot x2		
+3.3Vaux (wake)	-	375mA
+3.3Vaux (no wake)	-	20mA
+3.3V	-	7.6A
+5V	-	5.0A
+12V	-	0.5A

USB x12		
+5V (S0,S1)	-	6.0A
+5V (S3)	-	20mA


PS2		
+5V (S0,S1)	-	345mA
+5V (S3)	-	2.0mA

5VAudio		
+5VR		
500mA		

+12V		
ATX 2x2		

+5V	+3.3V	+5VSB	+12V
24.97A			
ATX POWER			

■ Bead or Inductor
 ✕ X-Copper

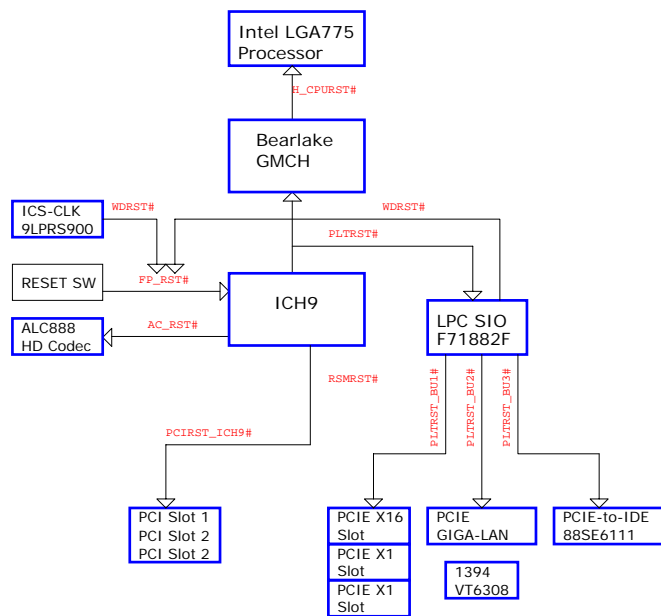


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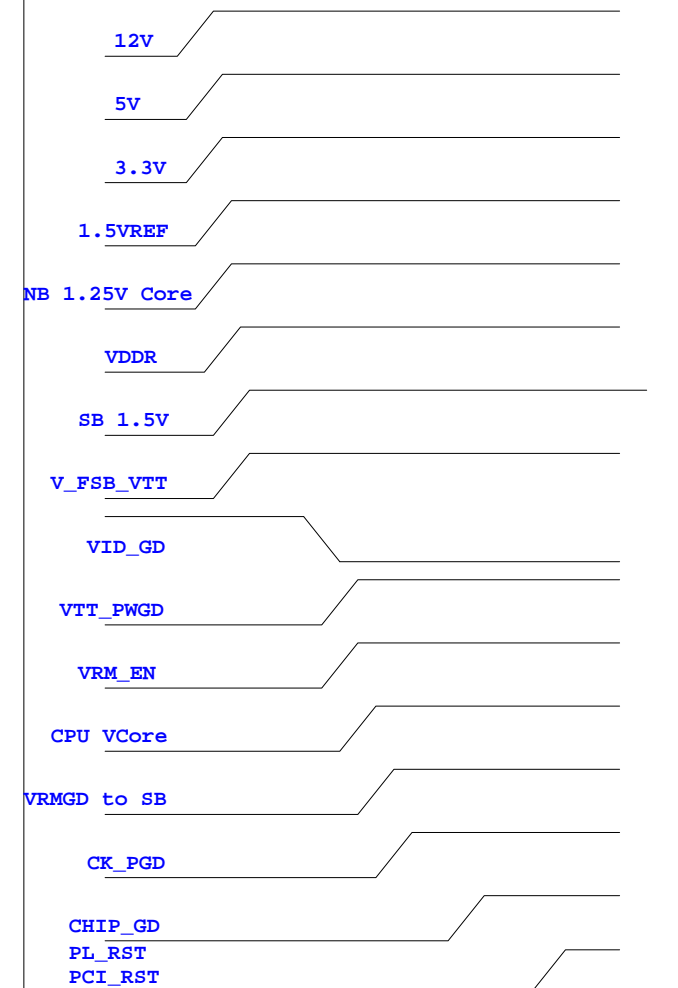
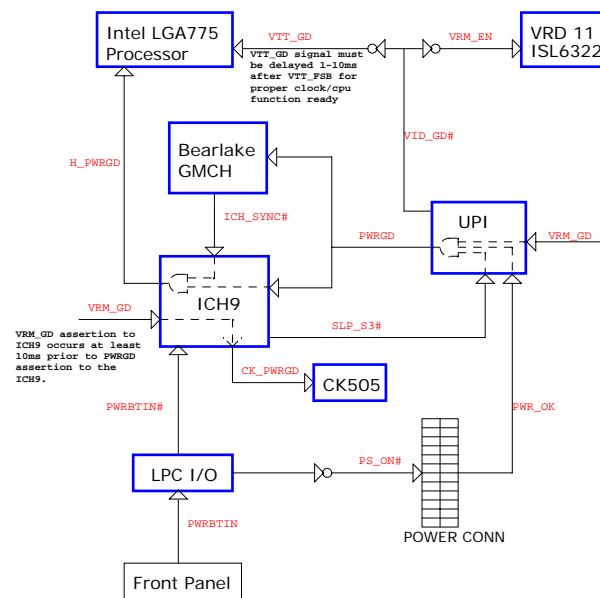
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RESET MAP



PWROK MAP



ICH8

GPIO	Alt Func	I/O/NC	Power	ToI	Default	Signal Name
GPIO[0]	BM_BUSY#	I/O	Core	3.3V	GPI	
GPIO[1]	TACH1	I/O	Core	3.3V	GPI	SYS1_FANTAC
GPIO[5:2]	PIRQ[H:E]#	I/OD	Core	5V	GPI	PIRQ#[H:E]
GPIO[7:6]	TACH[3:2]	I/O	Core	3.3V	GPI	SYS2/3_FANTAC
GPIO[8]	unmuxed	I/O	Resume	3.3V	GPI	
GPIO[9]	WOL_EN	I/O	Resume	3.3V	Native	
GPIO[10]	CLGPIO1	I/O	Resume	3.3V	GPI	
GPIO[11]	SMBALERT#	I/O	Resume	3.3V	Native	
GPIO[12]	unmuxed	I/O	Resume	3.3V	GPO	
GPIO[13]	unmuxed	I/O	Resume	3.3V	GPI	SIO_PME#
GPIO[14]	CLGPIO2	I/O	Resume	3.3V	GPI	
GPIO[15]	unmuxed	I/O	Resume	3.3V	Native	
GPIO[16]	unmuxed	I/O	Core	3.3V	GPO	
GPIO[17]	TACH0	I/O	Core	3.3V	GPI	CPU_FANTAC
GPIO[18]	unmuxed	I/O	Core	3.3V	GPO	
GPIO[19]	SATA1GP	I/O	Core	3.3V	GPI	
GPIO[20]	unmuxed	I/O	Core	3.3V	GPO	
GPIO[21]	SATA0GP	I/O	Core	3.3V	GPI	
GPIO[22]	SCLOCK	I/O	Core	3.3V	GPI	
GPIO[23]	LDRQ1#	I/O	Core	3.3V	Native	
GPIO[24]	CLGPIO0	I/O	Resume	3.3V	GPO	
GPIO[25]	STP_CPU#	I/O	Resume	3.3V	Native	
GPIO[26]	S4_STATE#	I/O	Resume	3.3V	Native	
GPIO[27]	QRT_STATE0	I/O	Resume	3.3V	GPO	
GPIO[28]	QRT_STATE1	I/O	Resume	3.3V	GPO	
GPIO[29]	OC5#	I/O	Resume	3.3V	Native	OC#4
GPIO[30]	OC6#	I/O	Resume	3.3V	Native	OC#6
GPIO[31]	OC7#	I/O	Resume	3.3V	Native	OC#6
GPIO[32]	unmuxed	I/O	Core	3.3V	GPO	SPI_WP#
GPIO[33]	unmuxed	I/O	Core	3.3V	GPO	SPI_HOLD_GPO#
GPIO[34]	unmuxed	I/O	Core	3.3V	GPO	
GPIO[35]	SATACLKREQ#	I/O	Core	3.3V	GPO	
GPIO[36]	SATA2GP	I/O	Core	3.3V	GPI	
GPIO[37]	SATA3GP	I/O	Core	3.3V	GPI	
GPIO[38]	SLOAD	I/O	Core	3.3V	GPI	
GPIO[39]	SDATAOUT0	I/O	Core	3.3V	GPI	
GPIO[43:40]	OC[4:1]#	I/O	Resume	3.3V	Native	OC#0;OC#4
GPIO[47:44]	OC[11:8]#	I/O	Resume	3.3V	Native	OC#8;OC#10
GPIO[48]	SDATAOUT1	I/O	Core	3.3V	GPI	
GPIO[49]	unmuxed	I/O	Core	3.3V	GPO	
GPIO[50]	REQ1#	I/O	Core	5V	Native	PREQ1#
GPIO[51]	GNT1#	I/O	Core	3.3V	Native	PGNT1#
GPIO[52]	REQ2#	I/O	Core	5V	Native	PREQ2#
GPIO[53]	GNT2#	I/O	Core	3.3V	Native	PGNT2#
GPIO[54]	REQ3#	I/O	Core	5V	Native	PREQ3#
GPIO[55]	GNT3#	I/O	Core	3.3V	Native	PGNT3#
GPIO[56]	GLAN_DOCK#	I/O	Resume	3.3V	GPI	
GPIO[57]	CLGPIO5	I/O	Resume	3.3V	GPI	
GPIO[58]	SPI_CS1#	I/O	Resume	3.3V	GPI	SPI_CS1#
GPIO[59]	OC#0	I/O	Resume	3.3V	Native	OC#0
GPIO[60]	LINKALERT#	I/O	Resume	3.3V	Native	

JUMPER SETTING

JBAT1	(1-2)NORMAL	(2-3)CLEAR
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SIO(F71882)

PIN NAME	USAGE	Input/Output	NOTES
GPIO[2:0]	MCH_BSEL[2:0]	OUTPUT	PROGRAMED BSEL[2:0] OUTPUT
GPIO3	PCIEX1#	OUTPUT	PROGRAMED X1/X4 OPTION OUTPUT
GPIO4	UNUSED		
GPIO5	UNUSED		
GPIO6	UNUSED		
GPIO7	WDT#	OUTPUT	WATCH DOG TIMER RESET OUTPUT
GPIO10	DLED1	OUTPUT	DEBUG LED OUTPUT 1
GPIO11	UNUSED		
GPIO12	UNUSED		
GPIO13	BEEP	OUTPUT	
GPIO14	UNUSED		
GPIO15	DLED2	OUTPUT	DEBUG LED OUTPUT 2
GPIO16	DLED3	OUTPUT	DEBUG LED OUTPUT 3
GPIO17	UNUSED		
GPIO20	PLTRST_BU#1	OUTPUT	PCI RESTE BUFFER1
GPIO21	PLTRST_BU#2	OUTPUT	PCI RESTE BUFFER2
GPIO22	PLTRST_BU#3	OUTPUT	PCI RESTE BUFFER3
GPIO23	UNUSED		
GPIO24	PWR_OK	INPUT	ATX POWER OK INPUT
GPIO26	PWRBTIN	INPUT	FRONT PANNEL POWER BUTTON
GPIO27	PWRBTN#	OUTPUT	POWER BUTTON BUFFER OUT
GPIO30	SLP_S3#	INPUT	FRONT SOUTBRIDGE S3#
GPIO31	PSON#	OUTPUT	OUTPUT FOR ATX POWER ON
GPIO32	DLED4	OUTPUT	DEBUG LED OUTPUT 4
GPIO33	UNUSED		
GPIO40	SYS2_FANTAC	INPUT	
GPIO41	UNUSED		
GPIO42	IRTX	OUTPUT	
GPIO43	IRRX	INPUT	
VIDIN[2:0]	CPU_BSEL[2:0]	INPUT	CPU BSEL[2:0] INPUT
VIDIN3	UNUSED	INPUT	RESERVED FOR PCIE X4 INDICATION

DDR-III DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	00	P/N_DDR0_A P/N_DDR2_A
DIMM 2	01	P/N_DDR3_A P/N_DDR5_A
DIMM 3	10	P/N_DDR0_B P/N_DDR2_B
DIMM 4	11	P/N_DDR3_B P/N_DDR4_B

PCI Config.

DEVICE	MCP1 INT Pin	REQ#/GNT#	IDSEL	CLOCK
PCI Slot 1	PIRQ#A PIRQ#B PIRQ#C PIRQ#D	PREQ#0 PGNT#0	AD16	CK_P_33M_S1
PCI Slot 2	PIRQ#B PIRQ#C PIRQ#D PIRQ#A	PREQ#1 PGNT#1	AD17	CK_P_33M_S2
1394	PIRQ#D	PREQ#2 PGNT#2	AD18	CK_P_33M_1394



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- 0A
1. Change COM1's PartNO 0131-A
2. Remove R452 、 R630 0131-D
3. Change JSPD1 to 3 Pins PartNO 0131-D
4. Change R299's PartNO 0131-D

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