

CONTENT	SHEET
Cover Sheet, Block diagram	1-2
Intel LGA775 CPU - Signals/ Power/ GND	3-5
Intel Eaglelake - FSB, PCIE, DMI	6
Intel Eaglelake - VGA, MSIC	7
Intel Eaglelake - Memory DDR3	8
Intel Eaglelake - Power / GND	9-10
ICH10 - PCI, USB, DMI, PCIE	11
ICH10 - Host, DMI, SATA, Audio, SPI, RTC, MSIC	12
ICH10 - Power, GND	13
DDR3 Chanel-A / Chanel-B	14-15
Clock Gen - IDTCV184	16
Super I/O Fintek F71882	17
VGA	18
SATA / e-SATA / FAN Control	19
LAN Intel82567 (OPT1-vPro)	20
LAN Realtek RTL8111C(PCIE)	21
Audio Codec ALC888S	22
PCIE x16, x1	23
DVI transfer & switch	24
PCI Slot 1 & 2	25
Rear/Fount USB Connector	26-27
System Power/ACPI Controller UPI	28
DDR3 / NB-Core Switching Power	29
VRD11 - ISL6334 4Phase	30
ATX Power-Con. / F_Panel	31
Manual & Option Parts	32
Power Delivery Reset & PWROK map	33-35
Revision History	36

# MS-7541 UATX Version: 0A

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

## System Chipset:

Intel Eaglelake - G/P (G, P3North Bridge)  
Intel ICH10 (South Bridge)

## On Board Device:

CLOCK Gen -- IDTCV184  
LPC Super I/O -- Fintek F71882F  
LAN -- LAN Intel 82567  
LAN -- Realtek 8111C (PCIE)  
HD Audio Codec -- ALC888S  
PCIE to DVI Interface

## Main Memory:

Dual-channel DDR-III \* 4

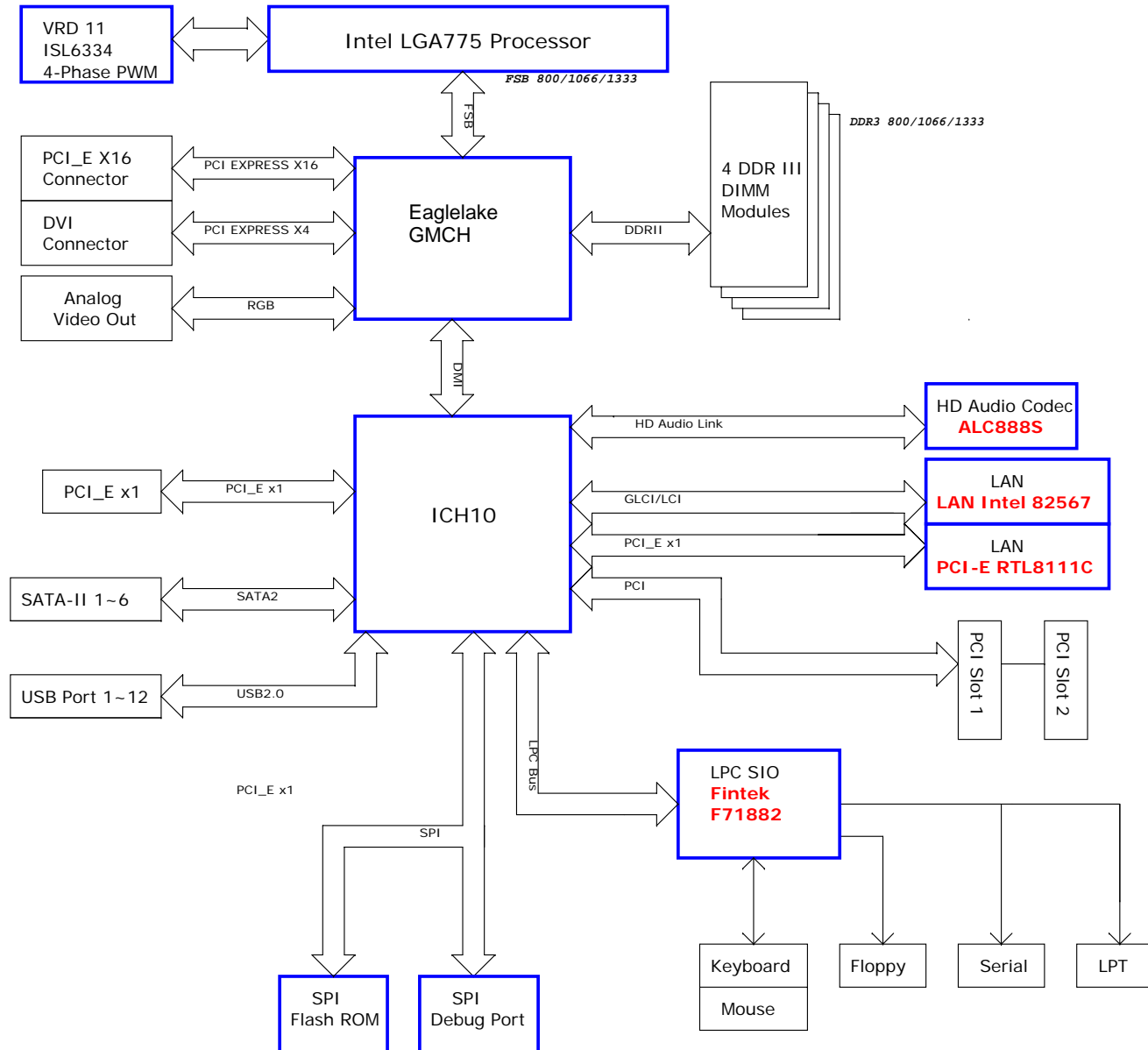
## Expansion Slots:

PCI EXPRESS X16 SLOT \*1  
PCI EXPRESS X4 share to DVI  
PCI EXPRESS X1 SLOT \* 1  
PCI SLOT \* 2

**PWM:** ISL6334 4Phase

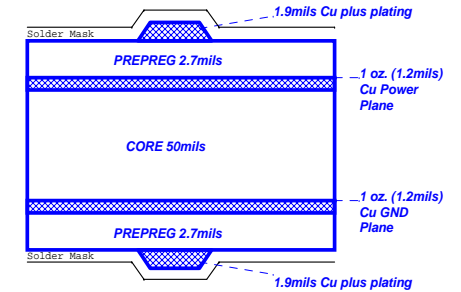
<b>MICRO-STAR INT'L CO.,LTD</b>		
<b>MS-7541-2008-03011J</b>		
Size Custom	Document Description <b>COVER SHEET</b>	Rev 0A
Date: Thursday, March 13, 2008	Sheet 1 of 37	

# Block Diagram



## Board Stack-up

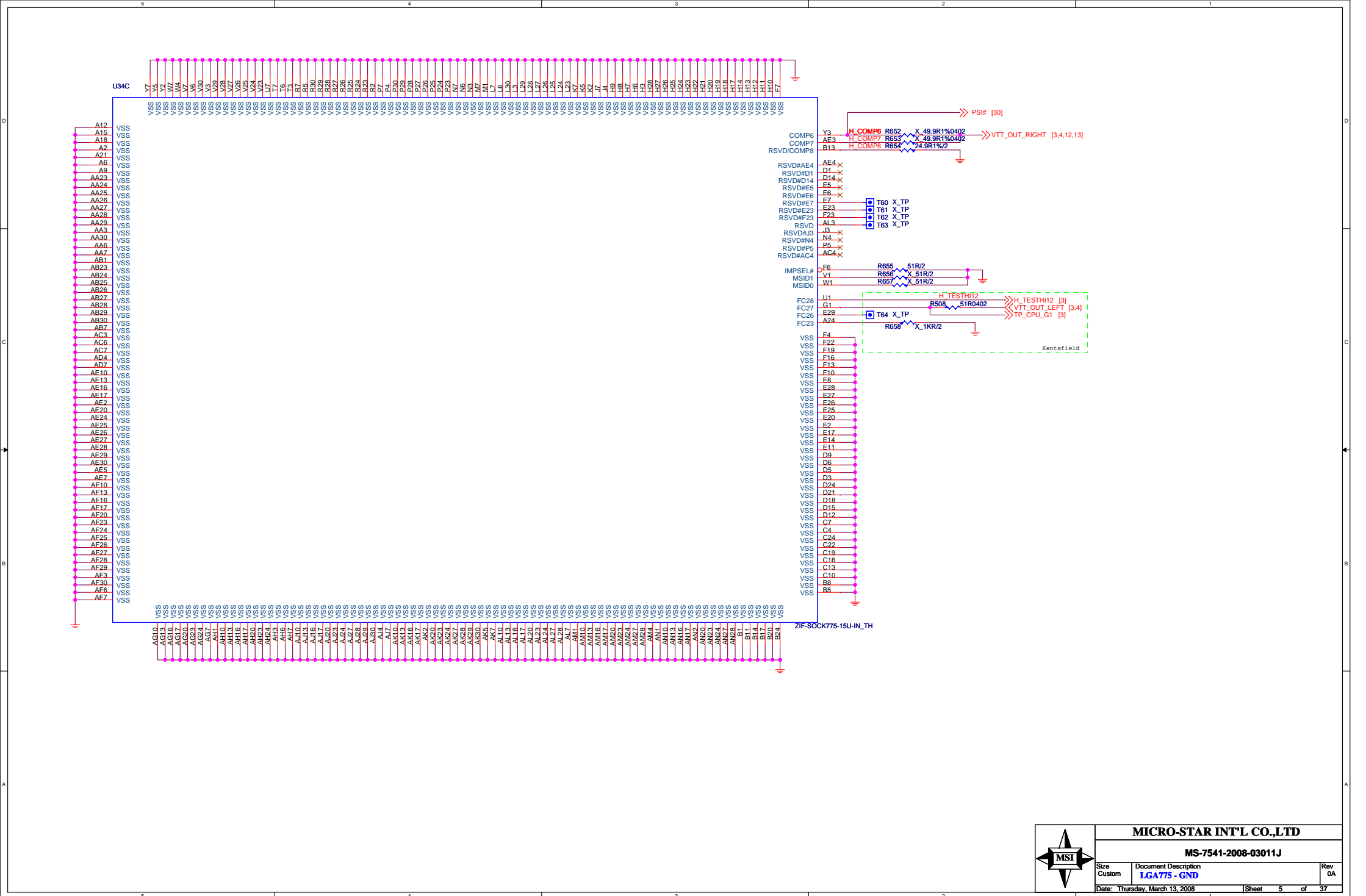
(1080 Prepreg Considerations)



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







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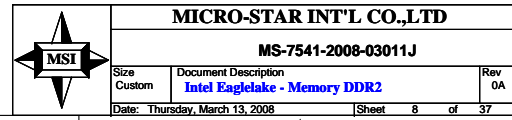
**MS-7541-2008-03011J**

Size Custom	Document Description <b>LGA775 - GND</b>	Rev 0A
Date: Thursday, March 13, 2008	Sheet 5 of 37	

Sheet 6 of 37

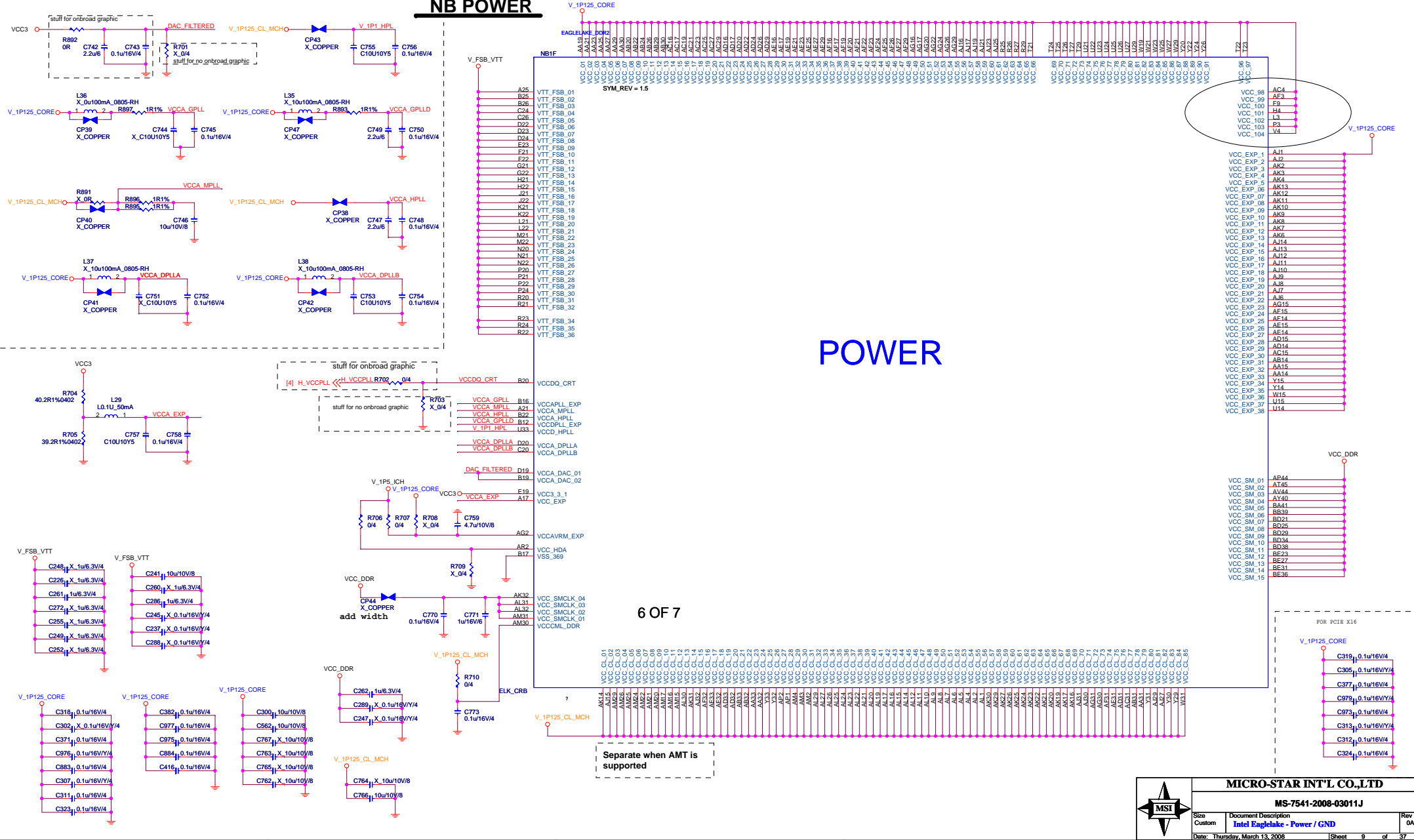








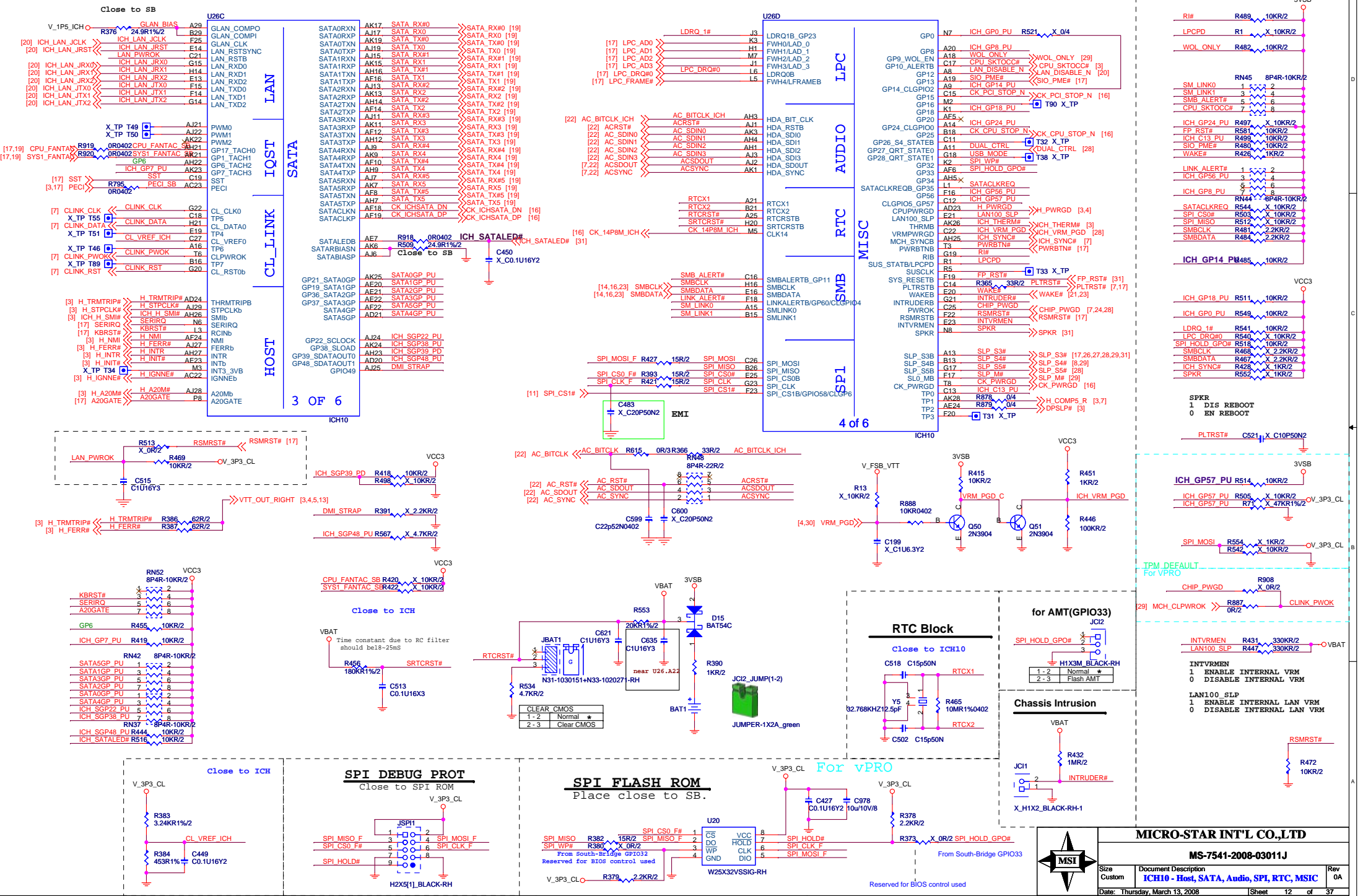
## NB POWER



GND

70F 7





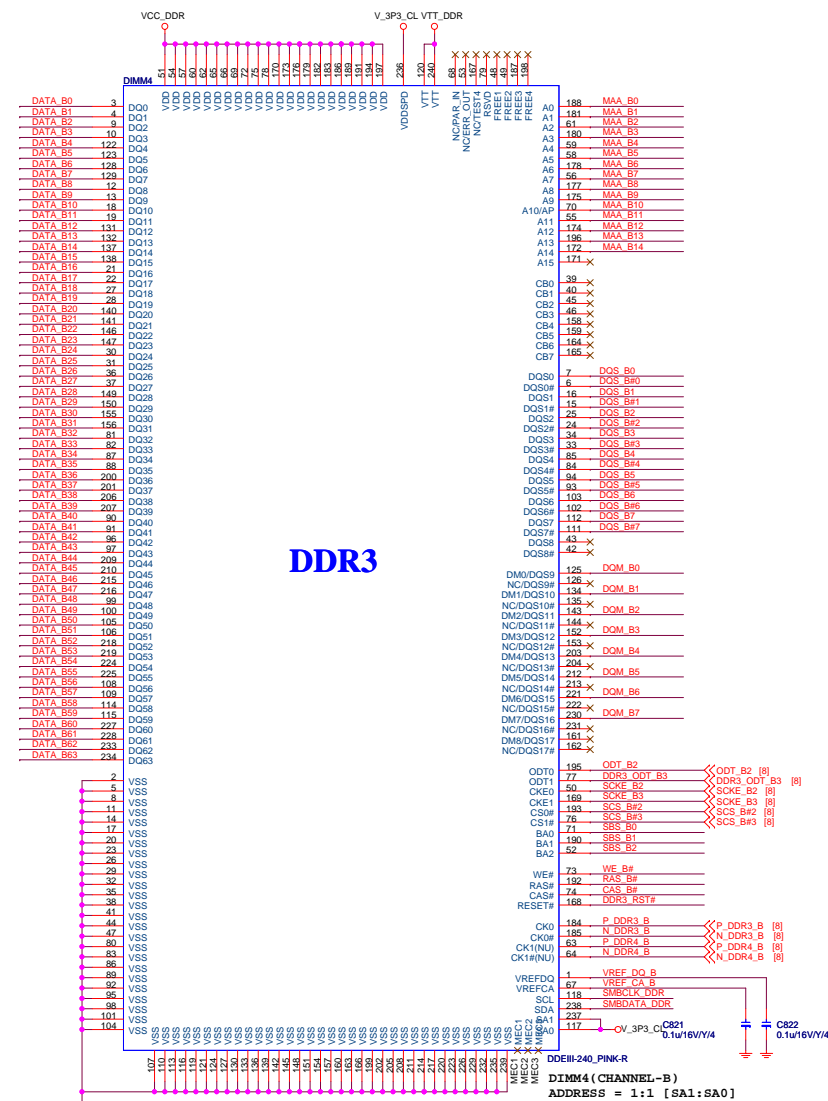
MICRO-STAR INT'L CO.,LTD		
MS-7541-2008-03011J		
Size	Document Description	Rev
Custom	ICH10 - Host, SATA, Audio, SPI, RTC, MSIC	0A
Date: Thursday, March 13, 2008		Sheet 12 of 37







## DDRIII DIMM\_B2



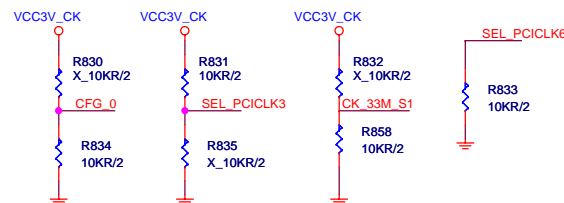
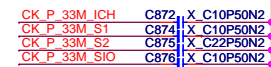
SMBCLK\_DDR << SMBCLK\_DDR [14]  
SMBDATA\_DDR << SMBDATA\_DDR [14]



**MS-7541-2008-03011J**

Size C	Document Description <b>DDR3 Chane-A / Chane-B</b>	Re (
Date: Thursday, March 13, 2008	Sheet 15 of 37	





CFG[1:0]	CPU	SATA (pin21, 22)	PCI	Pin17/18	SRC	48/96
00	PLL1 <sup>(1)</sup>	PLL4 SRC <sup>(1)</sup>	PLL4 (from SRC PLL1)	CFB table (default SRC)	PLL4 <sup>(1)</sup>	PLL2 <sup>(2)</sup>
01	PLL1 <sup>(1)</sup>	PLL3 <sup>(1)</sup>	PLL3 <sup>(1)</sup>	CFB table (default SRC)	PLL4 <sup>(1)</sup>	PLL2 <sup>(2)</sup>
10	PLL1 <sup>(2)</sup>	PLL3 <sup>(1)</sup>	PLL3 <sup>(1)</sup>	CFB table (default SRC)	PLL4 <sup>(1)</sup>	PLL2 <sup>(2)</sup>
11	PLL1 <sup>(2)</sup>	PLL2 (CV184-1) <sup>(1)</sup> PLL4 (CV184-2) <sup>(1)</sup>	PLL4 <sup>(1)</sup>	Pin17 = 25MHz, Pin18 = 1944A, S12 <sup>(2)</sup>	PLL4 <sup>(1)</sup>	PLL2 <sup>(2)</sup>

Pin #	Name	Type	Description
6	PCMC/SRC5_EN	IO	33.33MHz; Pin 37, 38 mode selection. Power on latch, HIGH = SRC5, LOW = CPU and PCI Stop#
7	PCIF/ATD_EN	IO	33.33MHz; Pin 46, 47 mode selection. Power on latch, HIGH = CPU ITP, LOW = SRC5



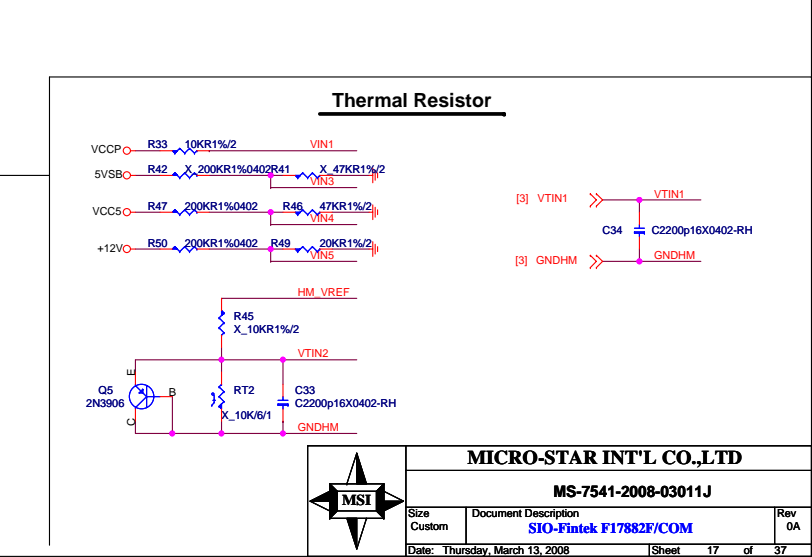
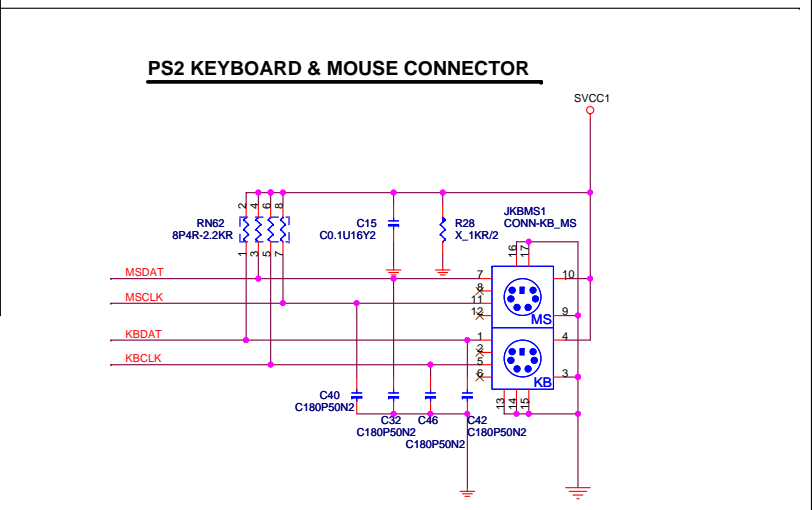
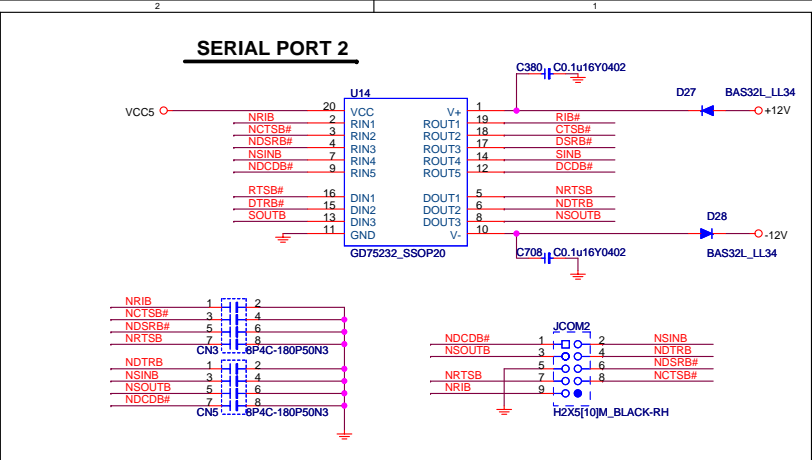
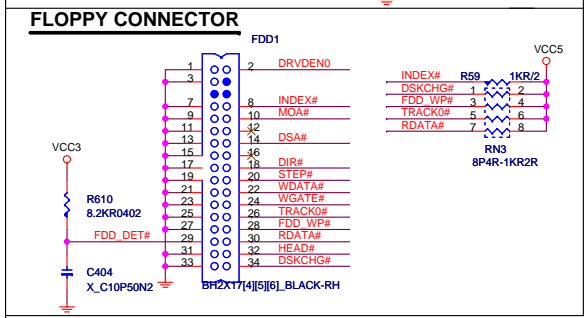
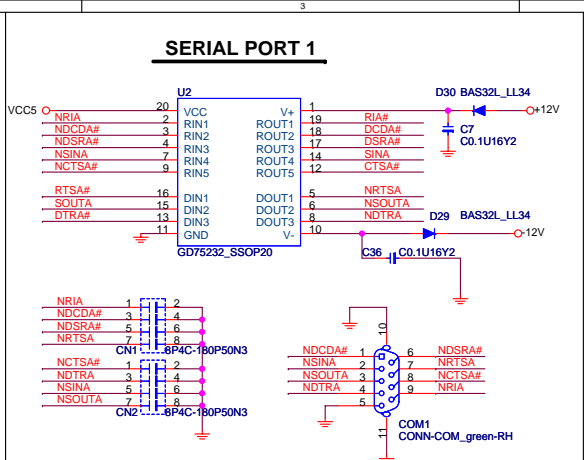
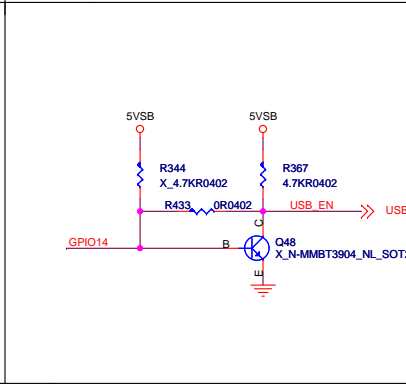
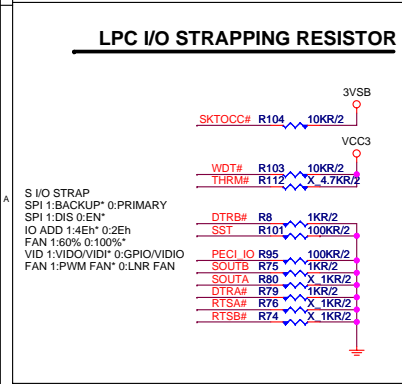
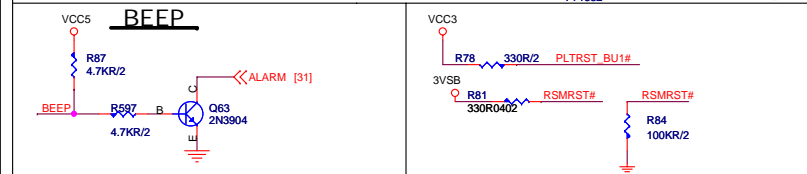
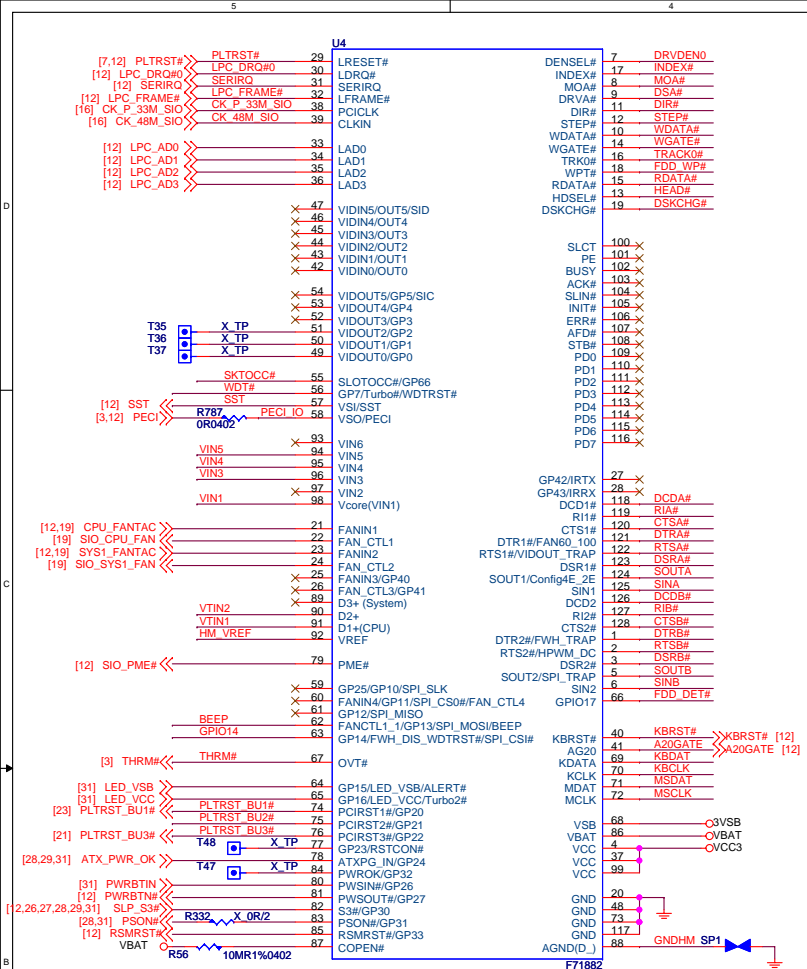
Title \_\_\_\_\_

IDTCV184

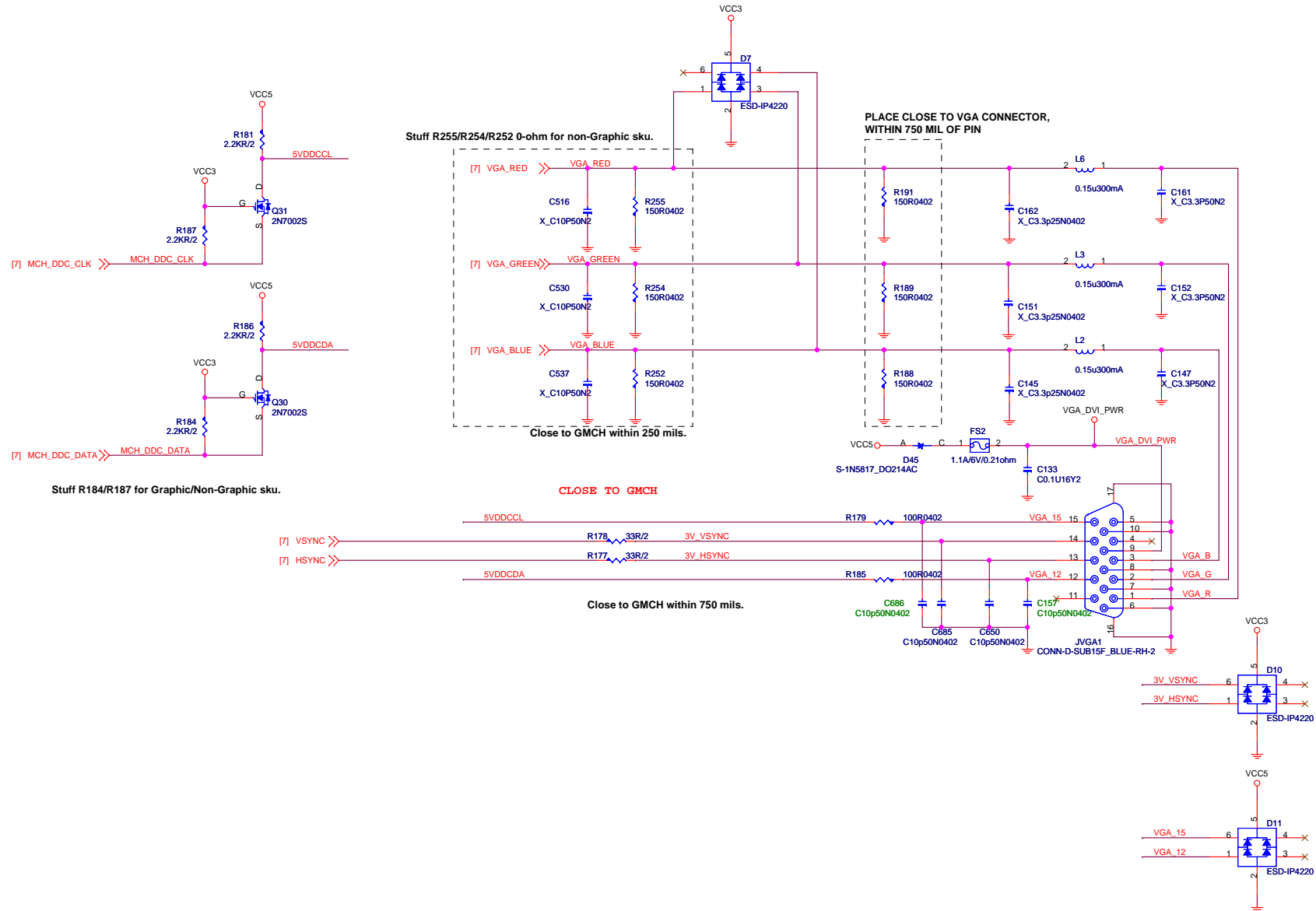
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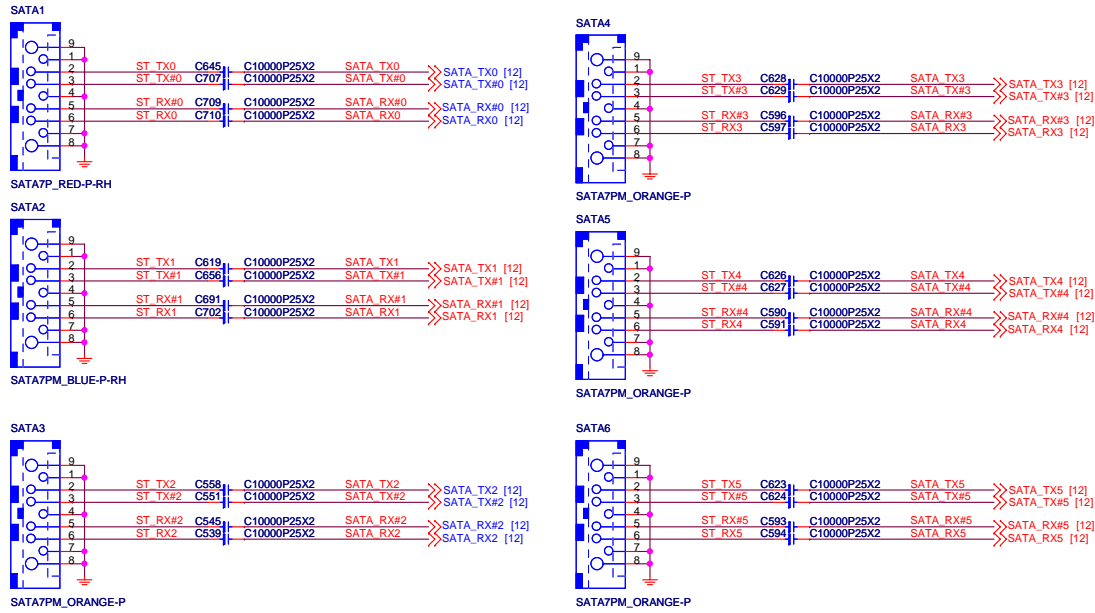
Date: Thursday, March 13, 2008 Sheet 16 of 37



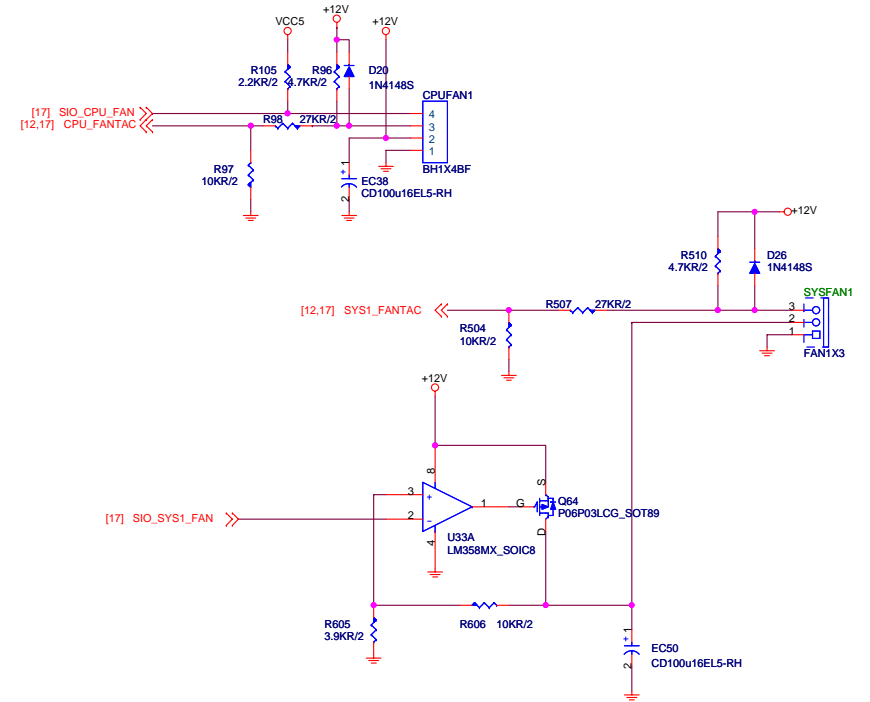
# Video Connector



## SATA 1- 6 PORT



## FAN-COUNTROL CIRCUIT

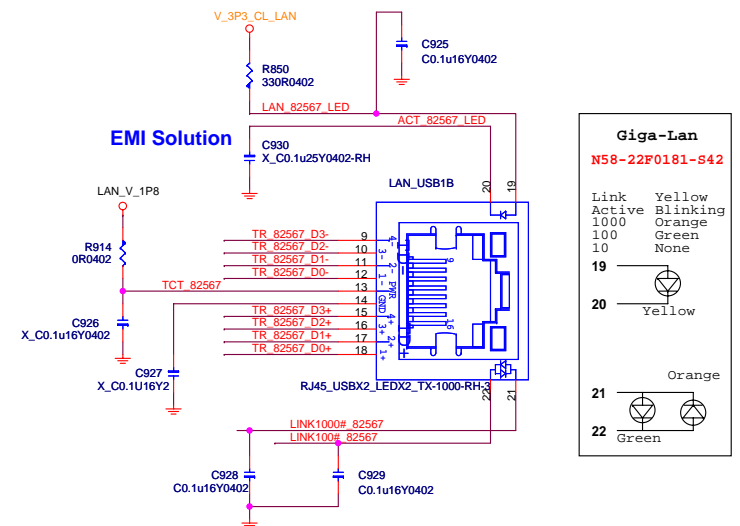
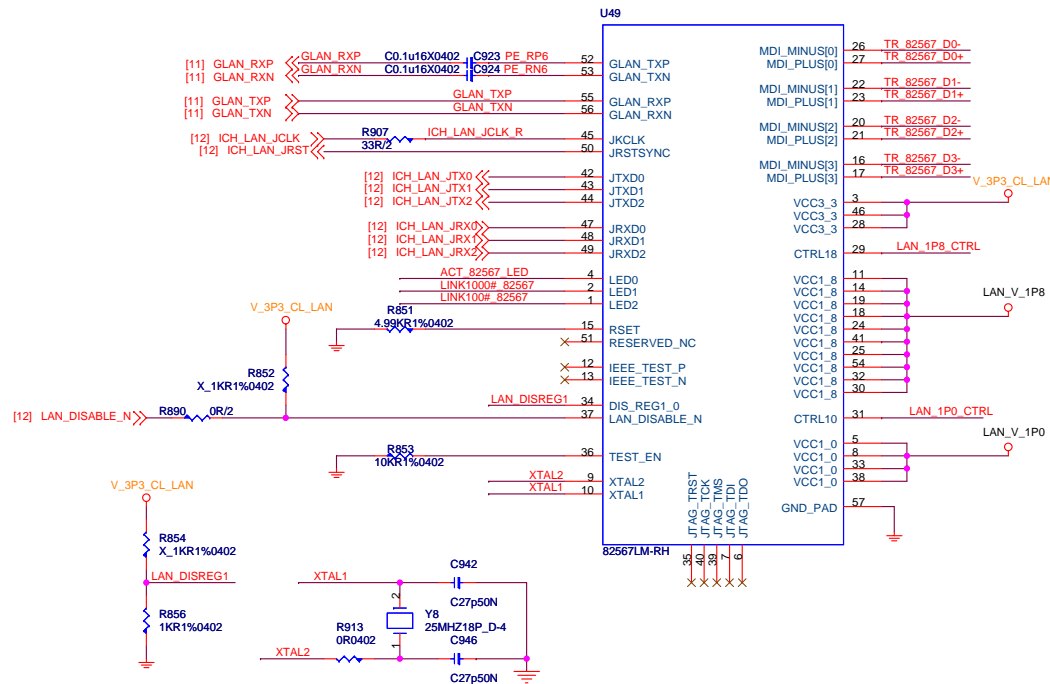


Maximum current of 1.8 V is less then 270mA, Maximum current of 1.0 V is less then 139mA.

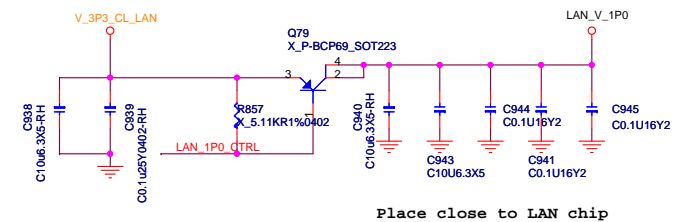
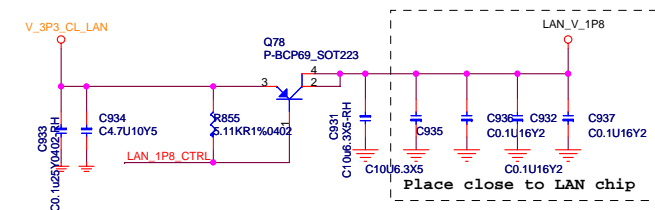
For proper and safe operation, the power supplies must follow the following rule:

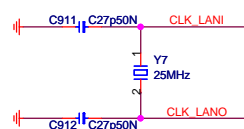
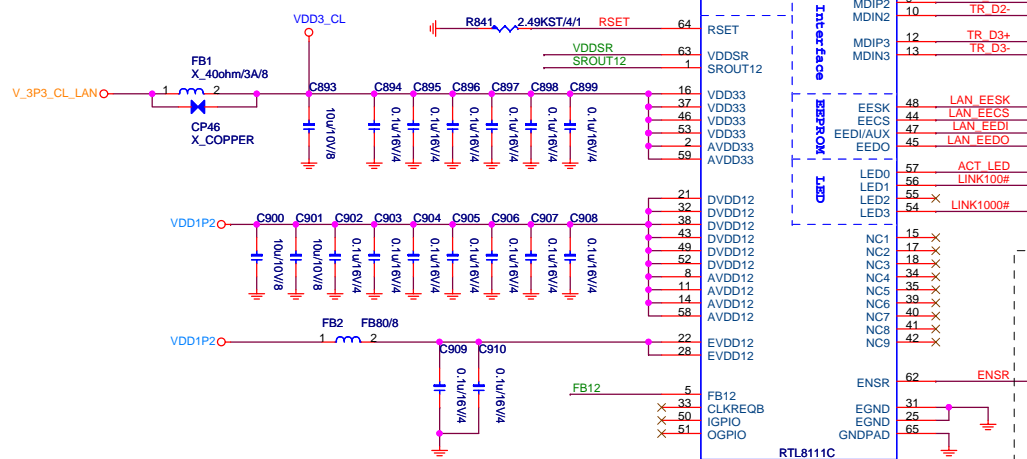
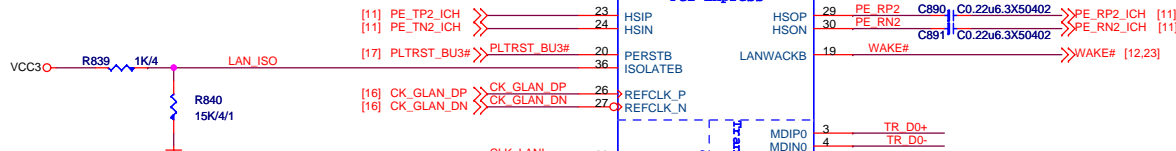
VDDO (3.3V)  $\geq$  AVDD (1.8)  $\geq$  DVDD (1.05V)

This means that VDDO must start ramping before AVDD and DVDD, but DVDD may reach its nominal operating range before AVDD and VDDO.



Giga-Lan	
N58-22F0181-S42	
Link	Yellow
Active	Blinking
1000	Orange
100	Green
10	None
19	Yellow
20	Yellow
21	Orange
22	Green





```
ENSR=1,  
Enable switching regulator  
ENSR=0,  
Disable switching regulator
```

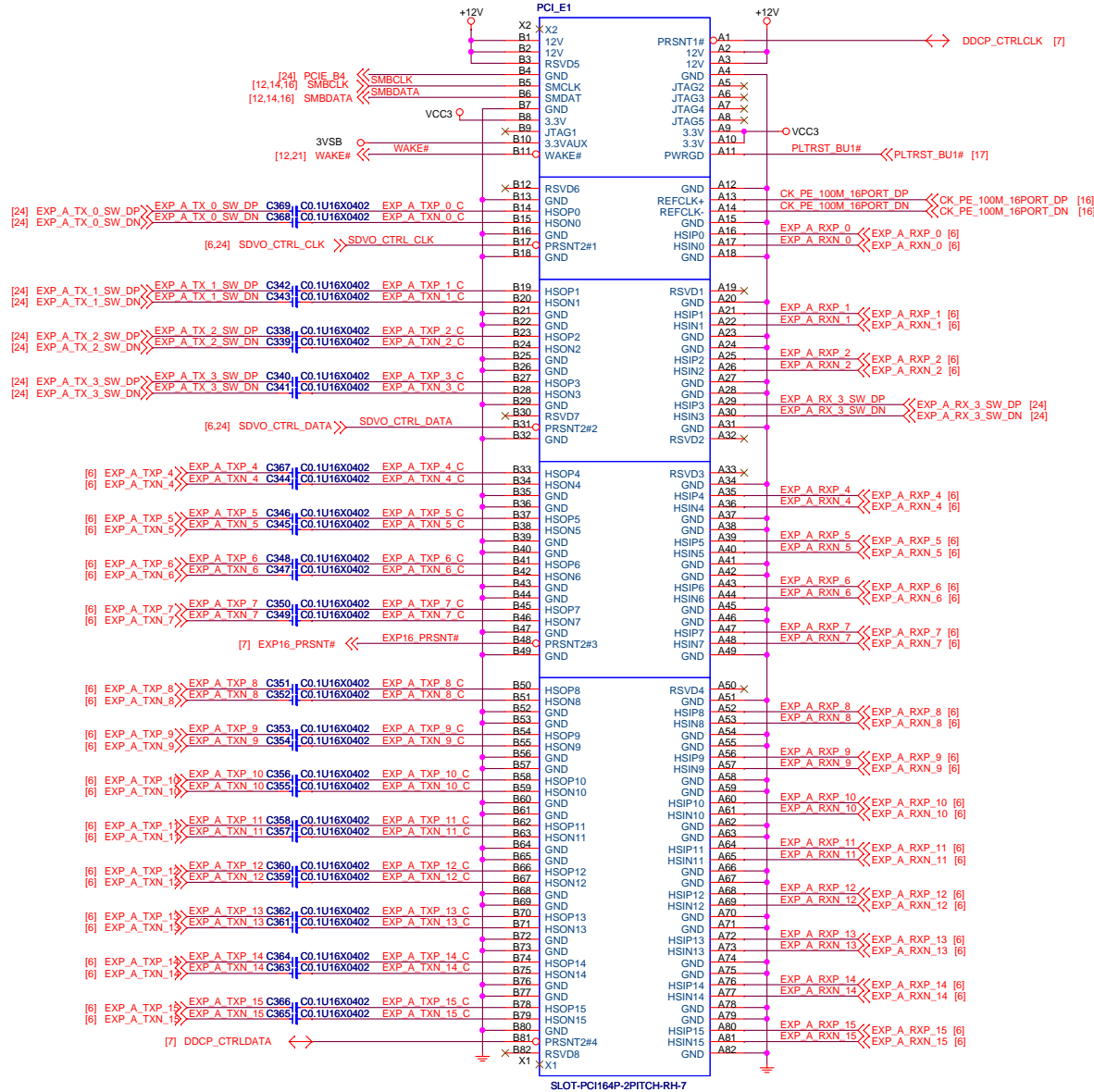
Rev  
0A





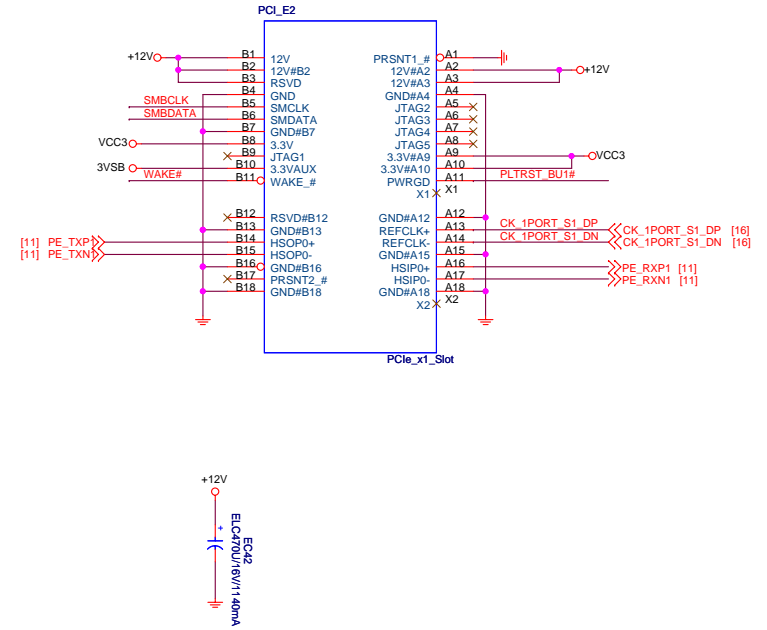
# PCI\_Express X16 Slot

Trace width > 200 mils



# PCI\_Express X4 Slot

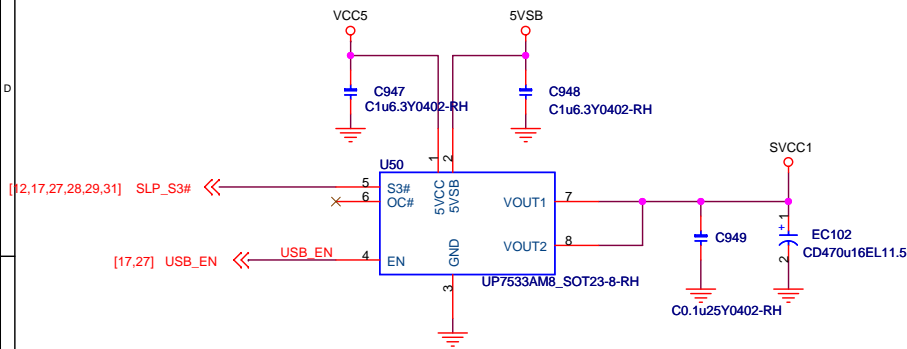
(Share with PCI\_E x1 Slots)



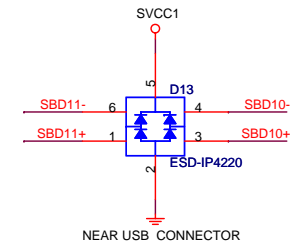
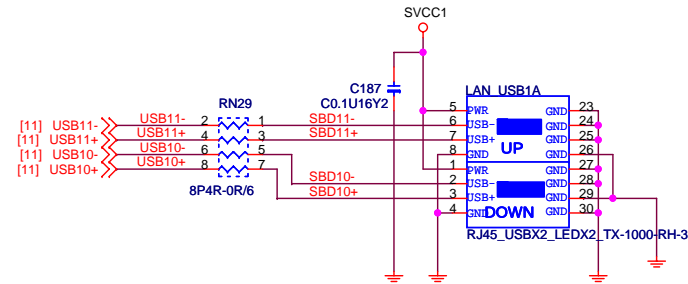




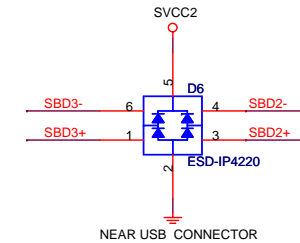
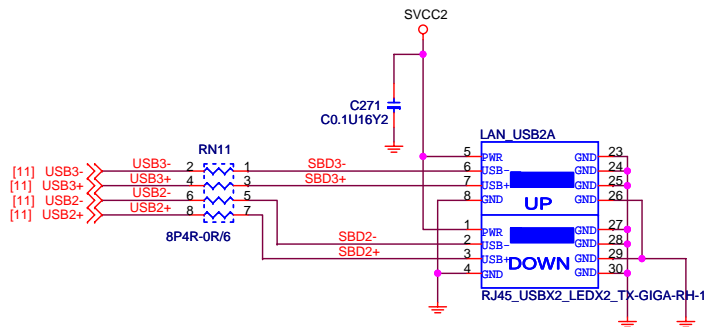
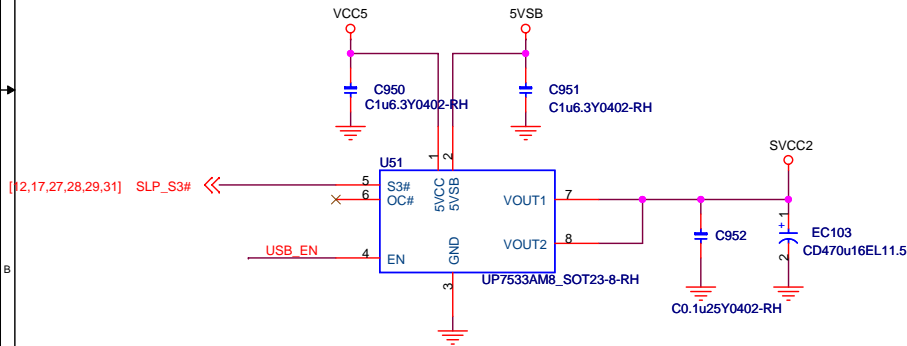
# Rear USB Connector



## REAR USB PORT 4,5 (With LAN)



## REAR USB PORT 0,1 (With LAN)

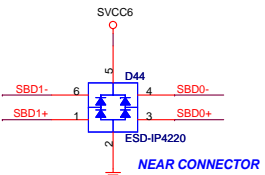
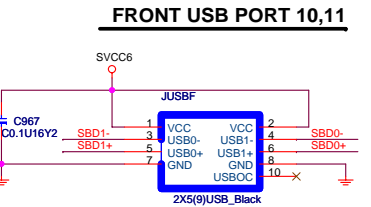
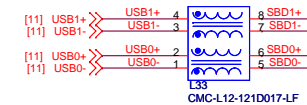
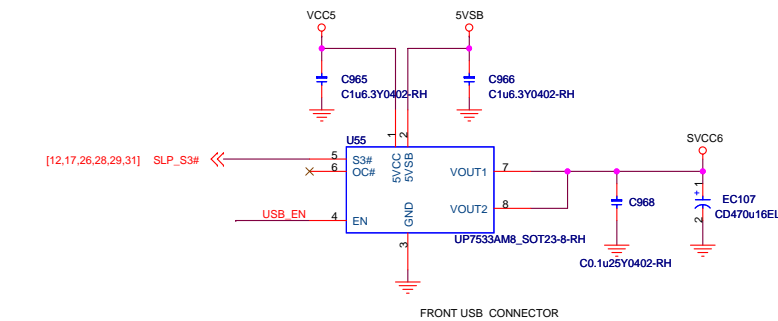
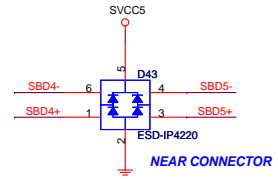
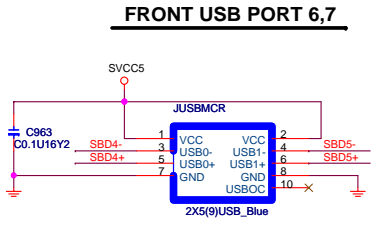
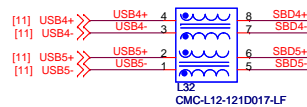
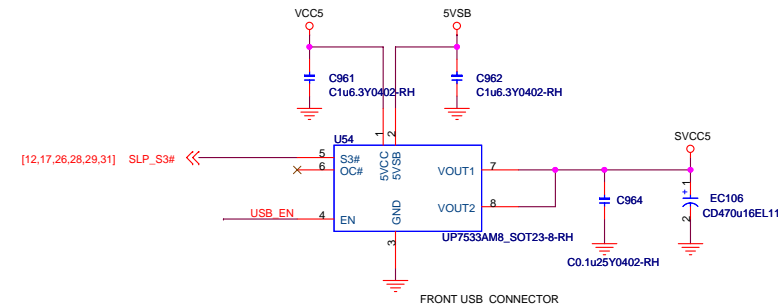
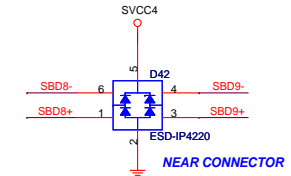
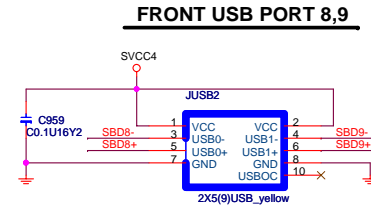
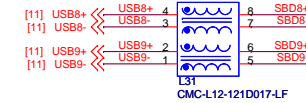
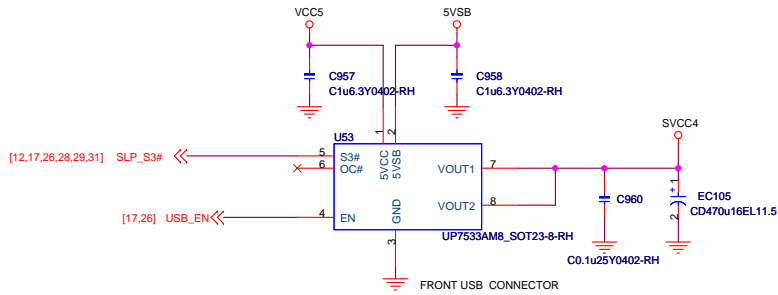
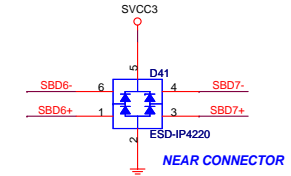
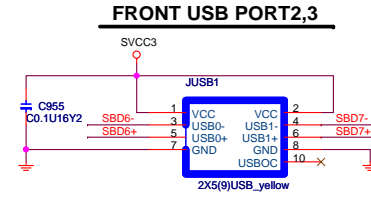
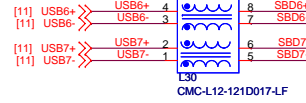
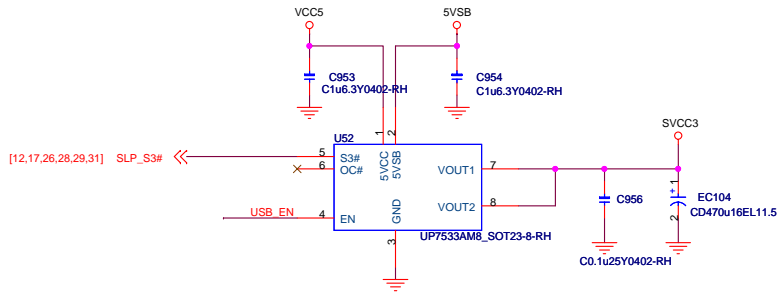


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Size	Document Description	Rev
B	USB Connector	0A
Date: Thursday, March 13, 2008	Sheet 26 of 37	

# Front USB Connector



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MS-7541-2008-03011J

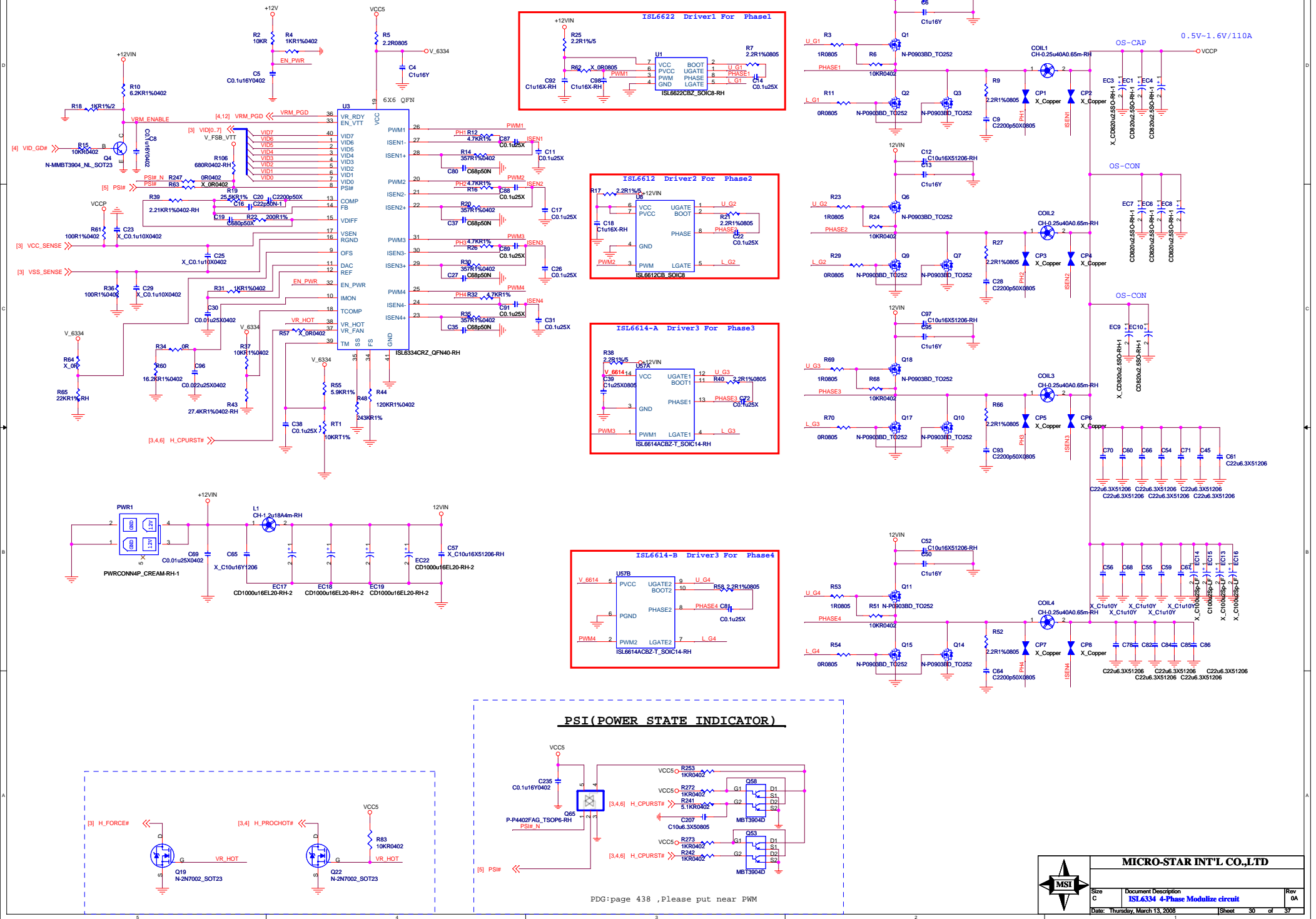
Size	Document Description	Rev
Custom	USB Connector	0A
Date: Thursday, March 13, 2008	Sheet 27 of 37	



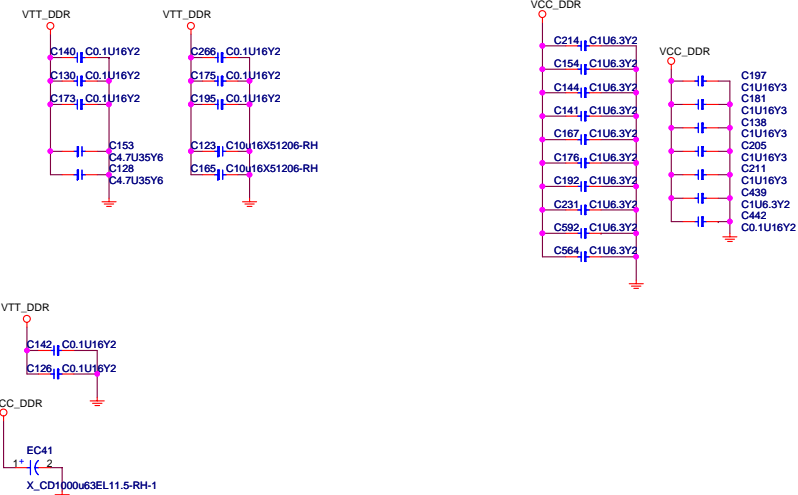
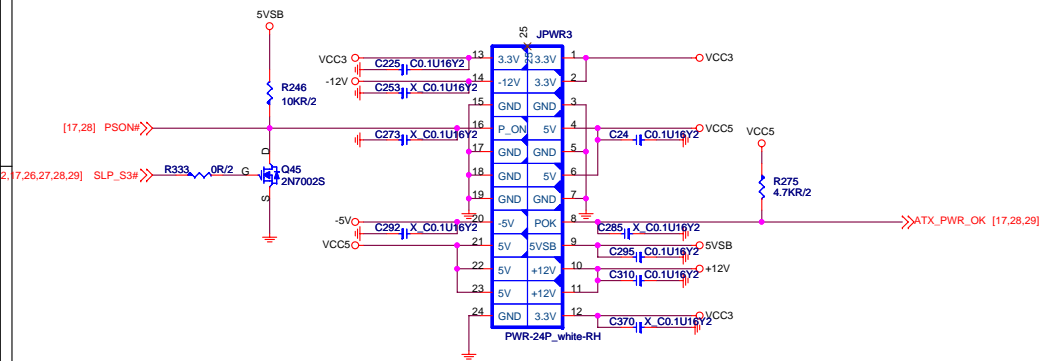




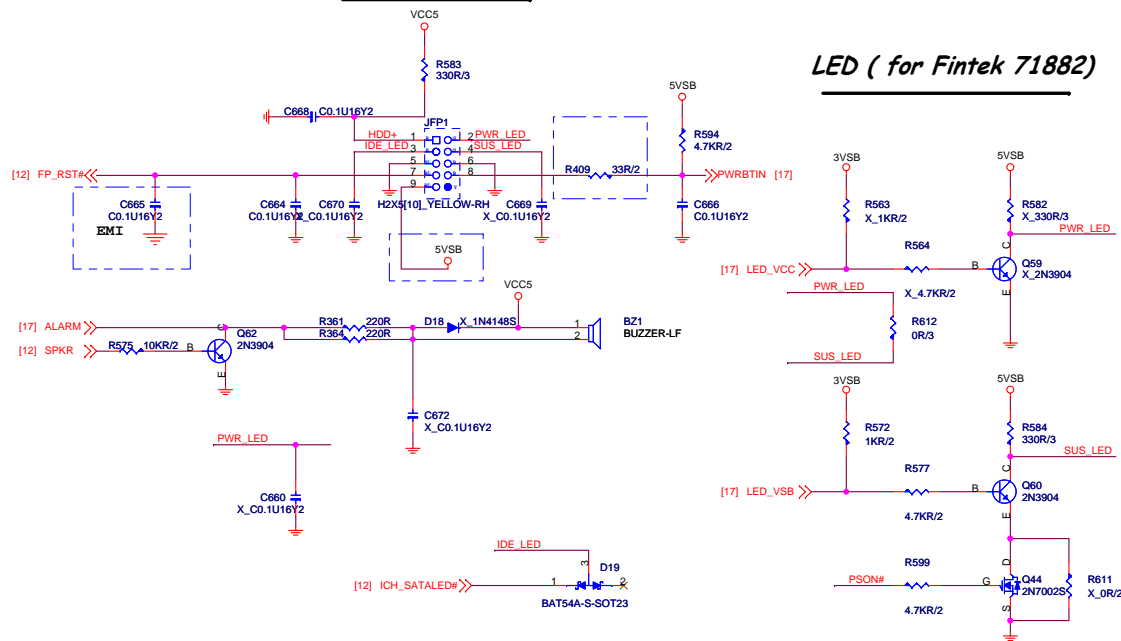
# ISL6334 4Phase



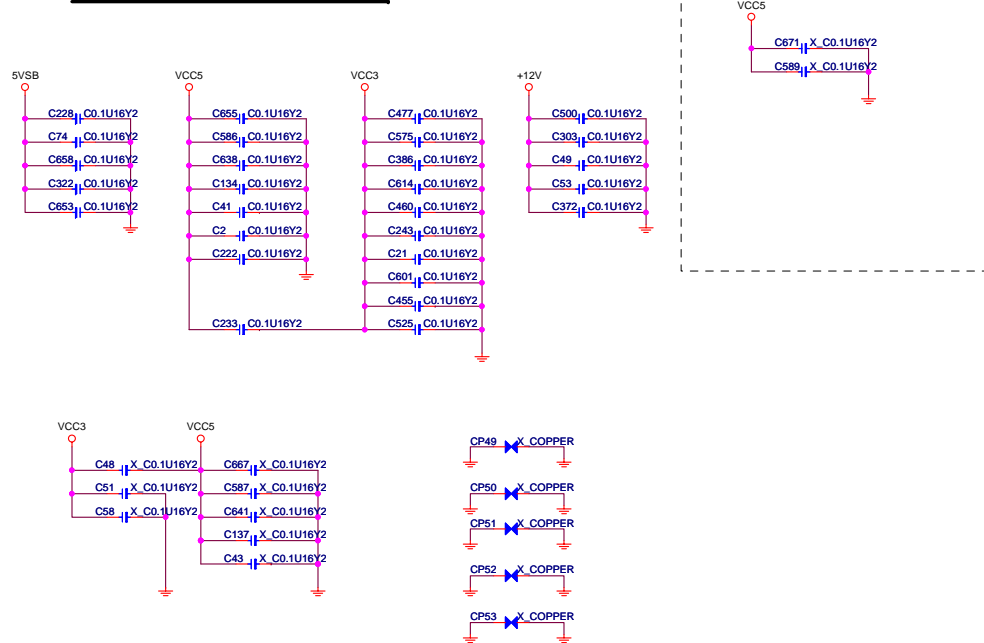
# ATX POWER CONNECTOR



## FRONT PANNEL



## Cap. for EMI & Power



MICRO-STAR INT'L CO.,LTD

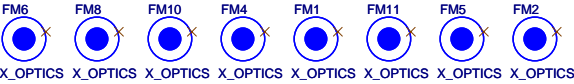
MS-7541-2008-03011J

Size	Document Description	Rev
Custom	ATX PWR-Connector & Front Panel	0A
Date: Thursday, March 13, 2008	Sheet 31 of 37	

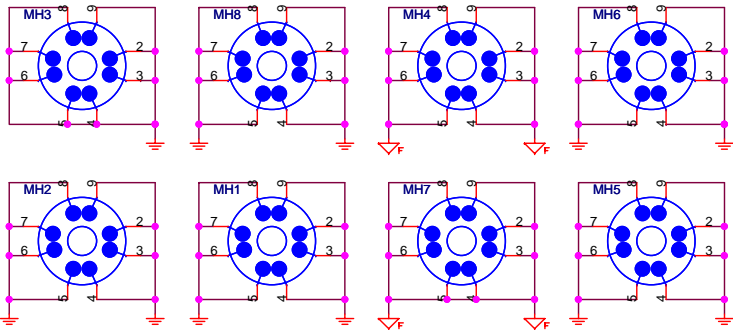
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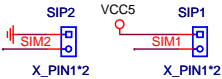
Optical Fiducial Marks-100



Mounting Holes



Simulation



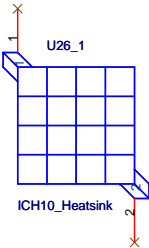
7341-0A

JFP2(4-6)

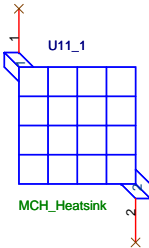
X\_JUMPER-1X2A\_green



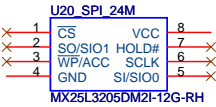
BATTERY-CR2032



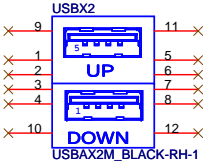
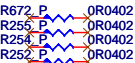
ICH10\_Heatsink



MCH\_Heatsink



Non-graphic



## Stuffing options base on Sku 1

For DV1	For DV1				
sku 1	sku 2	sku 3	sku 4	sku 5	
Super sku dual LAN (DP)	Super sku (SP)	Q	G	P	
P45+ICH10/ 3rd party (8111C) Boazman(82567) DVI-D, D-sub/ AMT function	P45+ICH10(A0 step) 3rd party LAN (8111C) DVI-D, D-sub	Q45+ICH10DO Boazman(82567)-LM DVI-D, D-sub AMT function	G45+ICH10 3rd party Lan (8111C) DVI-D, D-sub	P45+ICH10 3rd party LAN (8111C)	
	Different with sku1 : Without Boazman(82567) Without AMT	Different with sku1 : Without 3rd party (8111C)	Different with sku1 : Without Boazman(82567) Without AMT	Different with sku1 : Without Boazman(82567) Without AMT Without graphic	
	Without Boazman(82567) Empty : (-)C925,C928,C929,C932,C936 (-)C937,C941,C944,C945 (-)C935,C943 (-)C933,C939 (-)C464,C472,C923,C924 (-)C934 (-)C942,C946 (-)C931,C938,C940 (-)Q78 (-)R856 (-)R907 (-)R890,R913,R914 (-)R853 (-)R850 (-)R851 (-)R855 (-)U49 (-)Y8 (-)LAN_USB1(with 82567) Stuff : (+)LAN_USB1 (only USB x 2)	Empty : (-)C893,C900,C901 (-)C889,C892,C894,C895,C896 (-)C897,C898,C899,C902,C903 (-)C904,C905,C906,C907,C908 (-)C909,C910,C913,C914,C918 (-)C920,C921,C922 (-)C969,C970 (-)C911,C912 (-)C888,C919 (-)C890,C891 (-)CHOKE5 (-)FB2 (-)R836 (-)R839 (-)R819,R820 (-)R842,R848,R849 (-)R841 (-)R845 (-)R837 (-)R840 (-)U46 (-)U47 (-)Y7 (-)LAN_USB2 (with 8111C) Stuff : (+)LAN_USB2 (only USB x 2)	Without Boazman(82567) Empty : (-)C925,C928,C929,C932,C936 (-)C937,C941,C944,C945 (-)C935,C943 (-)C933,C939 (-)C464,C472,C923,C924 (-)C934 (-)C942,C946 (-)C931,C938,C940 (-)Q78 (-)R856 (-)R907 (-)R890,R913,R914 (-)R853 (-)R850 (-)R851 (-)R855 (-)U49 (-)Y8 (-)LAN_USB1(with 82567) Stuff : (+)LAN_USB1 (only USB x 2)	Without Boazman(82567) Empty : (-)C925,C928,C929,C932,C936 (-)C937,C941,C944,C945 (-)C935,C943 (-)C933,C939 (-)C464,C472,C923,C924 (-)C934 (-)C942,C946 (-)C931,C938,C940 (-)Q78 (-)R856 (-)R907 (-)R890,R913,R914 (-)R853 (-)R850 (-)R851 (-)R855 (-)U49 (-)Y8 (-)LAN_USB1(with 82567) Stuff : (+)LAN_USB1 (only USB x 2)	Without graphic Empty : (-)C133 (-)C797 (-)C793,C794,C795,C798 (-)C157,C650,C685,C686 (-)C796 (-)C785,C786,C787,C788,C789 (-)C790,C791,C792 (-)D10,D11,D7 (-)D34,D35,D36 (-)D45 (-)FS2 (-)L2,L3,L6 (-)Q69,Q70 (-)Q30,Q31 (-)R892 (-)R181,R186,R711,R712,R726 (-)R727 (-)R721,R723,R725 (-)R177,R178,R812,R814 (-)R179,R185 (-)R188,R189,R191 (-)R211,R702 (-)R722 (-)RN79,RN80 (-)U39 (-)U41 (-)DVI1 (-)JVGA1 (-)R252,R254,R255,R672 (remove 150ohm) Stuff : (+)R673,R674,R675,R676 (+)R665,R666 (+)R701,R703 (+)R252,R254,R255,R672 (add 0ohm)
	Without AMT Empty : (-)C236,C279 (-)C277 (-)C287 (-)C259 (-)Q40 (-)Q36,Q41 (-)Q77,Q80 (-)R221,R469,R824,R880 (-)R224,R243,R259 (-)R887,R909,R911 (-)R232 (-)R244 (-)R245 (-)R257 (-)R258 (-)R261 (-)R377 (-)R609 (-)U12 (-)U20 (24M) (-)EC31,EC32 Stuff : (+)R72,R73,R85 (+)RN12 (+)R513,R908,R910,R912 (+)U20(8M)		Without AMT Empty : (-)C236,C279 (-)C277 (-)C287 (-)C259 (-)Q40 (-)Q36,Q41 (-)Q77,Q80 (-)R221,R469,R824,R880 (-)R224,R243,R259 (-)R887,R909,R911 (-)R232 (-)R244 (-)R245 (-)R257 (-)R258 (-)R261 (-)R377 (-)R609 (-)U12 (-)U20 (24M) (-)EC31,EC32 Stuff : (+)R72,R73,R85 (+)RN12 (+)R513,R908,R910,R912 (+)U20(8M)	Without AMT Empty : (-)C236,C279 (-)C277 (-)C287 (-)C259 (-)Q40 (-)Q36,Q41 (-)Q77,Q80 (-)R221,R469,R824,R880 (-)R224,R243,R259 (-)R887,R909,R911 (-)R232 (-)R244 (-)R245 (-)R257 (-)R258 (-)R261 (-)R377 (-)R609 (-)U12 (-)U20 (24M) (-)EC31,EC32 Stuff : (+)R72,R73,R85 (+)RN12 (+)R513,R908,R910,R912 (+)U20(8M)	

