



MS-7297 Ver:20

CPU:

AMD K8 AM2 Athlon 64/Athlon 64 FX

System Chipset:

ATI RS485

ATI SB600

On Board Chipset:

Winbond Super I/O -- W83627EHG Ver.H

LAN -- RTL8100C/RTL8110SC

HD Codec --ALC861

BIOS --LPC FLASH ROM 4M

Main Memory:

DDR2 * 2 (Max 4GB)

Expansion Slots:

PCI-E X 1 *1

PCI-E X 16 *1

PCI 2.3 Slot X 2

PWM:

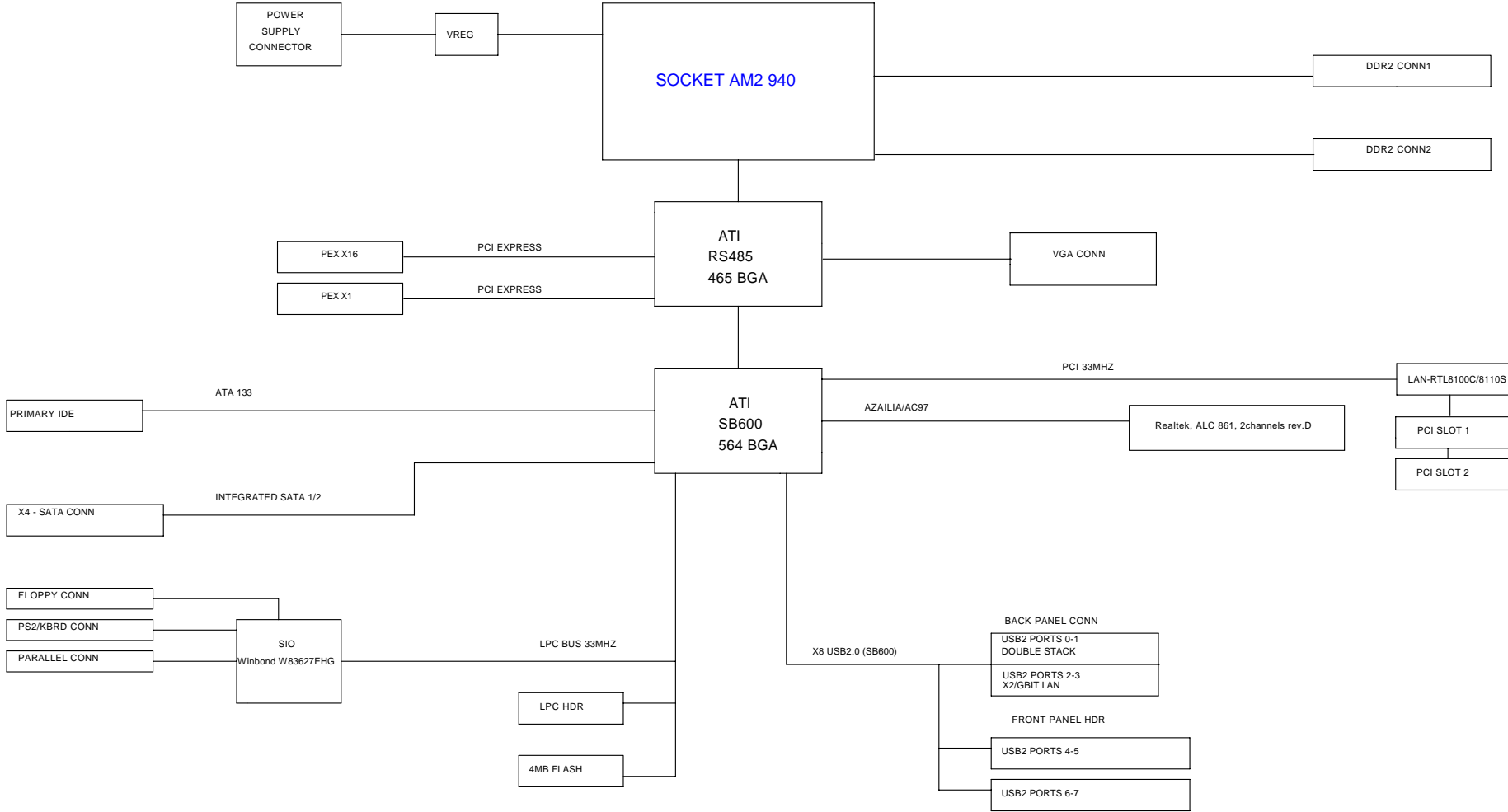
Controller--Intersil ISL6566CR 3 Phase

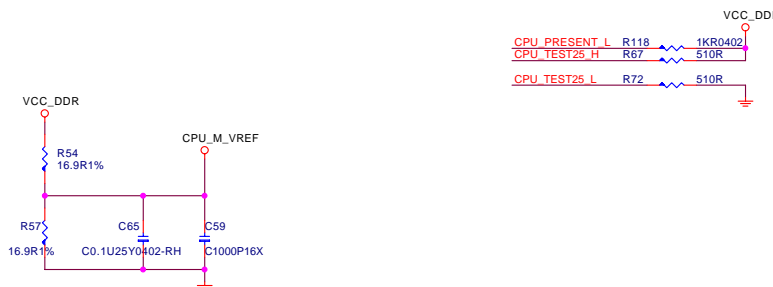
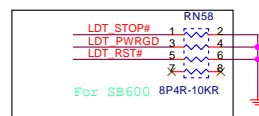
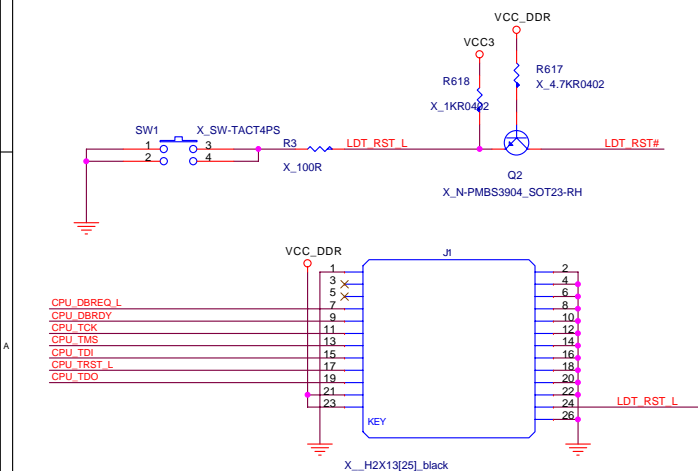
Clock Generator:

Controller--ICS 951464AGLF

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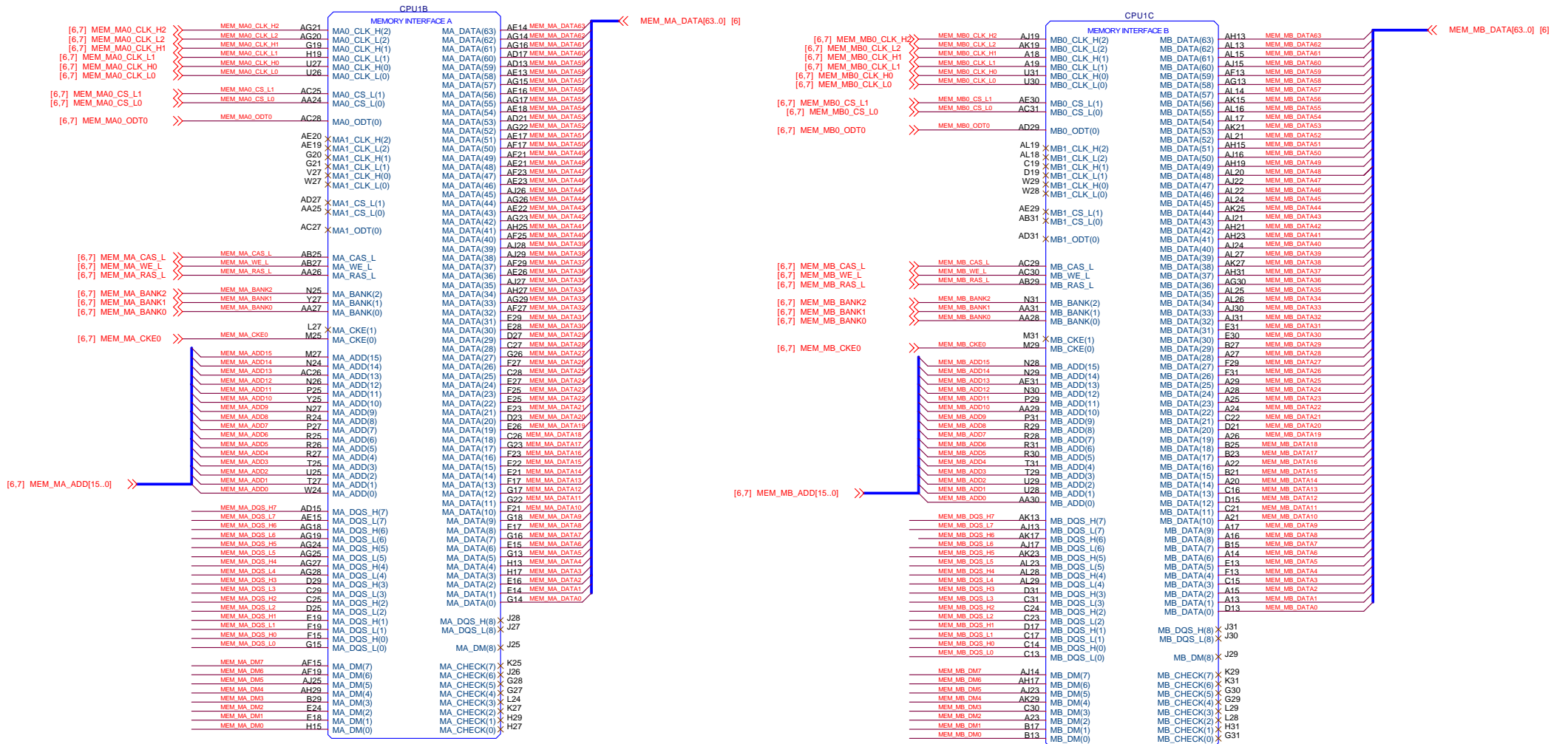
BLOCK DIAGRAM

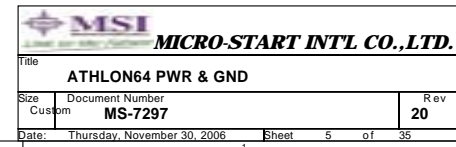


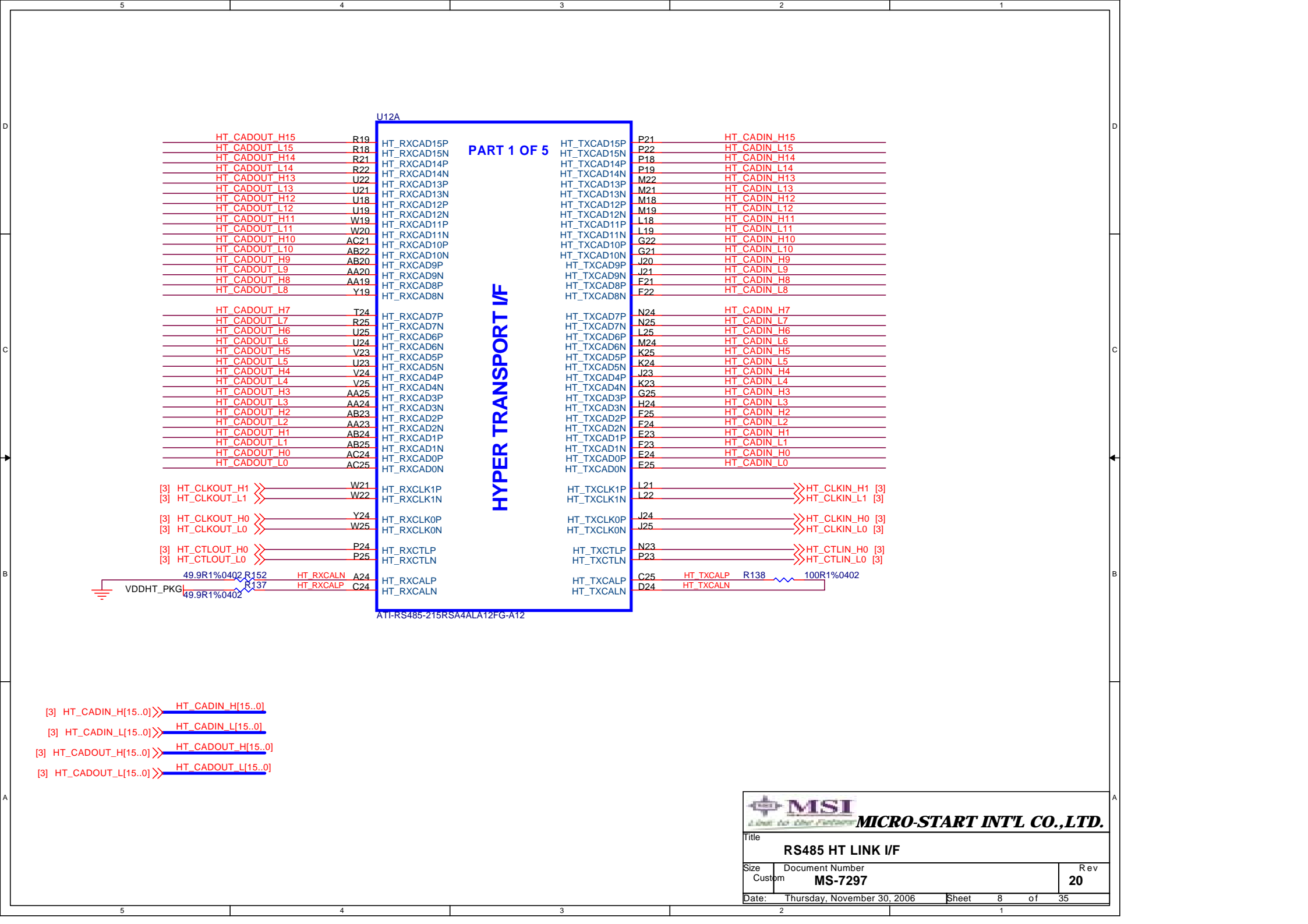


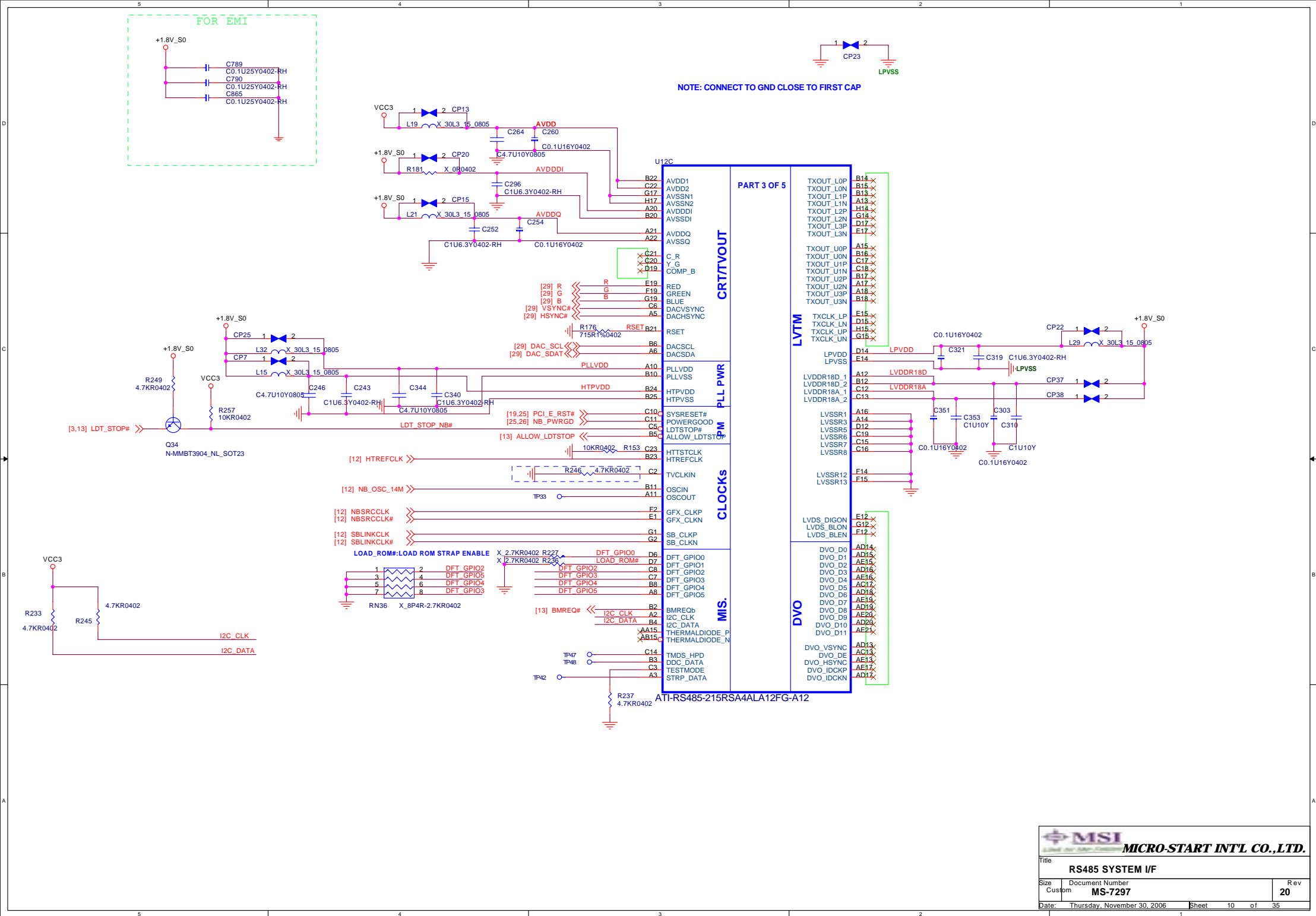
[6] MEM_MA_DQS_L[7..0] >> _____
[6] MEM_MA_DQS_H[7..0] >> _____
[6] MEM_MA_DM[7..0] >> _____

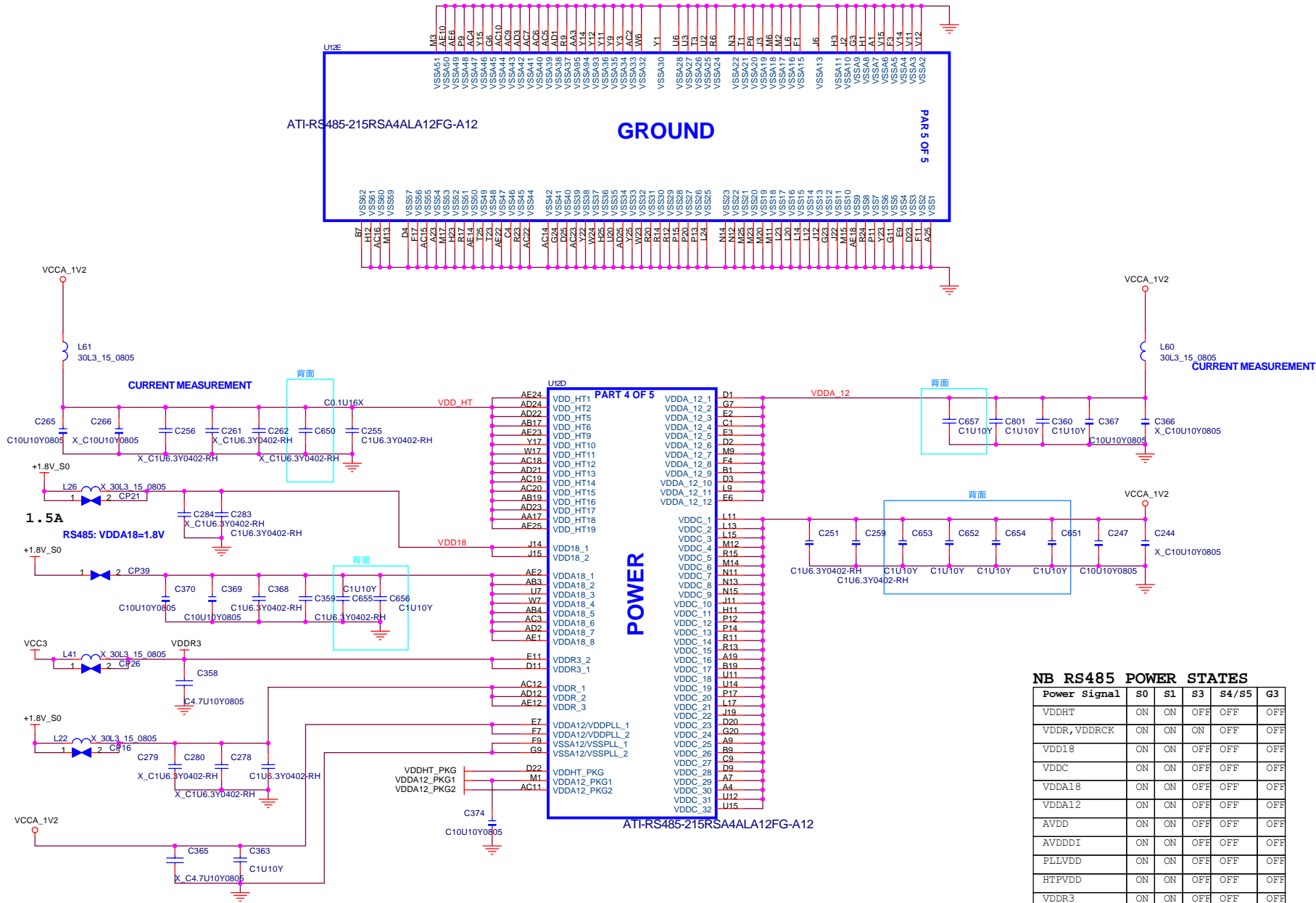
[6] MEM_MB_DQS_L[7..0] >> _____
[6] MEM_MB_DQS_H[7..0] >> _____
[6] MEM_MB_DM[7..0] >> _____



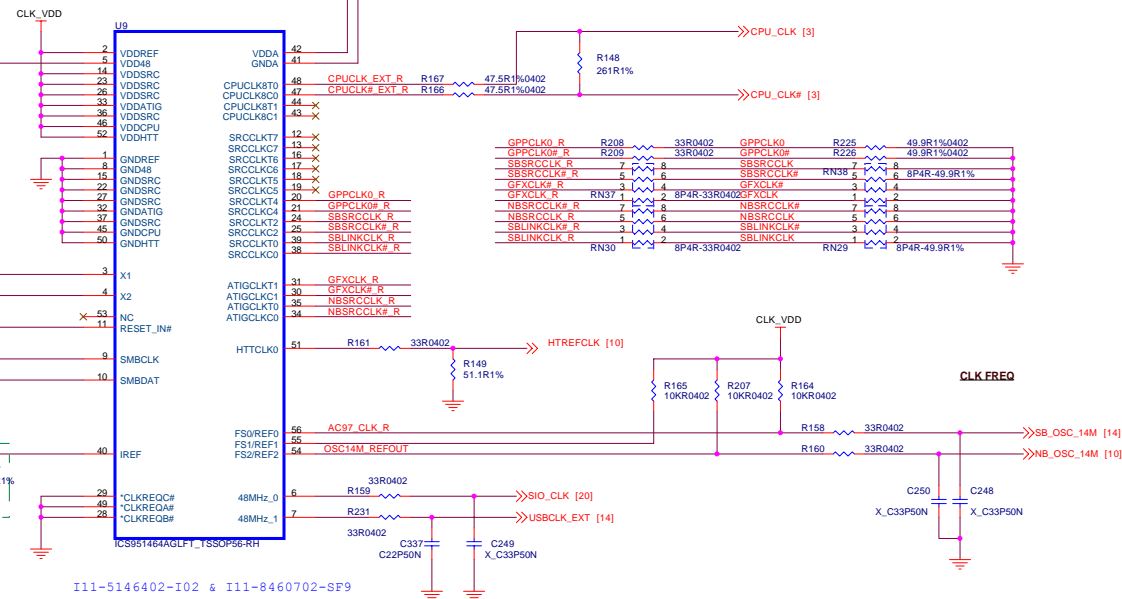
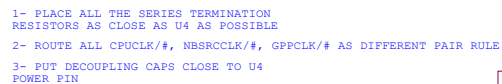








NB RS485 POWER STATES					
Power Signal	S0	S1	S3	S4/S5	G3
VDDHT	ON	ON	OFF	OFF	OFF
VDDR, VDDRCK	ON	ON	ON	OFF	OFF
VDD18	ON	ON	OFF	OFF	OFF
VDDC	ON	ON	OFF	OFF	OFF
VDDA18	ON	ON	OFF	OFF	OFF
VDDA12	ON	ON	OFF	OFF	OFF
AVDD	ON	ON	OFF	OFF	OFF
AVDDDI	ON	ON	OFF	OFF	OFF
PLLVD	ON	ON	OFF	OFF	OFF
HTPVDD	ON	ON	OFF	OFF	OFF
VDDR3	ON	ON	OFF	OFF	OFF
LPVDD	ON	ON	OFF	OFF	OFF
LVDDR18D	ON	ON	OFF	OFF	OFF
LVDDR18A	ON	ON	OFF	OFF	OFF



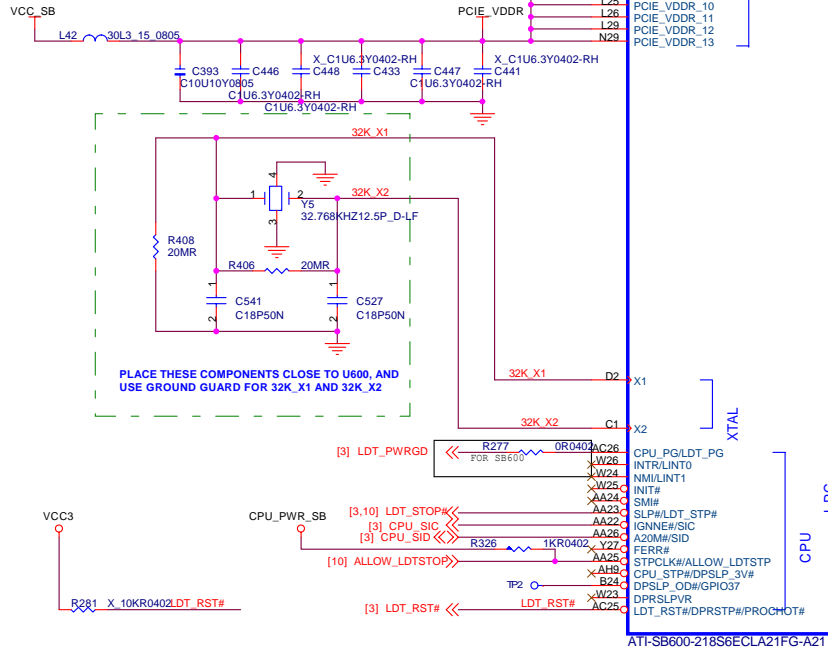
I11-5146402-I02 & I11-8460702-SF9

OVERLAP COMMON PADS FOR DUAL-OP
RESISTORS

FS2	FS1	FS0	OPU	HITCLK	SRC	ATIGCLK
0	0	0	Hi-Z	Hi-Z	100.0	100.0
0	0	1	REF	REF	100.0	100.0
0	1	0	230.0	76.7	100.0	100.0
0	1	1	240.0	80.0	100.0	100.0
1	0	0	100.0	66.6	100.0	100.0
1	0	1	133.3	66.6	100.0	100.0
1	1	0	166.6	66.6	100.0	100.0
1	1	1	200.0	66.6	100.0	100.0

	SB CALIBRATION RESISTOR VALUE	
	SB600	SB460
R276	562 OHM 1%	150 OHM 1%
R293	2.05K 1%	150 OHM 1%
R322	0	4.12K 1%

FOR SB600 VCC_SB= 1.2V
FOR SB460 VCC_SB= 1.8V



SB600 SB 23x23mm

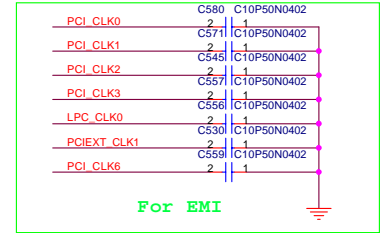
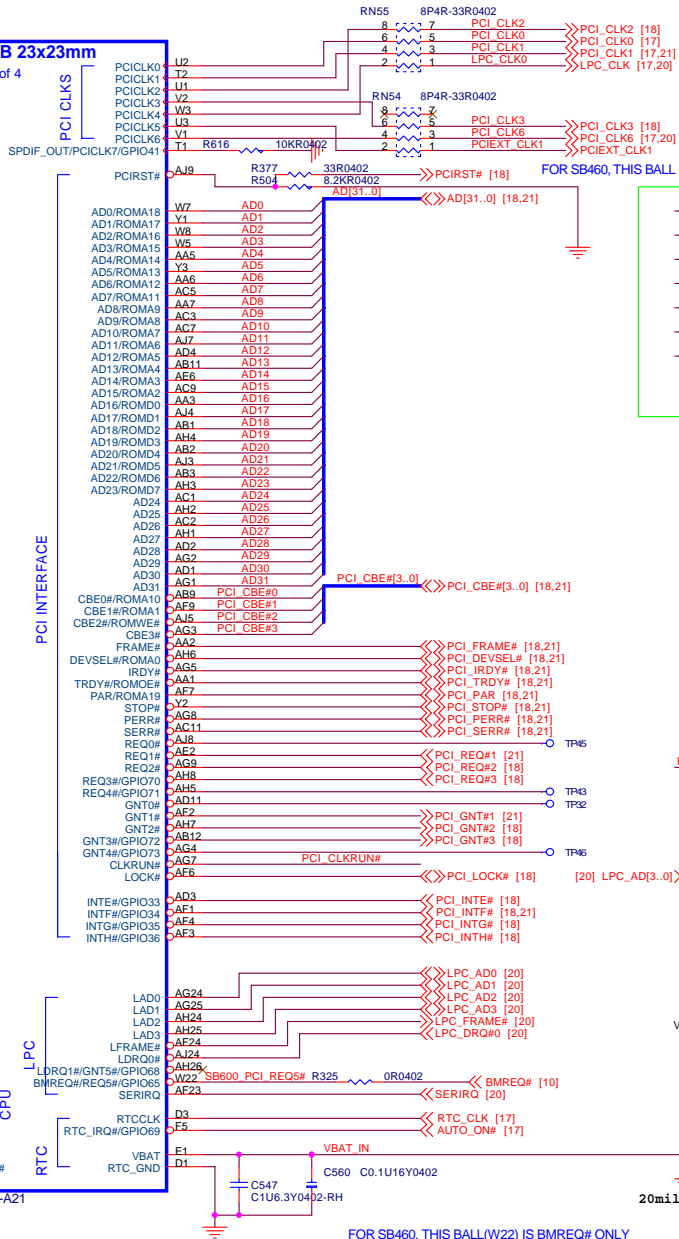
Part 1 of 4

PCI EXPRESS INTERFACE

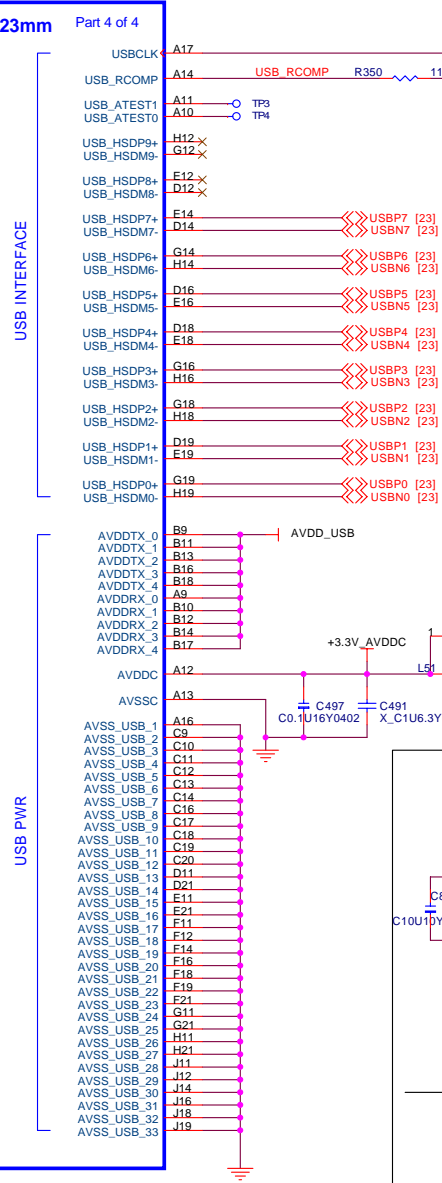
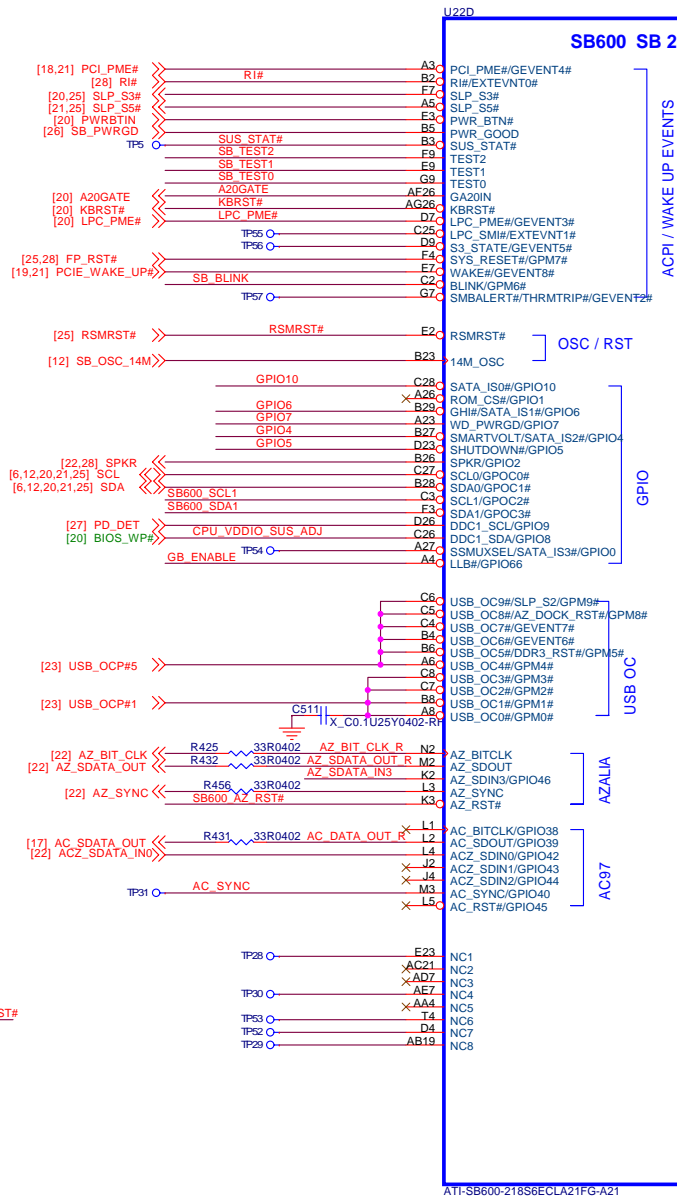
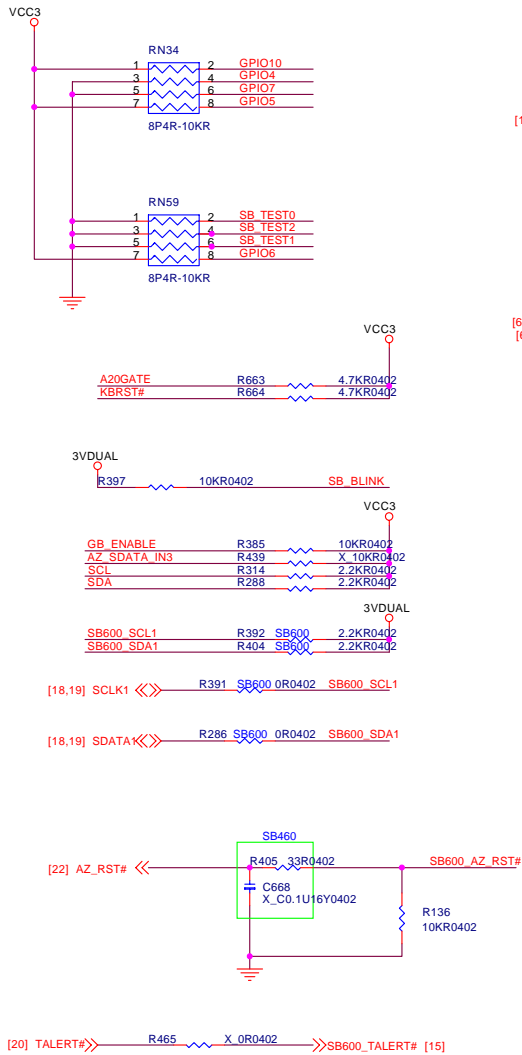
PCI INTERFACE

LPC

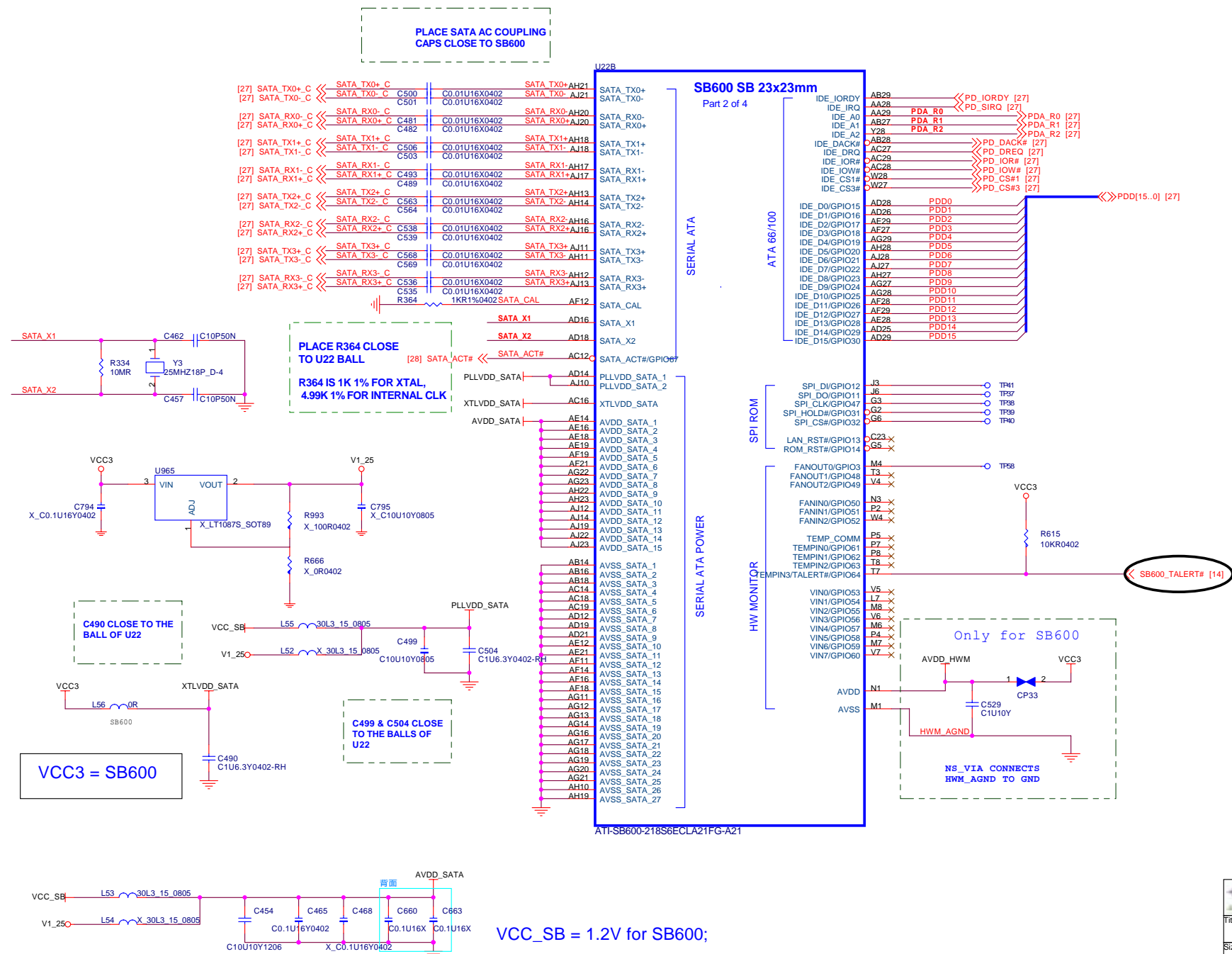
FOR SB600

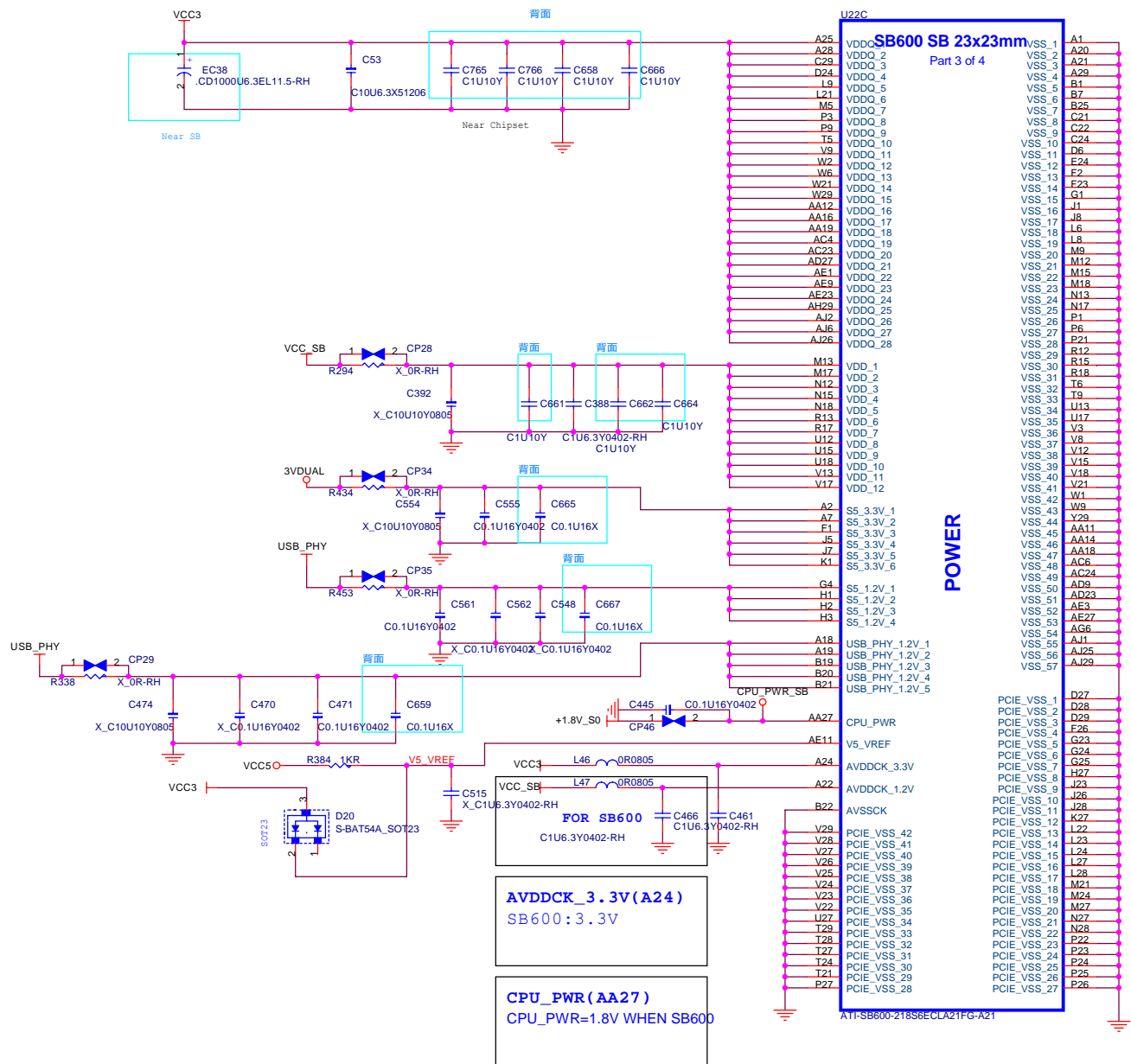


```
Normal --> 1-2
Clear CMOS -->2-3
```

USB7 FRONT PANEL
 USB6 FRONT PANEL
 USB5 STACK4 USB4
 USB4 STACK4 USB3
 USB3 STACK4 USB2
 USB2 STACK4 USB1
 USB1 LAN USB BOTTOM
 USB0 LAN USB TOP



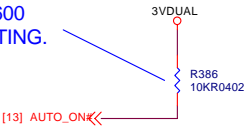
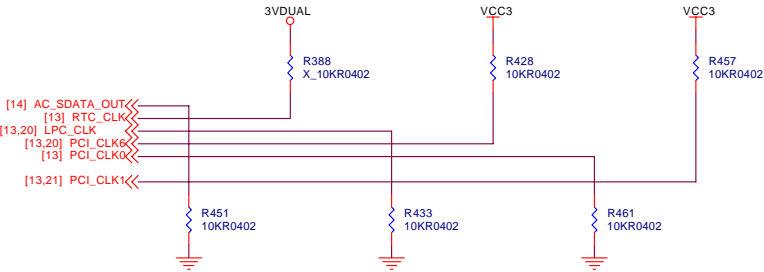




REQUIRED STRAPS

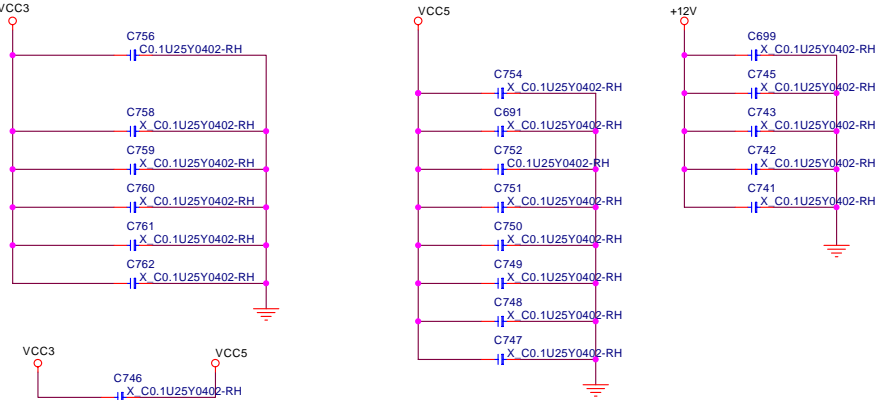
SB600 HAS 15K INTERNAL PD FOR AC_SDATA_OUT,
15K PU FOR RTC_CLK, EXTERNAL PU/PD IS
NOT REQUIRED; FOR SB460, EXTERNAL PU/PD ARE
REQUIRED

NOTE: R386 PU RESISTOR FOR
RTC_IRQ# IS REQUIRED FOR SB600
TO KEEP THE INPUT FROM FLOATING.

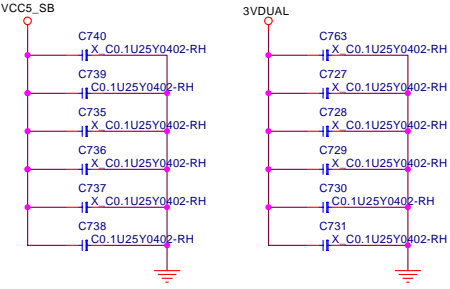


					SB600		SB460	
	AC_SDOUT	RTC_CLK	PCI_CLK4	PCI_CLK6	PCI_CLK0	PCI_CLK1	PCI_CLK0	PCI_CLK1
PULL HIGH	USE DEBUG STRAPS	INTERNAL RTC DEFAULT	USE INT. PLL48	CPU IF=K8 DEFAULT	ROM TYPE: H, H = PCI ROM H, L = SPI ROM L, H = LPC ROM L, L = FWH ROM	DEFAULT	ROM TYPE: H, H = PCI ROM H, L = LPC I ROM L, H = LPC II ROM L, L = FWH ROM	DEFAULT
PULL LOW	IGNORE DEBUG STRAPS DEFAULT	EXTERNAL RTC	USE EXT. 48MHZ DEFAULT	CPU IF=P4				NOTE: FOR SB460, PCI_CLK[8:7] ARE CONNECTED TO SUBSTRATE BALLS PCI_CLK[1:0]

For EMI



For EMI

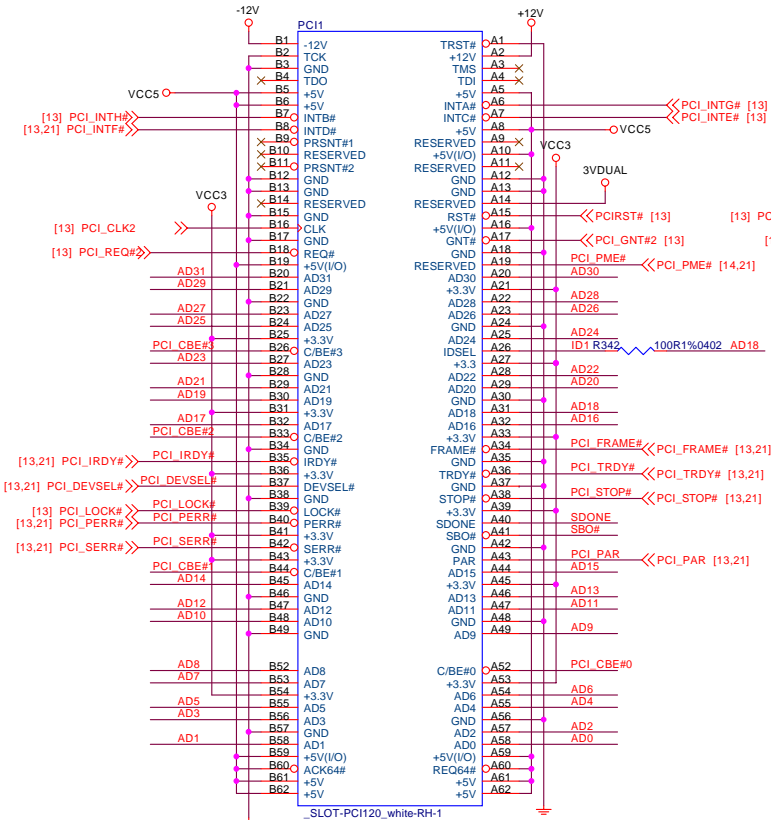


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Title			SB600 STRAPS	
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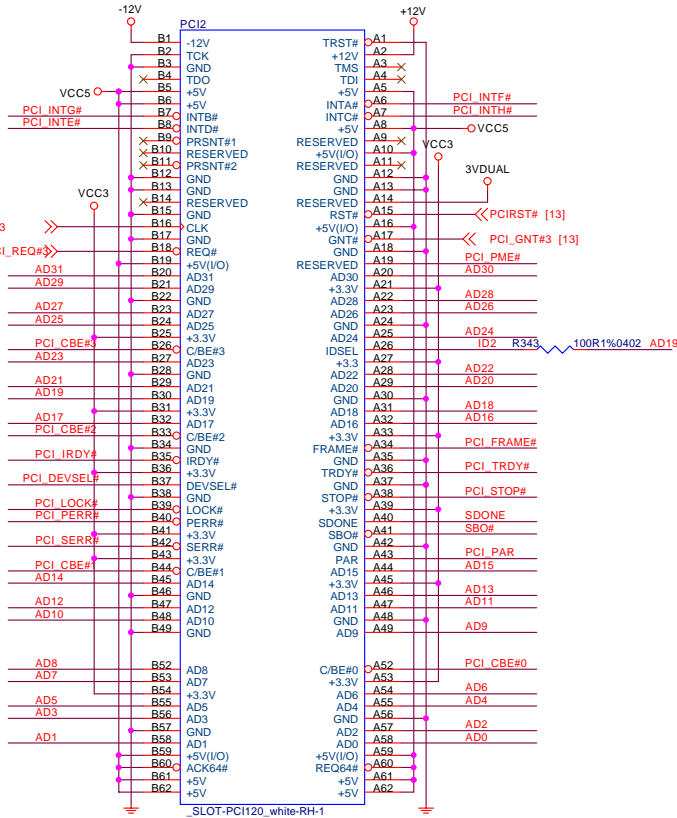
[13,21] AD[31..0] >> AD[31..0]
[13,21] PCI_CBE#[3..0] >> PCI_CBE#[3..0]

PCI SLOT 1 (PCI VER: 2.2 COMPLY)



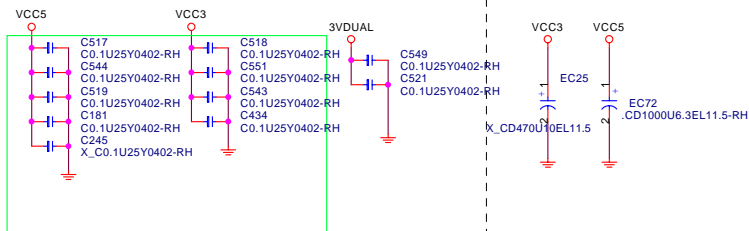
IDSEL = AD18
MASTER = PCI_REQ#2
PCI_GNT#2

PCI SLOT 2 (PCI VER: 2.2 COMPLY)



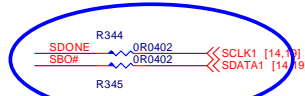
IDSEL = AD19
MASTER = PCI_REQ#3
PCI_GNT#3

PCI SLOT DECOUPLING CAPACITORS

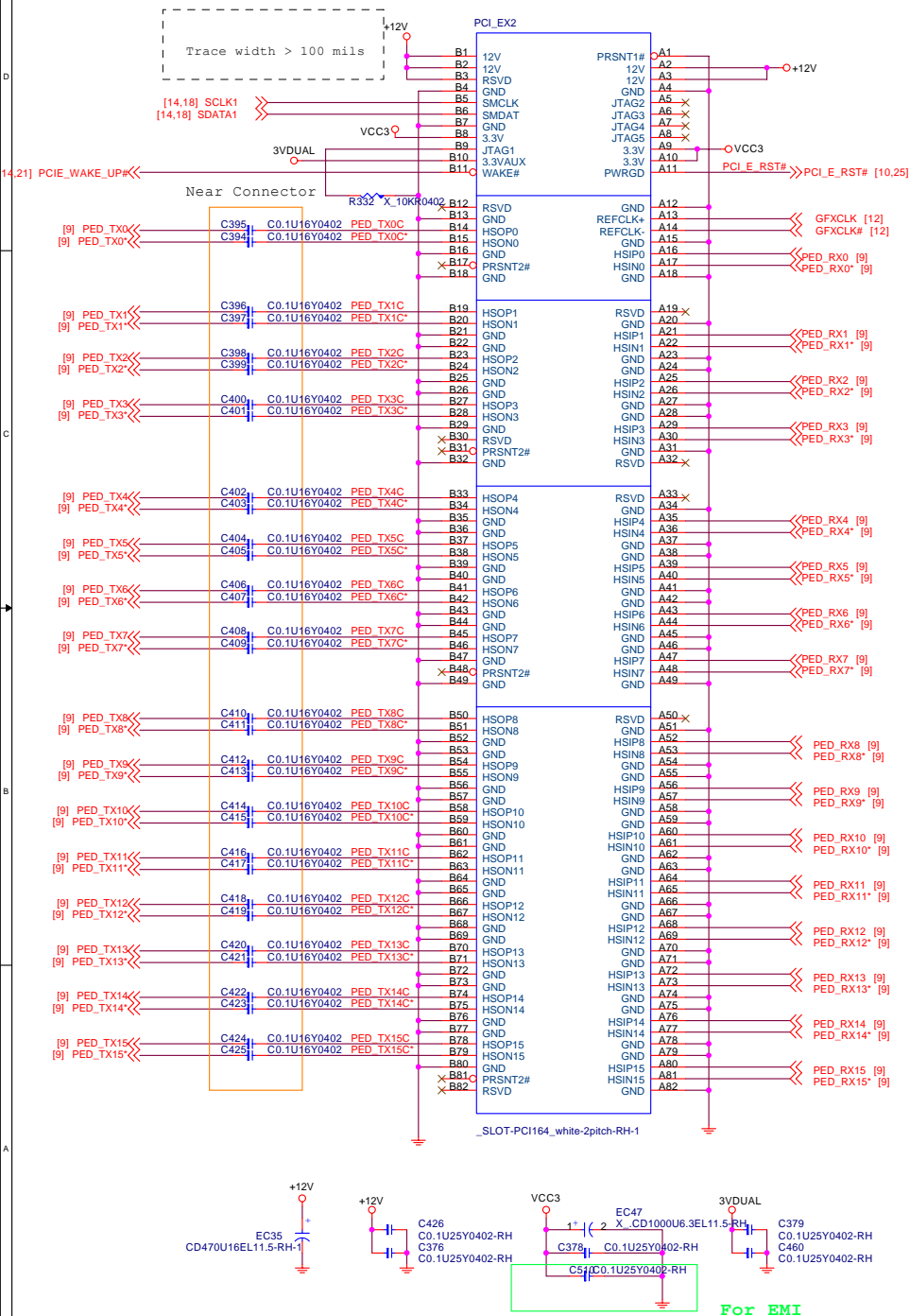


For EMI

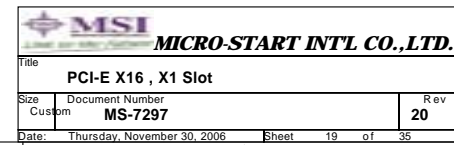
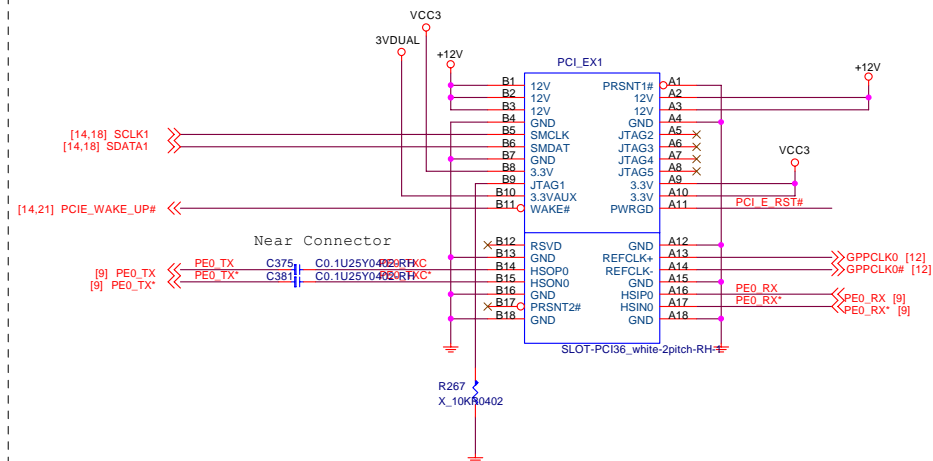
PCI PULL-UP / DOWN RESISTORS

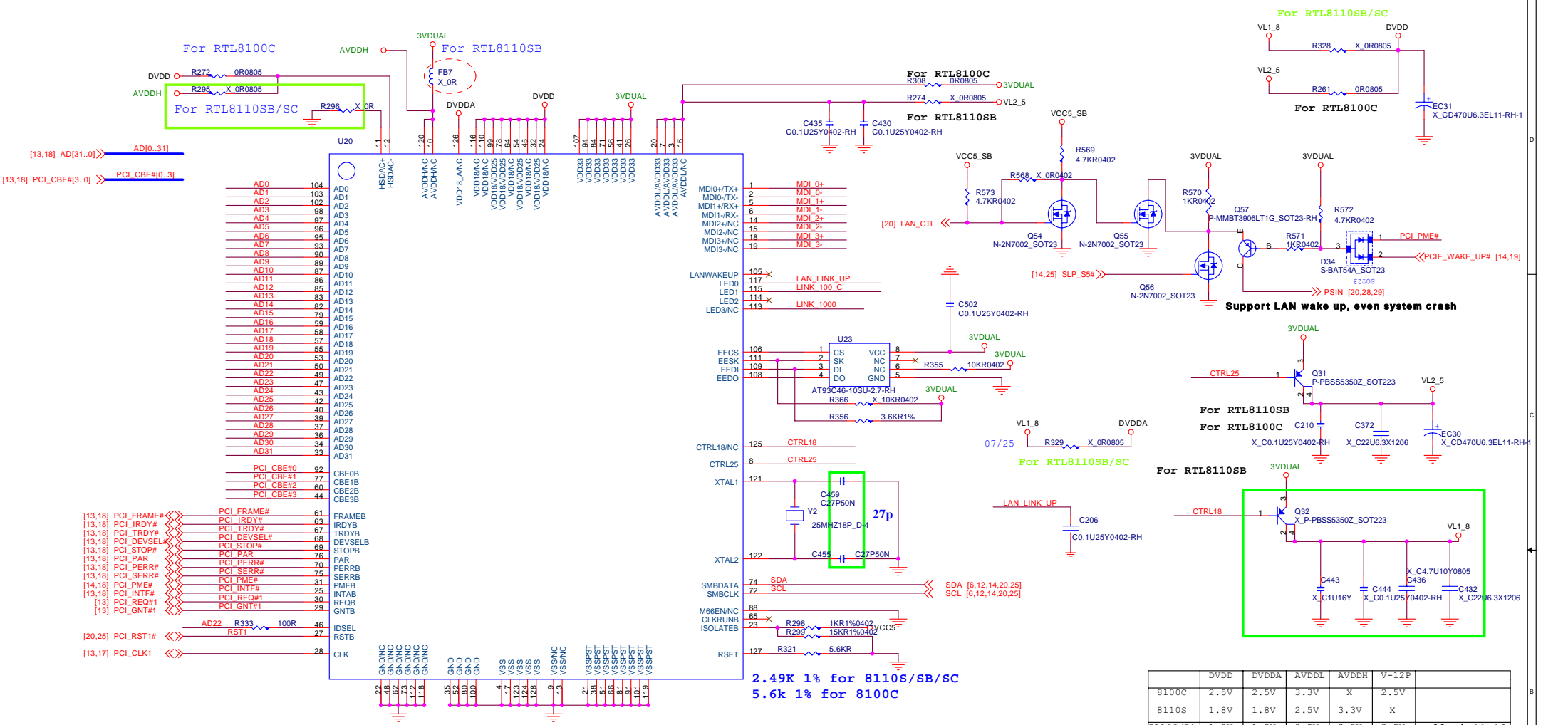


PCI EXPRESS_16



PCI-Express x1 SLO T 1



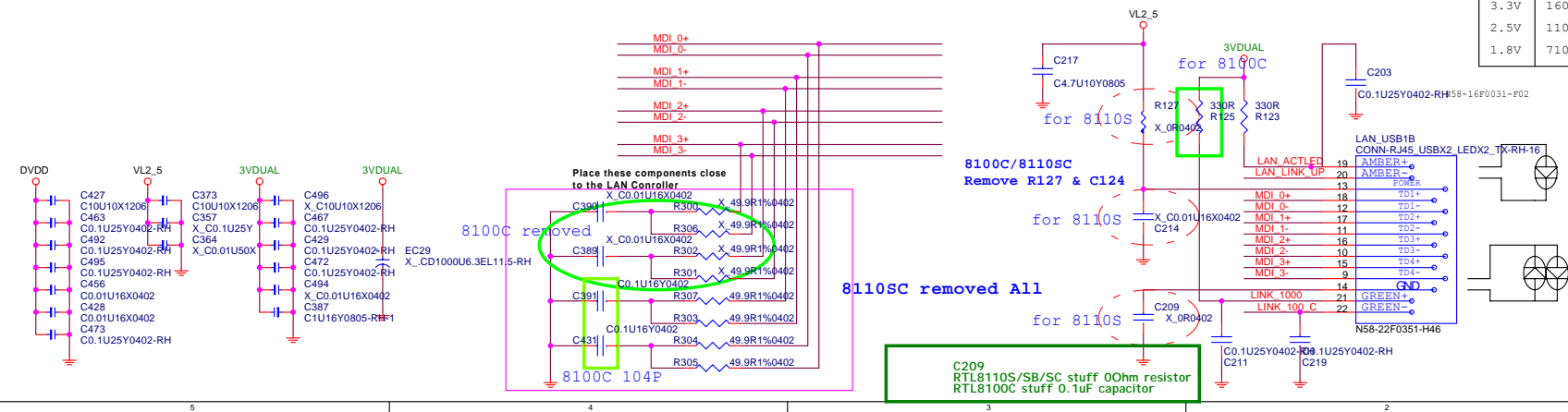


	DVDD	DVDDA	AVDDL	AVDDH	V-12P
8100C	2.5V	2.5V	3.3V	X	2.5V
8110S	1.8V	1.8V	2.5V	3.3V	X
8110S(B)	1.8V	1.8V	2.5V	3.3V	3.3V

Add pin11,12

Power consumption		
	1G	100M
3.3V	160mA	120mA
2.5V	110mA	250mA
1.8V	710mA	270mA

Giga-Lan		10/100-Lan	
N58-22F0081-S42		N58-22F0061-S42 N58-22F0061-F02	
Link	Yellow	Link	Yellow
Active	Blinking	Active	Blinking
1000	Orange	100	Green
100	Green	10	None
10	None		
19	Yellow	19	Yellow
20	Yellow	20	Yellow
21	Orange	21	Green
22	Green	22	Green



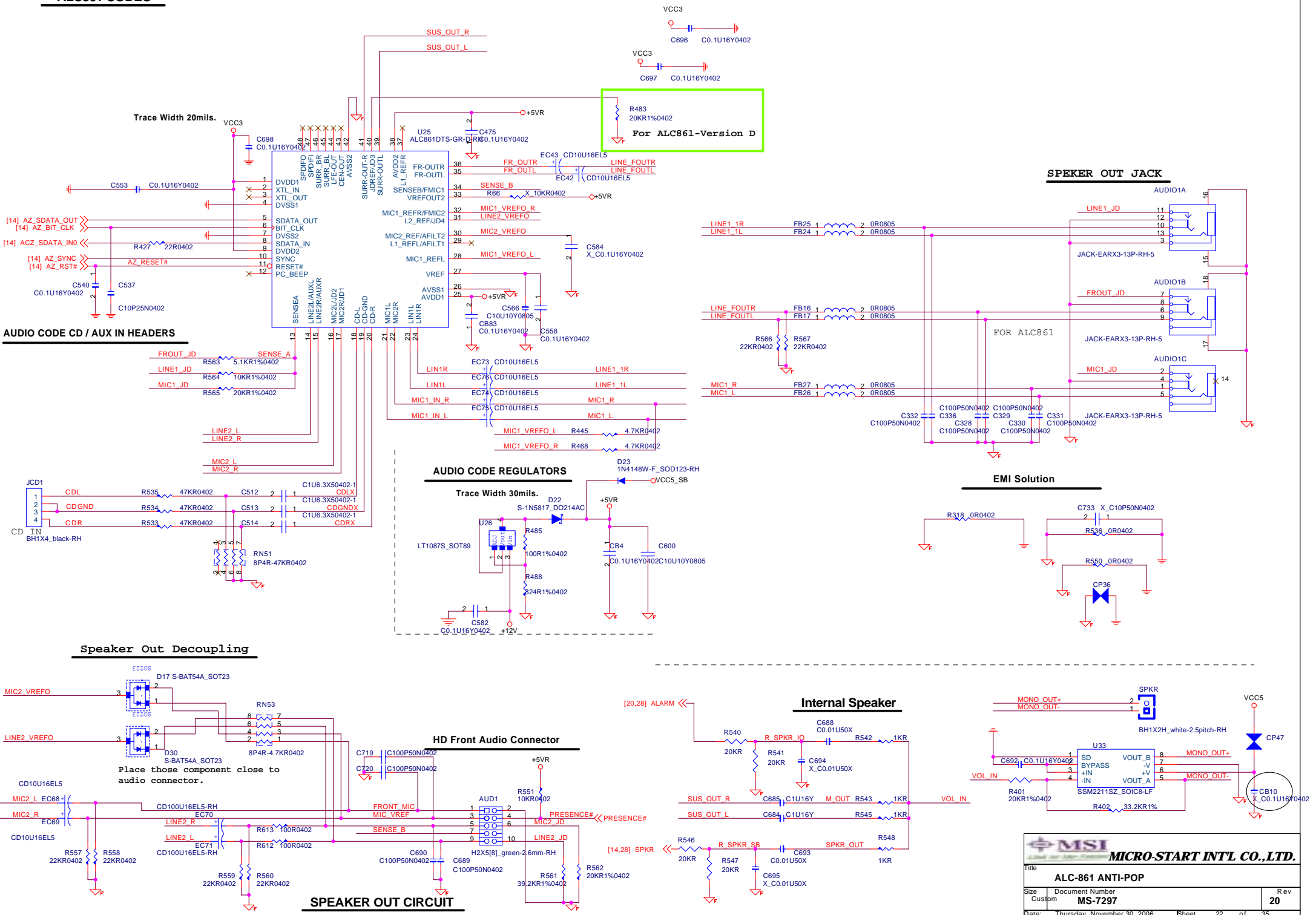
MSI
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RTL 10-100/Gigabit LAN

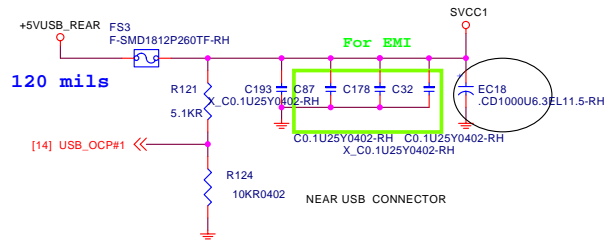
Size: Custom
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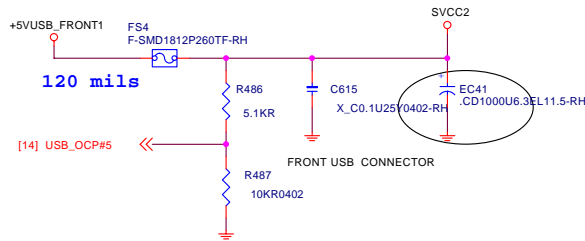
ALC861 CODEC



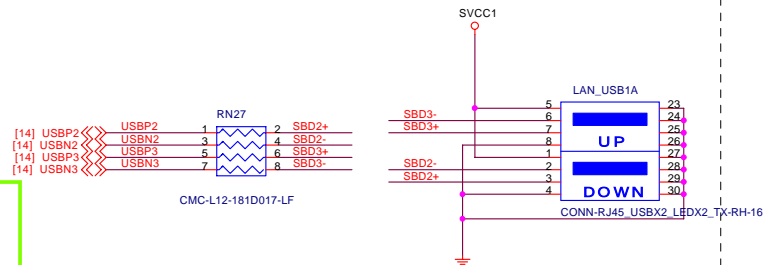
POWER CIRCUIT FOR USB PORT 0,1



POWER CIRCUIT FOR USB PORT 4,5,6,7



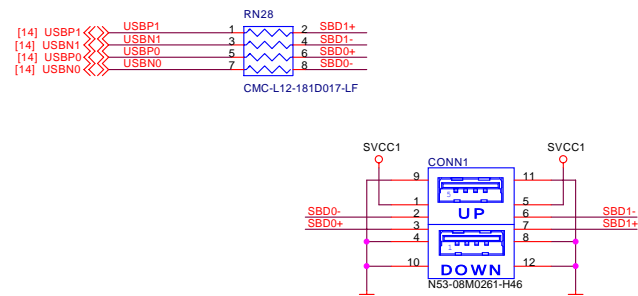
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

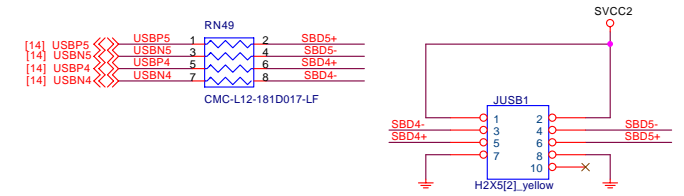
REAR PANEL USB CONNECTOR FOR USB PORT 2,3



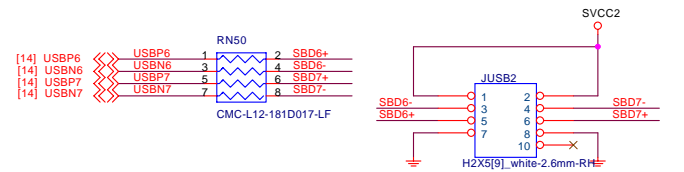
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

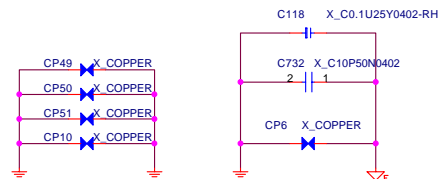
Reserved, can be taken off riser card within bead



FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

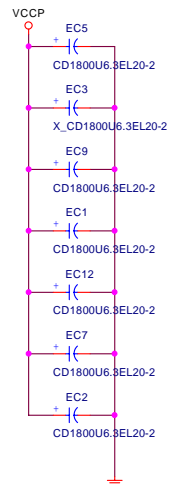
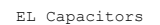
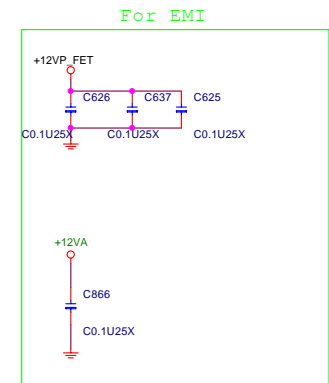
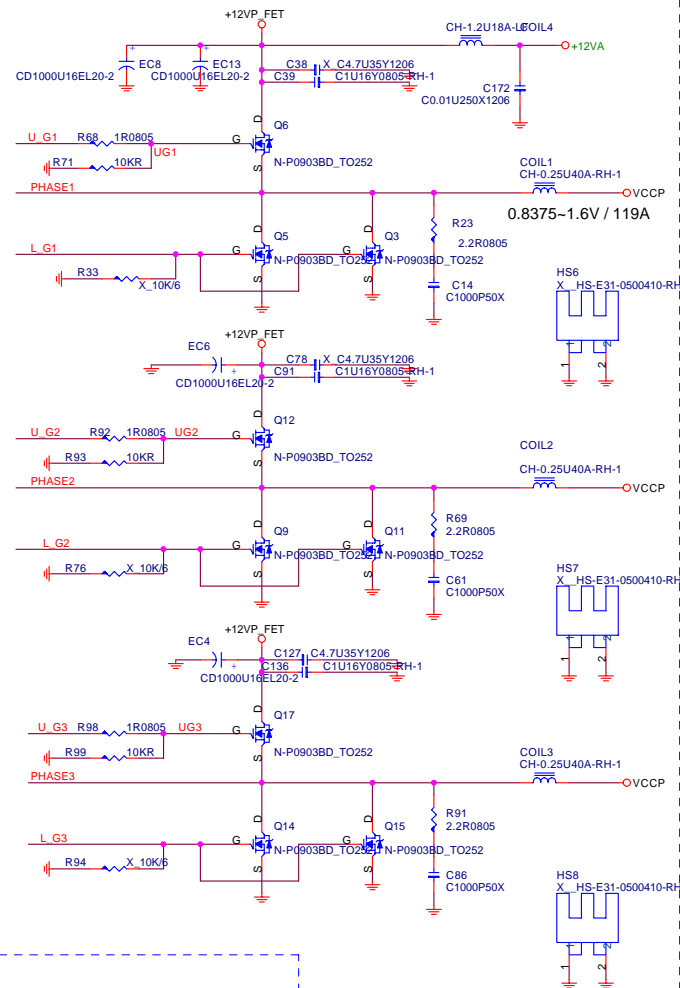
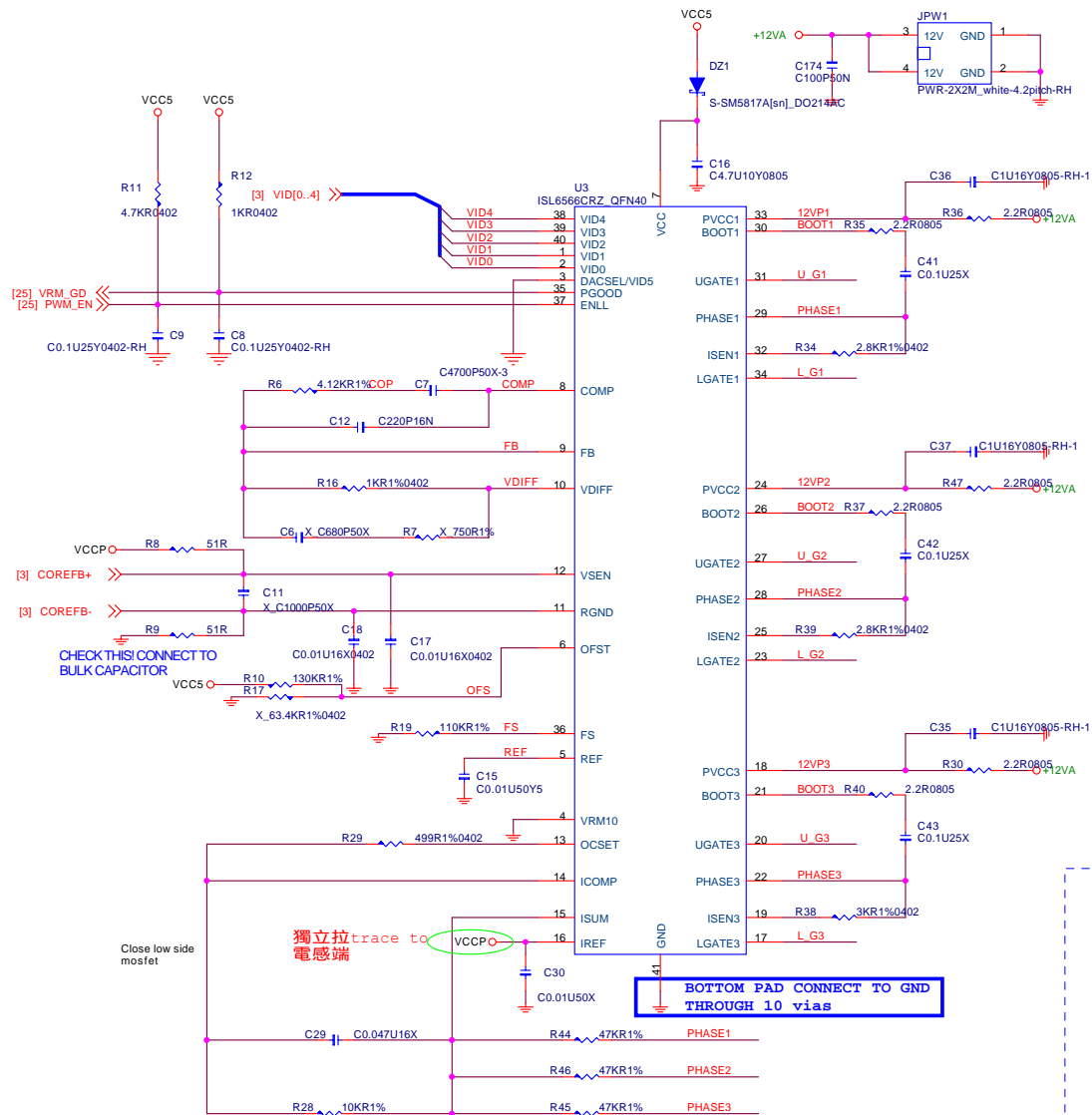


EMI TEST



Voltage Regular Module

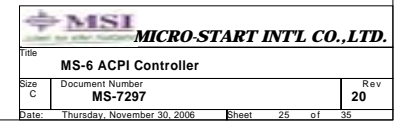
IPF06N03LA	Rds(on)=8.7mΩ (@4.5V, 30A), Vgs(on)=1.2~2V, Id=50A, Ciss=3110pf, Qg=10nC, Vds=25V, Vgs=±20V	
C100U2SP	ESR<13mΩ, Ripple cur.<2.7A, L<1.2uA, 105C	
CD3300U6.3EL25	ESR<12mΩ, Ripplecur.<2800mA, 105C, longlife3000hrs, KZGSeries	
560u_2.5V	ESR=6mΩ, Ripplecur.=4400mA, Lc.<500uA, 105C/2000hrs	
1800UF/6.3V	ESR<12mΩ, Ripplecur<2350mA, 105C, longlife change from 2000hrs to 3000hrs ,KZJ series	
0.6uH/40A	0.6u/20%, Isat=40A, Rdc=1.2m ohm, PEW wire	
CH-1.2U18A	1.2u/20%, Dip-2/vertical7.5mm, 1.2u/5.5turns, 18A	+12V



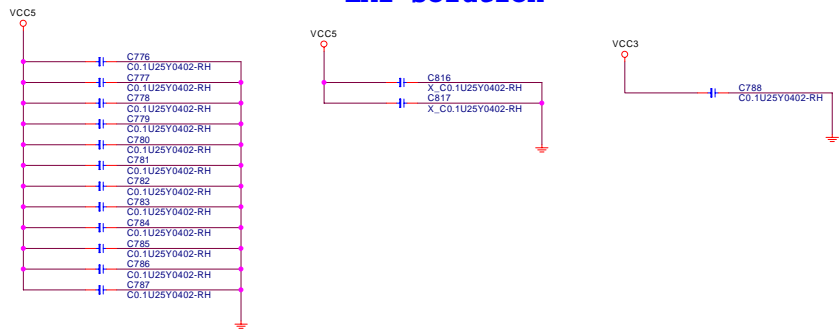
MOSFET Heatsinks

For EMI

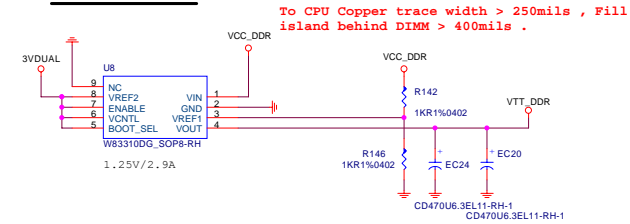
THESE OUTPUT AND INPUT PIN MUST
BE PULL HIGH



EMI solution

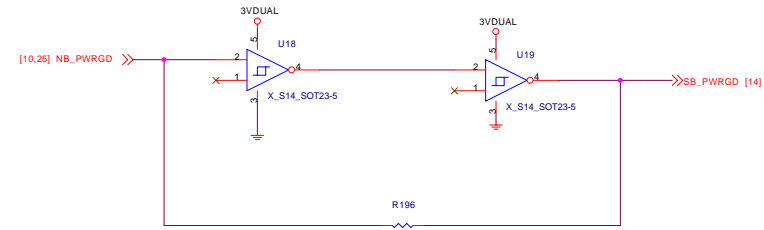
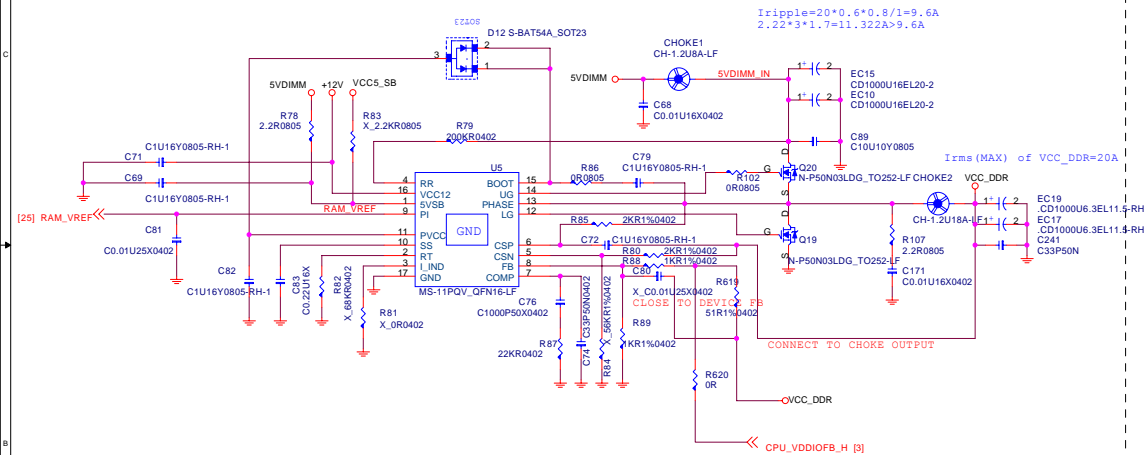


DDR VTT Power



To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .

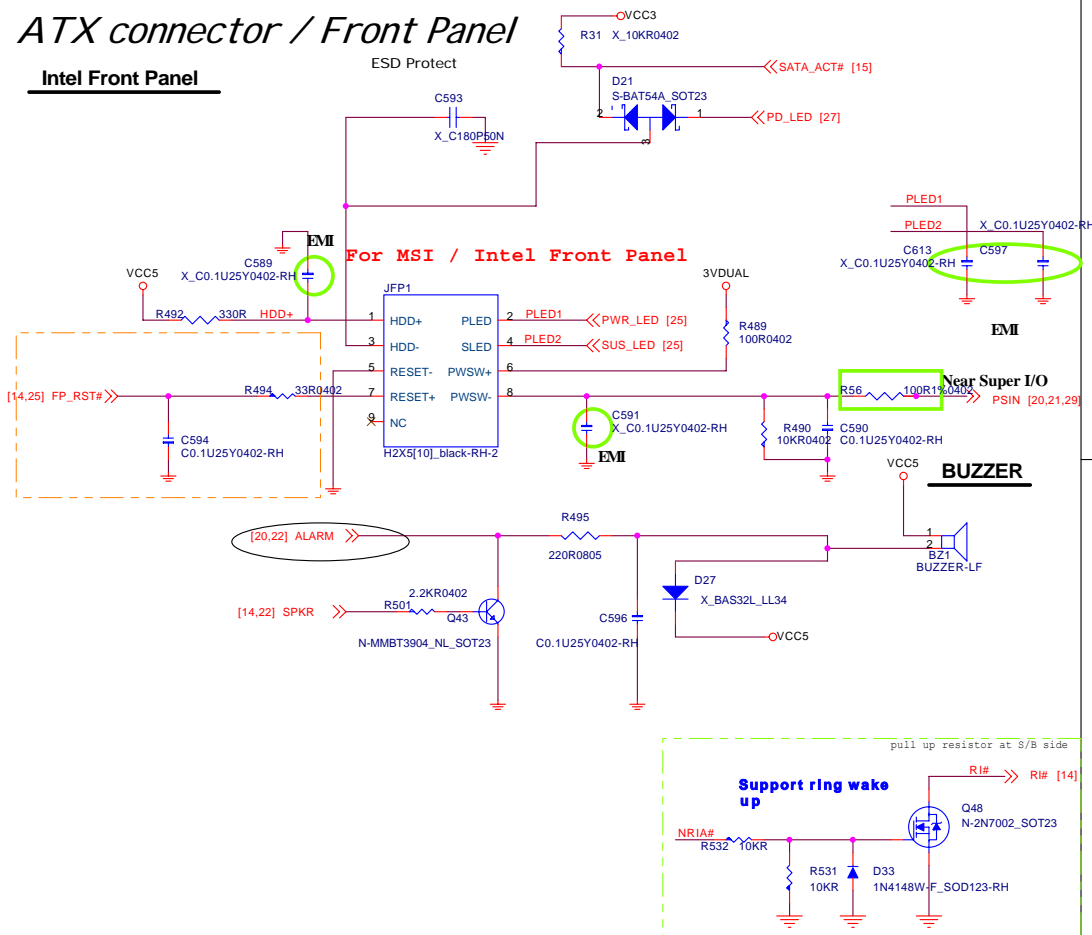
DDR II 1.8V POWER



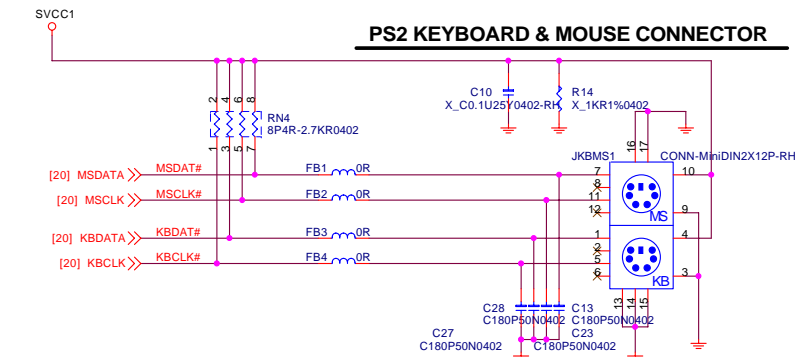


ATX connector / Front Panel

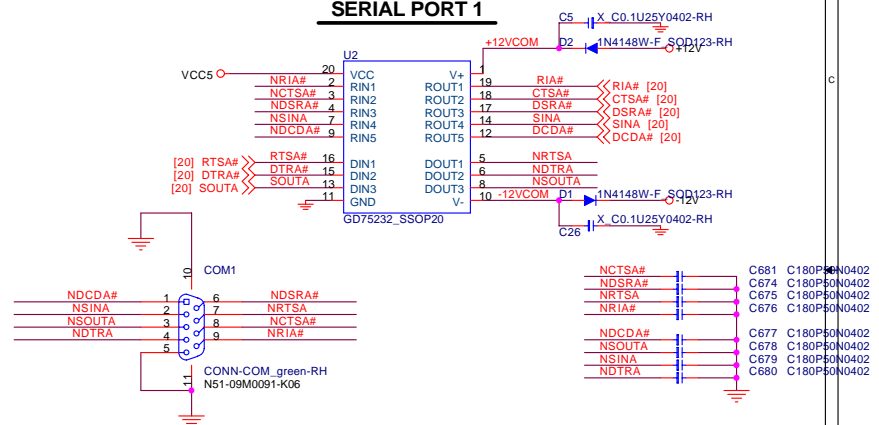
Intel Front Panel



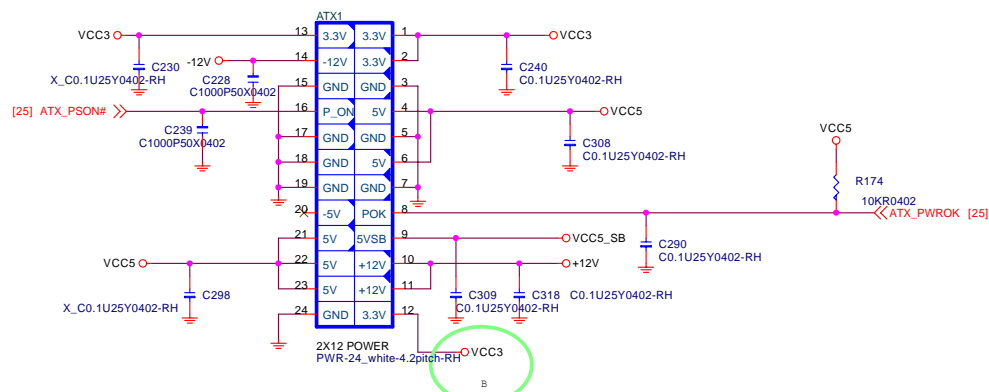
PS2 KEYBOARD & MOUSE CONNECTOR



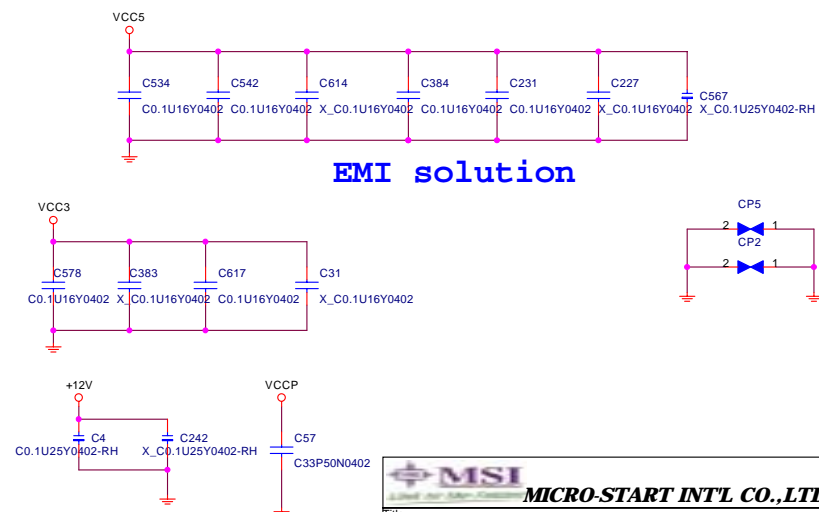
SERIAL PORT 1



ATX Connector



EMI solution



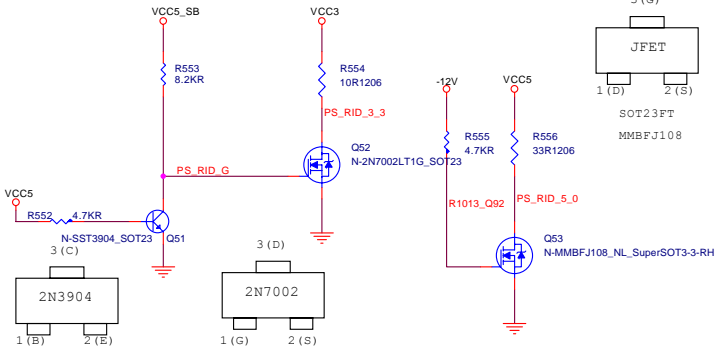
MSI

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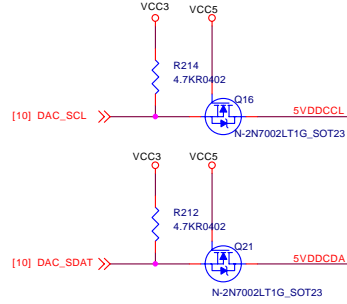
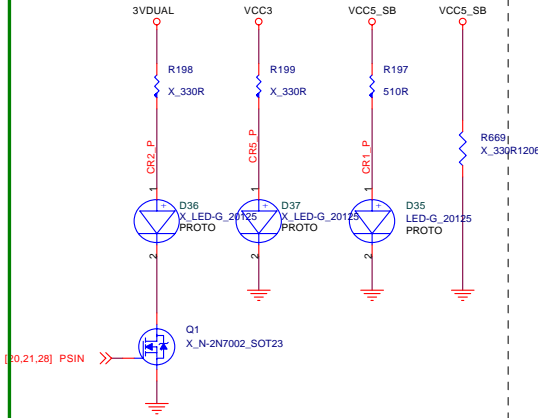
File			
ATX connector / Front Panel/COM1/KB			
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Near ATX POWER Connector

BLEED-OFF CIRCUIT

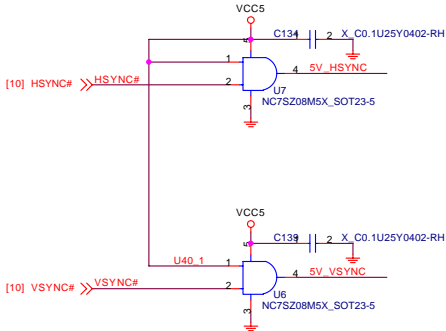
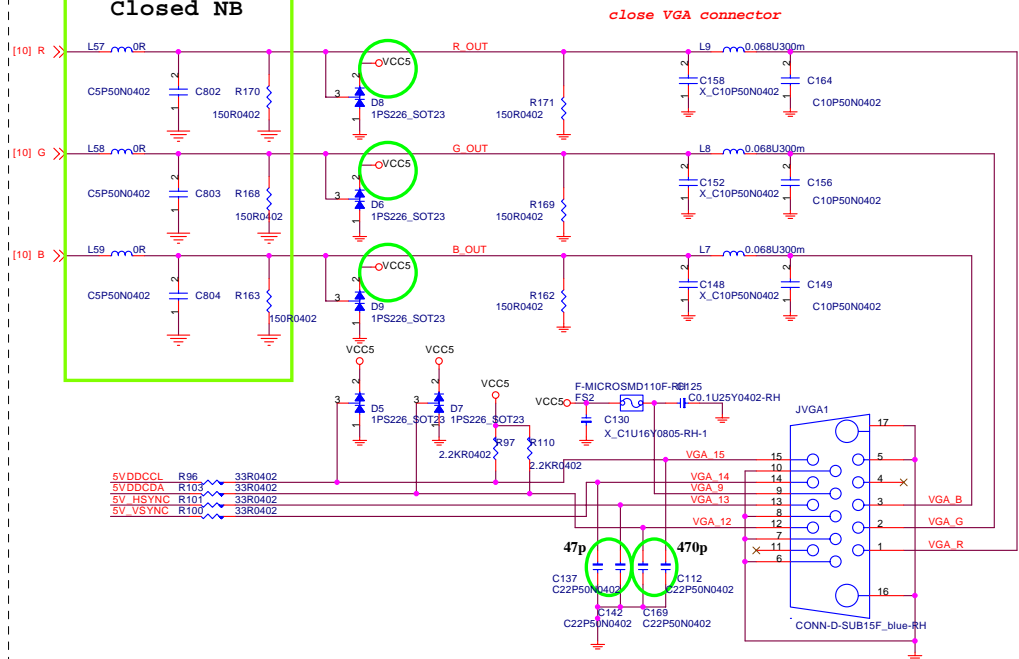


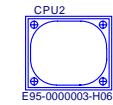
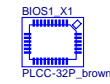
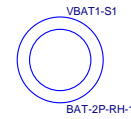
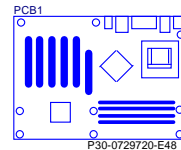
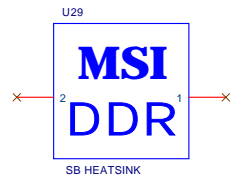
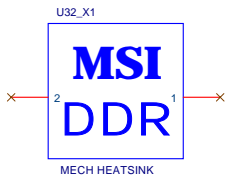
DESIGN NOTE: THIS CIRCUIT IS USED TO BLEED OFF 5.0V & 3.3V



VGA CONNECTOR

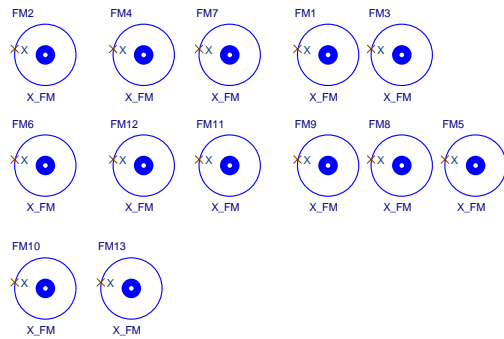
Closed NB



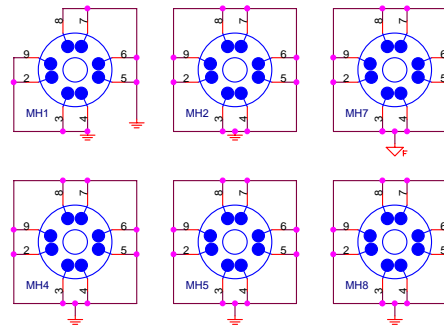


PF0-0729711-E48, 競華, 107, 寶安恩斯-皓t (MSIS)
PF0-072971-G37, 精成, 107, 寶安恩斯邁廠 (MSIS)

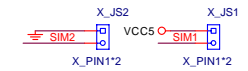
Optics Orientation Holes



Mounting Holes



Simulation



Model option table

Model type	Function	BOM Config	ERP BOM No.
MS-7297	RS485+SB600+RTL8110SB+ALC861+2PCI+u-ATX +2PS2+8USB+1COM+VGA+1Audio+LPT+RJ45	cfg-7297-0A	601-7297-01S