



# MS-7297 Ver:11

## 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:

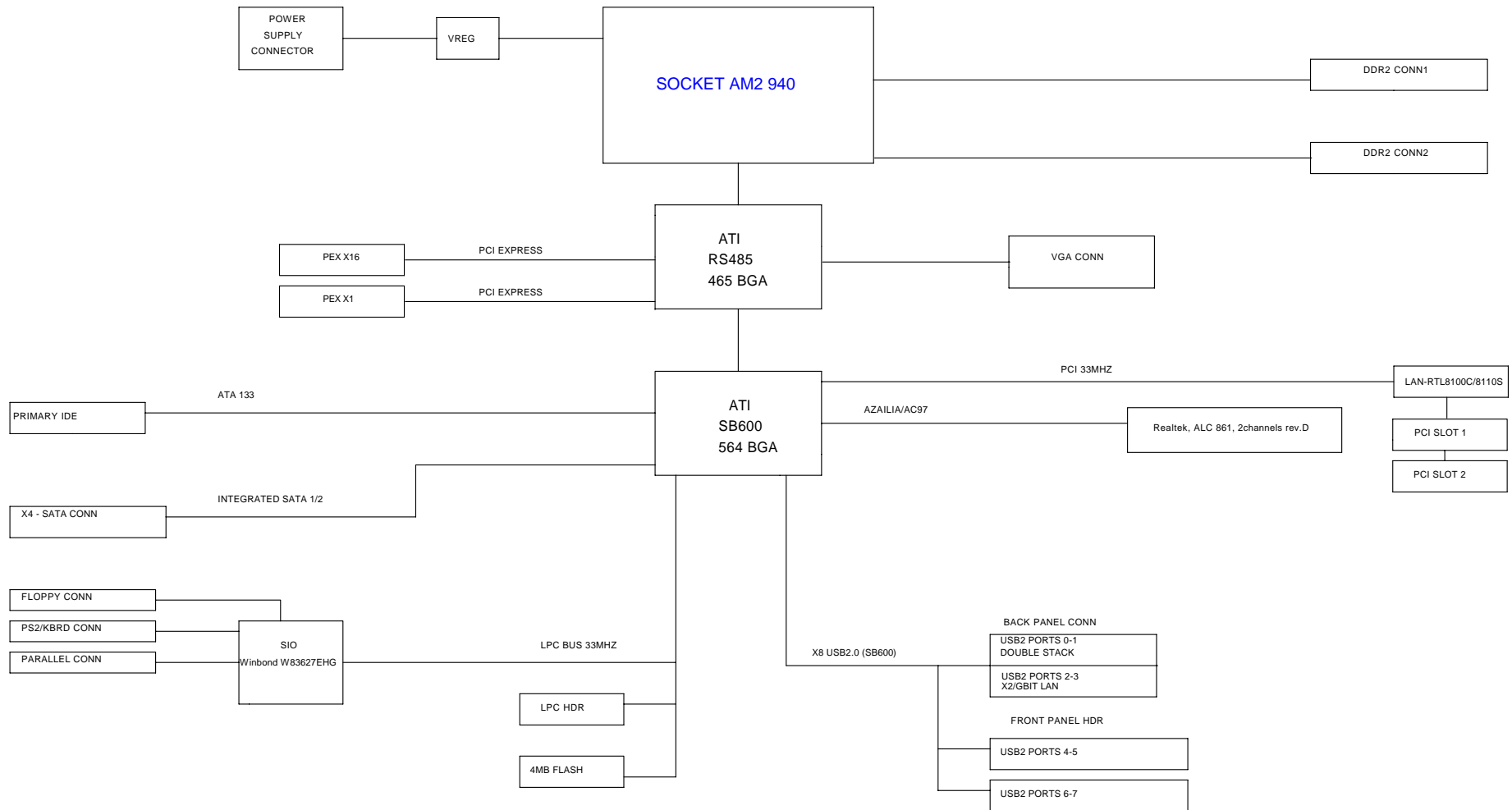
Controller--Intersil ISL6566CR 3 Phase

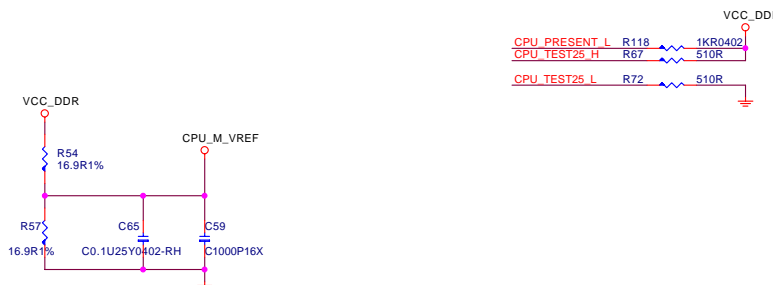
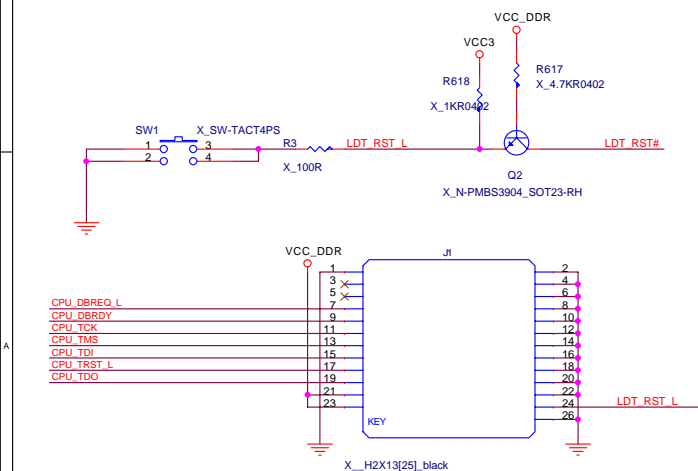
## Clock Generator:

Controller--ICS 951464AGLF

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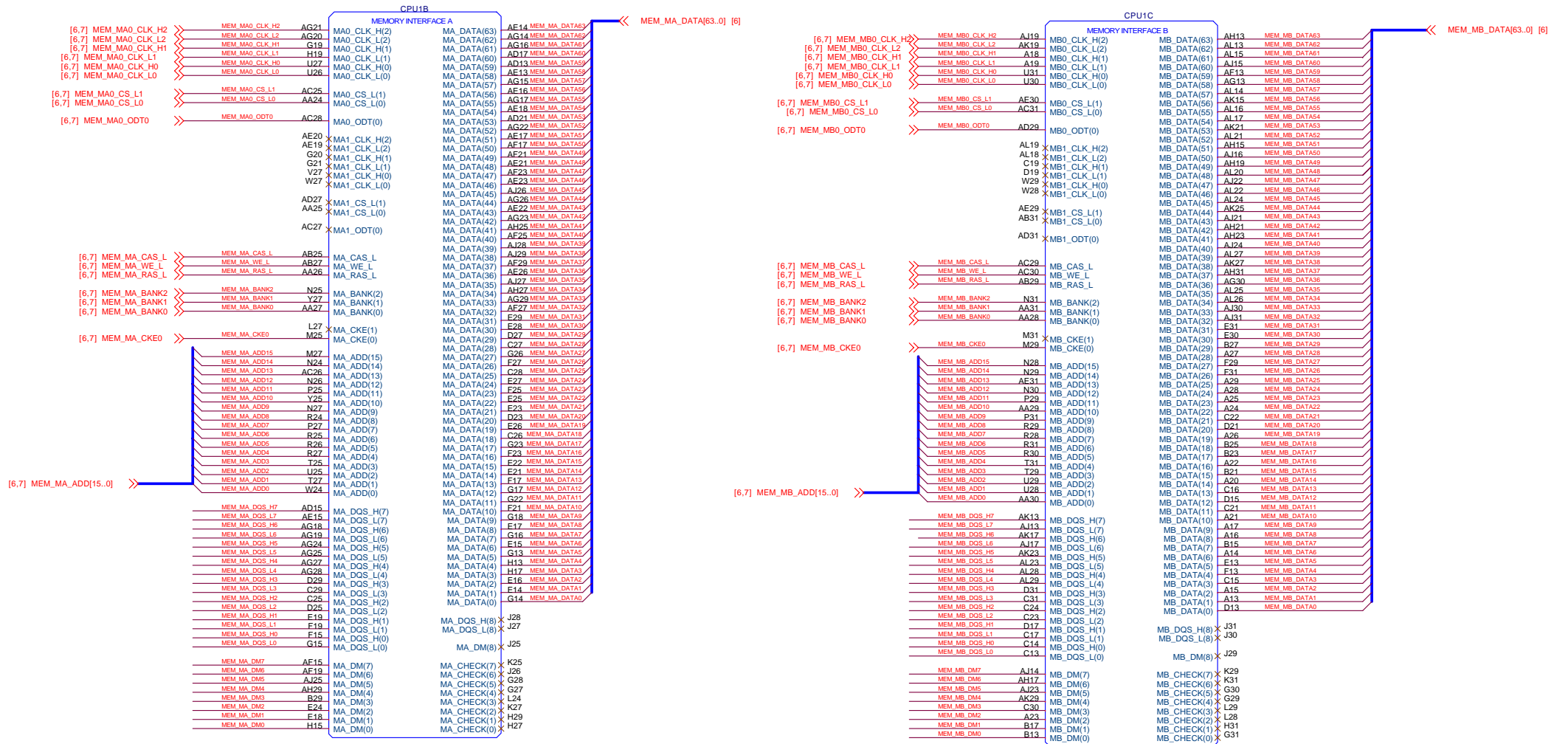
# BLOCK DIAGRAM

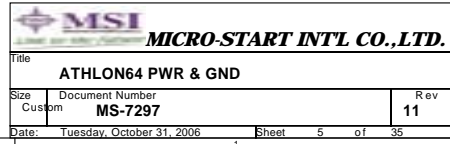




[6] MEM\_MA\_DQS\_L[7..0] >> \_\_\_\_\_  
[6] MEM\_MA\_DQS\_H[7..0] >> \_\_\_\_\_  
[6] MEM\_MA\_DM[7..0] >> \_\_\_\_\_

[6] MEM\_MB\_DQS\_L[7..0] >> \_\_\_\_\_  
[6] MEM\_MB\_DQS\_H[7..0] >> \_\_\_\_\_  
[6] MEM\_MB\_DM[7..0] >> \_\_\_\_\_



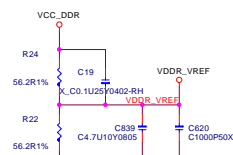


```
DIMM 1
ADDR=1010000B
```

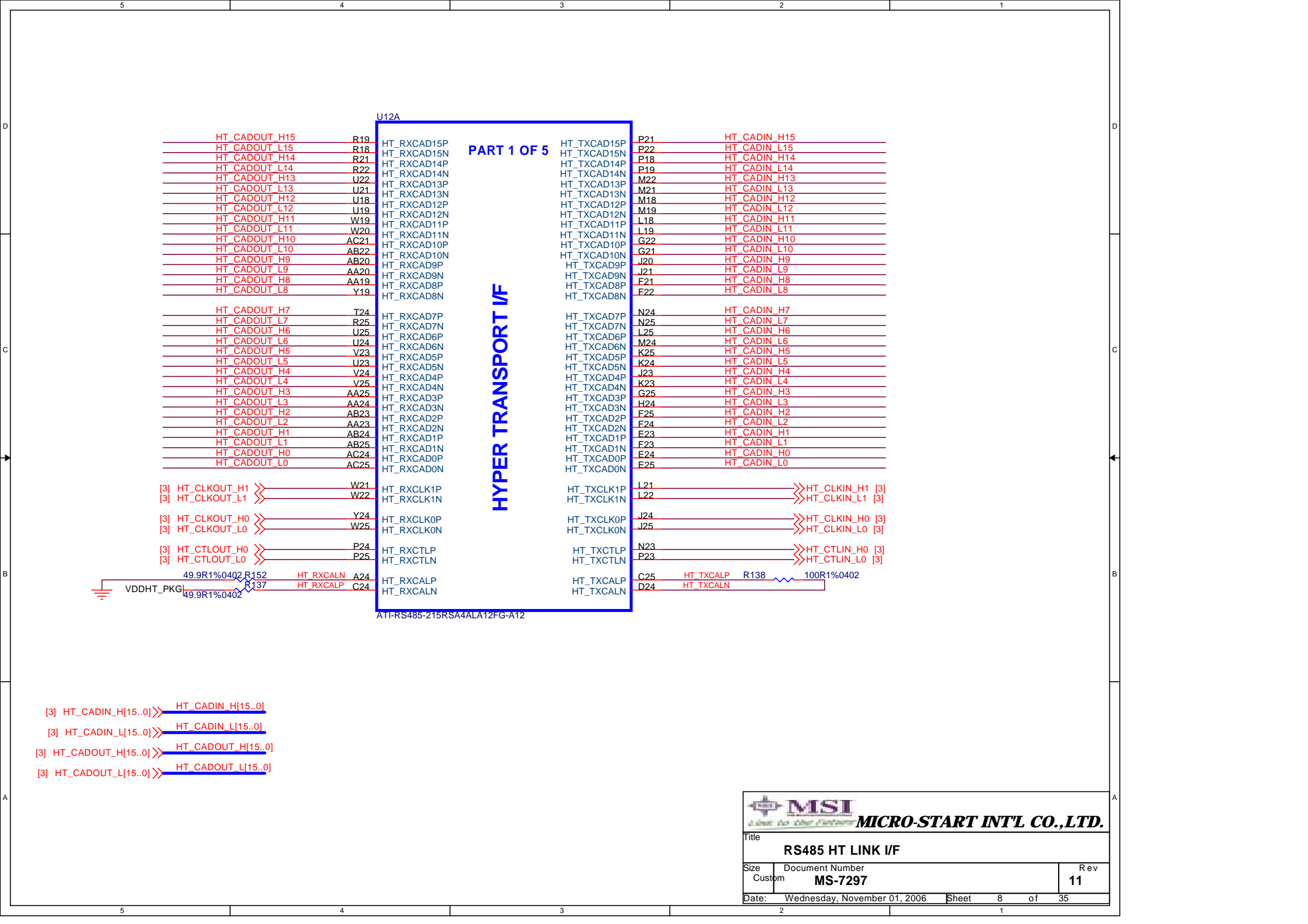
```
DIMM 2
ADDR=1010001B
```

[12,14,20,21,25] SCL<< SCL R145 33R SCL CLK

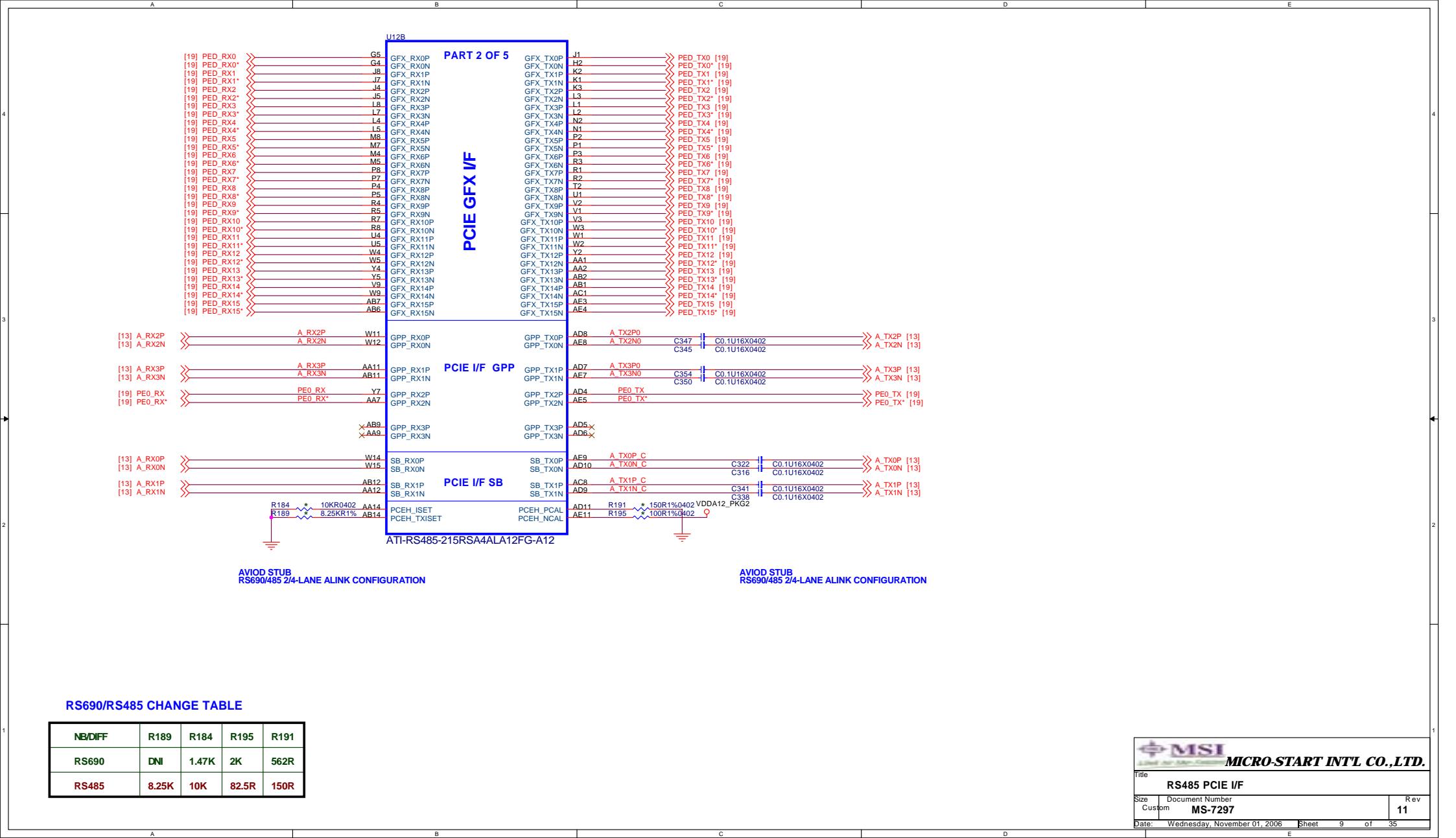
[12,14,20,21,25] SDA<< SDA R154 33R SDA DATA

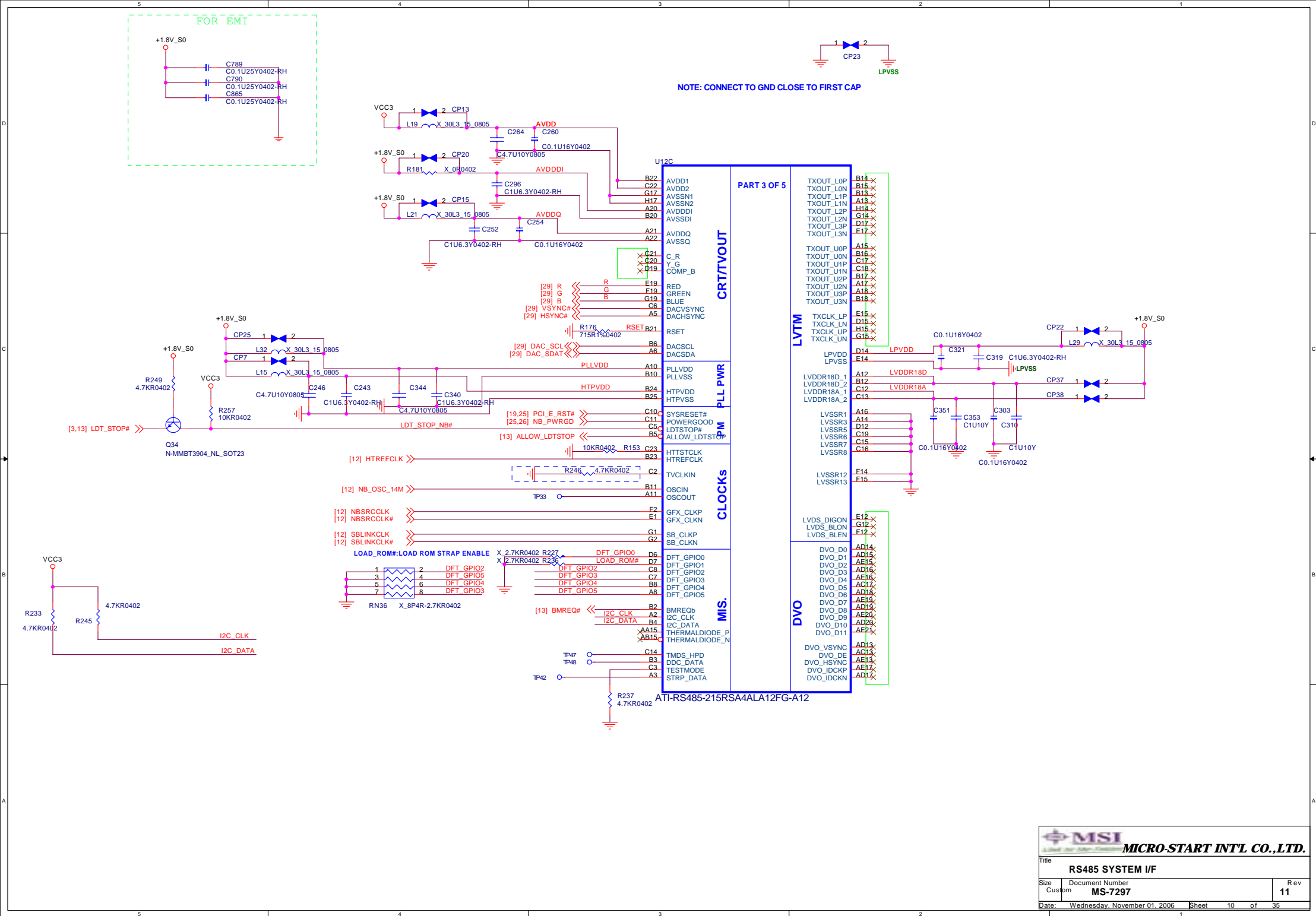


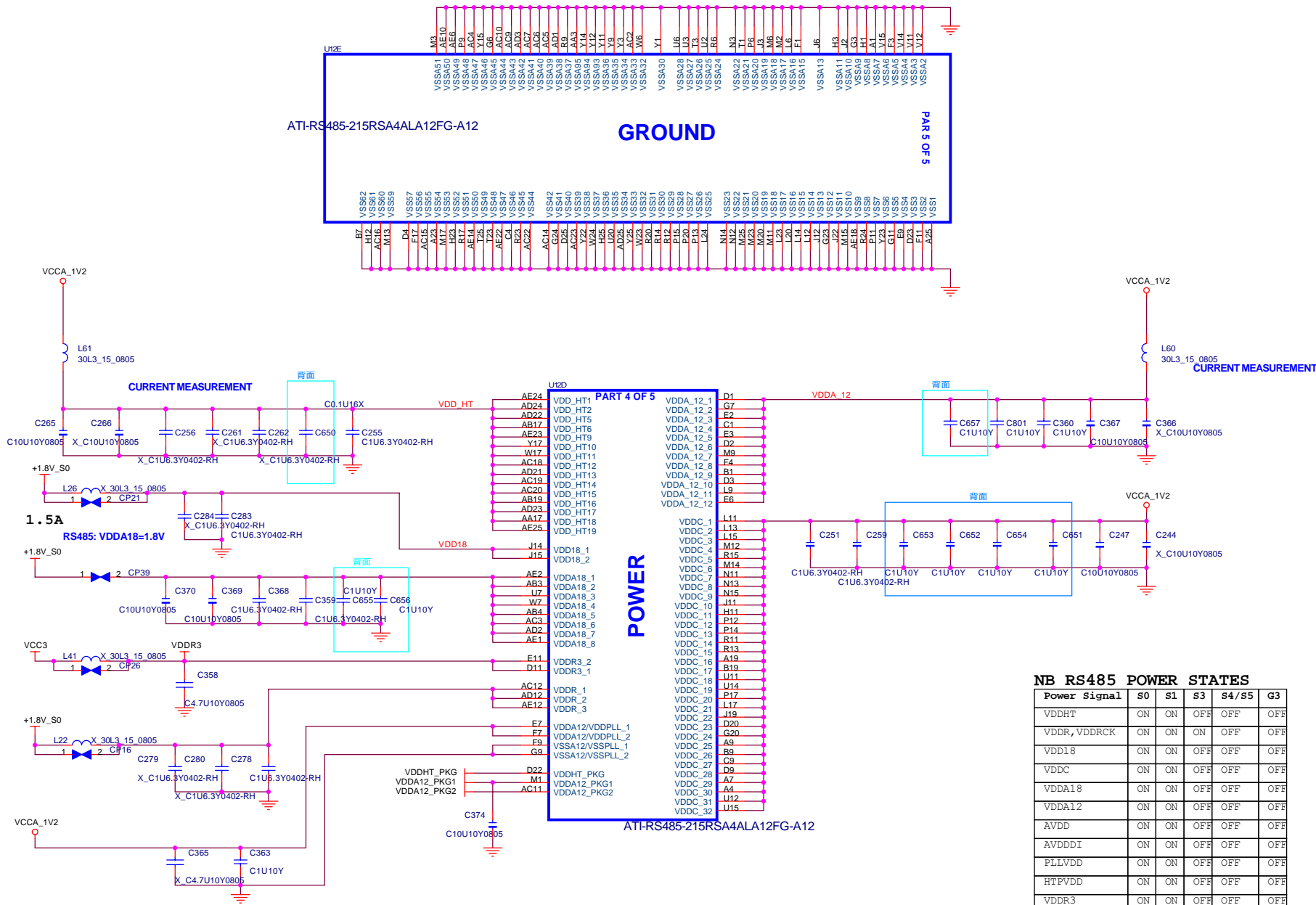




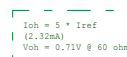
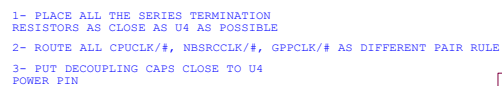









NB RS485 POWER STATES					
Power Signal	S0	S1	S3	S4/S5	G3
VDDHT	ON	ON	OFF	OFF	OFF
VDDR, VDDRCK	ON	ON	ON	OFF	OFF
VDD18	ON	ON	OFF	OFF	OFF
VDDC	ON	ON	OFF	OFF	OFF
VDDA18	ON	ON	OFF	OFF	OFF
VDDA12	ON	ON	OFF	OFF	OFF
AVDD	ON	ON	OFF	OFF	OFF
AVDDDI	ON	ON	OFF	OFF	OFF
PLLVD	ON	ON	OFF	OFF	OFF
HTPVDD	ON	ON	OFF	OFF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

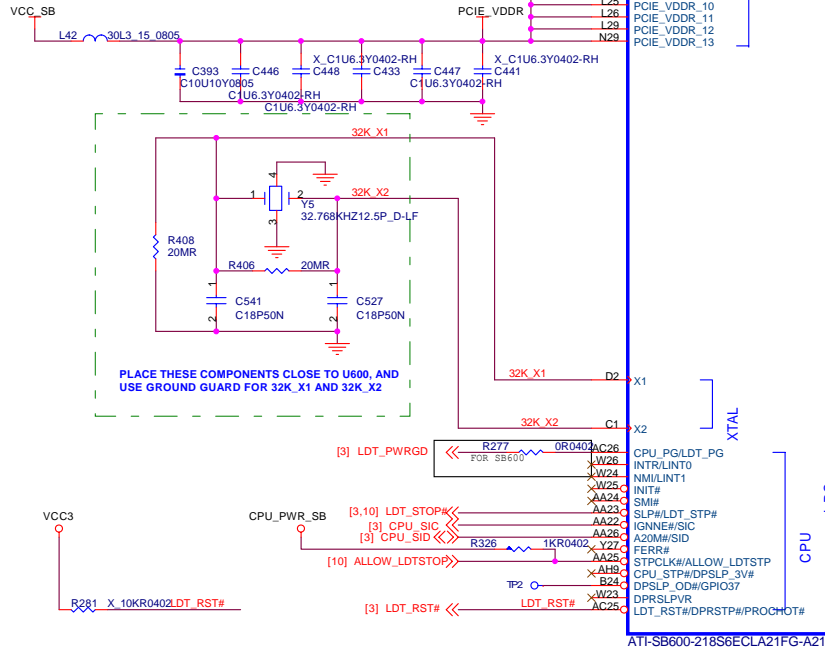


GFXCLK		>> GFXCLK [19]
GFXCLK#		>> GFXCLK# [19]
NBSRCLK		>> NBSRCLK [10]
NBSRCLK#		>> NBSRCLK# [10]
SBSRCLK		>> SBSRCLK [13]
SBSRCLK#		>> SBSRCLK# [13]
SBLINKCLK		>> SBLINKCLK [10]
SBLINKCLK#		>> SBLINKCLK# [10]
GPPCLK0		>> GPPCLK0 [19]
GPPCLK0#		>> GPPCLK0# [19]

 <b>MICRO-START INT'L CO.,LTD.</b>			
Title			
Clock Generator ICS951464 & SLG84607			
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	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



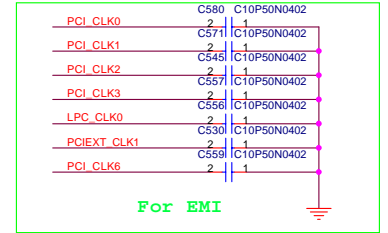
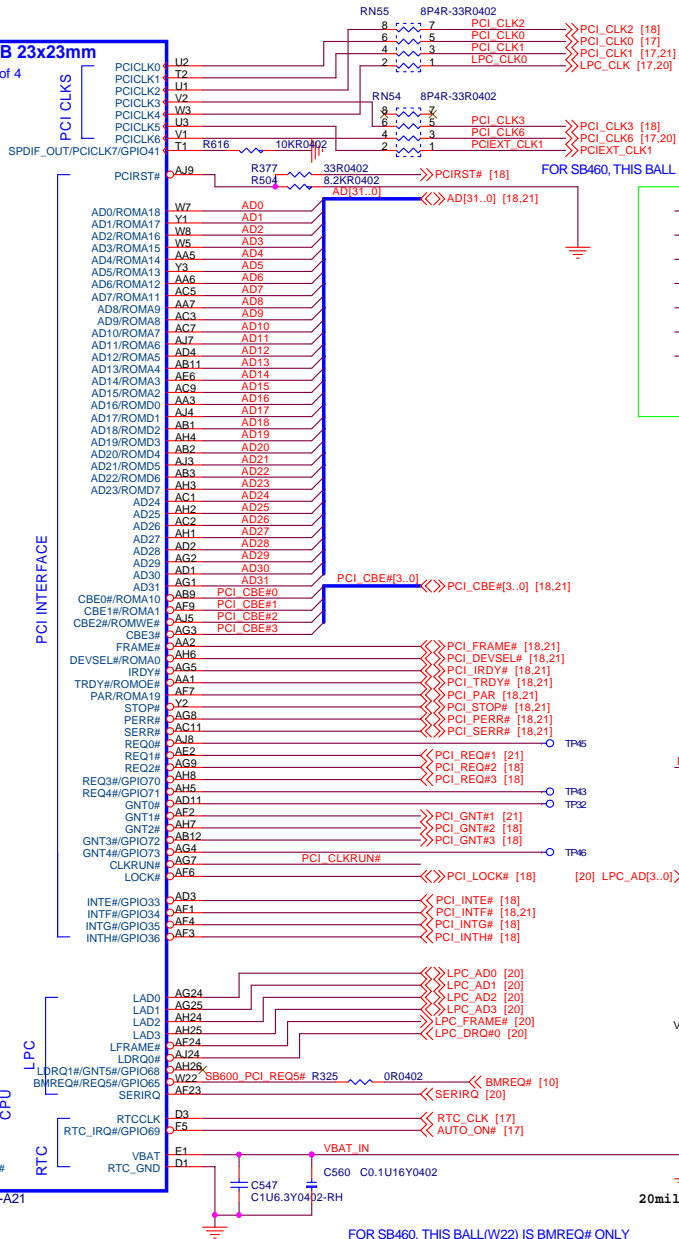
Part 1 of 4

## PCI EXPRESS INTERFACE

## PCI INTERFACE

LPC

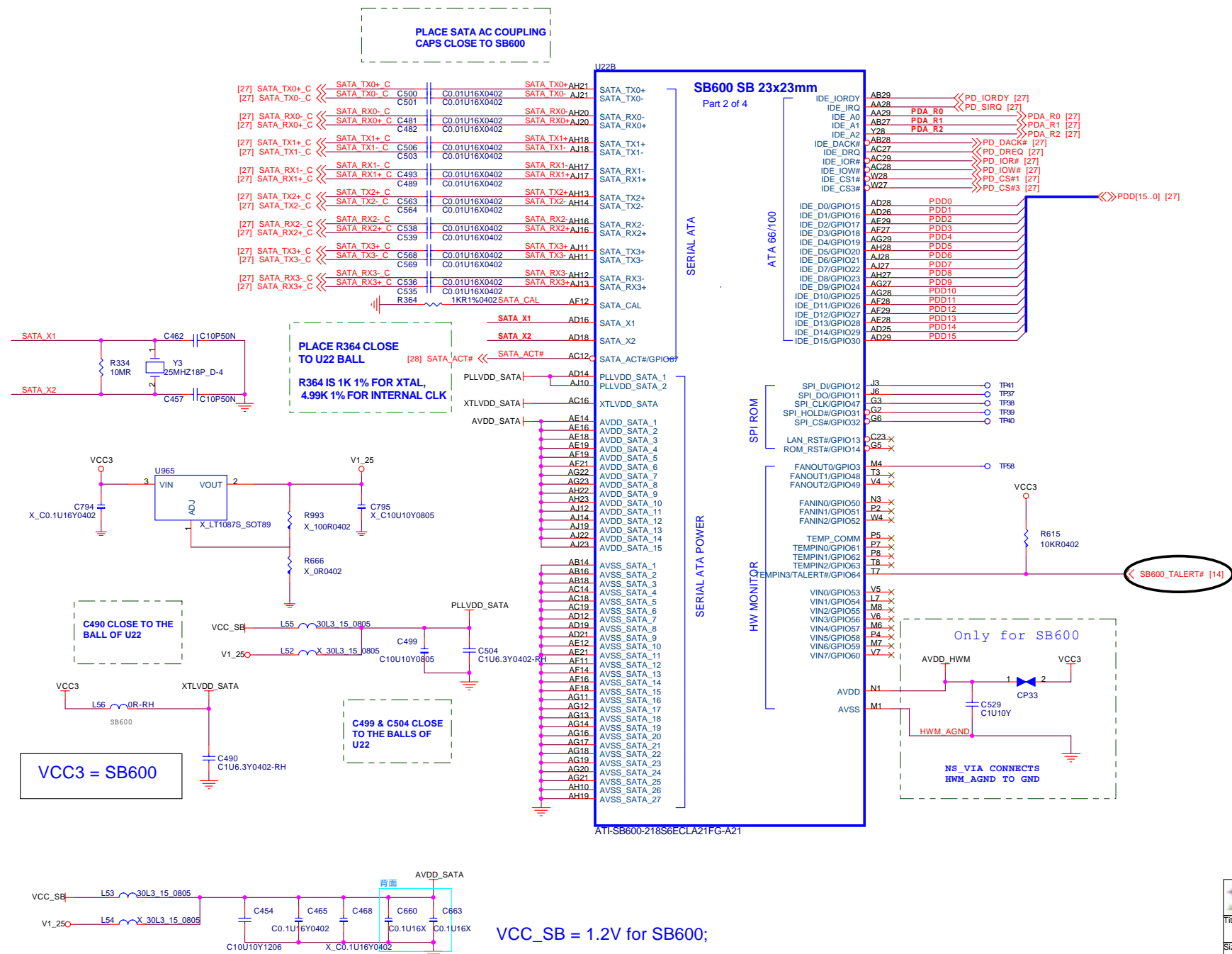
FOR SB600

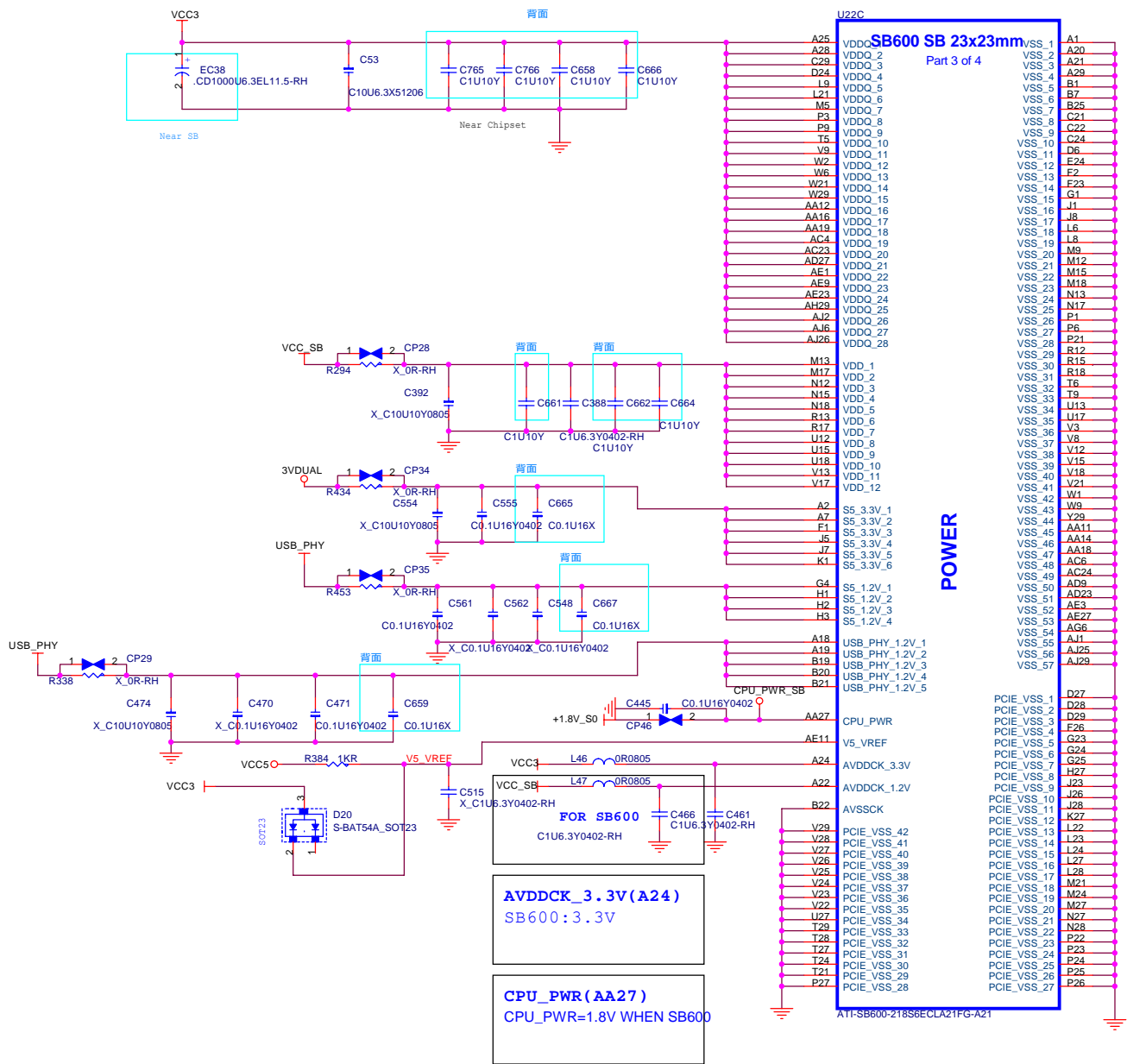


For EMI

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







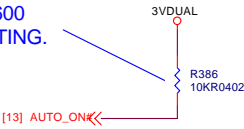
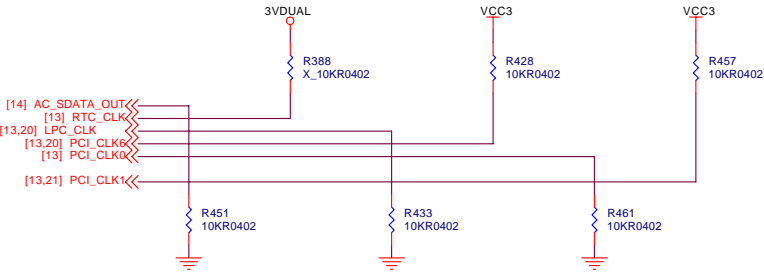




# REQUIRED STRAPS

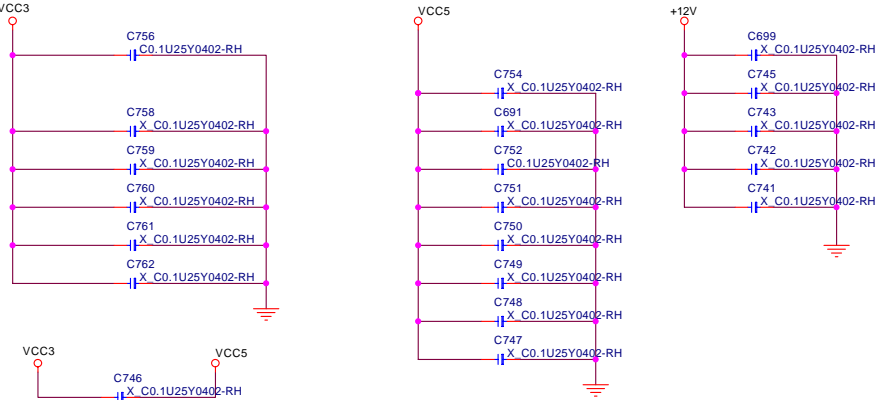
SB600 HAS 15K INTERNAL PD FOR AC\_SDATA\_OUT,  
15K PU FOR RTC\_CLK, EXTERNAL PU/PD IS  
NOT REQUIRED; FOR SB460, EXTERNAL PU/PD ARE  
REQUIRED

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

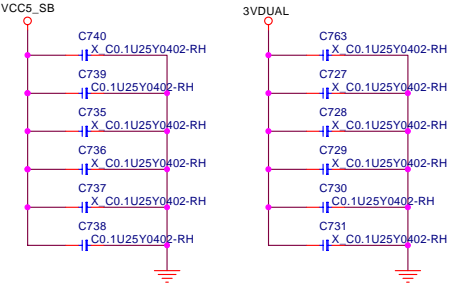


					SB600		SB460	
	AC_SDOUT	RTC_CLK	PCI_CLK4	PCI_CLK6	PCI_CLK0	PCI_CLK1	PCI_CLK0	PCI_CLK1
PULL HIGH	USE DEBUG STRAPS	INTERNAL RTC DEFAULT	USE INT. PLL48	CPU IF=K8 DEFAULT	ROM TYPE: H, H = PCI ROM H, L = SPI ROM L, H = LPC ROM L, L = FWH ROM	DEFAULT	ROM TYPE: H, H = PCI ROM H, L = LPC I ROM L, H = LPC II 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

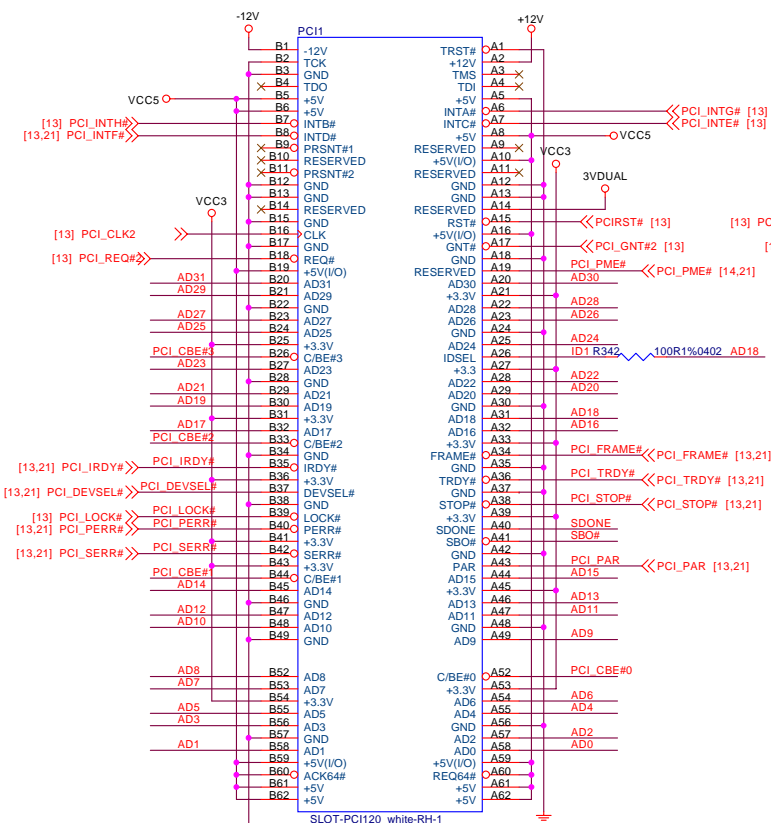


MICRO-START INTL CO.,LTD.

Title			SB600 STRAPS	
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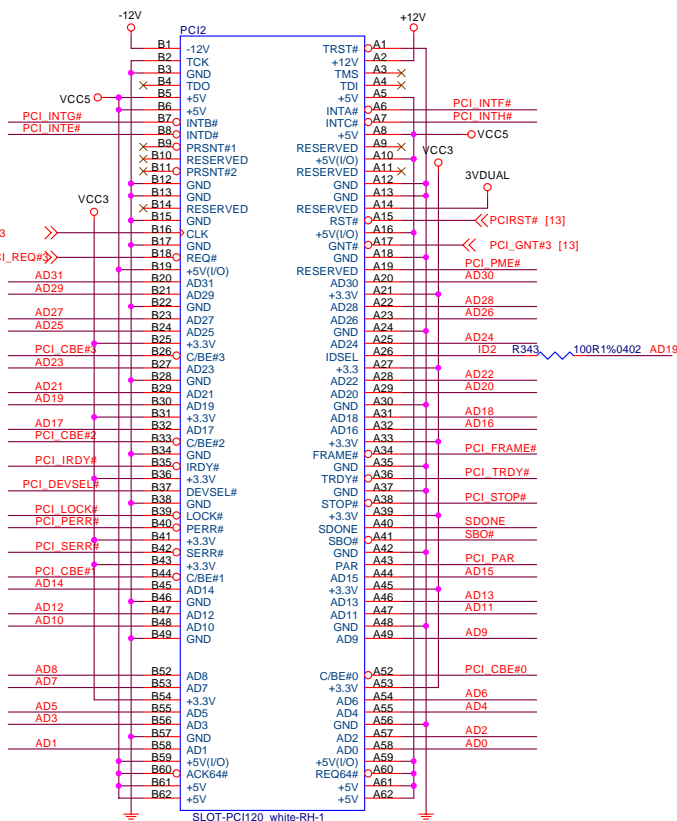
[13,21] AD[31..0] >> AD[31..0]  
[13,21] PCI\_CBE#[3..0] >> PCI\_CBE#[3..0]

### PCI SLOT 1 (PCI VER: 2.2 COMPLY)



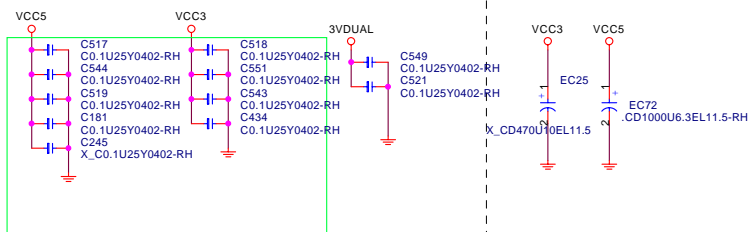
IDSEL = AD18  
MASTER = PCI\_REQ#2  
PCI\_GNT#2

### PCI SLOT 2 (PCI VER: 2.2 COMPLY)



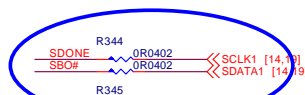
IDSEL = AD19  
MASTER = PCI\_REQ#3  
PCI\_GNT#3

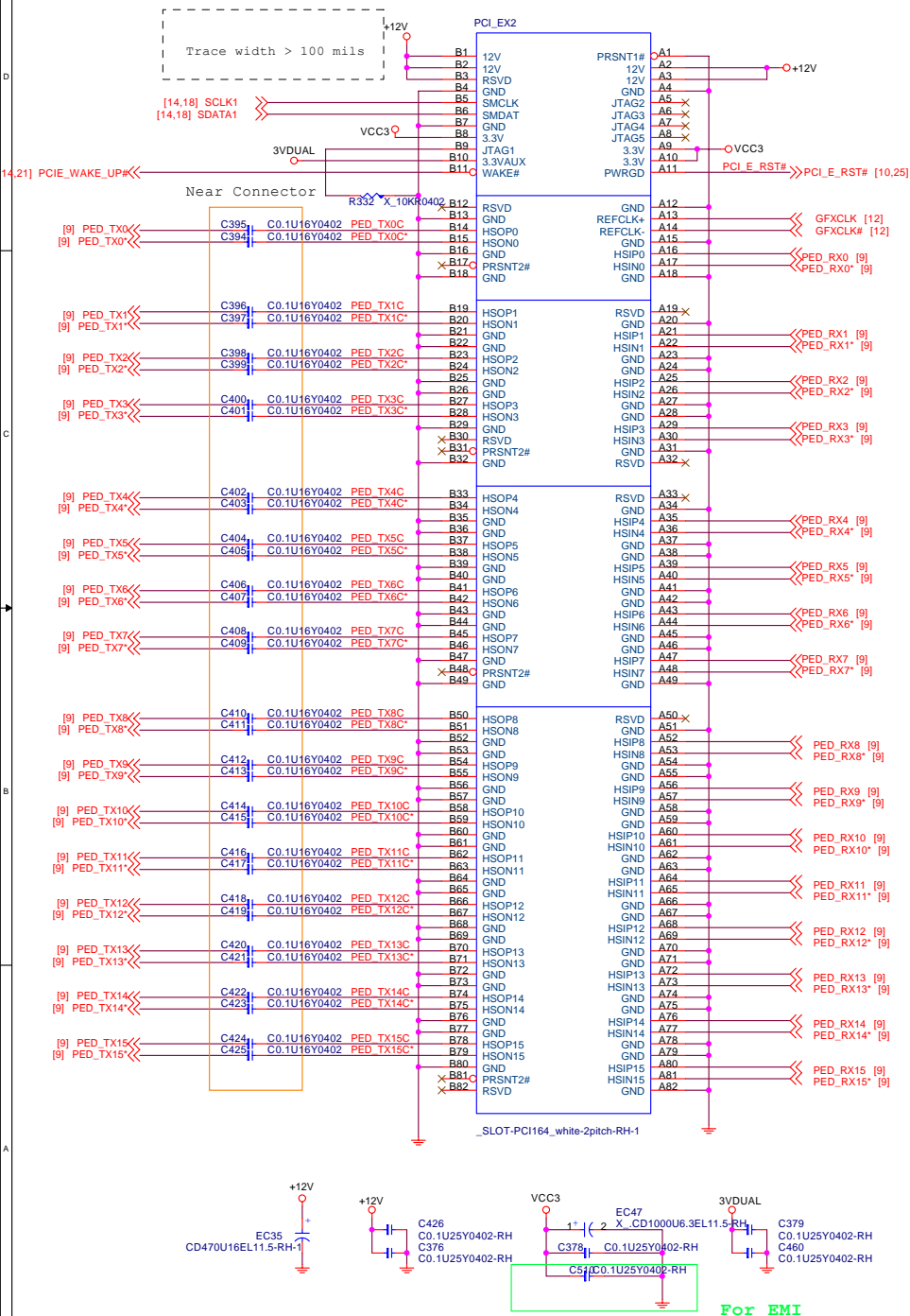
### PCI SLOT DECOUPLING CAPACITORS



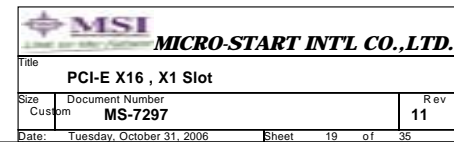
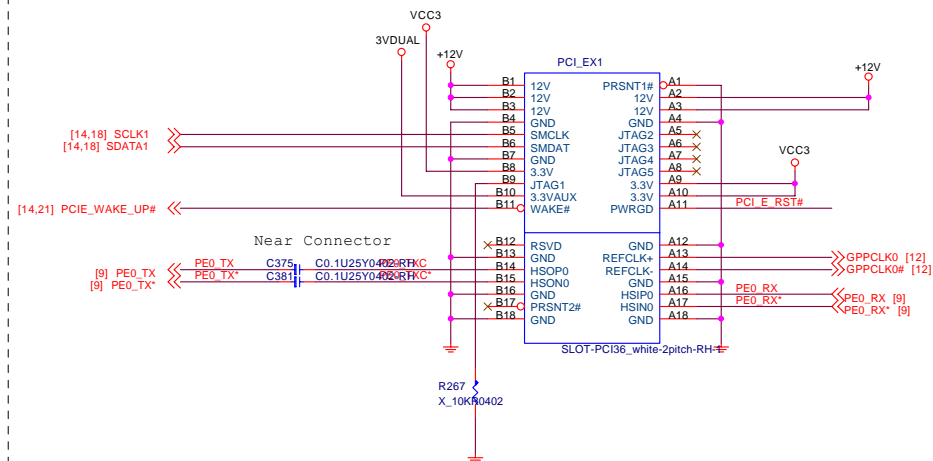
For EMI

### PCI PULL-UP / DOWN RESISTORS



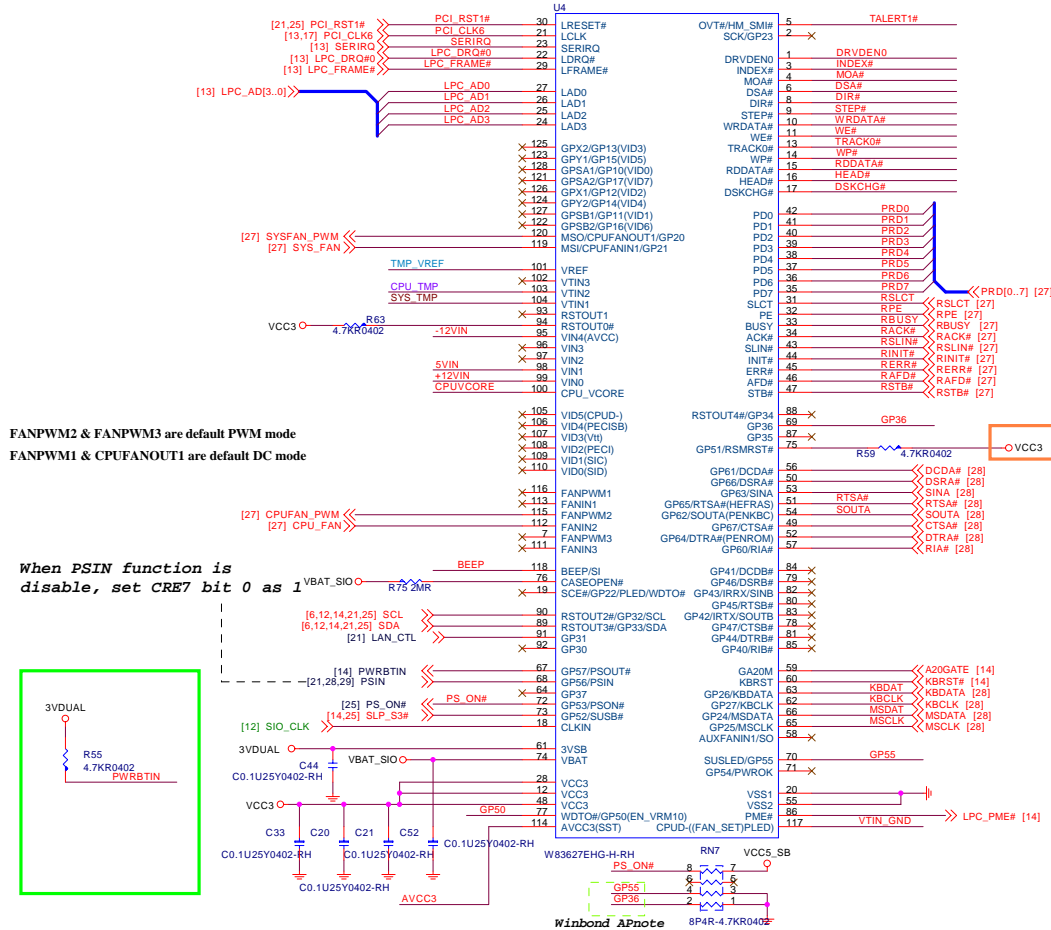
**PCI EXPRESS\_16**

PCI-Express x1 SLO T 1



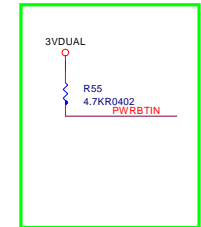
# Super I/O

## LPC SUPER I/O W83627EHG

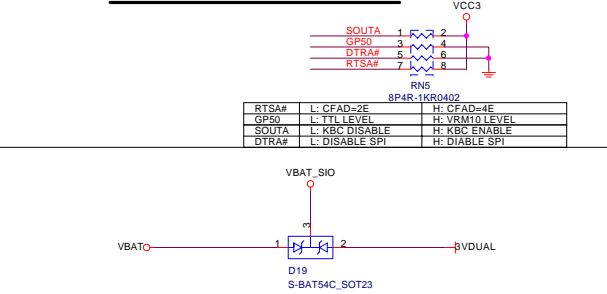


FANPWM2 & FANPWM3 are default PWM mode  
FANPWM1 & CPUFANOUT1 are default DC mode

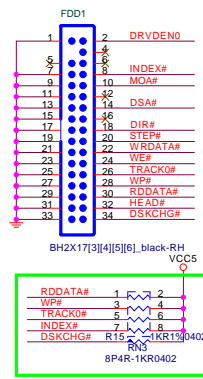
When PSIN function is disable, set CRE7 bit 0 as 1



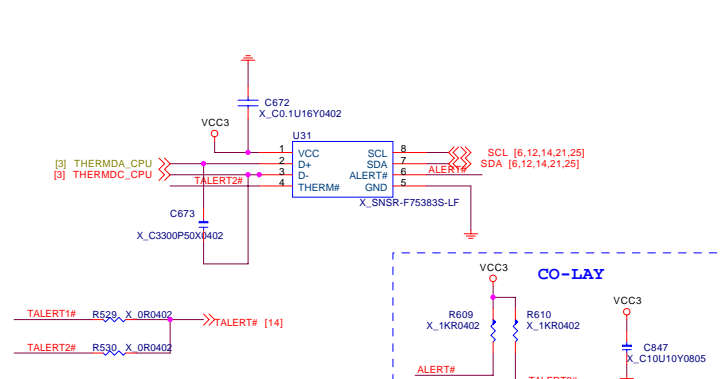
## LPC I/O STRAPPING RESISTOR



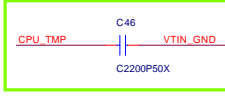
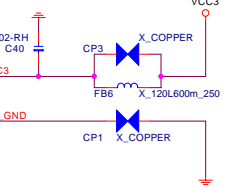
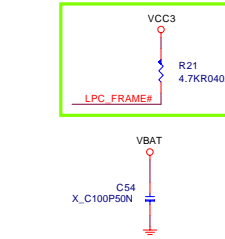
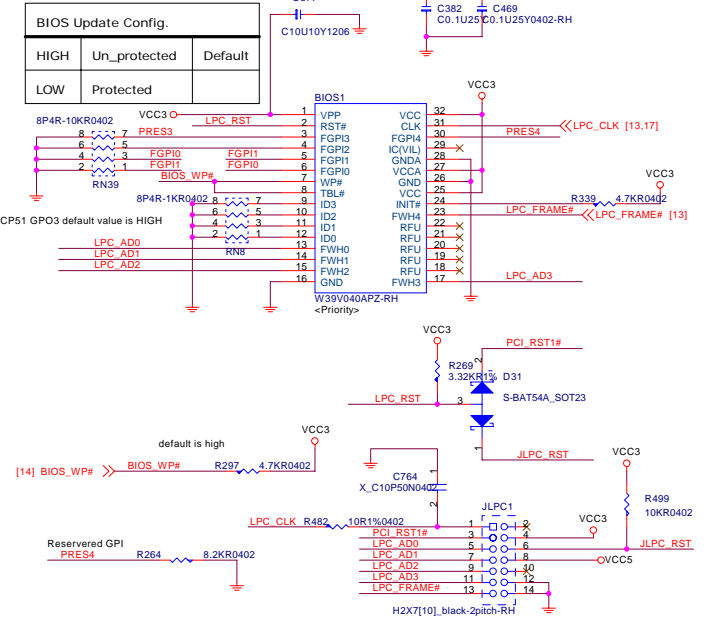
## FLOPPY CONNECTOR



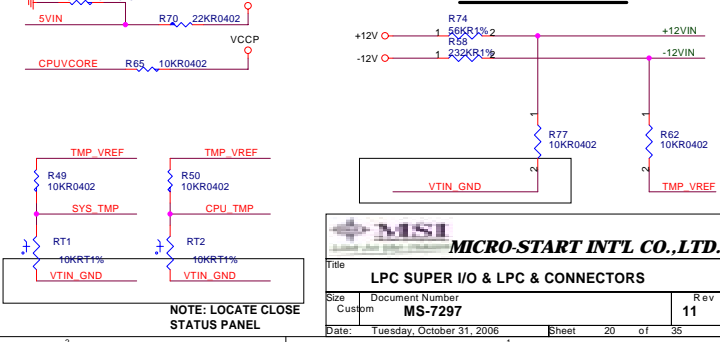
## CPU TEMPERATURE SENSOR



## BIOS PROTECT BLOCK



## Thermal Resistor

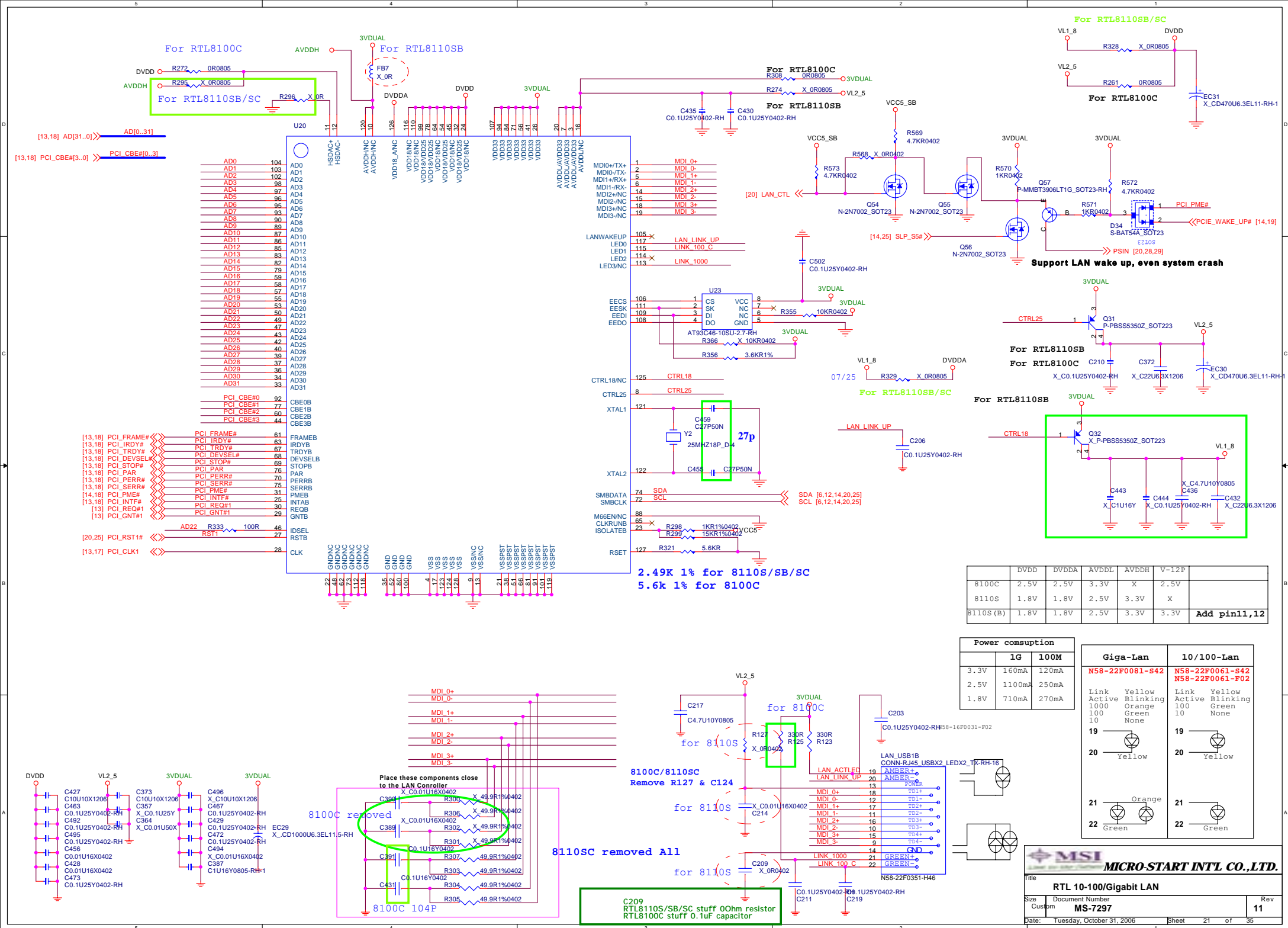


**MSI MICRO-START INTL CO., LTD.**

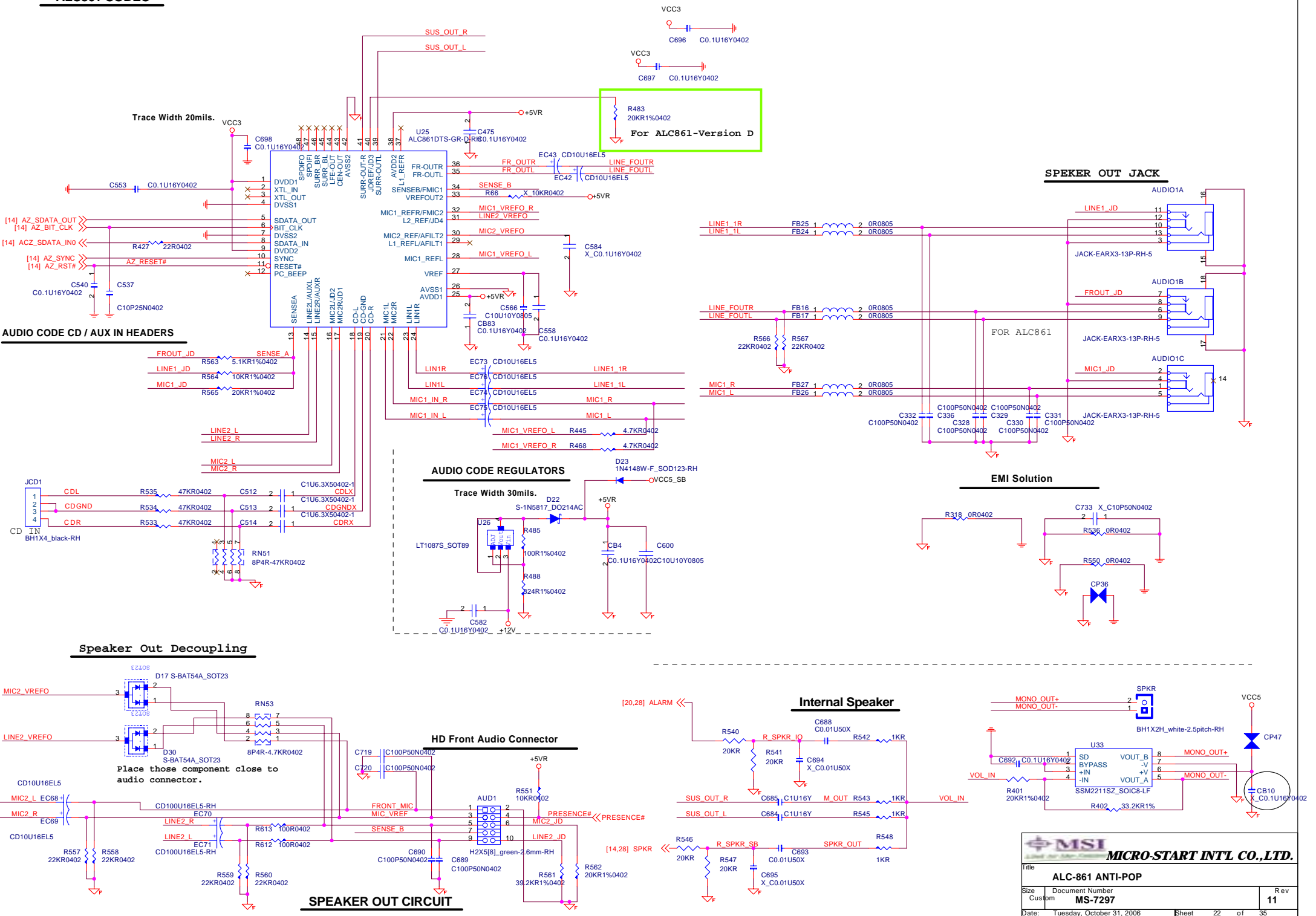
**LPC SUPER I/O & LPC & CONNECTORS**

Size: Custom Document Number: MS-7297

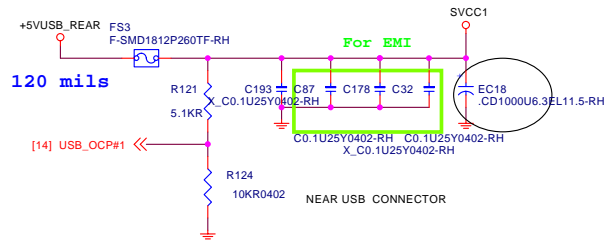
Date: Tuesday, October 31, 2006 Sheet: 20 of 35



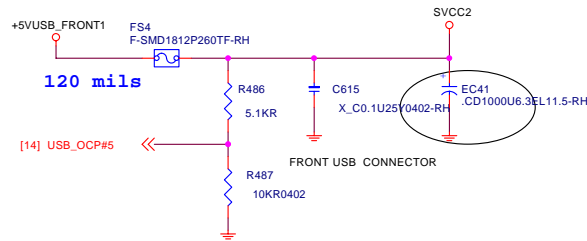
# ALC861 CODEC



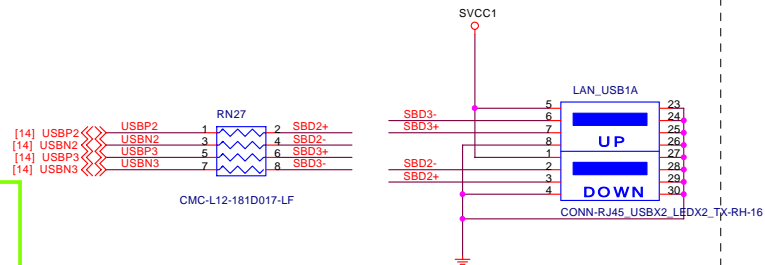
## POWER CIRCUIT FOR USB PORT 0,1



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



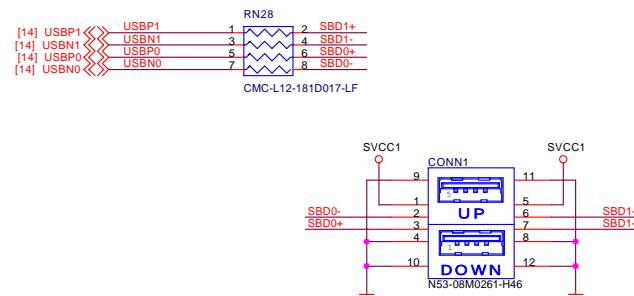
## REAR PANEL USB CONNECTOR FOR USB PORT 0,1



### NEAR USB CONNECTOR

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

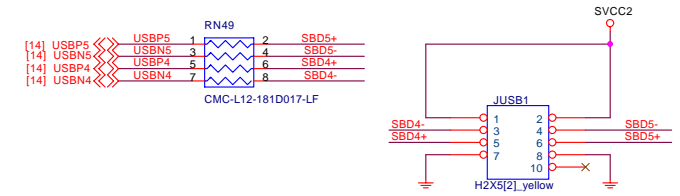
## REAR PANEL USB CONNECTOR FOR USB PORT 2,3



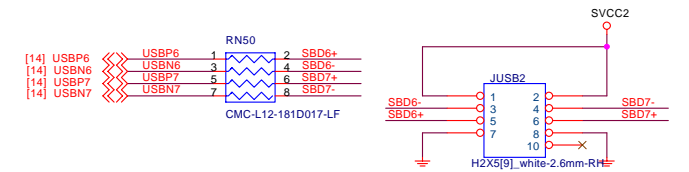
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

## FRONT PANEL USB CONNECTOR FOR USB PORT 4,5

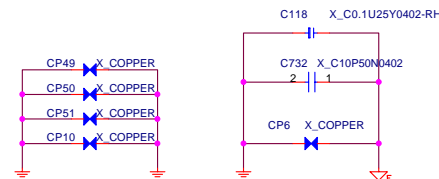
Reserved, can be taken off riser card within bead



## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



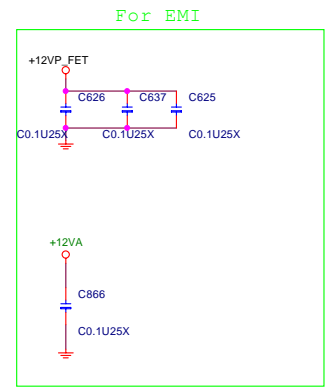
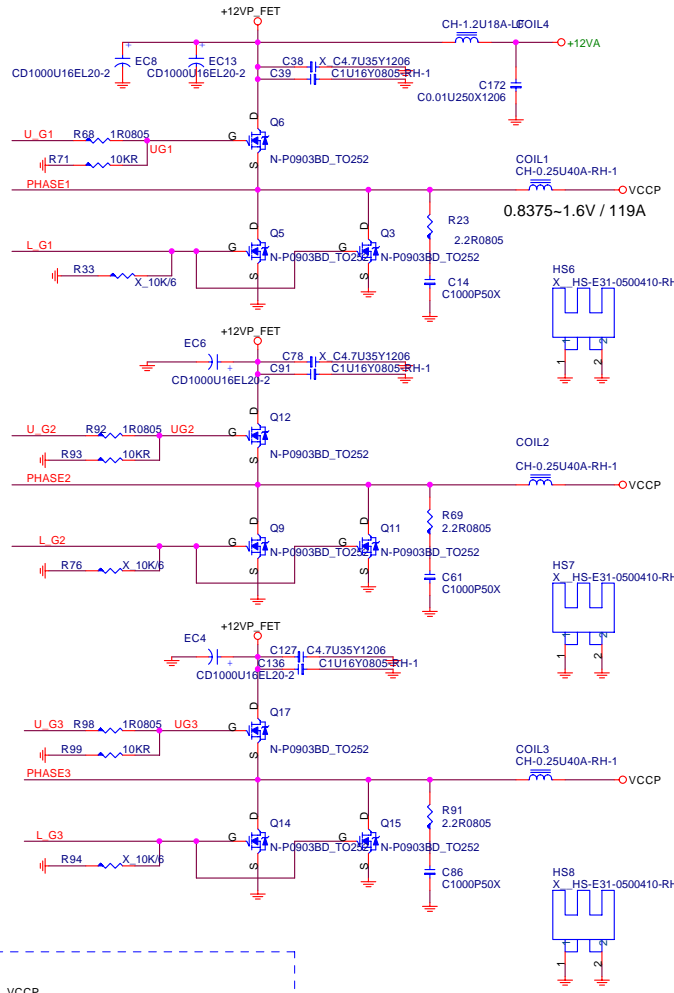
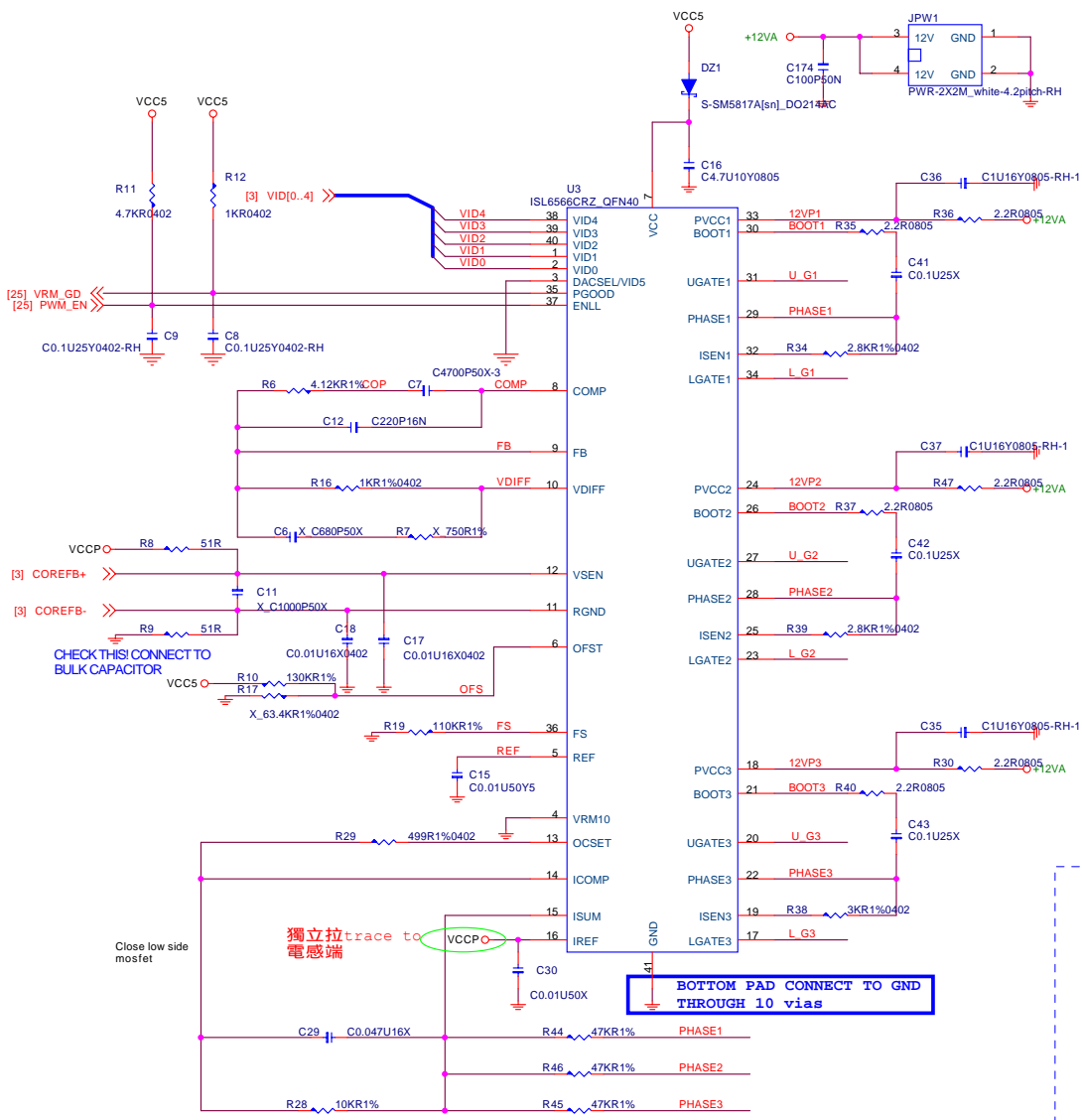
## EMI TEST



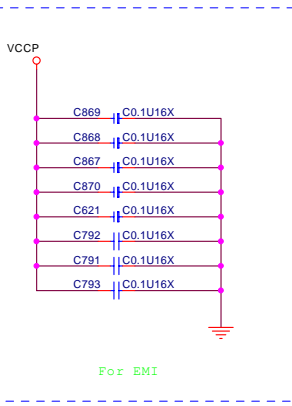
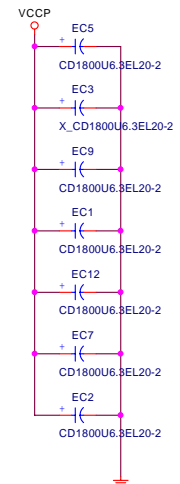


# Voltage Regular Module

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, LC<12uA, 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/vertical17.5mm, 1.2ψ/5.5turns, 18A



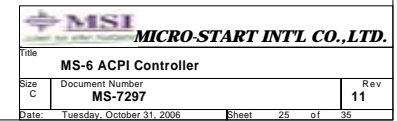
EL Capacitors



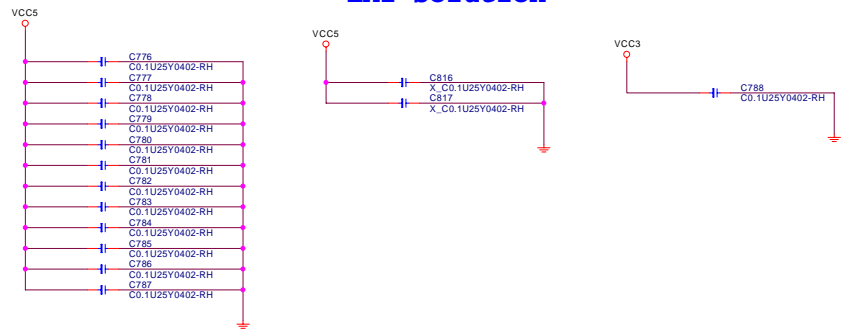
MOSFET Heatsinks



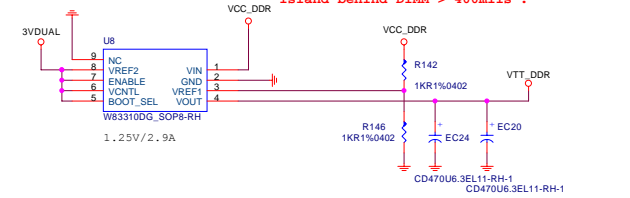
THESE OUTPUT AND INPUT PIN MUST  
BE PULL HIGH



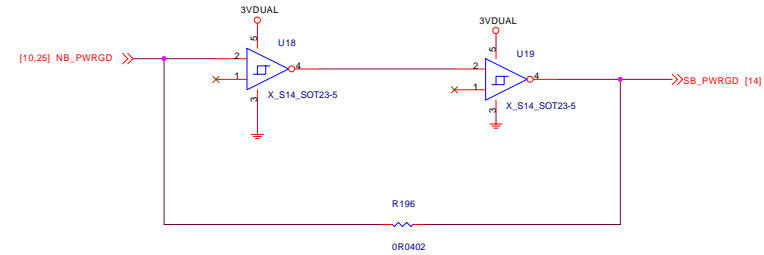
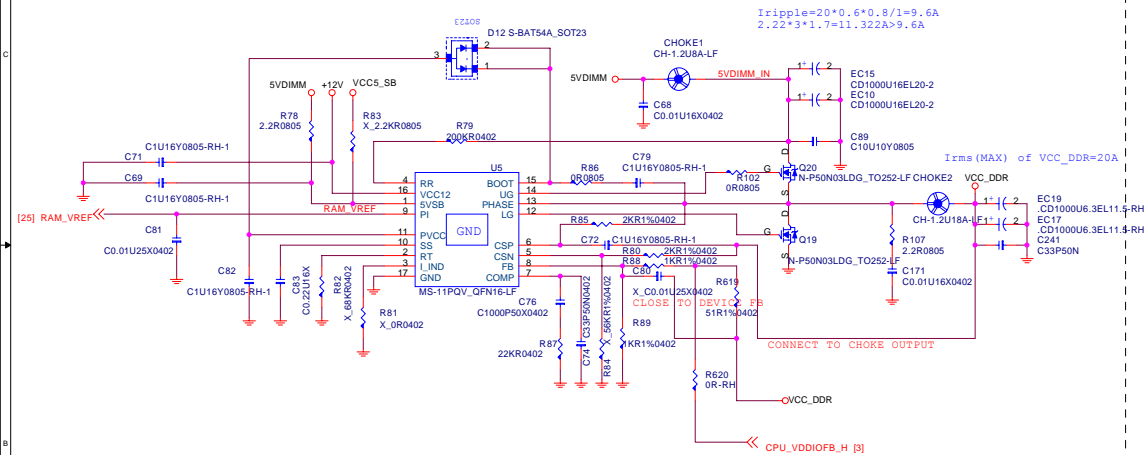
## EMI solution



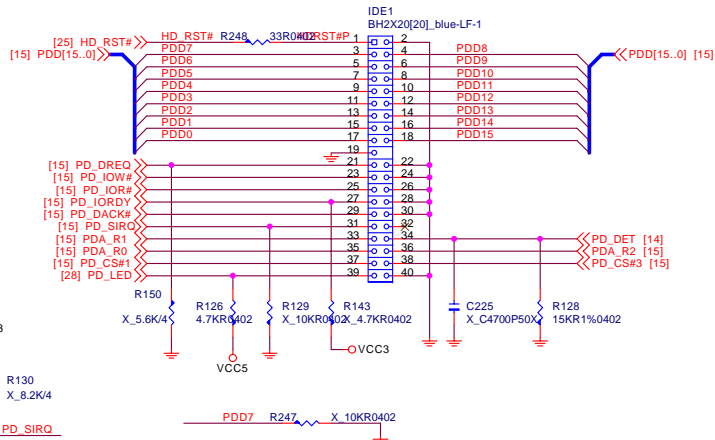
## DDR VTT Power



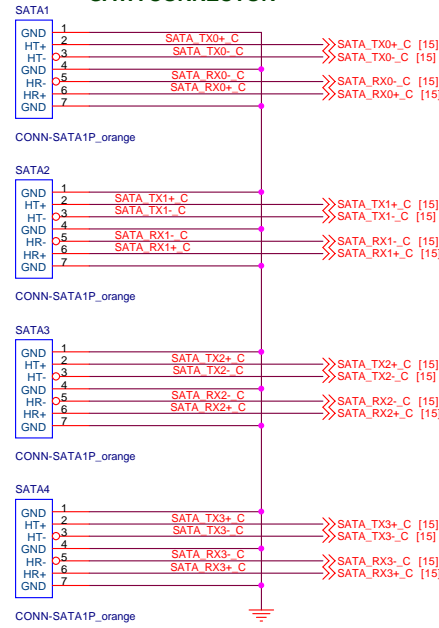
## DDR II 1.8V POWER



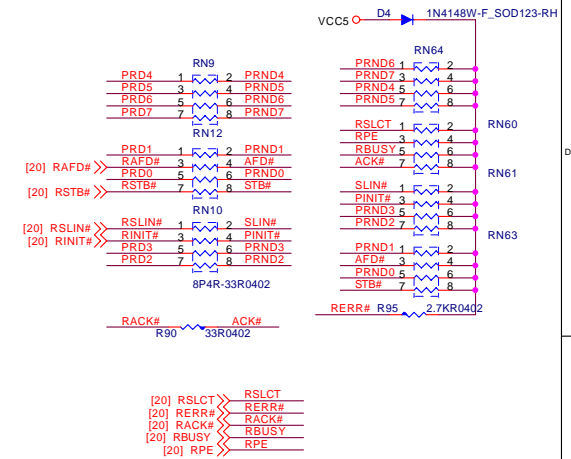
## IDE 1



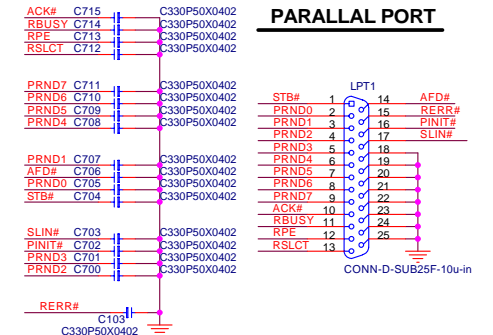
## SATA CONNECTOR



[20] PRD[0..7]

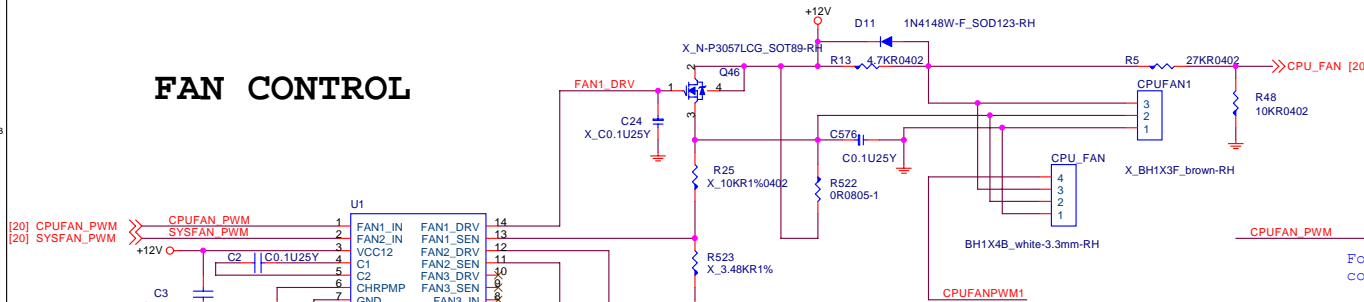


## PARALLAL PORT

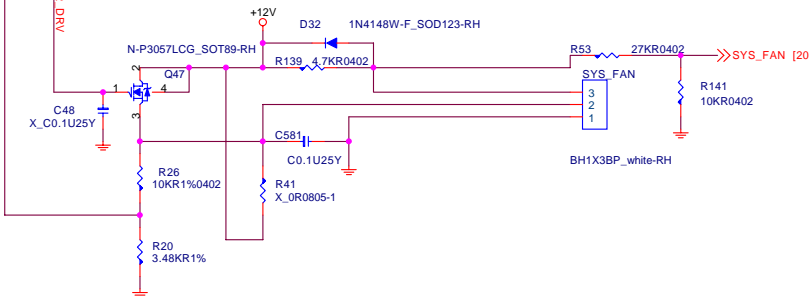


## FAN CONTROL

### CPU FAN



### SYSTEM FAN

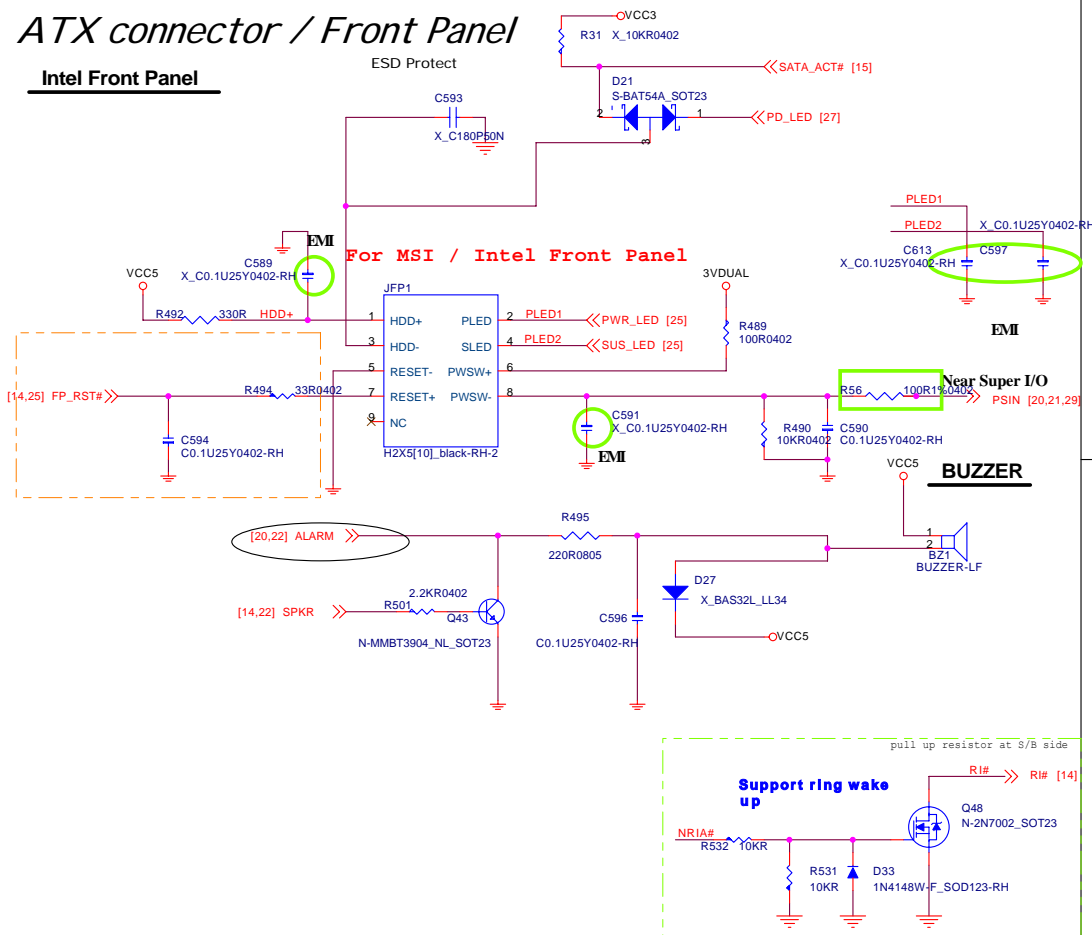


R1 value might need to be tuned for EOS and compatibility

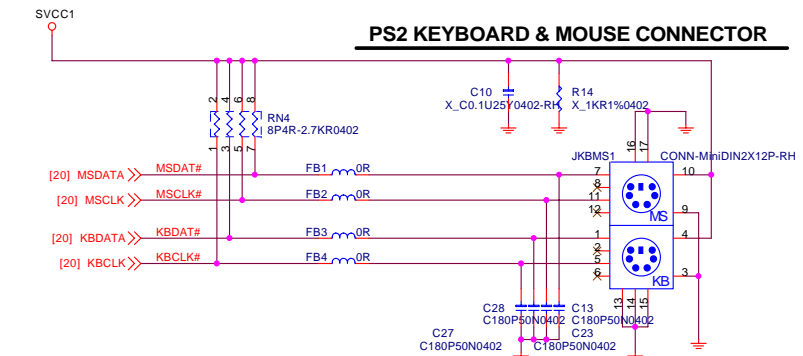
For open-drain (Ver.H) control signal

# ATX connector / Front Panel

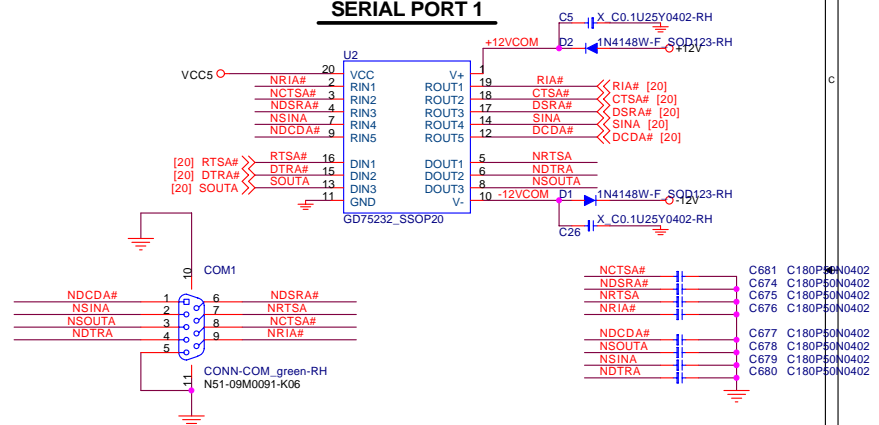
## Intel Front Panel



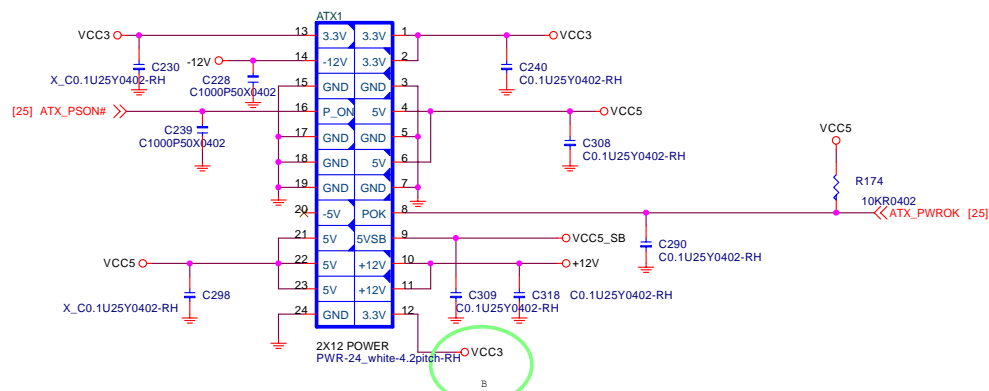
## PS2 KEYBOARD & MOUSE CONNECTOR



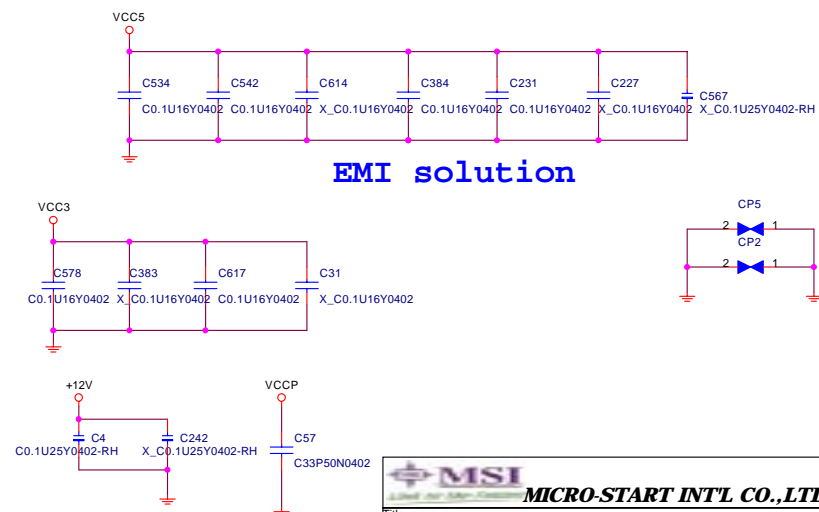
## SERIAL PORT 1



## ATX Connector

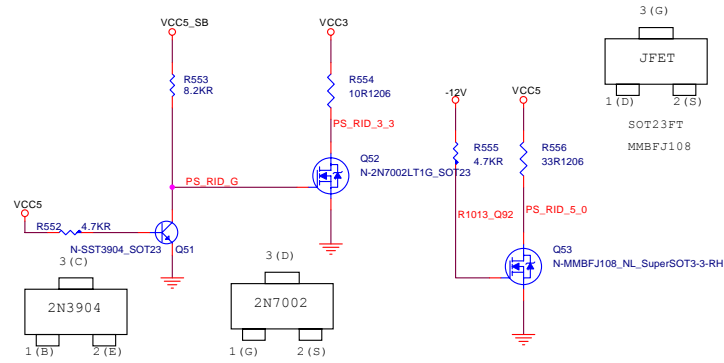


## EMI solution

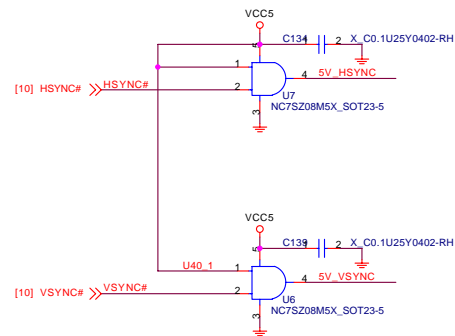
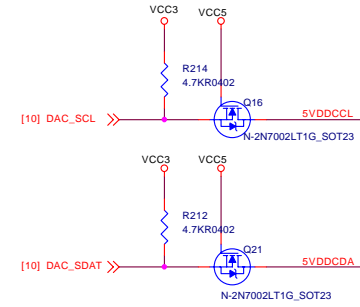
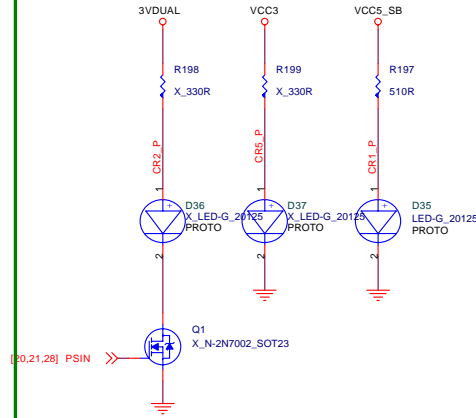


# Near ATX POWER Connector

## BLEED-OFF CIRCUIT

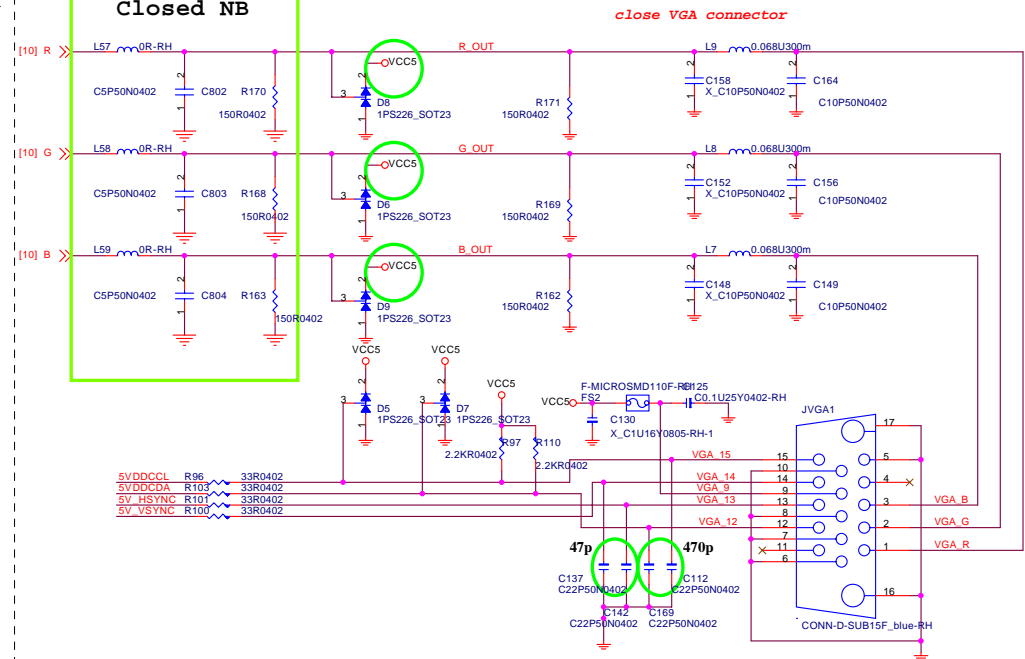


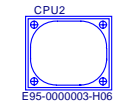
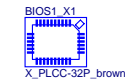
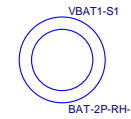
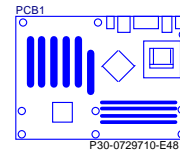
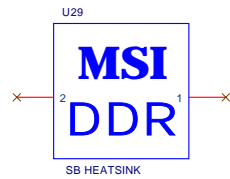
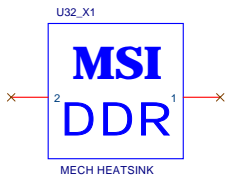
DESIGN NOTE: THIS CIRCUIT IS USED TO BLEED OFF 5.0V & 3.3V



## VGA CONNECTOR

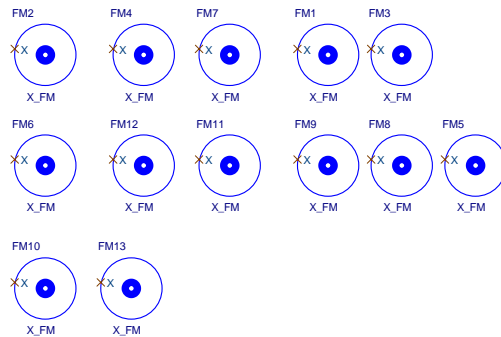
### Closed NB



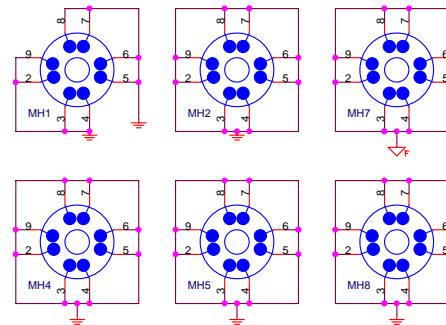


PF0-0729710-E48, 競華, 107, 寶安恩斯-明士 (MSIS)  
PF0-0729710-G37, 精成, 107, 寶安恩斯邁威 (MSIS)

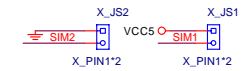
### Optics Orientation Holes



### 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