



# MS-7297 Ver:10

## 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:

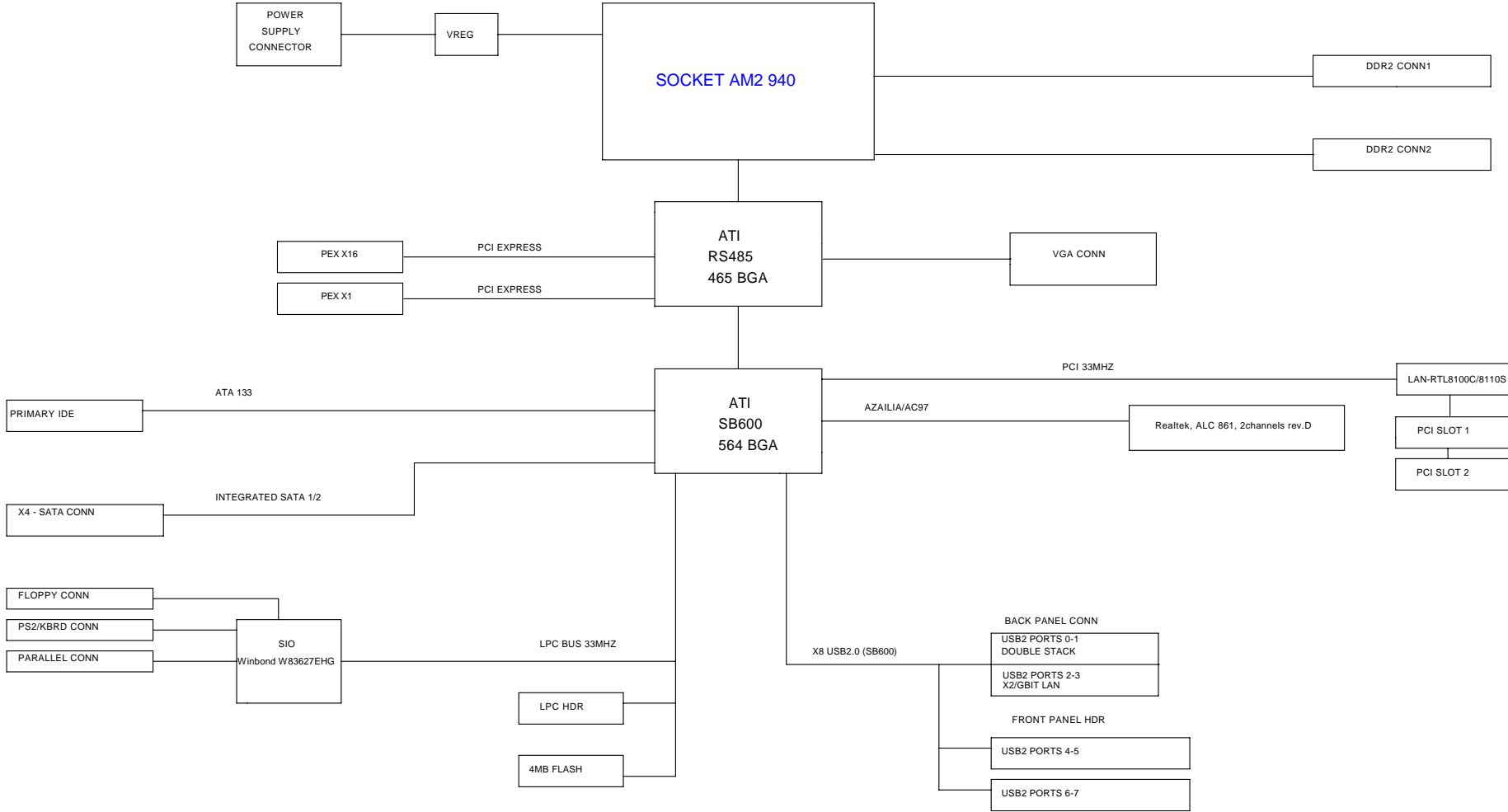
Controller--Intersil ISL6566CR 3 Phase

## Clock Generator:

Controller--ICS 951464AGLF

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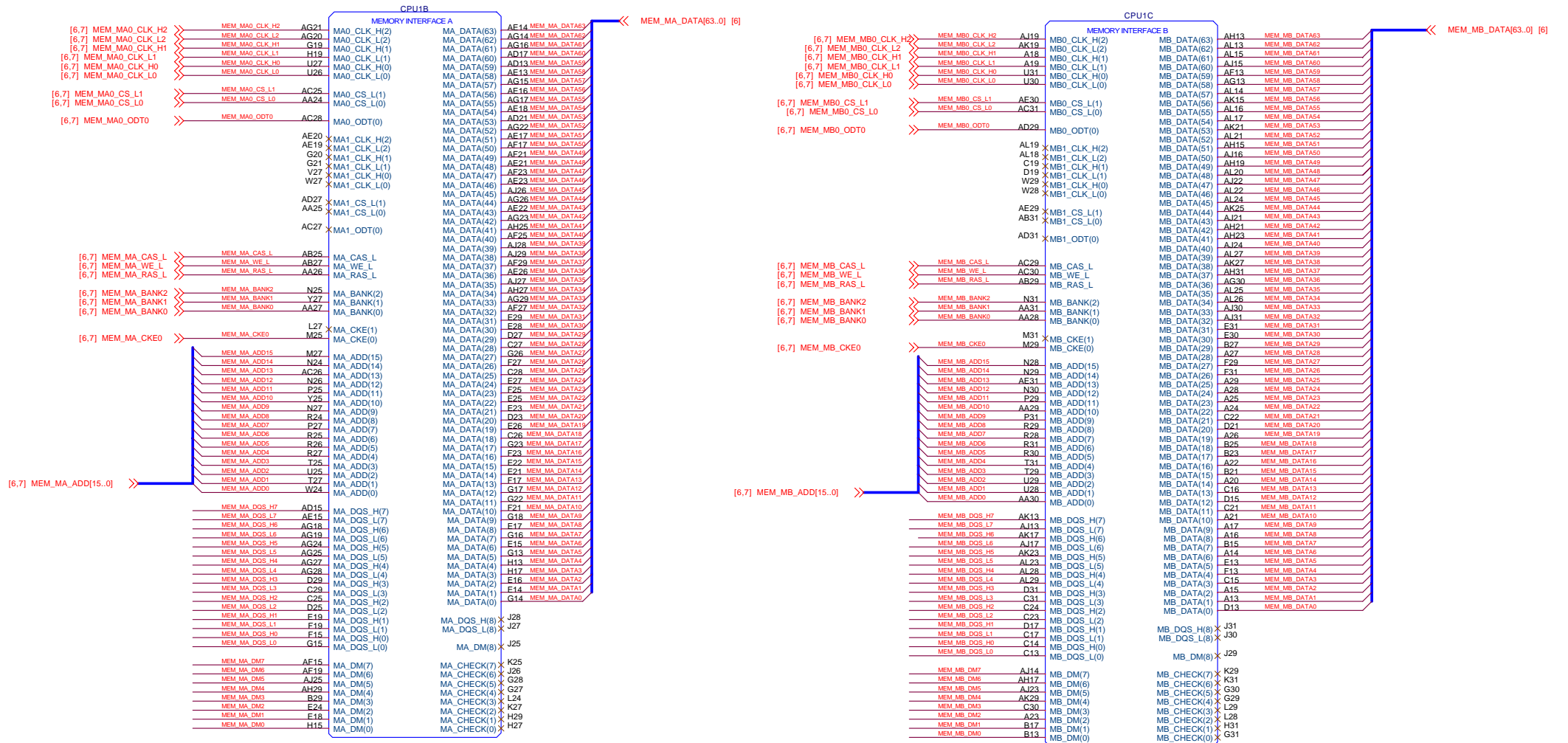
BLOCK DIAGRAM

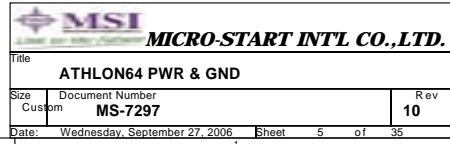




[6] MEM\_MA\_DQS\_L[7..0] >> \_\_\_\_\_  
[6] MEM\_MA\_DQS\_H[7..0] >> \_\_\_\_\_  
[6] MEM\_MA\_DM[7..0] >> \_\_\_\_\_

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



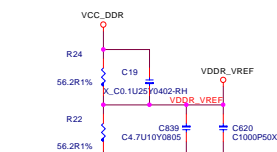


```
DIMM 1
ADDR=1010000B
```

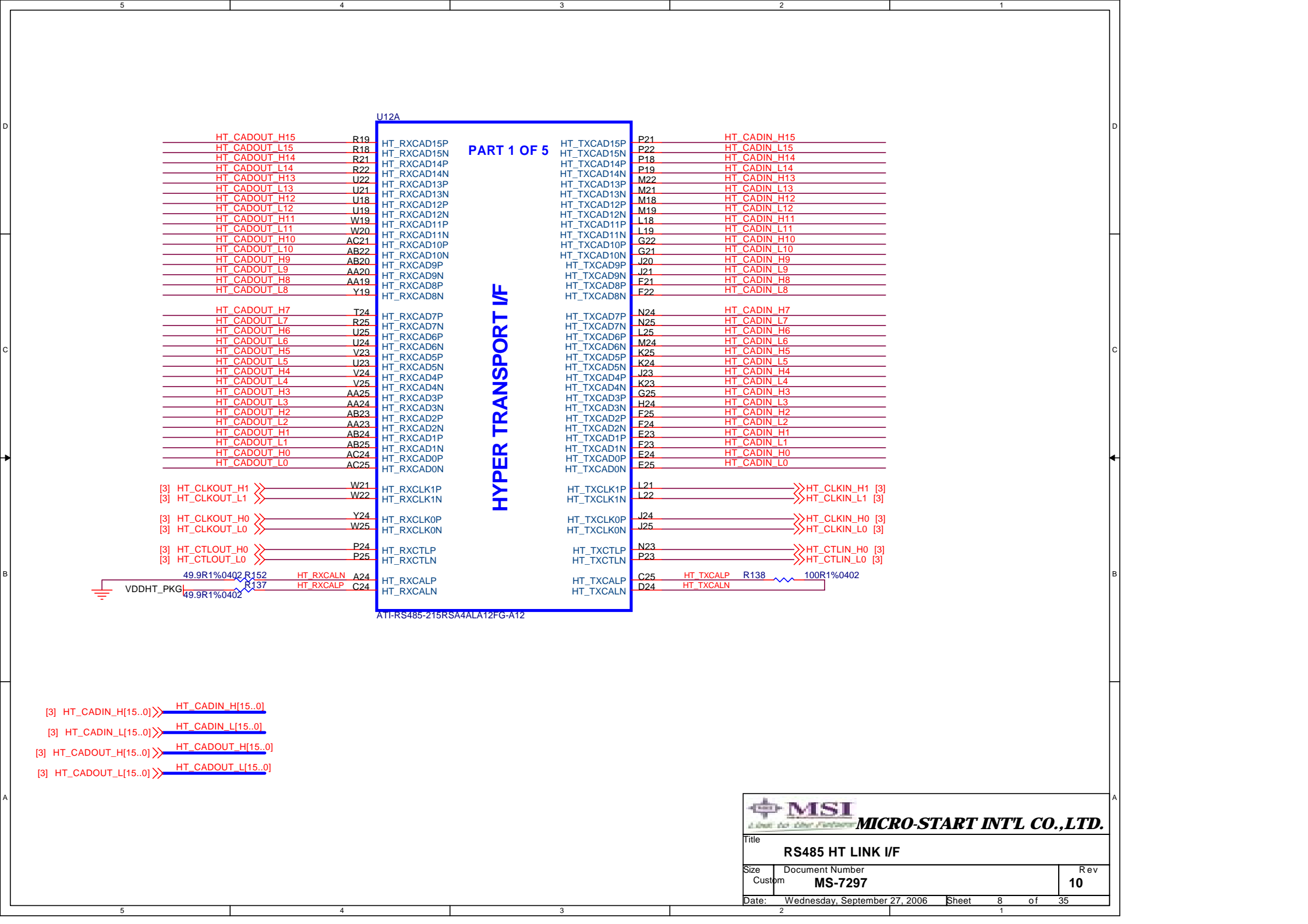
```
DIMM 2
ADDR=1010001B
```

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

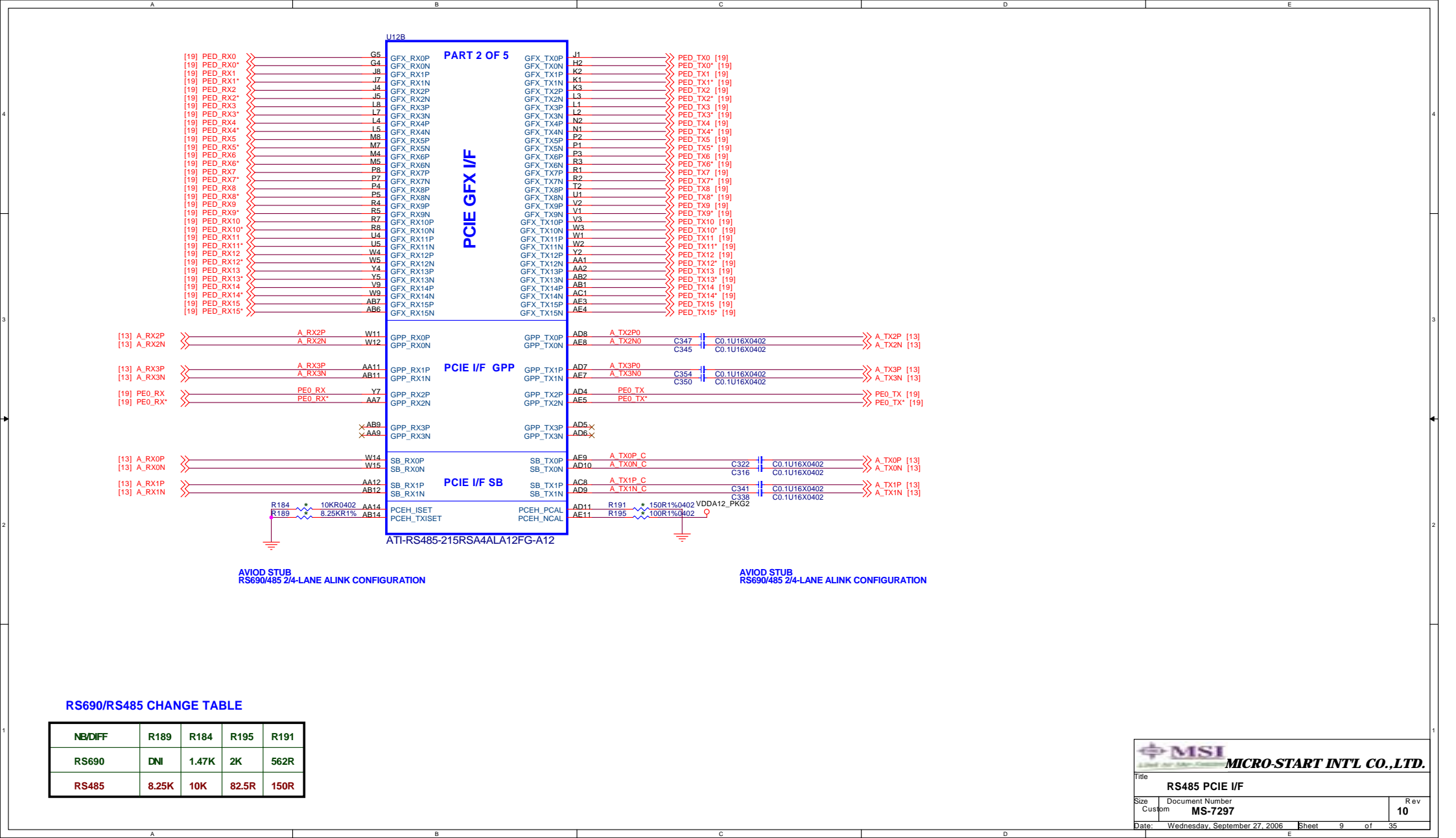
[12,14,20,21,25] SDA<< SDA R154 33R SDA DATA












RS690/RS485 CHANGE TABLE

NB/DIFF	R189	R184	R195	R191
RS690	DNI	1.47K	2K	562R
RS485	8.25K	10K	82.5R	150R



**MICRO-START INT'L CO.,LTD.**

Title

RS485 PCIE I/F

Size

Custom

Document Number

MS-7297

Date:

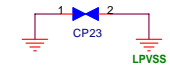
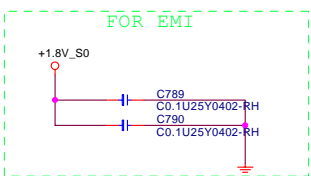
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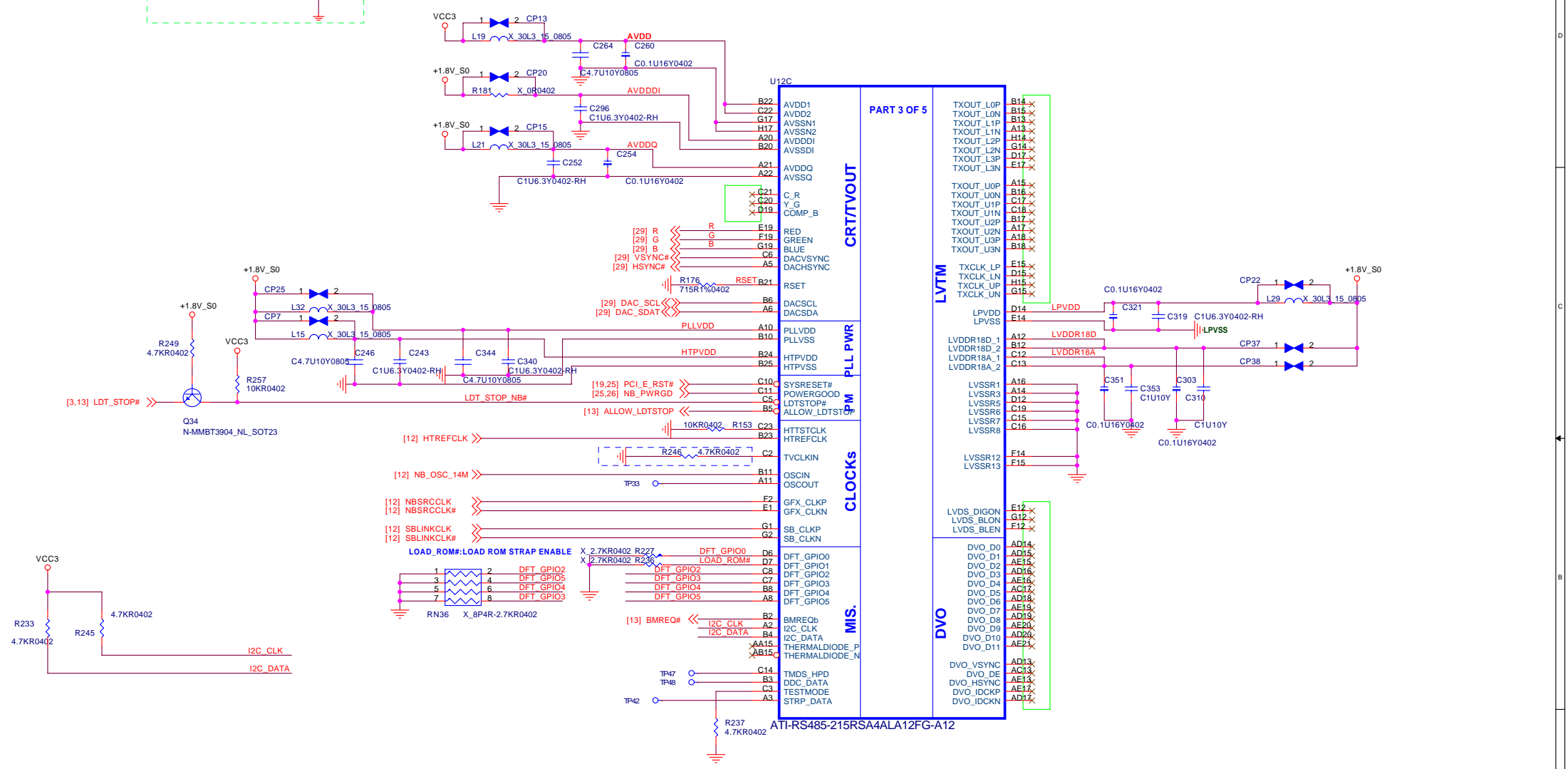
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10



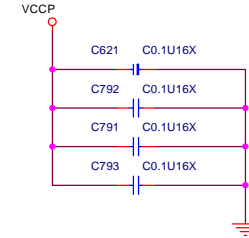
NOTE: CONNECT TO GND CLOSE TO FIRST CAP



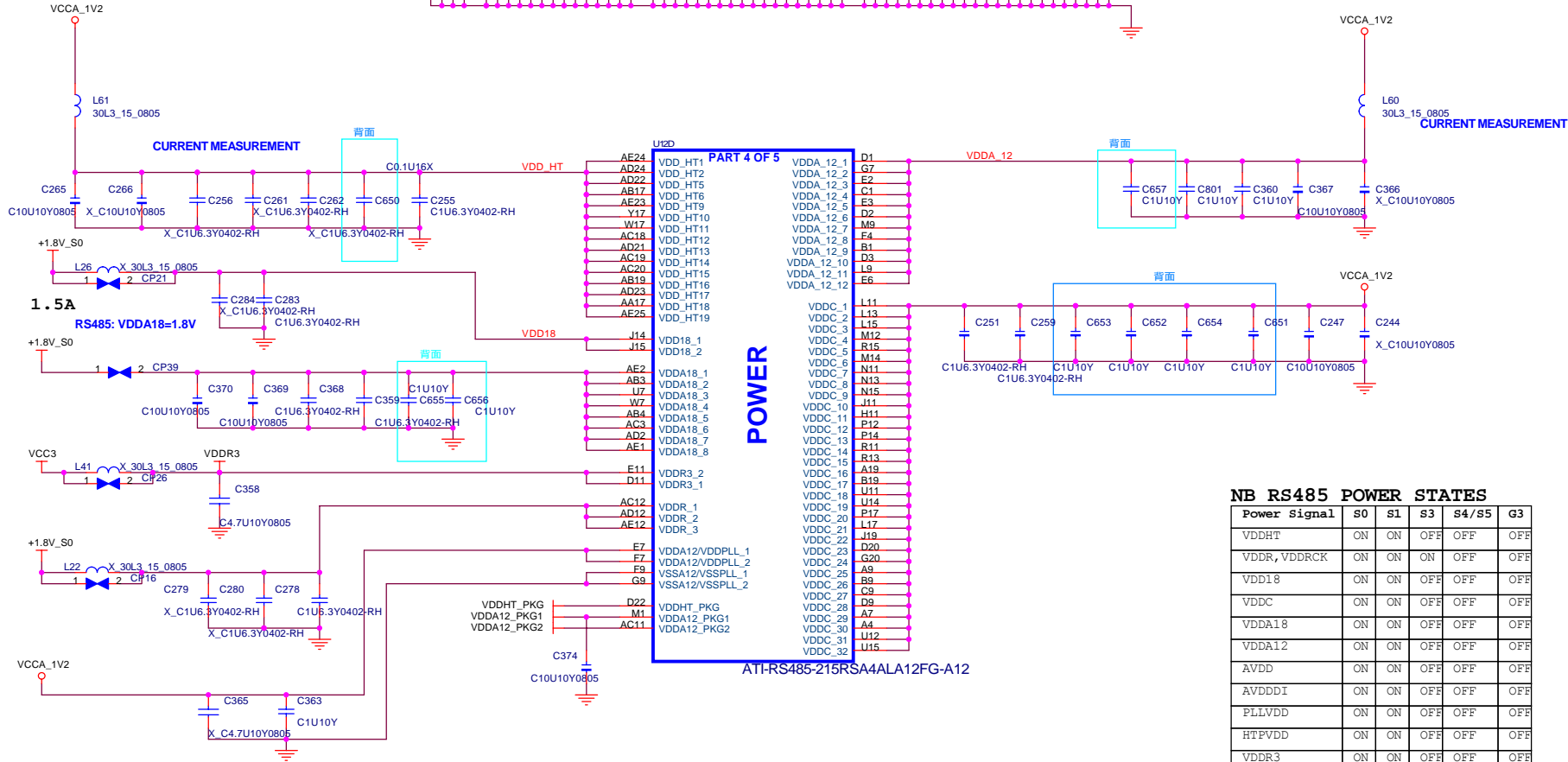
ATI-RS485-215RSA4ALA12FG-A12

GROUND

PAR 5 OF 5



For EMI



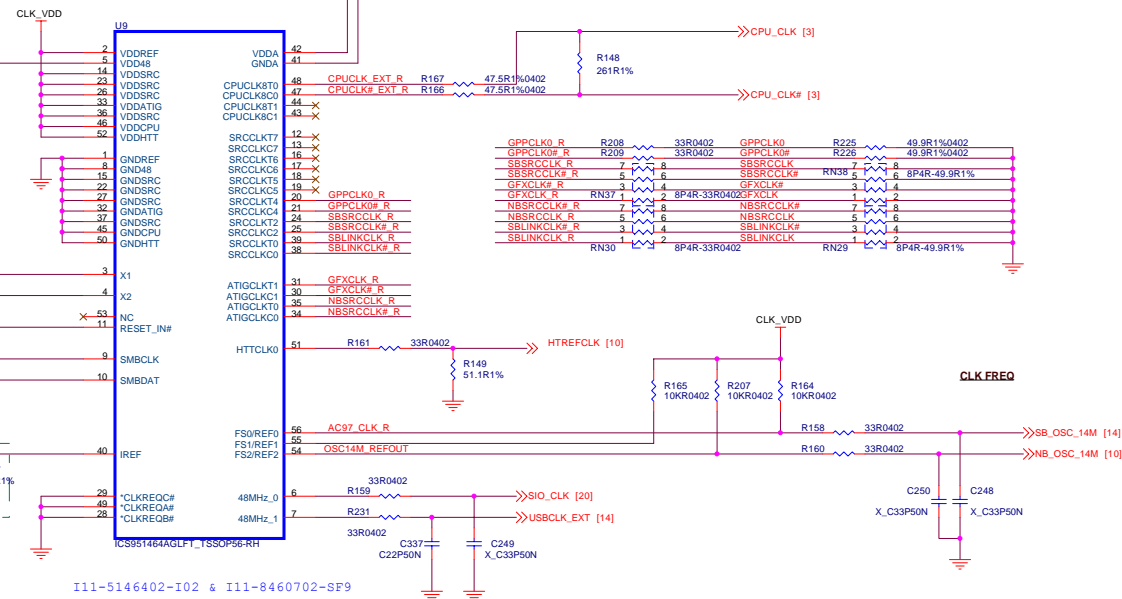
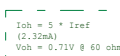
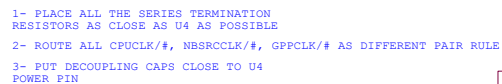
### NB RS485 POWER STATES

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



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Title <b>RS485 POWER</b>		
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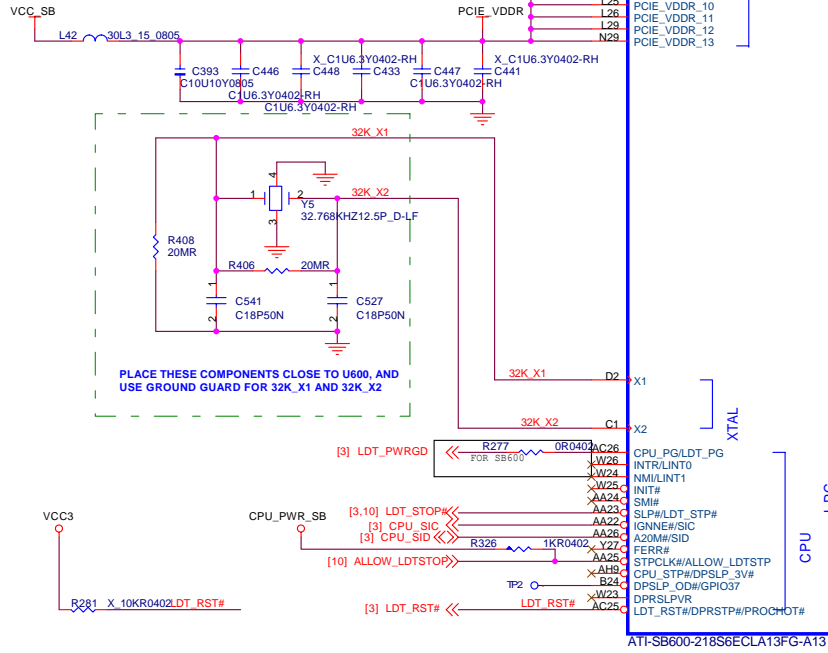
I11-5146402-I02 & I11-8460702-SF9

OVERLAP COMMON PADS FOR DUAL-OP  
RESISTORS

FS2	FS1	FS0	CPU	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



ATI-SB600-218S6ECLA13FG-A13



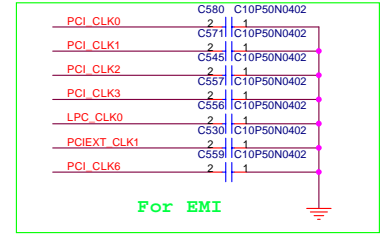
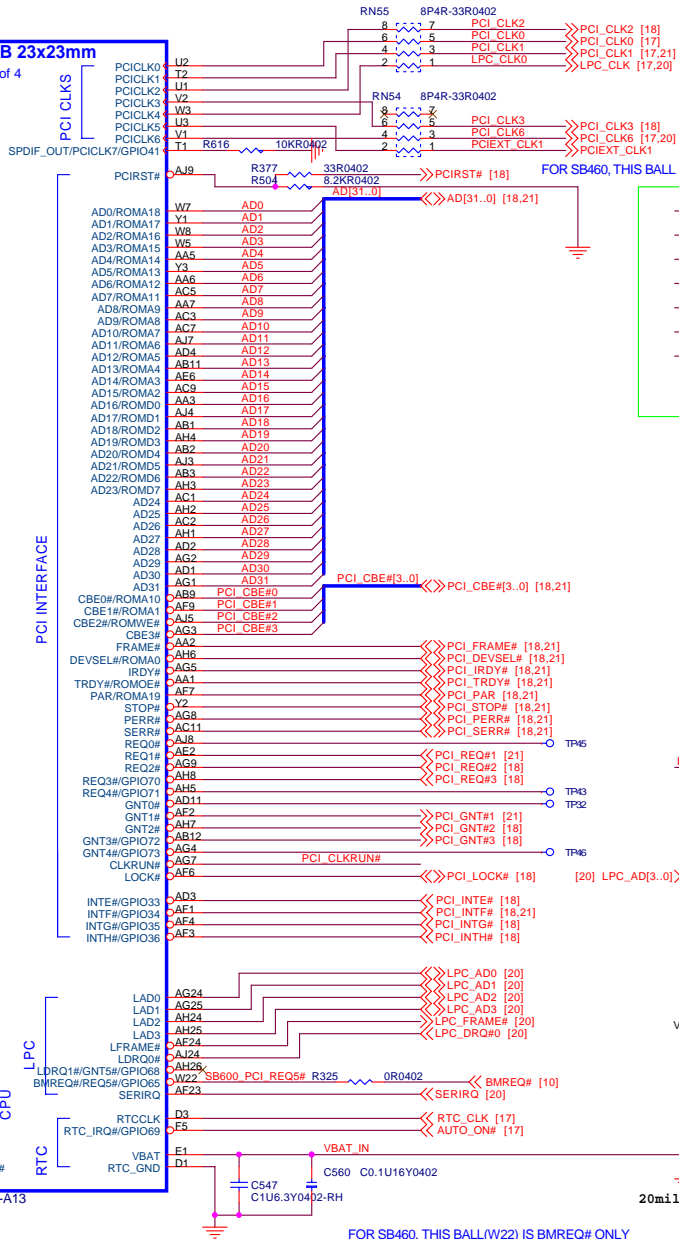
Part 1 of 4

## PCI EXPRESS INTERFACE

## PCI INTERFACE

LPC

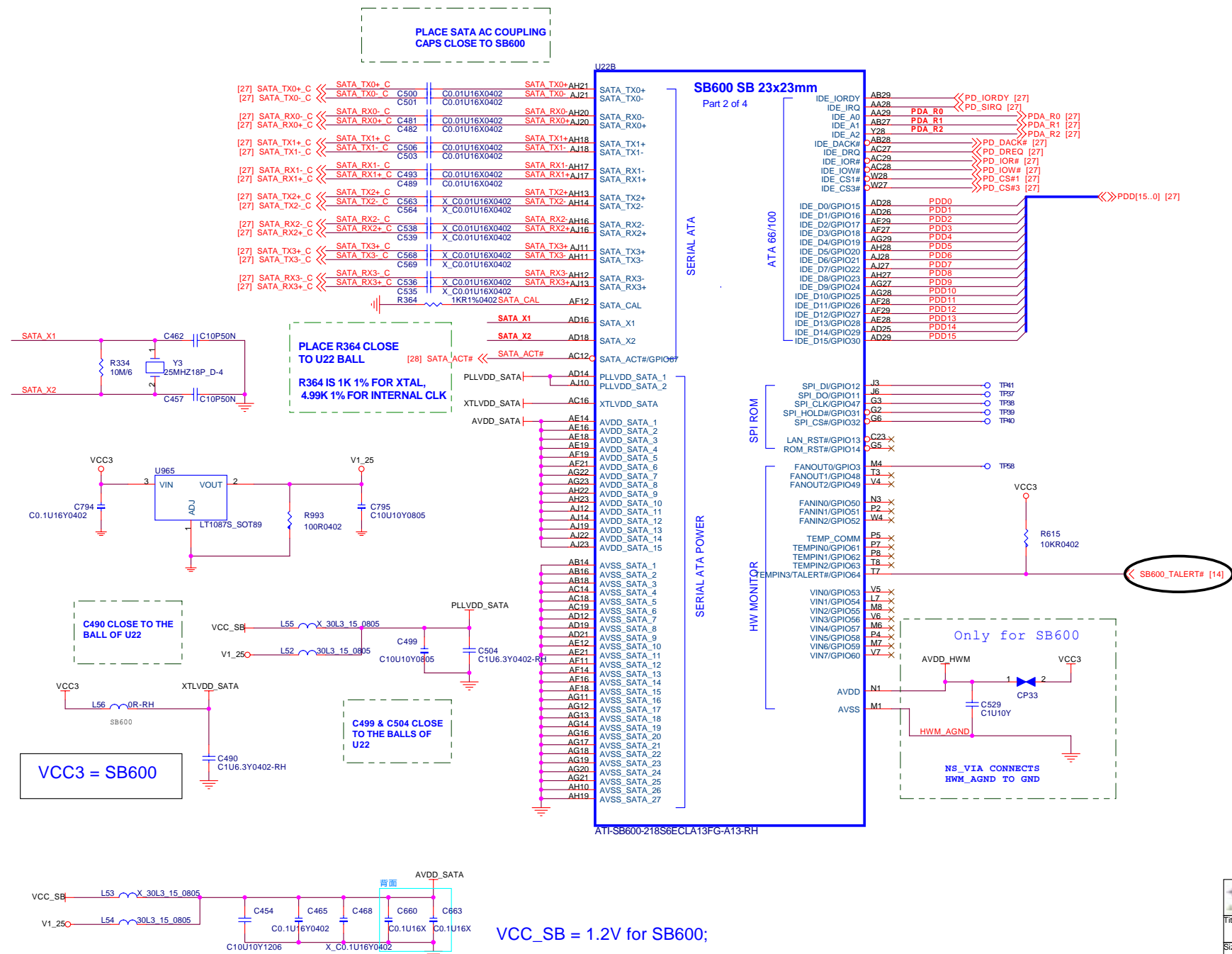
FOR SB600

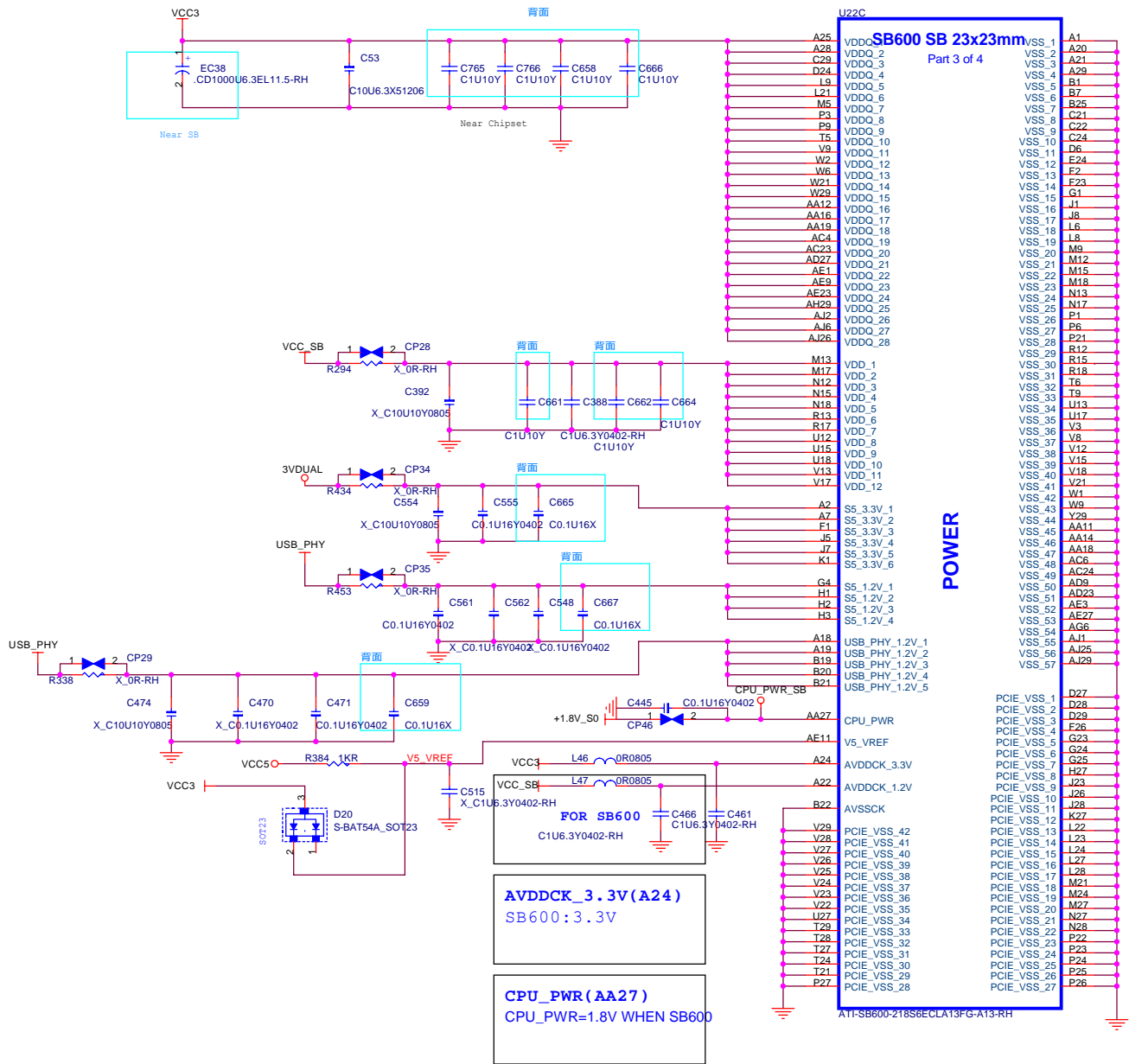


For EMI

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







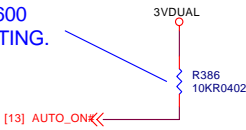
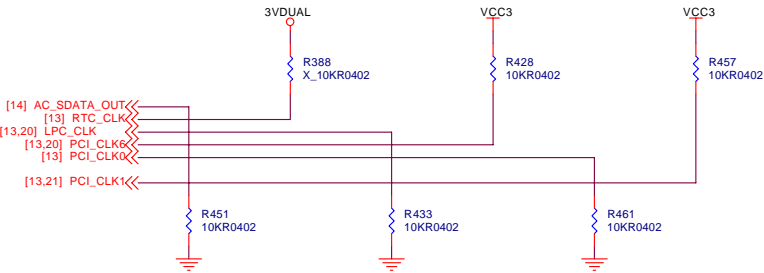




# REQUIRED STRAPS

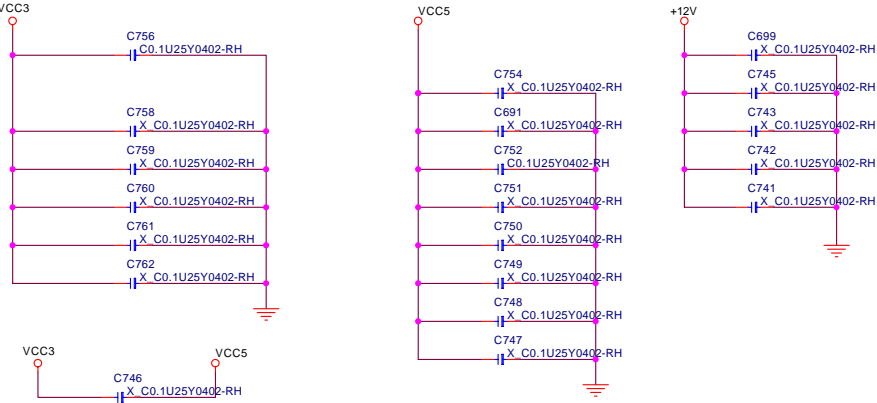
SB600 HAS 15K INTERNAL PD FOR AC\_SDATA\_OUT,  
15K PU FOR RTC\_CLK, EXTERNAL PU/PD IS  
NOT REQUIRED; FOR SB460, EXTERNAL PU/PD ARE  
REQUIRED

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

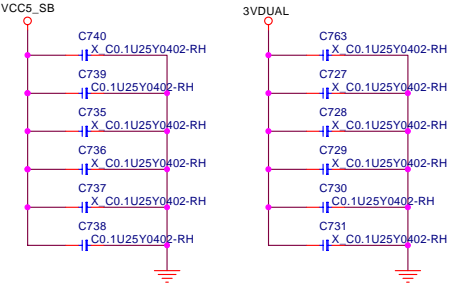


					SB600		SB460	
	AC_SDOUT	RTC_CLK	PCI_CLK4	PCI_CLK6	PCI_CLK0	PCI_CLK1	PCI_CLK0	PCI_CLK1
PULL HIGH	USE DEBUG STRAPS	INTERNAL RTC DEFAULT	USE INT. PLL48	CPU IF=K8 DEFAULT	ROM TYPE: H, H = PCI ROM H, L = SPI ROM L, H = LPC ROM L, L = FWH ROM	DEFAULT	ROM TYPE: H, H = PCI ROM H, L = LPC I ROM L, H = LPC II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

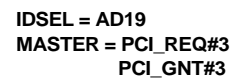
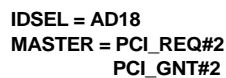


## For EMI

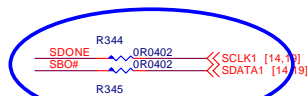


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For EMI

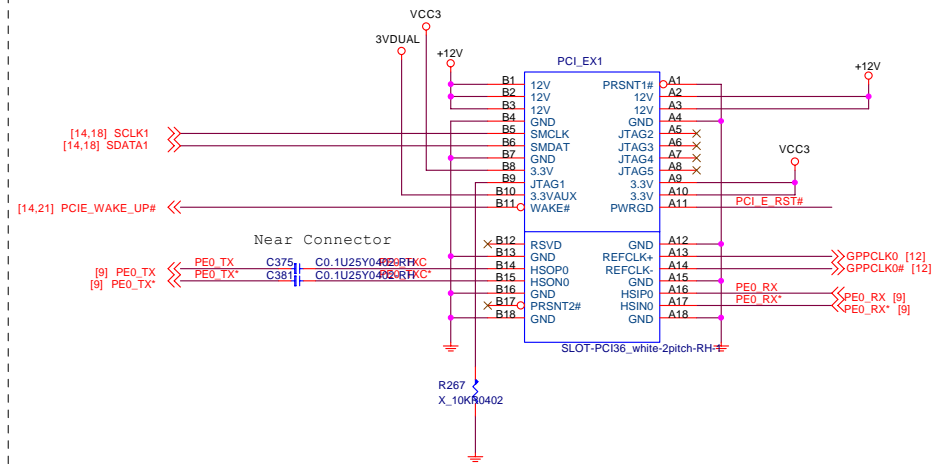


Title			
PCI Slot 1,2 & PCI Extender			
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# PCI EXPRESS\_16

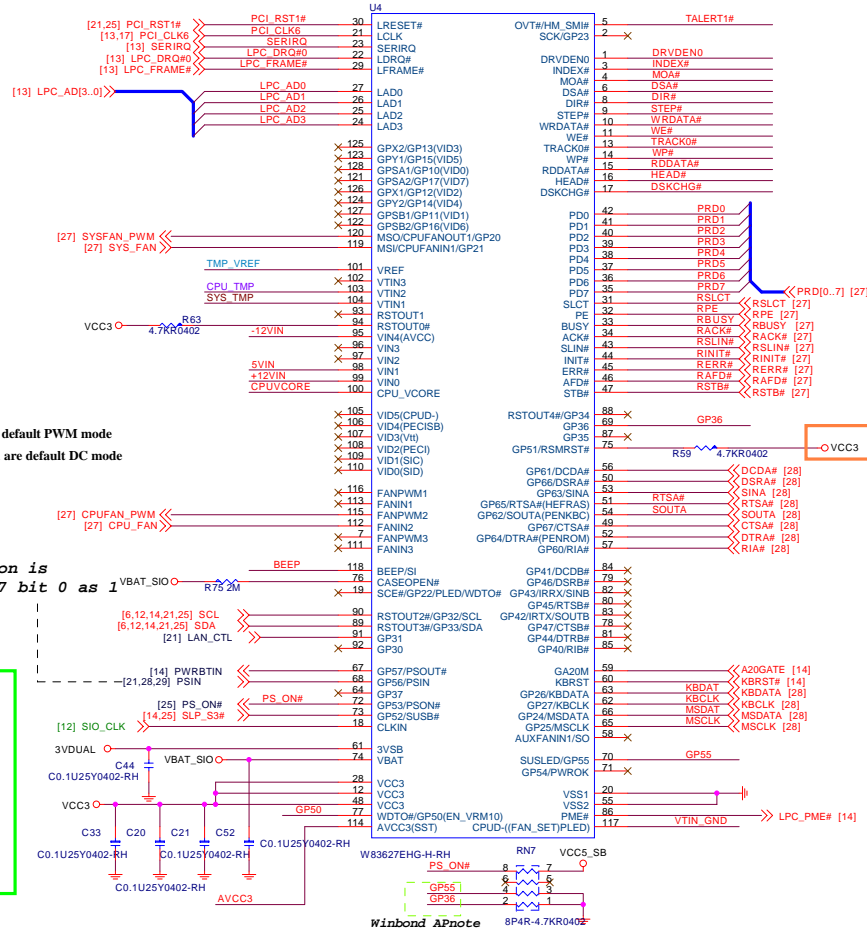


# PCI-Express x1 SLOT 1

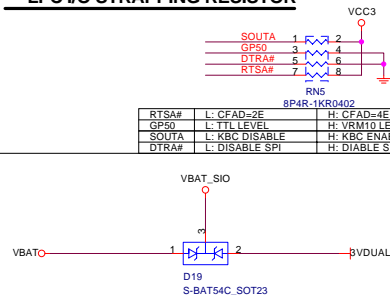


## Super I/O

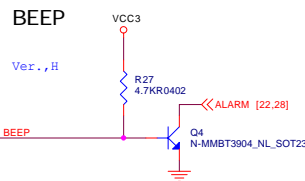
**LPC SUPER I/O W83627EHG**



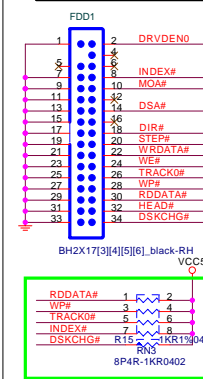
## LPC I/O STRAPPING RESISTOR



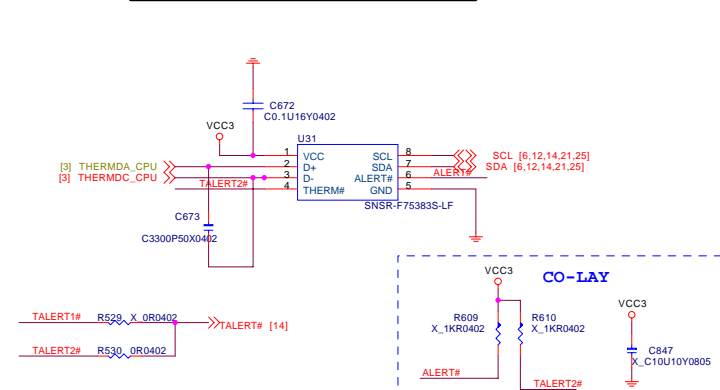
BEEP



## FLOPPY CONNECTOR

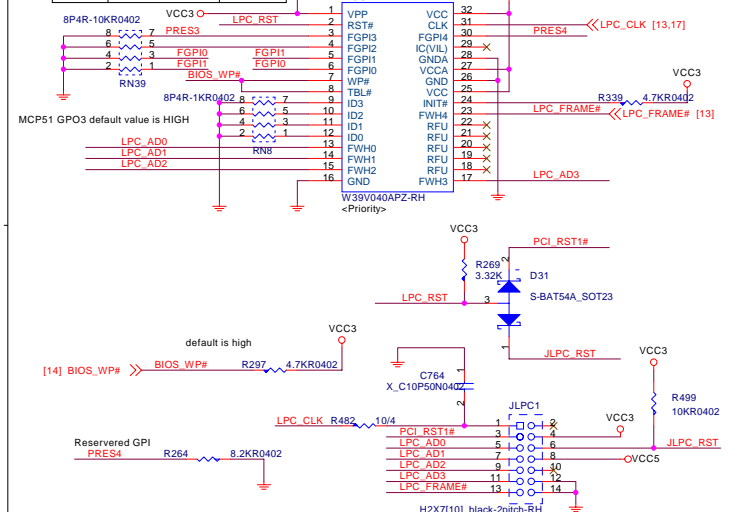


## CPU TEMPERATURE SENSOR

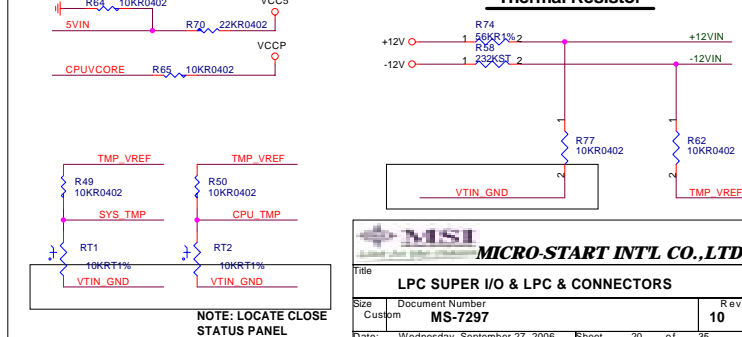


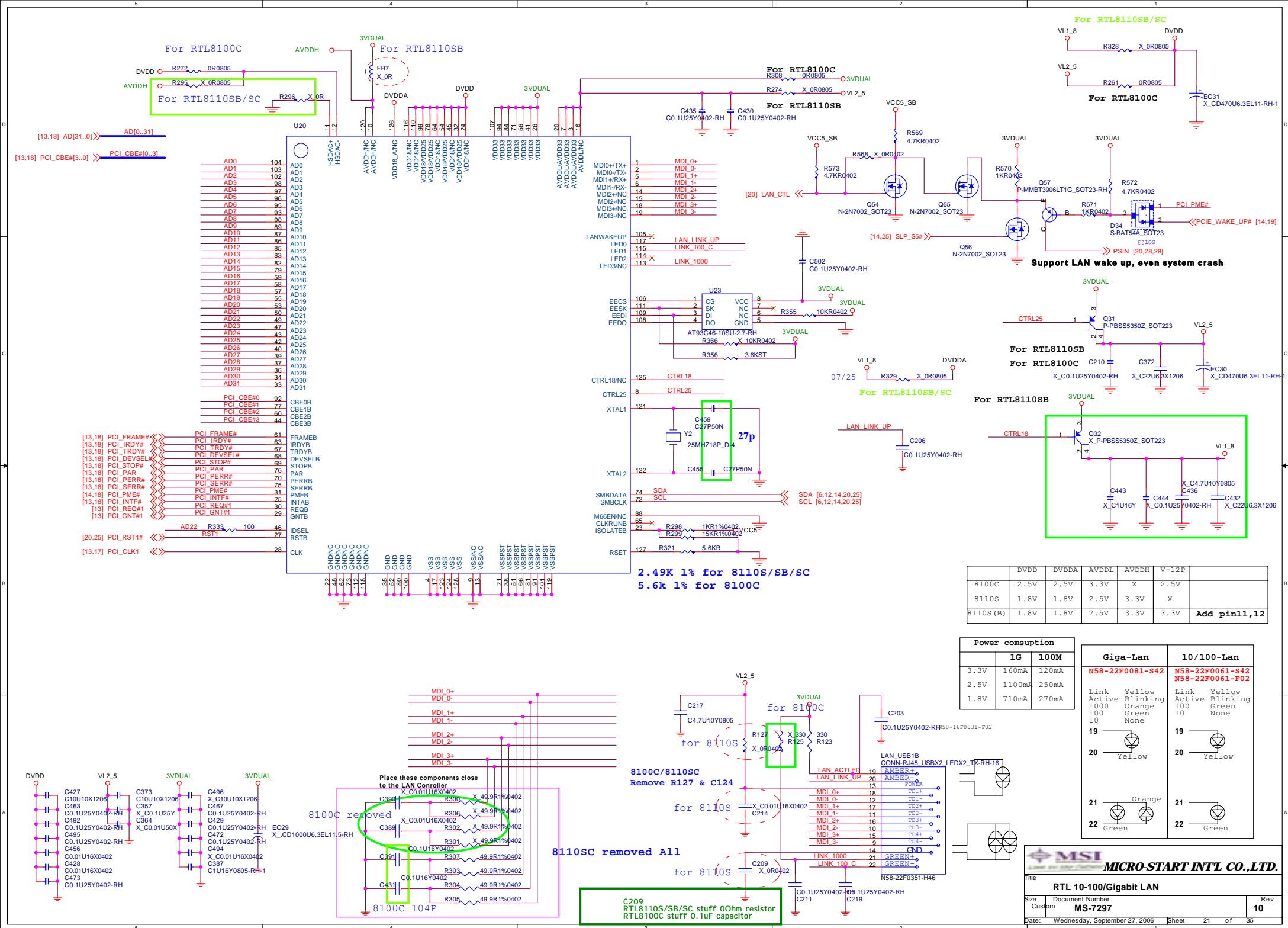
## BIOS PROTECT BLOCK

BIOS Update Config.		
HIGH	Un_protected	Default
LOW	Protected	

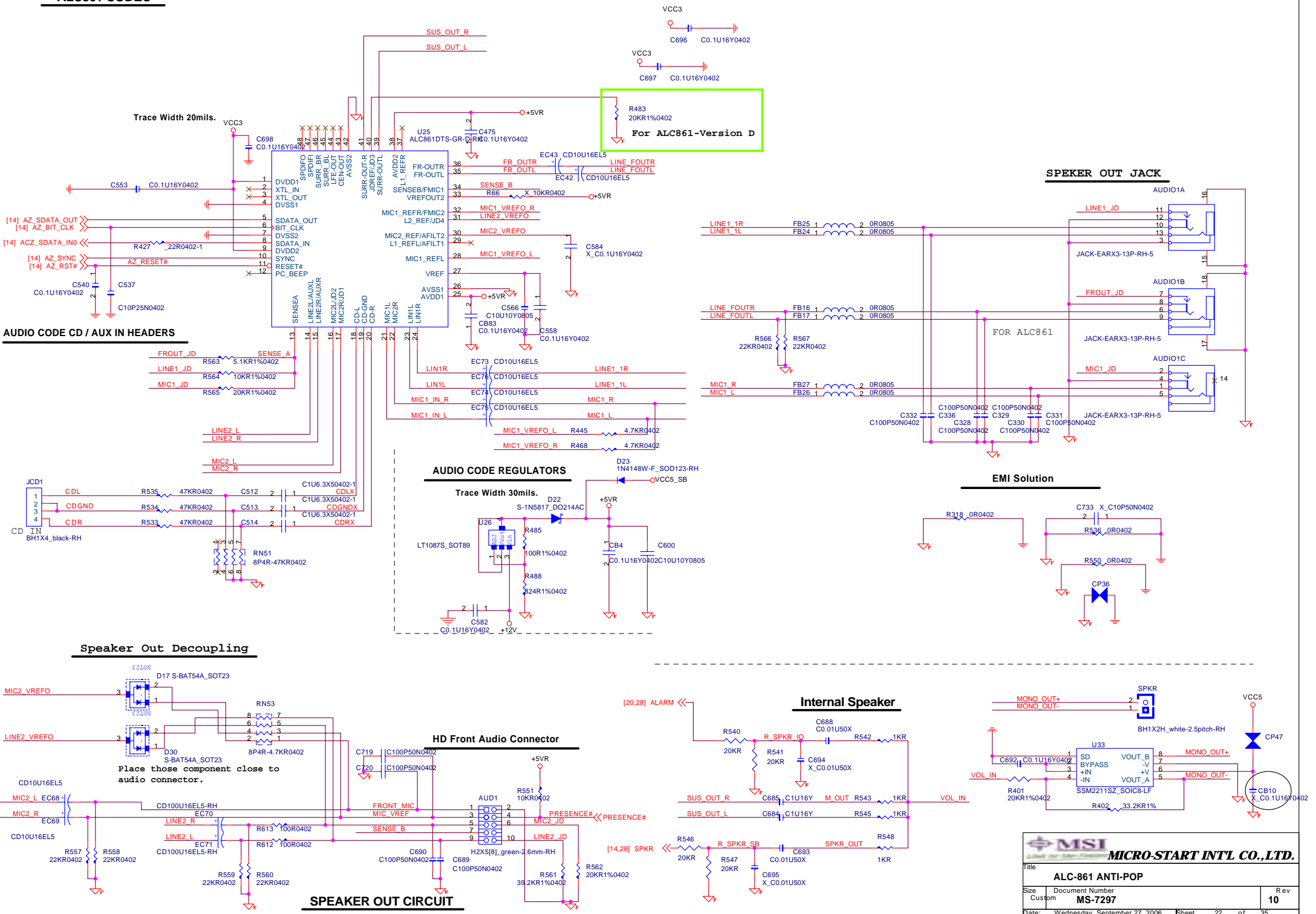


### Thermal Resistor

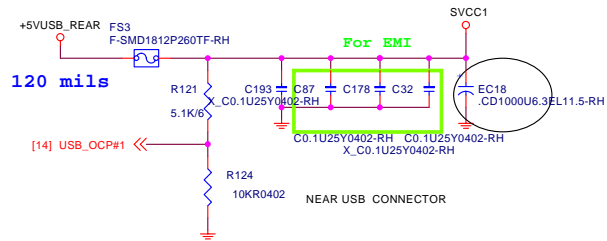




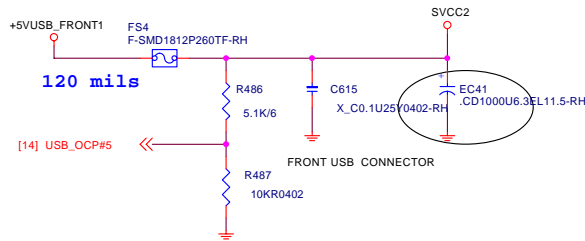
## ALC861 CODEC



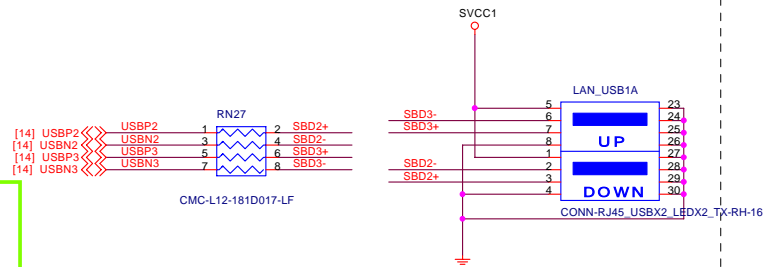
## POWER CIRCUIT FOR USB PORT 0,1



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



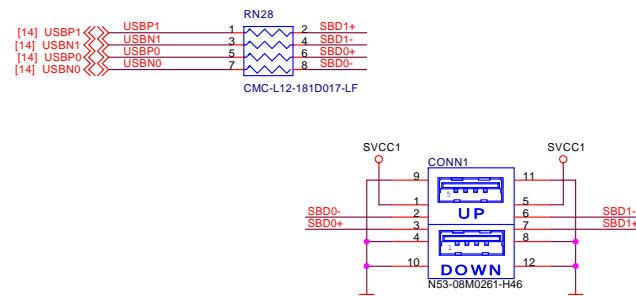
## REAR PANEL USB CONNECTOR FOR USB PORT 0,1



### NEAR USB CONNECTOR

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

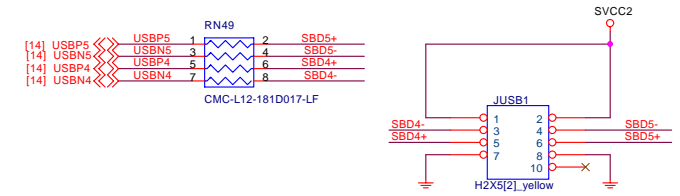
## REAR PANEL USB CONNECTOR FOR USB PORT 2,3



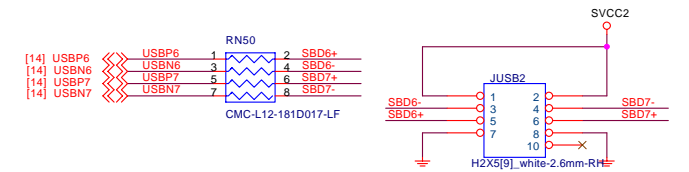
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

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

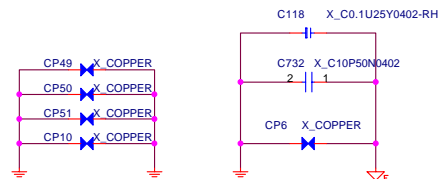
Reserved, can be taken off riser card within bead



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



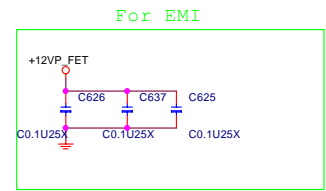
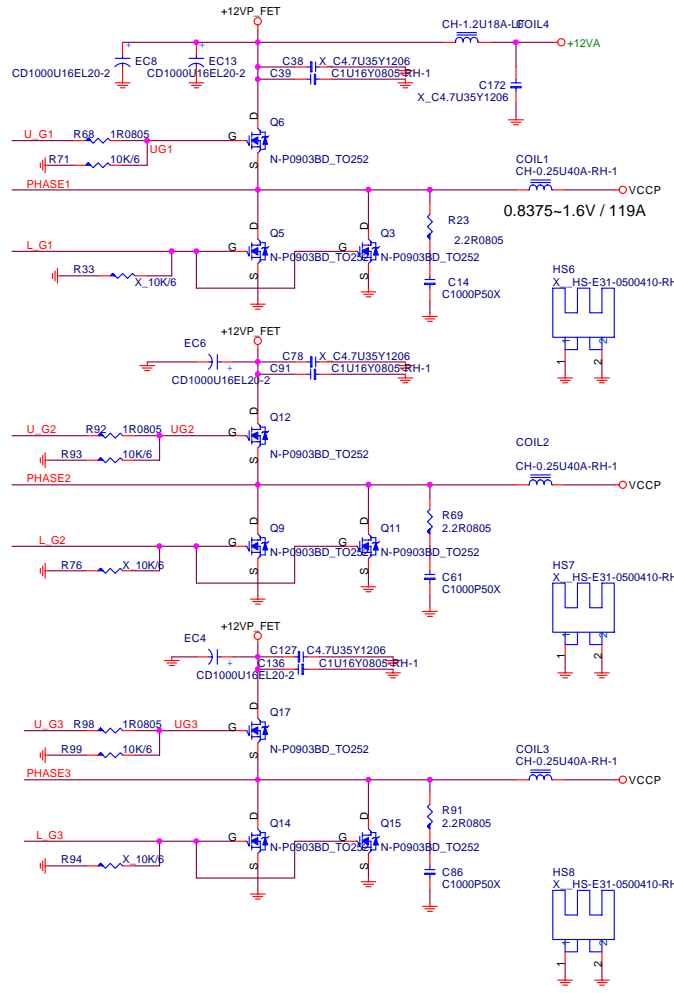
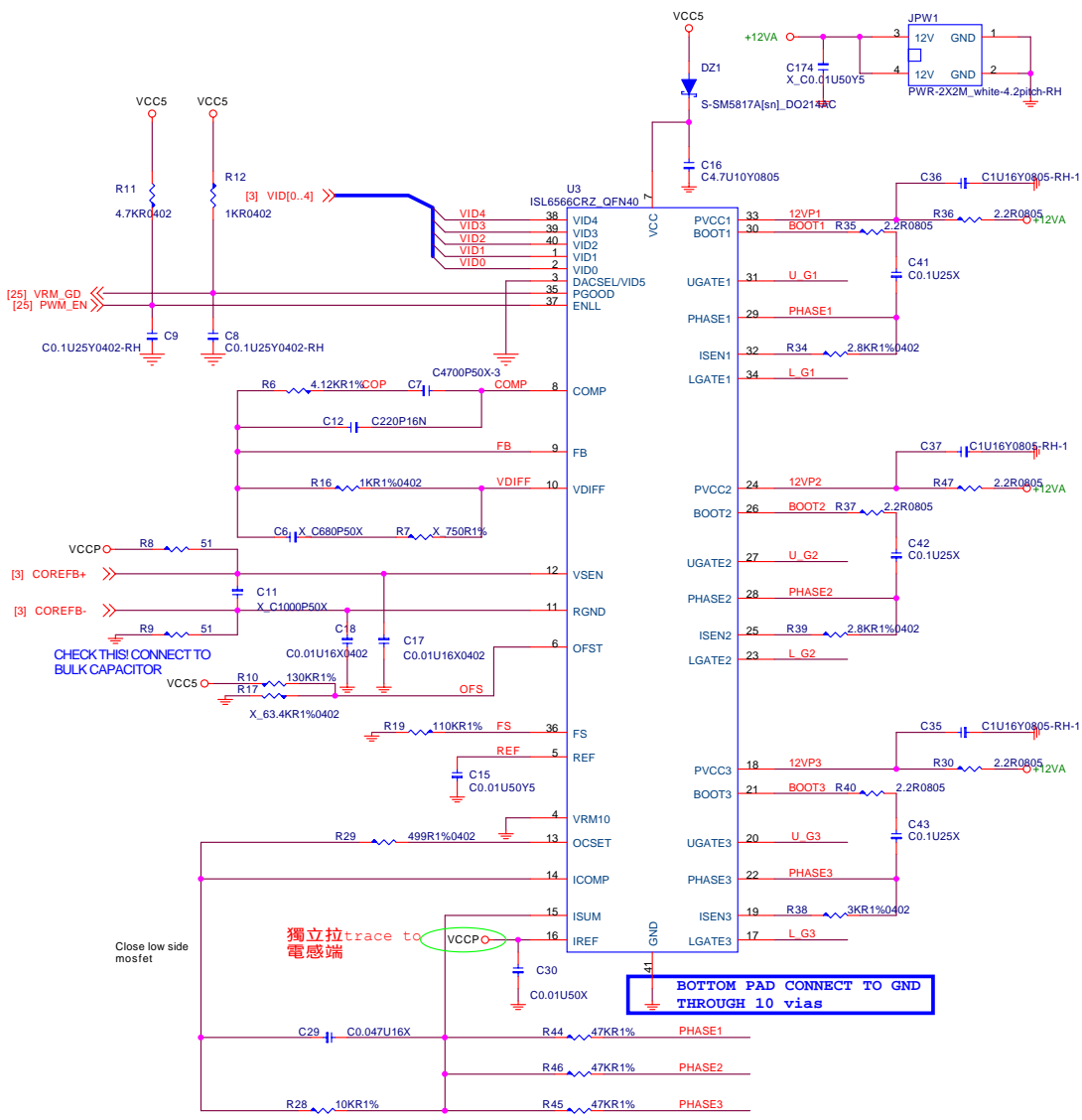
## EMI TEST



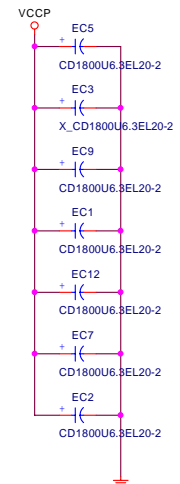


Voltage Regular  
Module

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



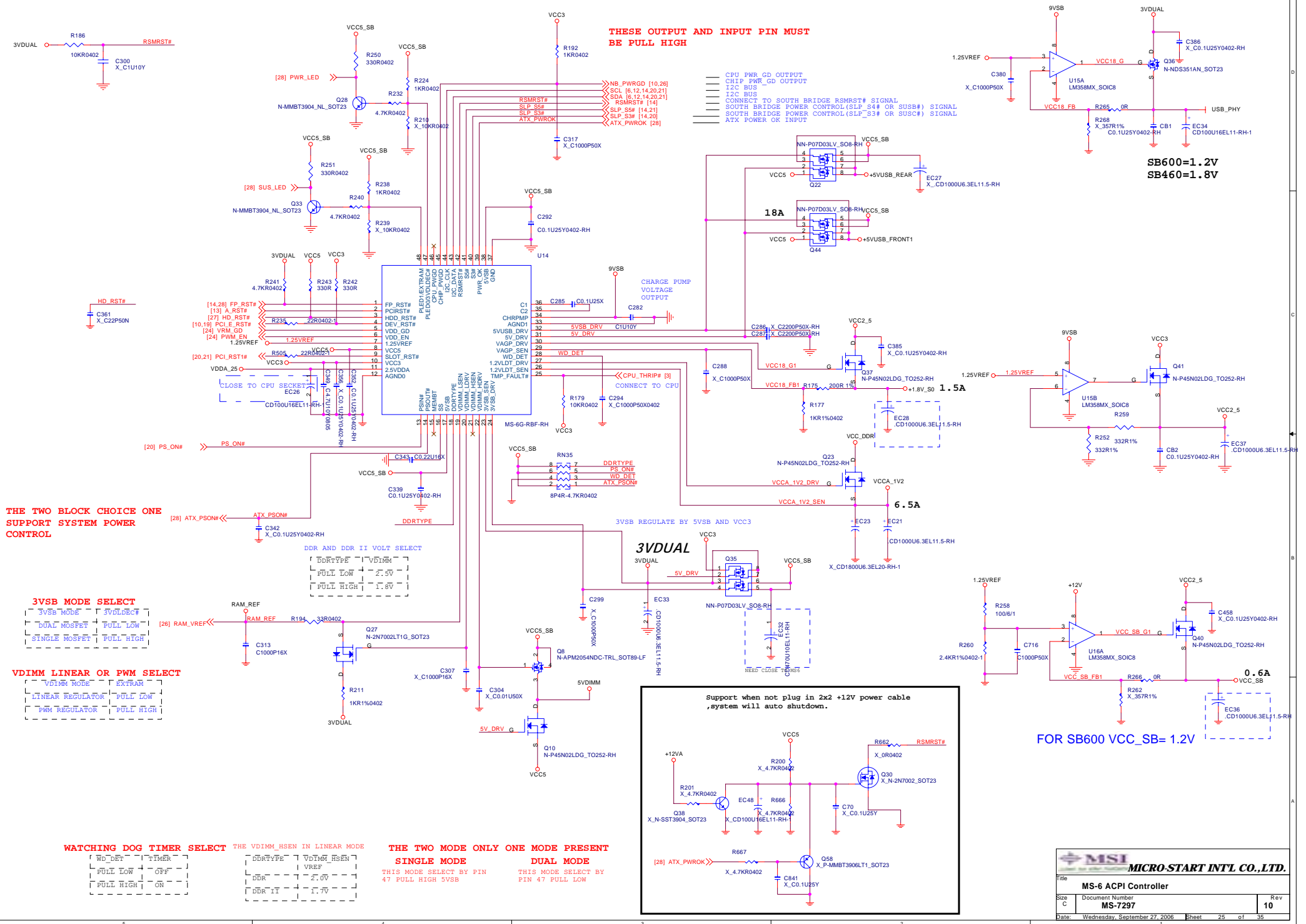
EL Capacitors



MOSFET Heatsinks

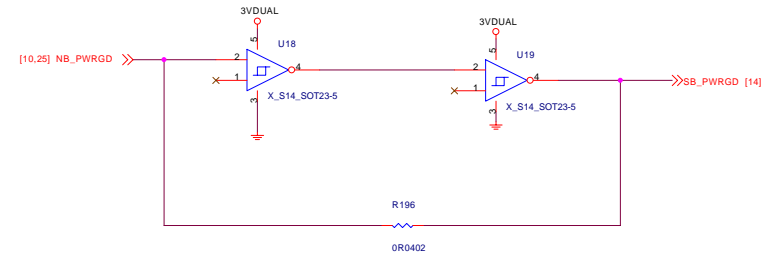


# PWM MODE



The image displays three circuit diagrams illustrating the placement of 100nF decoupling capacitors (C776-C789) on the VCC5, VCC6, and VCC3 supply rails. Each capacitor is connected between the supply rail and ground.

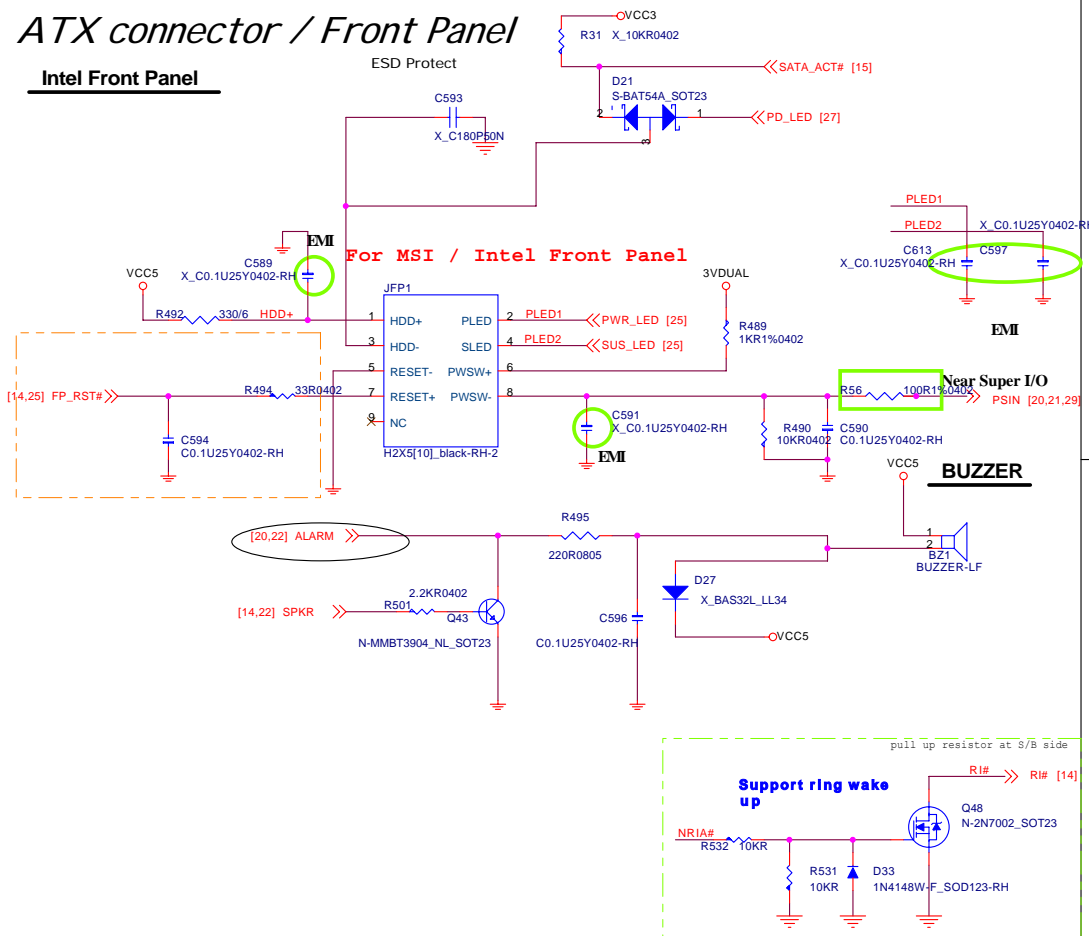
- VCC5:** A vertical bus labeled VCC5 at the top. Ten capacitors, labeled C776 through C789, are connected in parallel between this bus and a common ground at the bottom. The capacitors are arranged in a column, with labels C776, C777, C778, C779, C780, C781, C782, C783, C784, C785, C786, C787, and C788 visible.
- VCC6:** A horizontal bus labeled VCC6 at the top. Two capacitors, labeled C816 and C817, are connected in parallel between this bus and a common ground at the bottom. The labels X\_C0.1U25Y0402-RH and X\_C0.1U25Y0402-RH are visible next to the capacitors.
- VCC3:** A horizontal bus labeled VCC3 at the top. One capacitor, labeled C788, is connected between this bus and a common ground at the bottom. The label C0.1U25Y0402-RH is visible next to the capacitor.



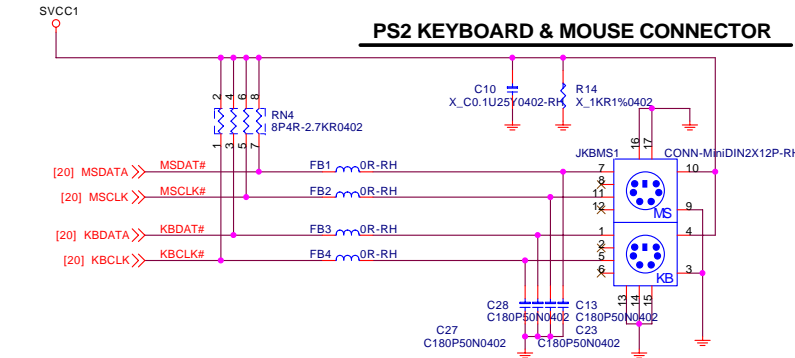


# ATX connector / Front Panel

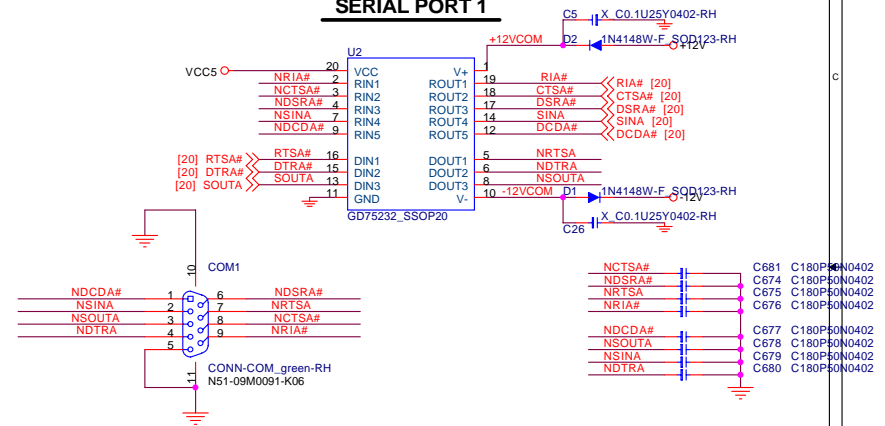
## Intel Front Panel



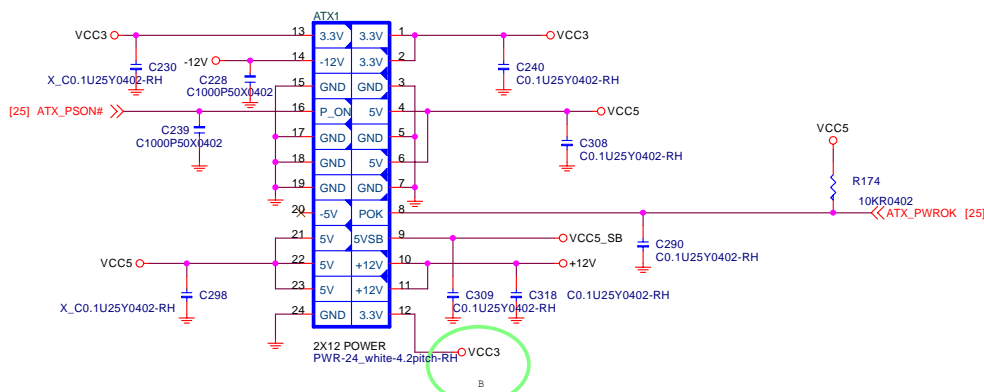
## PS2 KEYBOARD & MOUSE CONNECTOR



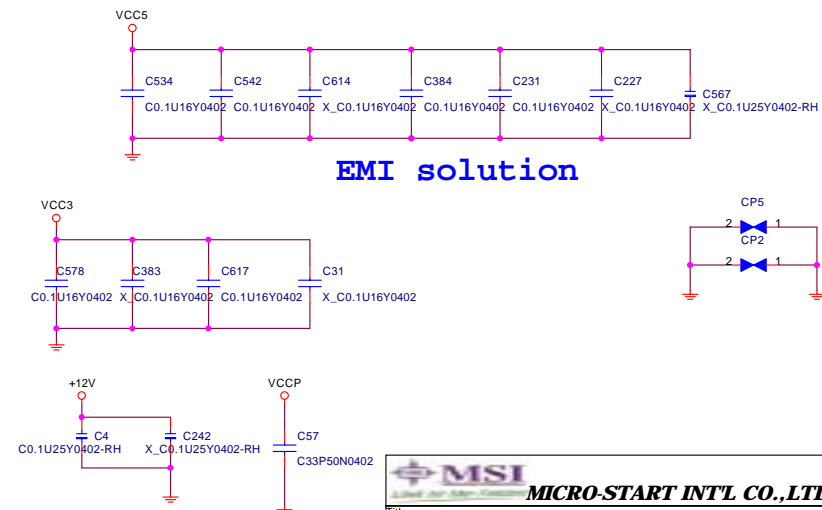
## SERIAL PORT 1



## ATX Connector



## EMI solution



**MSI**

**MICRO-START INT'L CO.,LTD.**

File

**ATX connector / Front Panel/COM1/KB**

Size

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Rev

**10**

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Wednesday, September 27, 2006

Sheet

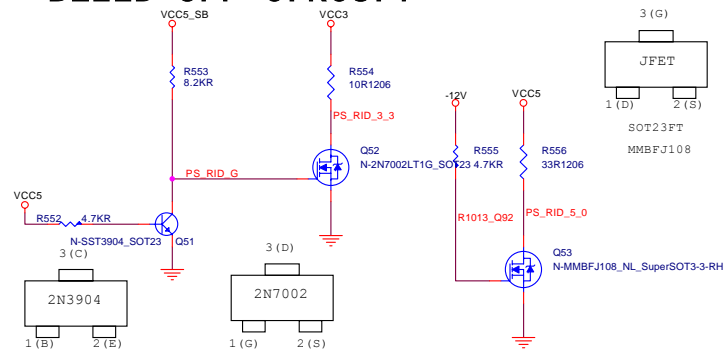
28

of

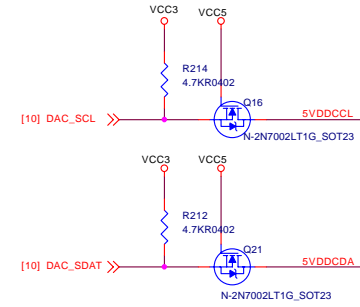
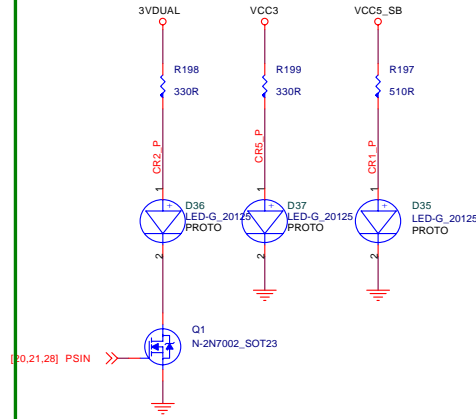
35

# Near ATX POWER Connector

## BLEED-OFF CIRCUIT

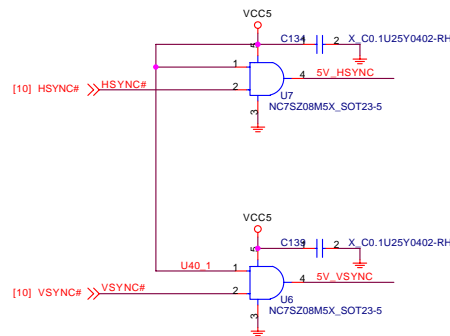
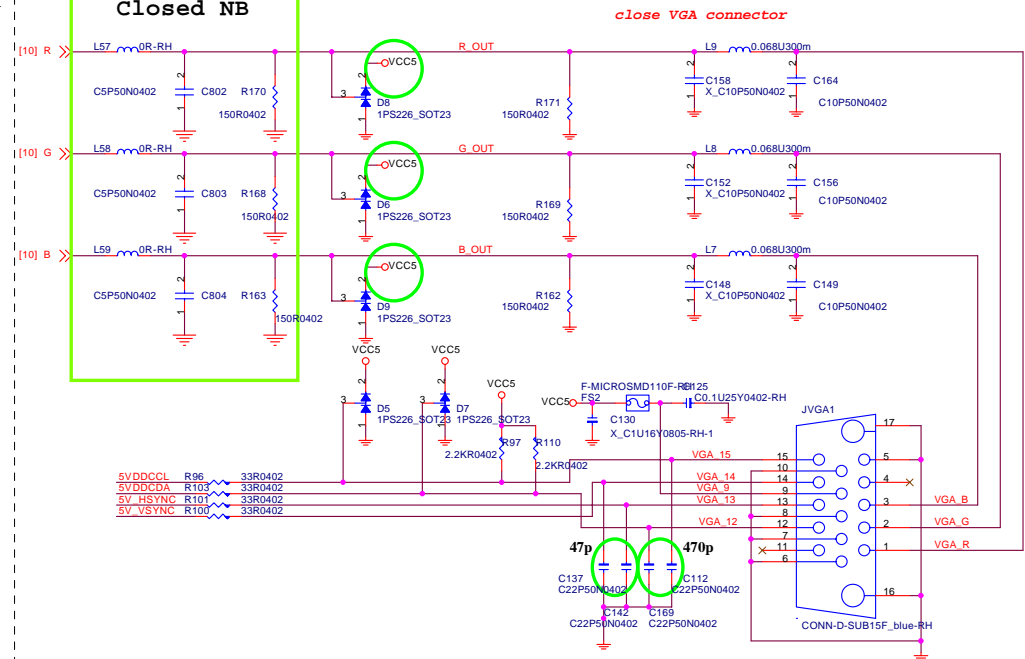


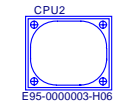
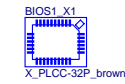
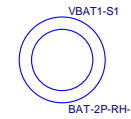
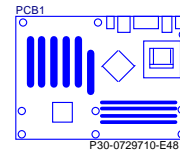
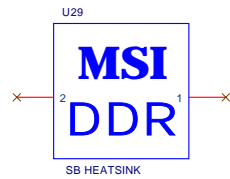
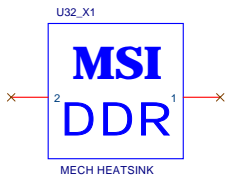
DESIGN NOTE: THIS CIRCUIT IS USED TO BLEED OFF 5.0V & 3.3V



## VGA CONNECTOR

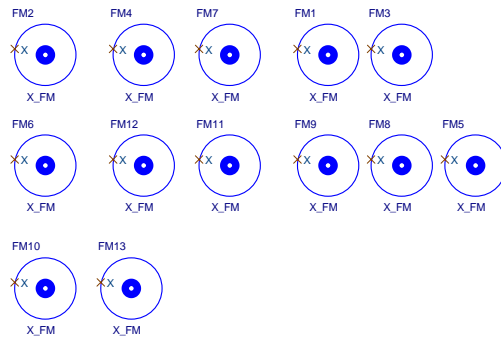
### Closed NB



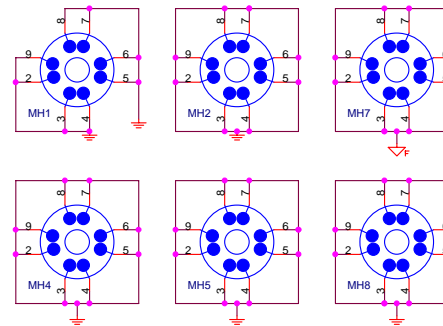


PF0-0729710-E48, 競華, 107, 寶安恩斯-明士 (MSIS)  
PF0-0729710-G37, 精成, 107, 寶安恩斯邁威 (MSIS)

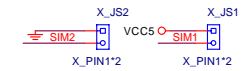
### Optics Orientation Holes



### 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