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MS6721

VERSION:100

SIS 650GL CHIPSET

Willamette/Northwood 478pin mPGA-B Processor Schematics

CPU:

Willamette/Northwood mPGA-478B Processor

System Brookdale Chipset:

SIS 650GL (North Bridge) + 962L (South Bridge)

On Board Chipset:

LPC Super I/O -- W83697HF

RTL8201BL MII PHY

Expansion Slots:

PCI2.2 SLOT* 3

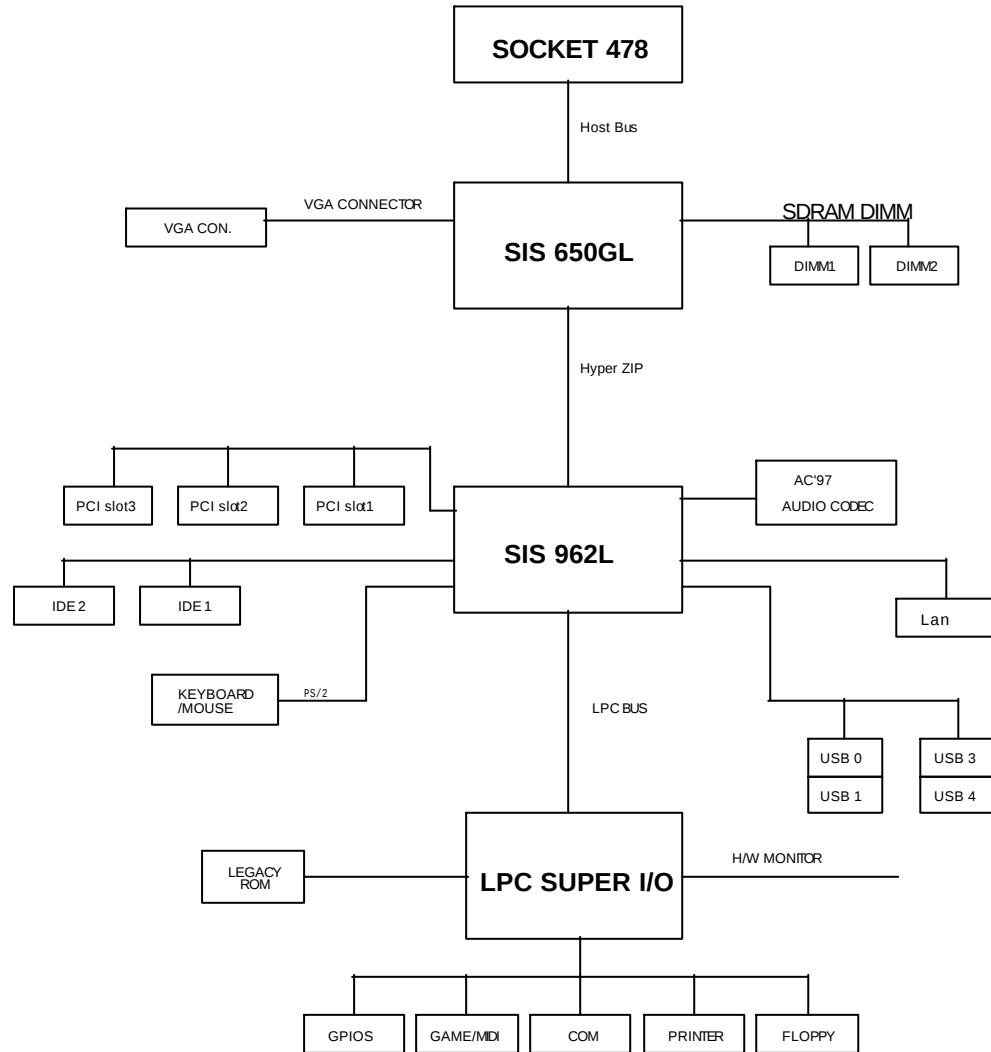
AC'97 Codec :

Realtek ALC101

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Document Number	MS-6721	100
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System Block Diagram



GPIO Table on SIS962L

GPIO_0	I/O	MAIN	Flash Rom protection H: Disable, L: Enable
GPIO_1	I/O	MAIN	Pull-Down
GPIO_2	I/O	MAIN	THERM#
GPIO_3	I/O	MAIN	EXTSMI#
GPIO_4	I/O	MAIN	Pull-Down
GPIO_5	I/O	MAIN	RESERVED
GPIO_6	I/O	MAIN	RESERVED
GPIO_7	I/O	AUX	RESERVED
GPIO_8	I/O	AUX	RESERVED
GPIO_9	I/O	AUX	RESERVED
GPIO_10	I/O	AUX	RESERVED
GPIO_11	I/O	AUX	Pull-Down(for SIS962L)
GPIO_12	I/O	AUX	Pull-Up
GPIO_13	I/O	AUX	RESERVED
GPIO_14	I/O	AUX	Pull-Down
GPIO_15	I/O	AUX	KBDAT
GPIO_16	I/O	AUX	KBCLK
GPIO_17	I/O	AUX	MSDAT
GPIO_18	I/O	AUX	MSCLK
GPIO_19	I/O	AUX	SMBCLK
GPIO_20	I/O	AUX	SMBDAT
GPIO_21	I	AUX	EESK
GPIO_22	I	AUX	EEDI
GPIO_23	I	AUX	DDEO
GPIO_24	I	AUX	EECS

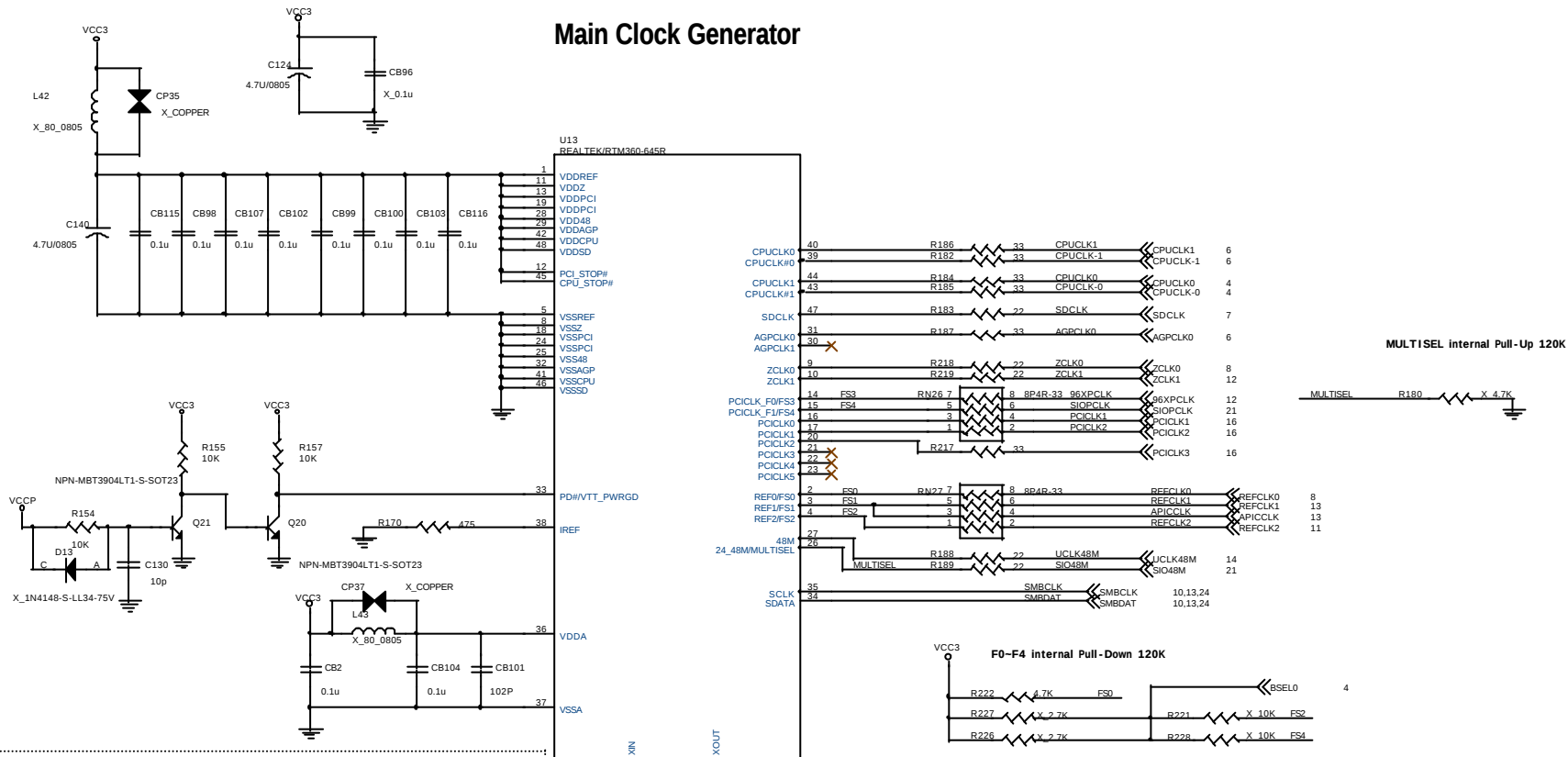
PCI Routing

DEVICES	INT#	IDSEL	REQ#/GNT#	CLOCK
PCI SLOT 2	INT#B INT#C INT#D INT#A	AD17	PREQ#0 PGNT#0	PCICLK0
PCI SLOT 3	INT#C INT#D INT#A INT#B	AD18	PREQ#1 PGNT#1	PCICLK1
PCI SLOT 1	INT#D INT#A INT#B INT#C	AD19	PREQ#2 PGNT#2	PCICLK2

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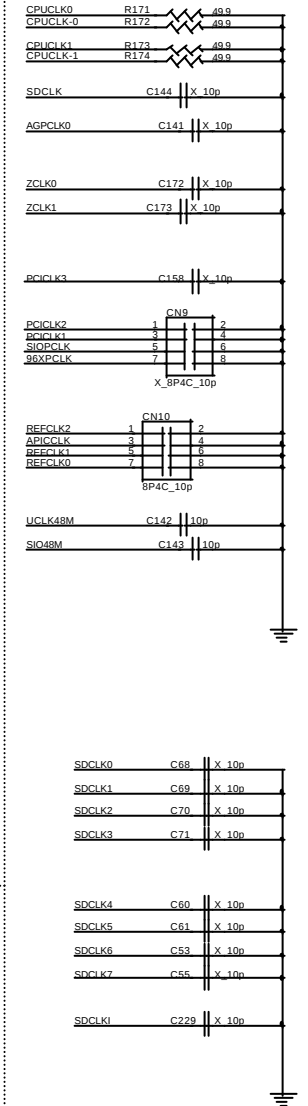
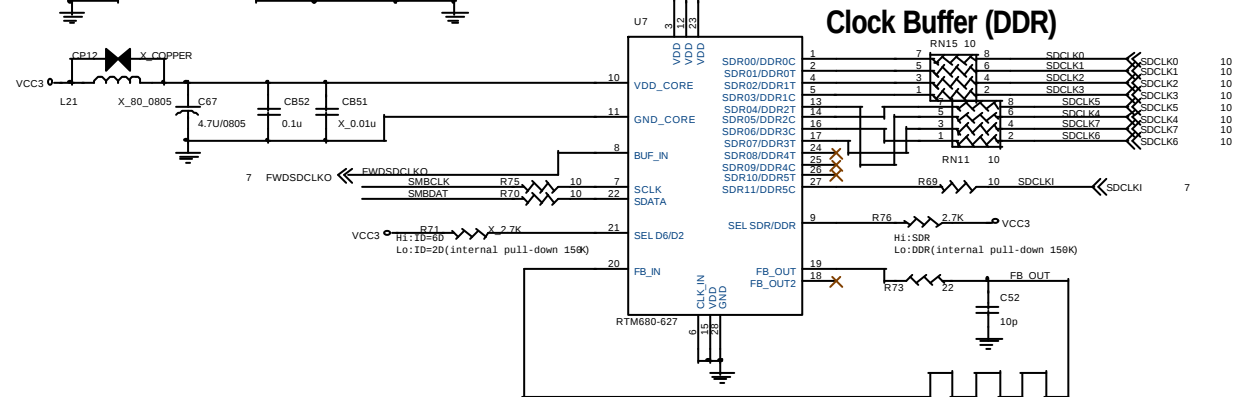
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Main Clock Generator



FS4	FS3	FS2	FS1	FS0	CPU	SDRAM	ZCLK	AGP	PC1
0	0	0	0	1	100	100	66	66	33
1	0	1	0	1	133	100	66	66	33

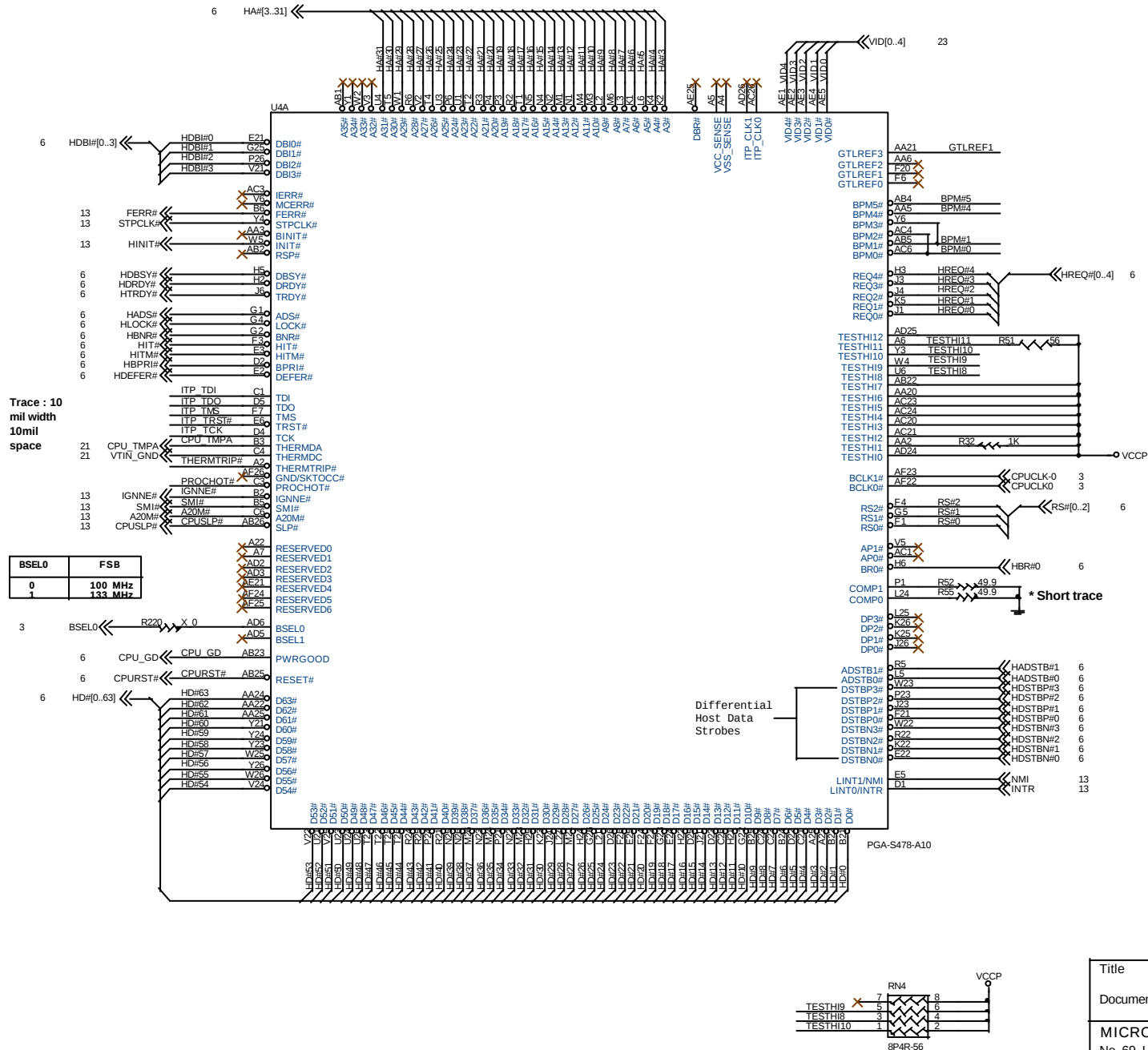
Clock Buffer (DDR)



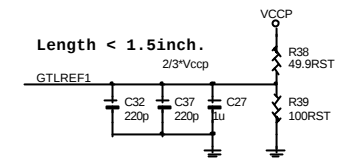
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CPU SIGNAL BLOCK

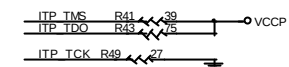


CPU GTL REFERENCE VOLTAGE BLOCK



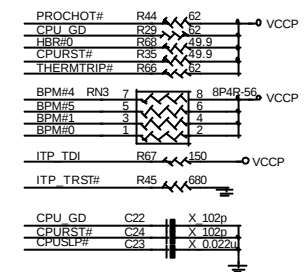
Every pin put one 220pF cap near it.
Trace Width 15mils, Space 15mils.
Keep the voltage dividers within 1.5 inches of the first GTLREF Pin

CPU ITP BLOCK

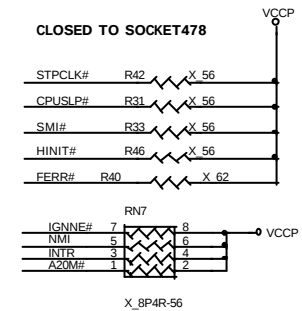


CPU STRAPPING RESISTORS

CLOSED TO SOCKET478



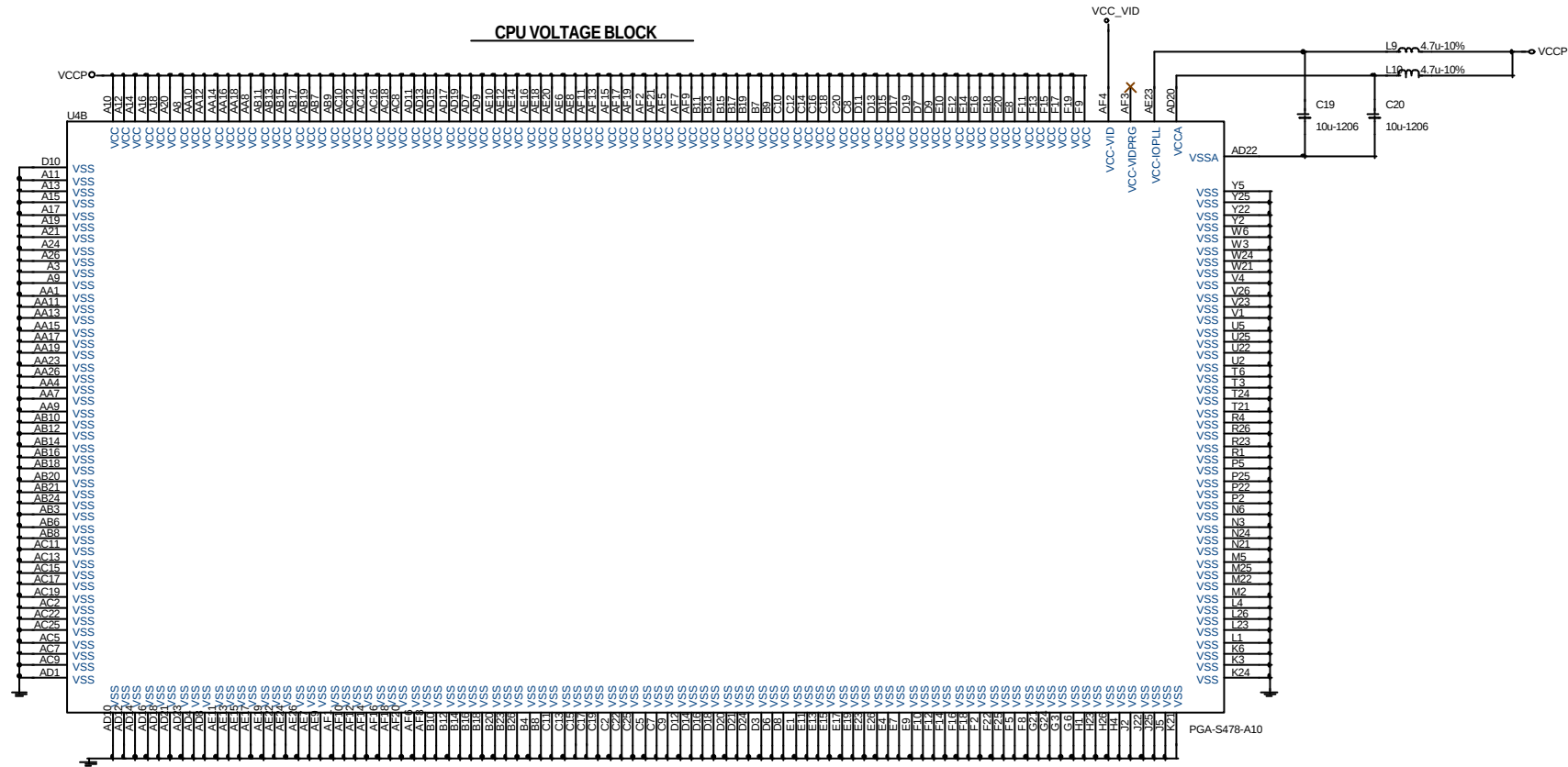
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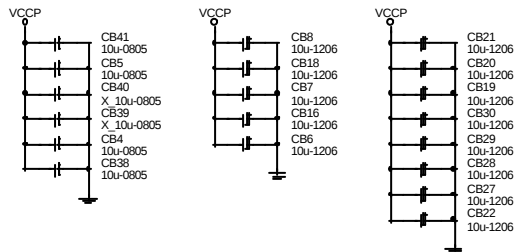
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CPU VOLTAGE BLOCK



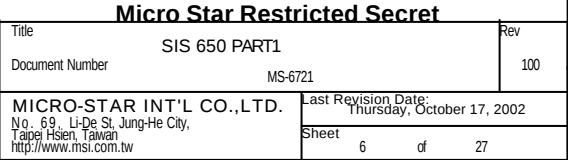
CPU DECOUPLING CAPACITORS



PLACE CAPS WITHIN CPU CAVITY

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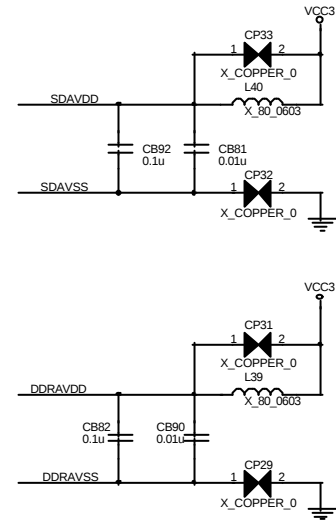
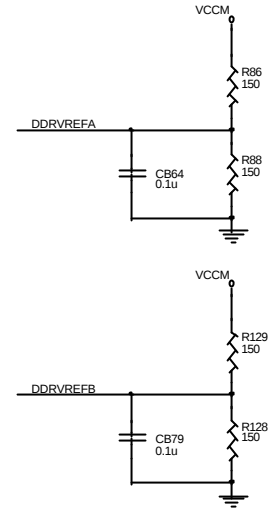
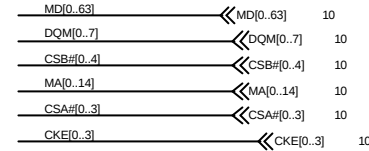
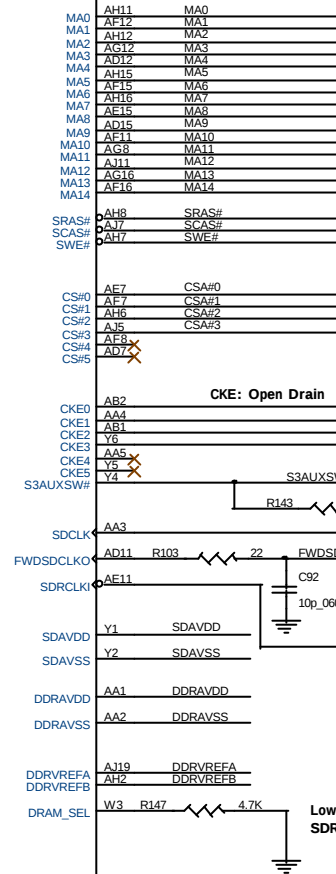
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Document Number	MS-6721	100
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MD63	AJ23	MD0
MD30	AG22	MD1
MD29	AH21	MD2
MD59	AJ21	MD3
MD31	AD23	MD4
MD62	AE23	MD5
MD60	AF22	MD6
MD28	AF21	MD7
MD61	AD22	DQM0
CSB#0	AH22	DQS0/CSB#0
MD27	AD21	MD8
MD58	AG20	MD9
MD55	AE19	MD10
MD23	AF19	MD11
MD26	AE21	MD12
MD57	AD20	MD13
MD56	AD19	MD14
MD24	AH19	MD15
MD25	AE20	DQM1
CSB#1	AH20	DQS1/CSB#1
MD22	AF18	MD16
MD53	AG18	MD17
MD20	AH17	MD18
MD19	AD16	MD19
MD54	AD18	MD20
MD21	AD17	MD21
MD51	AF17	MD22
MD50	AJ17	MD23
MD52	AE17	DQM2
CSB#2	AH18	DQS2/CSB#2
MD18	AD14	MD24
MD17	AG14	MD25
DQM7	AJ13	MD26
DQM6	AE13	MD27
MD49	AJ15	MD28
MD48	AF14	MD29
DQM3	AD13	MD30
DQM2	AE13	MD31
MD16	AH13	DQM3
CSB#3	AH14	DQS3/CSB#3
DQM5	AD10	MD32
DQM4	AH10	MD33
MD47	AE9	MD34
MD45	AD8	MD35
DQM1	AG10	MD36
DQM0	AF10	MD37
MD46	AH9	MD38
MD14	AF9	MD39
MD15	AD9	DQM4
MD13	AJ9	DQS4/CSB#4
MD43	AH5	MD40
MD42	AE5	MD41
MD10	AH3	MD42
MD44	AG6	MD43
MD12	AF6	MD44
MD41	AF5	MD45
MD9	AF4	MD46
MD11	AH4	MD47
MD40	AJ3	DQM5
MD8	AE4	DQS5/CSB#5
MD37	AD6	MD48
MD36	AC5	MD49
MD39	AG2	MD50
MD7	AG1	MD51
MD6	AF3	MD52
MD5	AC6	MD53
MD38	AD4	MD54
MD35	AF2	MD55
MD34	AD3	DQM6
MD1	AA6	DQS6/CSB#6
MD0	AB3	MD56
MD4	AC4	MD57
MD3	AF1	MD58
MD33	AD2	MD59
MD32	AC1	MD60
MD2	AB4	MD61
	AC2	MD62
		MD63
		DQM7
		DQS7/CSB#7

650GL-2

SIS-SIS650GL

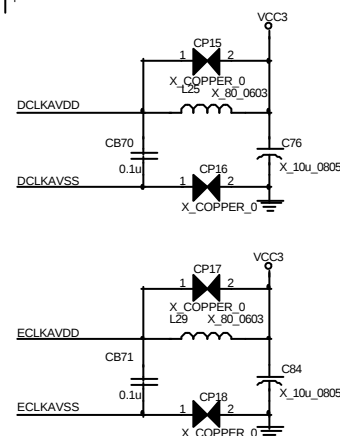
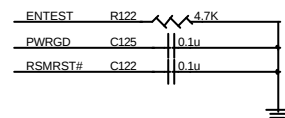
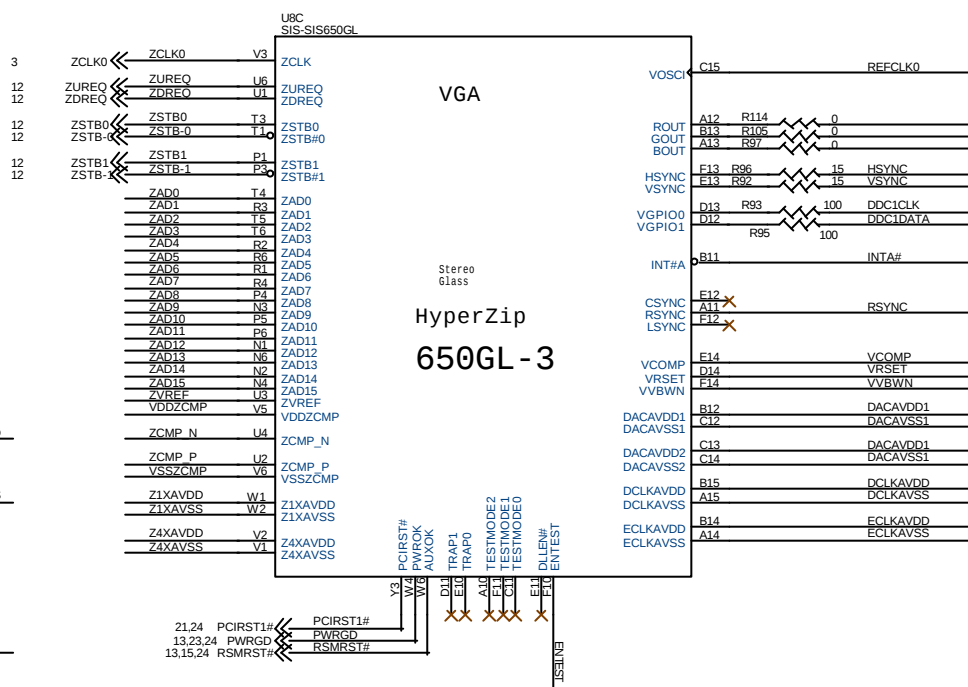
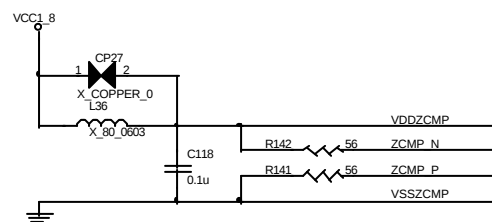
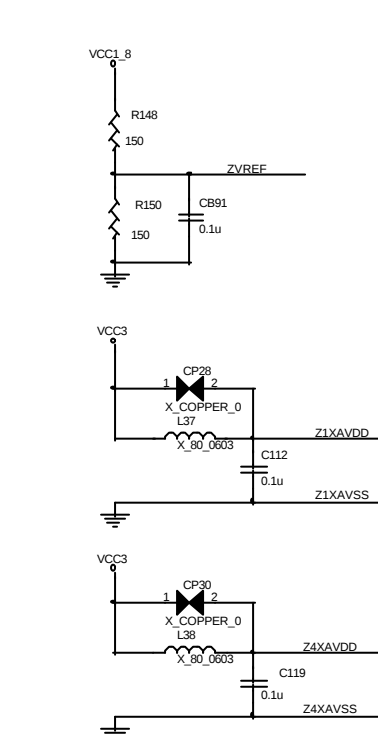
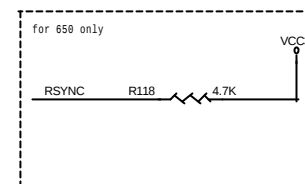


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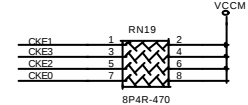
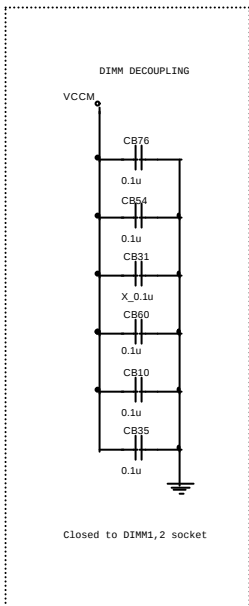
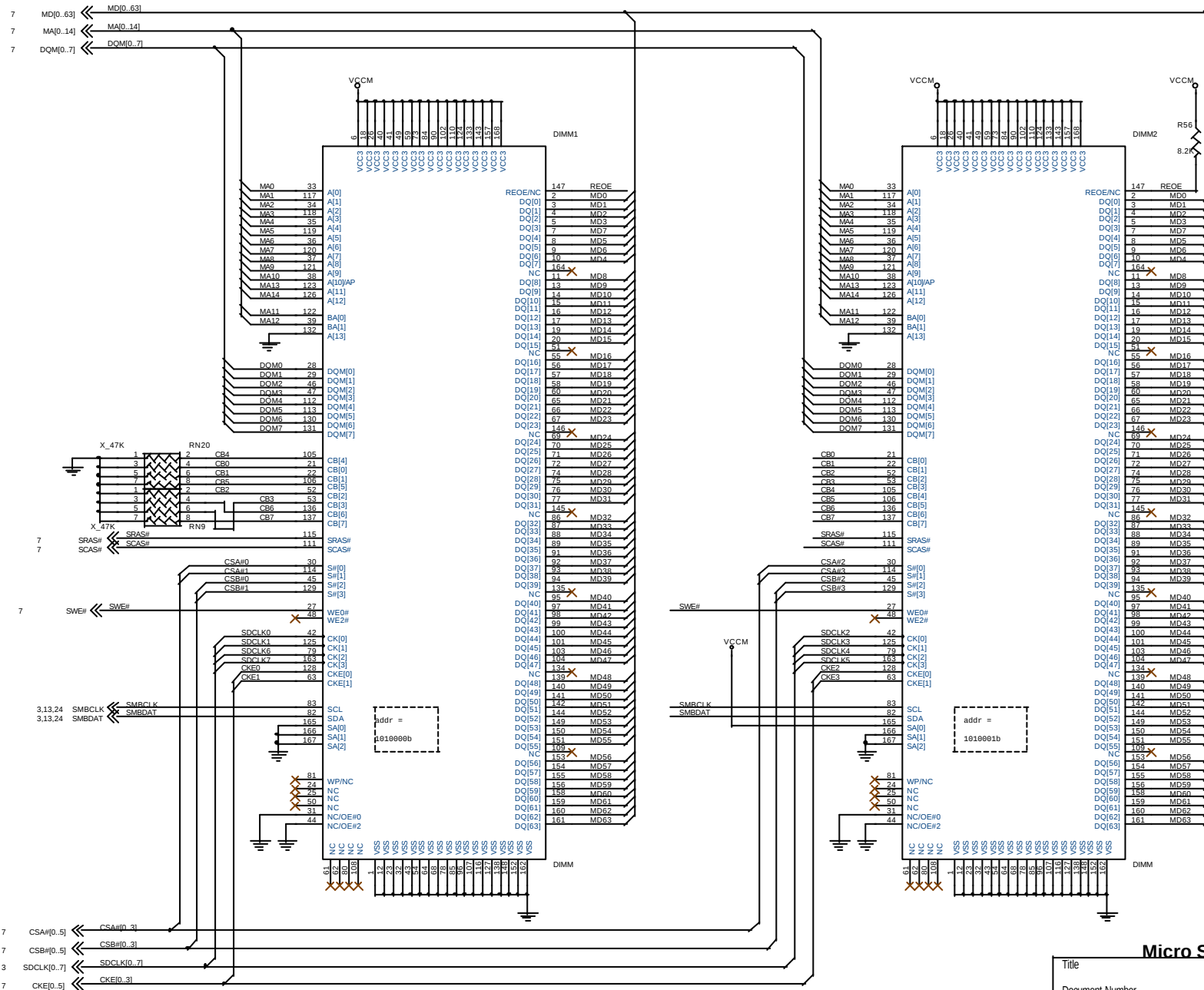
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DLLEN#	enable PLL	disable PLL	0	yes
DRAM_SEL	SDR	DDR	1(DDR)	yes
TRAP0	normal	NB debug mode	0	yes
TRAP1	TV selection, NTSC/PAL(0/1)			0
CSYNC	enable VB			0
RSYNC	enable VGA interface			1
LSYNC	enable panel link			0

embedded pull-low
(30-50K Ohm)



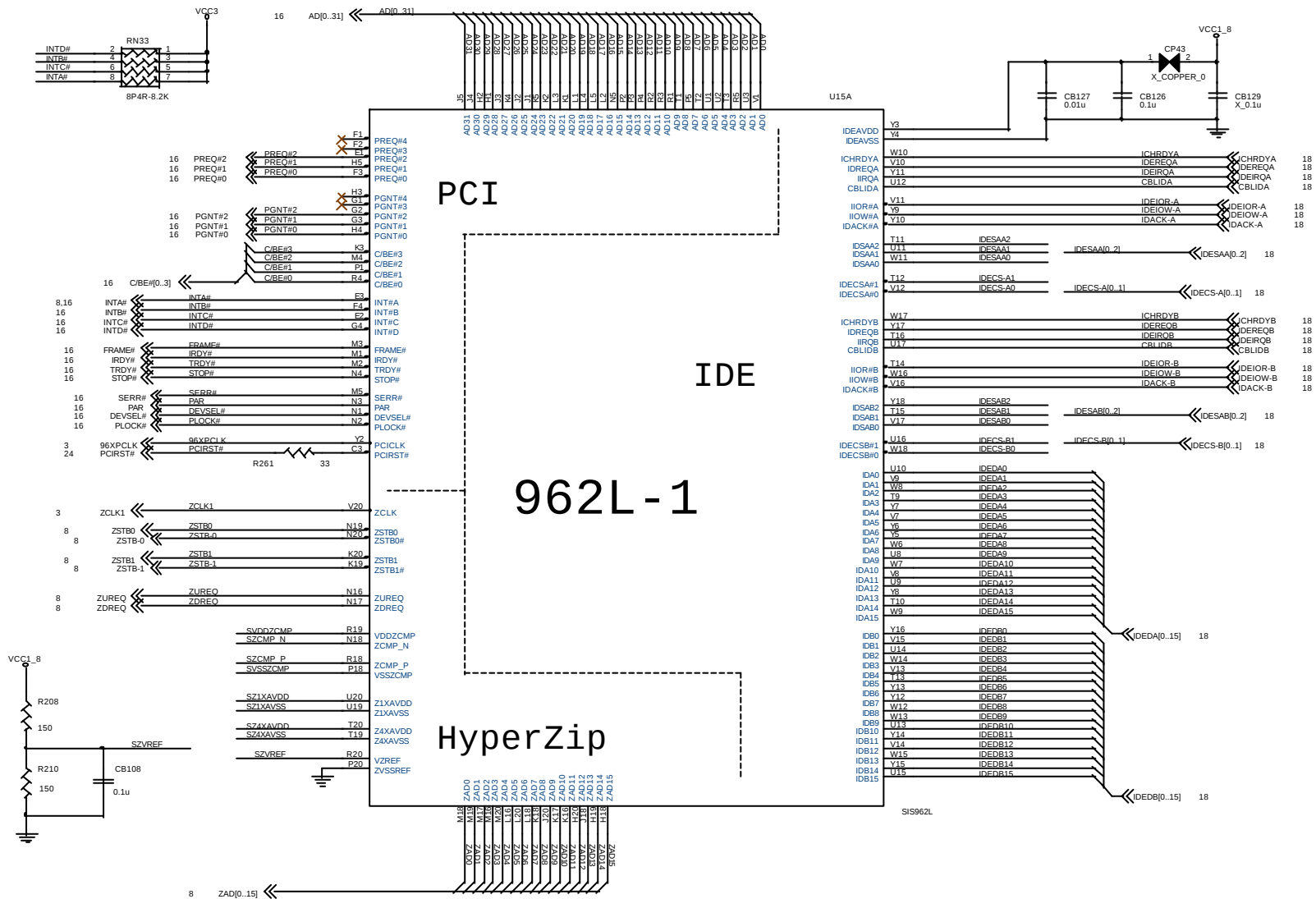
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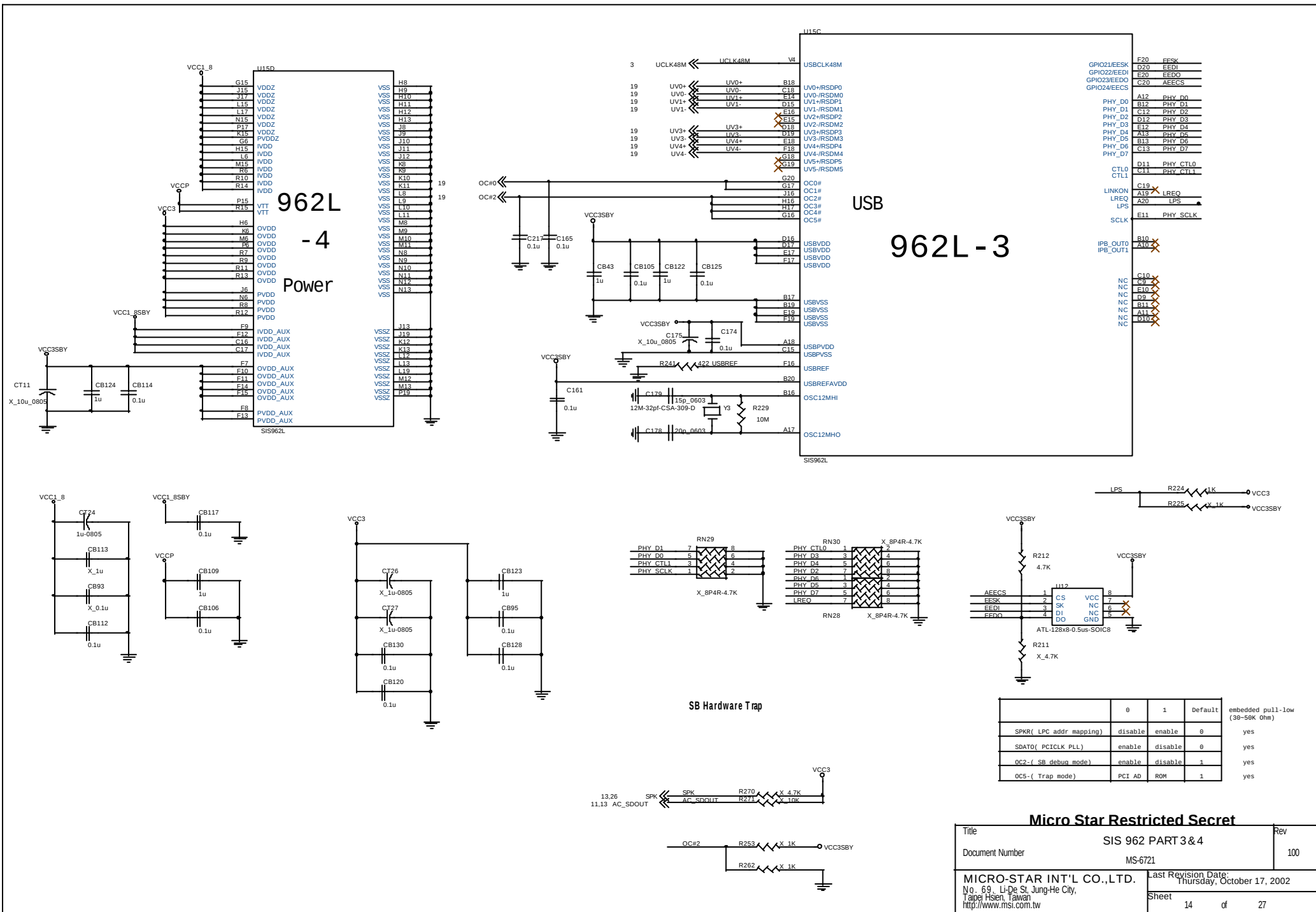
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MS-6721			
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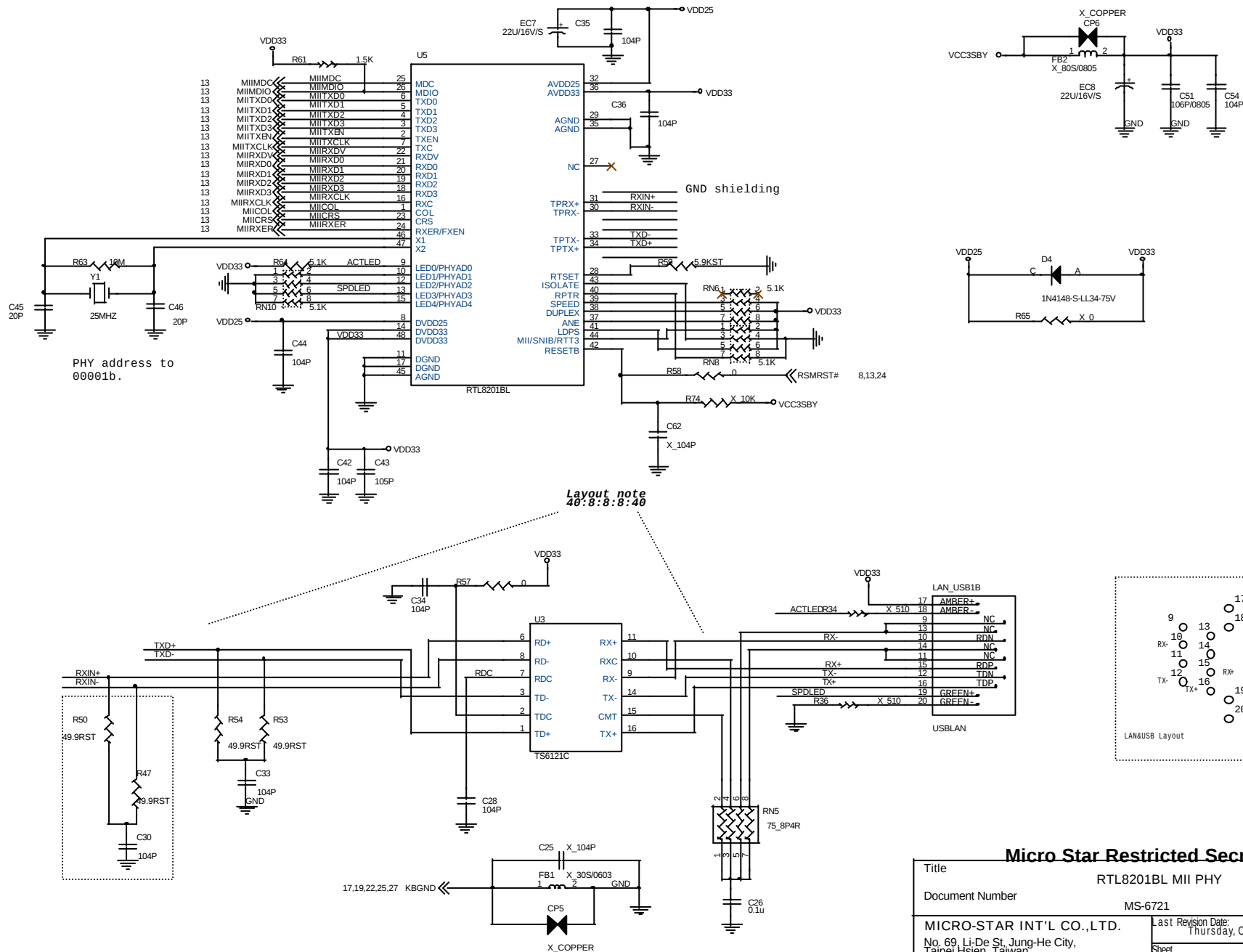
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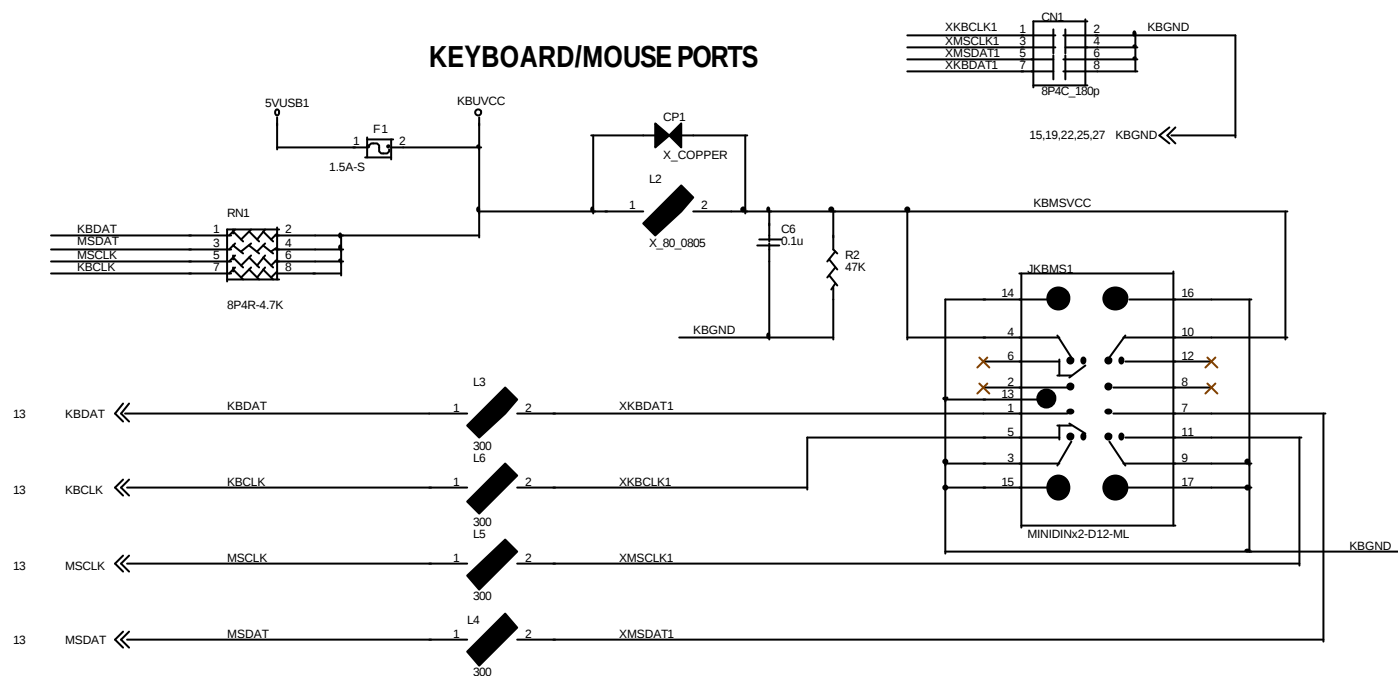
REALTEK 8201BL MII PHY



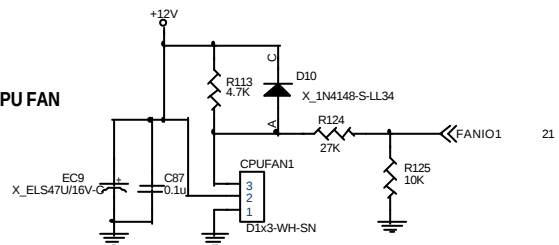
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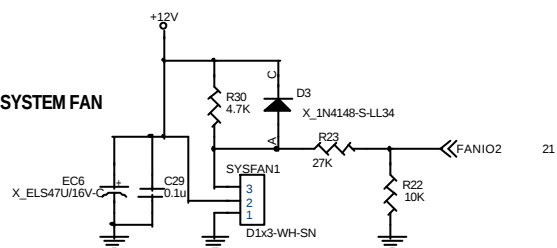
KEYBOARD/MOUSE PORTS



CPU FAN



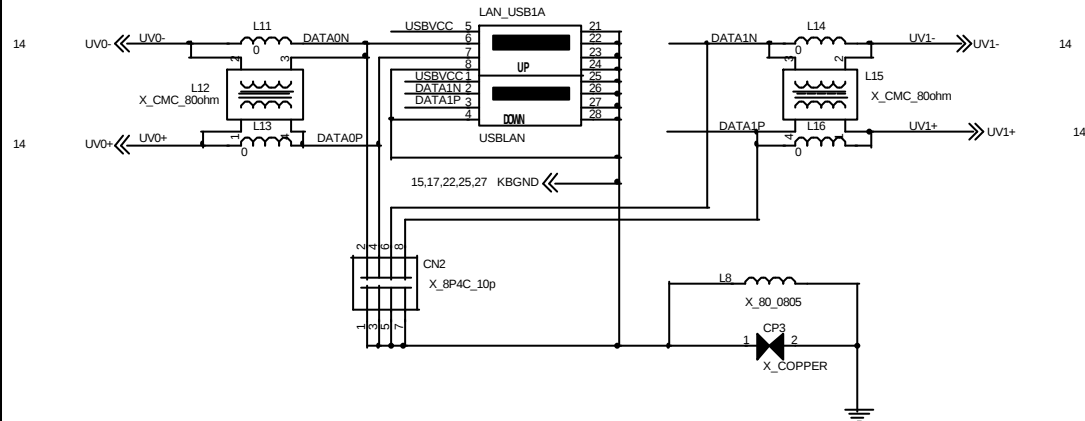
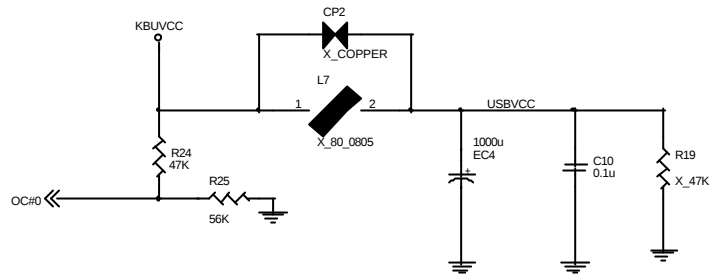
SYSTEM FAN



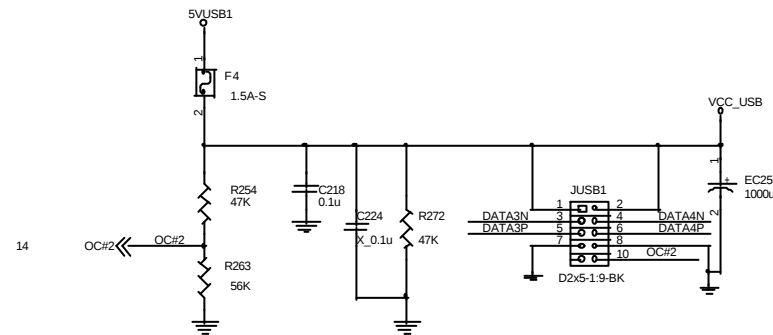
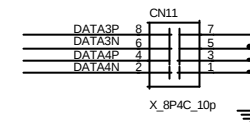
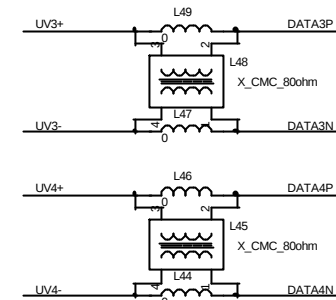
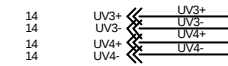
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USB port 1,2 connector



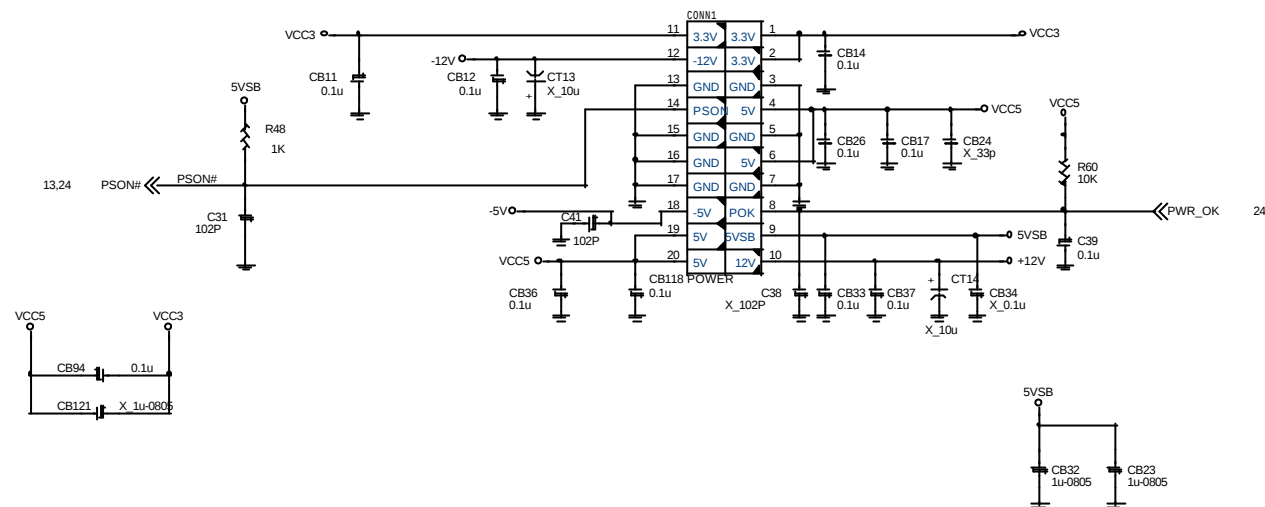
USB port 3,4 connector



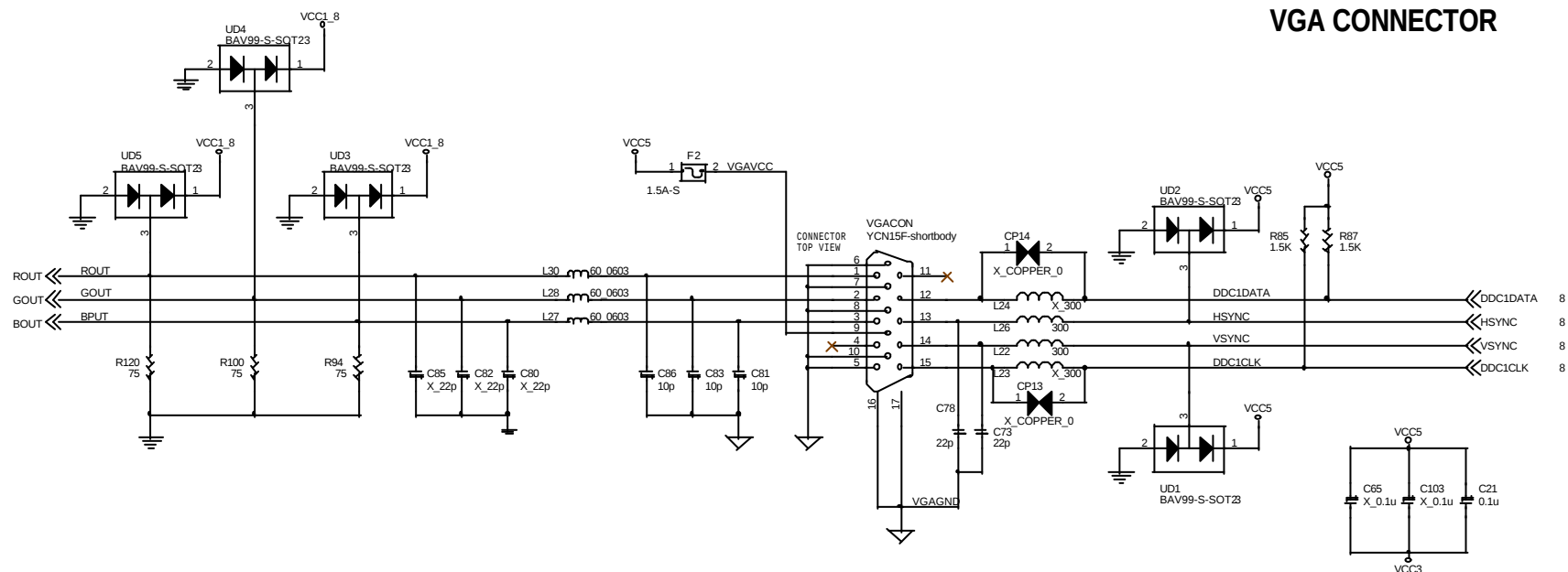
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ATX CONNECTOR



VGA CONNECTOR

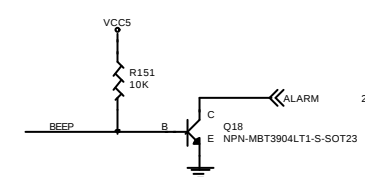
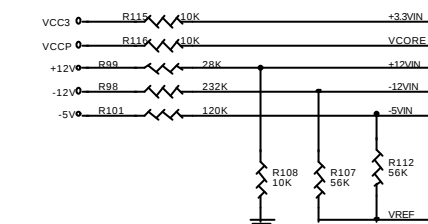
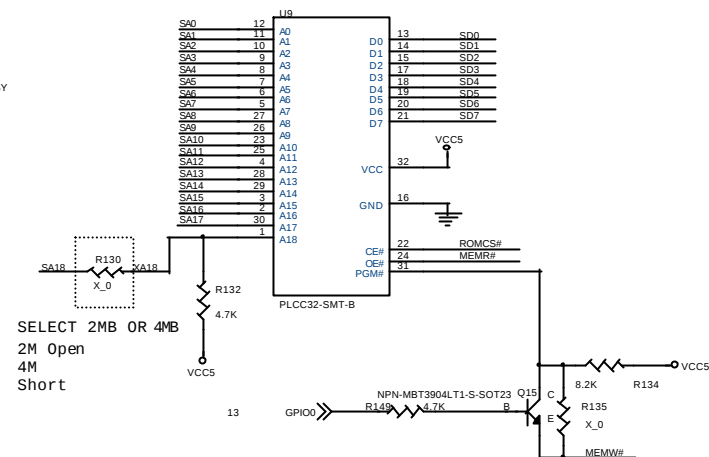
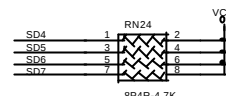
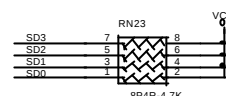
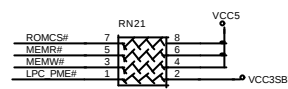
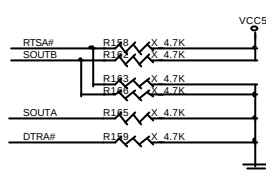


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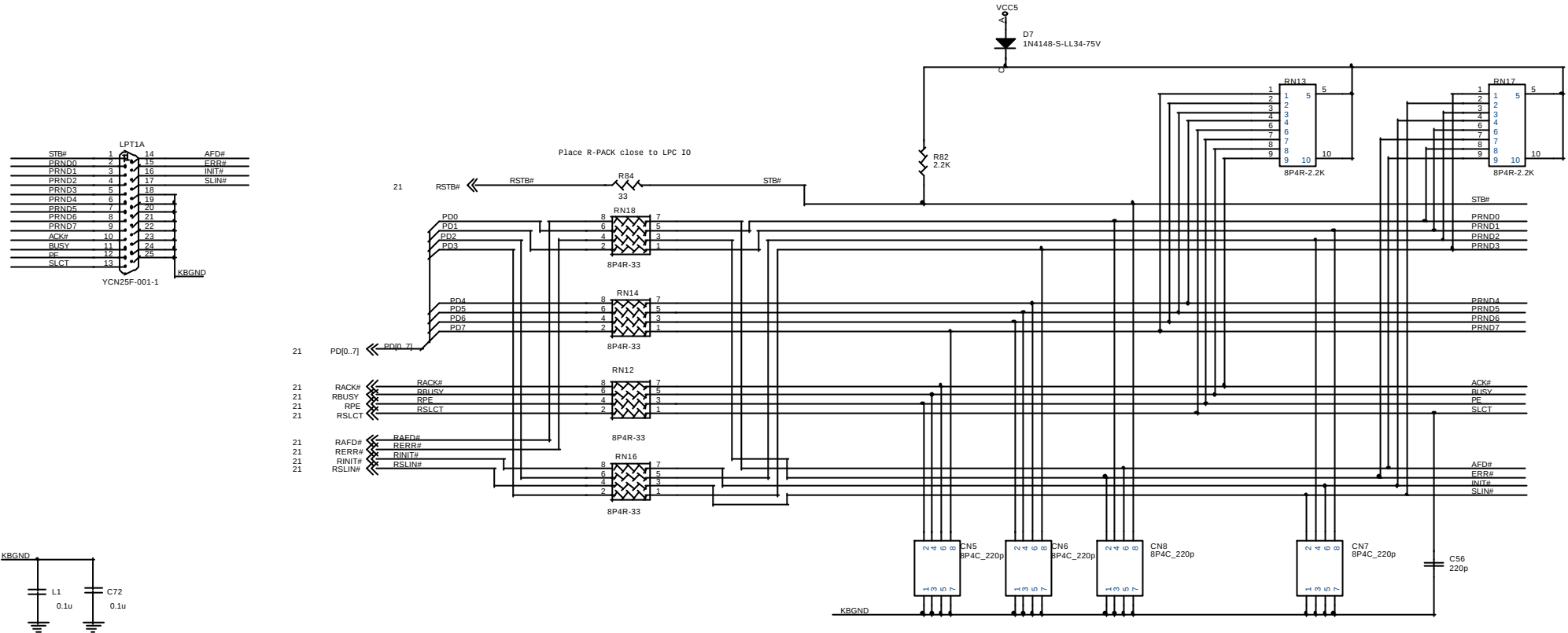
RTSA#	L: CFAD=2E	H: CFAD=4E
SOUTB	L: 24MHZ	H: 48MHZ
SOLTA	L: ROM-EN	
QRTSA#	L: CL-Default	

W83697HF Internally pull-down(200K-300K ohm)

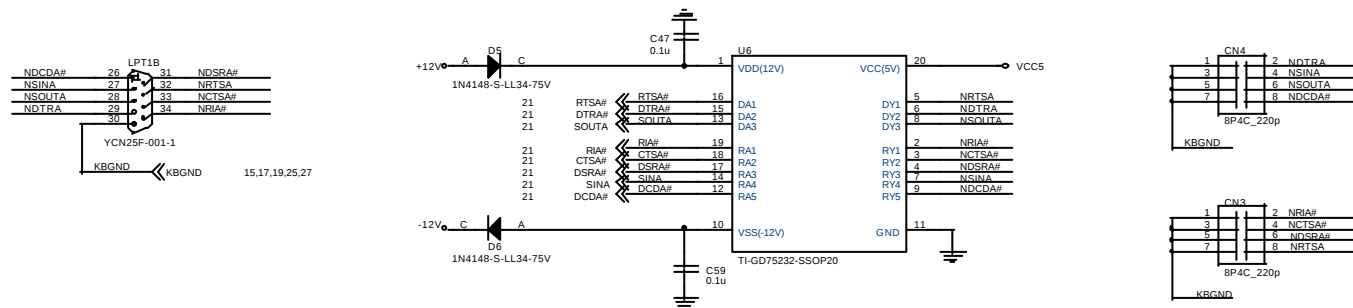


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Parallel Port

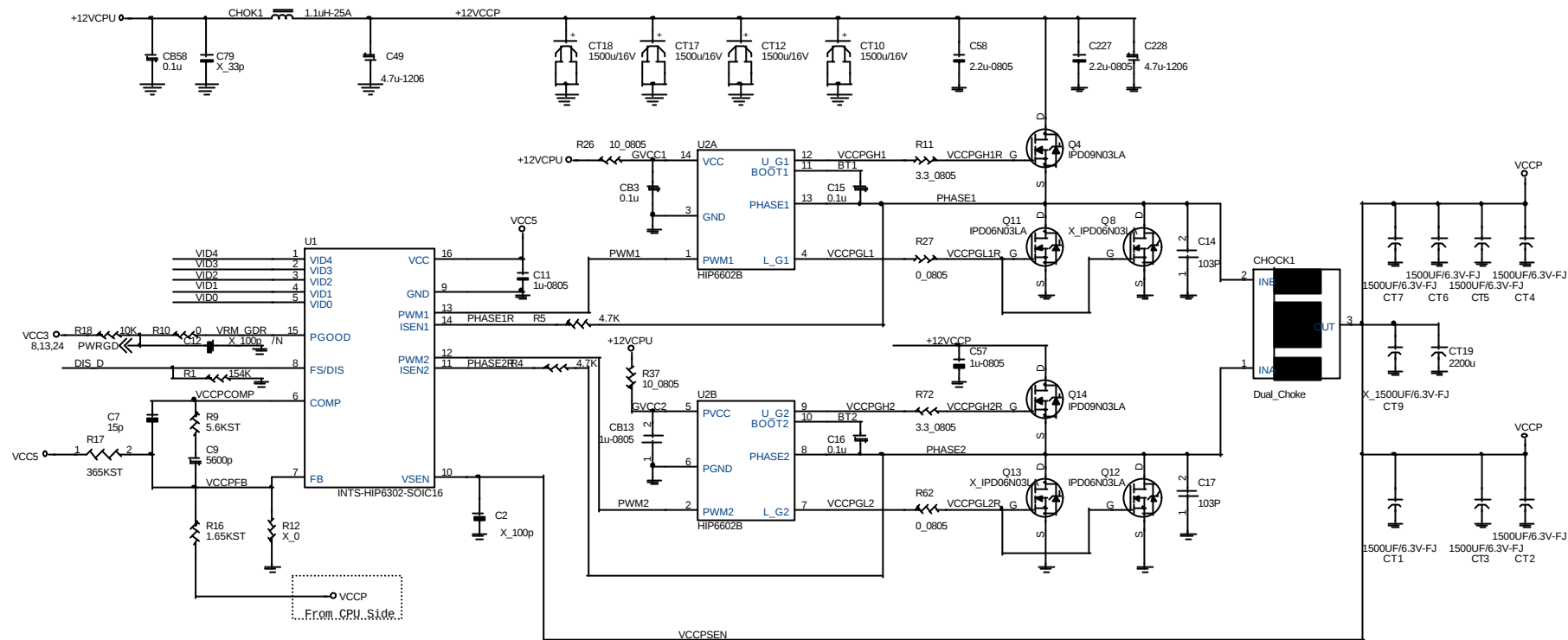


Serial Port

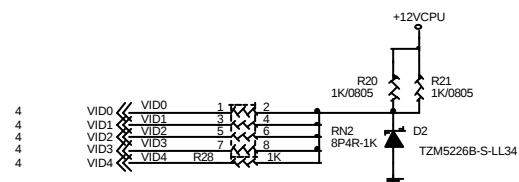


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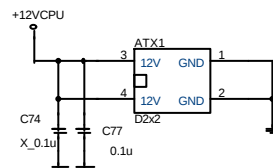
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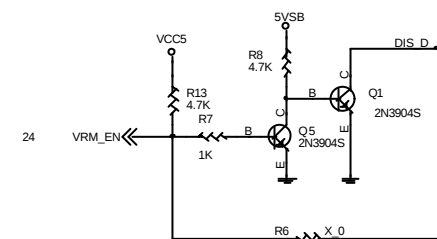
VID PULL-UP RESISTORS



ATX12V POWER CONNECTOR



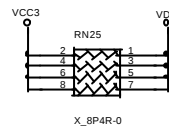
PWM GOOD



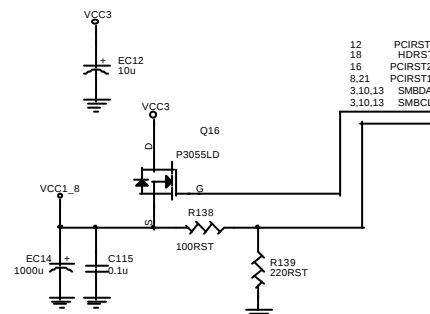
Micro Star Restricted Secret

Title	VRM 9.0	Rev
Document Number	MS-6721	100
MICRO-STAR INT'L CO., LTD.		Last Revision Date:
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	POWER Bulk Decoupling	
	470UF	1000UF
VCC_DIMM	2	
VDDQ	1	
VCC5	X_1	1
VCC3	X_1	1
5VDUAL		1
VCC1_8		1
VCC3SBY		1
VCC5_SB		1
5VUSB1		2

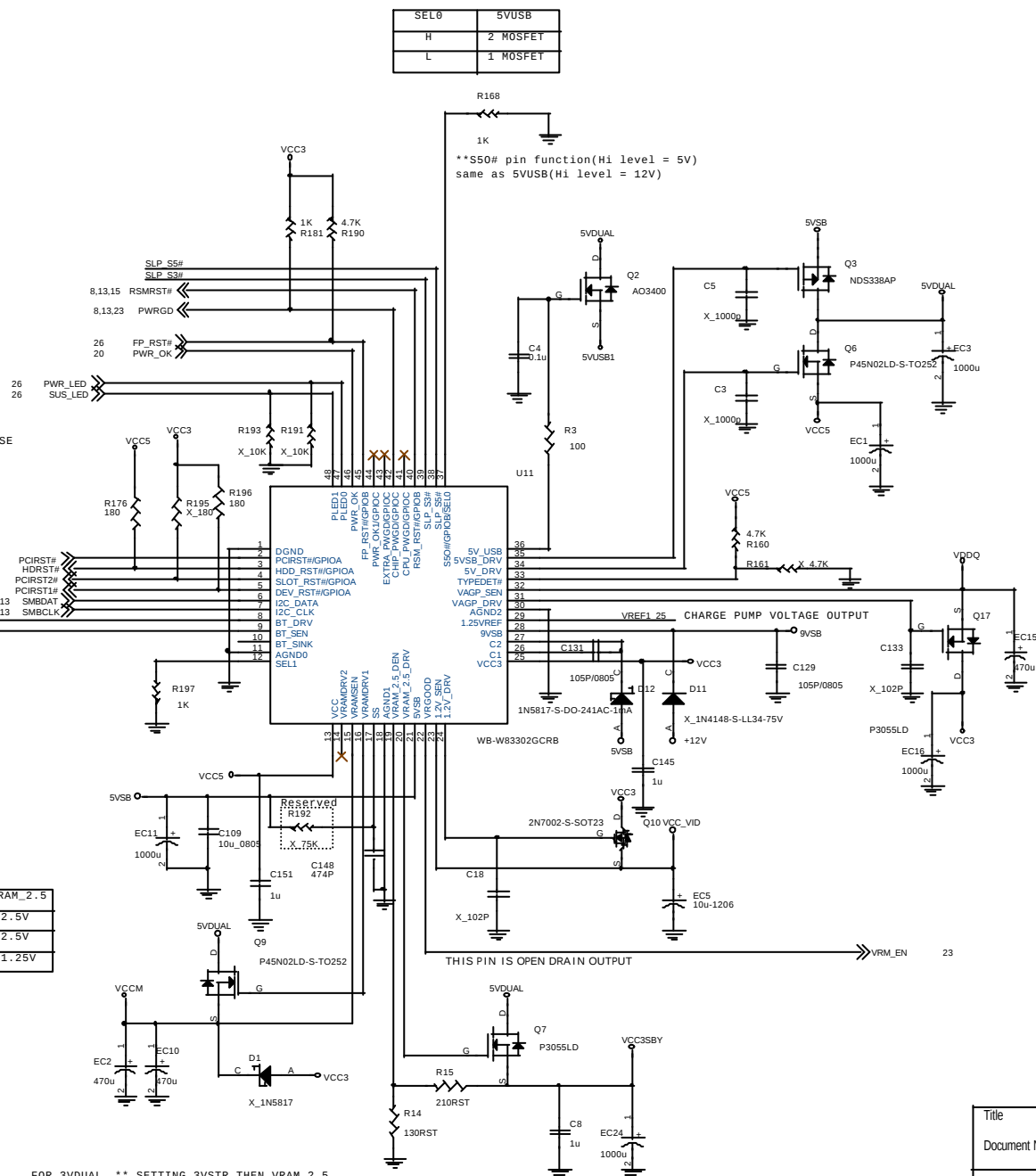


```
**INPUT 2 AND 3 MUST BE HI LEVEL WHEN USE
OUTPUT 1 AND 2 FOR GPIO FUNCTION
```

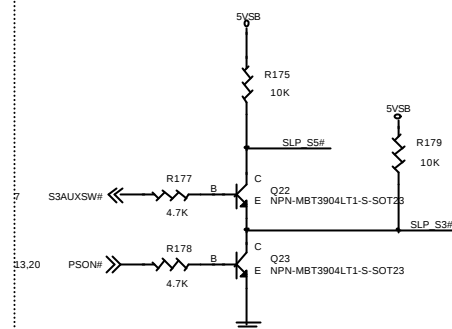


SEL1	VRAM	VRAM_2.5
H	3.3VDUAL	2.5V
TRI-STATE	3.3VSB	2.5V
L	3.3VSTR	1.25V

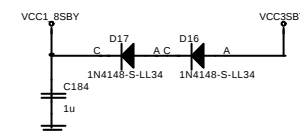
FOR 3VSB OR 3VSTR
SETTING BY SEL1



```
FOR 3VDUAL  ** SETTING 3VSTR THEN VRAM_2.5
SETTING BY BECOME TO 1.25 VREF
SEL1
```



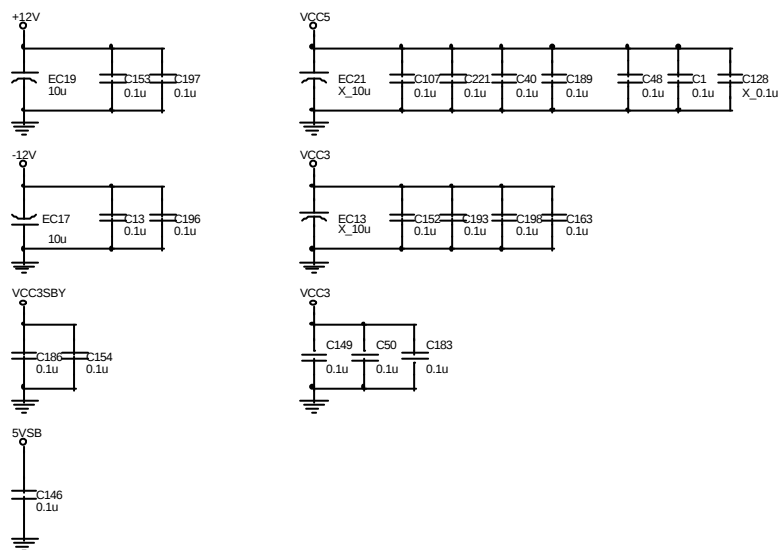
	S0	S3	S4
S3AUXSW#	1	0	1
PS0N#	0	1	1
SLP_S5#	1	1	0
SLP_S3#	1	0	0



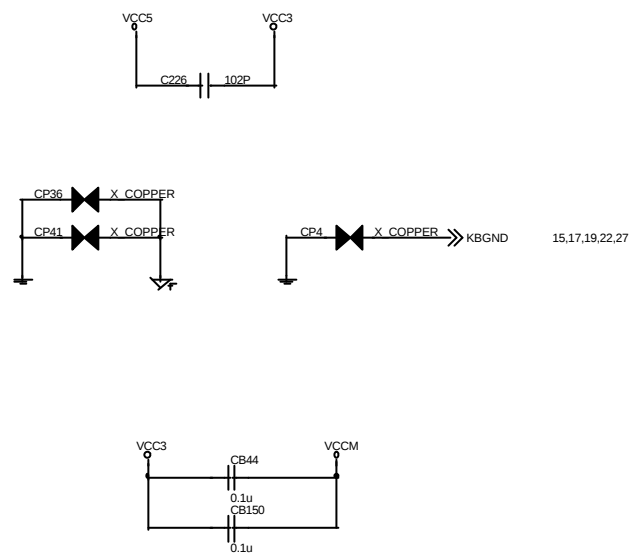
~~Micro Star Restricted Secret~~

Title		MS-5 ACPI Controller		Rev
Document Number		MS-6721		100
MICRO-STAR INT'L CO., LTD.		Last Revision Date: Thursday, October 17, 2002		
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System Decoupling Capacitors



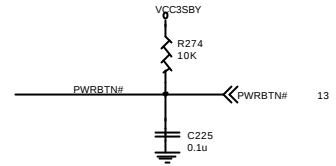
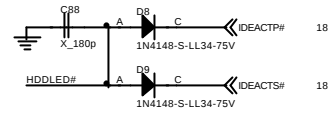
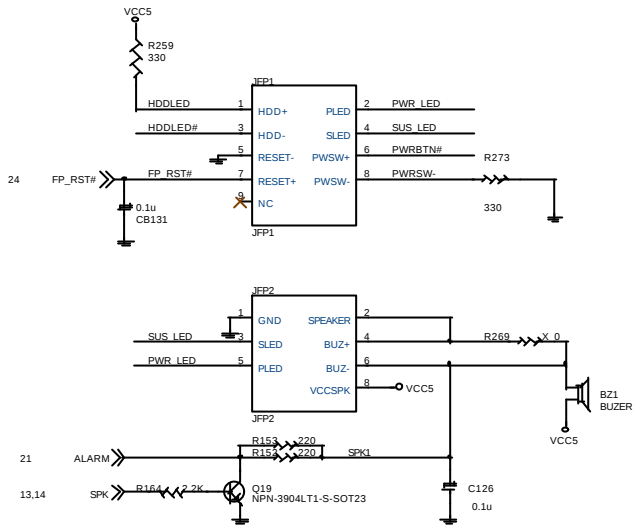
High Freq. return current decoupling



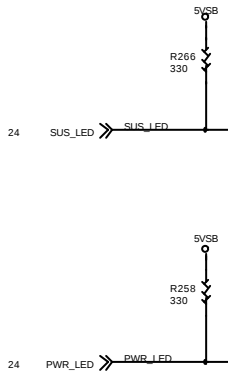
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Title	BLOCK DIAGRAM	Rev
Document Number	MS-6721	100
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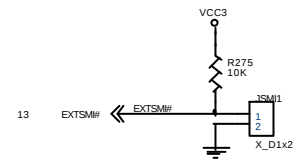
Intel FRONT PANEL



Dual Color LED Block



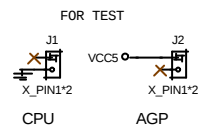
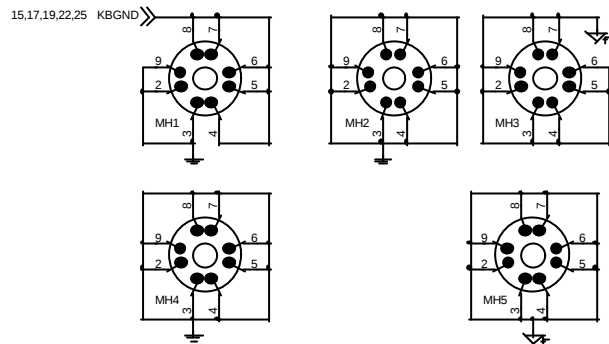
Sleep Button



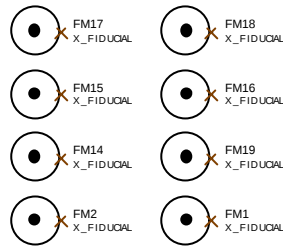
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Title		Rev	
Document Number		100	
MS-6721			
MICRO-STAR INT'L CO.,LTD.		Last Revision Date:	
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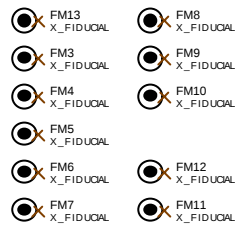
PCB OTHER COMPONENT



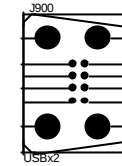
FIDUCIALS



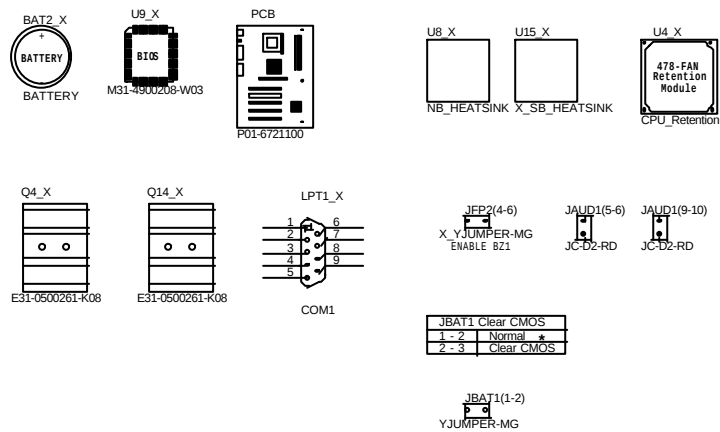
CHIP FIDUCIALS



OPTION PART



MANUAL PART



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Title	Manual Parts	Rev
Document Number	MS-6720	100
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