

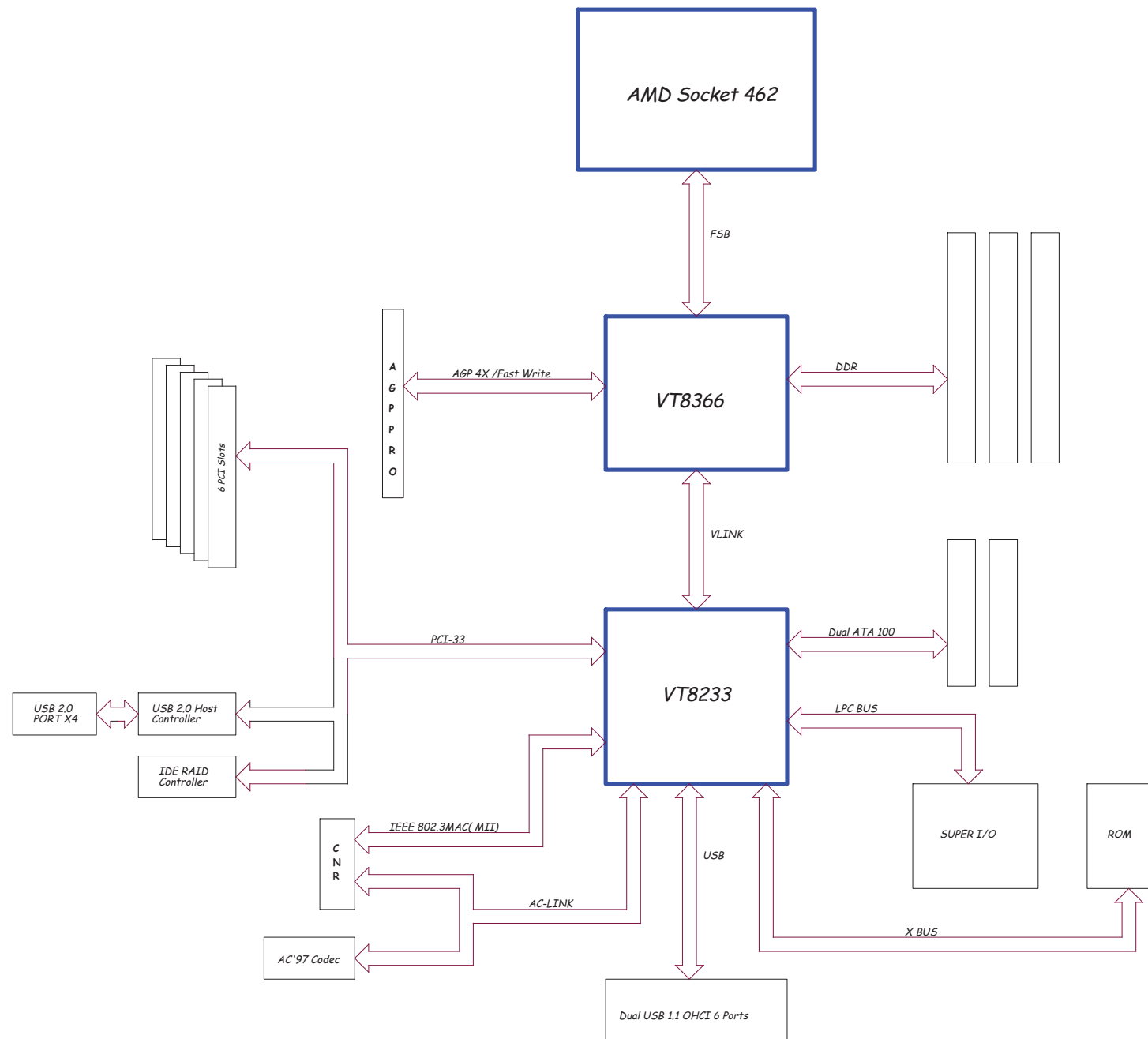
MS-6380 ATX

AMD PGA 462 Processor
VIA VT8366 / VT8233 Chipset
Winbond 83627HF-AW LPC I/O

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Block Diagram



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GPIO FUNCTION

VT8233 GPIO Function Define

PIN NAME	Function define	PIN NAME	Function define																		
GP00 (VSUS33)	GP00	GPI0	GPI0																		
GP01/SUSA#(VSUS33)	SUSA#	GPI1	ATADET0==>Detect IDE1 ATA100/66																		
GP02/SUSB#(VSUS33)	SUSB#	GPI2/EXTSMI#	EXTSMI#																		
GP03/SUSST1#(VSUS33)	SUSST1#	GPI3/RING#	RING#																		
GP04/SUSCLK(VSUS33)	SUSCLK	GPI4/LID#	ATADET1==>Detect IDE2 ATA100/66																		
GP05/CPUSTP#	CPUSTP#	GPI5/BATLOW#	Exteranl Pull up to 3VDUAL																		
GP06/PCISTP#	PCISTP#	GPI6/PME#	PME#																		
GP07/SLP#	SLP#	GPI7/SMBALRT#	Exteranl Pull up to 3VDUAL																		
GP08/GPI8/IPBIN0	DDR_SET1 => adjust DDR voltage from Bios	GPI16/INTRUDER#	Exteranl Pull down																		
GP09/GPI9/IPBIN1	DDR_SET2 => adjust DDR voltage from Bios	GPI17/CPUMISS	Exteranl Pull up to 3VDUAL																		
GP010/GPI10/IPBRDFR	GPI10(PRI_DOWN)	GPI18/AOLGP1/THRM#	THRM#																		
GP011/GPI11/IPBRDCK	4CH_CTRL 4CH_CTRL: 0=>4 Channel 1=>2 Channel	GPI19/IORDY	Exteranl Pull up to VCC3																		
GP012/GPI12/IPBOUT0	GP012	<table><tr><th>DDR Voltage</th><th>SET1</th><th>SET2</th></tr><tr><td>2.5V</td><td>1</td><td>1</td></tr><tr><td>2.6V</td><td>0</td><td>1</td></tr><tr><td>2.7V</td><td>1</td><td>0</td></tr><tr><td>2.8V</td><td>0</td><td>0</td></tr></table>					DDR Voltage	SET1	SET2	2.5V	1	1	2.6V	0	1	2.7V	1	0	2.8V	0	0
DDR Voltage	SET1						SET2														
2.5V	1						1														
2.6V	0						1														
2.7V	1						0														
2.8V	0	0																			
GP013/GPI13/IPBOUT1	GP013																				
GP014/GPI14/IPBTDFR	GP014																				
GP015/GPI15/IPBTDCCK	GP015																				
GP016/SA16/STRAP	CPU FID0 Strapping																				
GP017/SA17/STRAP	CPU FID1 Strapping																				
GP018/SA18/STRAP	CPU FID2 Strapping																				
GP019/SA19/STRAP	CPU FID3 Strapping																				
GP020/GPI20/ACSDIN2/PCS0#/EI	GP020																				
GP021/GPI21/ACSDIN3/PCS1#/SLPBTN#	GP021																				
GP022/GPI22/IOR#	GP022																				
GP023/GPI23/IOW#	GP023																				
GP024/GPI24/GPI0A	GP024 CPU RATIO ADJUST==>RATIO_0																				
GP025/GPI25/GPI0C	GP025 CPU RATIO ADJUST==>RATIO_1																				
GP026/GPI26/SMBDT2(VSUS33)	SMBDATA2/Slave SMBUS																				
GP027/GPI27/SMBCK2(VSUS33)	SMBCLK2/Slave SMBUS																				
GP028/GPI28/APICD0/APICCS#	GP030 1==>Ratio setting by Bios; 0==>Auto from CPU																				
GP029/GPI29/APICD1/APICACK#	GP031 0=>Vcore setting by Bios; 1=>Auto from CPU																				
GP030/GPI30/GPI0D	GP030 CPU RATIO ADJUST==>RATIO_2																				
GP031/GPI31/GPI0E	GP031 CPU RATIO ADJUST==>RATIO_3																				

W627HF-AW

PIN NAME	Function define
GP23/PLED	PLED(POWER LED)
GP24/WDT0	DLED2
GP32/PWROK	DLED1
GP33/RSMRST#	DLED4
GP34/CIRRX	DLED3
GP35/SUSLED	SUSLED

PCI

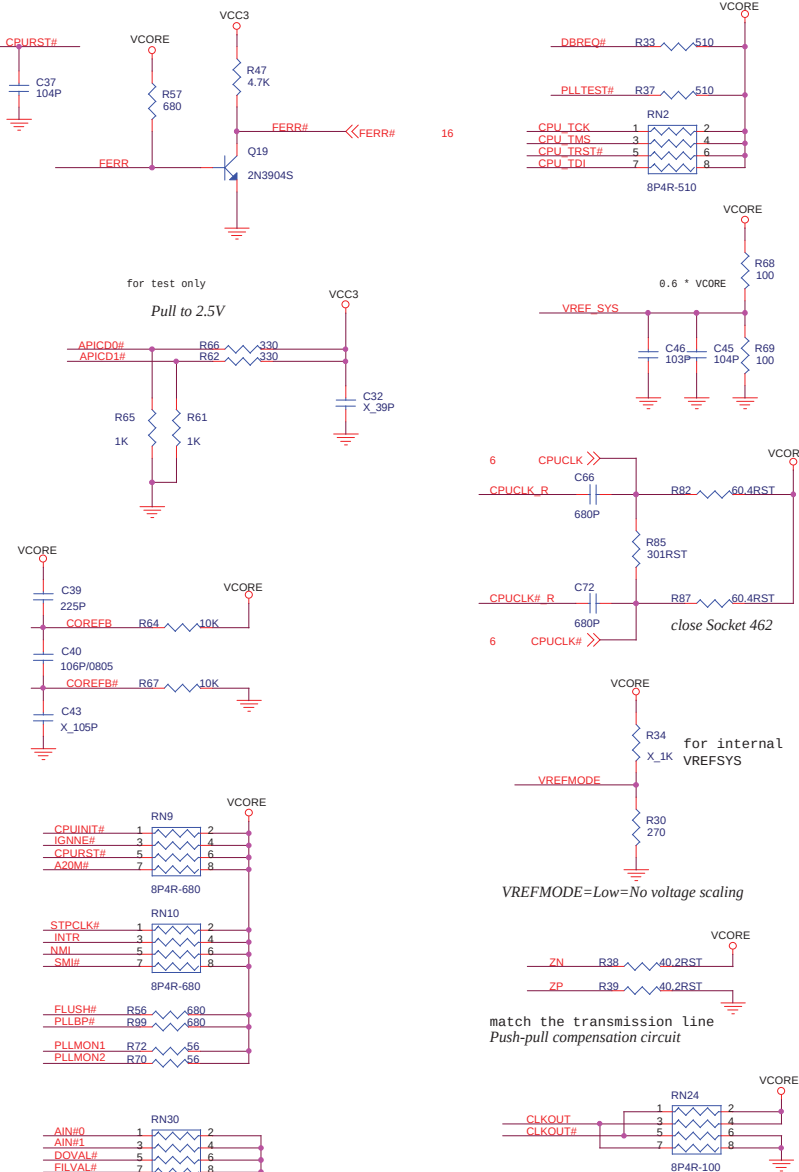
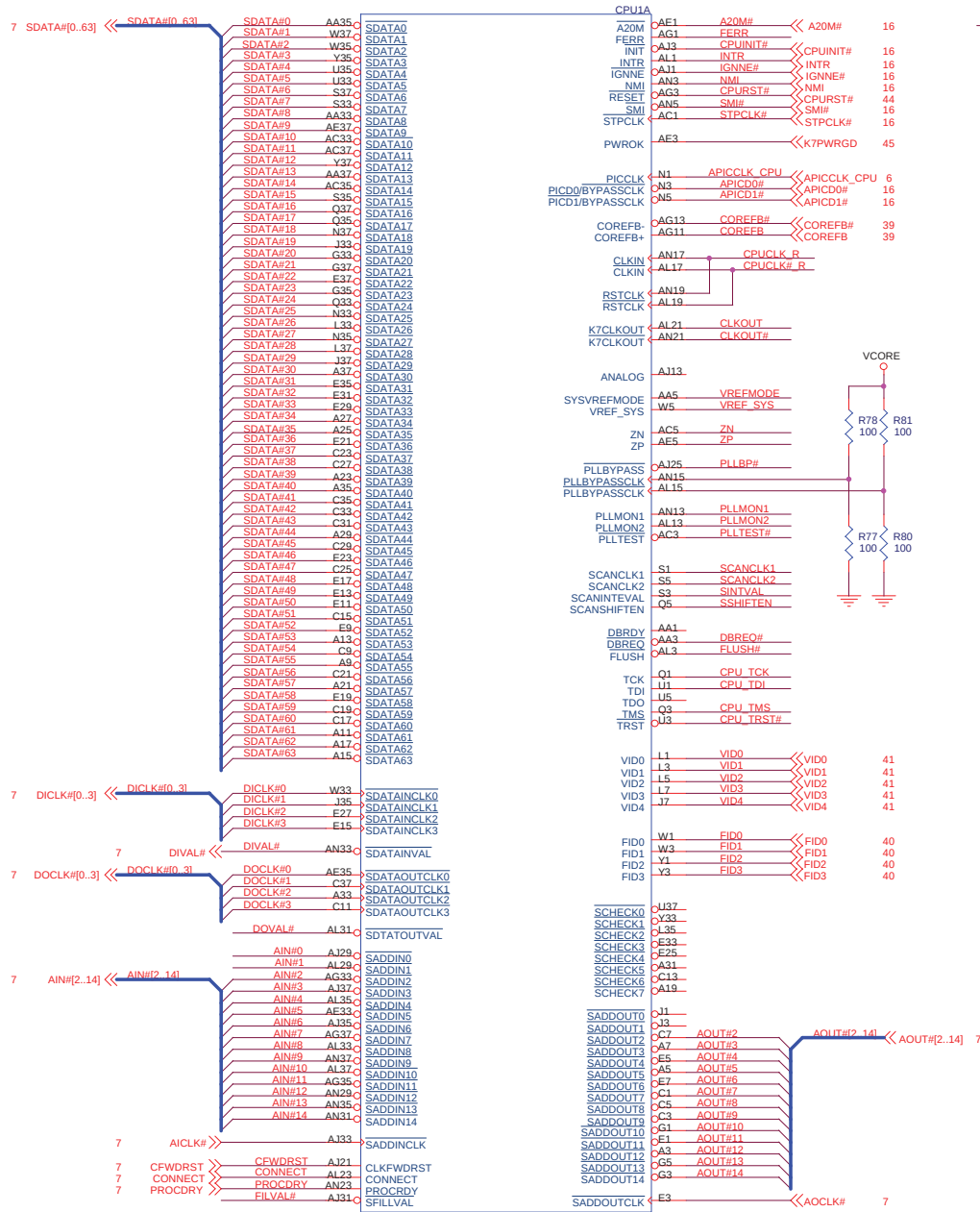
DEVICES	INT#	IDSEL	REQ#/GNT#	CLOCK
PCI SLOT 1	INT#A INT#B INT#C INT#D	AD16	PREQ#0 PGNT#0	PCICLK1
PCI SLOT 2	INT#B INT#C INT#D INT#A	AD17	PREQ#1 PGNT#1	PCICLK2
PCI SLOT 3	INT#C INT#D INT#A INT#B	AD18	PREQ#2 PGNT#2	PCICLK3
PCI SLOT 4	INT#D INT#A INT#B INT#C	AD19	PCIREQ#3 PCIGNT#3	PCICLK4
PCI SLOT 5	INT#A INT#B INT#C INT#D	AD20	PCIREQ#4 PCIGNT#4	PCICLK5
PCI SLOT 6	INT#B INT#C INT#D INT#A	AD21	PCIREQ#5 PCIGNT#5	PCICLK6
USB 2.0 HC	INT#A INT#B INT#C	AD22	PCIREQ#6 PCIGNT#6	USB_PCLK
IDE RAID HC	INT#B	AD23	PCIREQ#7 PCIGNT#7	ATAPCLK
1394 LINK	INT#C	AD24	PCIREQ#8 PCIGNT#8	1394PCLK

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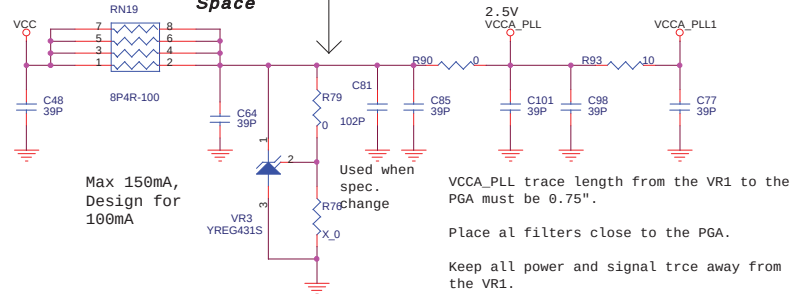
SOCKET 462 Part 1

All CPU interface are 2.5V tolerant



SOCKET 462 Part 2

* 25 mils Trace/ 12 mils Space

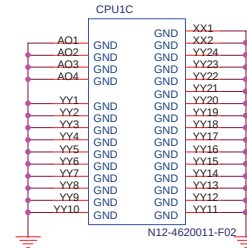


VCCA_PLL trace length from the VR1 to the PGA must be 0.75".

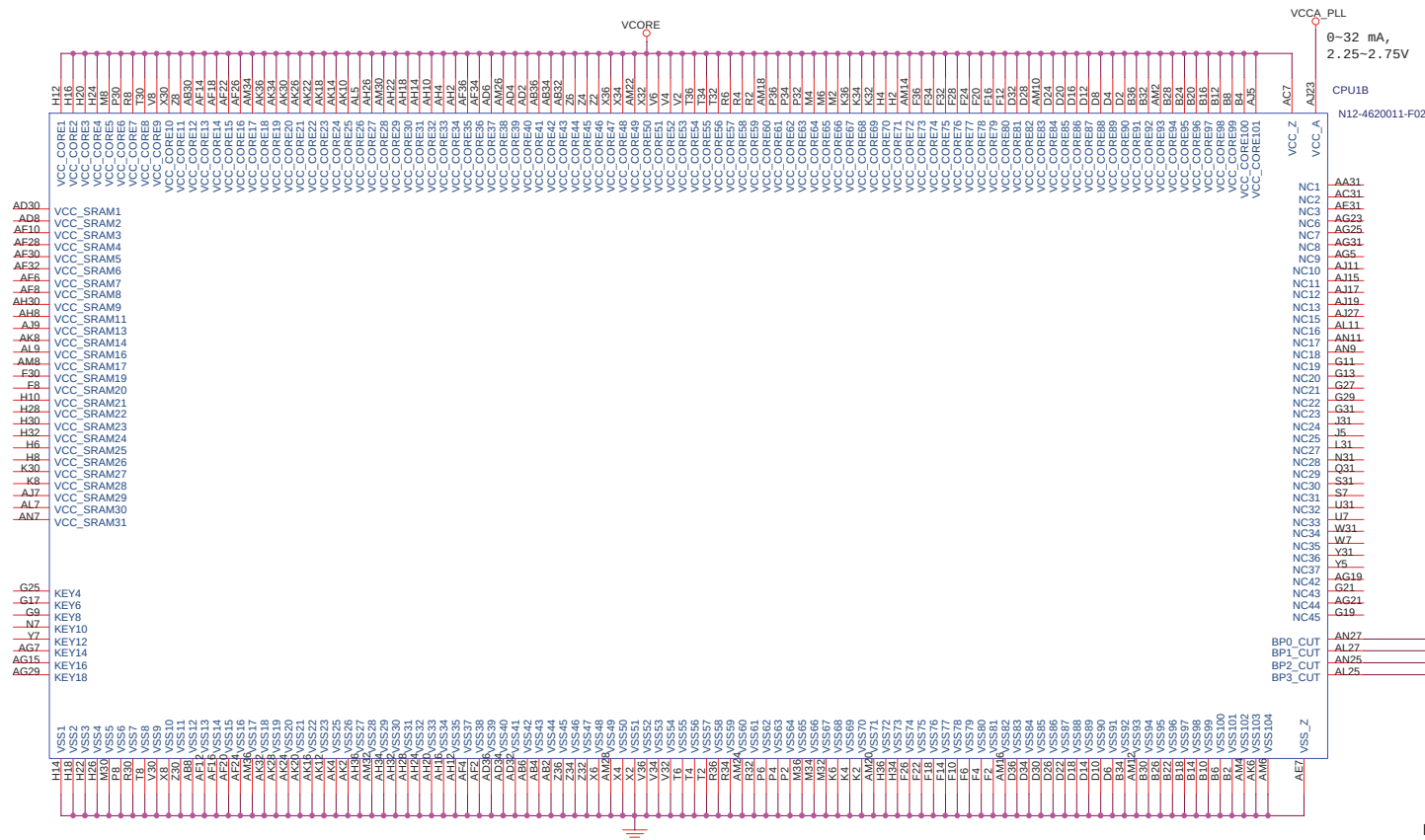
Place all filters close to the PGA.

Keep all power and signal trace away from the VR1.

Place a cut in the GND plane around the VCCA_PLL regulator circuit.



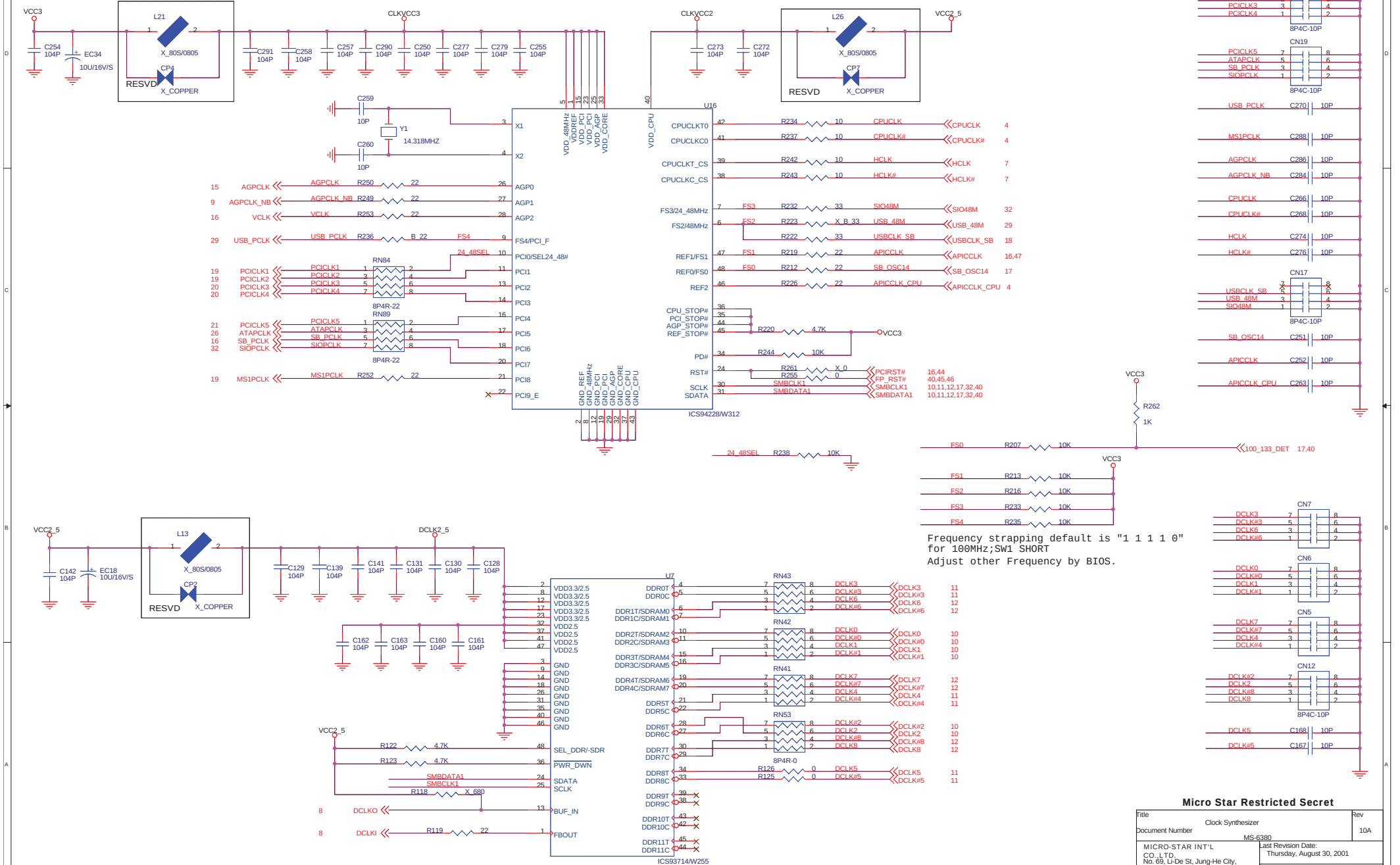
For 1.5GHz CPU FAN Holes

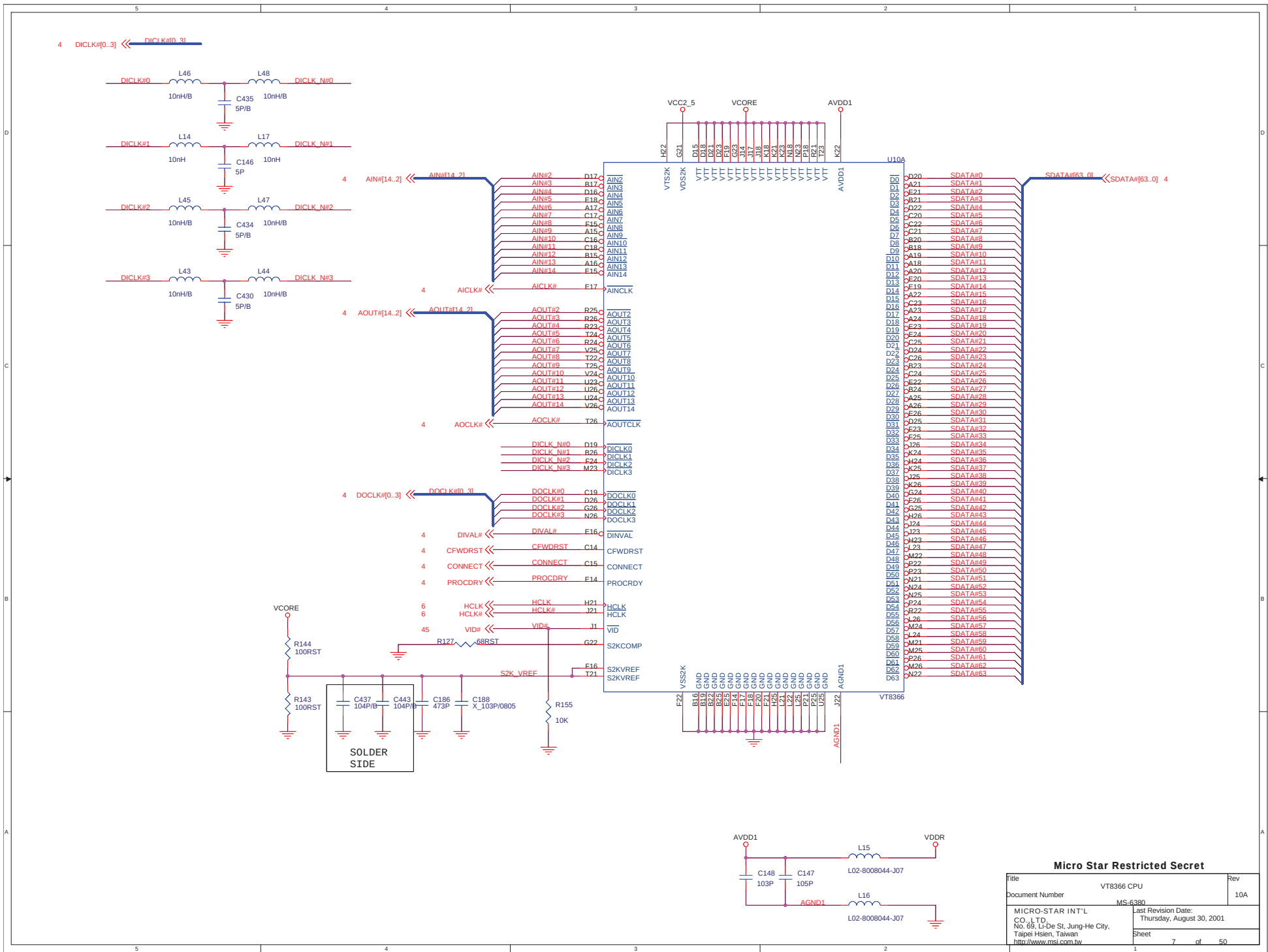


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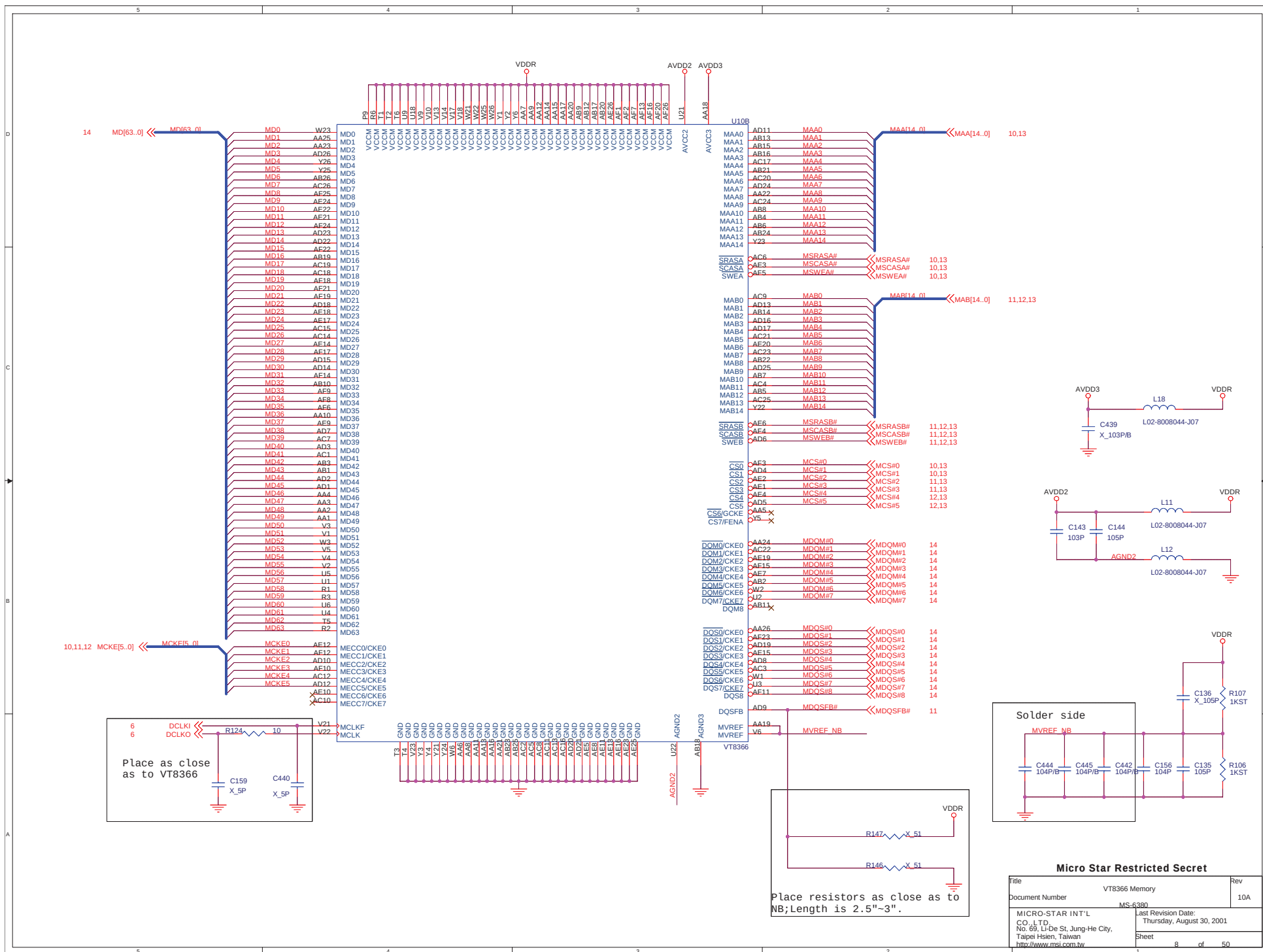
Clock Synthesizer

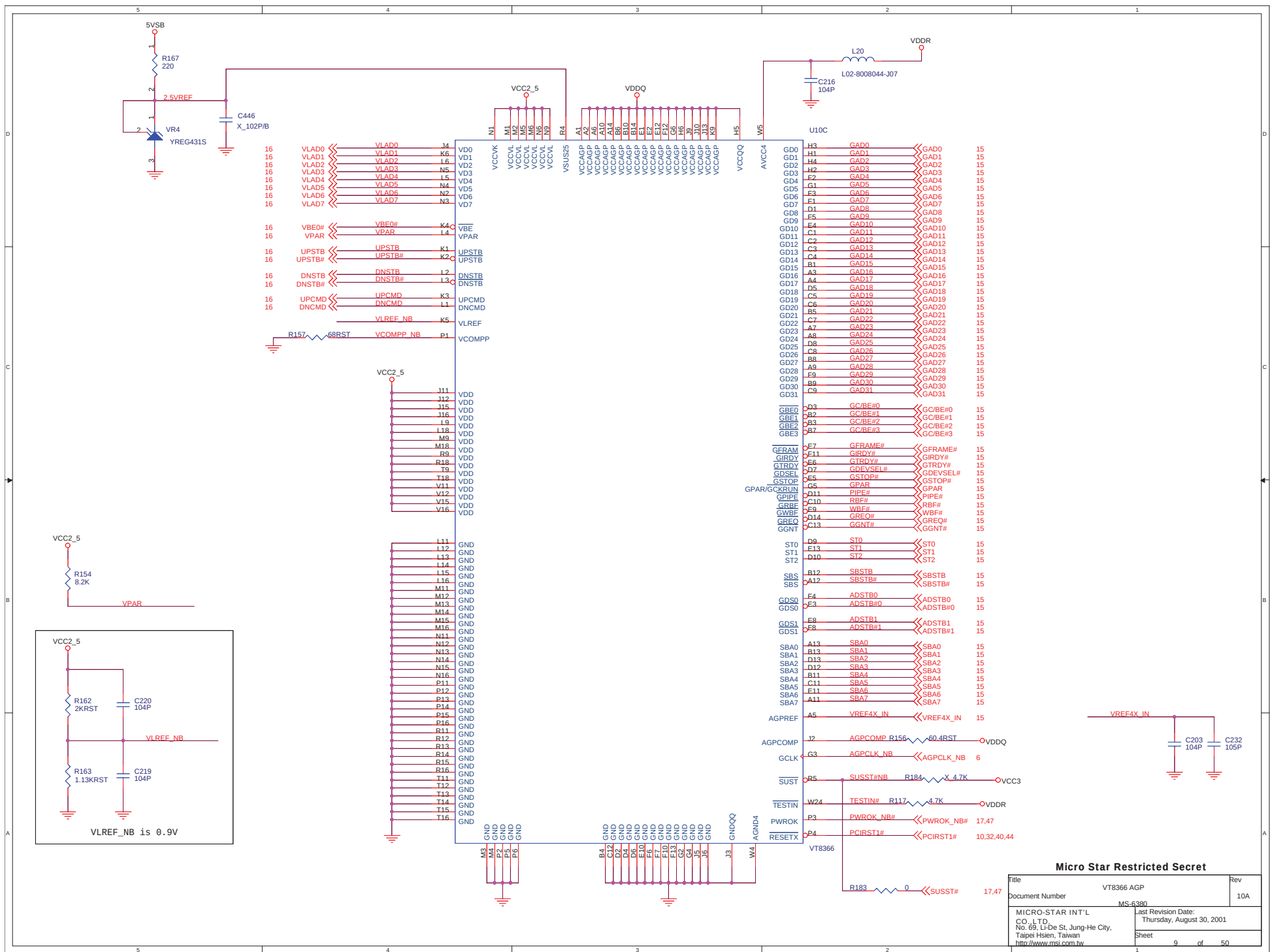




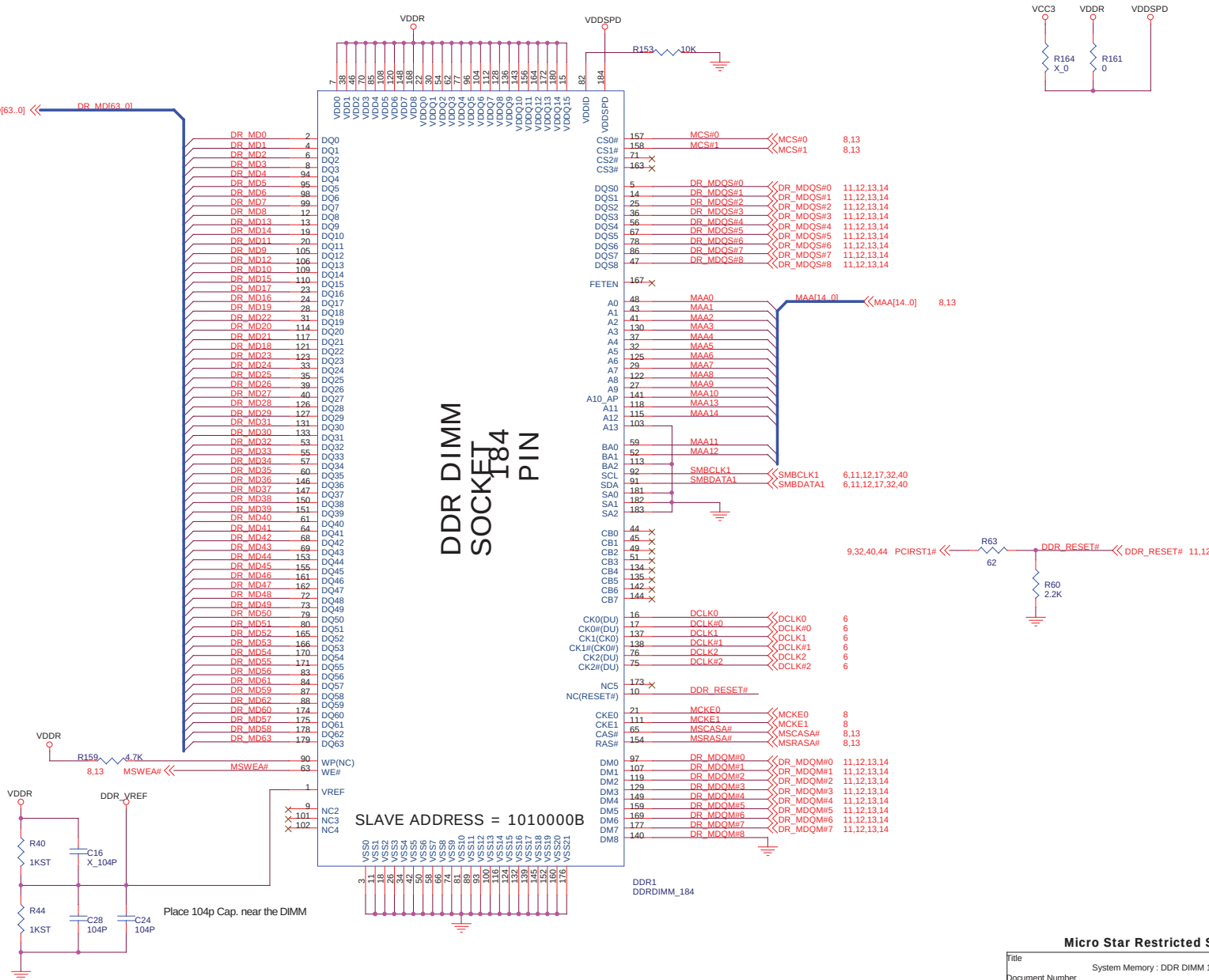
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File	VT8366 CPU	Rev	10A
Document Number	MS-6380		
MICRO-STAR INT'L CO., LTD. No. 89, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001 Sheet 7 of 50	

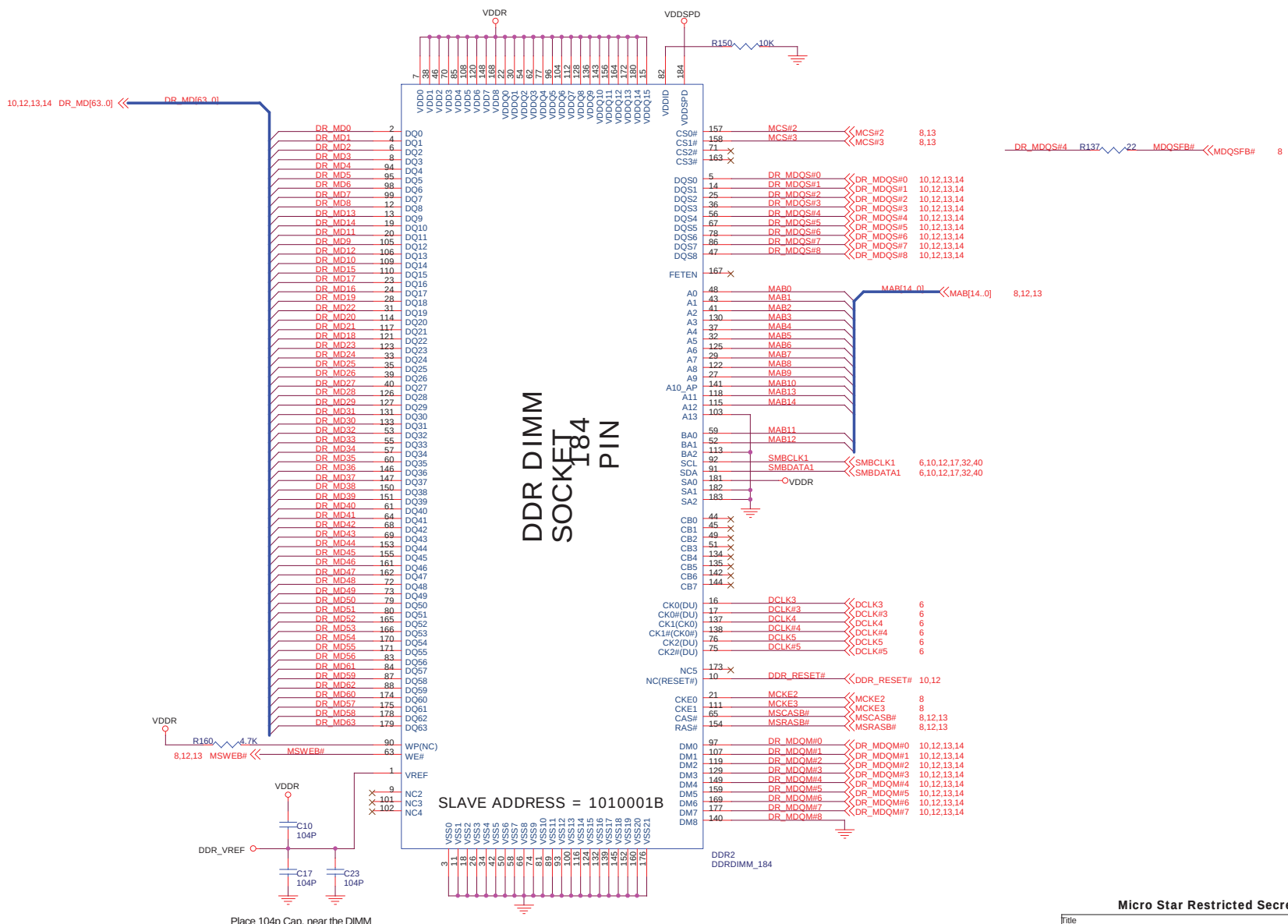




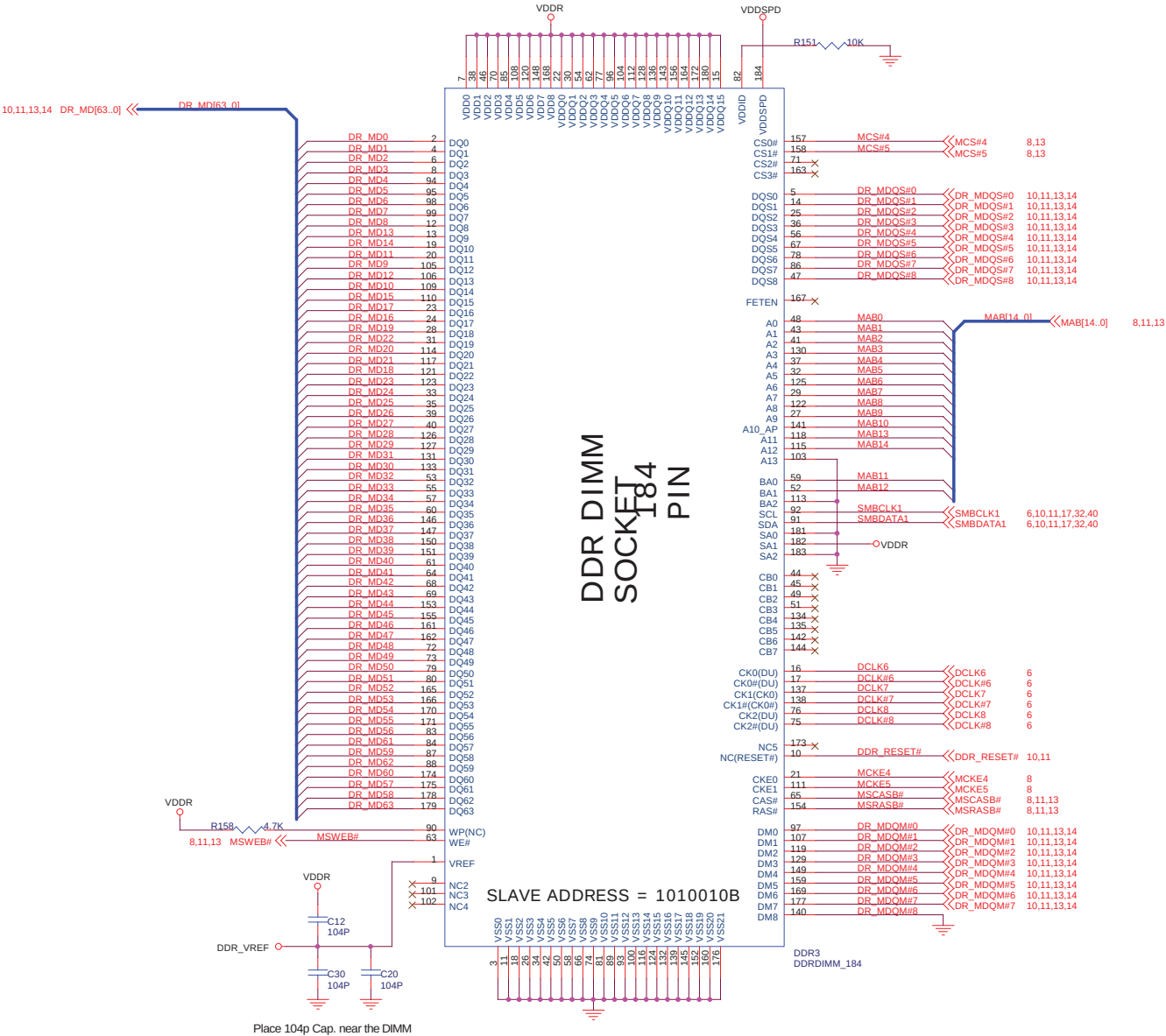
SYSTEM MEMORY



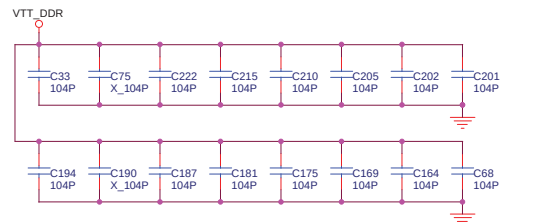
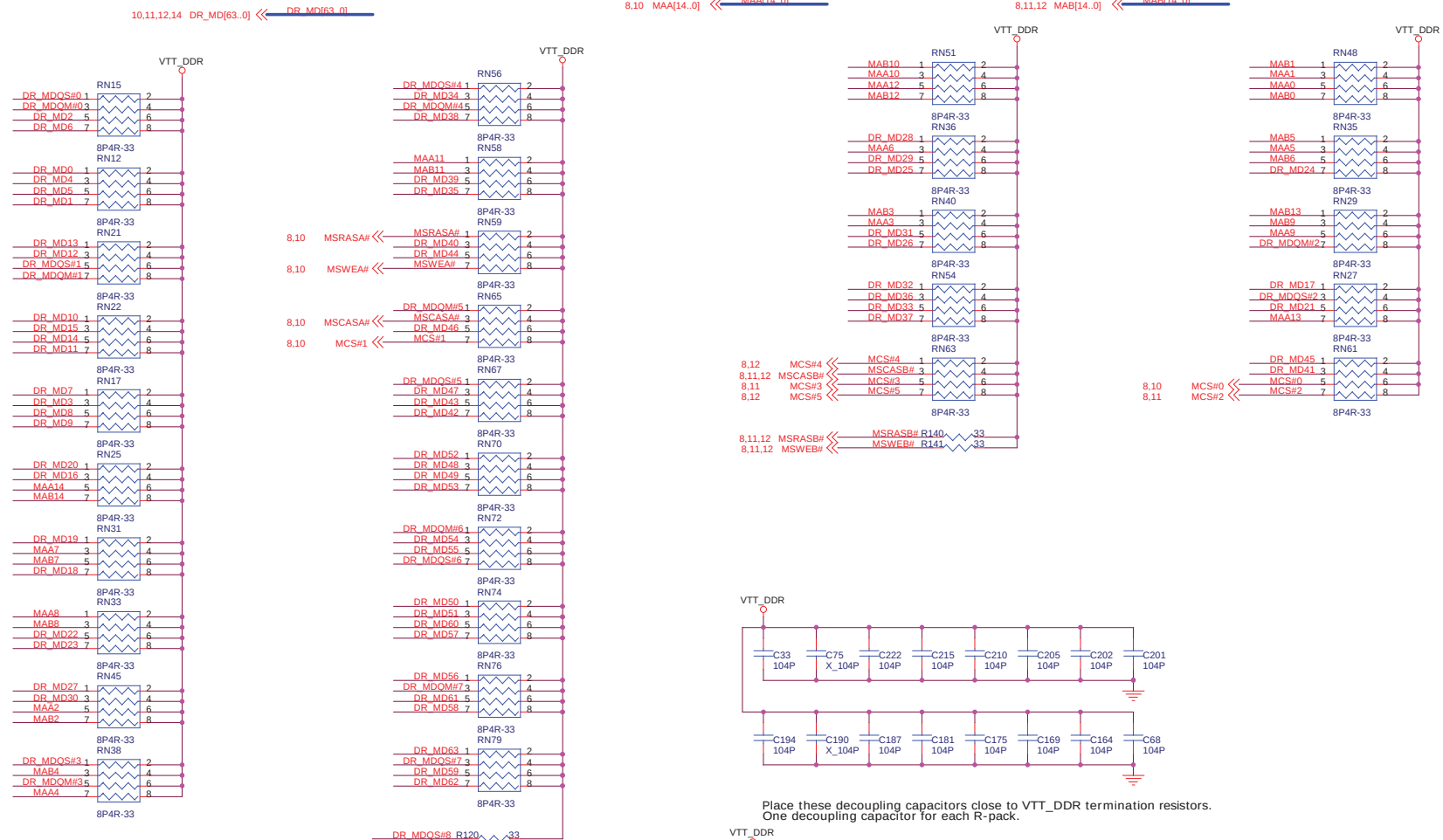
SYSTEM MEMORY



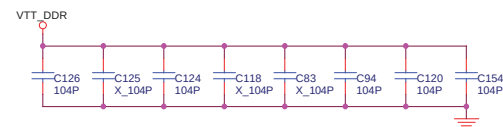
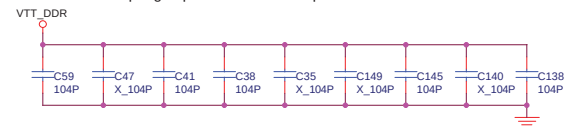
SYSTEM MEMORY



DDR Terminations



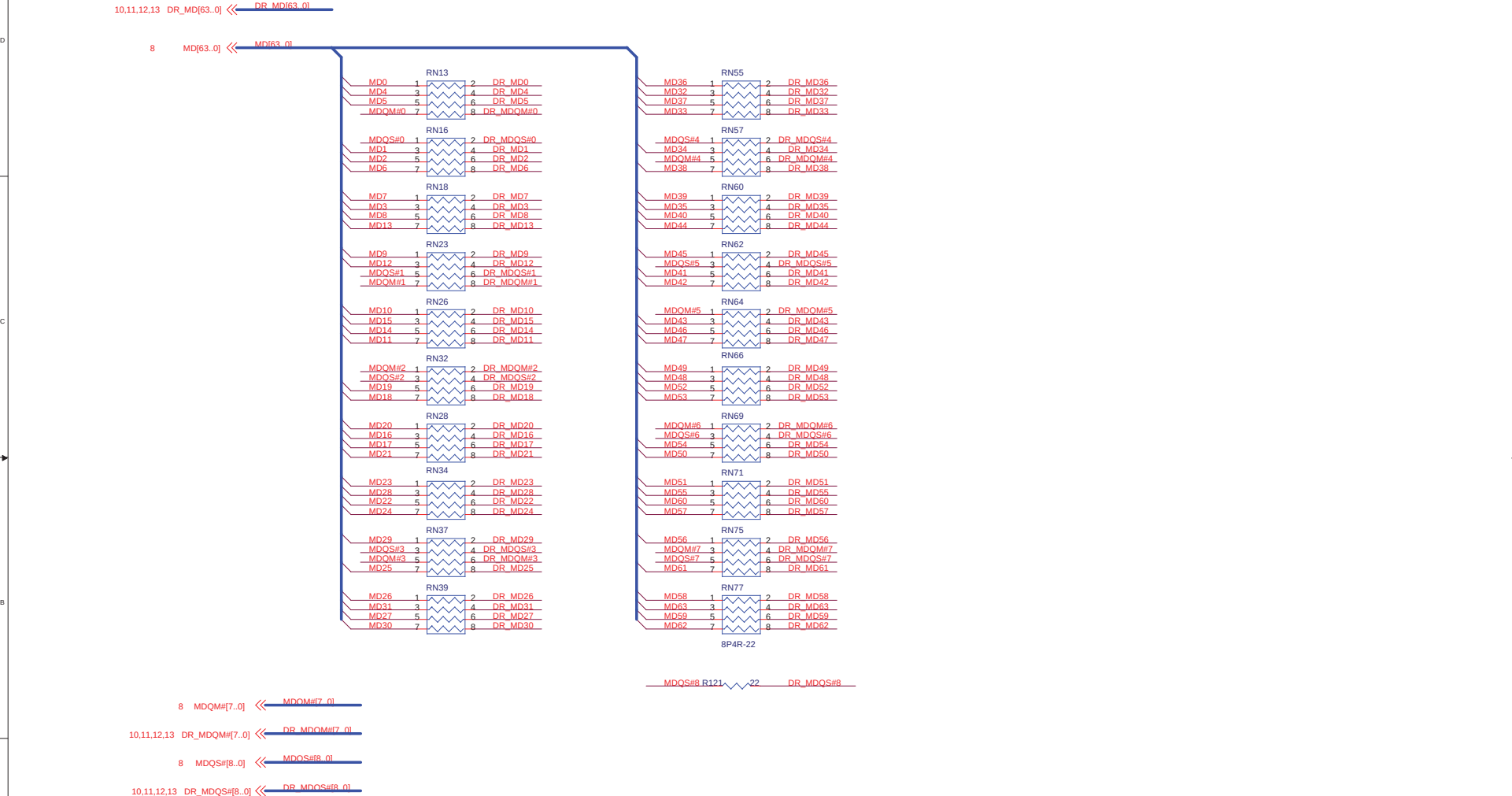
Place these decoupling capacitors close to VTT_DDR termination resistors.
One decoupling capacitor for each R-pack.

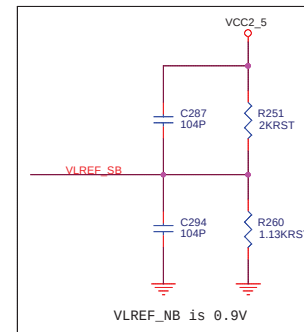
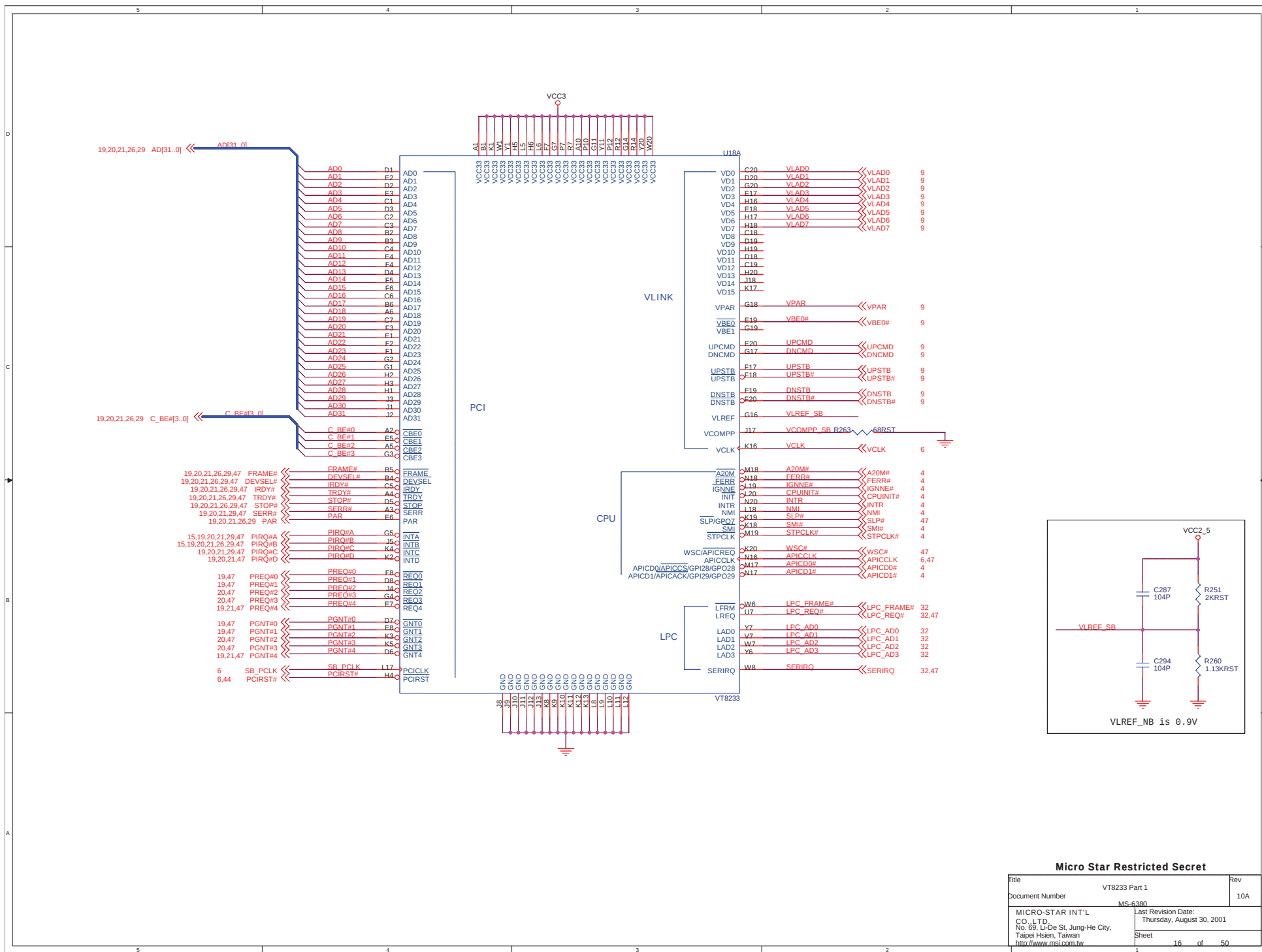


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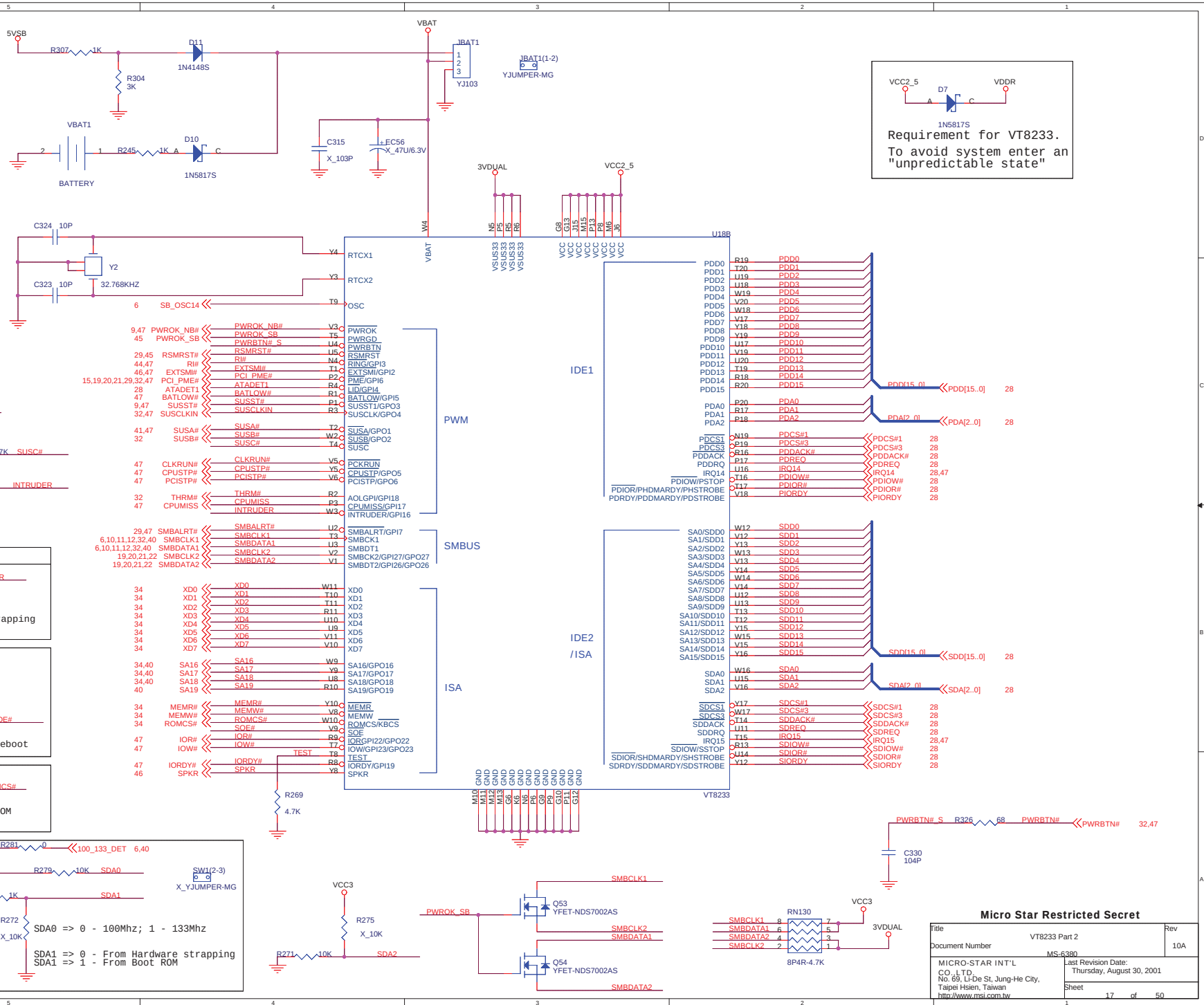
DDR Terminations

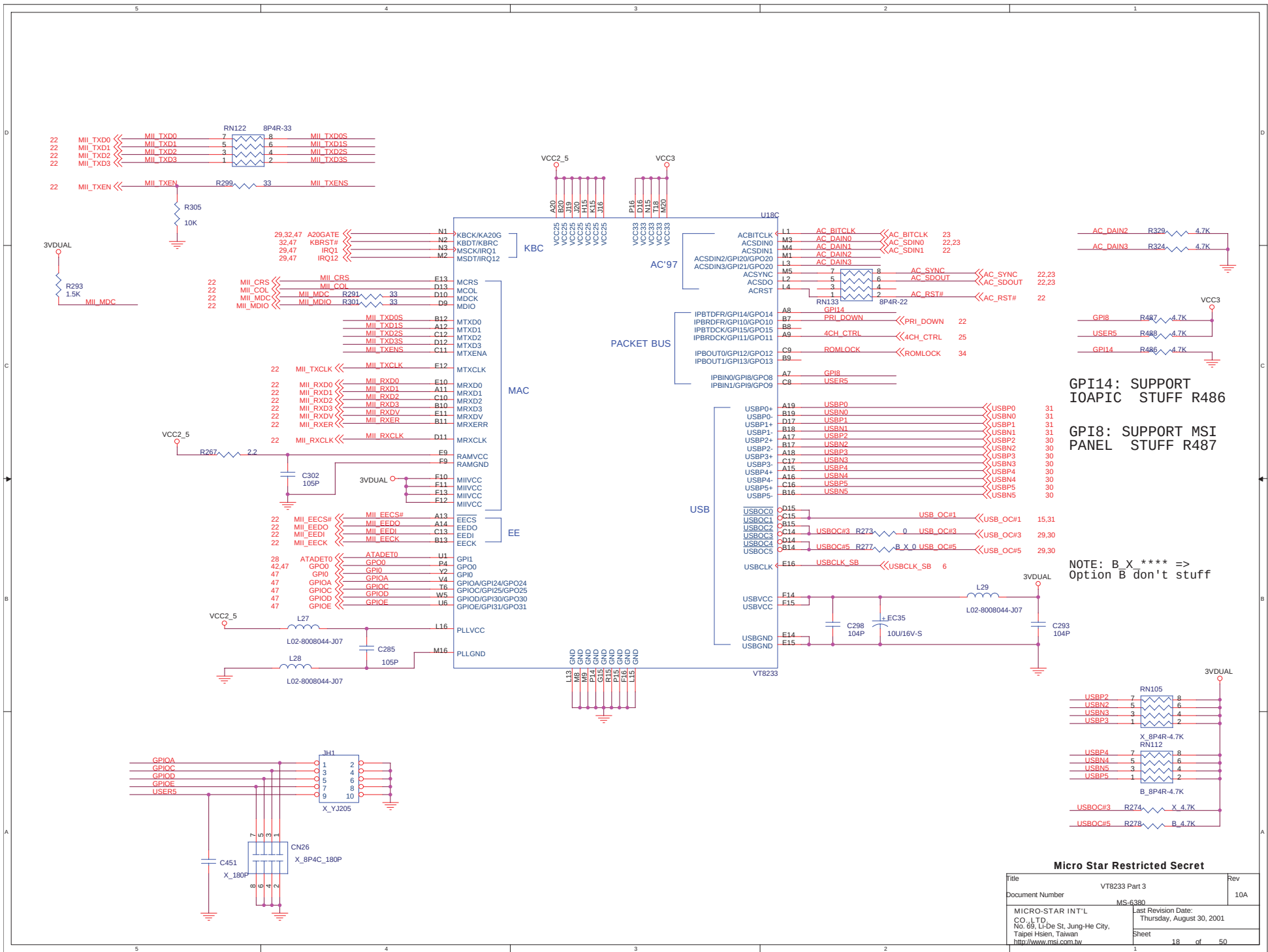




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Title	VT8233 Part 1	Rev
Document Number	MS-6380	10A
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GPI14: SUPPORT
IOAPIC STUFF R486

GPI8: SUPPORT MSI
PANEL STUFF R487

NOTE: B_X **** =>
Option B don't stuff

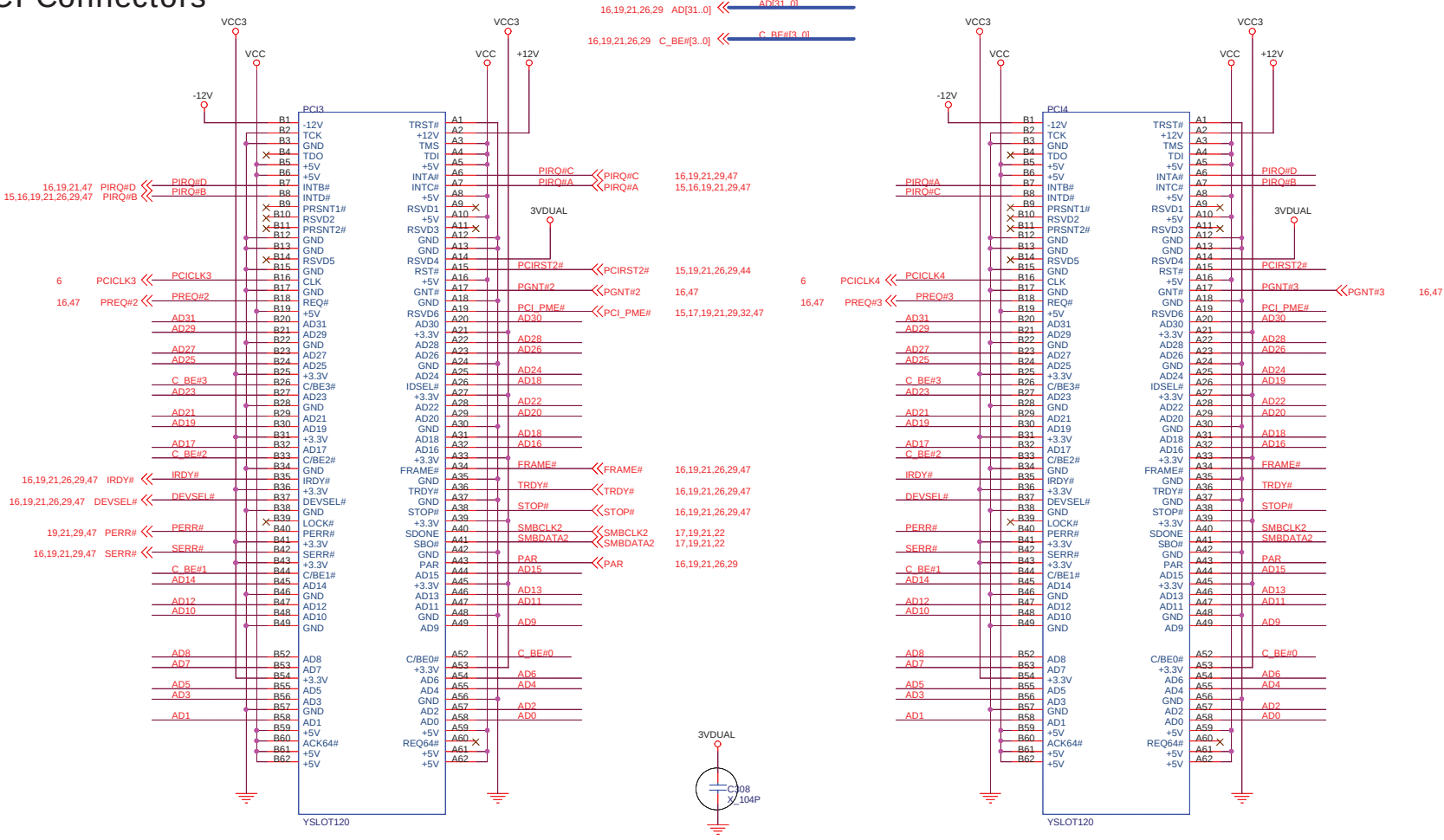
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Title	VT8233 Part 3	Rev	10A
Document Number	MS-6380		
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PCI Connectors

Title	PCI Connector 1 & 2	Rev	
Document Number	MS-6380		10A
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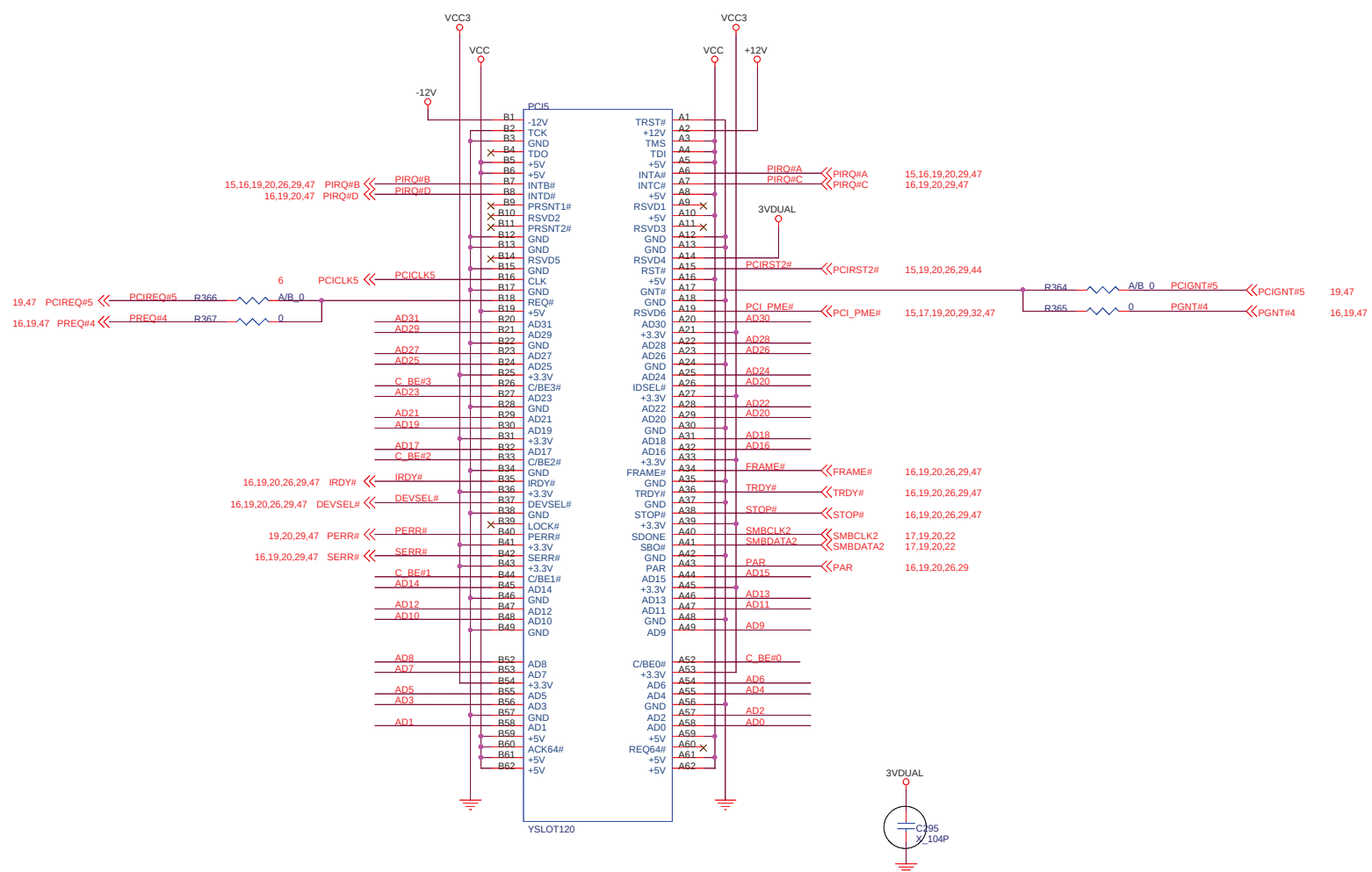
PCI Connectors



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Title	PCI Connector 3 & 4	Rev	10A
Document Number	MS-6380		
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PCI Connectors



16,19,20,26,29 AD[31..0] << AD[31..0]
16,19,20,26,29 C_BE#[3..0] << C_BE#[3..0]

CNR Riser

Power Supply Connections:

- 5VSB: Connected to B19 (+3.3V) and B17 (-12V).
- 12V: Connected to B17 and B19.
- 3VDUAL: Connected to A19 (+3.3V) and A17 (-12V).
- +12V: Connected to A16 (+12V) and A17 (-12V).

Signal Connections:

- MII:** MII_MDIO, MII_COL, MII_TXCLK, MII_TXD3, MII_TXD1, MII_TXEN, MII_RXD2, MII_RXD0, MII_MDC, MII_CRS, MII_RXDV, MII_RXCLK, MII_TXD2, MII_TXD0, MII_RXD1, MII_RXD3, MII_EEDI, MII_EECS#, MII_EECS#.
- USB:** USB+, USB-, AC97_USB+, AC97_USB-.
- SMB:** SMB_A0, SMB_A1, SMB_A2, SMB_SDA, SMB_SCL, SMB_CLK2, SMB_DATA2, SMB_RST#.
- AC:** AC_SYNC, AC_SDOUT, AC_BITCLK, AC_RST#, AC_SDIN1, AC_SDIN0.

Control Signals:

- VCC3: Connected to B20 (VCC3) and B21 (VCC3).
- VCC: Connected to B19 (+3.3V) and B17 (-12V).
- AC_RST#: Connected to A26 (AC_RST#) and A27 (AC_RST#).
- PRI_DOWN: Connected to B28 (PRI_DOWN) and B29 (PRI_DOWN).

JP2 (AUDIO DOWN) Table:

JP?	AUDIO DOWN
1 - 2	Enable onboard audio codec
2 - 3	Disable onboard audio codec

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Title: CNR Riser

Document Number: MS-6380

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No. 66, Li-De St, Jung-He City, Taipei Hsien, Taiwan

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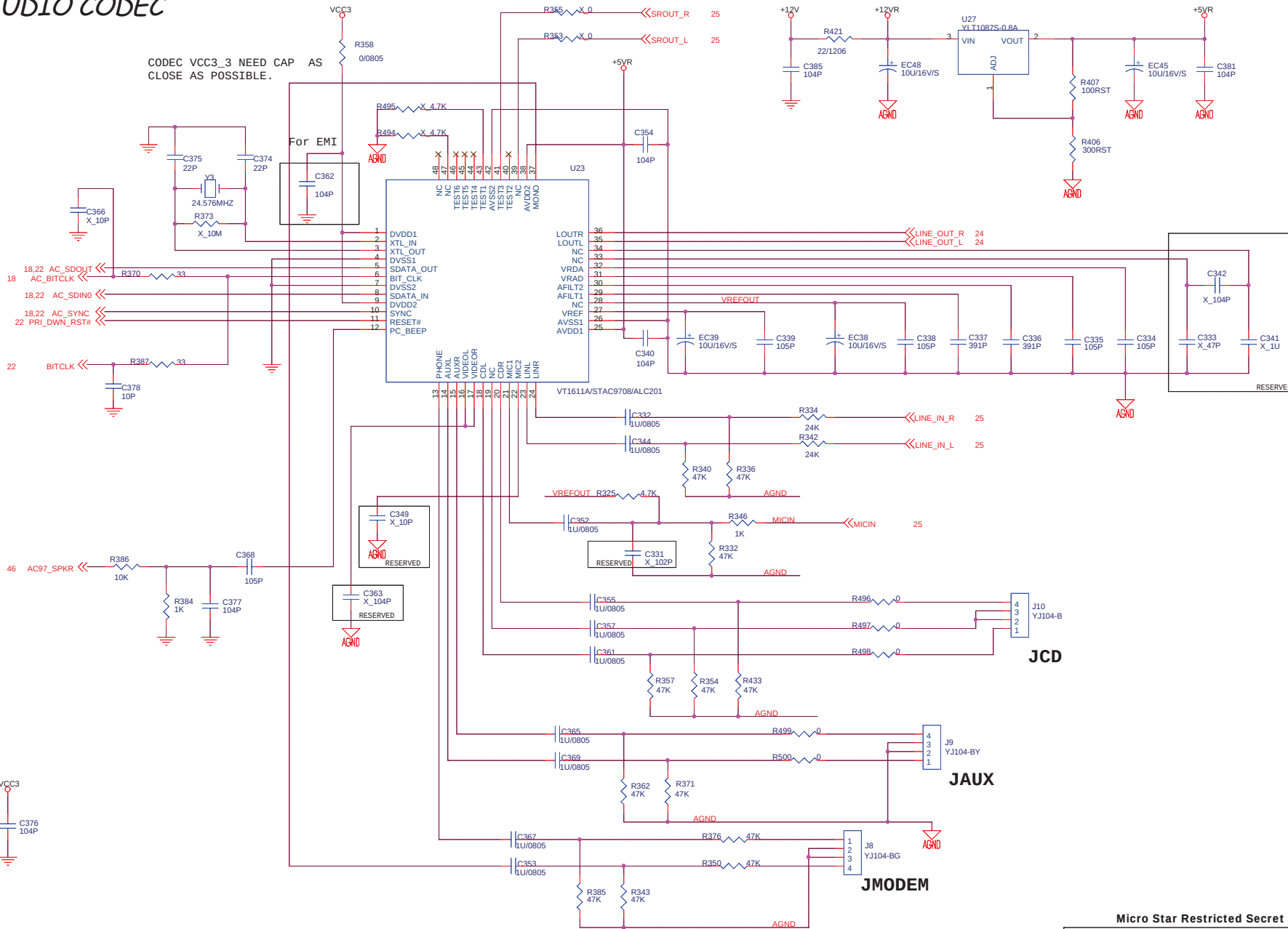
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Title	CNR Riser	Rev	
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AUDIO CODEC

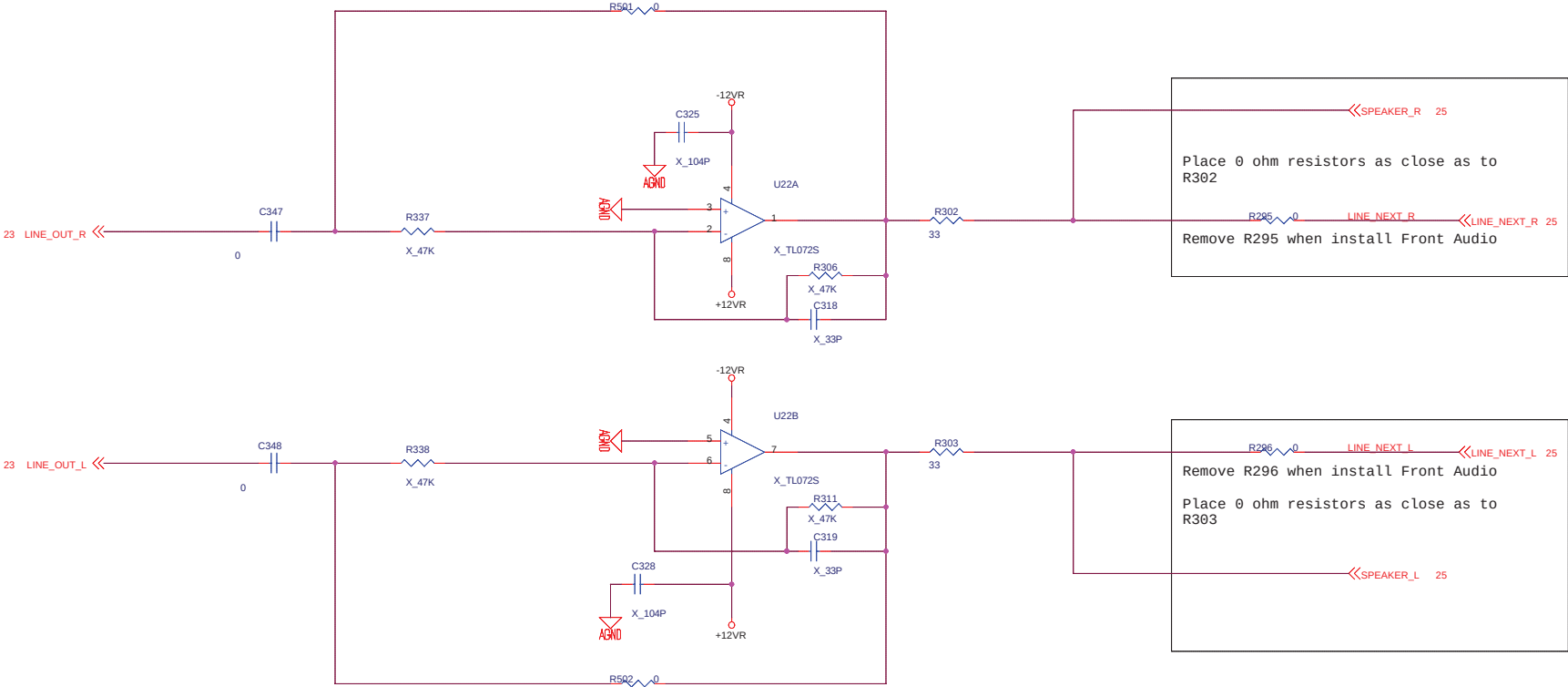
CODEC VCC3_3 NEED CAP AS
CLOSE AS POSSIBLE.



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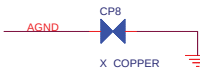
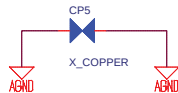
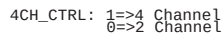
Audio Amplifier



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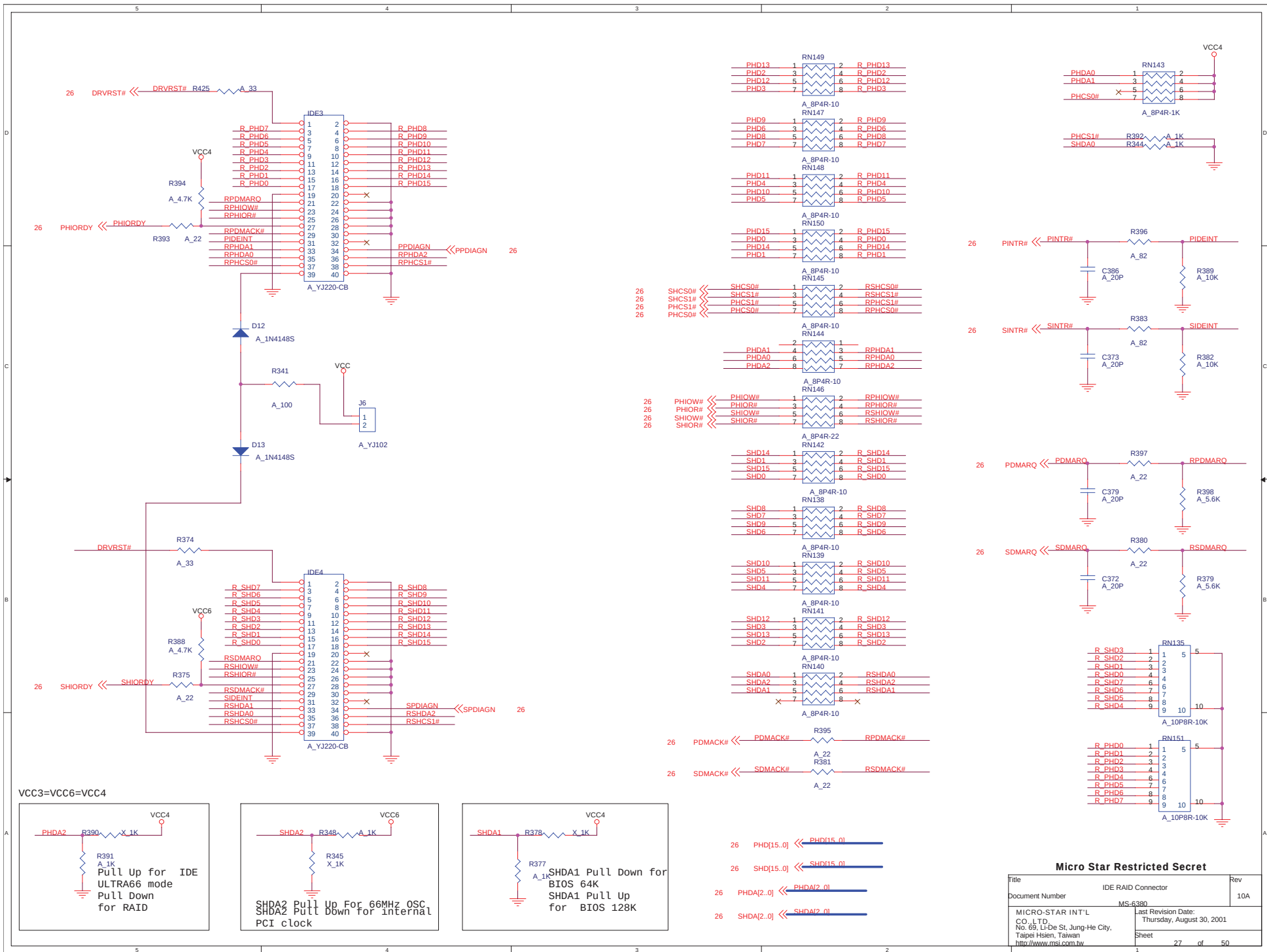
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Document Number	MS-6380	10A
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AUDIO PORT



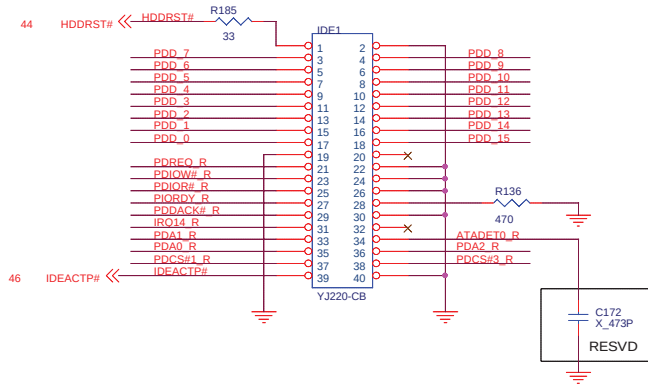
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Title	Audio Port	Rev
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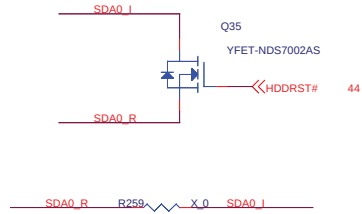
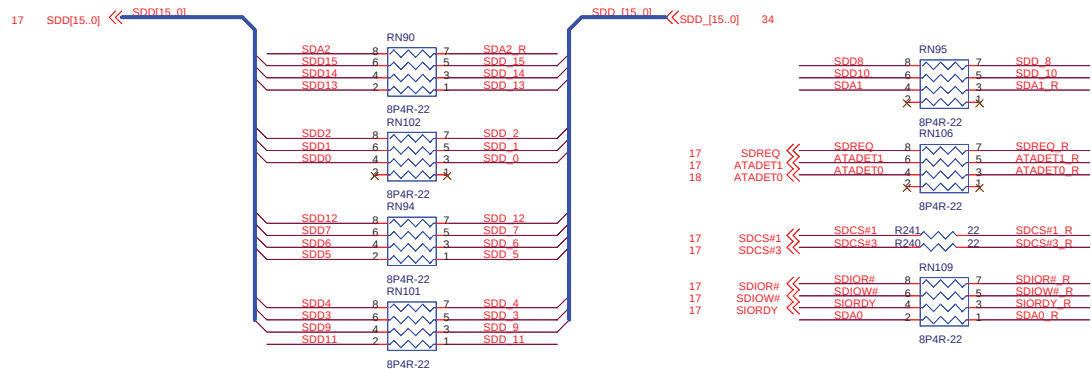
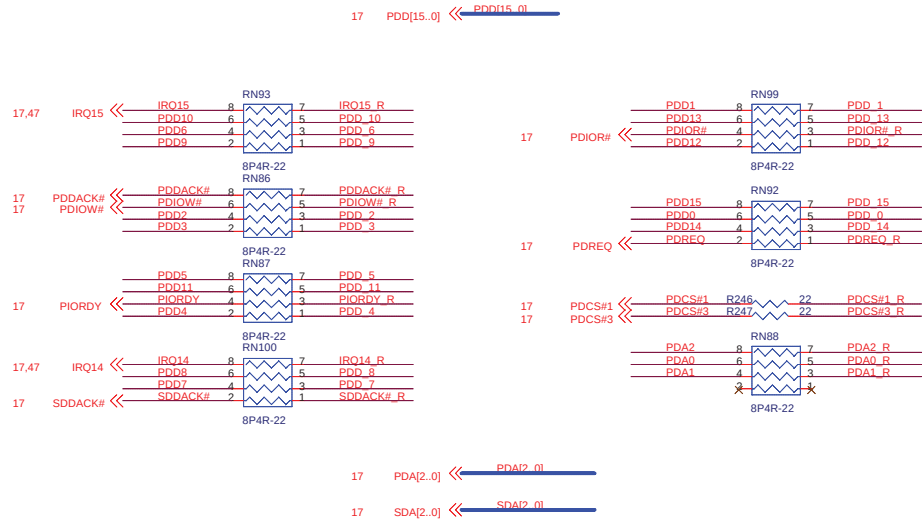
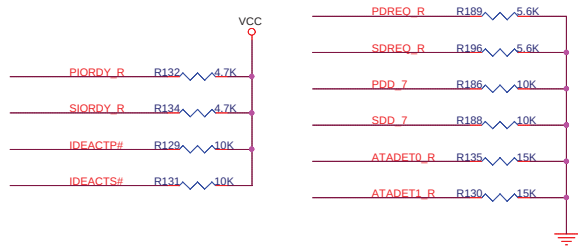
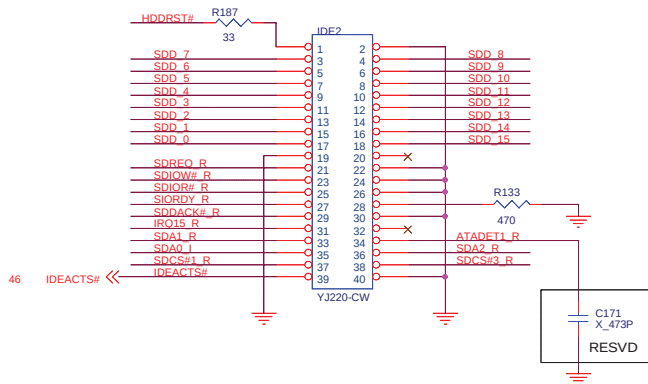


ATA 33/66/100 Connector

PRIMARY IDE CONN.



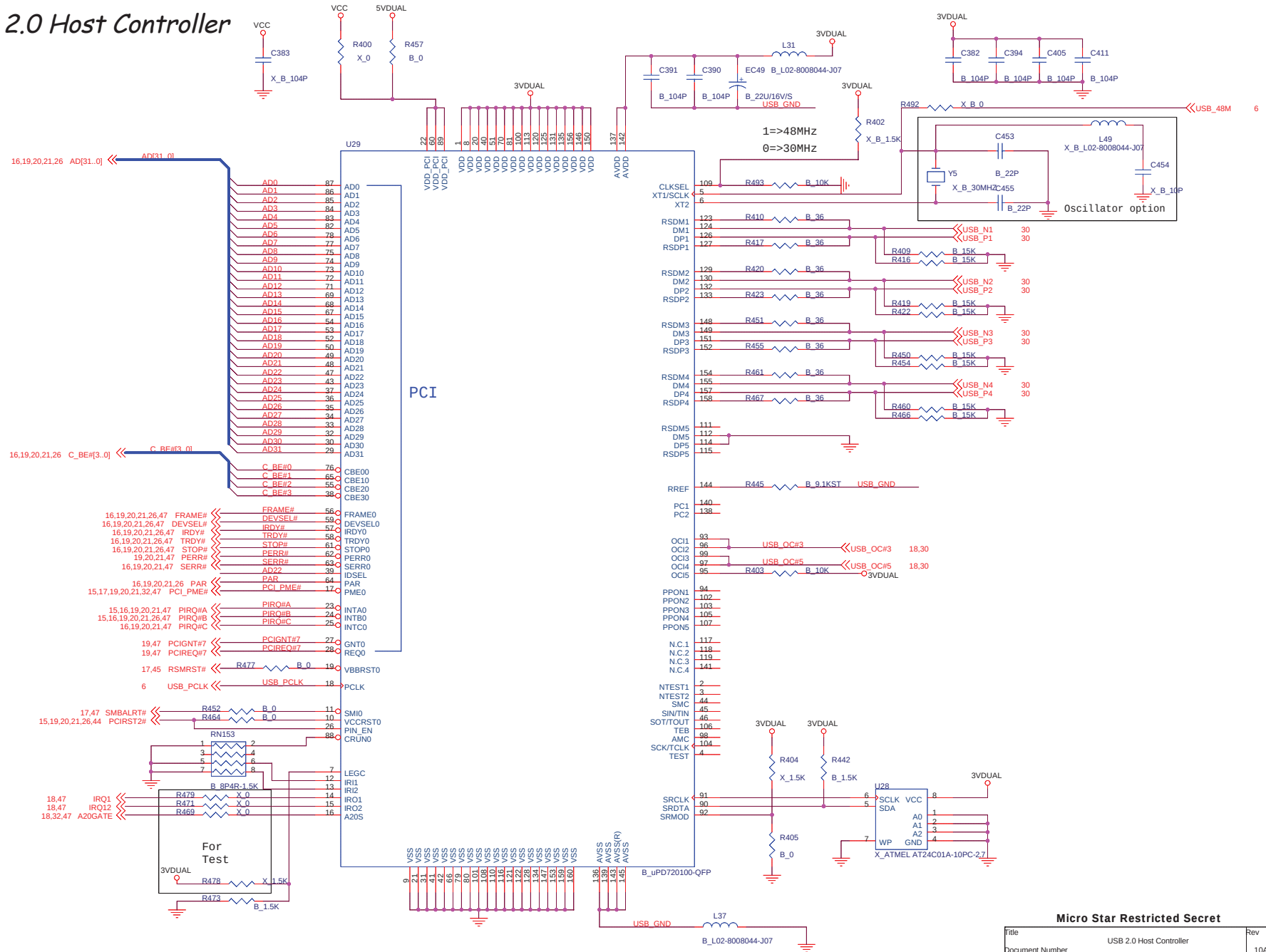
SECONDARY IDE CONN.



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Title	ATA 33/66/100 Connector	Rev	
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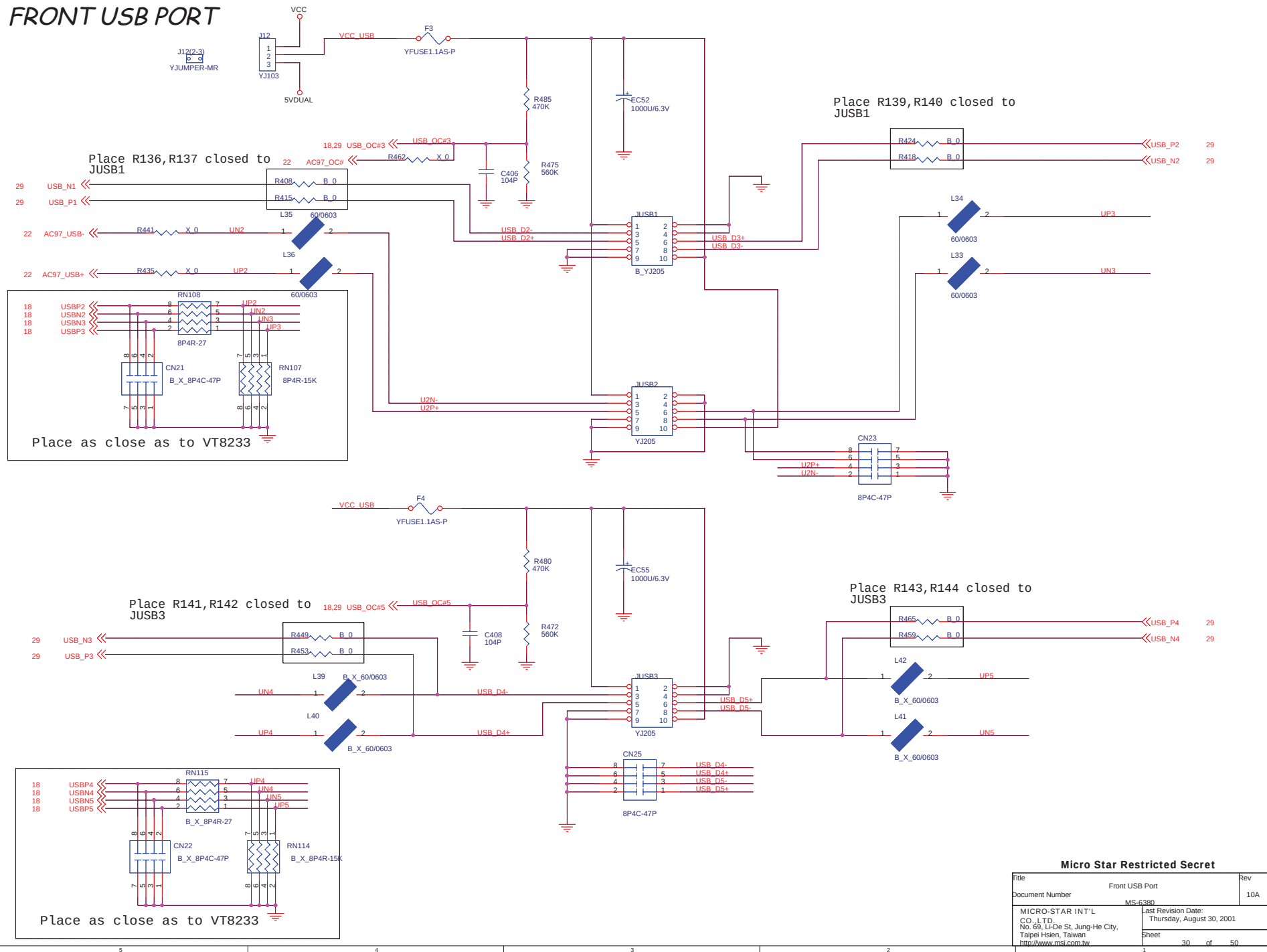
USB 2.0 Host Controller



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Title	USB 2.0 Host Controller	Rev	10A
Document Number	MS-6380		
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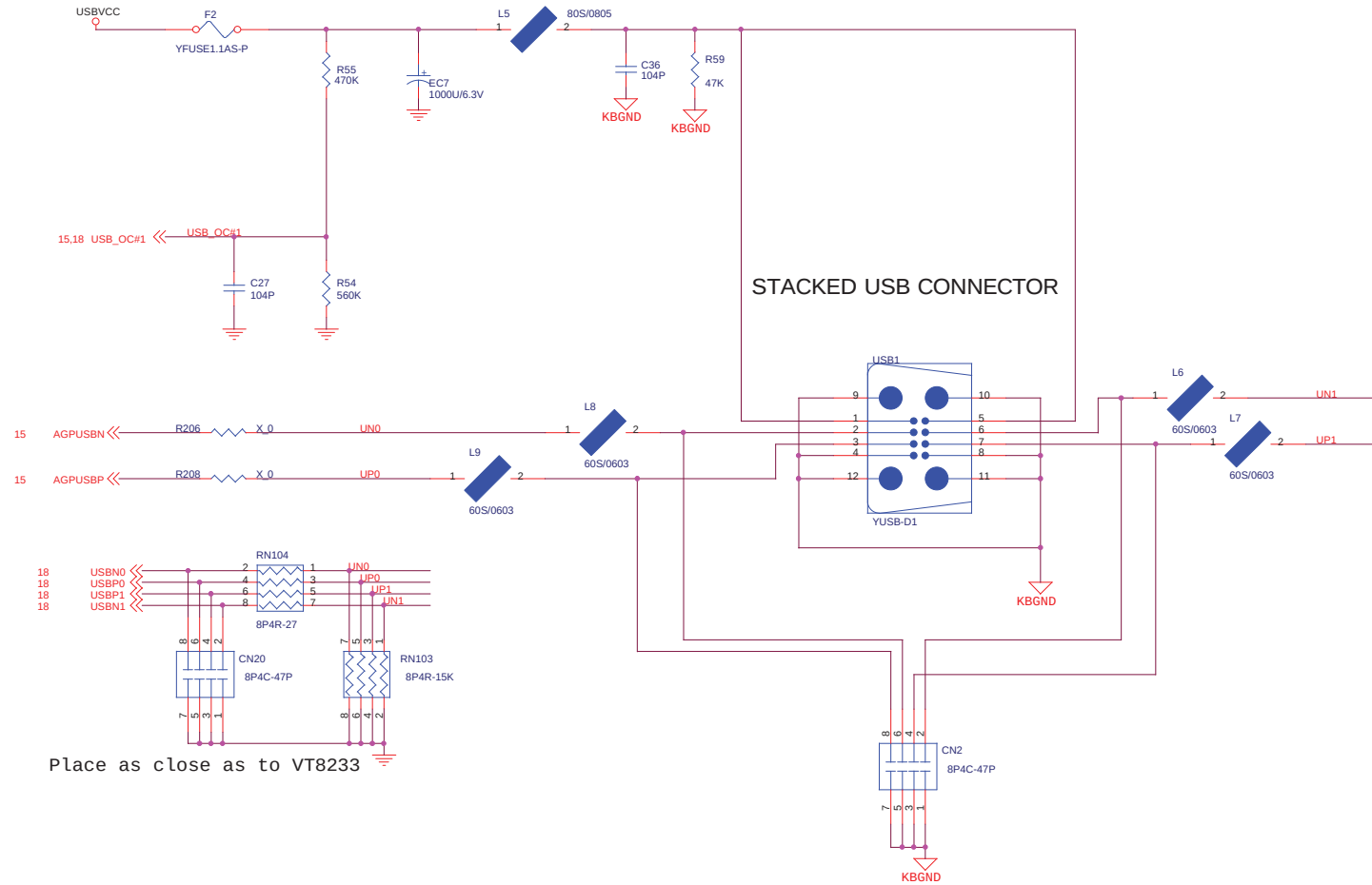
FRONT USB PORT



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Title	Front USB Port	Rev
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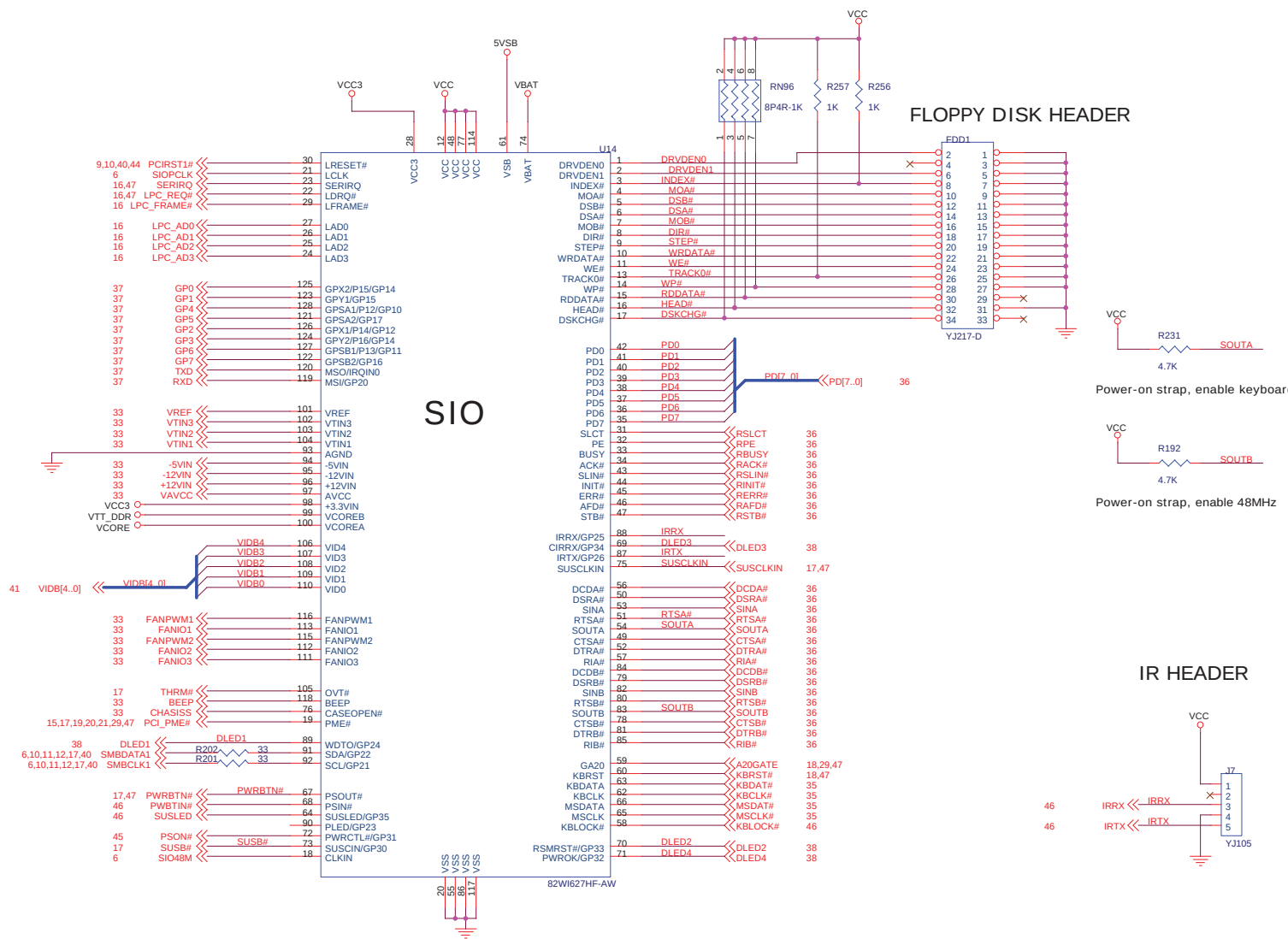
REAR USB PORT



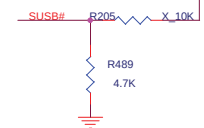
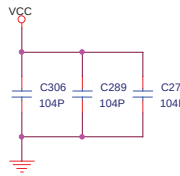
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Title	Rear USB Port	Rev
Document Number	MS-6380	10A
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Super I/O

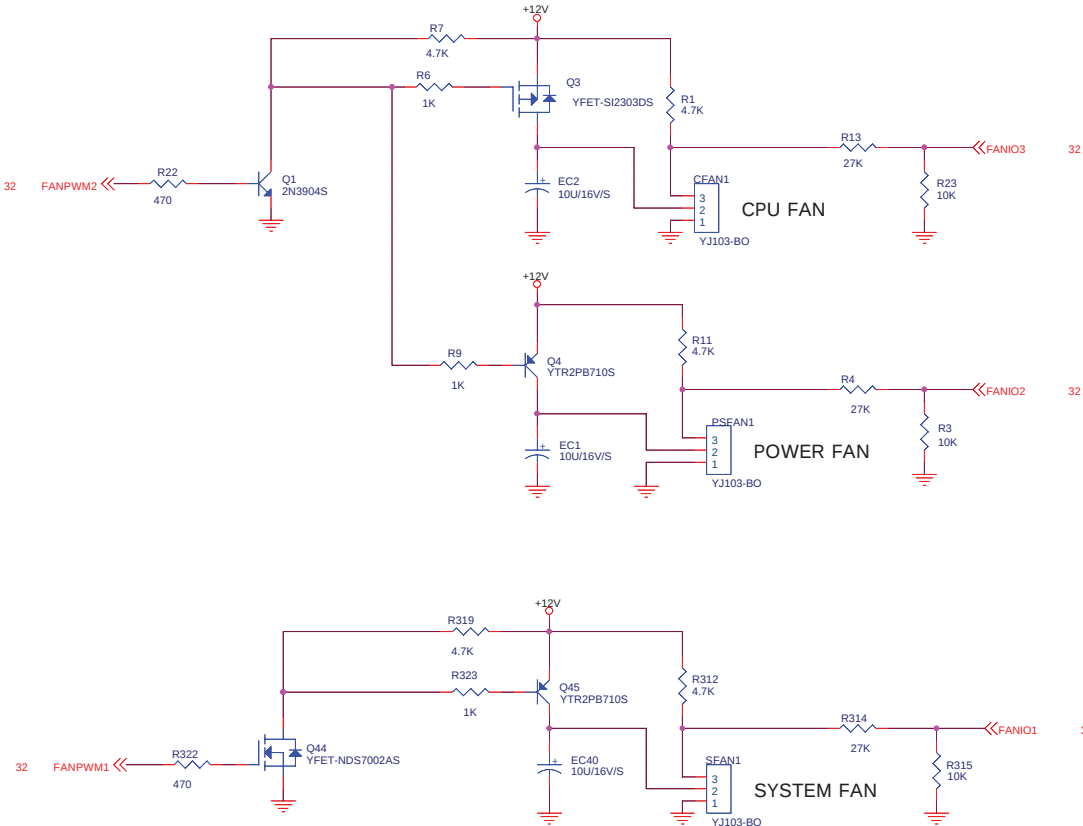
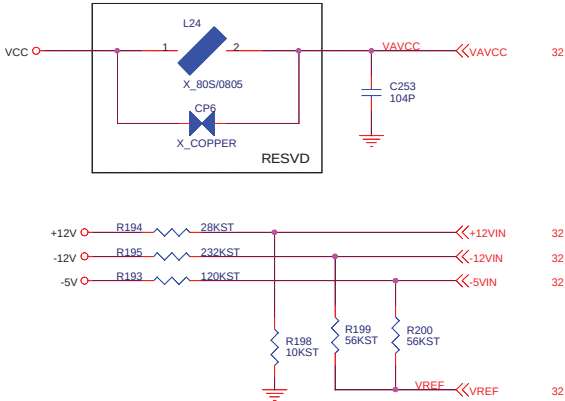
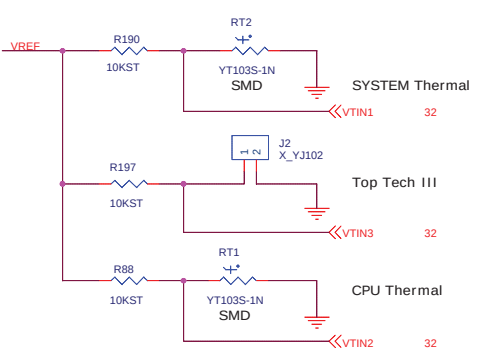


Distribute near the VCC power pin of the LPC

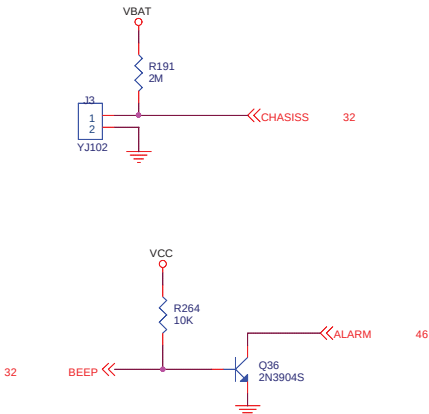


Micro Star Restricted Secret		
Title	Winbond W627HF	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St., Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001 Sheet 32 of 50

Hardware Monitor



Chasiss Intrusion Header



Micro Star Restricted Secret		
Title	Hardware Monitor	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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[illegible]

Title	System ROM	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Thursday, August 30, 2001 Sheet	 34 of 50

Keyboard/Mouse Ports

The schematic diagram illustrates the electrical connections for the Keyboard/Mouse Ports. It includes the following components and connections:

- Power Supply:** VCC, 5V DUAL, USBVCC, KBVCC, and KBGND are shown. A fuse F1 (YFUSE1.1AS-P) is connected between USBVCC and KBVCC. A capacitor C7 (104P) is connected between KBVCC and KBGND.
- Connectors:** JKBV1 (YJUMPER-MR) is connected to VCC and 5V DUAL. A STACKED PS2 CONNECTOR (YMD12P-1) is connected to KBVCC and KBGND.
- Signal Lines:** Four signal lines are shown: KBDAT# (KB DAT#), KBCLK# (KB CLK#), MSCLK# (MS CLK#), and MSDAT# (MS DAT#). These lines are connected to the PS2 connector and the keyboard/mouse ports.
- Resistors:** L1, L2, L3, and L4 are 121S/0603 resistors connected to the signal lines. RN5 is an 8P4R-4.7K resistor connected to the keyboard/mouse ports.
- Capacitors:** C22 (39P) and EC4 (10U/16V/S) are connected to the power supply lines.

The diagram also shows the internal connections of the PS2 connector, including the YMD12P-1 and YMD12P-1 components.

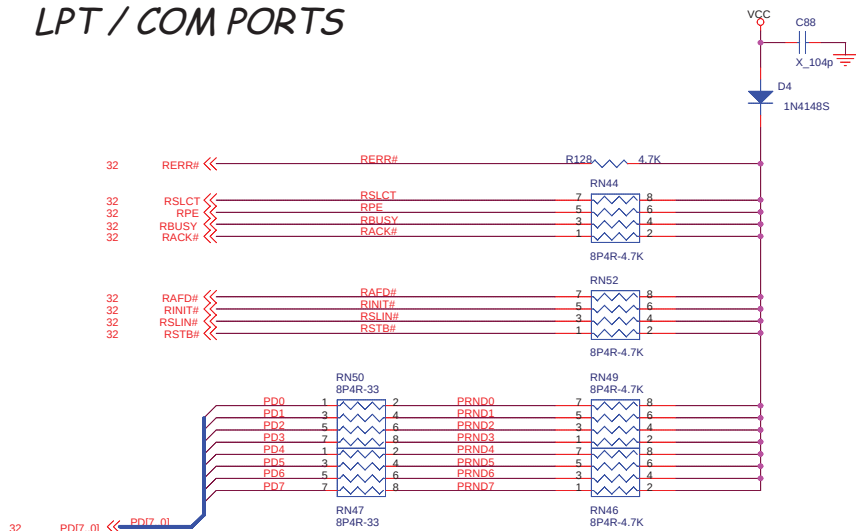
Signal	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
MSDAT#	1	2	3	4	5	6	7	8
KBCLK#	1	2	3	4	5	6	7	8
MSCLK#	1	2	3	4	5	6	7	8
KBDAT#	1	2	3	4	5	6	7	8

Micro Star Restricted Secret

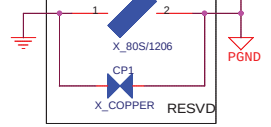
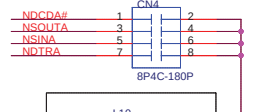
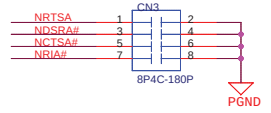
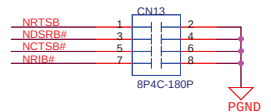
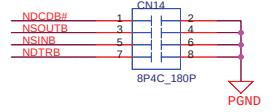
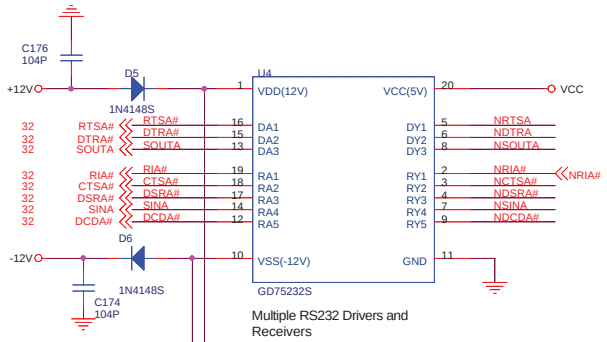
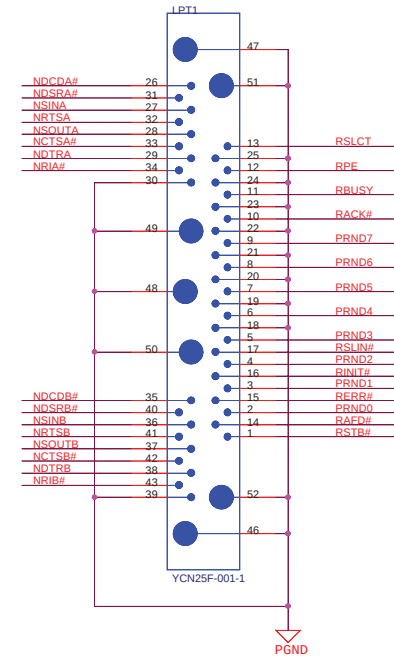
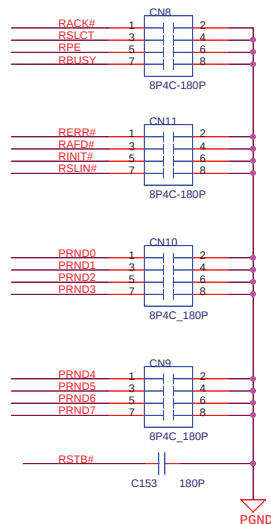
Title	KeyBoard / Mouse Port	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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Title	KeyBoard / Mouse Port	Rev
Document Number	MS-6380	10A
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LPT / COM PORTS



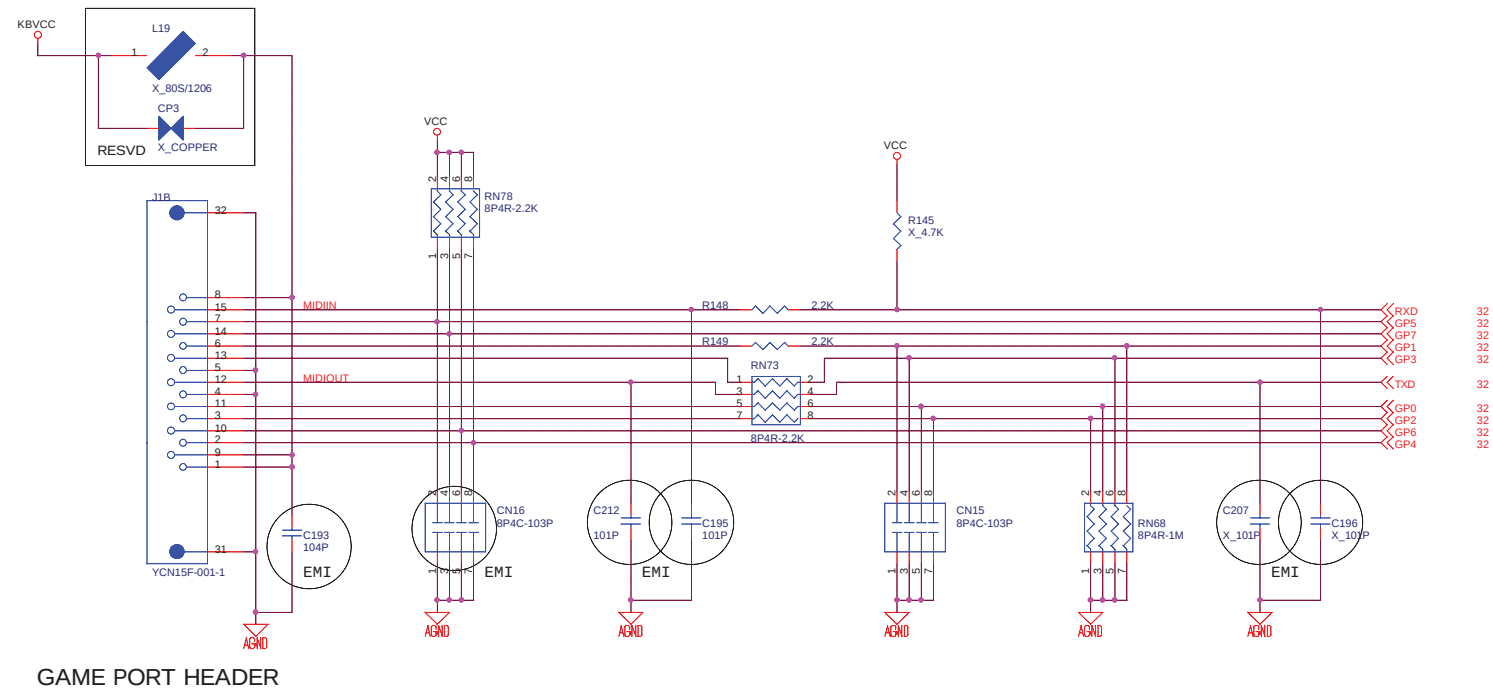
For EMI



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File	LPT / COM Port	Rev	10A
Document Number	MS-6380		
MICRO-STAR INT'L CO., LTD.		Last Revision Date: Thursday, August 30, 2001	
No. 69, Li-De St., Jung-Hsi City, Taipei Hsien, Taiwan		Sheet	
http://www.msi.com.tw		36 of 50	

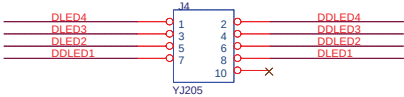
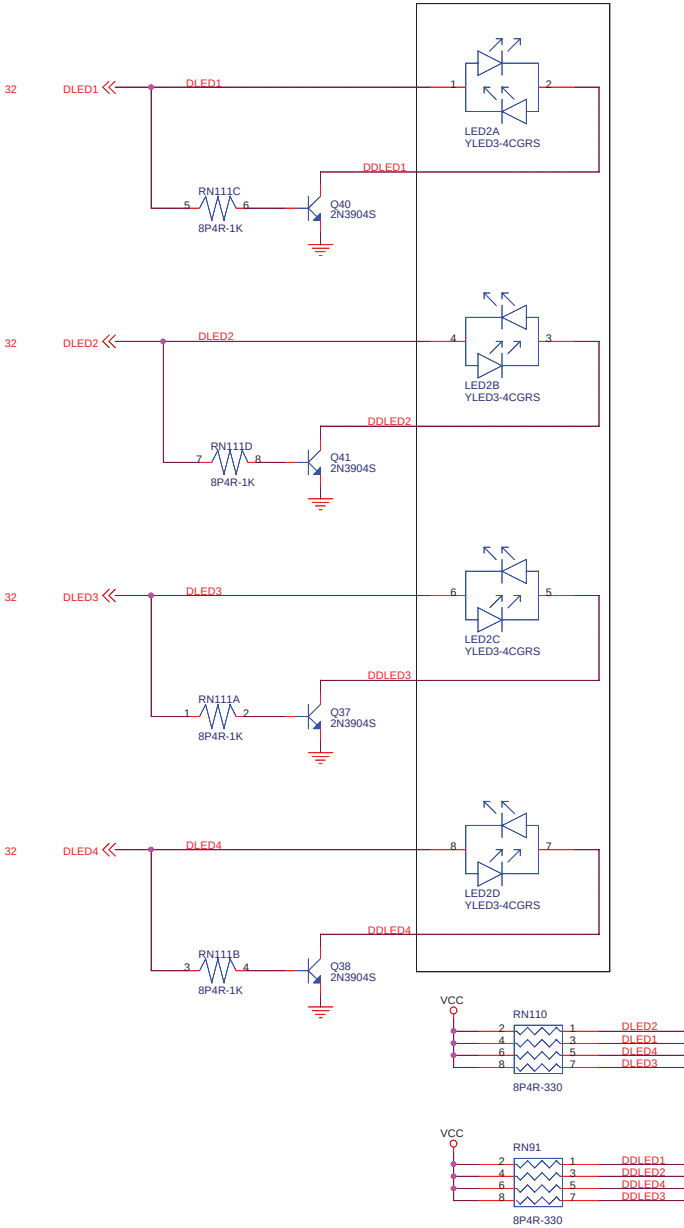
GAME PORT



Micro Star Restricted Secret

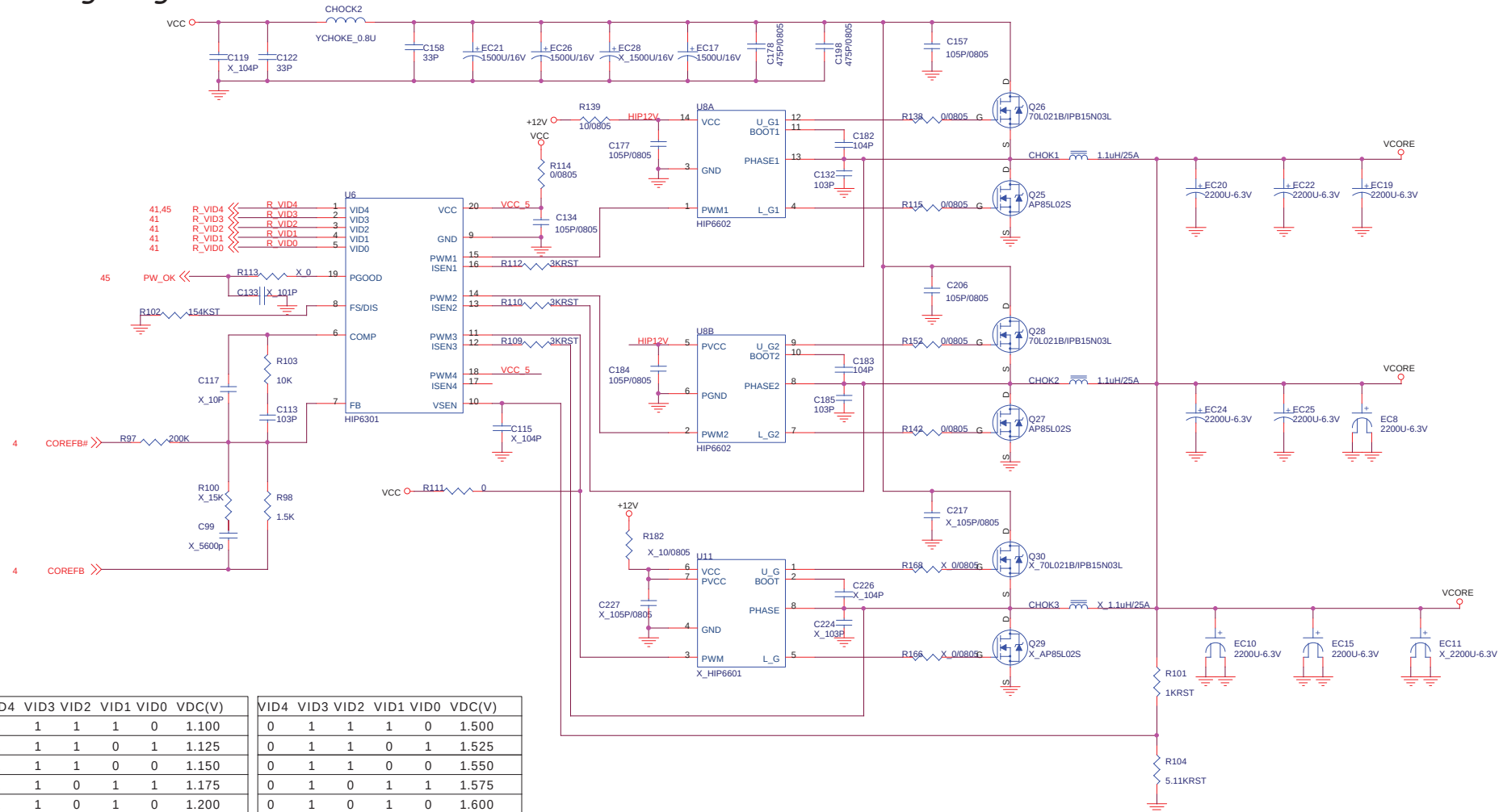
Title	Game Port	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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Smart Diagnostic LED



Micro Star Restricted Secret		
Title	Smart Diagnostic LED	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 99, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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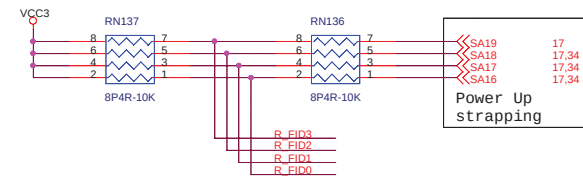
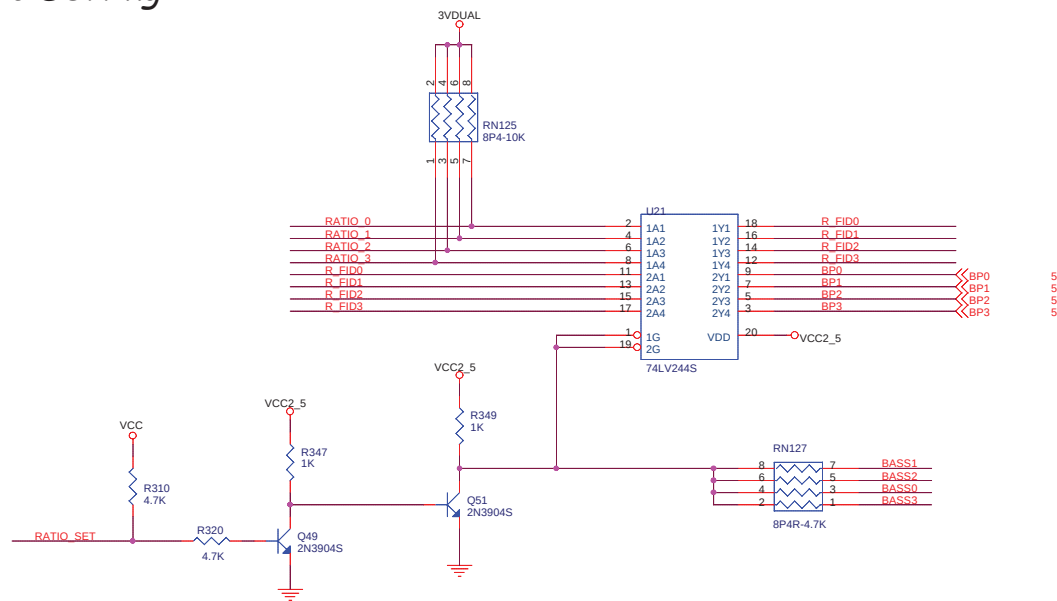
Voltage Regular Module



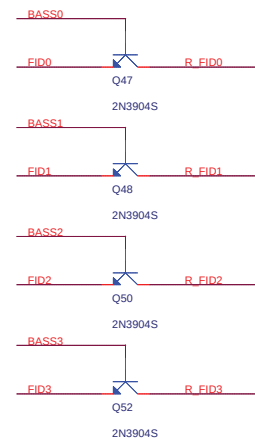
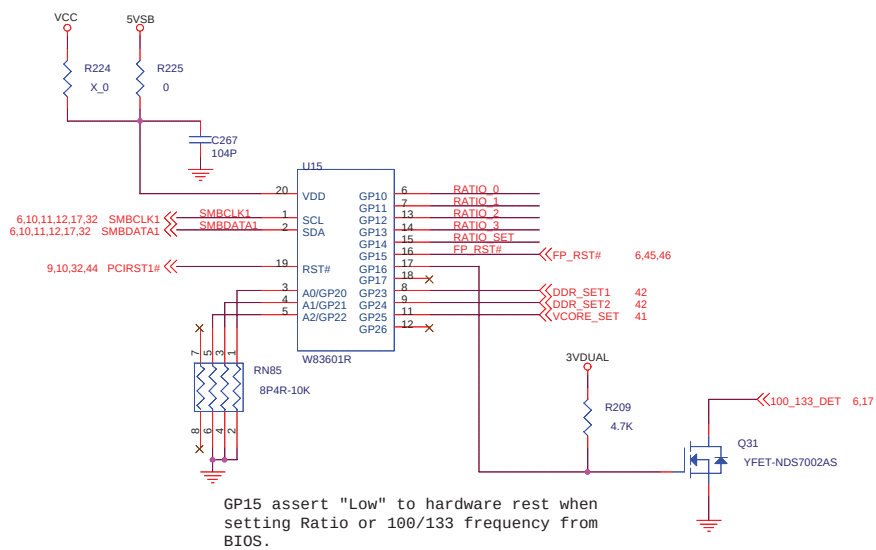
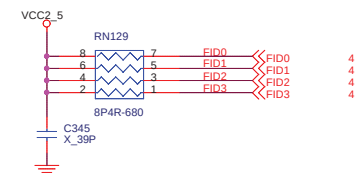
Micro Star Restricted Secret

Title	VRM 9.0 / SC2422ACS	Rev	10A
Document Number	MS-6380		
MICRO-STAR INT'L CO., LTD. No. 89, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001	
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CPU Ratio Setting



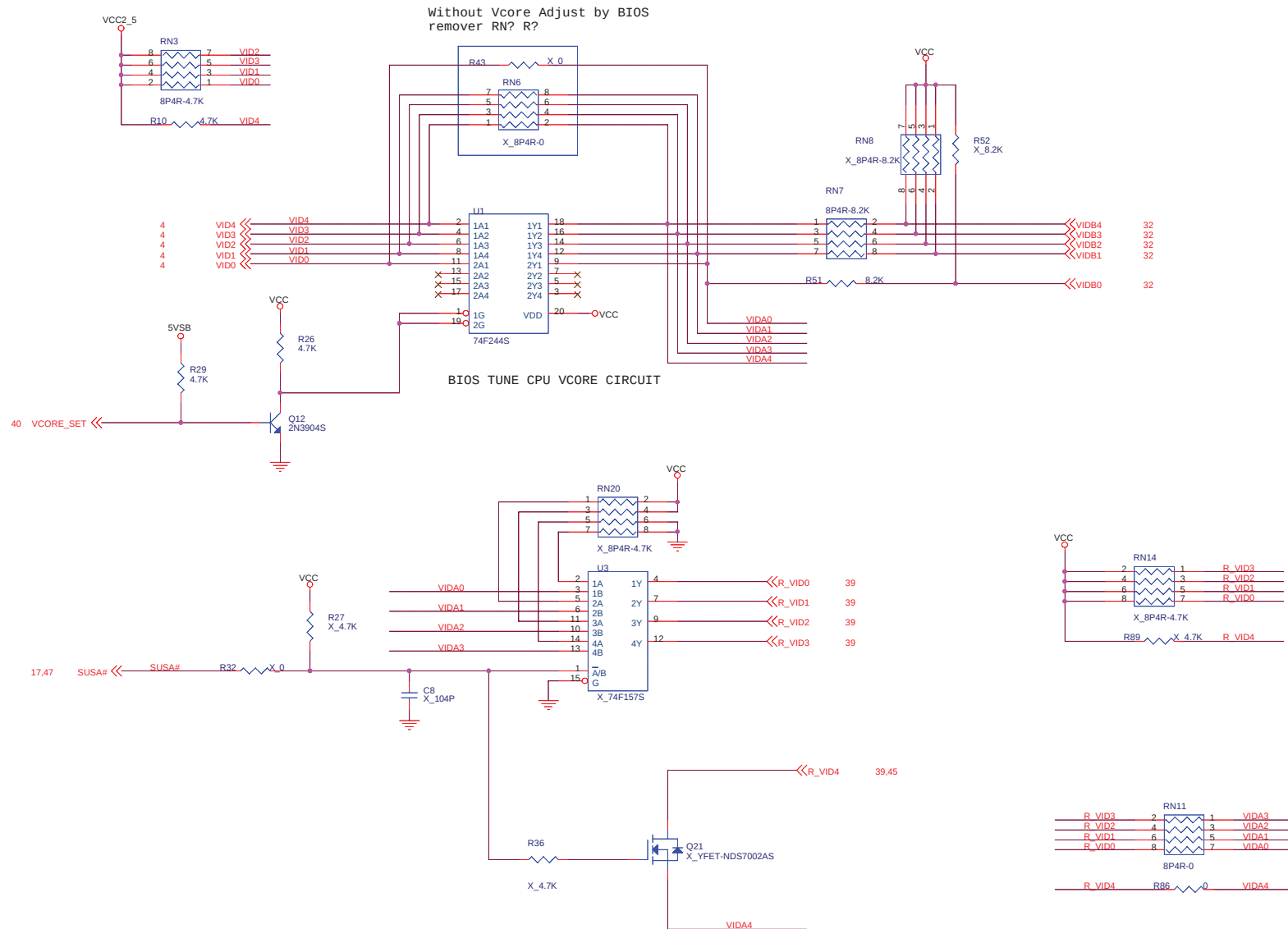
FID[3:0]	Clock Multiplier	FID[3:0]	Clock Multiplier
0000	11.0	1000	7.0
0001	11.5	1001	7.5
0010	12.0	1010	8.0
0011	12.5	1011	8.5
0100	5.0	1100	9.0
0101	5.5	1101	9.5
0110	6.0	1110	10.0
0111	6.5	1111	10.5



Micro Star Restricted Secret

Title	CPU Ratio Setting	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Thursday, August 30, 2001	
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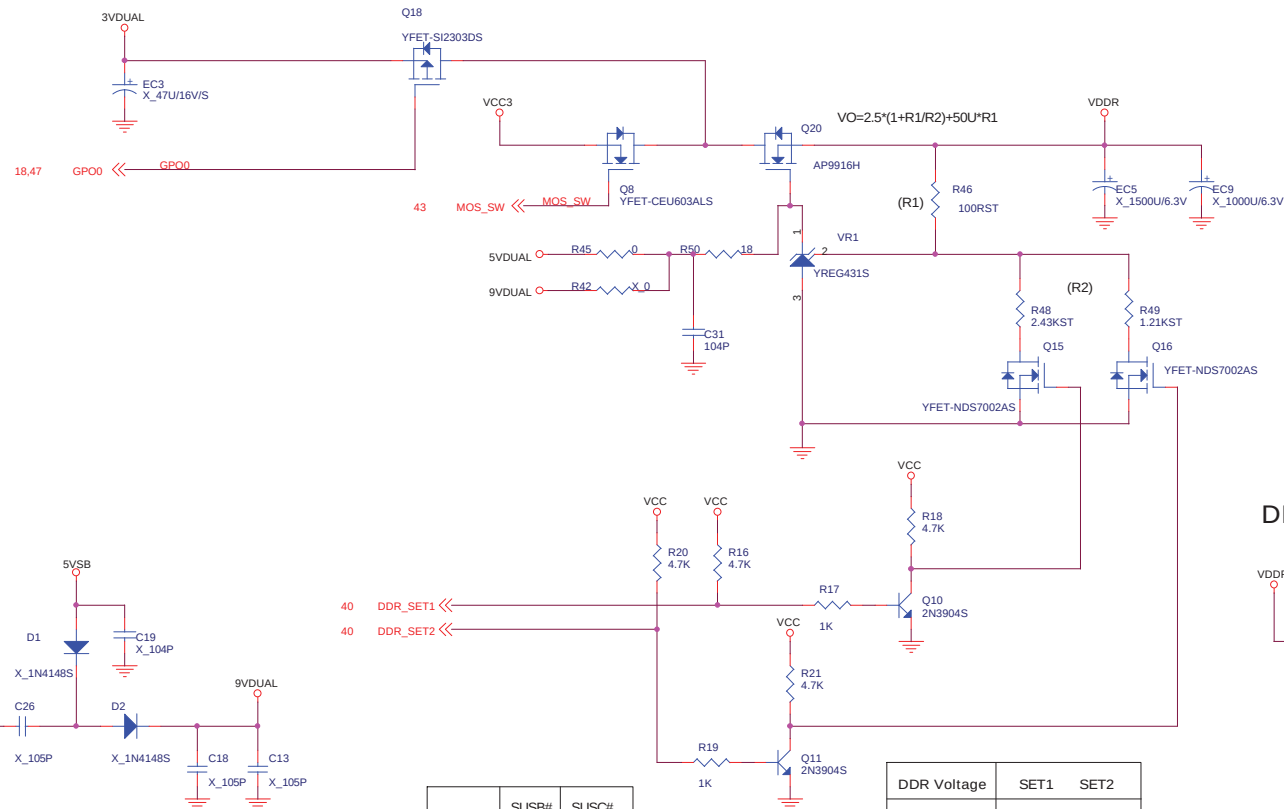
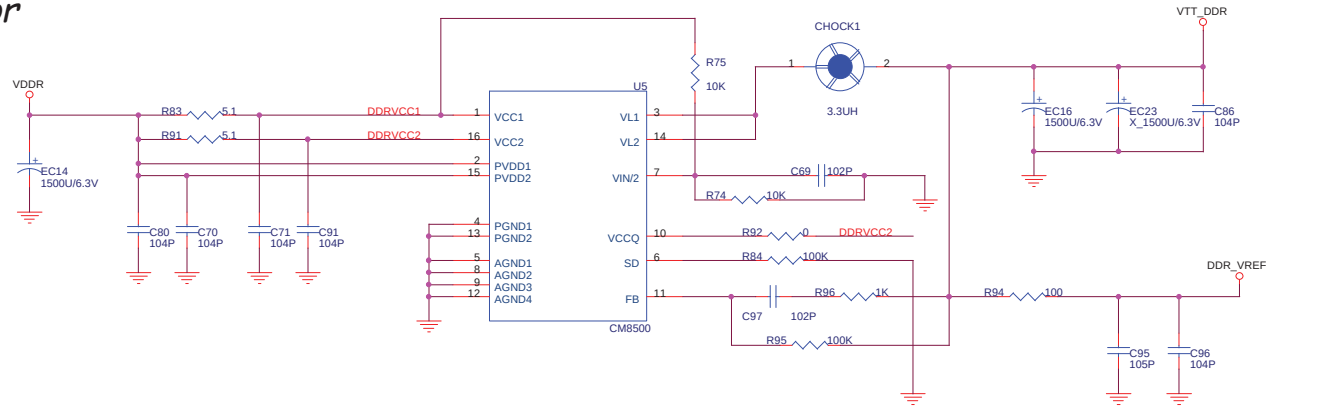
CPU VID Control



Micro Star Restricted Secret

Title	Vcore Control	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 89, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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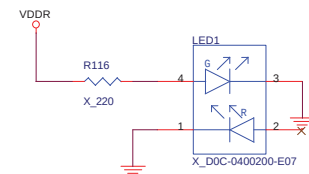
DDR Regulator



	SUSB#	SUSC#
STD	0	0
STR	0	1
Normal	1	1

DDR Voltage	SET1	SET2
2.5V	1	1
2.6V	1	0
2.7V	0	1
2.8V	0	0

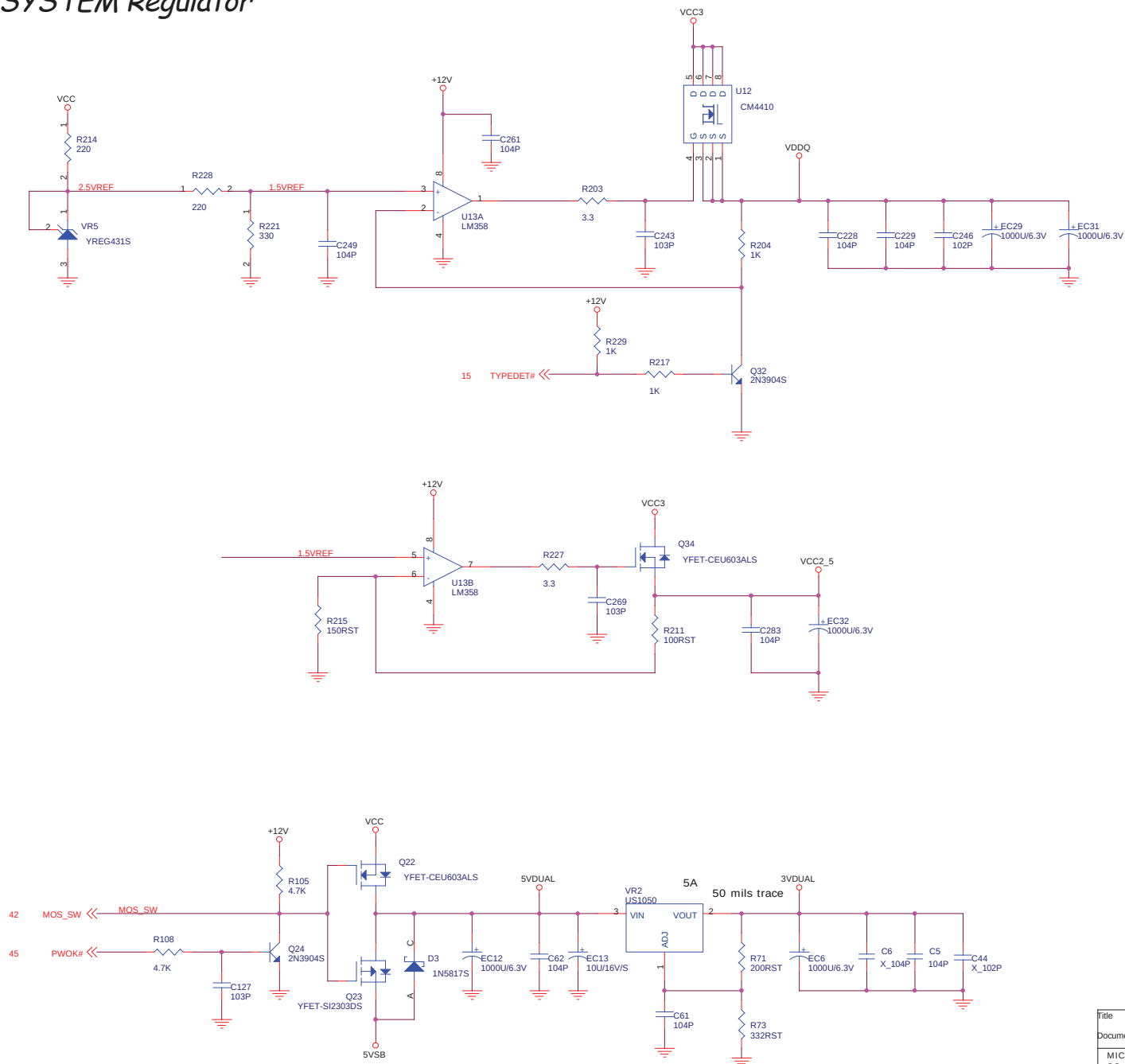
DDR DRAM Voltage LED



Micro Star Restricted Secret

Title	DDR Power Regulator	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 89, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Thursday, August 30, 2001 Sheet 42 of 50	

AGP / SYSTEM Regulator

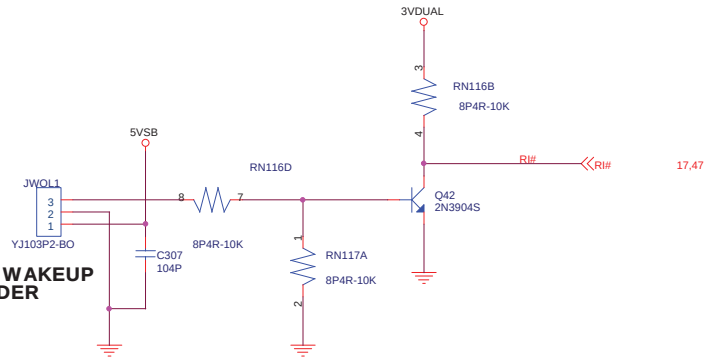


Micro Star Restricted Secret

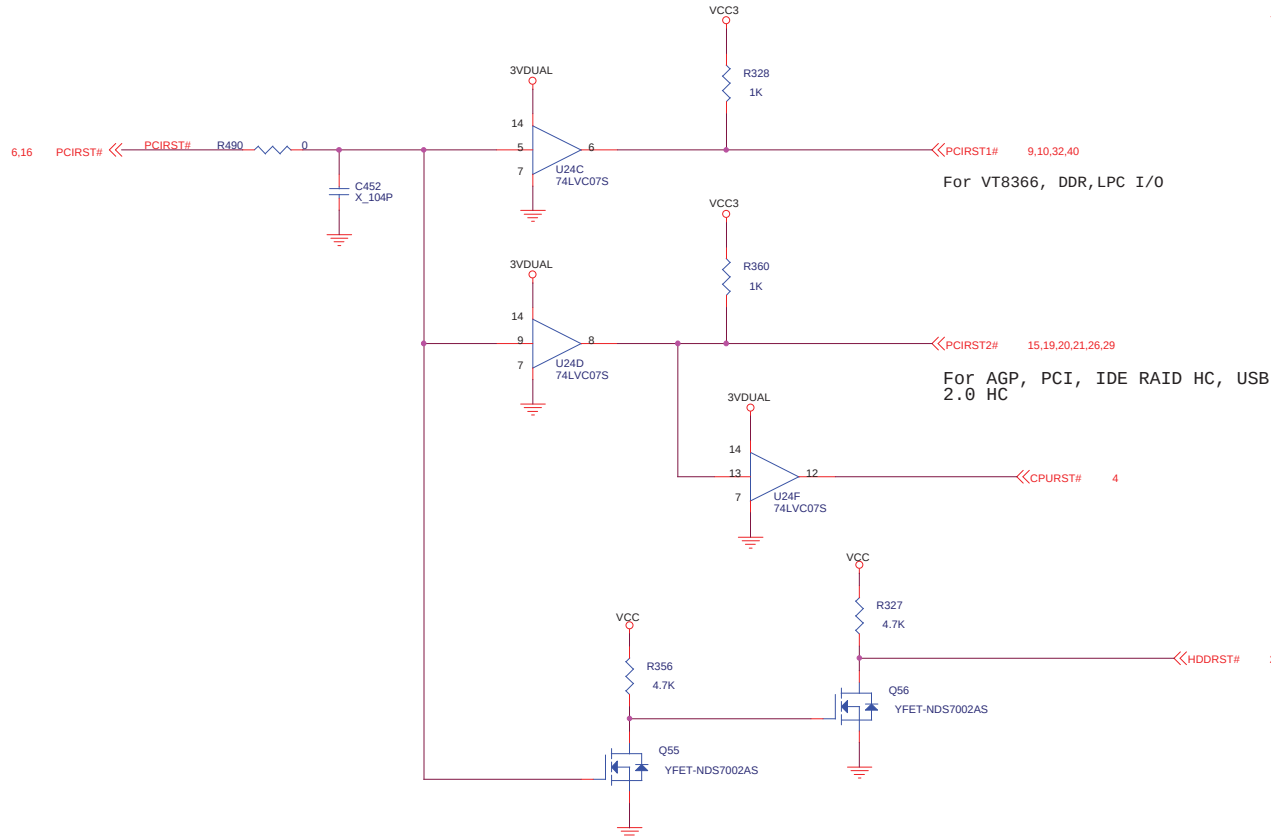
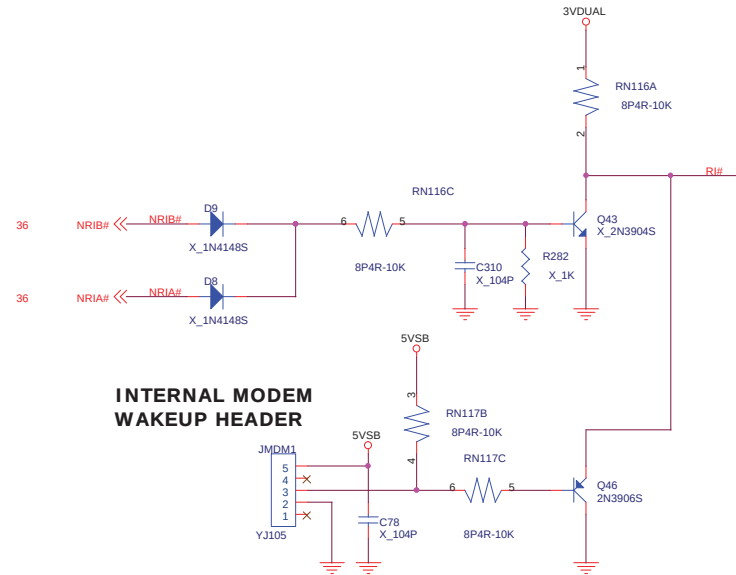
Title	AGP / System Regulator	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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POWER Management

LAN WAKEUP HEADER



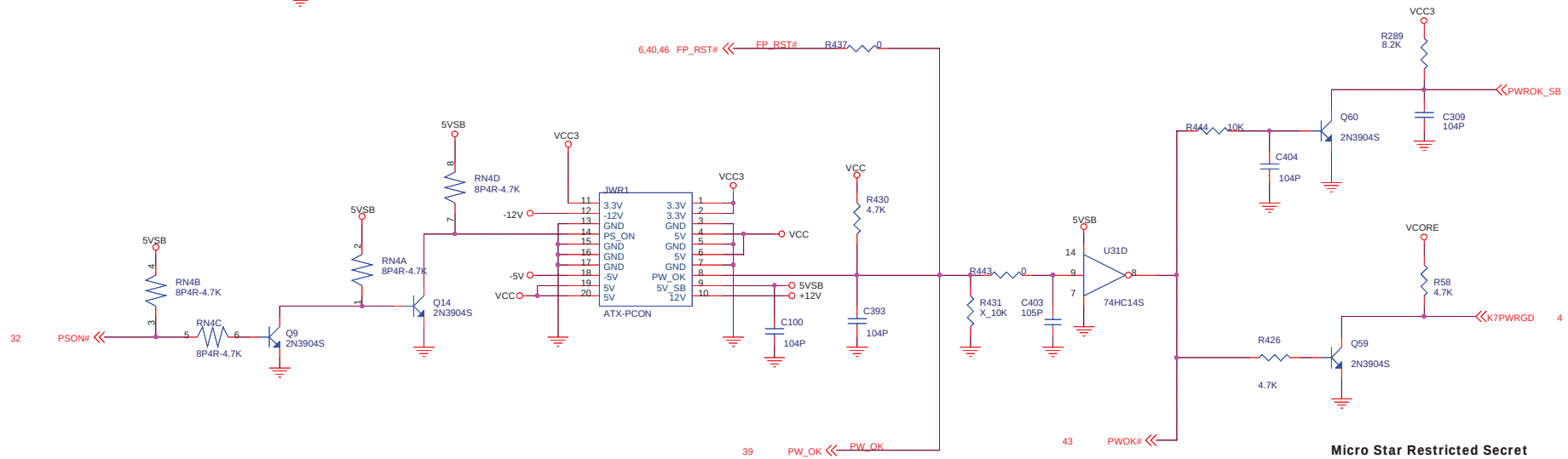
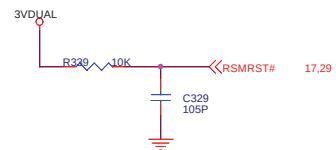
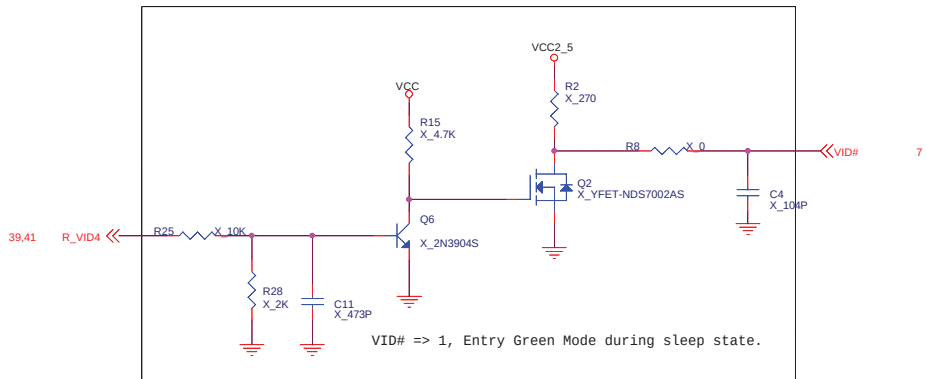
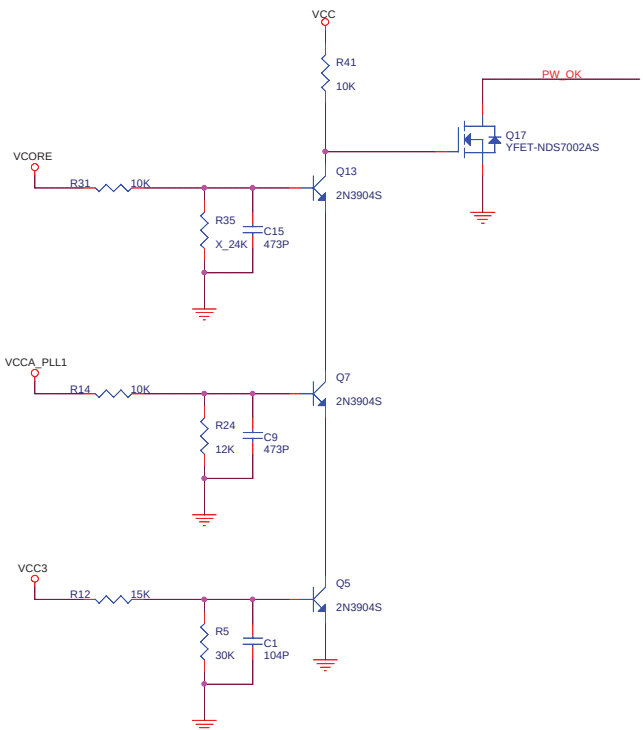
INTERNAL MODEM WAKEUP HEADER



Micro Star Restricted Secret

Title	Power Mangement	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 89, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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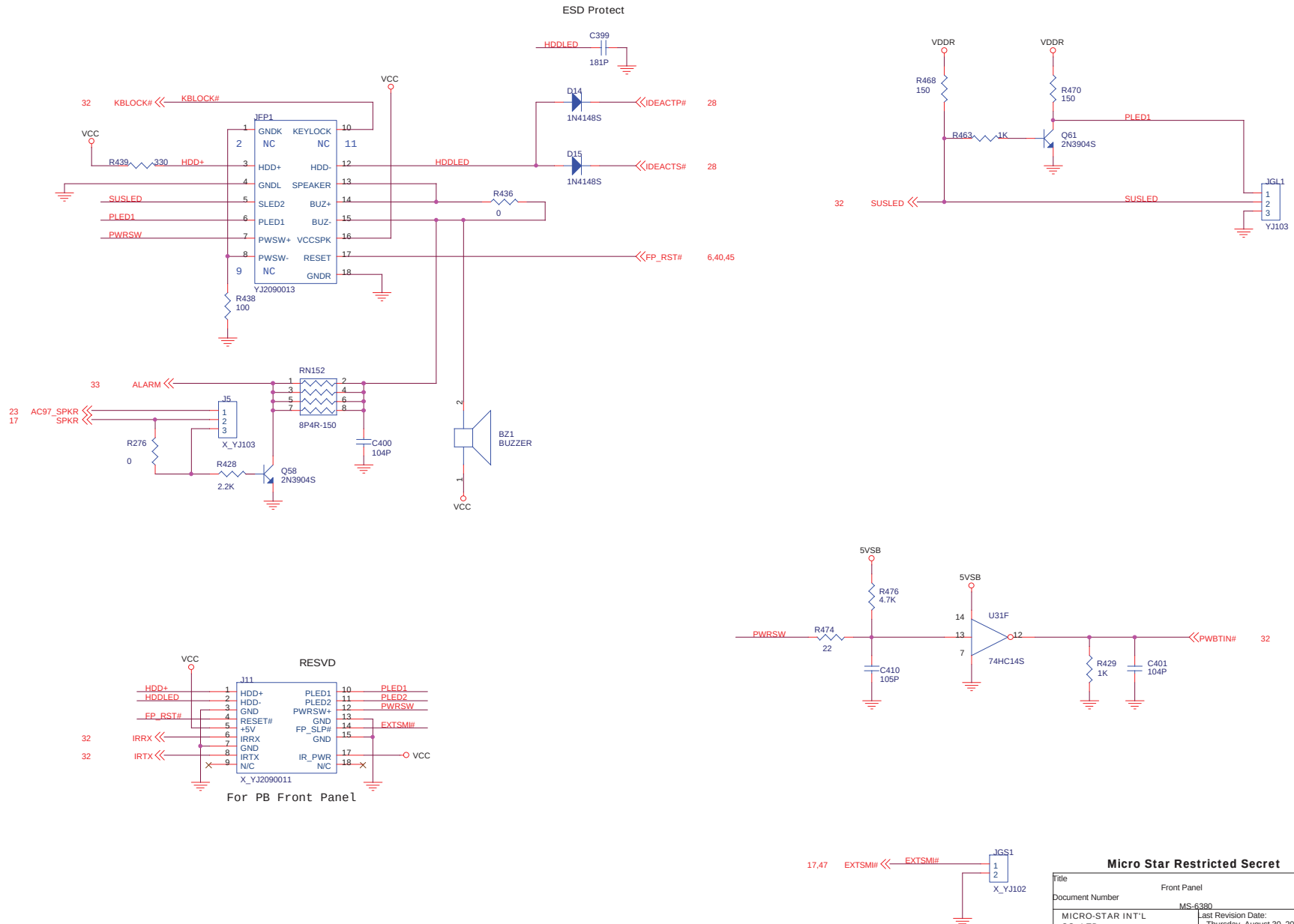
POWER OK Circuits



Micro Star Restricted Secret

Title	Power OK Circuits	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Thursday, August 30, 2001	
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FRONT PANEL

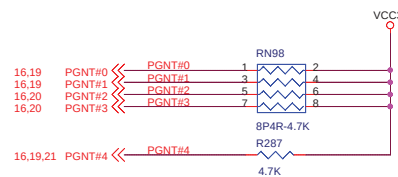
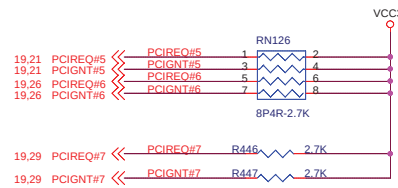
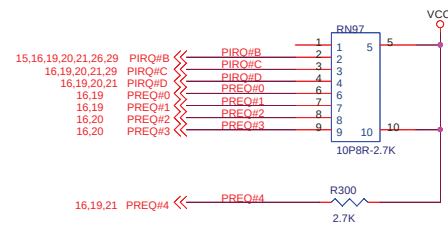
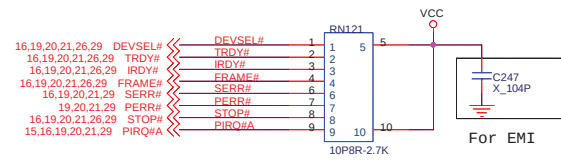


Micro Star Restricted Secret

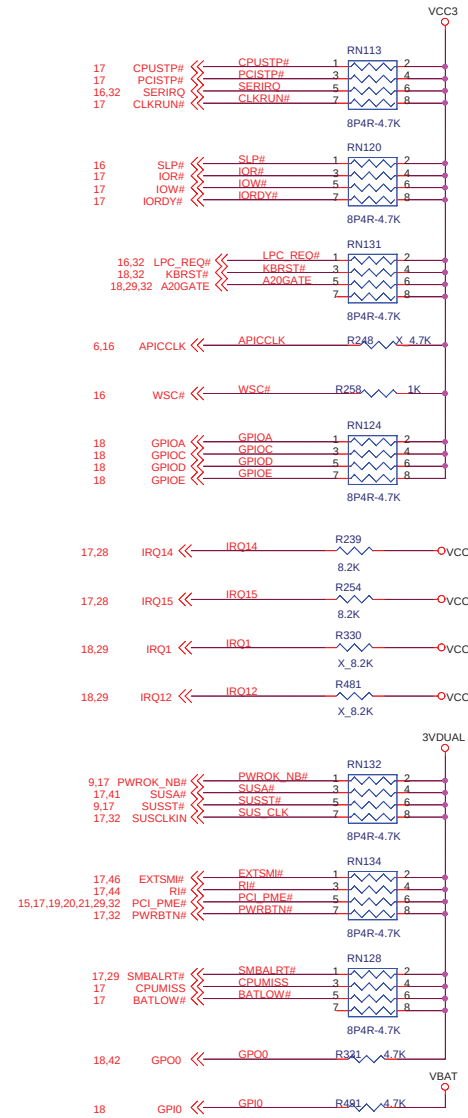
Title	Front Panel	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 88, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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PULL-UP RESISTORS

PCI BUS



SB Pull up resistors



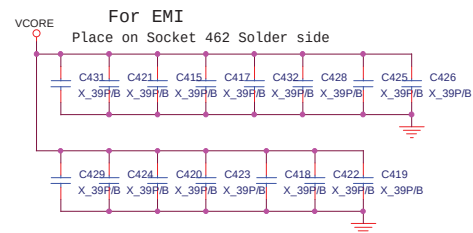
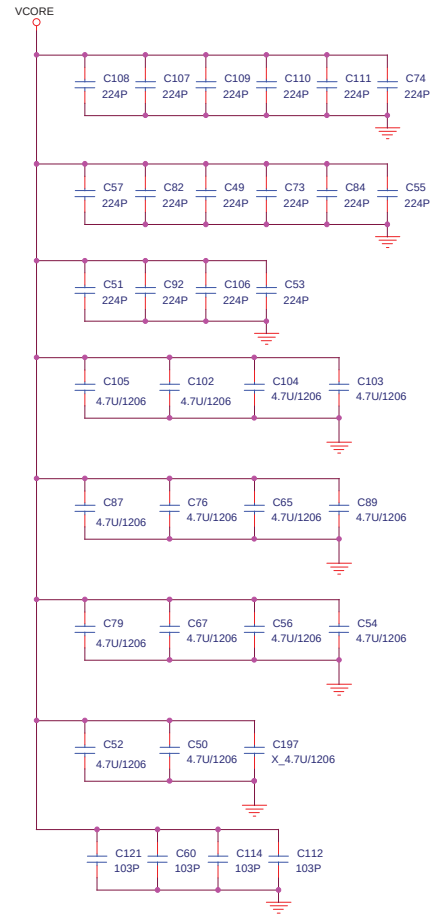
Micro Star Restricted Secret

Title	Pull up Resistor	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L C.O., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Thursday, August 30, 2001	
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BULK / Decoupling

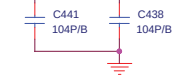
CPU

Place on SOCKET 462 Cavity

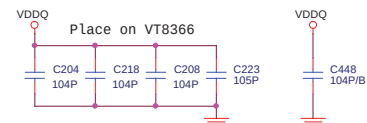
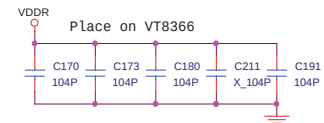
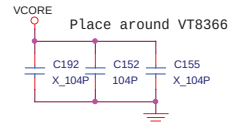


VT8366

Place on VT8366 Solder side

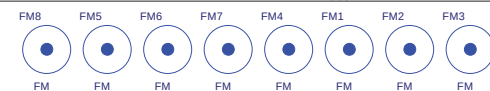
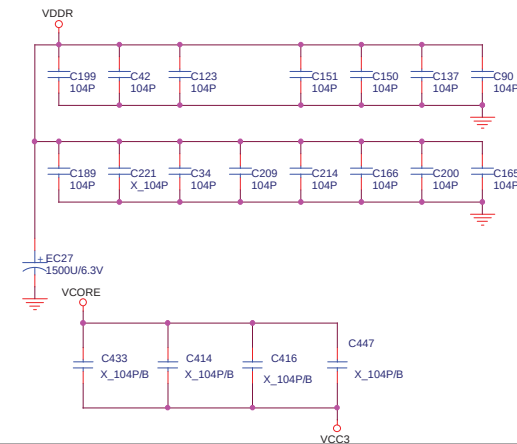


08 C392, C393 REMEMBER CHANGE PACKAGE TO C0603MSB

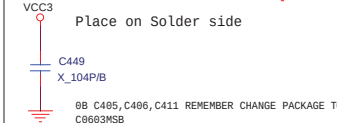
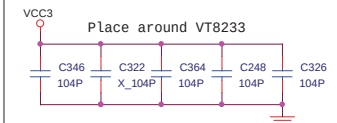
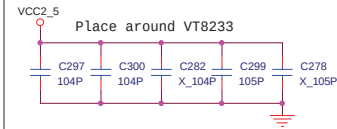


Place on VT8366 Solder side

DDR

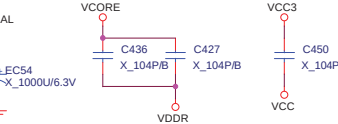
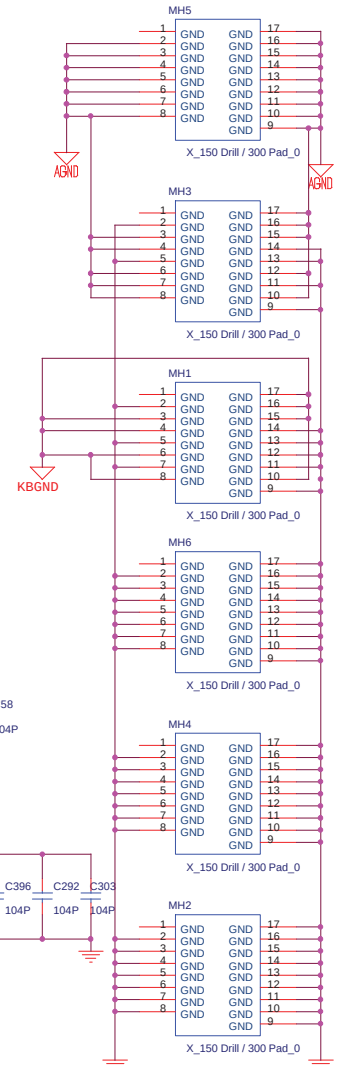
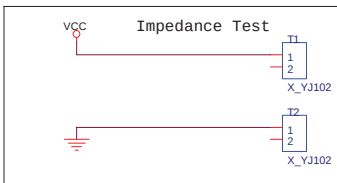
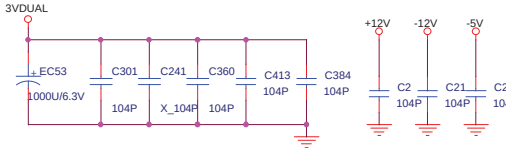
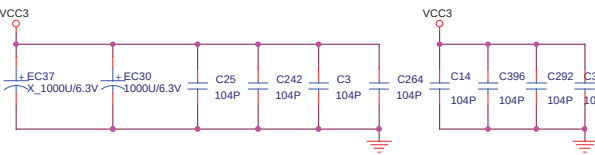
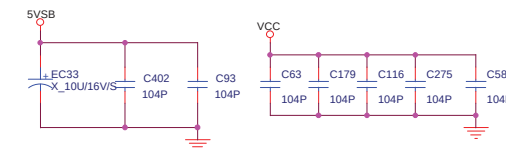


VT8233



08 C485, C486, C411 REMEMBER CHANGE PACKAGE TO C0603MSB

SYSTEM



Micro Star Restricted Secret		
Title	BULK / Decoupling	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 88, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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00A to 00B Schematic change list

Page

1.

Add Q70(2N3904), R560(4.7K)to W83601.FP_RST# connect to Hardware Rest. Modify Frequency strapping function error.
2.

Change 100_133_DET net from VT8233 to W83601.Default value is Low(CPU CLOCK is 100MHz)

40

40

Micro Star Restricted Secret

Title	History	Rev
Document Number	MS-6380	10A
MICRO-STAR INT'L CO., LTD. No. 66, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, August 30, 2001
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