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MS-7505 ATX

Version: 0A

CPU: **Intel Pentium 4 Cedar Mill / Prescott , Pentium D Smithfield / Presler and Conroe / Kentsfield family processors in LGA775 Package.**

System Chipset:

NVIDIA MCP73

On Board Device:

BIOS -- SPI Flash 8M
Azalia Codec -- ALC888
LPC Super I/O -- FINTEK F71882FG
LAN -- Realtek RTL8211BL-GR
CLOCK Gen -- Integated in MCP73
1394 Controller -- JMB381

Main Memory:

SINGLE-channel DDR-II * 4 (Max 4GB)

Expansion Slots:

PCI EXPRESS X16 SLOT *1
PCI EXPRESS X1 SLOT * 1
PCI SLOT * 4

Intersil PWM

OPT	Function	Orcad Configure	BOM
PV	MCP73PV(HDMI+DVI)/F71882FG/ALC888/RTL8211BL/JMB381	cfg-7505-PV	601-7505-A10

MICRO-STAR INT'L CO.,LTD

MS-7366

Size: Custom | Document Description: COVER SHEET | Rev: 0A

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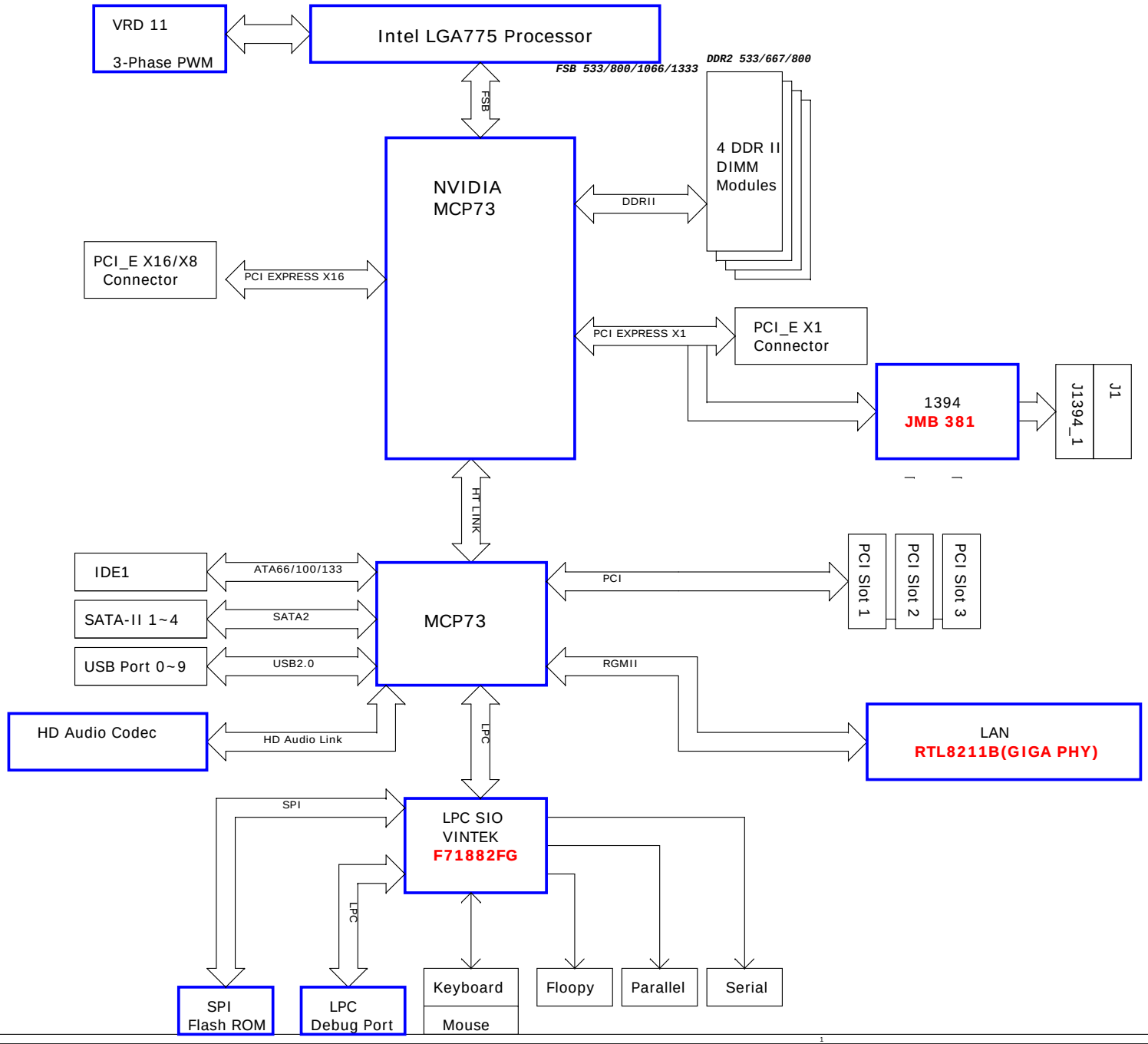
Block Diagram



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Size: Custom	Document Description: BLOCK DIAGRAM — Rev: 0A
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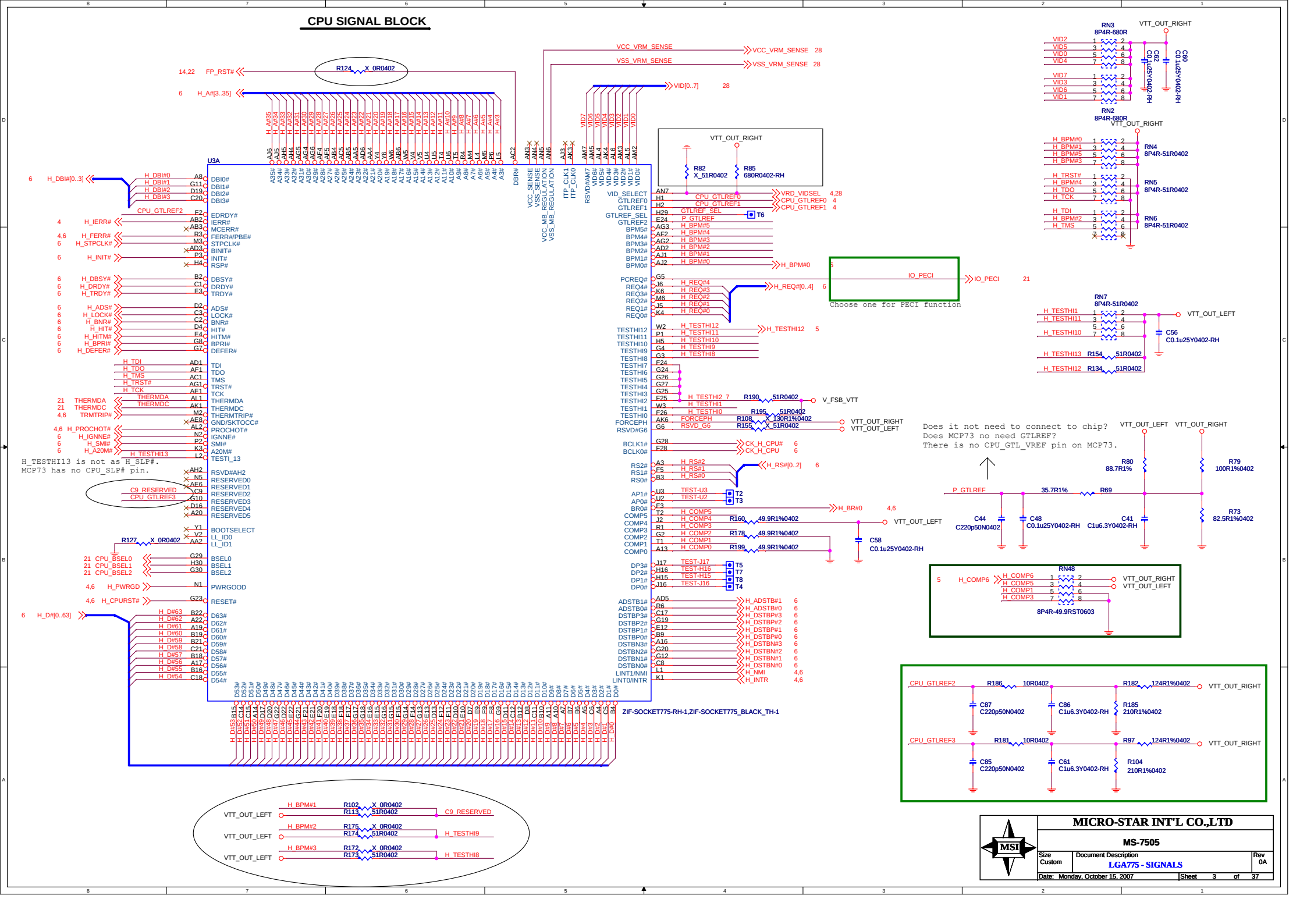
CPU SIGNAL BLOCK



MICRO-STAR INT'L CO.,LTD	
MS-7505	
Size: Custom	Document Description: LGA775 - SIGNALS
Rev: 0A	
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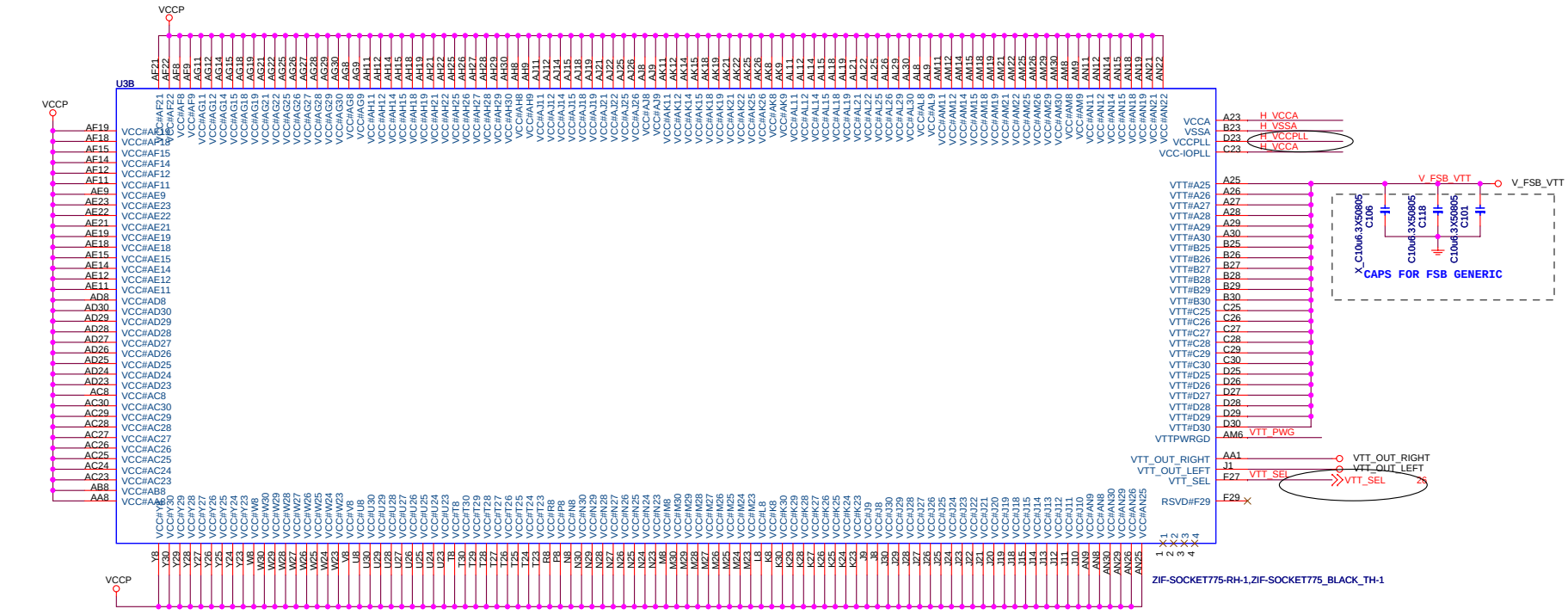
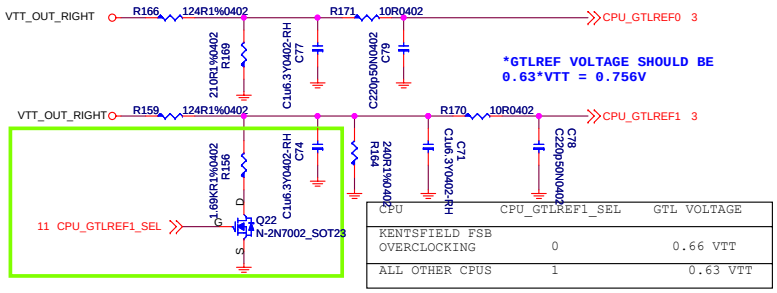


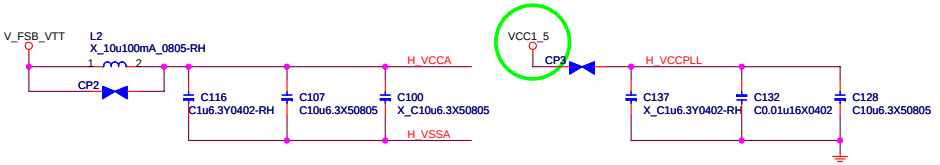


CPU	CPU_GTLREF1_SEL	GTL VOLTAGE
KENTSFIELD FSB OVERCLOCKING	0	0.66 VTT
ALL OTHER CPUS	1	0.63 VTT

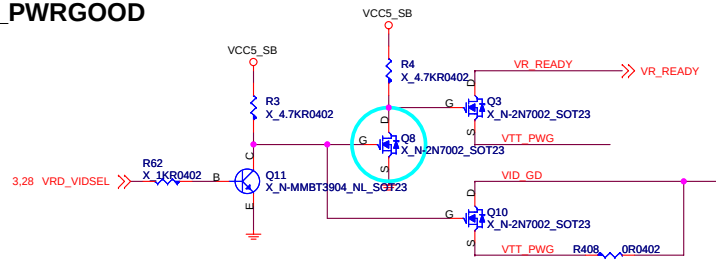
PLACE AT CPU END OF ROUTE

PLACE AT C55 END OF ROUTE

*PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET
*TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12MILS



VTT_PWRGOOD

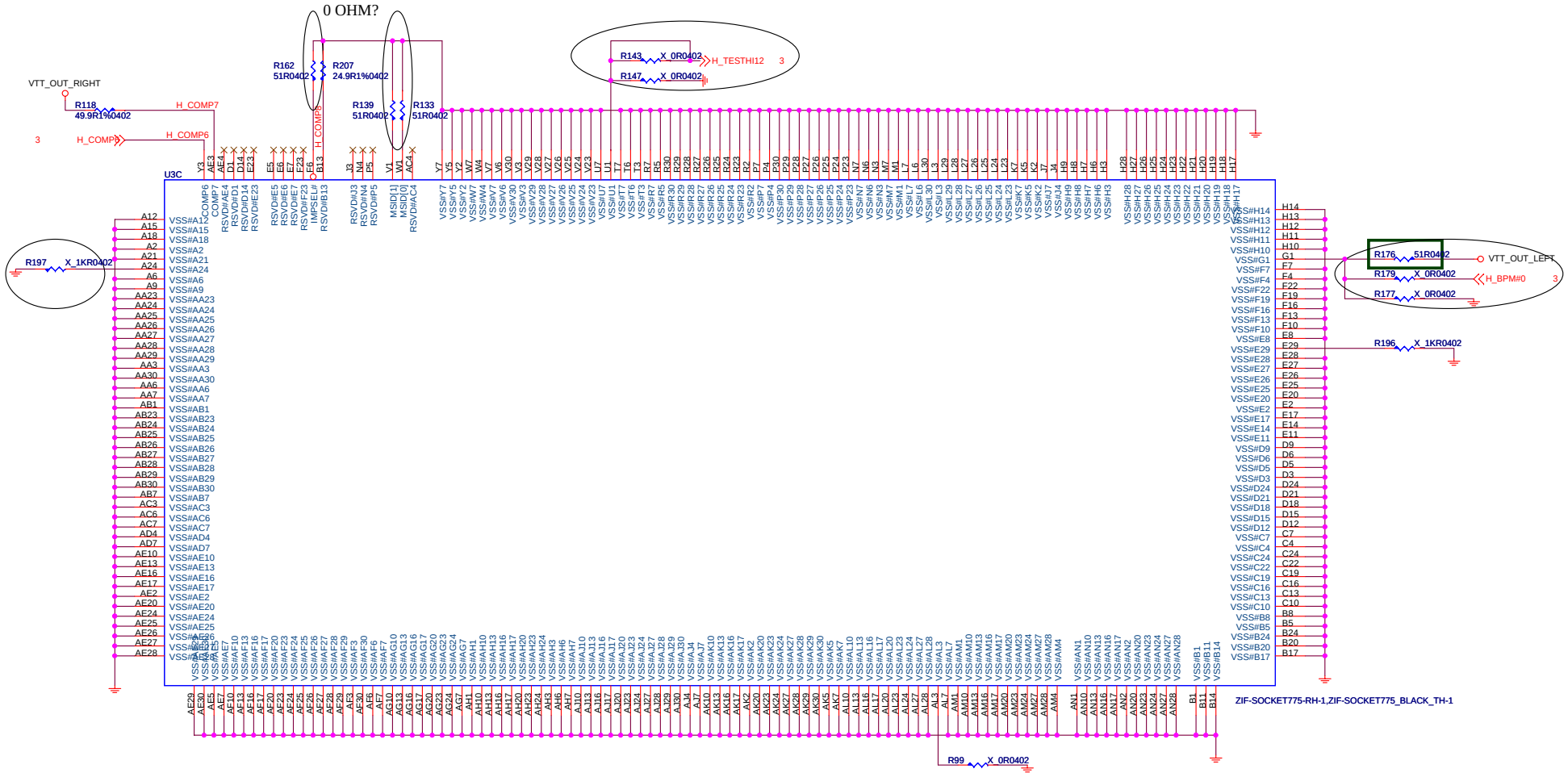


VTT_PWG SPEC :
High > 0.9V
Low < 0.3V
Trise < 150ns

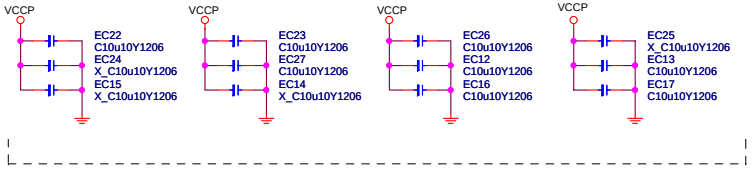
1.25V VTT_PWRGOOD

VID_SELECT	VTT_PWG	power on sequence
0 (VRM10)	VID_GD	VTT_PWG beforce VCCP
1 (VRM11)	VR_READY	VCCP beforce VTT_PWG

MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: LGA775 - POWER	Rev: 0A
Date: Tuesday, October 16, 2007	Sheet 4 of 37	



CPU DECOUPLING CAPACITORS



Place these caps within socket cavity

MICRO-STAR INT'L CO.,LTD	
MS-7505	
Size: Custom	Document Description: LGA775 - GND
Rev: 0A	
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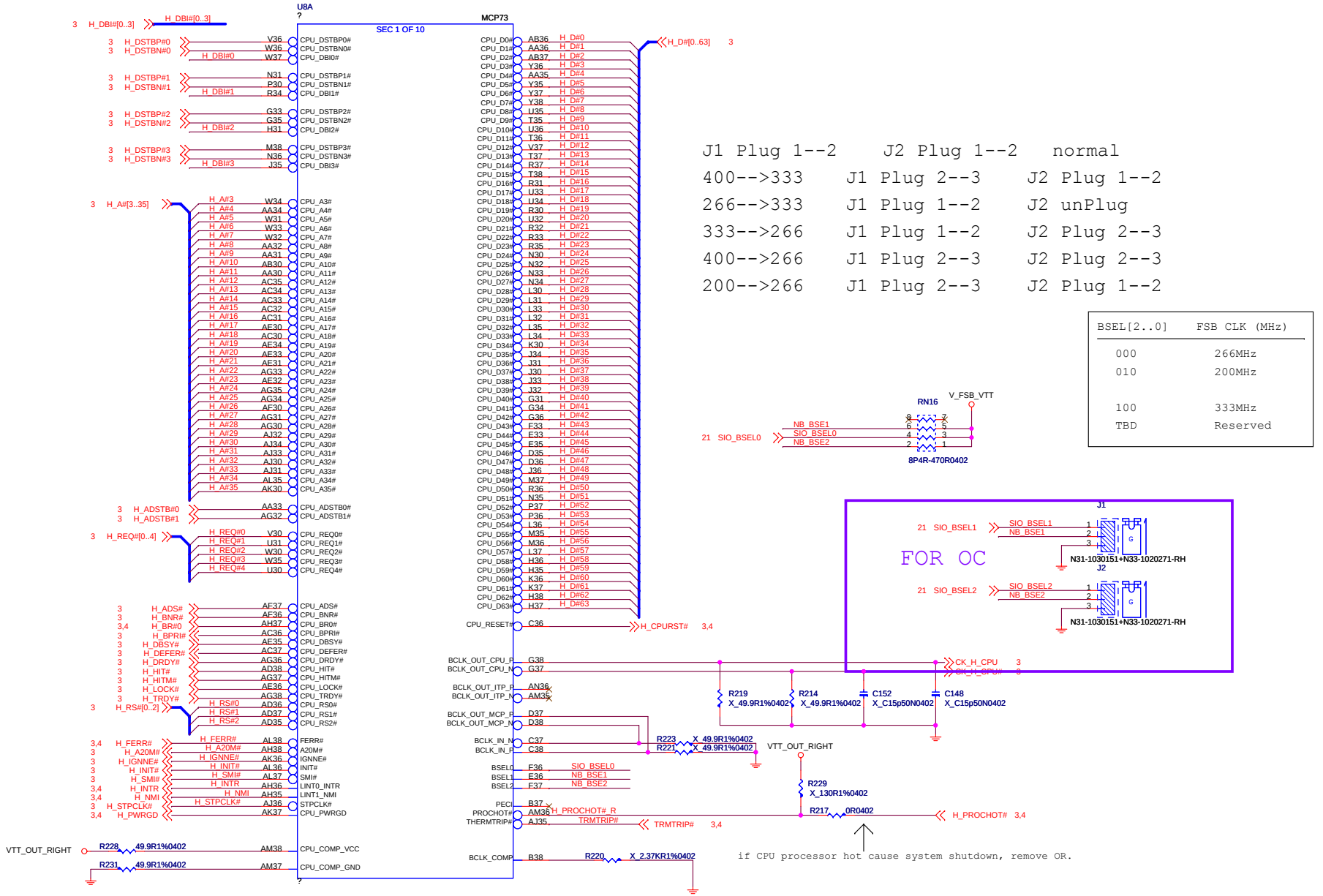
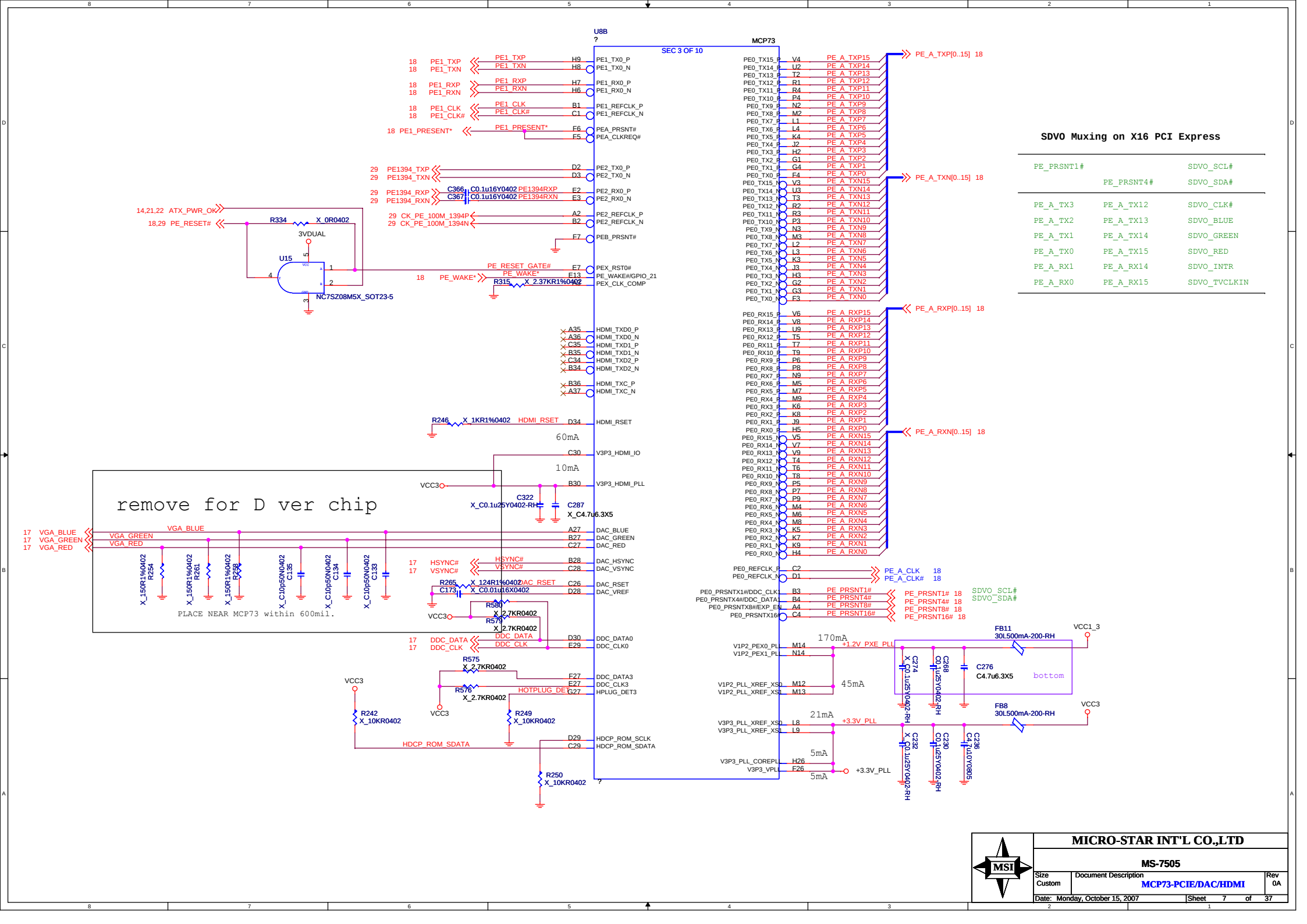


MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: MCP73-CPU	Rev: 0A
Date: Monday, October 15, 2007	Sheet 6 of 37	



SDVO Muxing on X16 PCI Express

PE_PRSNT1#		SDVO_SCL#
	PE_PRSNT4#	SDVO_SDA#
PE_A_TX3	PE_A_TX12	SDVO_CLK#
PE_A_TX2	PE_A_TX13	SDVO_BLUE
PE_A_TX1	PE_A_TX14	SDVO_GREEN
PE_A_TX0	PE_A_TX15	SDVO_RED
PE_A_RX1	PE_A_RX14	SDVO_INTR
PE_A_RX0	PE_A_RX15	SDVO_TVCLKIN

MICRO-STAR INT'L CO.,LTD			
MS-7505			
Size: Custom	Document Description: MCP73-PCIE/DAC/HDMI		Rev: 0A
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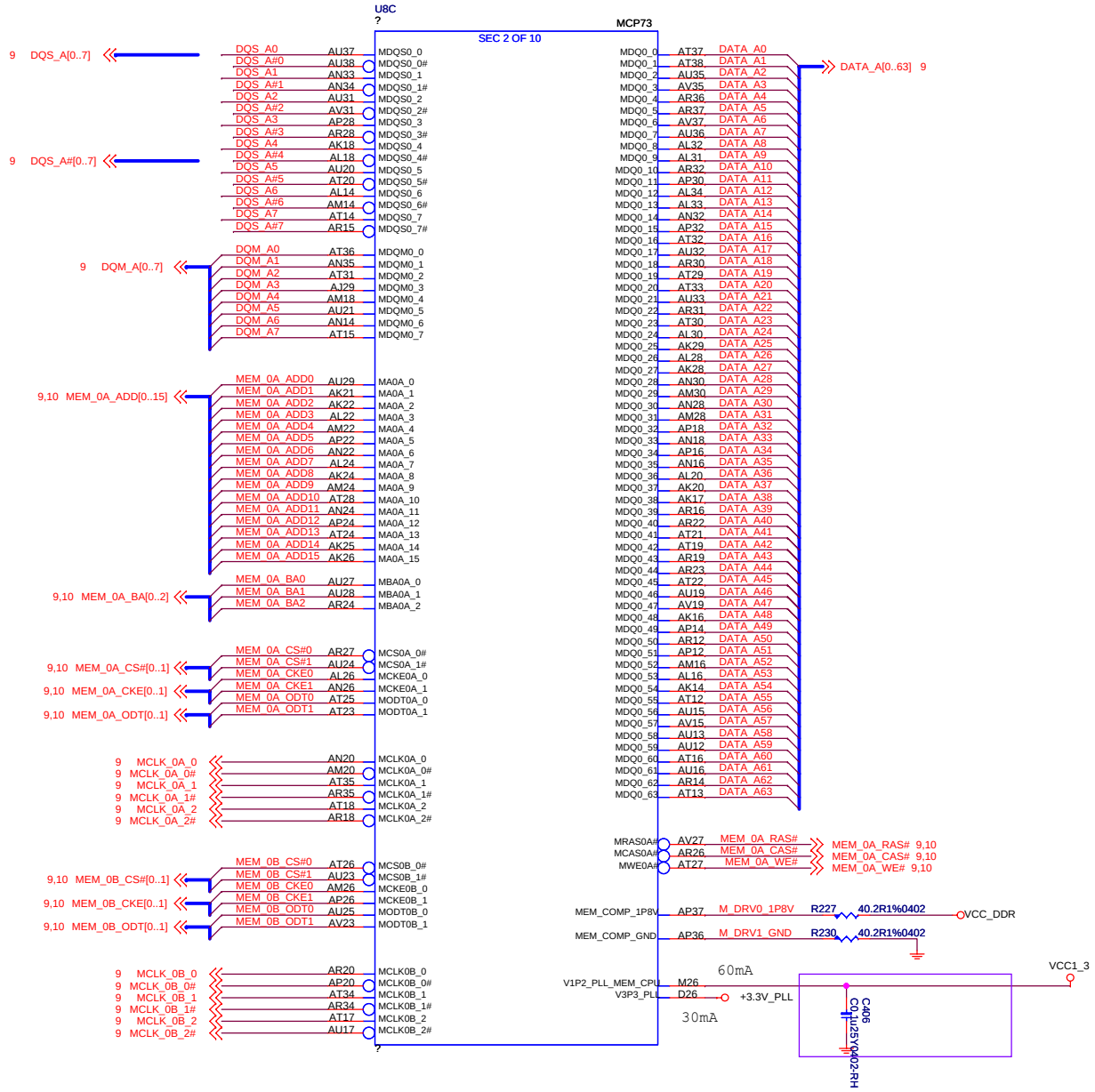
DATA 0

DIMM 1 ADDR 0A / CNTL 0A

DIMM 2 ADDR 0B / CNTL 0B

DIMM 0A



MICRO-STAR INT'L CO.,LTD	
MS-7505	
Size: Custom	Document Description: MCP73-MEM
Rev: 0A	
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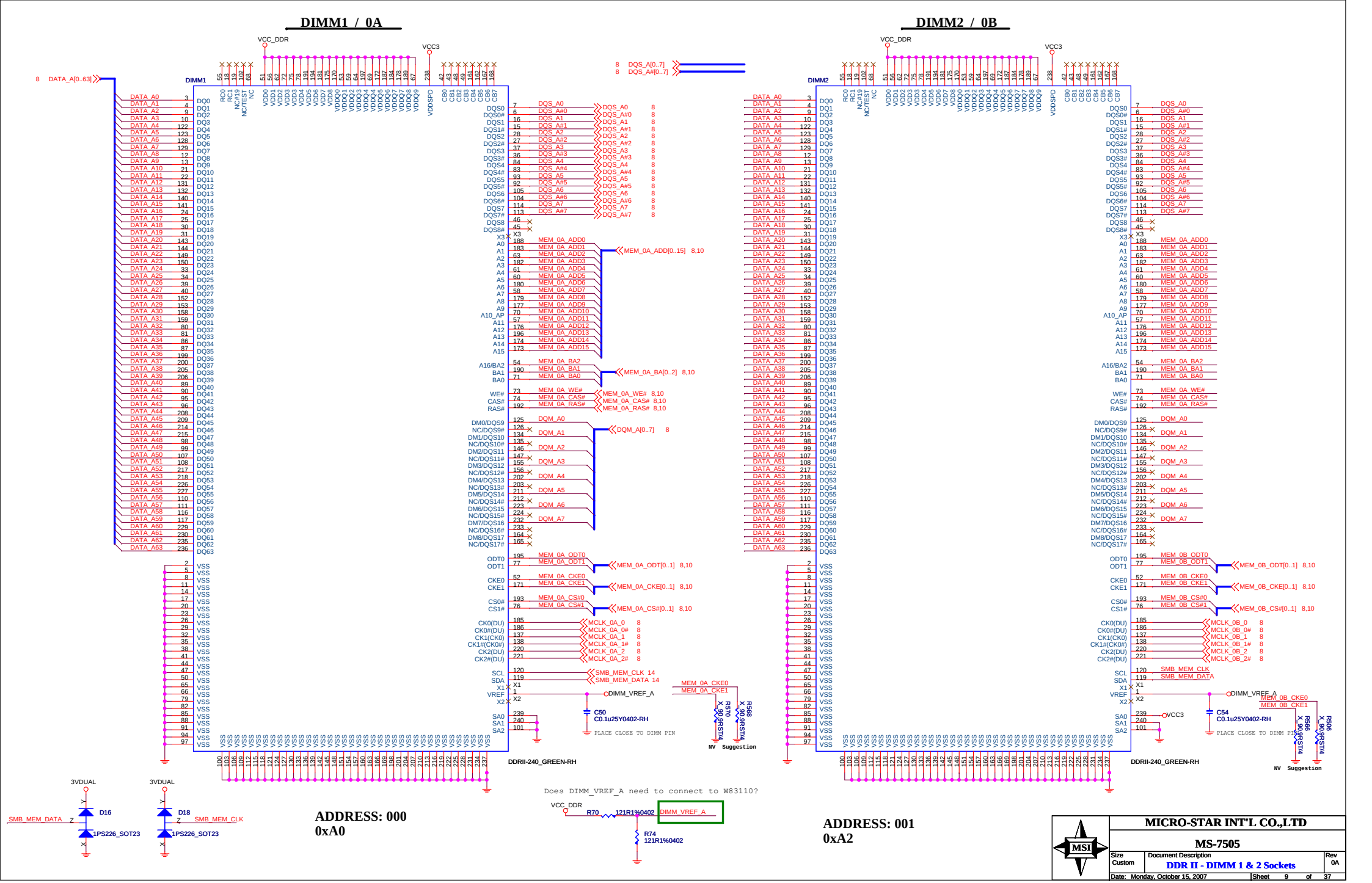
DIMM1 / 0A
DIMM2 / 0B
VCC_DDR
VCC3
DDRII-240_GREEN-RH
DIMM_VREF_A
C50
C0.1u25Y0402-RH
PLACE CLOSE TO DIMM PIN
C54
R570
R569
R506
R568
NV Suggestion
SMB_MEM_DATA
SMB_MEM_CLK
D16
D18
1PS226_SOT23
Does DIMM_VREF_A need to connect to W83110?
R70
121R1%0402
R74
ADDRESS: 000
0xA0
ADDRESS: 001
0xA2
MICRO-STAR INT'L CO.,LTD
MS-7505
DDR II - DIMM 1 & 2 Sockets
Size Custom
Rev 0A
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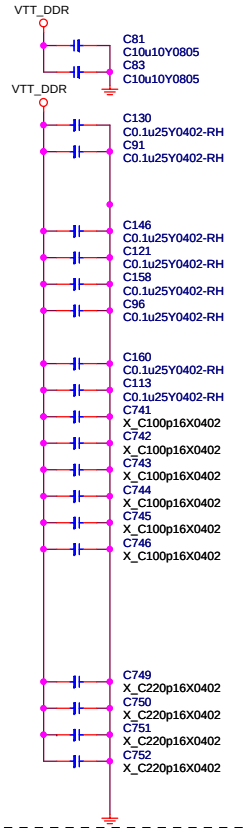
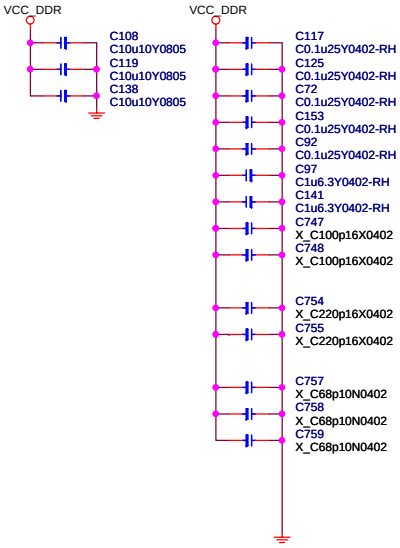
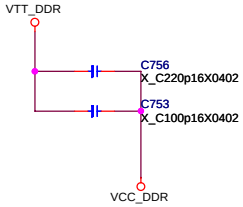
CHANNEL A VTT_DDR DECOULPING CAPS



CHANNEL A ----- 0A , 0B





Demo Board with 0.1u X5, 1uX3, 10uX3 for Single Channel
Dual Channel Must x2

MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: DDR II VTT Termination & Decoupling	Rev: 0A
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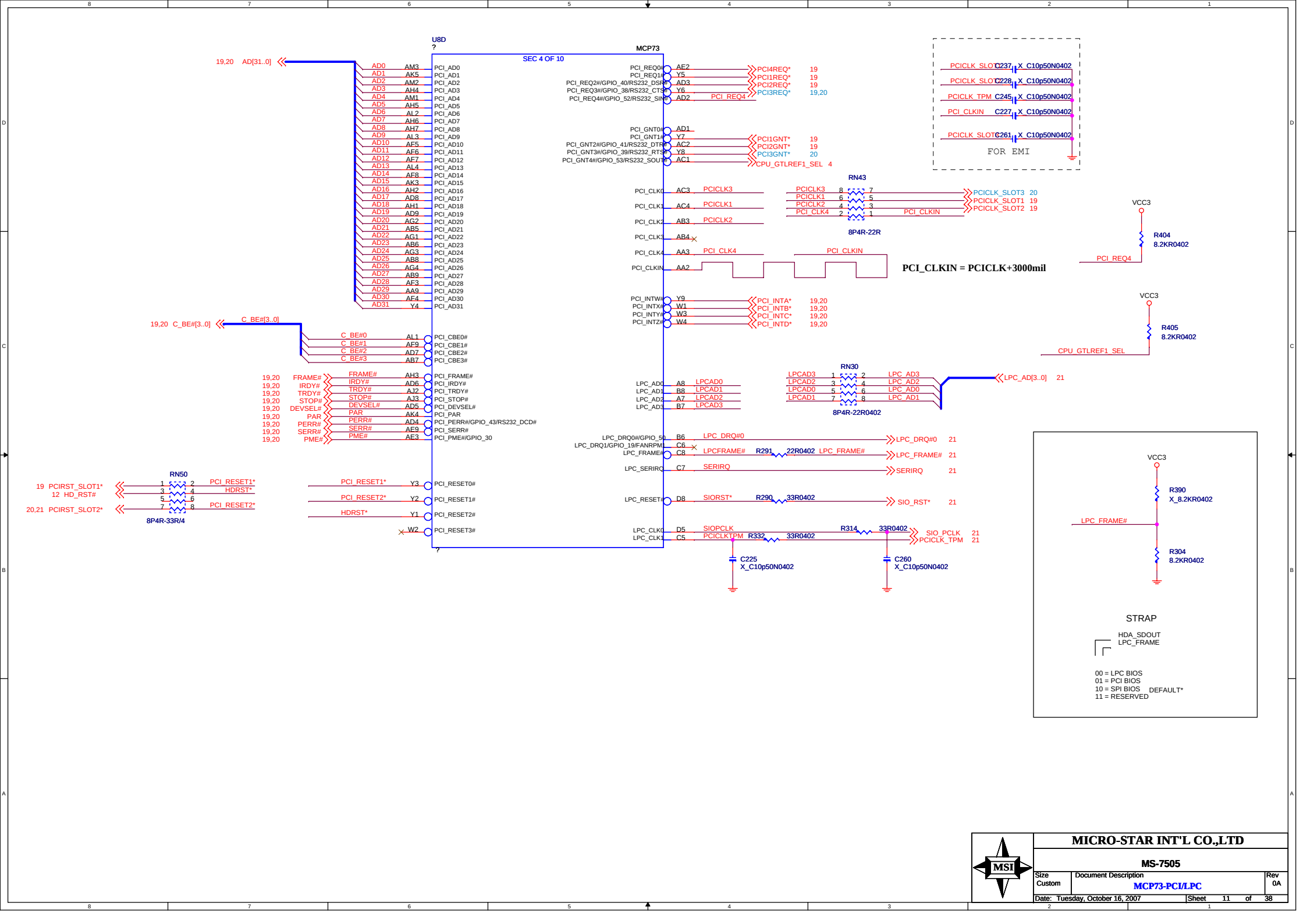
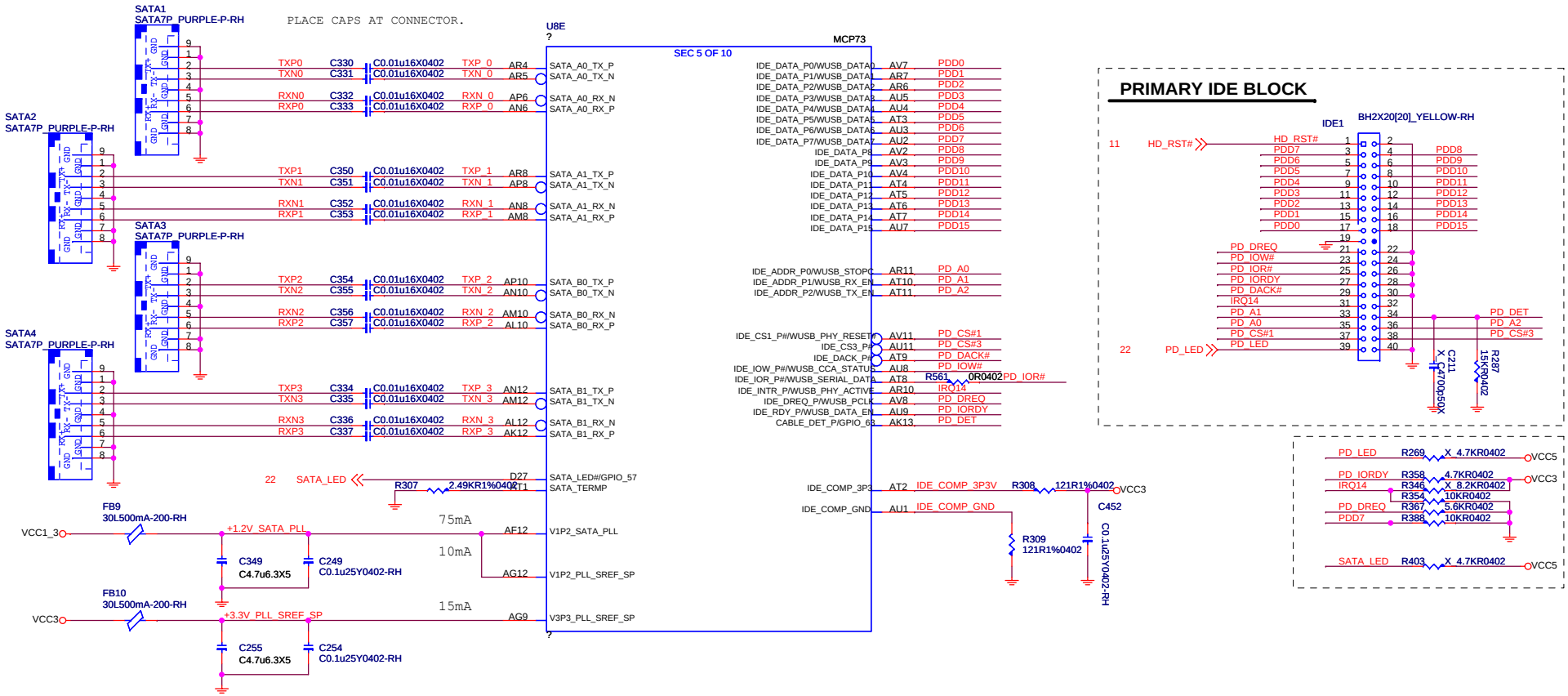
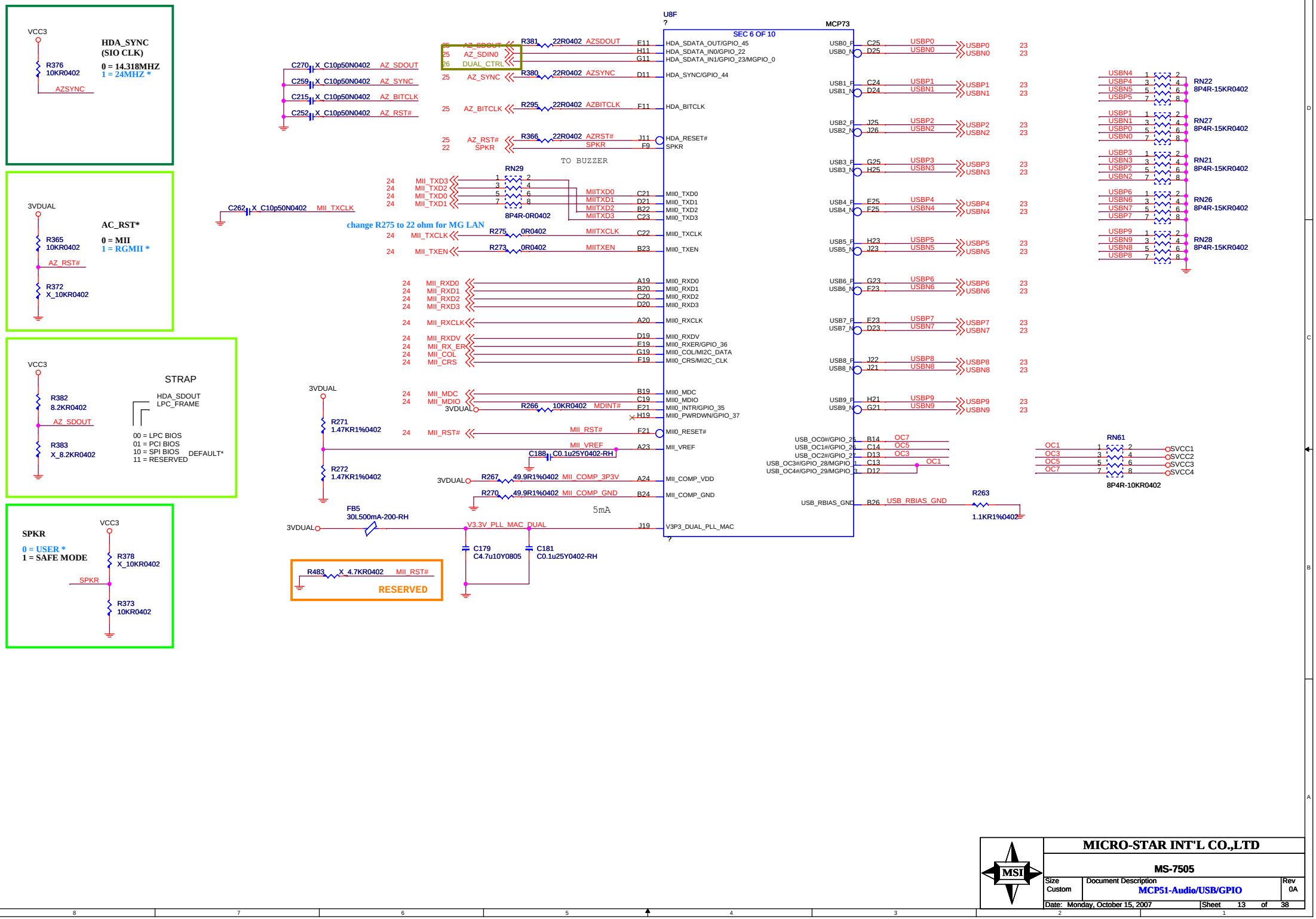


MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: MCP73-PCI/LPC	Rev: 0A
Date: Tuesday, October 16, 2007	Sheet 11 of 38	



MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: MCP73-SATA/IDE	Rev: 0A
Date: Monday, October 15, 2007	Sheet 12 of 38	


HDA_SYNC
(SIO CLK)
0 = 14.318MHZ
1 = 24MHZ *
R376
10KR0402
AZSYNC
AC_RST*
0 = MII
1 = RGMII *
R365
10KR0402
AZ_RST#
R372
X_10KR0402
STRAP
R382
8.2KR0402
AZ_SDOUT
R383
X_8.2KR0402
HDA_SDOUT
LPC_FRAME
00 = LPC BIOS
01 = PCI BIOS
10 = SPI BIOS
11 = RESERVED
DEFAULT*
SPKR
0 = USER *
1 = SAFE MODE
R378
X_10KR0402
R373
10KR0402
U8F
MCP73
SEC 6 OF 10
AZ_SDOUT
AZ_SDIN0
DUAL_CTRL
AZ_SYNC
AZ_BITCLK
AZ_RST#
SPKR
HDA_SDATA_OUT/GPIO_45
HDA_SDATA_IN0/GPIO_22
HDA_SDATA_IN1/GPIO_23/MGPIO_0
HDA_SYNC/GPIO_44
HDA_BITCLK
HDA_RESET#
SPKR
TO BUZZER
change R275 to 22 ohm for MG LAN
MII_TXD3
MII_TXD2
MII_TXD0
MII_TXD1
MII_TXCLK
MII_TXEN
MII_RXD0
MII_RXD1
MII_RXD2
MII_RXD3
MII_RXCLK
MII_RXDV
MII_RX_ER
MII_COL
MII_CRS
MII_MDC
MII_MDIO
MII_RST#
MII_VREF
MII_COMP_3P3V
MII_COMP_GND
5mA
V3.3V_PLL_MAC_DUAL
V3P3_DUAL_PLL_MAC
RESERVED
USB_RBIAS_GND
RN22
RN27
RN21
RN26
RN28
RN61
8P4R-15KR0402
8P4R-10KR0402
MICRO-STAR INT'L CO.,LTD
MS-7505
Size
Custom
Document Description
MCP51-Audio/USB/GPIO
Rev
0A
Date: Monday, October 15, 2007
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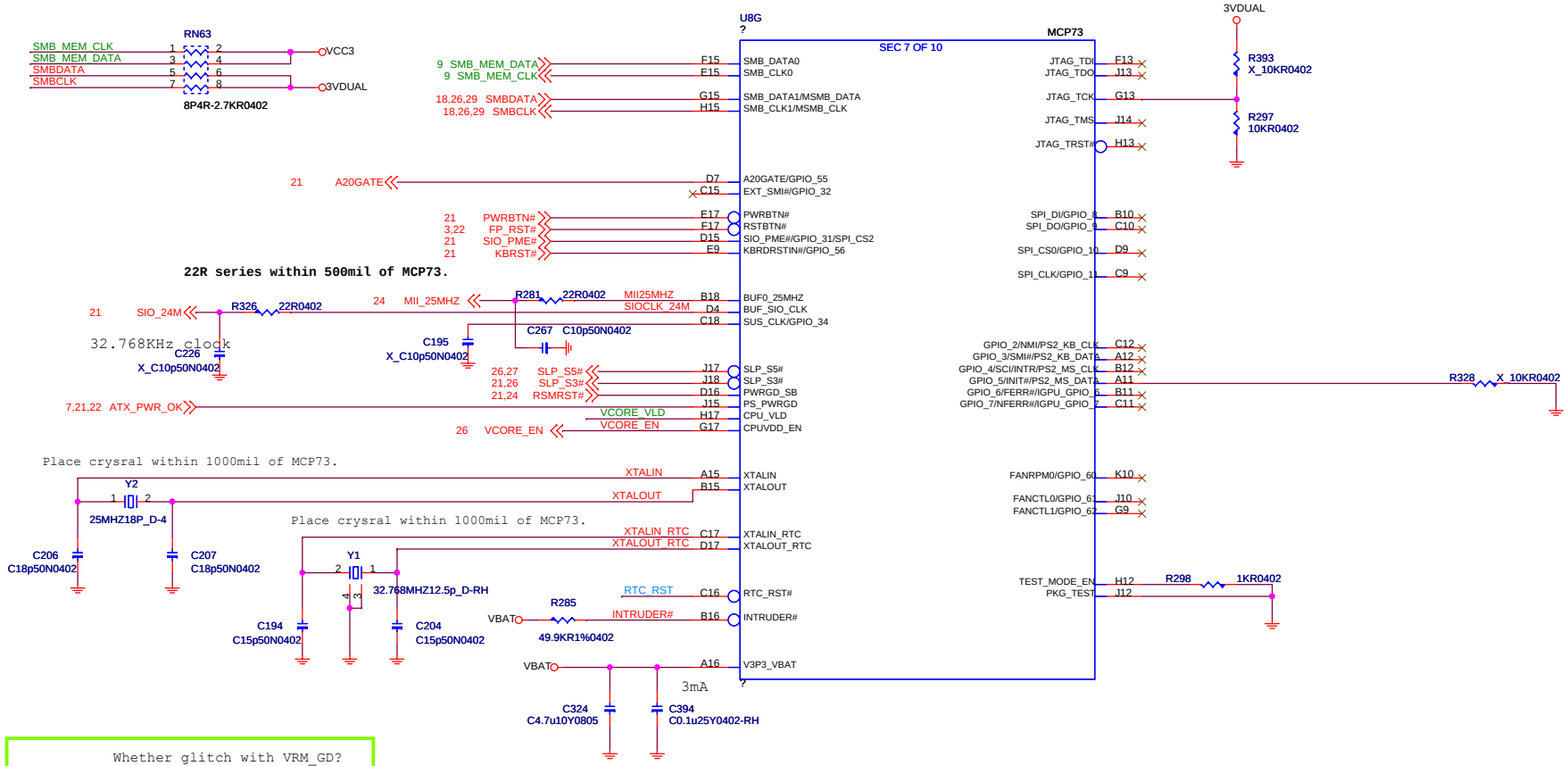

MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: MCP51-SPI/SMB	Rev: 0A
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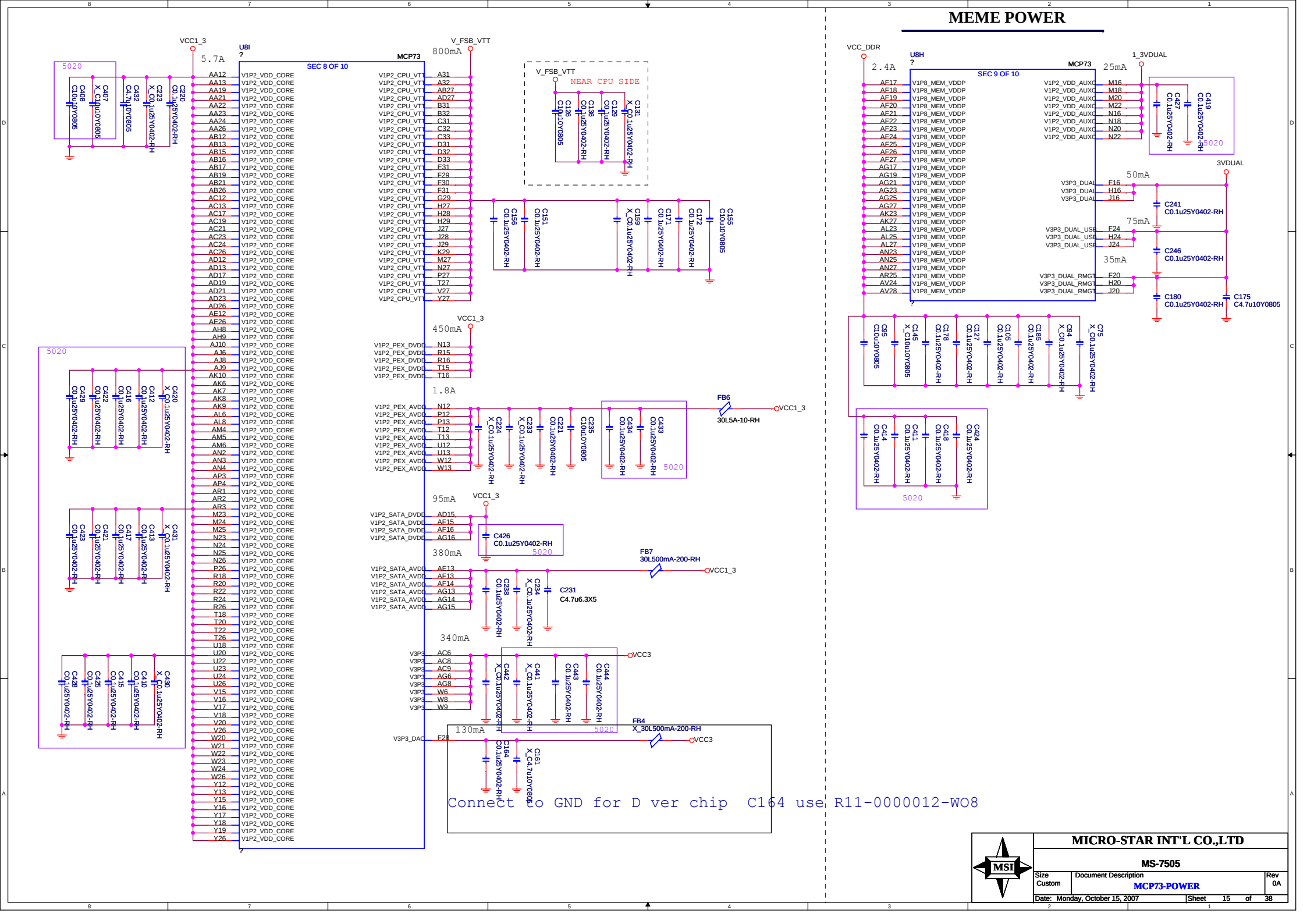
MEME POWER
U8I
SEC 8 OF 10
MCP73
U8H
SEC 9 OF 10
MCP73
VCC1_3
5.7A
V_FSB_VTT
800mA
NEAR CPU SIDE
VCC_DDR
2.4A
1_3VDUAL
25mA
3VDUAL
50mA
75mA
35mA
450mA
1.8A
95mA
380mA
340mA
130mA
FB6
30L5A-10-RH
FB7
30L500mA-200-RH
FB4
X_30L500mA-200-RH
VCC3
Connect to GND for D ver chip C164 use R11-0000012-WO8
MICRO-STAR INT'L CO.,LTD
MS-7505
MCP73-POWER
Size Custom
Rev 0A
Date: Monday, October 15, 2007
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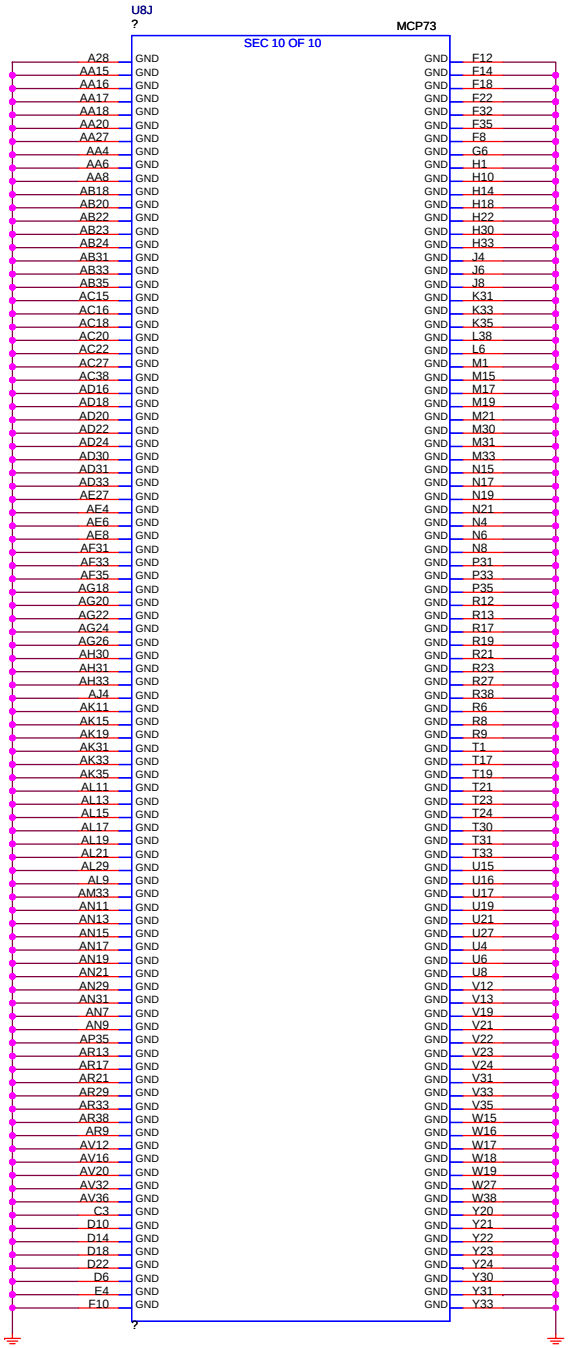

MICRO-STAR INT'L CO.,LTD

MS-7505

Size	Document Description	Rev
Custom	MCP73-GND	0A

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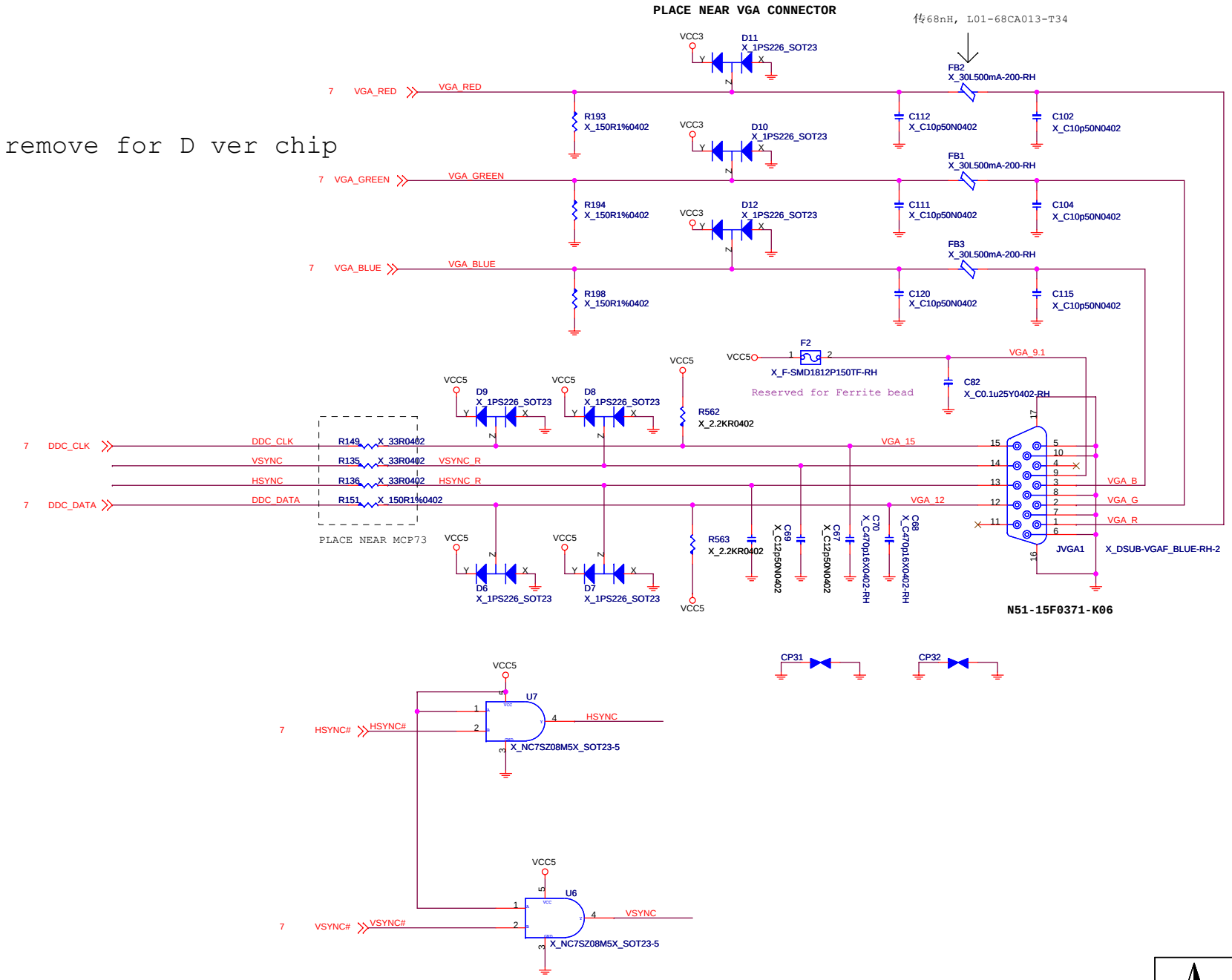

MICRO-STAR INT'L CO.,LTD			
MS-7505			
Size: Custom	Document Description: D-SUB		Rev: 0A
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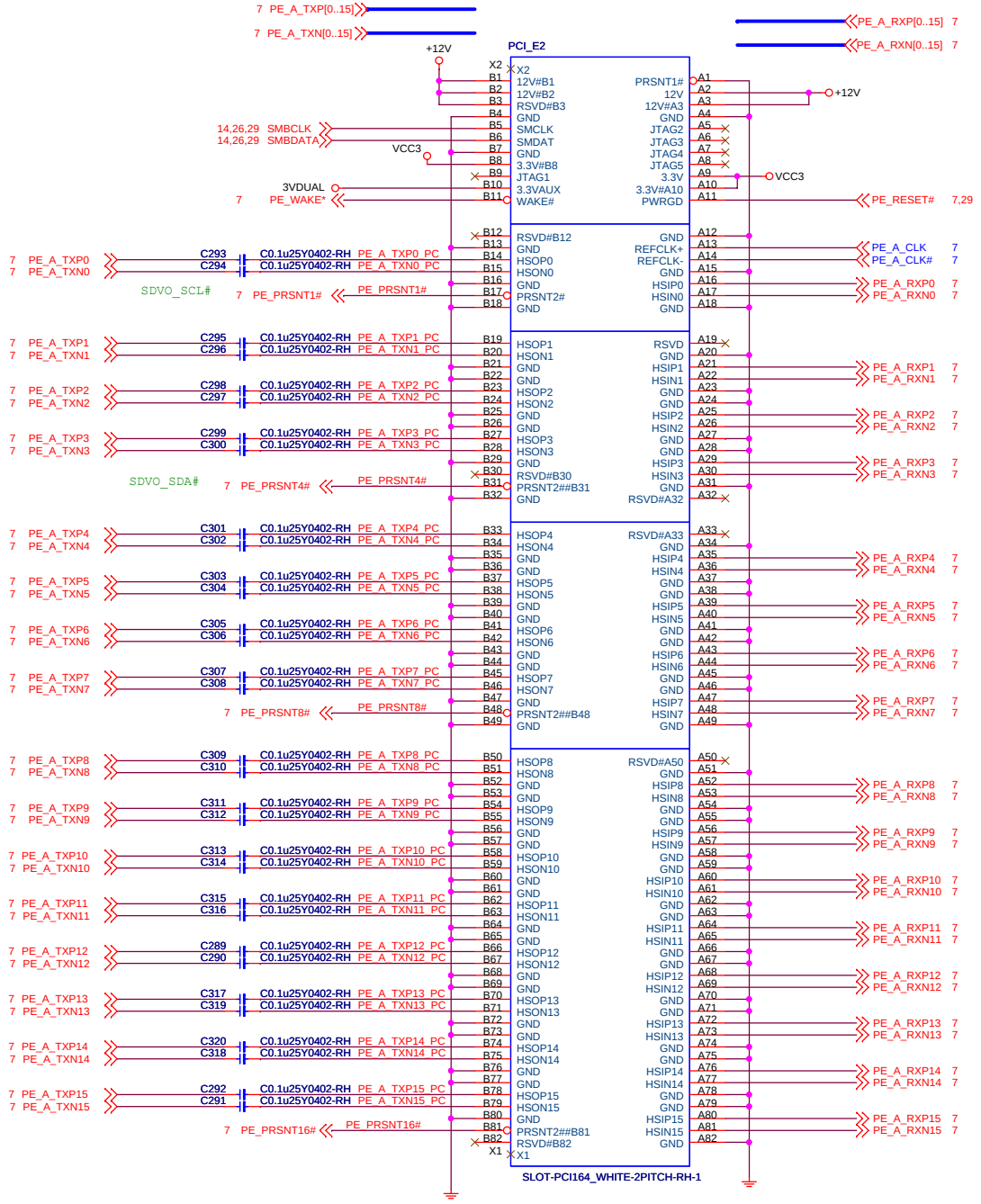
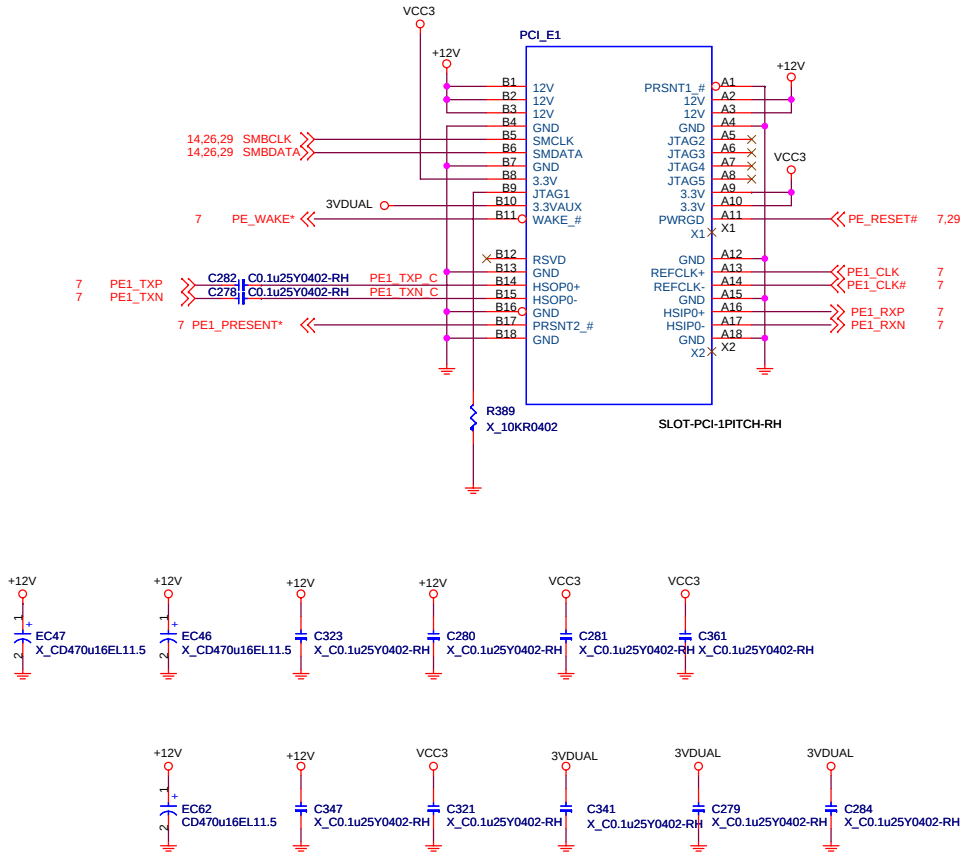
PCI-Express X16 Primary Slot X16/X8



PCI-Express x1 SLOT 1



MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: PCI-E X16/X1 Slot	Rev: 0A
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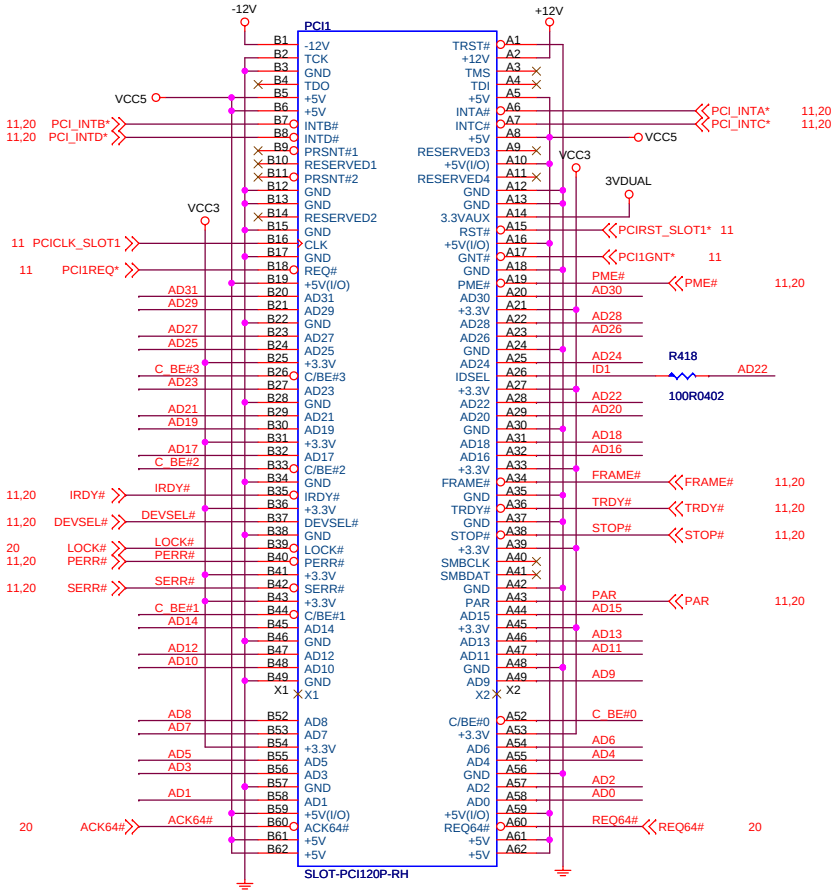
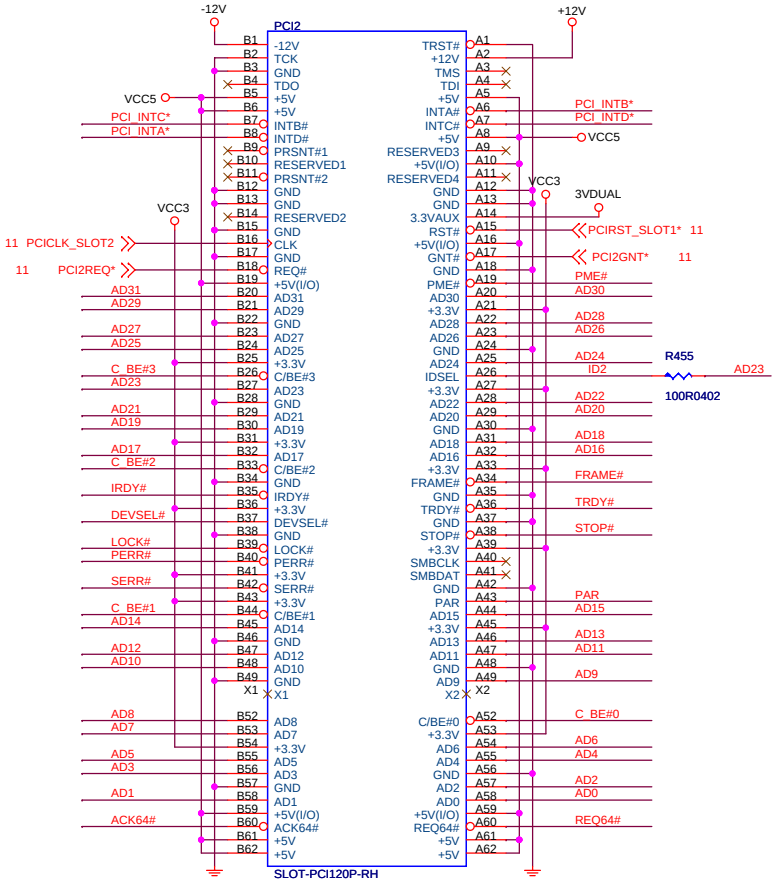
PCI SLOT 1 (PCI VER: 2.2 COMPLY)



IDSEL = AD22
MASTER = PCI1REQ*
PCI1GNT*

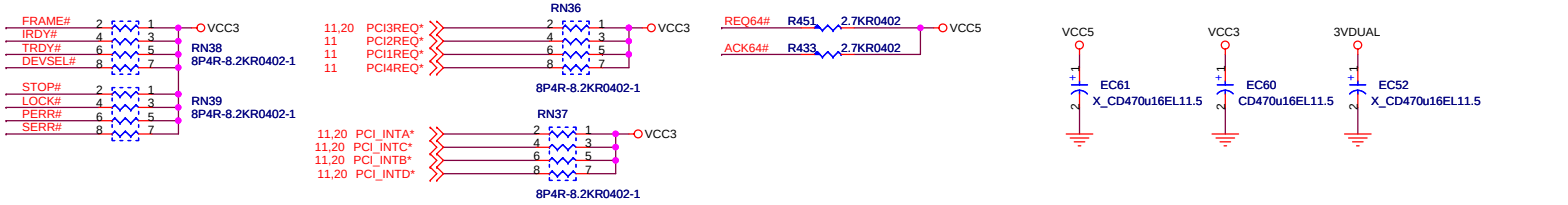
PCI SLOT 2 (PCI VER: 2.2 COMPLY)



IDSEL = AD23
MASTER = PCI2REQ*
PCI2GNT*

11,20 AD[31..0] — AD[31..0]
11,20 C_BE#[3..0] — C_BE#[3..0]

PCI PULL-UP / DOWN RESISTORS



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7505	
Size: Custom	Document Description: PCI Slot 1 & 2 & 3	Rev: 0A
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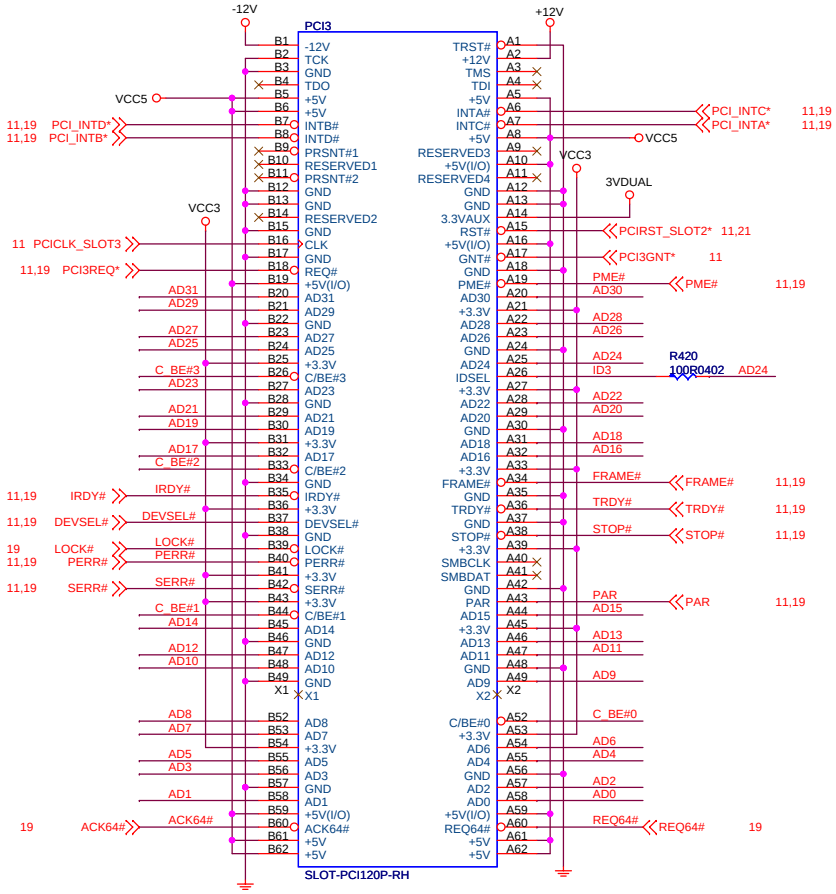
PCI SLOT 1 (PCI VER: 2.2 COMPLY)



IDSEL = AD24
MASTER = PCI3REQ*
PCI3GNT*

11,19 AD[31..0] — AD[31..0]
11,19 C_BE#[3..0] — C_BE#[3..0]

MICRO-STAR INT'L CO.,LTD		
MS-7366		
Size: Custom	Document Description: PCI Slot 4 & 3	Rev: 0A
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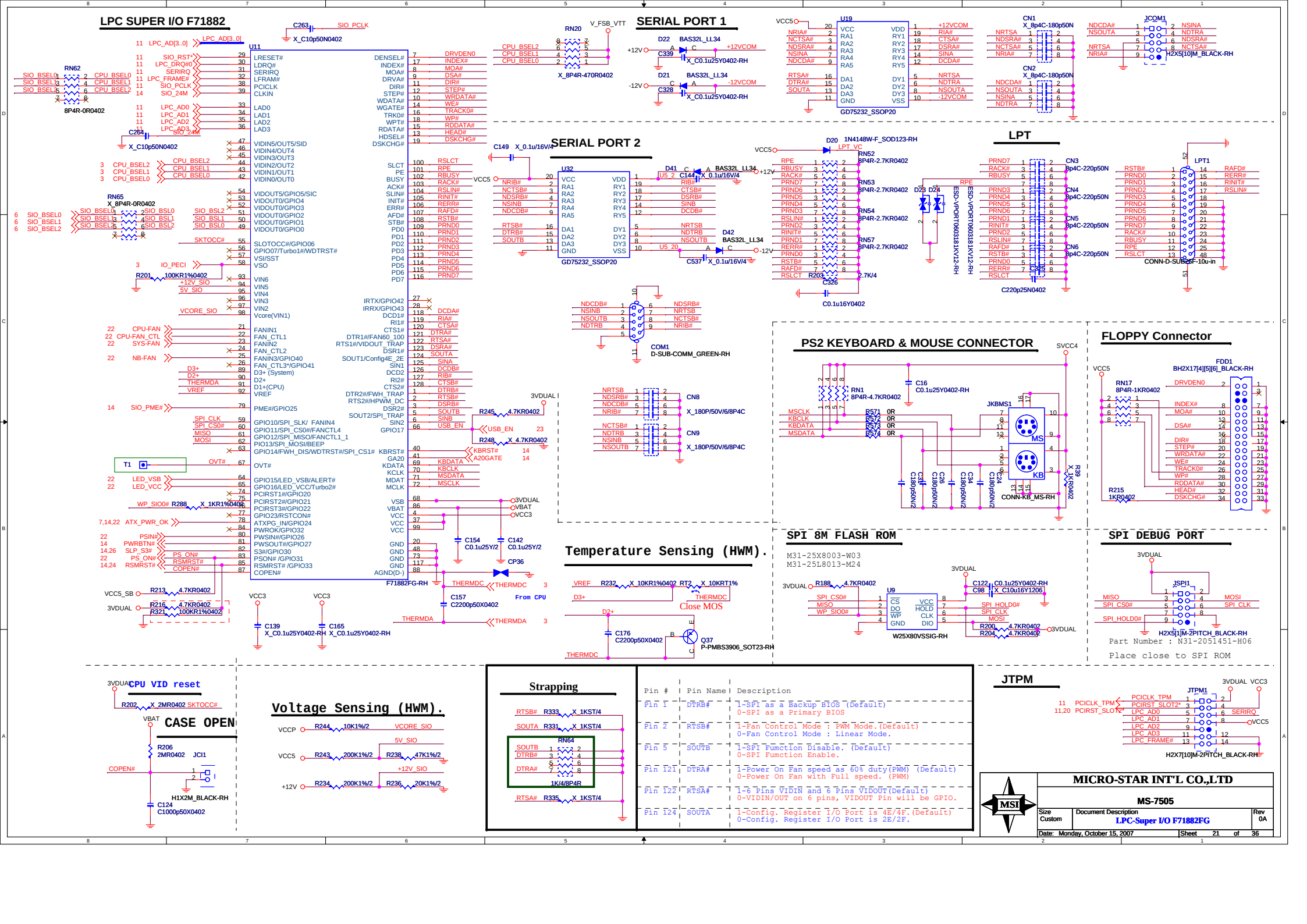
LPC SUPER I/O F71882
SERIAL PORT 1
SERIAL PORT 2
LPT
PS2 KEYBOARD & MOUSE CONNECTOR
FLOPPY Connector
Temperature Sensing (HWM).
SPI 8M FLASH ROM
SPI DEBUG PORT
CPU VID reset
CASE OPEN
Voltage Sensing (HWM).
Strapping
JTPM
M31-25X8003-W03
M31-25L8013-M24
Close MOS
Part Number : N31-2051451-H06
Place close to SPI ROM
MICRO-STAR INT'L CO.,LTD
MS-7505
LPC-Super I/O F71882FG
Date: Monday, October 15, 2007
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ATX connector / Front Panel

Intel Front Panel

ESD Protect

C399 X_C180p50N

D28 S-BAT54ALT1G_SOT23-RH

SATA_LED 12

PD_LED 12

For MSI / Intel Front Panel

JFP1 H2X5[10]M_COLORS-RH

HDD+ PLED PLED1

HDD- SLED PLED2

RESET- PWSW+

RESET+ PWSW-

NC

R477 330R0402 HDD+

R466 33R0402 3,14 FP_RST#

C391 C0.1u25Y0402-RH

R467 330R0402

R468 10KR0402 3VDUAL

Near Super I/O

R211 100R1%0402 PSIN# 21

C393 C0.1u25Y0402-RH

JFP2 H2X4[7]M_COLOR-RH

GND SPEAKER

SLED BUZ+

PLED BUZ-

VCCSPK VCC5

PLED2

PLED1

RN42 8P4R-220R

D27 X_BAS32L_LL34 VCC5

13 SPKR R464 2.2KR0402

Q49 N-MMBT3904_NL_SOT23

C395 C0.1u25Y0402-RH

LED (for Fintek 71882)

VCC5_SB

RN60 8P4R-470R0402

3VDUAL R473 1KR0402

PLED1

21 LED_VCC R470 4.7KR0402

Q50 N-MMBT3904_NL_SOT23

3VDUAL R476 1KR0402

PLED2

21 LED_VSB R478 4.7KR0402

Q51 N-MMBT3904_NL_SOT23

ATX Connector

PWR2 PWRCONN24P_CREAM-RH-1

C288 X_C0.1u25Y0402-RH

VCC3 -12V GND P_ON GND GND GND -5V 5V 5V GND

3.3V 3.3V -12V GND 5V GND POK 5VSB +12V +12V 3.3V

C277 C1000p50X0402

21 PS_ON#

C275 C1000p50X0402

C257 C0.1u25Y0402-RH

C283 C0.1u25Y0402-RH

VCC5 VCC5_SB +12V VCC3

C213 C0.1u25Y0402-RH

C192 C0.1u25Y0402-RH

ATX_PWR_OK_5V 26

Q40 N-MMBT3904_NL_SOT23

ATX_PWR_OK 7,14,21

C219 C0.1u25Y0402-RH

RN70 8P4R-10KR

VCC5 VCC3

C327 X_C0.1u25Y0402-RH

C329 X_C0.1u25Y0402-RH

C338 X_C0.1u25Y0402-RH

C340 X_C0.1u25Y0402-RH

C342 X_C0.1u25Y0402-RH

C343 X_C0.1u25Y0402-RH

C344 X_C0.1u25Y0402-RH

C345 X_C0.1u25Y0402-RH

C346 X_C0.1u25Y0402-RH

C348 X_C0.1u25Y0402-RH

CPU FAN

+12V D1 BAS32L_LL34

R12 27KR0402 CPU-FAN 21

R31 4.7KR0402

CPUFAN1 MEC1

R5 10KR0402

C22 C10u16Y1206

BH1X4B_WHITE-RH-2

VCC5 R41 1KR0402 D2 BAS32L_LL34

R30 200R1%0402 CPU-FAN_CTL 21

Winbond Protection circuit

SYSTEM FAN

+12V D26 BAS32L_LL34

R431 27KR0402 SYS-FAN 21

R430 4.7KR0402

SYSFAN1

R432 10KR0402

C371 C10u16Y1206

BH1X3B-FR_WHITE-RH

NB FAN

Reserve for NB_FAN, Near MCP73
MP Remove

+12V D17 BAS32L_LL34

R302 27KR0402 NB-FAN 21

R301 4.7KR0402

SYSFAN2

R299 10KR0402

C216 C10u16Y1206

BH1X3B-FR_WHITE-RH

MICRO-STAR INT'L CO.,LTD

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Size	Document Description	Rev
Custom	ATX/Front Panel/FAN	0A

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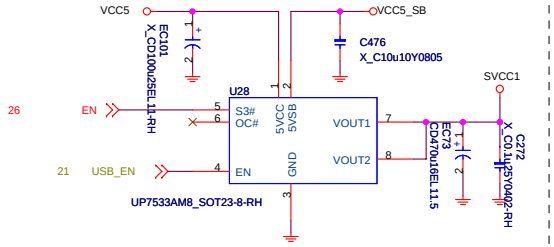
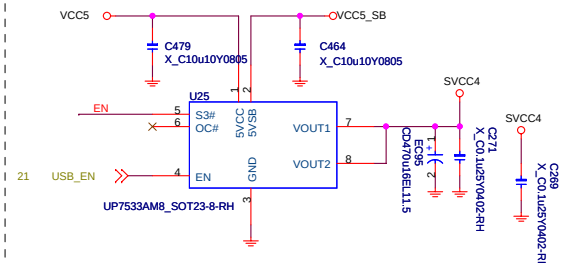
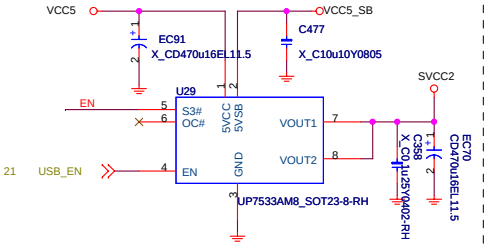
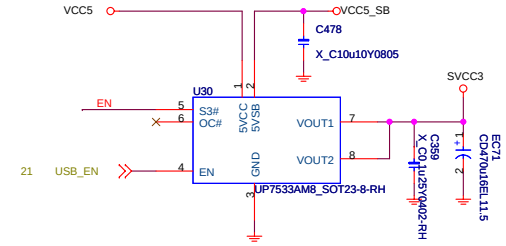


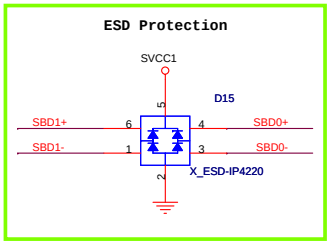


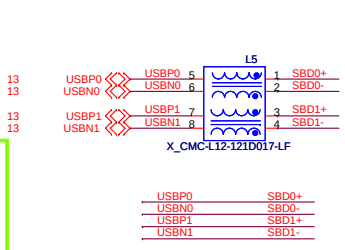


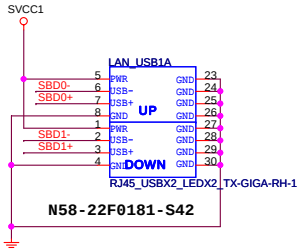


JUSB3 is not present in MCP73S

REAR PANEL USB CONNECTOR FOR USB PORT 0,1





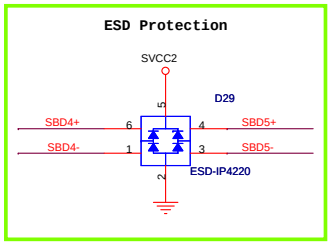


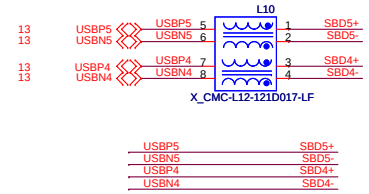
USBP0 SBD0+
USBN0 SBD0-
USBP1 SBD1+
USBN1 SBD1-

NEAR USB CONNECTOR

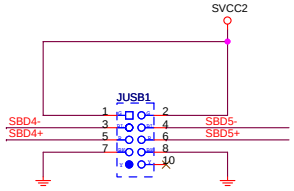
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

FRONT PANEL USB CONNECTOR FOR USB PORT 4,5





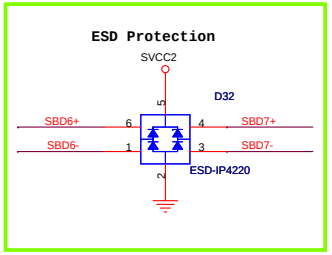
USBP5 SBD5+
USBN5 SBD5-
USBP4 SBD4+
USBN4 SBD4-

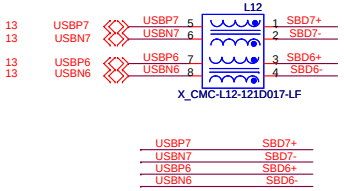


NEAR USB CONNECTOR

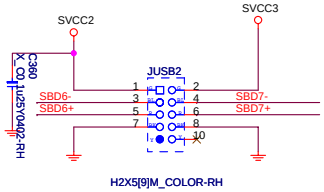
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

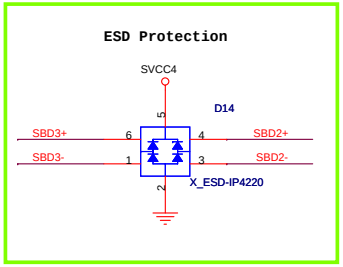


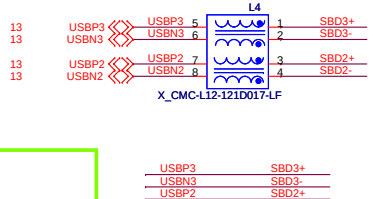


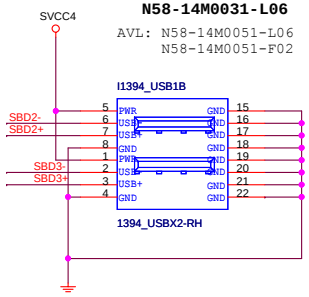
USBP7 SBD7+
USBN7 SBD7-
USBP6 SBD6+
USBN6 SBD6-



REAR PANEL USB CONNECTOR FOR USB PORT 2,3





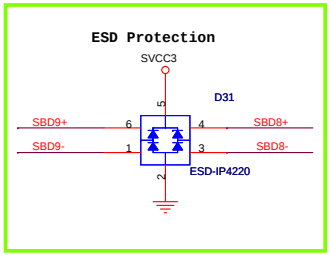


USBP3 SBD3+
USBN3 SBD3-
USBP2 SBD2+
USBN2 SBD2-

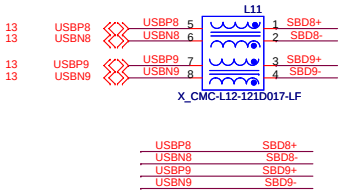
NEAR USB CONNECTOR

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

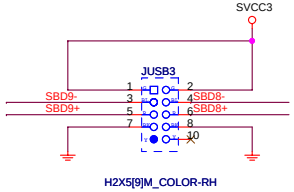
FRONT PANEL USB CONNECTOR FOR USB PORT 8,9



JUSB3 is not present in MCP73S



USBP8 SBD8+
USBN8 SBD8-
USBP9 SBD9+
USBN9 SBD9-



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Custom	USB CONNECTORS	0A

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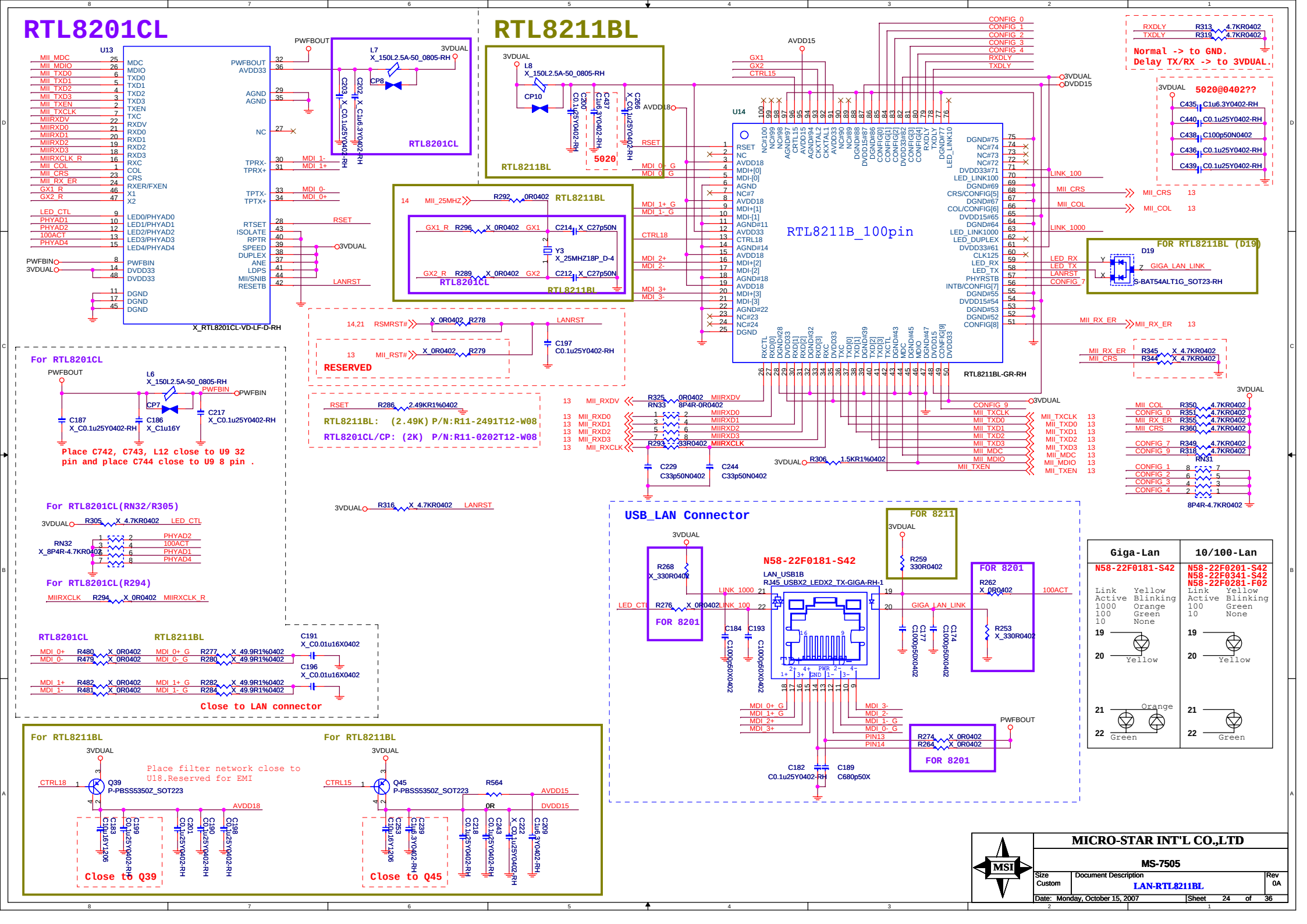
RTL8201CL
RTL8211BL
U13
X_RTL8201CL-VD-LF-D-RH
RTL8211B_100pin
U14
RTL8211BL-GR-RH
Normal -> to GND.
Delay TX/RX -> to 3VDUAL.
5020@0402??
FOR RTL8211BL (D19)
S-BAT54ALT1G_SOT23-RH
RESERVED
RTL8211BL: (2.49K) P/N:R11-2491T12-W08
RTL8201CL/CP: (2K) P/N:R11-0202T12-W08
For RTL8201CL
Place C742, C743, L12 close to U9 32 pin and place C744 close to U9 8 pin .
For RTL8201CL(RN32/R305)
For RTL8201CL(R294)
Close to LAN connector
USB_LAN Connector
N58-22F0181-S42
LAN_USB1B
RJ45_USBX2_LEDX2_TX-GIGA-RH-1
FOR 8211
FOR 8201
Giga-Lan
10/100-Lan
N58-22F0181-S42
N58-22F0201-S42
N58-22F0341-S42
N58-22F0281-F02
Link Active 1000 100 10
Yellow Blinking Orange Green None
Yellow
Orange
Green
For RTL8211BL
Place filter network close to U18.Reserved for EMI
Close to Q39
Close to Q45
MICRO-STAR INT'L CO.,LTD
MS-7505
LAN-RTL8211BL
Date: Monday, October 15, 2007
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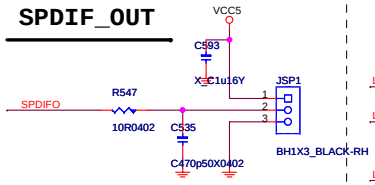
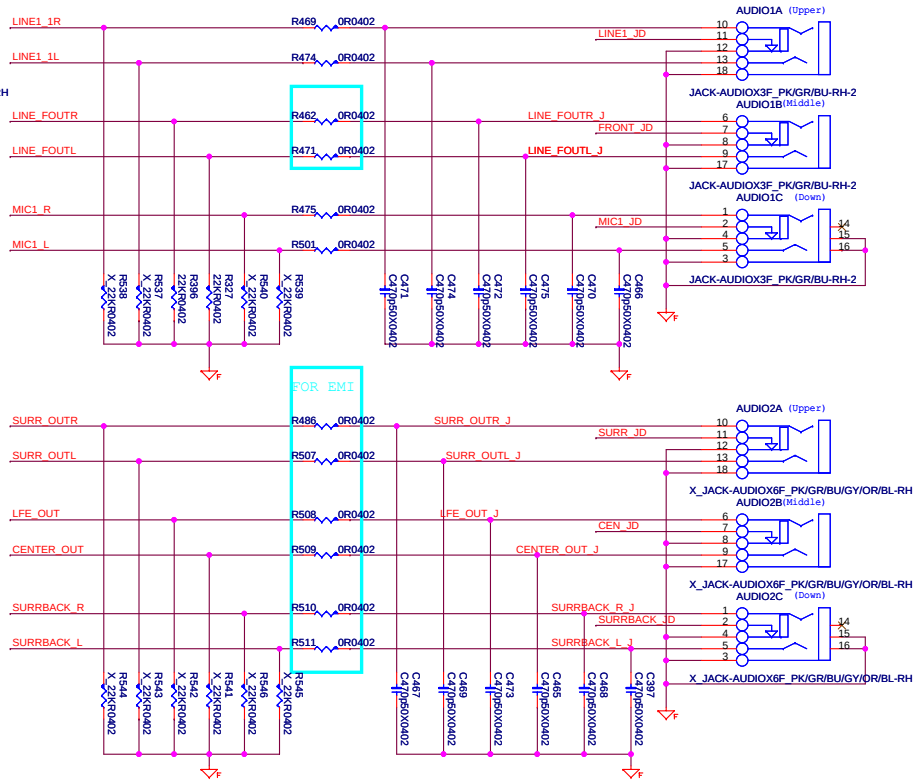
ALC888 CODEC

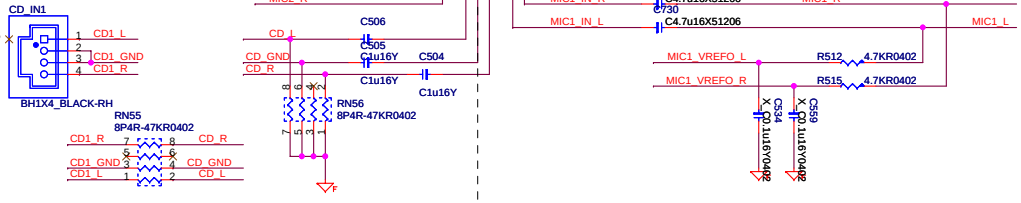
SPDIF_OUT



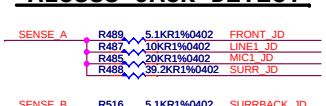
ALC883 JACK

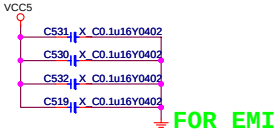


CD/IN HEADERS

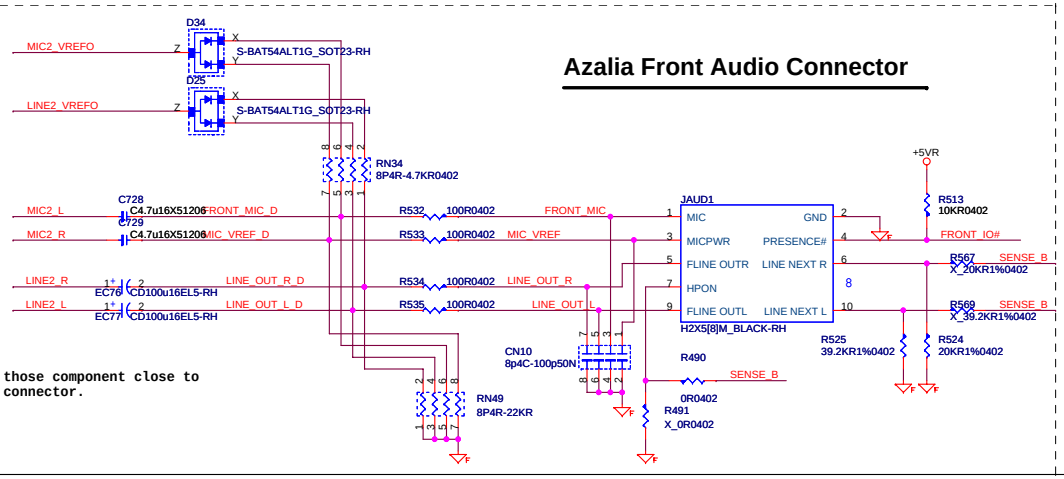


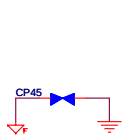
ALC883 JACK DETECT

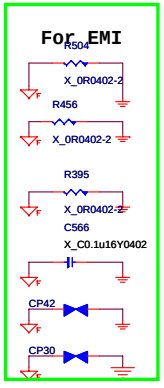




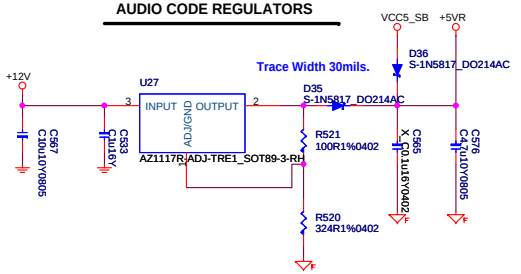
Azalia Front Audio Connector







AUDIO CODE REGULATORS



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MS-7505		
Size: Custom	Document Description: Azalia CODEC(ALC888&alc883)	Rev: 0A
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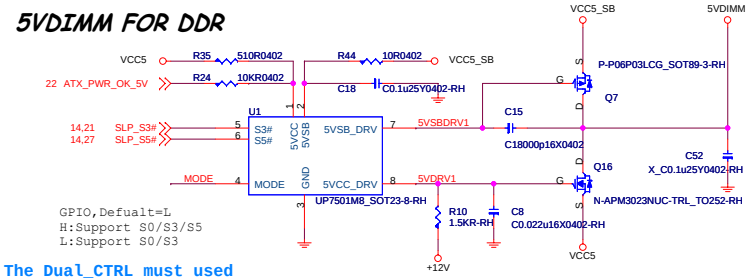
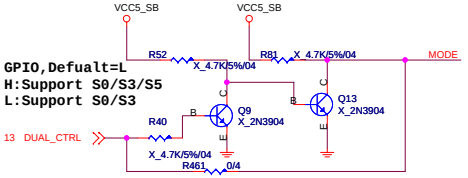
5VDIMM FOR DDR



GPIO,Defualt=L
H:Support S0/S3/S5
L:Support S0/S3

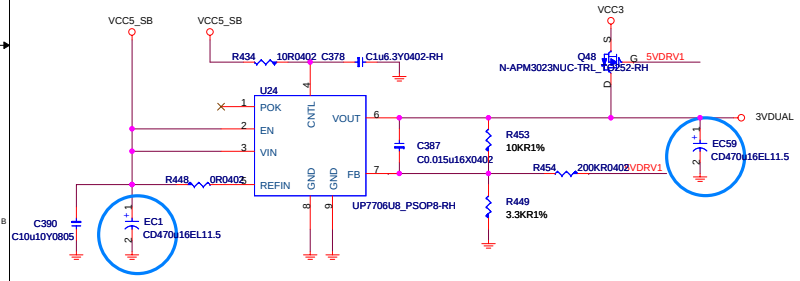
The Dual_CTRL must used default "Output- Low"

	S0	S3	S4			S5		
DUAL_CTRL	X	X	0	1	1	0	1	1
5VSBDRV1	1	0	1	0	0	1	0	0
5VDRV1	1	0	0	0	0	0	0	0
5VSBDRV2	X	0	1	0	0	1	0	0
USB_MODE	X	1	X	1	0	X	1	0
5VDIMM	Y	Y	N	Y	Y	N	Y	Y
USB power	Y	Y	N	NI		N	NI	

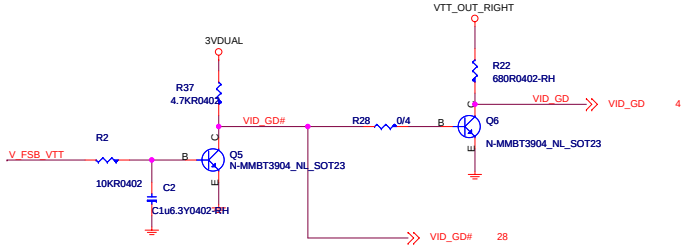


GPIO,Defualt=L
H:Support S0/S3/S5
L:Support S0/S3

3VDUAL, 1.7A



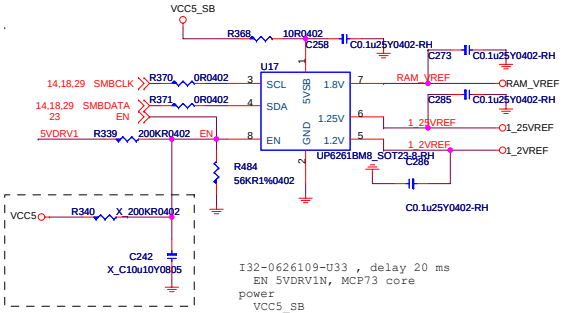
VID_GD# to PWM and VID_GD to CPU for VRM10 power sequence.



Reference Voltage

up6261: High Precision Voltage Console

ONLY OVER DDR Voltage to 2V

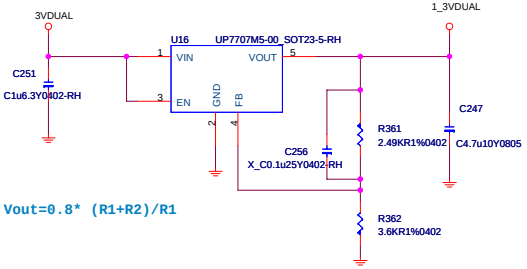


I32-0626109-U33 , delay 20 ms
EN 5VDRV1N, MCP73 core power
VCC5_SB

EN : 0.4~1.4V

1_3VDUAL, 25mA

up7707: 600mA Low Dropout Linear Requlator

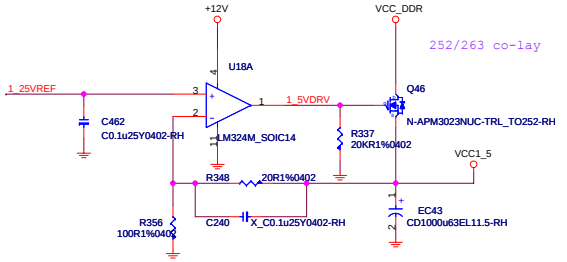


Vout=0.8* (R1+R2)/R1

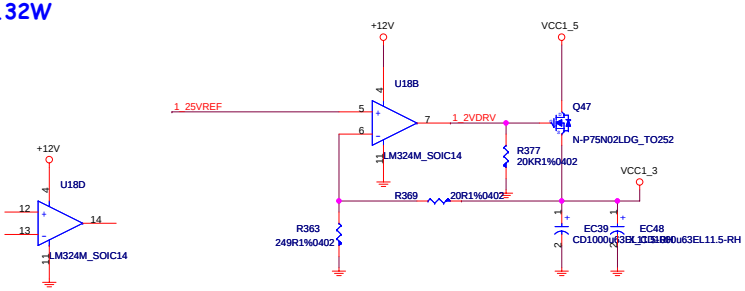
VCC1_5, 8.81A 2.643W

H_VCCPLL=>100mA
MCP73 =>7A

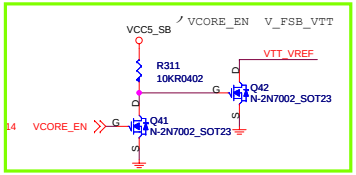
I71-LM32403-T07
I71-LM32413-O05
I71-LM32413-F01
I71-LM32413-N04

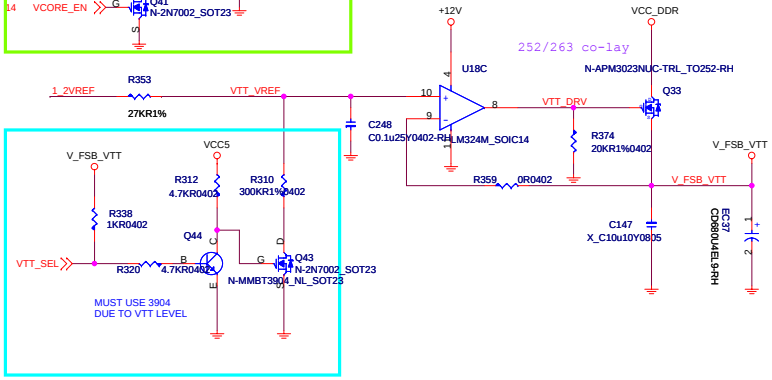


VCC1_3, 8.81A 1.32W



FSB_VTT, 6.1A 3.66W





VTT_SEL = L	V_FSB_VTT=1.1V	For future KENTSFIELD processor. (FSB1333, Quad-Core)
VTT_SEL = H	V_FSB_VTT=1.2V	For normal processors.

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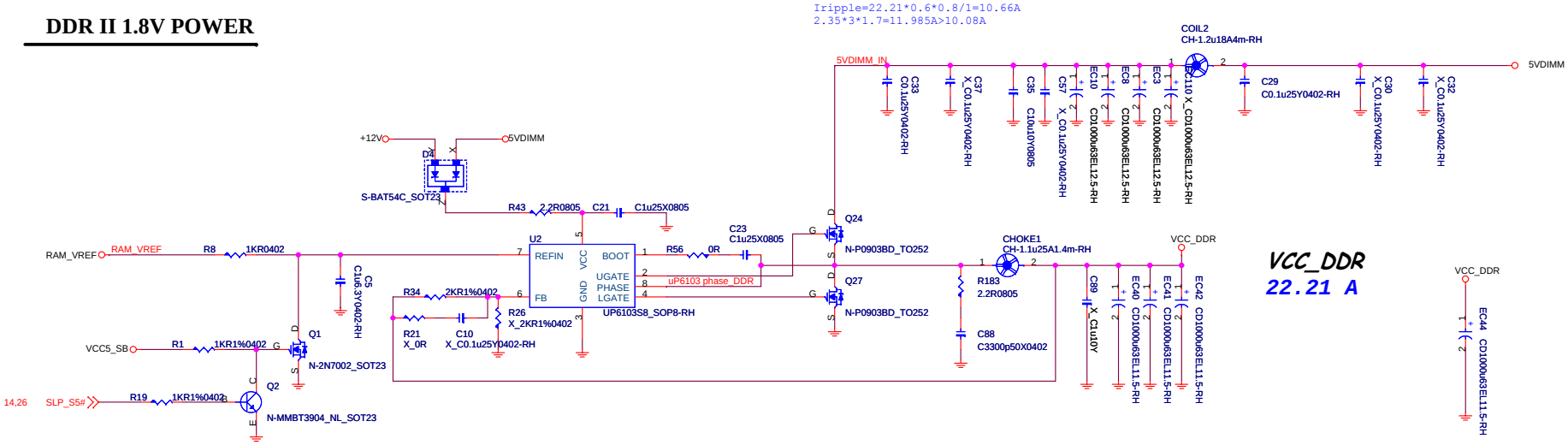
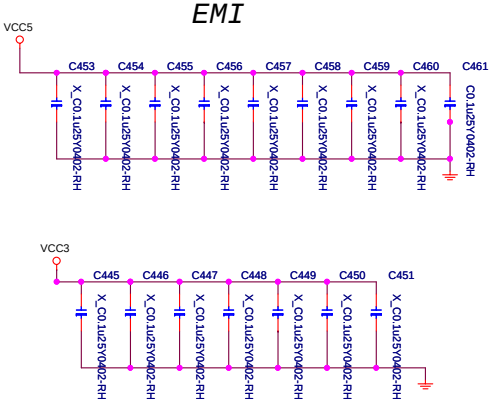
DDR II 1.8V POWER

Iripple=22.21*0.6*0.8/1=10.66A
2.35*3*1.7=11.985A>10.08A

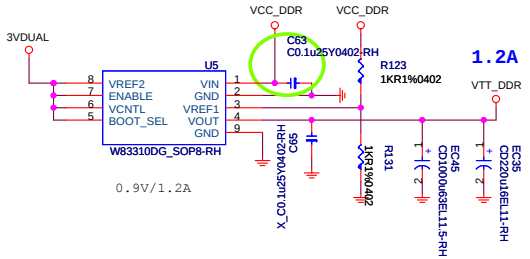


EMI



DDR VTT Power

To CPU Copper trace width > 200mils



MICRO-STAR INT'L CO.,LTD		
MS-7505		
Size: Custom	Document Description: uP6103/VTT/REGULATOR	Rev: 0A
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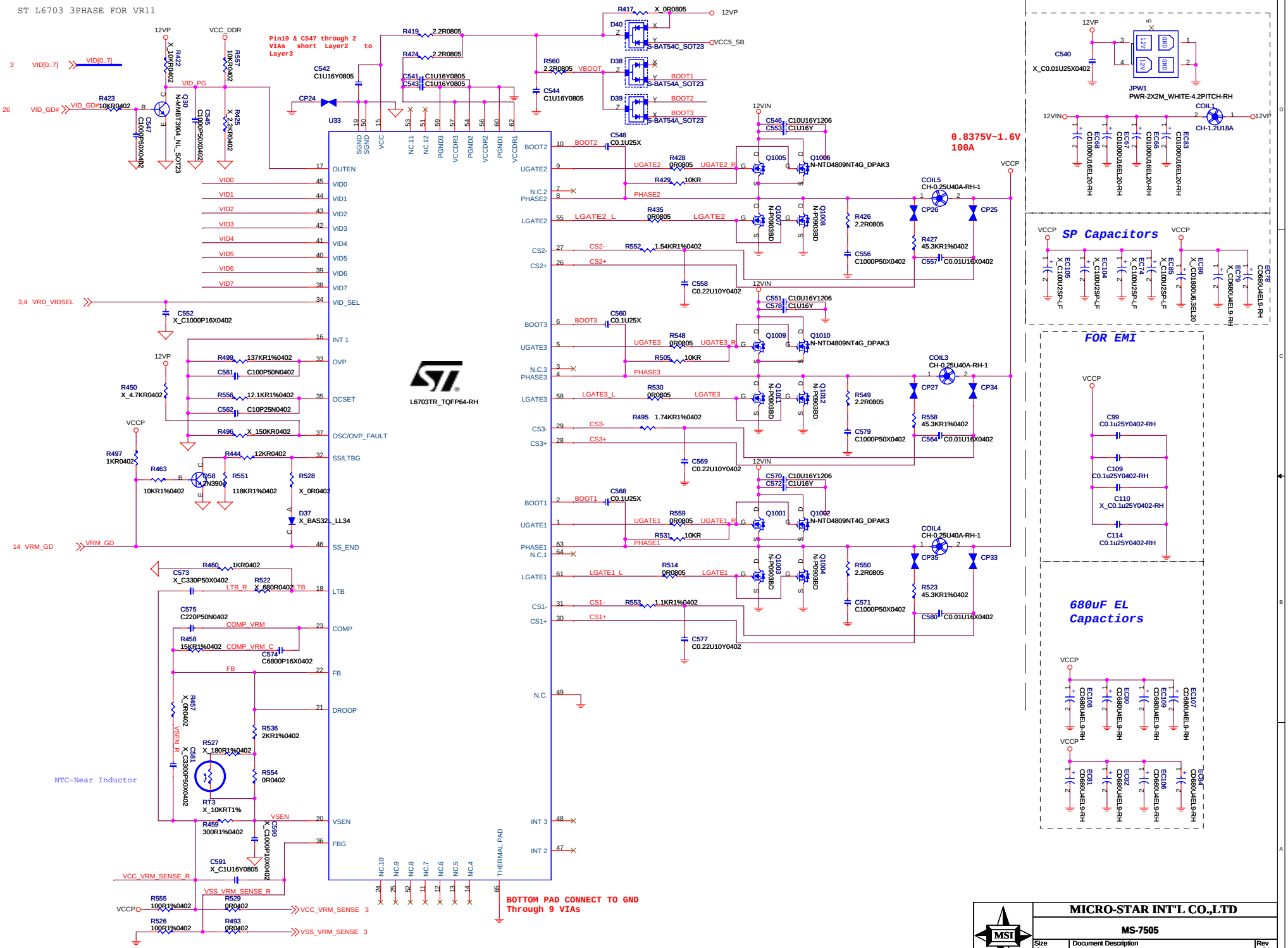
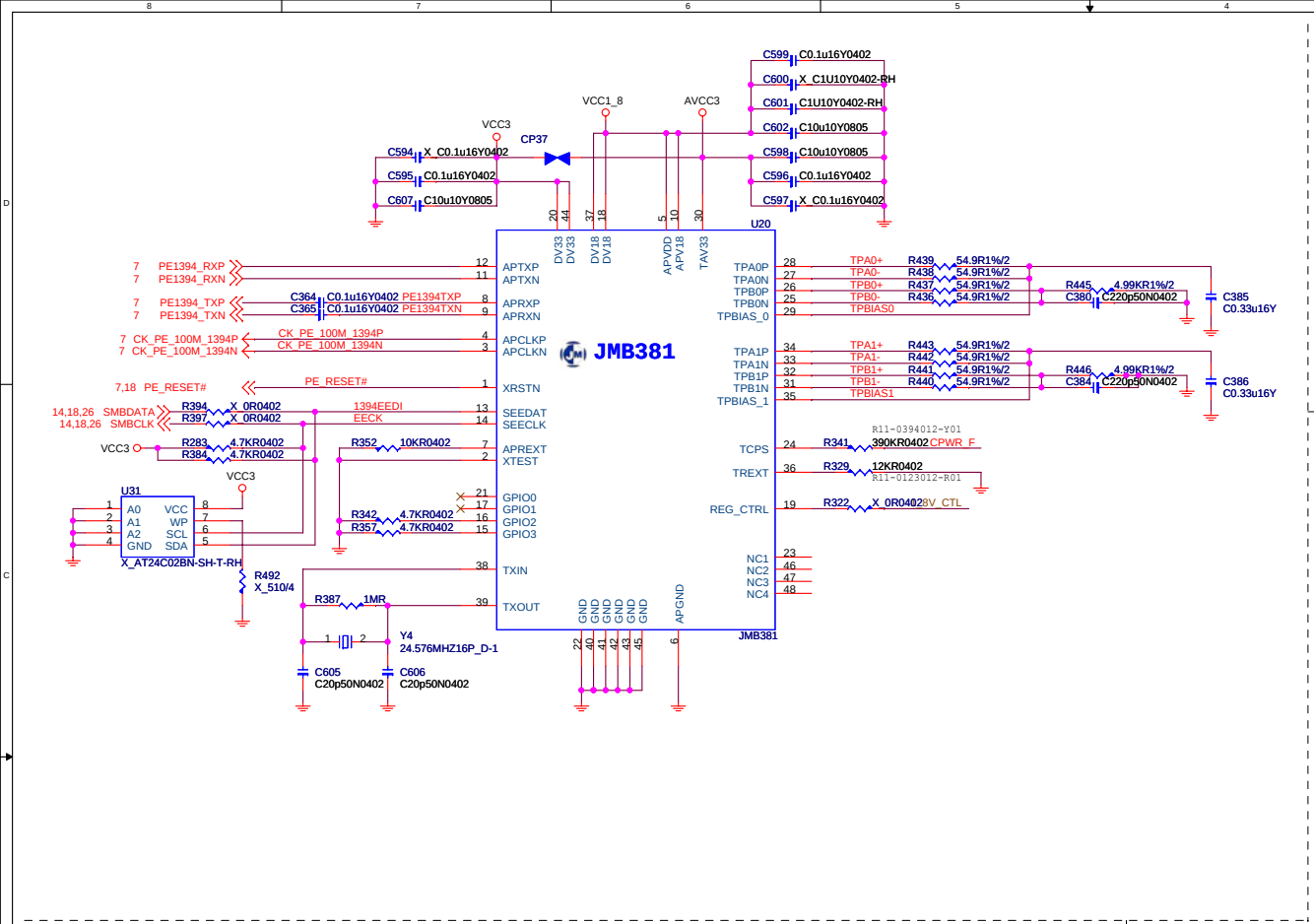
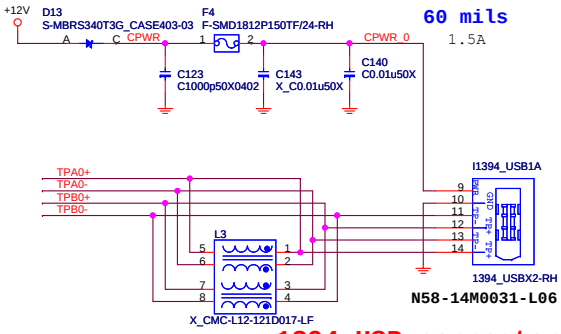
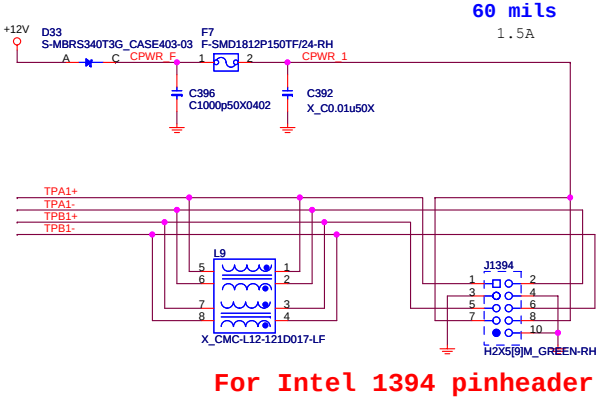
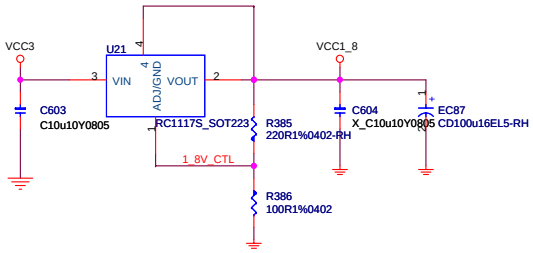
ST L6703 3PHASE FOR VR11











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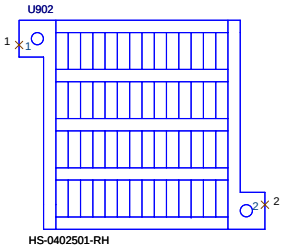

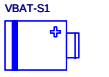

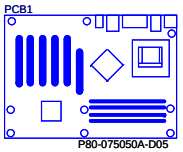

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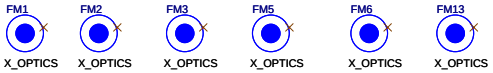
Optics Orientation Holes (F_PAD_M100)



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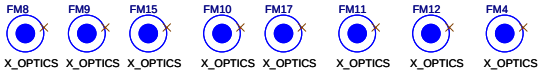
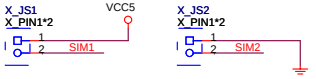
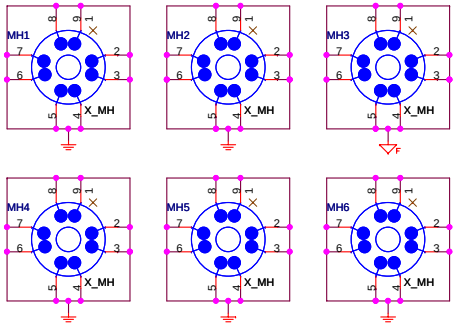


Simulation



Mounting Holes



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