# MS-7504 Micro 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 -- ALC888S
LPC Super I/O -- FINTEK F71882FG
LAN -- Realtek RTL8211BL-GR
CLOCK Gen -- Integated in MCP73
1394 Controller -- VT6308P

**Main Memory:**

Single-channel DDR-II * 2 (Max 4GB)

**Expansion Slots:**

PCI EXPRESS X16 SLOT *1
PCI EXPRESS X1 SLOT * 1
PCI SLOT * 2

**Intersil PWM:**

Controller: Intersil ISL6312 (3 Phases)
Driver: Intersil ISL6612

| OPT | Function | Orcad Configure | BOM |
|---|---|---|---|
| PV | MCP73PV(HDMI)/F71882FG/ALC888S/RTL8211BL/VT6308 | cfg-PV | 601-7366-A10 |
| M | MCP73PV(HDMI)/F71882FG/ALC888/RTL8211BL/VT6308 | CFG-M1 | |
| S | MCP73S(DVI)/F71882FG/ALC888/RTL8201CL | CFG-S | |
| | | | |

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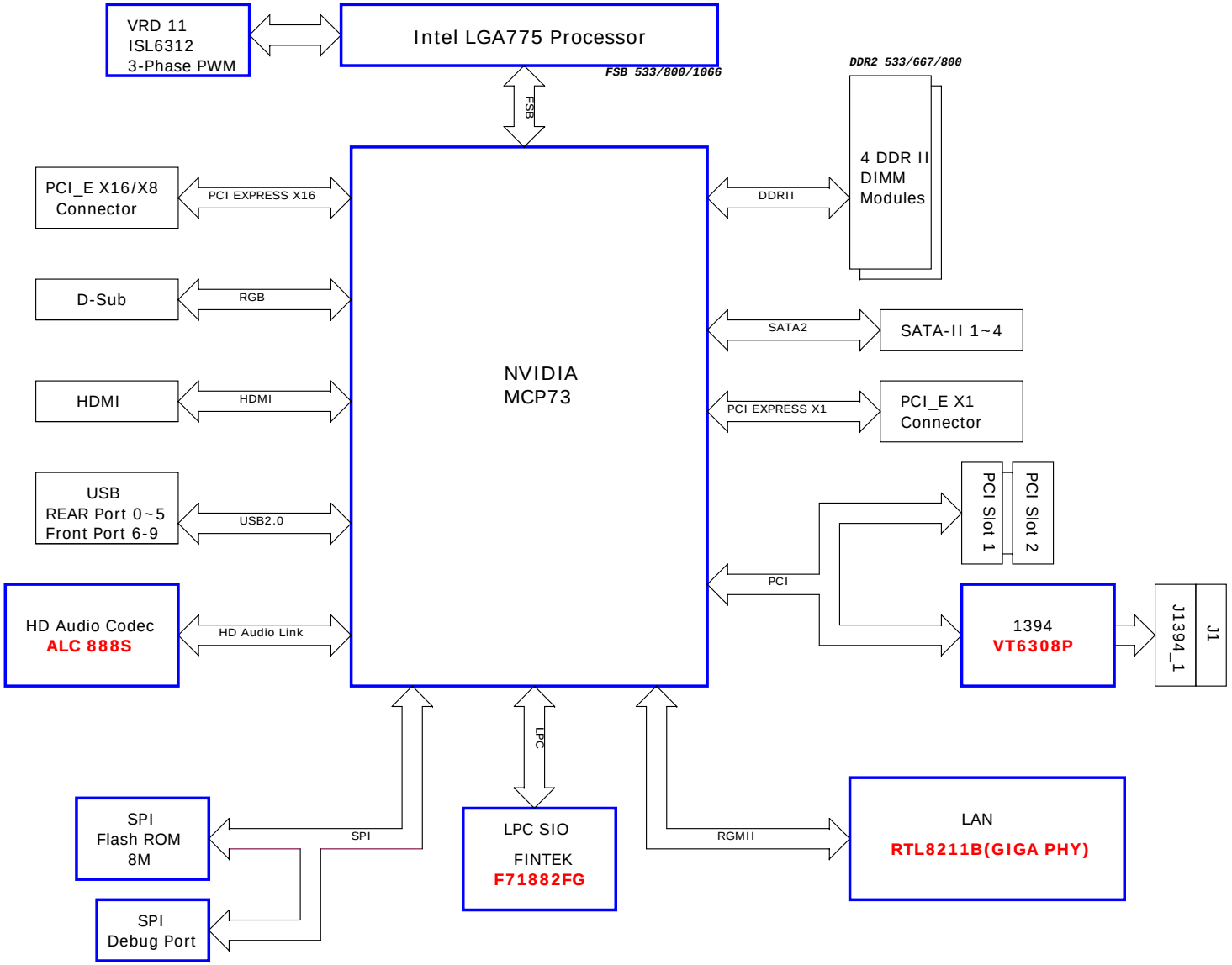
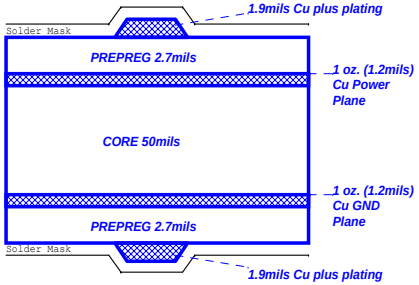
# Block Diagram




## Board Stack-up

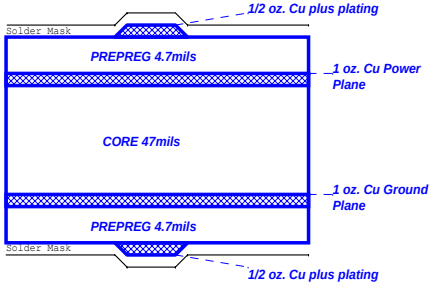
(1080 Prepreg Considerations)




Single End 50ohm Top/Bottom : 4mils
USB2.0 - 90ohm : 15/4.5/7.5/4.5/15
SATA - 95ohm : 15/4/8/4/15
LAN - 100ohm : 15/4/8/4/15
PCIE - 95ohm : 15/4/8/4/15
IEEE1394 - 110ohm : 15/4/9/4/15

## Board Stack-up

(2116 Prepreg Considerations)




Single End 60ohm Top/Bottom : 5mils
IEEE1394 - 110ohm Top : 5/7/5
PCIE, LAN, SATA - 100ohm Top : 5/6/5
USB2.0 - 90ohm Top : 7.5/7.5/7.5

| | | |
|---|---|---|
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| Size: Custom | Document Description: BLOCK DIAGRAM | Rev: 0A |
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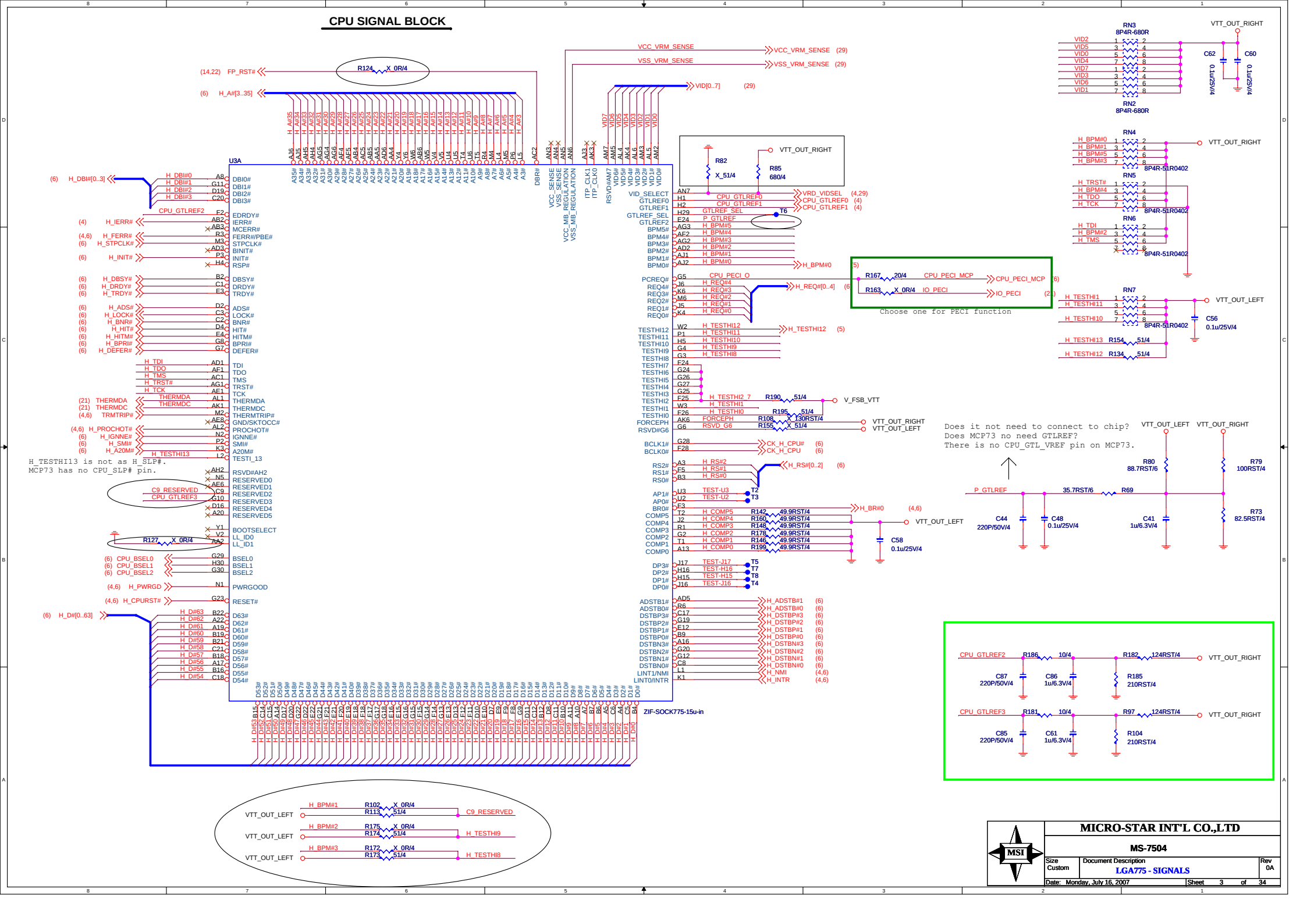
# CPU SIGNAL BLOCK





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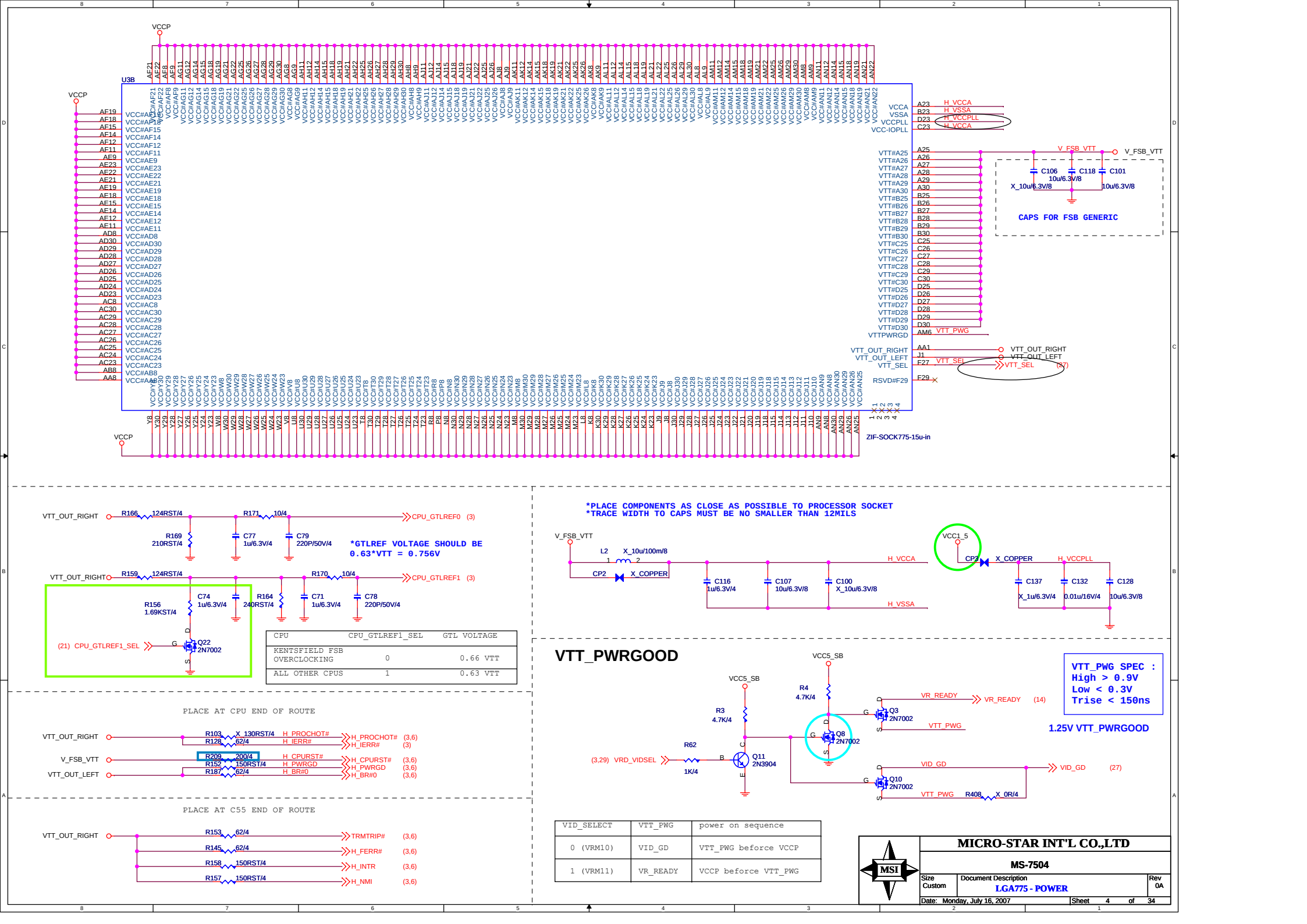
VCCP
U3B
ZIF-SOCK775-15u-in
VTT_OUT_RIGHT
VTT_OUT_LEFT
VTT_SEL
V_FSB_VTT
CAPS FOR FSB GENERIC
*PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET
*TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12MILS
*GTLREF VOLTAGE SHOULD BE 0.63*VTT = 0.756V
CPU_GTLREF0 (3)
CPU_GTLREF1 (3)
(21) CPU_GTLREF1_SEL
CPU | CPU_GTLREF1_SEL | GTL VOLTAGE
KENTSFIELD FSB OVERCLOCKING | 0 | 0.66 VTT
ALL OTHER CPUS | 1 | 0.63 VTT
VTT_PWRGOOD
VRD_VIDSEL (3,29)
VR_READY (14)
VID_GD (27)
VTT_PWG
VTT_PWG SPEC : High > 0.9V Low < 0.3V Trise < 150ns
1.25V VTT_PWRGOOD
PLACE AT CPU END OF ROUTE
PLACE AT C55 END OF ROUTE
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-7504
LGA775 - POWER
Size Custom
Rev 0A
Date: Monday, July 16, 2007
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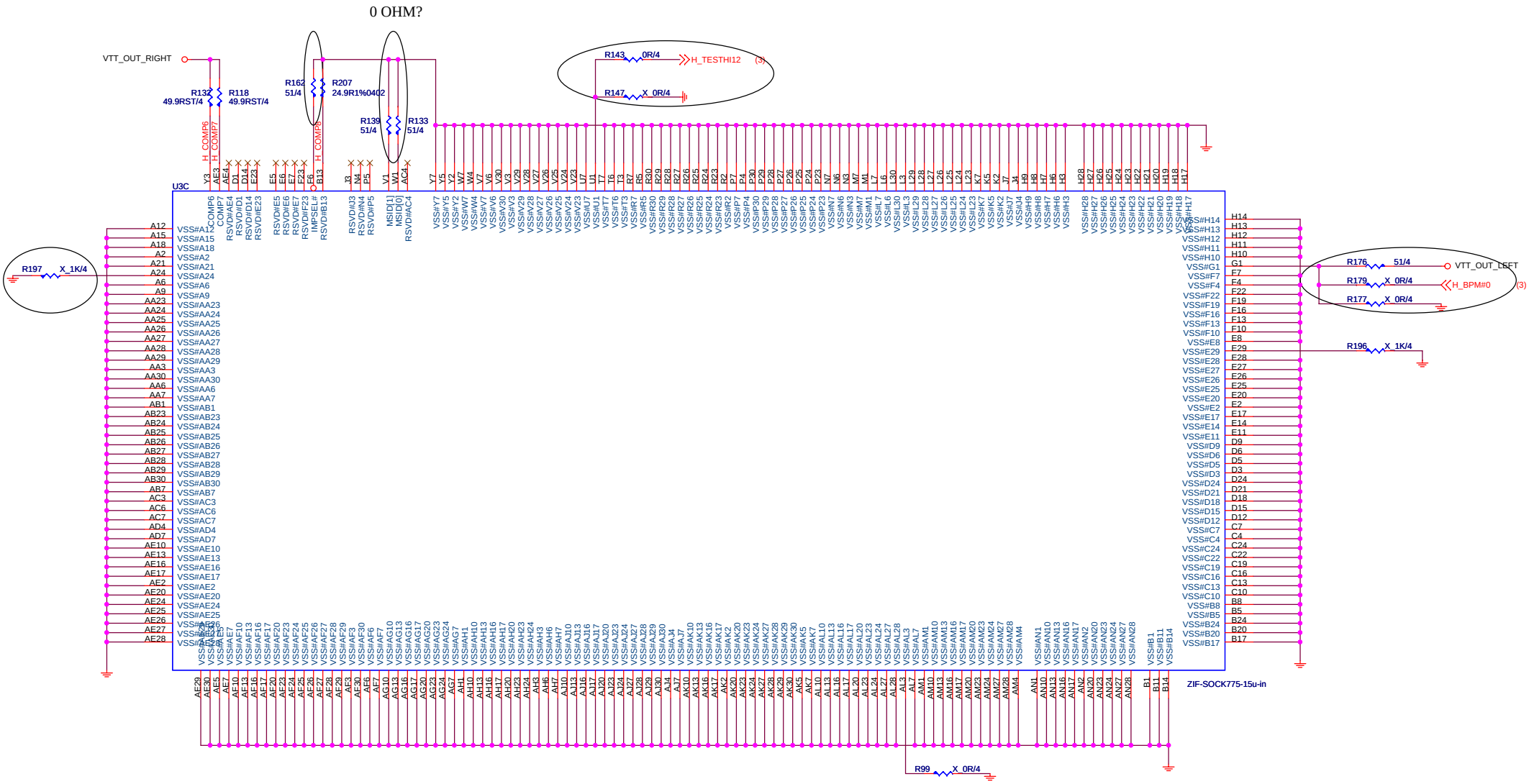
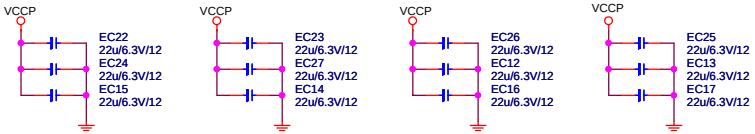



## CPU DECOUPLING CAPACITORS




**Place these caps within socket cavity**

| | |
|---|---|
| MICRO-STAR INT'L CO.,LTD | |
| MS-7504 | |
| Size: Custom | Document Description: LGA775 - GND |
| Rev: 0A | |
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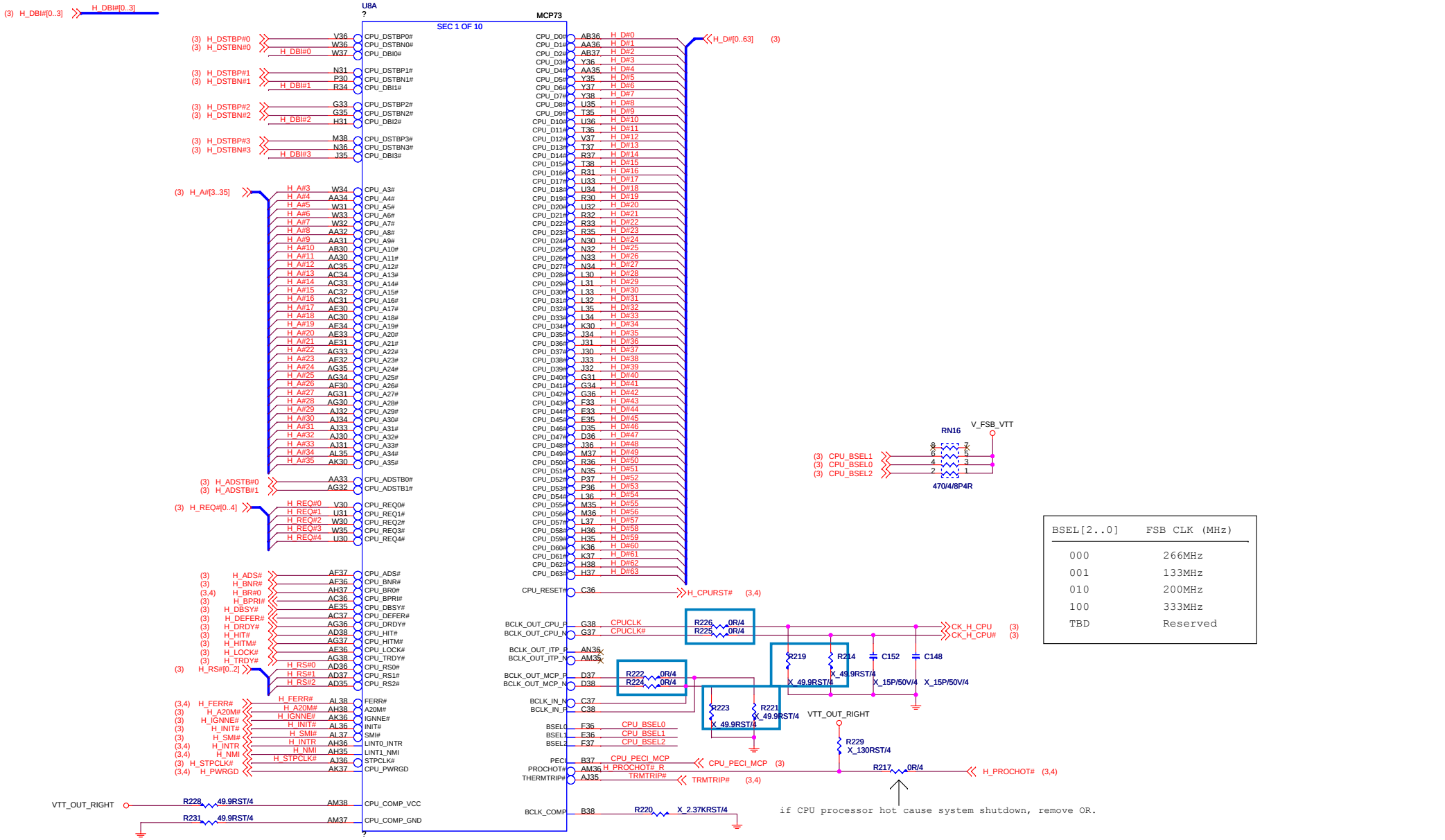
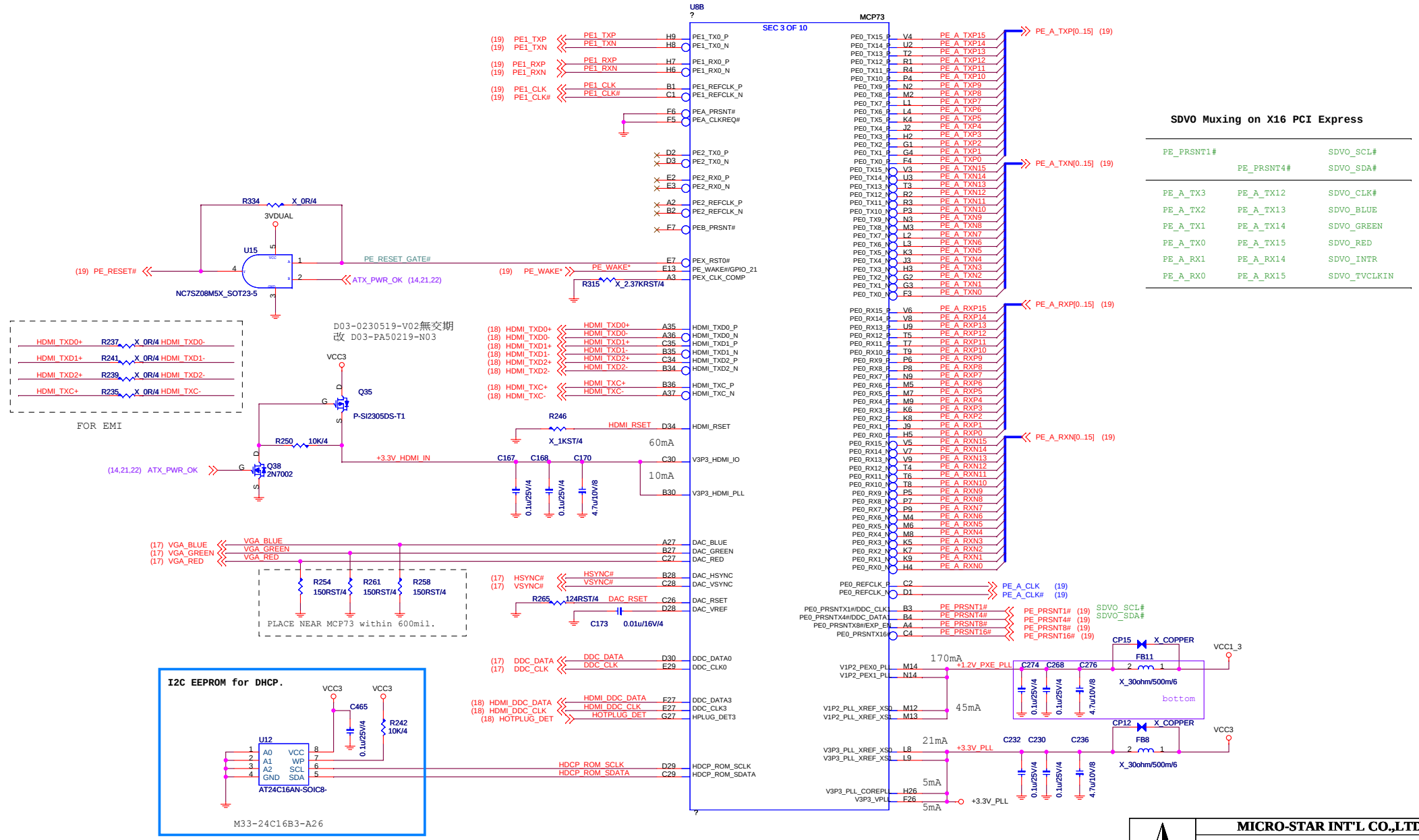



| | | | |
|---|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | | |
| MS-7504 | | | |
| Size: Custom | Document Description: MCP73-CPU | | Rev: 0A |
| Date: Monday, July 16, 2007 | | Sheet 6 of 34 | |


U8B
SEC 3 OF 10
MCP73
PE1_TX0_P
PE1_TX0_N
PE1_RX0_P
PE1_RX0_N
PE1_REFCLK_P
PE1_REFCLK_N
PEA_PRSNT#
PEA_CLKREQ#
PE2_TX0_P
PE2_TX0_N
PE2_RX0_P
PE2_RX0_N
PE2_REFCLK_P
PE2_REFCLK_N
PEB_PRSNT#
PEX_RST0#
PE_WAKE#/GPIO_21
PEX_CLK_COMP
HDMI_TXD0_P
HDMI_TXD0_N
HDMI_TXD1_P
HDMI_TXD1_N
HDMI_TXD2_P
HDMI_TXD2_N
HDMI_TXC_P
HDMI_TXC_N
HDMI_RSET
V3P3_HDMI_IO
V3P3_HDMI_PLL
DAC_BLUE
DAC_GREEN
DAC_RED
DAC_HSYNC
DAC_VSYNC
DAC_RSET
DAC_VREF
DDC_DATA0
DDC_CLK0
DDC_DATA3
DDC_CLK3
HPLUG_DET3
HDCP_ROM_SCLK
HDCP_ROM_SDATA
PE_A_TXP[0..15] (19)
PE_A_TXN[0..15] (19)
PE_A_RXP[0..15] (19)
PE_A_RXN[0..15] (19)
PE_A_CLK (19)
PE_A_CLK# (19)
PE_PRSNT1# (19)
PE_PRSNT4# (19)
PE_PRSNT8# (19)
PE_PRSNT16# (19)
SDVO_SCL#
SDVO_SDA#
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
R334 X_0R/4
3VDUAL
U15
NC7SZ08M5X_SOT23-5
PE_RESET#
PE_RESET_GATE#
ATX_PWR_OK (14,21,22)
PE_WAKE*
R315 X_2.37KRST/4
D03-0230519-V02無交期
改 D03-PA50219-N03
HDMI_TXD0+ R237 X_0R/4 HDMI_TXD0-
HDMI_TXD1+ R241 X_0R/4 HDMI_TXD1-
HDMI_TXD2+ R239 X_0R/4 HDMI_TXD2-
HDMI_TXC+ R235 X_0R/4 HDMI_TXC-
FOR EMI
VCC3
Q35
P-SI2305DS-T1
R250 10K/4
Q38
2N7002
(14,21,22) ATX_PWR_OK
+3.3V_HDMI_IN
R246
X_1KST/4
60mA
10mA
C167 C168 C170
0.1u/25V/4
4.7u/10V/8
VGA_BLUE
VGA_GREEN
VGA_RED
(17) VGA_BLUE
(17) VGA_GREEN
(17) VGA_RED
R254 150RST/4
R261 150RST/4
R258 150RST/4
PLACE NEAR MCP73 within 600mil.
HSYNC#
VSYNC#
(17) HSYNC#
(17) VSYNC#
R265 124RST/4 DAC_RSET
C173 0.01u/16V/4
I2C EEPROM for DHCP.
U12
AT24C16AN-SOIC8-
C465
R242 10K/4
M33-24C16B3-A26
170mA
+1.2V_PXE_PLL
45mA
21mA
+3.3V_PLL
5mA
C274 C268 C276
C232 C230 C236
CP15 X_COPPER
FB11
X_30ohm/500m/6
bottom
CP12 X_COPPER
FB8
VCC1_3
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MS-7504
Size Custom
Document Description MCP73-PCIE/DAC/HDMI
Rev 0A
Date: Monday, July 16, 2007
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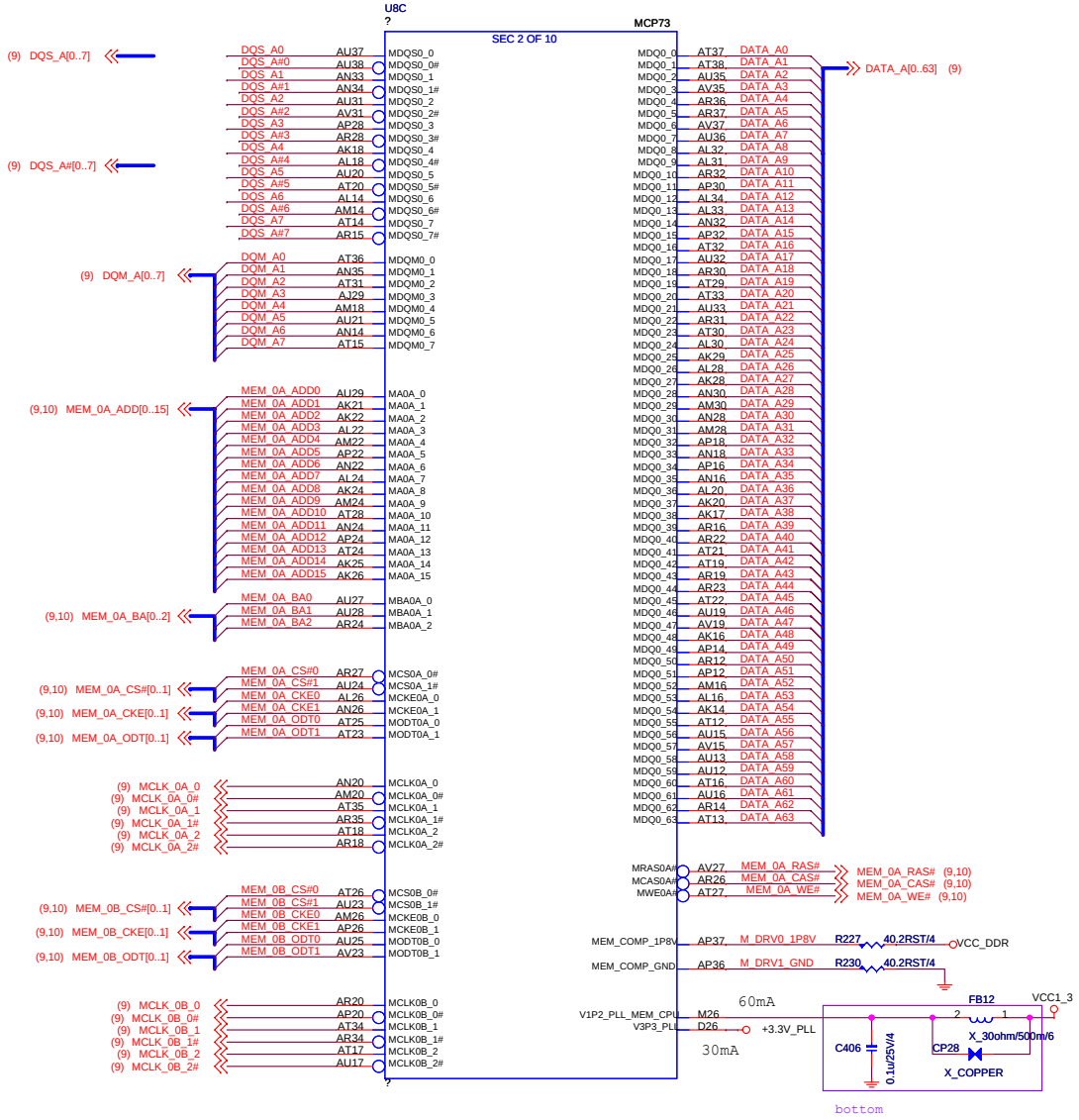
DATA 0

DIMM 1 ADDR 0A / CNTL 0A

DIMM 2 ADDR 0B / CNTL 0B

# DIMM 0A

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|---|---|
| MICRO-STAR INT'L CO.,LTD | |
| MS-7504 | |
| Size: Custom | Document Description: MCP73-MEM |
| Rev: 0A | |
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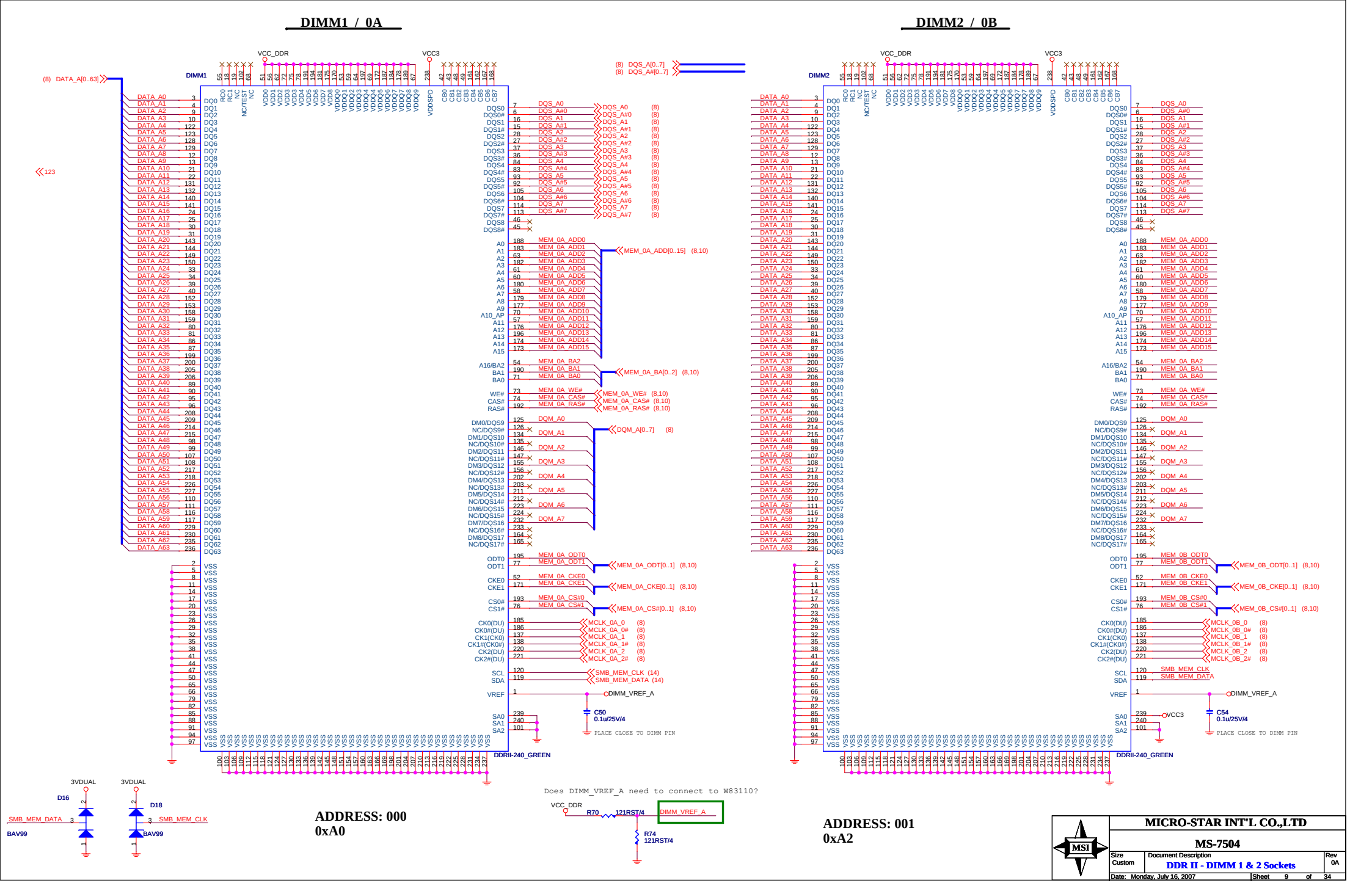


| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: DDR II - DIMM 1 & 2 Sockets | Rev: 0A |
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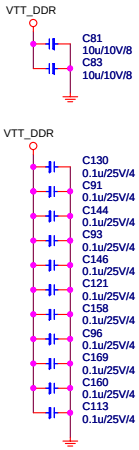
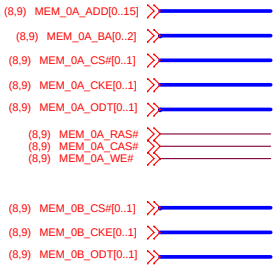
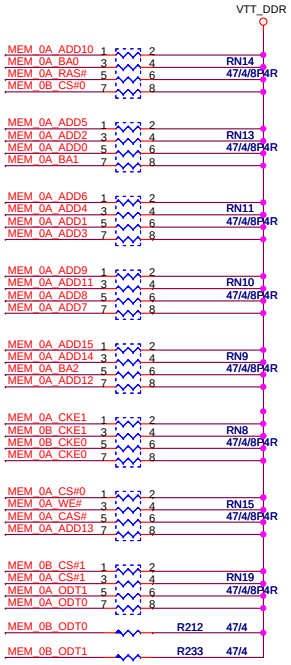
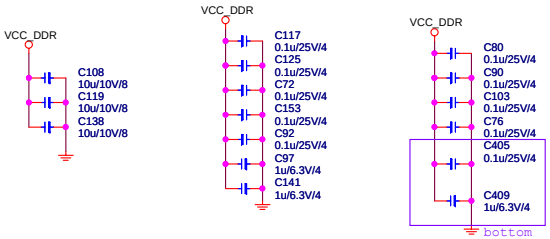
## CHANNEL A VTT_DDR DECOUPLING CAPS




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




公板上0.1u X5, 1uX3, 10uX3
兩根再X2

MICRO-STAR INT'L CO.,LTD

MS-7504

| Size | Document Description | Rev |
|---|---|---|
| Custom | DDR II VTT Termination & Decoupling | 0A |

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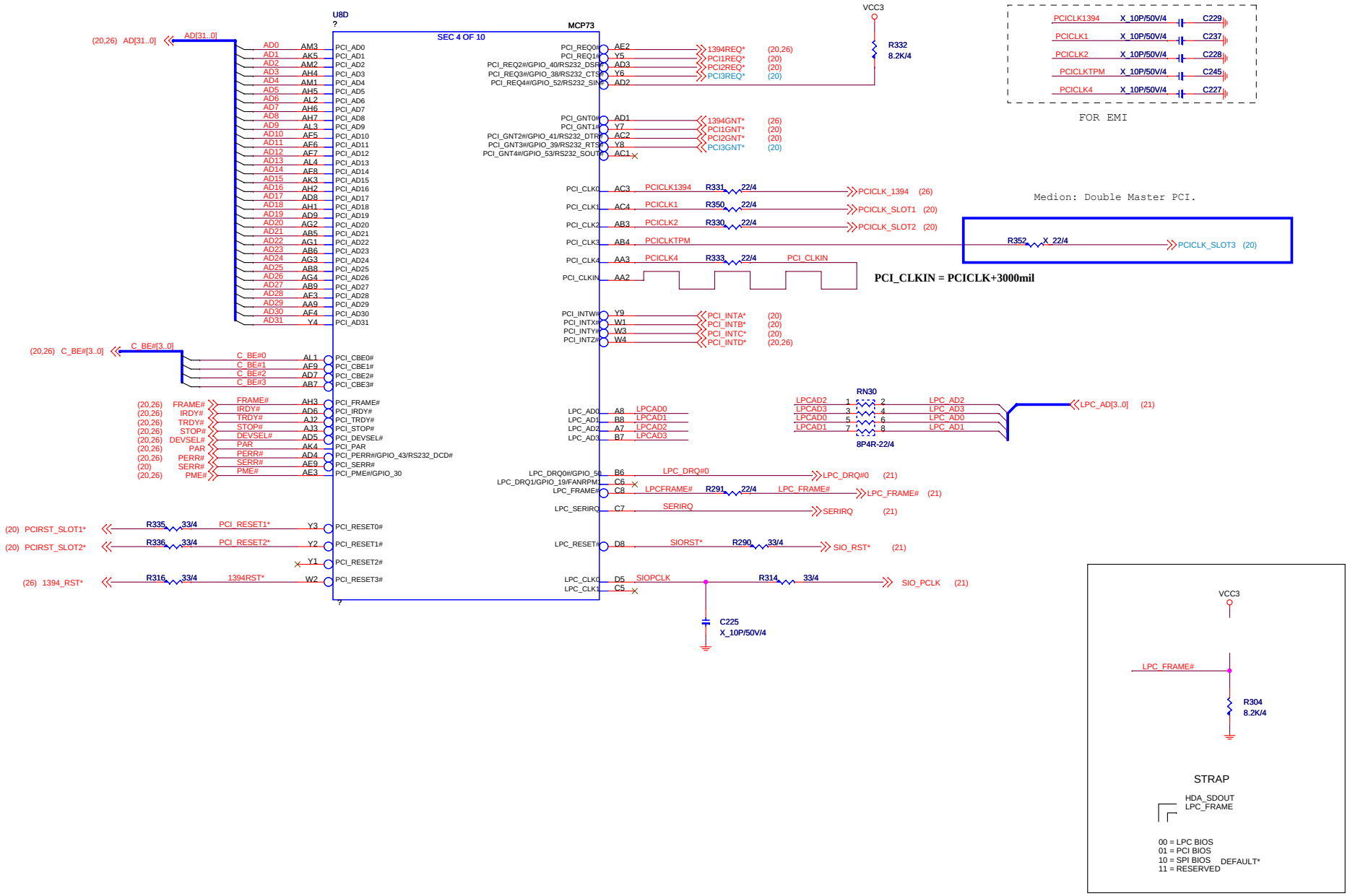


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|---|---|
| MICRO-STAR INT'L CO.,LTD | |
| MS-7504 | |
| Size: Custom | Document Description: MCP73-PCI/LPC |
| Rev: 0A | |
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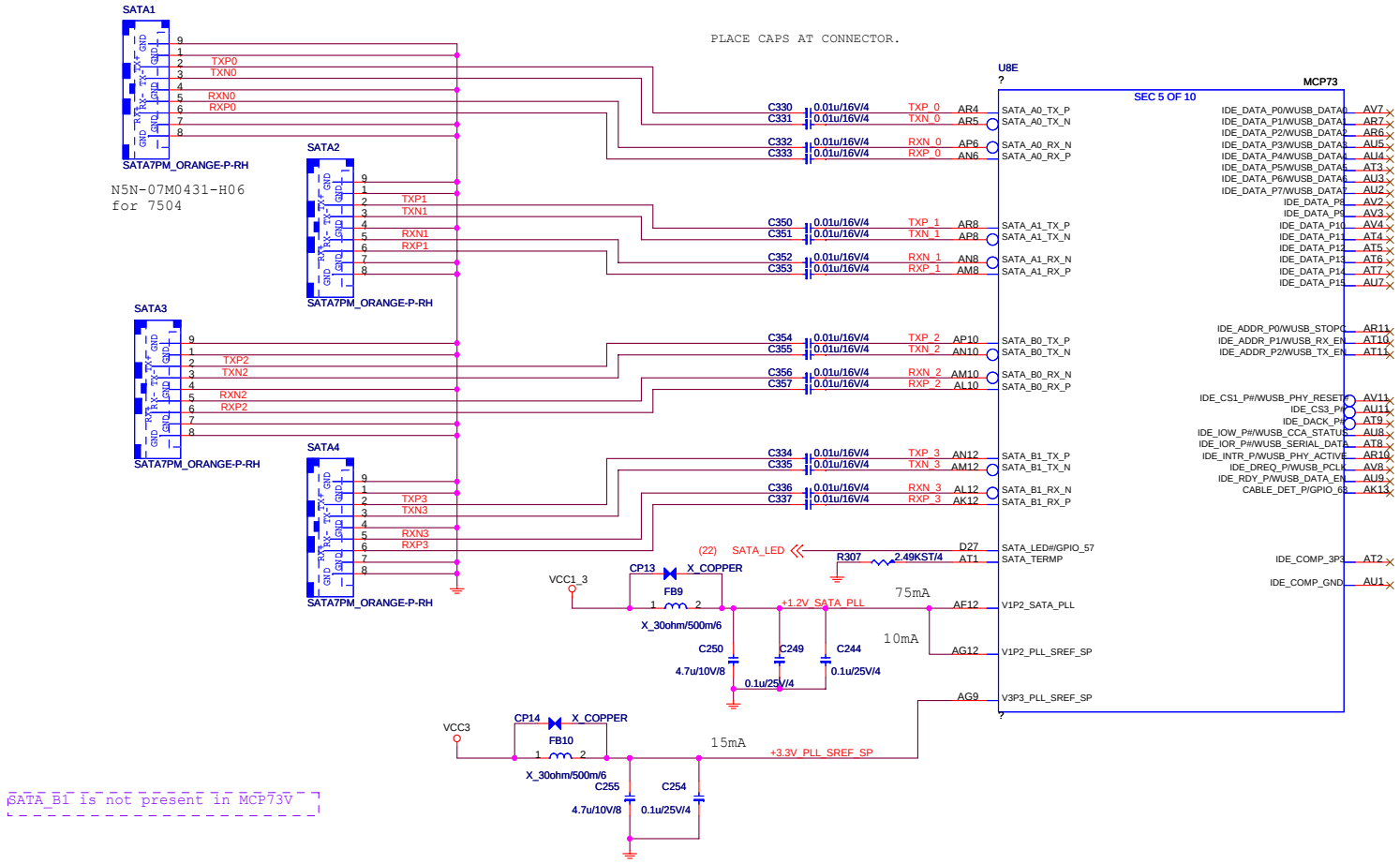


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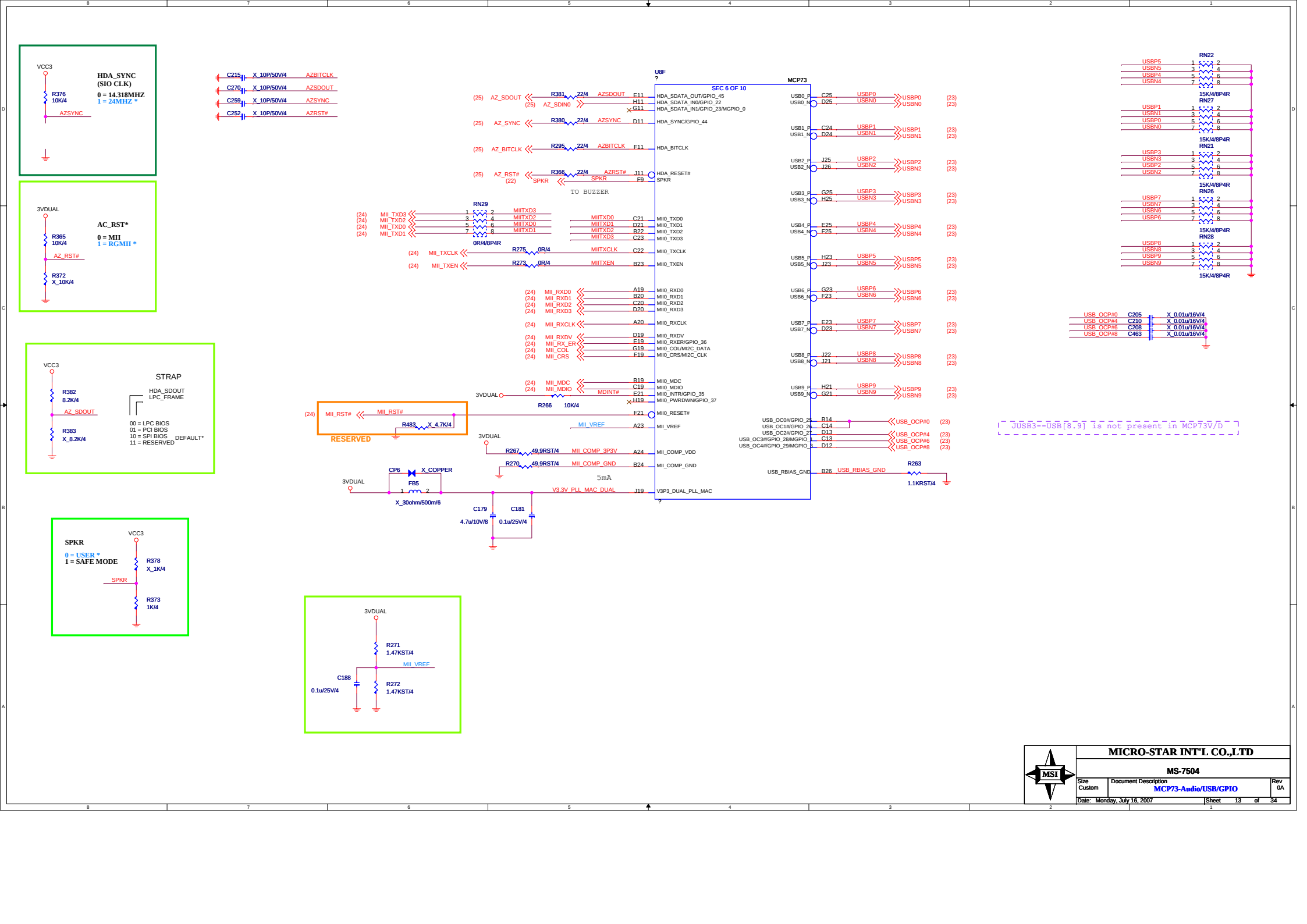
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: MCP73-SATA 1-4 | Rev: 0A |
| Date: Monday, July 16, 2007 | Sheet 12 of 34 | |

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|---|---|
| MICRO-STAR INT'L CO.,LTD | |
| MS-7504 | |
| Size: Custom | Document Description: MCP73-Audio/USB/GPIO |
| Rev: 0A | |
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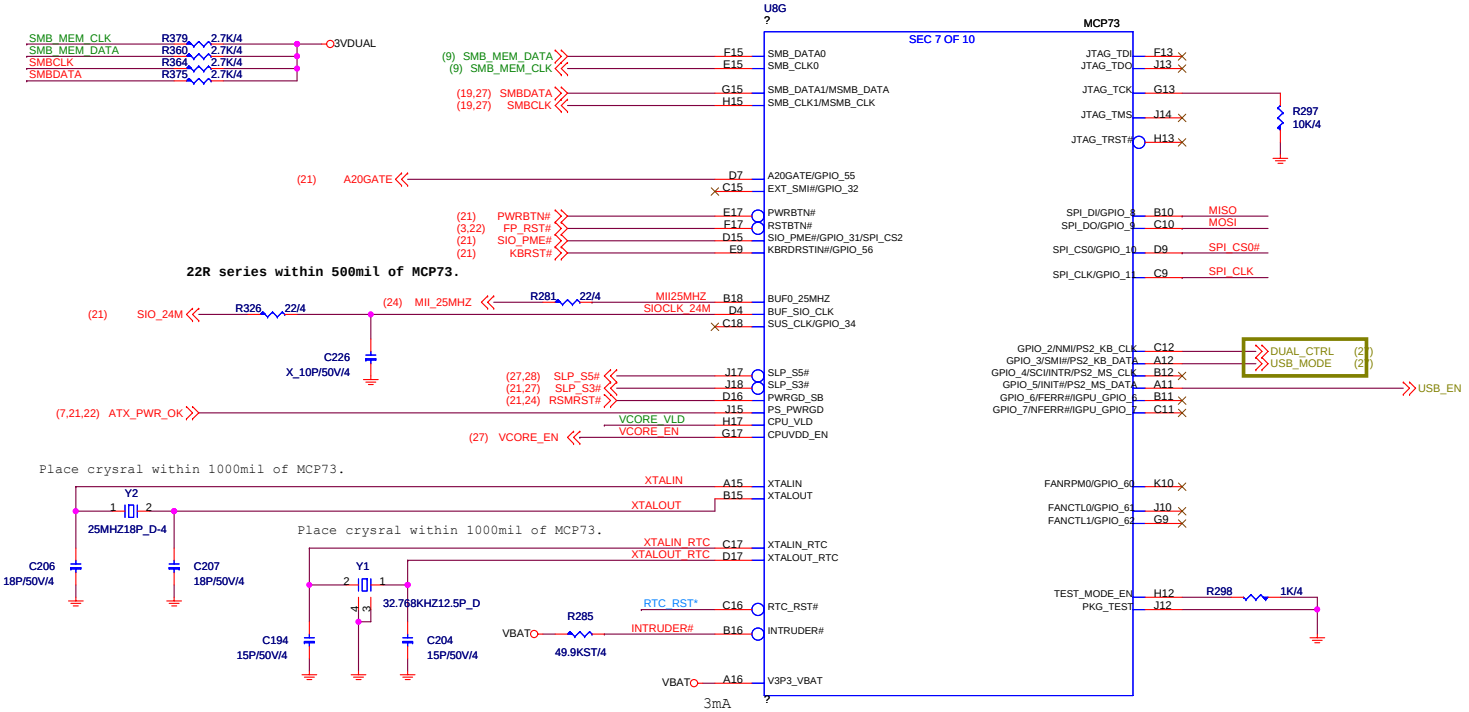
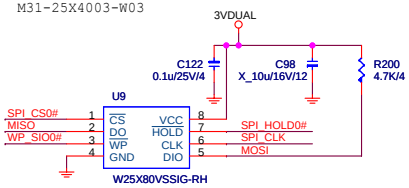


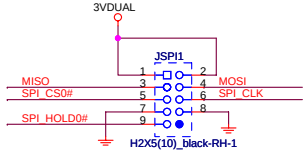

## SPI 8M FLASH ROM

M31-25L4002-M24
M31-25X4003-W03




M31-25X8003-W03

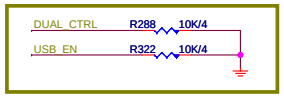

## SPI DEBUG PORT



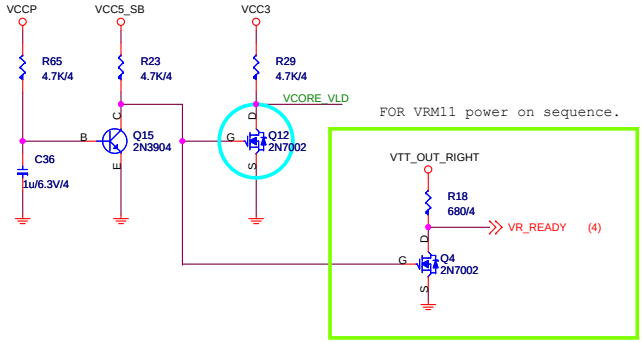

**Part Number : N31-2051451-H06**

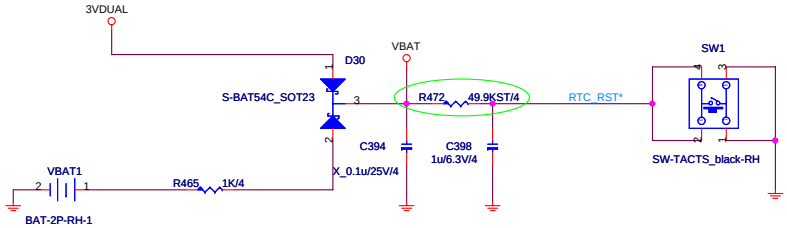
Place close to SPI ROM

Whether glitch with VRM_GD?


## Vcore power-on sequence control circuit

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|---|---|---|
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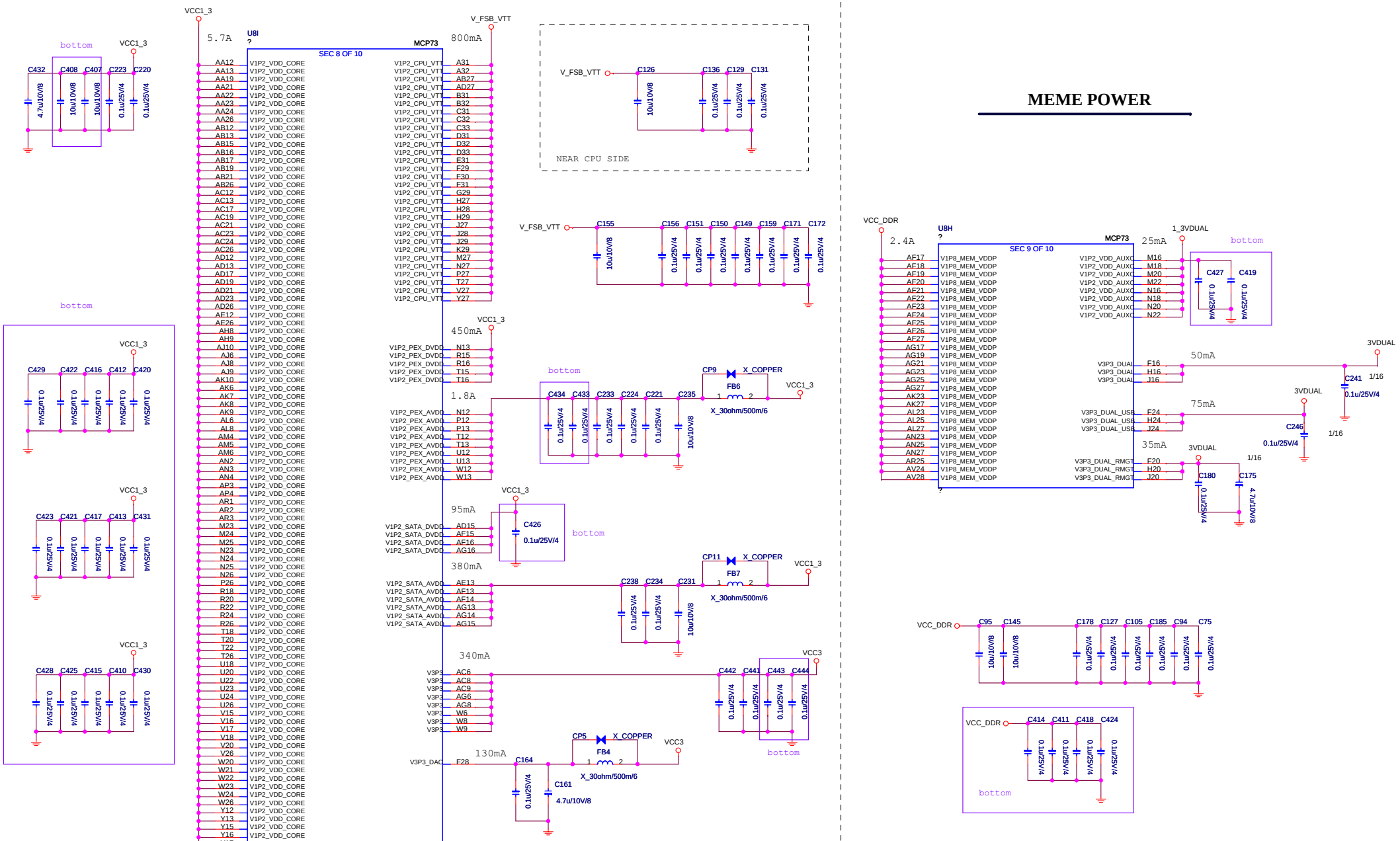
| Size: Custom | Document Description: MCP73-SPI/SMB | Rev: 0A |
| Date: Monday, July 16, 2007 | Sheet 14 of 34 | |

# MEME POWER

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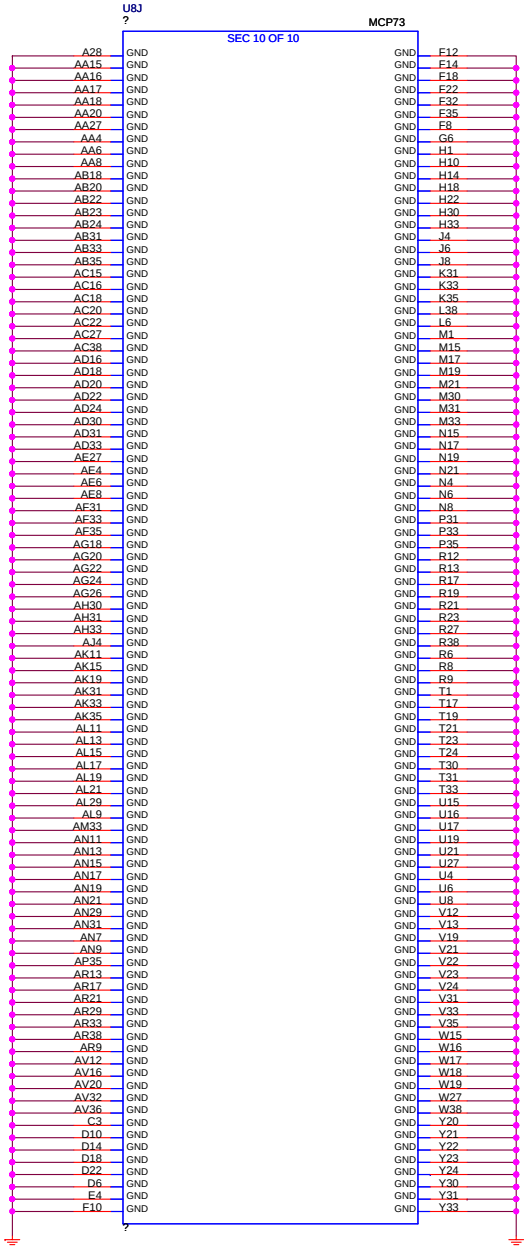
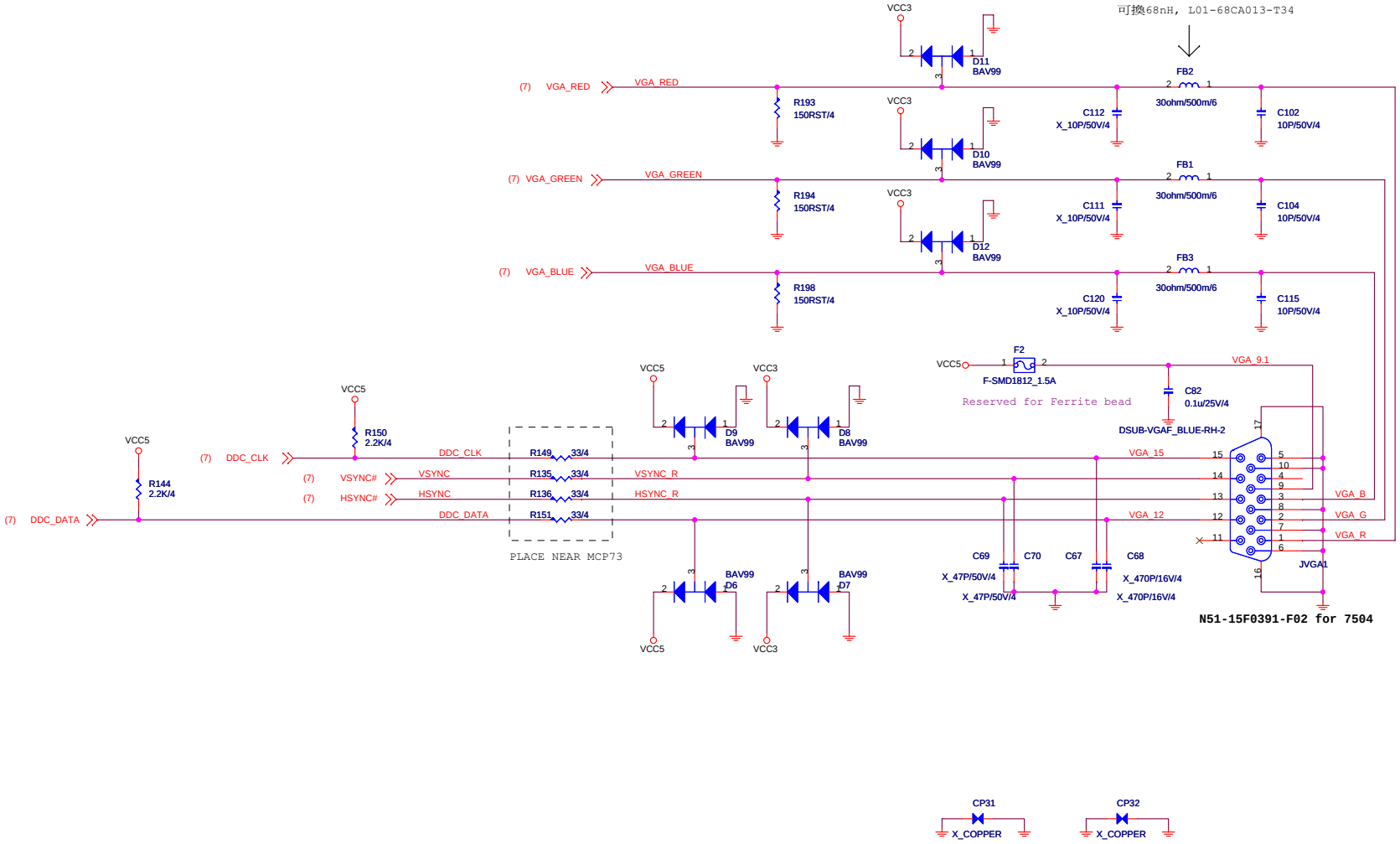
|---|---|
| MICRO-STAR INT'L CO.,LTD | |
| MS-7504 | |
| Size: Custom | Document Description: MCP73-POWER |
| Rev: 0A | |
| Date: Monday, July 16, 2007 | Sheet 15 of 34 |




| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: MCP73-GND | Rev: 0A |
| Date: Monday, July 16, 2007 | Sheet 16 of 34 | |

PLACE NEAR VGA CONNECTOR




| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: D-SUB | Rev: 0A |
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HDMI default

(7) HDMI_TXD0+ — HDMI_TXD0+ — R111 0R/4 — HDMITXD0+
(7) HDMI_TXD0- — HDMI_TXD0- — R105 0R/4 — HDMITXD0-
(7) HDMI_TXD1+ — HDMI_TXD1+ — R119 0R/4 — HDMITXD1+
(7) HDMI_TXD1- — HDMI_TXD1- — R121 0R/4 — HDMITXD1-
(7) HDMI_TXD2+ — HDMI_TXD2+ — R116 0R/4 — HDMITXD2+
(7) HDMI_TXD2- — HDMI_TXD2- — R114 0R/4 — HDMITXD2-
(7) HDMI_TXC+ — HDMI_TXC+ — R125 0R/4 — HDMITXC+
(7) HDMI_TXC- — HDMI_TXC- — R129 0R/4 — HDMITXC-

V_HDMI_DDC
R89 2.2K/4
R90 2.2K/4
(7) HDMI_DDC_CLK — HDMI_DDC_CLK — R100 33/4 — HDMI_DDC_CLK_R
(7) HDMI_DDC_DATA — HDMI_DDC_DATA — R91 33/4 — HDMI_DDC_DATA_R

## HDMI CONNECTOR

V_HDMI_DDC
CP1 X_COPPER
VCC5
F1 F-SMD1812_1.5A
or 1.1A
L1 X_30L3_15_0805
HDMI_5VPWR
C51 X_10u/10V/8
Need to add L02-9008014-T34?
C53 0.1u/25V/4

HDMI1 — CONN-HDMI19P-RH-3 — MEC1

| | | |
|---|---|---|
| HDMITXD2+ | 1 | D2+ |
| | 2 | D2 Shield |
| HDMITXD2- | 3 | D2- |
| HDMITXD1+ | 4 | D1+ |
| | 5 | D1 Shield |
| HDMITXD1- | 6 | D1- |
| HDMITXD0+ | 7 | D0+ |
| | 8 | D0 Shield |
| HDMITXD0- | 9 | D0- |
| HDMITXC+ | 10 | CK+ |
| | 11 | CK Shield |
| HDMITXC- | 12 | CK- |
| | 13 | CE Remote |
| | 14 | NC |
| HDMI_DDC_CLK_R | 15 | DDC CLK |
| HDMI_DDC_DATA_R | 16 | DDC DATA |
| | 17 | GND |
| | 18 | +5V |
| | 19 | HP DET |
| | 20 | SHELL2 |
| | 21 | SHELL1 |

VCC5
D5 BAV99
(7) HOTPLUG_DET — HOTPLUG_DET — R96 1K/4 — HDMI_HOT_DET
4.545V
R95 10K/4
C59 470P/16V/4

N5I-19M0161-S42

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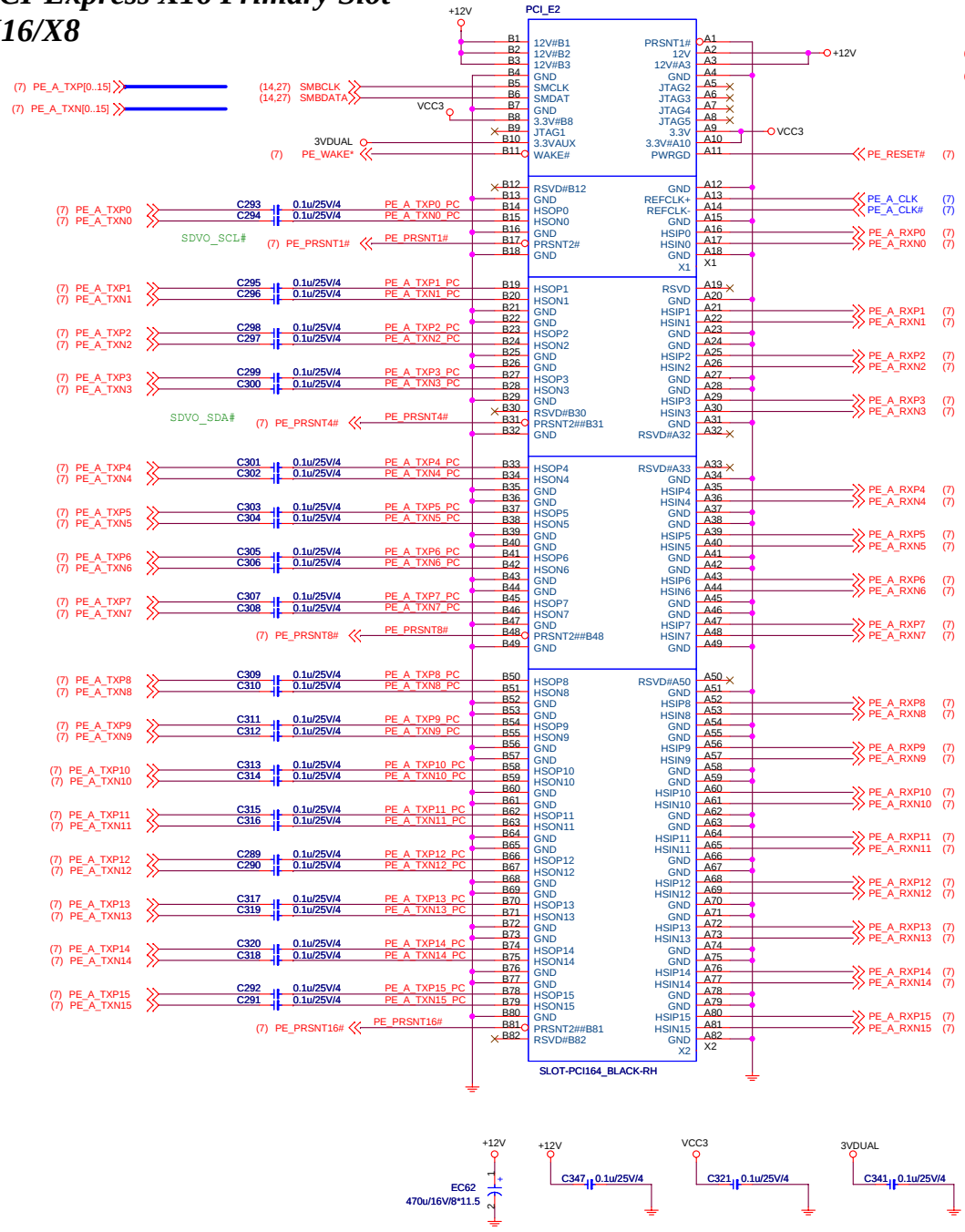
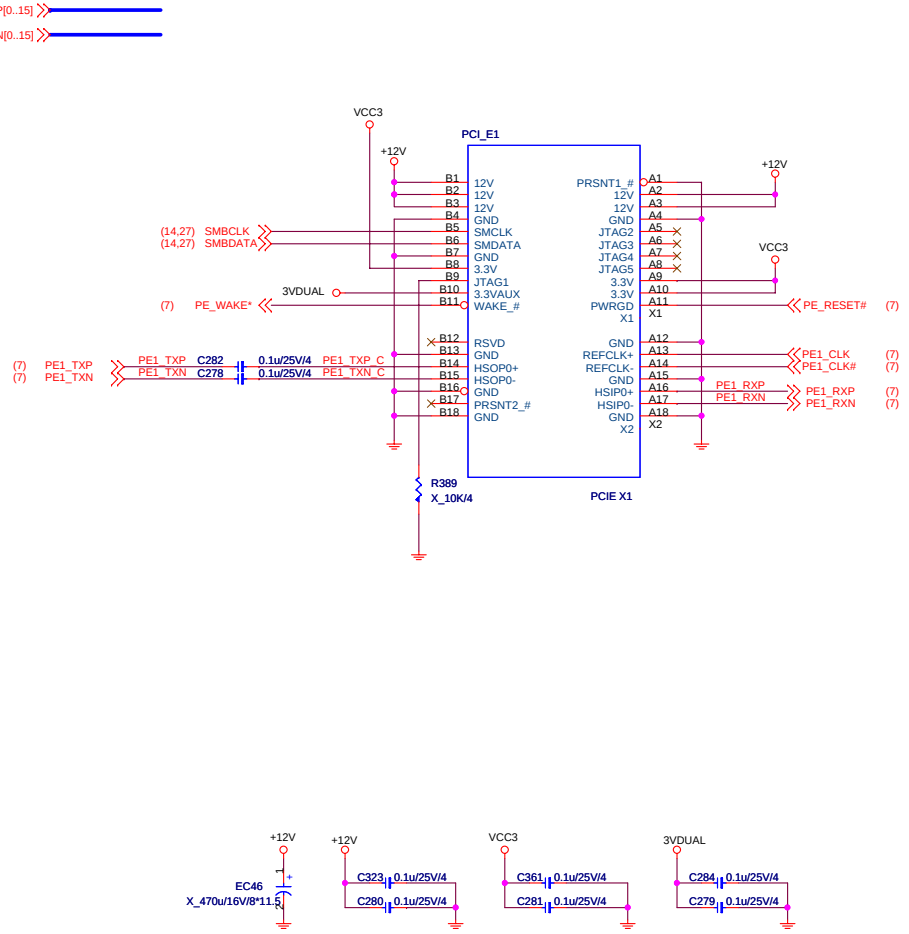
MS-7504
Size: Custom
Document Description: HDMI
Rev: 0A
Date: Monday, July 16, 2007
Sheet 18 of 34

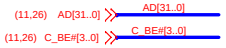
# PCI-Express X16 Primary Slot
# X16/X8



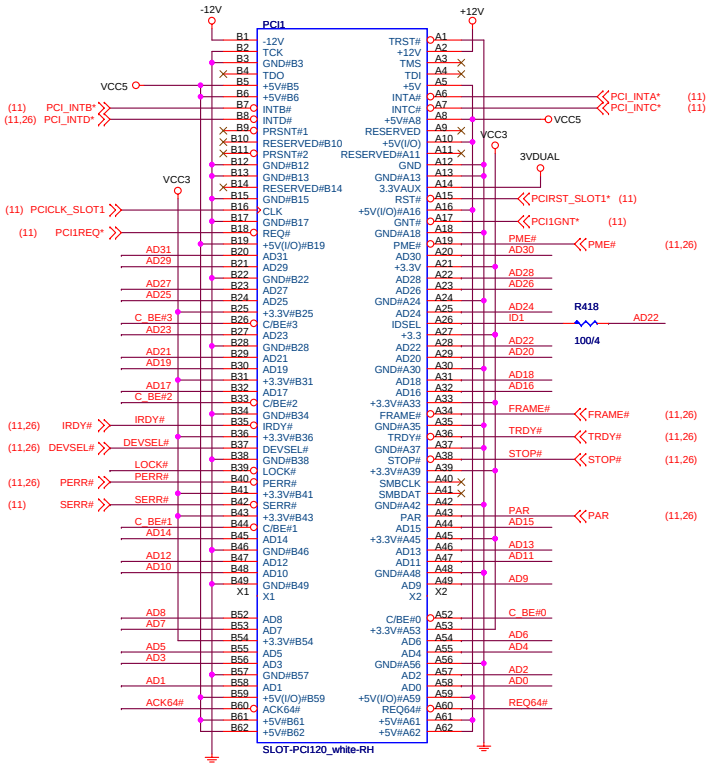

## PCI-Express x1 SLOT 1




| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: PCI-E X16/X1 Slot | Rev: 0A |
| Date: Monday, July 16, 2007 | Sheet 19 of 34 | |

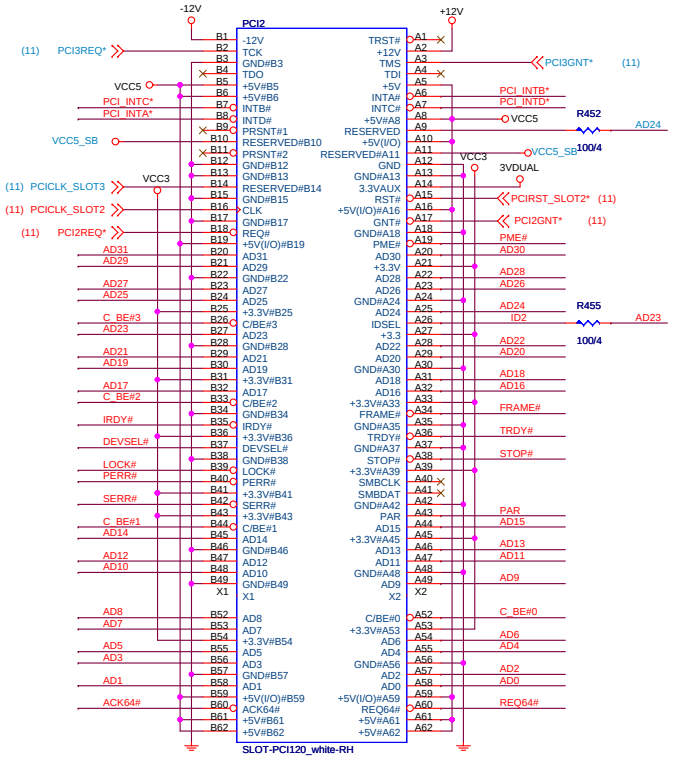



## PCI SLOT 1 (PCI VER: 2.2 COMPLY)



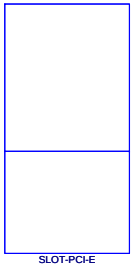

IDSEL = AD22
MASTER = PCI1REQ*
PCI1GNT*

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



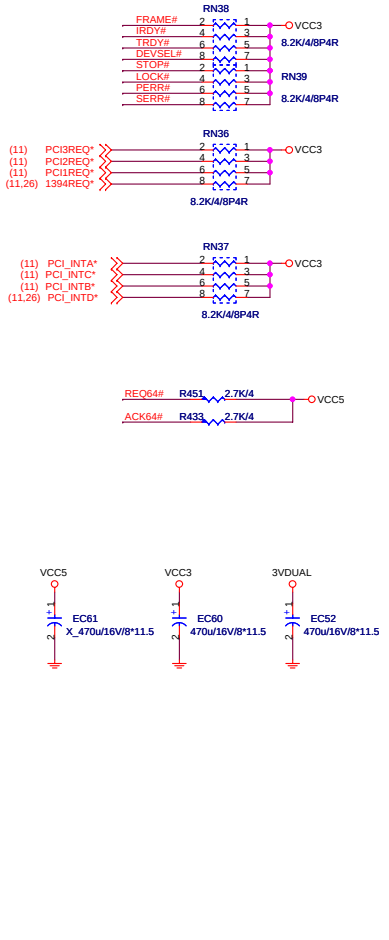

IDSEL = AD23
MASTER = PCI2REQ*
PCI2GNT*

Medion BLUE PCI SLOT




IDSEL = AD24
MASTER = PCI3REQ*
PCI3GNT*

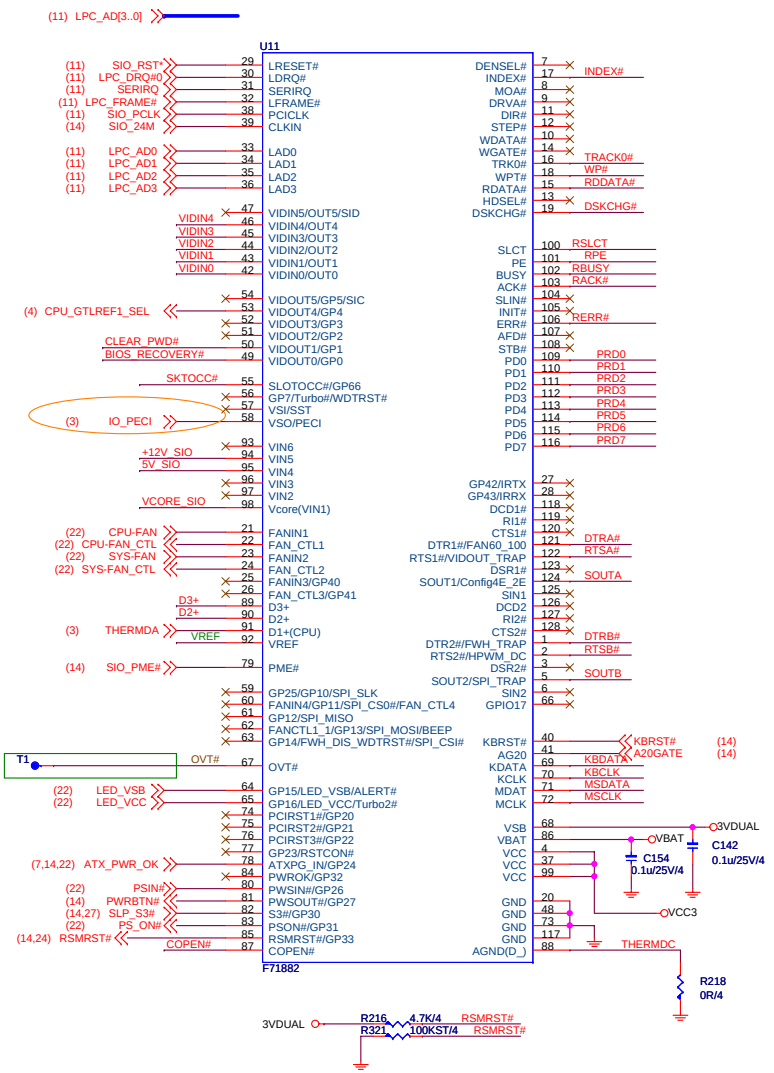
## PCI PULL-UP / DOWN RESISTORS

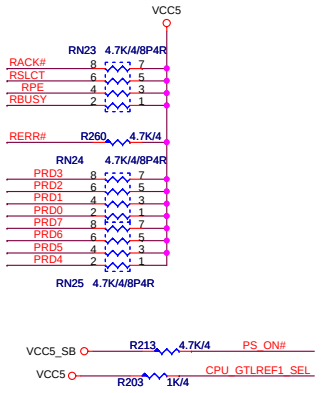


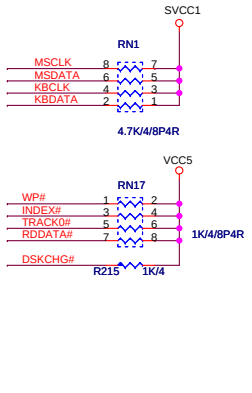

| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: PCI Slot 1 & 2 | Rev: 0A |
| Date: Monday, July 16, 2007 | Sheet 20 of 34 | |

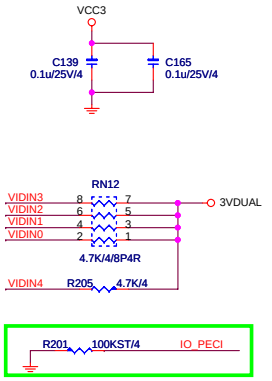
# Super I/O

## LPC SUPER I/O F71882

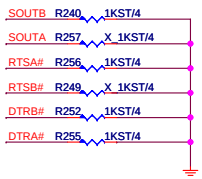



## Strapping



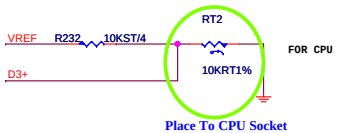

| | Don't STUFF | STUFF |
|---|---|---|
| RTSB# | PWM FAN | LINEAR FAN |
| RTSA# | PIN49-54=VID_OUT<br>PIN42-47=VIDIN | PIN49-54=GPIO<br>PIN42-47=VIDIN/OUT |
| SOUTA | 4E | 2E |
| DTRB#,SOUTB | SPI_DISABLE | SPI_ENABLE |
| DTRA# | FAN START DUTY 60% | FAN START DUTY 100% |

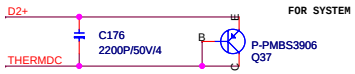
## CPU VID reset

SLOT_OCC#


## Temperature Sensing

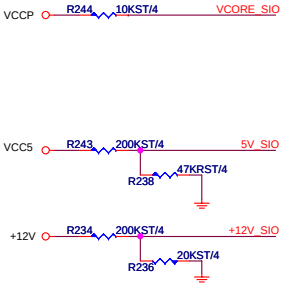
DIODE SENSING CIRCUIT

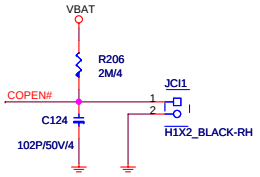




## VOLTAGE SENSING(H/W Monitor).

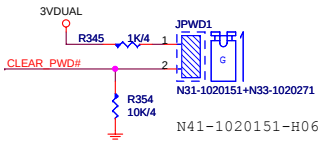
The best voltage input level is about 1V.




## CASE OPEN CIRCUIT




## PASSWORD CLEAR JUMPER

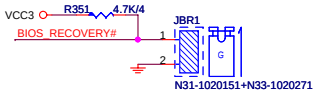



N41-1020151-H06

Short : Normal

Open - Short : Clear Password

## BIOS Recovery



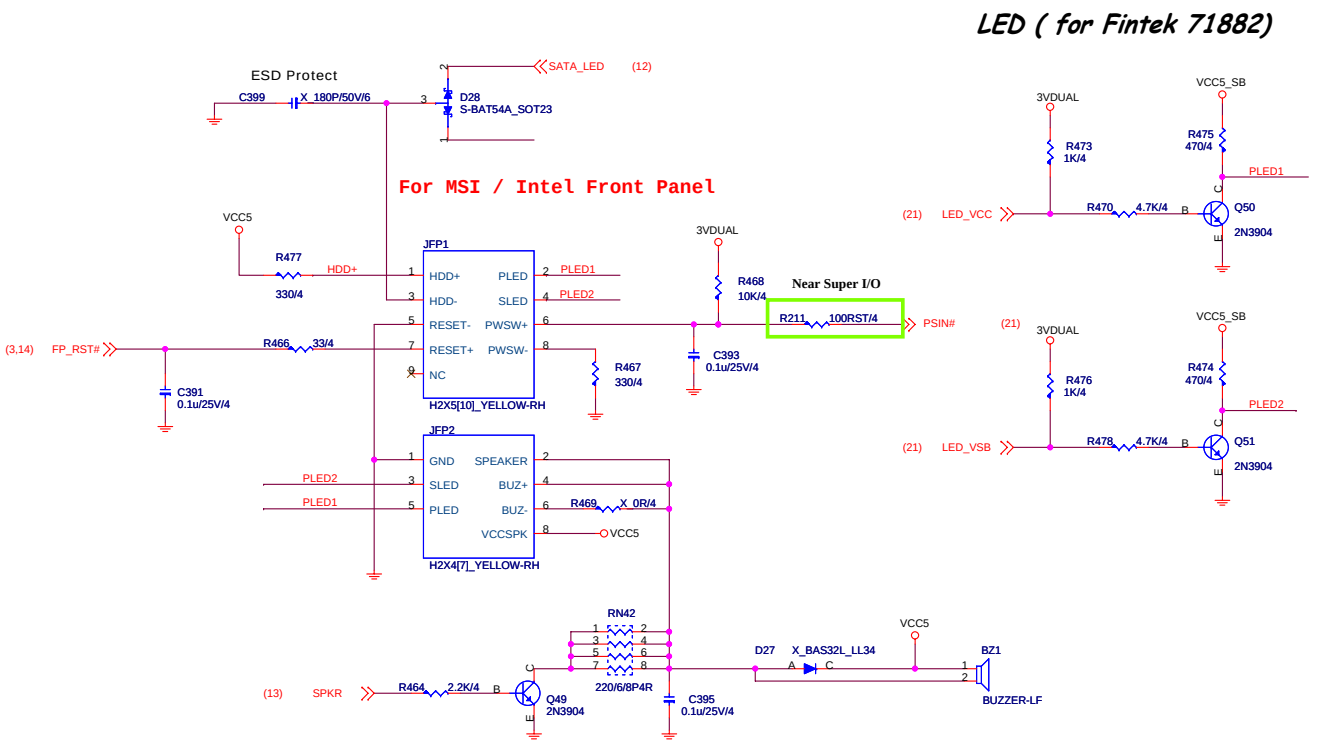

Short : Normal

Open - Short : BIOS Recovery

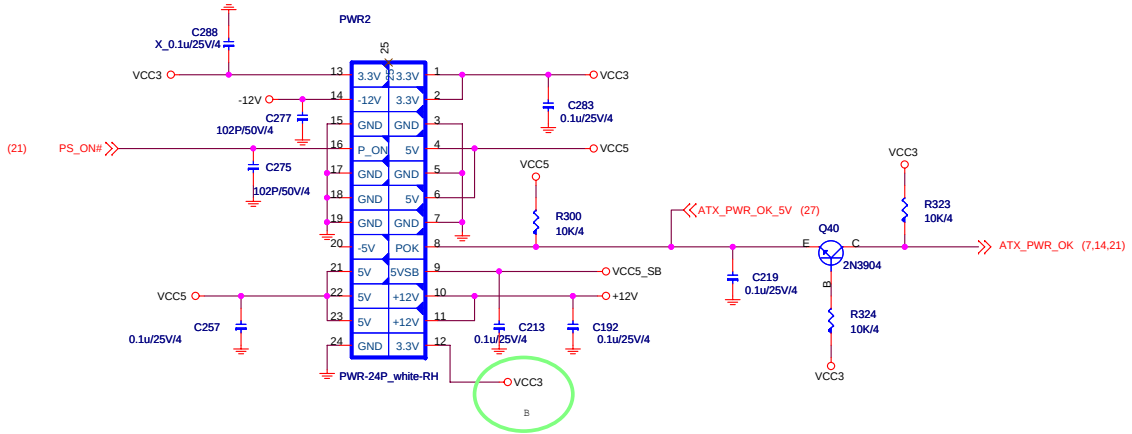
| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: LPC-Super I/O F71882FG | Rev: 0A |
| Date: Monday, July 16, 2007 | Sheet 21 of 34 | |

# ATX connector / Front Panel

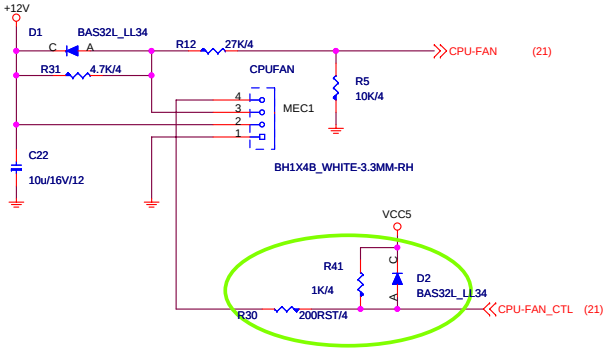
## Intel Front Panel



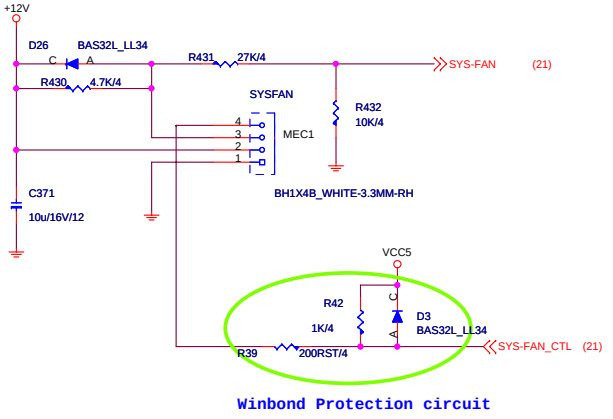

## ATX Connector




## CPU FAN




## SYSTEM FAN




| | | |
|---|---|---|
| MSI | MICRO-STAR INT'L CO.,LTD | |
| | MS-7504 | |
| Size: Custom | Document Description: ATX/Front Panel/FAN | Rev: 0A |
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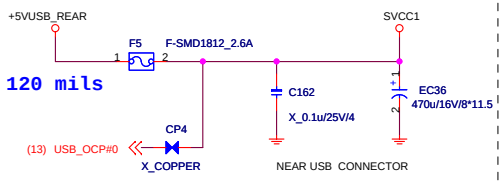
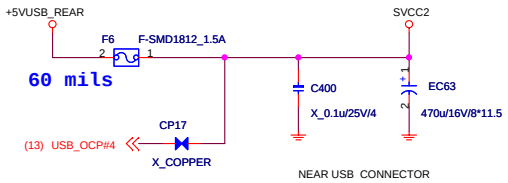
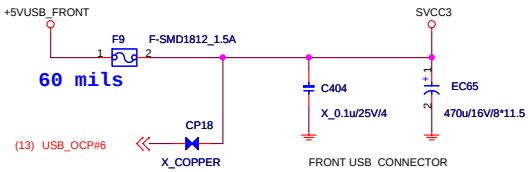
## POWER CIRCUIT FOR USB PORT 0,1,2,3



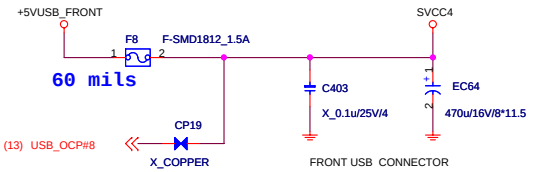

## POWER CIRCUIT FOR USB PORT 4,5




## POWER CIRCUIT FOR USB PORT 6,7

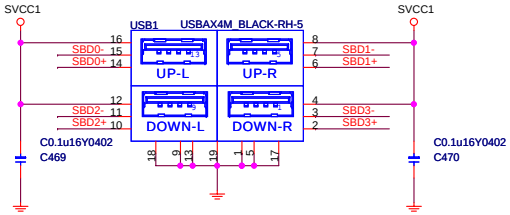



## POWER CIRCUIT FOR USB PORT 8,9



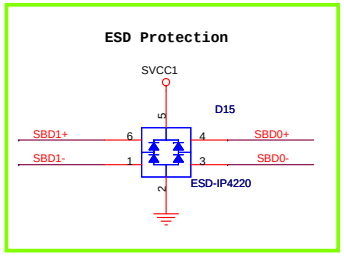

JUSB3--USB[8,9] is not present in MCP73V/D

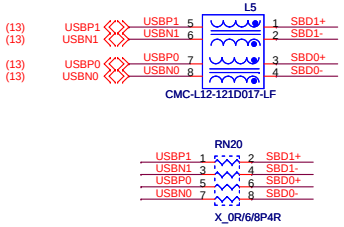
## REAR PANEL USB CONNECTOR FOR USB PORT 0,1,2,3



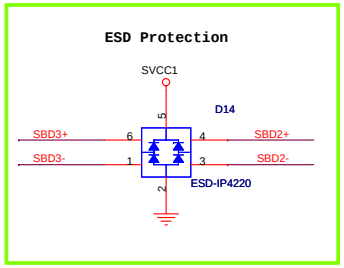

**N53-16M0081-K06**
**for 7504**

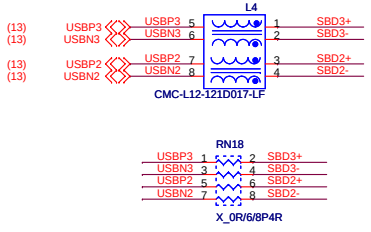
### ESD Protection




### ESD Protection

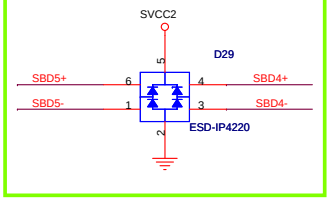


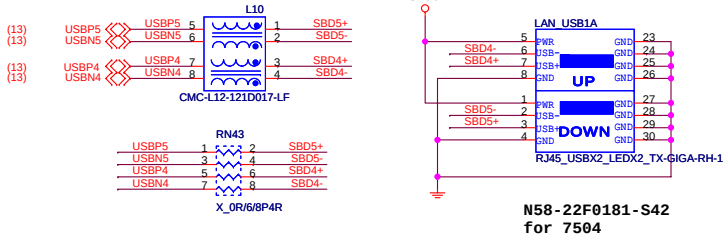

***NEAR USB CONNECTOR***

**22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22**

### ESD Protection




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

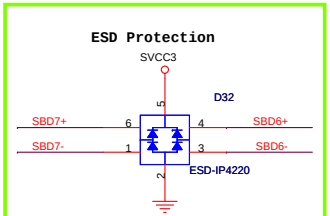



**N58-22F0181-S42**
**for 7504**

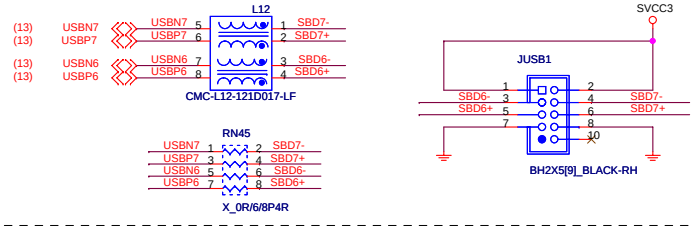
***NEAR USB CONNECTOR***

**22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22**

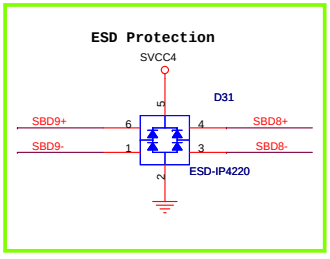
### ESD Protection



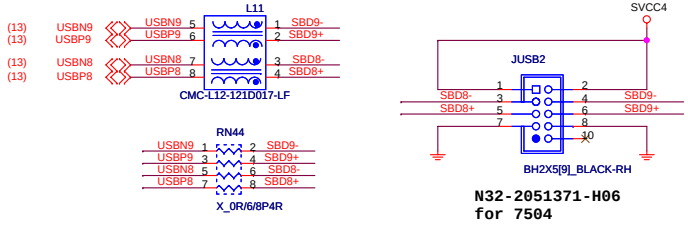

## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7




### ESD Protection




## FRONT PANEL USB CONNECTOR FOR USB PORT 8,9




**N32-2051371-H06**
**for 7504**

JUSB2 is not present in MCP73S

JUSB3--USB[8.9] is not present in MCP73V/D

| | | |
|---|---|---|
| MSI | MICRO-STAR INT'L CO.,LTD | |
| | MS-7504 | |
| Size: Custom | Document Description: USB CONNECTORS | Rev: 0A |
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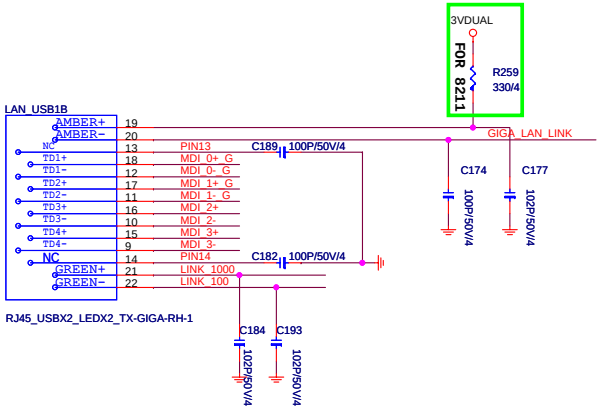
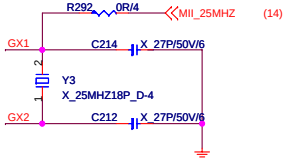
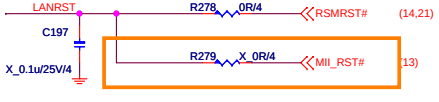
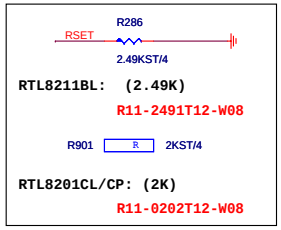
N58-22F0181-S42
for 7504



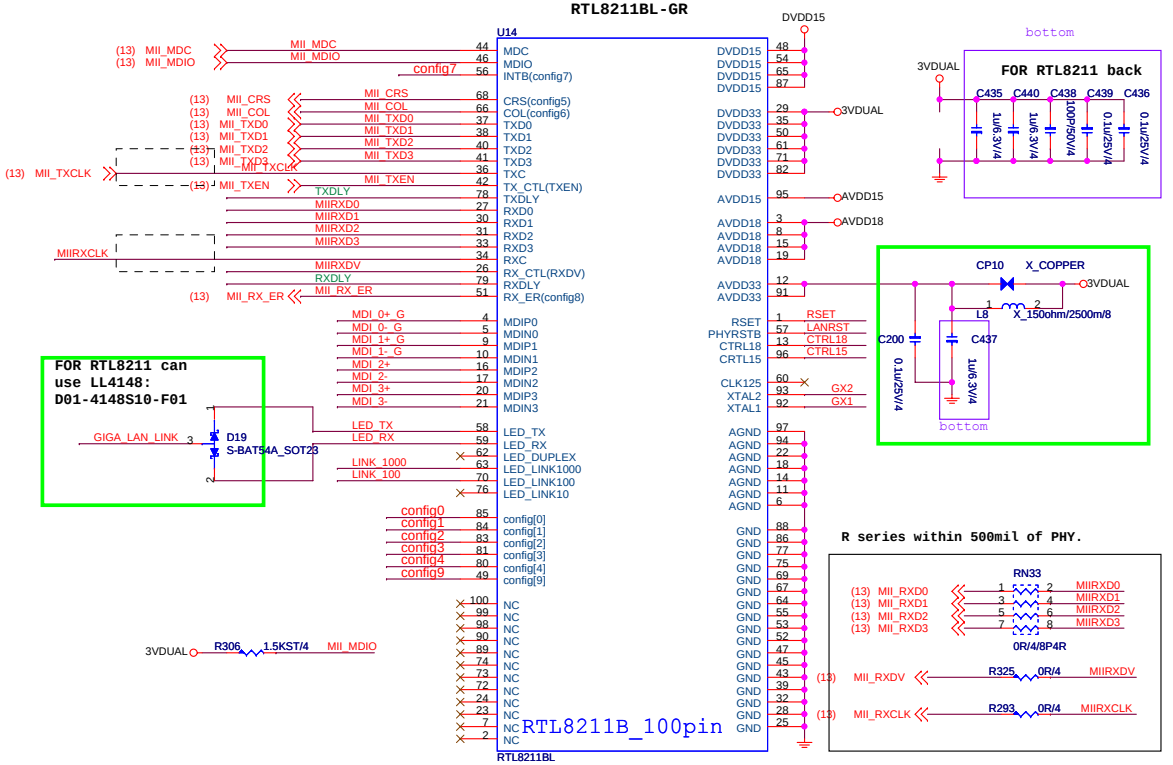



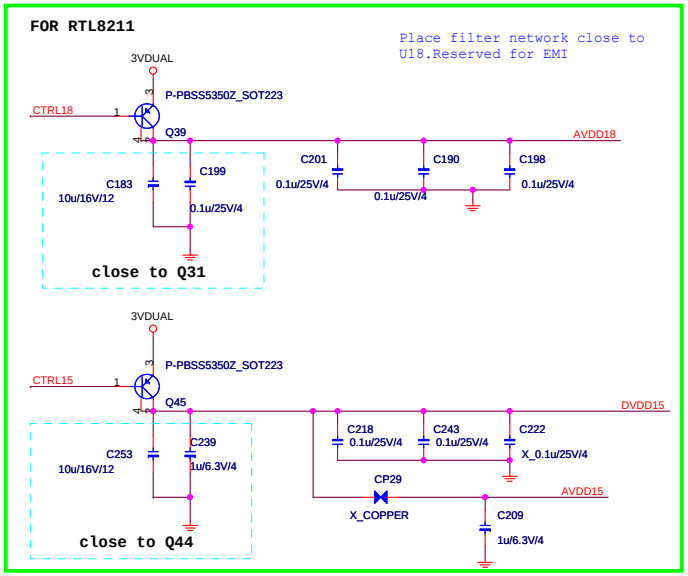



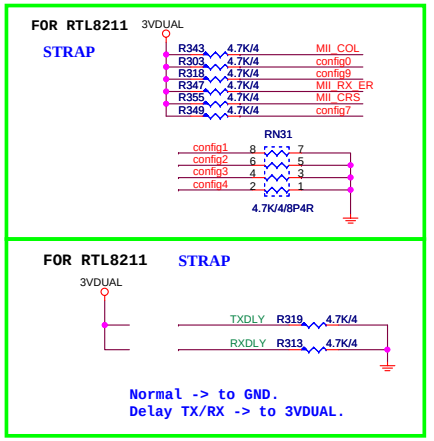




| Giga-Lan | 10/100-Lan |
|---|---|
| N58-22F0181-S42 | N58-22F0201-S42<br>N58-22F0341-S42<br>N58-22F0281-F02 |
| Link Yellow<br>Active Blinking<br>1000 Orange<br>100 Green<br>10 None | Link Yellow<br>Active Blinking<br>100 Green<br>10 None |
| 19<br>20 Yellow<br>21 Orange<br>22 Green | 19<br>20 Yellow<br>21<br>22 Green |

RTL8211BL-GR



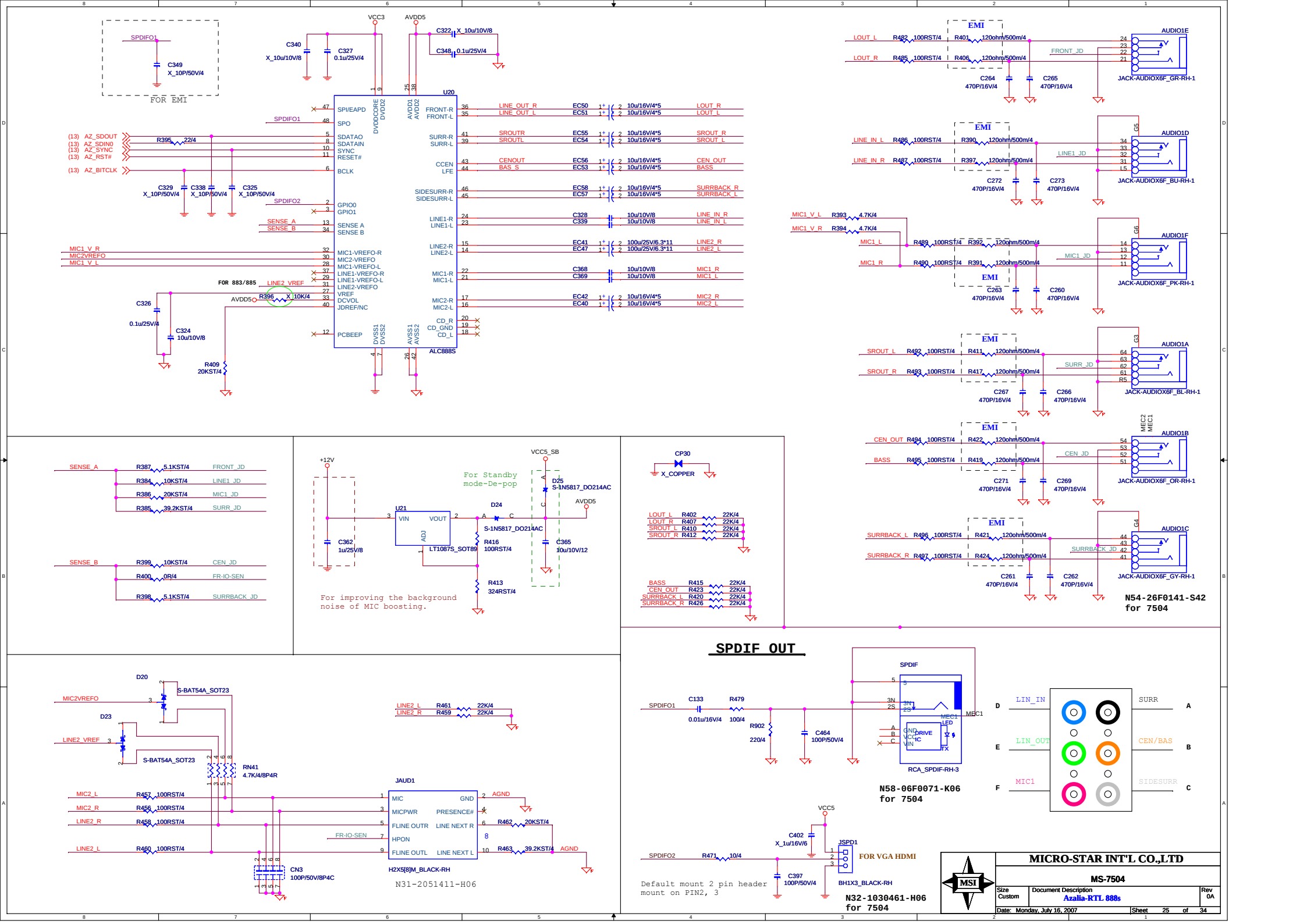




MICRO-STAR INT'L CO.,LTD

MS-7504

| Size | Document Description | Rev |
|---|---|---|
| Custom | LAN-RTL8211BL | 0A |
| Date: Monday, July 16, 2007 | Sheet 24 of 34 | |






















MICRO-STAR INT'L CO.,LTD

MS-7504

| Size | Document Description | Rev |
|---|---|---|
| Custom | Azalia-RTL 888s | 0A |

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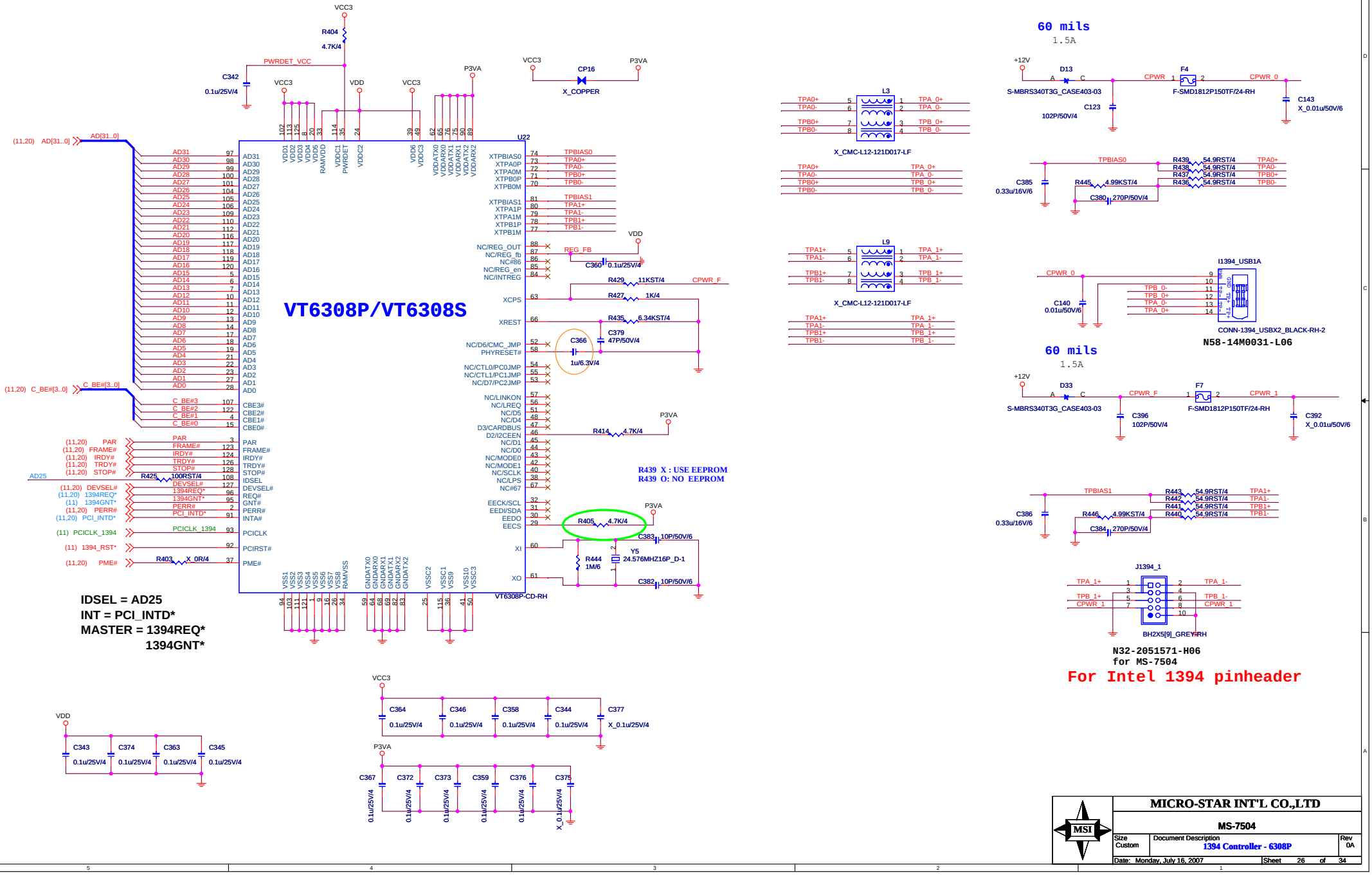
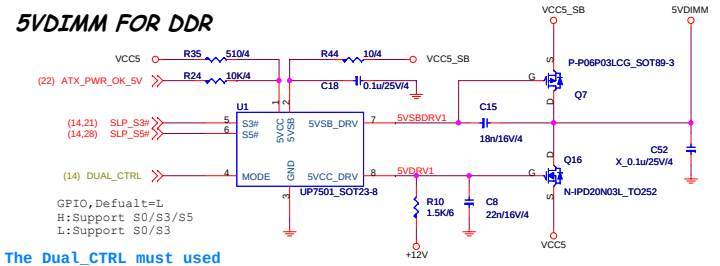
# VT6308P - 1394 Controller




| | |
|---|---|
| MICRO-STAR INT'L CO.,LTD | |
| MS-7504 | |
| Size: Custom | Document Description: 1394 Controller - 6308P |
| Rev: 0A | |
| Date: Monday, July 16, 2007 | Sheet 26 of 34 |

## 5VDIMM FOR DDR




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

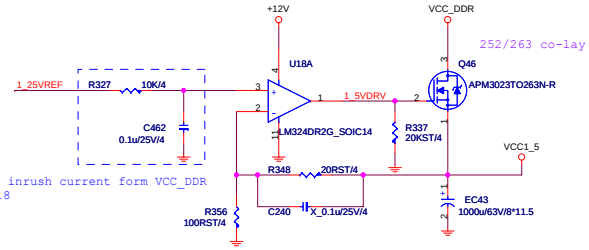
**The Dual_CTRL must used default "Output- Low"**

| | 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 | Y | N | N | Y | N |

DUAL_CTRL可控制S4/S5, USB是否要有電
USB_MODE控制S4, S5一種要有電一種不要有電的狀態

## VCC1_5, 8.81A
## 2.643W

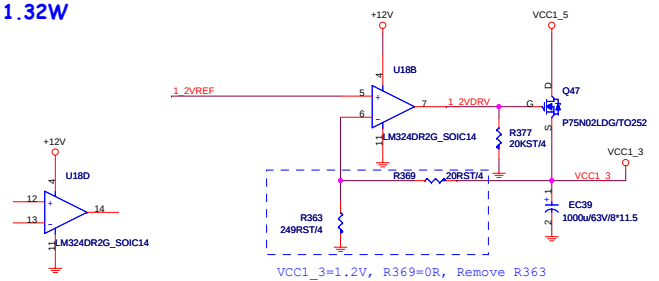
H_VCCPLL=>100mA
MCP73 =>7A




252/263 co-lay

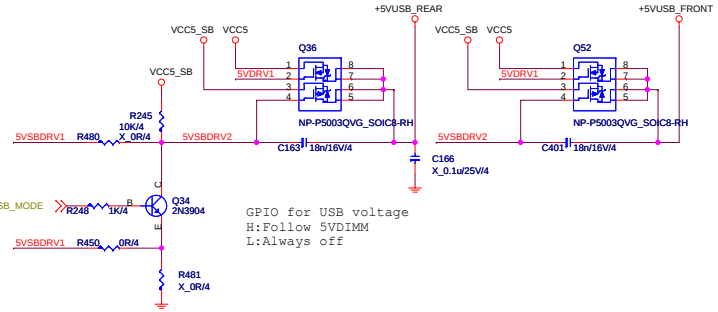
pervent the inrush current form VCC_DDR close to U18

## VCC1_3, 8.81A
## 1.32W




VCC1_3=1.2V, R369=0R, Remove R363
VCC1_3=1.35V, R369= 20R, R363=249R

## 5VSB FOR Rear USB




GPIO for USB voltage
H:Follow 5VDIMM
L:Always off

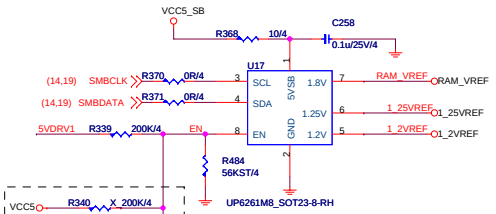
## 5VSB FOR Front USB




## Reference Voltage

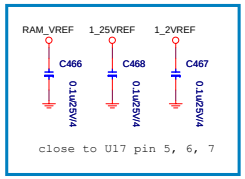
**up6261: High Precision Voltage Console**

ONLY OVER DDR Voltage to 2V




EN : 0.4~1.4V

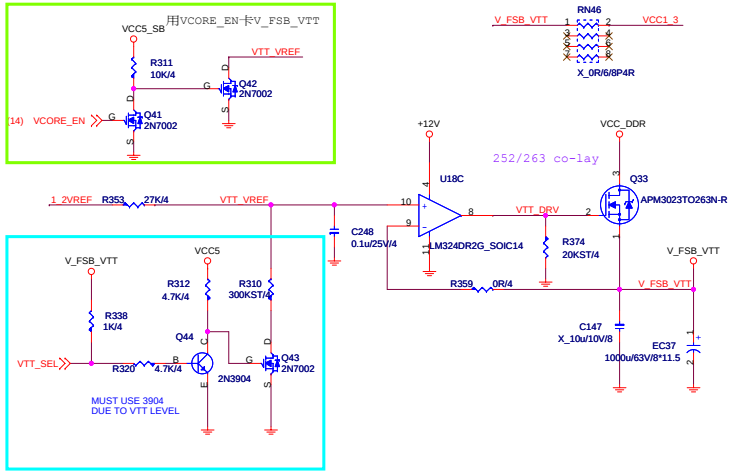
I32-0626109-U33 , delay 20 ms
避免EN比 5VDRV1早, MCP73 core power 抽到VCC5_SB




close to U17 pin 5, 6, 7

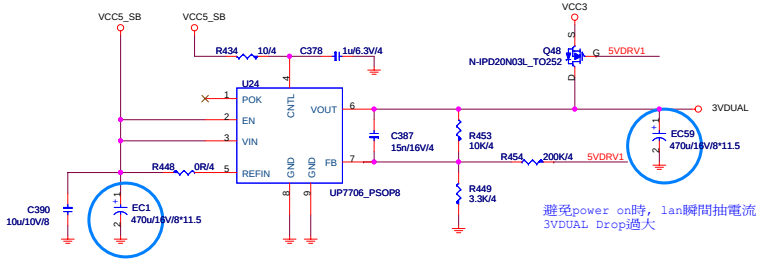
## FSB_VTT, 6.1A
## 3.66W

U18:
I71-LM32403-T07
I71-LM32413-O05
I71-LM32413-F01
I71-LM32413-N04




| | | |
|---|---|---|
| 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. |

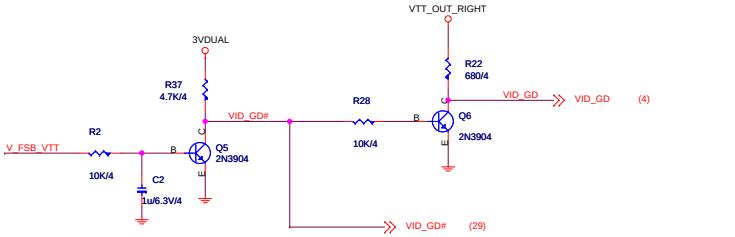
## 3VDUAL, 1.7A




避免power on時, lan瞬間抽電流
3VDUAL Drop過大

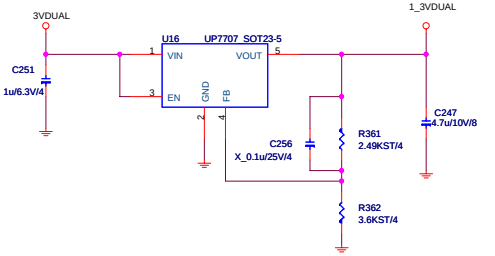
避免power on時, lan瞬間抽電流
VCC5_SBL Drop過大

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




## 1_3VDUAL, 25mA

**up7707: 600mA Low Dropout Linear Regulator**




Vout=0.8* (R1+R2)/R1

R361=1.8K, 1_3VDUAL=1.2V for chipset ver:A01
R361=2.49K, T_3VDUAL=1.35V for chipset ver:A02 later

| | | |
|---|---|---|
| MICRO-STAR INT'L CO.,LTD | | |
| MS-7504 | | |
| Size: Custom | Document Description: ACPI Controller UPI | Rev: 0A |
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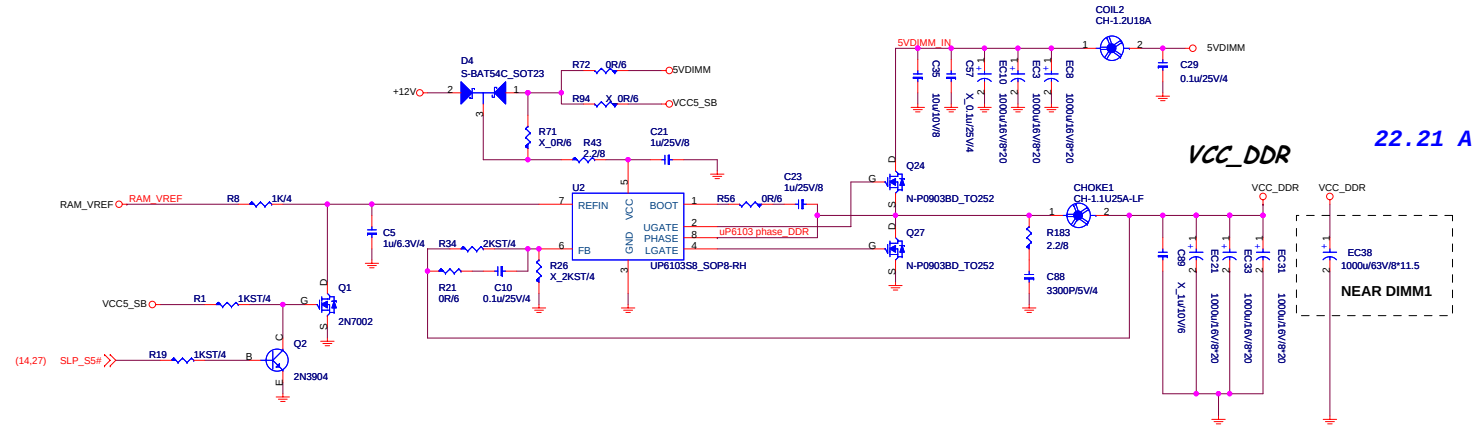
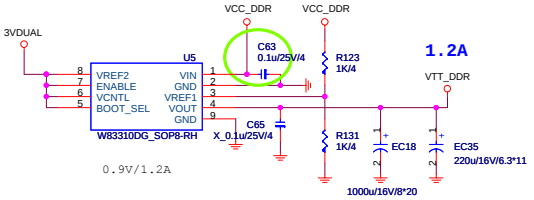
# DDR II 1.8V POWER

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

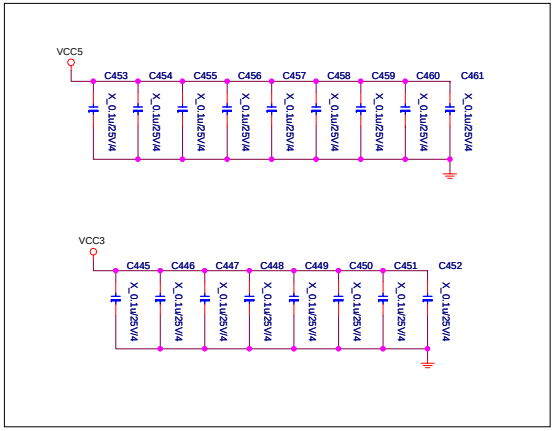



## DDR VTT Power

To CPU Copper trace width > 200mils




EMI




| | | |
|---|---|---|
| MSI | MICRO-STAR INT'L CO.,LTD | |
| | MS-7504 | |
| Size: Custom | Document Description: uP6103/VTT/REGULATOR | Rev: 0A |
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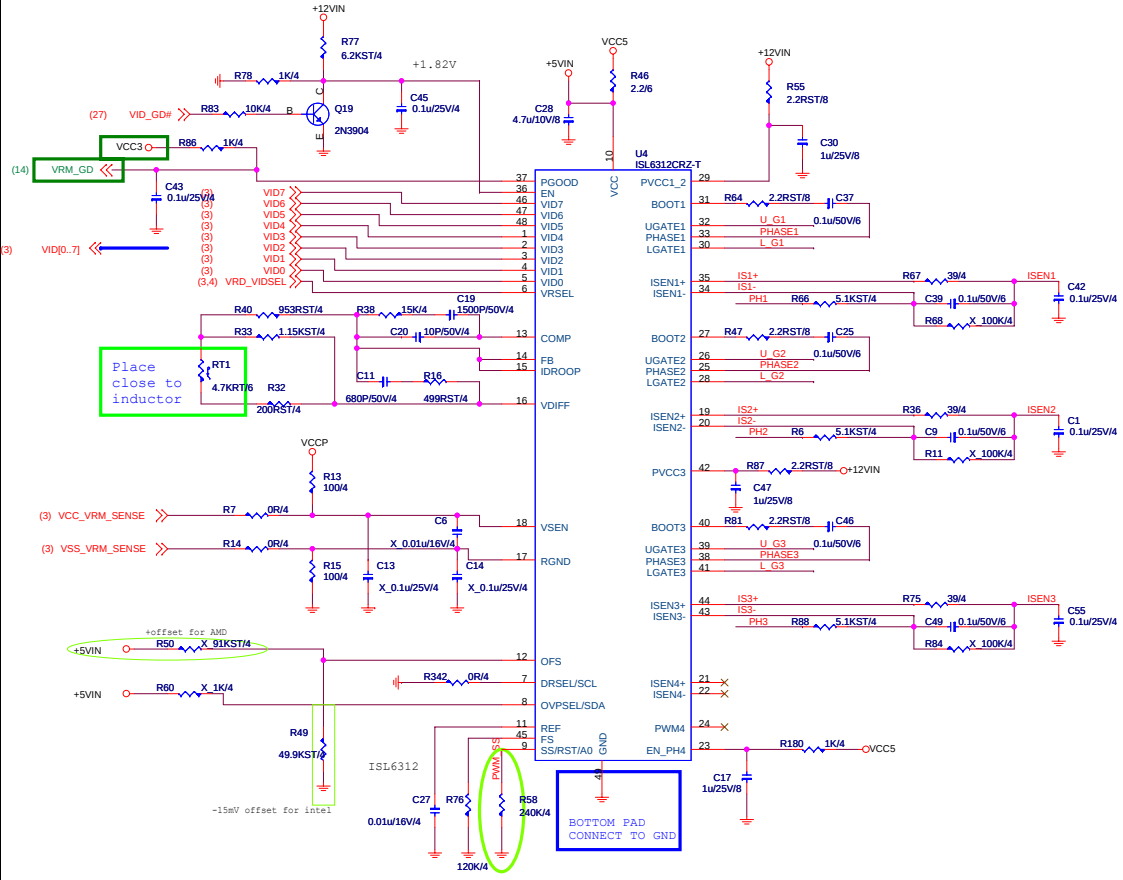
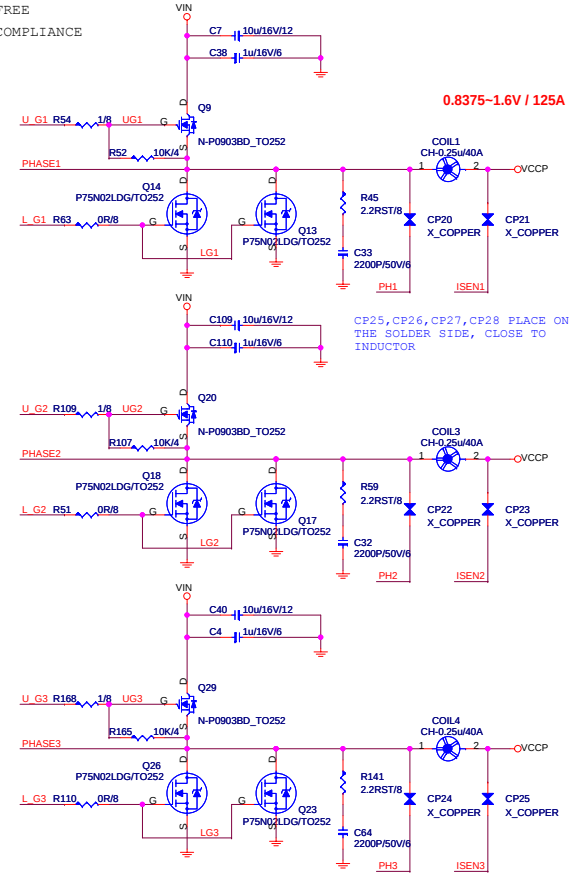
# Voltage Regular Module

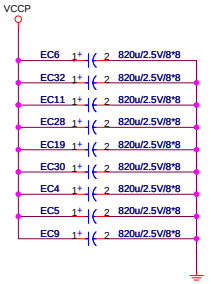
| | |
|---|---|
| N-P0903BDG_TO252 | mosfet/n-channel,P0903BDG,SMT/TO252,Rds(on)=9.5mΩ(10V/25A),Vgs(on) =1~3V,Id=50A,Ciss=1800pf,Qg=50nC,Vds=25V,Vgs=±20V,RoHS compliance |
| P75N02LDG/TO252 | mosfet/n-channel,P75N02LDG,SMT/TO252,Rds(on)=7mΩ(@10V,30A),Vgs(on)=1~3V,Id=75A,Ciss=5000pf,Qg=140nC,Vds=25V,Vgs=±20V,RoHS compliance |
| C100U2SP | ESR<13mΩ,Ripple cur.<2.7A,LC<12uA,105C |
| CD560U4OS-2 | CAP,OS-CON,560u/4V,Dip-2/8*9/3.5mm,ESR<7mohm, Ripplecur.=6100mA ,Lc. <500uA,SPEC series,RoHS compliance |
| 1800UF/6.3V | ESR<12mΩ, Ripplecur<2350mA,105C, longlife change from 2000hrs to 3000hrs ,KZJ series |
| 0.25uH/40A | ,IND CHOKE,0.25uH,20%,DIP/8.5mm,40A,0.6mOhm,,,PEW,FERRITE,SQUARE,RoHS COMPLIANCE |
| CH-1.1U25A-LF | IND CHOKE,1.1uH,20%,DIP/9mm,25A,1.4mOhm,5.5T,0.9mmx3,PEW,IRON,,LEAD FREE |
| CD1000U16EL20-2 | CAP,EL,1000u,16V,Dip-8x20/3.5mm,20%,12mOhm,2350mA,105C,3000hrs,RoHS COMPLIANCE |



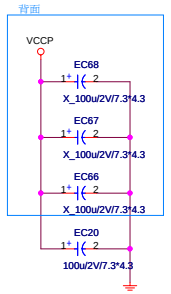

Pin9 of A0 = 0 ; I2C = 1000110X = 8C
Pin9 of A0 = 1 ; I2C = 1000111X = 8E

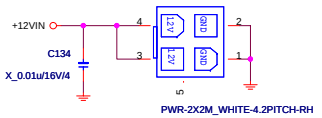


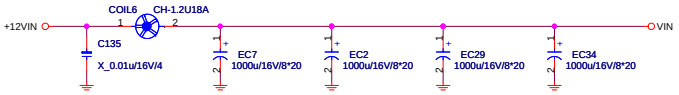

## OS-CON Capactiors




## SP Capacitors

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|---|---|---|
| Custom | VRD11 - ISL6312 3Phase | 0A |

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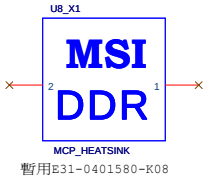
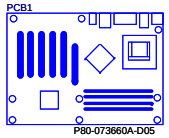
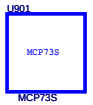


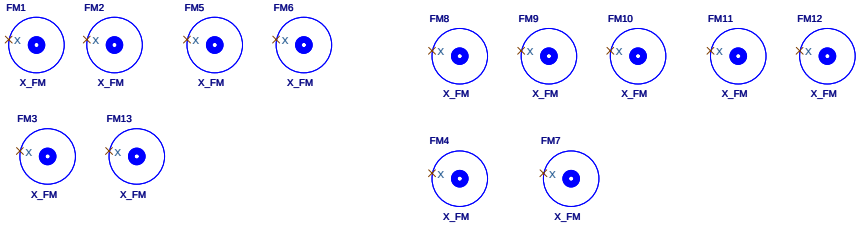





P80-073660A-D05
P80-073660A-Y34




## Optics Orientation Holes




## Mounting Holes

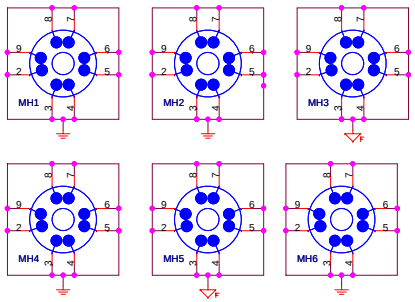


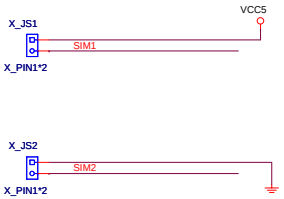

Table 1-4. Comparison of Different MCP73 Models

| Features | MCP73D | MCP73PV | MCP73O | MCP73S | MCP73V |
|---|---|---|---|---|---|
| iGPU | No | DX9 SM3.0 | DX9 SM3.0 | DX9 SM3.0 | DX9 SM3.0 |
| Display Interface | N/A | HDMI, DVI, RGB, sDVO | DVI, RGB, sDVO | DVI, RGB, sDVO | RGB |
| Integrated HDCP | N/A | Yes | Yes | Yes | No |
| FSB | 1333 | 1333 | 1333 | 1066 | 1066 |
| Memory | DDR2-667 64-bit | DDR2-667 64-bit | DDR2-667 64-bit | DDR2-667 64-bit | DDR2-667 64-bit |
| PCI Express | 1 ×16, 2 ×1 | 1 ×16, 2 ×1 | 1 ×16, 2 ×1 | 1 ×16, 2 ×1 | 1 ×16, 2 ×1 |
| USB Ports | 8 | 10 | 10 | 10 | 8 |
| Networking | 10/100/1000 | 10/100/1000 | 10/100/1000 | 10/100/1000 | 10/100 |
| SATA II Ports | 4 | 4 | 4 | 4 | 4 |
| RAID | 0, 1 | 0, 1, 0+1, 5 | 0, 1, 0+1, 5 | 0, 1, 0+1, 5 | 0, 1 |
| PATA-133 | Two devices | Two devices | Two devices | Two devices | Two devices |
| iGPU Dev-ID | N/A | 0x7E0 | 0x7E1 | 0x7E2 | 0x7E3 |
| Marketing Brand Name | NVIDIA nForce 630i | NVIDIA nForce 630i GeForce 7050 | NVIDIA nForce 630i GeForce 7050 | NVIDIA nForce 630i GeForce 7025 | NVIDIA nForce 610i GeForce 7025 |

Table 1. MCP73 SKU Definition

| Features | MCP73PV | MCP73S | MCP73V |
|---|---|---|---|
| FSB | 1333 | 1333 | 1066 |
| Memory | DDR2-800 64 bit | DDR2-667 64 bit | DDR2-667 64 bit |
| Display | HDMI, DVI, RGB, sDVO | DVI, RGB, sDVO | RGB |
| Integrated HDCP | Yes | Yes | No |
| Integrated Networking | 10/100/1000 | 10/100/1000 | 10/100 |
| Vista Premium | Yes | Yes | Yes |
| PCI-E | 1 x16, 2 x1 | 1 x16, 2 x1 | 1 x16, 2 x1 |
| USB Ports | 10 | 10 | 8 |
| SATA II Ports | 4 | 4 | 4 |
| RAID | 0,1,0+1,5 | 0,1,0+1,5 | 0, 1 |
| PATA Drives | 2 | 2 | 2 |

## Simulation

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