

### CPU GTL REFERENCE VOLTAGE BLOCK

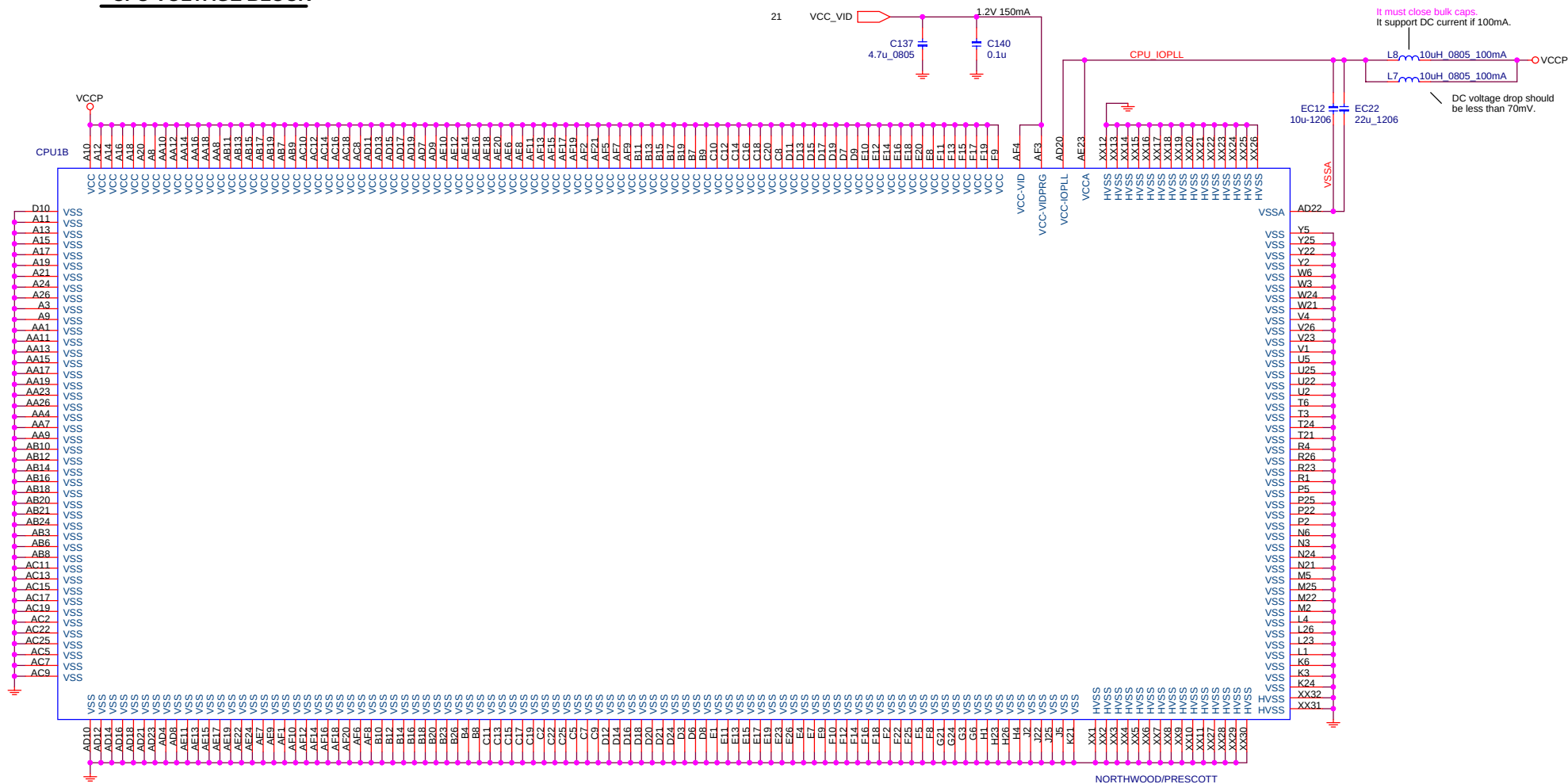


CPU 12:15<1.5"

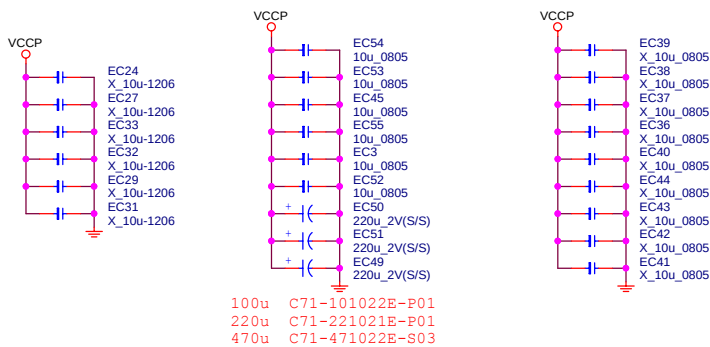


|                                                            |                                |                             |
|------------------------------------------------------------|--------------------------------|-----------------------------|
| <b><i>Micro-Star</i></b>                                   | Title<br><b><i>MS-6743</i></b> | Rev<br><b><i>600</i></b>    |
| Document Number<br><b>Intel mPGA478B - Signals</b>         |                                |                             |
| Last Revision Date:<br><b>Thursday, September 30, 2004</b> |                                | Sheet <b>3</b> of <b>30</b> |

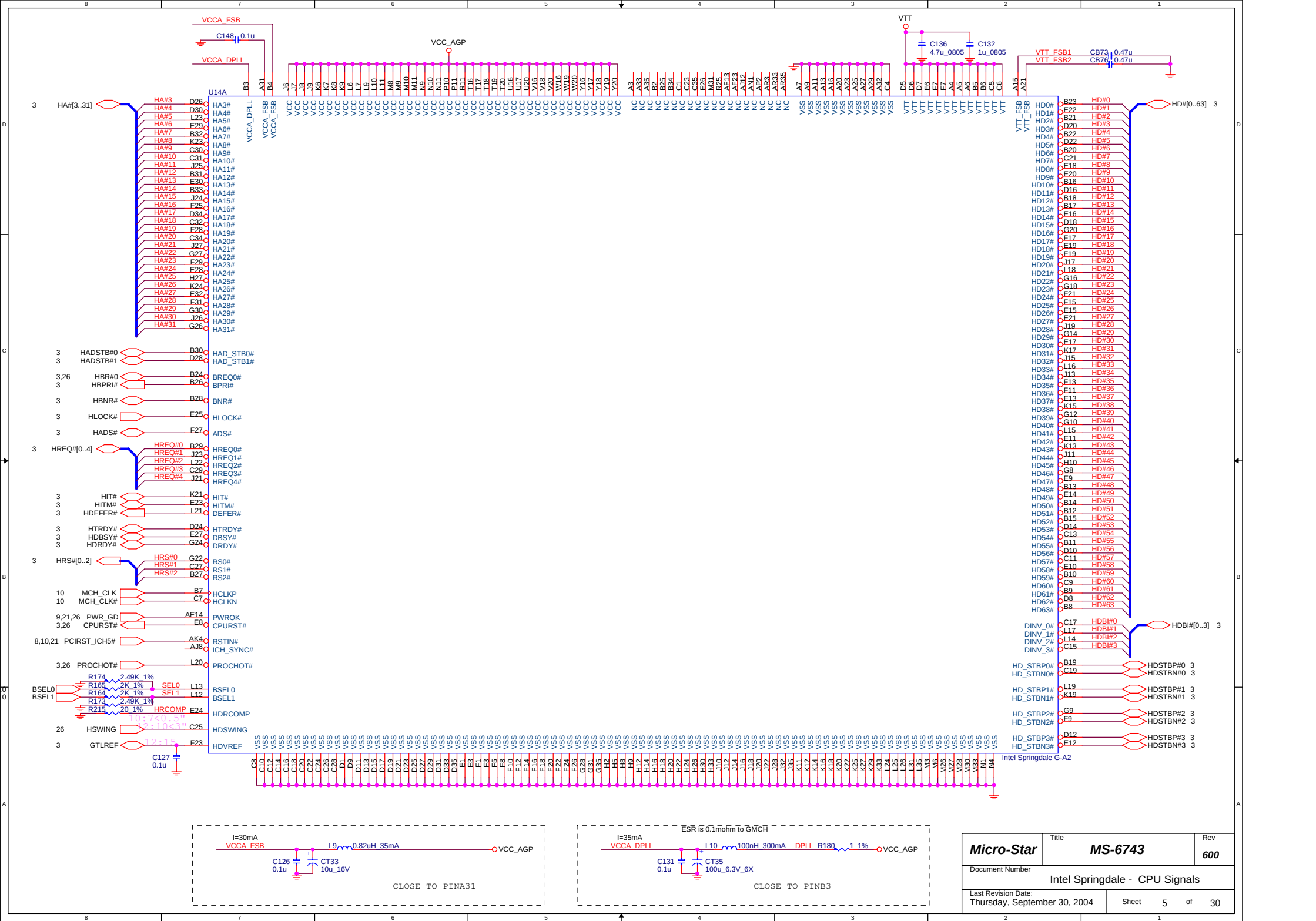
## CPU VOLTAGE BLOCK

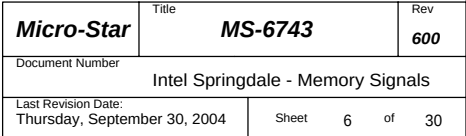


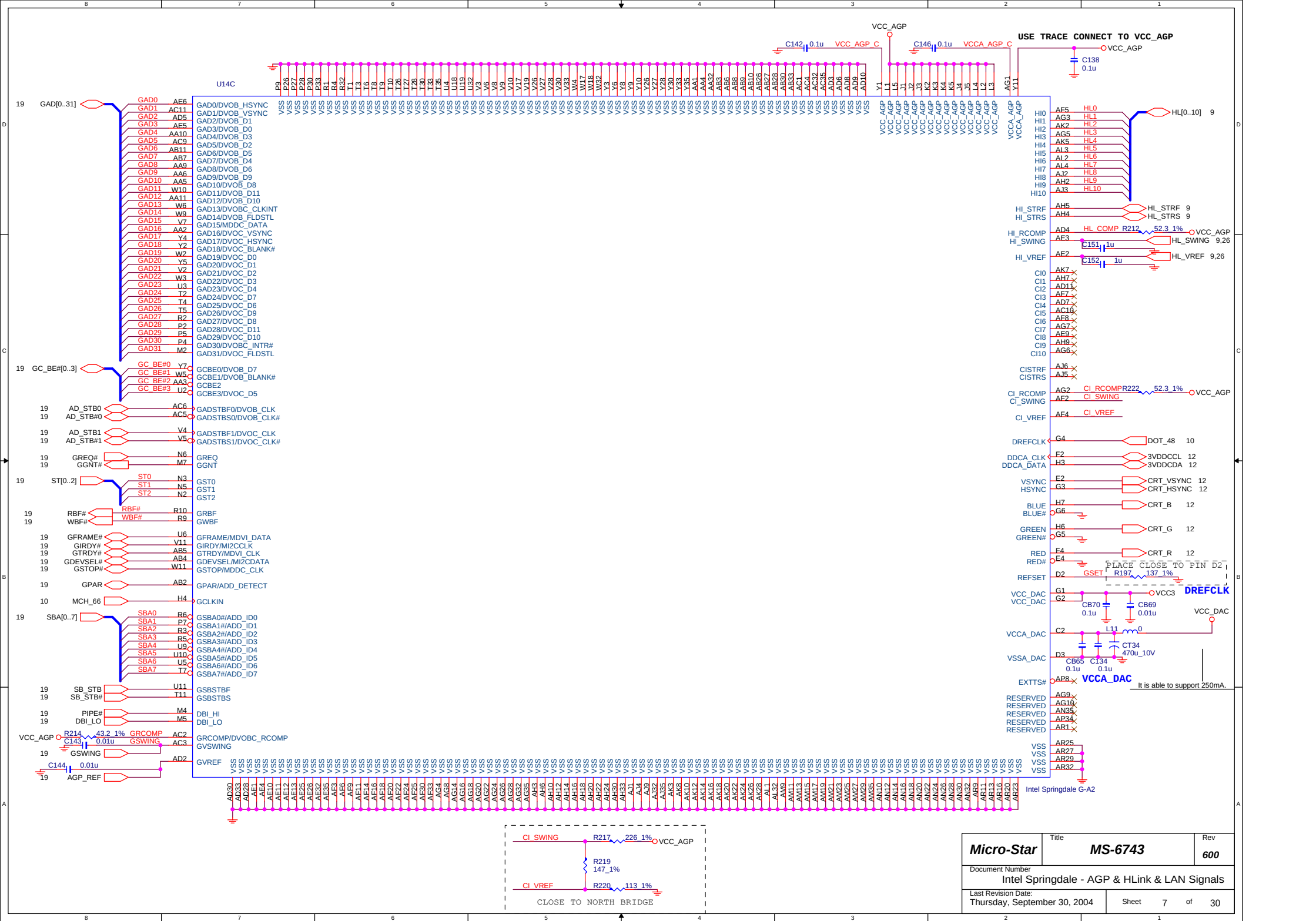
## CPU DECOUPLING CAPACITORS



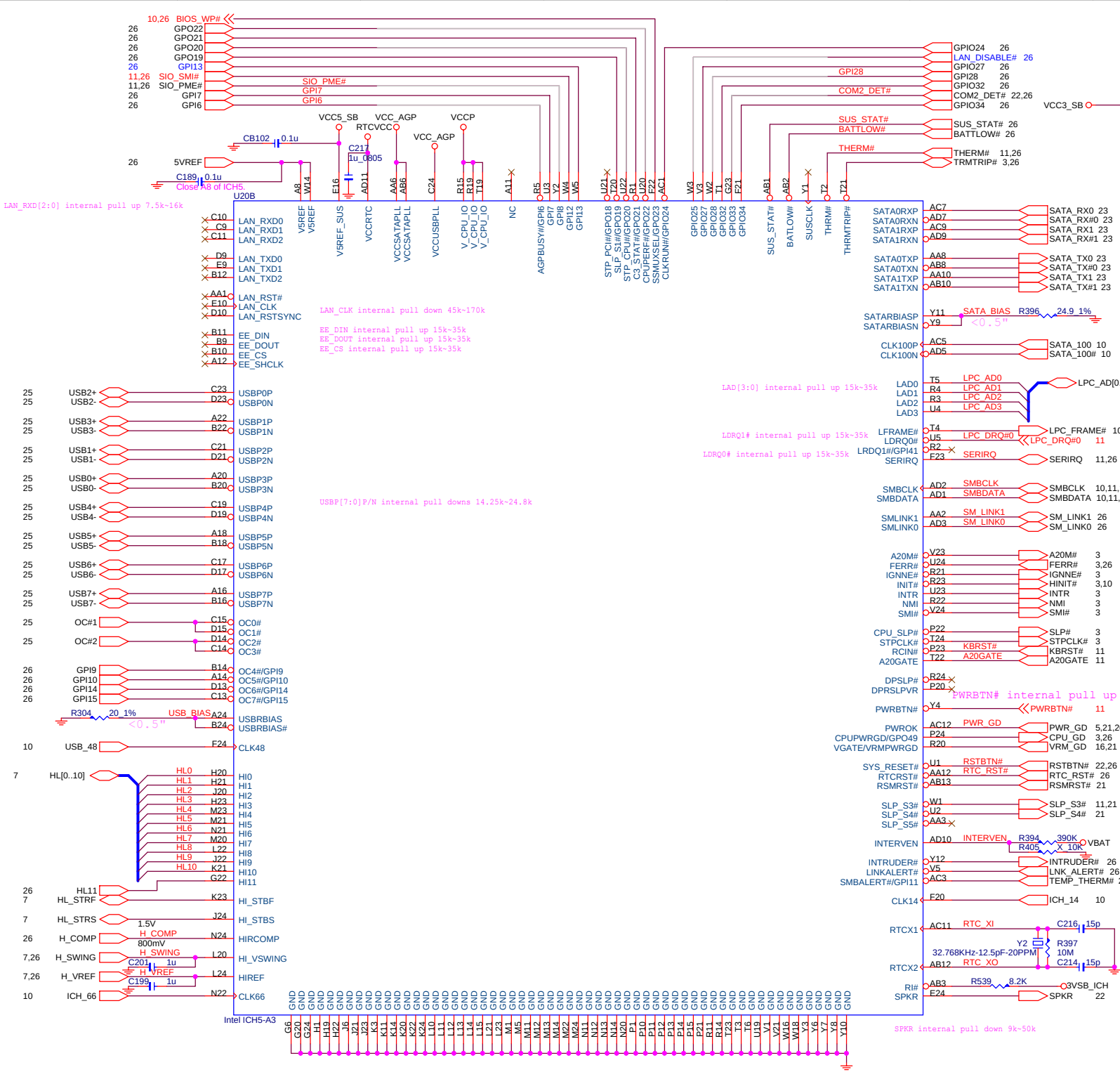
|                                                            |                         |                             |
|------------------------------------------------------------|-------------------------|-----------------------------|
| <b>Micro-Star</b>                                          | Title<br><b>MS-6743</b> | Rev<br><b>600</b>           |
| Document Number<br><b>Intel mPGA478B - Power</b>           |                         |                             |
| Last Revision Date:<br><b>Thursday, September 30, 2004</b> |                         | Sheet <b>4</b> of <b>30</b> |











### RESUME RESET

VCC5\_SB

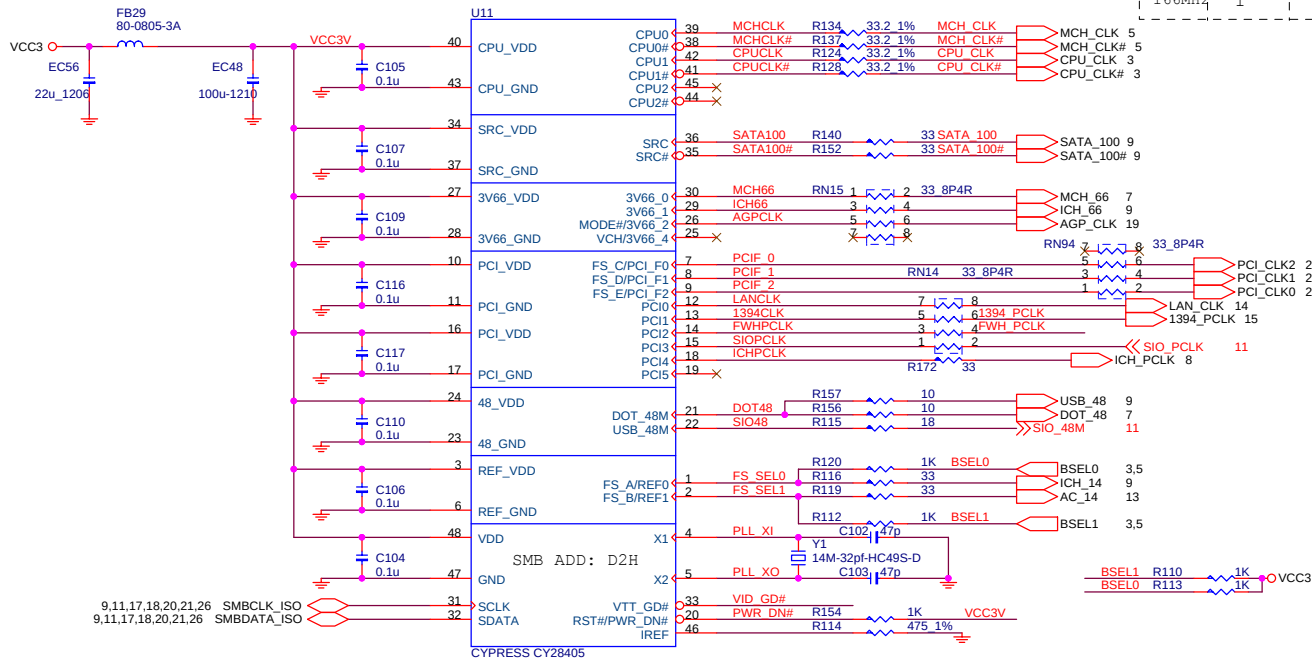
R5 4.7K

RSMRST#

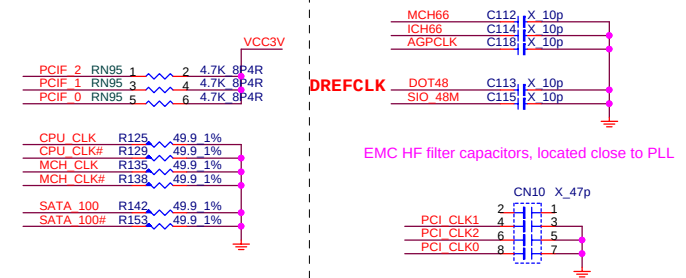
R6 10K

| Micro-Star                                          | Title          | Rev           |
|-----------------------------------------------------|----------------|---------------|
|                                                     | <b>MS-6743</b> | <b>600</b>    |
| Document Number                                     |                |               |
| Intel ICH5 - Other Signals                          |                |               |
| Last Revision Date:<br>Thursday, September 30, 2004 |                | Sheet 9 of 30 |

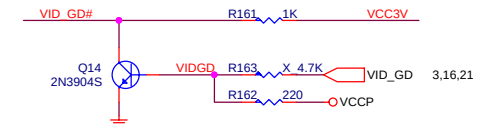
## CLOCK GENERATOR



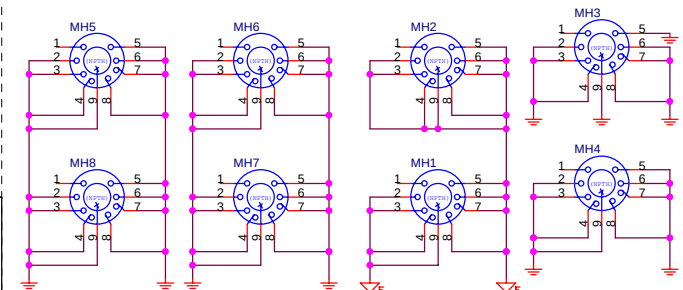
|        | BSEL1 | BSEL0 |
|--------|-------|-------|
| 100MHz | 0     | 0     |
| 133MHz | 0     | 1     |
| 166MHz | 1     | 1     |



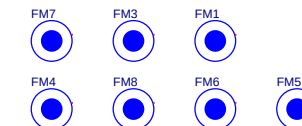
### CLOCK GENERATOR VTT POWER DOWN BLOCK



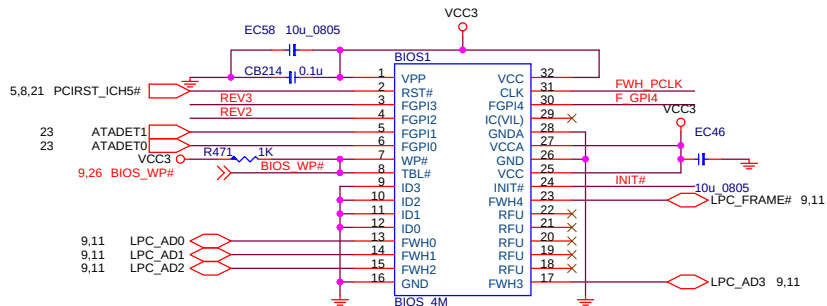
### Mounting Holes



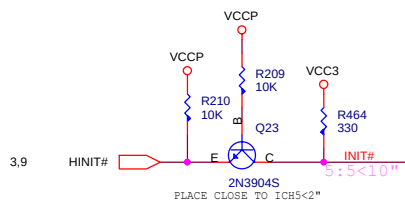
## Optics Orientation Holes



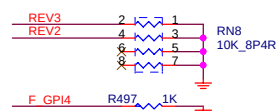
## FIRMWARE HUB (FWH)



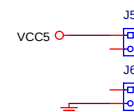
### FWH INIT Signal Voltage Translation



## FWH RESISTORS



## Simulation



|                                                            |                         |                              |
|------------------------------------------------------------|-------------------------|------------------------------|
| <b>Micro-Star</b>                                          | Title<br><b>MS-6743</b> | Rev<br><b>600</b>            |
| Document Number<br><b>CY28405 &amp; FWH</b>                |                         |                              |
| Last Revision Date:<br><b>Thursday, September 30, 2004</b> |                         | Sheet <b>10</b> of <b>30</b> |





**Intel Front Audio Connector**

Trace Width 30mils.

Trace Width 30mils.

Place close to FB18, FB20

Short pin 5 & 6, Short pin 9 & 10.

Place those component close to audio connector.

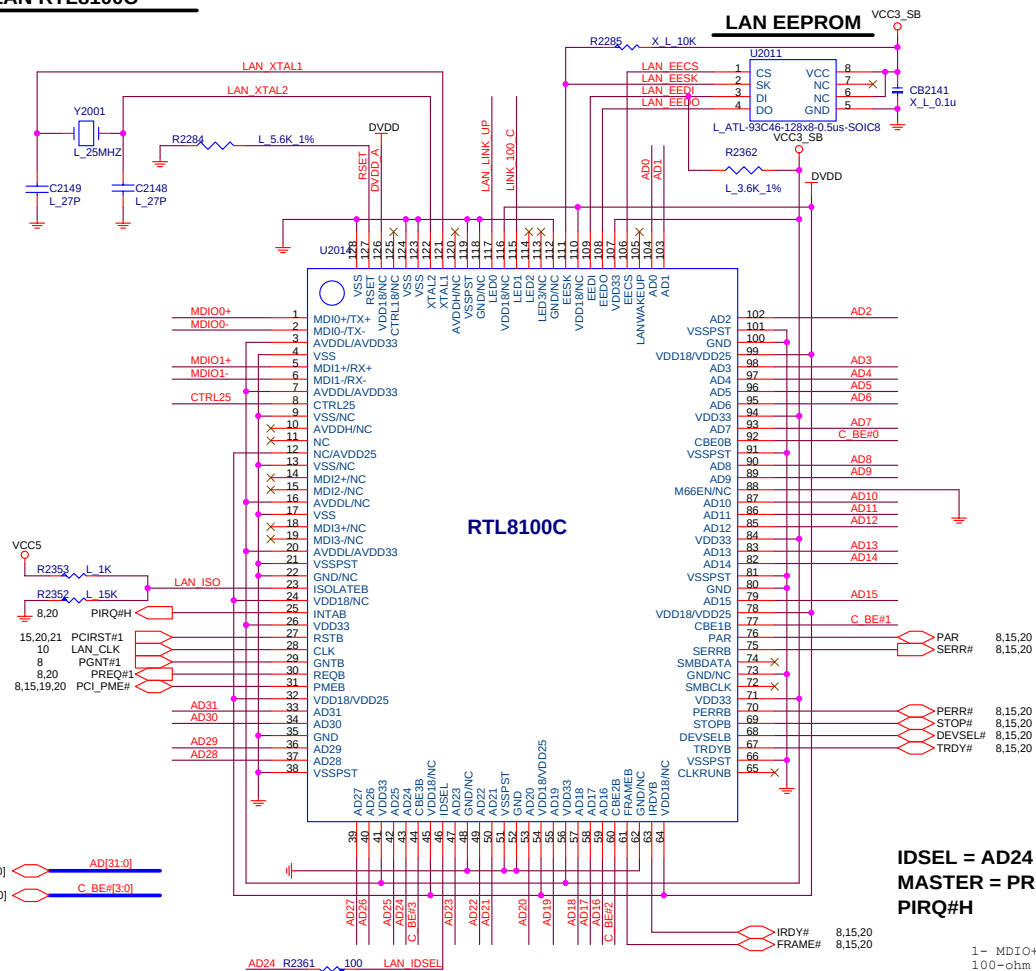
**AUDIO CODE REGULATORS**

U31 L78L05-T092-100mA

U32 L78L05-T092-100mA

TOP VIEW

## PCI LAN RTL8100C

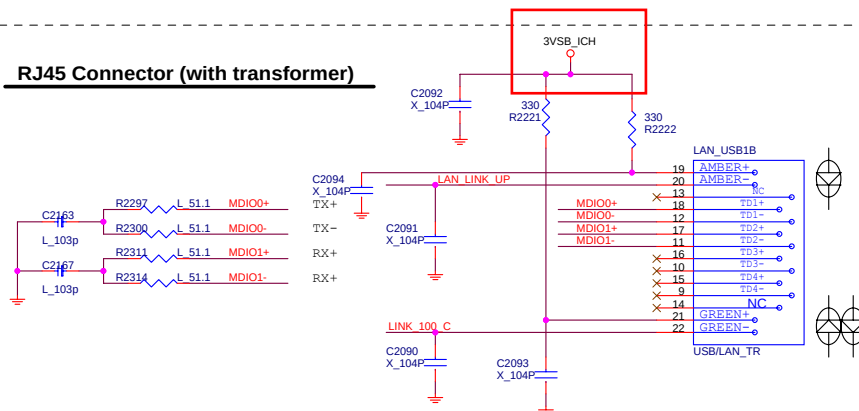
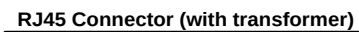
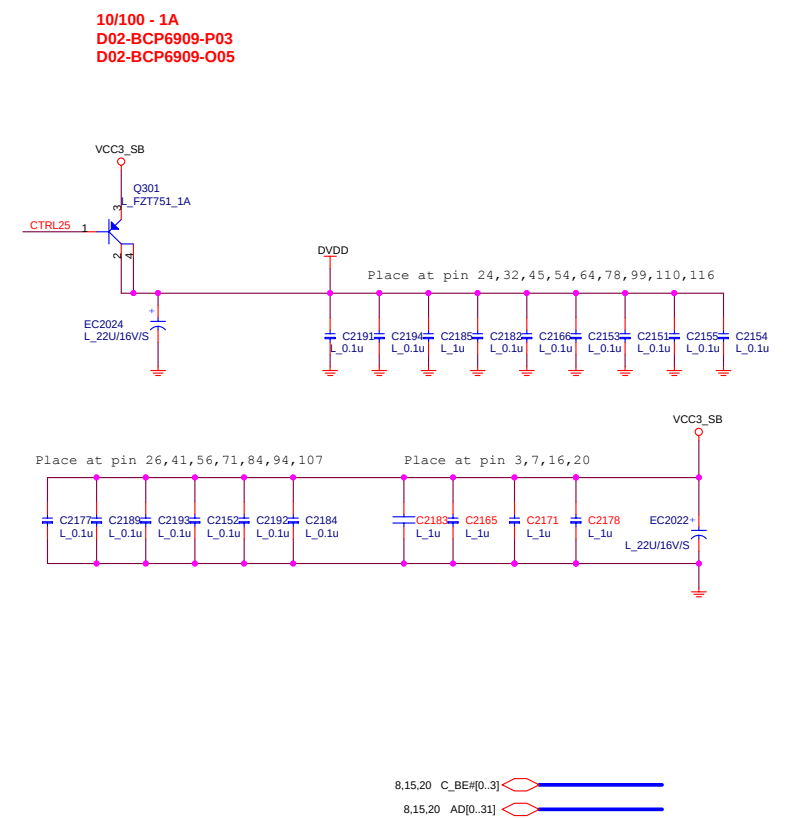


```

IDSEL = AD24
MASTER = PREQ#1
PIRQ#H

```

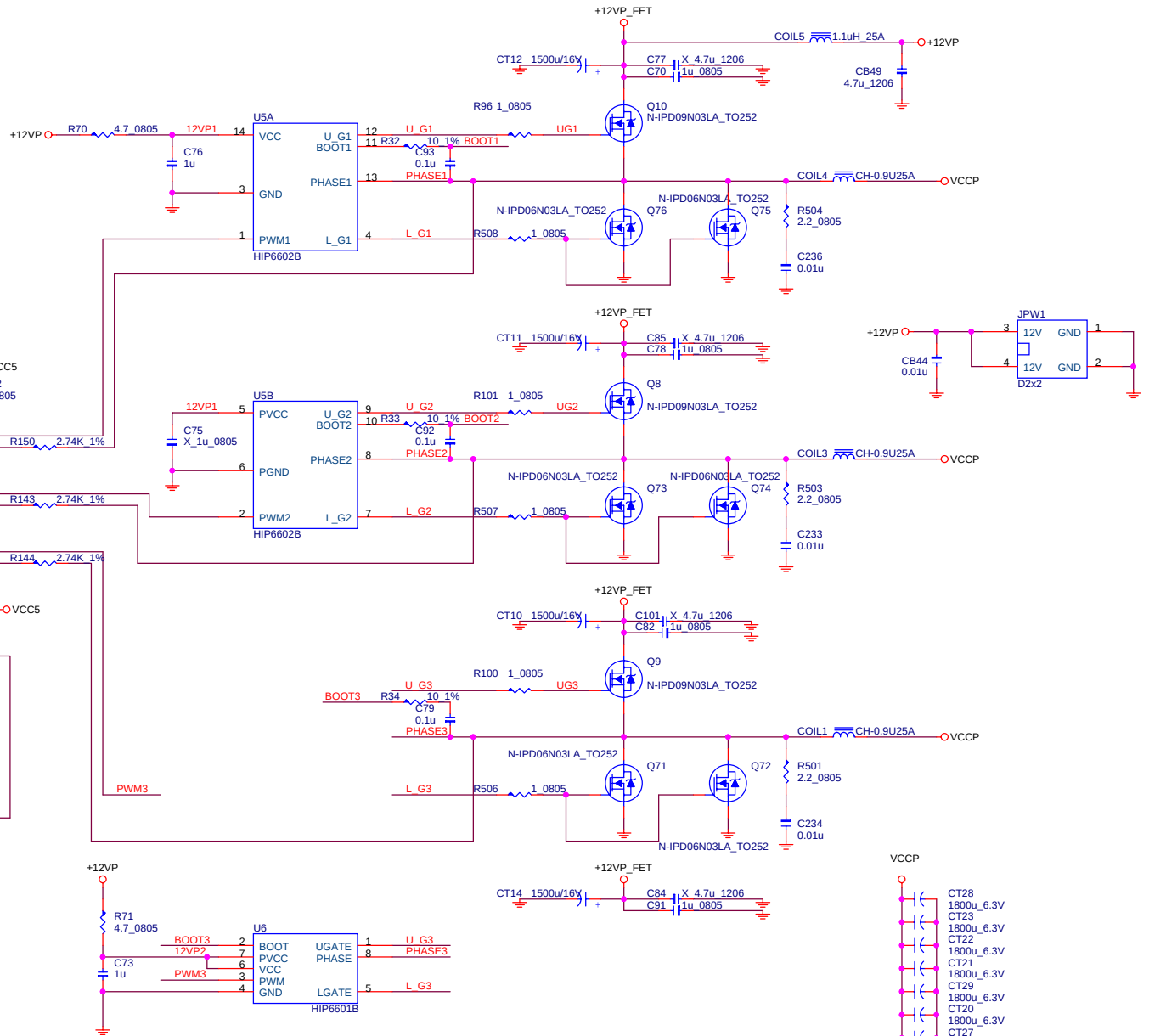
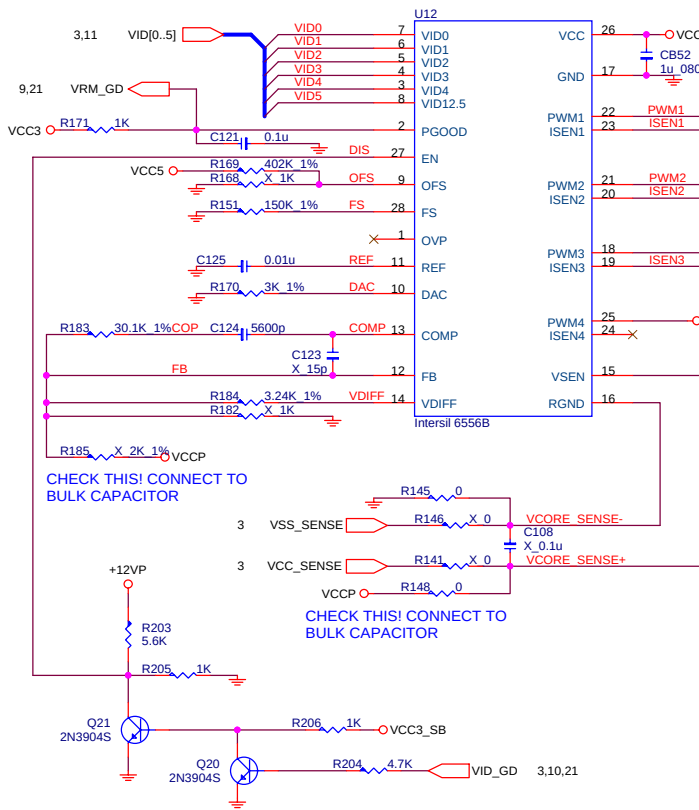
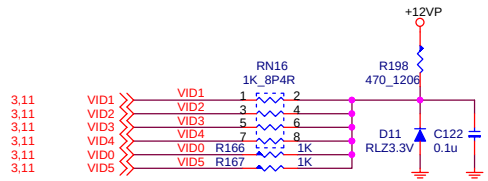
1- MDIO+ & MDIO- pairs should be 100-ohm differential impedance. Route equal length and symmetrically. Separate every pairs.



|                                                     |                         |                   |
|-----------------------------------------------------|-------------------------|-------------------|
| <b>Micro-Star</b>                                   | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number<br><b>LAN RTL8110S/8100C</b>        |                         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004 |                         | Sheet 14 of 30    |

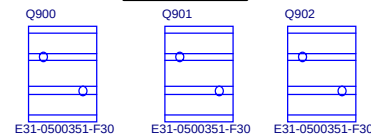


# VID Pull-Up Resistor

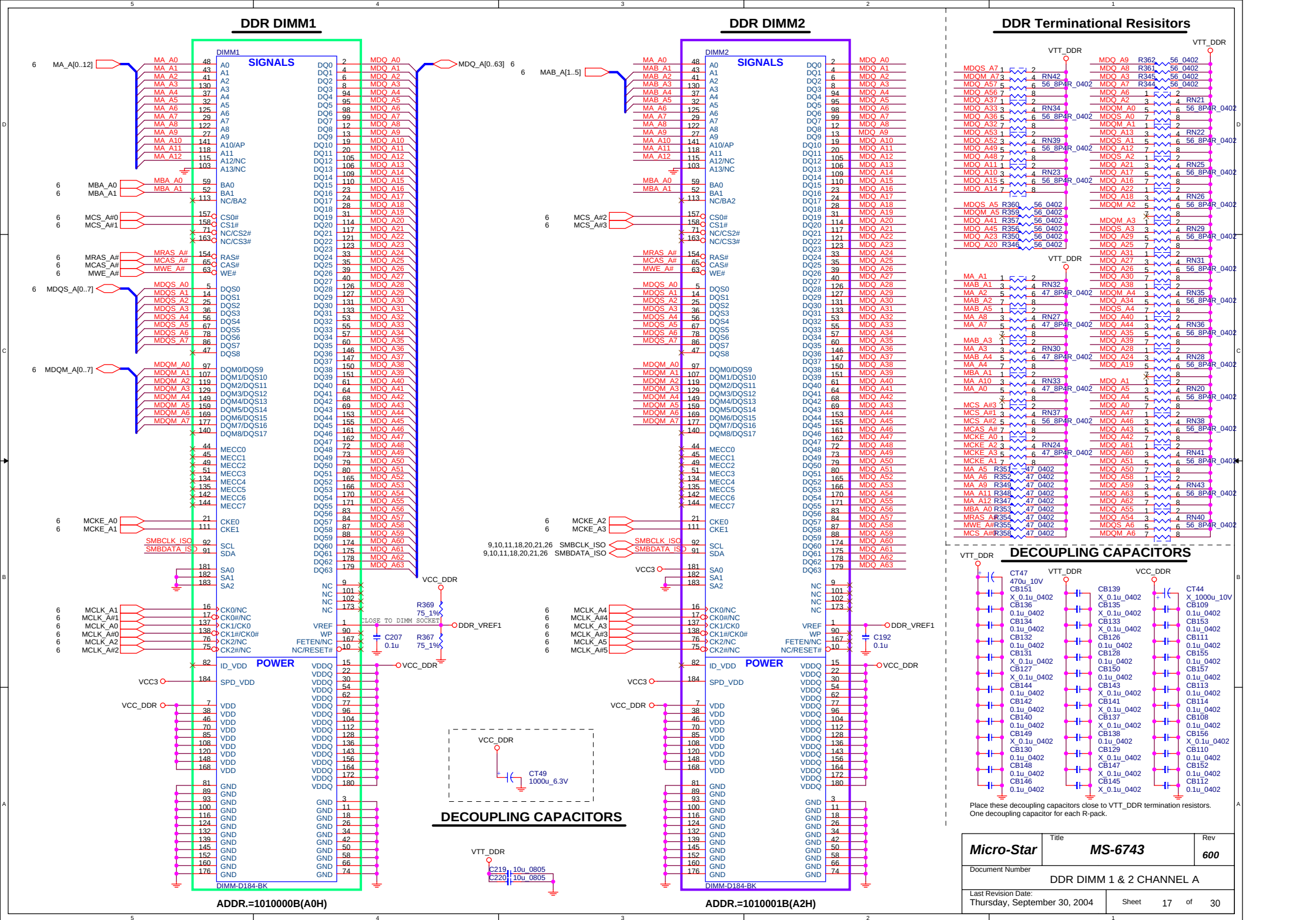


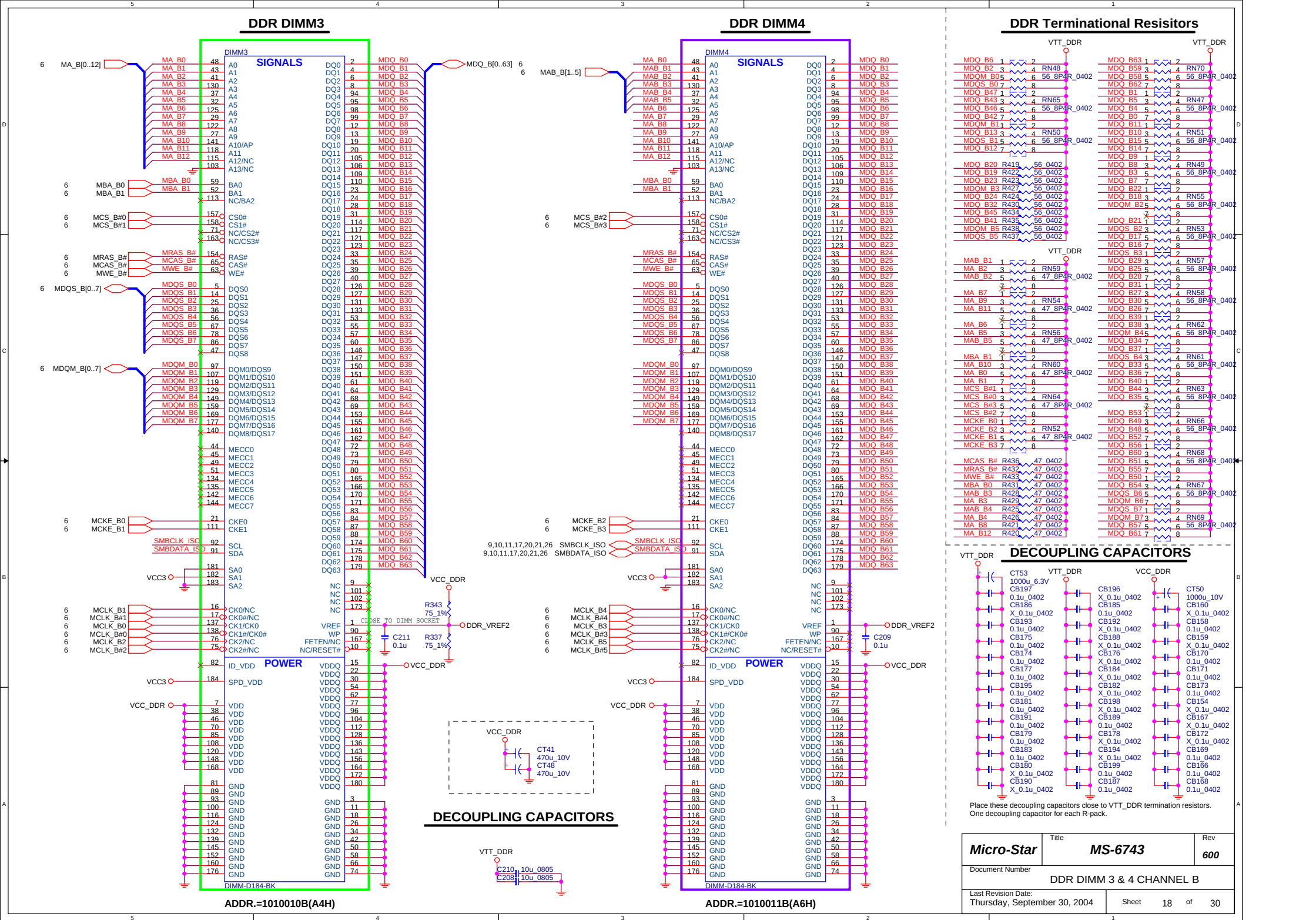
- CT28 1800u\_6.3V
- CT23 1800u\_6.3V
- CT22 1800u\_6.3V
- CT21 1800u\_6.3V
- CT29 1800u\_6.3V
- CT20 1800u\_6.3V
- CT27 1800u\_6.3V
- CT24 1000u\_10V
- CT25 1000u\_10V

## HEAT SINK



|                     |                              |         |     |     |
|---------------------|------------------------------|---------|-----|-----|
| Micro-Star          | Title                        | MS-6743 | Rev | 600 |
| Document Number     | VRM 10 - Intersil 6556A      |         |     |     |
| Last Revision Date: | Thursday, September 30, 2004 |         |     |     |
| Sheet               | 16                           | of      | 30  |     |



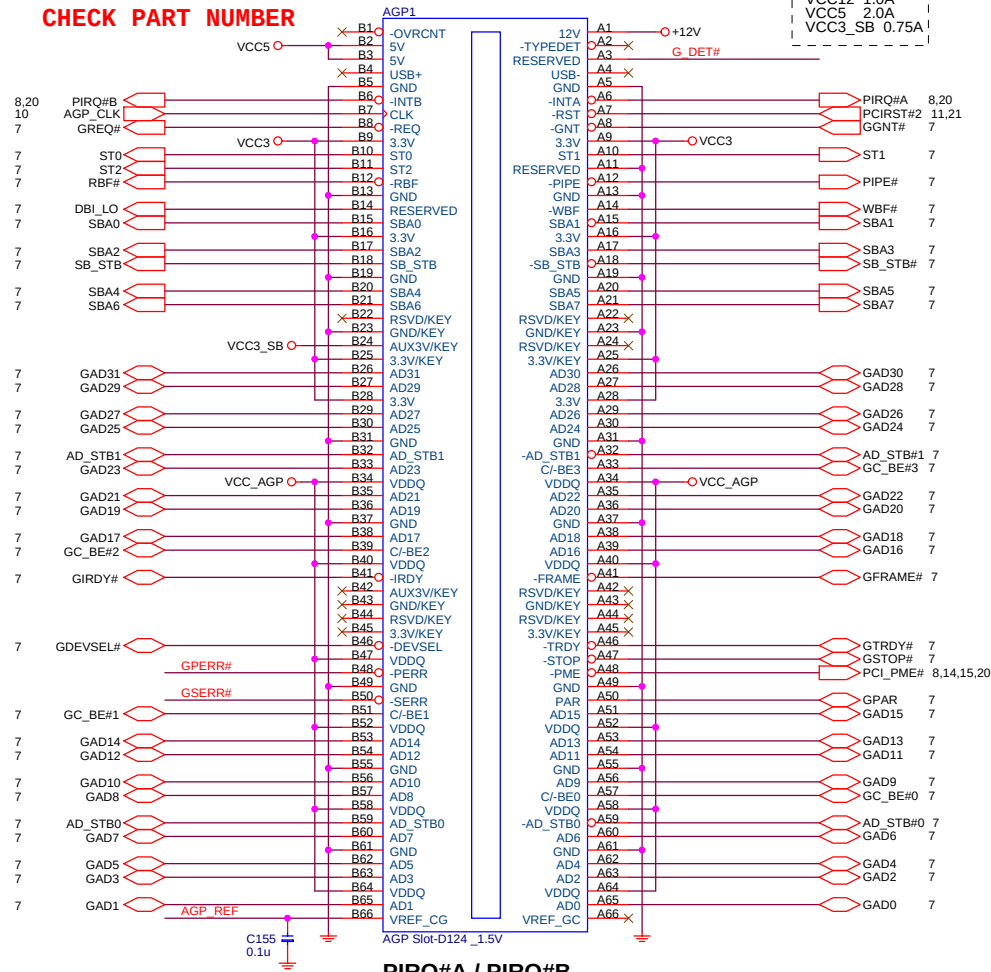


# AGP 1.5V 1X/2X/4X/8X SLOT(AGP VER:3.0)

VCC5 = 60mils trace / 15 mils space

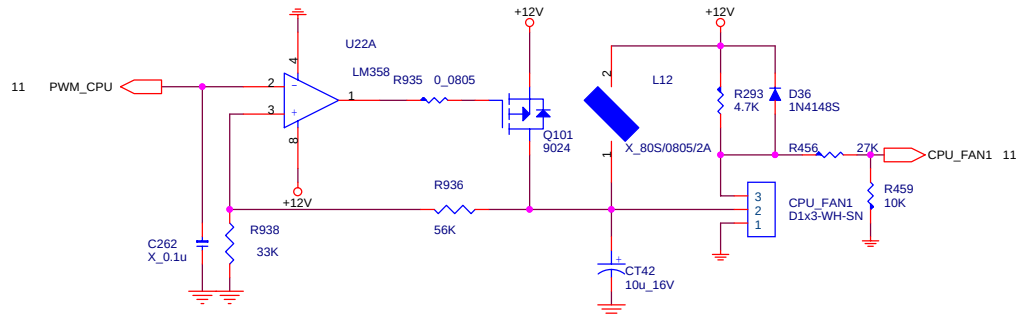
AGP Slot I<sub>max</sub>  
VCCq 8.0A  
VCC3 6.0A  
VCC12 1.0A  
VCC5 2.0A  
VCC3\_SB 0.75A

## CHECK PART NUMBER

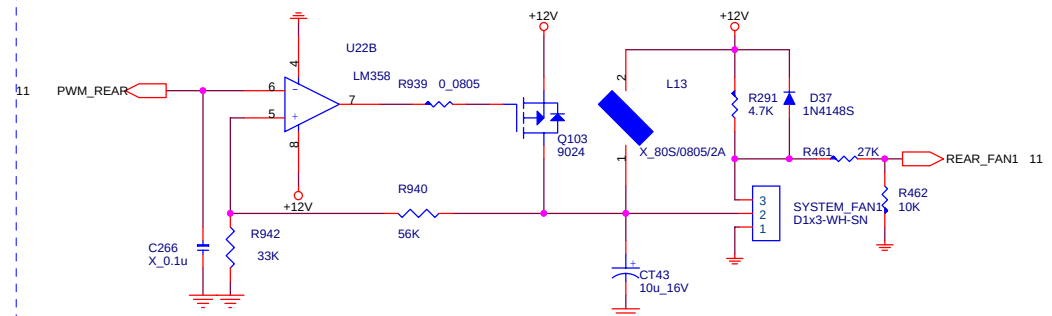


PIRQ#A / PIRQ#B

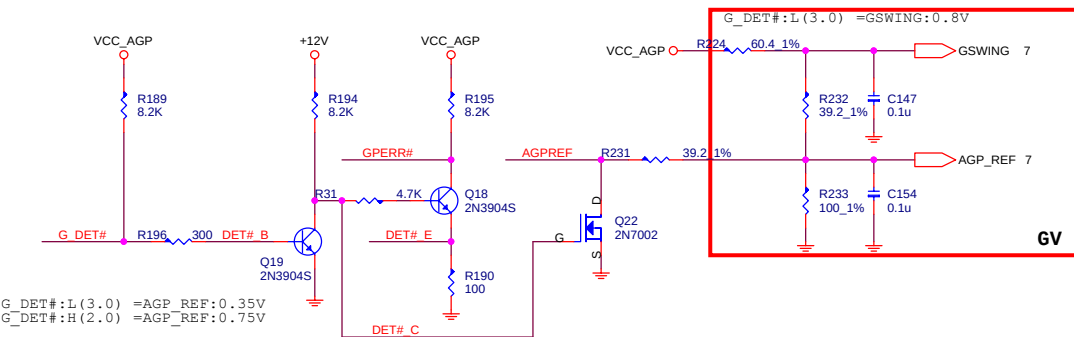
## CPU FAN



## REAR FAN



## Springdale Reference & Swing Voltage Circuit

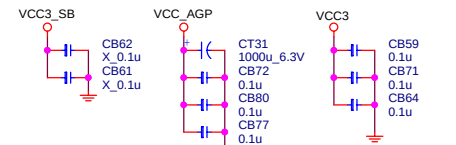


## AGP TERMINATION RESISTORS

GSERR# R225 8.2K VCC\_AGP

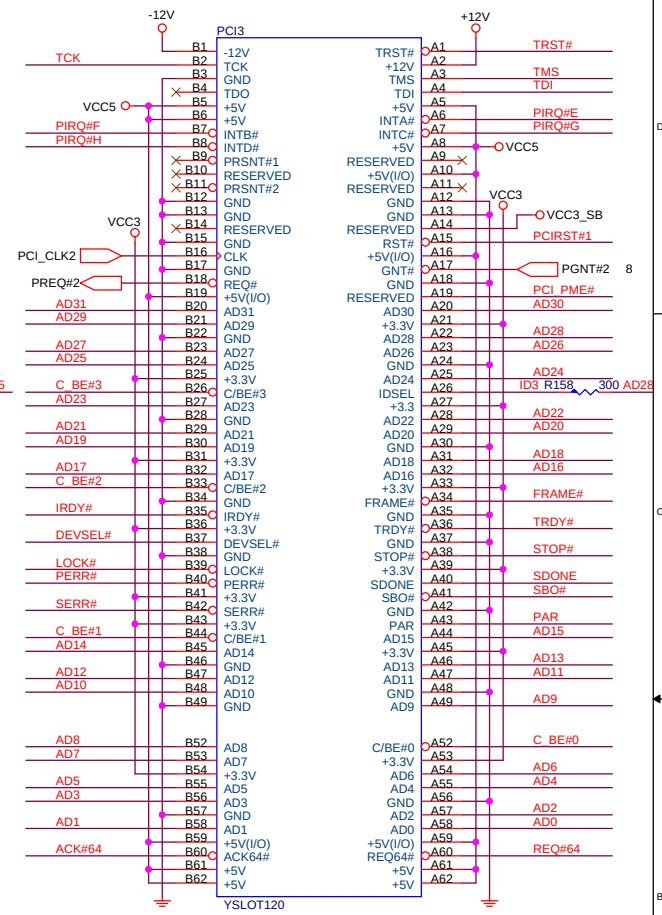
LESS 10MILS STUB TRACE LENGTH MUST BE FOLLOWING.  
Place these resistors between PCI and AGP slot

## AGP SLOT DECOUPLING CAPACITORS



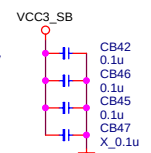
|                                                             |                         |                   |
|-------------------------------------------------------------|-------------------------|-------------------|
| Micro-Star                                                  | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number<br><b>AGP 1.5V SLOT &amp; FAN CONNECTOR</b> |                         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004         |                         |                   |
| Sheet 19 of 30                                              |                         |                   |

**PCI SLOT 3 (PCI VER: 2.2 COMPLY)**



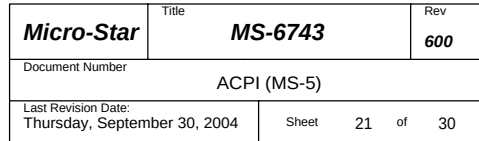
```
IDSEL = AD28
MASTER = PREQ#2
PIRQ#E
```

## PCI SLOT DECOUPLING CAPACITORS

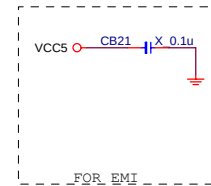
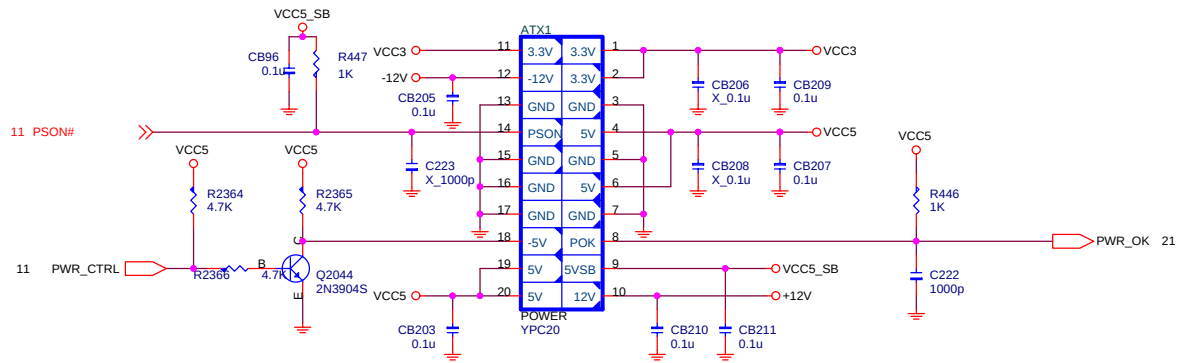


|                                                            |                         |                         |
|------------------------------------------------------------|-------------------------|-------------------------|
| <b>Micro-Star</b>                                          | Title<br><b>MS-6743</b> | Rev<br><b>600</b>       |
| Document Number<br><b>PCI 1&amp; 2 &amp; 3 Slots</b>       |                         |                         |
| Last Revision Date:<br><b>Thursday, September 30, 2004</b> |                         | Sheet    20    of    30 |

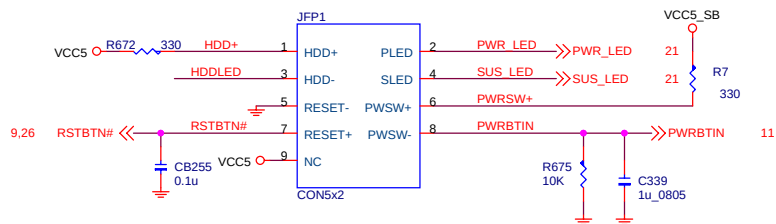
|      |          |
|------|----------|
| SEL0 | 5VUSB    |
| H    | 2 MOSFET |
| L    | 1 MOSFET |



## ATX CONNECTOR



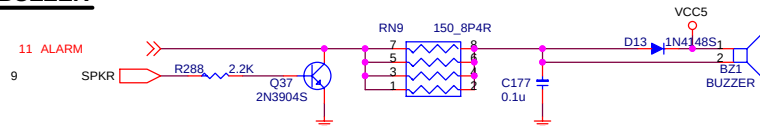
## Intel Front Panel



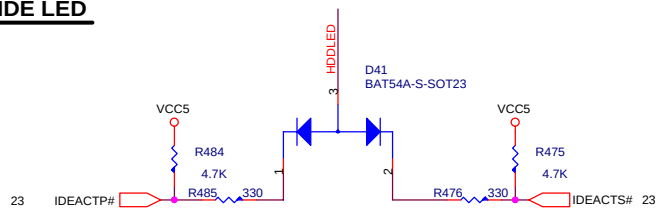
9,10,11,17,18,20,21,26 SMBCLK — SMBCLK\_ISO 9,10,11,17,18,20,21,26

9,10,11,17,18,20,21,26 SMBDATA — SMBDATA\_ISO 9,10,11,17,18,20,21,26

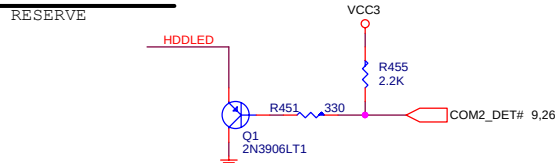
## BUZZER



## IDE LED

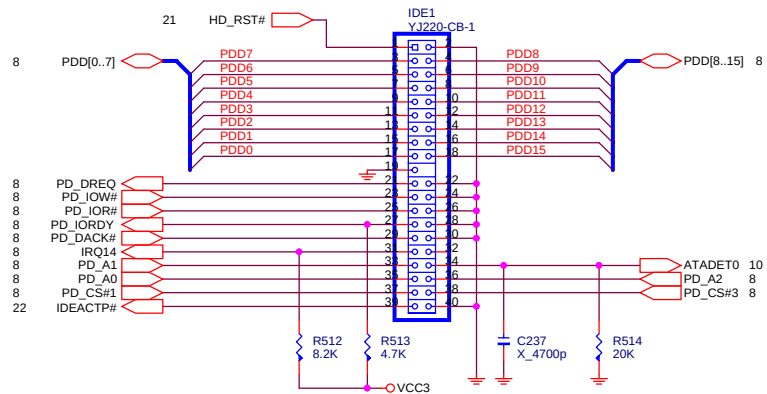


## SERIAL ATA LED

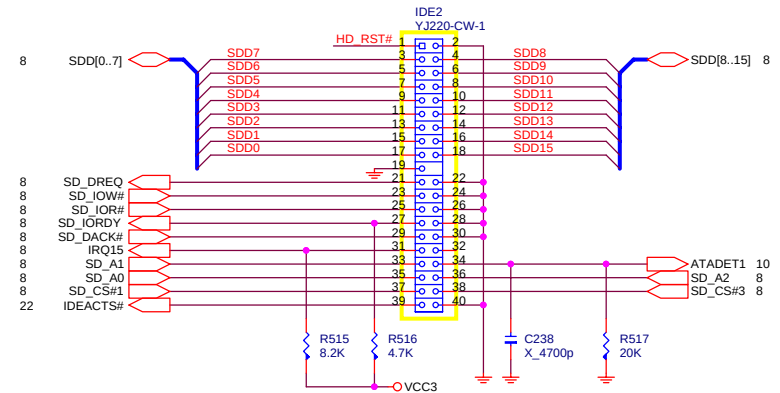


|                                                           |                         |                   |
|-----------------------------------------------------------|-------------------------|-------------------|
| Micro-Star                                                | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number<br><b>ATX Connector &amp; Front Panel</b> |                         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004       |                         | Sheet 22 of 30    |

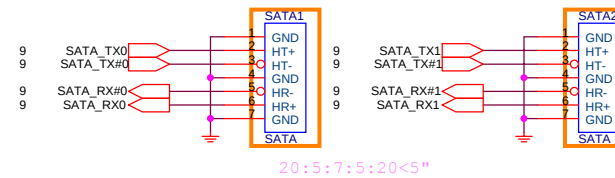
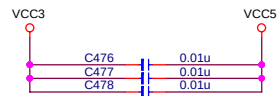
PRIMARY IDE BLOCK

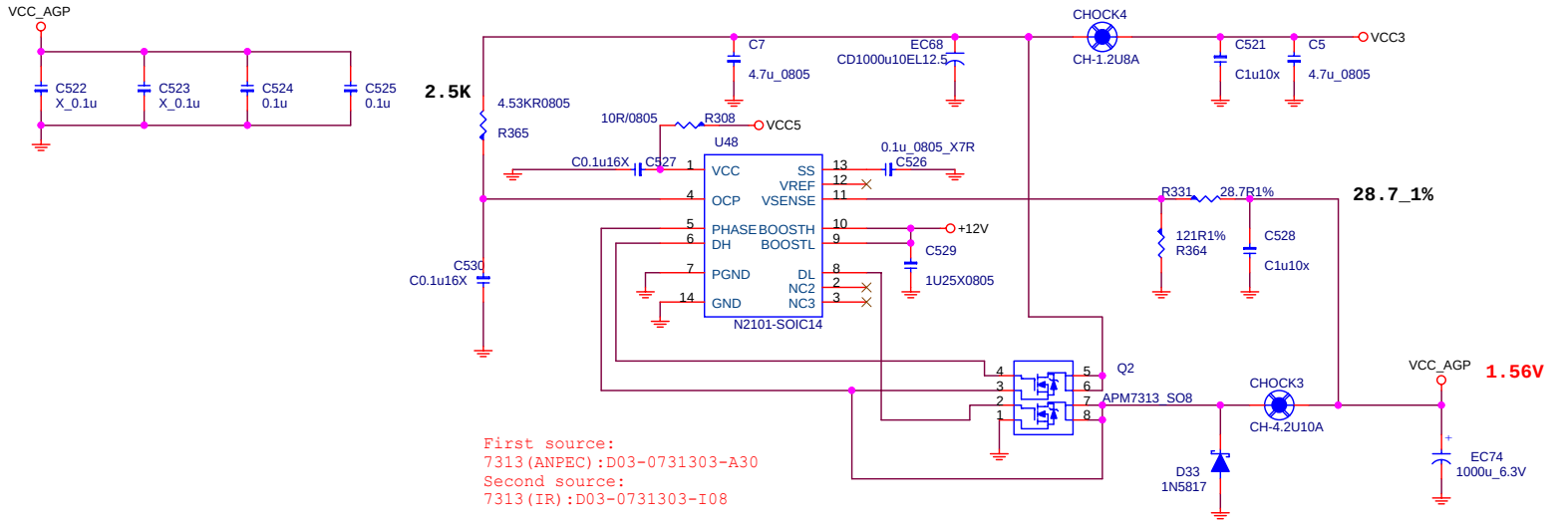


SECONDARY IDE BLOCK



SERIAL ATA CONNECTOR BLOCK



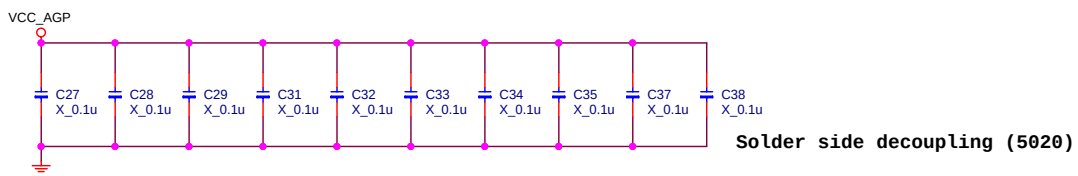


# AGP Power

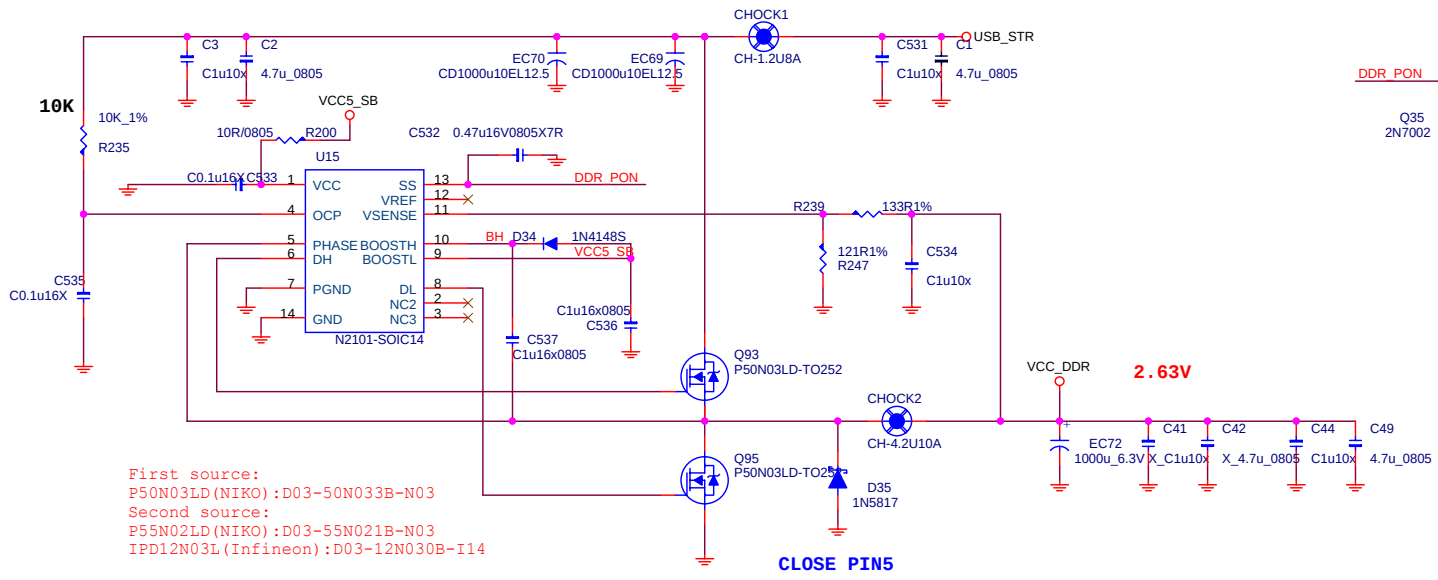
1.5V/4A (NB) +1A (SB) +2A (AGP)

First source:  
7313 (ANPEC): D03-0731303-A30  
Second source:  
7313 (IR): D03-0731303-I08

CLOSE PIN5



Solder side decoupling (5020)

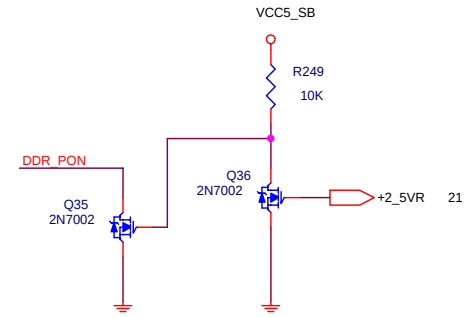


# DDR Power

2.5V/7A (DIMM) +5.1A (NB)

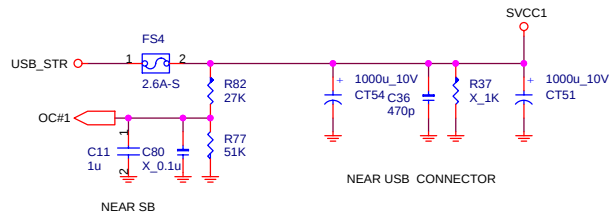
First source:  
P50N03LD (NIKO): D03-50N033B-N03  
Second source:  
P55N02LD (NIKO): D03-55N021B-N03  
IPD12N03L (Infineon): D03-12N030B-I14

CLOSE PIN5

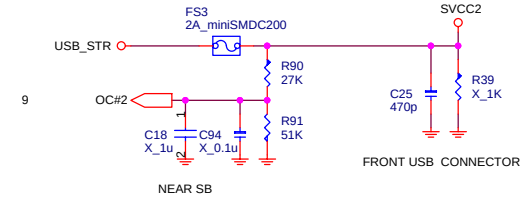


|                                                     |                         |                   |
|-----------------------------------------------------|-------------------------|-------------------|
| Micro-Star                                          | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number                                     | AGP & DDR POWER         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004 | Sheet<br>24             | of<br>30          |

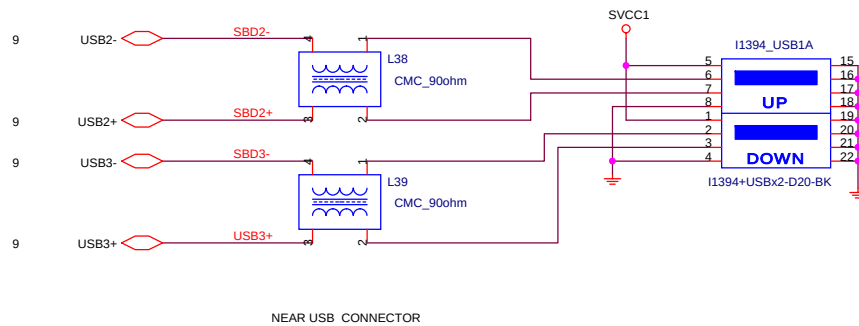
## POWER CIRCUIT FOR USB PORT 0,1,2,3



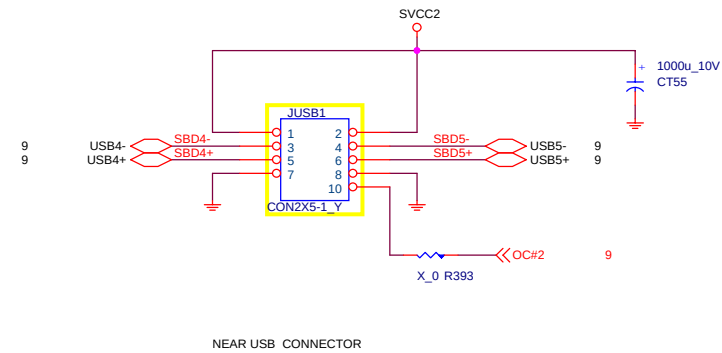
## POWER CIRCUIT FOR USB PORT 4,5,6,7



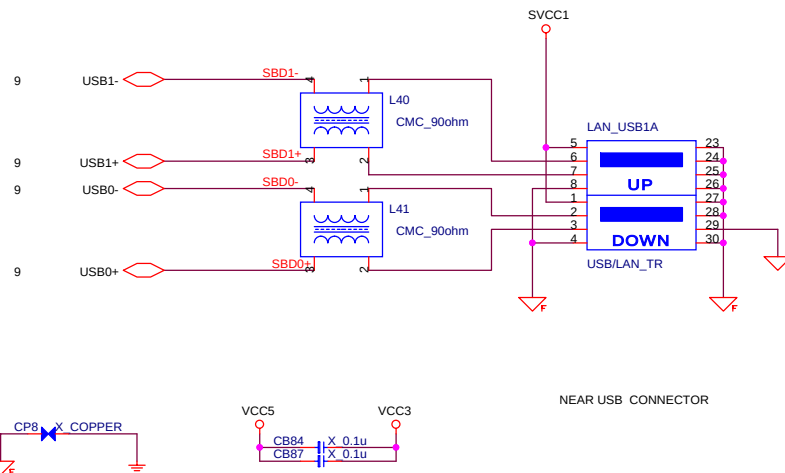
## REAR PANEL USB CONNECTOR FOR USB PORT 0,1



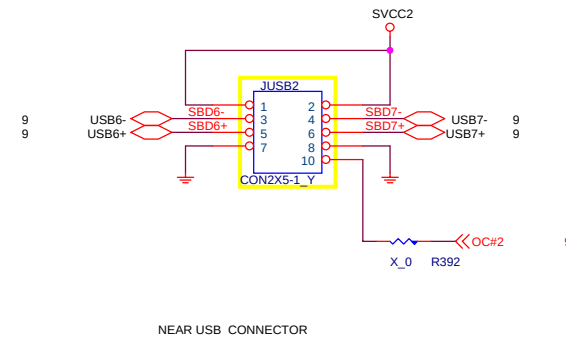
## FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



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



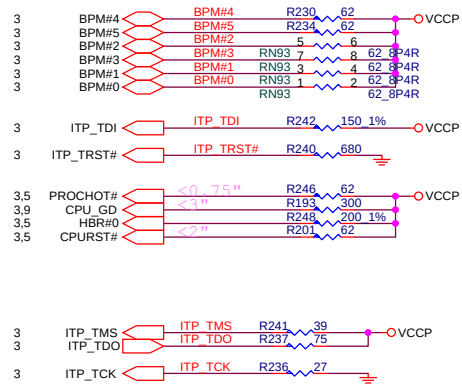
## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



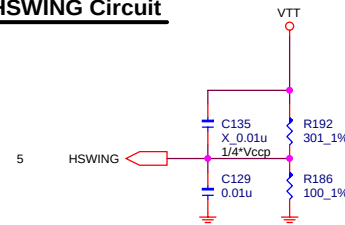
|                                                     |                         |                   |
|-----------------------------------------------------|-------------------------|-------------------|
| Micro-Star                                          | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number<br><b>USB Connectors</b>            |                         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004 |                         | Sheet 25 of 30    |

## CPU STRAPPING RESISTORS

ALL COMPONENTS CLOSE TO CPU



## HSWING Circuit



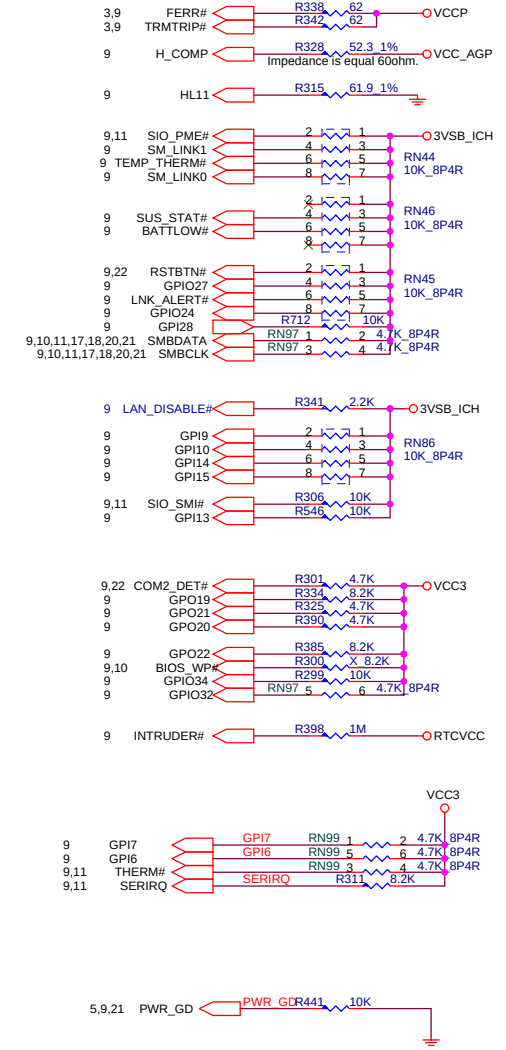
## 5VREF Sequencing Circuit



## ICH5 STRAPPING RESISTORS

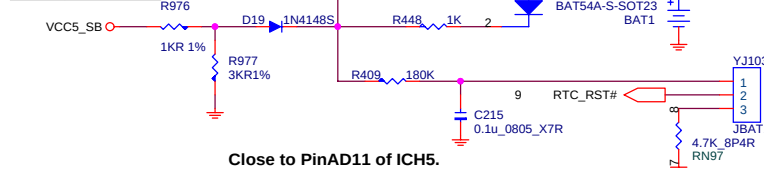
ALL COMPONENTS CLOSE TO ICH5

Trace length is less than 3inches to ICH5.



## RTC BLOCK

| CLR CMOS |            |
|----------|------------|
| 1 - 2    | Normal *   |
| 2 - 3    | Clear CMOS |



Close to PinAD11 of ICH5.

|                                                               |                         |                   |
|---------------------------------------------------------------|-------------------------|-------------------|
| Micro-Star                                                    | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number<br>CPU & GMCH & ICH5 PULL UP / DOWN RESISTORS |                         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004           |                         |                   |
| Sheet 26 of 30                                                |                         |                   |

ICH5

| GPIO Pin  | Type | Function     | Power well |
|-----------|------|--------------|------------|
| GPIO 0    | I    | PREQ#A       | MAIN       |
| GPIO 1    | I    | PREQ#B       | MAIN       |
| GPIO 2    | I    | PIRQ#E       | MAIN       |
| GPIO 3    | I    | PIRQ#F       | MAIN       |
| GPIO 4    | I    | PIRQ#G       | MAIN       |
| GPIO 5    | I    | PIRQ#H       | MAIN       |
| GPIO 6    | I    | GPI6         | MAIN       |
| GPIO 7    | I    | GPI7         | MAIN       |
| GPIO 8    | I    | SIO_PME#     | RESUME     |
| GPIO 9    | I    | OC4#         | RESUME     |
| GPIO 10   | I    | OC5#         | RESUME     |
| GPIO 11   | I    | TEMP_THERM#  | RESUME     |
| GPIO 12   | I    | SIO_SMI#     | RESUME     |
| GPIO 13   | I    | GPI13        | RESUME     |
| GPIO 14   | I    | OC#6         | RESUME     |
| GPIO 15   | I    | OC#7         | RESUME     |
| GPIO 16   | O    | PGNT#A       | MAIN       |
| GPIO 17   | O    | PGNT#B       | MAIN       |
| GPIO 18   | O    | GPO18        | MAIN       |
| GPIO 19   | O    | GPO19        | MAIN       |
| GPIO 20   | O    | GPO20        | MAIN       |
| GPIO 21   | O    | GPO21        | MAIN       |
| GPIO 22   | OD   | GPO22        | MAIN       |
| GPIO 23   | O    | BIOS_WP#     | MAIN       |
| GPIO 24   | I/O  | GPIO24       | RESUME     |
| GPIO 25   | I/O  | LAN_DISABLE# | RESUME     |
| GPIO 27   | I/O  | GPIO27       | RESUME     |
| * GPIO 28 | I/O  | GPIO28       | RESUME     |
| GPIO 32   | I/O  | GPIO32       | MAIN       |
| GPIO 33   | I/O  | COM2_DET#    | MAIN       |
| GPIO 34   | I/O  | GPIO34       | MAIN       |
| GPIO 40   | I    | PREQ#4       | MAIN       |
| GPIO 41   | I    | GPI41        | MAIN       |
| GPIO 48   | O    | PGNT#4       | MAIN       |
| GPIO 49   | OD   | CPU_GD       | MAIN       |

PCI RESET DEVICE

| Signals      | Target                |
|--------------|-----------------------|
| PCIRST#1     | PCI slot 1-3, 1394    |
| PCIRST#2     | Super I/O,AGP slot    |
| PCIRST_ICH5# | Northbridge , FWH     |
| HDDRST#      | Primary, Scondary IDE |

PCI Config.

| DEVICE     | MCP1 INT Pin                     | REQ# /GNT#             | IDSEL | CLOCK    |
|------------|----------------------------------|------------------------|-------|----------|
| PCI Slot 1 | PIRQG<br>PIRQH<br>PIRQE<br>PIRQF | PCI_REQ#0<br>PCI_GNT#0 | AD26  | PCICLK0  |
| PCI Slot 2 | PIRQF<br>PIRQG<br>PIRQH<br>PIRQE | PCI_REQ#4<br>PCI_GNT#4 | AD25  | PCICLK1  |
| PCI Slot 3 | PIRQE<br>PIRQF<br>PIRQG<br>PIRQH | PCI_REQ#2<br>PCI_GNT#2 | AD28  | PCICLK2  |
| 1394       | PIRQD                            | PCI_REQ#3<br>PCI_GNT#3 | AD27  | 1394_CLK |
| LAN        | PIRQH                            | PCI_REQ#1<br>PCI_GNT#1 | AD24  | LAN_CLK  |

DDR DIMM Config.

| DEVICE | ADDRESS | CLOCK                                                    |
|--------|---------|----------------------------------------------------------|
| DIMM 1 | AOH     | MCLK_A0/MCLK_A#0<br>MCLK_A1/MCLK_A#1<br>MCLK_A2/MCLK_A#2 |
| DIMM 2 | A2H     | MCLK_A3/MCLK_A#3<br>MCLK_A4/MCLK_A#4<br>MCLK_A5/MCLK_A#5 |
| DIMM 3 | A4H     | MCLK_B0/MCLK_B#0<br>MCLK_B1/MCLK_B#1<br>MCLK_B2/MCLK_B#2 |
| DIMM 4 | A6H     | MCLK_B3/MCLK_B#3<br>MCLK_B4/MCLK_B#4<br>MCLK_B5/MCLK_B#5 |

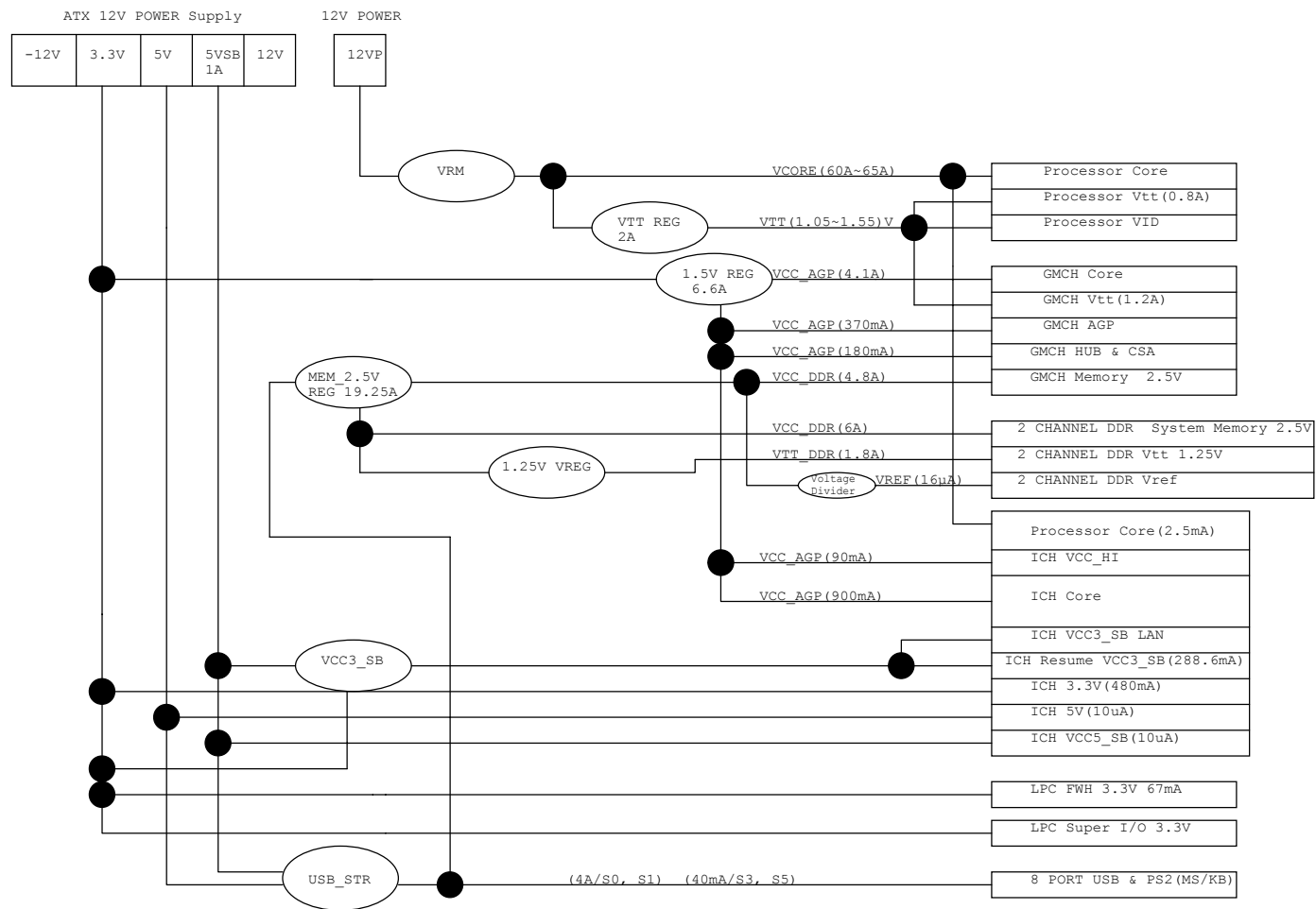
JUMPER SETTING

|       |                                 |                  |
|-------|---------------------------------|------------------|
| JBAT1 | (1-2) NORMAL                    | (2-3) CLEAR      |
| JAUD1 | (5-6) W/O FRONT AUDIO<br>(9-10) | WITH FRONT AUDIO |

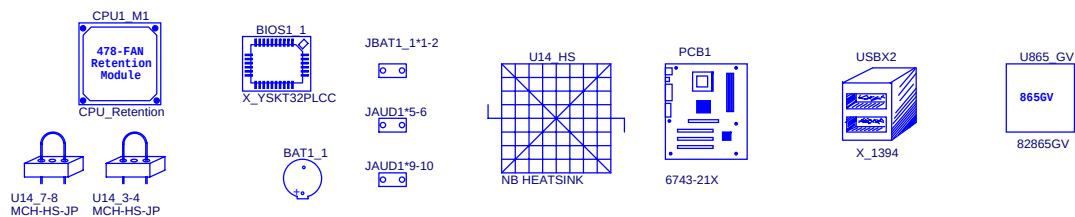
SIO

| PIN NAME | USAGE       | Input/Output  | NOTES                                      |
|----------|-------------|---------------|--------------------------------------------|
| GPIO10   | UNUSED      | INPUT         |                                            |
| GPIO11   | UNUSED      | INPUT         |                                            |
| GPIO12   | UNUSED      | INPUT         |                                            |
| GPIO13   | UNUSED      | INPUT         |                                            |
| GPIO14   | UNUSED      | OUTPUT        |                                            |
| GPIO15   | VID5        | INPUT         | Low: VID add 0.0125V , High :by pass       |
| GPIO16   | UNUSED      | OUTPUT        |                                            |
| GPIO17   | UNUSED      | OUTPUT        |                                            |
| GPIO20   | UNUSED      | OUTPUT        |                                            |
| GPIO21   | SMBCLK_ISO  | INPUT         | SMBUS CLOCK                                |
| GPIO22   | SMBDATA_ISO | INPUT /OUTPUT | SMBUS DATA                                 |
| GPIO23   | POWER_LED   | OUTPUT        | Default used MS-5                          |
| GPIO24   | UNUSED      | OUTPUT        |                                            |
| GPIO25   | UNUSED      | OUTPUT        | IRRX                                       |
| GPIO26   | UNUSED      | OUTPUT        |                                            |
| GPIO27   | UNUSED      | OUTPUT        |                                            |
| GPIO30   | SLP_S3#     | INPUT         | S3 state indicator signal                  |
| GPIO31   | PS_ON#      | OUTPUT        | Connector to Power Supply to turn on Power |
| GPIO32   | UNUSED      | OUTPUT        |                                            |
| GPIO33   | UNUSED      | OUTPUT        |                                            |
| GPIO34   | UNUSED      | OUTPUT        |                                            |
| GPIO35   | UNUSED      | OUTPUT        |                                            |

## POWER DELIVERY MAP



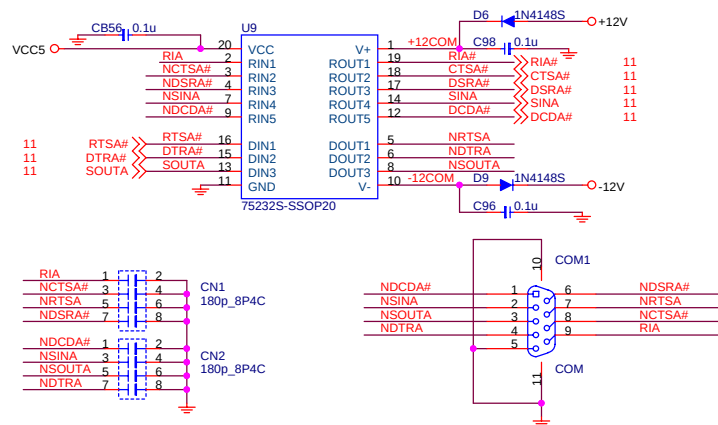
### 6743L1-L PART



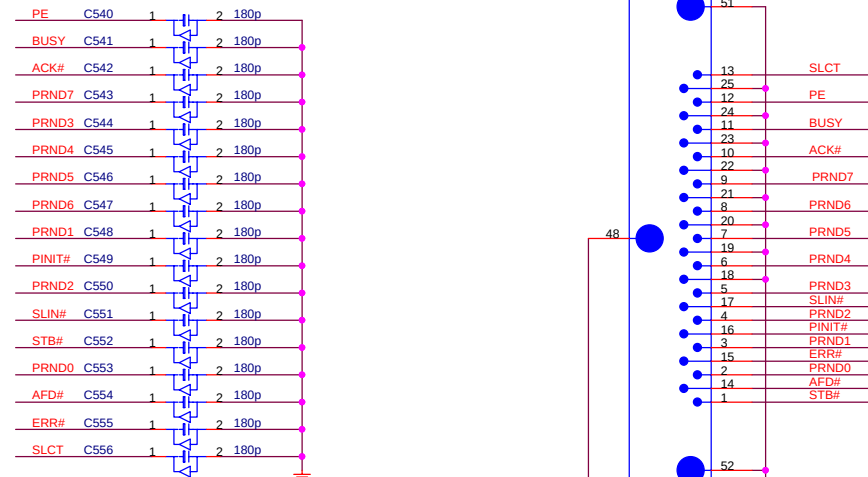
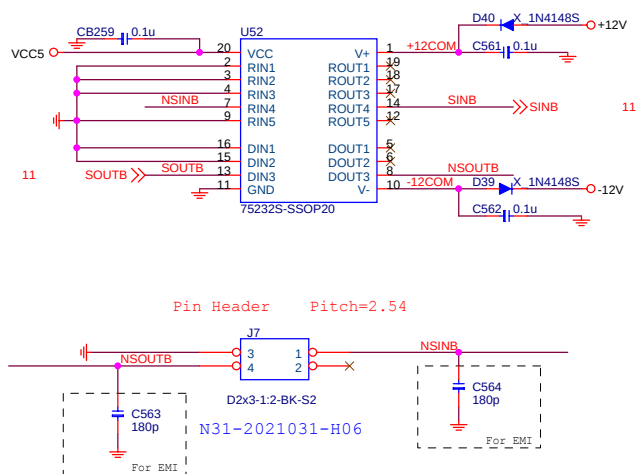
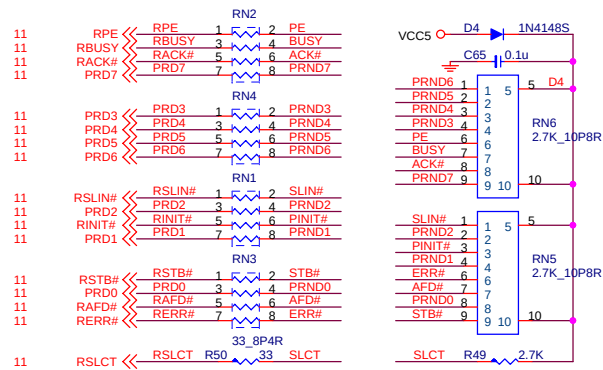
For GV  
(-) C155, C524, C525, CB72, CB77  
(-) CB80  
(-) Q18, Q19  
(-) Q22  
(-) R196  
(-) R189, R194, R195, R225  
(-) R190  
(-) R31  
(-) R231  
(-) AGP1  
(-) EC74

|                                                                |                         |                   |
|----------------------------------------------------------------|-------------------------|-------------------|
| Micro-Star                                                     | Title<br><b>MS-6743</b> | Rev<br><b>600</b> |
| Document Number<br><b>POWER DELIVERY MAP &amp; MANUAL PART</b> |                         |                   |
| Last Revision Date:<br>Thursday, September 30, 2004            |                         | Sheet 28 of 30    |

## SERIAL PORT 1



## PARALLEL PORT



|                                                            |                         |                         |
|------------------------------------------------------------|-------------------------|-------------------------|
| <b>Micro-Star</b>                                          | Title<br><b>MS-6743</b> | Rev<br><b>600</b>       |
| Document Number<br><b>COM,LPT,RING WEAKER UP</b>           |                         |                         |
| Last Revision Date:<br><b>Thursday, September 30, 2004</b> |                         | Sheet    29    of    30 |

### Revision History (Changes from Rev 20C)

| Sheet | Description                                                                                                                 |
|-------|-----------------------------------------------------------------------------------------------------------------------------|
| 11    | Winbond Super I/O : Add R2362 0 ohm between pin102 and pin103                                                               |
| 13    | Intel Front Audio Connector Add R631 10K                                                                                    |
| 14    | Change LAN RTL8110S/8101C<br>LAN Connector with Tranformer/Common Choke                                                     |
| 15    | VRM Support VRM10.0 FMB 1.5                                                                                                 |
| 22    | Tyco New S-ATA Connector<br>Change SATA footprint for LG request<br>Add S-ATA HDD LED                                       |
| 23    | Remove 1394-NEC PD72874                                                                                                     |
| 29    | Remove Printer Port Protection Diode<br>Add 4 pics Cn and 1 pic Cap for Protection<br>Remove HP Printer Port / Keep Circuit |
|       | 6743v210 Forbidden :YAGE0-CN For LG<br>C12-2711013-Y01(Location:CN4)<br>C12-1811013-Y01(Location:CN1.CN2)                   |

### Revision History (Changes from Rev 210)

| Sheet | Description                             |
|-------|-----------------------------------------|
| 11    | Winbond Super I/O : 83627HF To 83627THF |
| 13    | Audio Codec CMI9739A to CMI9761A        |

### Revision History (Changes from Rev 21A)

| Sheet | Description                         |
|-------|-------------------------------------|
| 11    | Super I/O Temp Sense Circuit Modify |
|       | Mechanical Issue                    |
|       | EMI Issue                           |
| 15    | Add PCI NEC 1394                    |
|       |                                     |

|                                                     |                      |            |
|-----------------------------------------------------|----------------------|------------|
| Micro-Star                                          | Title<br>MS-6743     | Rev<br>600 |
| Document Number                                     | REVISION HISTORY - 1 |            |
| Last Revision Date:<br>Thursday, September 30, 2004 | Sheet                | 30 of 30   |