# MS-7174H1

***Version 1B***

Intel (R) Grantsdale (GMCH) + ICH6 Chipset
Intel Prescott LGA775 Processor

**CPU:**

**Intel Prescott Celeron D 350J (3.2GHz), P4 550J (3.4GHz)**

**System Chipset:**

**Intel Grantsdale - GMCH (North Bridge 915GV or 910GE)**
**Intel ICH6 (South Bridge)**

**On Board Chipset:**

**BIOS -- FWH FLASH 4Mb**
**AC97 AUDIO -- ALC880**
**LPC Super I/O -- SMSC47M997**
**LAN -- Intel 82562GT**
**1394 -- VIA VT-6307**
**CLOCK -- Cypress CY28416**

**Main Memory:**

**2 CHANNEL DDR II * 1 (Max 2GB)**

**Expansion Slots:**

**PCI 2.3 SLOT * 3**

**Intersil PWM:**

**Controller: INTERSIL 6566 3PHASE**



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Title: COVER SHEET

Size: Document Number: MS-7174H1 Rev: 1B

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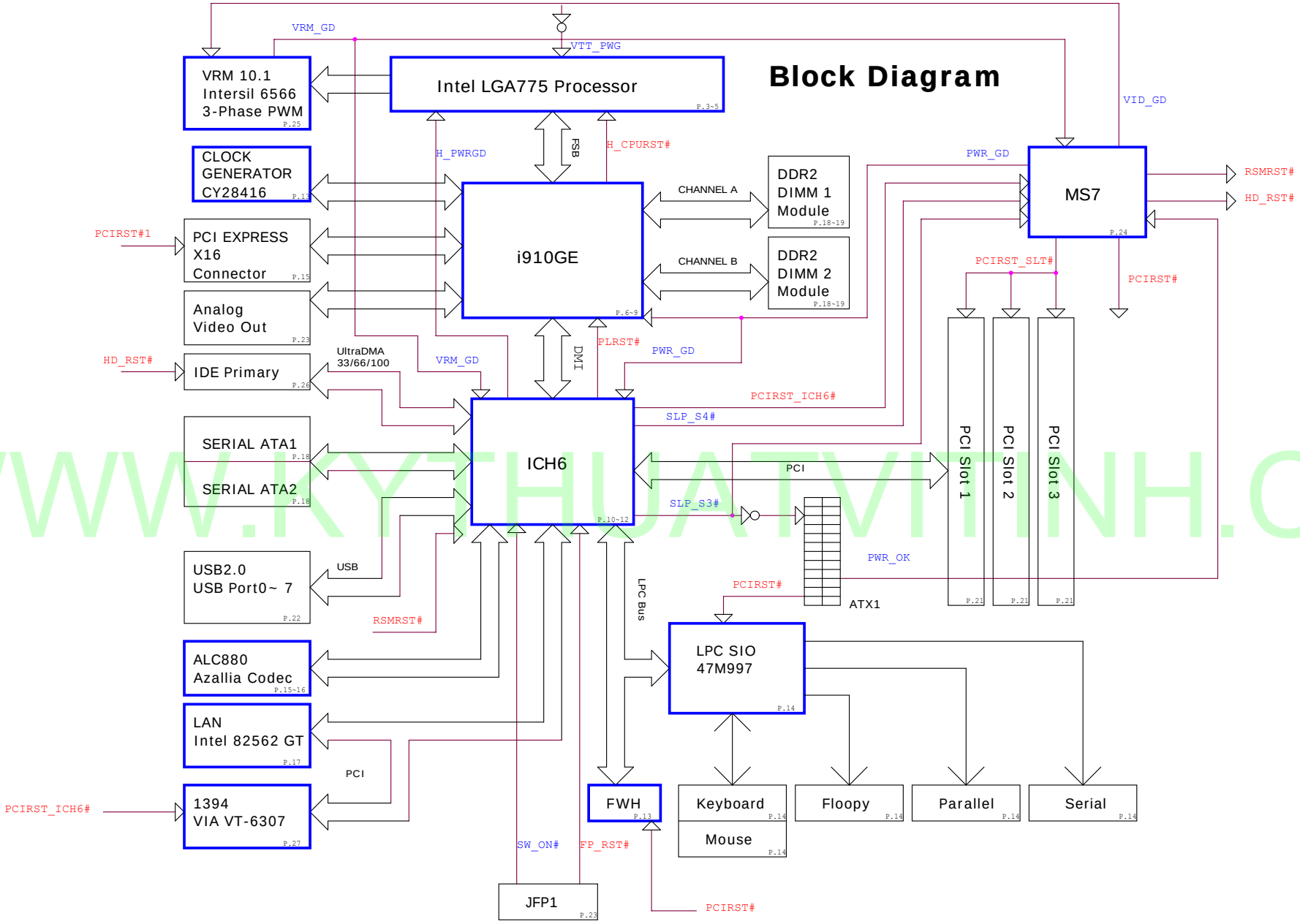




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| | | |
|---|---|---|
| Title | BLOCK DIAGRAM | |
| Size | Document Number MS-7174H1 | Rev 1B |
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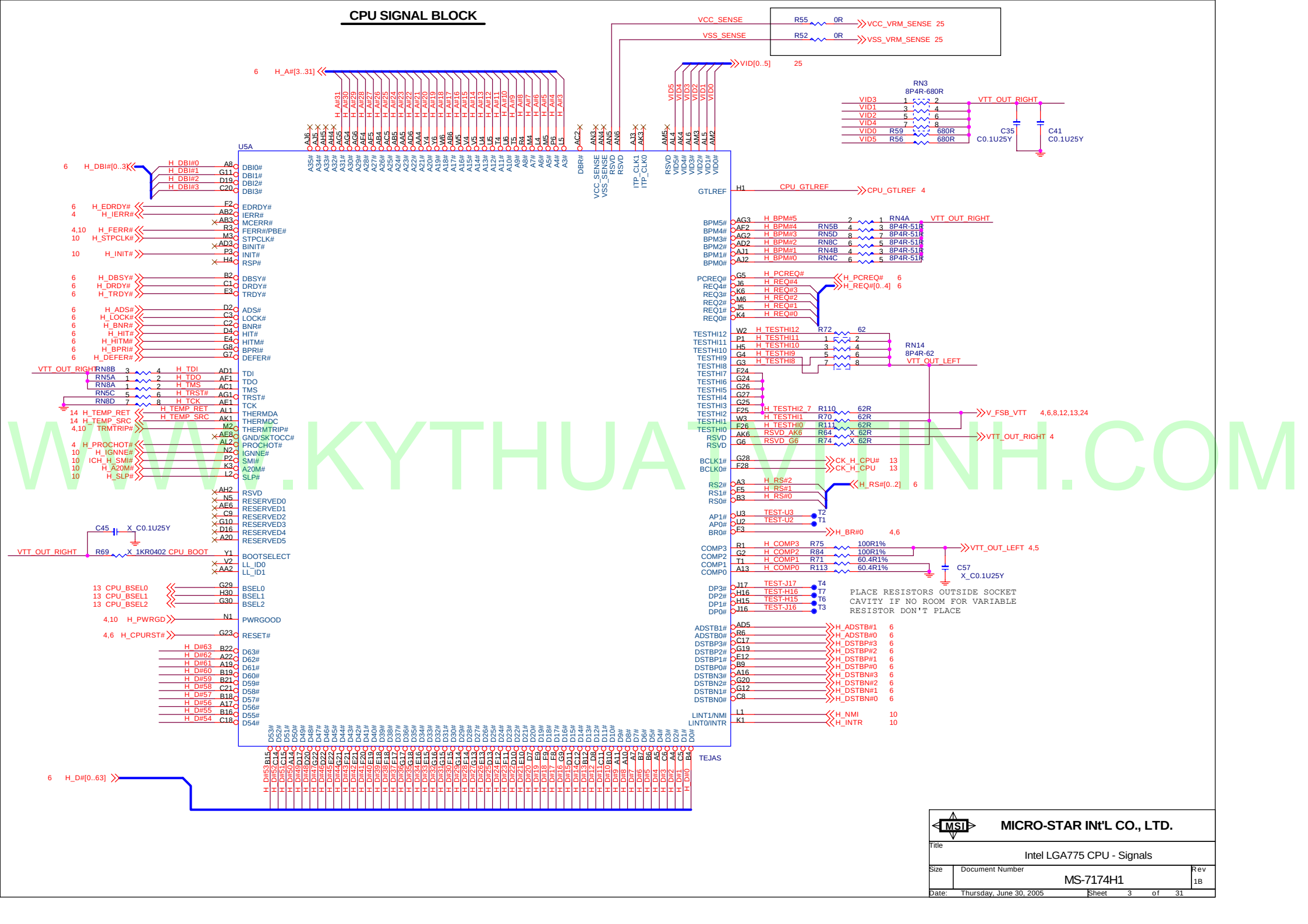
# CPU SIGNAL BLOCK



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| | | |
|---|---|---|
| Title | Intel LGA775 CPU - Signals | |
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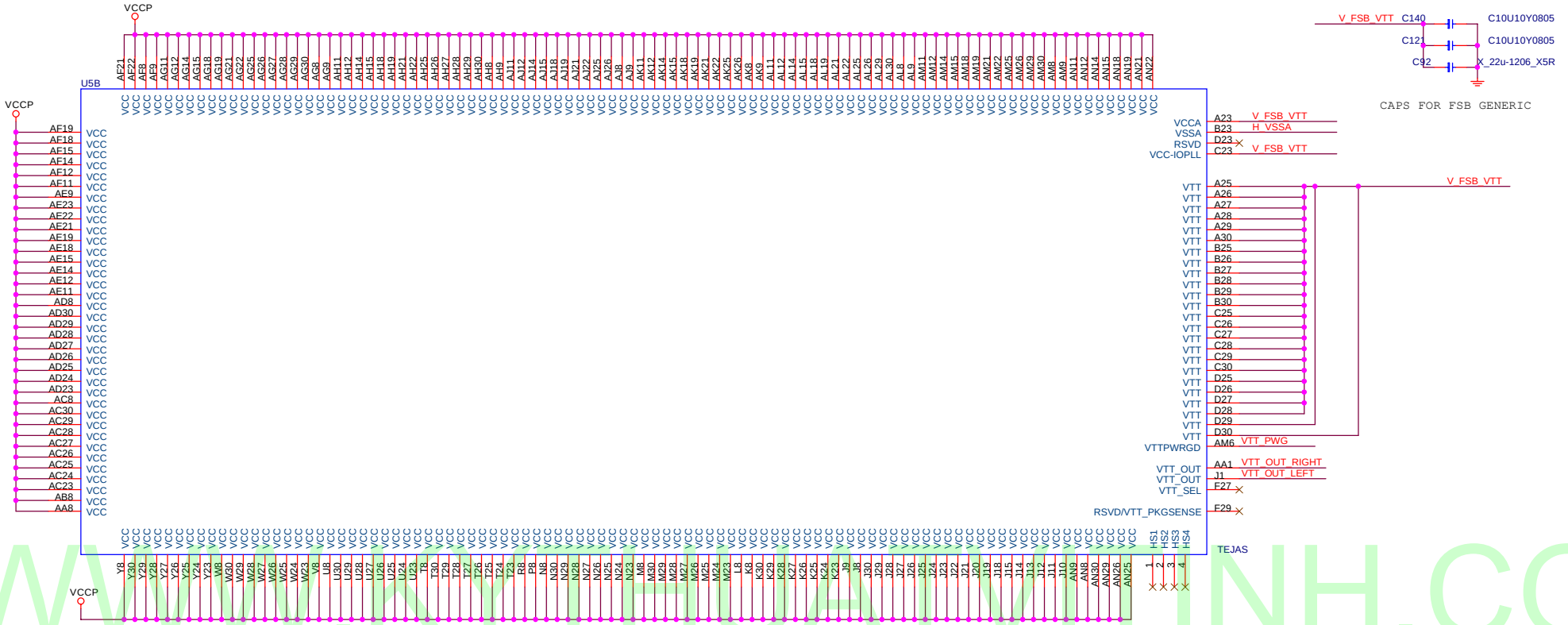
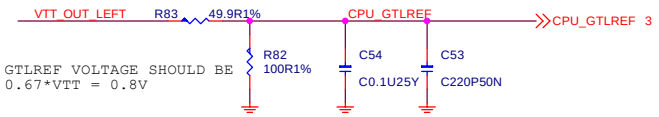
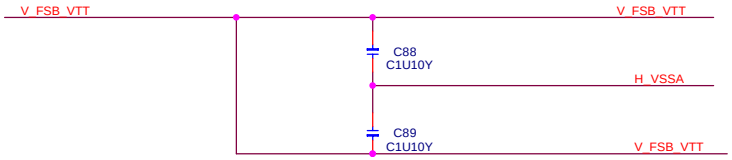


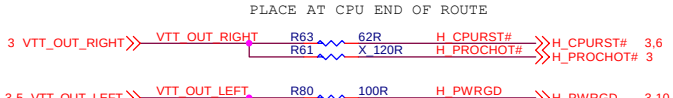


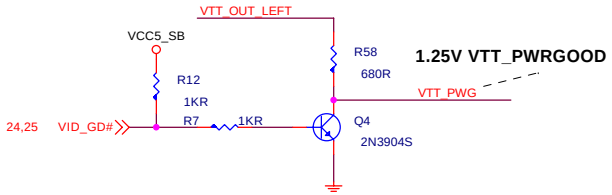




PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET
TRACE WIDTH TO CAPS MUST BE SMALLER THAN 12MILS

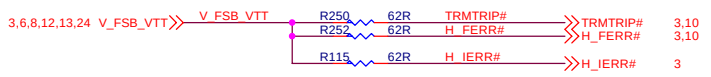



PLACE AT CPU END OF ROUTE




PLACE AT ICH END OF ROUTE

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| | | |
|---|---|---|
| Title | Intel LGA775 CPU - Power | |
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MICRO-STAR INt'L CO., LTD.

Title: Intel LGA775 CPU - GND

Size | Document Number: MS-7174H1 | Rev: 1B

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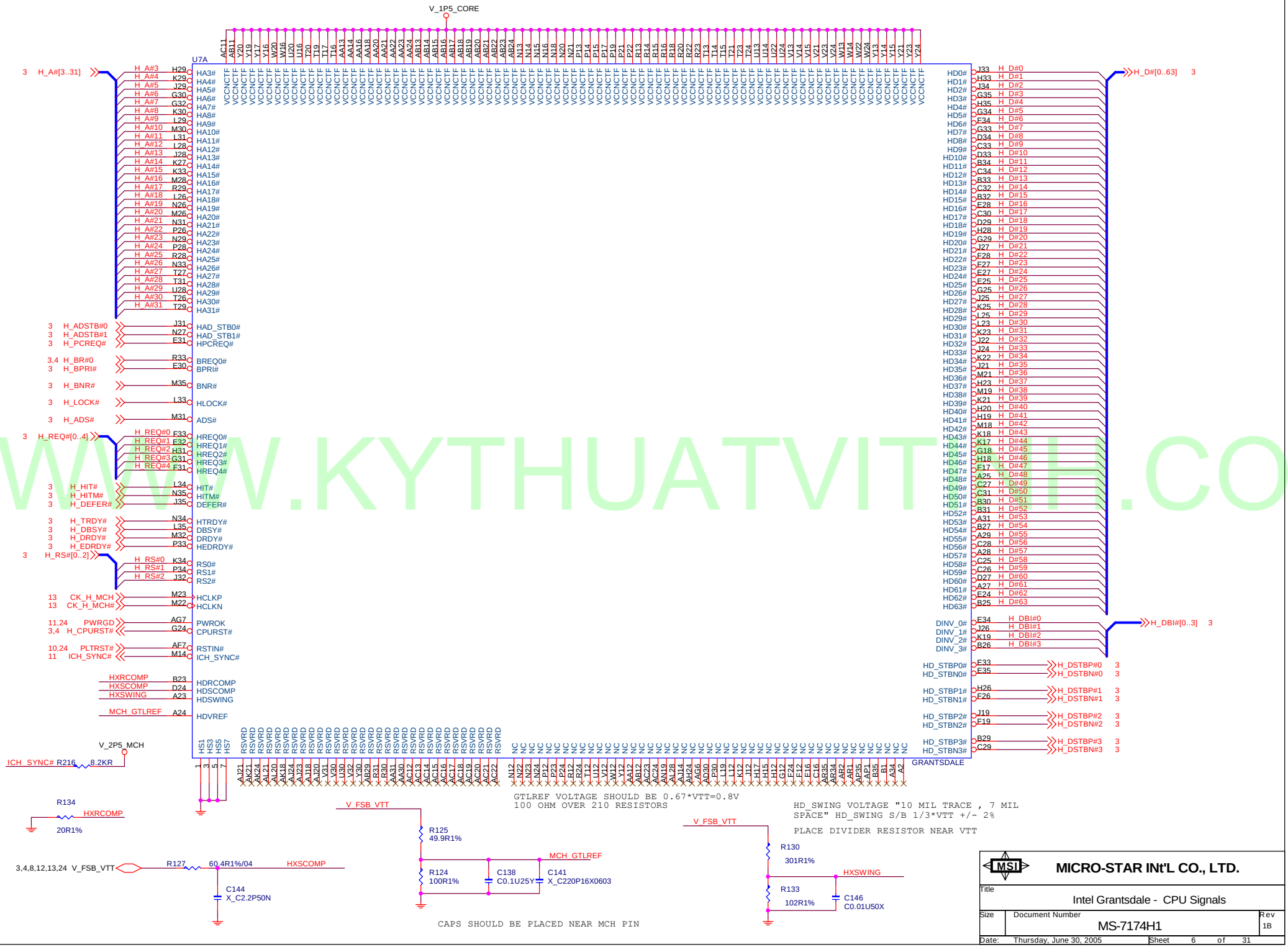




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Title: Intel Grantsdale - CPU Signals

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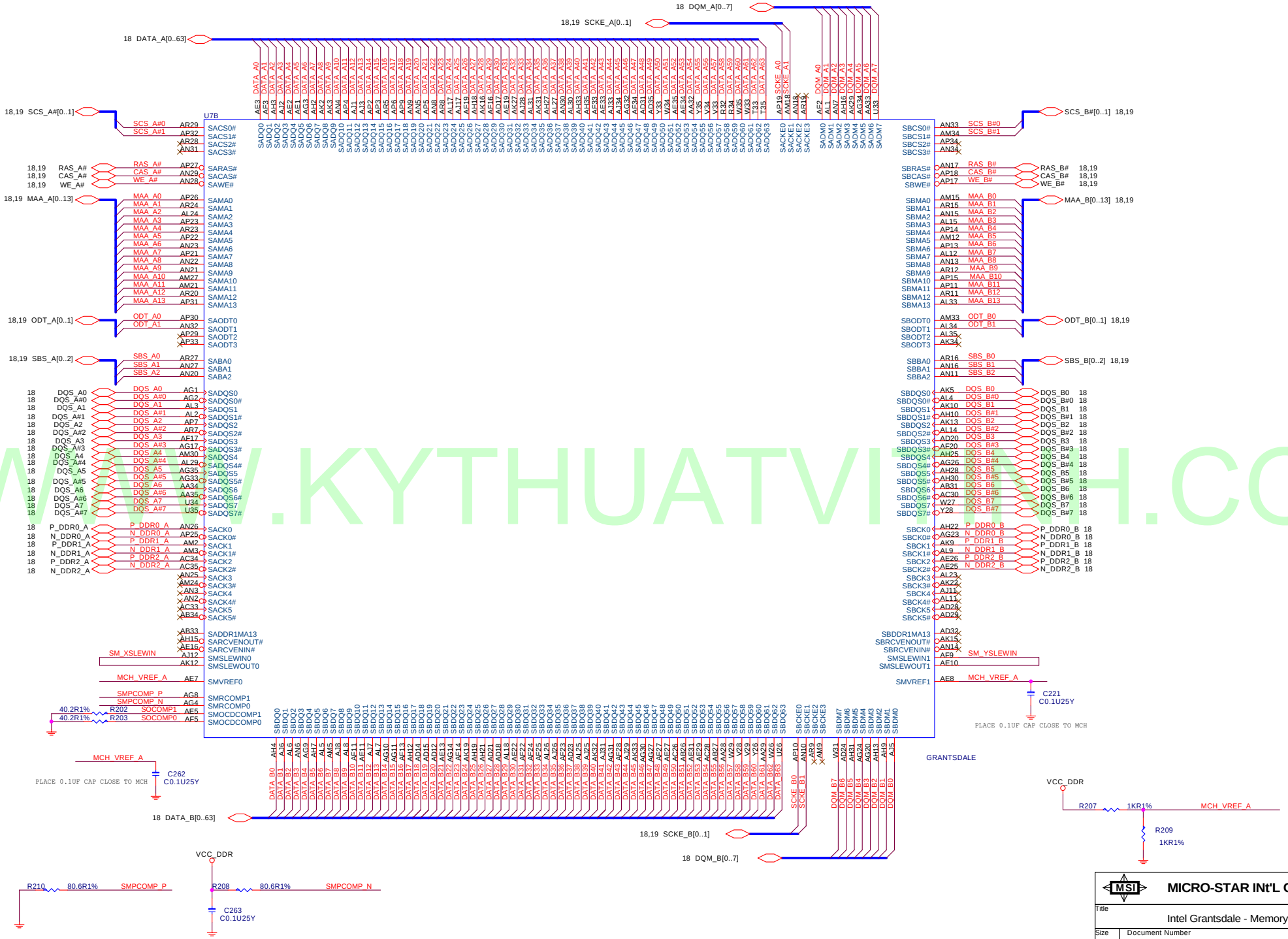

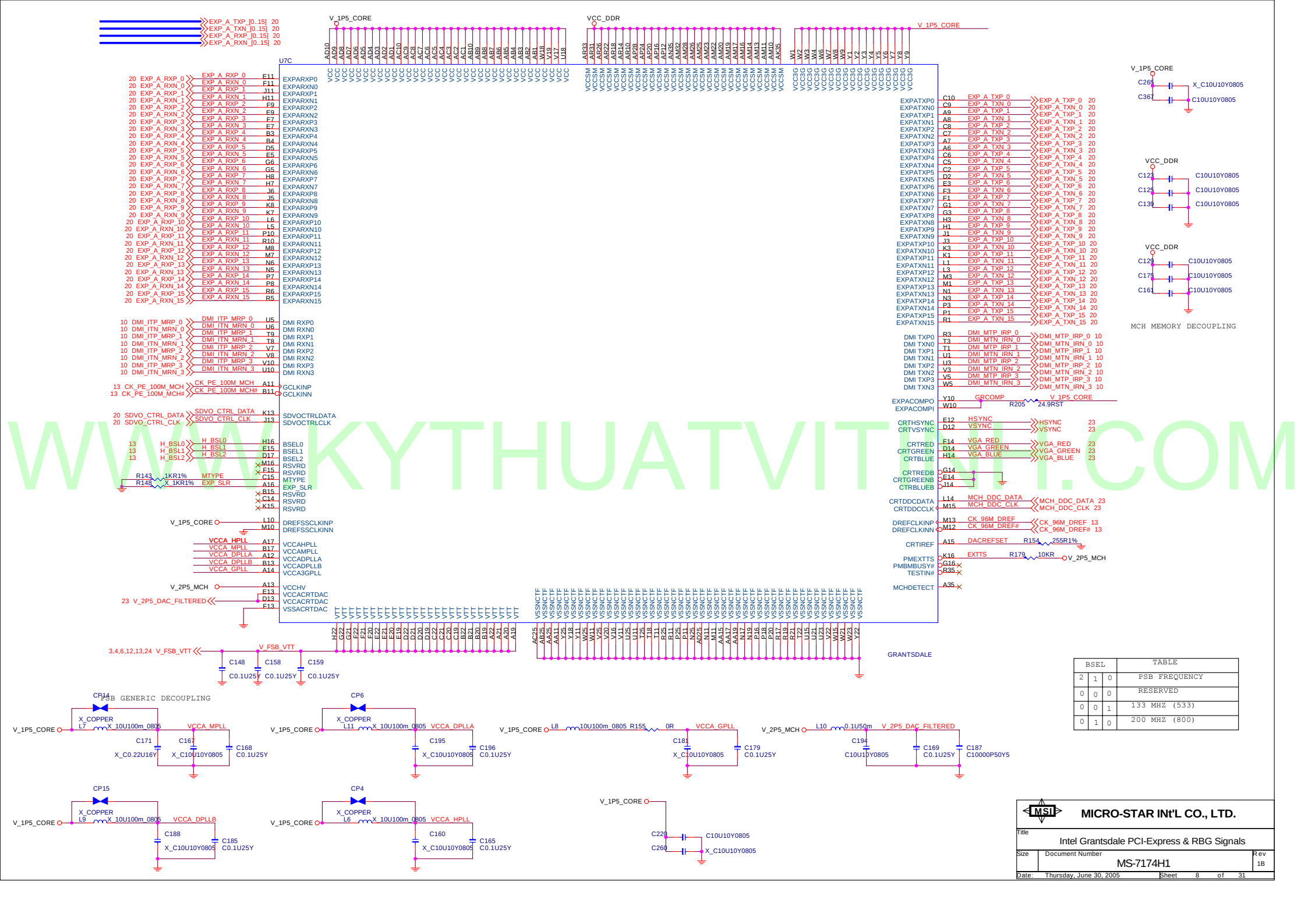




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| | | |
|---|---|---|
| Title | Intel Grantsdale - GND | |
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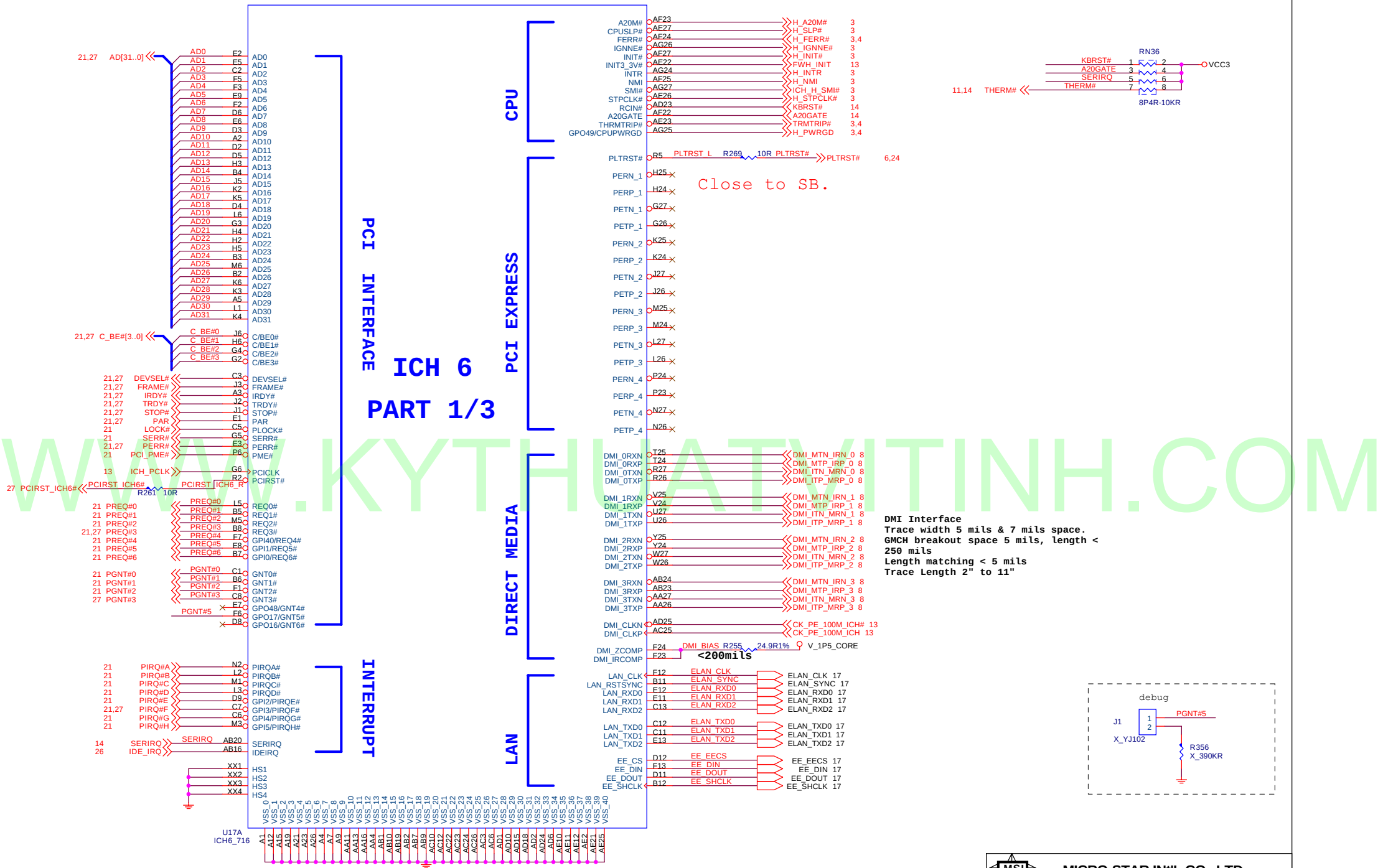
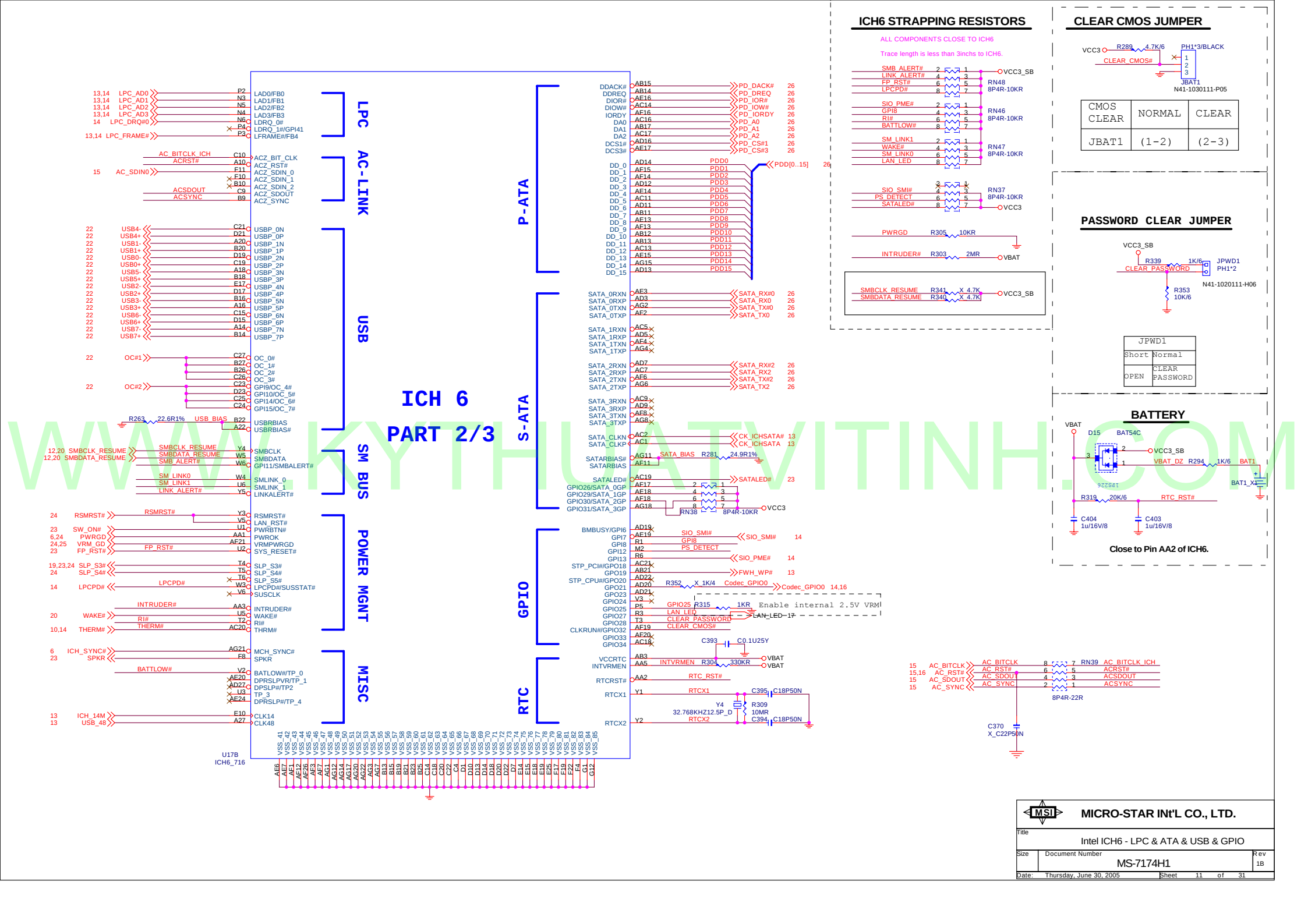
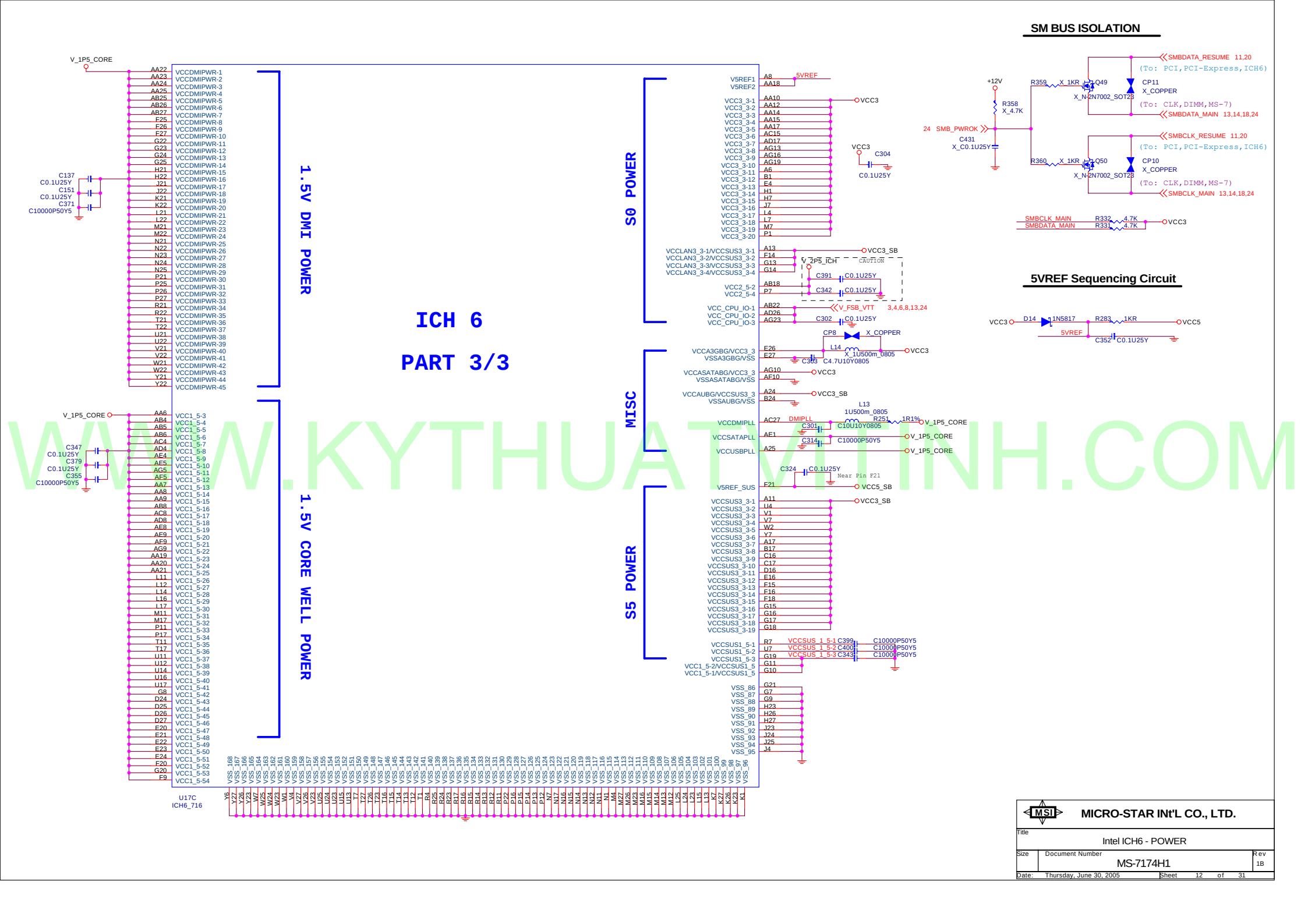
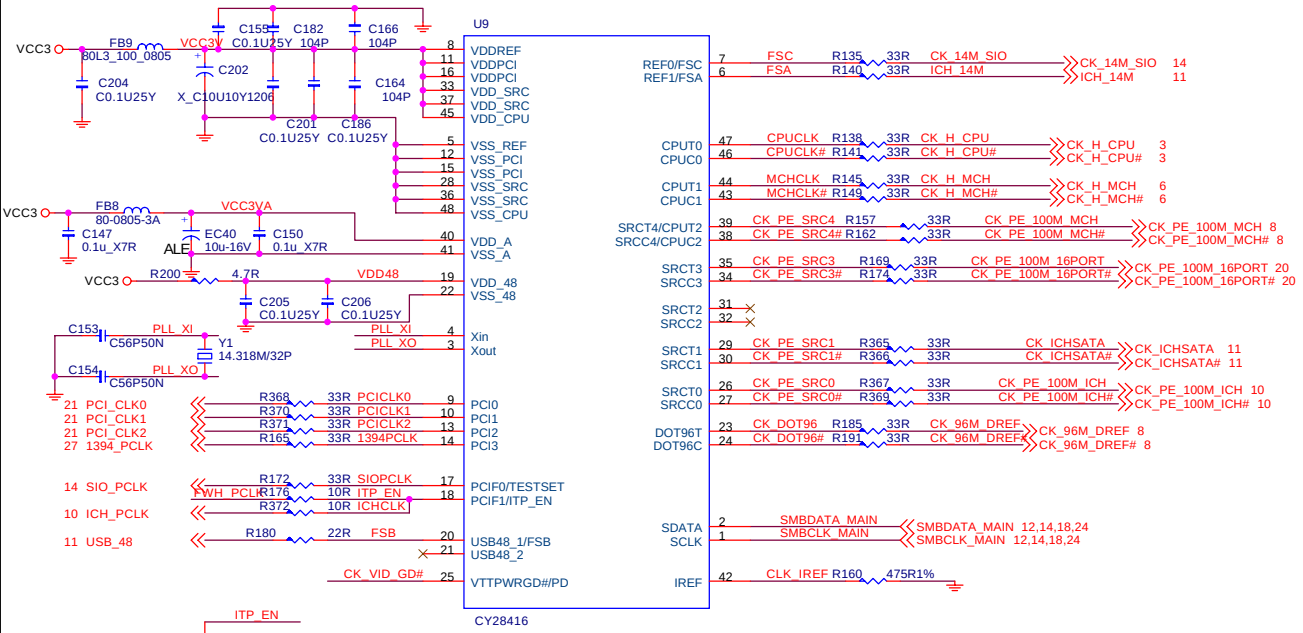


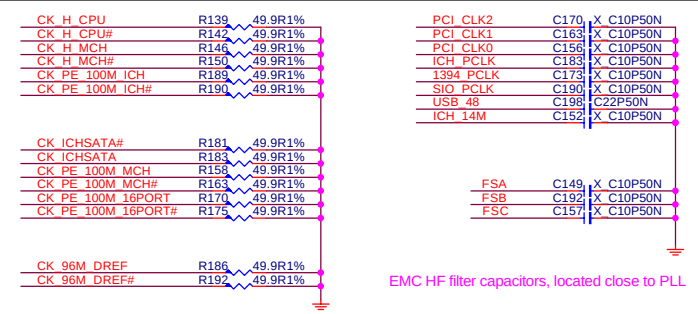




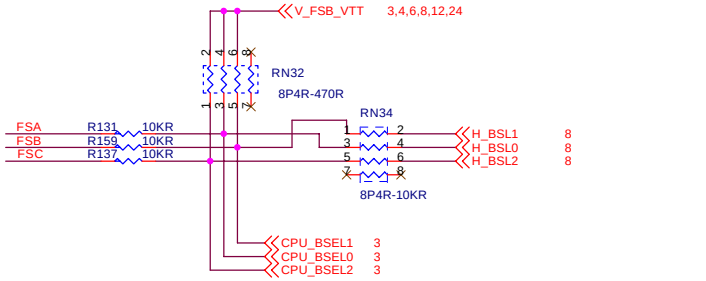
## Clock Generator - CY28416

Trace length less than 0.5inchs

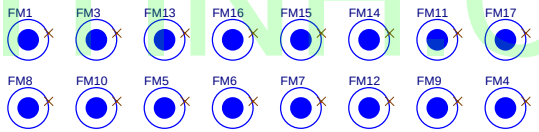


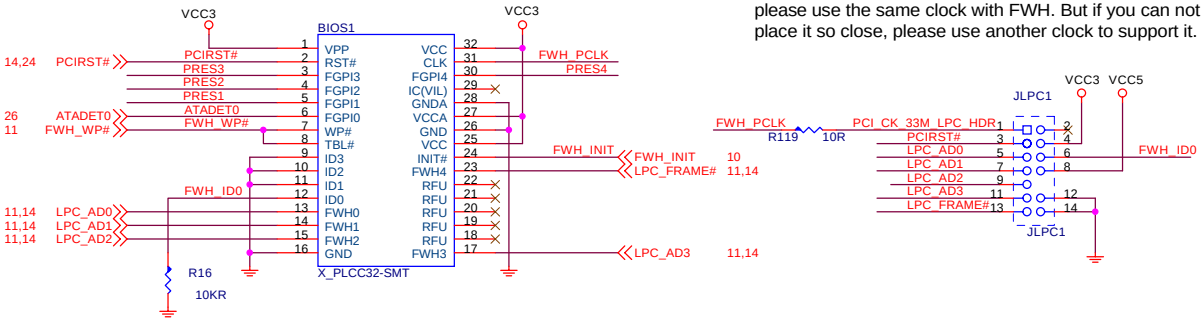

EMC HF filter capacitors, located close to PLL




## Optical Fiducial Marks



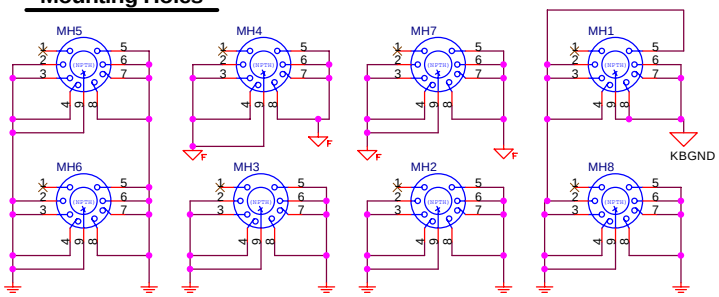

## Firware Hub (FWH)

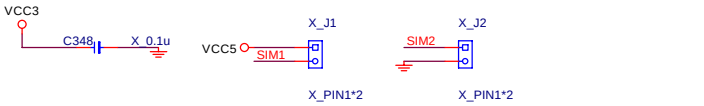



If you place the jumper very closed to FWH bios socket, please use the same clock with FWH. But if you can not place it so close, please use another clock to support it.

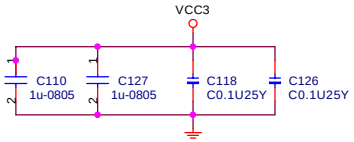



## Mounting Holes



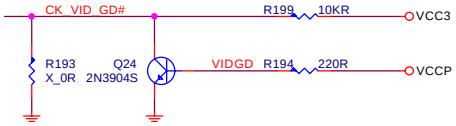




## FWH DECOUPLING CAPACITORS



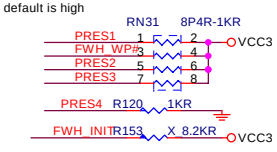

**Place Cap. as Close to FWH< 350 mil**

## Clock Generator VTT Power Down Block




## FWH Resistors

default is high



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| | | |
|---|---|---|
| Title | CY28416 & FWH | |
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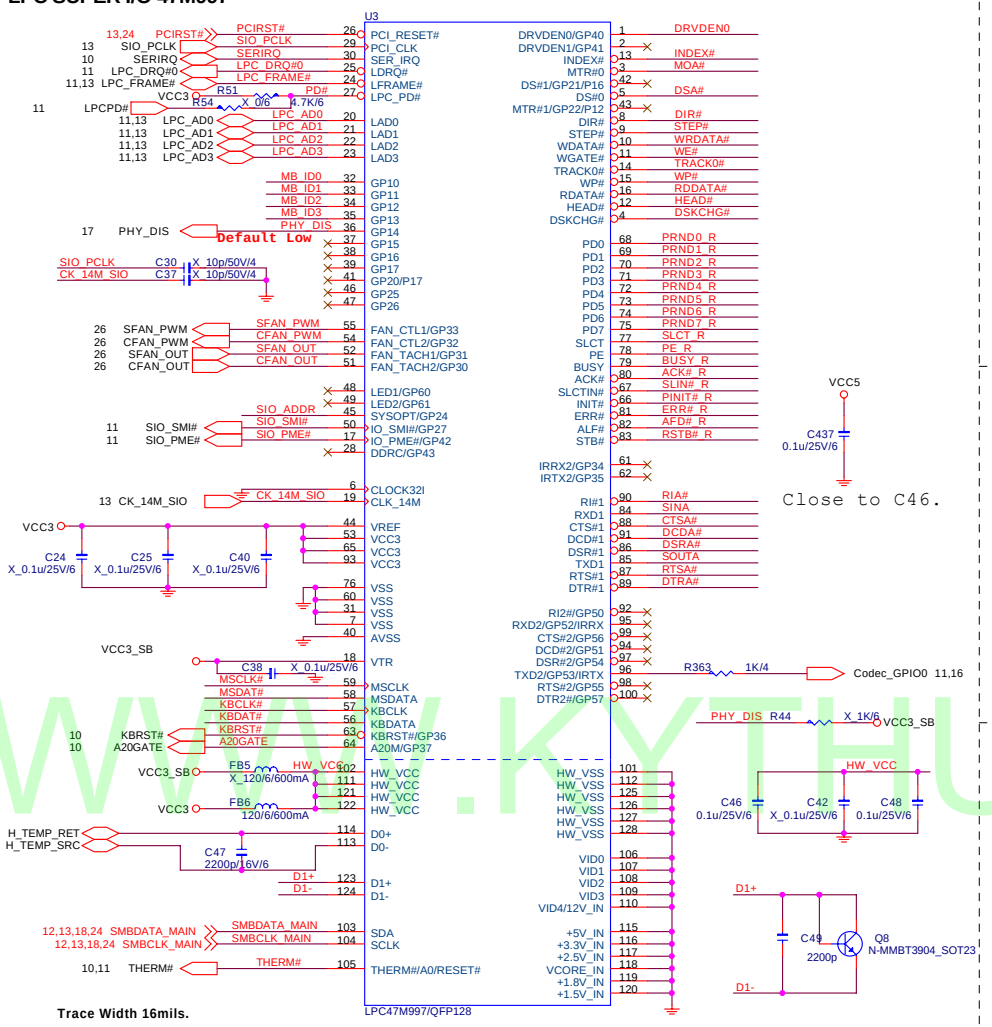
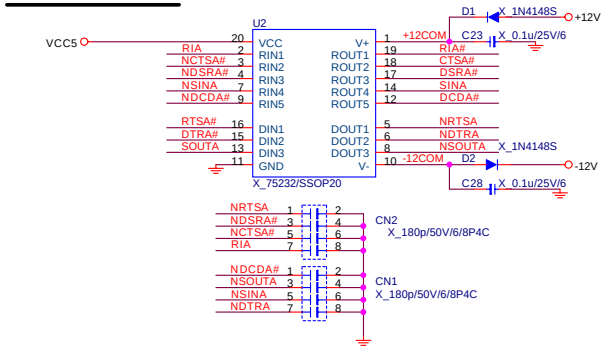
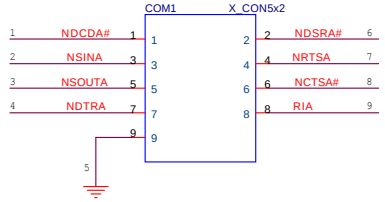
## LPC SUPER I/O 47M997



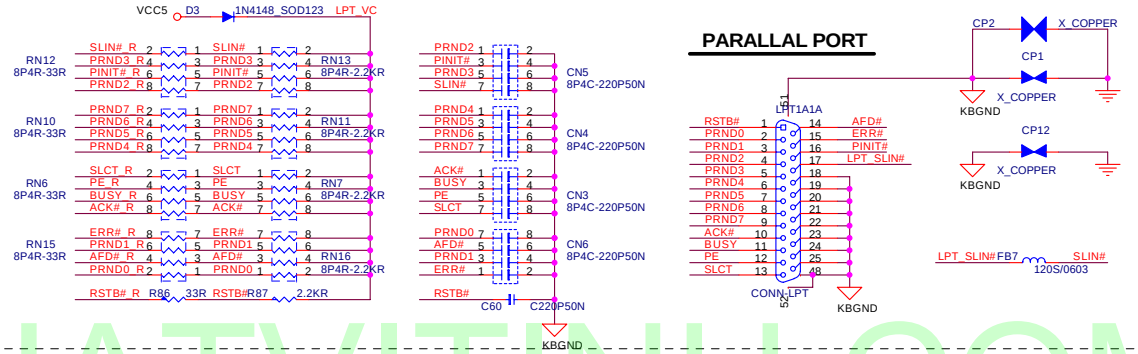

## SERIAL PORT 1



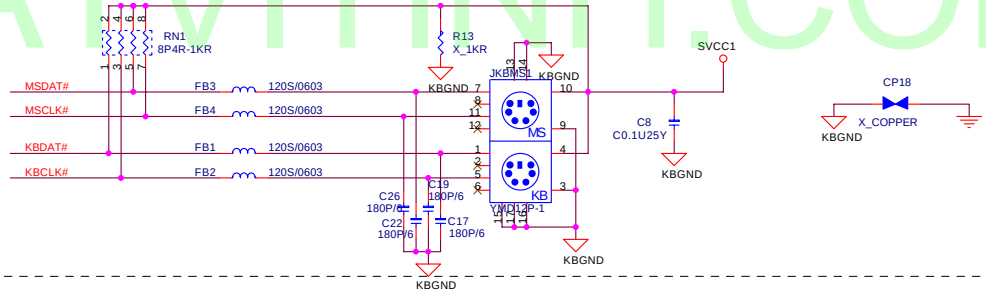

## COM1



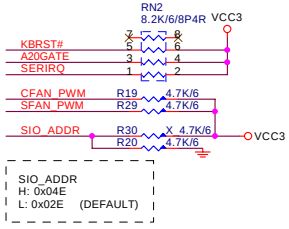

## PARALLAL PORT



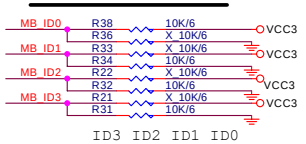

## PS2 KEYBOARD & MOUSE CONNECTOR




## STRAPPING RESISTOR

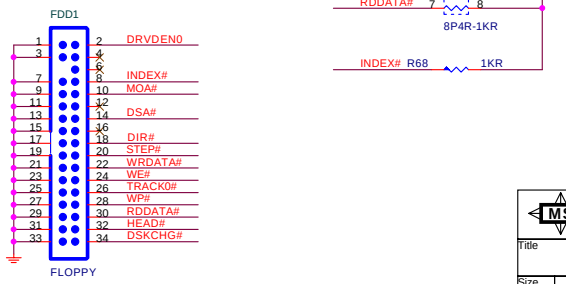



## M/B Revision ID



| | ID3 | ID2 | ID1 | ID0 |
|---|---|---|---|---|
| Gypsum: | 0 | 0 | 0 | 1 |
| Graphite: | 0 | 0 | 1 | 0 |

## FLOPPY CONNECTOR

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| | | |
|---|---|---|
| Title | LPC SUPER I/O & CONNECTORS | |
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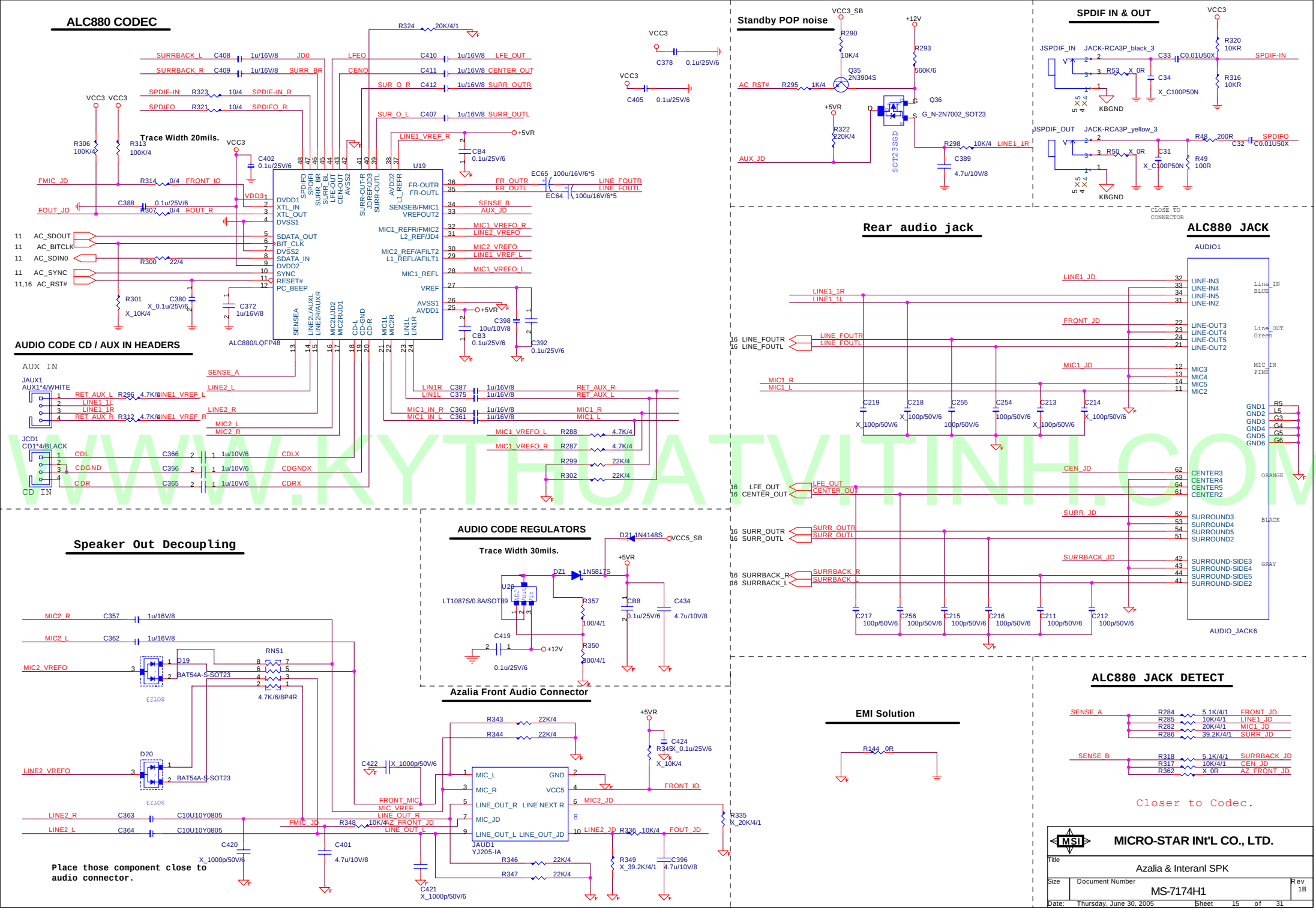
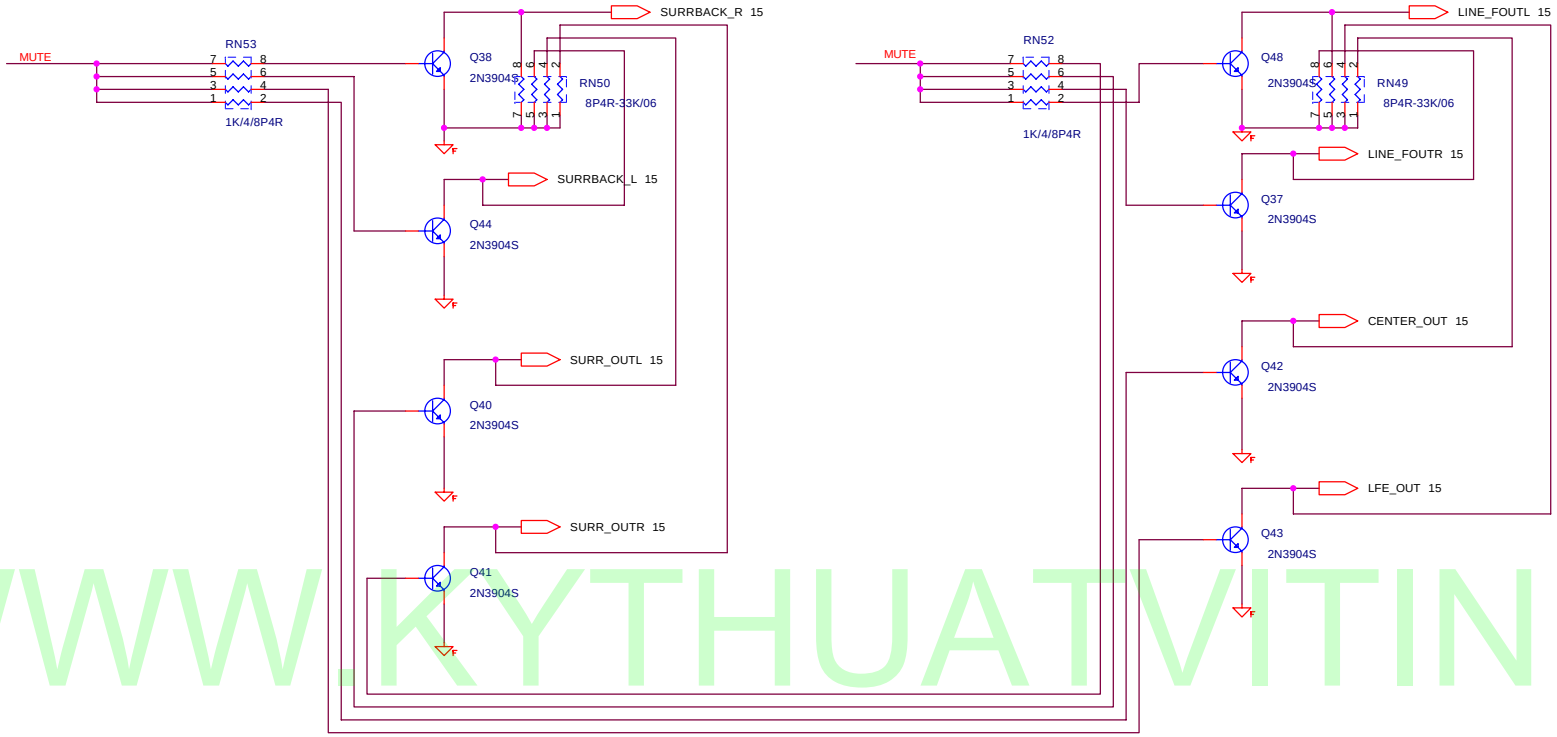
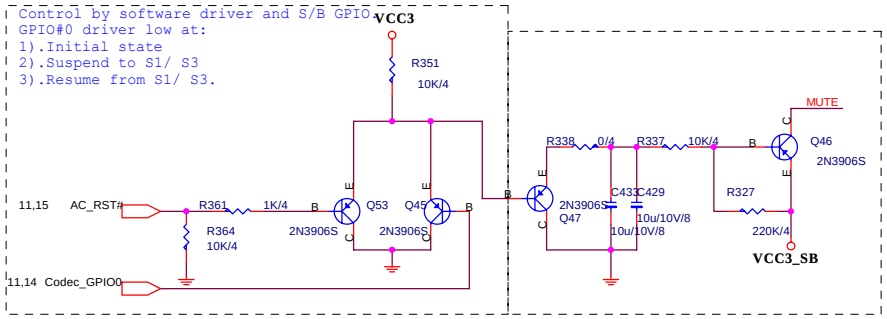





**darlington circuit**




**Control line** **Control circuit**



| | | |
|---|---|---|
| MSI | MICRO-STAR INt'L CO., LTD. | |
| Title | ANTI-POP | |
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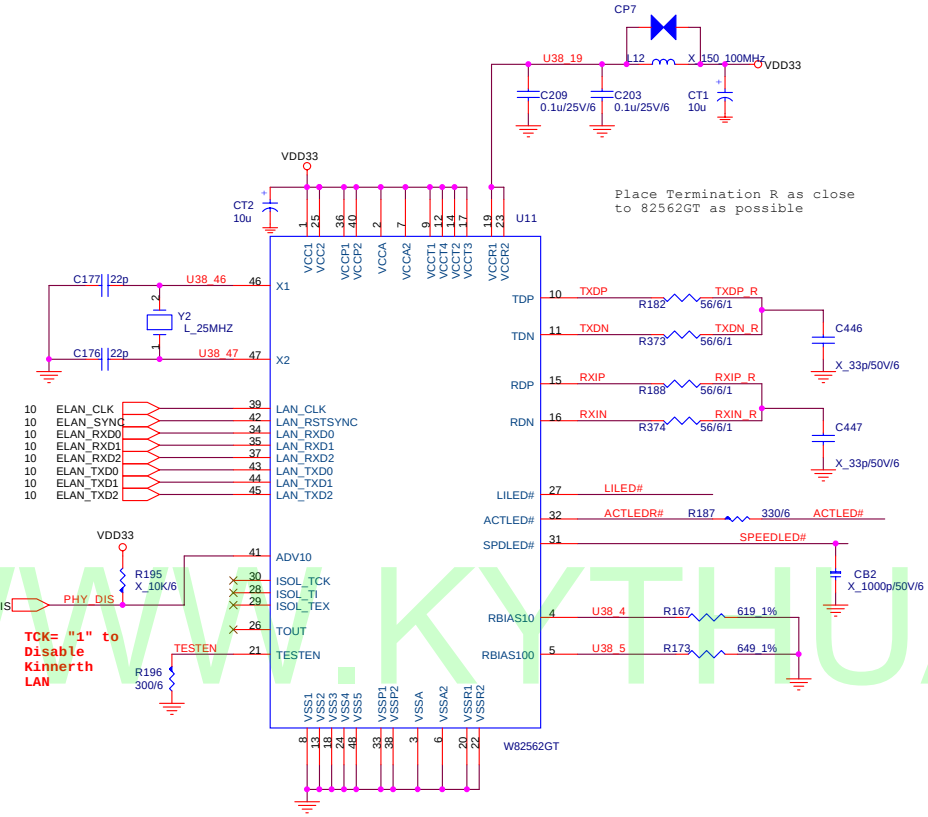
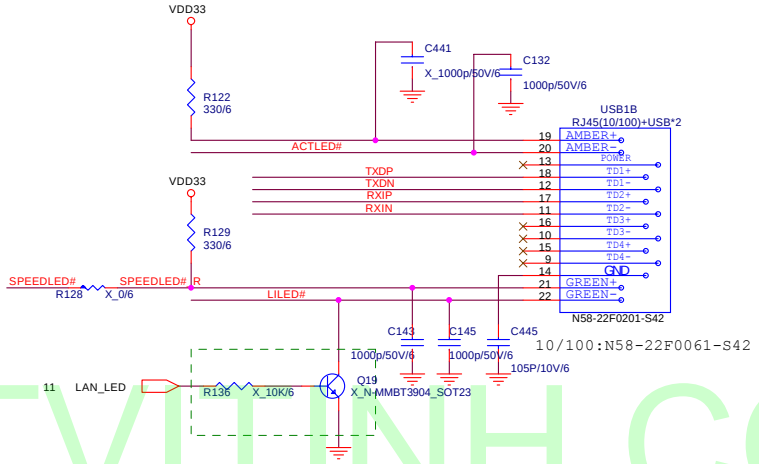
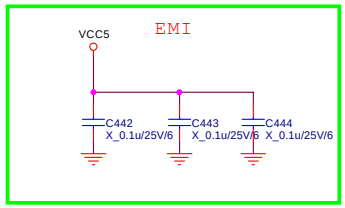
# LAN - KINNERITH

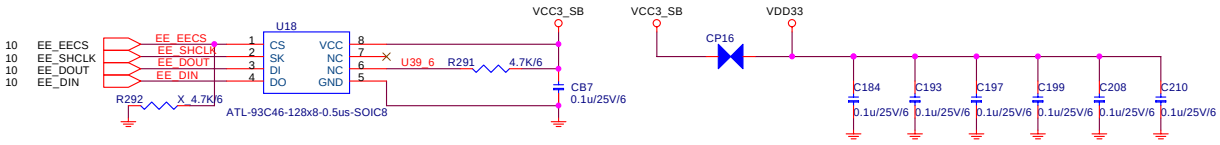



## LAN CONNECTOR




## EEPROM




Closer to SB.



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| | | |
|---|---|---|
| Title | LAN LAVON/KENAI32 | |
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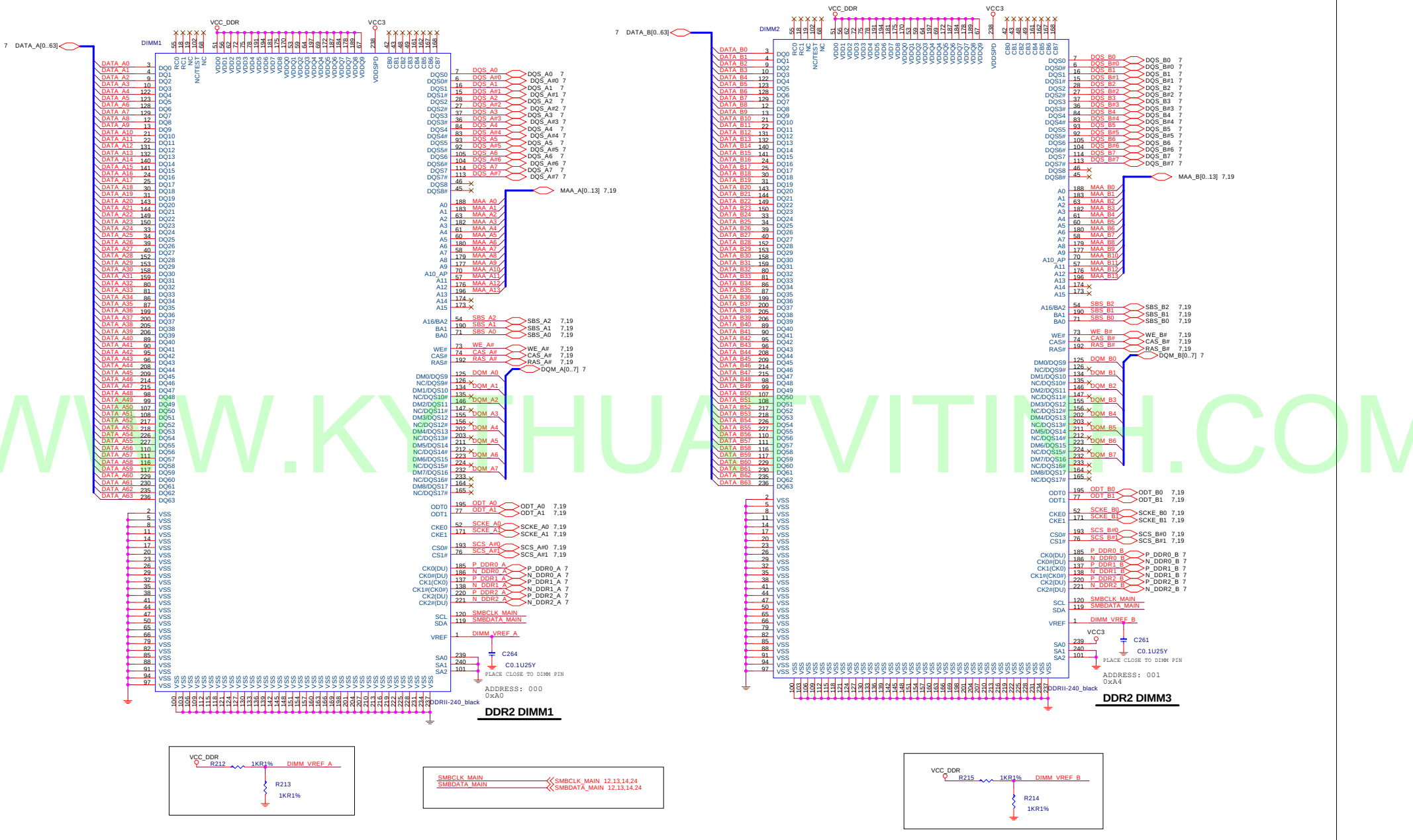




| | |
|---|---|
| MSI | MICRO-STAR INt'L CO., LTD. |
| Title | DDR2 DIMM 1 & 2 |
| Size | Document Number: MS-7174H1 |
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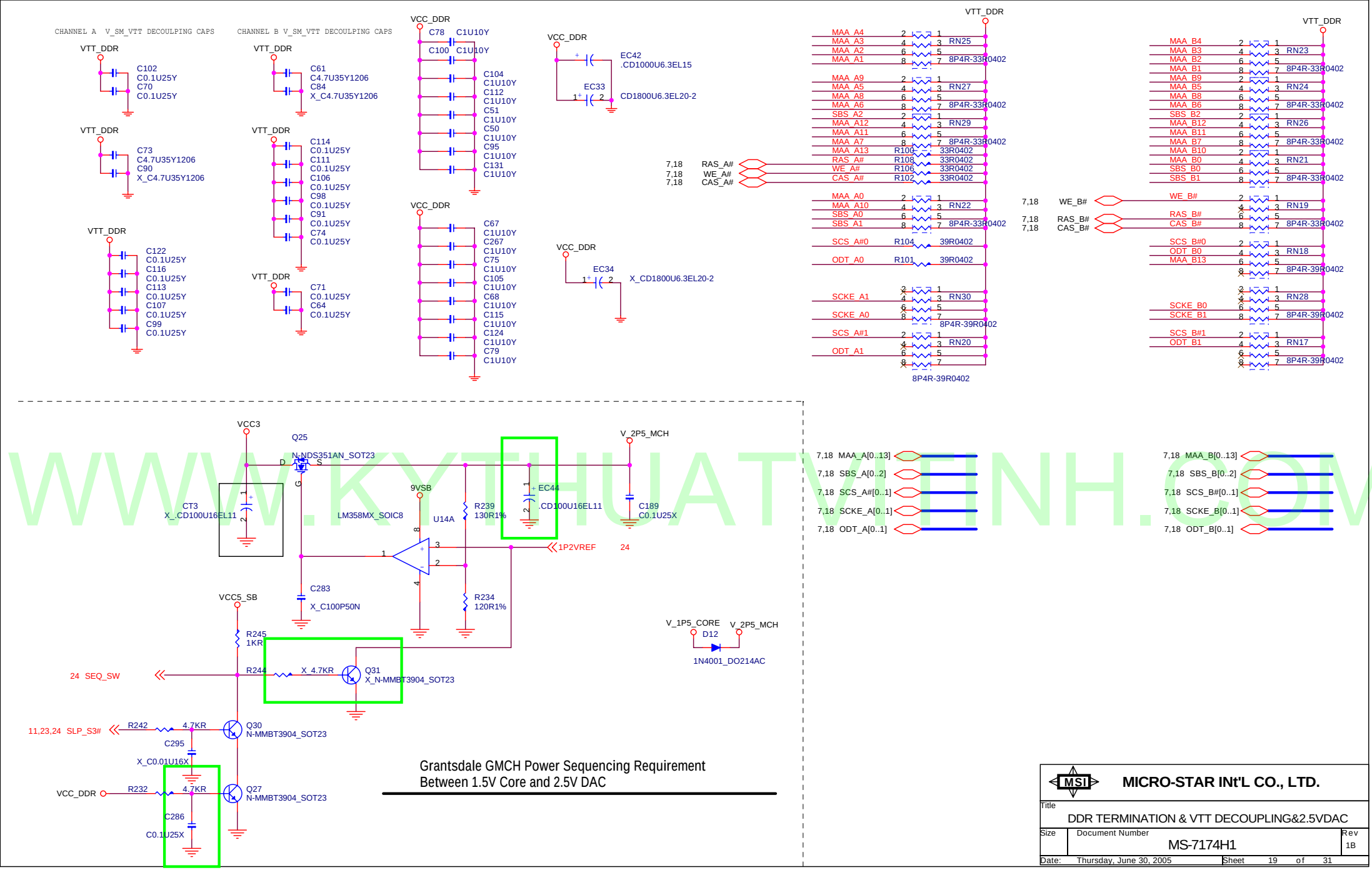


Grantsdale GMCH Power Sequencing Requirement
Between 1.5V Core and 2.5V DAC



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| | | |
|---|---|---|
| Title | DDR TERMINATION & VTT DECOUPLING&2.5VDAC | |
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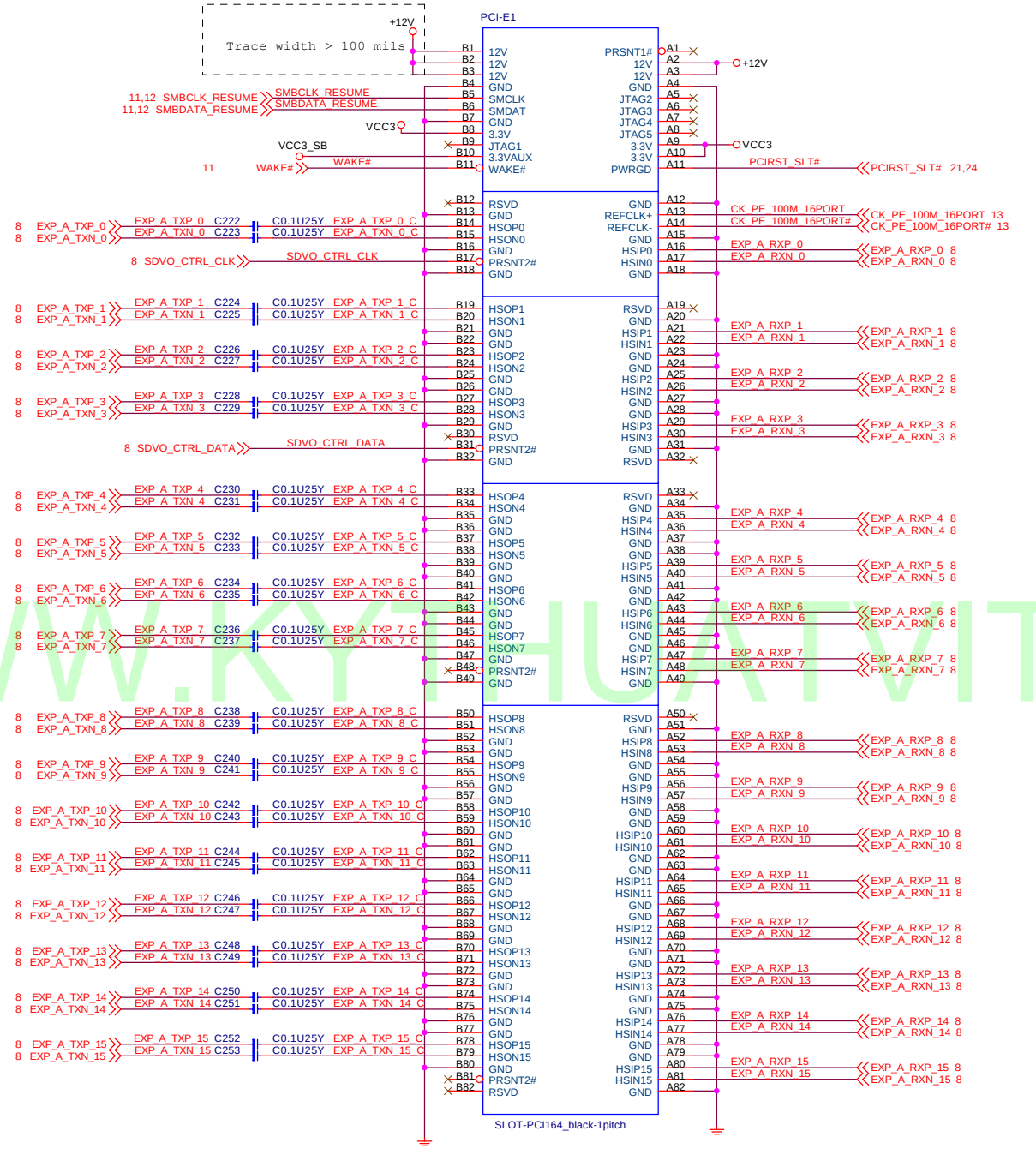




MICRO-STAR INt'L CO., LTD.

Title: PCI EXPRESS 16 PORT

Size | Document Number: MS-7174H1 | Rev: 1B

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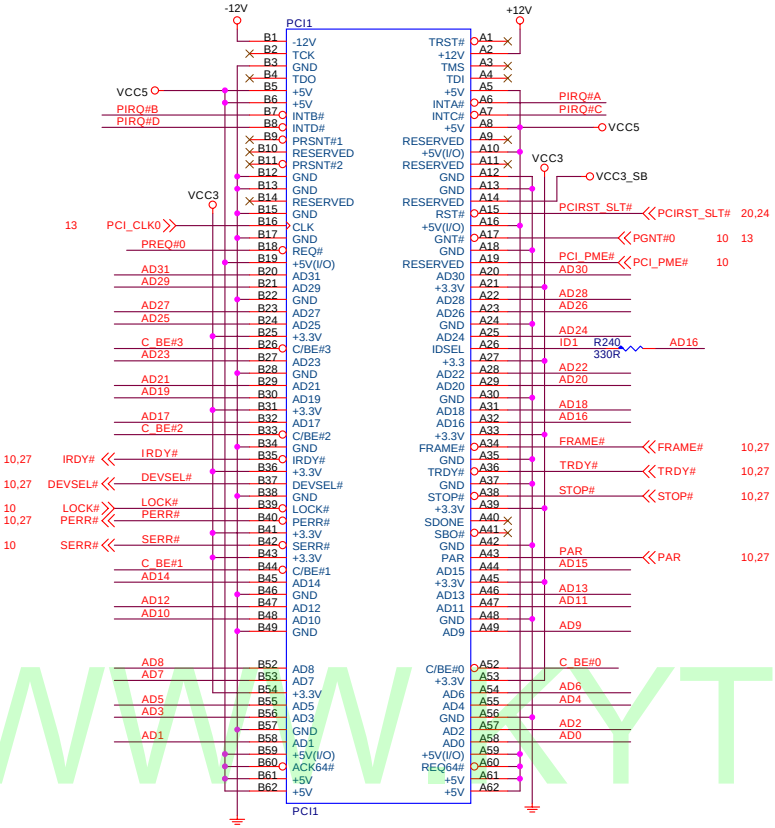
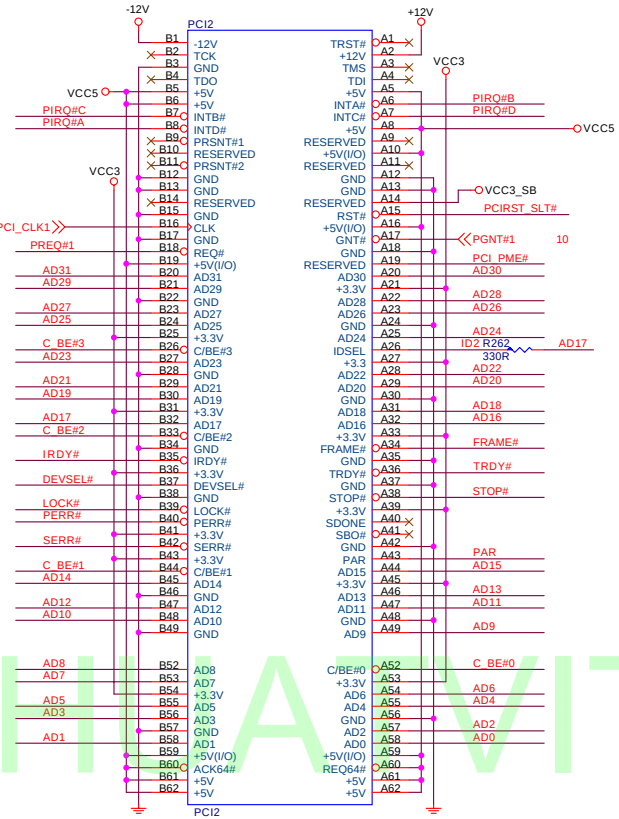
## PCI SLOT 1 (PCI VER: 2.2 COMPLY)



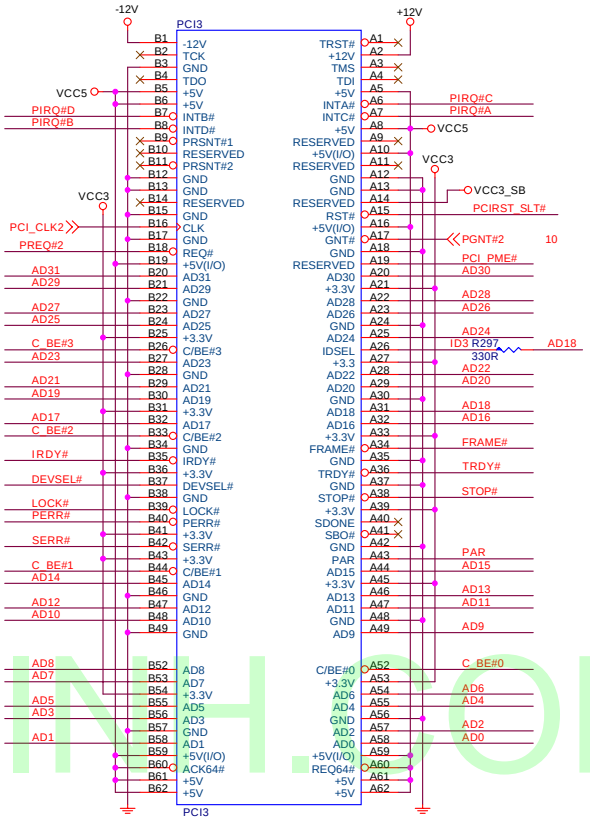

IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

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




IDSEL = AD17
MASTER = PREQ#1
PIRQ#B

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

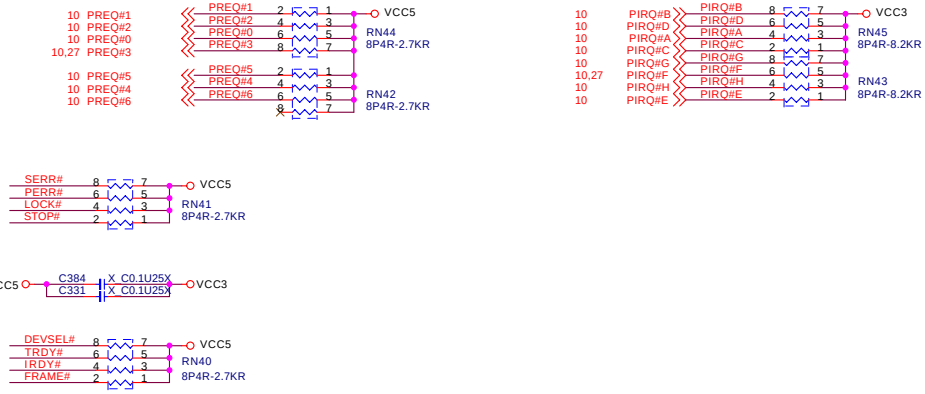



IDSEL = AD18
MASTER = PREQ#2
PIRQ#C

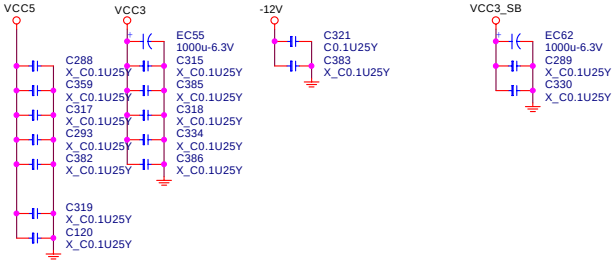
10,27 AD[31..0] AD[31..0]

10,27 C_BE#[3..0] C_BE#[3..0]

## PCI PULL-UP / DOWN RESISTORS




## PCI SLOT DECOUPLING CAPACITORS



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Title: PCI 1& 2 Slots

Size: | Document Number: MS-7174H1 | Rev: 1B

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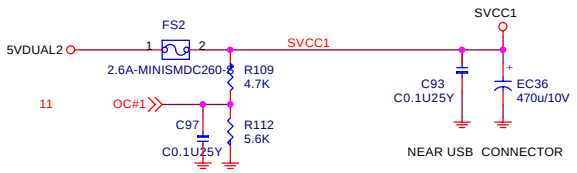
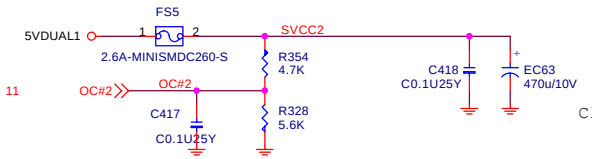
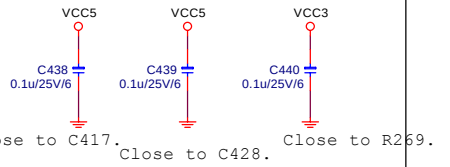
## POWER CIRCUIT FOR USB PORT 0,1,2,3 (REAR)




## POWER CIRCUIT FOR USB PORT 4,5,6,7 (FRONT)

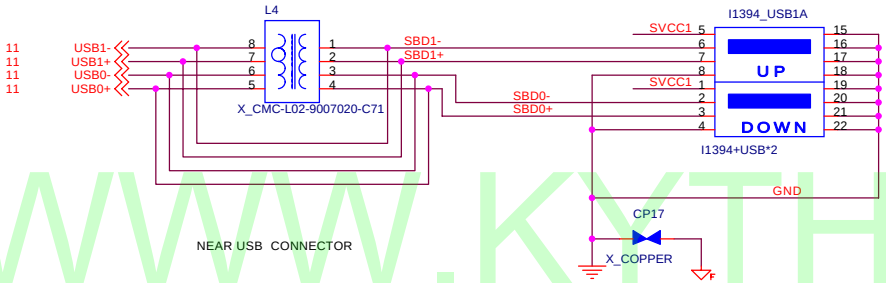



## EMI solution



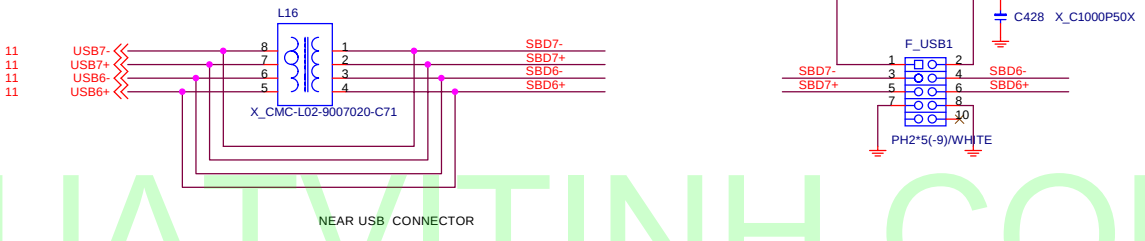

## REAR PANEL USB CONNECTOR FOR USB PORT 0,1

**USB Interface**
**Diff. Trace width 7.5 mils & 7.5 mils space.**
**Diff. & other space 20 mils.**
**Length matching: < 150 mils**
**Ttrace length 0" to 17"**

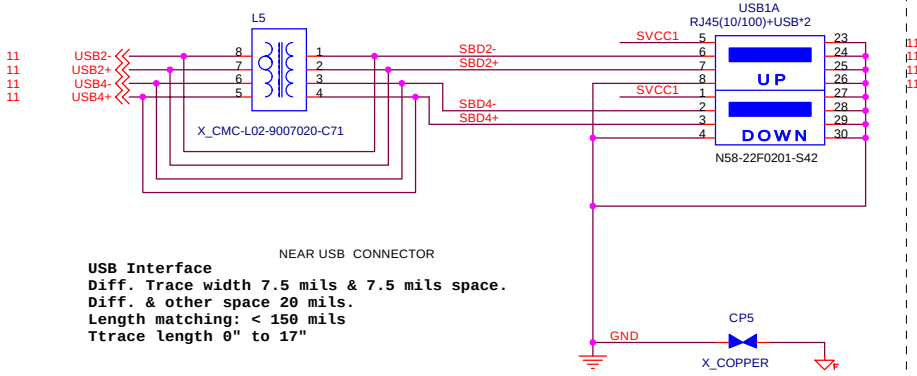



## FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

**USB Interface**
**Diff. Trace width 7.5 mils & 7.5 mils space.**
**Diff. & other space 20 mils.**
**Length matching: < 150 mils**
**Ttrace length 0" to 17"**

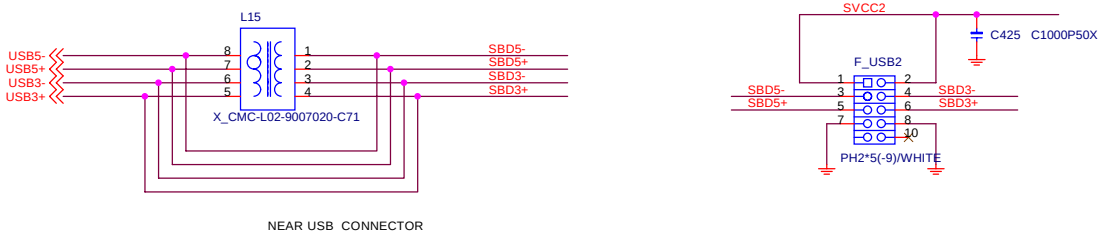



## REAR PANEL USB CONNECTOR FOR USB PORT 2,3




**USB Interface**
**Diff. Trace width 7.5 mils & 7.5 mils space.**
**Diff. & other space 20 mils.**
**Length matching: < 150 mils**
**Ttrace length 0" to 17"**

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




**USB Interface**
**Diff. Trace width 7.5 mils & 7.5 mils space.**
**Diff. & other space 20 mils.**
**Length matching: < 150 mils**
**Ttrace length 0" to 17"**



MSI MICRO-STAR INt'L CO., LTD.

| | | |
|---|---|---|
| Title | USB Connectors | |
| Size | Document Number: MS-7174H1 | Rev 1B |
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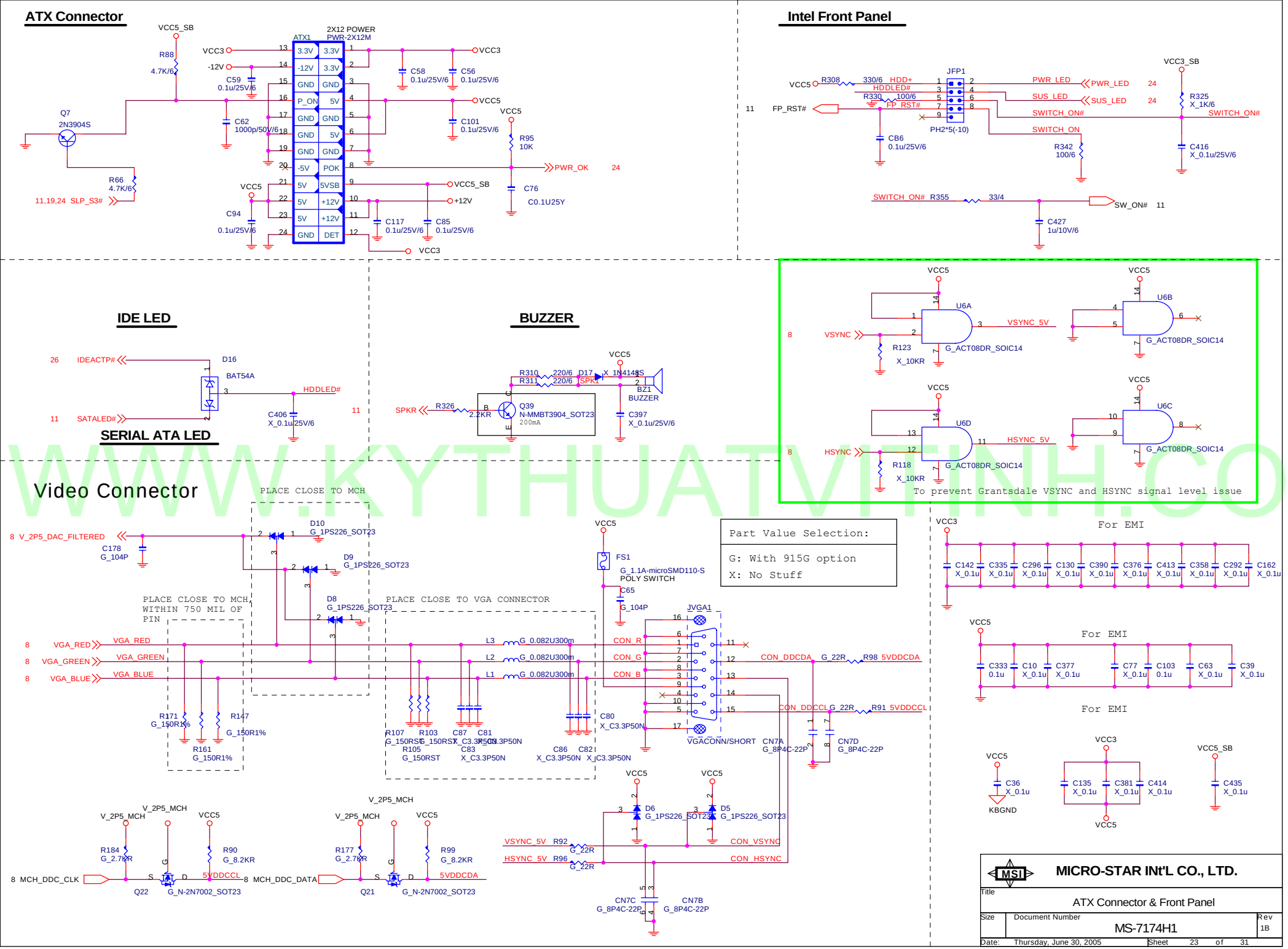

# ACPI Controller

**3VSB MODE SELECT**

| 3VSB MODE | 3VDLDEC# |
|---|---|
| SINGLE MOSFET | PULL HIGH |
| DUAL MOSFET | PULL LOW |

**VDIMM LINEAR OR PWM SELECT**

| VDIMM MODE | EXTRAM |
|---|---|
| LINEAR REGULATOR | PULL LOW |
| PWM REGULATOR | PULL HIGH |

## PCI-Express POWER

## 5V DUAL Power

## DDR VTT Power

**DDR AND DDR II VOLT SELECT**

| DDRTYPE | VDIMM |
|---|---|
| PULL LOW | 2.5V |
| PULL HIGH | 1.8V |

THIS PIN IS OPEN DRAIN OUTPUT

CHARGE PUMP VOLTAGE OUTPUT

Close to MS6+

Wide Trace

**Regulator(TO-252)**
D03-45N020B-N03
D03-40N030B-A36
D03-6530A0B-F01
**Regulator(TO-263)**
D03-50N034B-N03
D03-50N031B-P03
**Dual NMOS**
D03-07D0303-N03
D03-0731303-A30



MSI MICRO-STAR INt'L CO., LTD.

Title: ACPI CONTROLLER MS7

Size: | Document Number: MS-7174H1 | Rev: 1B

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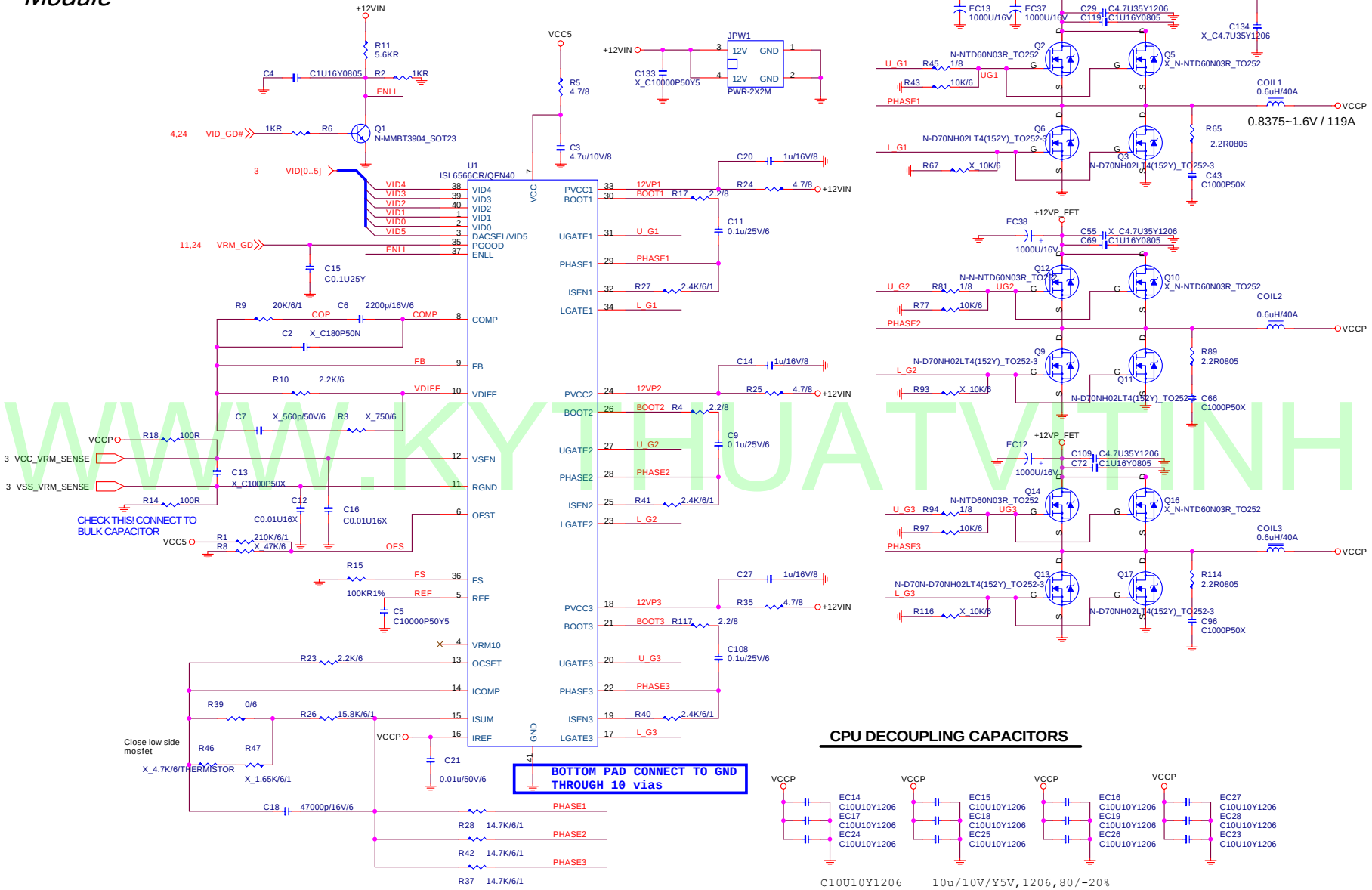
# Voltage Regular Module

| | |
|---|---|
| IPF06N03LA | Rds(on)=8.7mΩ(@4.5V,30A),Vgs(on)=1.2~2V,Id=50A,Ciss=3110pf,Qg=10nC,Vds=25V,Vgs=±20V |
| C100U2SP | ESR<13mΩ,Ripple cur.<2.7A,LC<12uA,105C |
| .CD3300U6.3EL25 | ESR<12mΩ,Ripplecur.<2800mA,105C,longlife3000hrs,KZGSeries |
| 560u_2.5V | ESR=6mΩ,Ripplecur.=4400mA,Lc.<500uA,105C/2000hrs |
| 1800UF/6.3V | ESR<12mΩ, Ripplecur<2350mA,105C, longlife change from 2000hrs to 3000hrs ,KZJ series |
| 0.6uH/40A | 0.6u/20%, Isat=40A,Rdc=1.2m ohm,PEW wire |
| CH-1.2U18A | 1.2u/20%,Dip-2/vertical7.5mm,1.2ψ/5.5turns,18A |

TDP = 115 W
VR_TDC = 101 A
Icc(max) = 119 A
Tejas Tcase = [P x 0.213] + 43.3
Prescott Tcase = [P x 0.25] + 43.3






MSI MICRO-STAR INt'L CO., LTD.

| | | |
|---|---|---|
| Title | VRM 10.1 - Intersil 6565ACV 3 Phase | |
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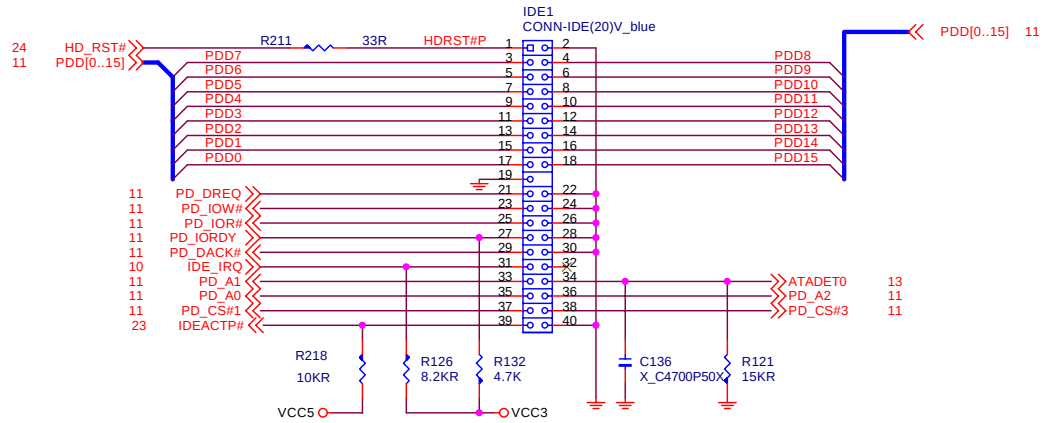
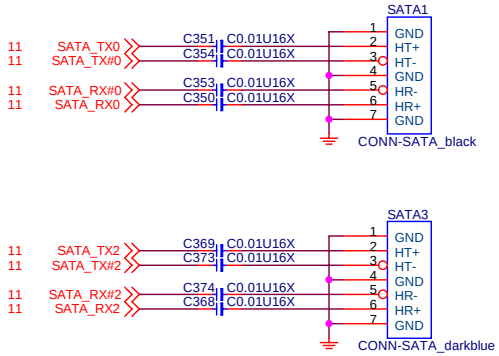
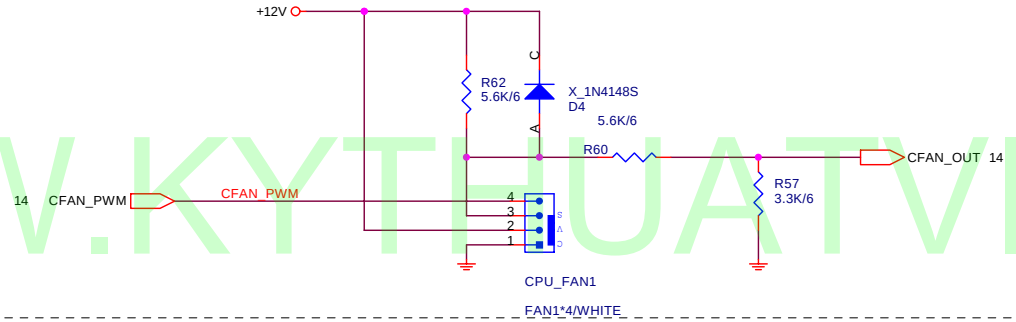
## ATA 33/66/100 IDE Connectors




## SERIAL ATA CONNECTOR BLOCK

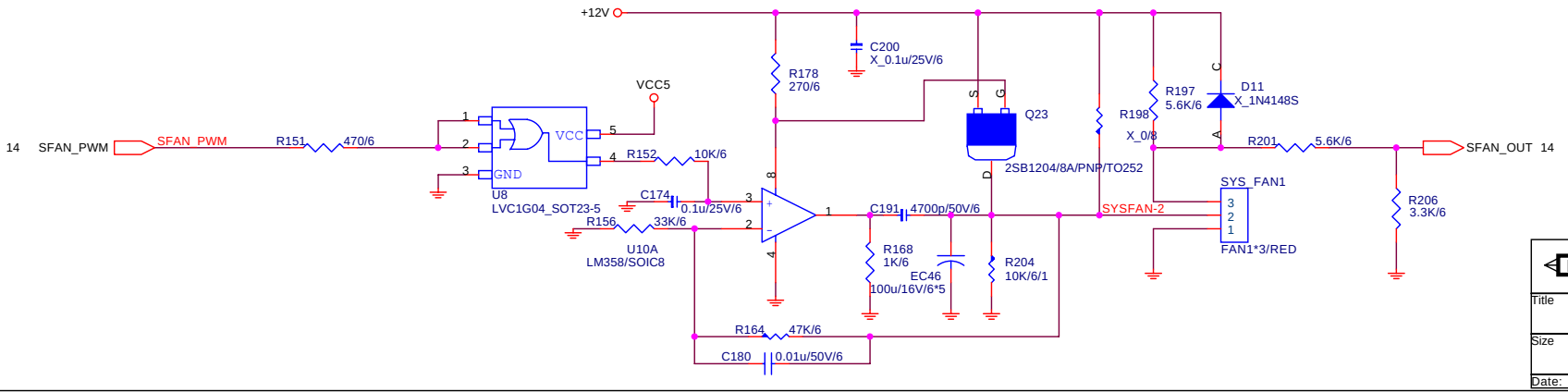



## CPU FAN






## SYSTEM FAN




MSI MICRO-STAR INt'L CO., LTD.

| | | |
|---|---|---|
| Title | FAN & IDE Connectors | |
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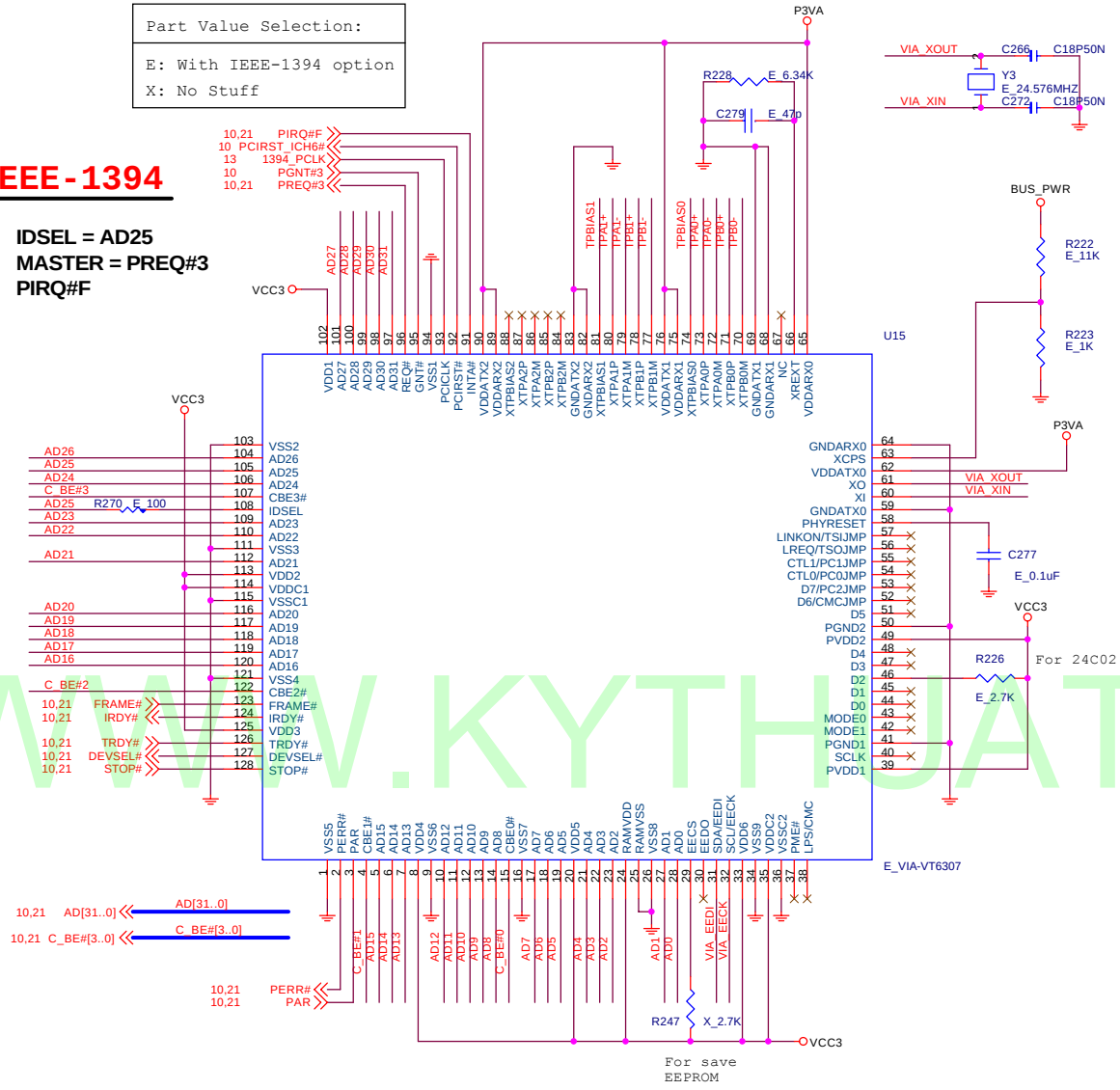
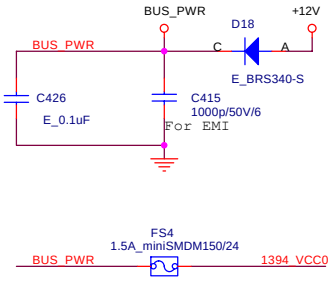
| Part Value Selection: |
|---|
| E: With IEEE-1394 option |
| X: No Stuff |

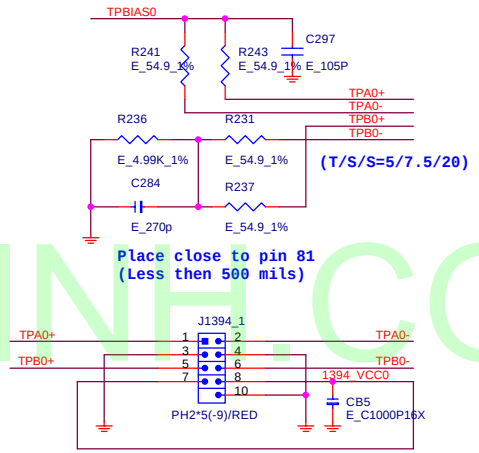
# IEEE-1394

**IDSEL = AD25**
**MASTER = PREQ#3**
**PIRQ#F**

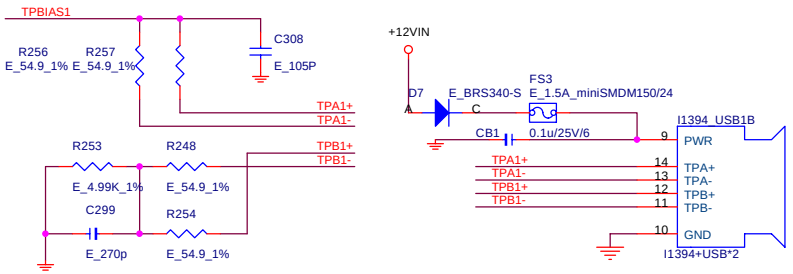


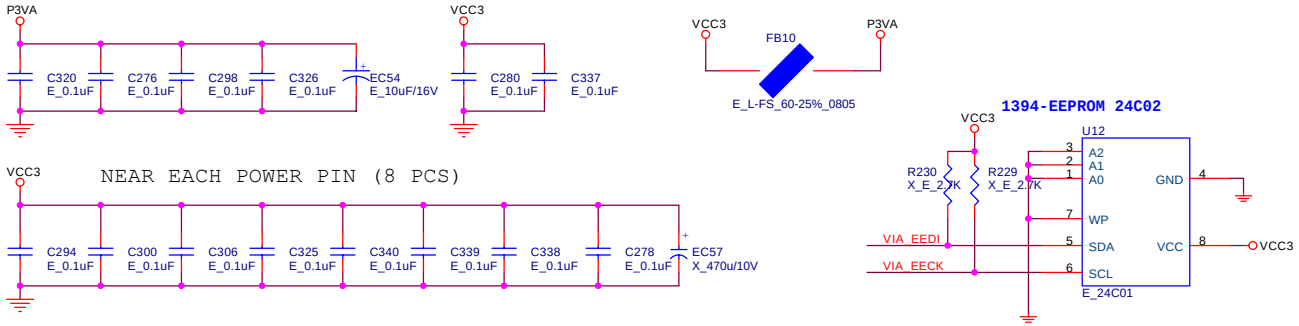




## FRONT 1394 PORT




## Rear 1394 PORT




TC = 0-55oC, VCC = 3.3V+/-10%, GND = 0V

| Symbol | Parameter | Typ | Max | Unit | Condition |
|---|---|---|---|---|---|
| ICC | Power Supply Current-VCC | 89 | 107 | mA | S400, two ports transmitting |

MSI MICRO-START INT'L CO.,LTD.

Title: VIA-6307 IEEE1394 Controller

| Size | Document Number | Rev |
|---|---|---|
| A3 | MS-7174H1 | 1B |

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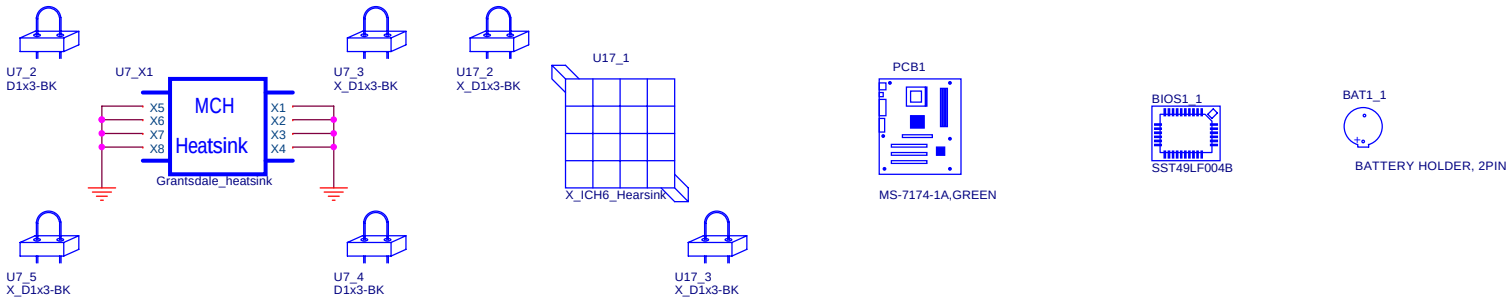
## MANUAL PART




U7-A

Intel 910GE

910GEC0

Cfg7174-910GE = _
Cfg7174-915GV = X
Opt Part = Y

U17-A

Intel ICH6

ICH6C0

Cfg7174-910GE = _
Cfg7174-915GV = X
Opt Part = Y

U7-B

Intel 915GV

915GV

Cfg7174-910GE = X
Cfg7174-915GV = _
Opt Part = Y

U17-B

Intel ICH6

ICH6B2

Cfg7174-910GE = X
Cfg7174-915GV = _
Opt Part = Y



## Model option table

| Model type | Function | BOM Config | ERP BOM No. |
|---|---|---|---|
| MS7174 (Graphite) | 915GV+ICH6+47M997+82562GT+ALC880+3PCI+u-ATX +2PS2+8USB+1COM+VGA+1Audio+LPT+RJ45+Intel pinhead+1394 | Cfg7174-915GV | 601-7174-*** |
| MS7174 (Gypsum) | 910GE+ICH6+47M997+82562GT+ALC880+3PCI+PCIE X16+u-ATX+2PS2+8USB+1COM+VGA+1Audio+LPT+RJ45+Intel pinhead+1394 | Cfg7174-910GE | 601-7174-02S |
| | | | |
| | | | |
| | | | |
| | | | |

MSI MICRO-STAR INt'L CO., LTD.

Title: General Purpose Spec & JUMPER SETTING

Size | Document Number: MS-7174H1 | Rev 1B

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