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# IB75A-MHS B75MU3+ REV 6.0

## CPU:

Intel Sandy/Ivy Bridge processors in LGA1155 Package 95W

## System Chipset: PANTHERPOINT-B75

## Main Memory:

Dual Channel/DDR-III\*4(Max 32GB) 1066/1333  
DDR3-1333 /1066 /800

## Onboard Device:

Super I/O:IT8728  
LAN:Realtek 8111F  
HD Codec:ALC662 3 jacks

## Power solution:

CPU Voltage Regulators:3phase by ISL6363  
AXG voltage Regulators:1phase by ISL6363  
VTT voltage Regulators:1Phase by FP6326  
DDR voltage Regulators:1Phase by FP6326

## Expansion Slots:

PCI EXPRESS 16X SLOT\*1  
PCI EXPRESS 1X SLOT\*1  
PCI SLOT\*2

## REAR I/O:

PS/2 +2 layer USB2.0 Port  
HDMI Port  
DVI Port  
VGA Port  
2 layer USB3.0 + Gb RJ-45 Ports  
Audio Jackets


## Front I/O:

SATA2 \* 5  
SATA3 \* 1  
USB2.0 Header \* 2  
USB3.0 Header \* 1  
CPU /System1  
CIR Header  
Front Audio Header

## I/O Panel: 47-RIOBRACKET-95

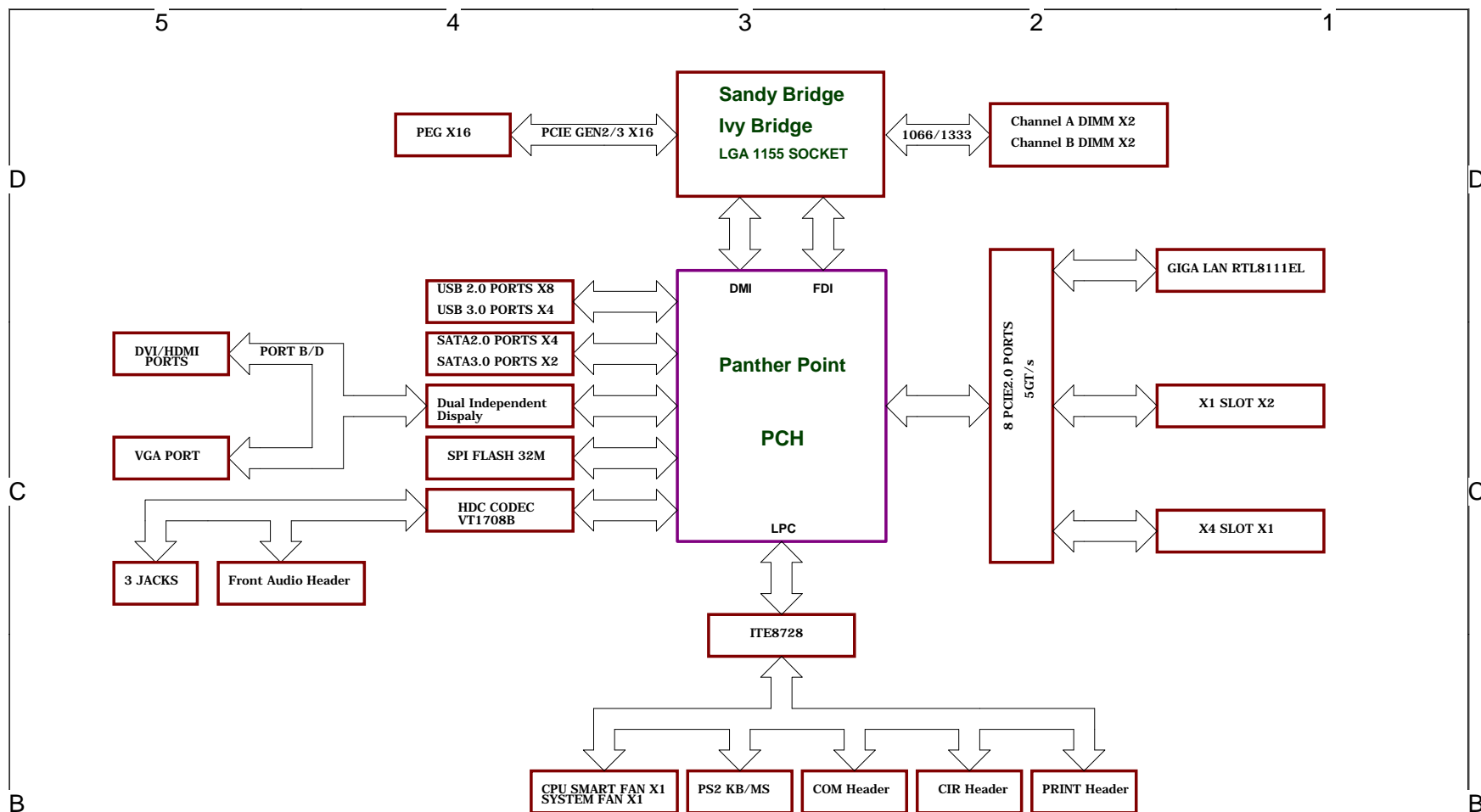
HW Engineer		Date	
HW Leader1		Date	
HW Leader2		Date	

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Feature Set	SKU Name					
	Q77	Q75	B75	Z77	Z75	H77
PCI Express® 2.0 Ports	8	8	8	8	8	8
PCI Interface	Yes	Yes	Yes	No <sup>3</sup>	No <sup>3</sup>	No <sup>3</sup>
Total number of USB ports	14	14	12 <sup>4</sup>	14	14	14
• USB 3.0 Capable Ports (SuperSpeed and all USB 2.0 speeds)	4	4	4	4	4	4
• USB 2.0 Only Ports	10	10	8	10	10	10
Total number of SATA ports	6	6	6	6	6	6
• SATA Ports (6 Gb/s, 3 Gb/s, and 1.5 Gb/s)	2 <sup>5</sup>	1 <sup>6</sup>	1 <sup>6</sup>	2 <sup>5</sup>	2 <sup>5</sup>	2 <sup>5</sup>
• SATA Ports (3 Gb/s and 1.5 Gb/s only)	4	5	5	4	4	4
HDMI/DVI/VGA/DisplayPort®/eDP®	Yes	Yes	Yes	Yes	Yes	Yes
Integrated Graphics Support	Yes	Yes	Yes	Yes	Yes	Yes
Intel® Rapid Storage Technology	AHCI	Yes	Yes	Yes	Yes	Yes
	RAID 0/1/5/10 Support	Yes	Yes <sup>7</sup>	No	Yes	Yes
	Intel® Smart Response Technology	Yes	No	No	No	Yes
Intel® Anti-Theft Technology	Yes	Yes	Yes	Yes	Yes	Yes
Intel® Active Management Technology 8.0	Yes	No	No	No	No	No
Intel® Rapid Start Technology <sup>8</sup>	Yes	Yes	Yes	Yes	Yes	Yes

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5	4	3	2	1
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02 Add PCI SLOT \*2

D03 CHANGE TWO SATA3 TO ONE SATA3

04. CHANGE RTI 8111F TO RTI 8111F

```
05: ADD SPDIF OUT HEADER
```

06 CHANGE SPI WP USE SIO GP30

07 CHANGE QV AXG0 QV AXG1 USE SIO GP16/17

08. ADD SBA

1P75A MHS V6.0

## 01.Modify PCI ID SELECT

C02 CHANGE AUDIO CAP TO CHEMICON

02 POWER TEAM SUGGEST: PB18/4 22K 1% 0402) CPU Leadline 1.7m ohm

03.POWER TEAM SUGGEST: PR18(4.02K 1% 0402),CPU Loadline 1.7m ohm  
PR22 (10K 1% 0402),CPU Freq 200KHZ  
PR111/PR110(18.2K 1% 0402),Current balance  
PC61(0.1UF 16V X7R 0402),CPU RC Match

04 ADD YC66

04. ADE 1000

2012-0202

## 01.CHANGE PCB BOM SIZE

B

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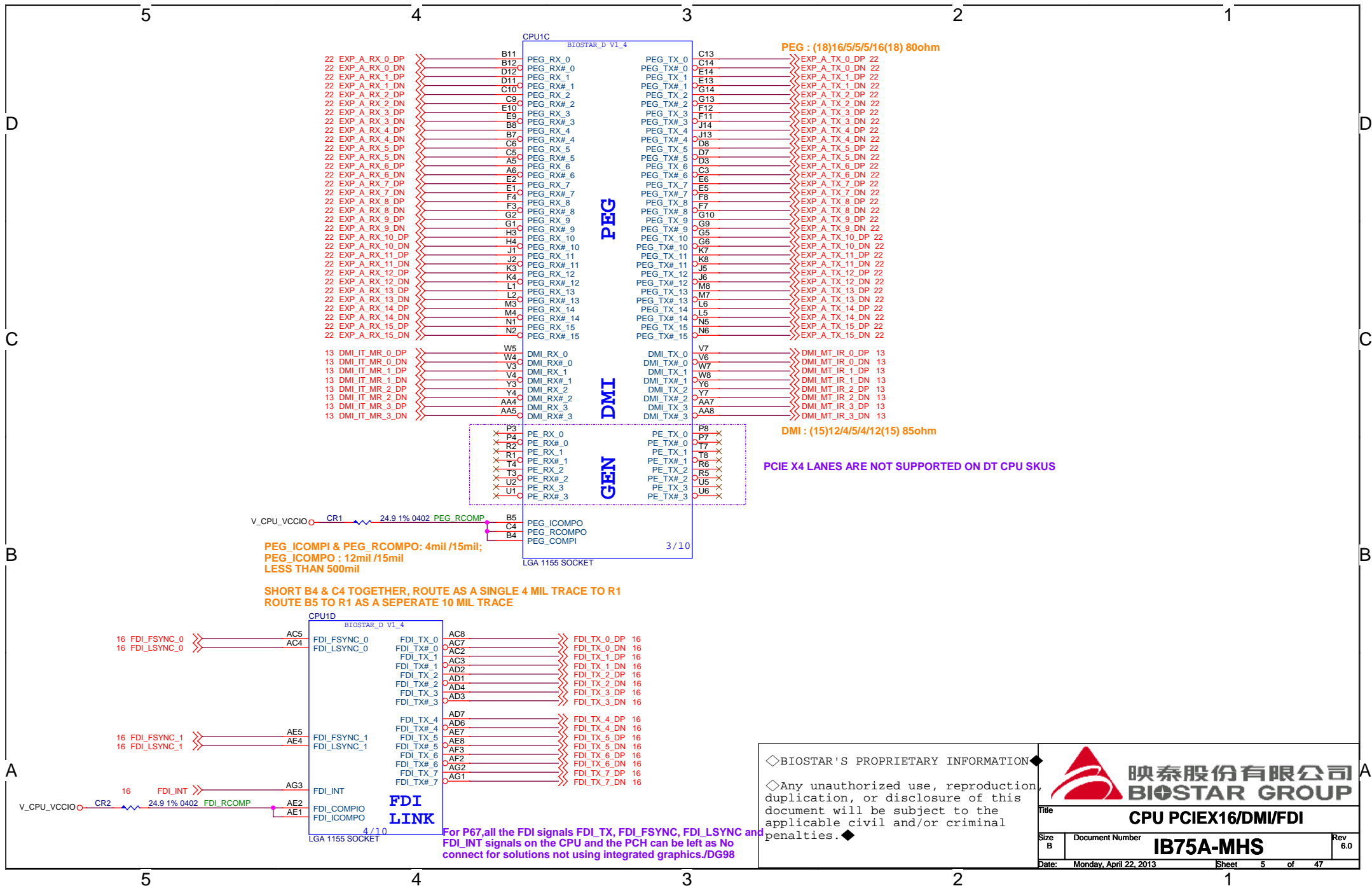


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**RESERVED**

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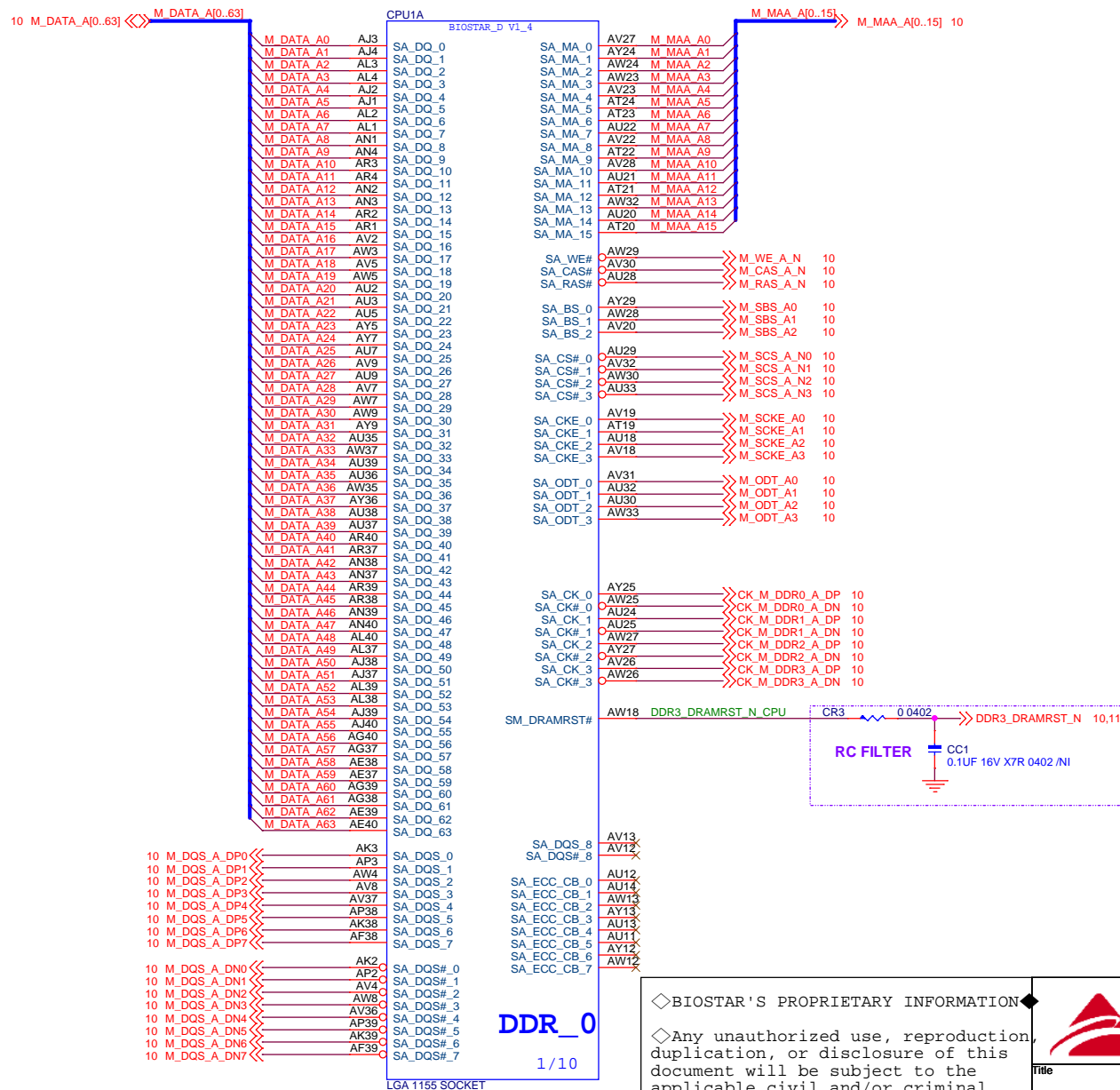
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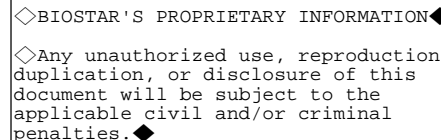
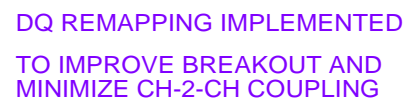
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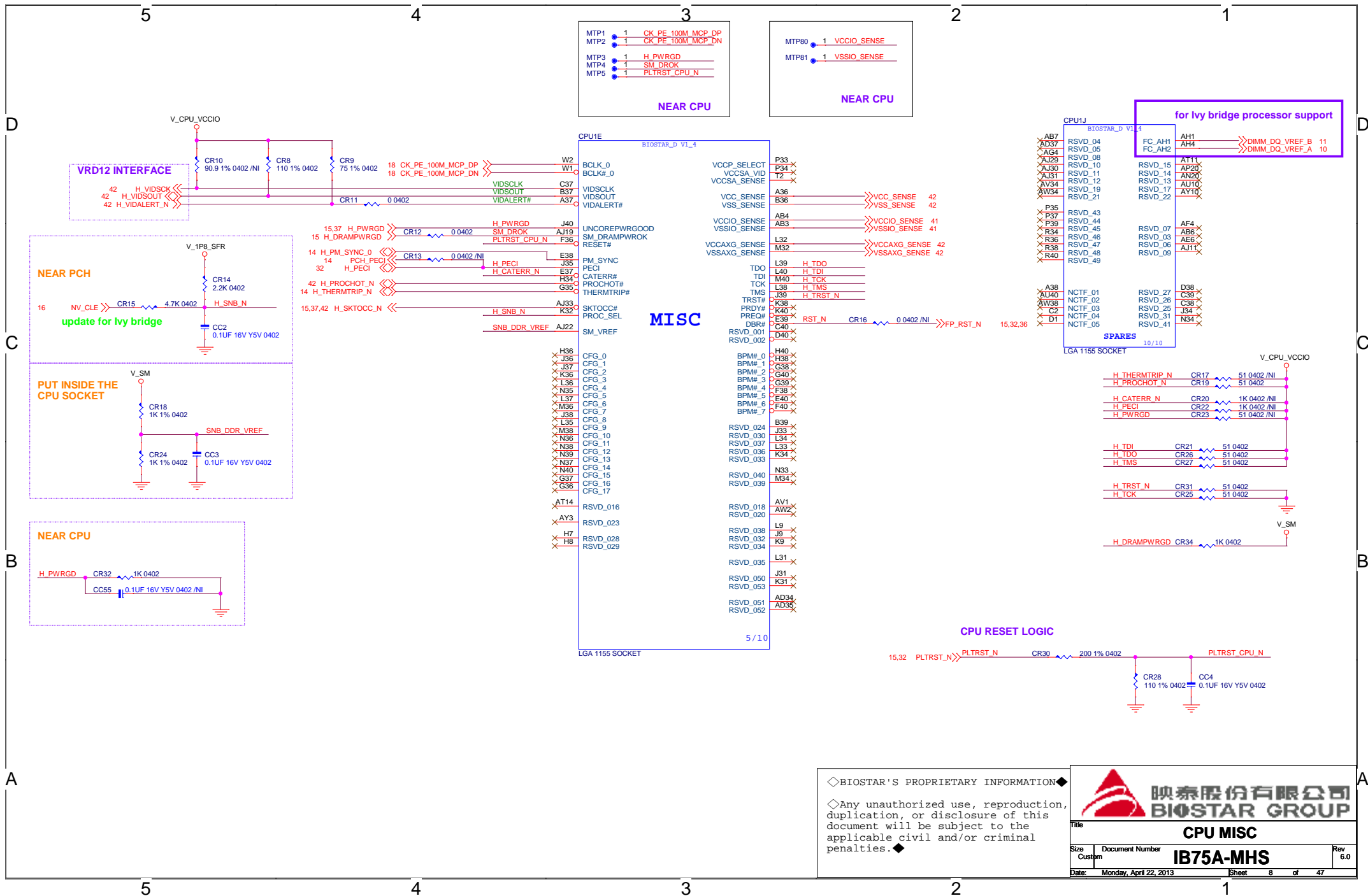
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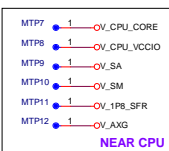
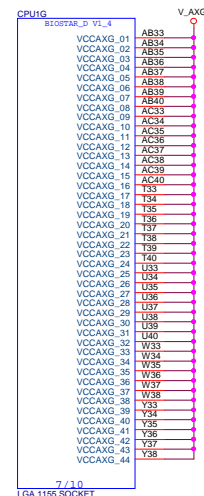
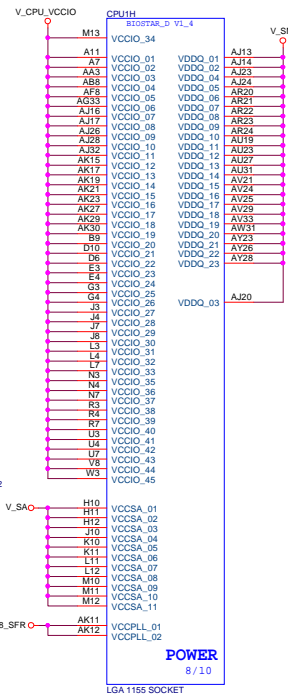
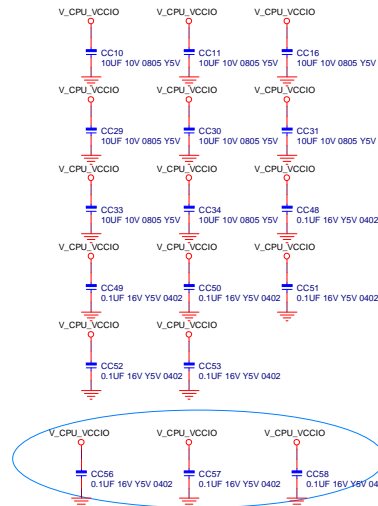
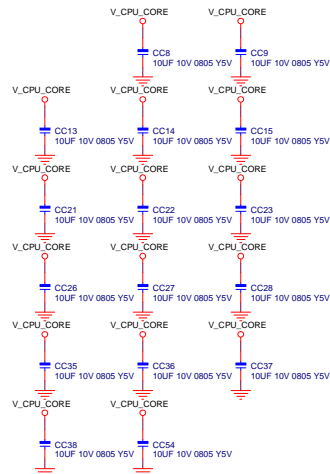
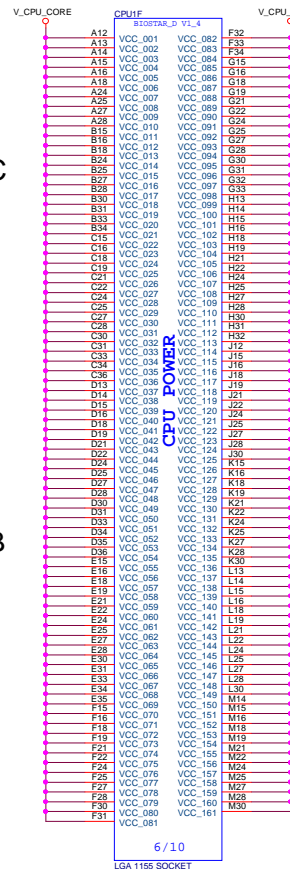
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CPU11  
LGA 1155 SOCKET

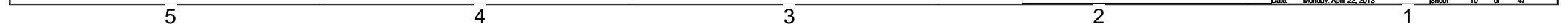
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File: **CPU POWER**

Size: **Document Number**  
**IB75A-MHS**

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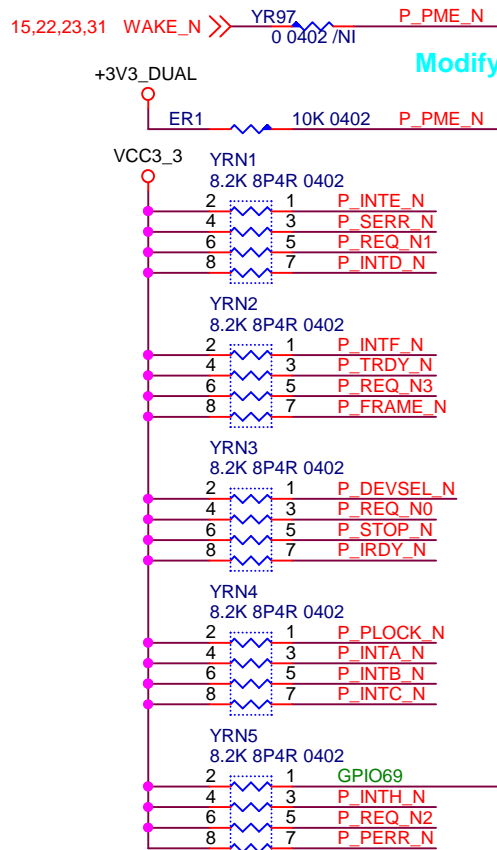




A

# Modify V0.6-1201 ADD PCI SLOT

## Modify V6.0-20120113



25 P\_PME\_N

25 P\_PAR  
25 P\_DEVSEL\_N  
18 CK\_PCH\_33M\_FB  
32 PCH\_PCIRST  
25 P\_IRDY\_N  
25 P\_SERR\_N  
25 P\_STOP\_N  
25 P\_PLOCK\_N  
25 P\_TRDY\_N  
25 P\_PERR\_N  
25 P\_FRAME\_N

25 P\_GNT\_N0  
25 P\_GNT\_N1  
TP25  
TP26

25 P\_REQ\_N0  
25 P\_REQ\_N1

25 P\_INTA\_N  
25 P\_INTB\_N  
25 P\_INTC\_N  
25 P\_INTD\_N

14

14

P PAR BH8  
P DEVSEL\_N BH9  
PCH\_PCICLK# BD15  
PCH\_PCIRST AV14  
P\_IRDY\_N BF11  
P\_SERR\_N AV15  
P\_STOP\_N BR6  
P\_PLOCK\_N BA17  
P\_TRDY\_N BC8  
P\_PERR\_N BM3  
P\_FRAME\_N BC11

P\_GNT\_N0 BA15  
P\_GNT\_N1 AV8  
1P\_GNT\_N2 BU12  
1P\_GNT\_N3 BE2

P\_REQ\_N0 BG5  
P\_REQ\_N1 BT5  
P\_REQ\_N2 BK8  
P\_REQ\_N3 AV11

P\_INTA\_N BK10  
P\_INTB\_N BJ5  
P\_INTC\_N BM15  
P\_INTD\_N BP5  
P\_INTF\_N BN9  
P\_INTG\_N BT15  
P\_INTH\_N BR4

PCH1-1

BIOSTAR-D VER:1.2  
+Panther Point VER:0.5

PAR  
DEVSEL#  
CLKIN\_PCILOOPBACK  
PCIRST#  
IRDY#  
PME#  
SERR#  
STOP#  
PLOCK#  
TRDY#  
PERR#  
FRAME#

PCI

GNT0#  
GNT1#\_GPIO51  
GNT2#\_GPIO53  
GNT3#\_GPIO55

REQ0#  
REQ1#\_GPIO50  
REQ2#\_GPIO52  
REQ3#\_GPIO54

PIRQA#  
PIRQB#  
PIRQC#  
PIRQD#  
PIRQE#\_GPIO2  
PIRQF#\_GPIO3  
PIRQG#\_GPIO4  
PIRQH#\_GPIO5

1/10

PANTHERPOINT-B75

P\_C/BE\_N0 >>> P\_C/BE\_N0 25  
P\_C/BE\_N1 >>> P\_C/BE\_N1 25  
P\_C/BE\_N2 >>> P\_C/BE\_N2 25  
P\_C/BE\_N3 >>> P\_C/BE\_N3 25  
P\_AD[31:0] >>> P\_AD[31:0] 25

AD0 BF15 P\_AD0  
AD1 BF17 P\_AD1  
AD2 BT7 P\_AD2  
AD3 BT13 P\_AD3  
AD4 BG12 P\_AD4  
AD5 BN11 P\_AD5  
AD6 BJ12 P\_AD6  
AD7 BU9 P\_AD7  
AD8 BR12 P\_AD8  
AD9 BJ3 P\_AD9  
AD10 BR9 P\_AD10  
AD11 BJ10 P\_AD11  
AD12 BM8 P\_AD12  
AD13 BF3 P\_AD13  
AD14 BN2 P\_AD14  
AD15 BE4 P\_AD15  
AD16 BE6 P\_AD16  
AD17 BG15 P\_AD17  
AD18 BC6 P\_AD18  
AD19 BT11 P\_AD19  
AD20 BA14 P\_AD20  
AD21 BL2 P\_AD21  
AD22 BC4 P\_AD22  
AD23 BL4 P\_AD23  
AD24 BC2 P\_AD24  
AD25 BM13 P\_AD25  
AD26 BA9 P\_AD26  
AD27 BF9 P\_AD27  
AD28 BA8 P\_AD28  
AD29 BF8 P\_AD29  
AD30 AV17 P\_AD30  
AD31 BK12 P\_AD31

C\_BE0# >>> BN4 P\_C/BE\_N0  
C\_BE1# >>> BP7 P\_C/BE\_N1  
C\_BE2# >>> BG2 P\_C/BE\_N2  
C\_BE3# >>> BP13 P\_C/BE\_N3

WEAK INTERNAL PULLUPS ON GNT\*.DEFAULT SPI BOOT DEVICE

GNT1	GNT0/SATA1GP	BOOT DEVICE
0	0	LPC
0	1	NANO
1	0	PCI
1	1	SPI

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Title <b>PCH PCI</b>		
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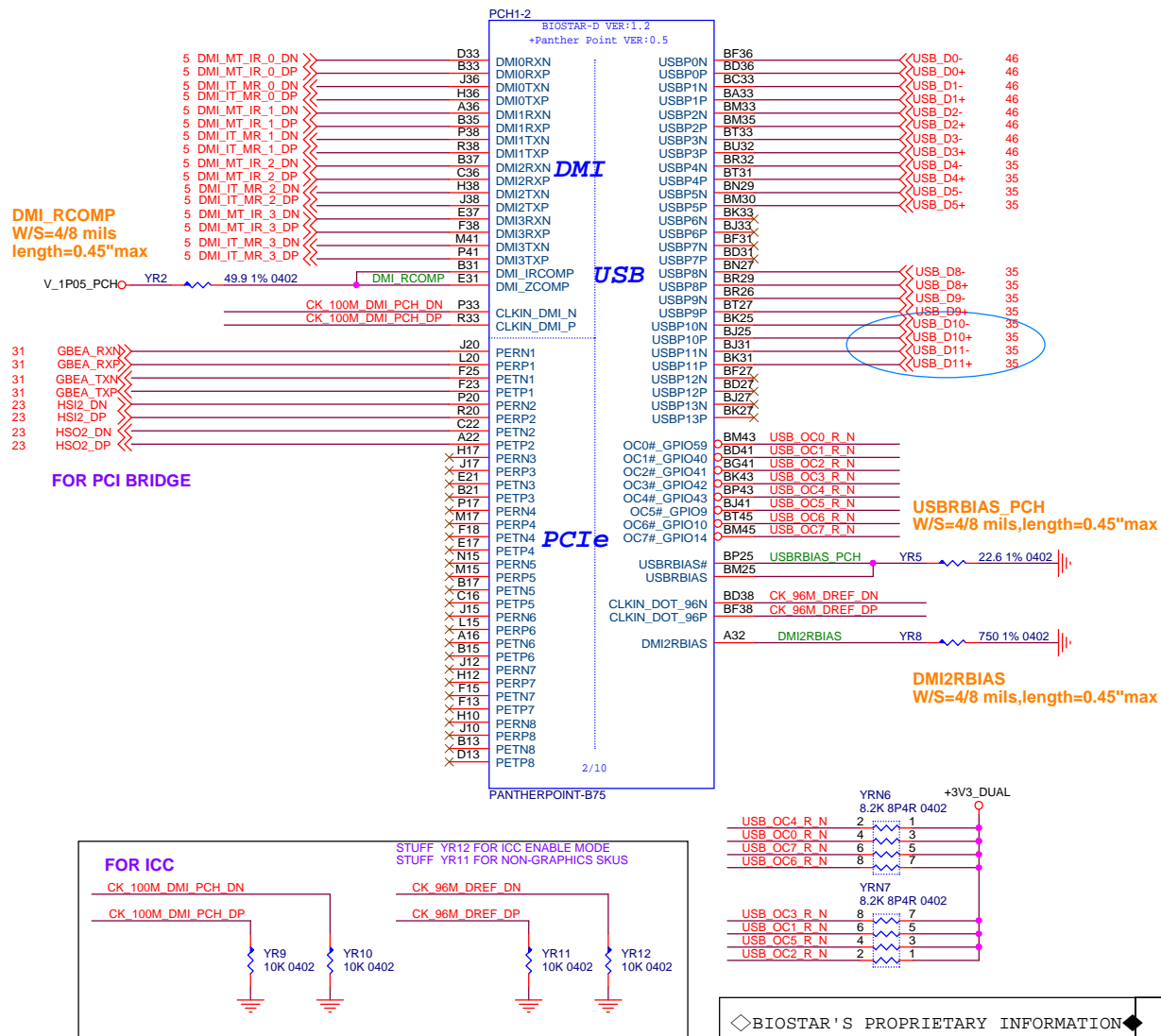
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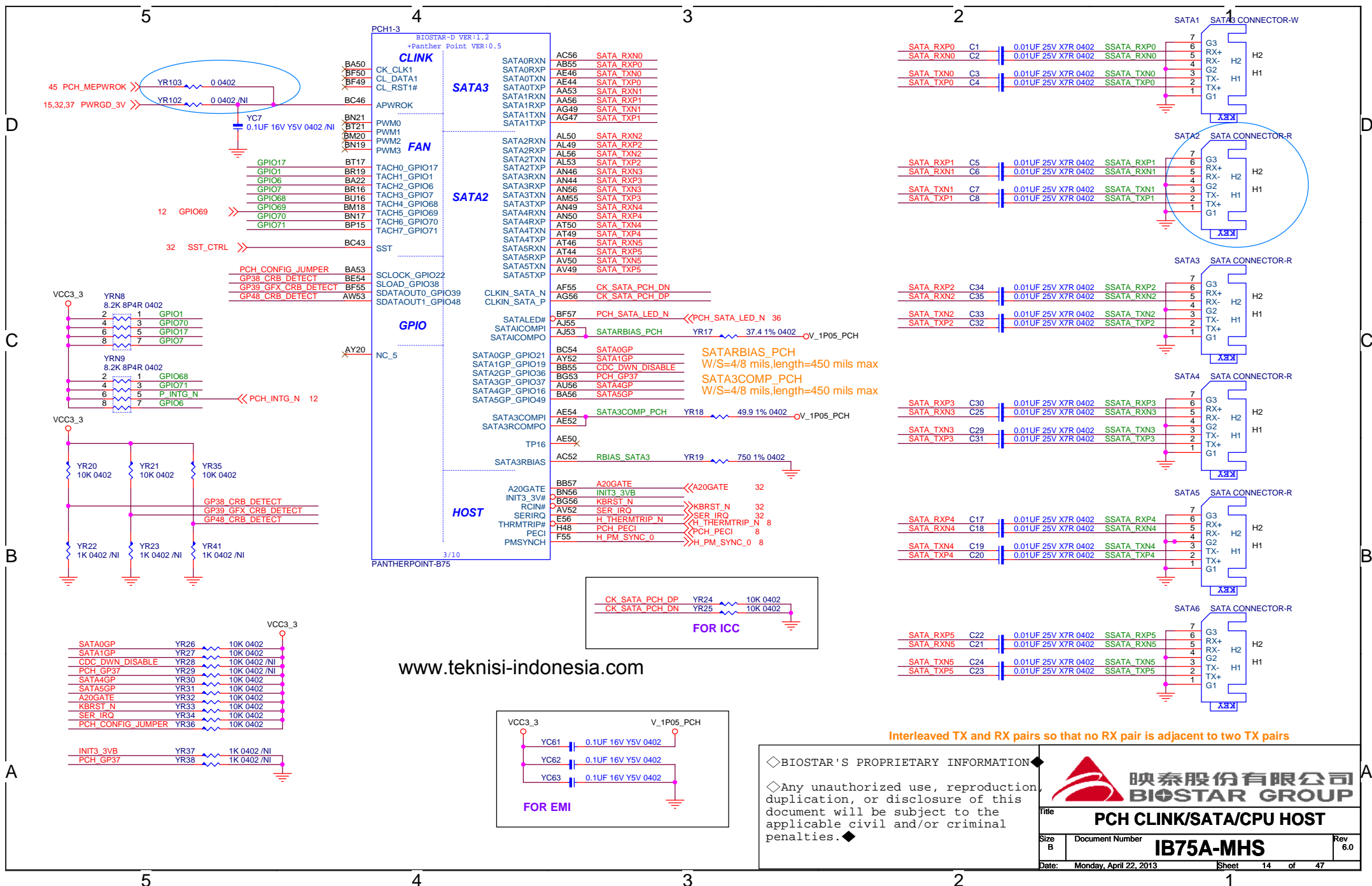


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Title PCH DMI/PCIE/USB		
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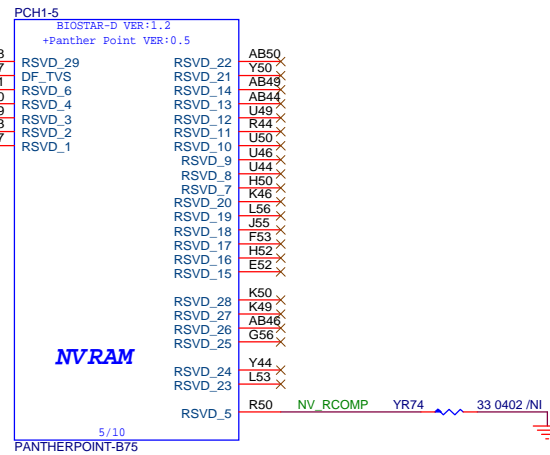




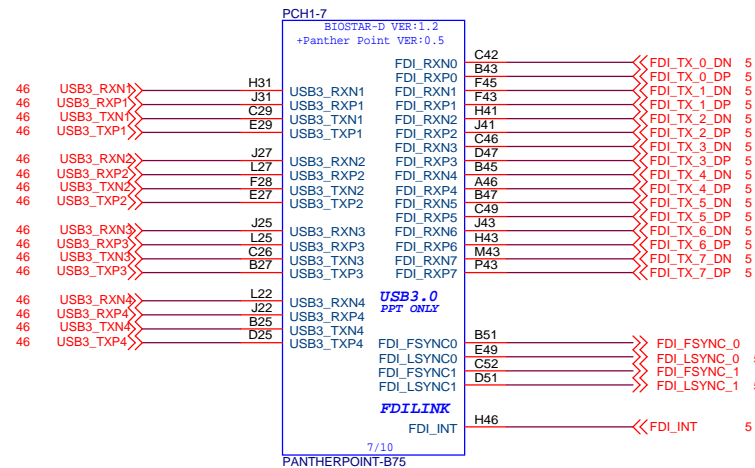
## DMI/FDI Termination Select

H:For Sandy Bridge

L:For Ivy Bridge



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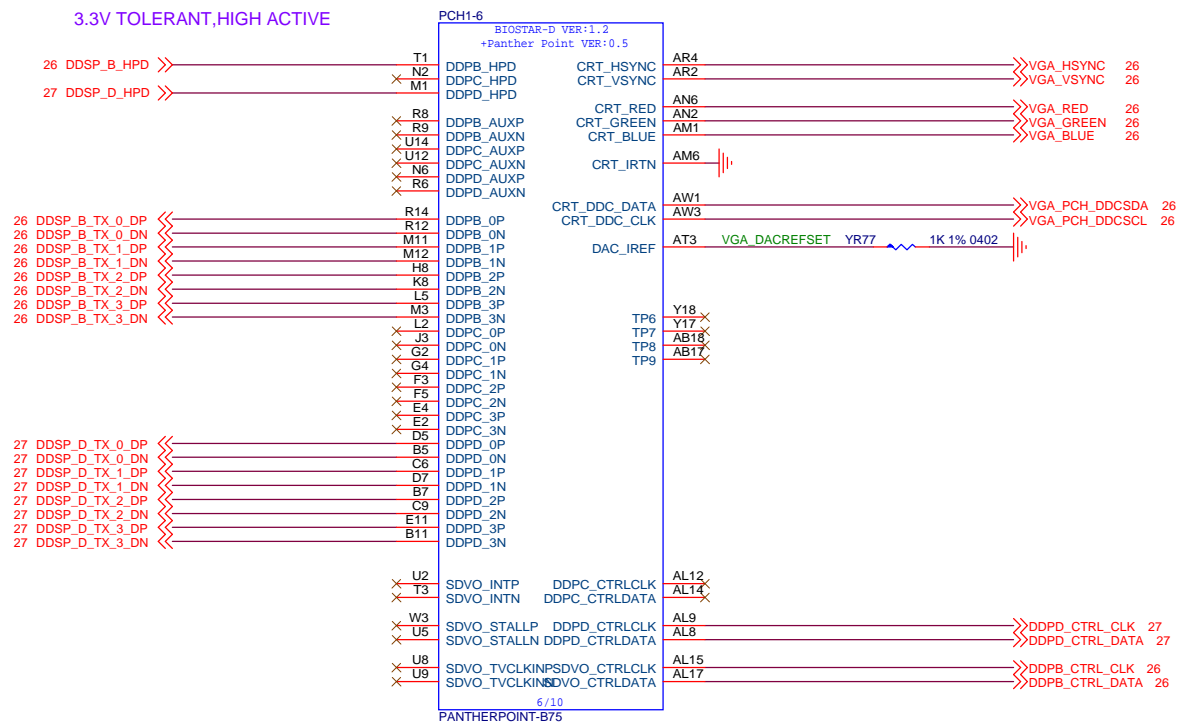
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Title <b>PCH NVRAM &amp; FDI LINK</b>		
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3.3V TOLERANT,HIGH ACTIVE



REMOVE LEVEL SHIFTER WHEN TRACE  
LENGHT LESS THAN 9.25 INCHES

If DisplayPort interface is not implemented,  
the Main Link, aux channel differential  
signals and HPD signals can be left as No  
Connects./DG108

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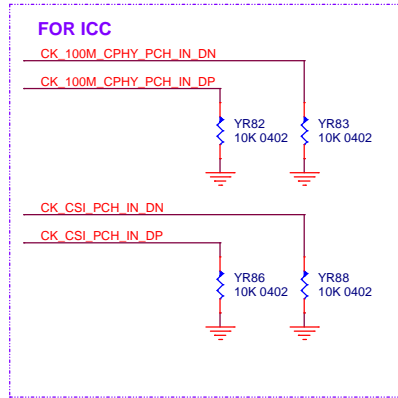
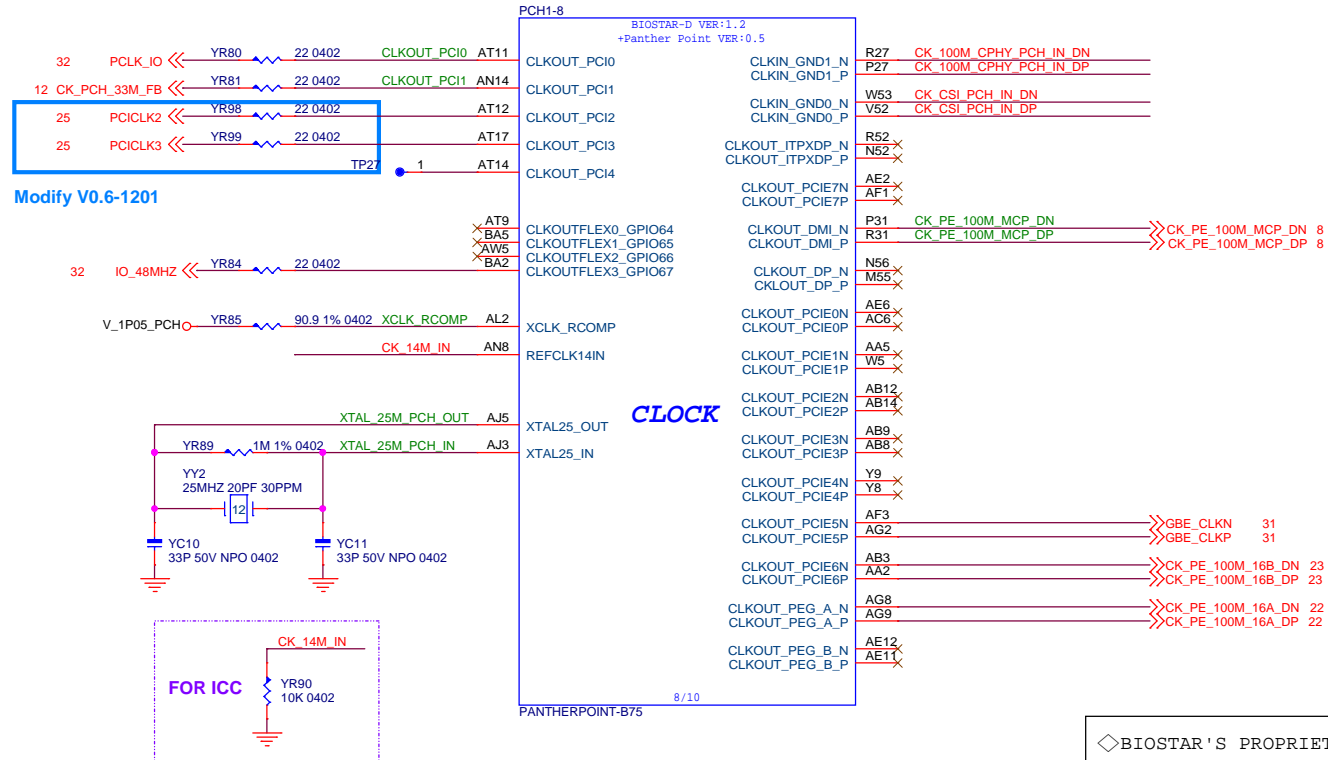
Title  
**PCH VGA/DISPLAY PORT**

Size  
B

Document Number  
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W/I/S: 4/6/18

FOR CPU ITP PORT(0)

FOR PCH PCIE DEVICE(1)

FOR CPU BCLK(0)

FOR PCH PCIE DEVICE(1)

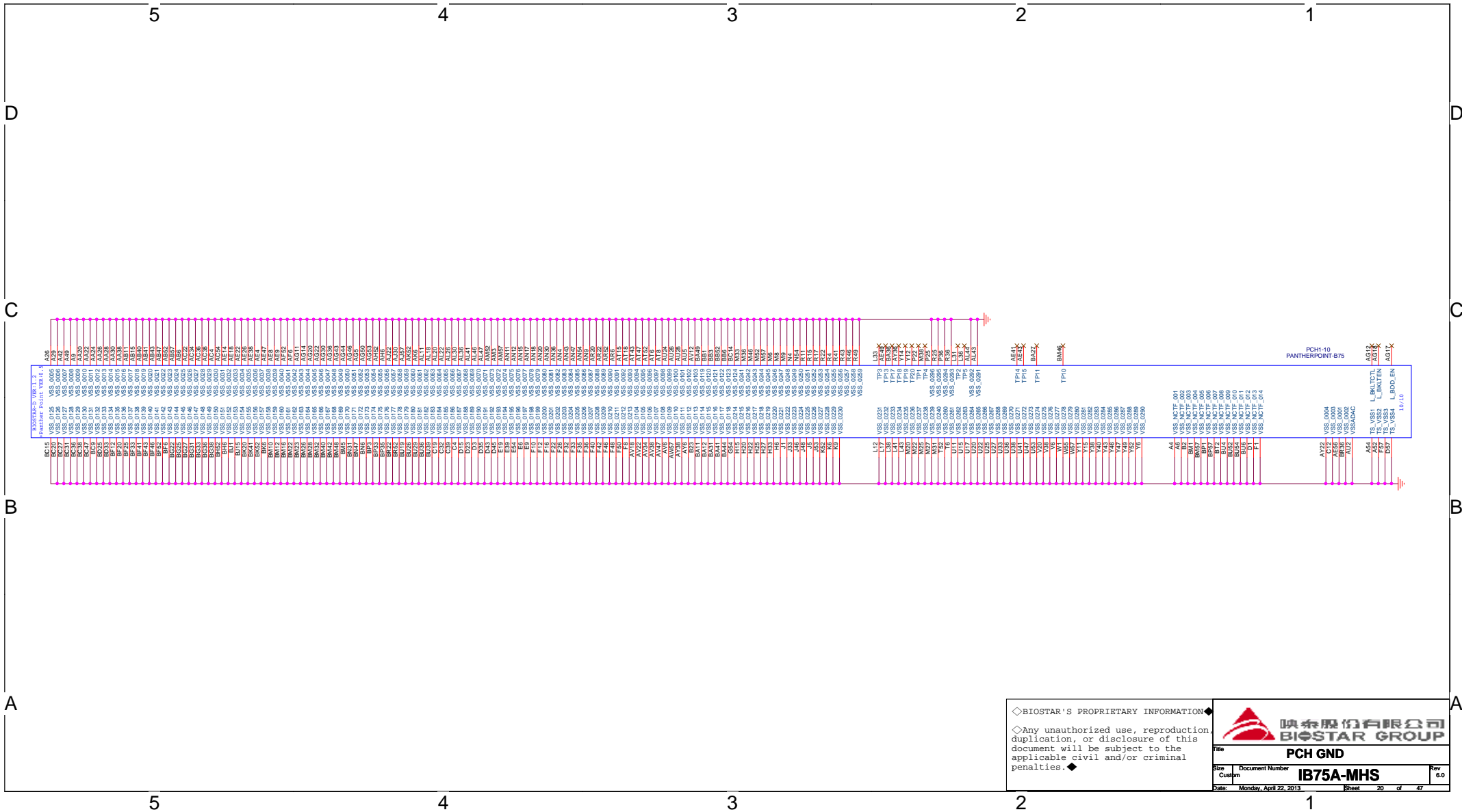
FOR CPU PCIE X 16 DEVICE(0)

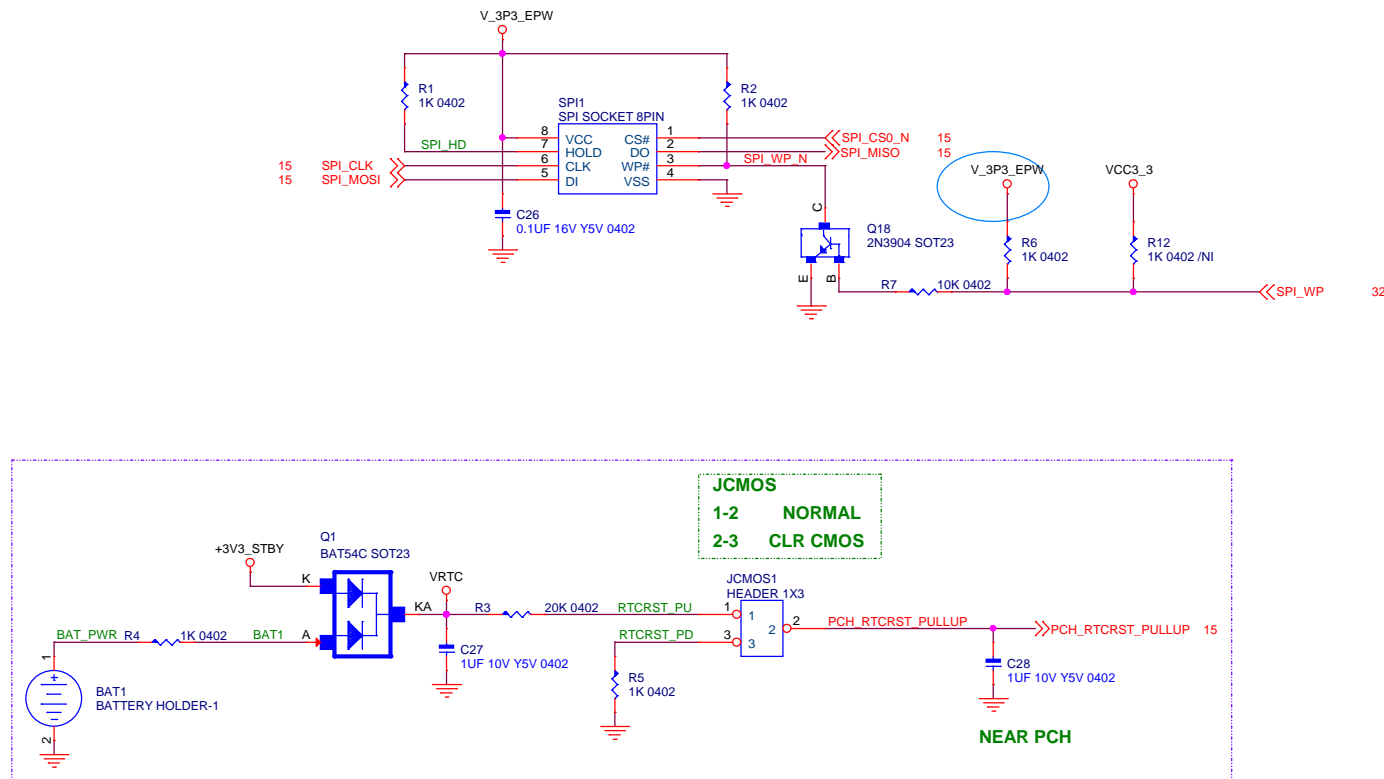
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<b>Title</b> <b>PCH CLOCK BUFFER</b>		
<b>Size B</b>	<b>Document Number</b> <b>IB75A-MHS</b>	<b>Rev</b> <b>6.0</b>
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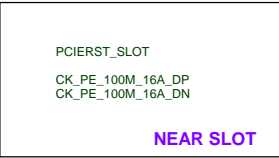


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Title <b>SPI ROM/BAT</b>		
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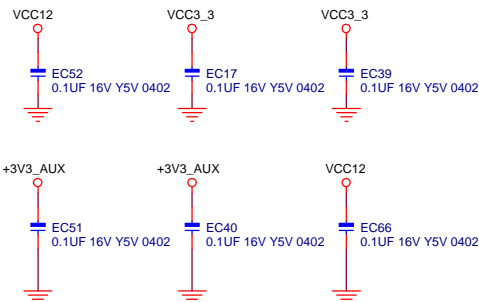
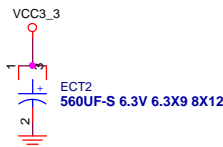
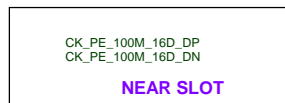
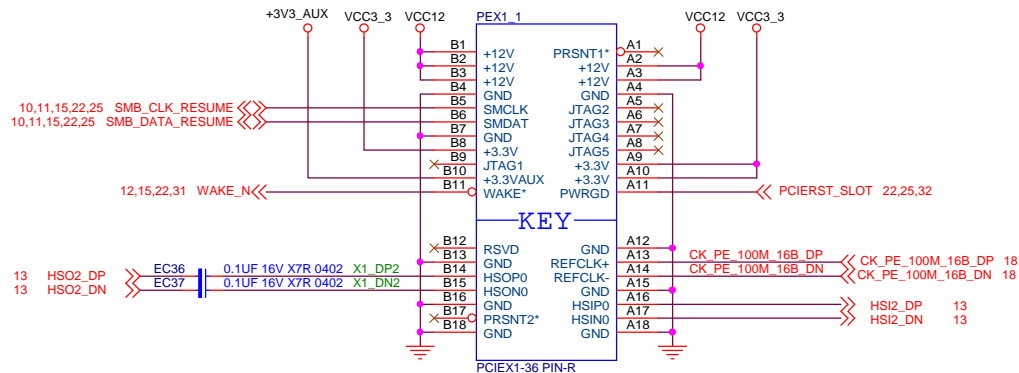
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Modify V0.6-1201 REMOVE PCIR X1 PCIE X4

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Title <b>PCIE X4/X1 SLOT</b>		
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12 P\_AD[31:0] <<> P\_AD[31:0]

IDSEL:AD16, INT:ABCD, REQ0 & GNT0, PCICLK0

Modify V0.6-1201 ADD PCI SLOT

### PCI\_SLOT 1

### PCI\_SLOT 2

PCICLK0

PCIRST

NEAR PCI SLOT

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EC69  
100P 50V NPO 0402

Modify V6.0-20120113

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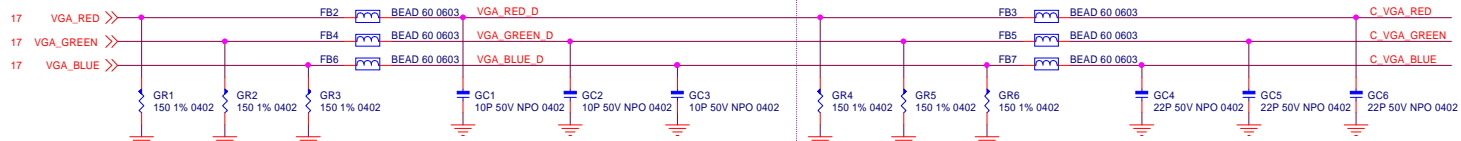
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Title <b>PCI SLOT</b>		
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For T-Series-----560UF-S 6.3V 6.3X8 8X12(ELITE)

For NO T-Series-----1000UF 6.3V 8X12



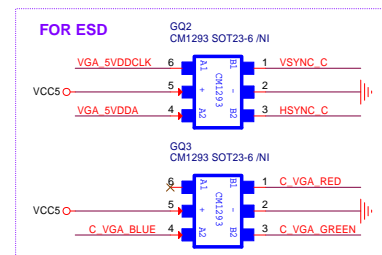
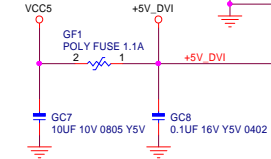
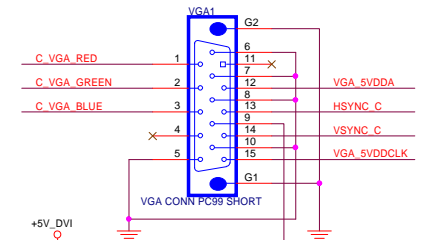
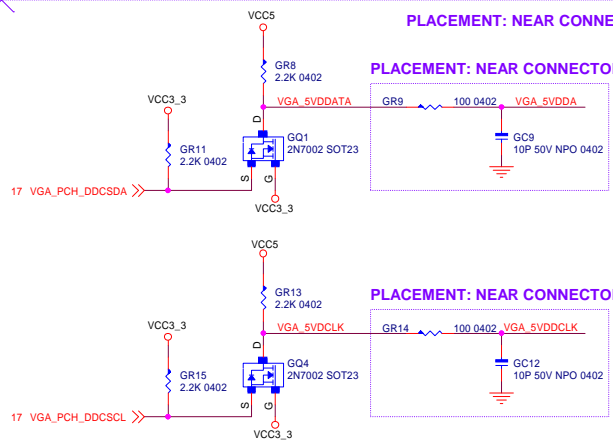
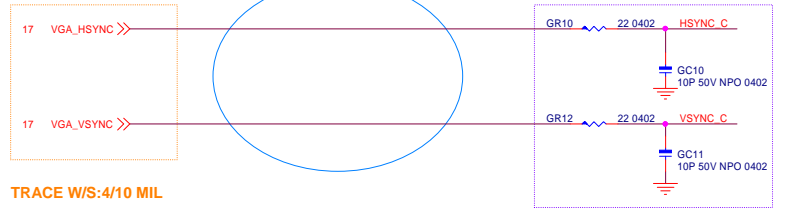
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PLACEMENT: NEAR R/G/B SOURCE

TRACE W/S: 4/25 MIL (4/30 BETTER)

PLACEMENT: NEAR CONNECTOR

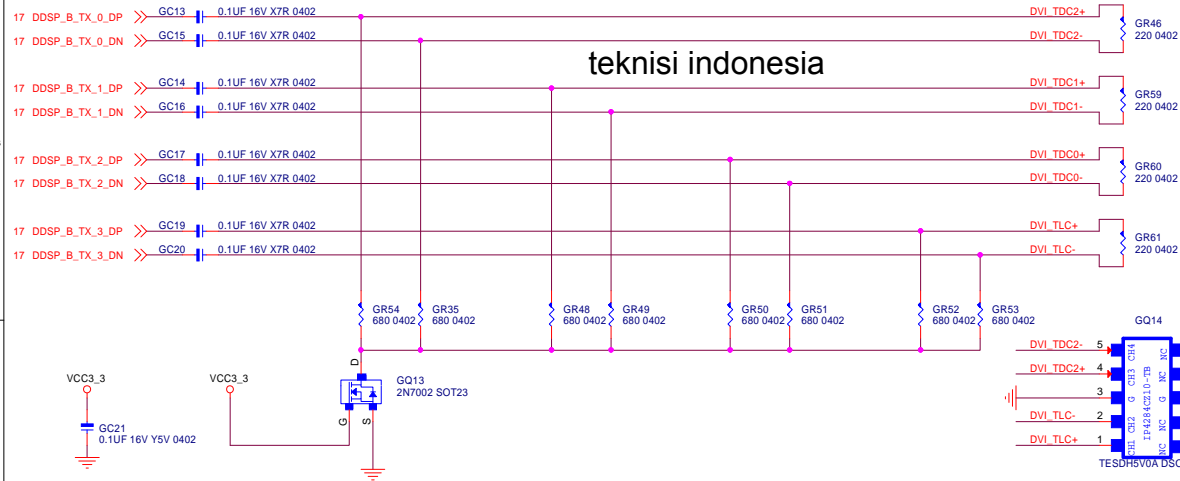
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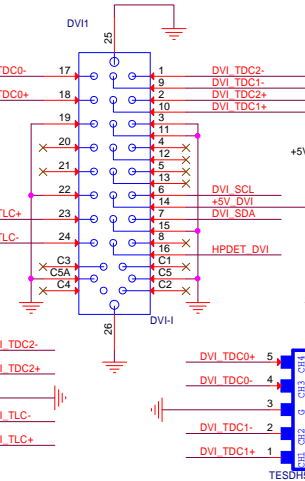
## D\_SUB

## DVI

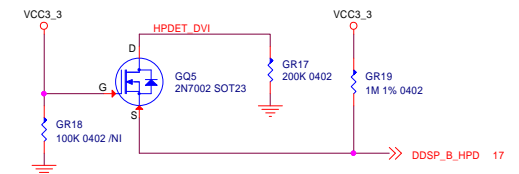
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## DVI CONNECTOR



## LEVEL SHIFTER HPD +5V SWITCH TO +3.3V



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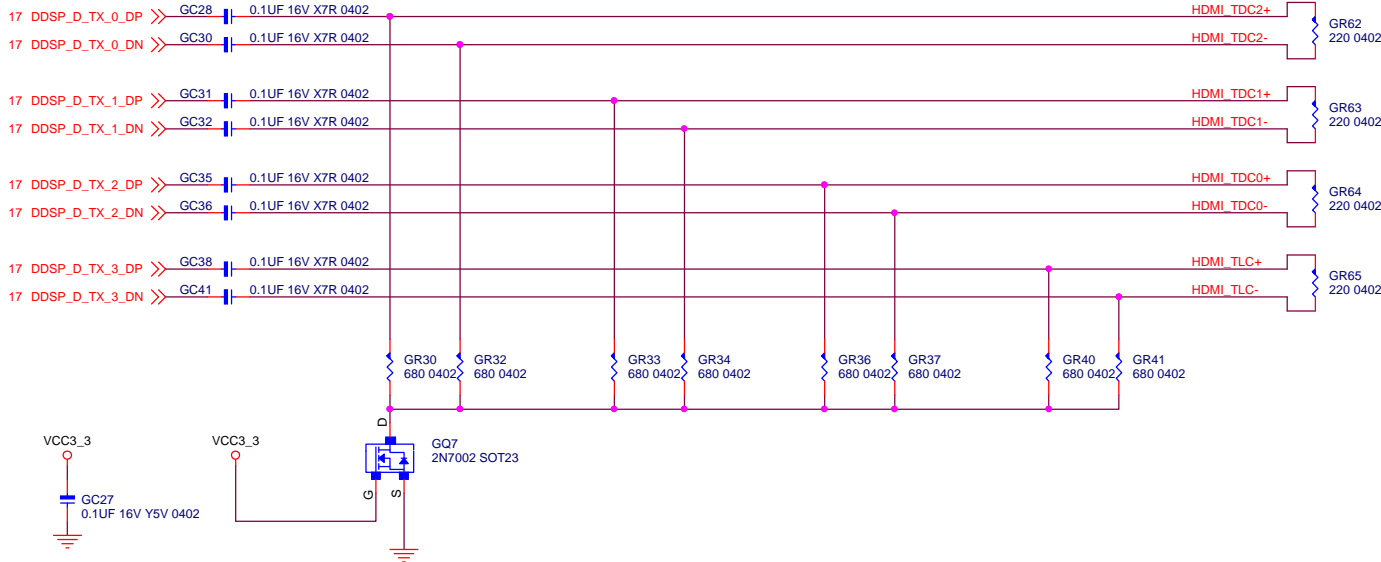
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File: **VGA/DVI CONNECTOR**

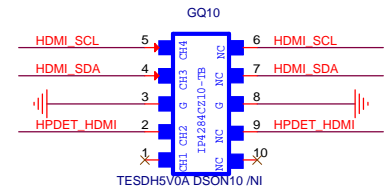
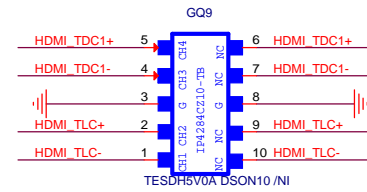
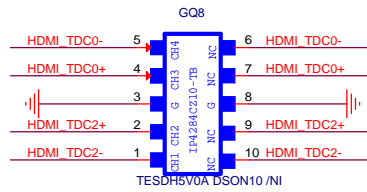
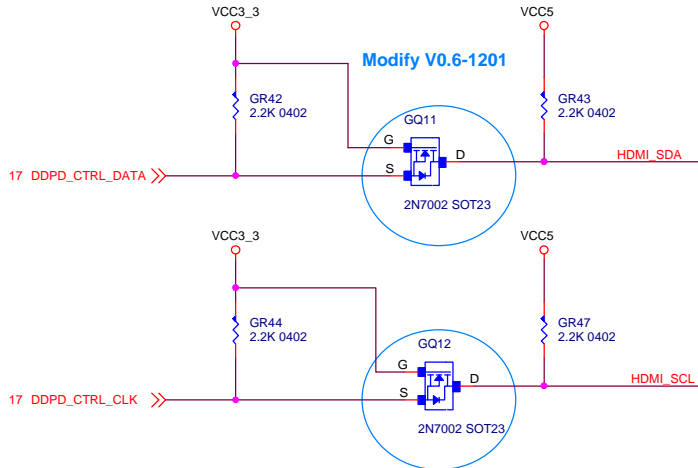
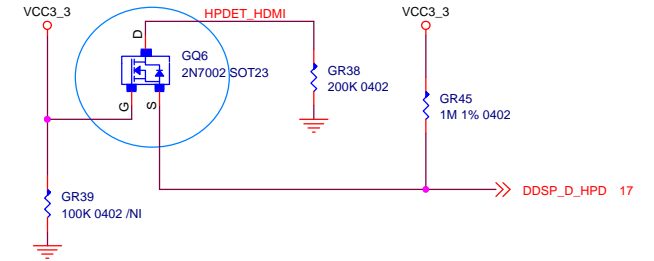
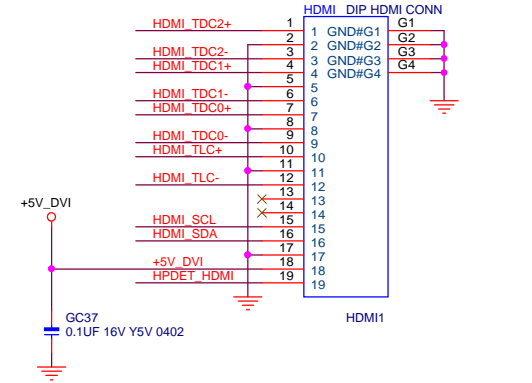
Size: Custom Document Number: **IB75A-MHS** Rev: 6.0

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# HDMI



# HDMI CONNECTOR



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Title: **HDMI**

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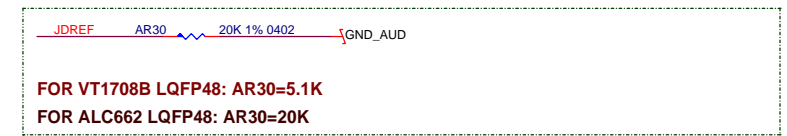
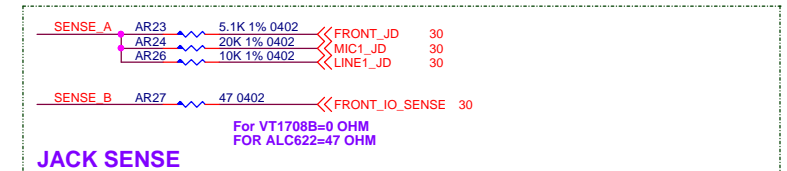
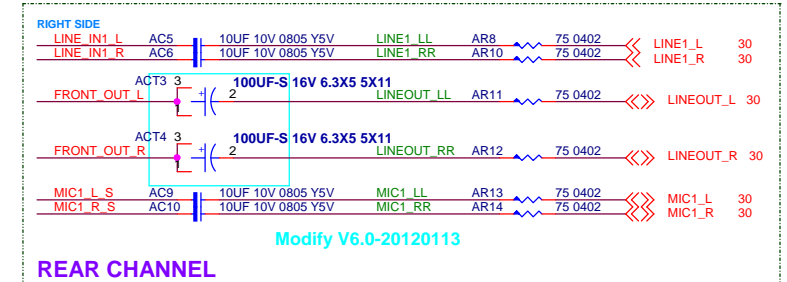
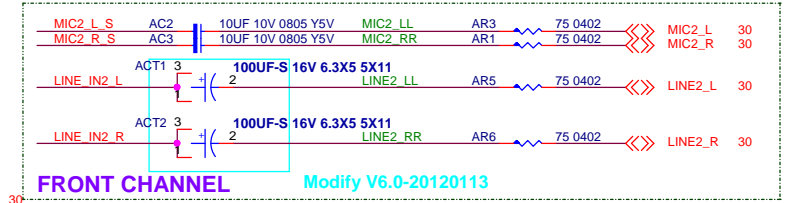
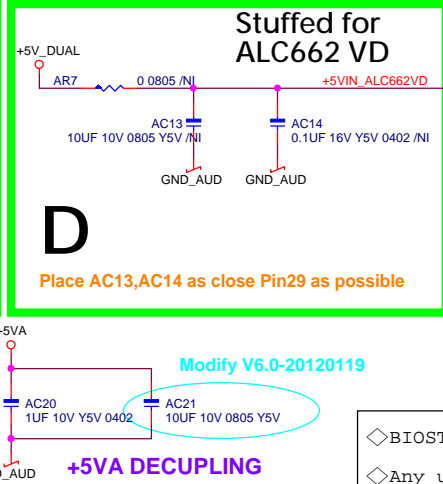
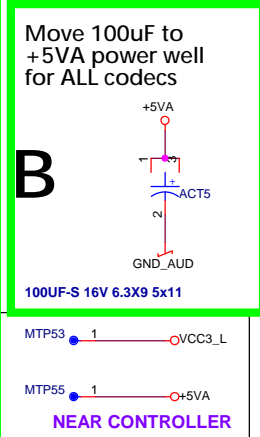
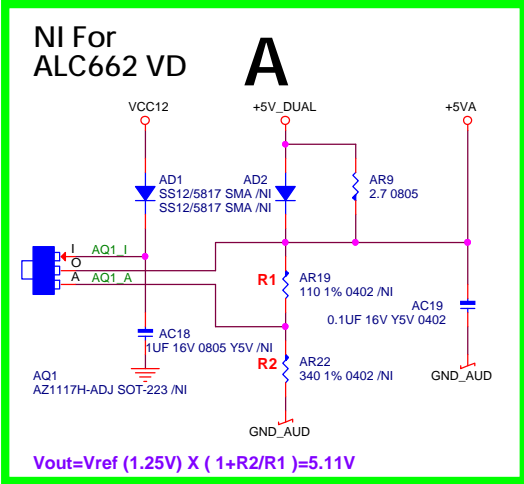
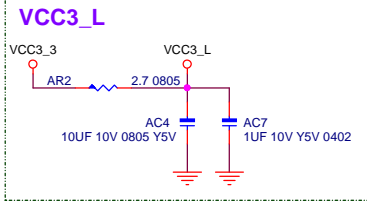
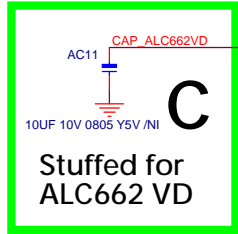
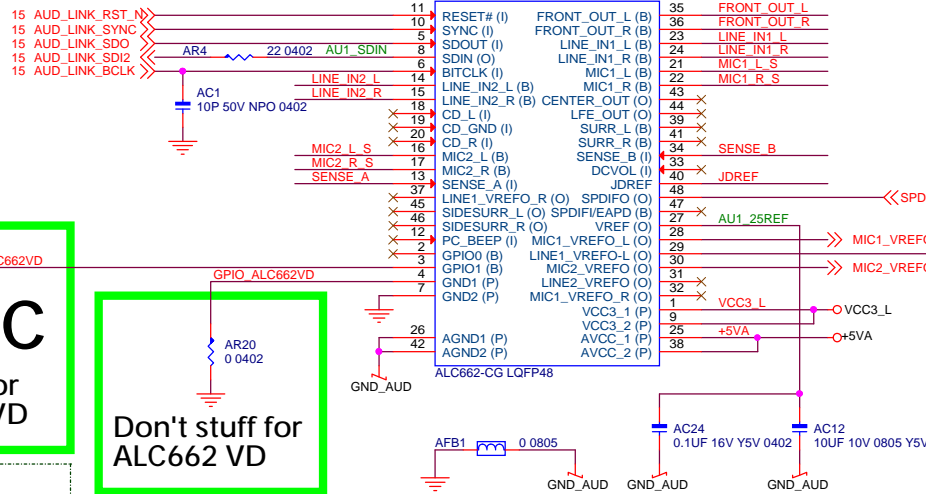
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# AUDIO PART: A+Reference



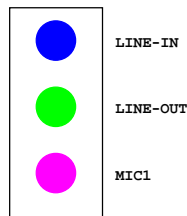
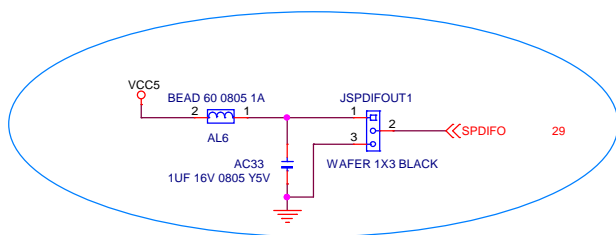
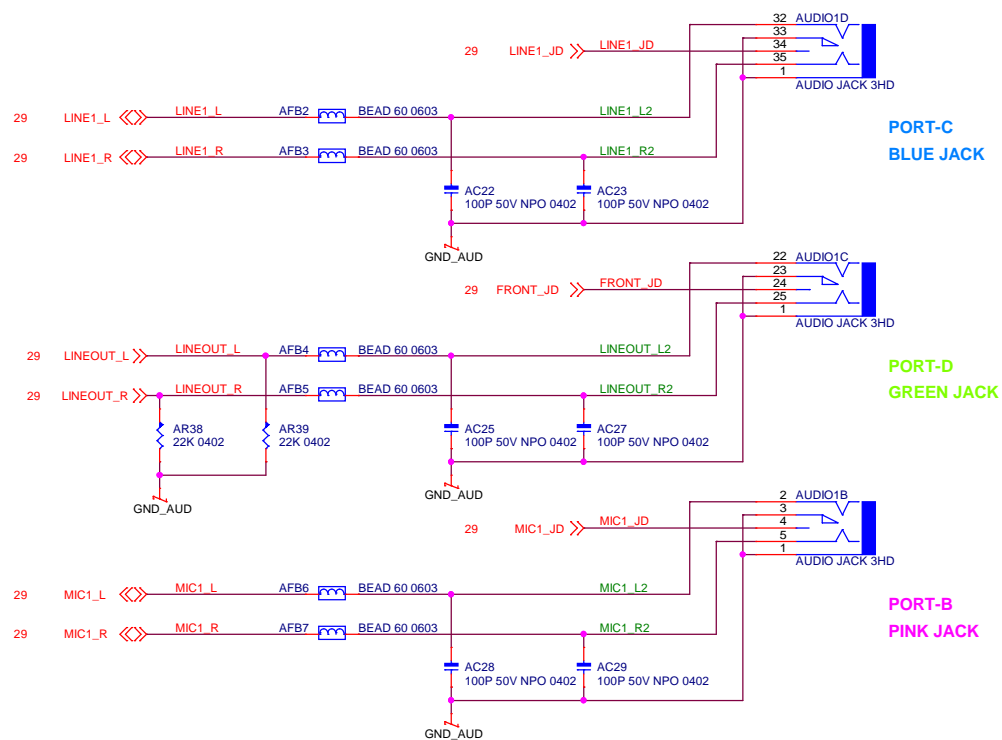
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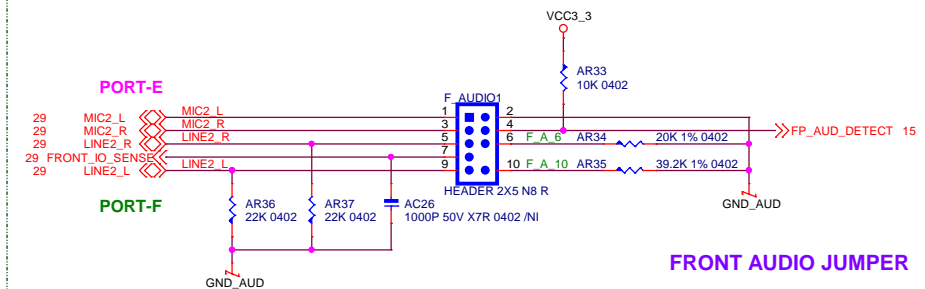
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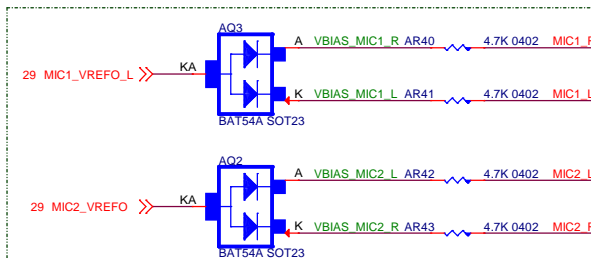
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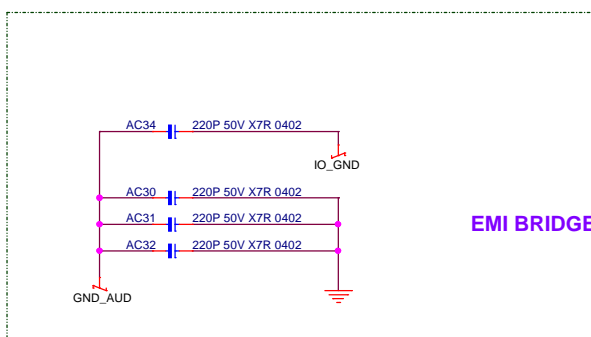
FRONT AUDIO JUMPER

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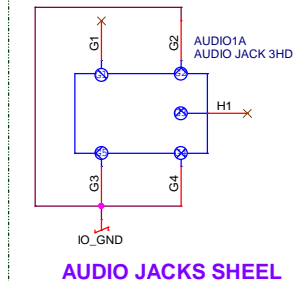
SPDIF CONNECTOR & JUMPER



MIC VREF



EMI BRIDGE



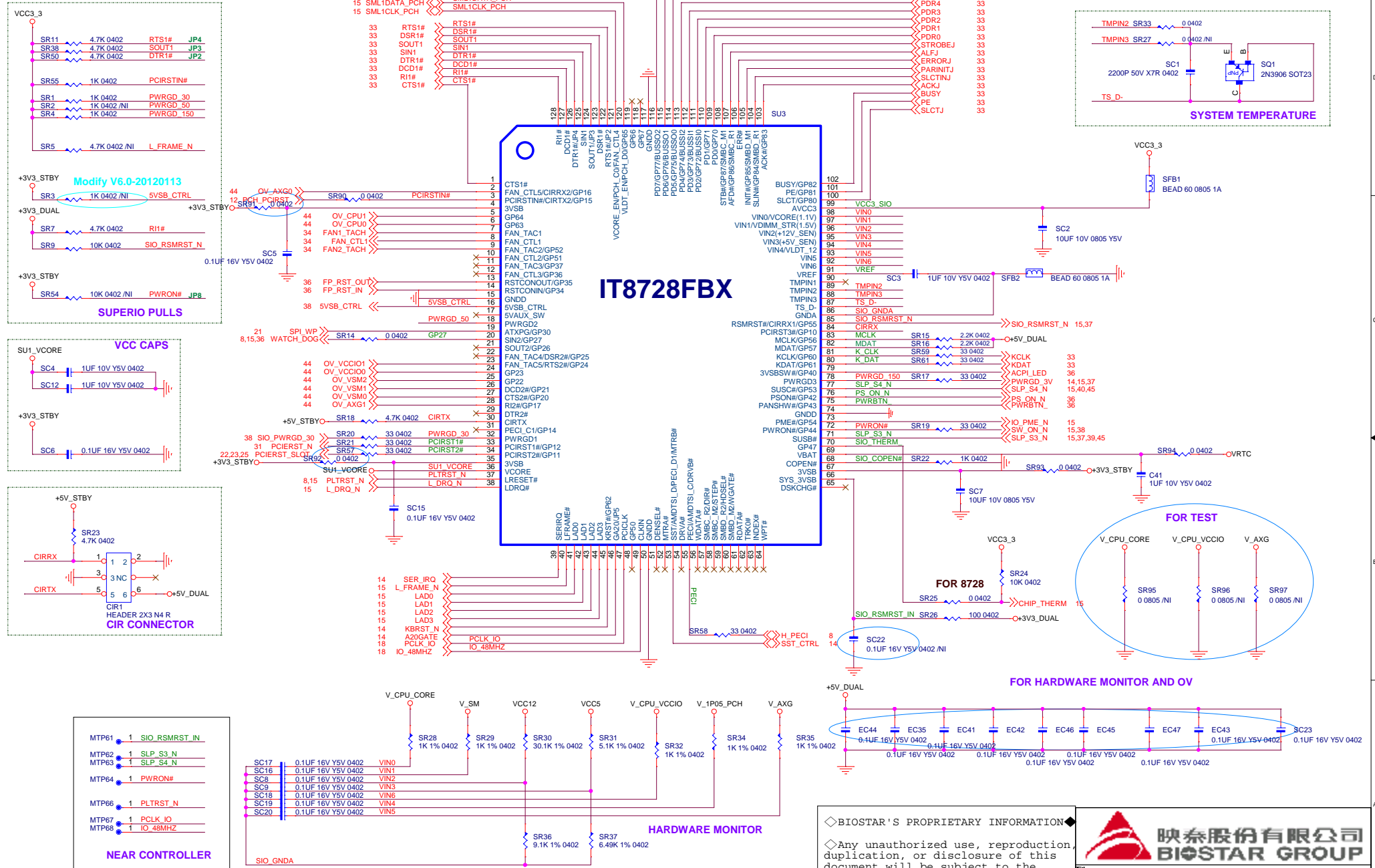
AUDIO JACKS SHEEL

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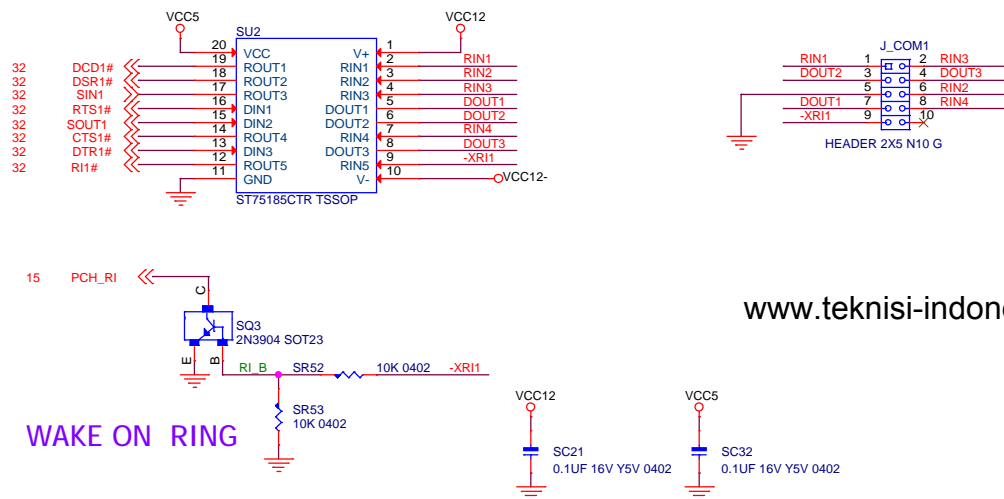
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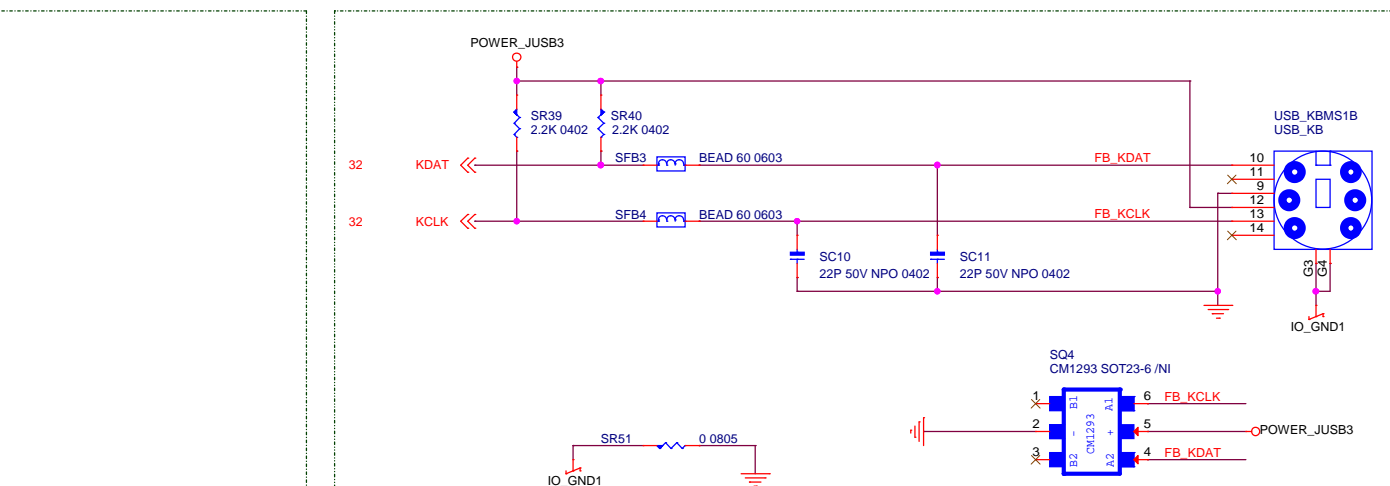
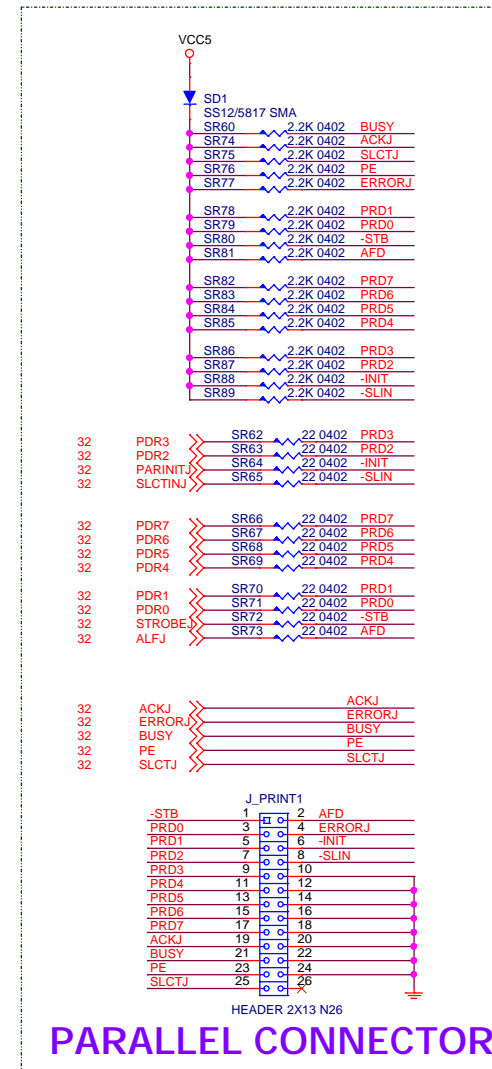
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## COM PORT



## FLOPPY

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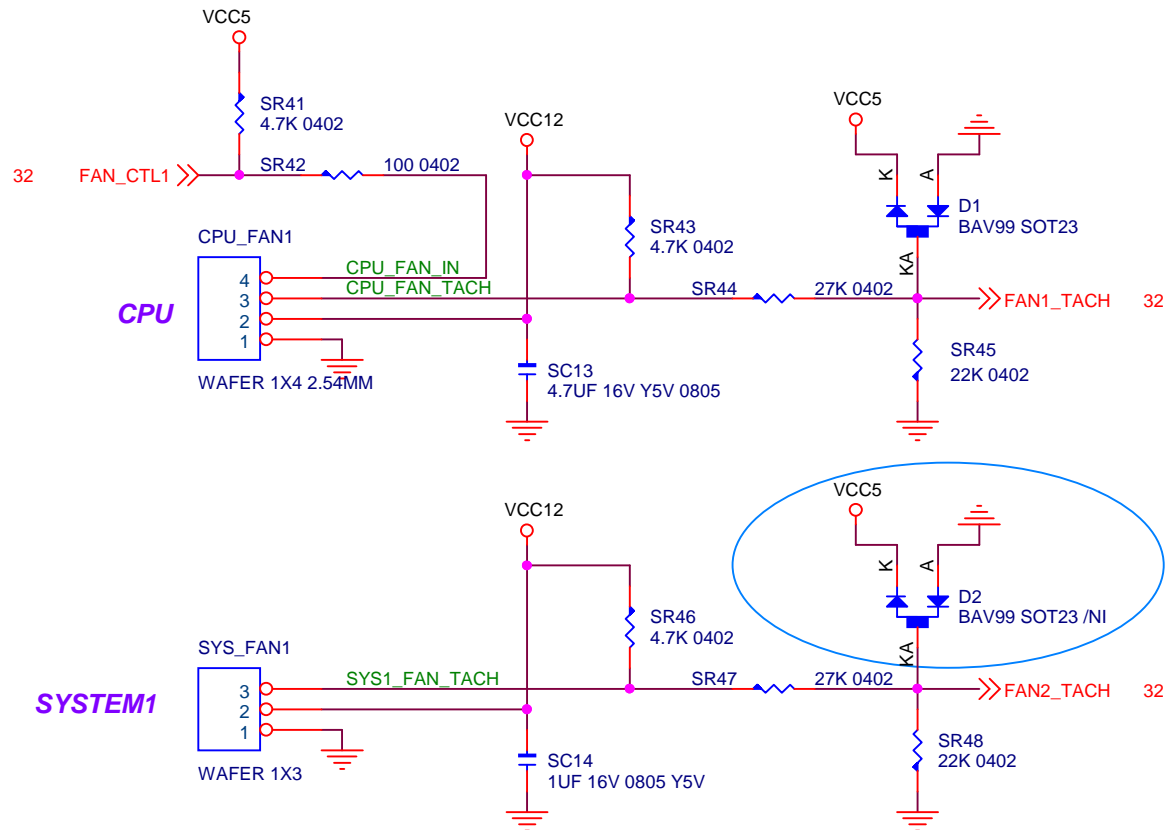
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# CPU FAN/SYSTEM FAN1



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Title

**FAN CONTROL**

Size  
A

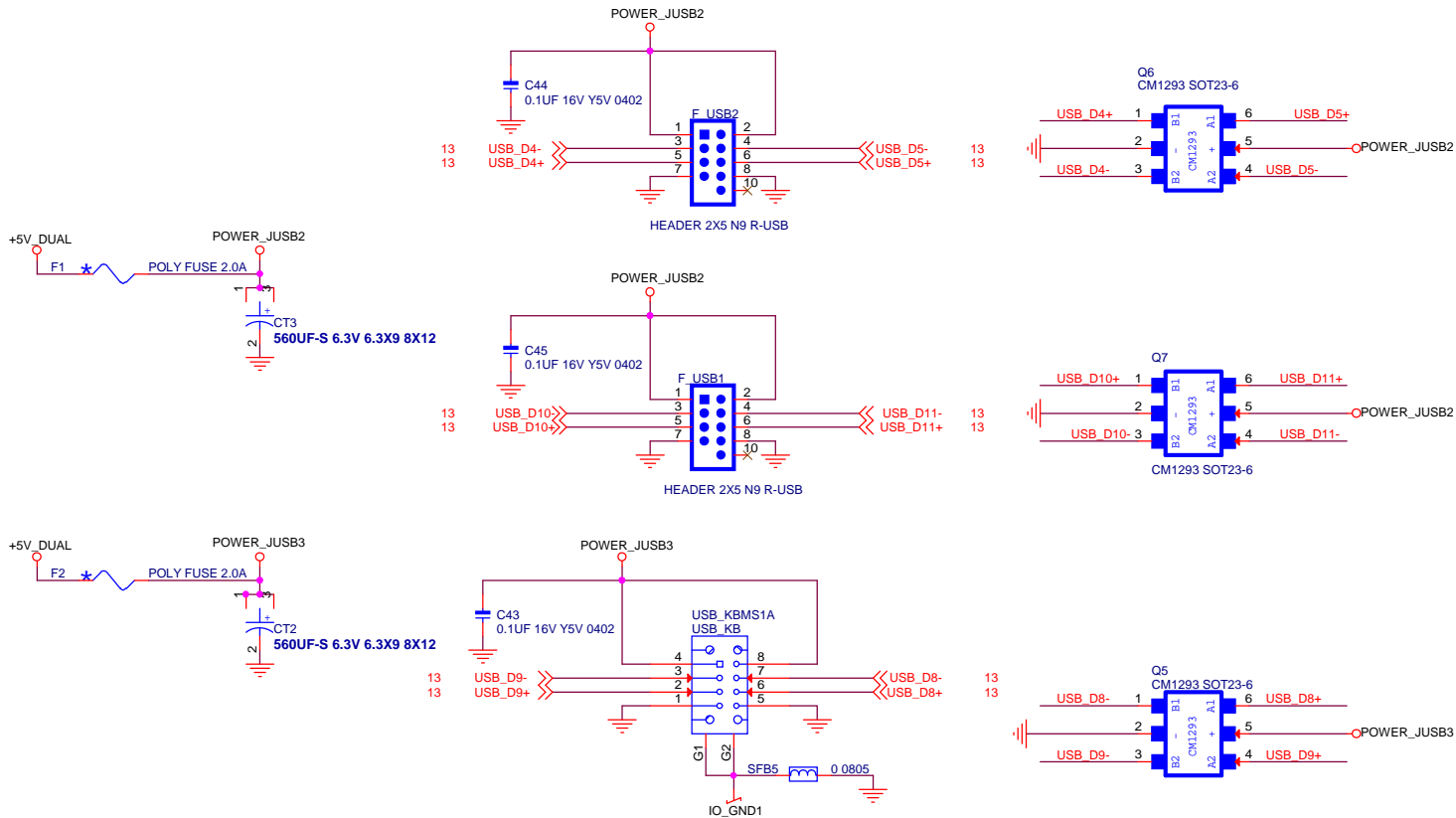
Document Number

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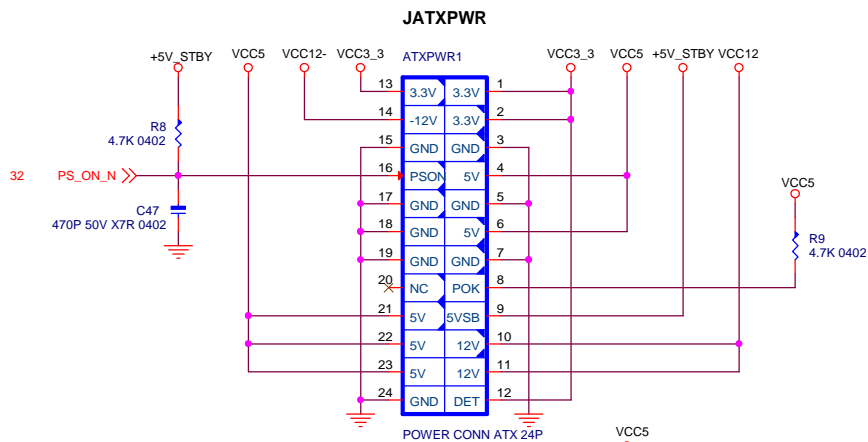
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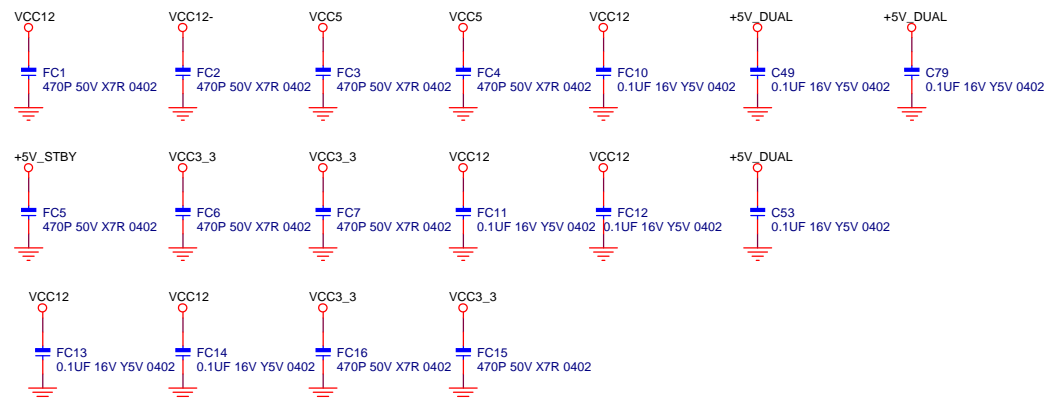
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Title		<b>USB2.0 PORT</b>	
Size B	Document Number	<b>IB75A-MHS</b>	
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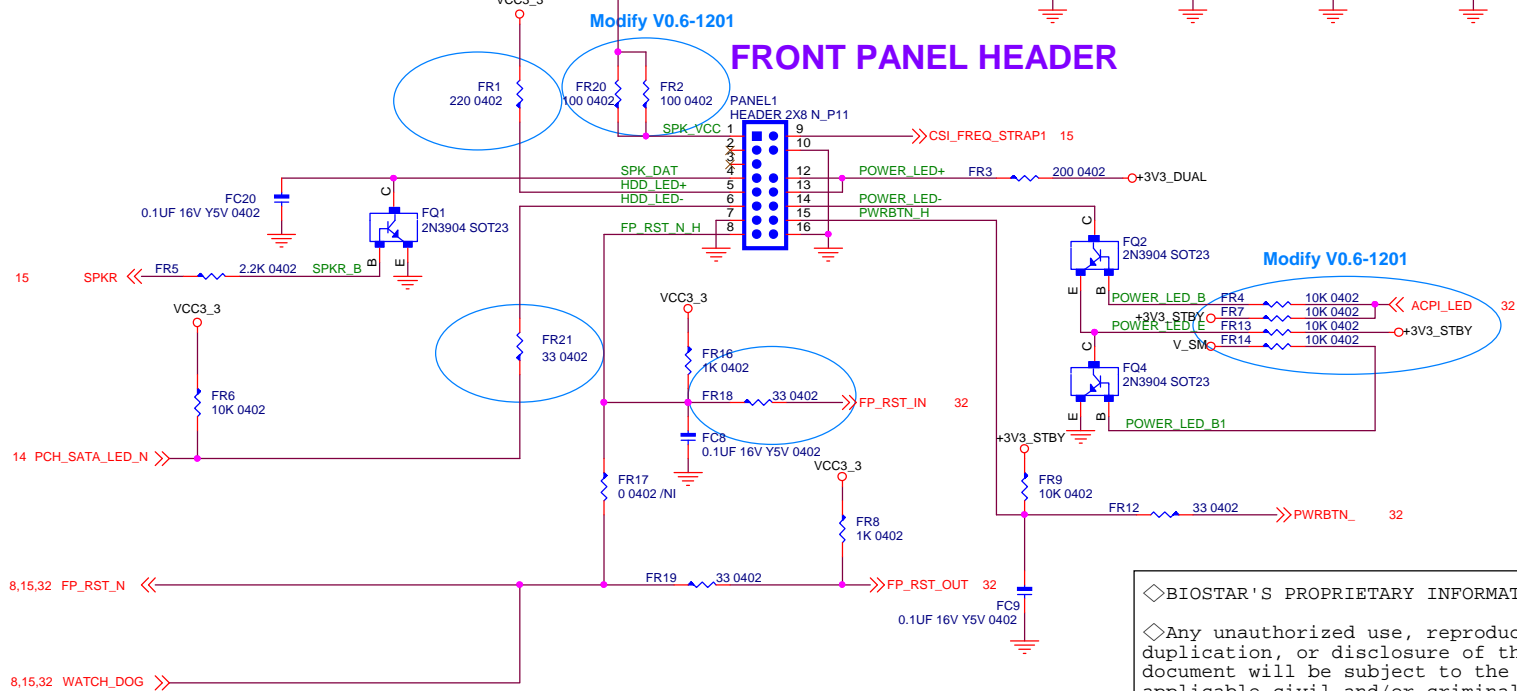
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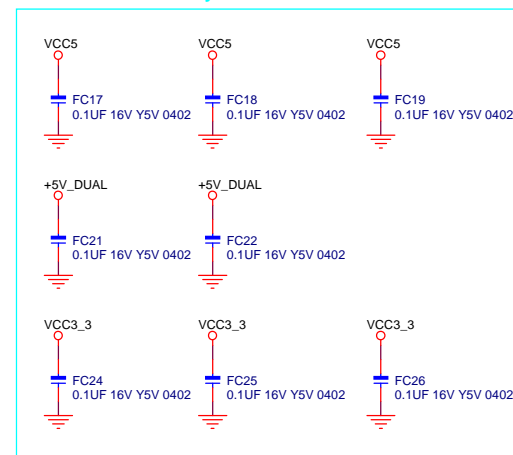
FOR EMI



## FRONT PANEL HEADER

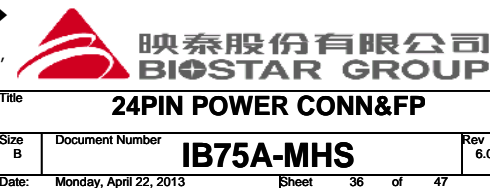


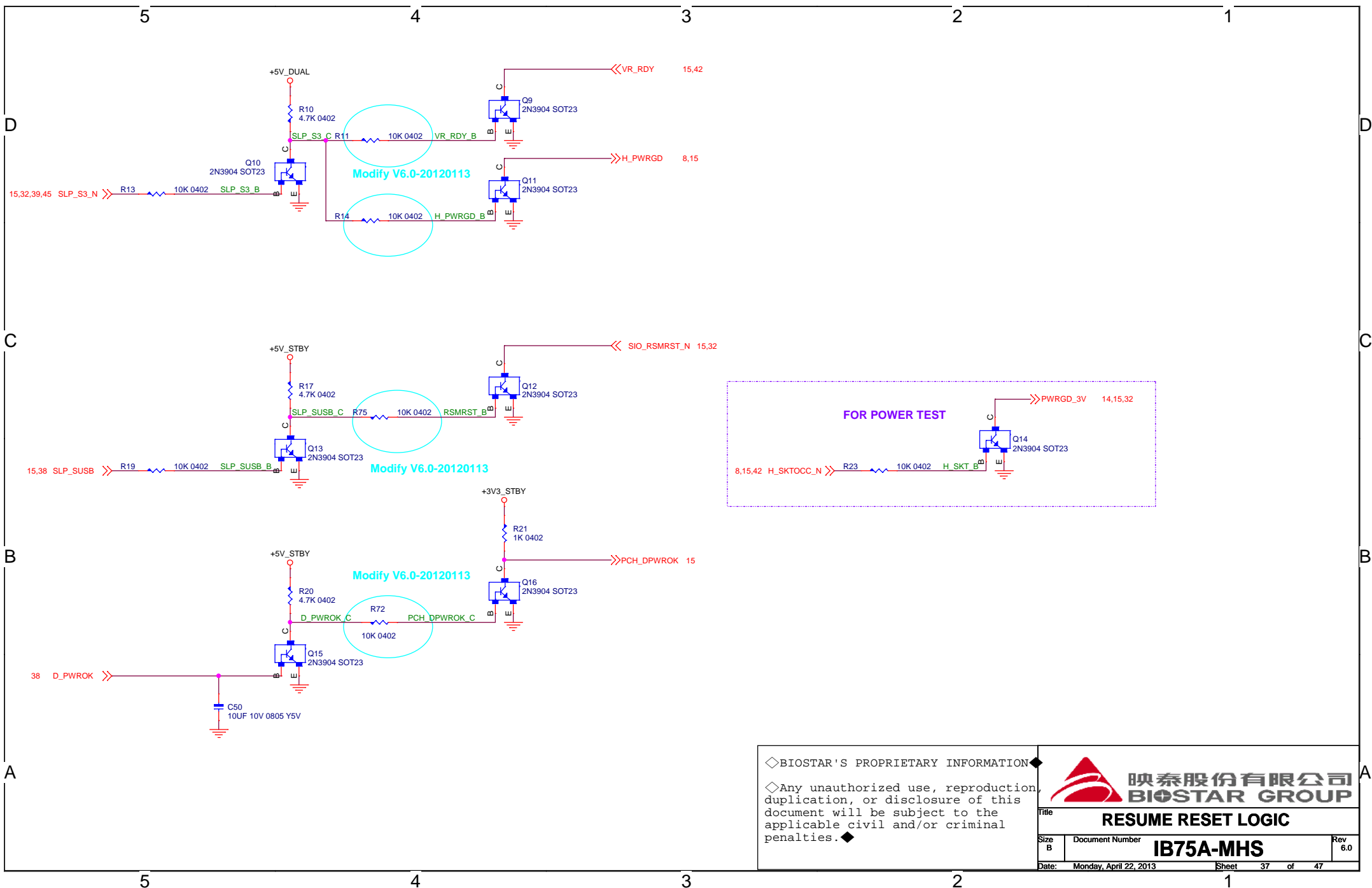
Modify V6.0-2012-0118



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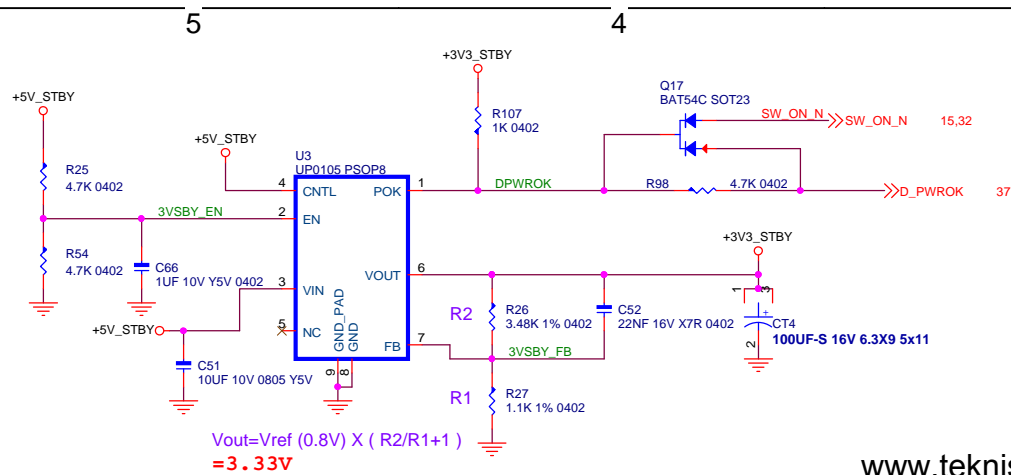
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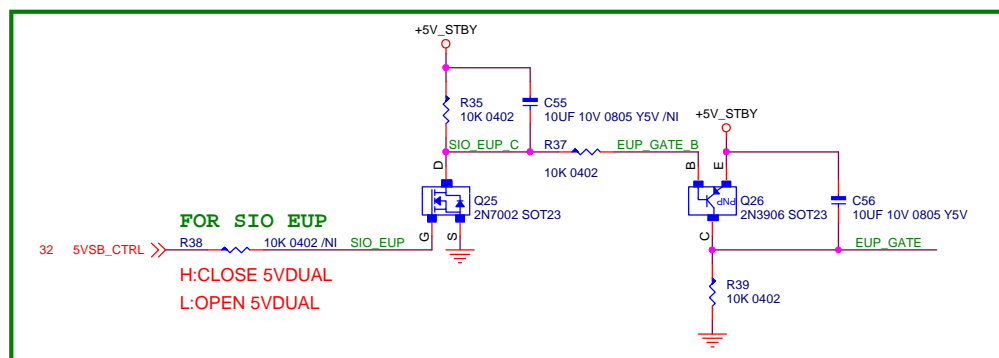
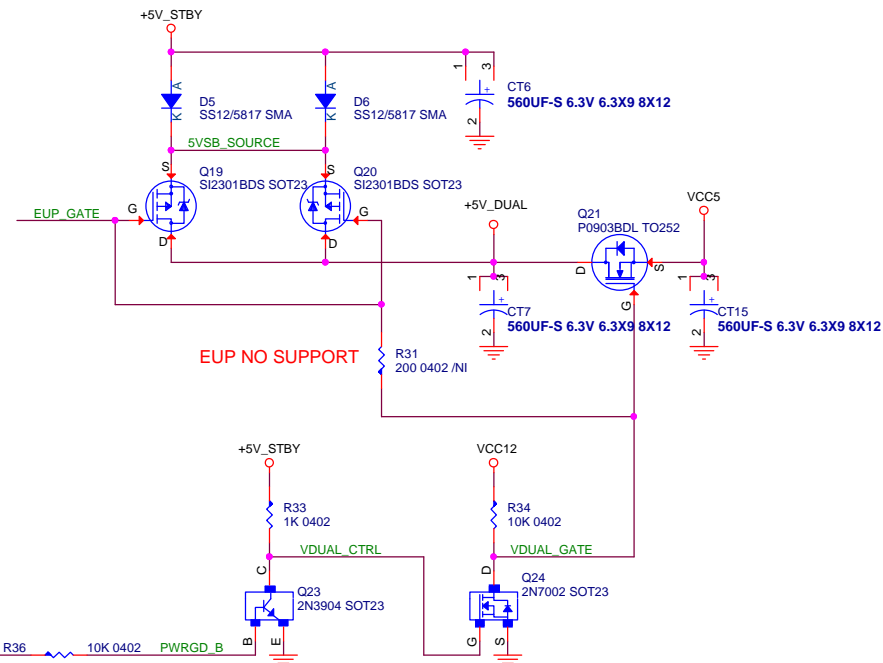
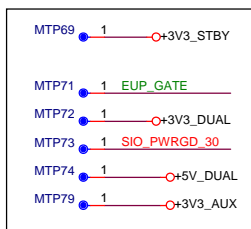
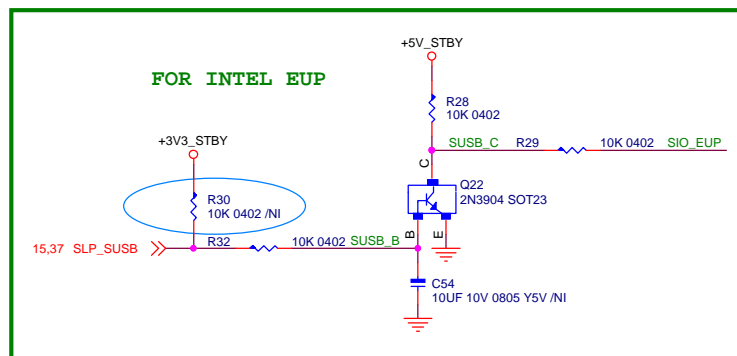
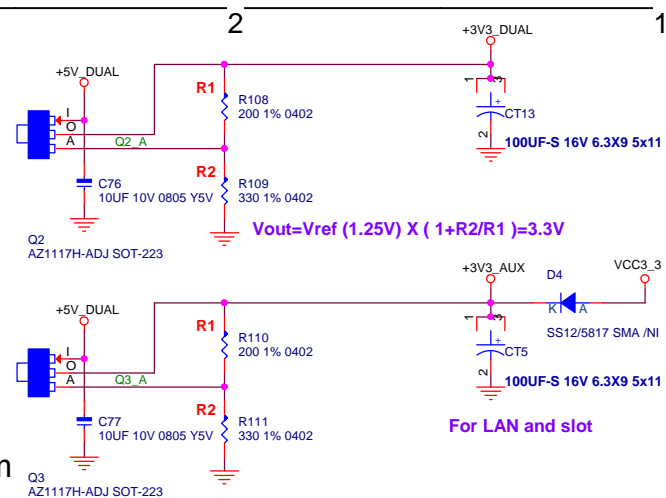
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Title **RESUME RESET LOGIC**

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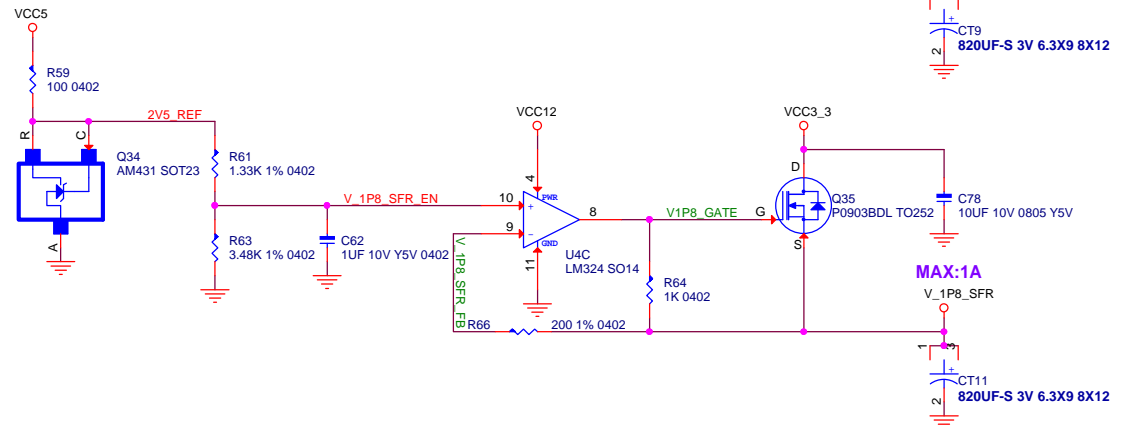
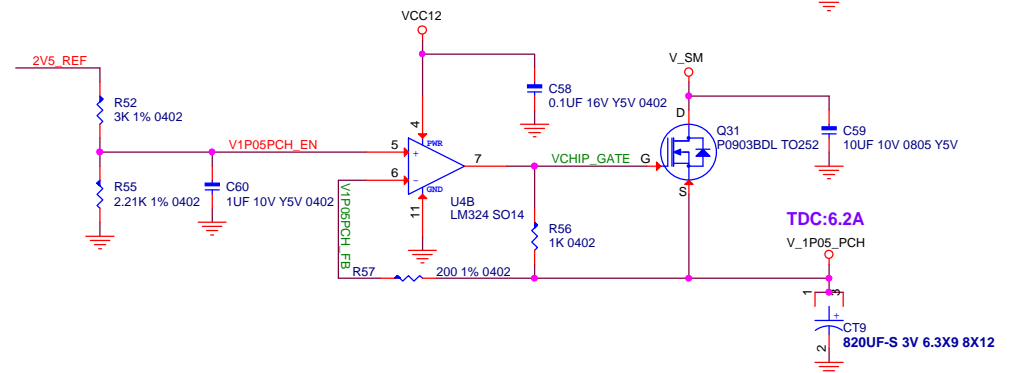
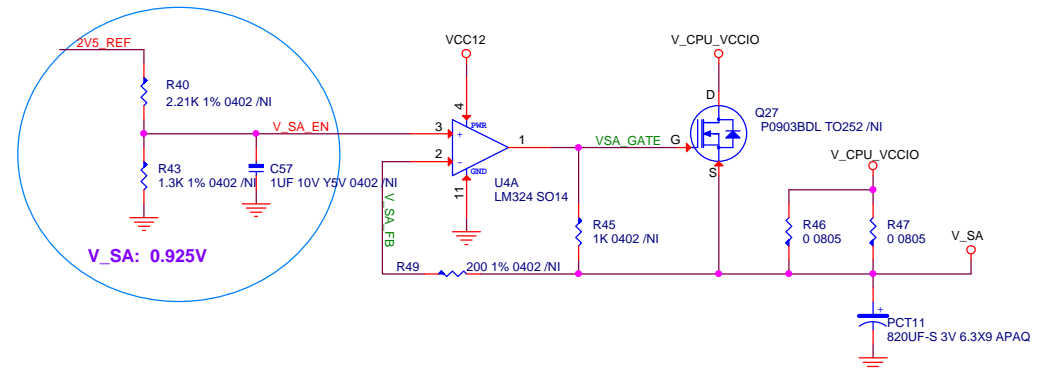
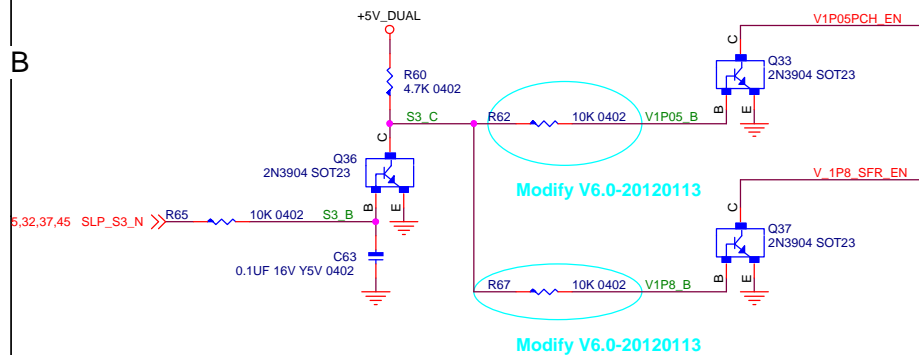
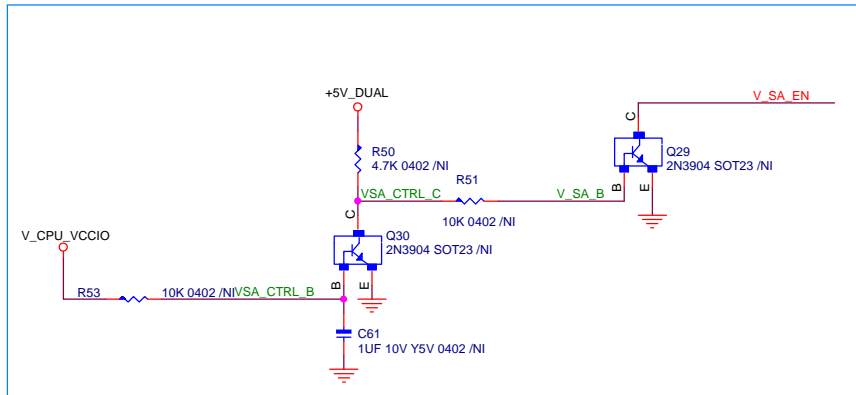
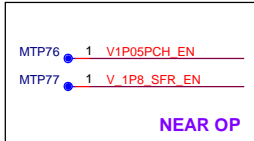
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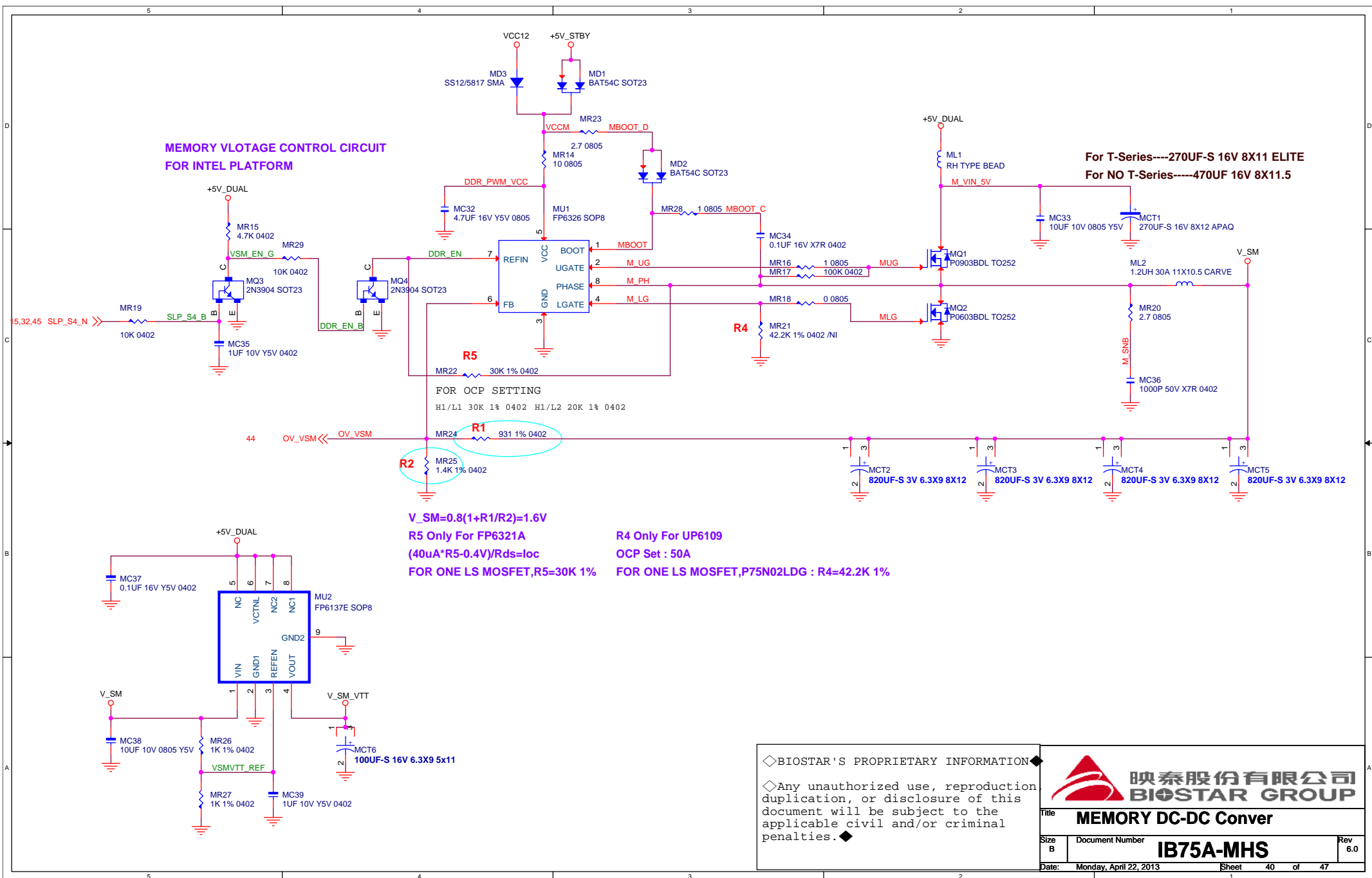
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Title  
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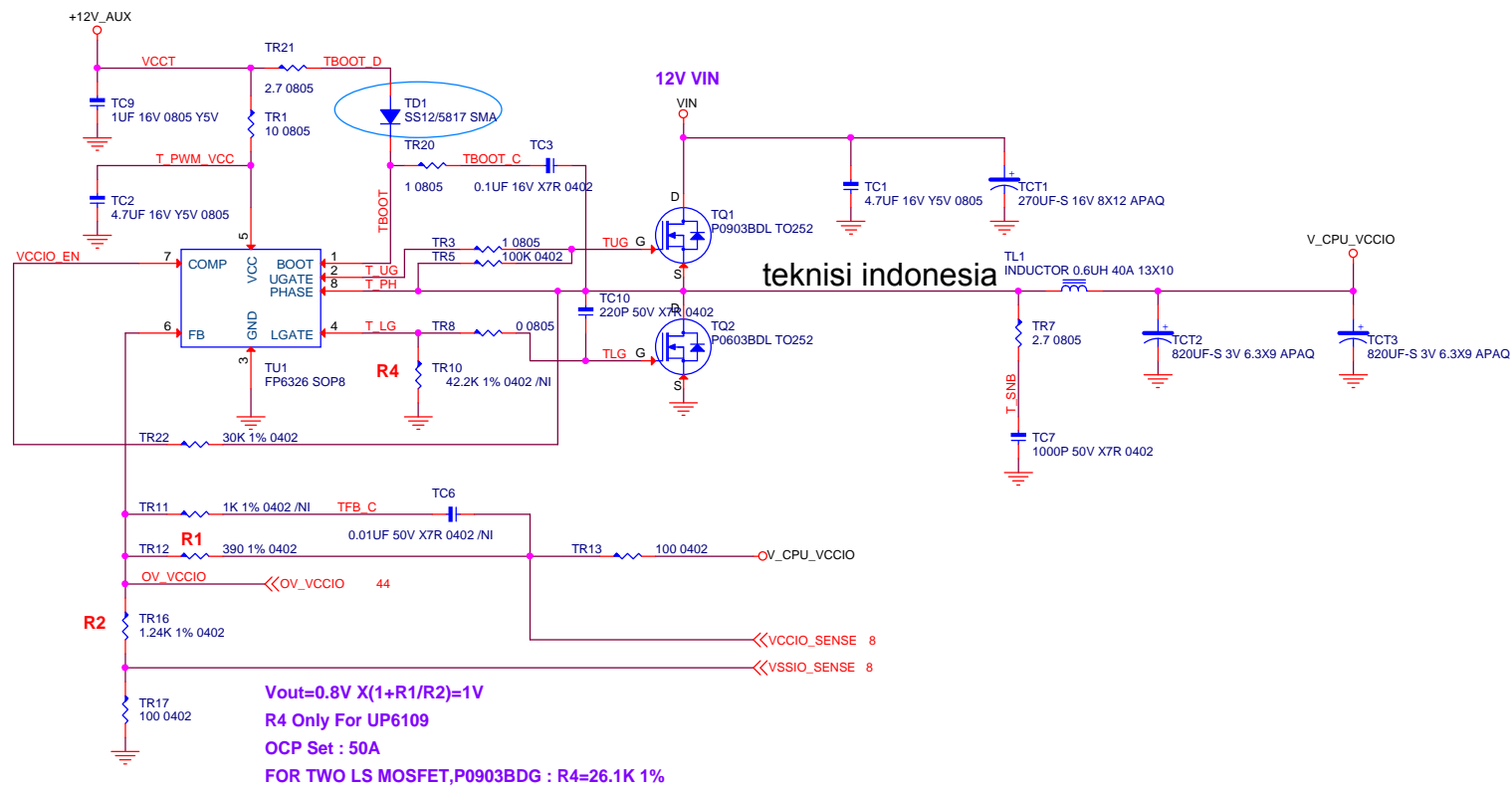
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**IB75A-MHS**

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# MEMORY VLOTAGE CONTROL CIRCUIT FOR INTEL PLATFORM

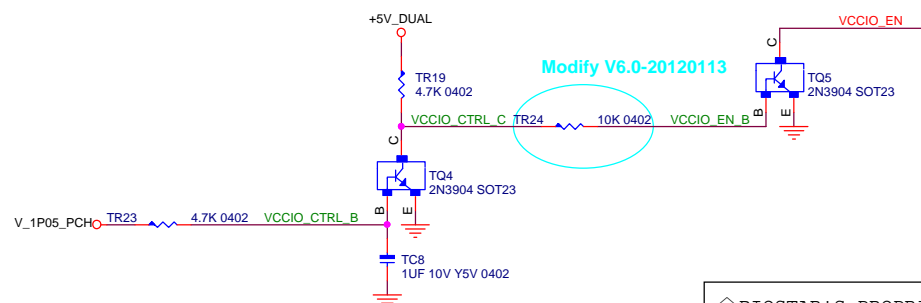






MTP78 1 VCCIO\_EN

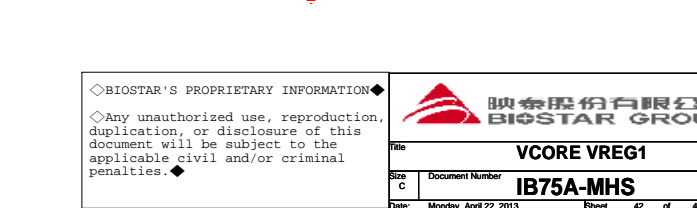
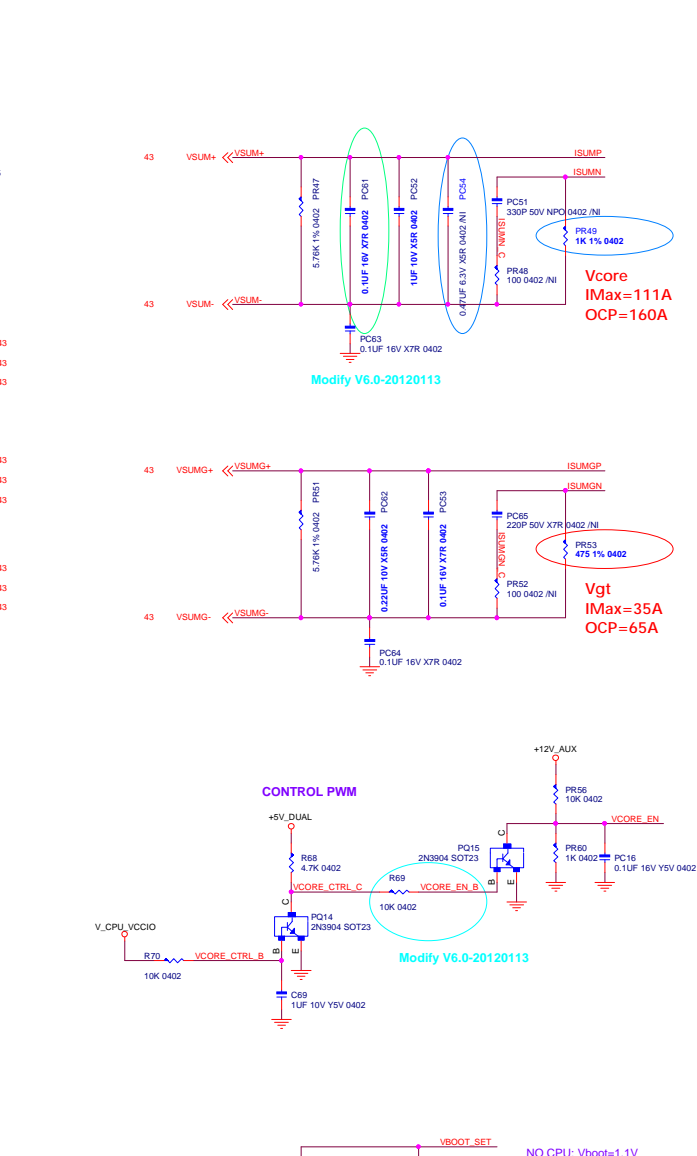
**NEAR CONTROLLER**



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VTT DC-DC Conver	
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**PRT1 PLACE CLOSE TO PL2**

PWM\_TM

PR25  
14.7K 1% 0402

PRT1  
10K 1% 0603 SMD

**PRT2 PLACE CLOSE TO PL4**


PWM\_TMG

PR28  
14.7K 1% 0402

PRT2  
10K 1% 0603 SMD

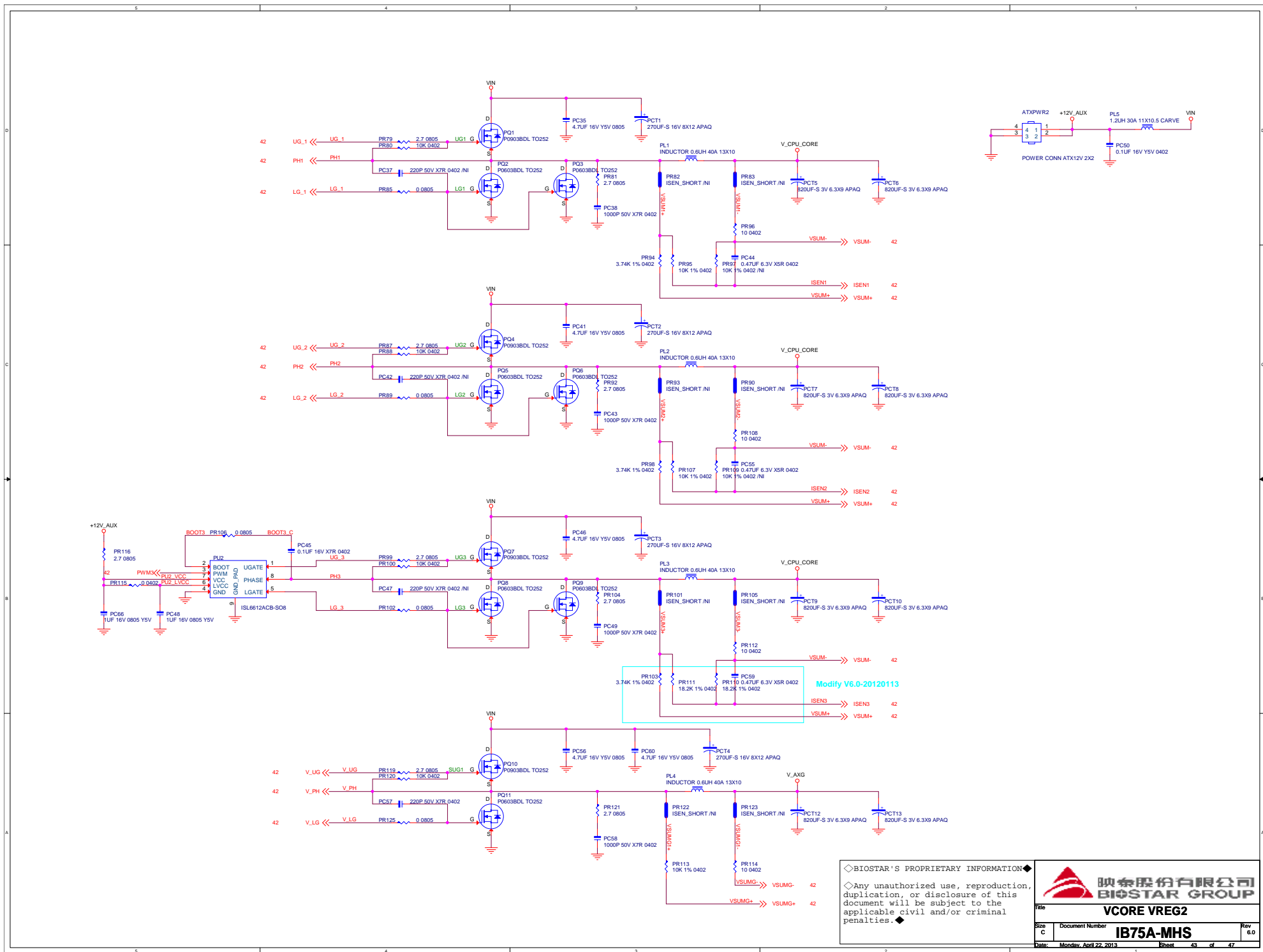
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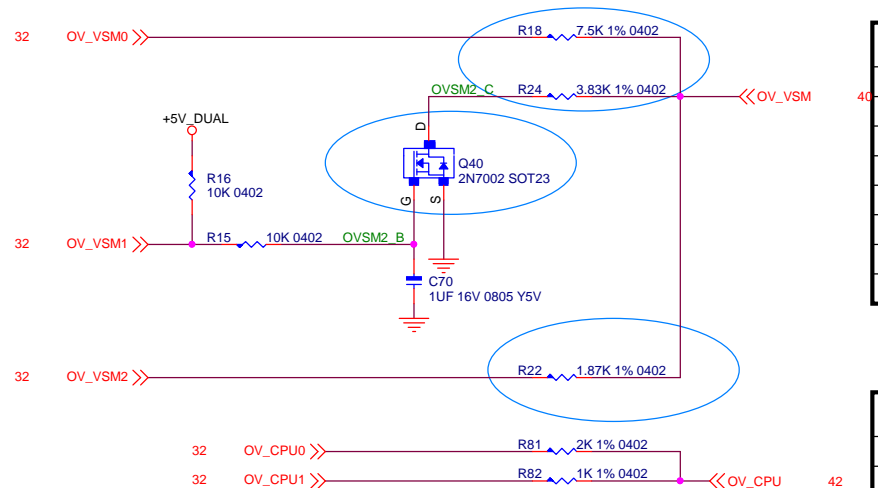
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Title		<b>VCORE VREG1</b>		
Size	Document Number			Rev
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V_CPU_VCCIO	OV_VCCIO0	OV_VCCIO1
1.05V(DEFAULT)	1	1
1.15V	0	1
1.25V	1	0
1.35V	0	0




V_SM	OV_VSM0	OV_VSM1	OV_VSM2
1.3V(1.332)	1	0	1
1.4V(1.431)	0	0	1
1.5V(DEFAULT)(1.526)	1	1	1
1.6V(1.625)	0	1	1
1.7V(1.730)	1	0	0
1.8V(1.829)	0	0	0
1.9V(1.924)	1	1	0

V_CPU_CORE	OV_CPU0	OV_CPU1
DEFAULT	1	1
+5%	0	1
+10%	1	0
+15%	0	0



V_AXG	OV_AXG0	OV_AXG1
DEFAULT	1	1
+3.3%	0	1
+6.6%	1	0
+10%	0	0

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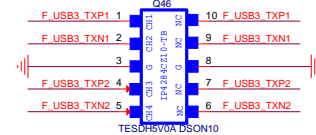
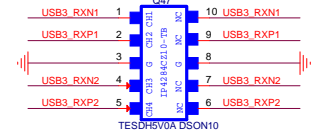
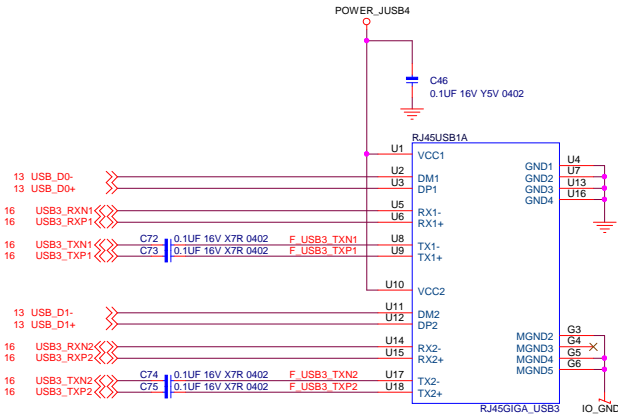
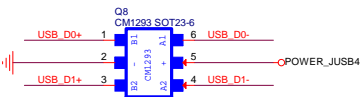
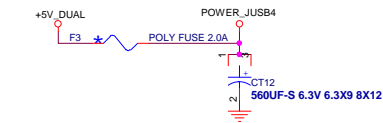
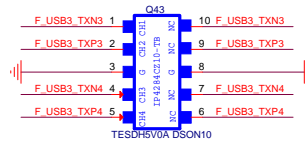
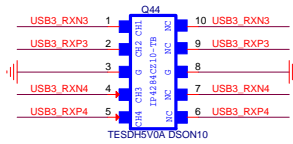
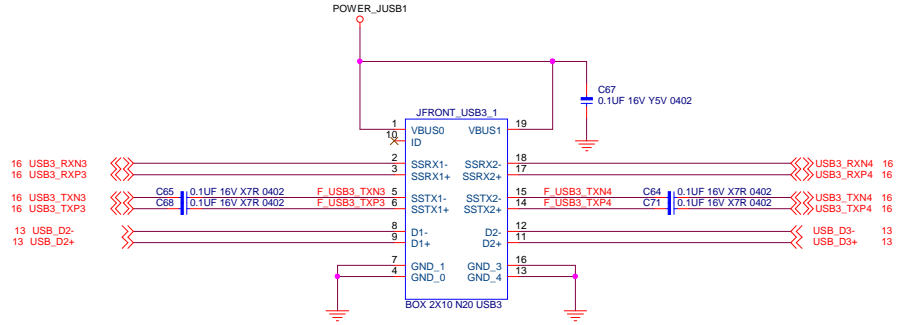
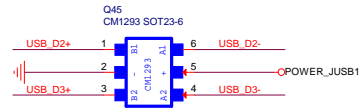
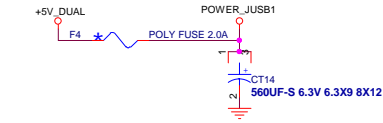
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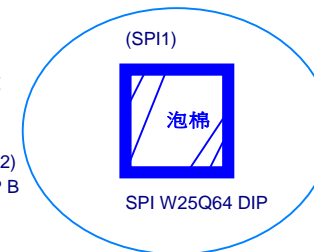
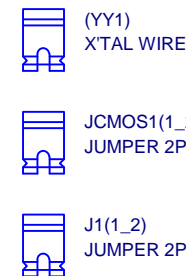
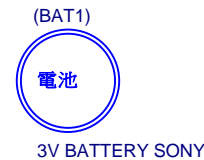
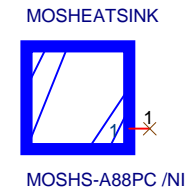
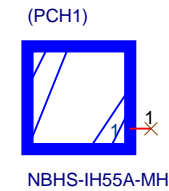
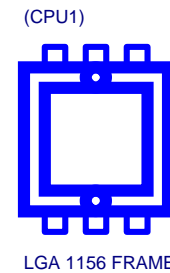
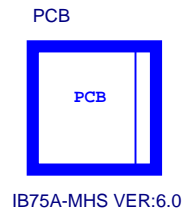
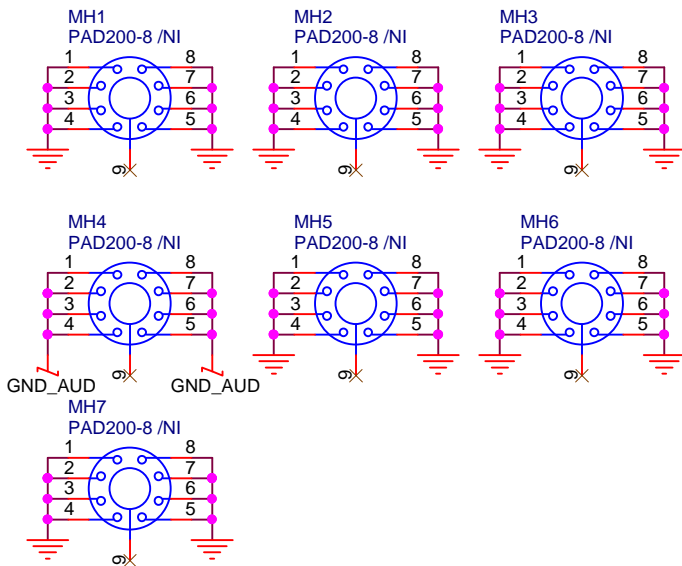




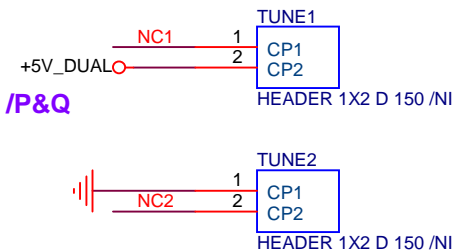
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96-IB75AMHS-R01P-60

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PANEL1 2\*8

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