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45	RESERVED FOR AMT POWER
46	USB3.0 HOST CONTROLLER
47	BOM

# IH61D-MHS REV 0.6 Market Name:H61M

## CPU:

Intel Sandy/Ivy Bridge processors in LGA1155 Package 95W

## System Chipset:

Sugar Point H61

## Main Memory:

Dual Channel/DDR-III\*4(Max 16GB) 1066/1333

DDR3-1333 /1066 /800

## Onboard Device:

Super I/O:IT8728

LAN:Realtek 8111E

HD Codec:ALC662 3 jacks

PCI BRIDGE:IT8893E CX

USB3.0 CONTROLLER:ASM1042

## Power solution:

CPU Voltage Regulators:3phase by uP6235

AXG voltage Regulators:1phase by uP6235

VTT voltage Regulators:1Phase by UP6100V by UP6262

DDR voltage Regulators:1Phase by FP6100V by UP6262

## Expansion Slots:

PCI EXPRESS 16X SLOT\*1

PCI EXPRESS 1X SLOT\*1

PCI SLOT\*2

## REAR IO:

PS/2 +2 layer USB2.0 Port

HDMI Port

DVI Port

VGA Port

2 layer USB3.0 + Gb RJ-45 Ports

Audio Jacks

## Front I/O:

4SATA2 FOR H61

USB Header \* 2

CPU /System1

Serial header


Parallel Header

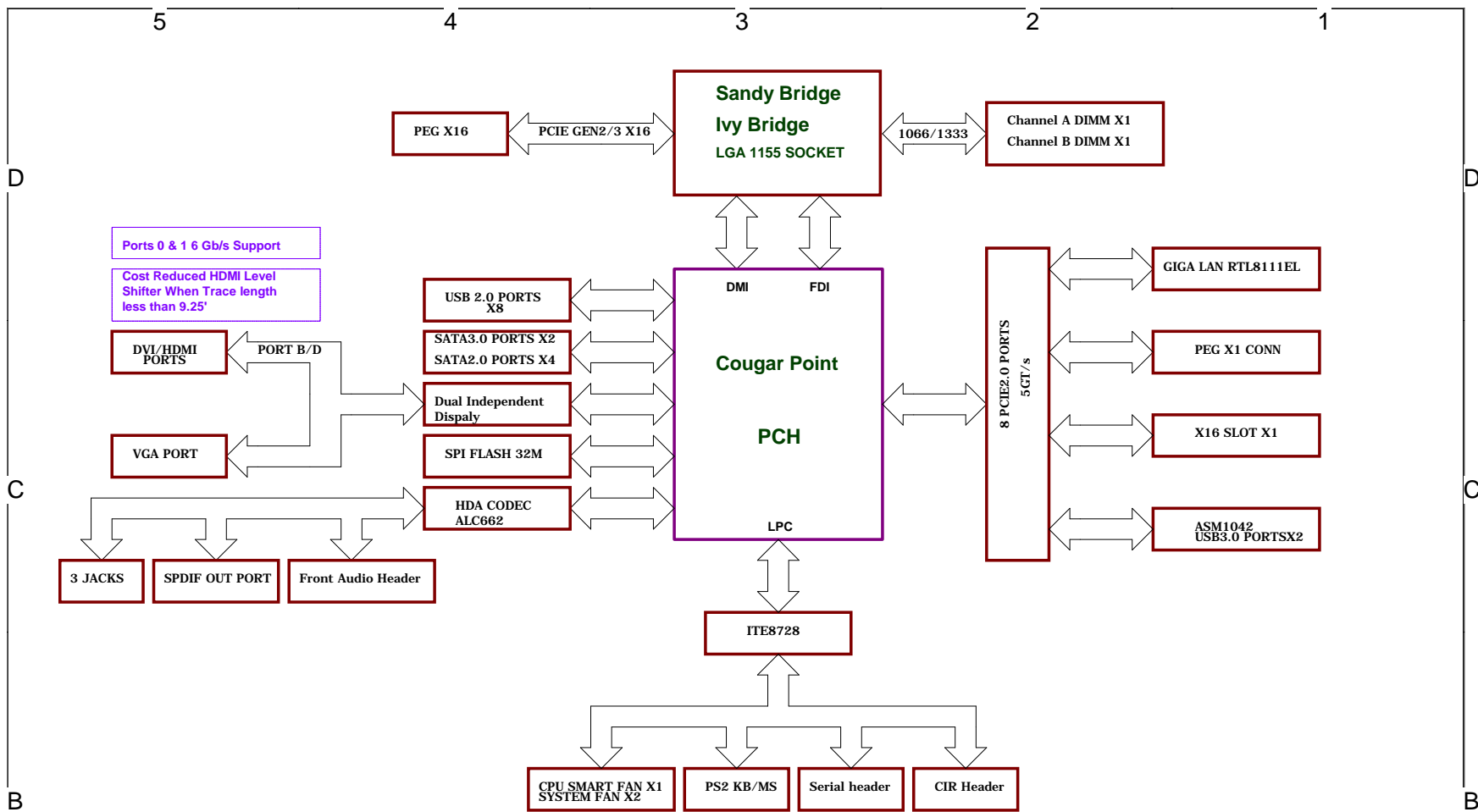
CIR Header

Front Audio Header & SPDIF Out 1

HW Engineer		Date	
HW Leader1		Date	
HW Leader2		Date	

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Title INDEX			
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Feature Set	SKU Name(s)					
	Q67	Q65	B65	H67	P67	H61
PCI Express* 2.0 Ports	8	8	8	8	8	6 <sup>9</sup>
PCI Interface	Yes	Yes	Yes	No <sup>10</sup>	No <sup>10</sup>	No <sup>10</sup>
USB 2.0 Ports	14	14	12 <sup>6</sup>	14	14	10 <sup>7</sup>
Total number of SATA ports	6	6	6	6	6	4
• SATA Ports (6 Gb/s, 3 Gb/s, and 1.5 Gb/s)	2 <sup>4</sup>	1 <sup>5</sup>	1 <sup>5</sup>	2 <sup>4</sup>	2 <sup>4</sup>	0
• SATA Ports (3 Gb/s and 1.5 Gb/s only)	4	5	5	4	4	4 <sup>8</sup>
HDMI/DVI/VGA/DisplayPort*/eDP*	Yes	Yes	Yes	Yes	No	Yes
Integrated Graphics Support with PAVP	Yes	Yes	Yes	Yes	No	Yes
Intel® Rapid Storage Technology	AHCI	Yes	Yes	Yes	Yes	No
	RAID 0/1/5/10 Support	Yes	No	No	Yes	No
Intel® AT	Yes	Yes	No	No	No	No
Intel® AMT 7.0	Yes	No	No	No	No	No
Intel® Remote PC Assist Technology - Proactive	Yes	No	Yes	No	No	No
Intel® Remote PC Assist Technology - Reactive	No	No	Yes	Yes	No	No

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Title: **BLOCK DIAGRAM**

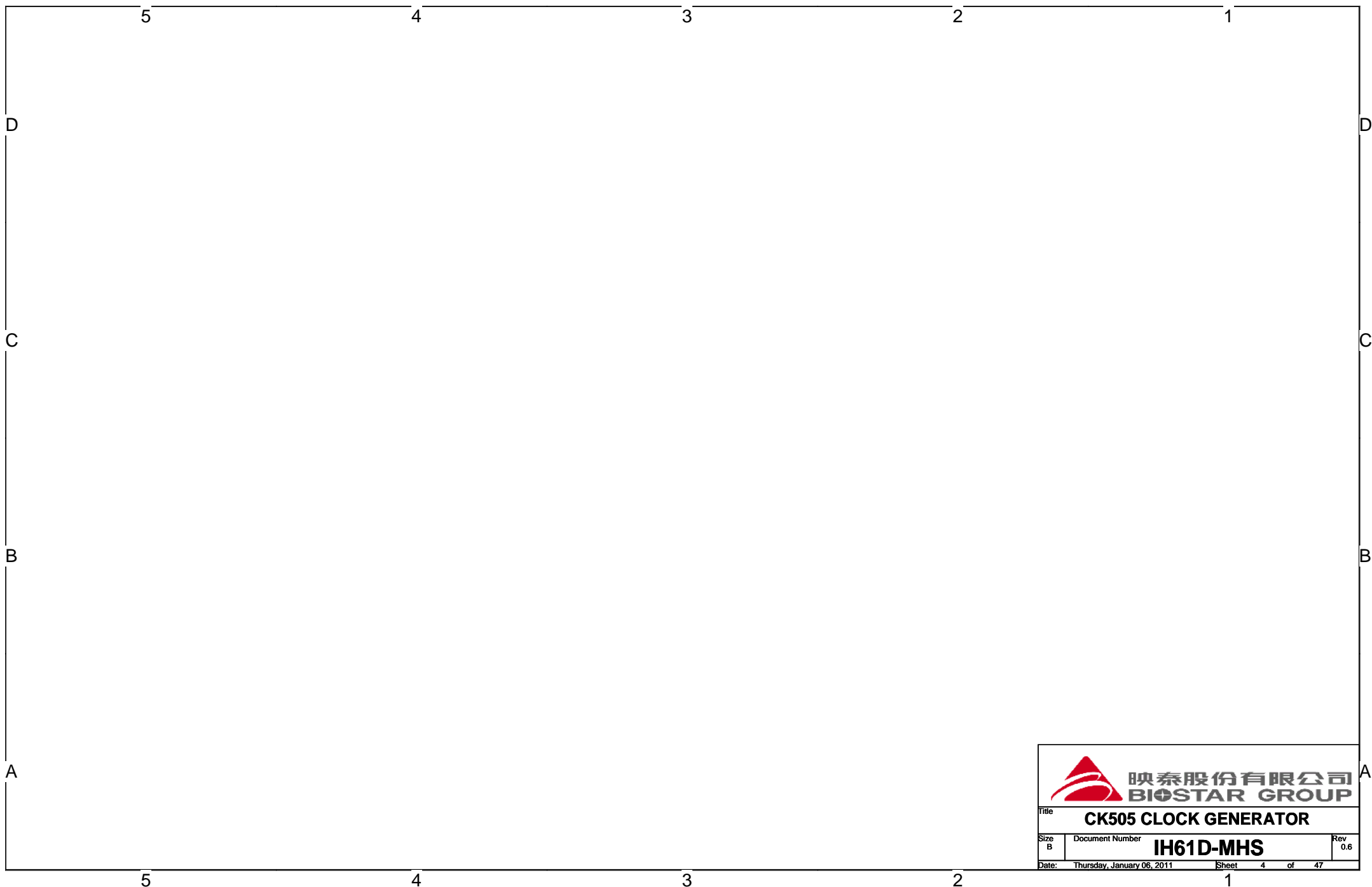
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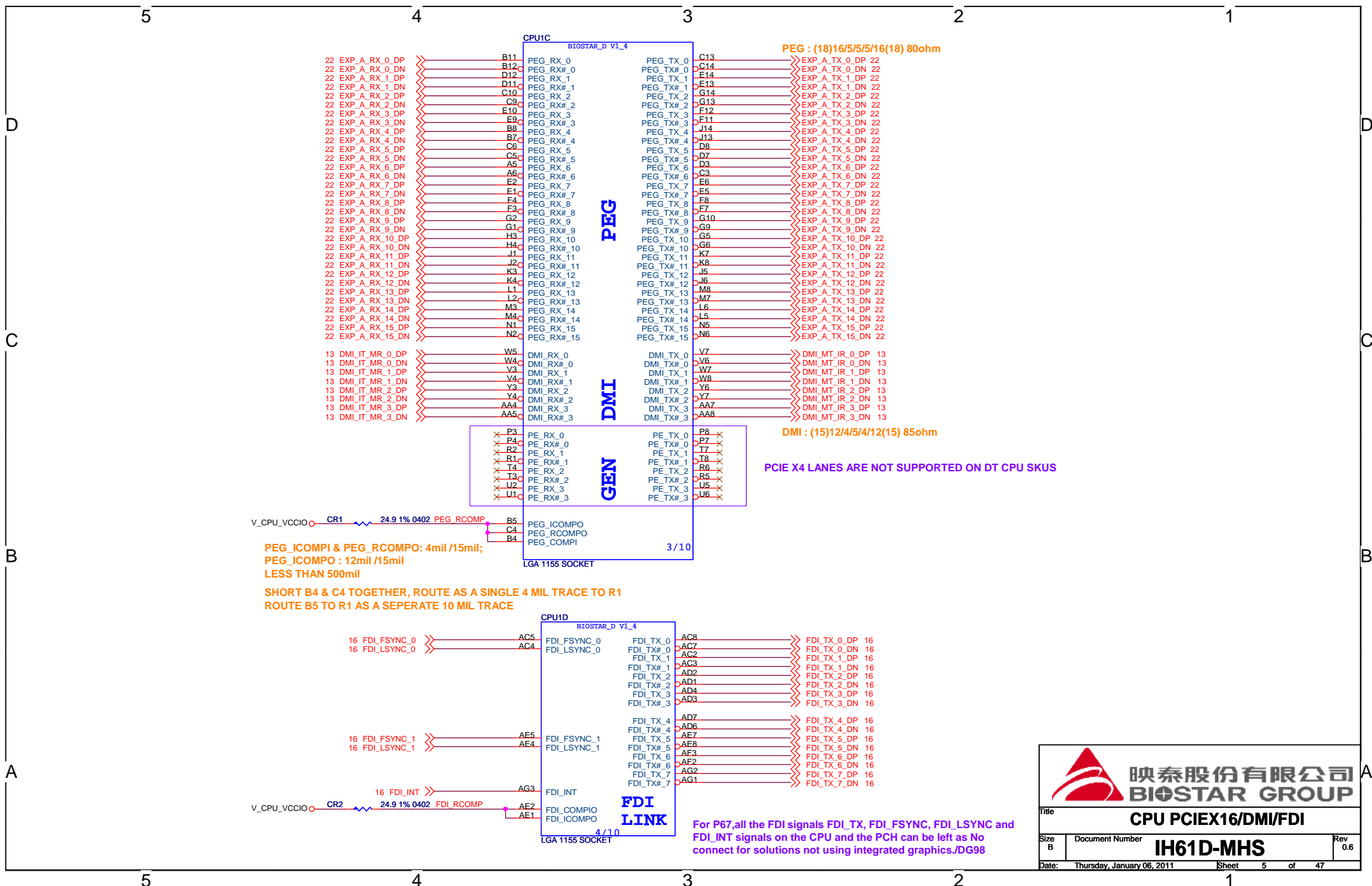
V0.6 to 0.61

1. CR28 change to 110ohm
2. Remove SATA3 and SATA4
3. PCI2.A26 net name change to PCI2\_IDSEL
4. PWRGD\_50 CONTROL PONRST#
5. TR10 reserved (42.2K)
6. All MOSFET value modified
7. UU3.3 connected to V\_1P8\_SFR
8. RN2 and RN3 dummy
9. PWM modified TBD
  - Vcore
  - PR34 --> 510R
  - PR12, 14, 16 --> 36KR
  - PC11 --> 68pF
  - PR38 --> 39KR
  - BCC27, BCC26, BCC11, BCC12, BCC13, BCC14, BCC24, BCC23 --> NC
  - PCT11 --> NC
  - VGTT
  - PR47 --> 3.6KR
  - PC64 --> 33pF
  - PR57 --> 8.2KR
10. ATXPWR3 value modified to ATXPWR2
11. CODEC change to ALC662
12. NI PCT11
13. UU3 change to 6137E

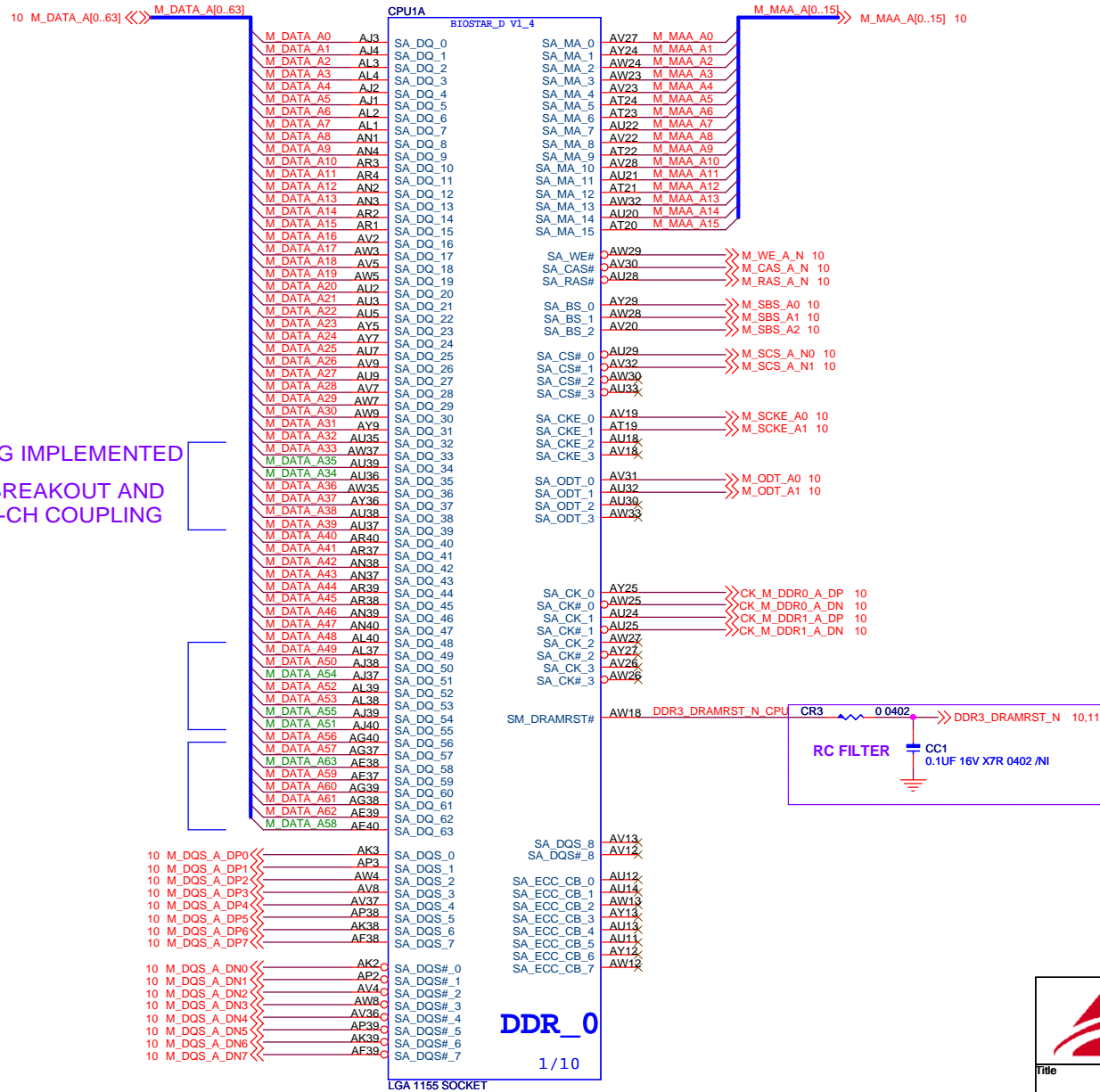
		
Title		
CHANGE LIST		
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Title CK505 CLOCK GENERATOR		
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DQ REMAPPING IMPLEMENTED  
TO IMPROVE BREAKOUT AND  
MINIMIZE CH-2-CH COUPLING



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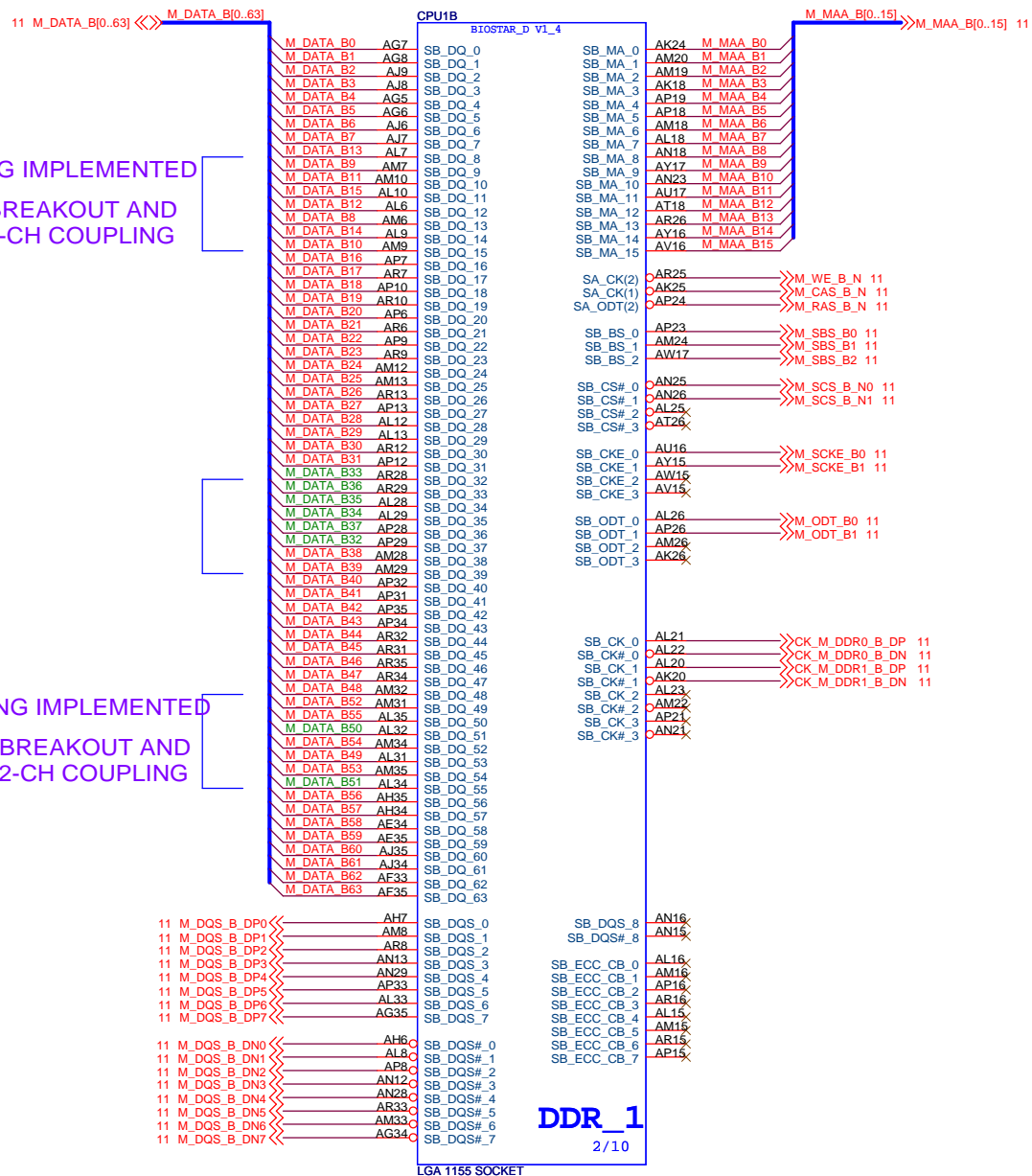
Title CPU DDR CHANNEL A

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DQ REMAPPING IMPLEMENTED  
TO IMPROVE BREAKOUT AND  
MINIMIZE CH-2-CH COUPLING

DQ REMAPPING IMPLEMENTED  
TO IMPROVE BREAKOUT AND  
MINIMIZE CH-2-CH COUPLING



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**CPU DDR CHANNEL A**

**IH61D-MHS**

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FROM CLK GEN.

FROM PCH

V\_CPU\_VCCIO

VRD12 INTERFACE

42 H\_VIDSCK  
42 H\_VIDSOUT\_C  
42 H\_VIDALERT\_N

V\_1P8\_SFR

TBD  
NEAR PCH

16 NV\_CLE >> CR15 4.7K 0402  
H\_SNB\_N  
update for Ivy bridge  
DMI/FDI Termination Select

V\_SM

PUT INSIDE THE CPU SOCKET

CR18 1K 1% 0402  
CR24 1K 1% 0402  
CC3 0.1UF 16V Y5V 0402  
SNB\_DDR\_VREF

SNB STRAP TABLE REV 0.7

CFG	H	L	DESCRIPTION
0	RESERVED	RESERVED	RESERVED
1	RESERVED	RESERVED	RESERVED
2	NORM	RESERVED	PEGLANE REVERSAL[0],X16
3	RESERVED	RESERVED	RESERVED
4	RESERVED	RESERVED	RESERVED
5	*	*	SEL0
6	*	*	SEL1
7	RESERVED	RESERVED	RESERVED
8	RESERVED	RESERVED	RESERVED
9	RESERVED	RESERVED	RESERVED
10	RESERVED	RESERVED	RESERVED
11	RESERVED	RESERVED	RESERVED
12	RESERVED	RESERVED	RESERVED
13	RESERVED	RESERVED	RESERVED
14	RESERVED	RESERVED	RESERVED
15	RESERVED	RESERVED	RESERVED

PCH NO PECI SUPPORTED

SEL1	SEL0	PCIE CONFIG
1	1	1 X 16
1	0	2 X 8
0	1	RESERVED
0	0	X8,X4,X4

MTP1 1 CPU\_BCLKOP  
MTP2 1 CPU\_BCLKON  
MTP3 1 H\_PWRGD  
MTP4 1 SM\_DROK  
MTP5 1 PLTRST\_CPU\_N  
MTP6 1 SNB\_DDR\_VREF  
NEAR CPU

MTP80 1 VCCIO\_SENSE  
MTP81 1 VSSIO\_SENSE  
NEAR CPU

CPU1E  
BIOSTAR\_D\_V1\_4  
BCLK\_0 W2  
BCLK#\_0 W3  
VIDSCLK C37  
VIDSOUT B37  
VIDALERT# A37  
H\_PWRGD J40  
SM\_DROK A19  
PLTRST\_CPU\_N F36  
H\_PECI\_C J35  
H\_CATERR\_N E37  
H\_PROCHOT\_N H34  
H\_THERMTRIP\_N G36  
H\_SNB\_N AJ33  
H\_SNB\_N K32  
SNB\_DDR\_VREF AJ22  
CFG\_0 H36  
CFG\_1 J36  
CFG\_2 J37  
CFG\_3 K36  
CFG\_4 L36  
CFG\_5 N35  
CFG\_6 L37  
CFG\_7 M36  
CFG\_8 J38  
CFG\_9 L35  
CFG\_10 M38  
CFG\_11 N36  
CFG\_12 N38  
CFG\_13 N39  
CFG\_14 N37  
CFG\_15 N40  
CFG\_16 G37  
CFG\_17 G36  
RSVD\_016 AT14  
RSVD\_023 AY3  
RSVD\_028 H7  
RSVD\_029 H8  
LGA 1155 SOCKET

MISC

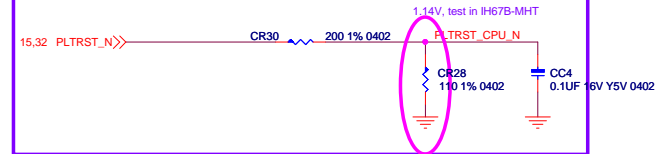
VCCP\_SELECT P33 VCCP\_SEL >> VCCP\_SEL 41  
VCCSA\_VID P34 VCCSA\_SENSE >> VCCSA\_VID 39  
VCC\_SENSE A36 VCC\_SENSE 42  
VSS\_SENSE B36 VSS\_SENSE 42  
VCCIO\_SENSE AB4 VCCIO\_SENSE 41  
VSSIO\_SENSE AB3 VSSIO\_SENSE 41  
VCCAXG\_SENSE L32 VCCAXG\_SENSE 42  
VSSAXG\_SENSE M32 VSSAXG\_SENSE 42  
H\_TDO L39 H\_TDO  
H\_TDI L40 H\_TDI  
H\_TCK M40 H\_TCK  
H\_TMS L38 H\_TMS  
H\_TRST\_N J39 H\_TRST\_N  
RST\_N CR16 0.0402 /NI >> FP\_RST\_N 15.36  
RSVD\_001 C40  
RSVD\_002 D40  
BPM#\_0 H40  
BPM#\_1 H38  
BPM#\_2 G38  
BPM#\_3 G40  
BPM#\_4 G39  
BPM#\_5 F38  
BPM#\_6 E40  
BPM#\_7 E40  
RSVD\_024 B39  
RSVD\_030 J33  
RSVD\_037 L34  
RSVD\_033 L33  
RSVD\_040 N33  
RSVD\_039 M34  
RSVD\_018 AV1  
RSVD\_020 AW2  
RSVD\_038 L9  
RSVD\_032 J9  
RSVD\_034 K9  
RSVD\_035 L31  
RSVD\_050 J31  
RSVD\_053 K31  
RSVD\_051 AD34  
RSVD\_052 AD35  
LGA 1155 SOCKET

for Ivy bridge processor support

CPU1J  
BIOSTAR\_D\_V1\_4  
RSVD\_04 AB7  
RSVD\_05 AD37  
RSVD\_08 AG4  
RSVD\_10 AJ29  
RSVD\_11 AJ30  
RSVD\_12 AJ31  
RSVD\_19 AJ34  
RSVD\_21 AW34  
RSVD\_43 P35  
RSVD\_44 P37  
RSVD\_45 P39  
RSVD\_46 B34  
RSVD\_47 B36  
RSVD\_48 B38  
RSVD\_49 B40  
RSVD\_15 AT11  
RSVD\_14 AP20  
RSVD\_13 AN29  
RSVD\_17 AU10  
RSVD\_22 AY10  
RSVD\_07 AF4  
RSVD\_03 AB6  
RSVD\_06 AEG  
RSVD\_09 AJ11  
RSVD\_27 D38  
RSVD\_26 C38  
RSVD\_25 C39  
RSVD\_31 J34  
RSVD\_41 N34  
NCTF\_01 A38  
NCTF\_02 AU40  
NCTF\_03 AW38  
NCTF\_04 C2  
NCTF\_05 D1  
SPARES 10/10  
LGA 1155 SOCKET

V\_CPU\_VCCIO  
H\_THERMTRIP\_N CR17 51 0402 /NI  
H\_PROCHOT\_N CR19 51 0402  
H\_CATERR\_N CR20 1K 0402 /NI  
H\_PECI CR22 1K 0402 /NI  
H\_PWRGD CR23 51 0402 /NI  
CRN1 51 8P4R 0402  
H\_TDI 2 1  
H\_TDO 4 3  
H\_TMS 6 5  
H\_TRST\_N CR31 51 0402  
H\_TCK CR25 51 0402

CPU RESET LOGIC COST DOWN



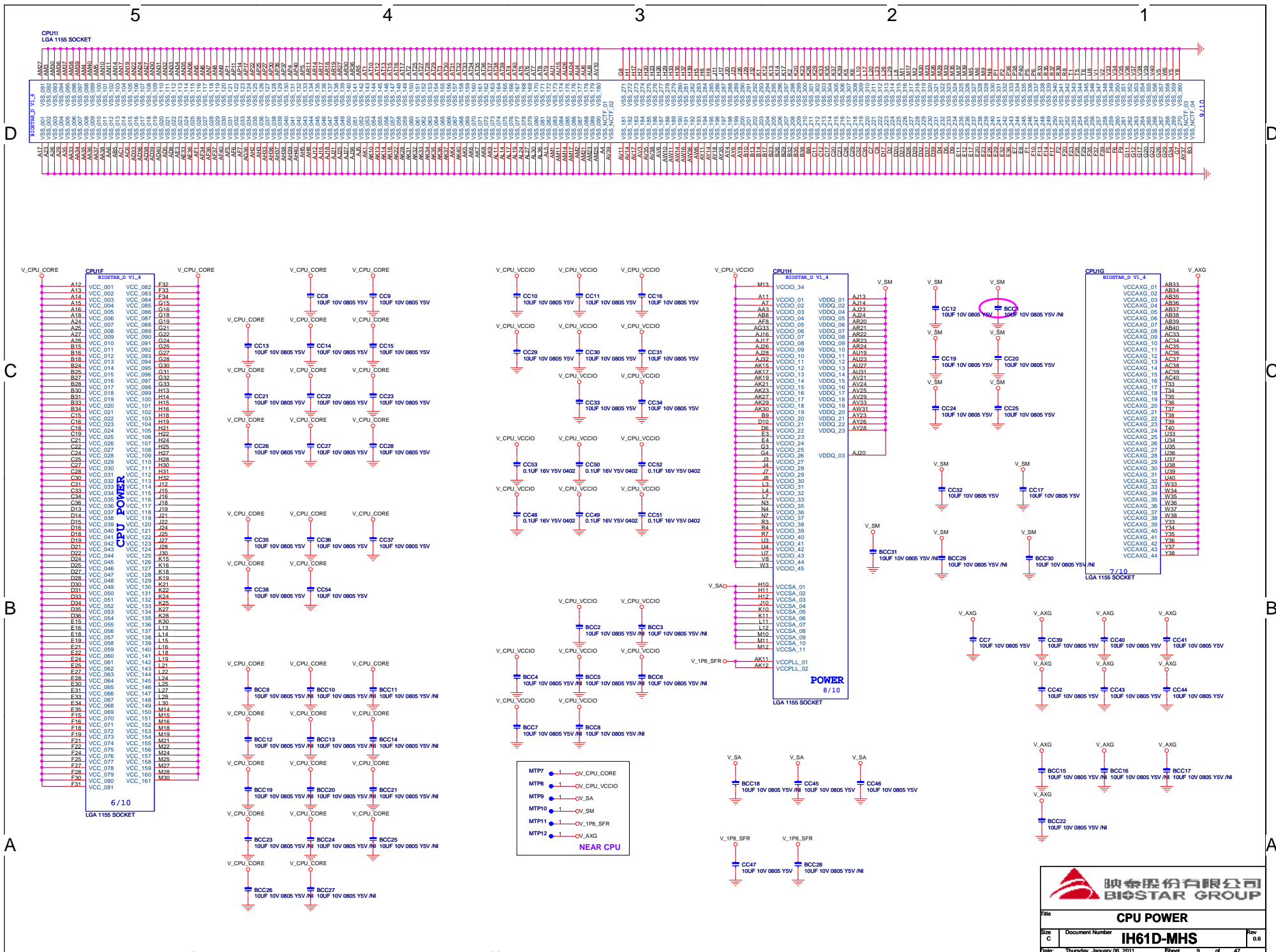
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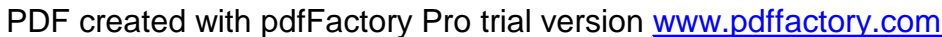
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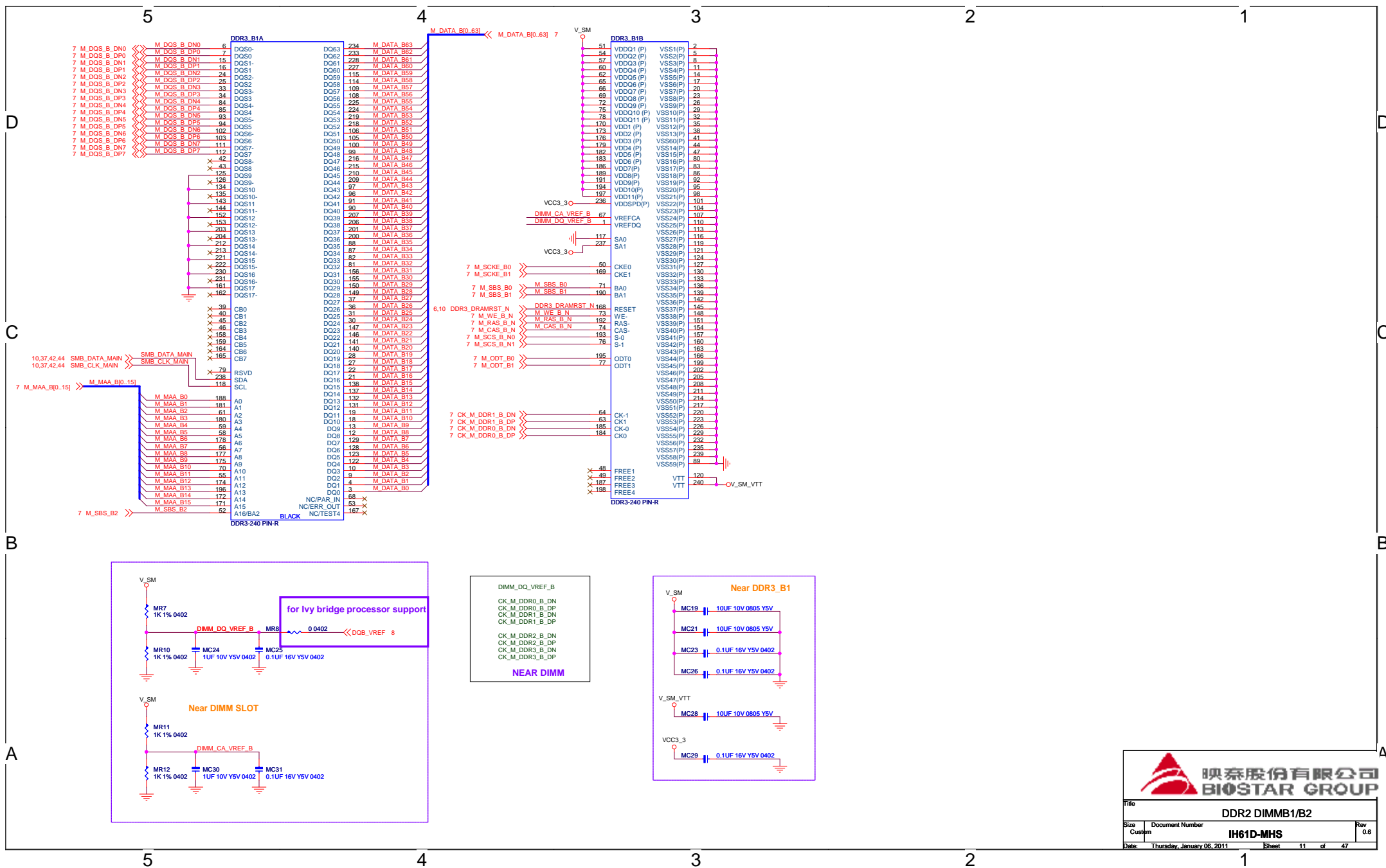
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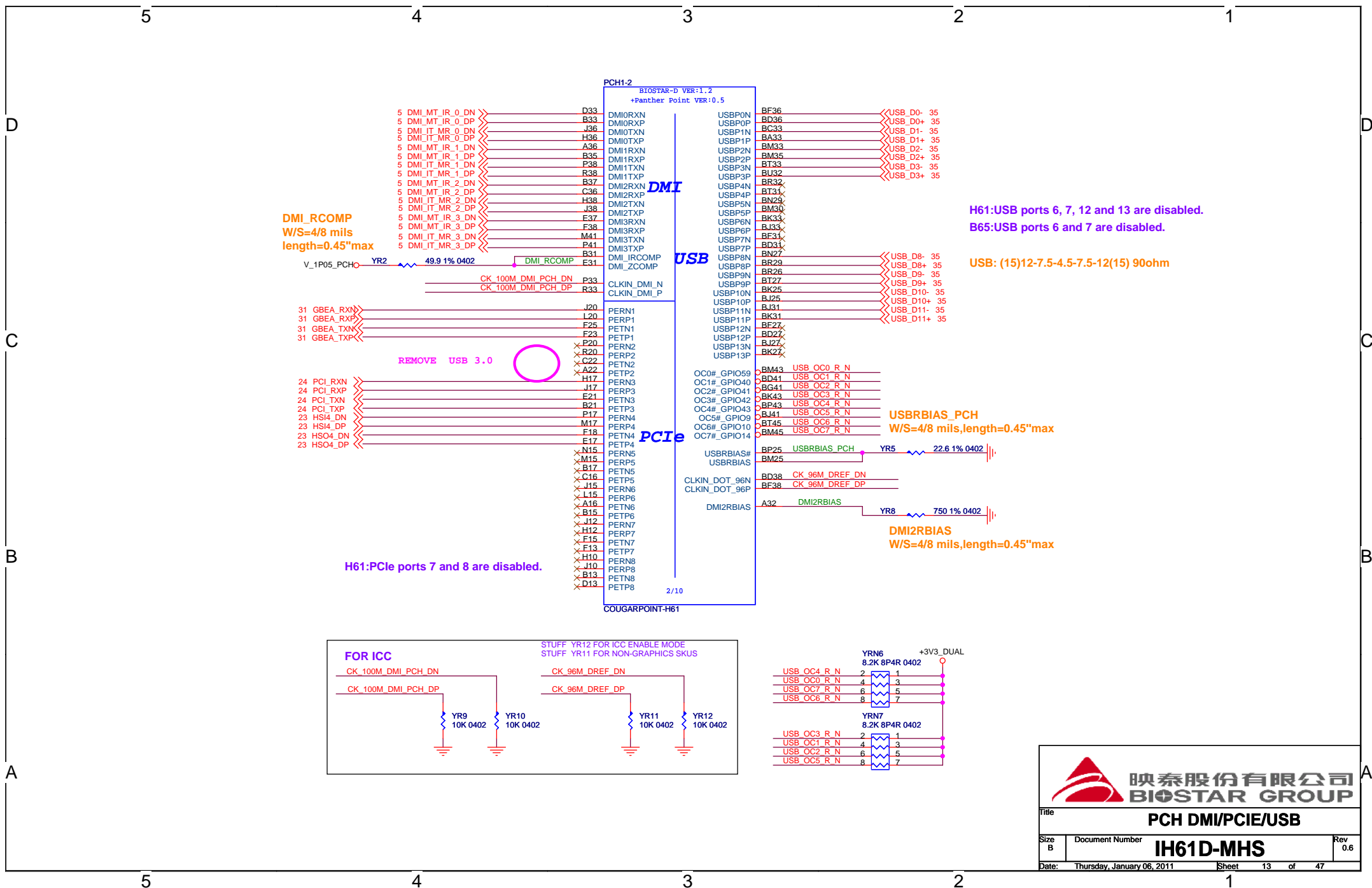






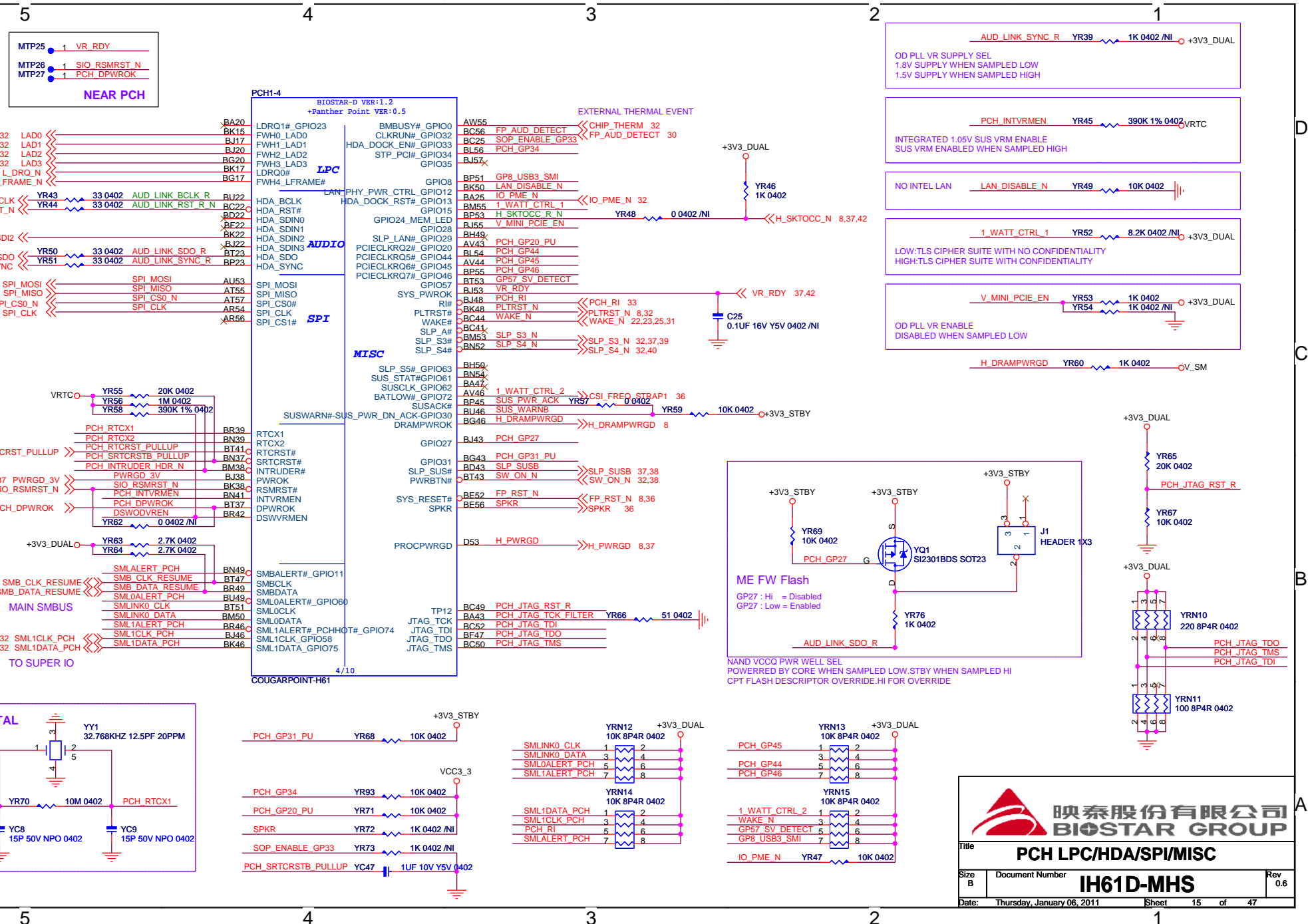








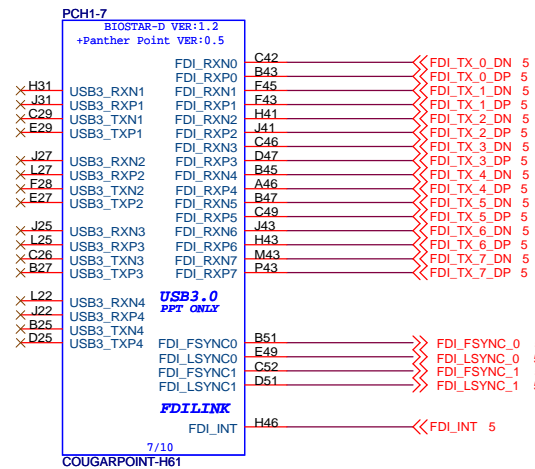
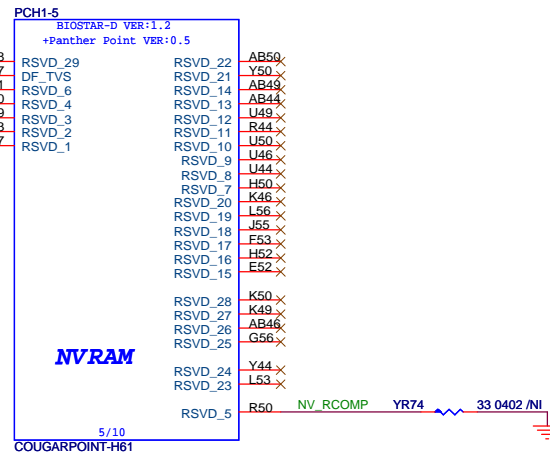





## DMI/FDI Termination Select

H:For Sandy Bridge

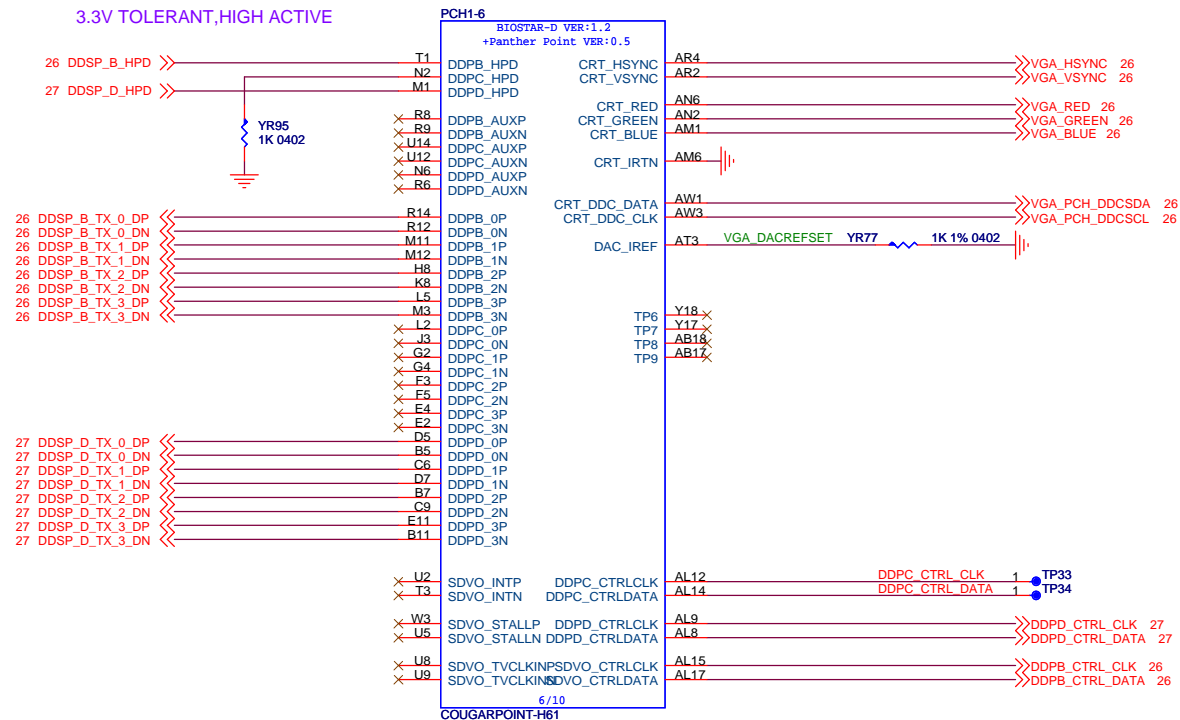
L:For Ivy Bridge



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

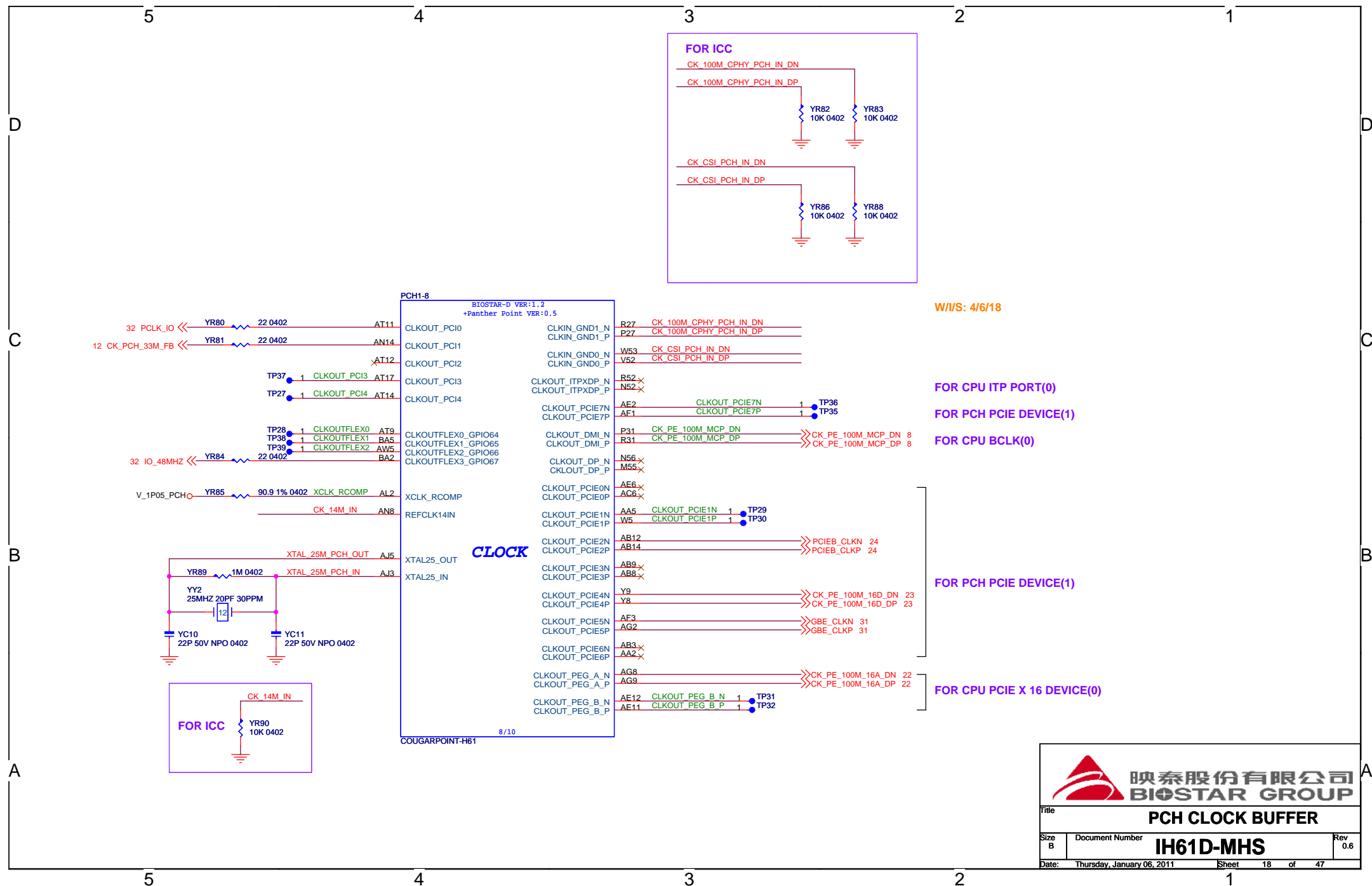


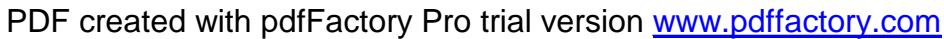
FUNCTION	
PORTB	DVI OR SDVO
PORTC	DISPLAY PORT
PORTD	HDMI/DVI/eDP

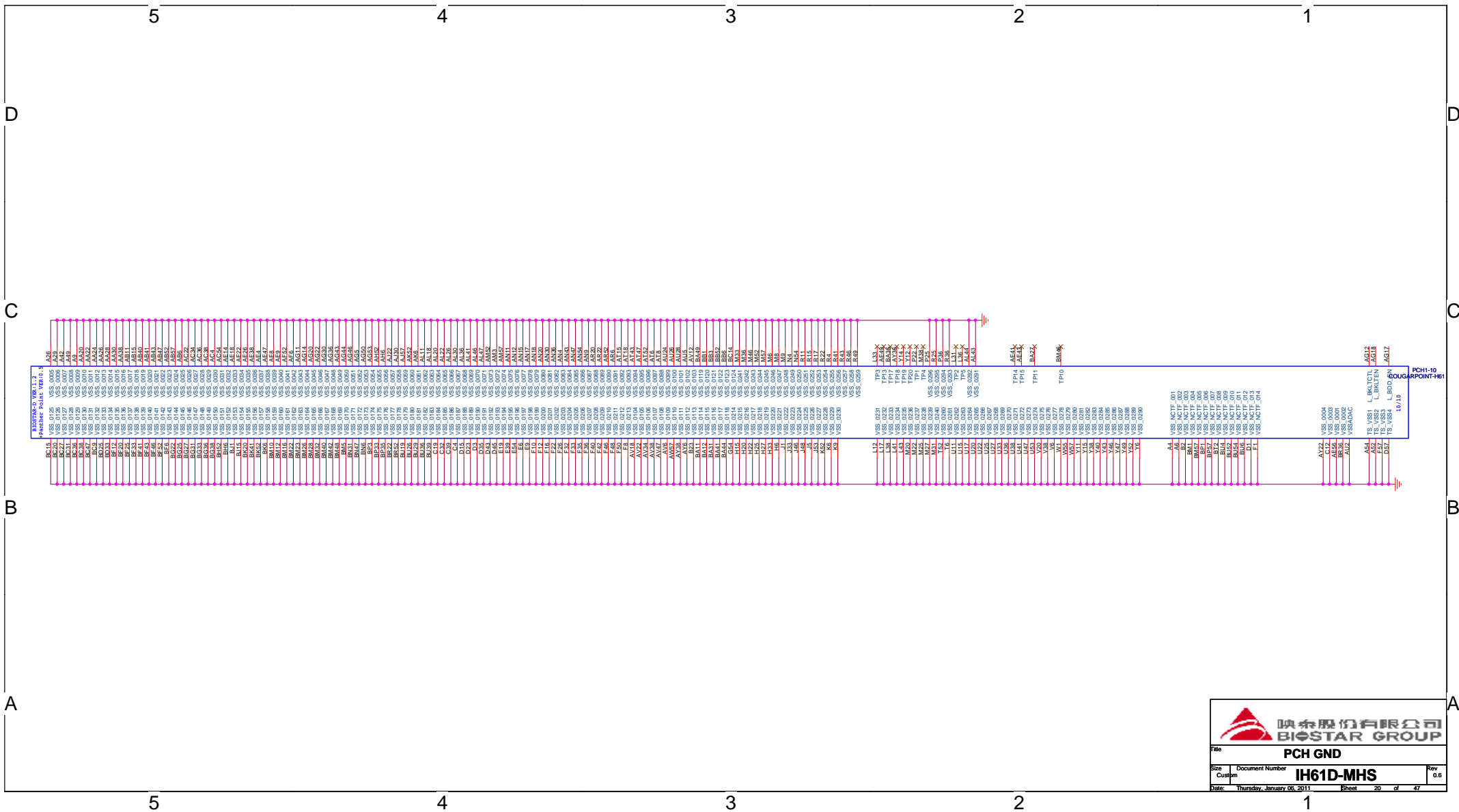
REMOVE LEVEL SHIFTER WHEN TRACE  
LENGHT LESS THAN 9.25 INCHES

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

Title <b>PCH VGA/DISPLAY PORT</b>		
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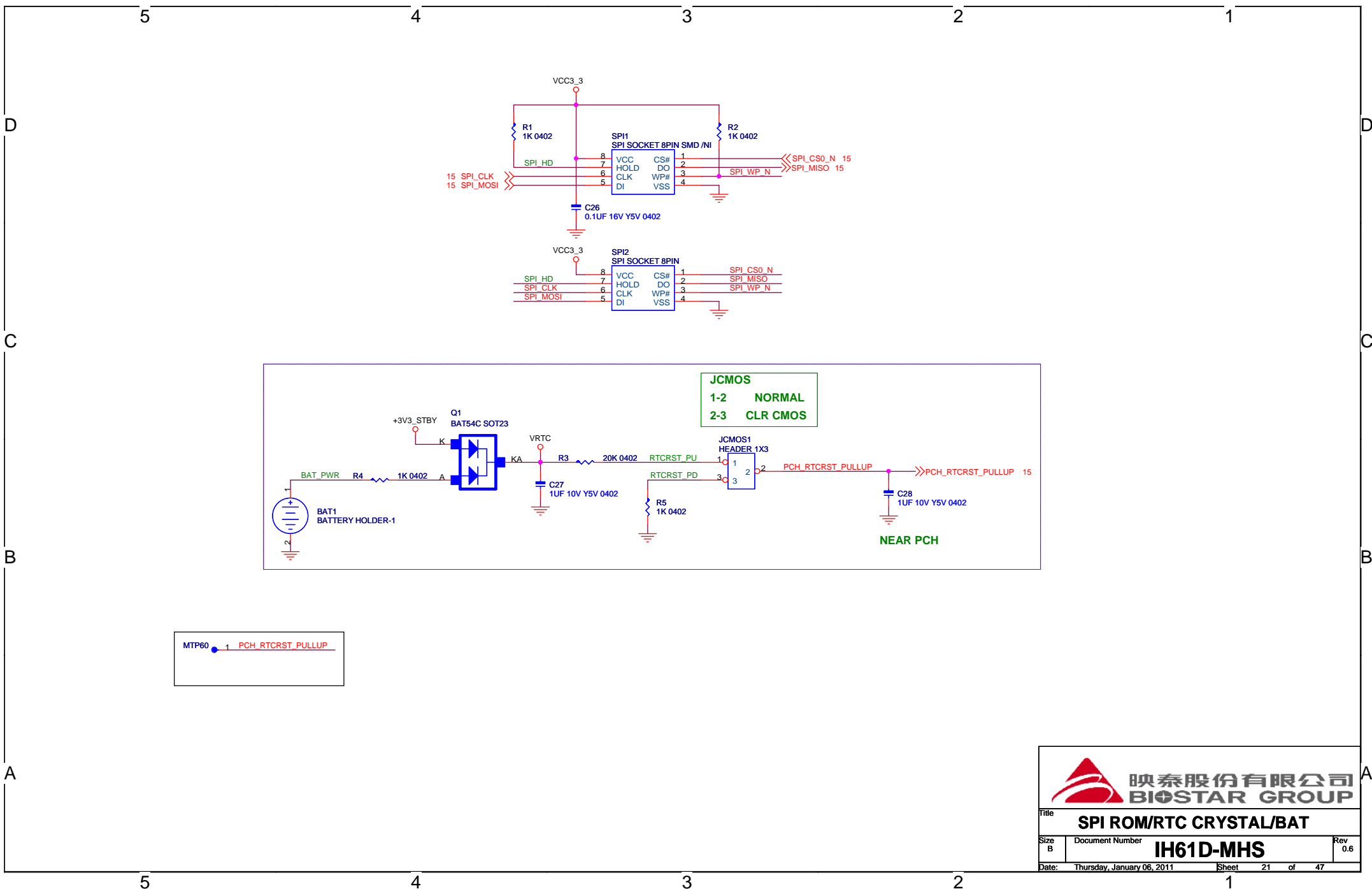


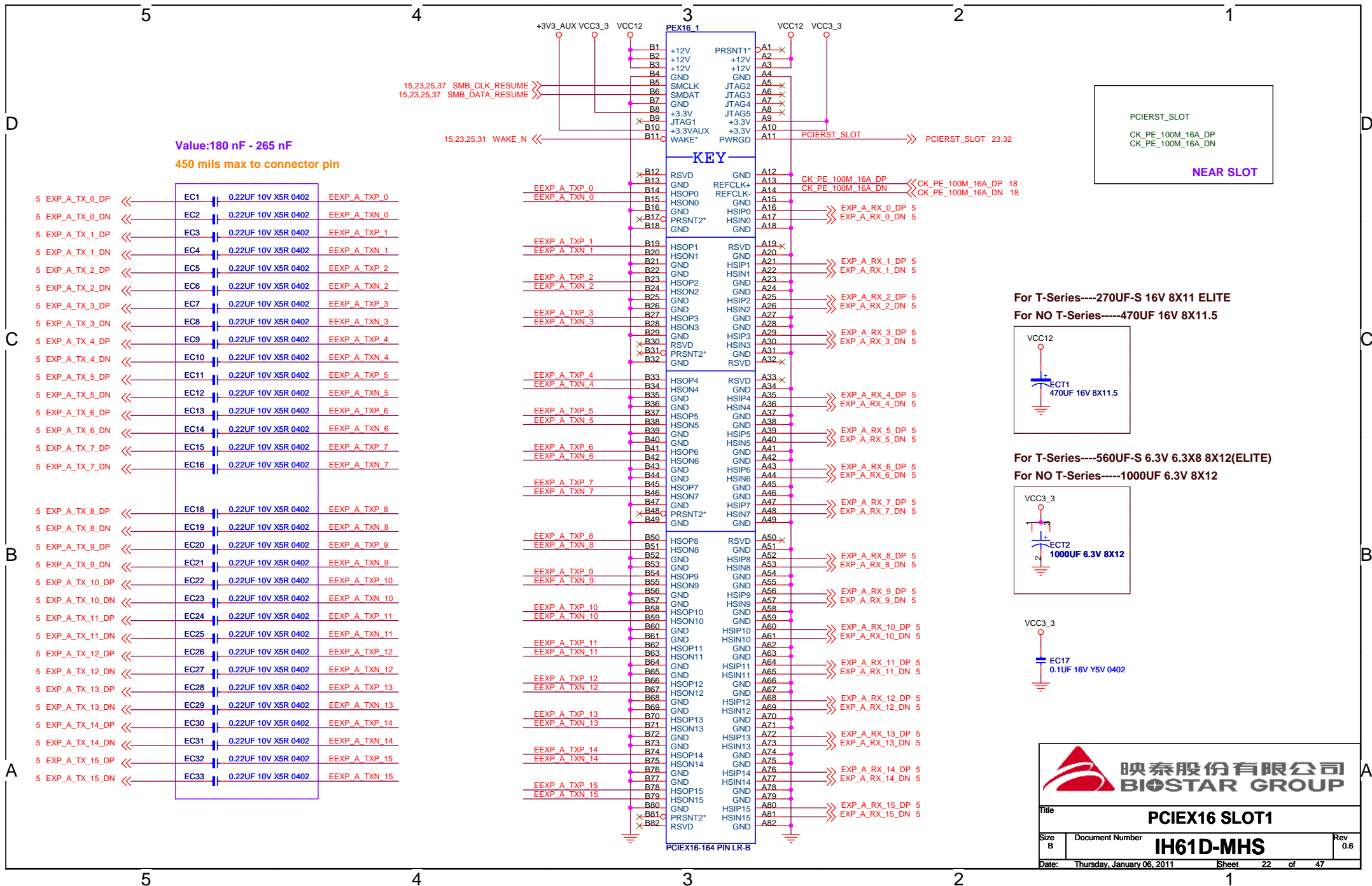
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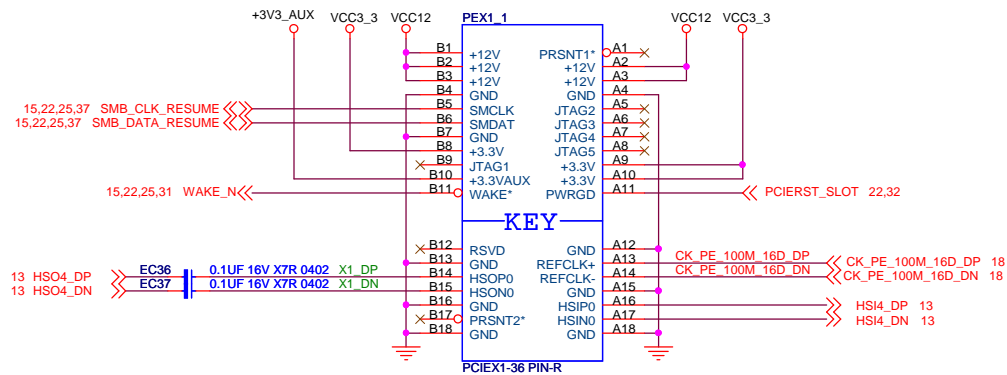
Title: **PCH GND**

Size: **Cusim** Document Number: **IH61D-MHS** Rev: **0.6**

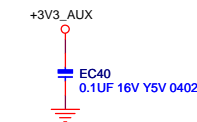
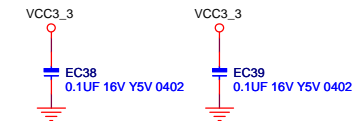
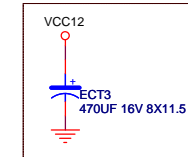
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For T-Series-----270UF-S 16V 8X11 ELITE  
For NO T-Series-----470UF 16V 8X11.5



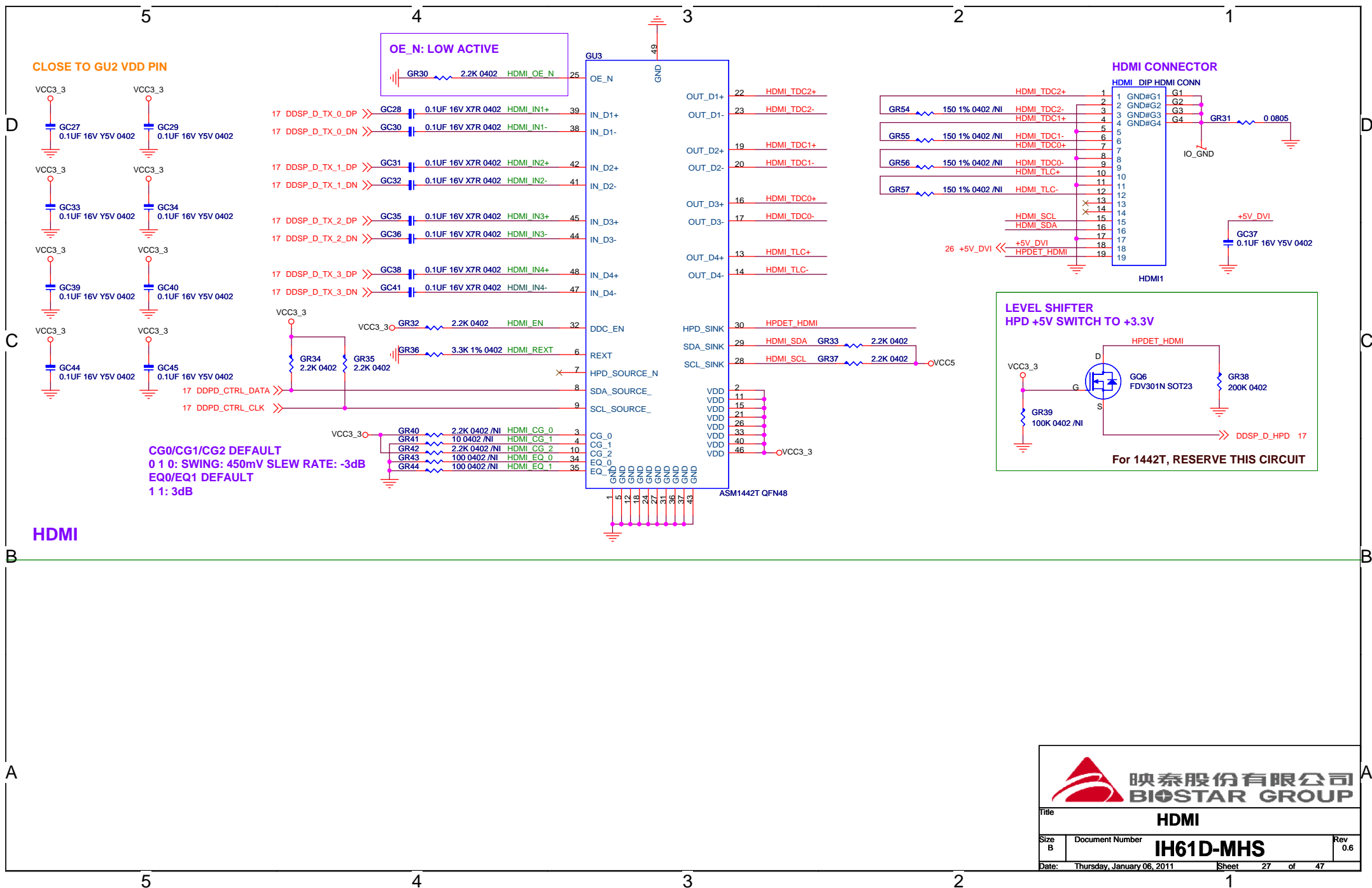
			
映泰股份有限公司 BIOSSTAR GROUP			
Title PCIE X1 SLOT			
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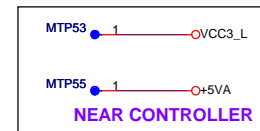
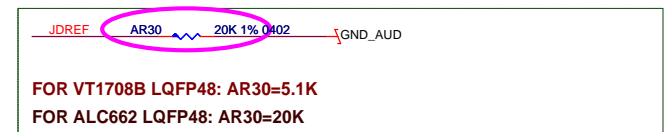
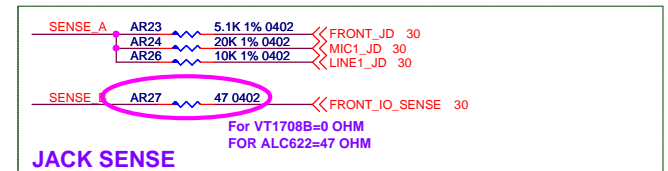
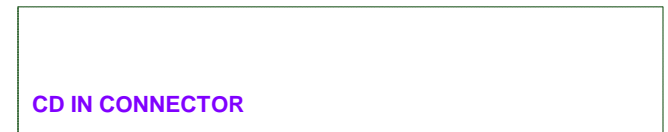
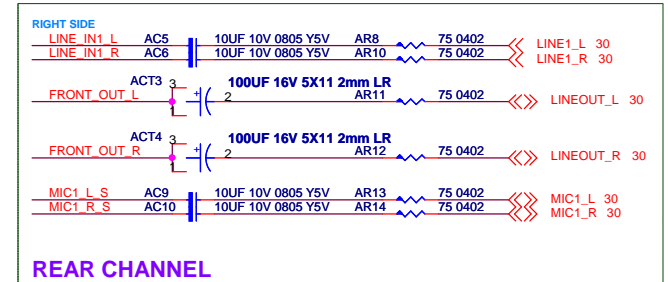
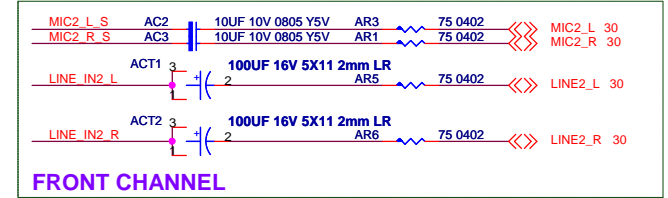
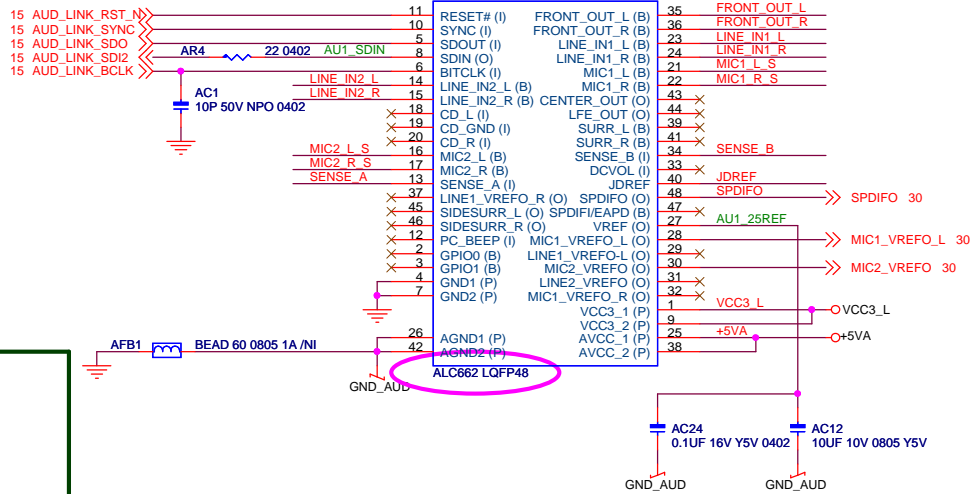
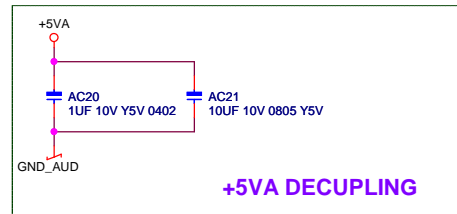
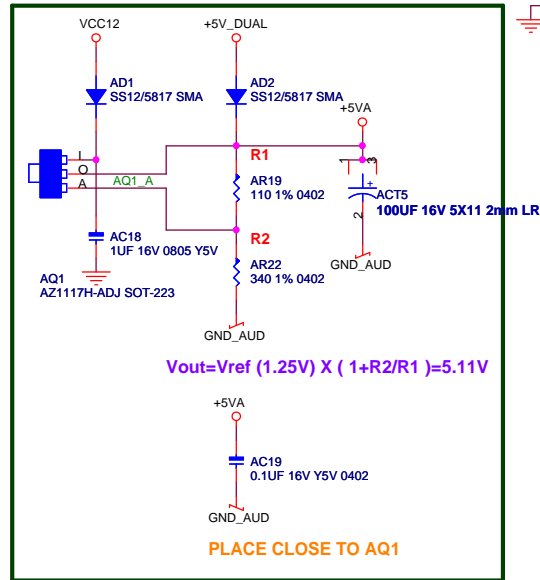
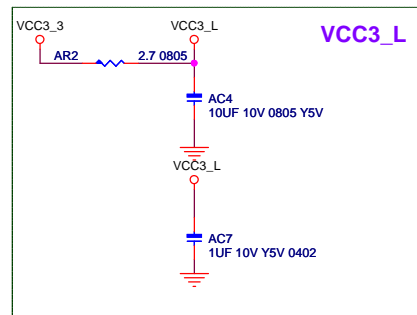




	5	4	3	2	1	
D						D
C						C
B						B
A						A
	5	4	3	2		

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Title <b>RESERVED</b>		
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# AUDIO PART: A+Reference

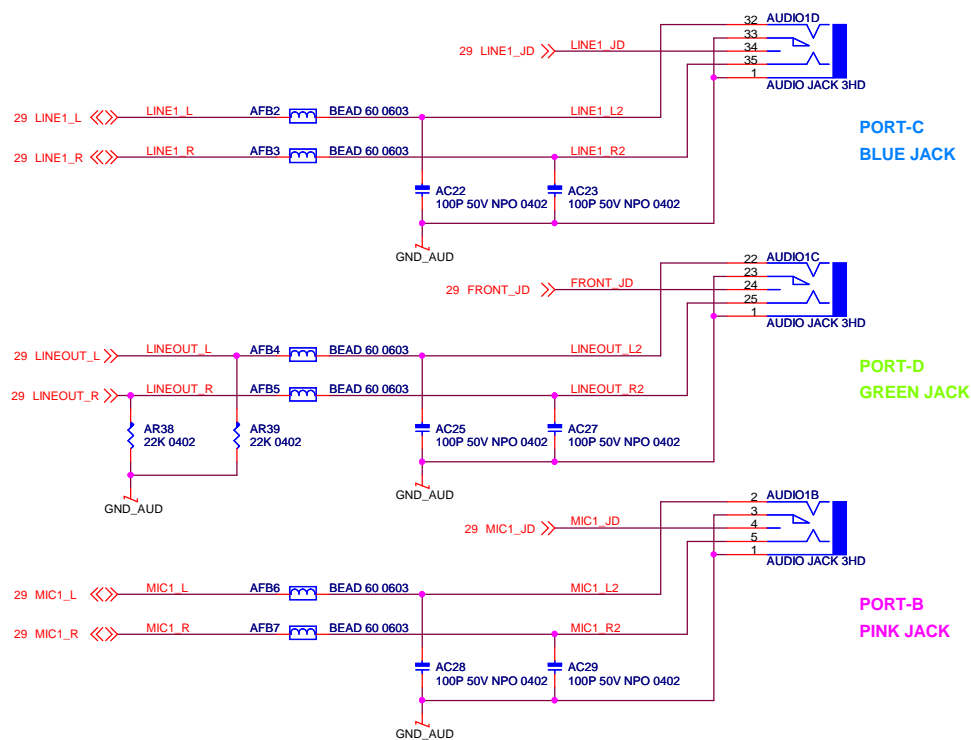


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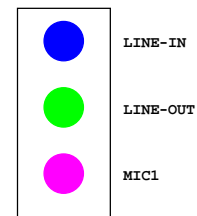
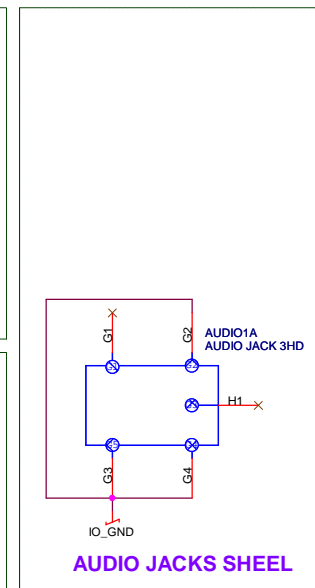
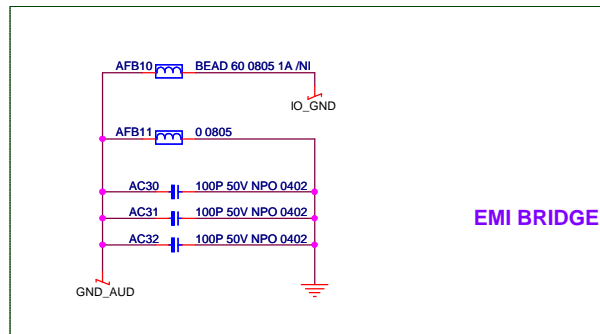
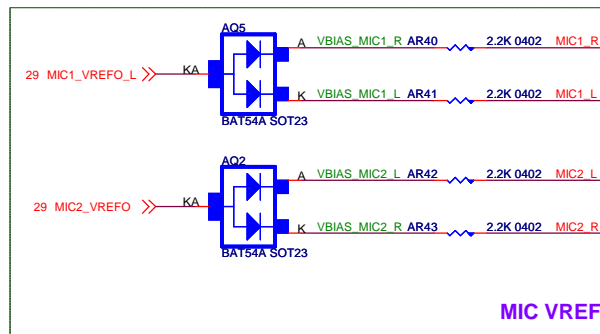
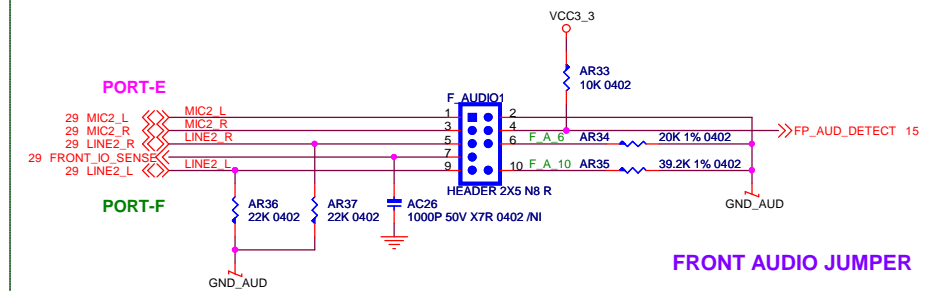
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Size B: **IH61D-MHS**

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REAR AUDIO JACKS



**映泰股份有限公司**  
**BIOSTAR GROUP**

Title: **AUDIO CONNECTOR**

Size: Custom

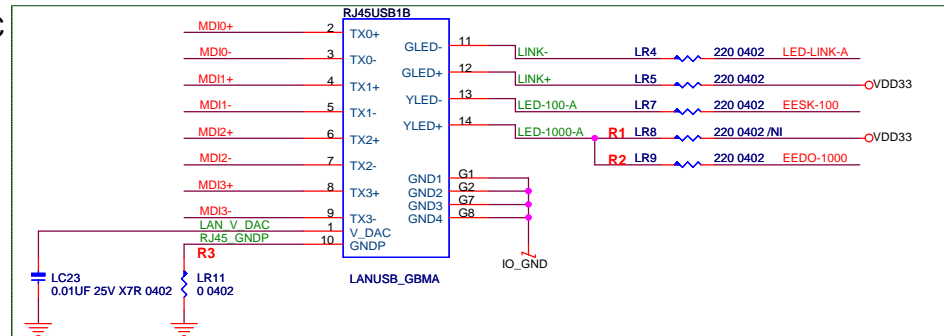
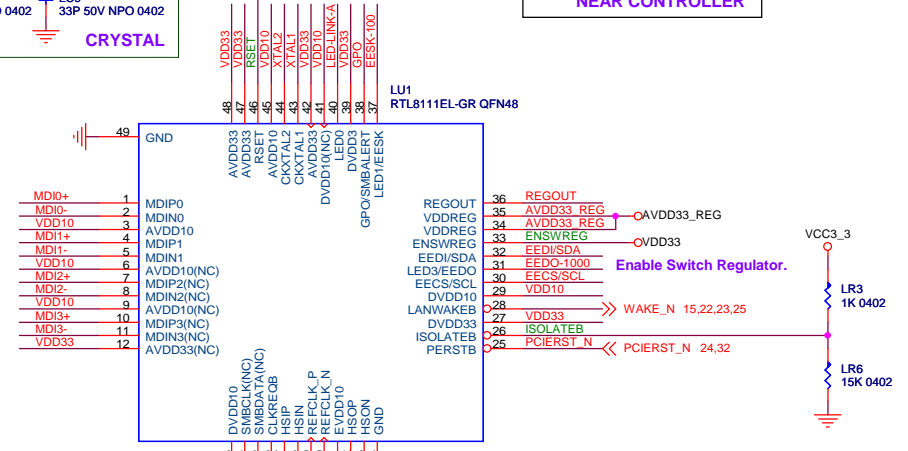
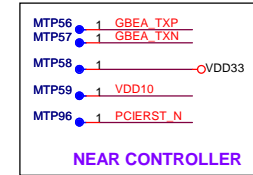
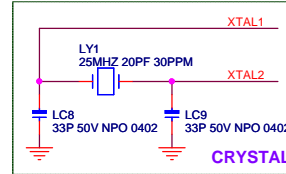
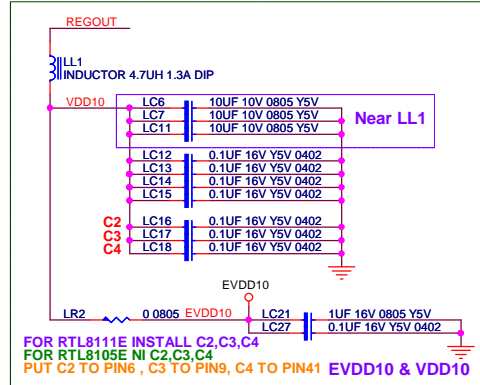
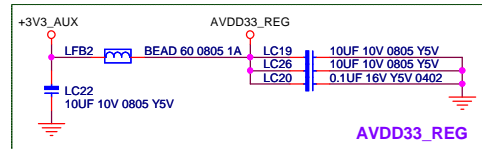
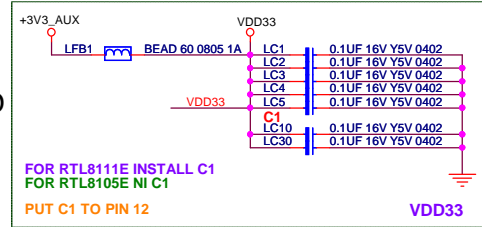
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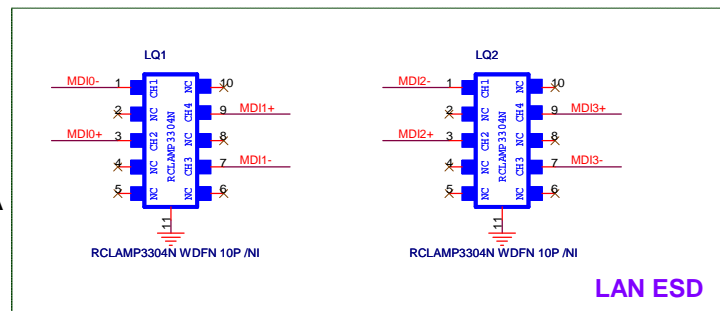
## LAN PART: L+Reference



FOR RTL8111E, INSTALL R3 TO 0ohm  
FOR RTL8105E, INSTALL R3 TO 0.01uF

FOR RTL8111E, INSTALL R2; NI R1  
FOR RTL8105E, INSTALL R1; NI R2

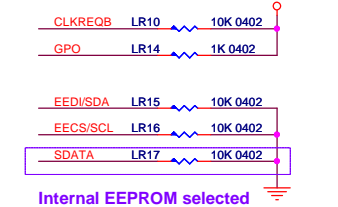
FOR RTL8111E, RJ45USB1 VALUE IS LANUSB\_GBMA  
FOR RTL8105E, RJ45USB1 VALUE IS RJ45USBA CONN



### COMPONENT CONTRAST LIST

LAN PARTS	C1	C2	C3	C4	R1	R2	R3	RJ45 CONN
RTL8111E	O	O	O	O	X	O	0ohm	LANUSB_GBMA
RTL8105E	X	X	X	X	O	X	0.01uF	RJ45USBA CONN

### LAN STRAP AND PULLS



**映泰股份有限公司**  
**BIOSTAR GROUP**

File: **ALC 8111E/8105E**

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VCC3.3

SRN1 4.7K 8P4R 0402

7 8

5 6

3 4

1 2

RTS1# JP4

SOUT1# JP3

DTR1# JP2

SR55 1K 0402 PCIRSTIN#

SR1 1K 0402 PWRGSD\_30

SR2 1K 0402 PWRGSD\_50

SR4 1K 0402 PWRGSD\_150

SR6 4.7K 0402 ATX\_PG

SR5 4.7K 0402/NI L\_FRAME\_N

+3V3\_STBY

SR3 1K 0402 5VSB\_CTRL

+3V3\_DUAL

SR7 4.7K 0402 R11#

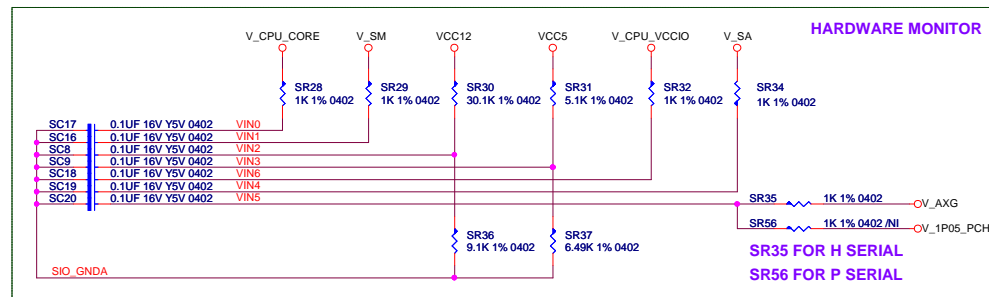
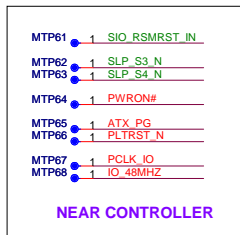
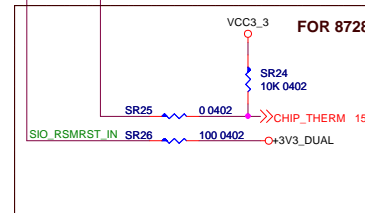
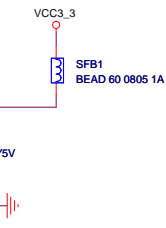
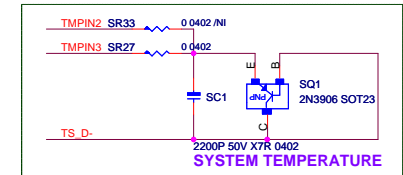
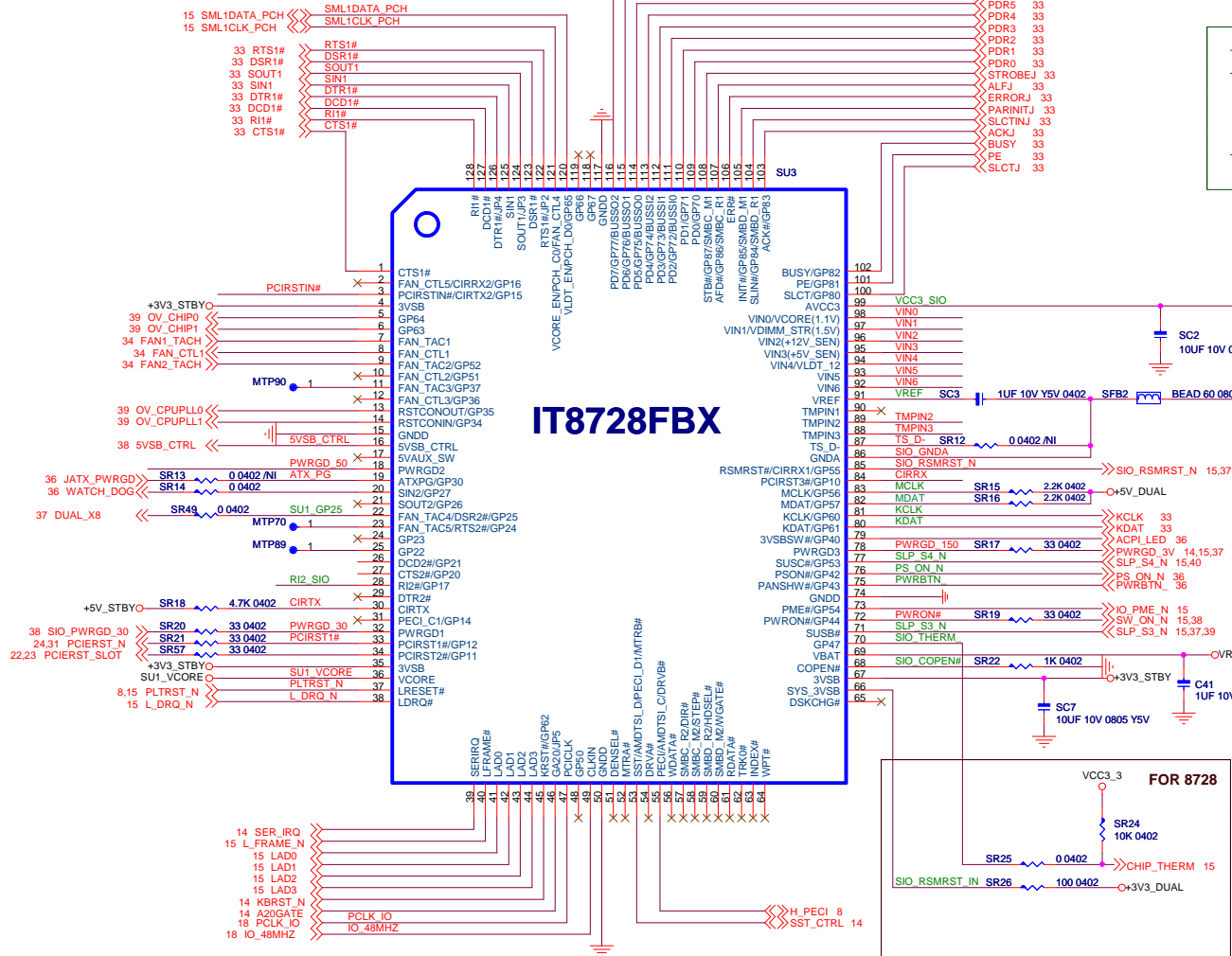
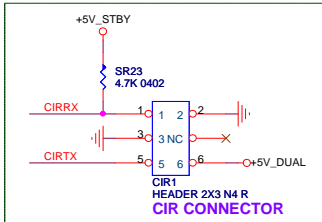
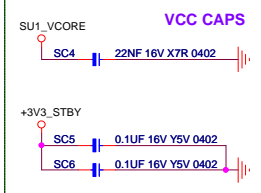
SR8 4.7K 0402 R12\_SIO

SR9 10K 0402 SIO\_RMSTST\_N

+3V3\_STBY

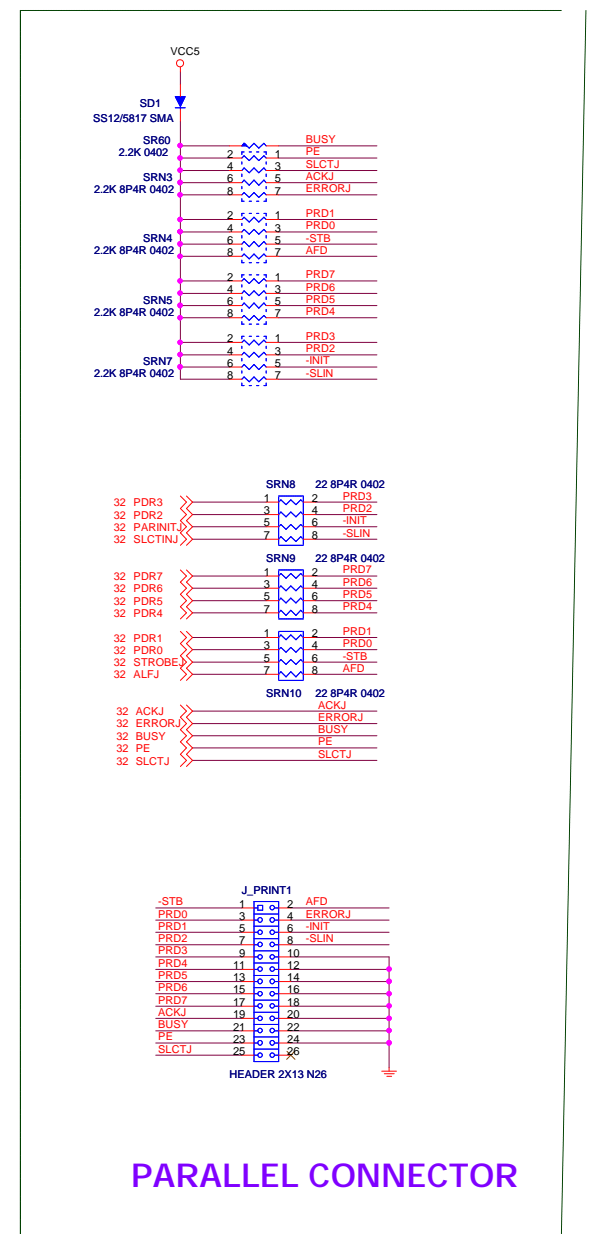
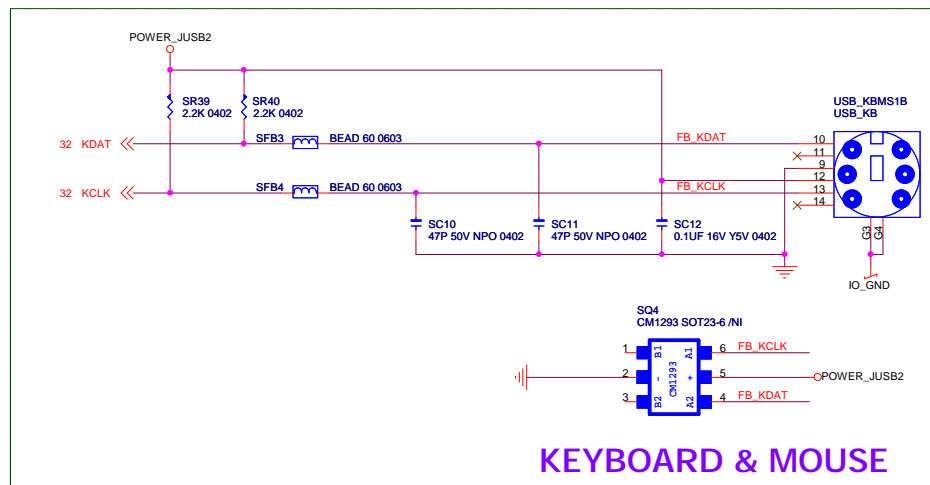
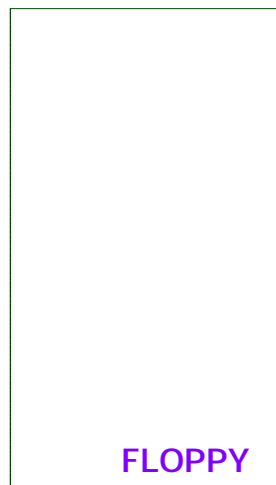
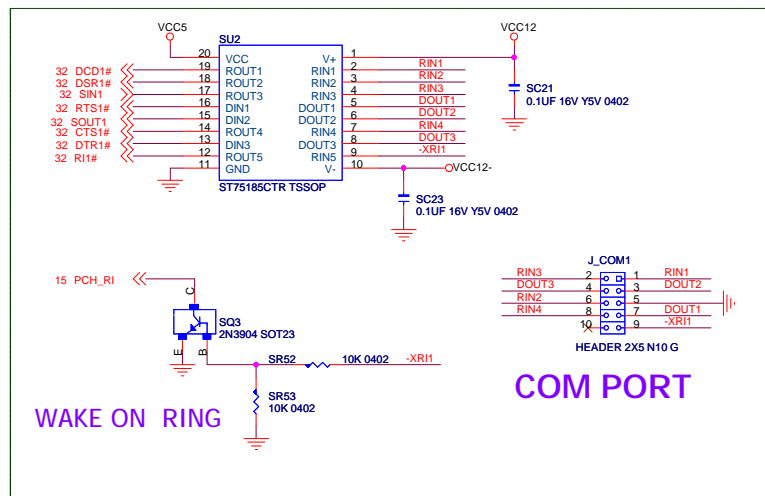
SR54 10K 0402/NI PWRON# JP8

**SUPERIO PULLS**

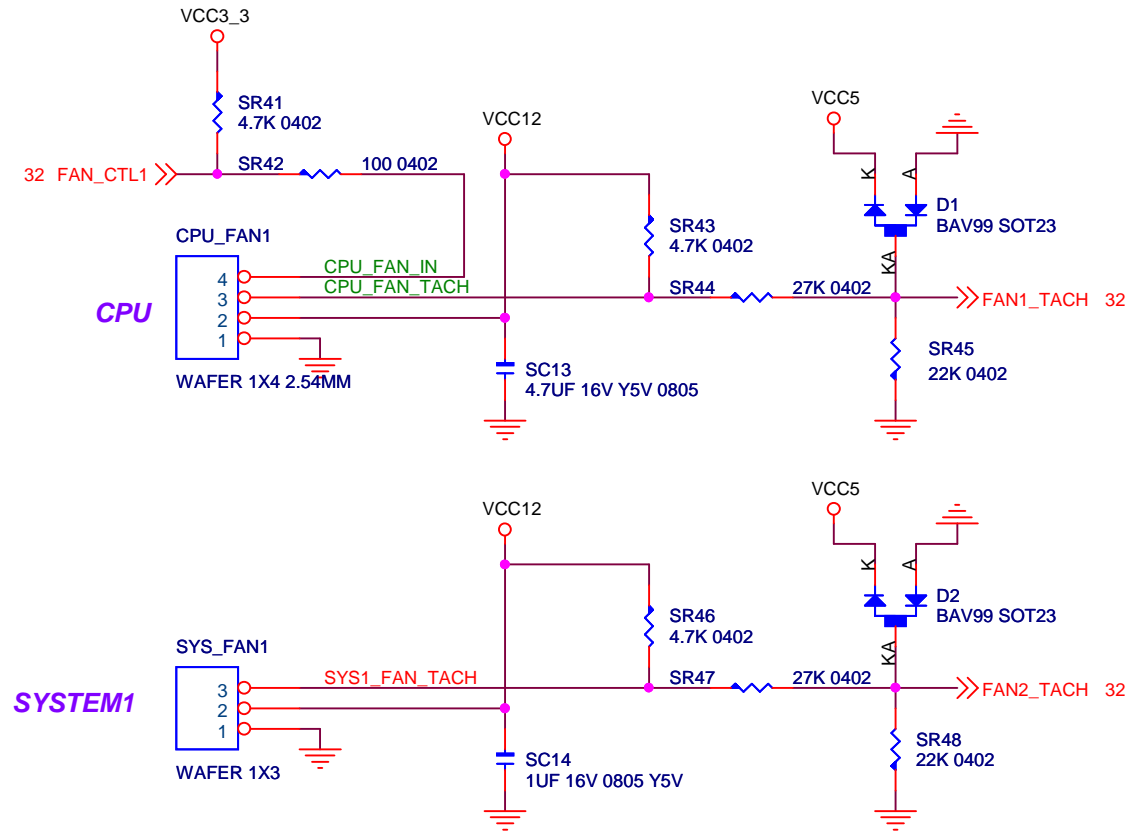



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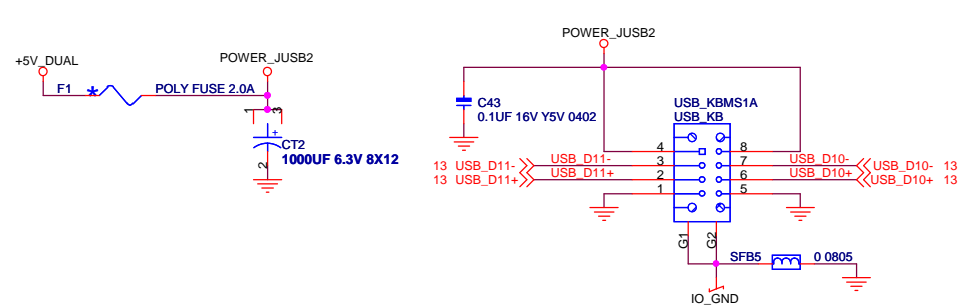




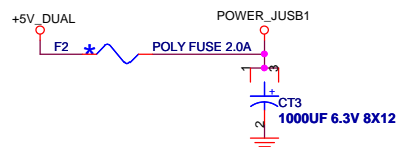
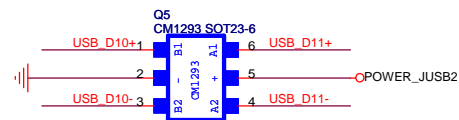
# CPU FAN/SYSTEM FAN1/SYSTEM FAN2



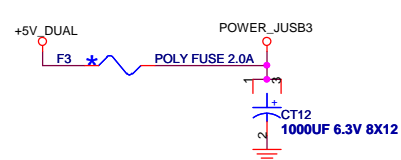
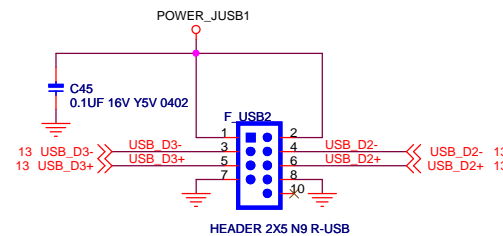
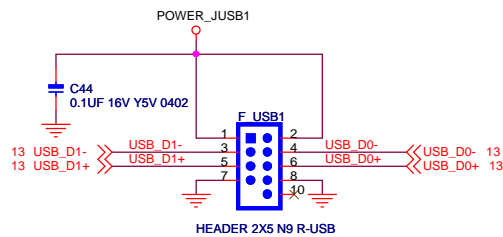
 <b>映泰股份有限公司</b> <b>BIOSTAR GROUP</b> <b>HW MONITOR/FAN CONTROL</b>		
Size A	Document Number	Rev 0.6
<b>IH61D-MHS</b>		
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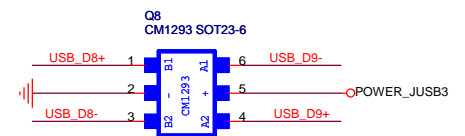
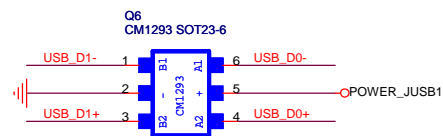
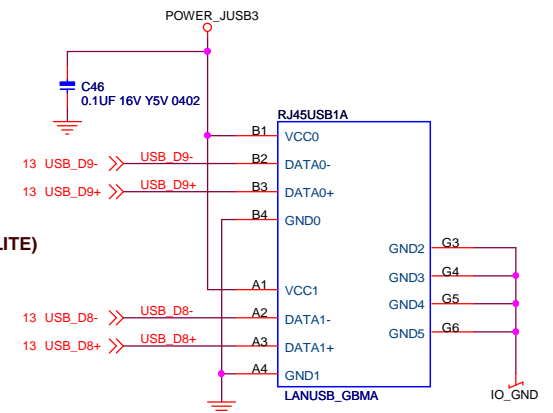
For T-Series-----560UF-S 6.3V 6.3X8 8X12(ELITE)  
For NO T-Series-----1000UF 6.3V 8X12



FRONT PANEL USB



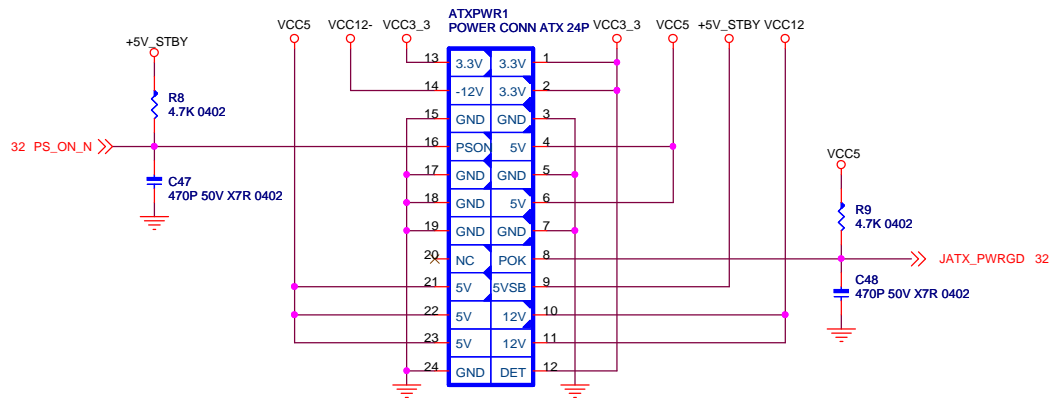
For T-Series-----560UF-S 6.3V 6.3X8 8X12(ELITE)  
For NO T-Series-----1000UF 6.3V 8X12



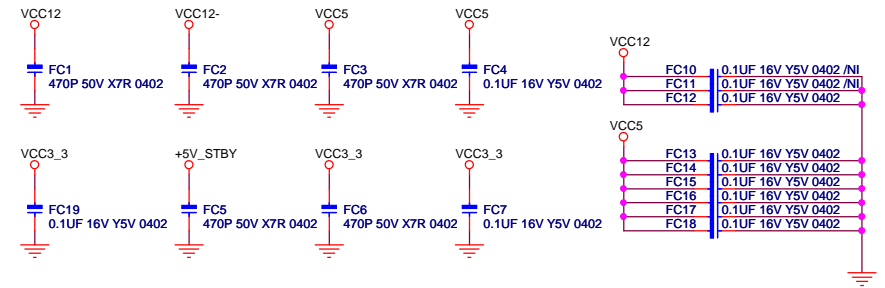
Title		
USB CONN		
Size B	Document Number	Rev 0.6
IH61D-MHS		
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## 24 PIN POWER CONNECTOR

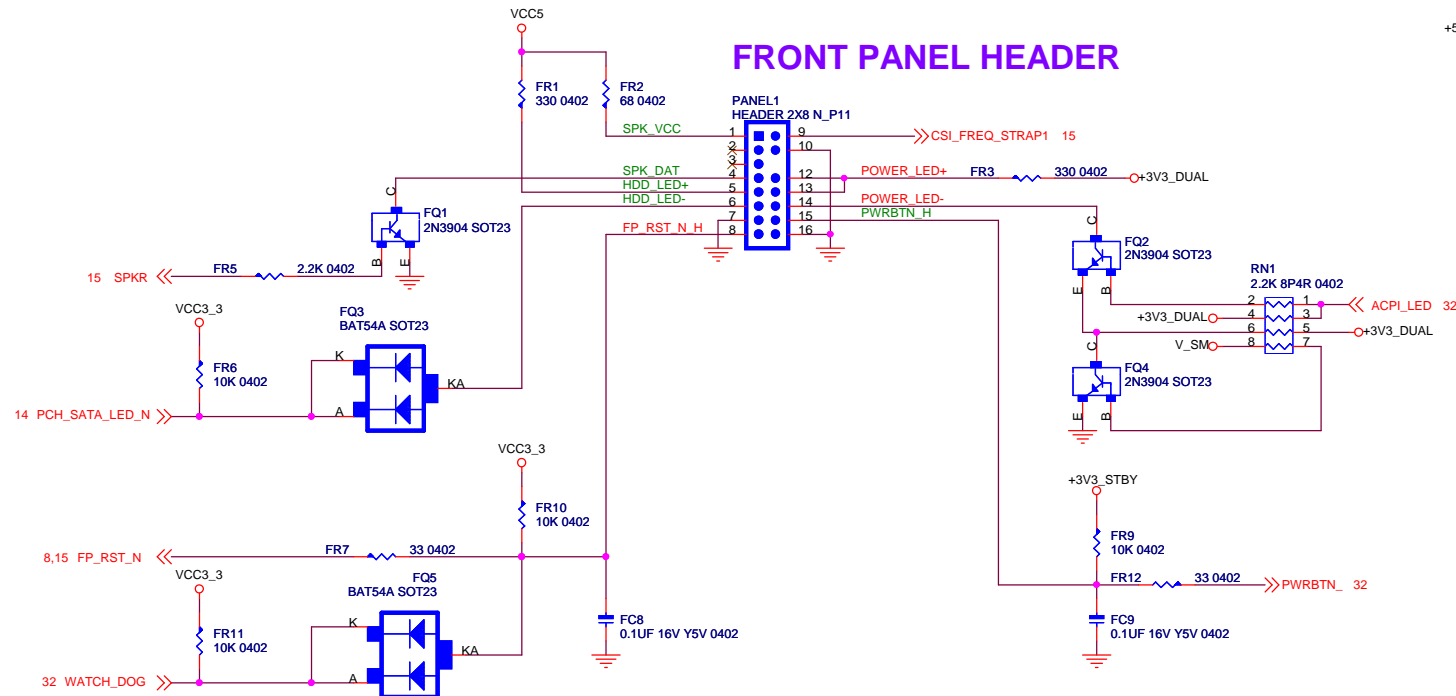
JATXPWR



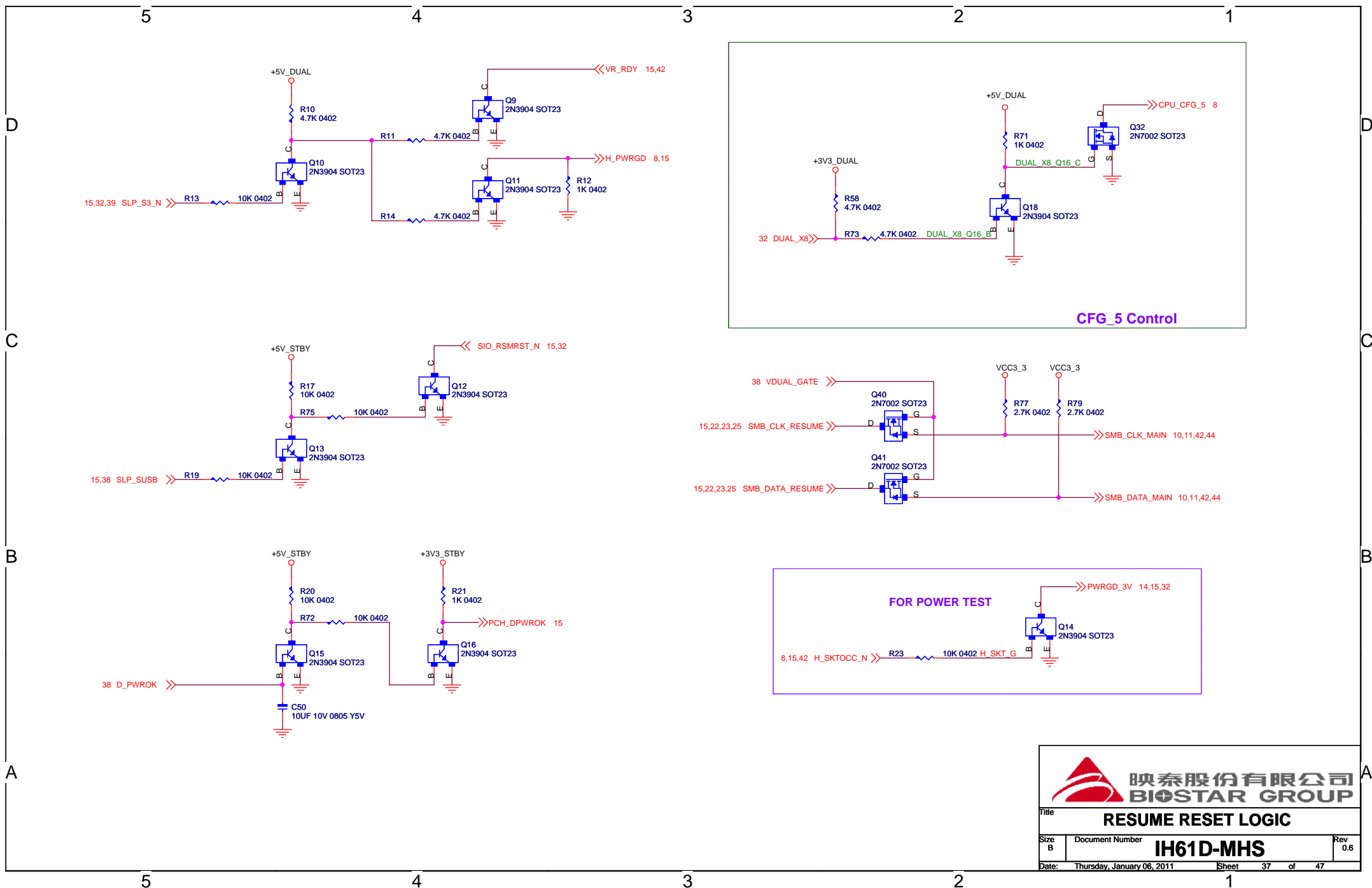
FOR EMI near power conn.

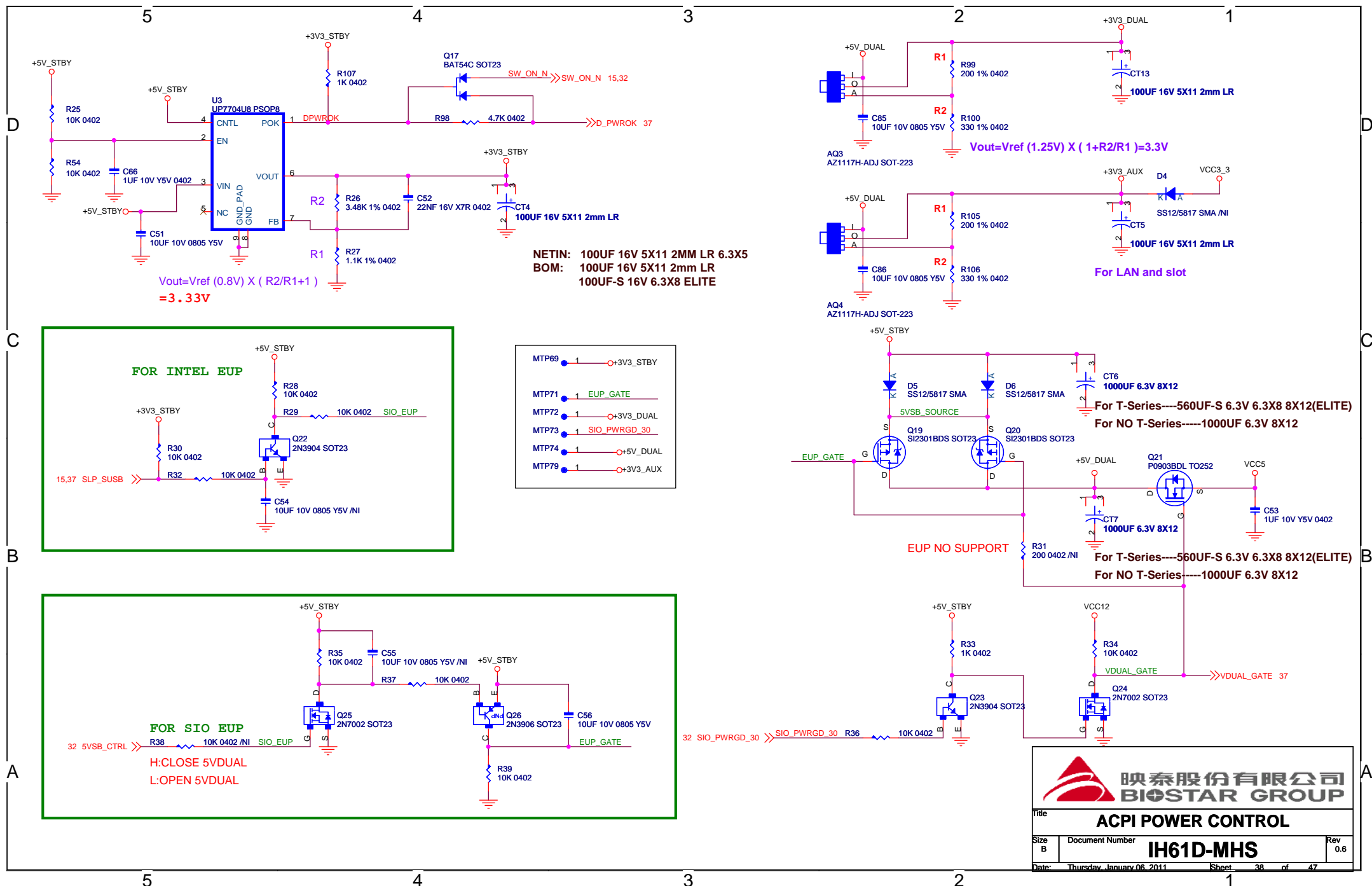


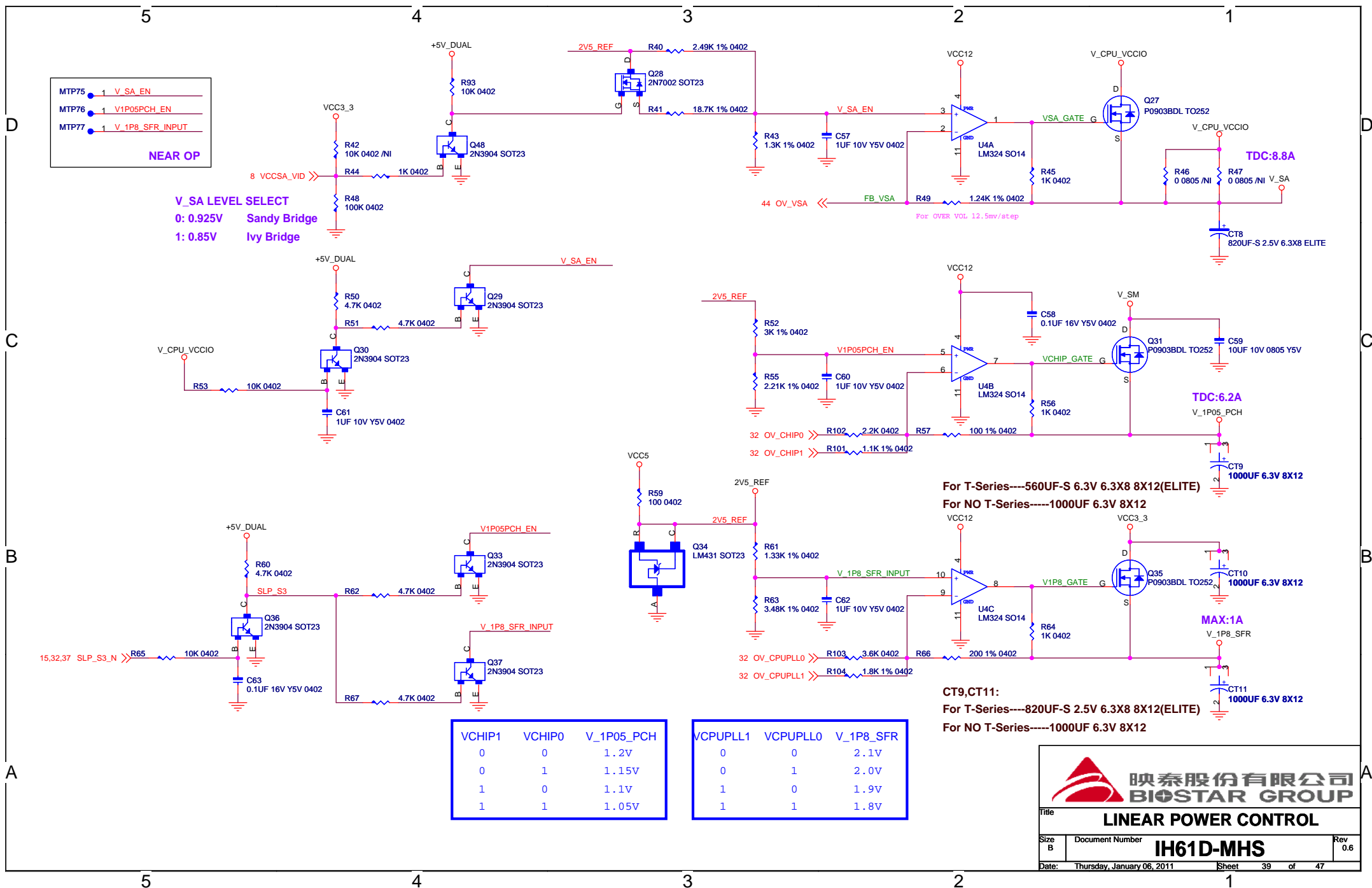
## FRONT PANEL HEADER



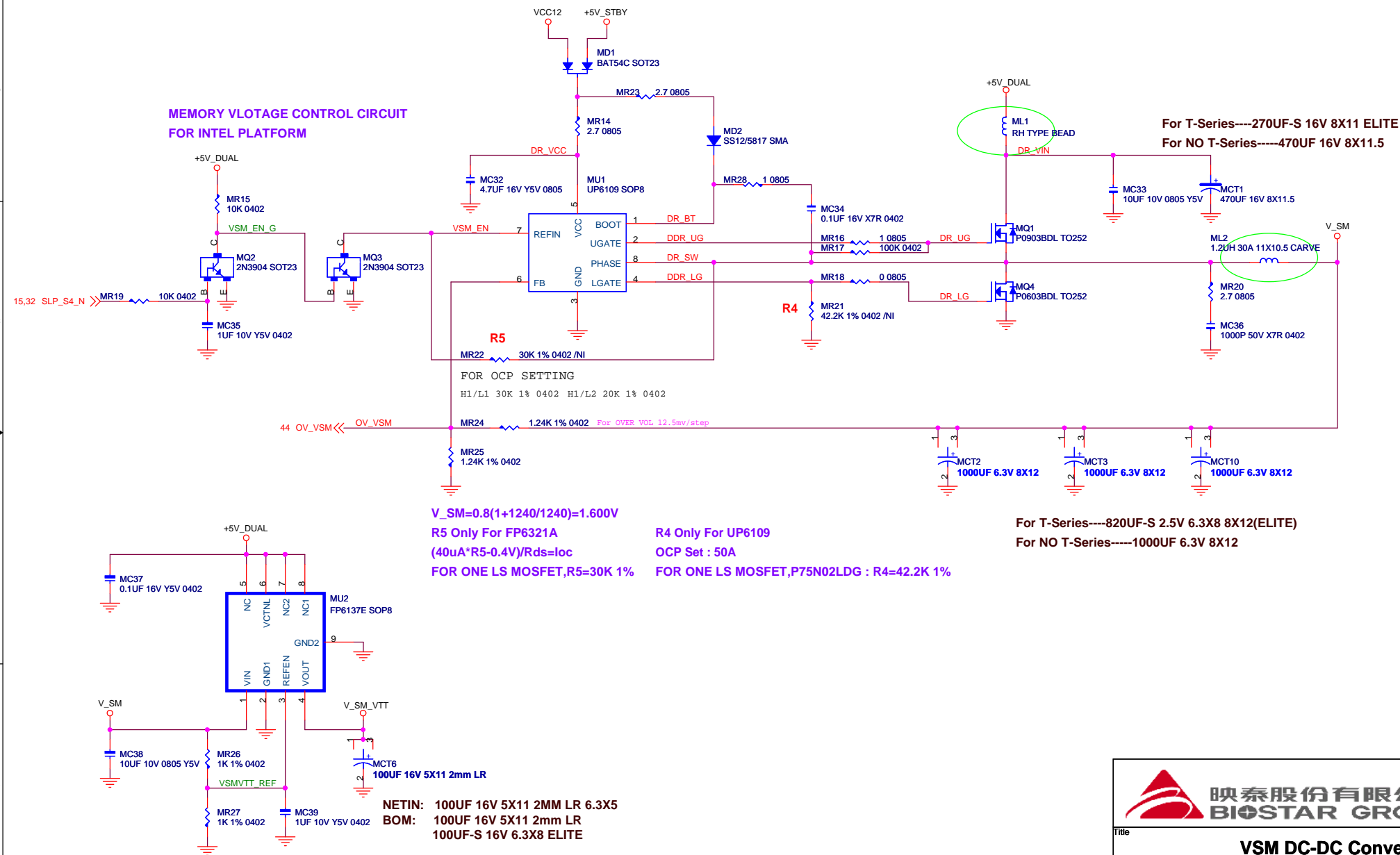
 <b>映泰股份有限公司</b> <b>BIOSSTAR GROUP</b>			
Title <b>24PIN POWER CONN&amp;FP</b>			
Size B	Document Number	<b>IH61D-MHS</b>	
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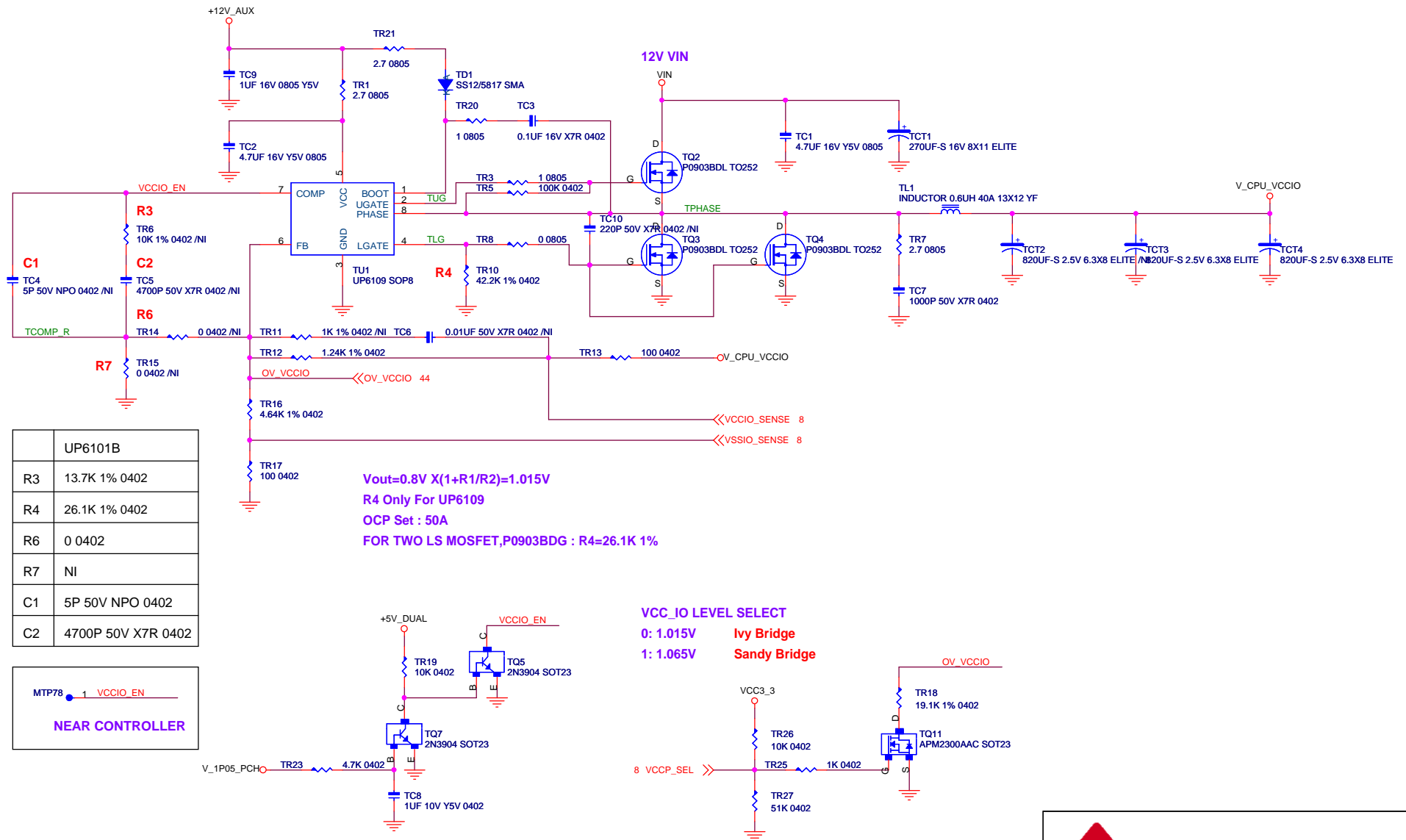
# MEMORY VOLTAGE CONTROL CIRCUIT FOR INTEL PLATFORM



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BIOSTAR GROUP

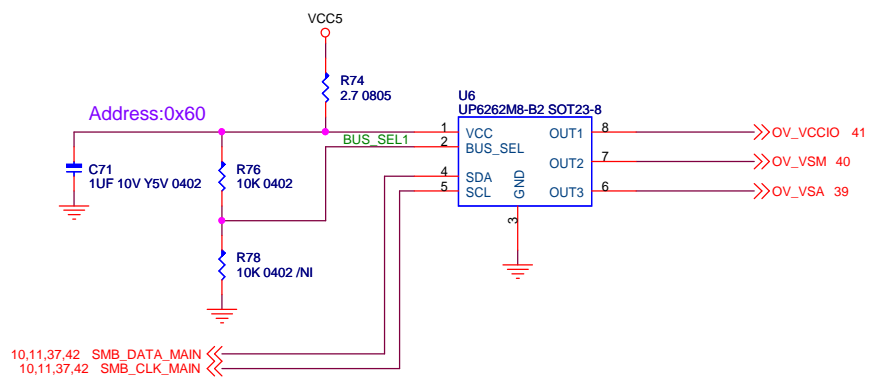
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Size	Document Number	Rev
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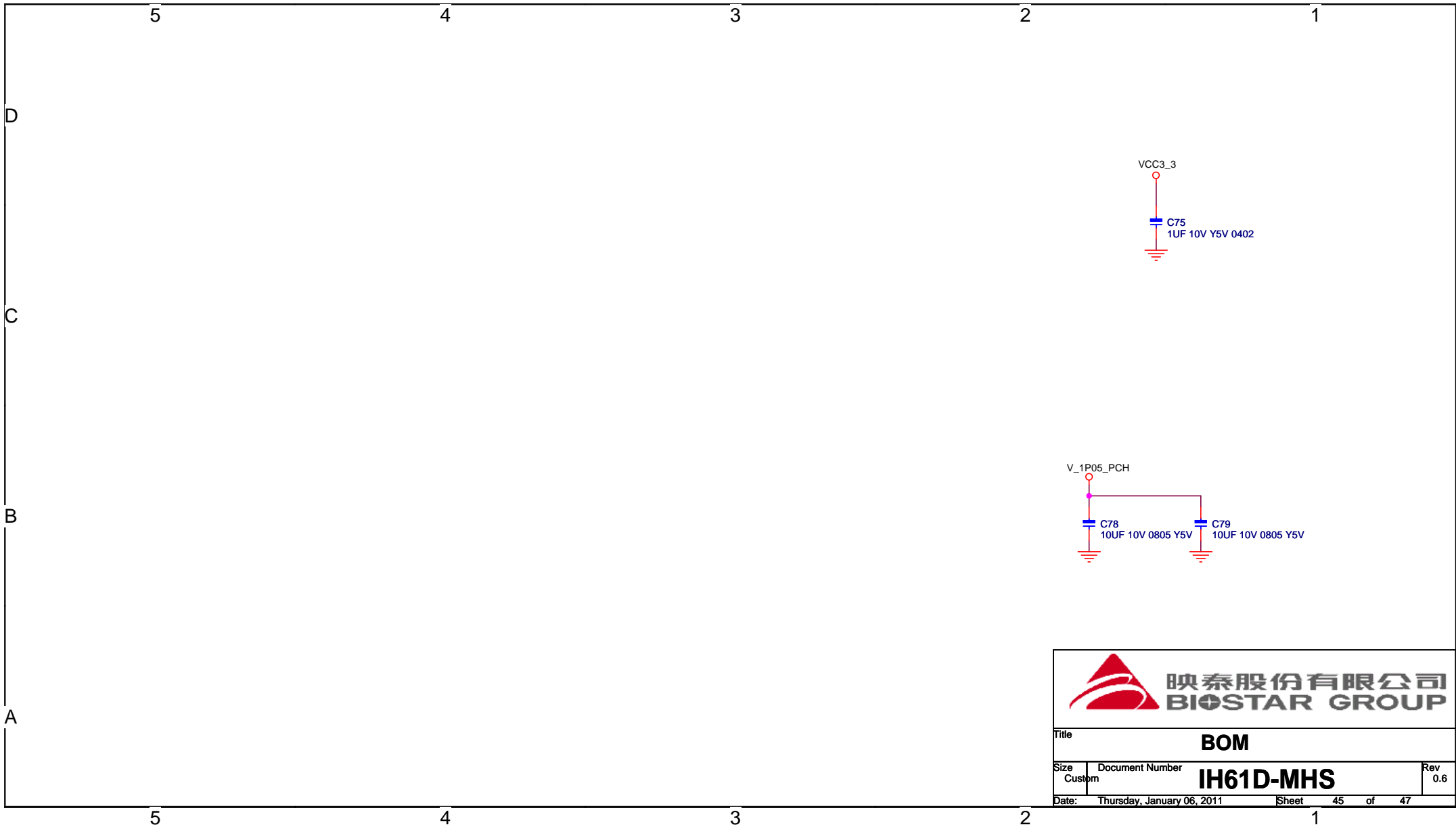








 <b>映泰股份有限公司</b> <b>BIOSSTAR GROUP</b>		
Title <b>OVER VOLTAGE</b>		
Size Custom	Document Number <b>IH61D-MHS</b>	Rev 0.6
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5 4 3 2 1

D

D

C

C

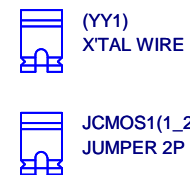
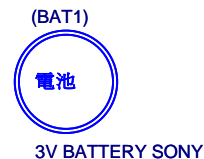
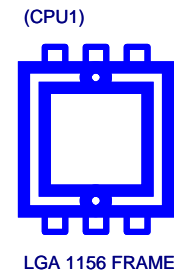
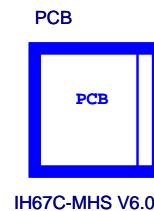
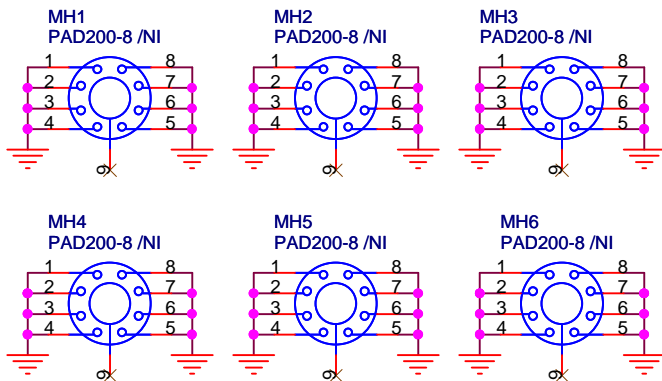
B

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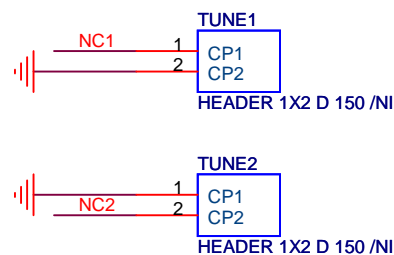
A

A

 映泰股份有限公司 BIOSSTAR GROUP			
Title <b>USB3.0 HOST CONTROLLER</b>			
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# Impedance Testing Coupon



New PANEL1  
PANEL1 2\*8

YELLOW COLOR

V0.6

PCB:15-N77-106000R12

86-IH61DMHS-R01P-060

96-IH61DMHS-R01P-060

V6.0

86-IH61DMHS-R01P-60

96-IH61DMHS-R01P-60



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BOM

Size  
A

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