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MS-7817

Version : 81

mATX 174mm x 231mm

Intel Sharkbay plamform B85

CPU:

INTEL-Haswell LGA1150

System Chipset:

B85

Memory:

DDRIII (1333/1666MHz) * 2 (Dual Channel)

PWM:

VRD12 - ISL95812

OnBoard Chipset:

HD Audio Codec:ALC887

LAN-realtek8111G

SIO:NUVOTON 5533D

SPI ROM: 128 MB

Expansion Slots:

PCI Express (X16) Slot * 1

PCI Express (X1) Slot * 2

Other:

DVI*1
VGA*1

SATA2*2
SATA3*4

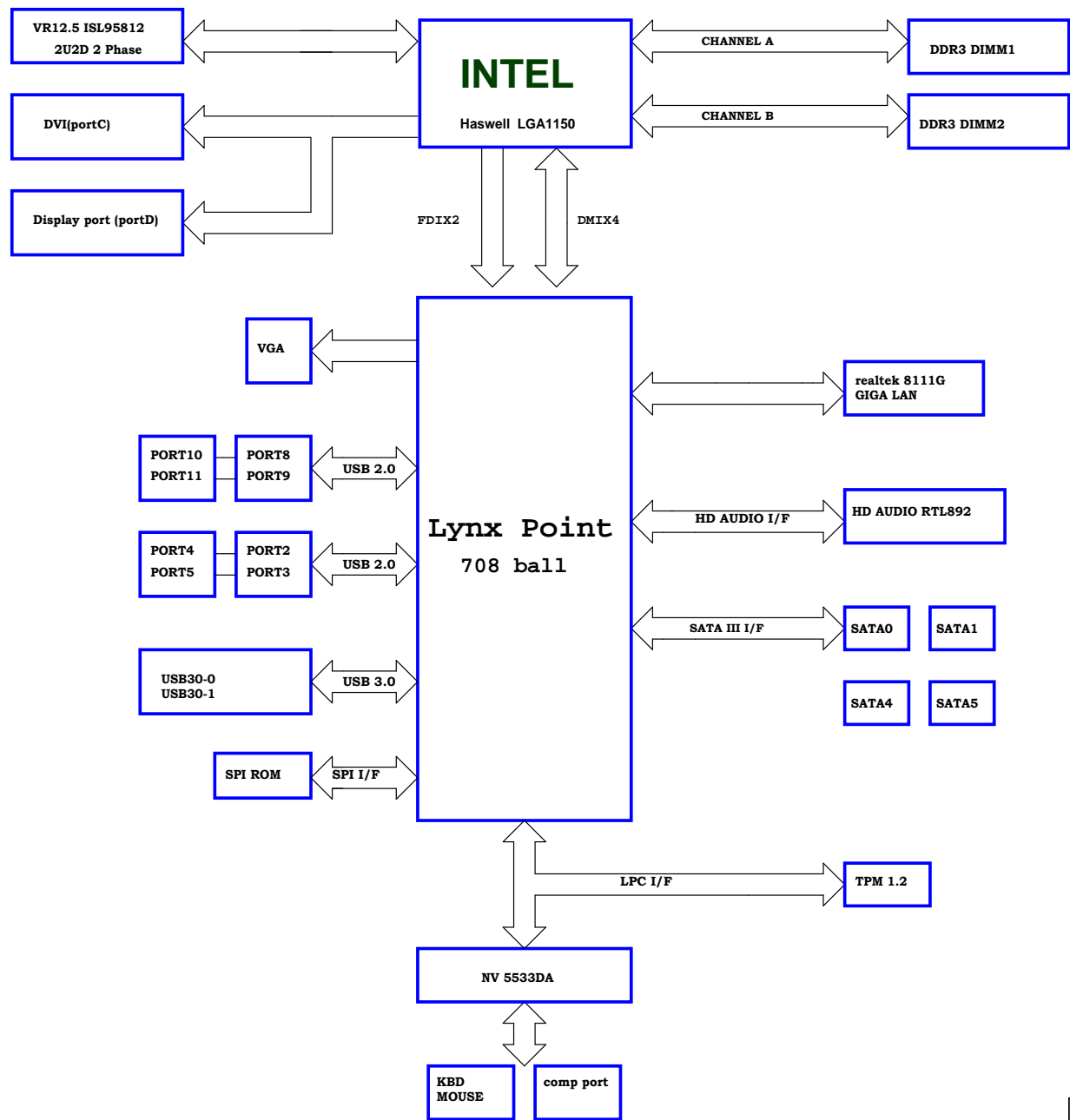
FRONT USB2.0 *4
FRONT USB3.0 *2

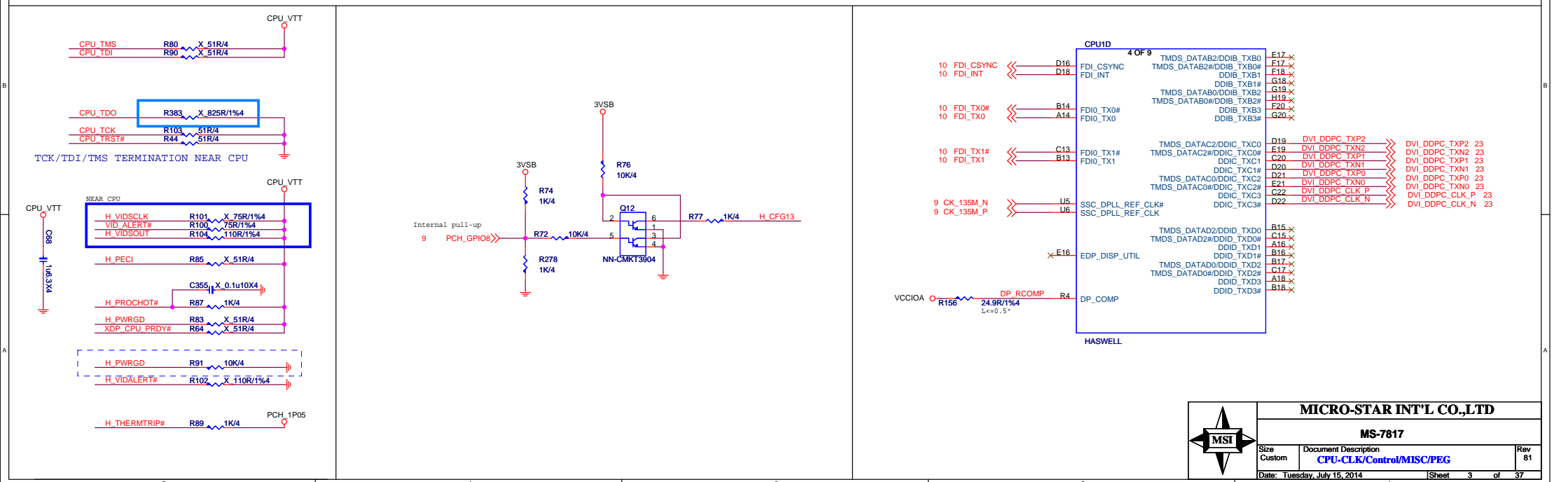
REAL USB2.0 *2
REAL USB3.0 *2



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MS-7817		
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MS-7817 Block Diagram






GND

GND

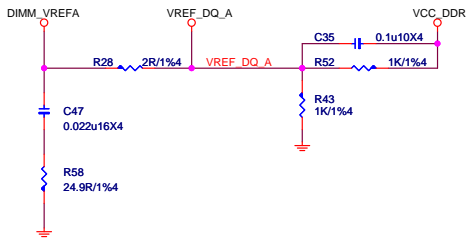
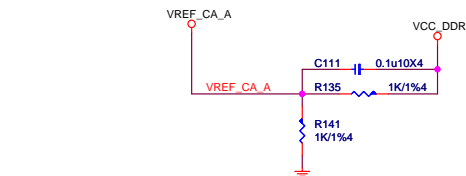
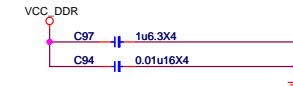
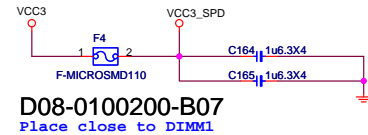
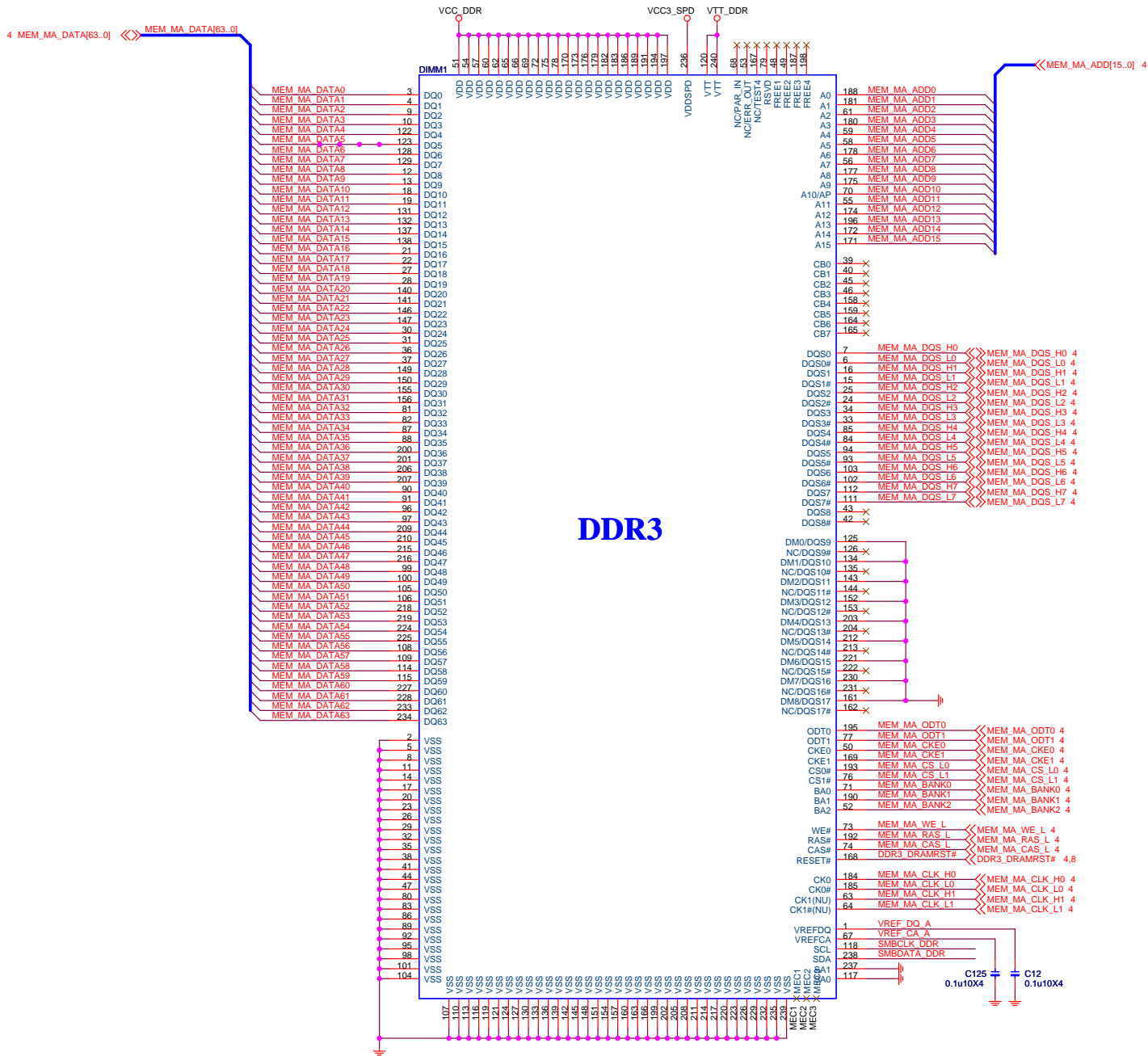
N12-150A010-L06



MICRO-STAR INT'L CO.,LTD

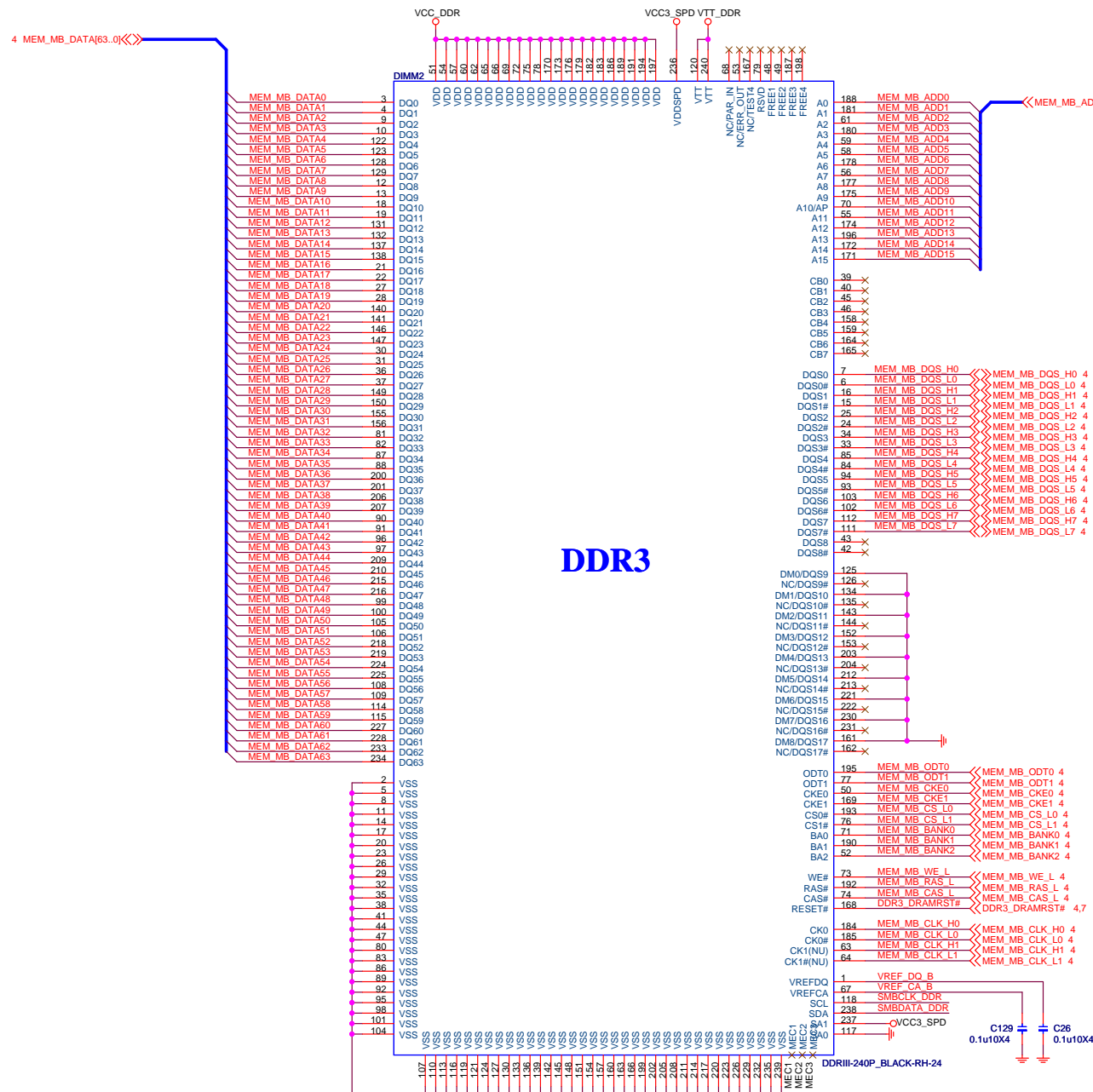
MS-7817

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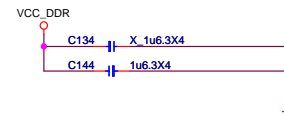
8 SMBCLK_DDR >> SMBCLK_DDR R175 33R/4 >> SMBCLK_VCC 11,28
8 SMBDATA_DDR >> SMBDATA_DDR R176 33R/4 >> SMBDATA_VCC 11,28

DDRIII DIMM_B0

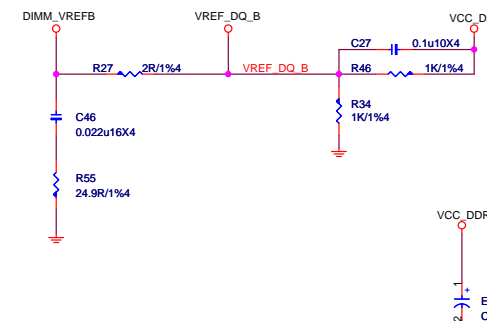
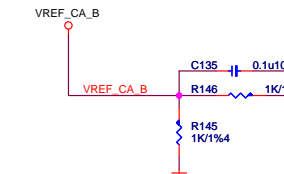
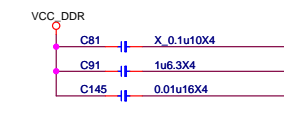


N13-2401471-L06

Place close to DIMM2



Place close to DIMM2



VCC_DDR

EC15

CD560u6.3SO-RH-5

SMBCLK_DDR << SMBCLK_DDR 7
SMBDATA_DDR << SMBDATA_DDR 7

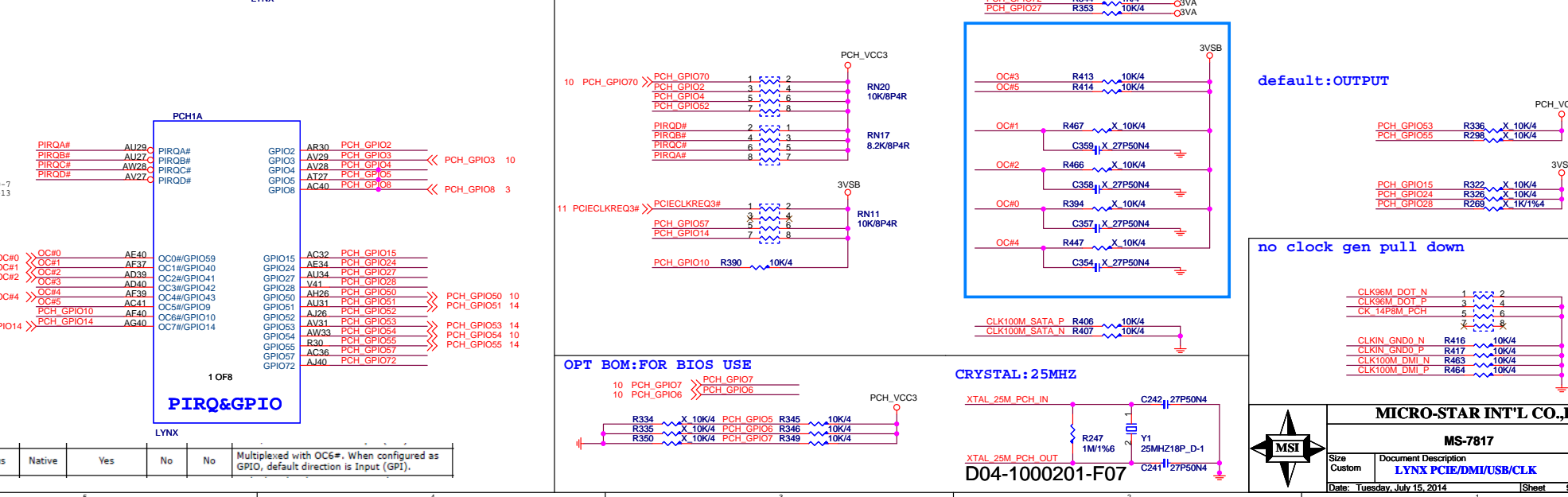
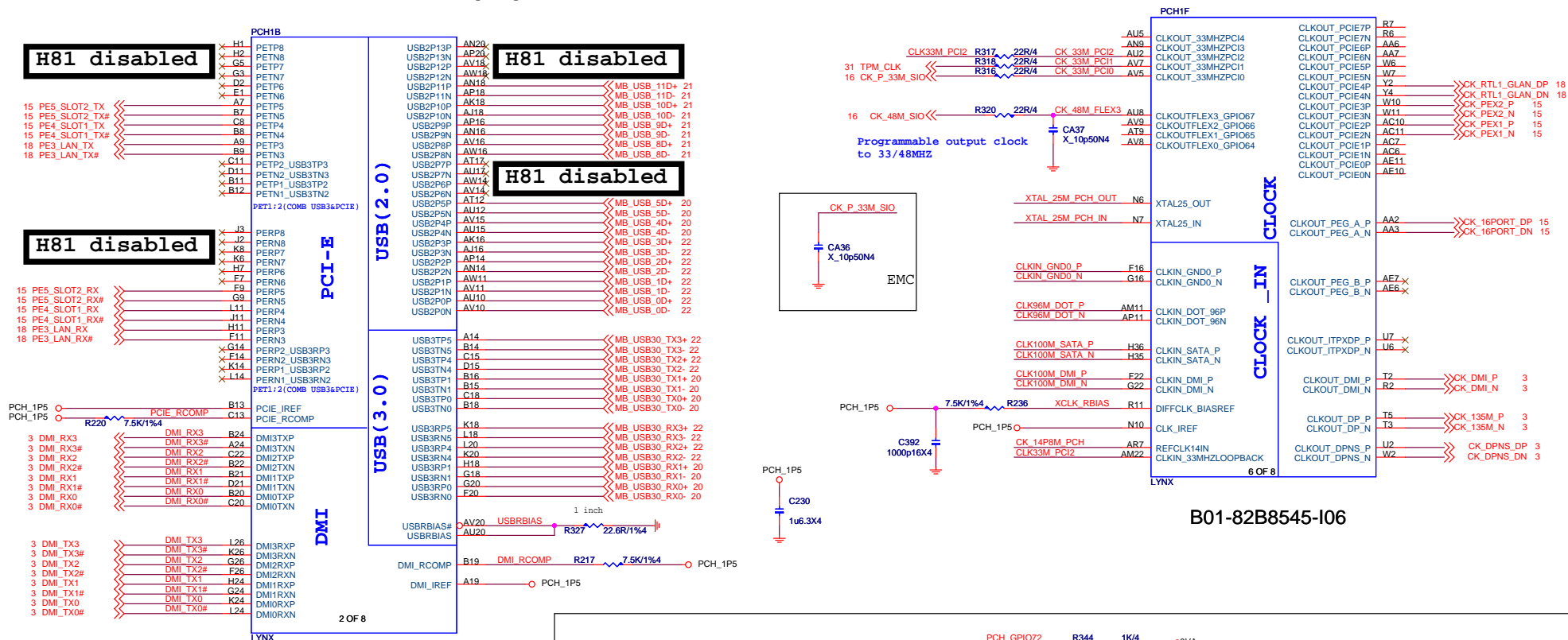


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MS-7817

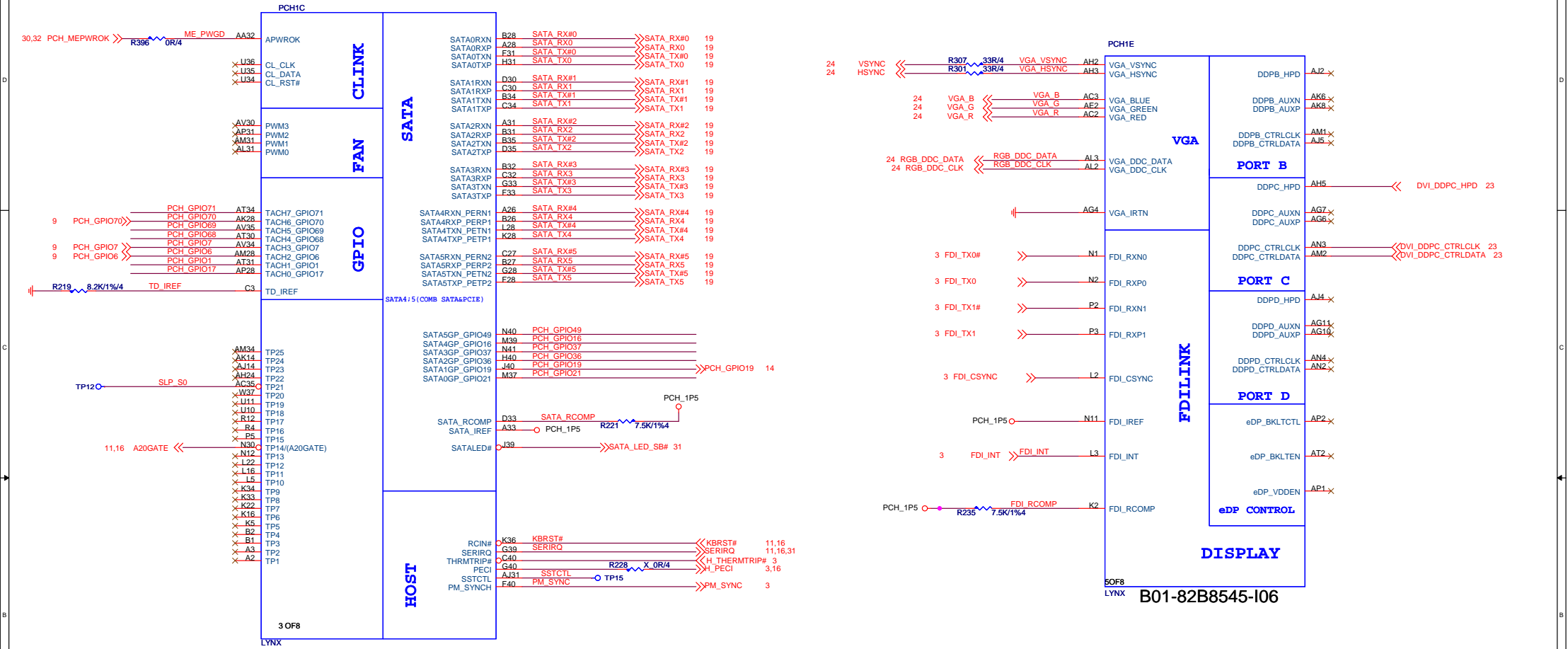
Size Custom	Document Description DDR3 Chanel-B DIMM2	Rev 81
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USB 2.0 ports 6,7,12 and 13 are disabled on 10 port SKUs.
Only USB 3.0 ports 1 and 2 are enabled.
pcie port7,8 NA

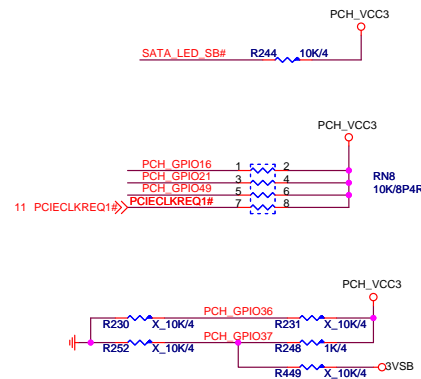
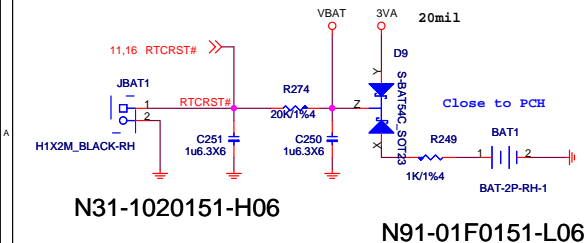


GPI010	Sus	Native	Yes	No	No	Multiplexed with OC6#. When configured as GPIO, default direction is Input (GPI).

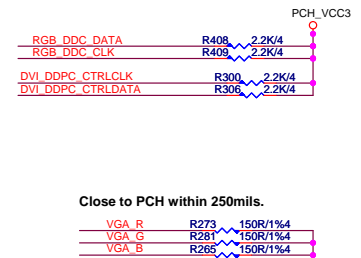
SATA ports 2 and 3 are disabled on 4 port SKUs.
SATA 6 Gb/s support on ports 0 and 1 only.



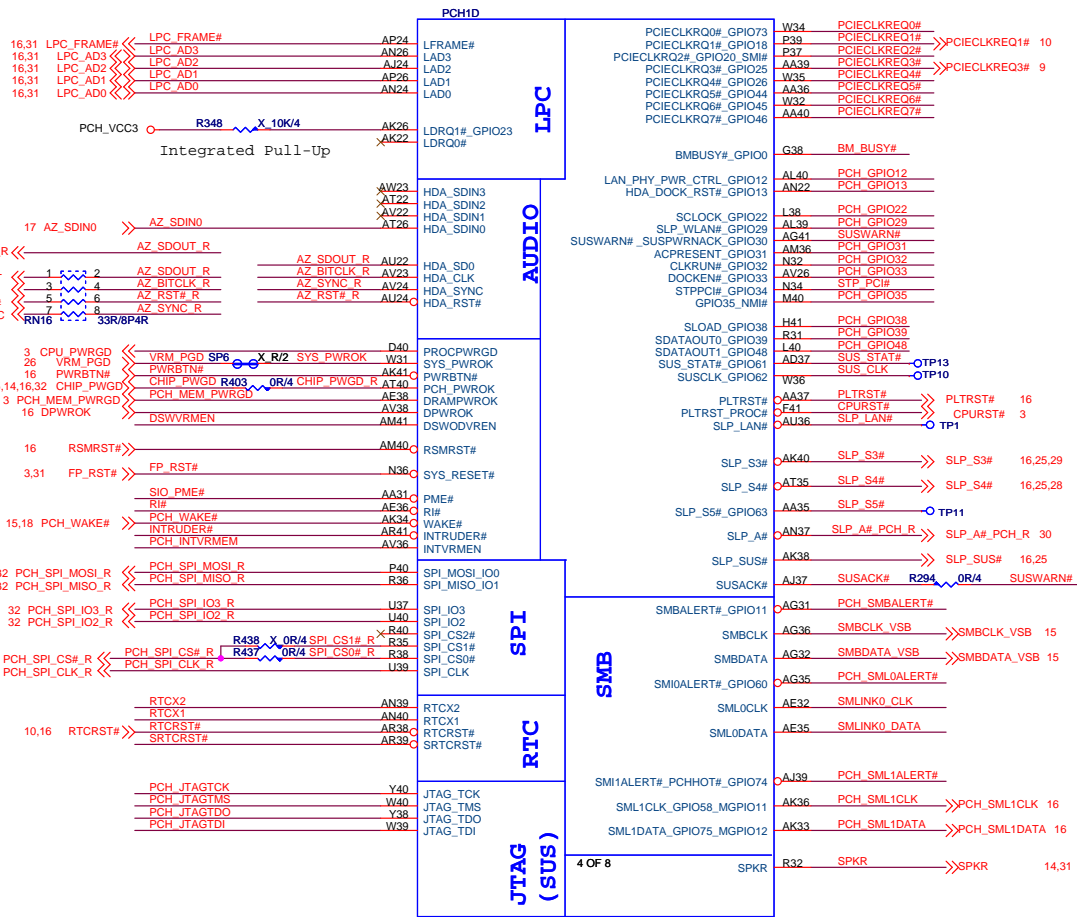
RTC and CLR_CMOS



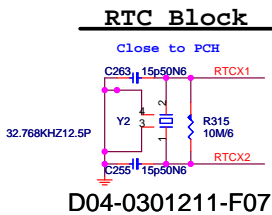
Enable VGA(CTRLCLK/DATA Pull High)



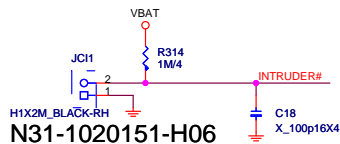
MICRO-STAR INT'L CO.,LTD			
MS-7817			
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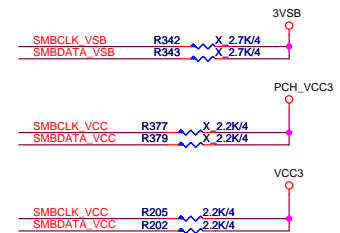
B01-82B8545-I06



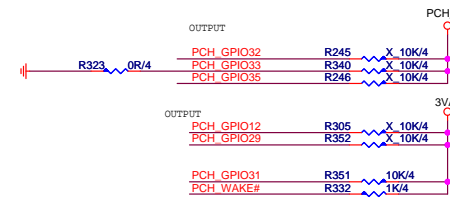
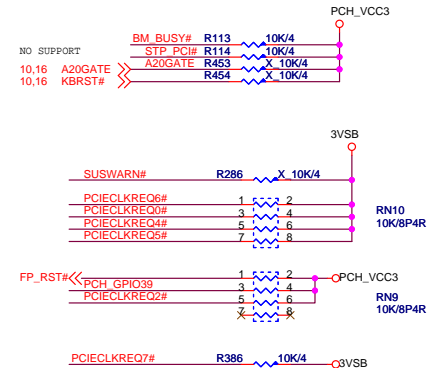
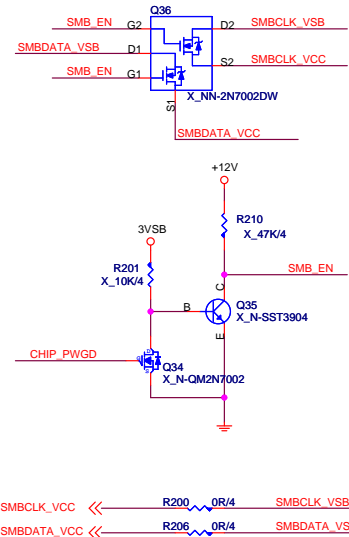
Chassis Intrusion



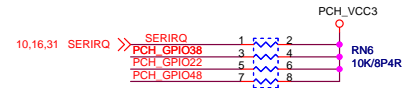
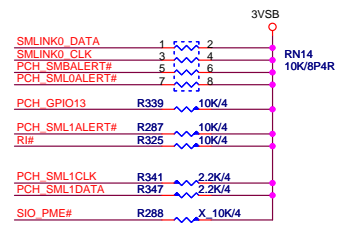
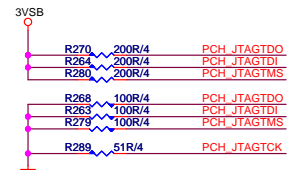
SMBUS
VSB TO PCH & PCIE
VCC TO DDR & XDP



D03-7002D20-P15



JTAG PULL HIGH and PULL DOWN

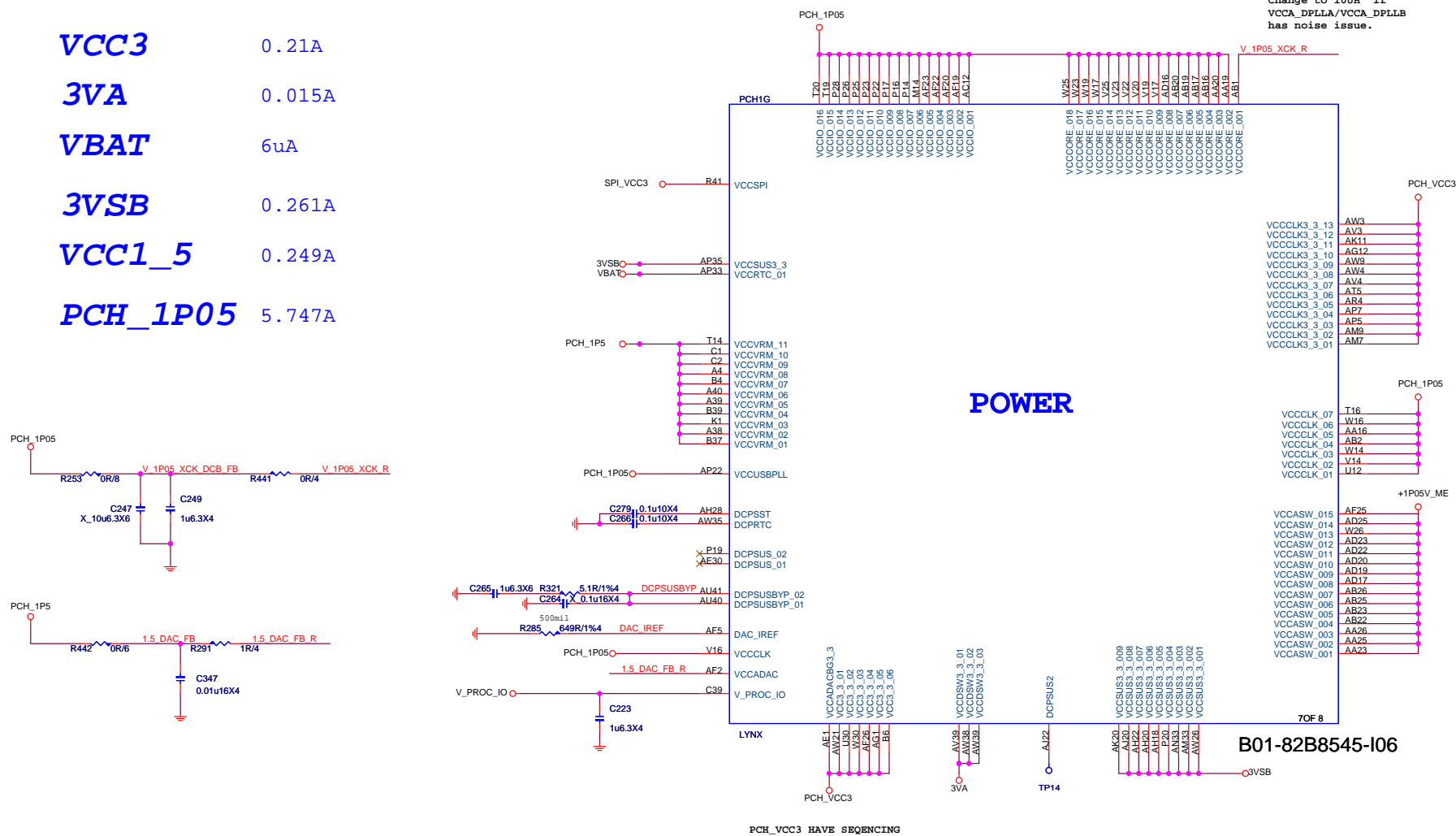


MICRO-STAR INT'L CO.,LTD

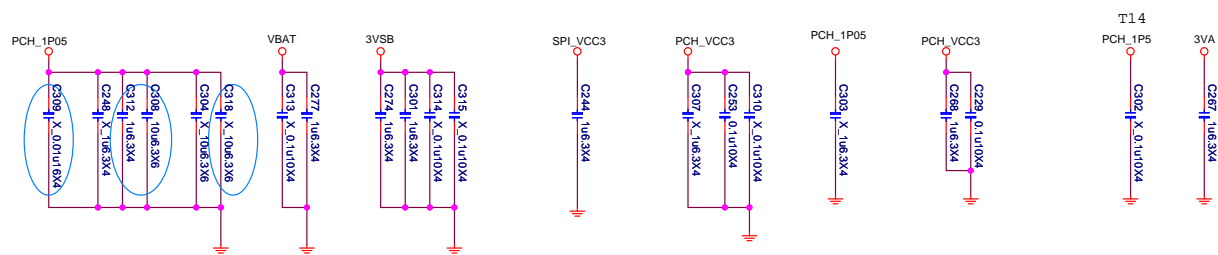
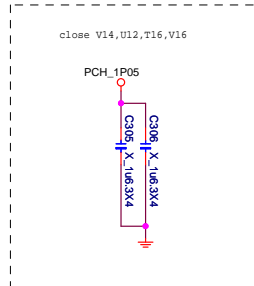
MS-7817

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Custom	LYNX-SMB/LPC/AUDIO/RTC	81
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VCC3	0.21A
3VA	0.015A
VBAT	6uA
3VSB	0.261A
VCC1_5	0.249A
PCH_1P05	5.747A



PCH decoupling cap

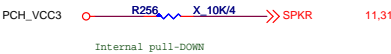


MICRO-STAR INT'L CO.,LTD

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PCH Straps



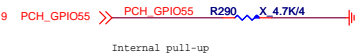
SPKR

Default Mode:

Internal weak Pull-down.

No Reboot Mode with TCO Disabled:

Connect to Vcc3_3 with 8.2k-10k Ohm weak pullup resistor.



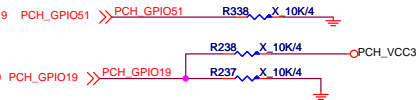
GPIO55

Default Mode:

Internal pull-up.

Top Block Swap Mode:

Connect to ground with 4.7k Ohm weak pulldown resistor.



SATA1GF/GPIO19, GPIO51

Default (SPI):

Left both SATA1GF/GPIO19 and GPIO51 floating. No pull up required.

Boot from PCI:

Connect SATA1GF/GPIO19 to ground with 1k Ohm pull-down resistor. Leave GPIO51 Floating.

Boot from LPC:

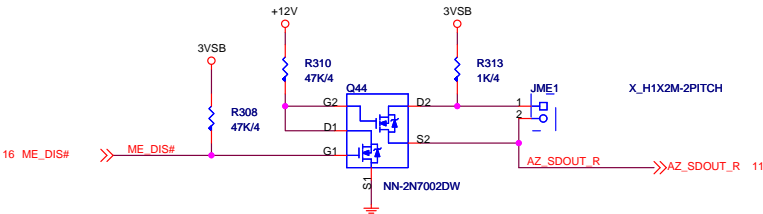
Connect both SATA1GF/GPIO19 and GPIO51 to ground with 1k Ohm pull-down resistor.



GPIO53

Do not pull low.

Connect to ground with 1k Ohm pull-down resistor.



HDA_SDO

Default:

Do not pull high.

Disable ME in Manufacturing Mode:

Connect to VccSusHDA with 1k Ohm pull-up resistor through a jumper.

GPIO37

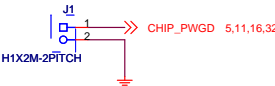
Enable TLS:

Pull up with 1k Ohm to VccSus3.3.

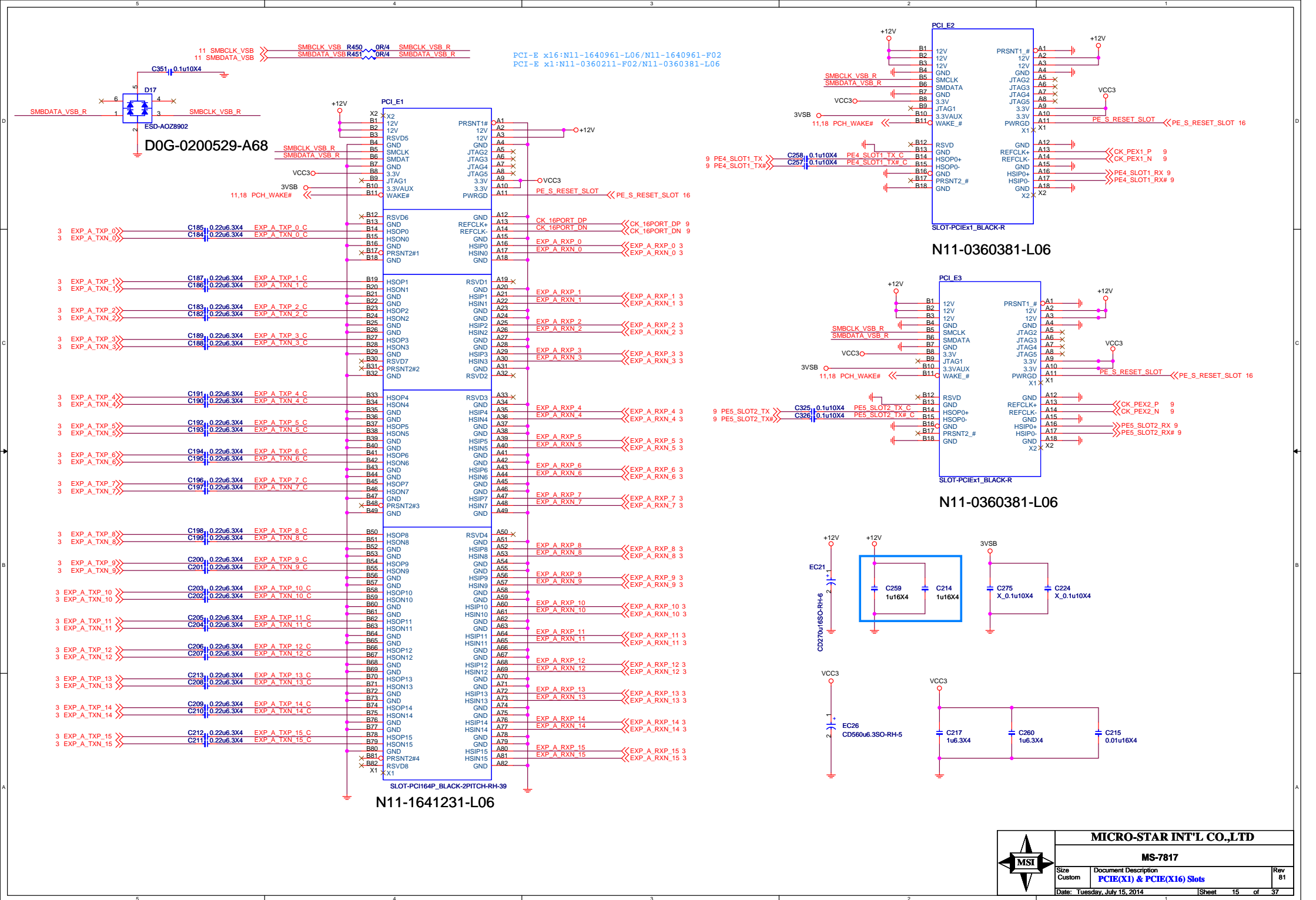
Default (Disable TLS):

Leave NC. Internal pull down.

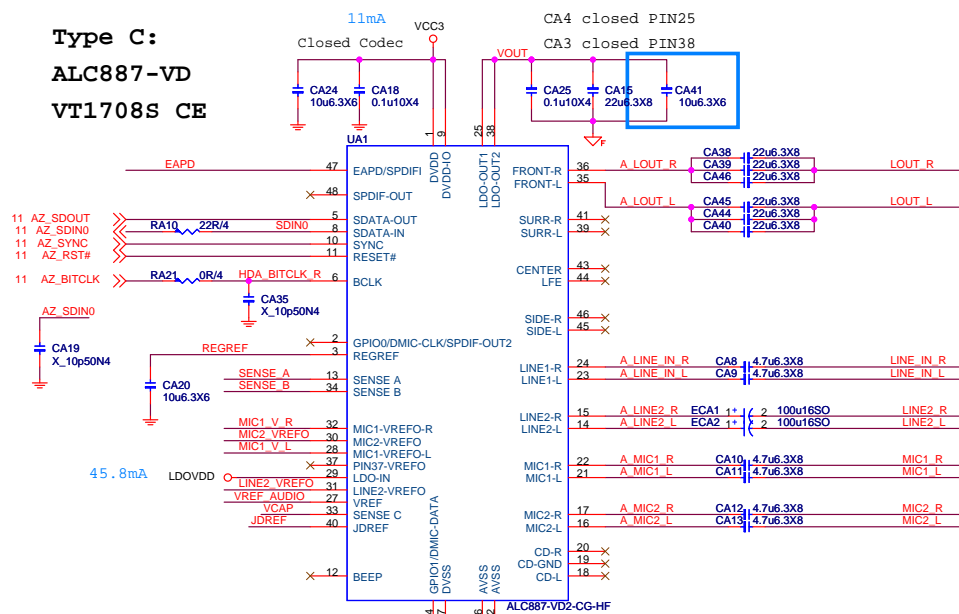
For test cpu voltage



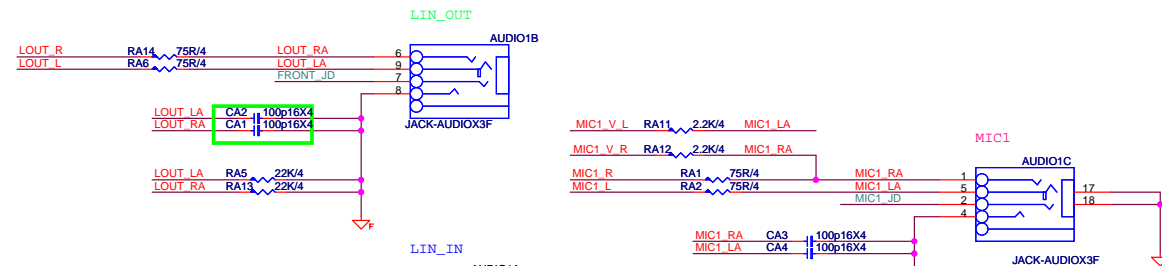
MICRO-STAR INT'L CO.,LTD			
MS-7817			
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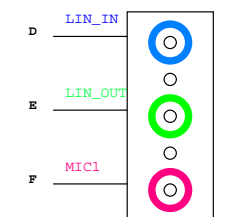
Type C:
ALC887-VD
VT1708S CE



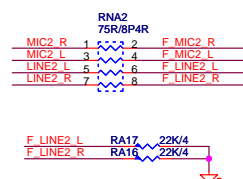
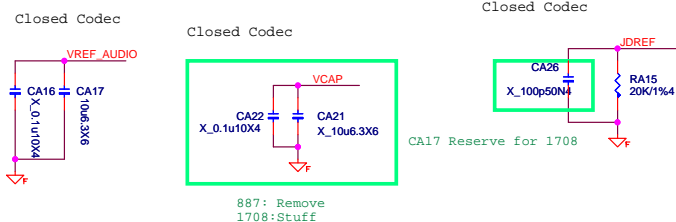
B05-LC88714-R09



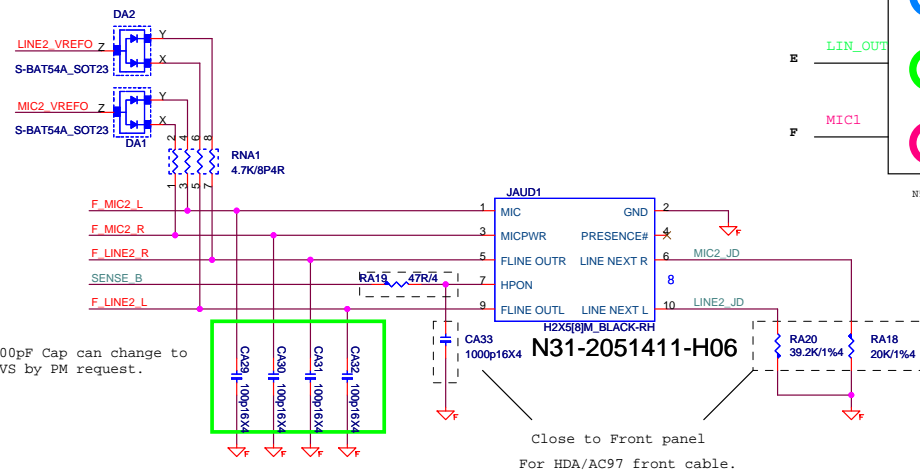
N54-13F0441-L06



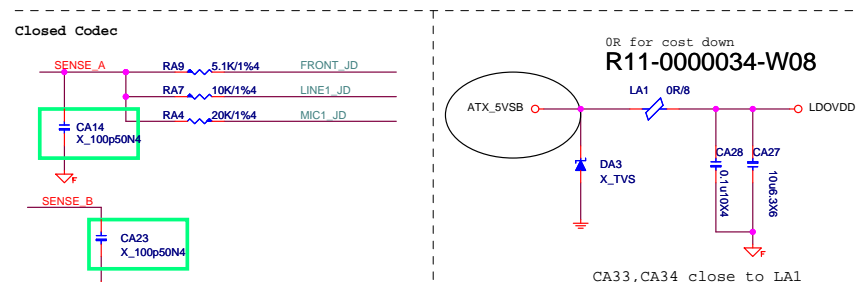
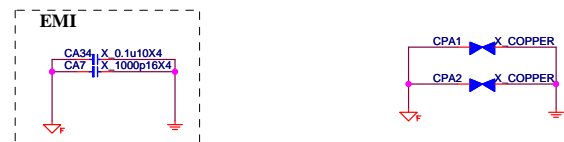
N54-13F0271-K06



100pF Cap can change to
TVS by PM request.

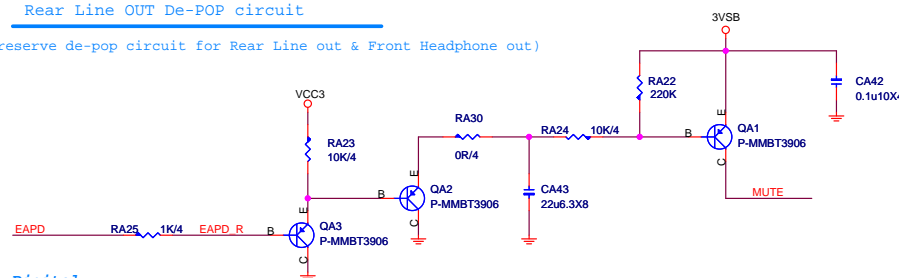


Close to Front panel
For HDA/AC97 front cable.



Rear Line OUT De-POP circuit

```
(reserve de-pop circuit for Rear Line out & Front Headphone out)
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Digital

Analog



MICRO-STAR INT'L CO.,LTD

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Size Custom	Document Description ALC887/VT1708S CE-Type C
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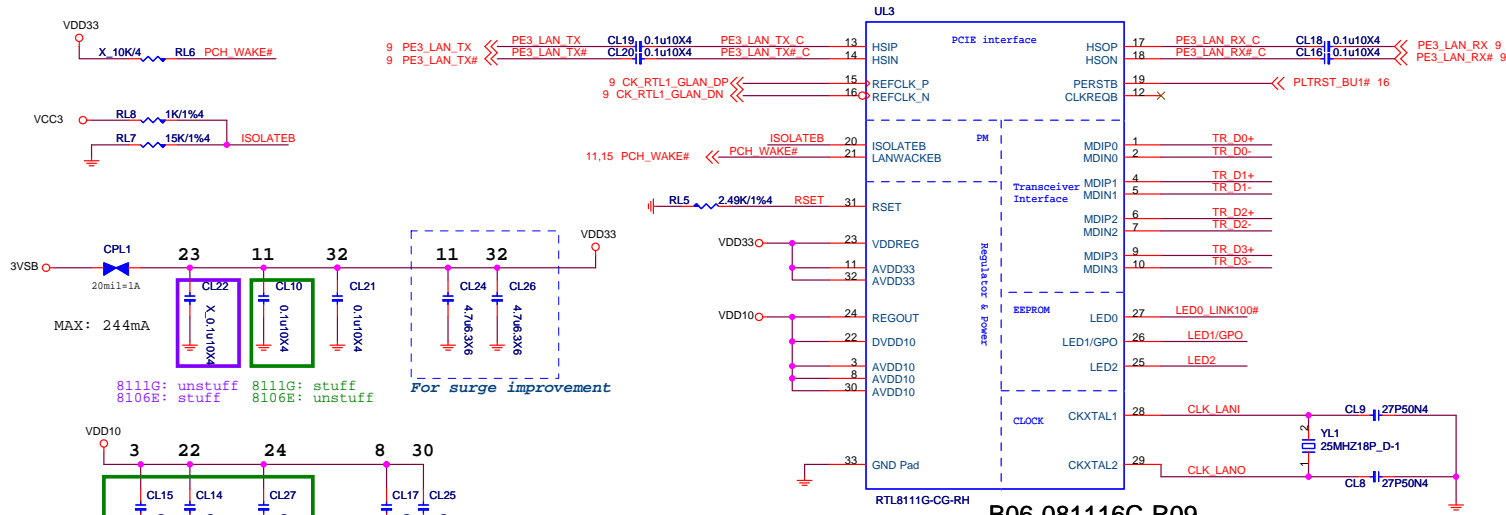
	Rev 81
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RTL8111G Giga LAN

RTL8106E 10/100M LAN

LAN Connector



B06-081116C-R09

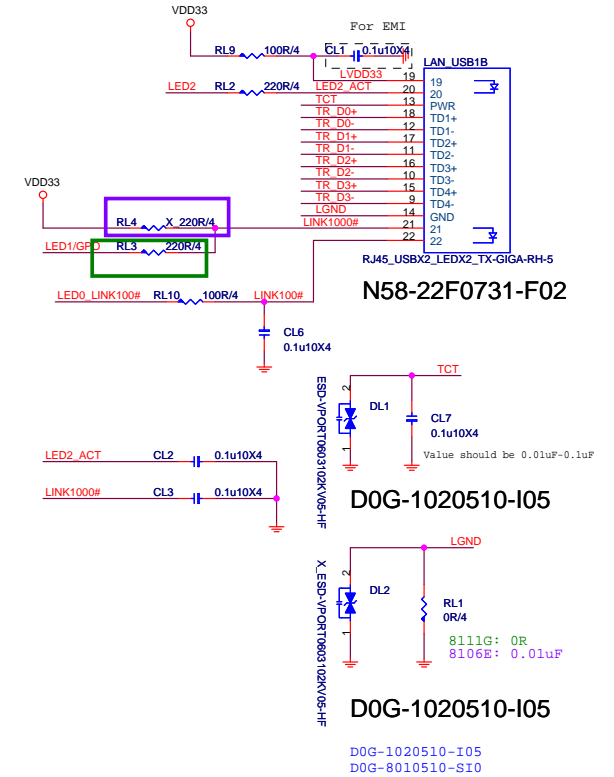
Pin33: 4 via from top layer to GND layer and make the via at the center of IC.

8106E POWER Consumption

	3.3V @ mA	mW
10 M Idle/TxRx	15/94	49.5/310.2
100 M Idle/TxRx	52/105	171.6/346.5
S0 ALDPS	4	13.2

8111G POWER Consumption

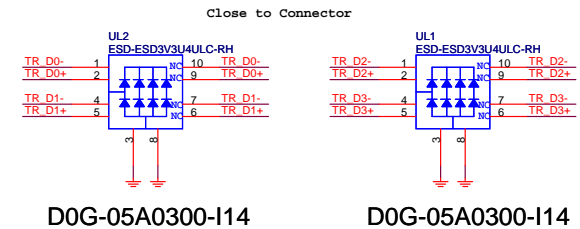
	3.3V @ mA	mW
10 M Idle/TxRx	17.15/116.7	56.6/385.1
100 M Idle/TxRx	71.45/129.5	235.8/427.4
Giga Idle/TxRx	179.1/243.9	591/804.9
ALDPS	6.41	21.15



D0G-1020510-I05

D0G-1020510-I05

D0G-8010510-S10



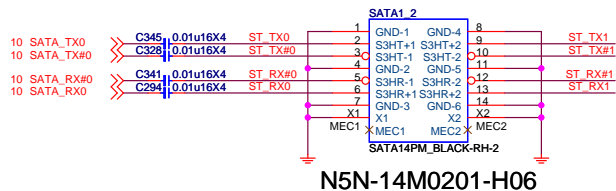
D0G-05A0300-I14

D0G-05A0300-I14

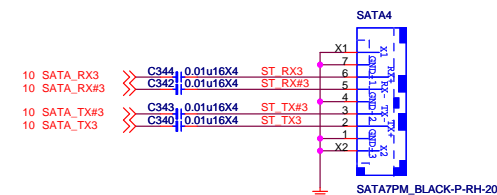
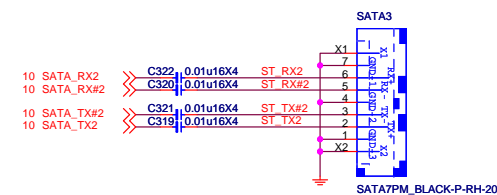
SATA CONNECTOR

SATA 6G PORT 0,1,2,3

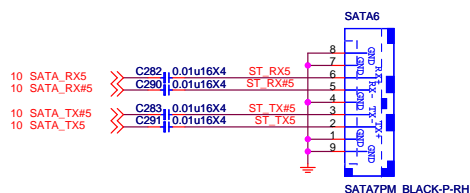
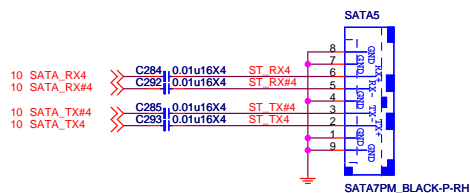
10 SATA_RX1 >> C346 0.01u16X4 ST RX1
10 SATA_RX#1 >> C329 0.01u16X4 ST RX#1
10 SATA_TX#1 >> C327 0.01u16X4 ST TX#1
10 SATA_TX1 >> C331 0.01u16X4 ST TX1



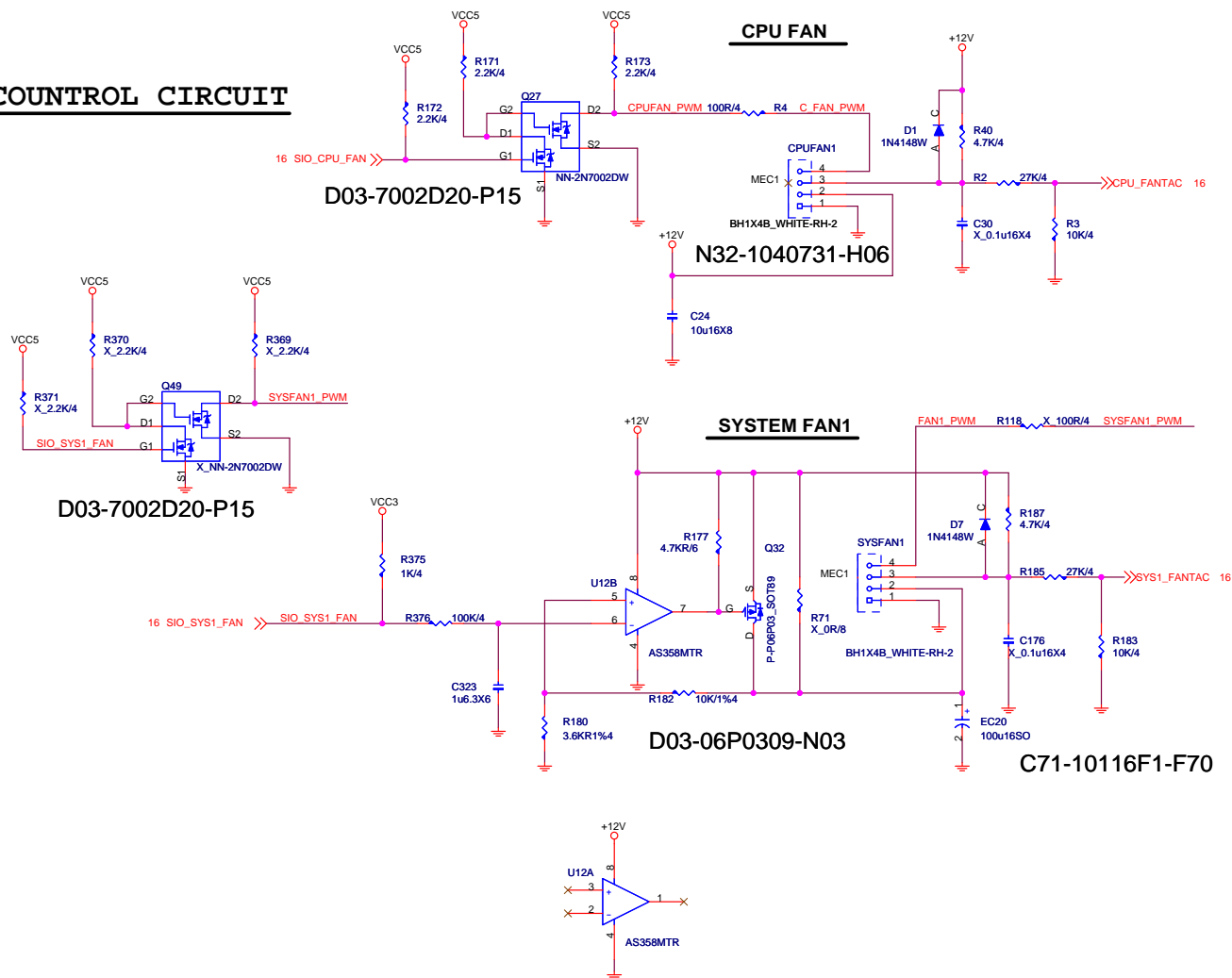
N5N-14M0201-H06



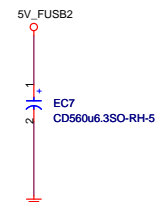
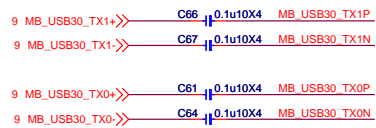
SATA 3G PORT 4,5



FAN-COUNTROL CIRCUIT



Front USB3.0 Connector



MICRO-STAR INT'L CO.,LTD

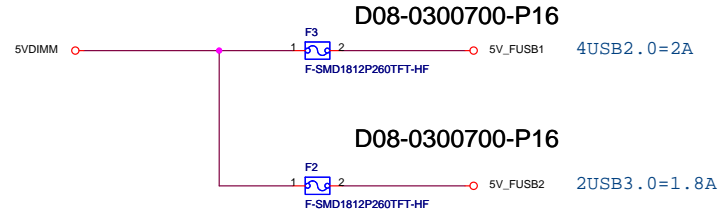
MS-7817

Size Custom	Document Description Front USB3.0 Connector
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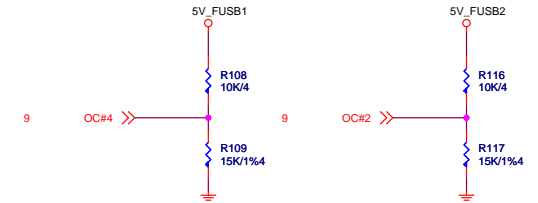
Rev
81

PCH/FCH side: OC# pull high to +3VSB

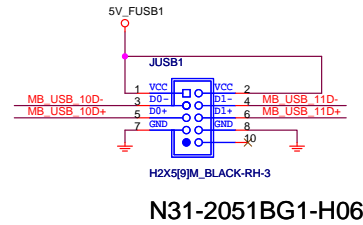
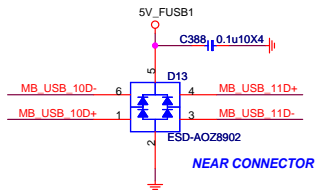
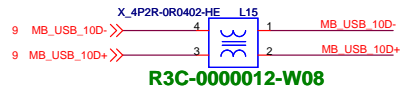
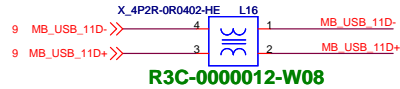
Near Front ==>



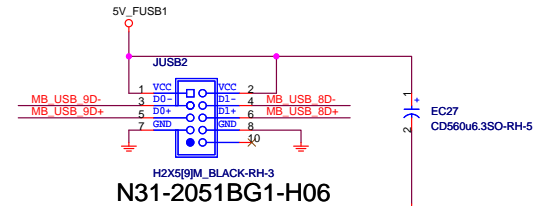
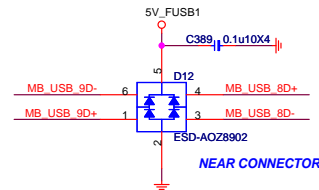
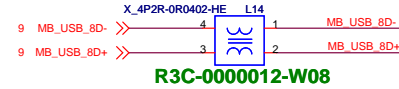
D08-2000300-P16 (Itrip=3.5A; 0.003ohm) support 6 USB ports (3A)
D08-0300700-P16 (Itrip=2.6A; 0.015ohm) support 4 USB ports (2A)
D08-0100110-P16 (Itrip=1.1A; 0.04ohm) support 2 usb 2.0 ports (1A)



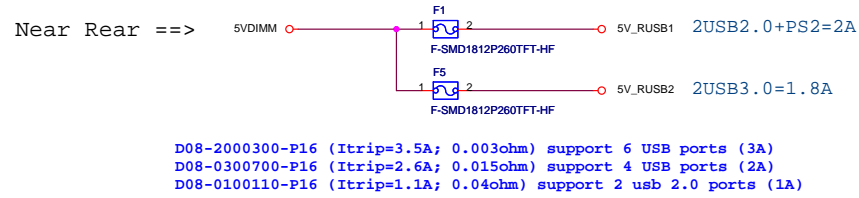
FRONT USB PORT 8,9



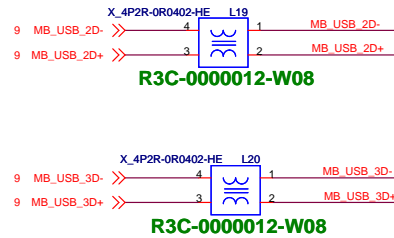
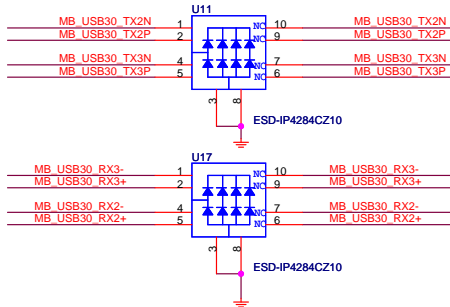
FRONT USB PORT 10,11



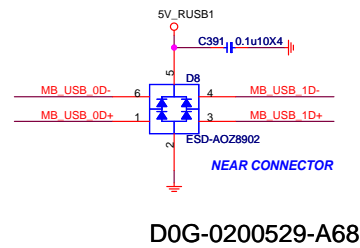
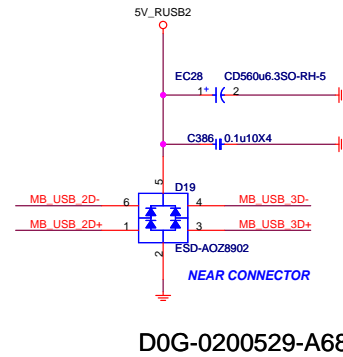
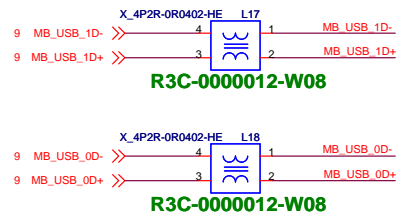
PCH/FCH side: OC# pull high to +3VSB



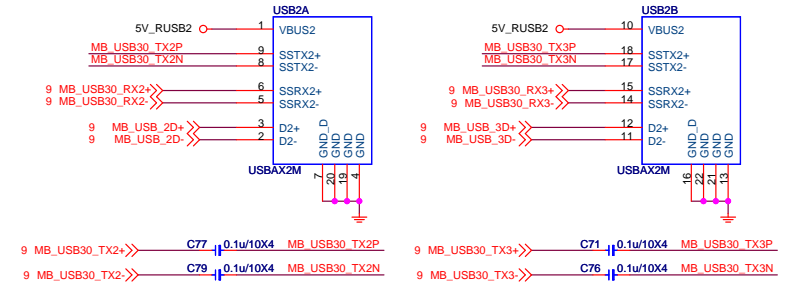
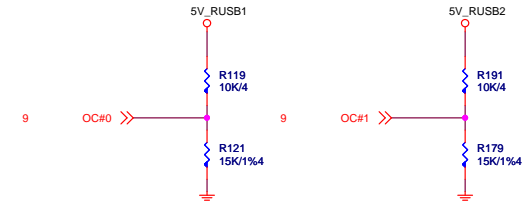
REAR USB3.0 PORT



REAR USB2.0 PORT 4.5



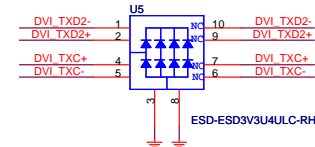
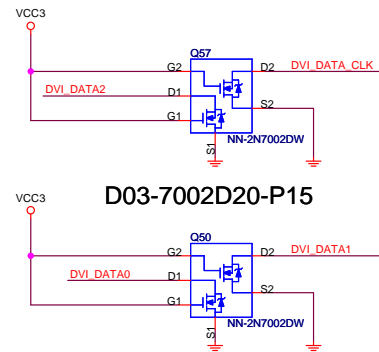
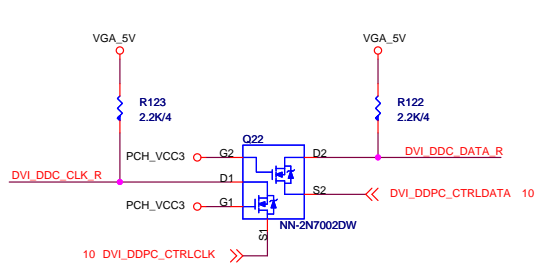
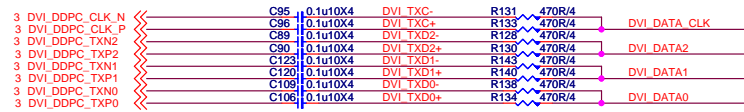
over current protect



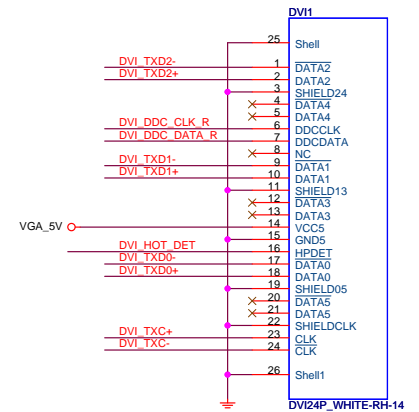
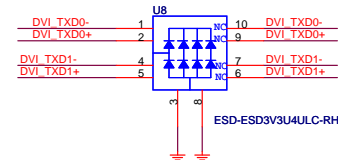
N58-22F0731-F02

DVI

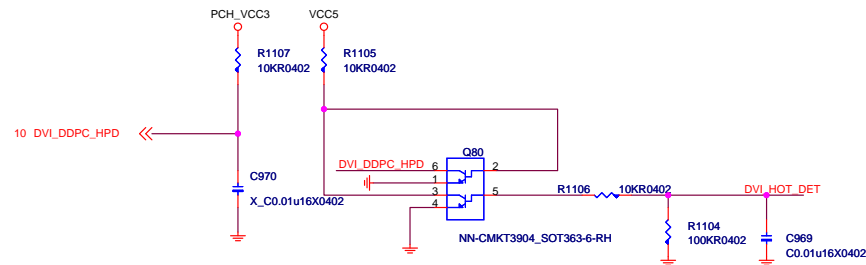
VGA: resolution of 2048x1536 pixels with 32-bit color at 75 Hz (4:3 QXGA)



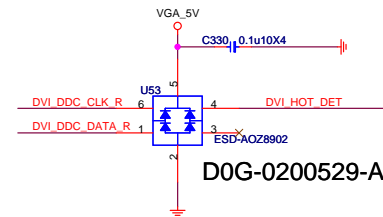
D0G-05A0300-I14



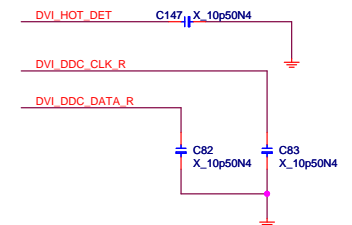
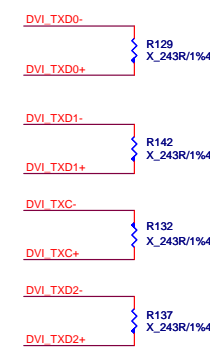
HPD



For EMI



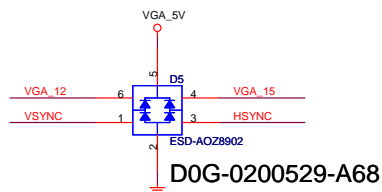
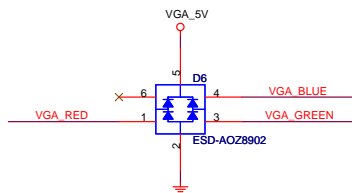
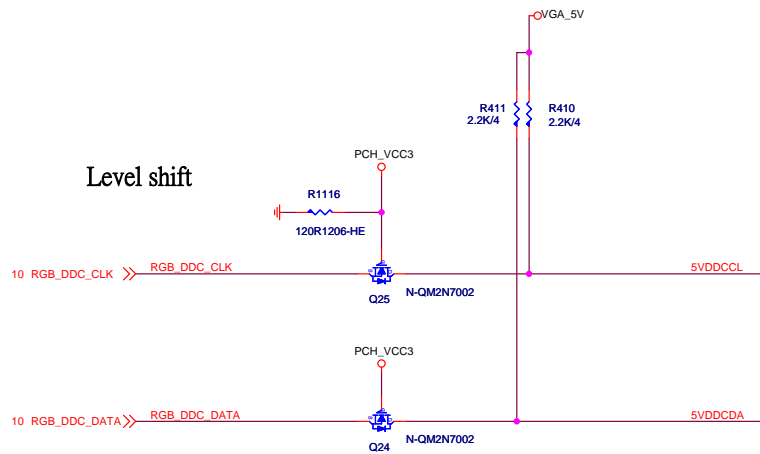
D0G-0200529-A68



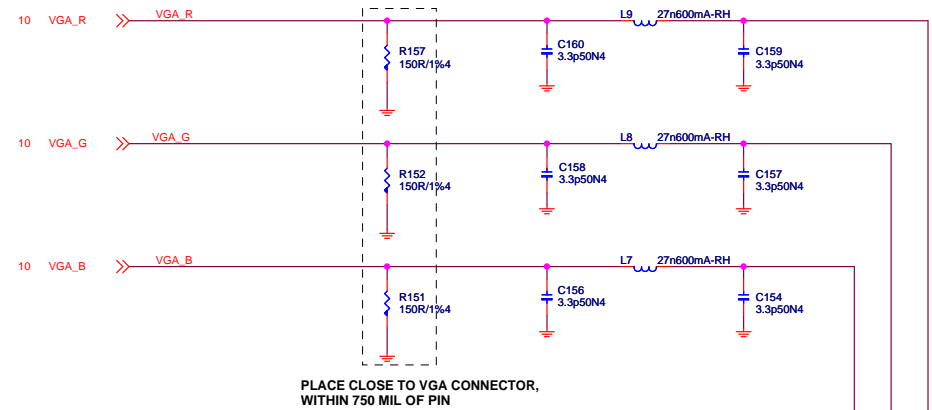
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MS-7817			
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D-Sub

Level shift

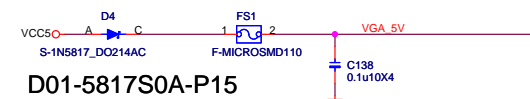


D0G-0200529-A68

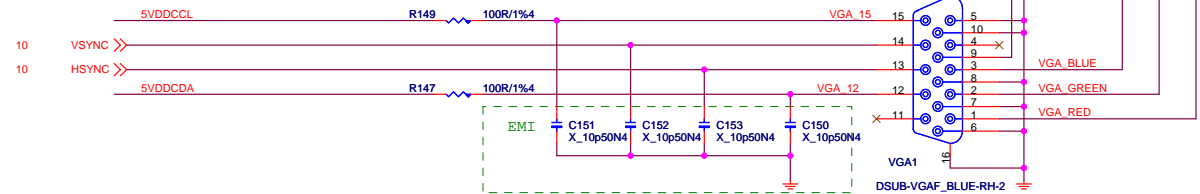


PLACE CLOSE TO VGA CONNECTOR,
WITHIN 750 MIL OF PIN

D08-0100200-B07



D01-5817S0A-P15

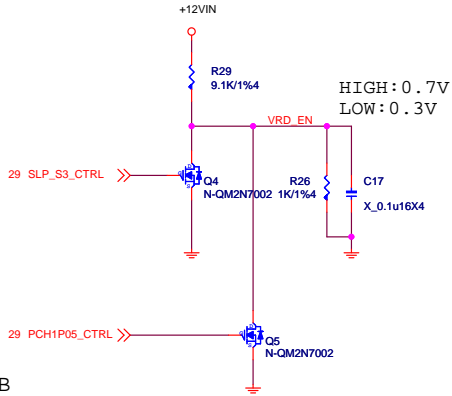


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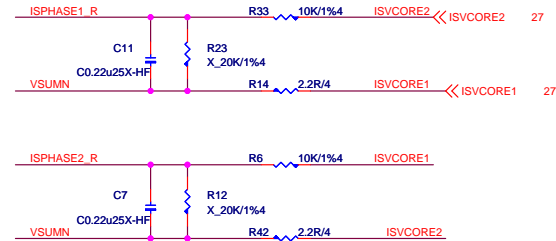
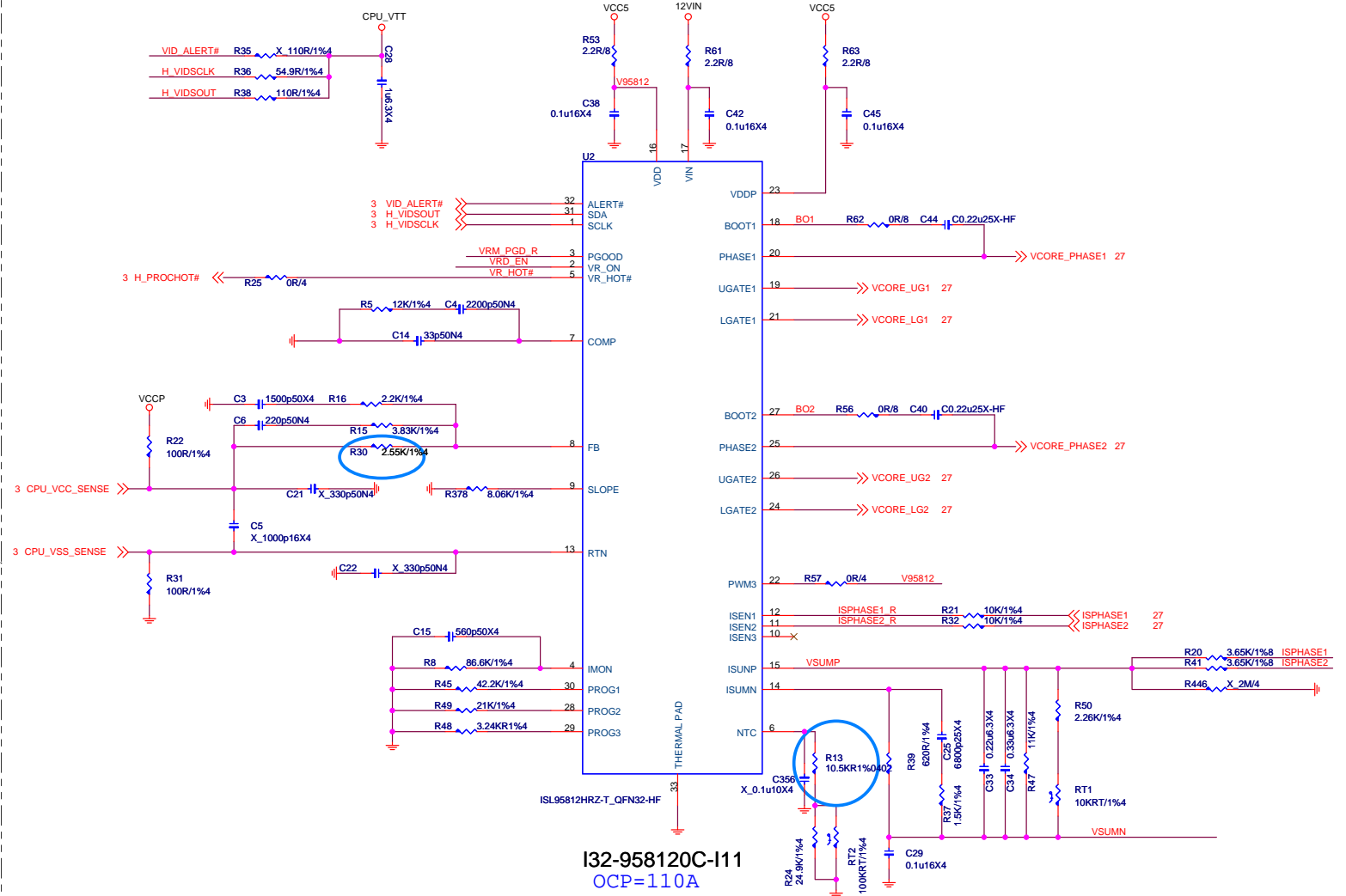
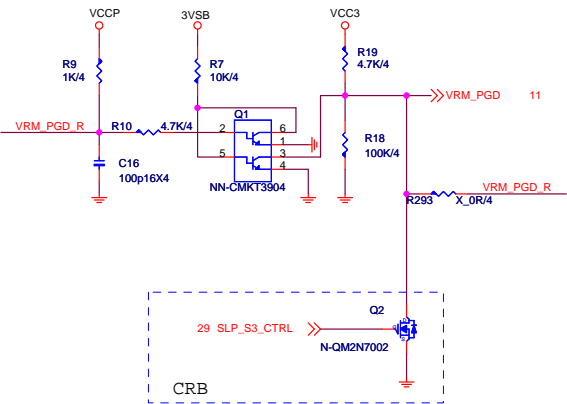
VCORE power on by s3 and 12v



CRB

HIGH:by PCH_1P05V
LOW:by S3

VRMPWRGD LEVEL SHIFT



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Size	Document Description
Custom	CPU Power - ISL95812

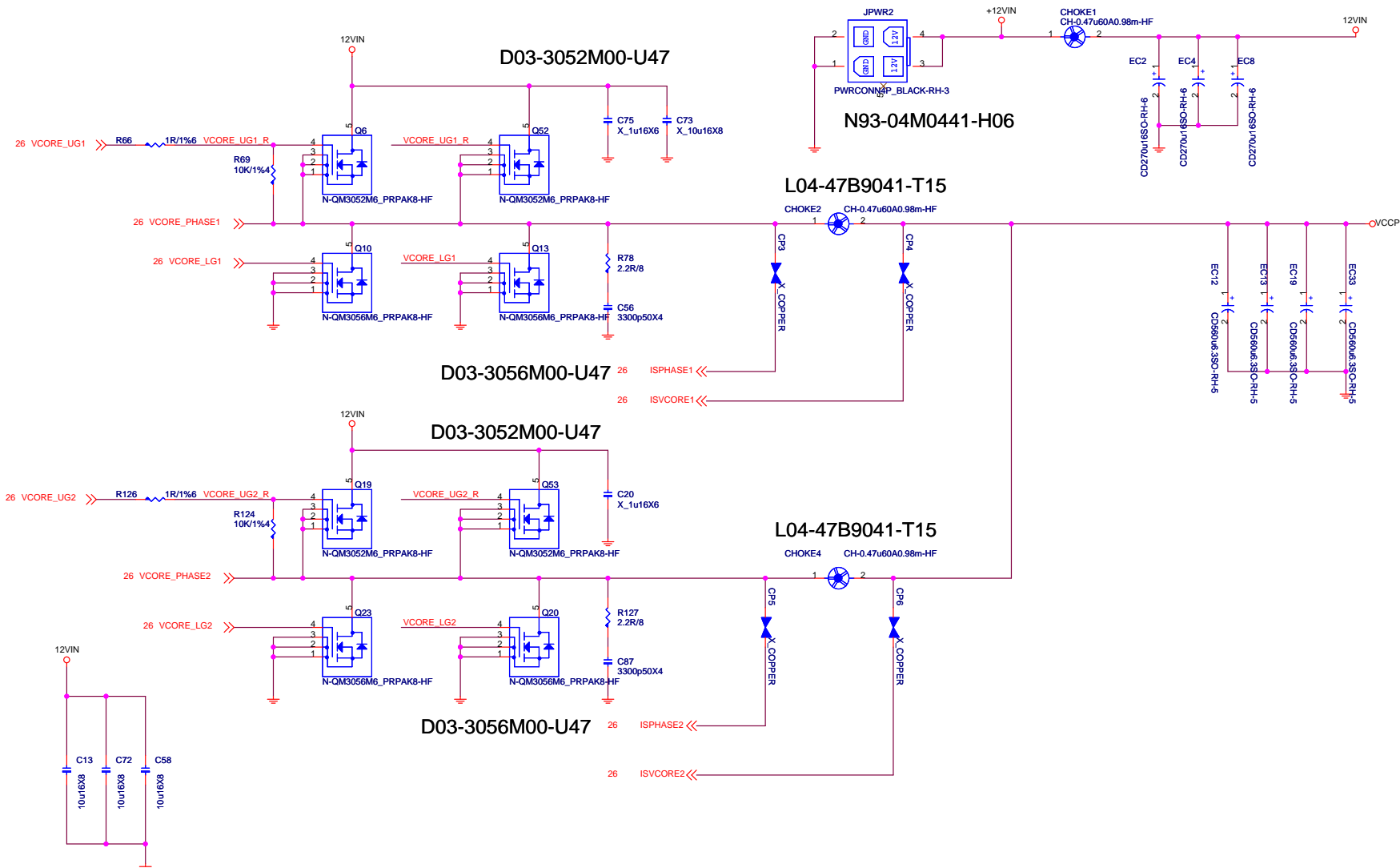
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81

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VCCP POWER

VCORE ICC MAX70A ICCTDC:47A 65W
LL:2.5m ohm

L04-47B9041-T15



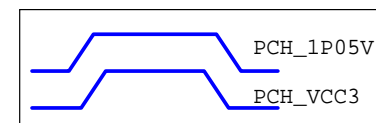
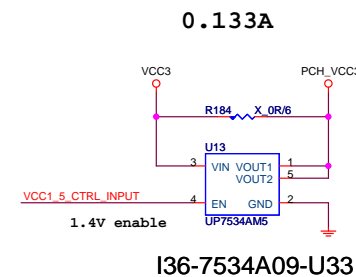
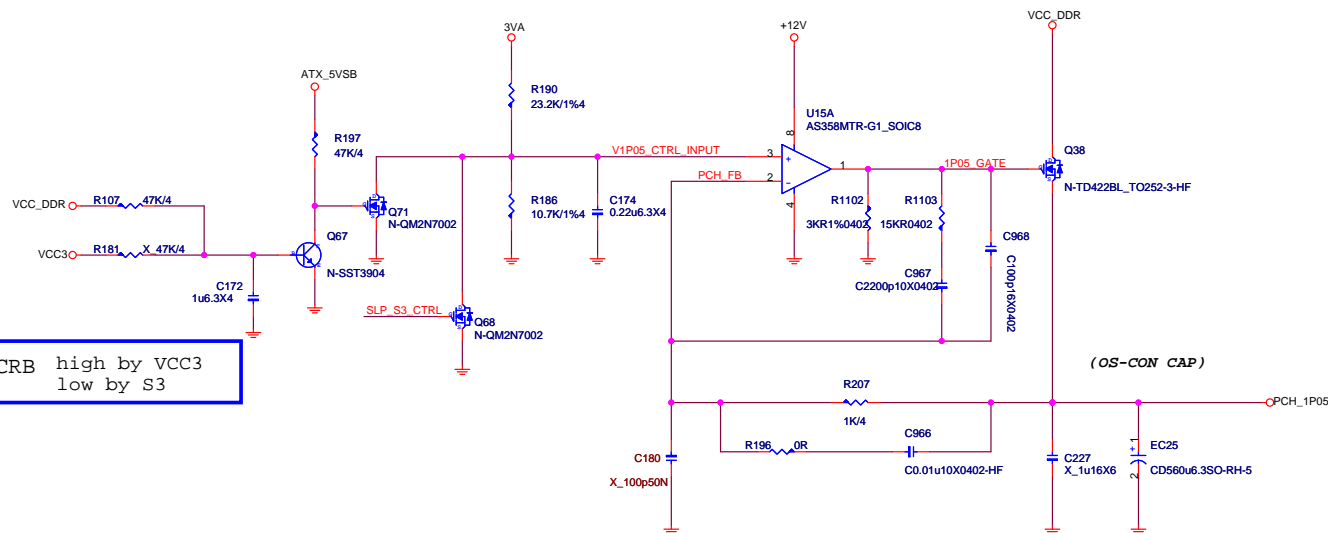
MICRO-STAR INT'L CO.,LTD

MS-7817

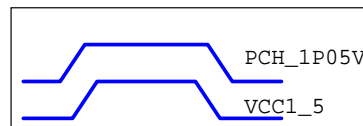
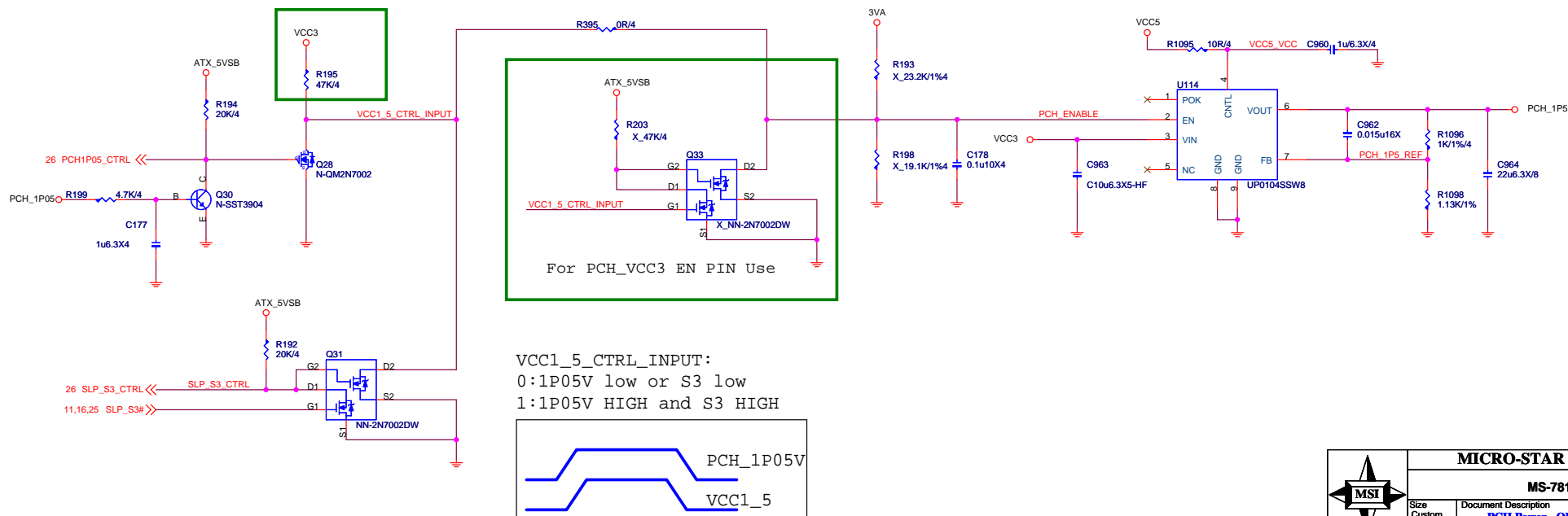
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P.S. Only for meet Intel power down sequence.

CRB high by VCC3
low by S3



```
26 SLP_S3_CTRL<<—
11,16,25 SLP_S3#>>—
```



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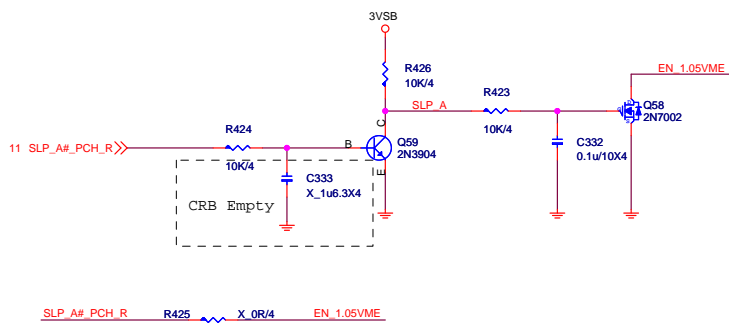
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Size Custom	Document Description PCH Power - OP+MOS	Rev 8
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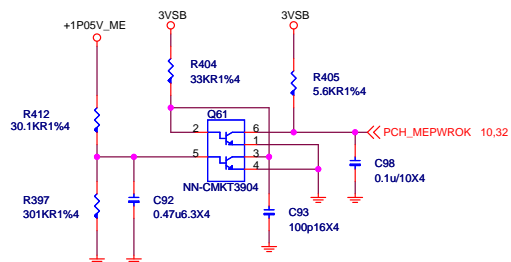
PCH ME Power:1.05V 0.670A

SLP A

ME Power Control

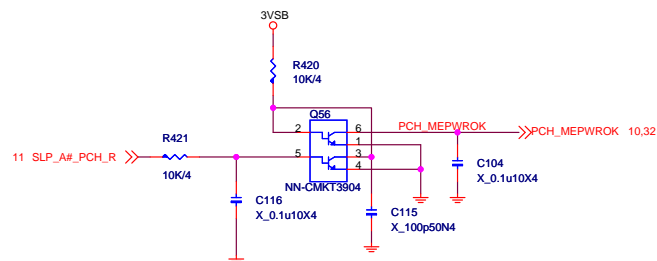
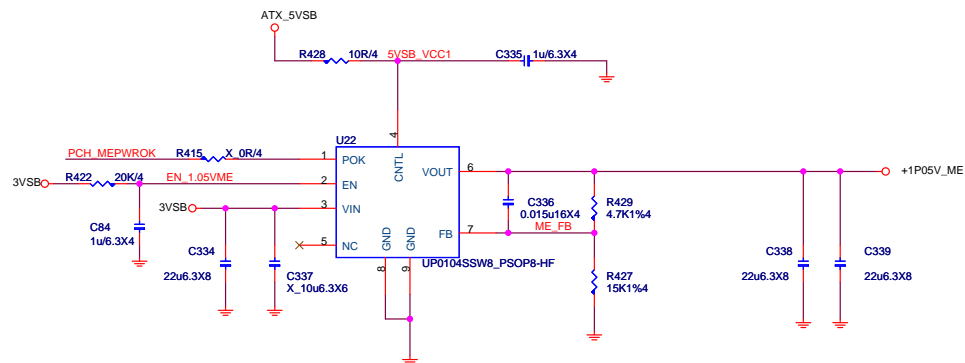
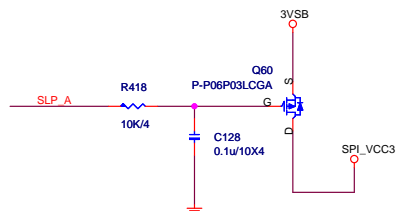


PCH MEPWROK



VccASW active to APWROK high 1ms

+3.3V ME



APWROK falling to VccASW falling 40ns

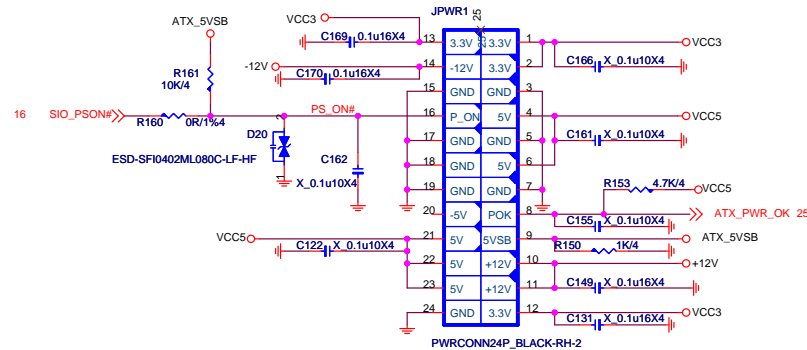


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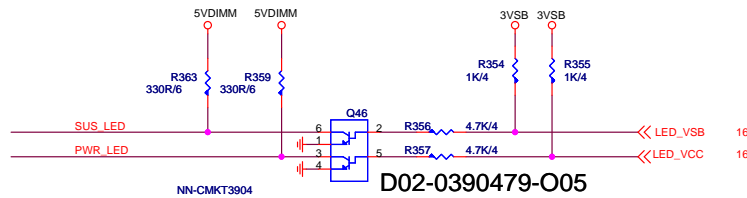
Size Custom	Document Description PCH Power - ME POWER	Rev 81
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ATX POWER CONNECTOR



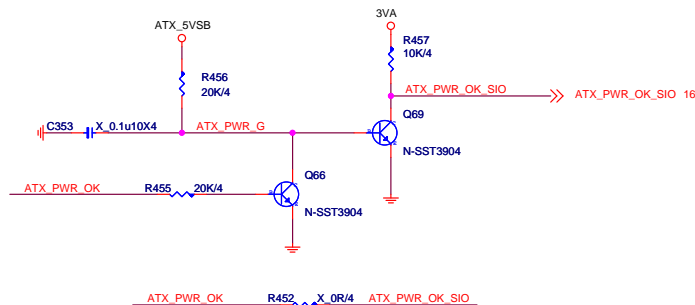
N93-24M0191-H06

LED (for NV5533)

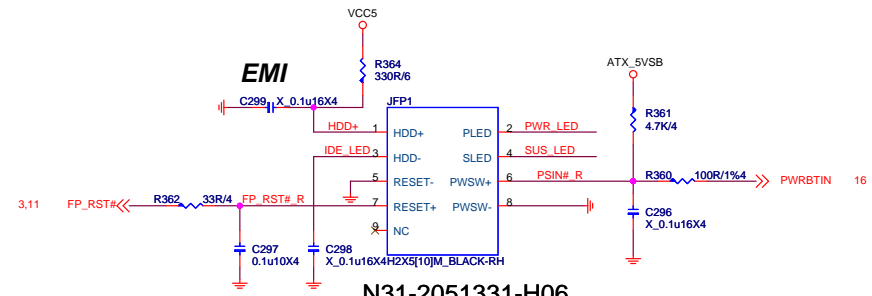


D02-0390479-O05

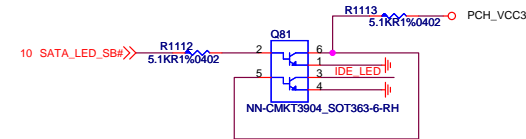
5VCC leakage from ATXPGD.(NCT6779 PIN80)
(NCT5533 PIN36)



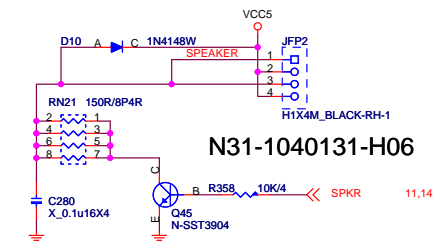
FRONT PANNEL



N31-2051331-H06

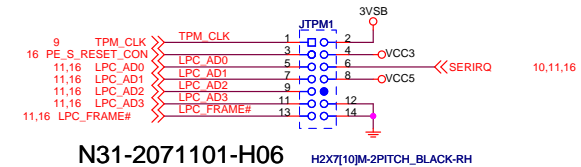


Speaker Pin Header



N31-1040131-H06

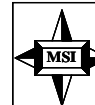
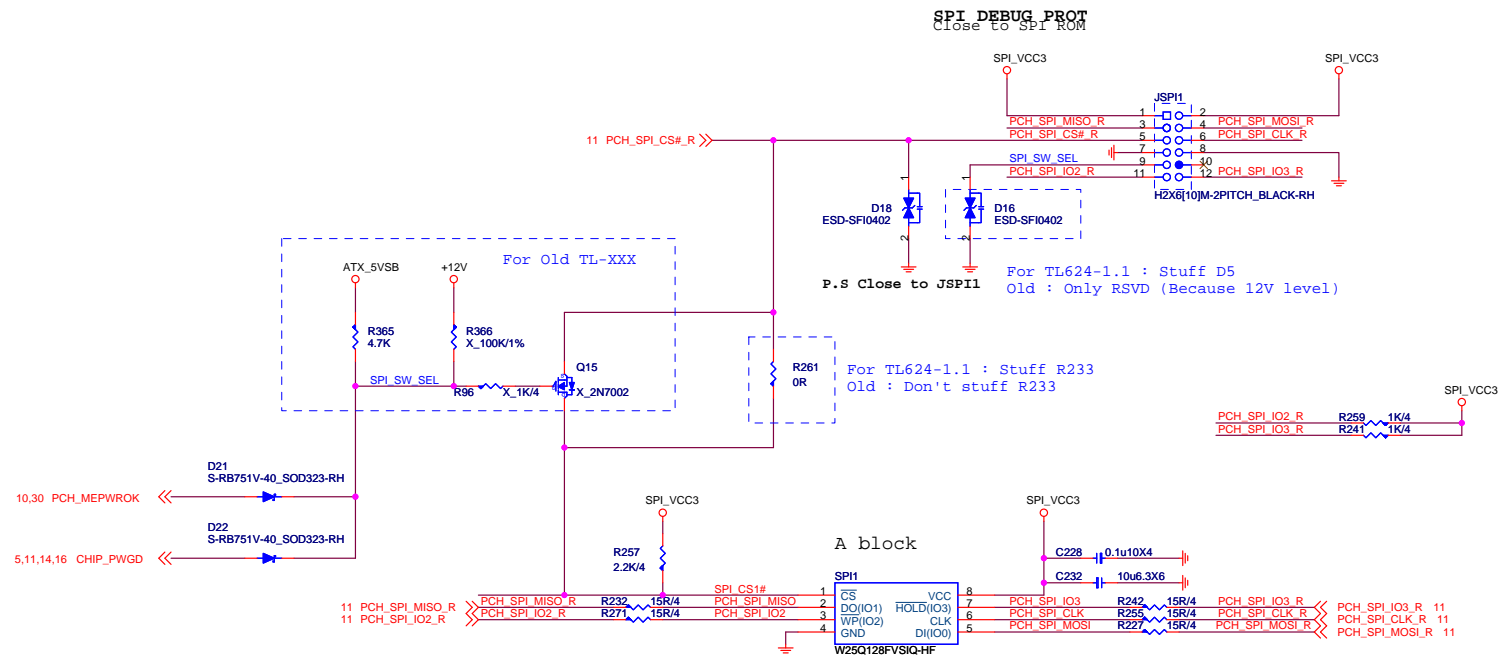
TPM/JLPC



N31-2071101-H06

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SPI ROM



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LABEL

MARKET Name



G51-M1SPG00-Q13

AMI



G51-M1SPXXA-A09

Battery



D06-0100101-P01



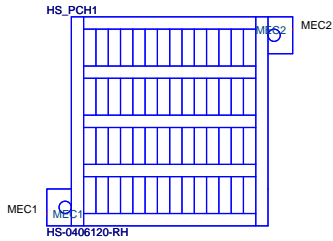
PK0-0781781-G37

CPU Socket

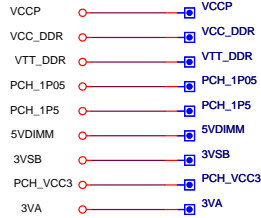


E21-7788020-F02

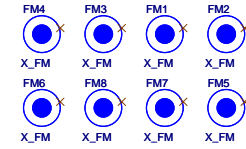
PCH Heatsink



E31-0406120-K08



Optical Fiducial Marks-120



FM002

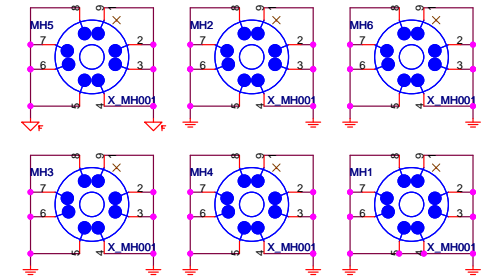
F_PAD_X

Simulation



SINGLE_SIP2

Mounting Holes



MH001

HOLES_4S



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