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MS-7817

ATX

Ver: 5.3

Intel -ShakeBay plamform

CPU:

INTEL-Haswell LGA1150

CPU DISPLAY

HDMI(portC) DVI (port B)

System Chipset:

INTEL-LYNX B85 Co-lay H97

OnBoard Chipset:

HD Audio Codec:ALC887

LAN-INTEL/I218-V

SIO:Nuvoton NCT6792D

ASM1083 PCIE to PCI Bri.

Main Memory:

DDRIII (1066/1333/1600MHz) * 4 (Dual Channel)

Expansion Slots:

PCI Express (X16) Slot * 1

PCI Express (X1) Slot * 2

PCI Slot * 1

PWM:

VCORE - UP1649+UP1959(3 Phase 6MOS)

Other:

SATA3 *4

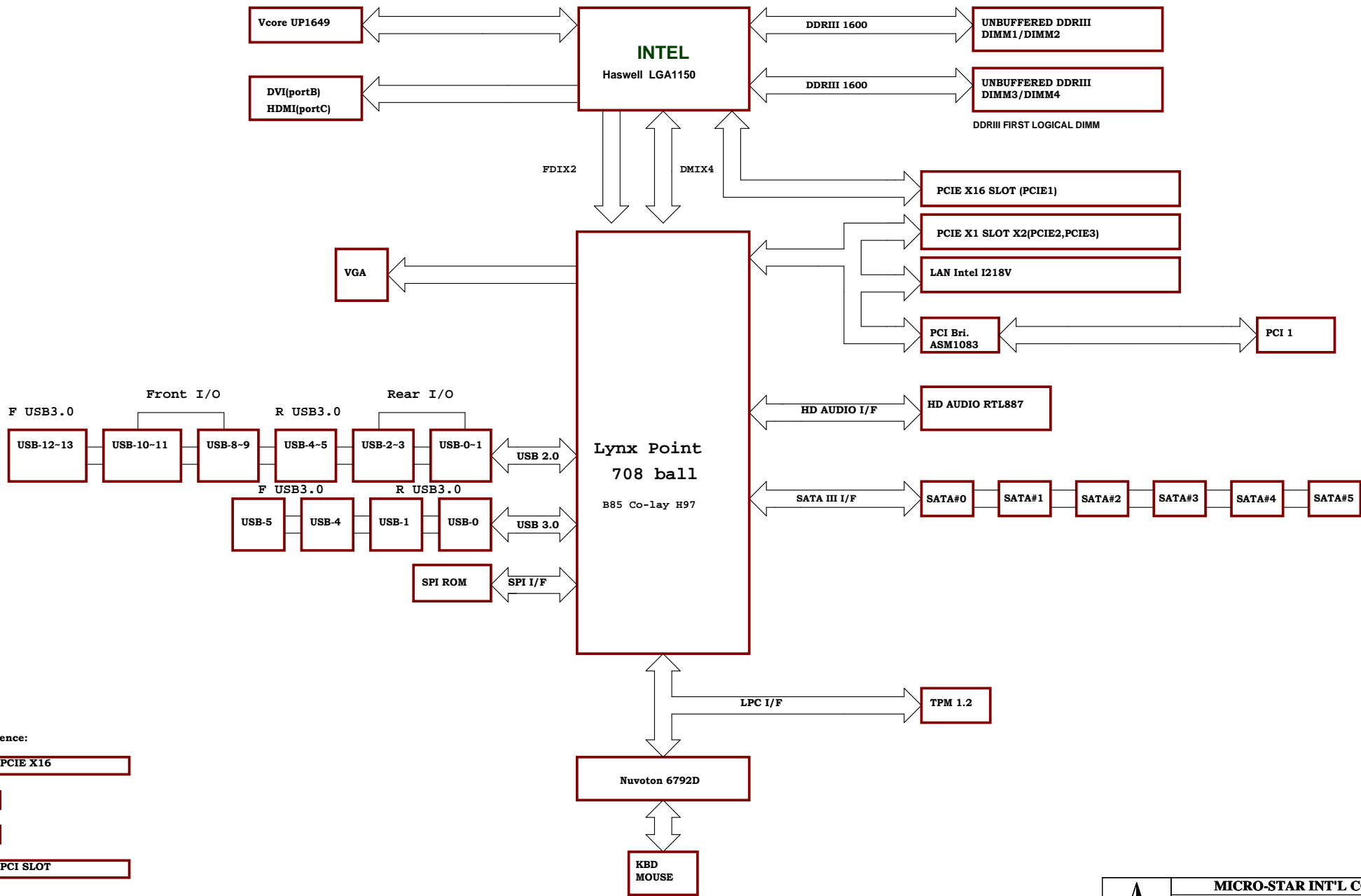
SATA2 *2

REAL USB2.0 *4

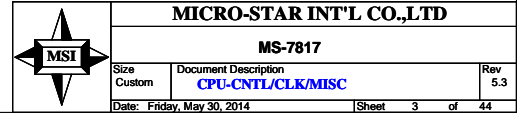
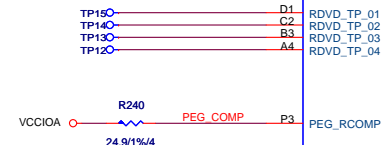
FRONT USB2.0 *4

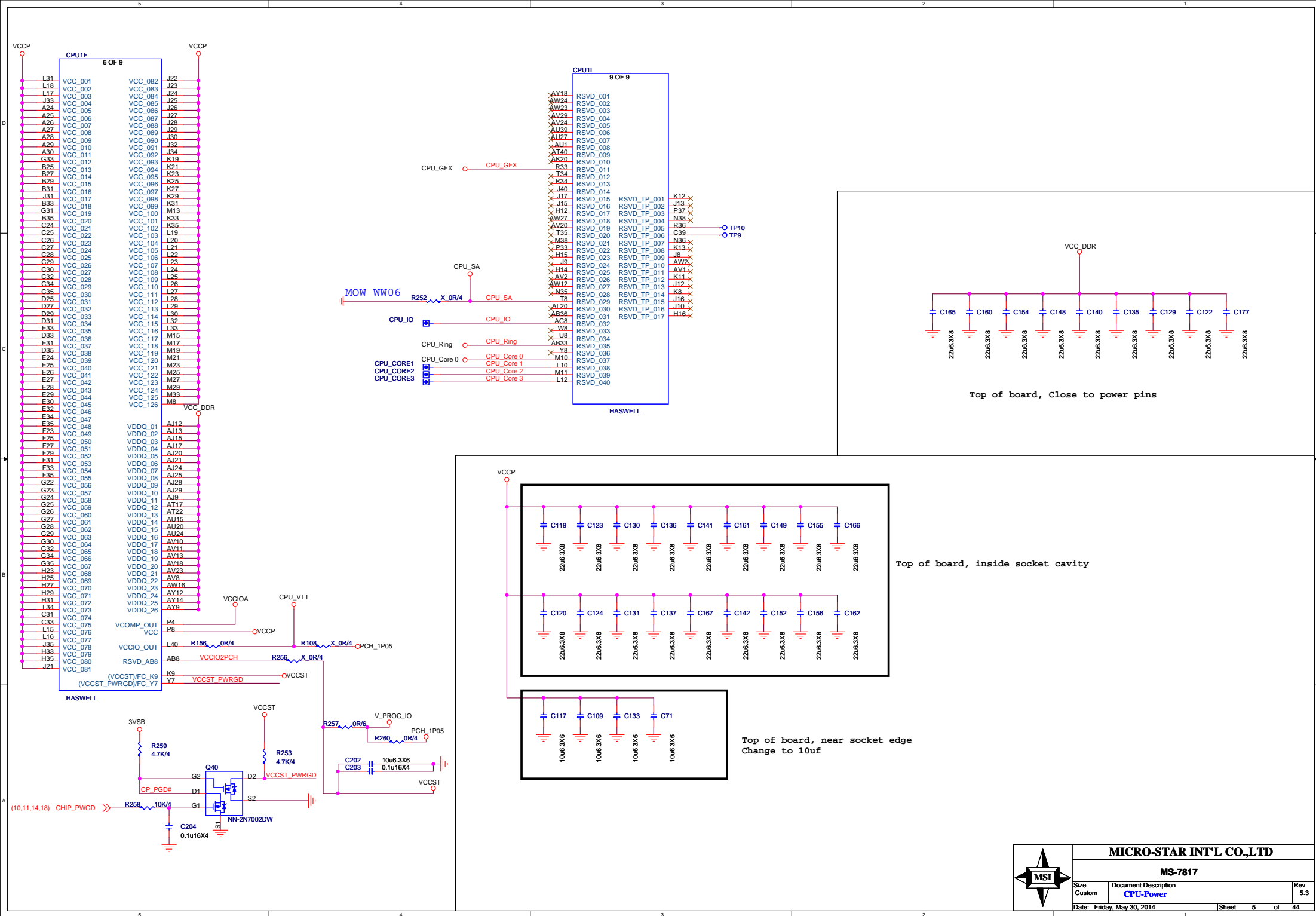
REAL USB3.0 *2

FRONT USB3.0 *2



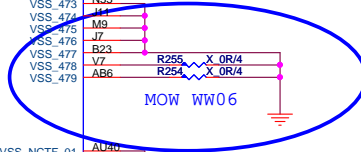
- Slot Sequence:
- PCIE X16
 - PCIE X1
 - PCIE X1
 - PCI SLOT





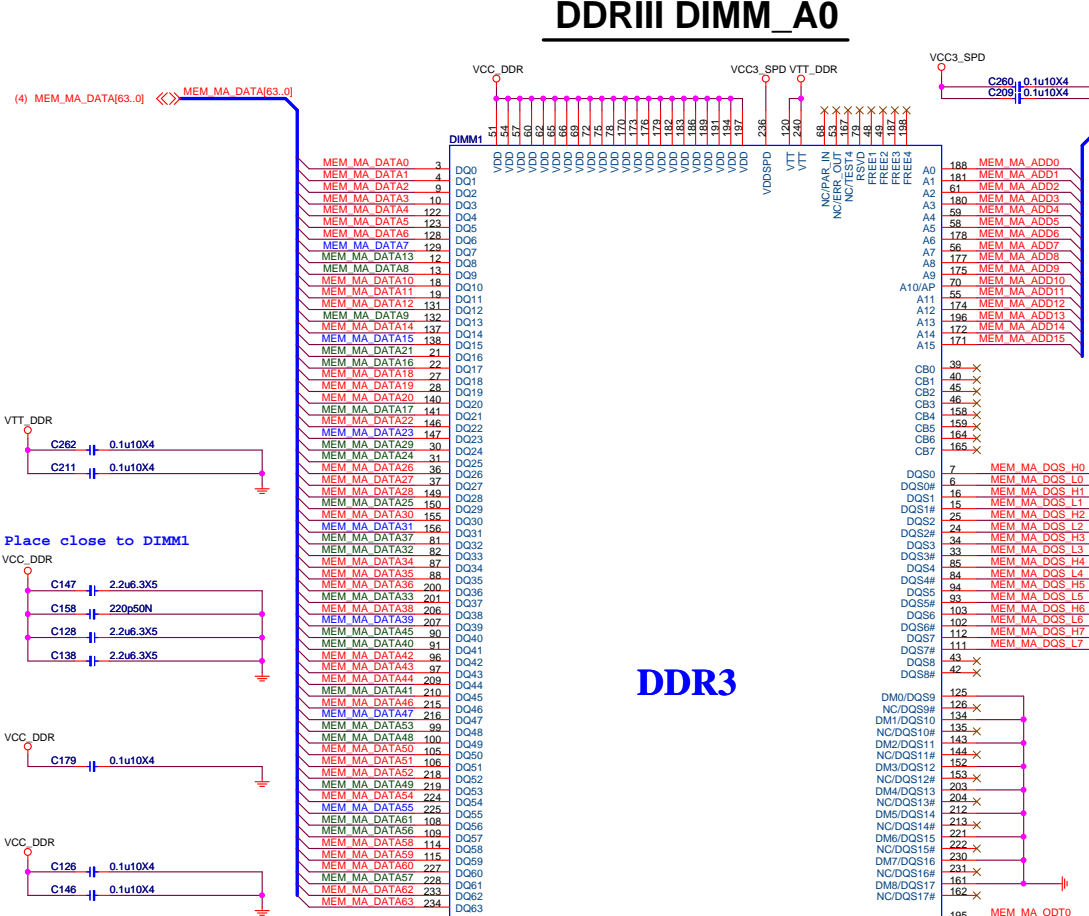
GND

GND

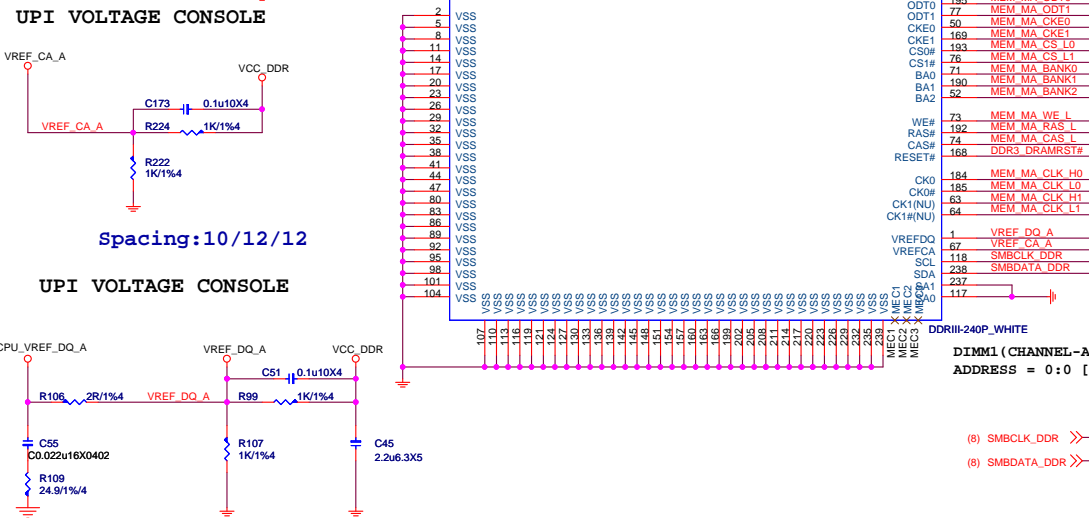


MICRO-STAR INT'L CO.,LTD		
MS-7817		
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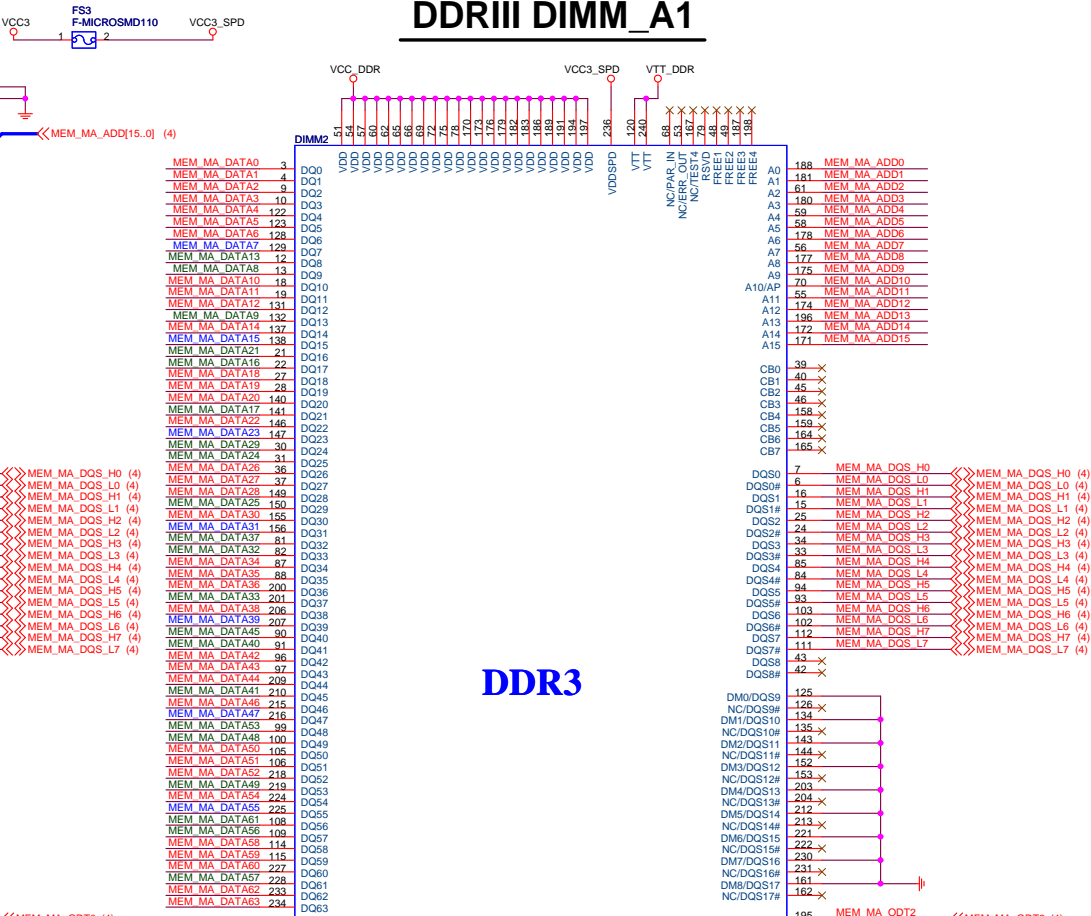
DDRIII DIMM A0



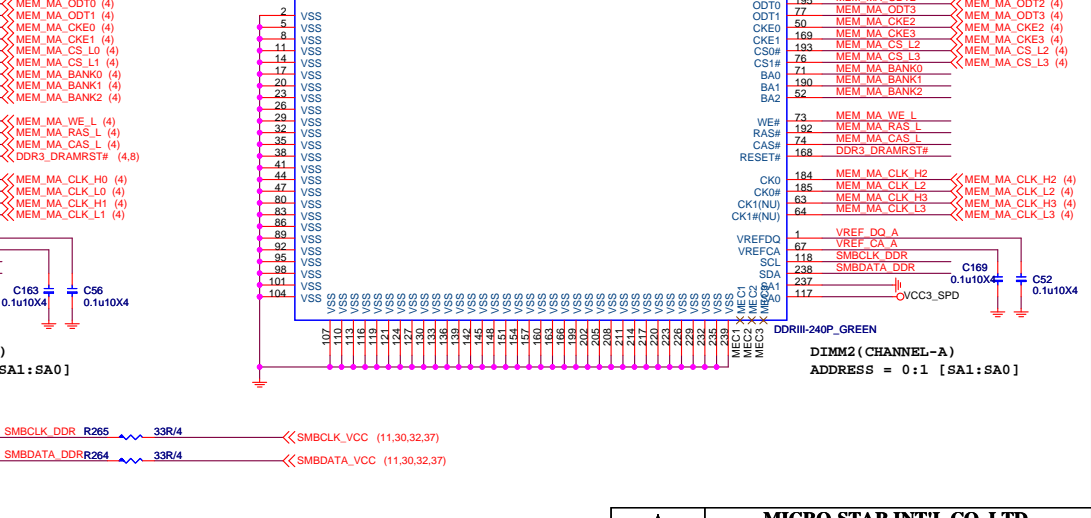
DDR3



DDRIII DIMM A1



DDR3

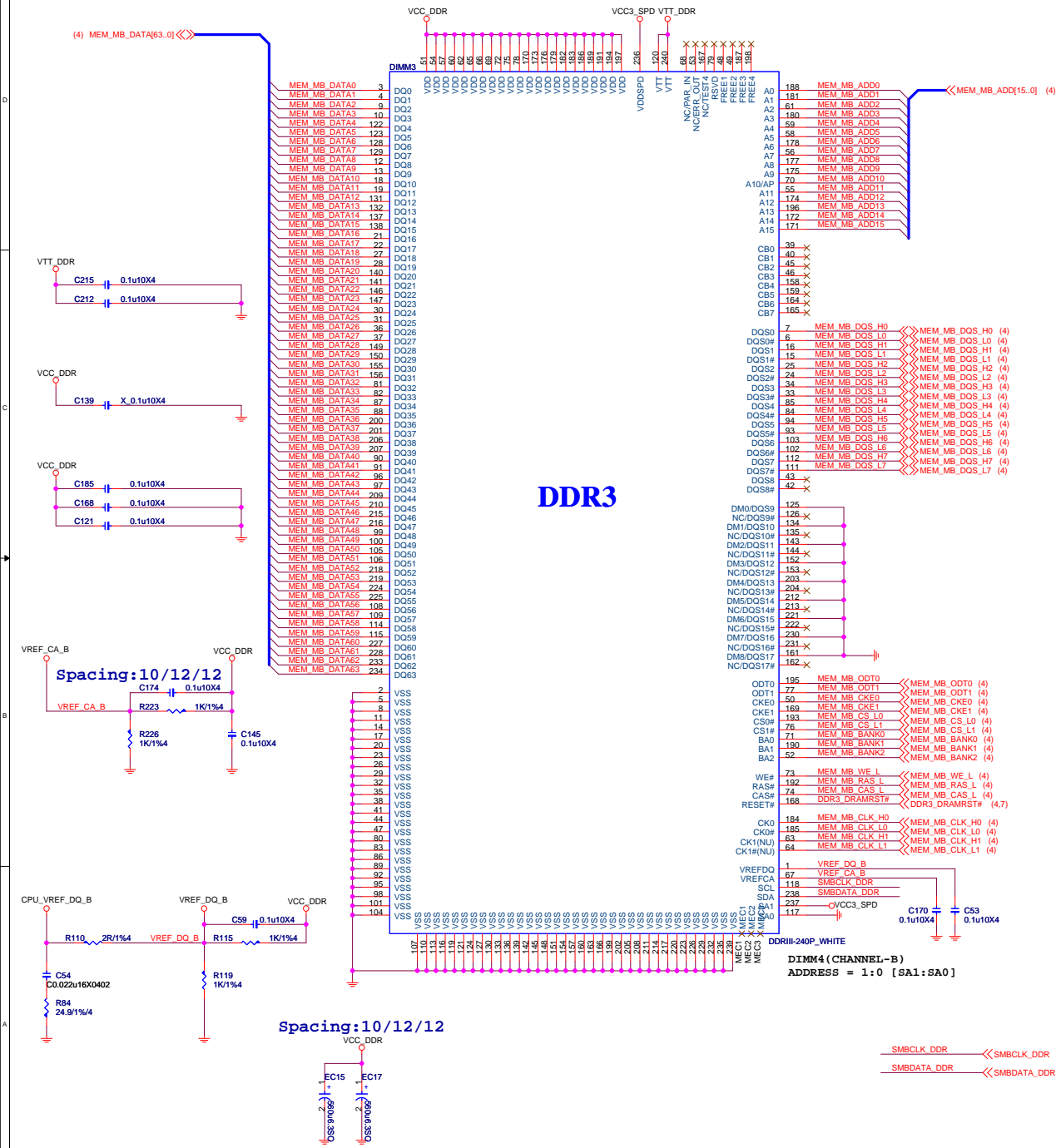


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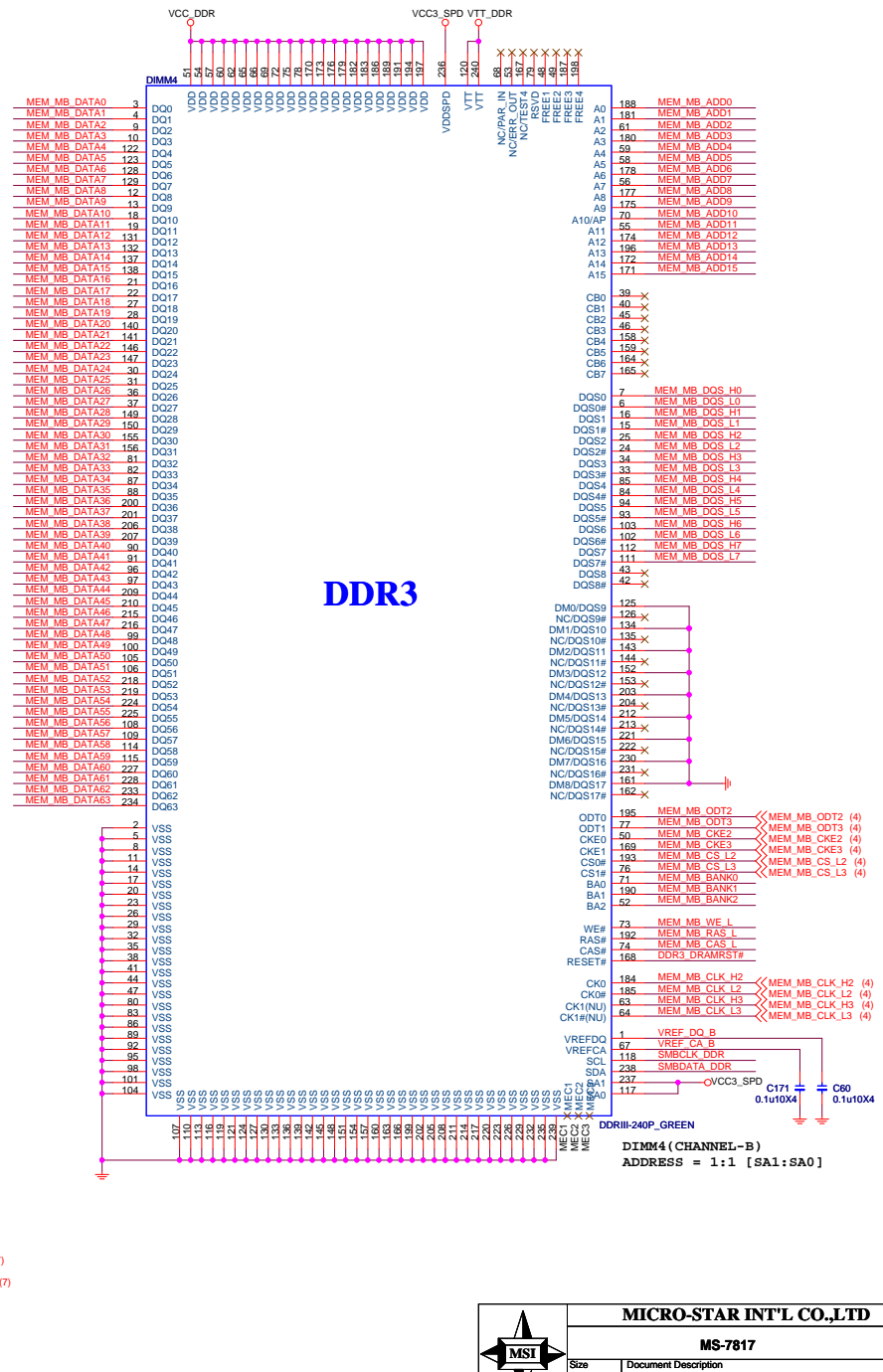
MS-7817

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DDRIII DIMM_B0



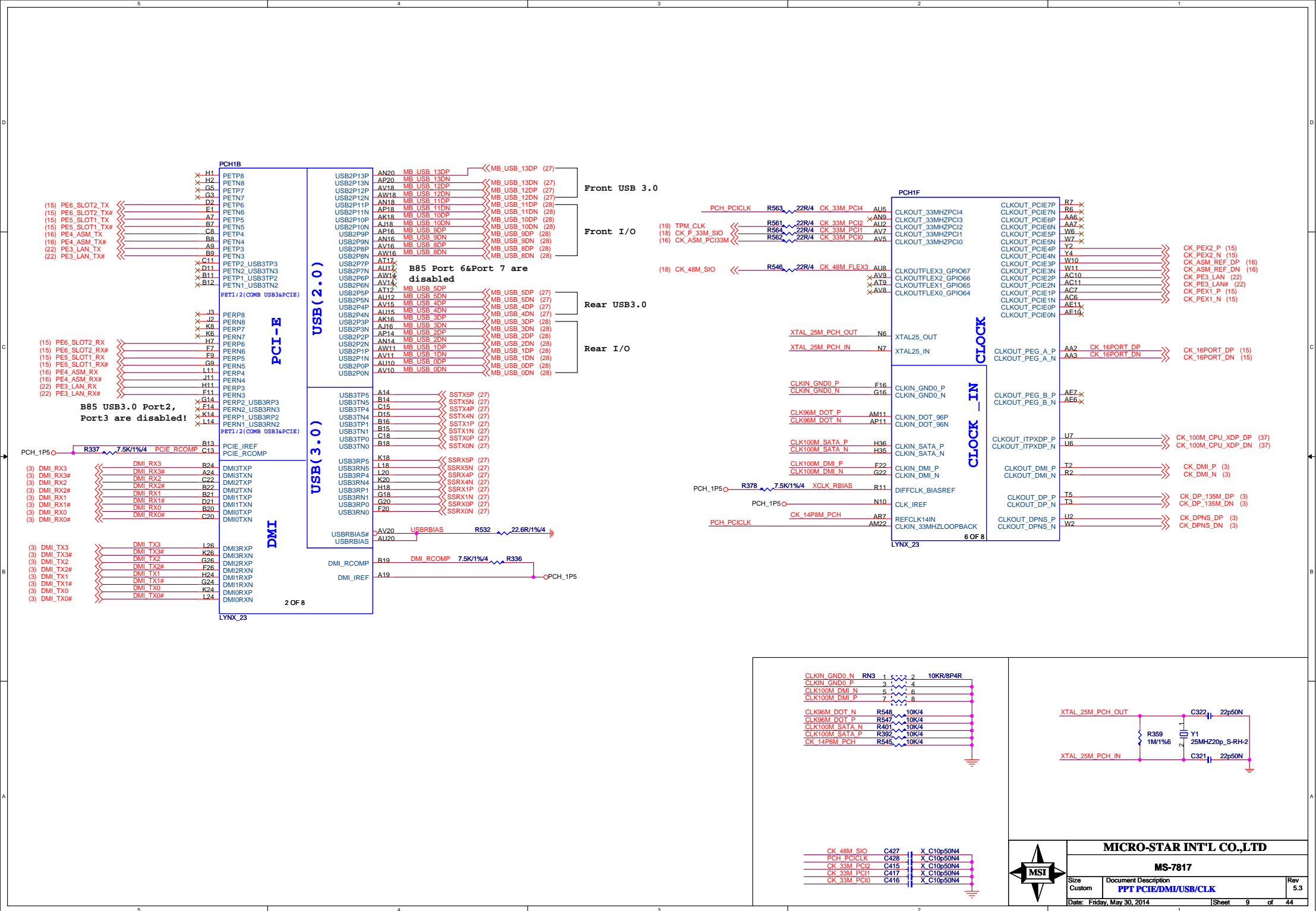
DDRIII DIMM_B1

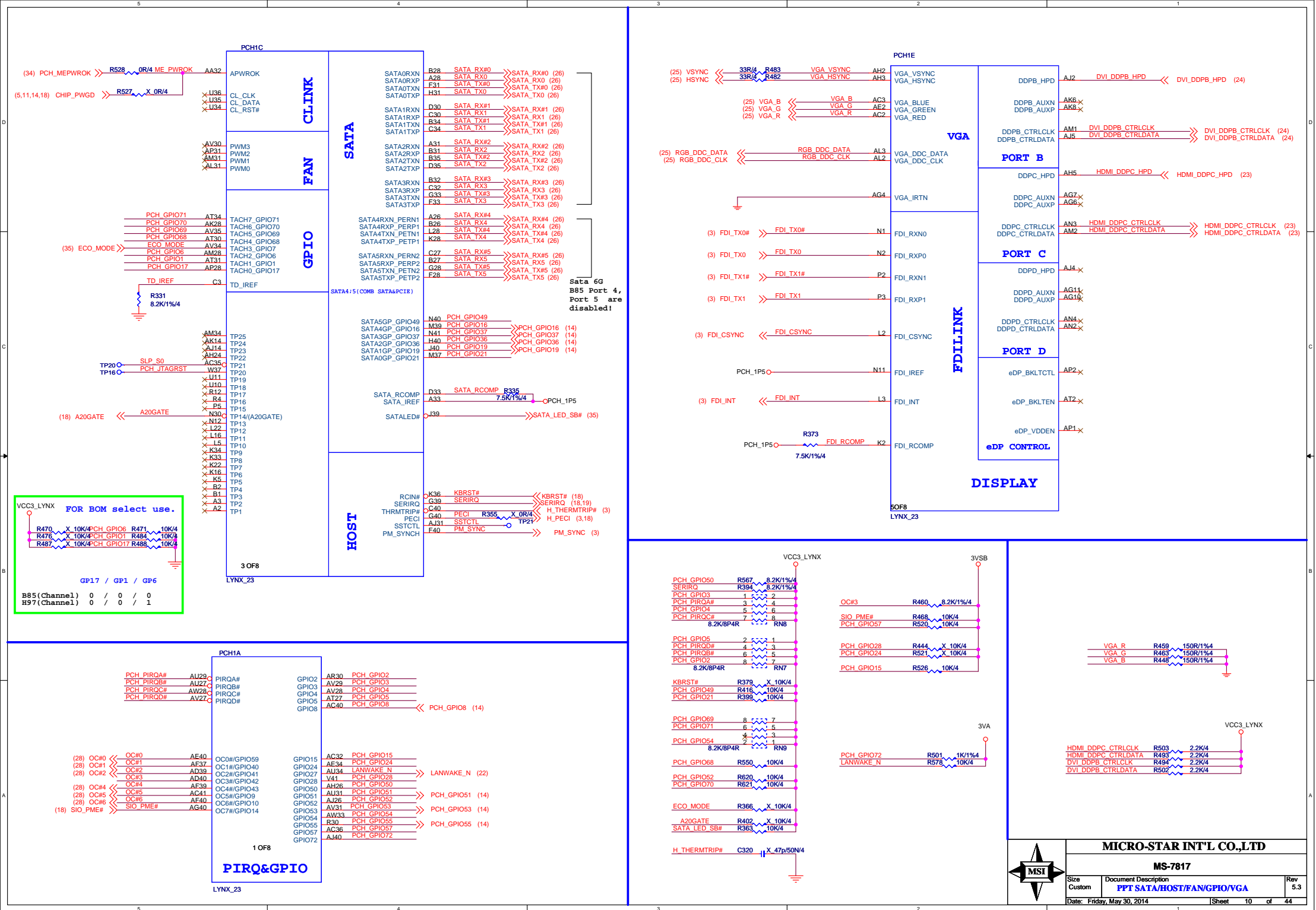


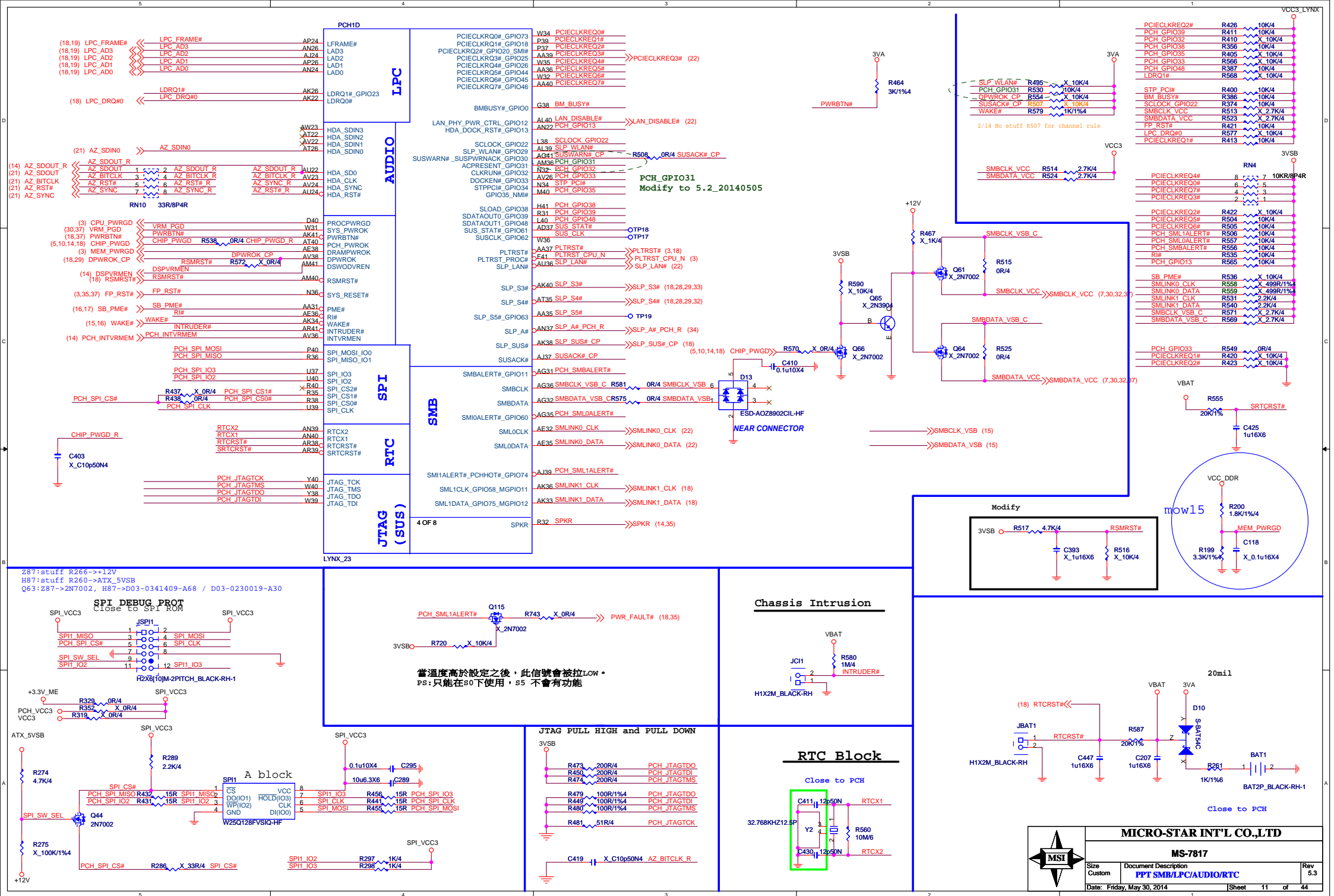
MICRO-STAR INT'L CO.,LTD

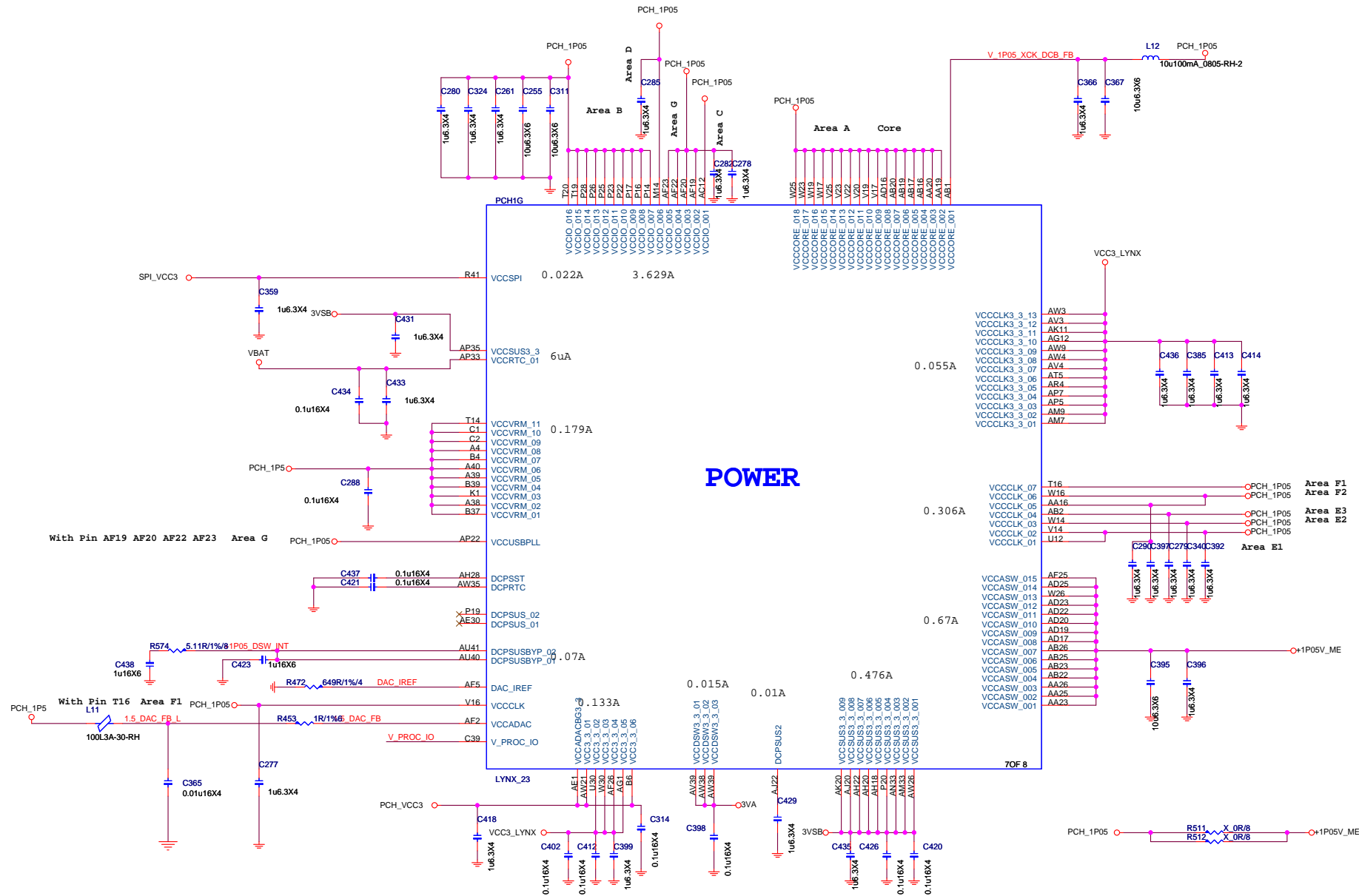
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Size Custom	Document Description DDR III B DIMM 1	Rev 5.3
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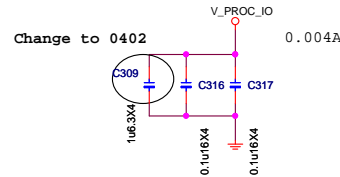
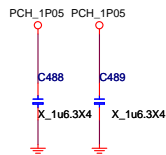








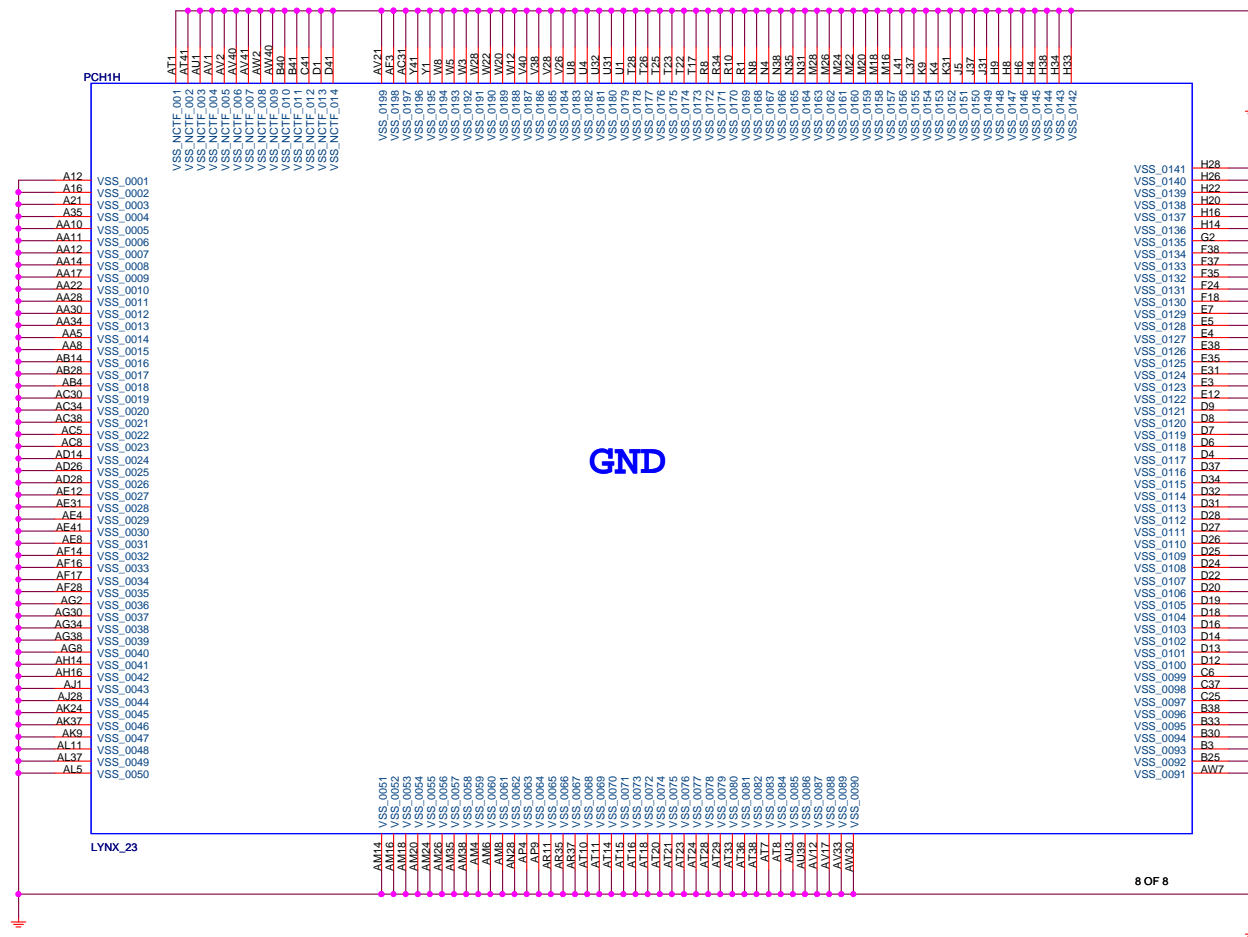
Backside for V14,U12,T16,V16
unstuff

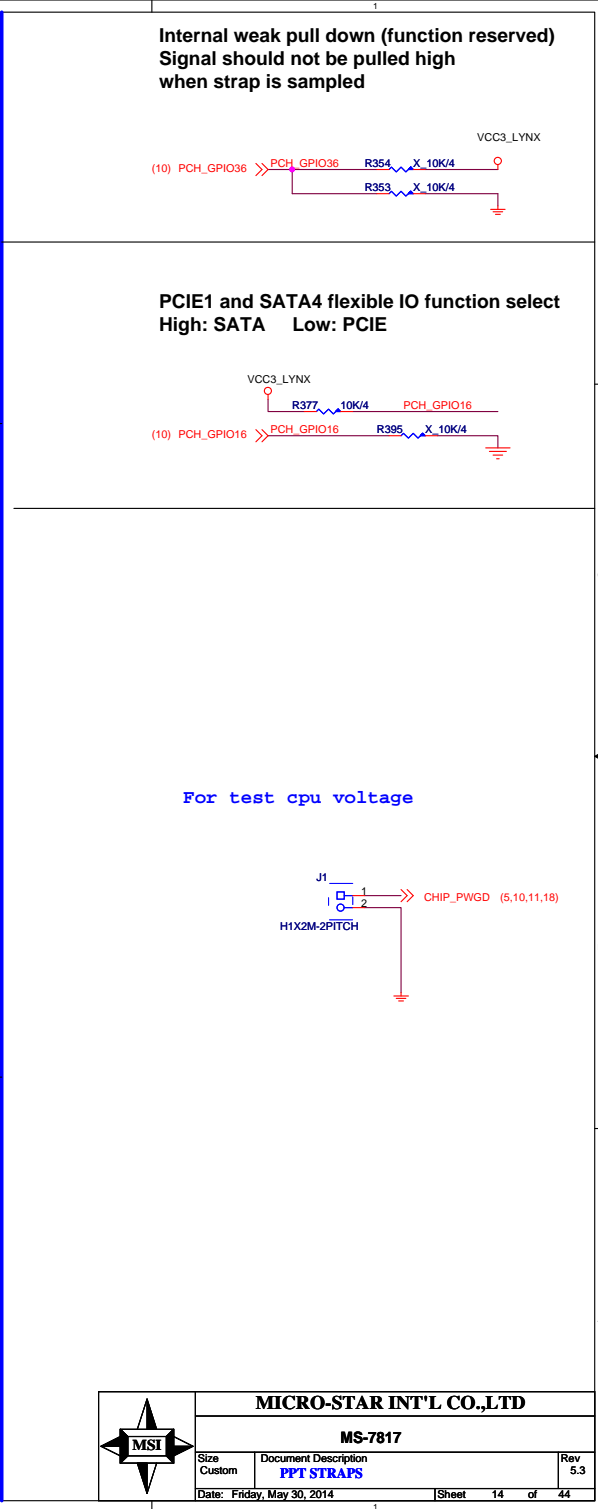
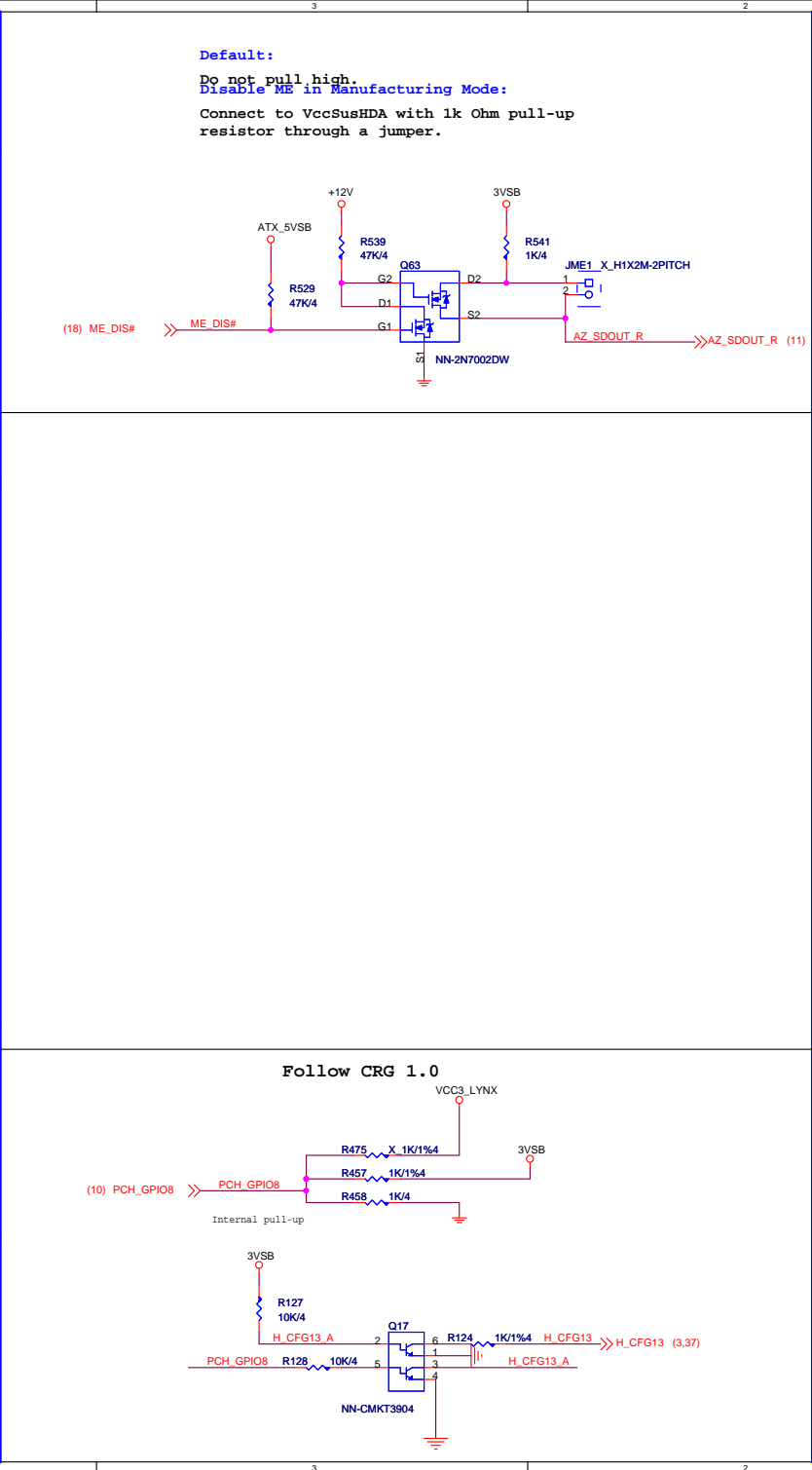
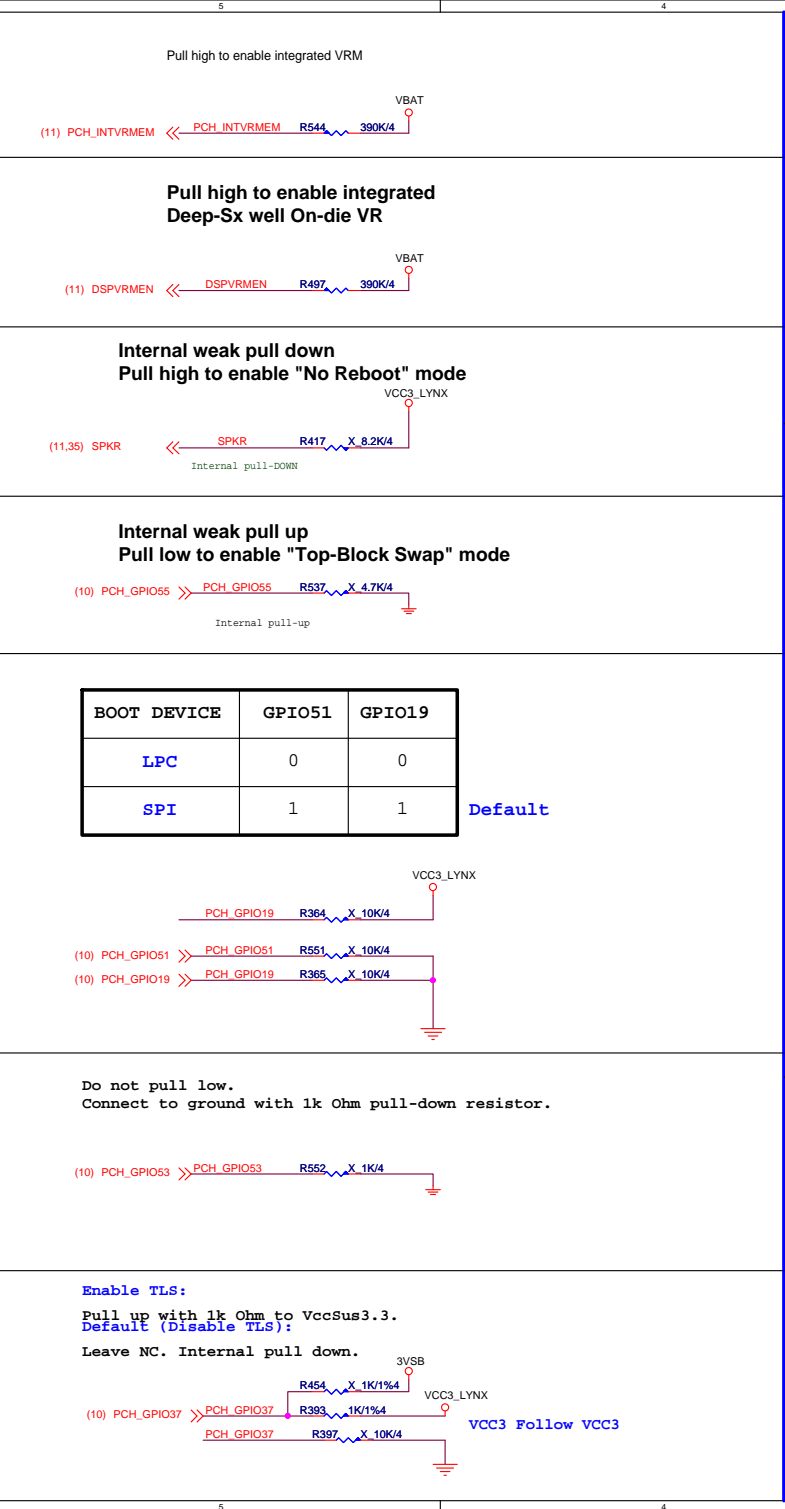


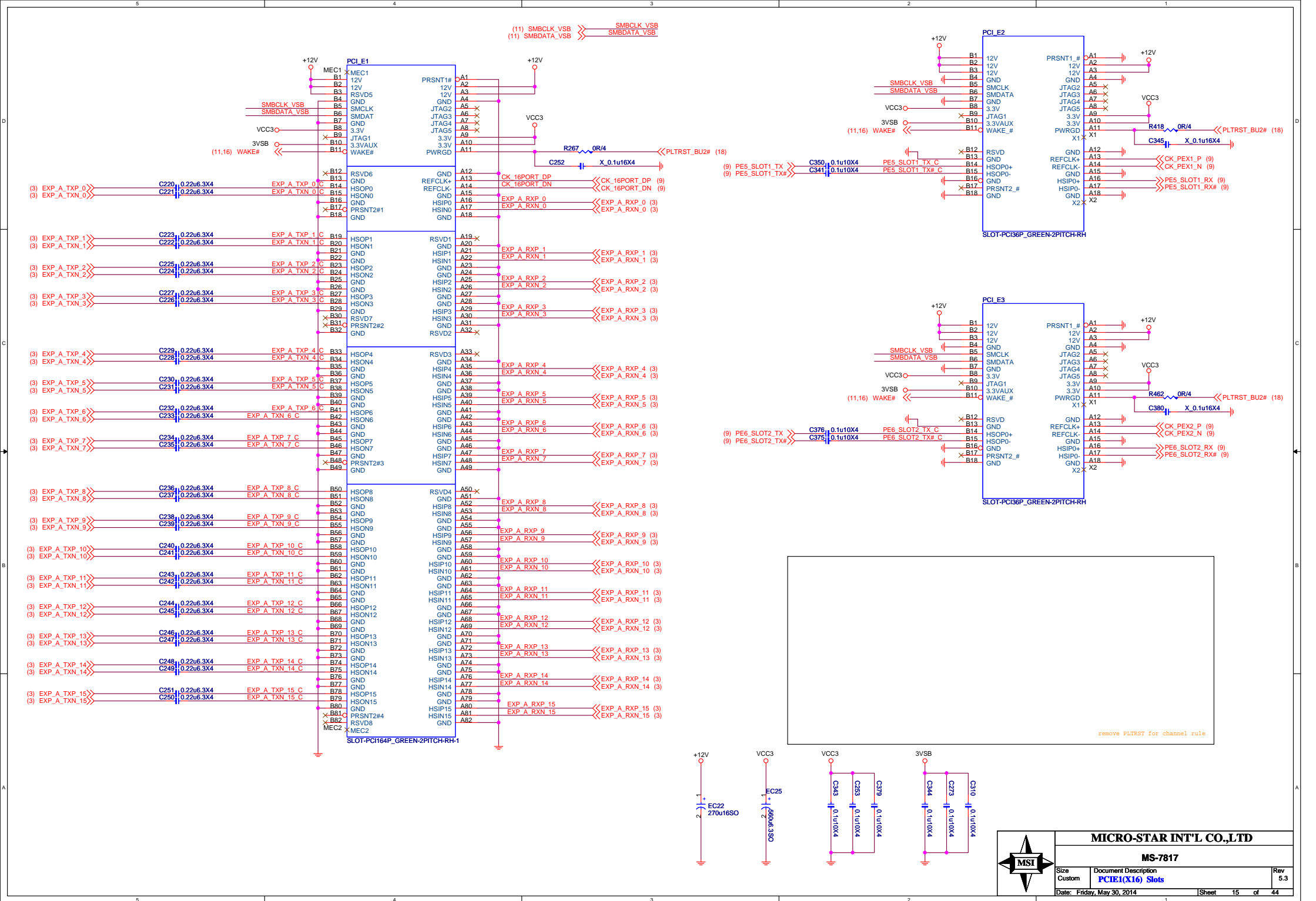
MICRO-STAR INT'L CO.,LTD

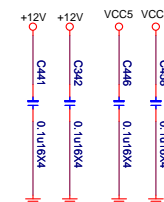
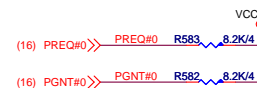
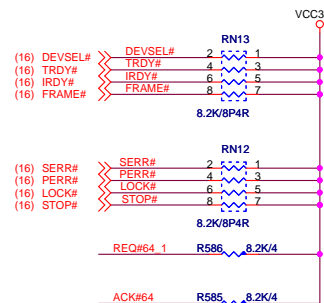
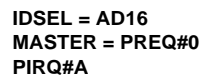
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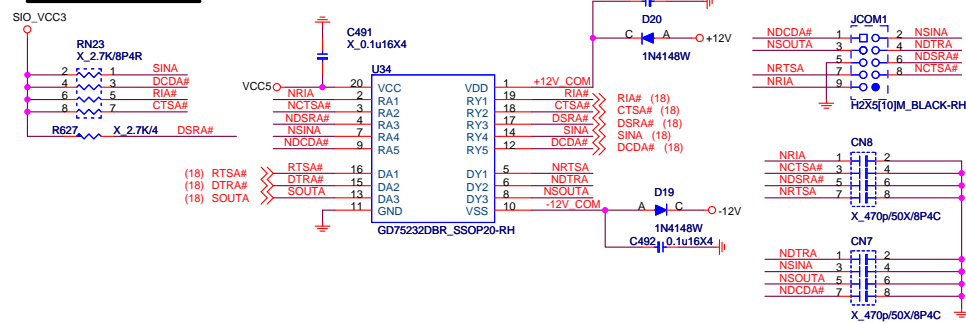


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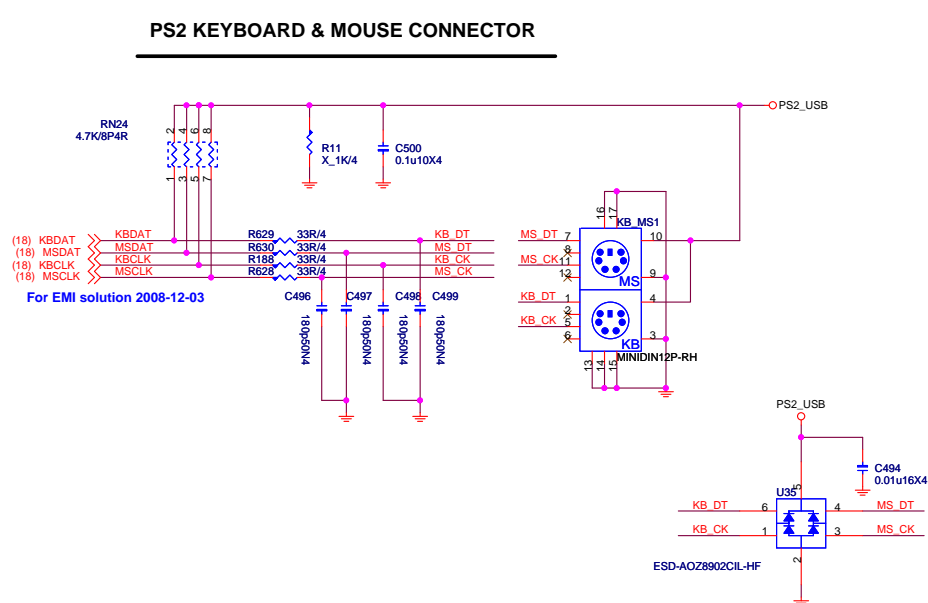
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Size Custom	Document Description PCIx1 Slots	Rev 5.3
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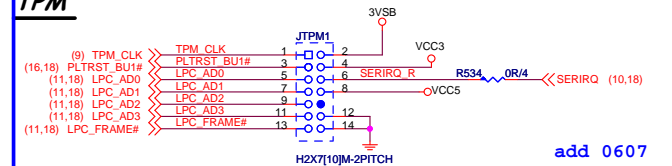
SERIAL PORT 1



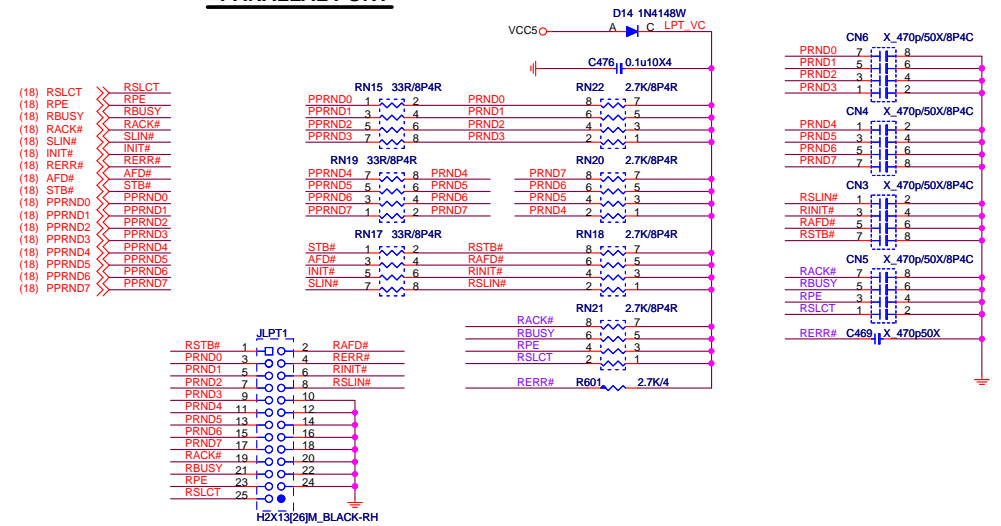
PS2 KEYBOARD & MOUSE CONNECTOR



TPM



PARALLAL PORT

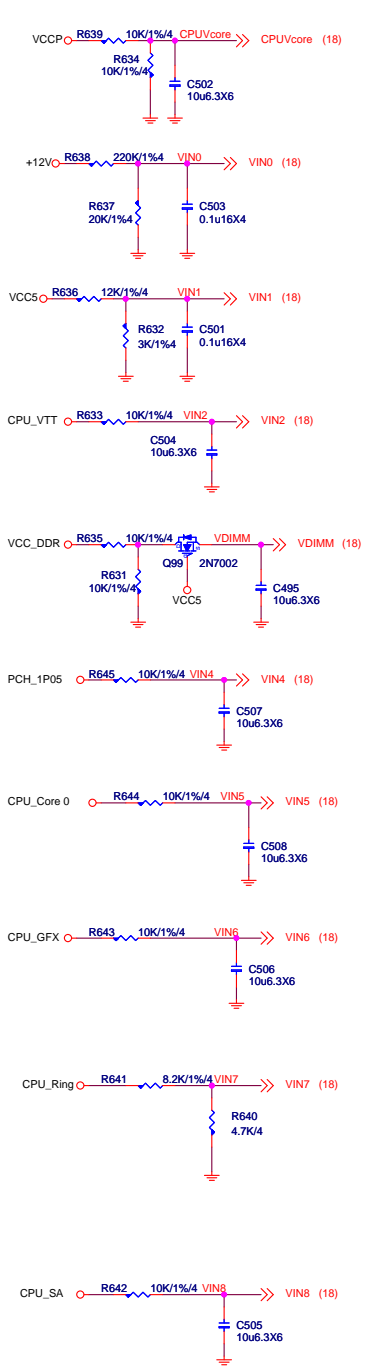


MICRO-STAR INT'L CO.,LTD

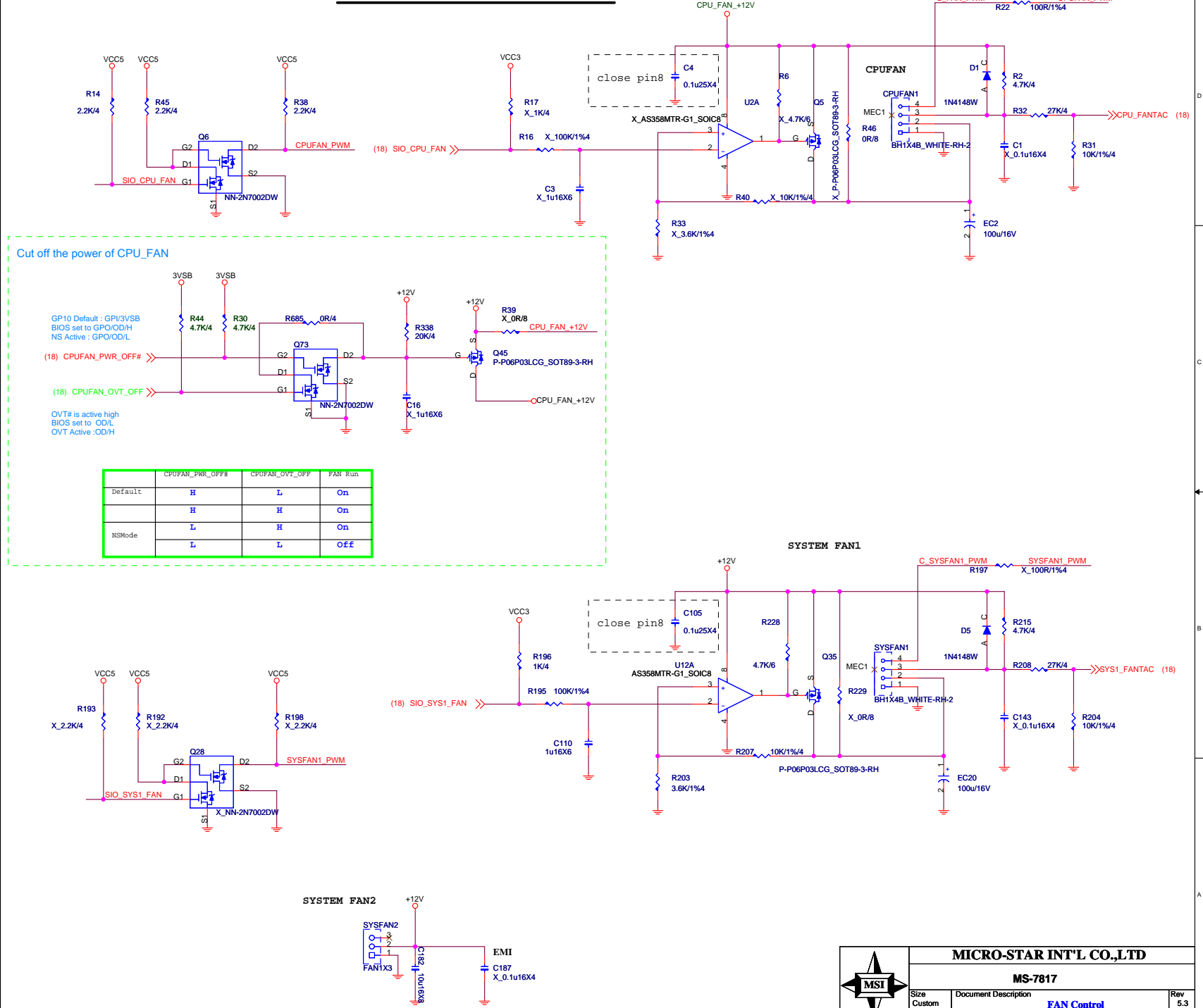
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Size Custom	Document Description TPM/PS2/COM/LPT	Rev 5.3
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HW Monitor - Voltage



FAN-COUNTROL CIRCUIT

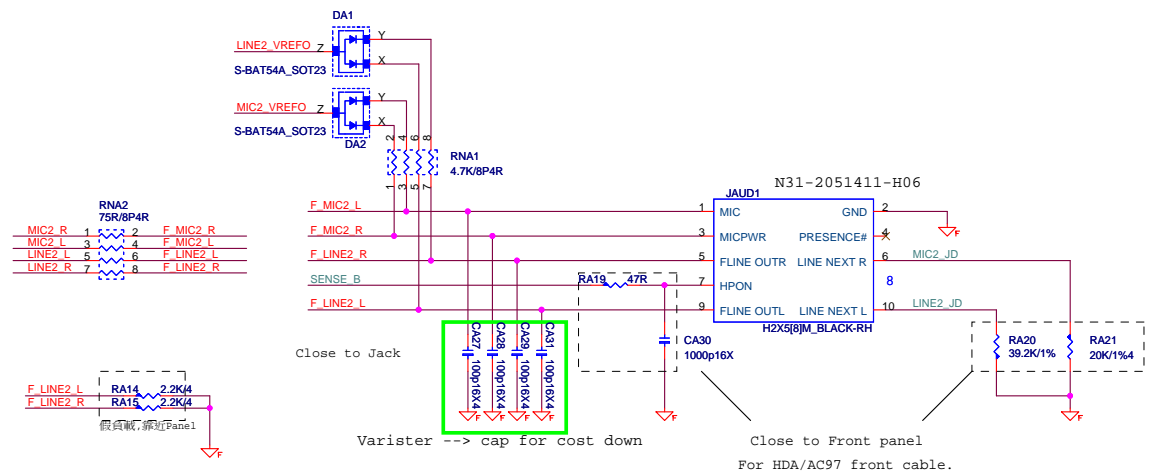
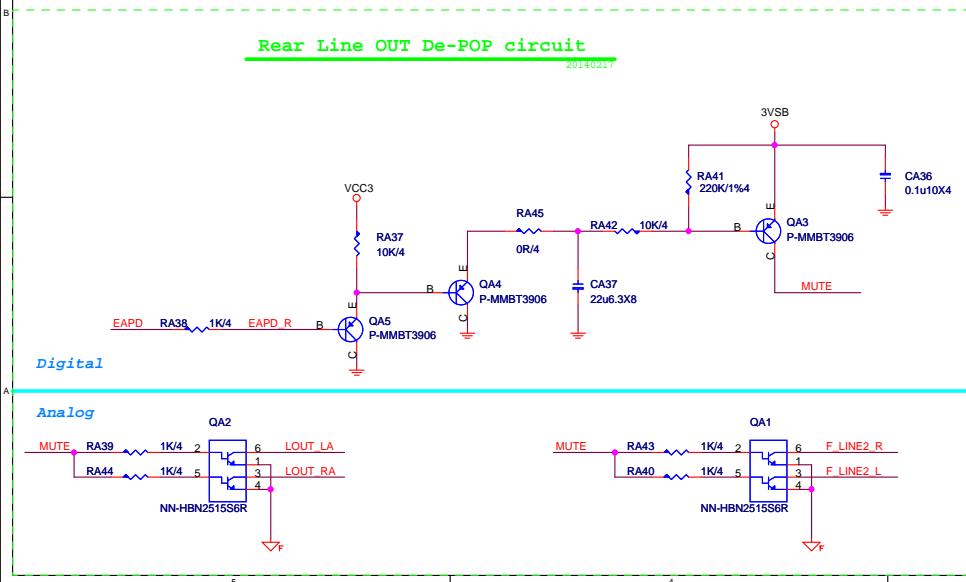
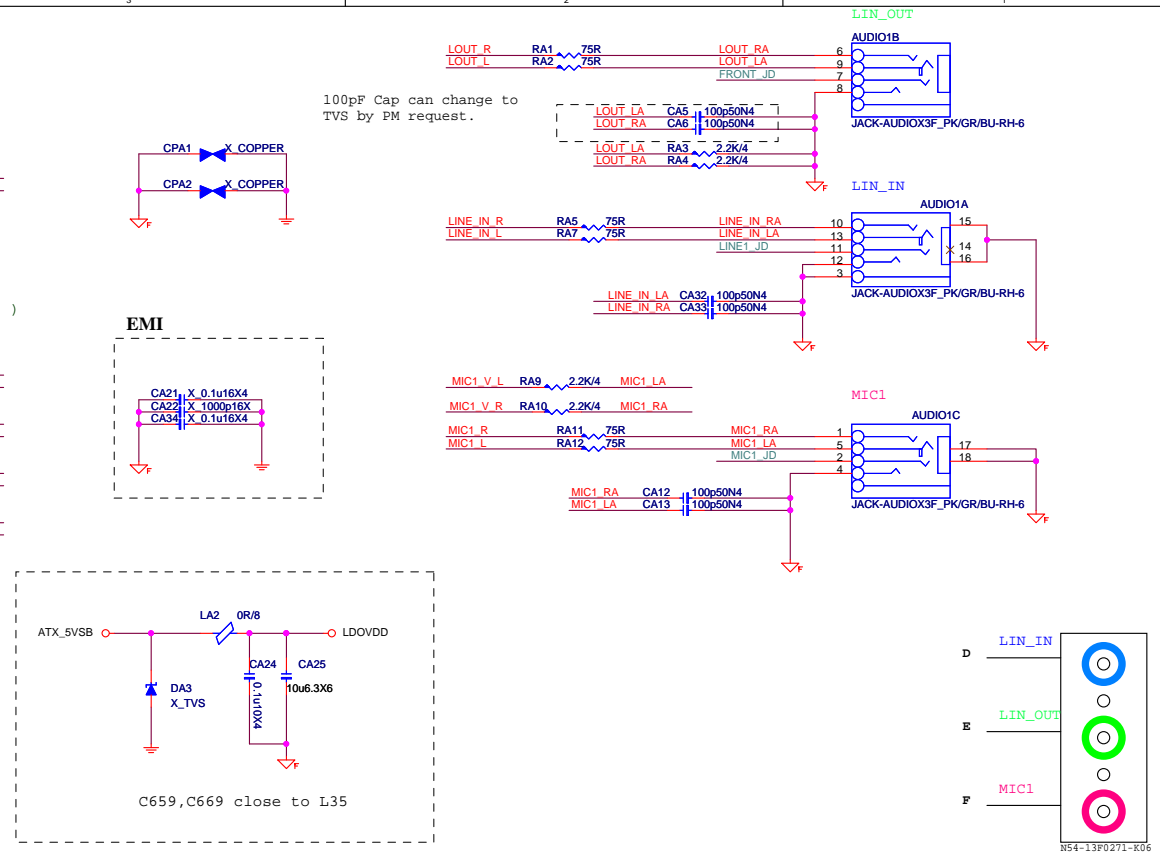
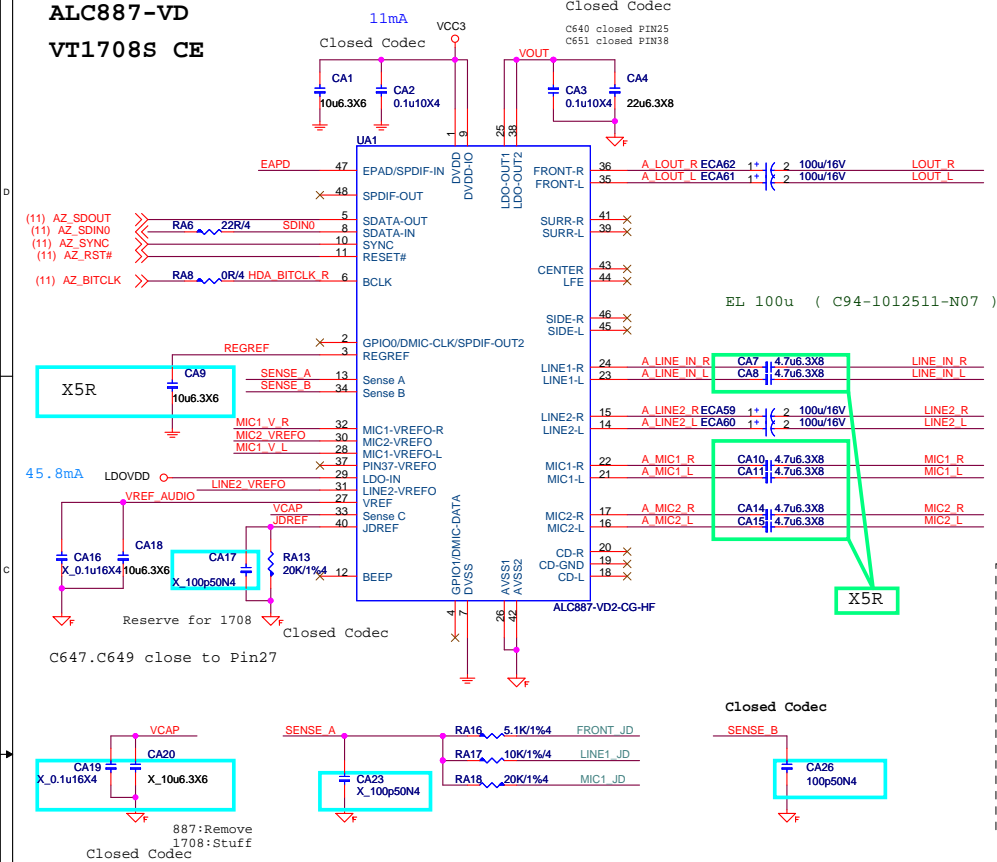


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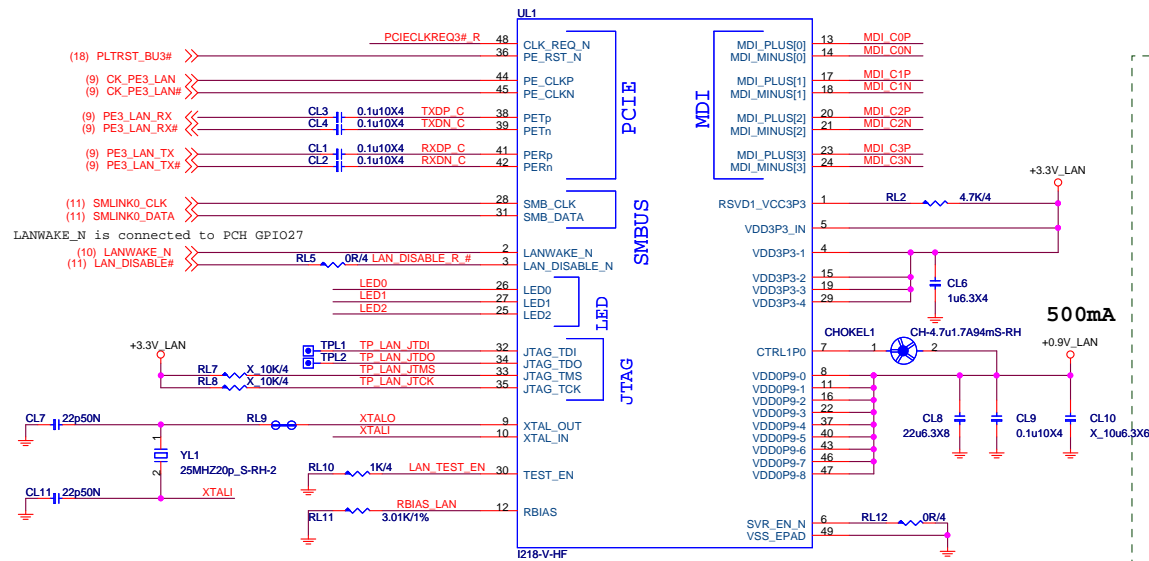
ALC887-VD
VT1708S CE



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Intel Clvrrkville I217V / I218V PHY

LAN copy from MS-7914-0A



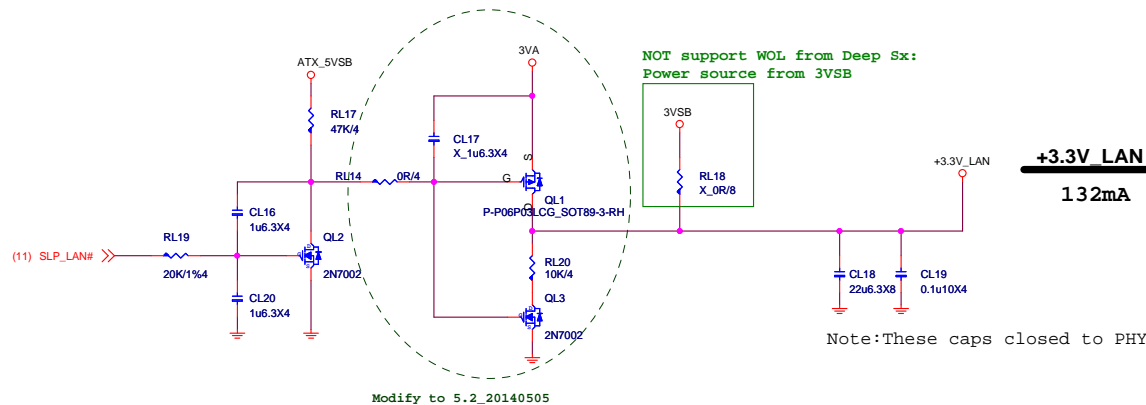
PCH's PCIECLKRQ<n> port mustbe mapped to PCH's PET/R<n+1>port.
If CLK_REQ_N is not used, pin48 is left as NC

SMBUS PULL-UP OPTIONS
SMBUS SPEED
1MHz (Default setting) 499 ohm
100KHz/400KHz 2.2K ohm

Remove pull-up R if R existence on motherboard
(or PCH has internal pull-up R).

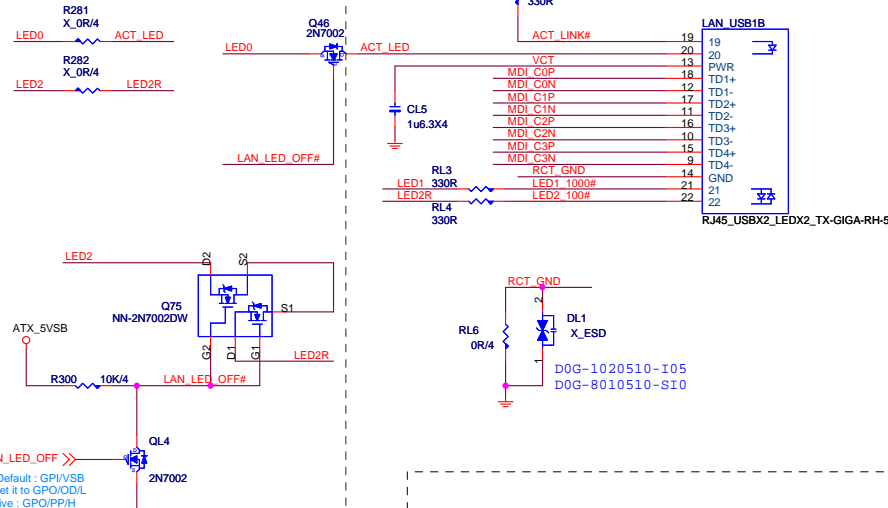
support WOL from Deep Sx:
Power source from 3VA (DSW power) & make sure MAX current is enough to support i218.
NOT support WOL from Deep Sx:
Power source from 3VSB

NOT support WOL from Deep Sx:
Power source from 3VSB

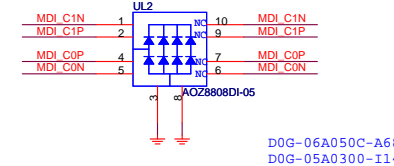
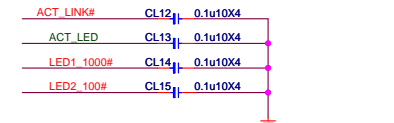


Note: These caps closed to PHY

Power switch of LAN_LEDs



For EMI



Do not pair MDI0 and MDI1 on the same TVSdevice
(avoid LAN POE connecting issue).
Otherpairing combination is ok.

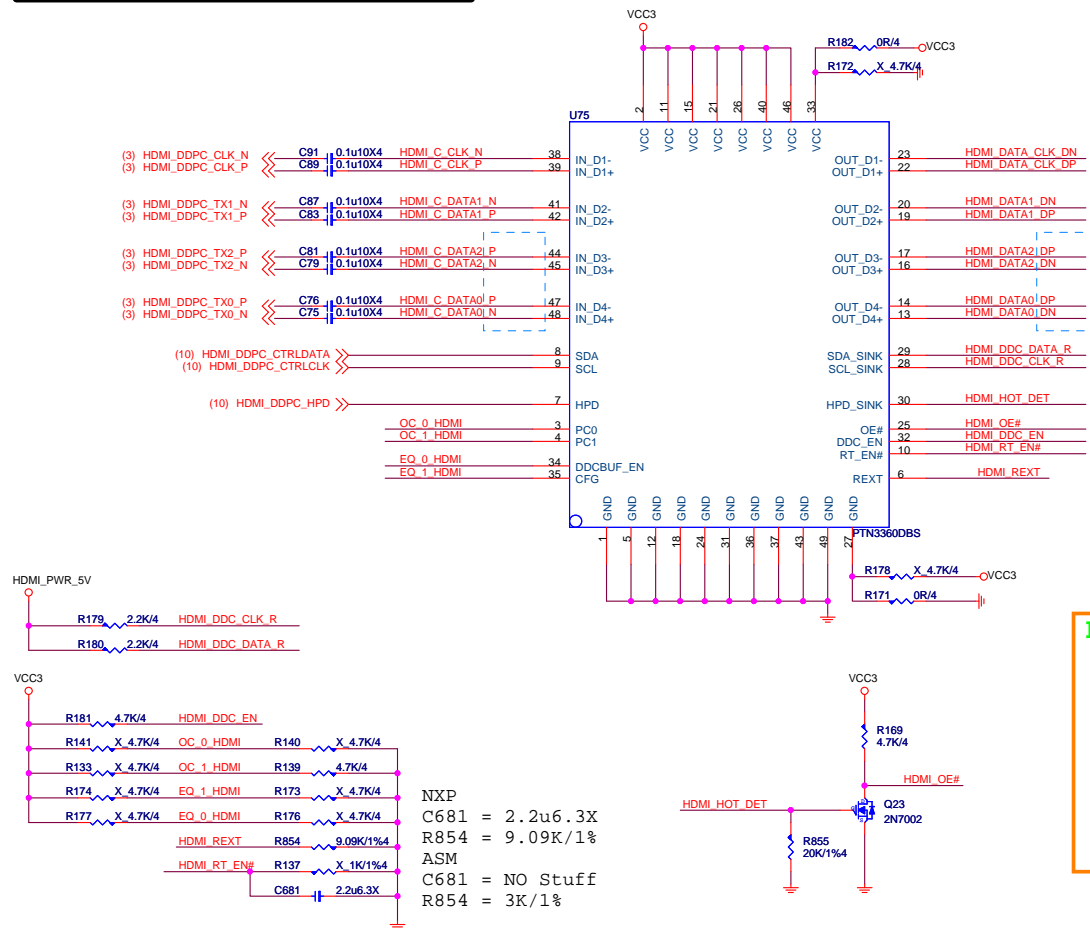


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HDMI level shifter



	"0"	"1"	note
DDC_EN	DDC level shifter disable	DDC level shifter enable	internal pull-up at ~500K ohm.
RT_EN#	Input 50 ohm termination resistor enable	the input termination ; resistors are set to high impedances	internal pull-down at ~500K ohm.
OE#	enable	the chip is power down and input termination resistors will be at high impedance.	internal pull-down at ~500K ohm.
HPD_SINK	disable	enable	internal pull-down at ~200K ohm; 5V tolerant.
DDCBUF_EN	For DDC level shifting configuration, please refer to Table.		internal pull-down at ~500K ohm.
REXT			analog current generation.

[DDC_EN, DDCBUF_EN, OE#]	DDC Passive Switch	DDC Active Buffer
1, 0, X	On	Off
1, 1, 0	Off	On
1, 1, 1	Off	Off
0, X, X	Off	Off

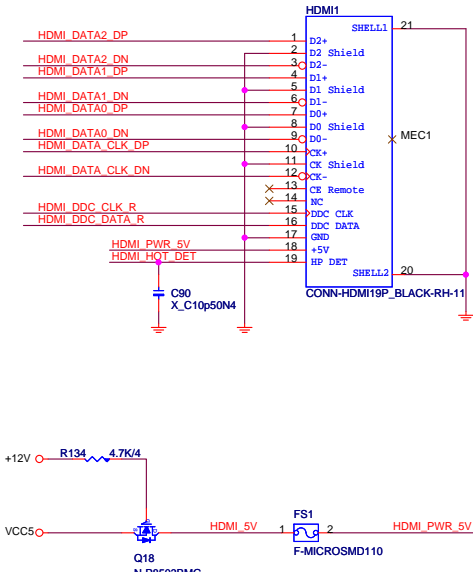
PC1, PC0		note
00	8 dB	internal pull-down at ~500K ohm.
01	4 dB	
10	12 dB	
11	0 dB	

Table 8-1. PCH PCI Express Tx/RX - HDMI Signal Mappings

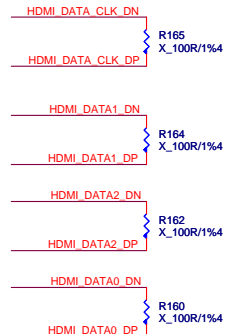
Port	Digital Display Interface Differential Pairs	HDMI Signals	PCH Digital Display Interface Pins
Port B	DDSP_B_TX0_DN	TMDSB_DATA2#	DDPB_ON
	DDSP_B_TX0_DP	TMDSB_DATA2	DDPB_OP
	DDSP_B_TX1_DN	TMDSB_DATA1#	DDPB_1N
	DDSP_B_TX1_DP	TMDSB_DATA1	DDPB_1P
	DDSP_B_TX2_DN	TMDSB_DATA0#	DDPB_2N
	DDSP_B_TX2_DP	TMDSB_DATA0	DDPB_2P
	DDSP_B_TX3_DN	TMDSB_CLK#	DDPB_3N
	DDSP_B_TX3_DP	TMDSB_CLK	DDPB_3P
	DDPB_HPD	DDSP_B_HPD0	Hot plug detect used by HDMI Port B.
	SDVO_CTRLCLK	HDMIB_CTRL_CLK	HDMI DDC lines for Port B
	SDVO_CTRLDATA	HDMIB_CTRL_DATA	

HDMI1 power switch

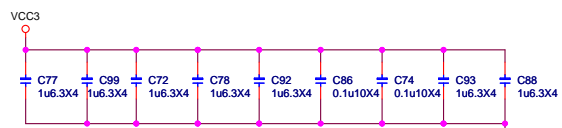
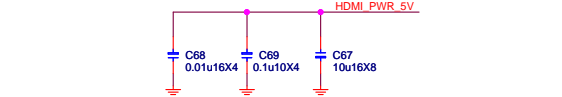
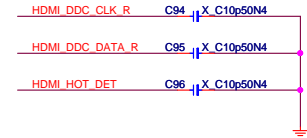
Remove to 5.2_20140505

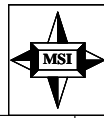


EMI



EMI cap.





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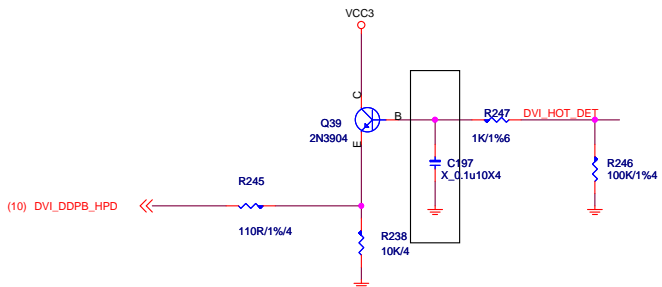
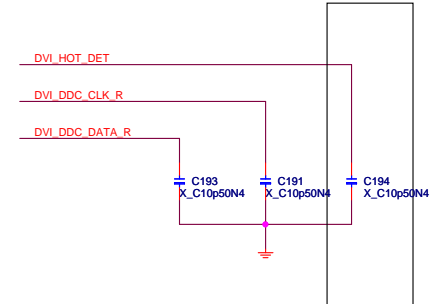
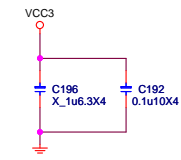
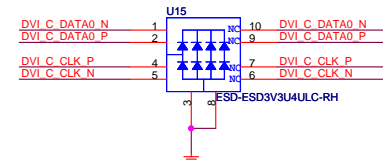
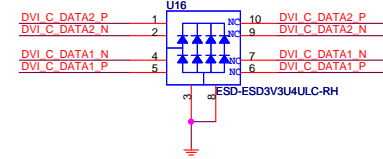
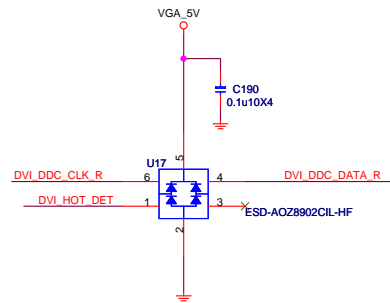
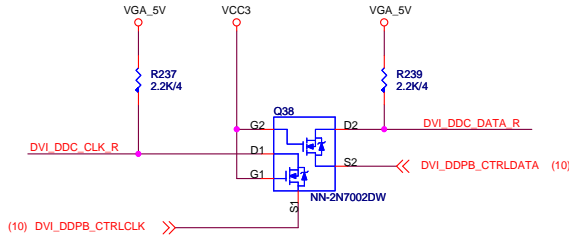
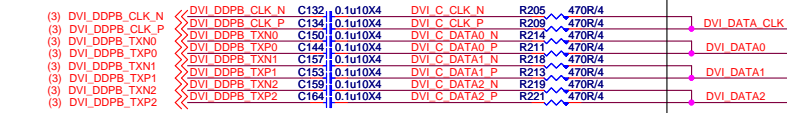
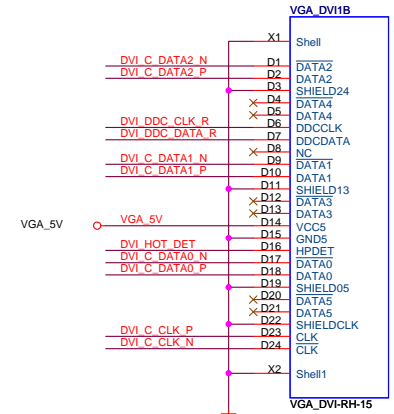
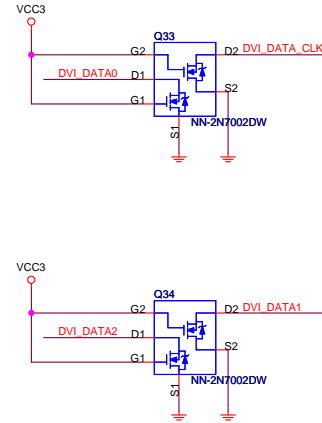
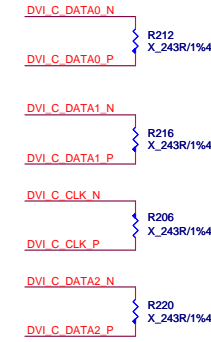
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Custom	HDMI Connector 1	5.3

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

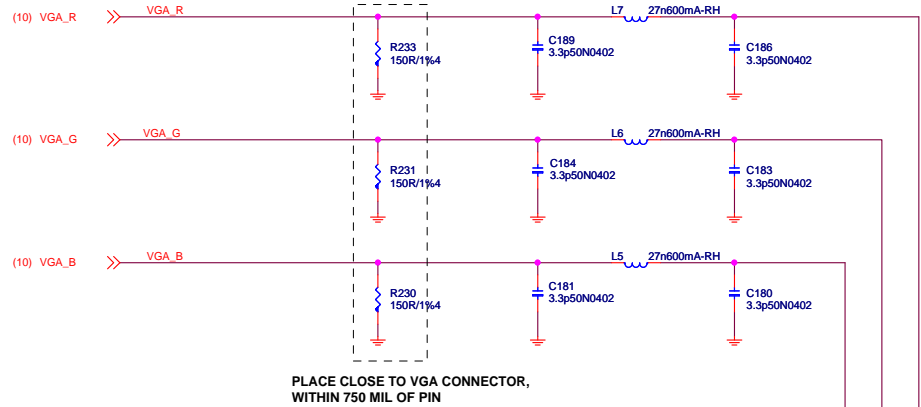
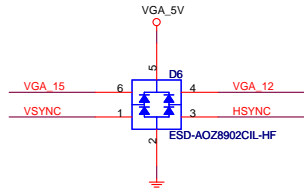
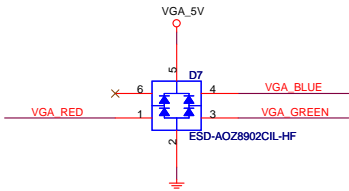
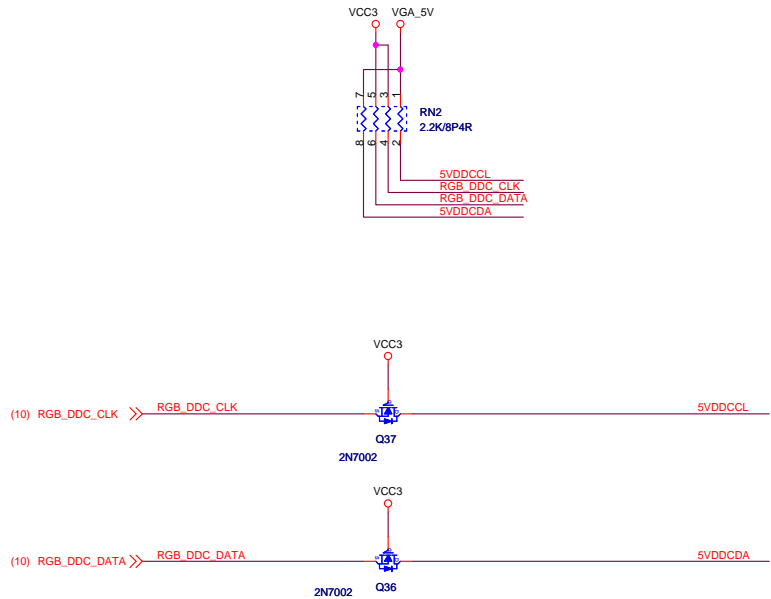
For EMI



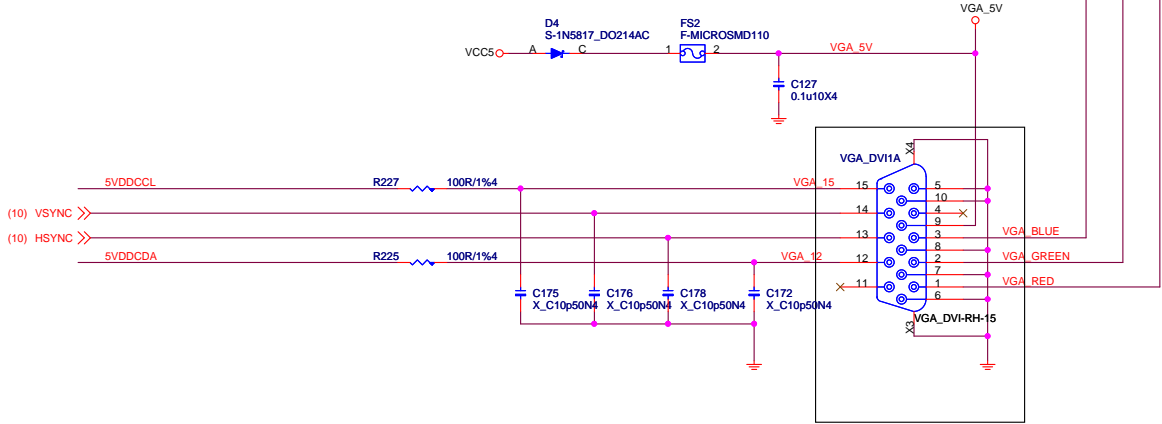
D-Sub

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

Level shift

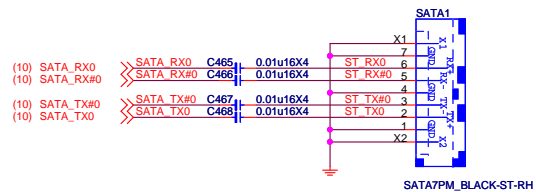


PLACE CLOSE TO VGA CONNECTOR,
WITHIN 750 MIL OF PIN



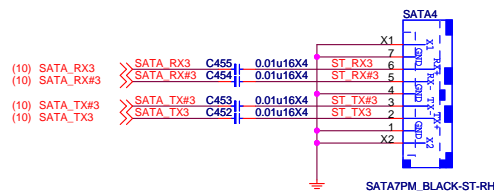
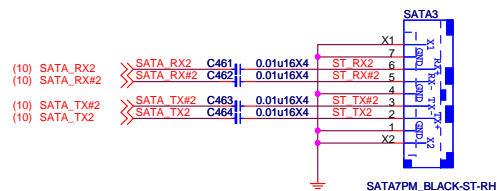
SATA 6G PORT 0,1

3.0



SATA 6G PORT 2,3

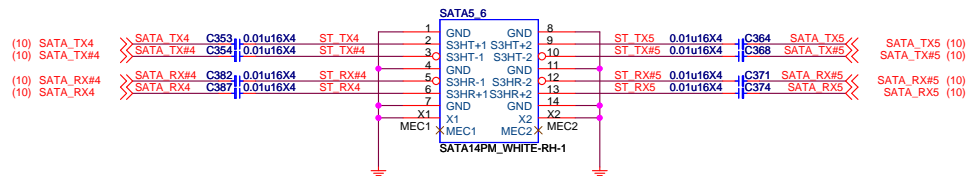
3.0



SATA 6G PORT 4,5

B85-only support3G

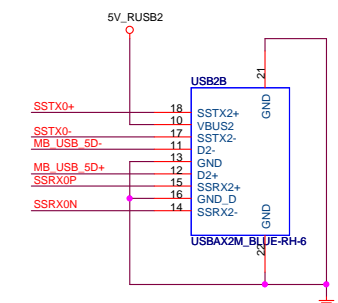
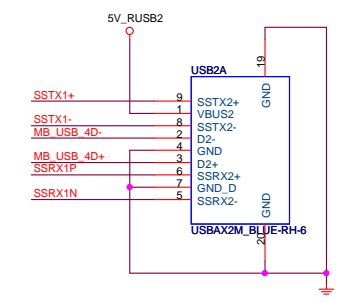
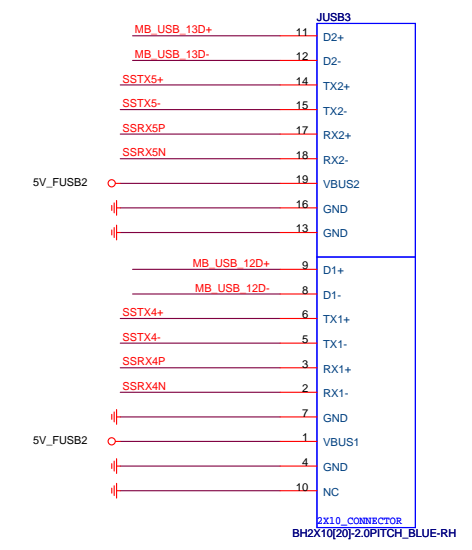
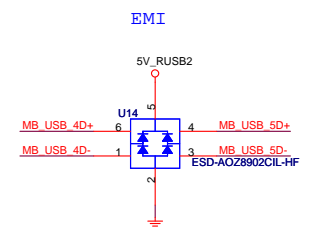
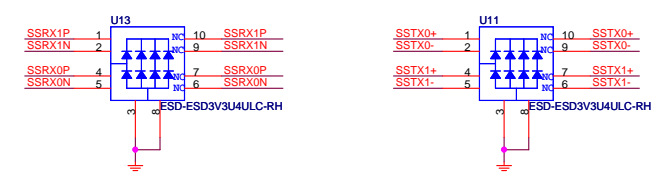
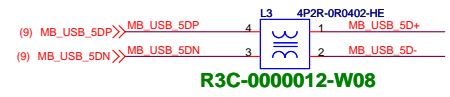
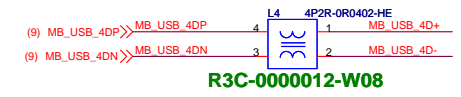
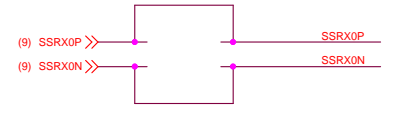
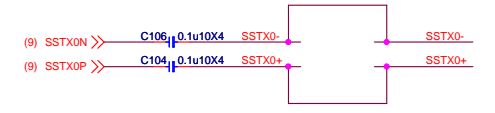
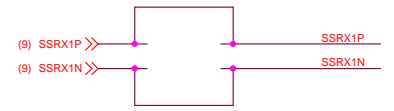
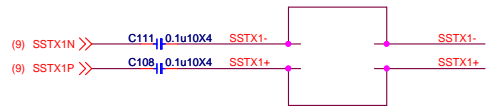
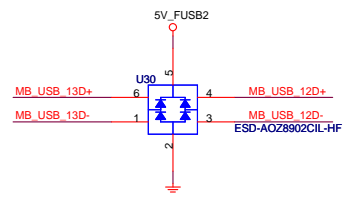
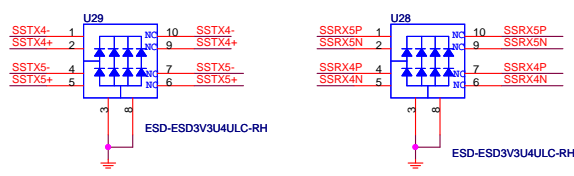
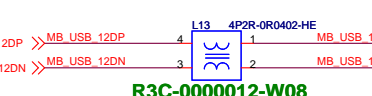
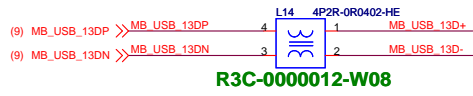
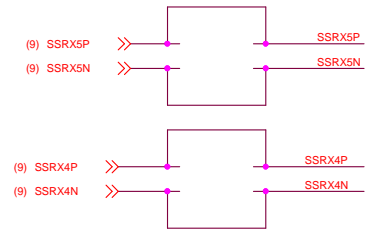
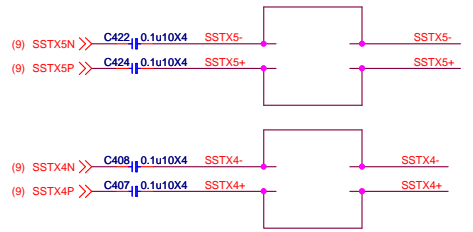
H97-support 6G



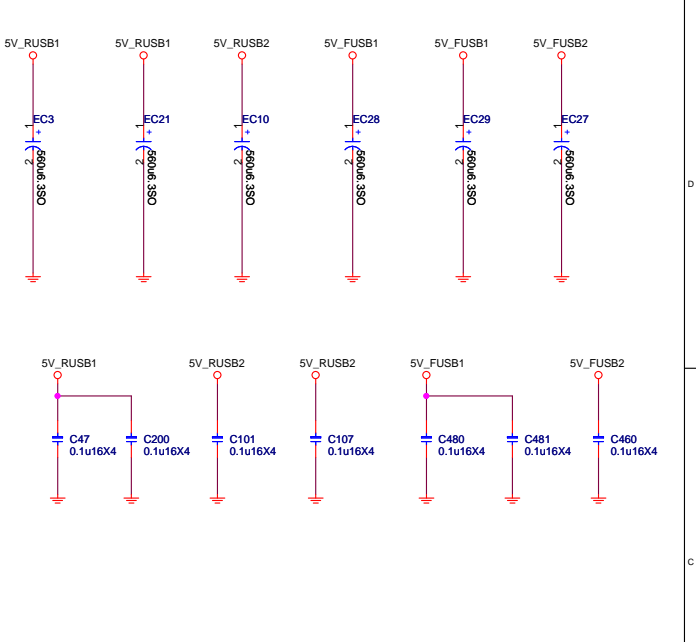
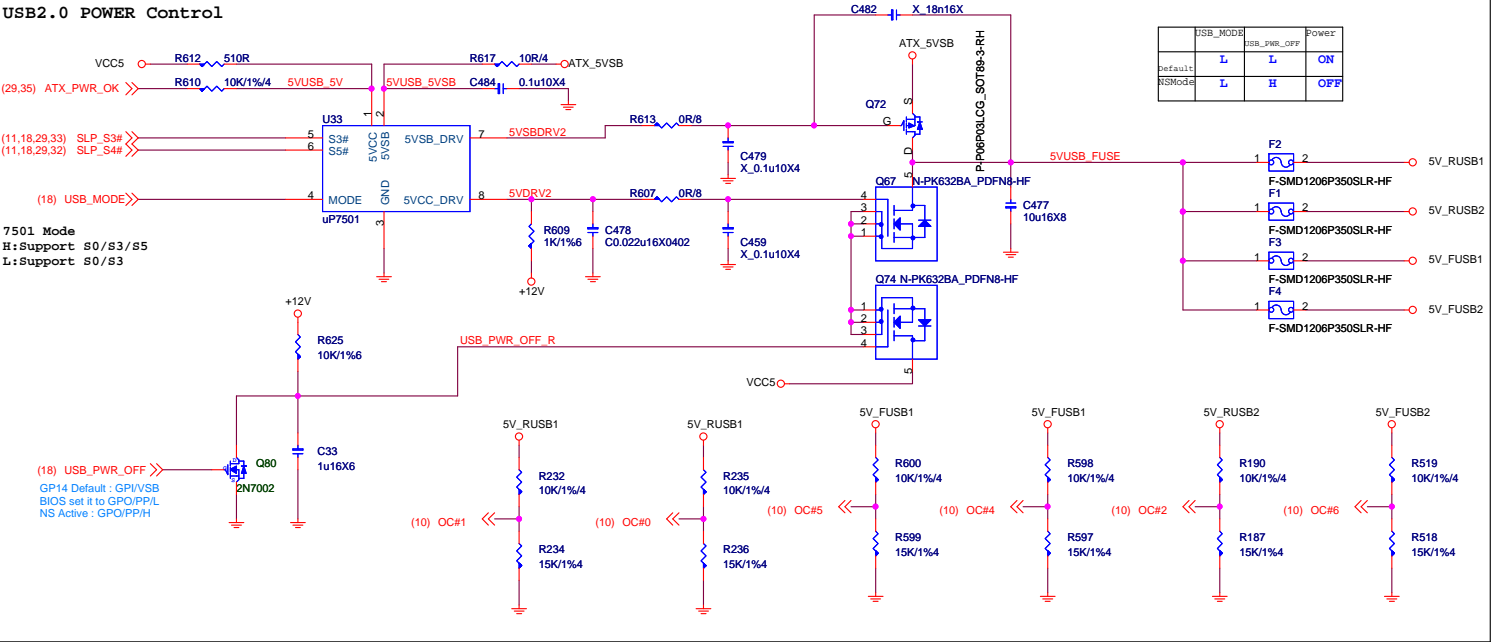
MICRO-STAR INT'L CO.,LTD

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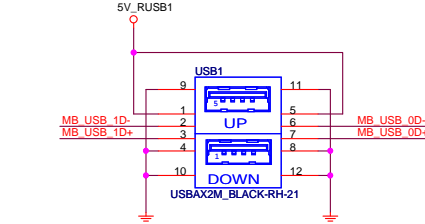
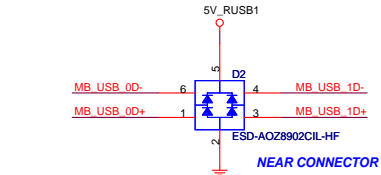
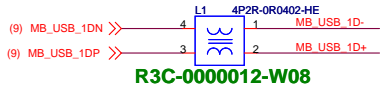
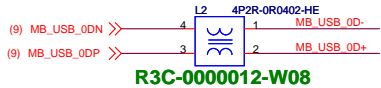
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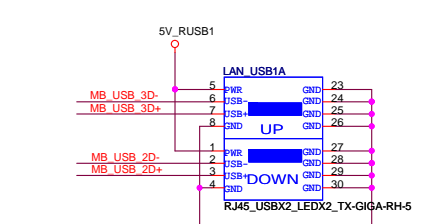
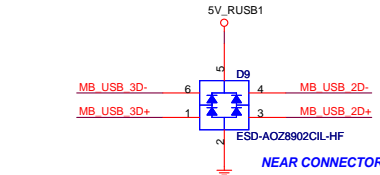
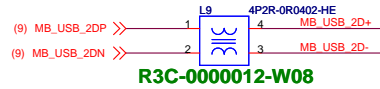
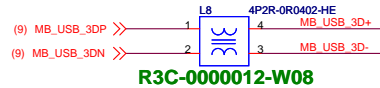
USB2.0 POWER Control



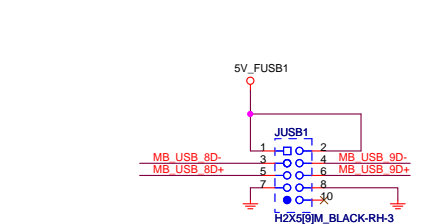
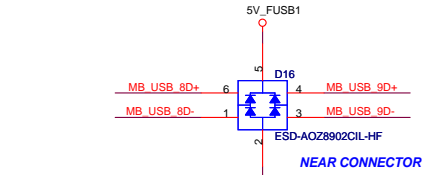
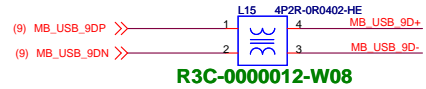
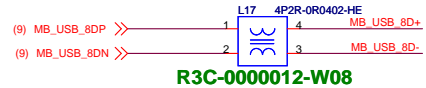
FRONT USB PORT2,3



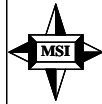
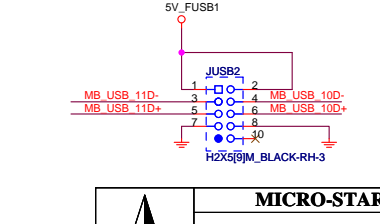
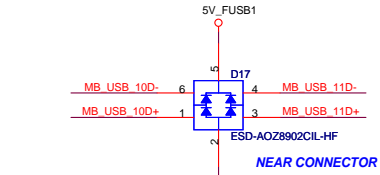
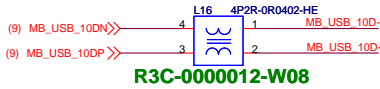
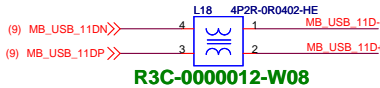
FRONT USB PORT4,5(With Lan)



FRONT USB PORT8,9



FRONT USB PORT 10,11

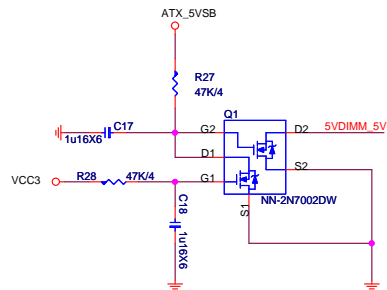
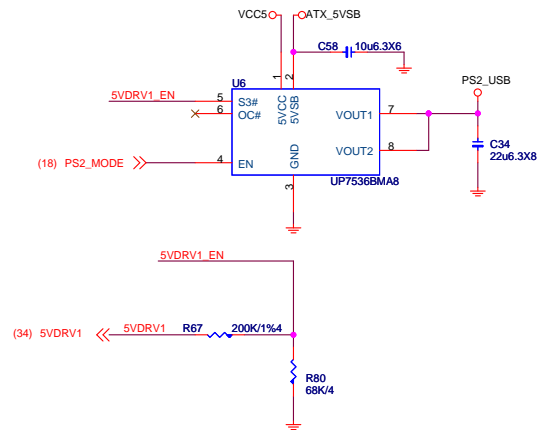
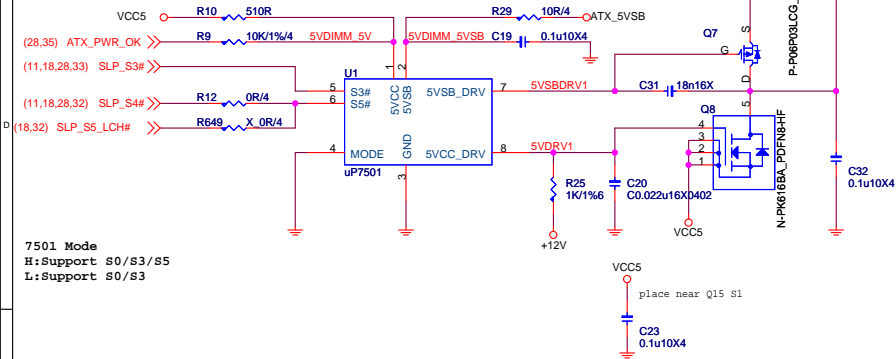


MICRO-STAR INT'L CO.,LTD

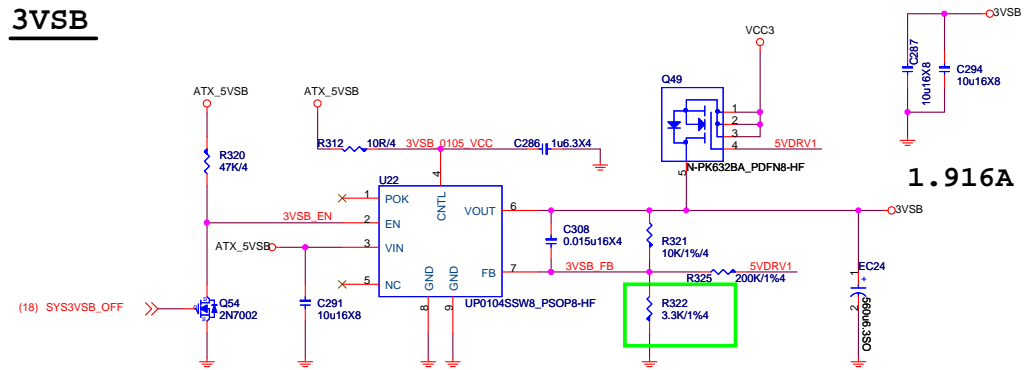
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5VDIMM FOR DDR

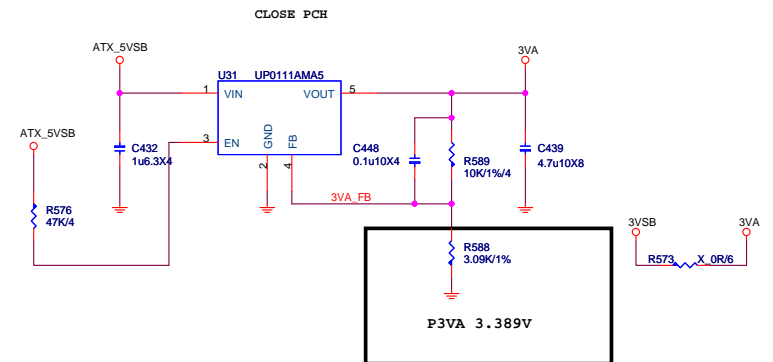


3VSB



3VA

20mA

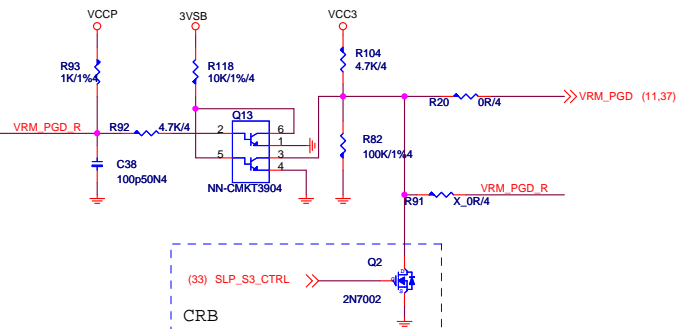


MICRO-STAR INT'L CO.,LTD

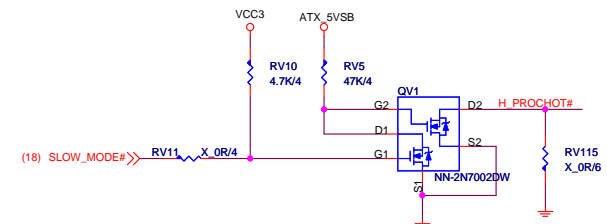
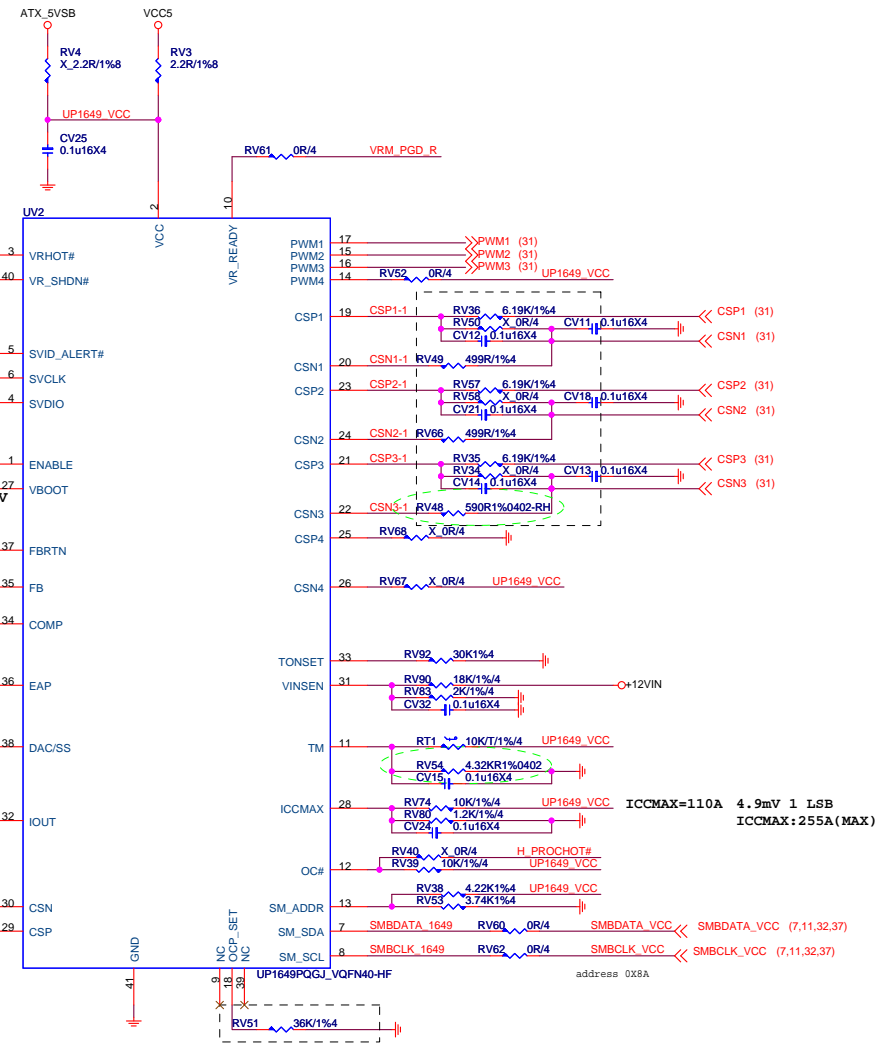
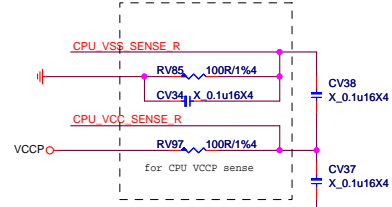
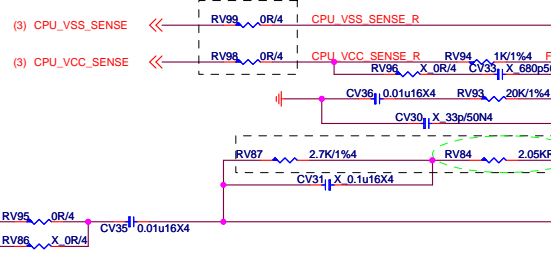
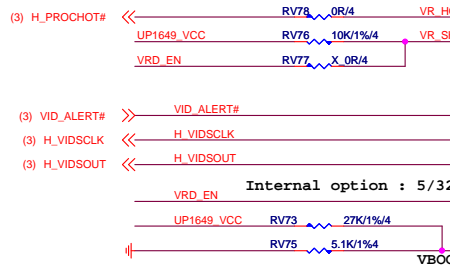
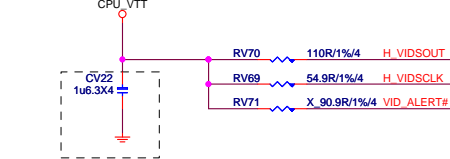
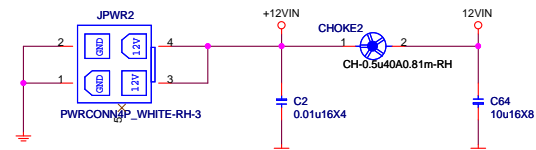
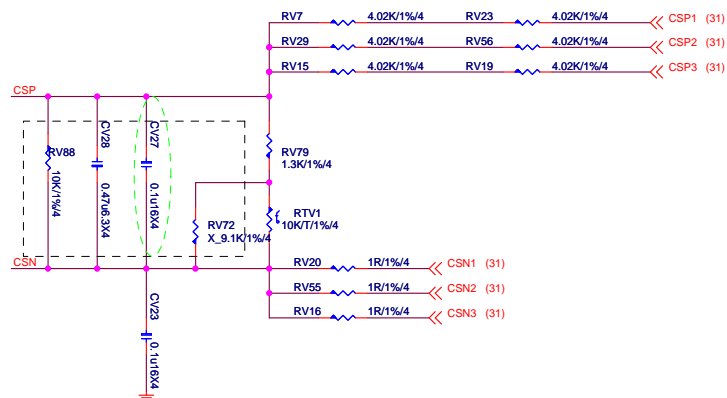
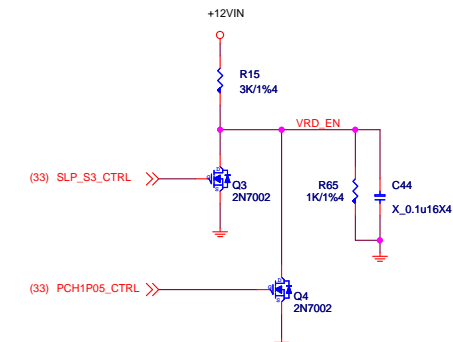
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Custom	ACPI Power	5.3
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VRMPWRGD LEVEL SHIFT

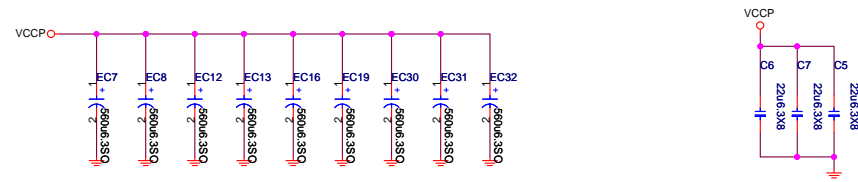
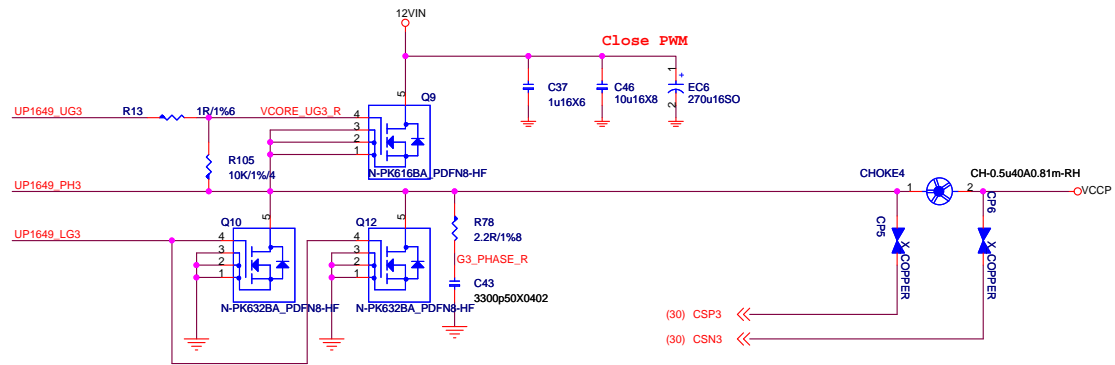
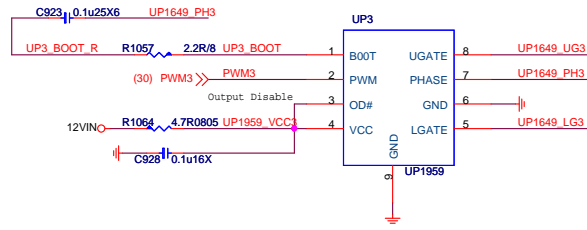
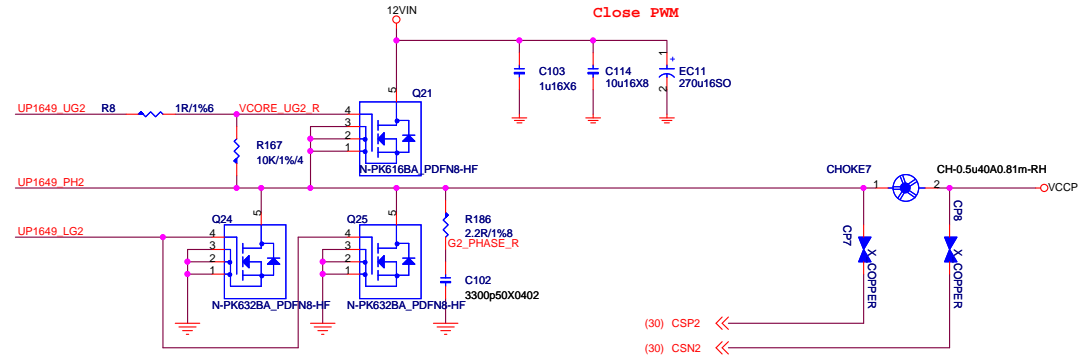
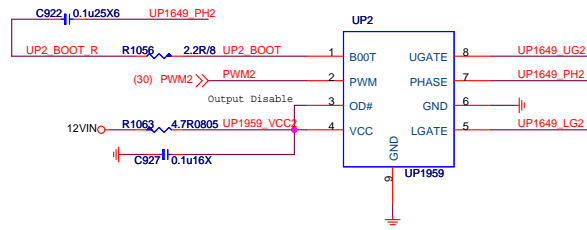
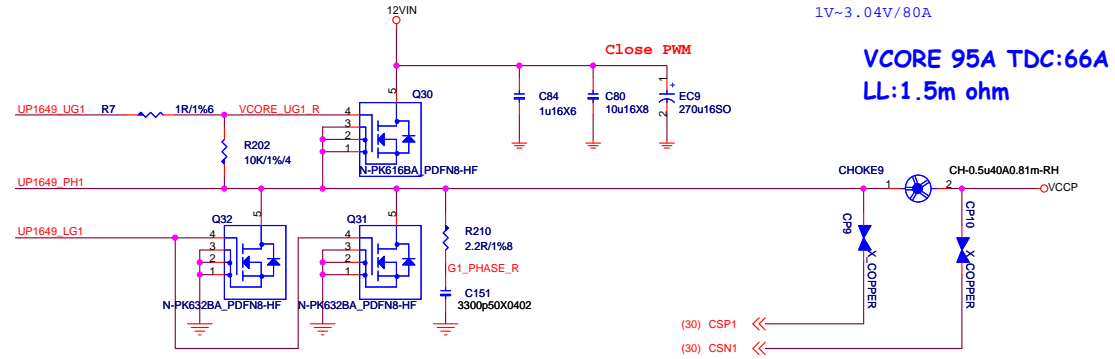
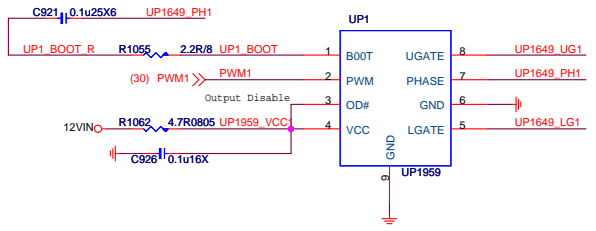


VCORE power on by s3 and 12v



change for power team solution-20140526

			MICRO-STAR INT'L CO.,LTD	
			MS-7817	
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DDR Power:1.5V

DDR3_1.5V ICCMAX 23.6A

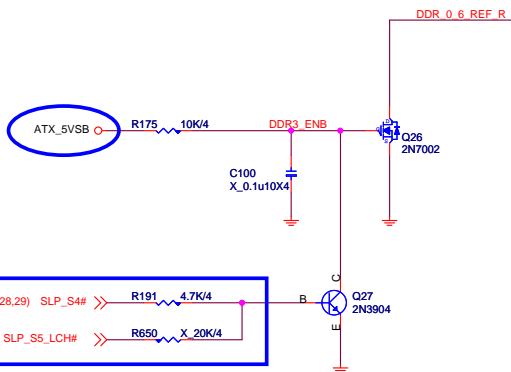
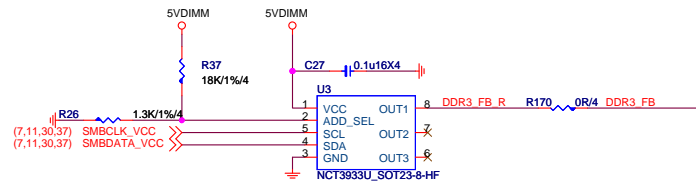
4.5A FOR CPU
12A FOR 4DIMM
1.1A FOR DDR VTT
6A FOR PCH_1P05

Tripple=9.6
 $4.7*2*1=9.4A<9.6A$

20140424
Change R185 from 1.5K to 1K
Change R168 from 1K to 665R
for LDIMM current setting

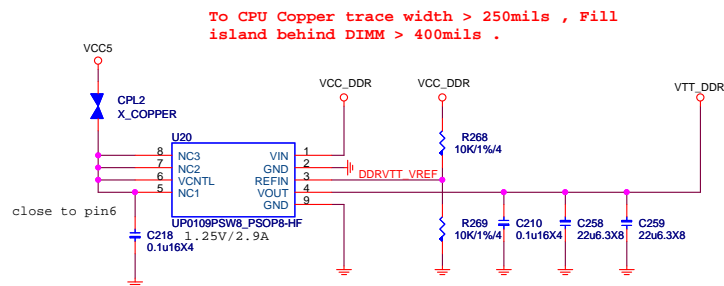
default不上件,
為了Dynamic PK-PK較佳,
上此solution 0R+0.1u

$$((R185/R168)+1)*0.6=1.5V$$



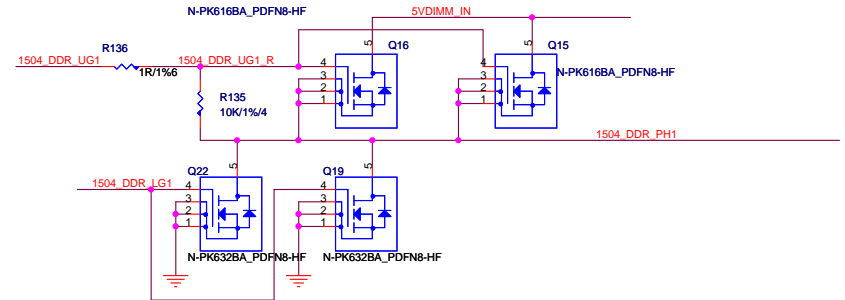
P.S. Only for meet Intel power down sequence.

DDR VTT Power



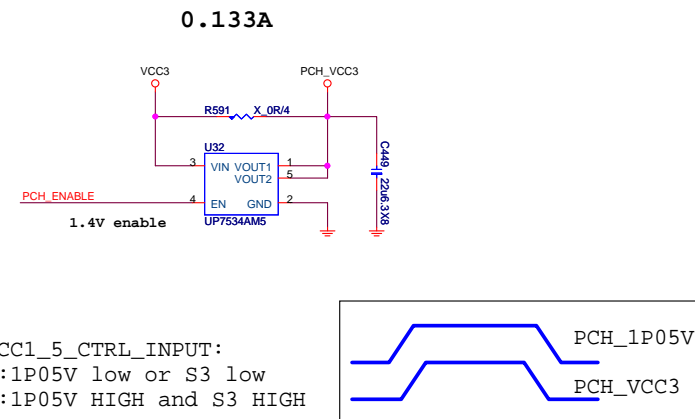
To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .

OCp 23.6*1.5=35A
 $35A=(20uA*Rocs(R142))/4*Rdson(Low\ side1.65mohm)$
R142=11.9K ohm

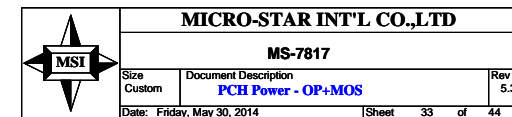


MSI			
MICRO-STAR INT'L CO.,LTD			
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Custom	DDR Power - UP1504S	5.3	
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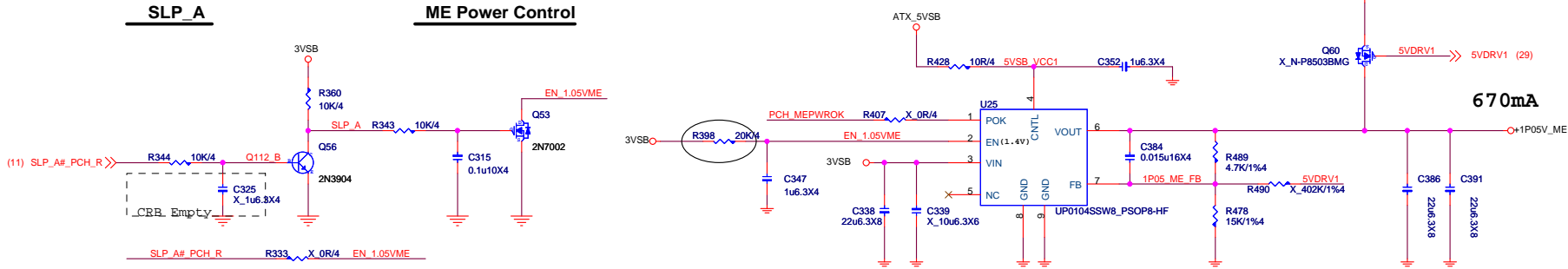
PCH Power:1.05V 5.747A



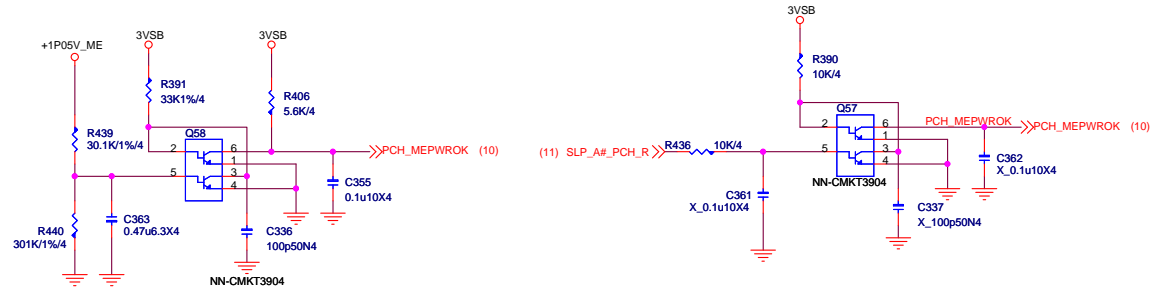
PCH Power:1.5V 0.263A



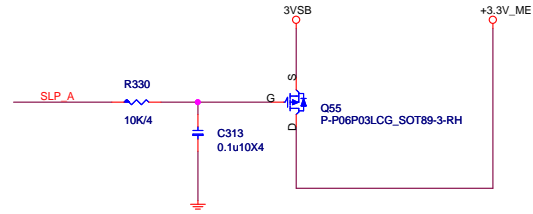
+1.05V_ME(VCCIO_ME)



PCH_MEPWROK



+3.3V_ME

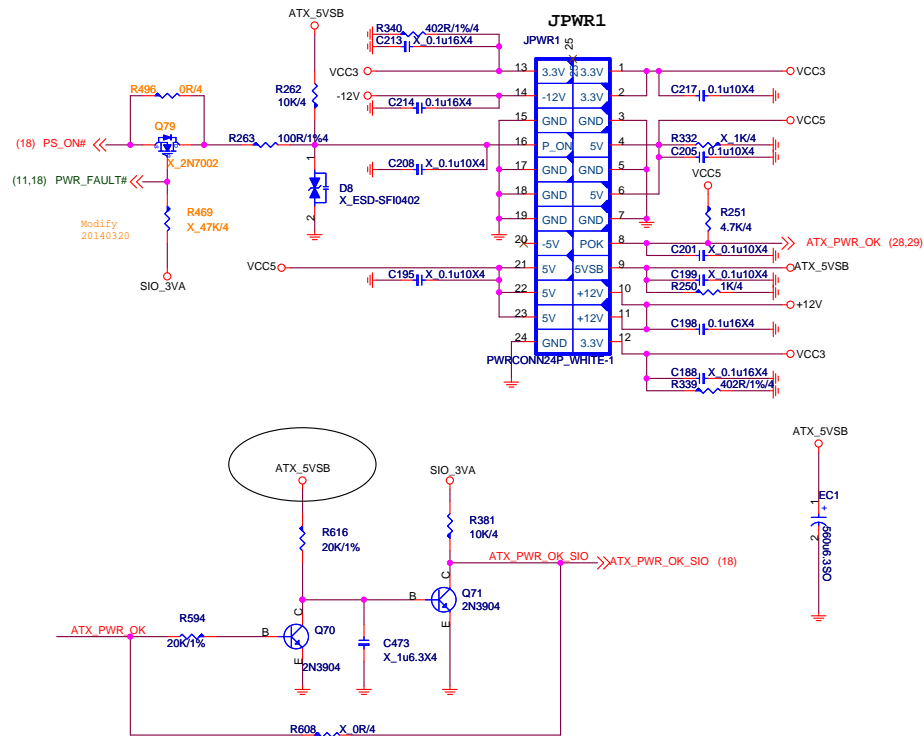


MICRO-STAR INT'L CO.,LTD

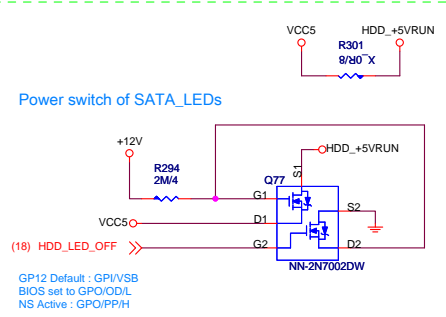
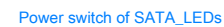
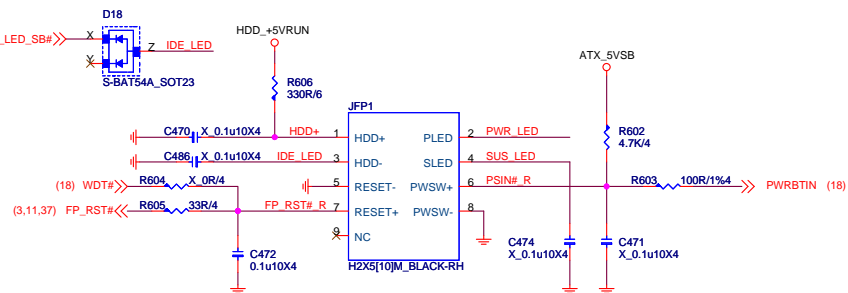
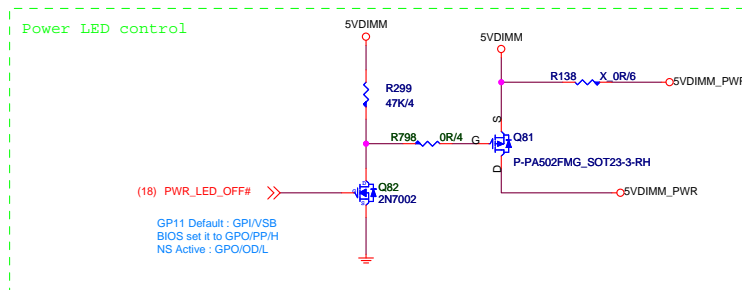
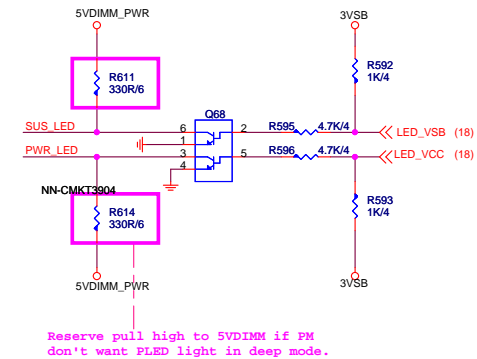
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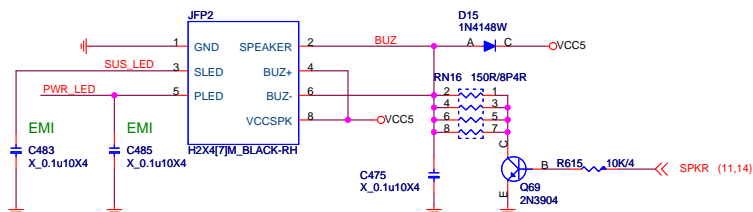
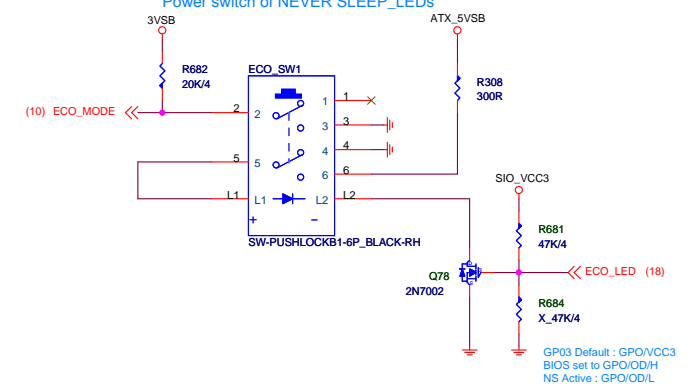
ATX POWER CONNECTOR



LED (for Fintek 71869)



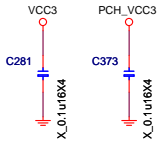
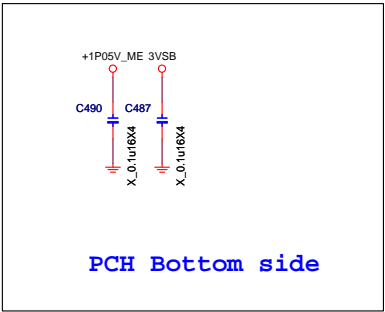
Power switch of NEVER SLEEP_LEDs



MICRO-STAR INT'L CO.,LTD

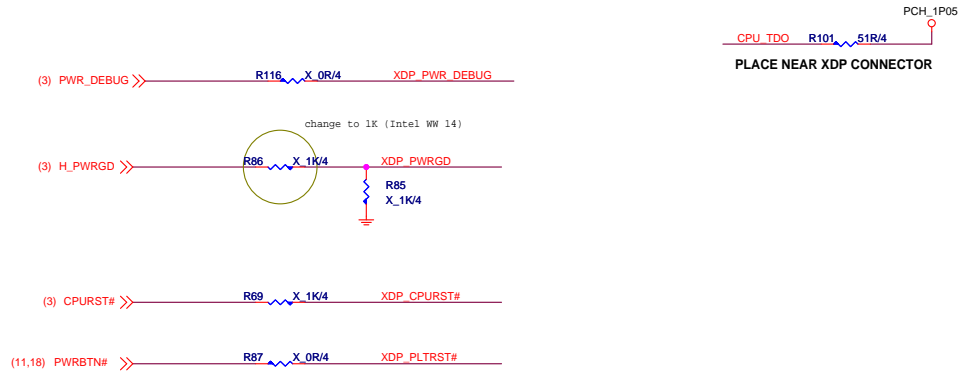
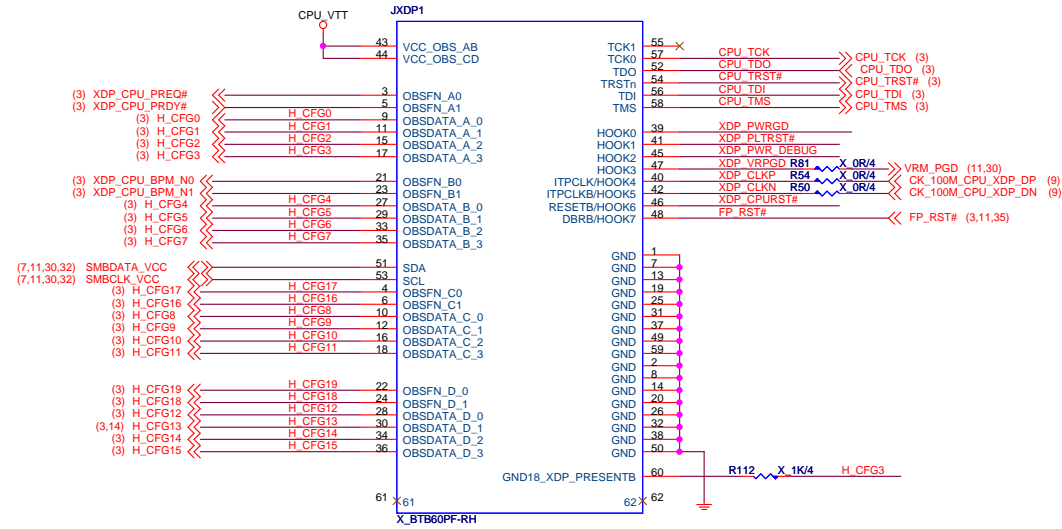
MS-7817

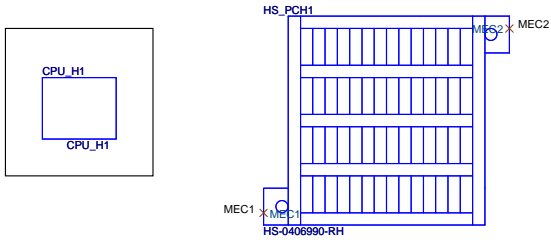
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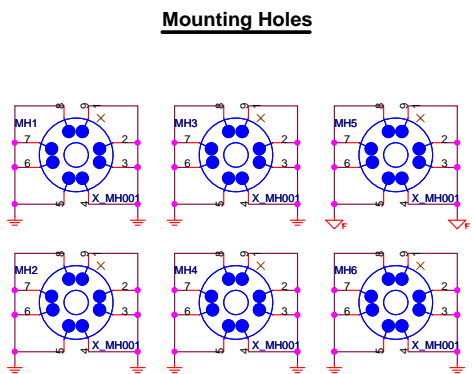
MICRO-STAR INT'L CO.,LTD		
MS-7817		
Size Custom	Document Description EMI For Power	Rev 5.3
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Reserve debug port 5020

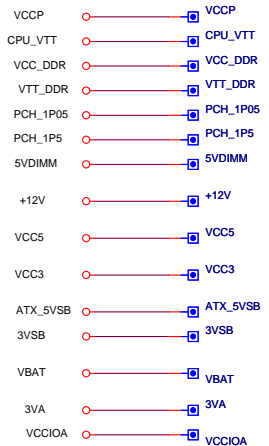




PK0-0781753-G37, 精成, 23, 寶安恩斯邁廠 (MSIS)-COFFEE
PK0-0781753-E48, 競華, 23, 寶安恩斯邁廠 (MSIS)-COFFEE

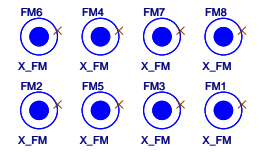


Voltage test point



Model type	Functin Option	BOM Config	ERP BOM NO.	BOM opt
MS-7817-52	B85M ECO, B85 C2, LGA1150,4DDR3,1PCI-Ex16, 2PCI-Ex1,1PCI, 4SATA3, 4USB3, HD Audio, Intel LAN,HDMI,DVI,D-Sub	CFG-7817-50-B85	601-7817-	
MS-7817-52	OPT:A H97M ECO, H97 QS, LGA1150,4DDR3,1PCI-Ex16, 2PCI-Ex1,1PCI, 4SATA3, 4USB3, HD Audio, Intel LAN,HDMI,DVI,D-Sub	CFG-7817-50-H97	601-7817-	A

Optical Fiducial Marks-120



Simulation

