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MS-7826

Version : 1.0

CPU :

Intel Haswell Processor

System Chipset :

Intel Lynx Point Chipset

On Board Chipset :

VRM 12.5 -- NCP81102+NCP81161 4Phase

Gigabit LAN -- RTL8151GH-CG

HDA Codec -- IDT 92HD68E2

Super I/O -- F71808A

SPI Flash 64M

Main Memory :

2 Channel DDR III * 4 (Max 32GB)

Expansion Slot :

PCI Express x16 Slot * 1

PCI Express x4 Slot * 1(signal x2)

PCI Express x1 Slot * 2

Mini PCIe*1

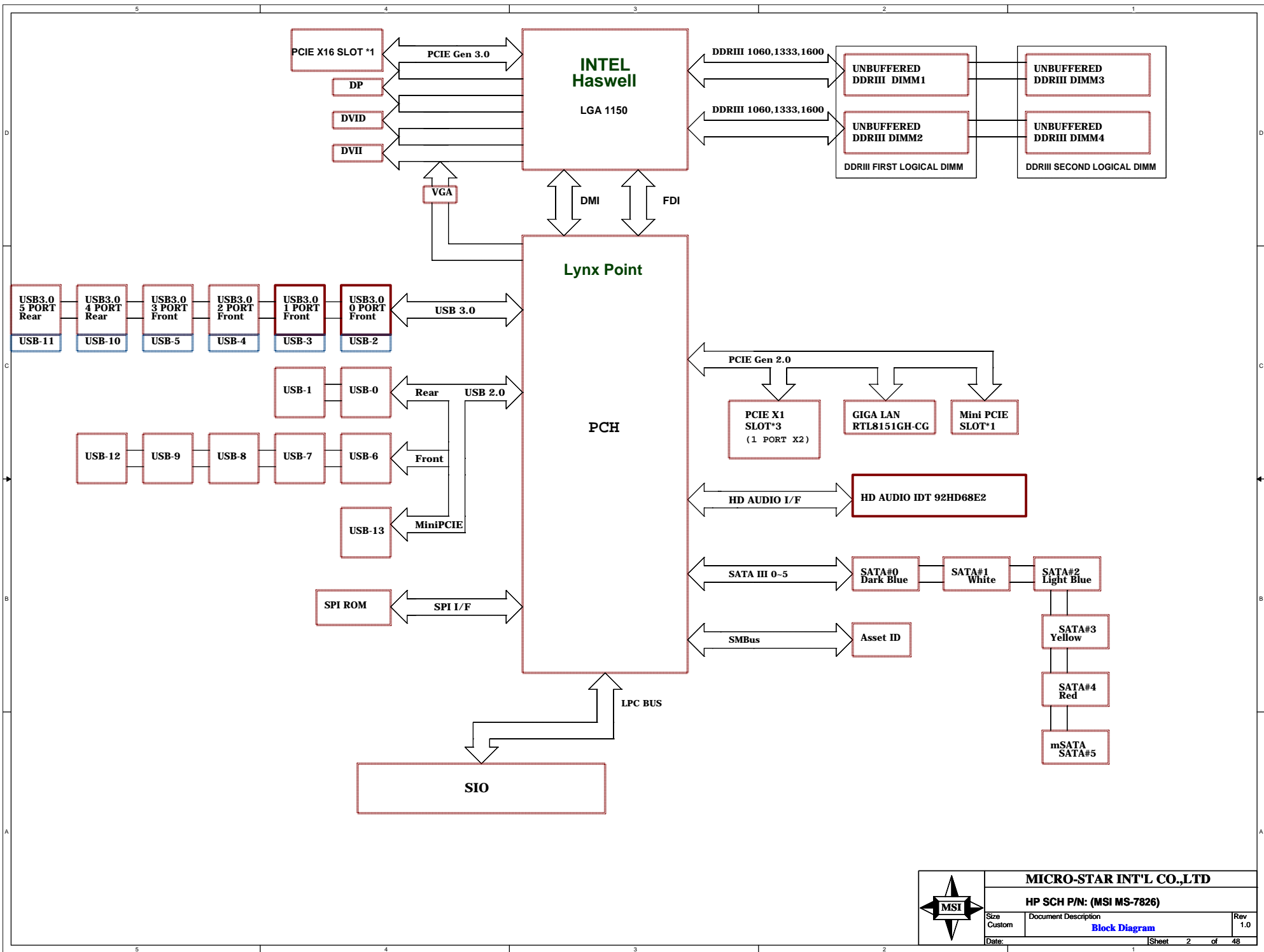
Mini SATA Slot * 1

USB2.0 * 7

USB3.0 * 6

SATA * 5

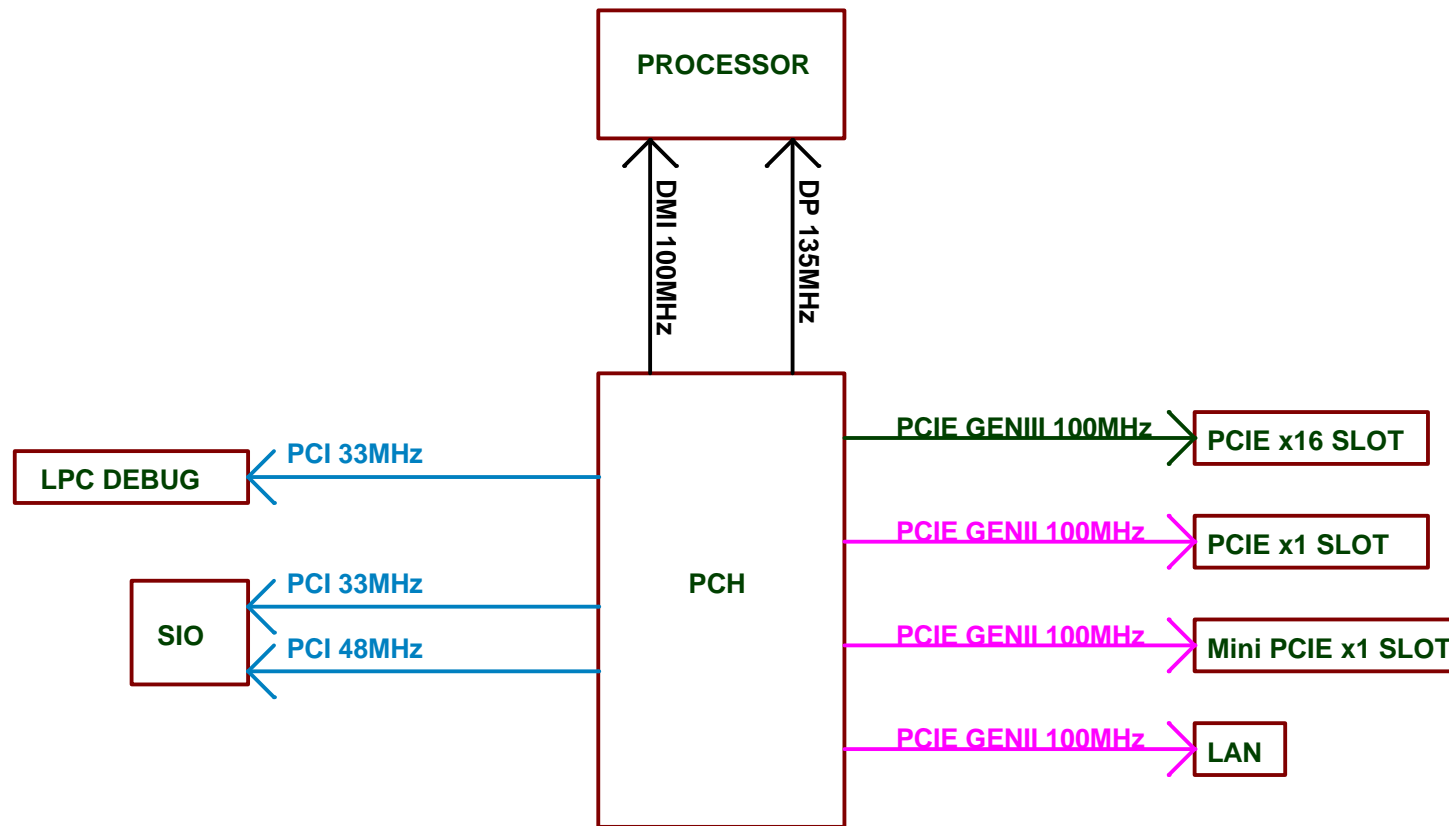
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HP SCH P/N: (MSI MS-7826)			
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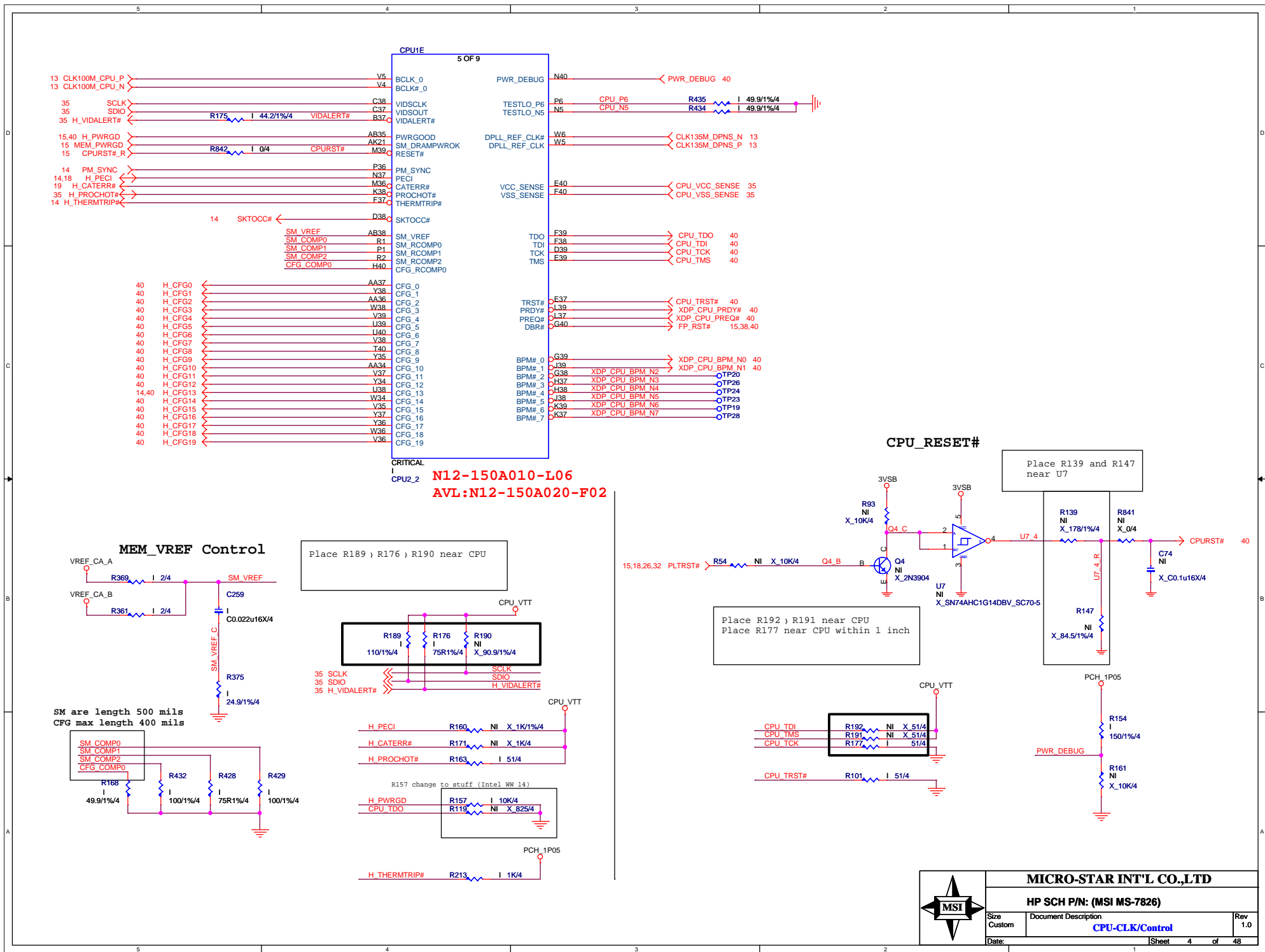


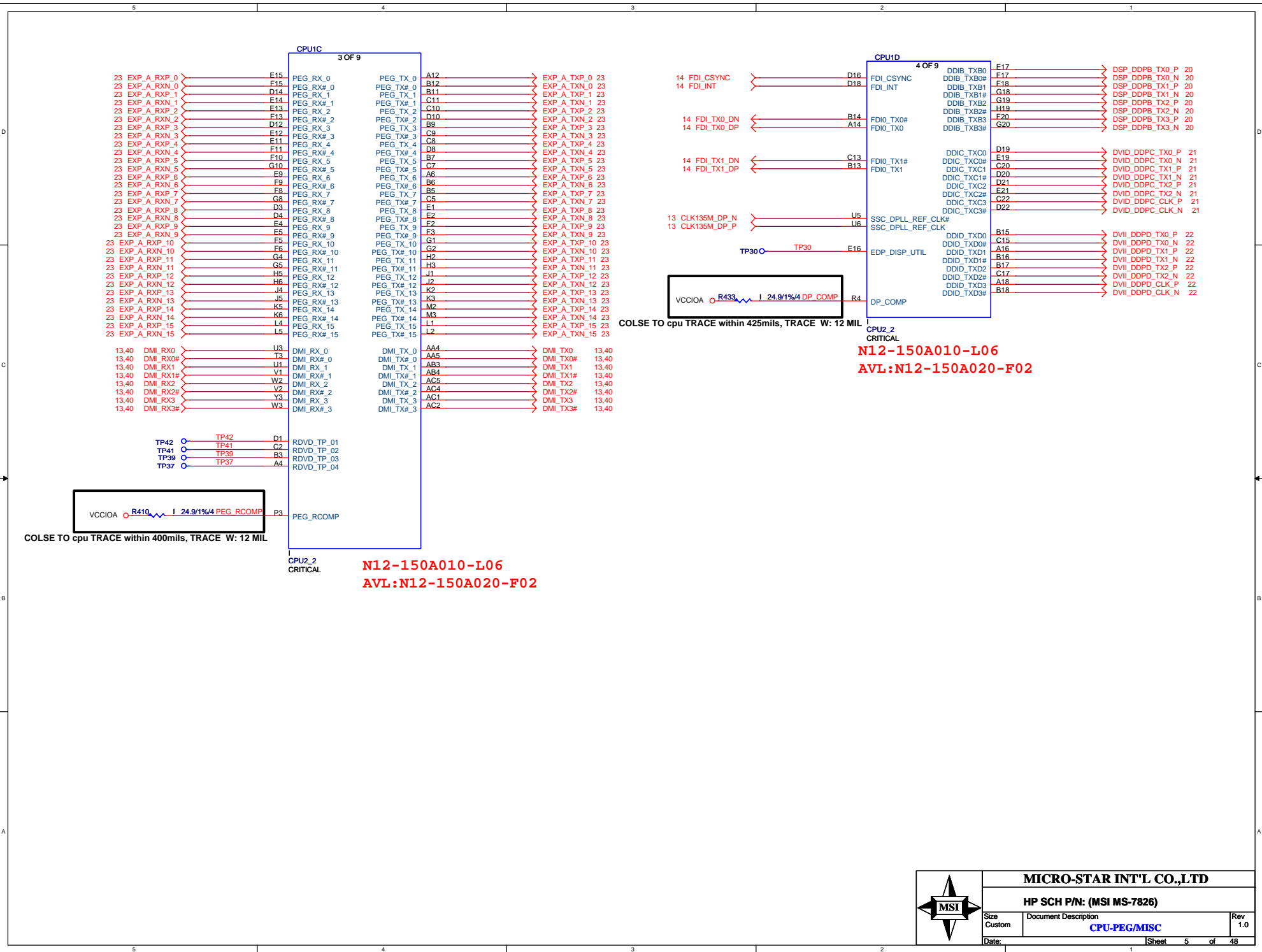
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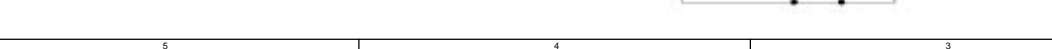
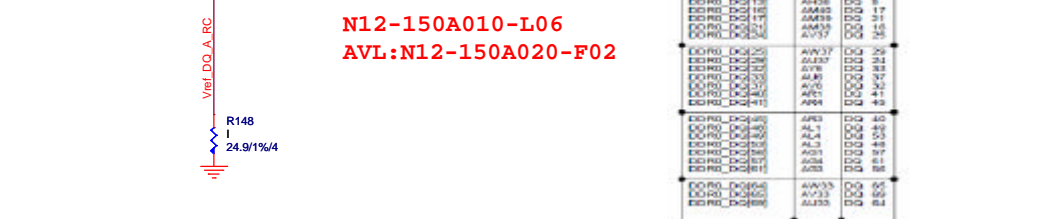
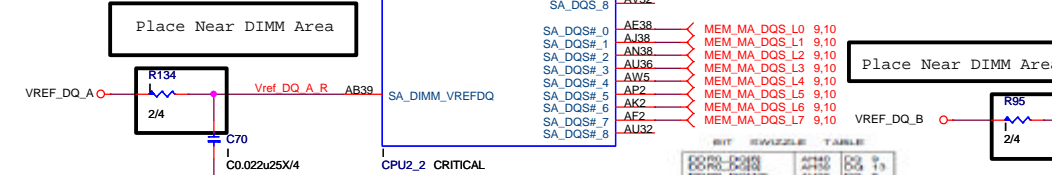
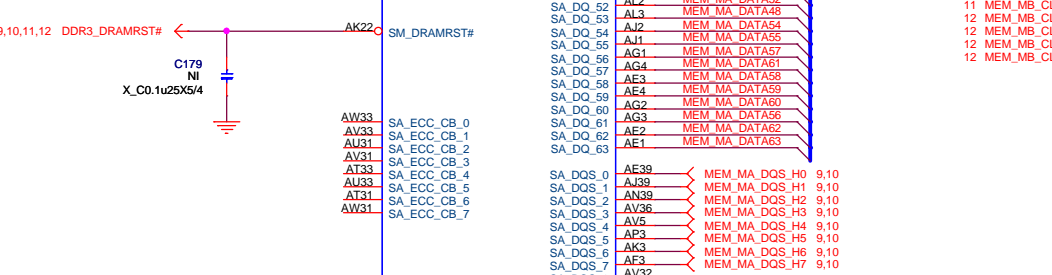
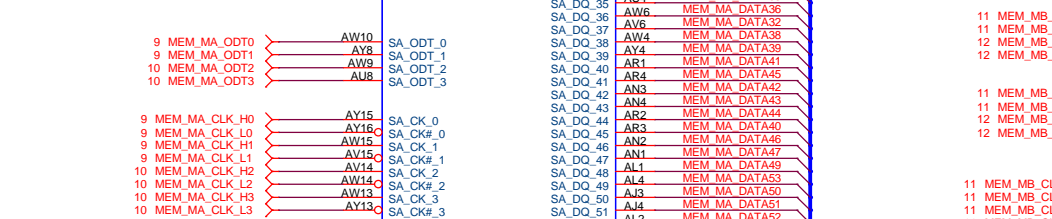
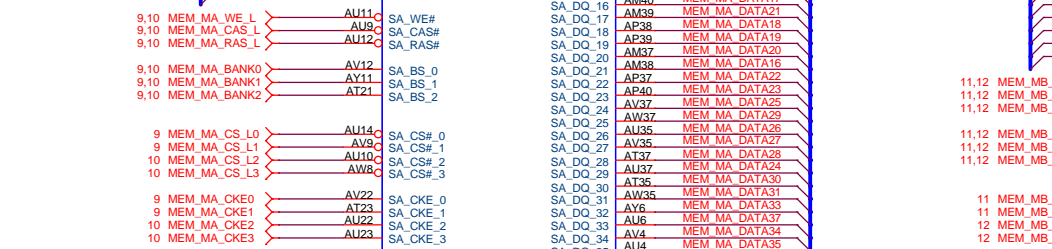
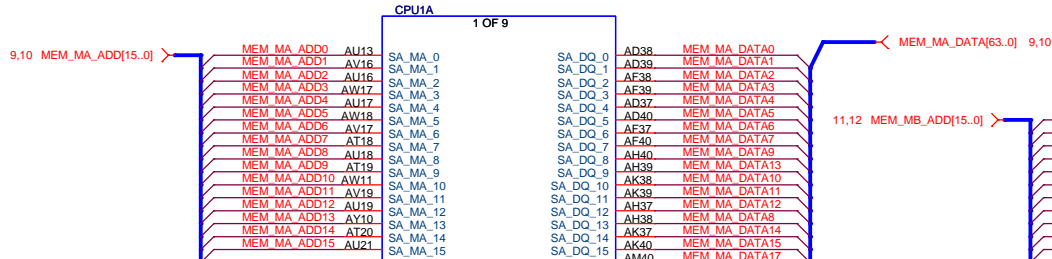




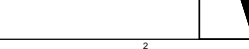
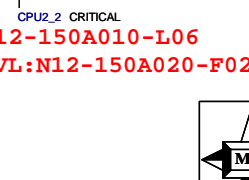
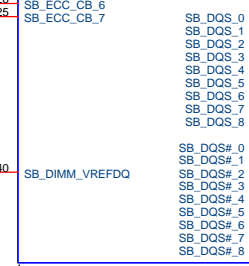
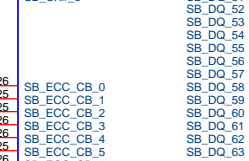
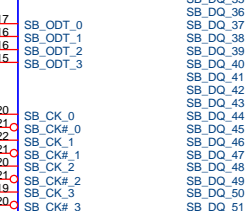
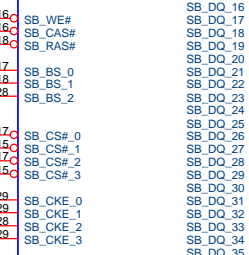
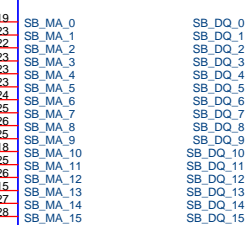
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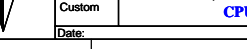
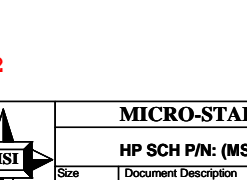
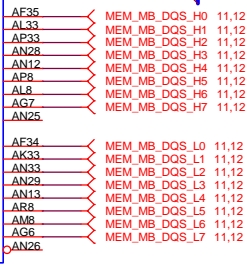
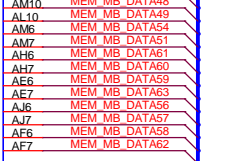
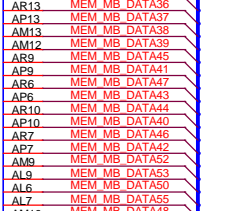
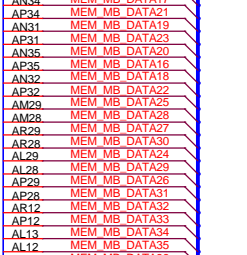
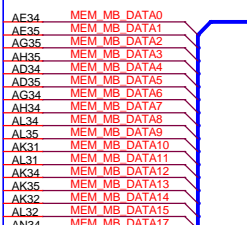
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HSW DQ MAPPING TABLE

HSW Pin	HSW Name	HSW Pin	HSW Name
DR1_DQ0	AE34	DR1_DQ1	AE35
DR1_DQ2	AH35	DR1_DQ3	AD34
DR1_DQ4	AD35	DR1_DQ5	AG34
DR1_DQ6	AH34	DR1_DQ7	AL34
DR1_DQ8	AL35	DR1_DQ9	AK31
DR1_DQ10	AL31	DR1_DQ11	AK34
DR1_DQ12	AK35	DR1_DQ13	AK32
DR1_DQ14	AK32	DR1_DQ15	AN34
DR1_DQ16	AP34	DR1_DQ17	AM29
DR1_DQ18	AM28	DR1_DQ19	AR29
DR1_DQ20	AR28	DR1_DQ21	AL29
DR1_DQ22	AM29	DR1_DQ23	AM28
DR1_DQ24	AR29	DR1_DQ25	AR28
DR1_DQ26	AL28	DR1_DQ27	AP28
DR1_DQ28	AR12	DR1_DQ29	AP12
DR1_DQ30	AL12	DR1_DQ31	AR13
DR1_DQ32	AM13	DR1_DQ33	AM12
DR1_DQ34	AP9	DR1_DQ35	AR6
DR1_DQ36	AP6	DR1_DQ37	AR10
DR1_DQ38	AP10	DR1_DQ39	AR7
DR1_DQ40	AP7	DR1_DQ41	AL9
DR1_DQ42	AL6	DR1_DQ43	AL7
DR1_DQ44	AM10	DR1_DQ45	AL10
DR1_DQ46	AM6	DR1_DQ47	AM7
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DR1_DQ550	AE7	DR1_DQ551	AJ6
DR1_DQ552	AF6	DR1_DQ553	AF7
DR1_DQ554	AE6	DR1_DQ555	AE7
DR1_DQ556	AJ6	DR1_DQ557	AF6
DR1_DQ558	AF7	DR1_DQ559	AE6
DR1_DQ560	AE7	DR1_DQ561	AJ6
DR1_DQ562	AF6	DR1_DQ563	AF7
DR1_DQ564	AE6	DR1_DQ565	AE7
DR1_DQ566	AJ6	DR1_DQ567	AF6
DR1_DQ568	AF7	DR1_DQ569	AE6
DR1_DQ570	AE7	DR1_DQ571	AJ6
DR1_DQ572	AF6	DR1_DQ573	AF7
DR1_DQ574	AE6	DR1_DQ575	AE7
DR1_DQ576	AJ6	DR1_DQ577	AF6
DR1_DQ578	AF7	DR1_DQ579	AE6
DR1_DQ580	AE7	DR1_DQ581	AJ6
DR1_DQ582	AF6	DR1_DQ583	AF7
DR1_DQ584	AE6	DR1_DQ585	AE7
DR1_DQ586	AJ6	DR1_DQ587	AF6
DR1_DQ588	AF7	DR1_DQ589	AE6
DR1_DQ590	AE7	DR1_DQ5	

GND

N12-150A010-L06
AVL:N12-150A020-F02

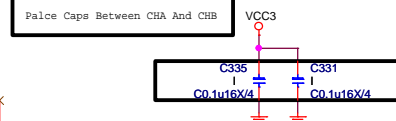
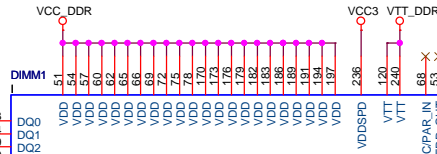


MICRO-STAR INT'L CO.,LTD		
HP SCH P/N: (MSI MS-7826)		
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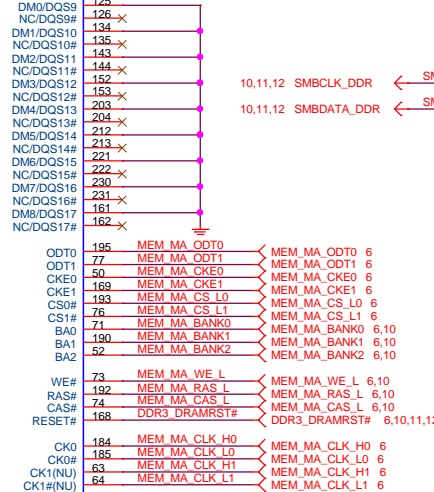
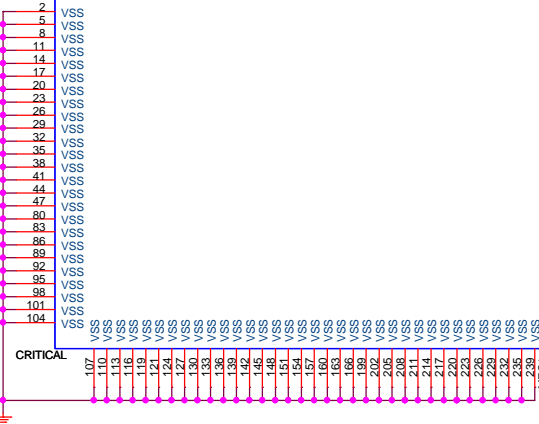
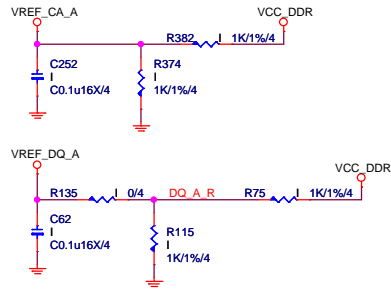
DDR3 DIMM_A1

BLACK COLOR
N13-2400601-L06

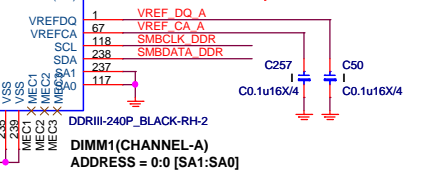
6,10 MEM_MA_DATA[63..0] ← MEM_MA_DATA[63..0]



DDR3



10,11,12 SMBCLK_DDR ← SMBCLK_DDR R482 33/4 ↔ SMB_CLK_MAIN 15,40
10,11,12 SMBDATA_DDR ← SMBDATA_DDR R485 33/4 ↔ SMB_DATA_MAIN 15,40



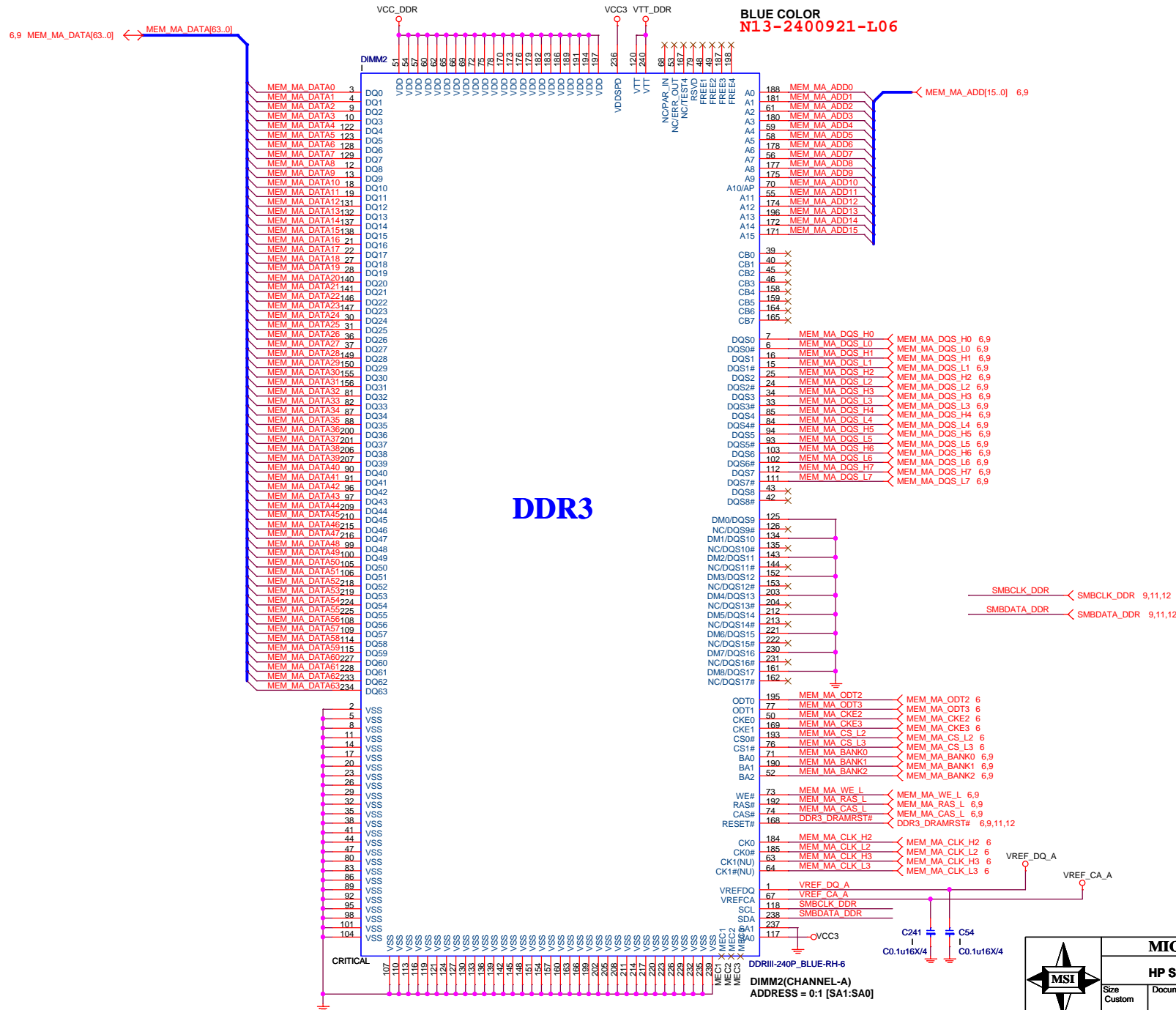
MICRO-STAR INT'L CO.,LTD

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Custom	DDR III DIMM 1	1.0
Date:	Sheet 9 of 48	

DDRIII DIMM_A2

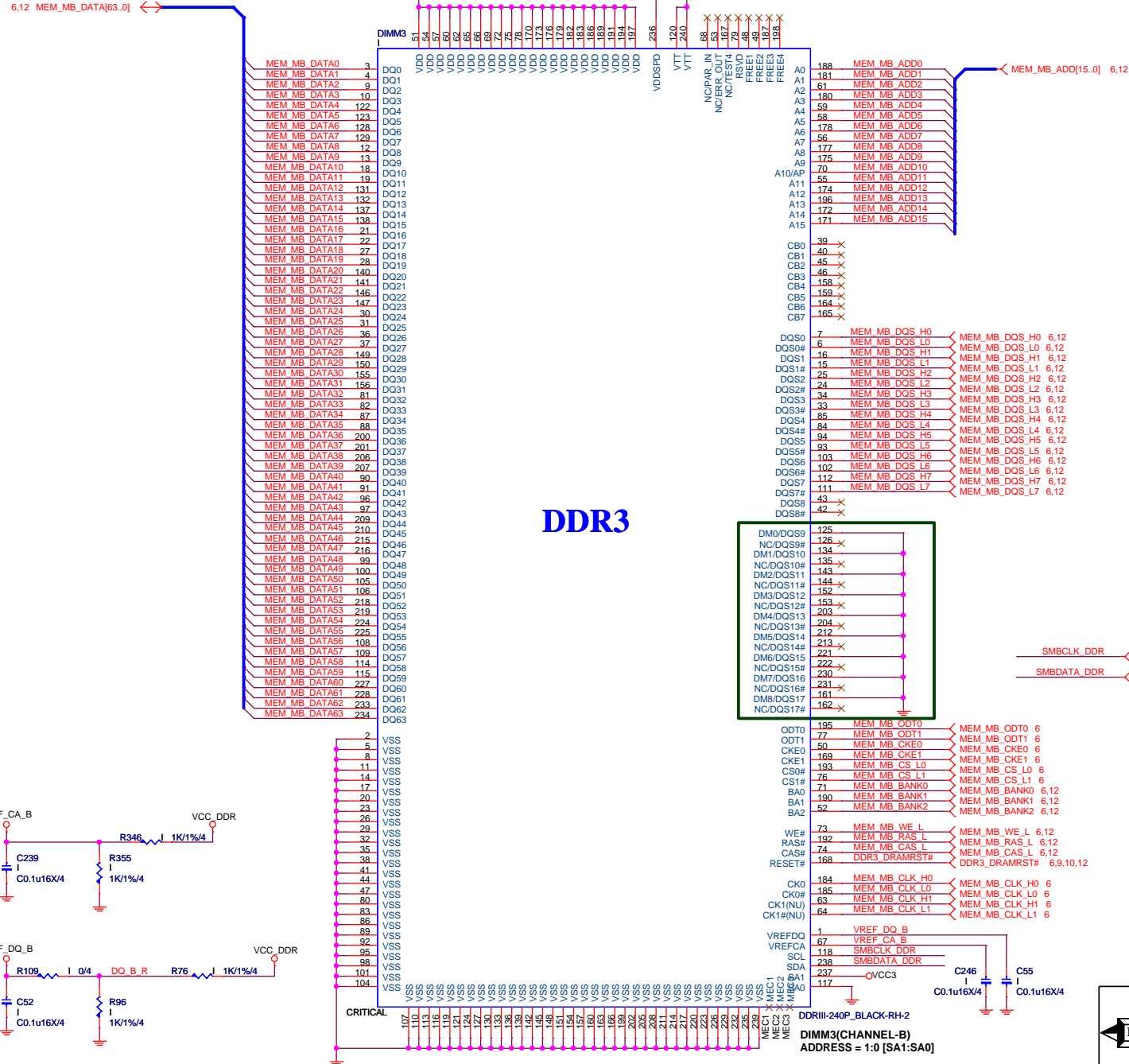
BLUE COLOR
N13-2400921-L06



MICRO-STAR INT'L CO.,LTD			
HP SCH P/N: (MSI MS-7826)			
Size Custom	Document Description DDR III DIMM 2		Rev 1.0
Date:		Sheet 10 of 48	

DDRIII DIMM_B1

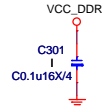
BLACK COLOR
N13-2400601-L06



MICRO-STAR INT'L CO.,LTD			
HP SCH P/N: (MSI MS-7826)			
Size Custom	Document Description DDR III DIMM 3		Rev 1.0
Date:	Sheet	11 of	48

DDRIII DIMM_B2

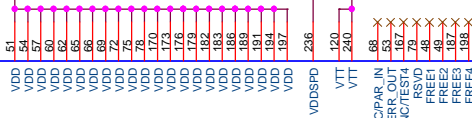
6.11 MEM_MB_DATA[63:0]



- MEM_MB_DATA0 3
- MEM_MB_DATA1 4
- MEM_MB_DATA2 9
- MEM_MB_DATA3 10
- MEM_MB_DATA4 122
- MEM_MB_DATA5 123
- MEM_MB_DATA6 128
- MEM_MB_DATA7 129
- MEM_MB_DATA8 12
- MEM_MB_DATA9 13
- MEM_MB_DATA10 18
- MEM_MB_DATA11 19
- MEM_MB_DATA12 131
- MEM_MB_DATA13 132
- MEM_MB_DATA14 137
- MEM_MB_DATA15 138
- MEM_MB_DATA16 21
- MEM_MB_DATA17 22
- MEM_MB_DATA18 27
- MEM_MB_DATA19 28
- MEM_MB_DATA20 140
- MEM_MB_DATA21 141
- MEM_MB_DATA22 146
- MEM_MB_DATA23 147
- MEM_MB_DATA24 30
- MEM_MB_DATA25 31
- MEM_MB_DATA26 36
- MEM_MB_DATA27 37
- MEM_MB_DATA28 149
- MEM_MB_DATA29 150
- MEM_MB_DATA30 155
- MEM_MB_DATA31 156
- MEM_MB_DATA32 81
- MEM_MB_DATA33 82
- MEM_MB_DATA34 87
- MEM_MB_DATA35 88
- MEM_MB_DATA36 200
- MEM_MB_DATA37 201
- MEM_MB_DATA38 206
- MEM_MB_DATA39 207
- MEM_MB_DATA40 90
- MEM_MB_DATA41 91
- MEM_MB_DATA42 86
- MEM_MB_DATA43 97
- MEM_MB_DATA44 209
- MEM_MB_DATA45 210
- MEM_MB_DATA46 215
- MEM_MB_DATA47 216
- MEM_MB_DATA48 99
- MEM_MB_DATA49 100
- MEM_MB_DATA50 105
- MEM_MB_DATA51 106
- MEM_MB_DATA52 218
- MEM_MB_DATA53 219
- MEM_MB_DATA54 224
- MEM_MB_DATA55 225
- MEM_MB_DATA56 108
- MEM_MB_DATA57 109
- MEM_MB_DATA58 114
- MEM_MB_DATA59 115
- MEM_MB_DATA60 227
- MEM_MB_DATA61 228
- MEM_MB_DATA62 233
- MEM_MB_DATA63 234

VCC_DDR VTT_DDR

DIMM4

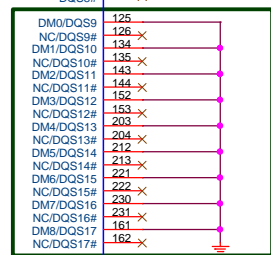


BLUE COLOR
N13-2400921-L06

- A0 188 MEM_MB_ADD0
- A1 181 MEM_MB_ADD1
- A2 61 MEM_MB_ADD2
- A3 180 MEM_MB_ADD3
- A4 59 MEM_MB_ADD4
- A5 58 MEM_MB_ADD5
- A6 178 MEM_MB_ADD6
- A7 56 MEM_MB_ADD7
- A8 177 MEM_MB_ADD8
- A9 175 MEM_MB_ADD9
- A10/AP 70 MEM_MB_ADD10
- A11 55 MEM_MB_ADD11
- A12 174 MEM_MB_ADD12
- A13 196 MEM_MB_ADD13
- A14 172 MEM_MB_ADD14
- A15 171 MEM_MB_ADD15

- CB0 39
- CB1 40
- CB2 45
- CB3 46
- CB4 158
- CB5 159
- CB6 164
- CB7 165

- DQS0 7 MEM_MB_DQS_H0
- DQS0# 6 MEM_MB_DQS_L0
- DQS1 16 MEM_MB_DQS_H1
- DQS1# 15 MEM_MB_DQS_L1
- DQS2 25 MEM_MB_DQS_H2
- DQS2# 24 MEM_MB_DQS_L2
- DQS3 34 MEM_MB_DQS_H3
- DQS3# 33 MEM_MB_DQS_L3
- DQS4 85 MEM_MB_DQS_H4
- DQS4# 84 MEM_MB_DQS_L4
- DQS5 94 MEM_MB_DQS_H5
- DQS5# 93 MEM_MB_DQS_L5
- DQS6 103 MEM_MB_DQS_H6
- DQS6# 102 MEM_MB_DQS_L6
- DQS7 112 MEM_MB_DQS_H7
- DQS7# 111 MEM_MB_DQS_L7



- ODT0 195 MEM_MB_ODT2
- ODT1 77 MEM_MB_ODT3
- CKE0 50 MEM_MB_CKE2
- CKE1 169 MEM_MB_CKE3
- CS0# 193 MEM_MB_CS_L2
- CS1# 76 MEM_MB_CS_L3
- BA0 71 MEM_MB_BANK0
- BA1 190 MEM_MB_BANK1
- BA2 52 MEM_MB_BANK2
- WE# 73 MEM_MB_WE_L
- RAS# 192 MEM_MB_RAS_L
- CAS# 74 MEM_MB_CAS_L
- RESET# 168 DDR3_DRAMRST#
- CK0 184 MEM_MB_CLK_H2
- CK0# 185 MEM_MB_CLK_L2
- CK1(NU) 63 MEM_MB_CLK_H3
- CK1#(NU) 64 MEM_MB_CLK_L3

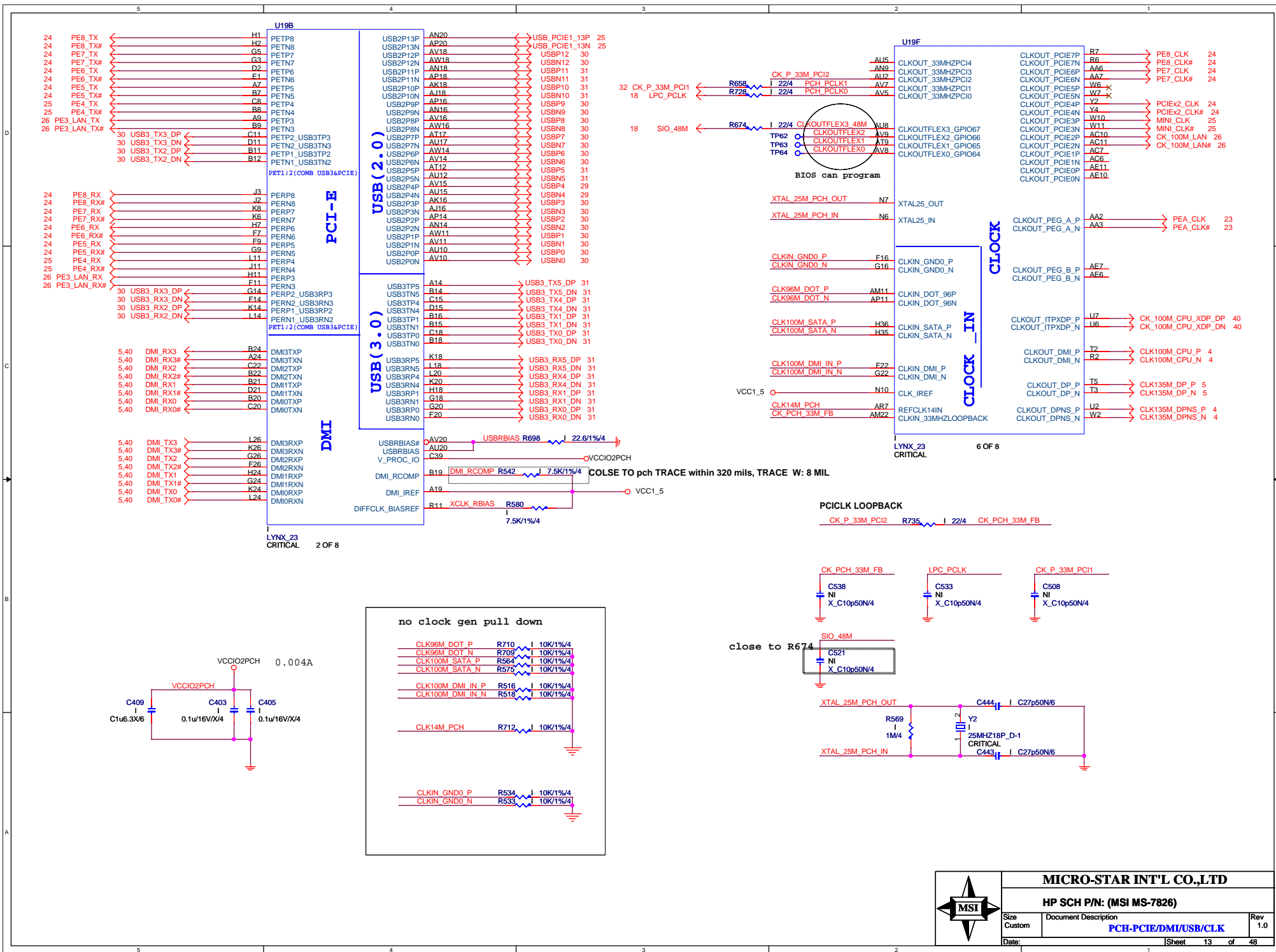
SMBCLK_DDR < SMBCLK_DDR 9,10,11
SMBDATA_DDR < SMBDATA_DDR 9,10,11

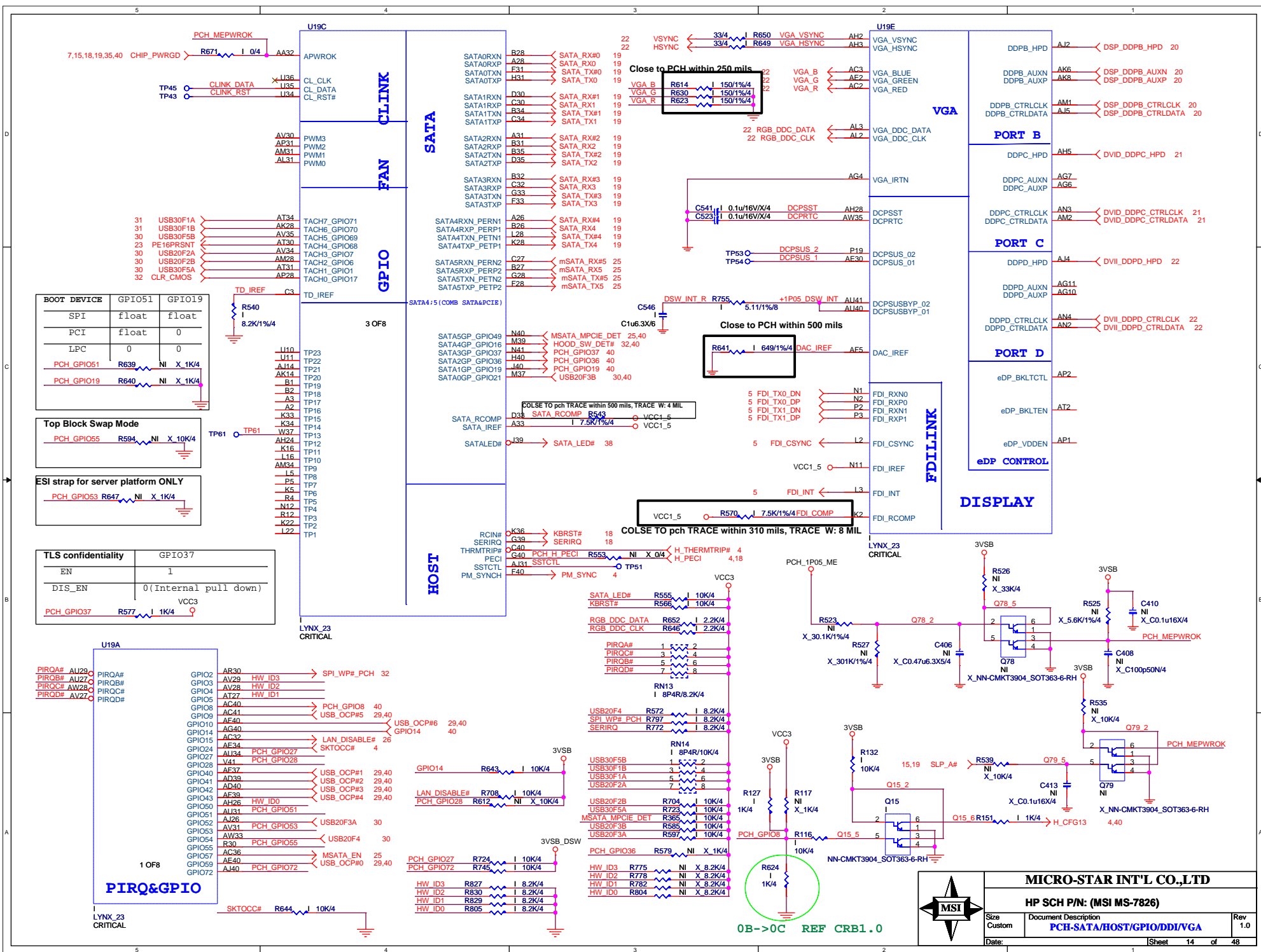
- VSS 2
- VSS 5
- VSS 8
- VSS 11
- VSS 14
- VSS 17
- VSS 20
- VSS 23
- VSS 26
- VSS 29
- VSS 32
- VSS 35
- VSS 38
- VSS 41
- VSS 44
- VSS 47
- VSS 50
- VSS 53
- VSS 56
- VSS 59
- VSS 62
- VSS 65
- VSS 68
- VSS 71
- VSS 74
- VSS 77
- VSS 80
- VSS 83
- VSS 86
- VSS 89
- VSS 92
- VSS 95
- VSS 98
- VSS 101
- VSS 104

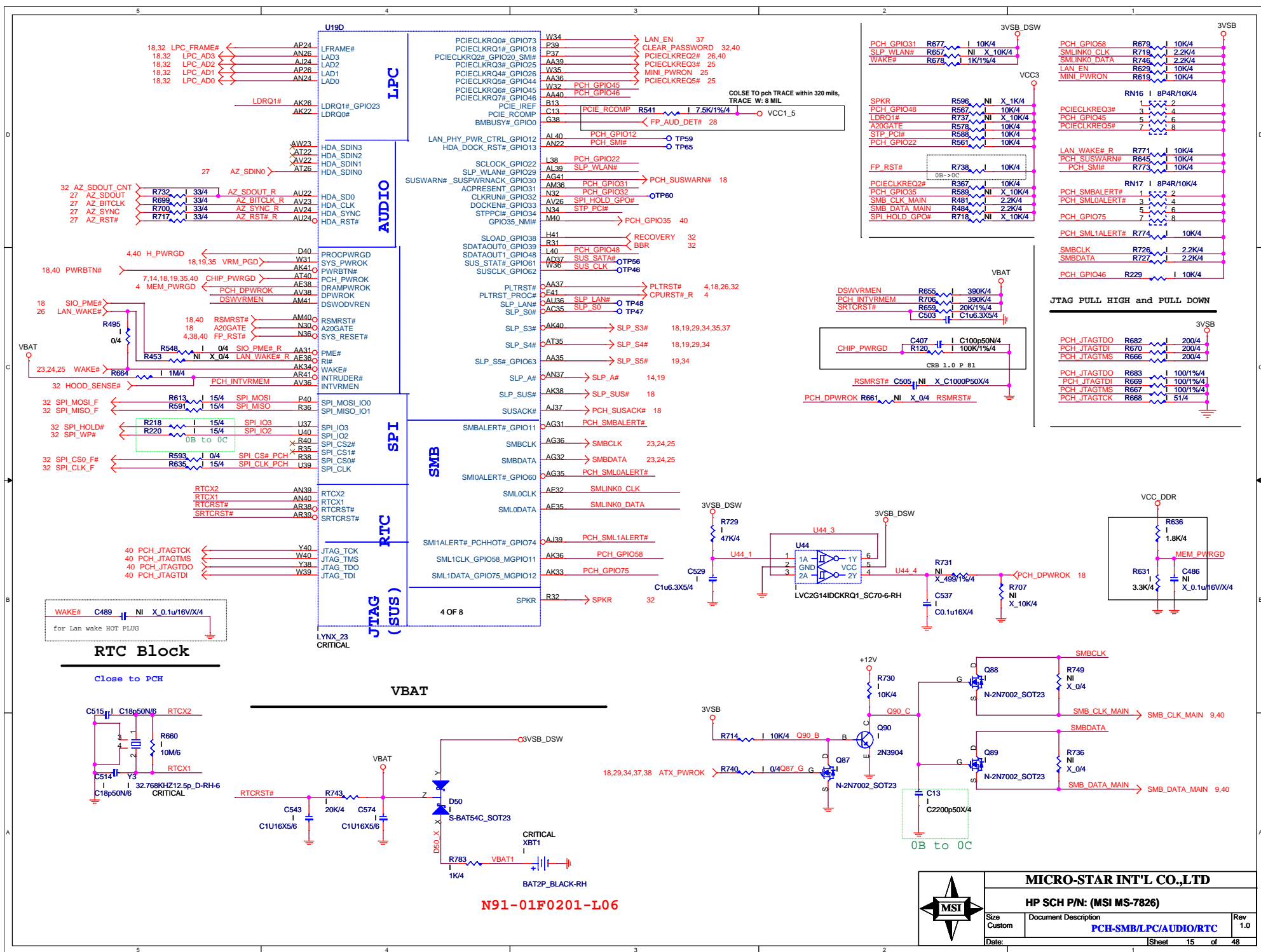
CRITICAL
DDRIII-240P_BLUE-RH-6
DIMM4(CHANNEL-B)
ADDRESS = 1:1 [SA1:SA0]

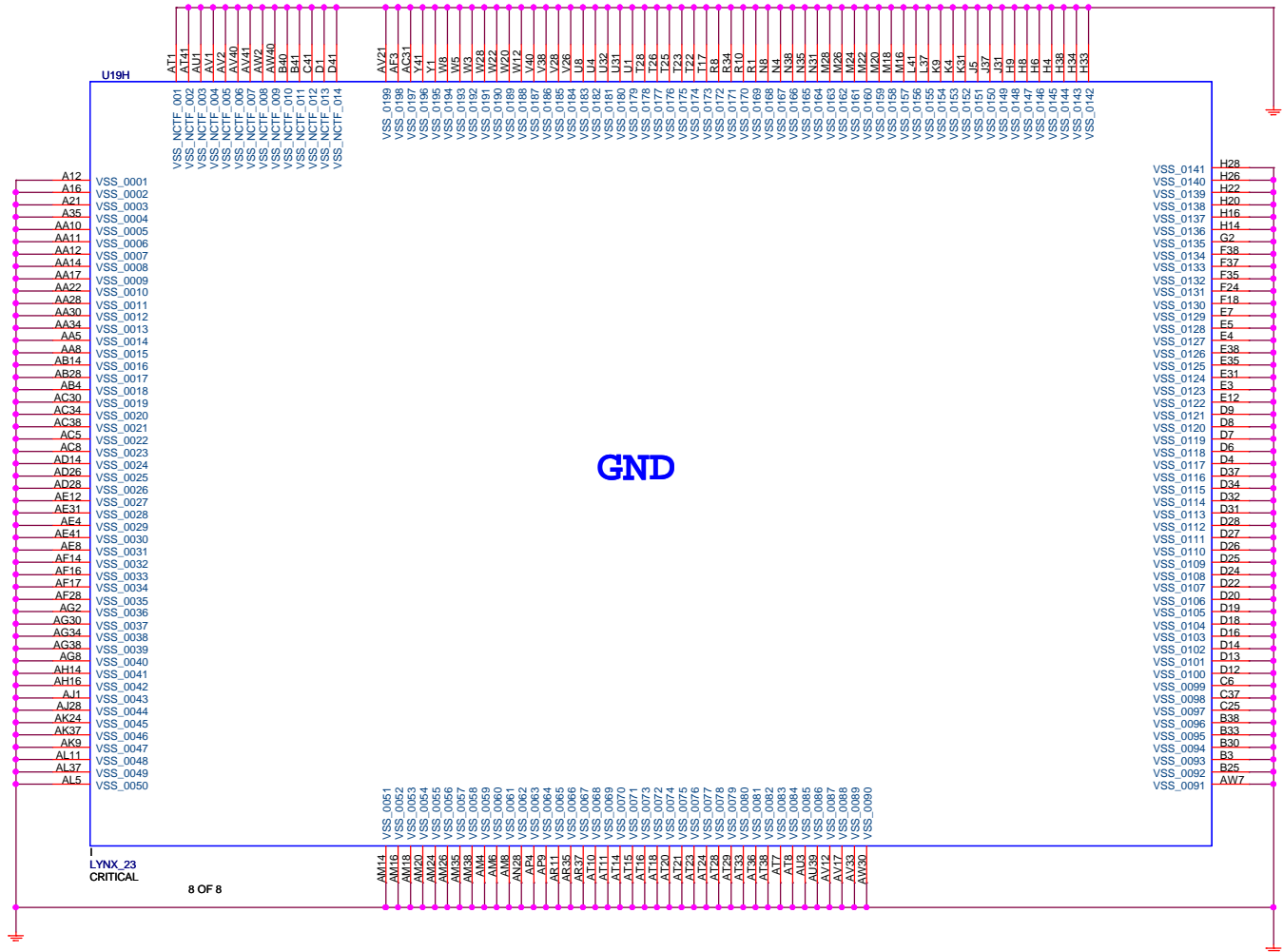


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DDR III DIMM 4		
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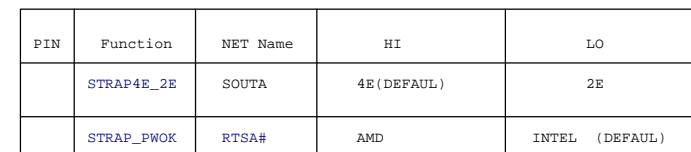






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Custom	PCH-GND	1.0
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F71808A



HP SCH P/N: (MSI MS-7826)

Size	Document Description
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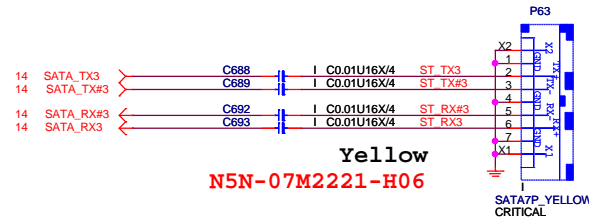
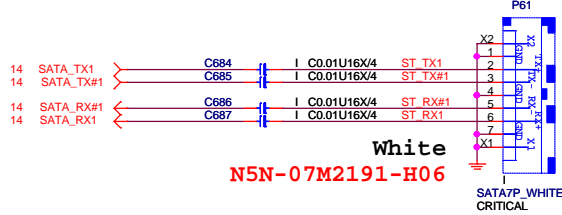
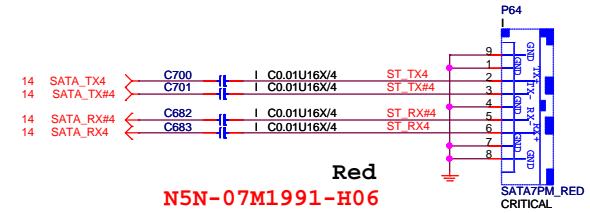
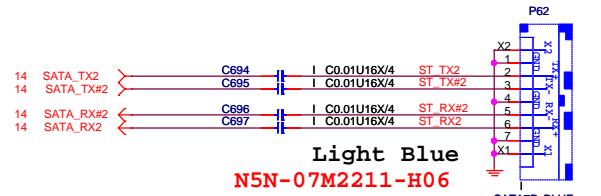
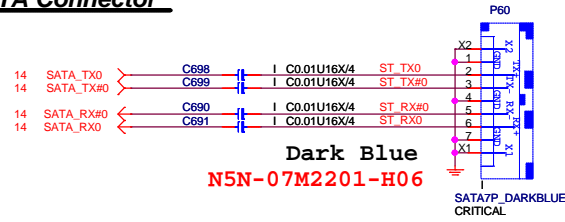
SIO- F71808A

Rev	1.0
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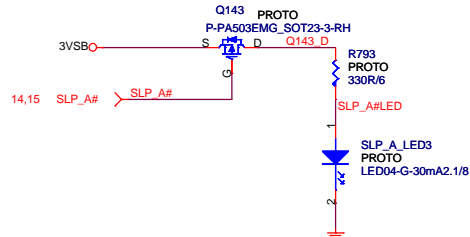
Date:

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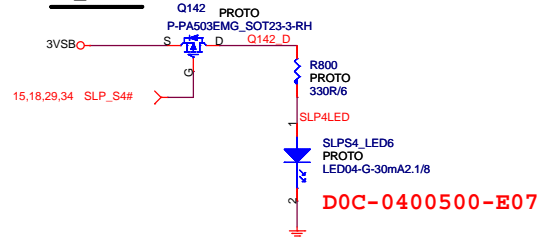
SATA Connector



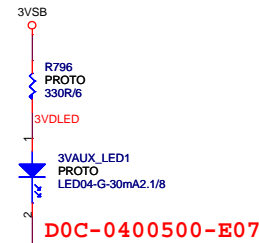
SLP_A#



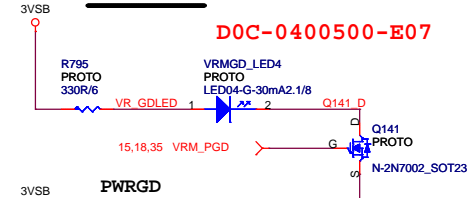
SLP_S4#



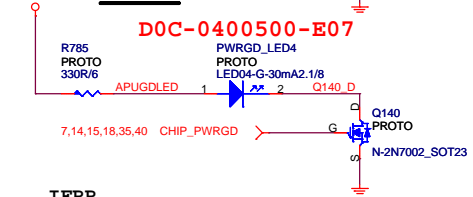
3VSB



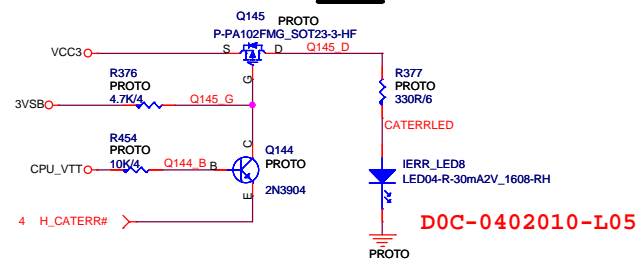
VRMPWRGD



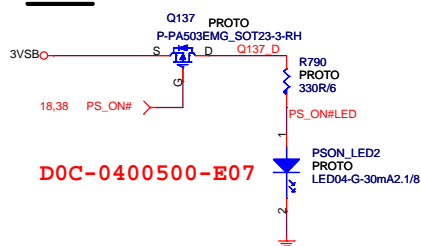
PWRGD



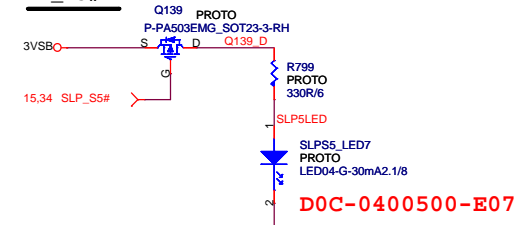
IERR



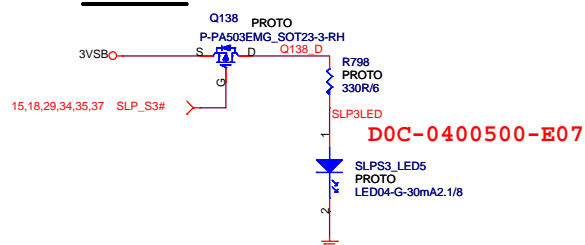
PS_ON#



SLP_S5#



SLP_S3#

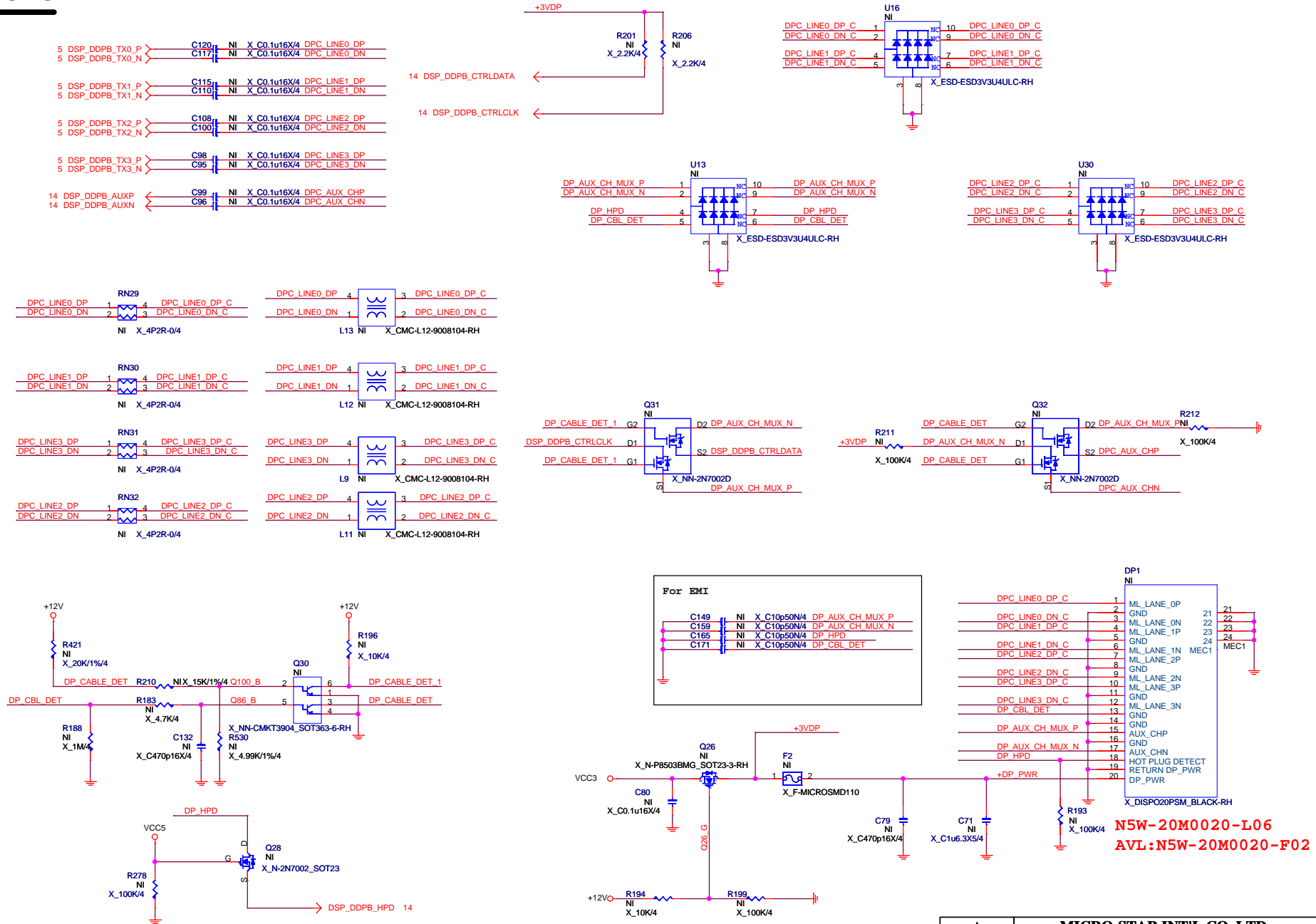


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DP port



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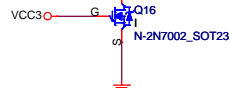
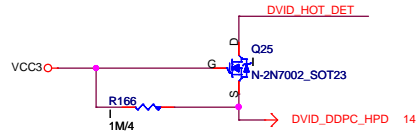
Size	Document Description	Rev
Custom	DP	1.0

Date: [Sheet 20 of 48]

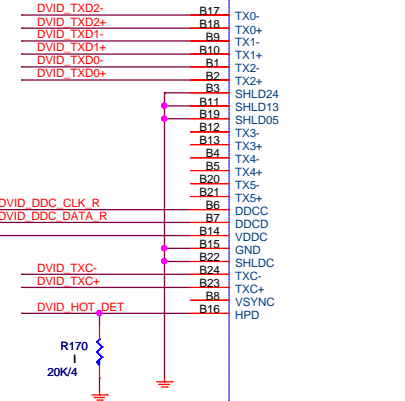
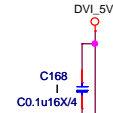
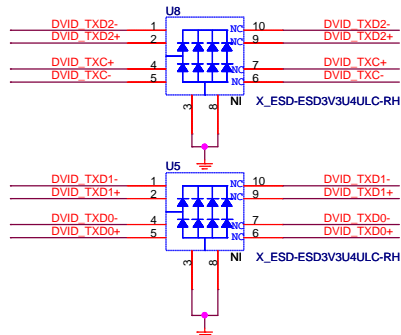
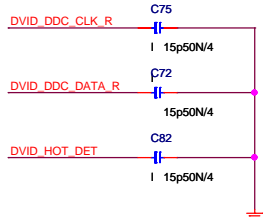
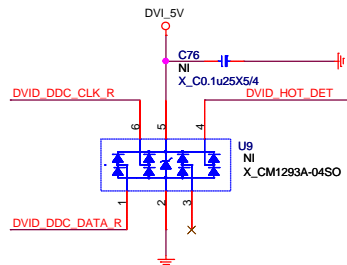
DVID level shifter

5 DVID_DDPC_CLK_P C66 1 C0.1u16X/4 DVID_DATA_CLK_DP
 5 DVID_DDPC_CLK_N C69 1 C0.1u16X/4 DVID_DATA_CLK_DN
 5 DVID_DDPC_TX2_P C56 1 C0.1u16X/4 DVID_DATA2_DP
 5 DVID_DDPC_TX2_N C53 1 C0.1u16X/4 DVID_DATA2_DN
 5 DVID_DDPC_TX1_P C58 1 C0.1u16X/4 DVID_DATA1_DP
 5 DVID_DDPC_TX1_N C61 1 C0.1u16X/4 DVID_DATA1_DN
 5 DVID_DDPC_TX0_P C49 1 C0.1u16X/4 DVID_DATA0_DP
 5 DVID_DDPC_TX0_N C48 1 C0.1u16X/4 DVID_DATA0_DN

Q16_D R156 680/4 DVID_DATA_CLK_DN
 R150 680/4 DVID_DATA_CLK_DP
 R143 680/4 DVID_DATA1_DN
 R137 680/4 DVID_DATA1_DP
 R121 680/4 DVID_DATA2_DN
 R136 680/4 DVID_DATA2_DP
 R103 680/4 DVID_DATA0_DN
 R112 680/4 DVID_DATA0_DP

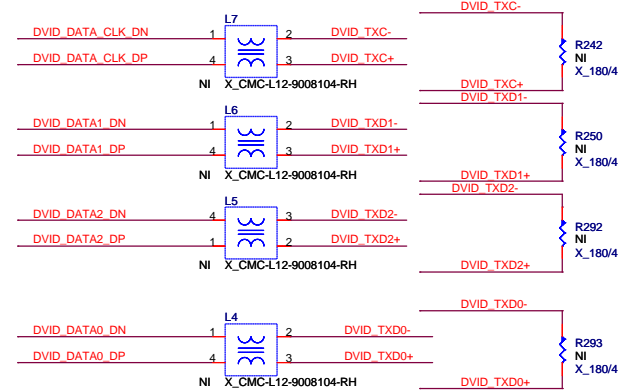
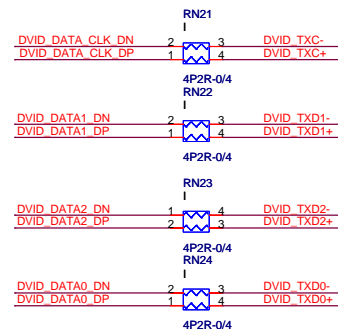
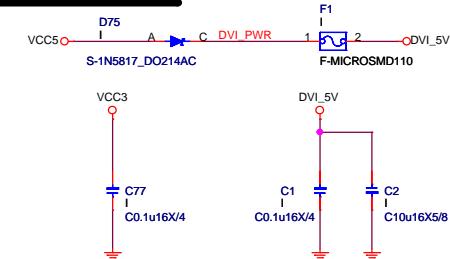


14 DVID_DDPC_CTRLDATA
 14 DVID_DDPC_CTRLCLK



CRITICAL
 DVI54PXS_BLUE
N5B-54F0131-K06

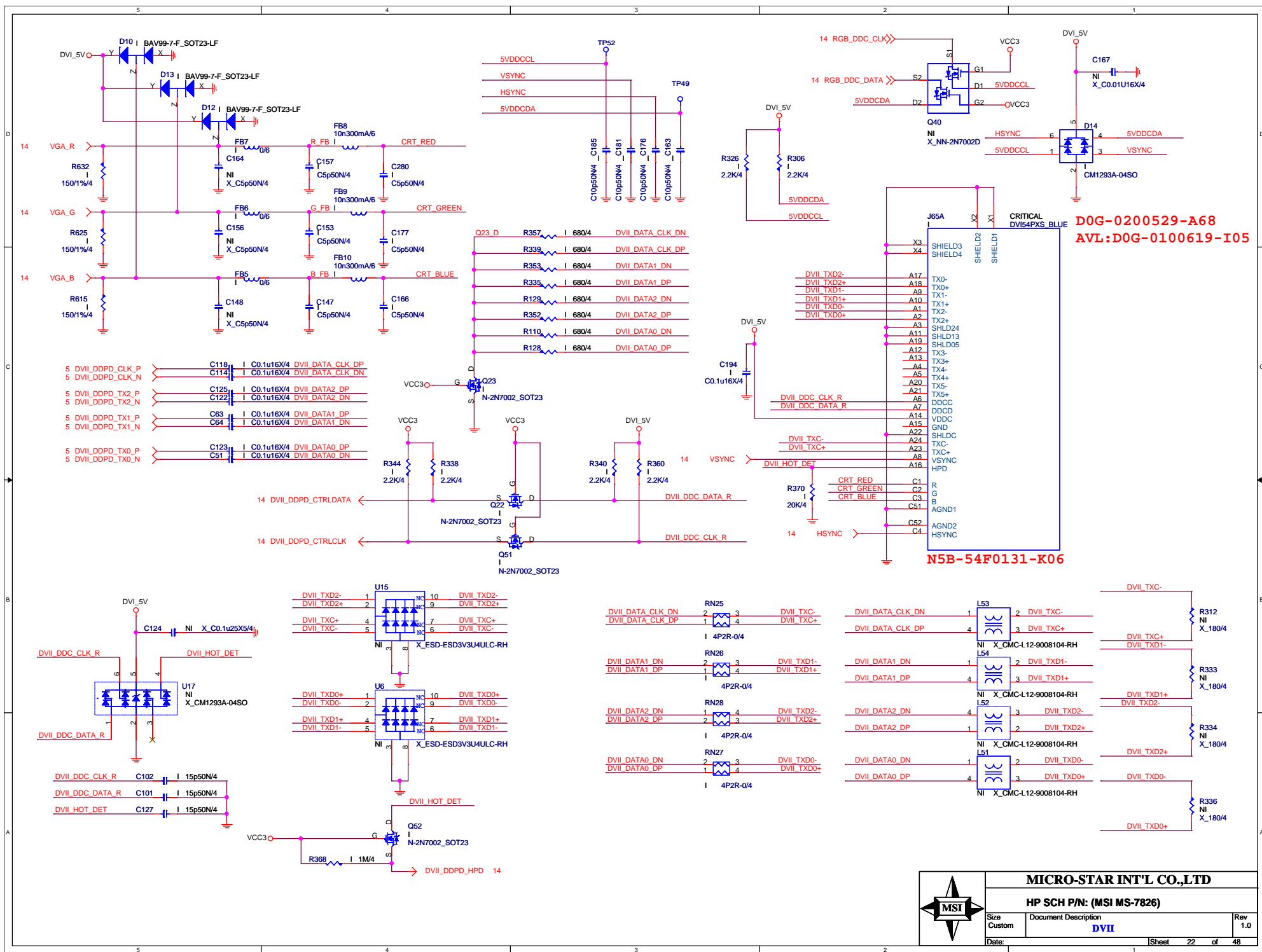
DVI POWER



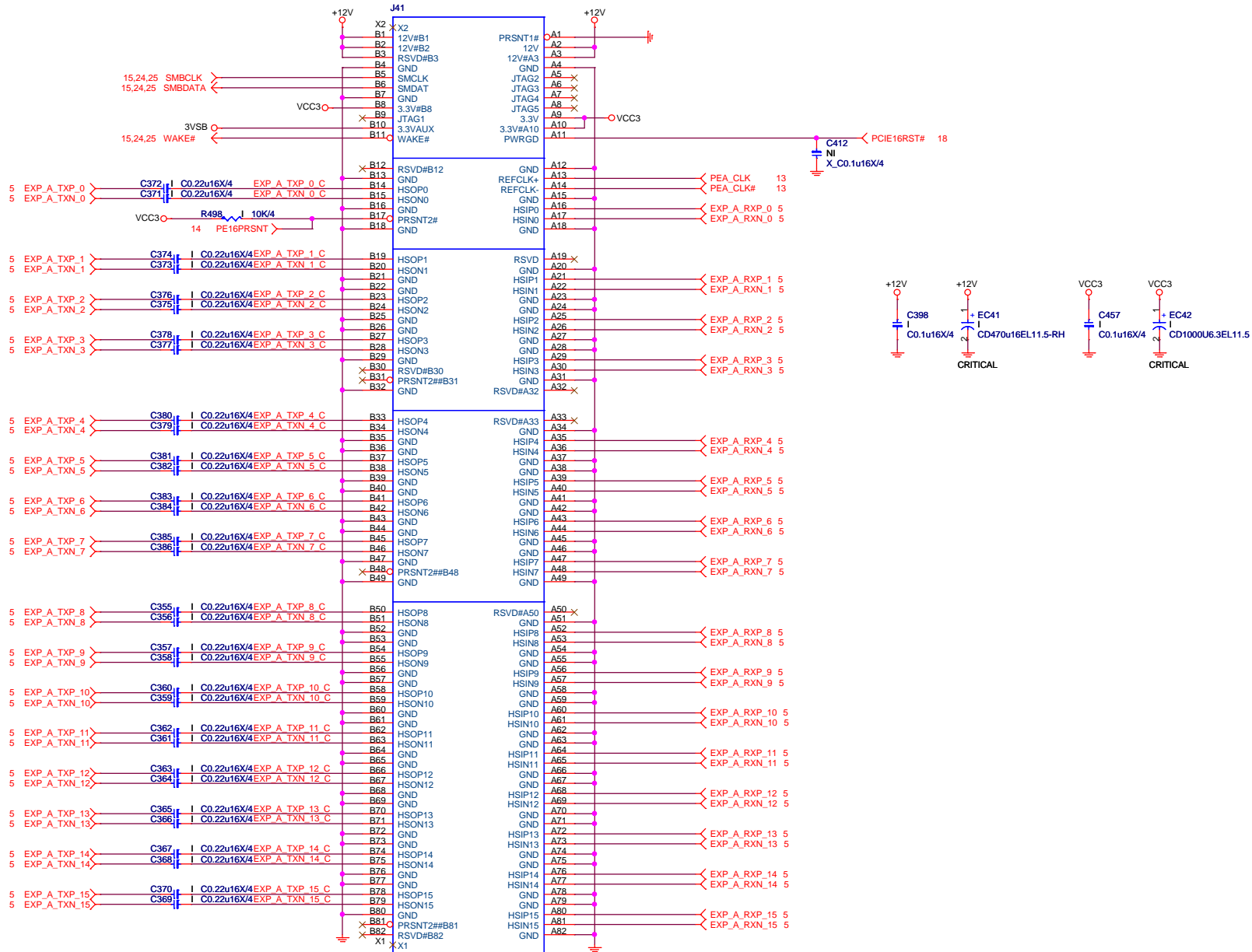
MICRO-STAR INT'L CO.,LTD

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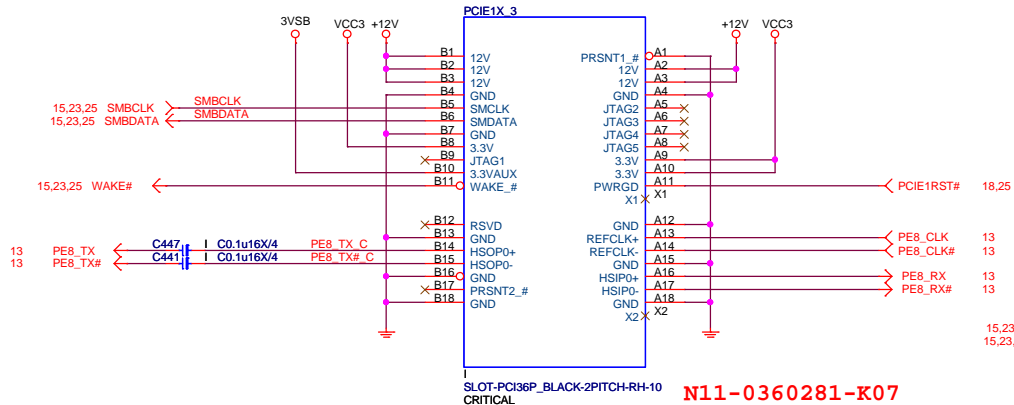
PCI EXPRESS X16 SLOT



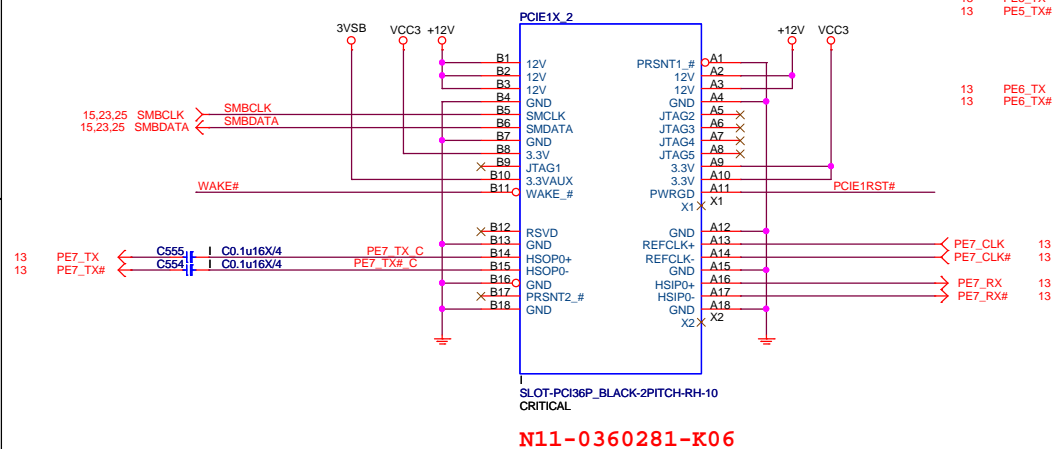
SLOT-PCI164P_BLACK-2PITCH-RH-20
CRITICAL
N11-1641151-L06

MICRO-STAR INT'L CO.,LTD		
HP SCH P/N: (MSI MS-7826)		
Size Custom	Document Description	Rev 1.0
PCIE x16 Slot		
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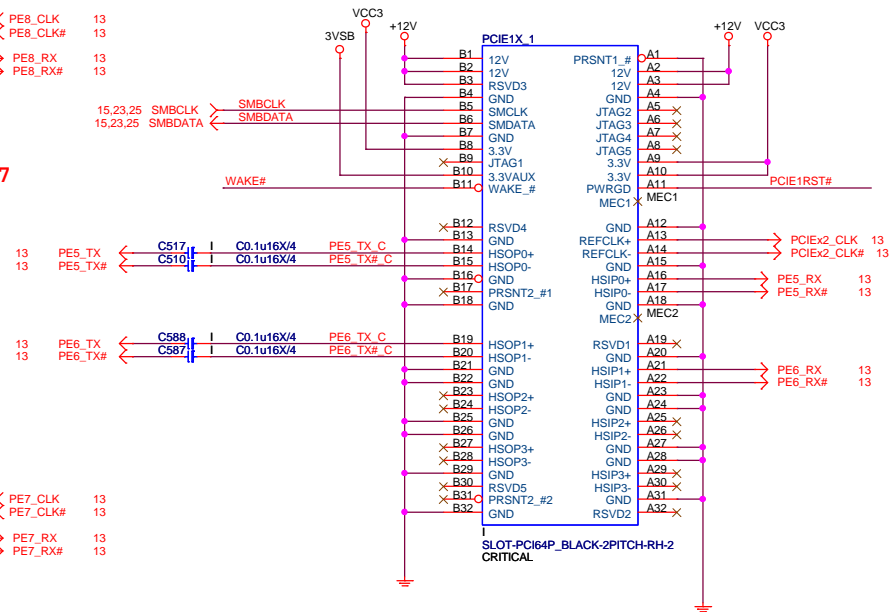
PCI EXPRESS x1-PORT



PCI EXPRESS x1-PORT



PCI EXPRESS x2 -PORT(connector x4)

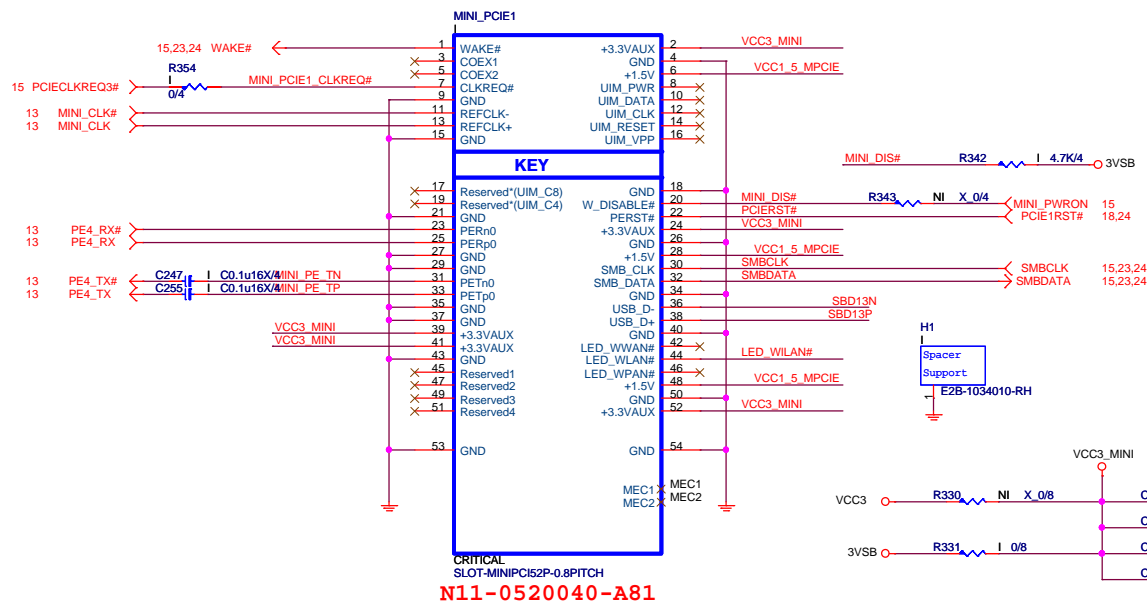


MICRO-STAR INT'L CO.,LTD

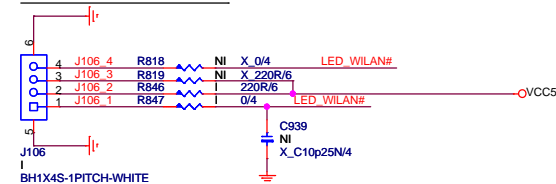
HP SCH P/N: (MSI MS-7826)

Size	Document Description	Rev
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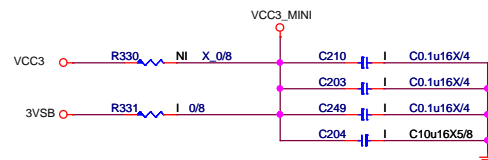
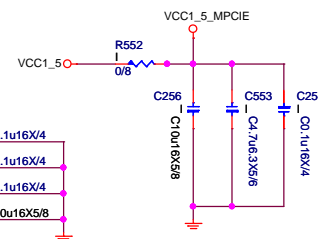
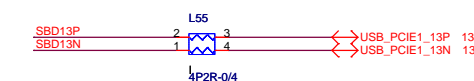
Mini PCIE(Shot Card)



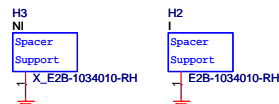
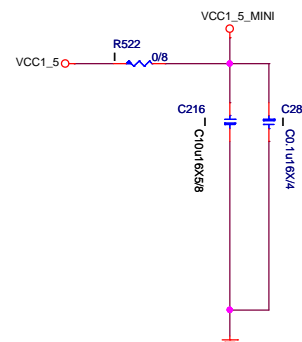
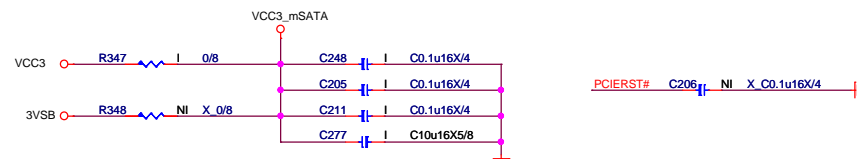
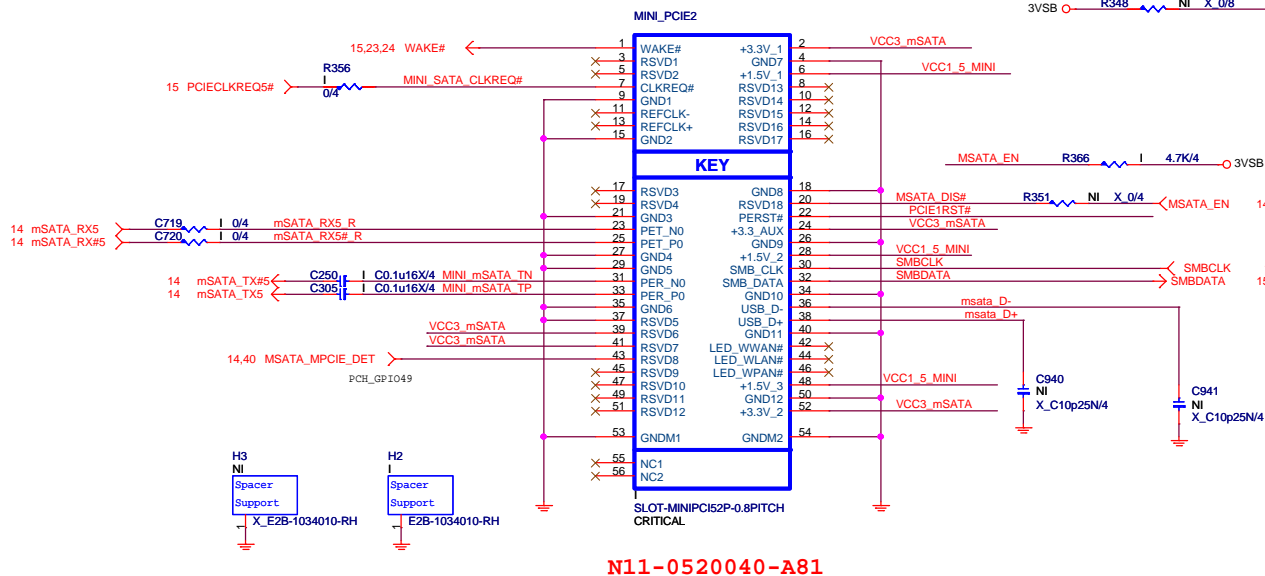
WLAN LED HEADER



N32-1040440-H06



mSATA(Long Card)

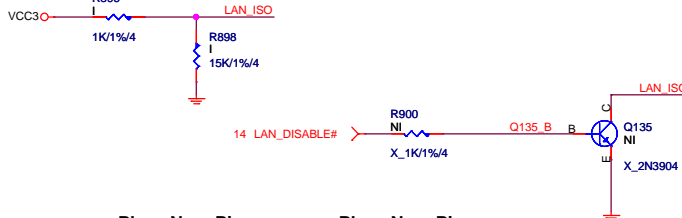
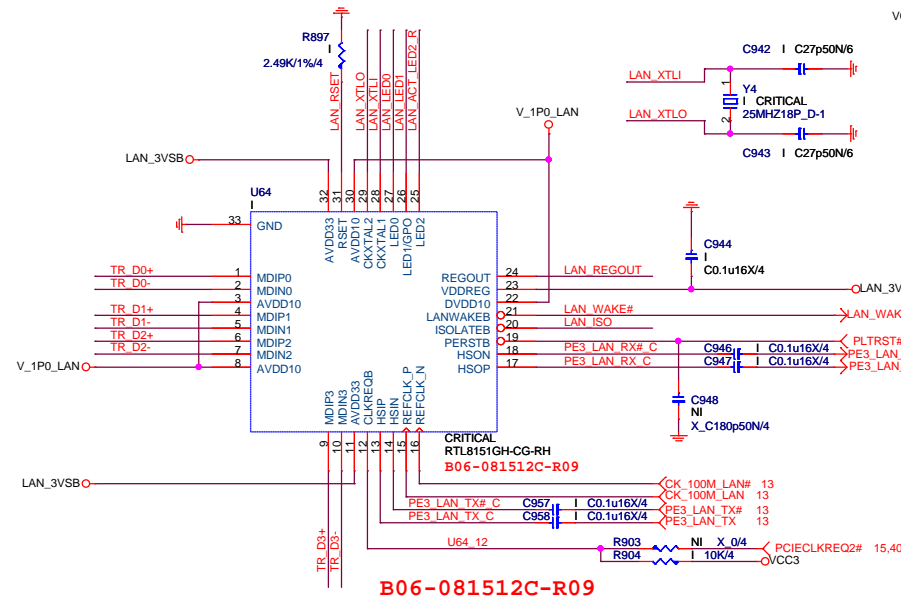
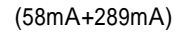


MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

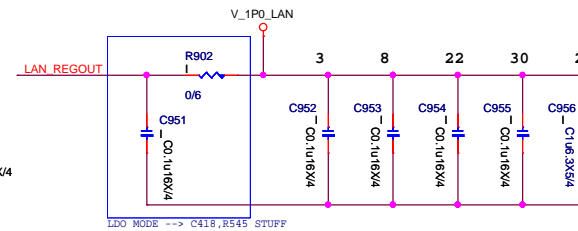
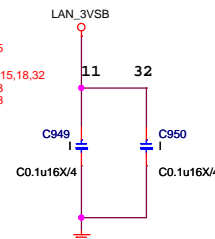
Size	Document Description	Rev
Custom	Mini PCIE/Mini SATA	1.0
Date:	Sheet 25 of 48	

Gigabit LAN RTL8151GH-CG



Place Near Pin

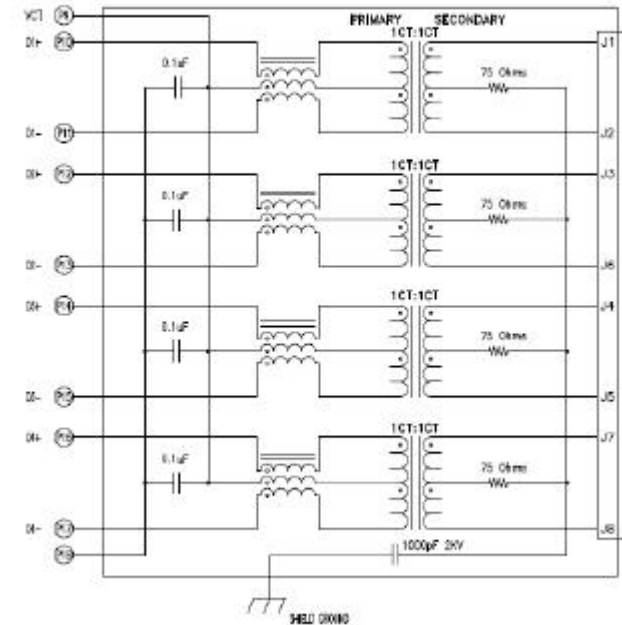
Place Near Pin



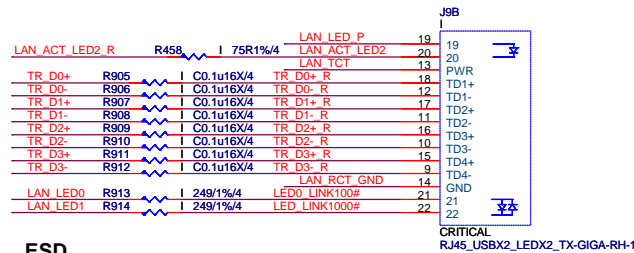
SCHEMATIC

PHY SIDE

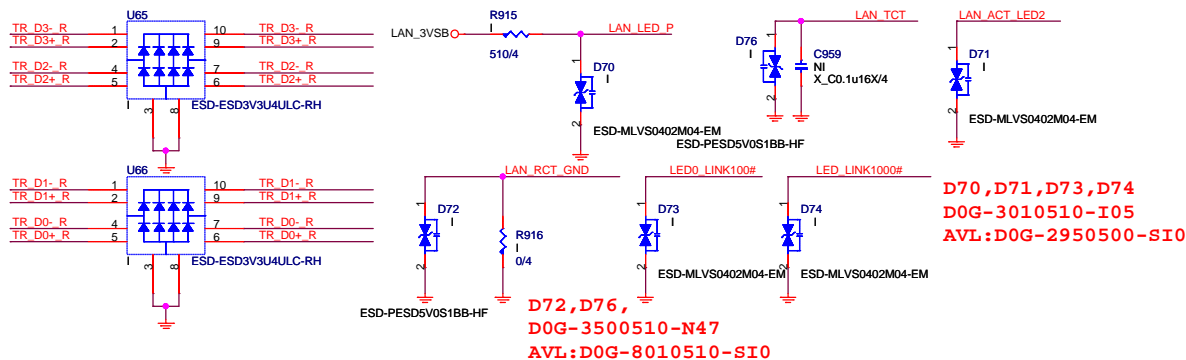
CABLE SIDE



LAN Connector



ESD

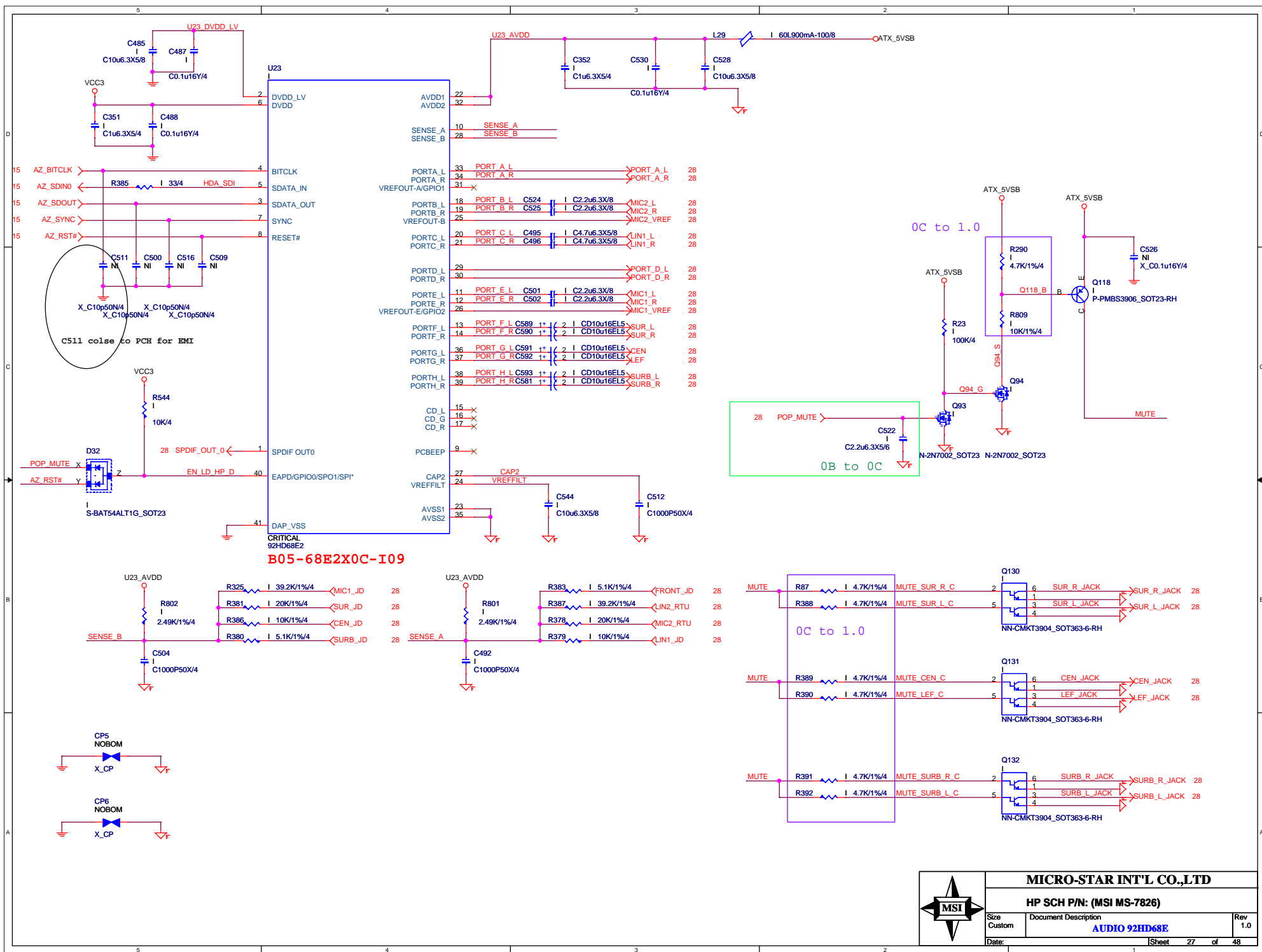


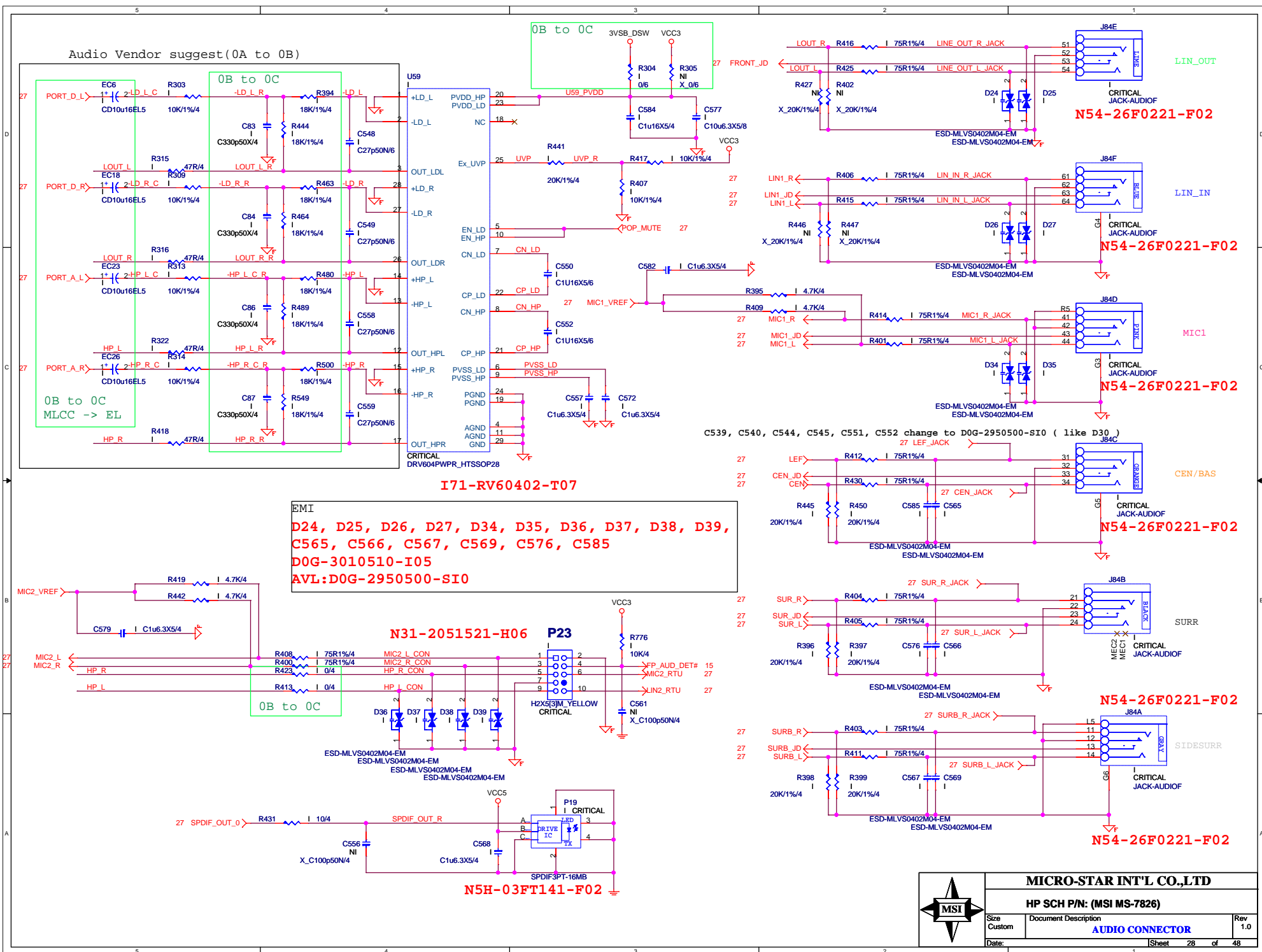
MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

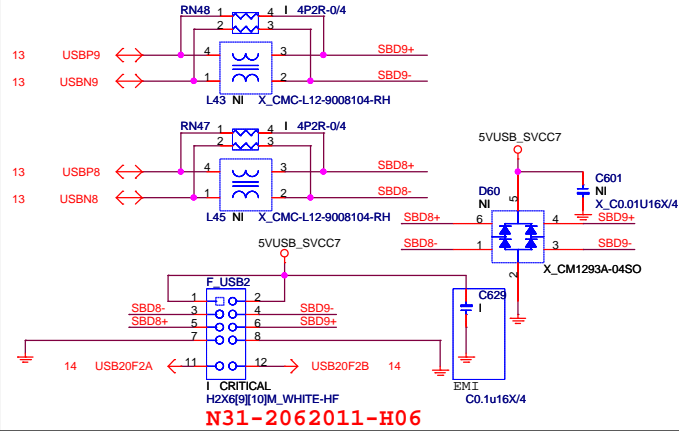
Document Description	Gigabit LAN-RTL8151GH-CG
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Rev
1.0

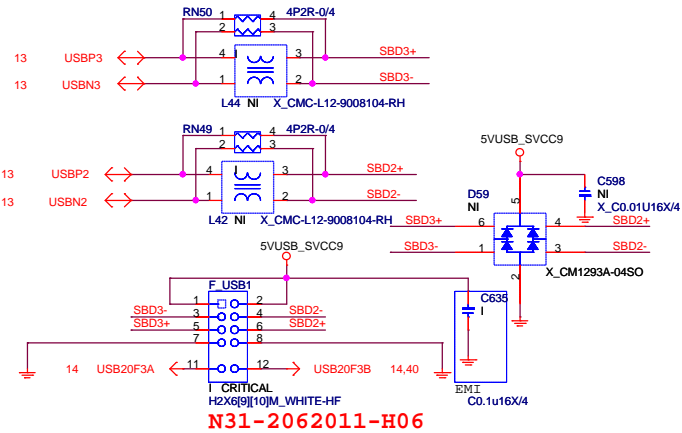




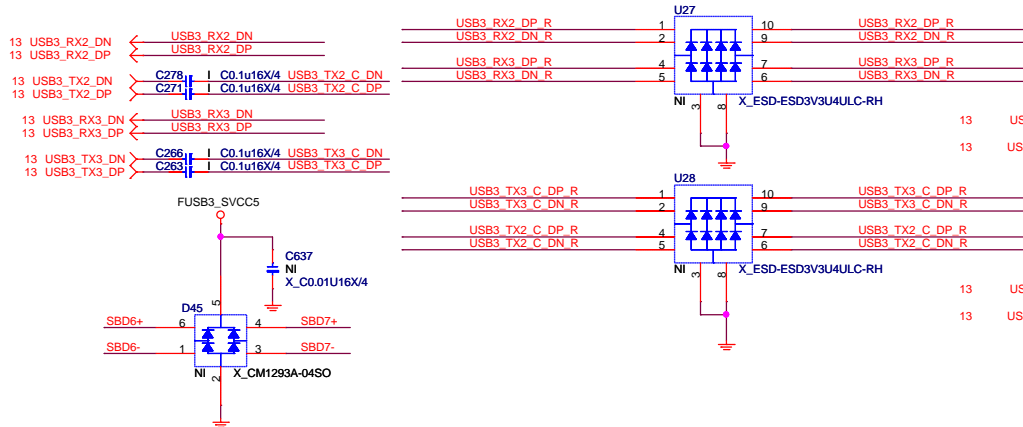
Front Panel USB Connector For USB Port 8 / 9



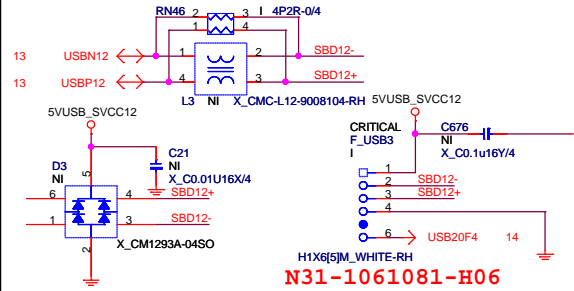
Front Panel USB Connector For USB Port 2 / 3



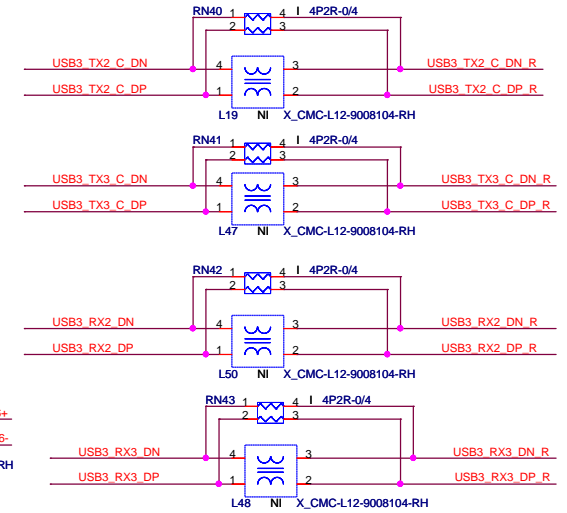
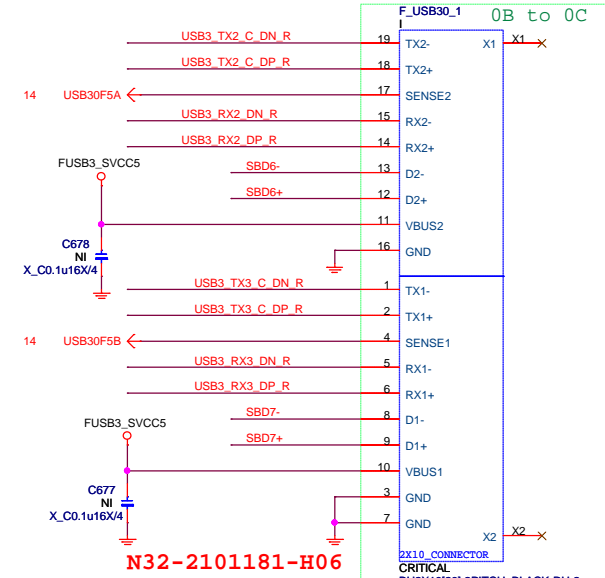
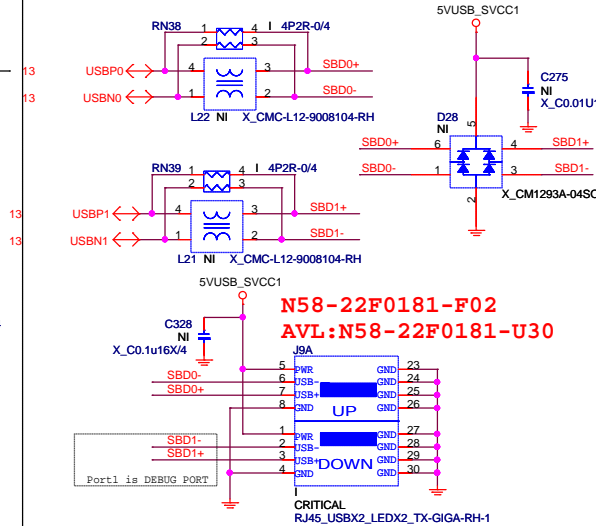
Front USB3.0 Connector For USB3.0 Port 2 / 3



Front USB Connector For USB Port 12



Rear USB Connector For USB Port 0/1



MICRO-STAR INT'L CO.,LTD

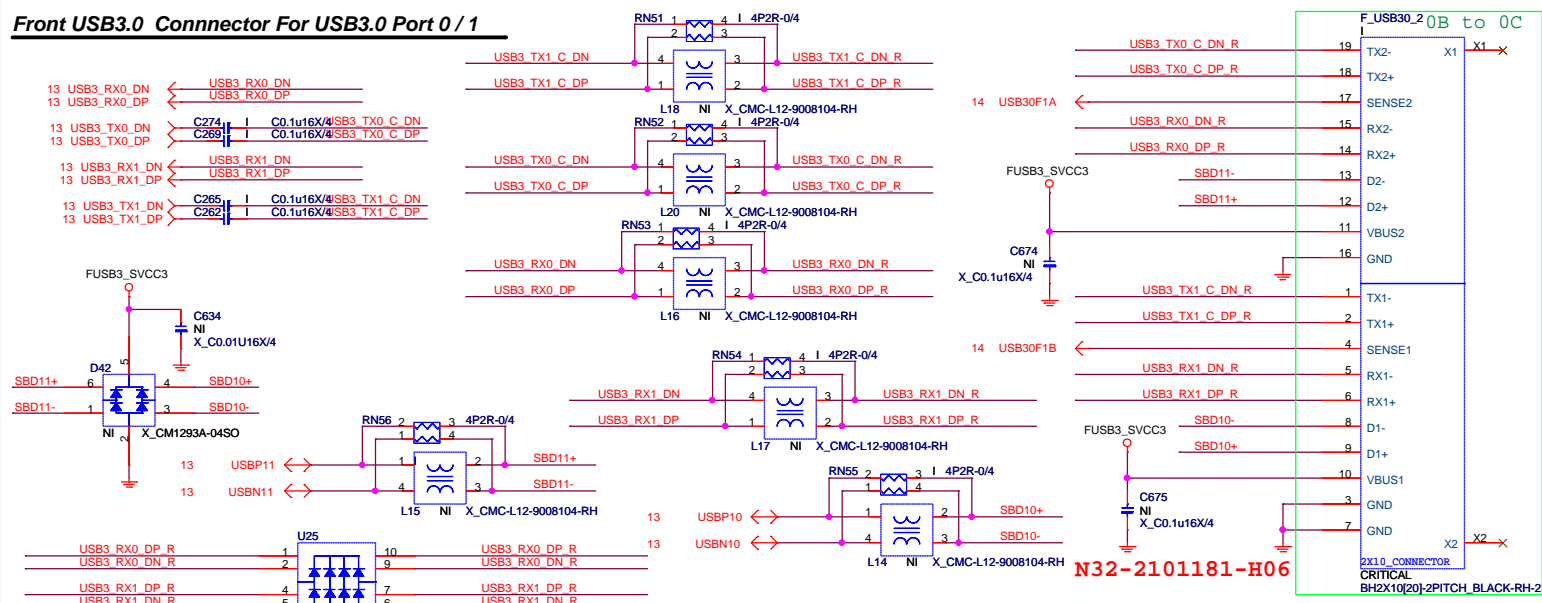
HP SCH P/N: (MSI MS-7826)

Size Custom Document Description USB2.0/USB3.0

Rev 1.0

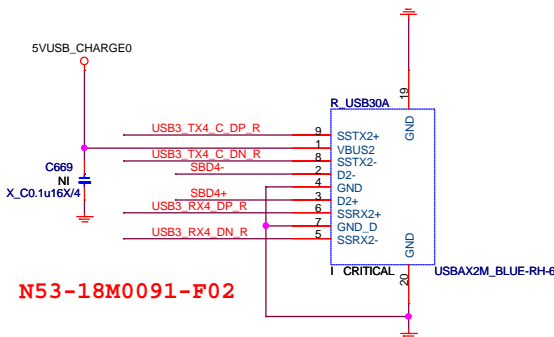
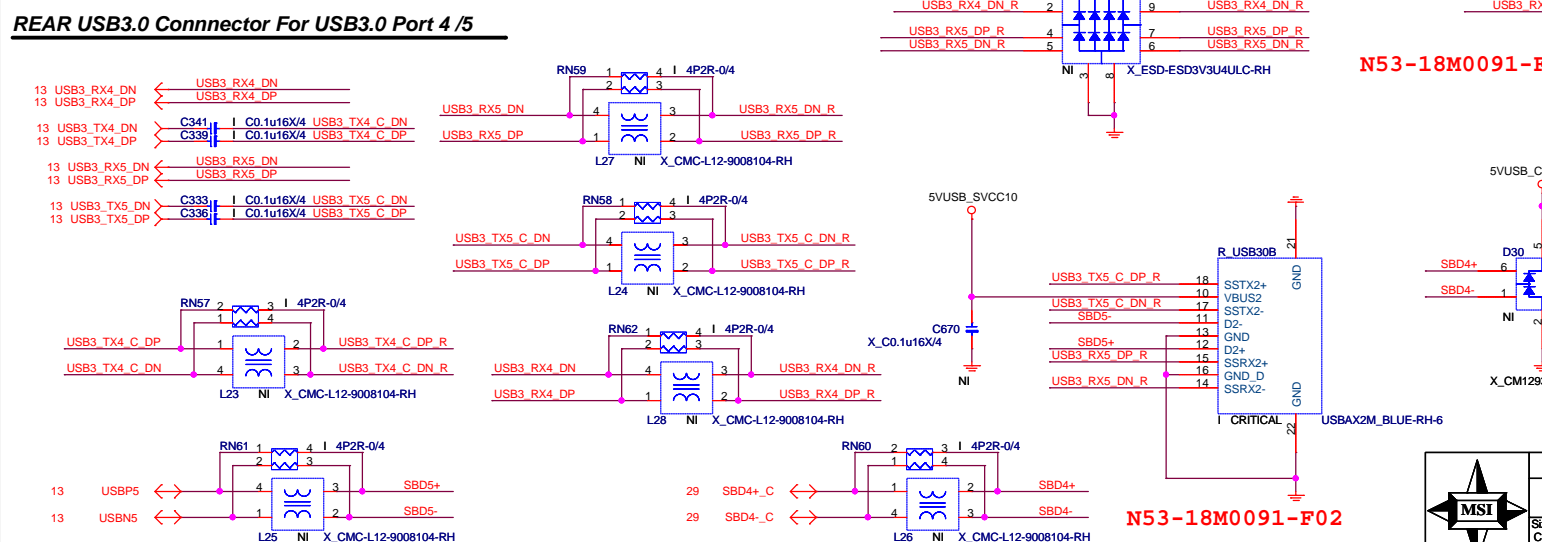
Date: Sheet 30 of 48

Front USB3.0 Connector For USB3.0 Port 0 / 1



The six USB 3.0 pairs can be mapped with any USB 2.0 pair to a given connector but ACPI tables and BIOS should be updated to reflect the USB 2.0 to USB 3.0 pair mapping., DG PAGE 159

REAR USB3.0 Connector For USB3.0 Port 4 / 5



N53-18M0091-F02

N53-18M0091-F02



MICRO-STAR INT'L CO.,LTD

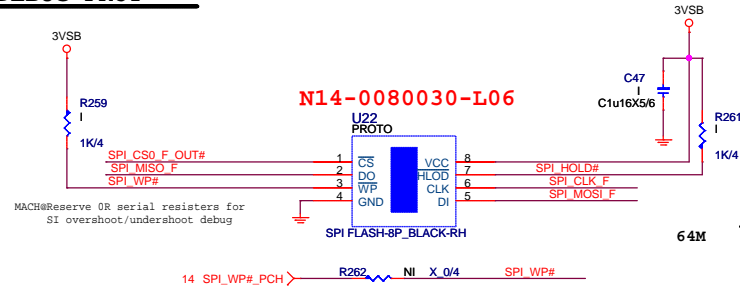
HP SCH P/N: (MSI MS-7826)

USB3.0

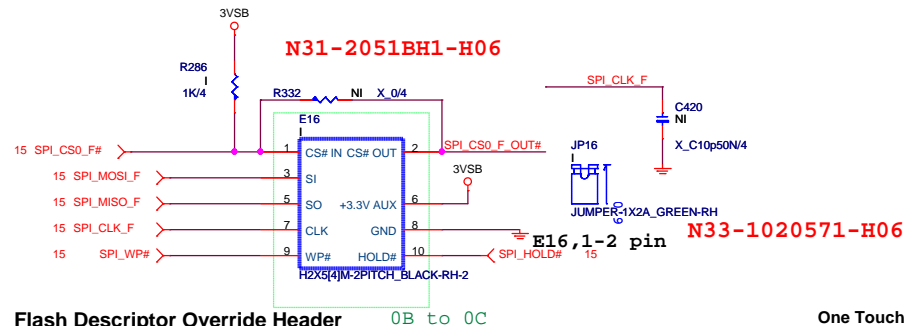
Size	Document Description	Rev
Custom	USB3.0	1.0
Date:		

Sheet 31 of 48

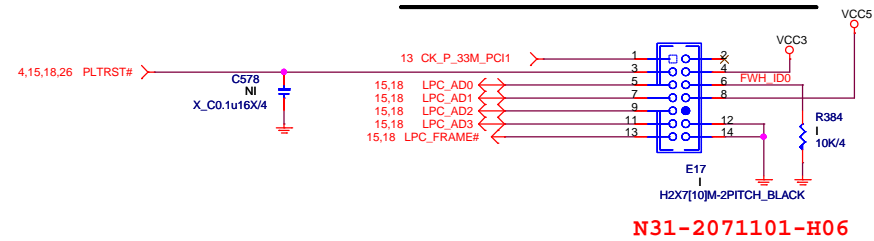
SPI DEBUG PROT



SPI FLASH ROM

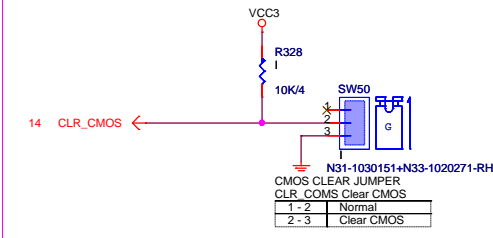


LPC Debug Port

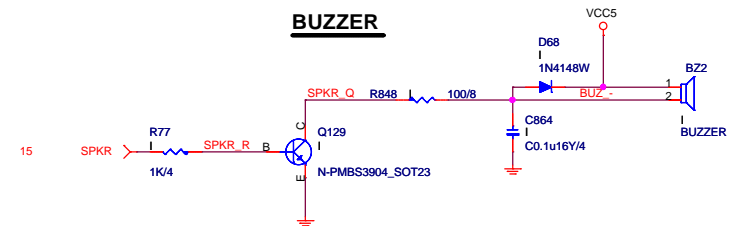


CLEAR CMOS

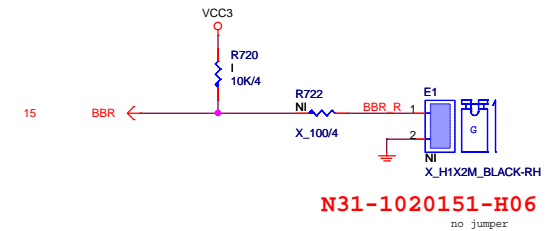
N41-1030141-H06



BUZZER



BOOT_BLOCK_RECOVERY

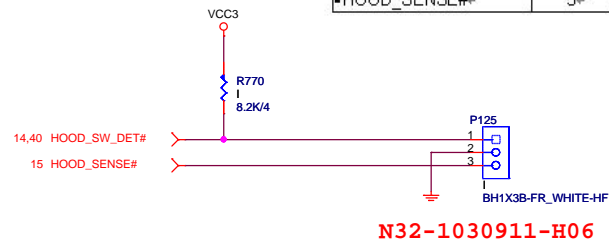


HP Restricted Secret

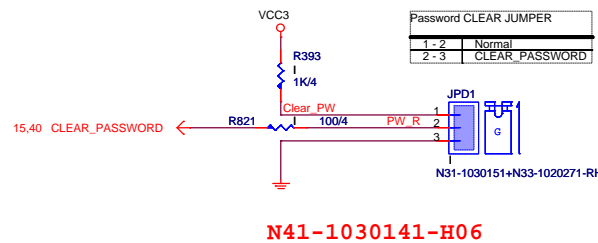
P125--HOOD-SENSE-HEADER-PIN-DESCRIPTION

HOOD SENSE

SIGNAL NAME	PIN #
HOOD_SW_DET#	1
GND	2
HOOD_SENSE#	3



CLEAR_PASSWORD



Password CLEAR JUMPER	
1-2	Normal
2-3	CLEAR_PASSWORD

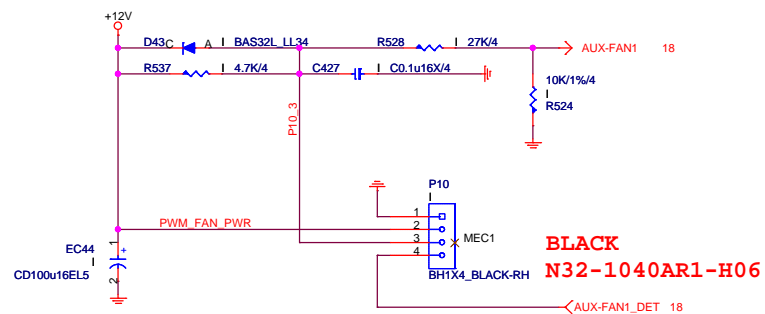


MICRO-STAR INT'L CO.,LTD

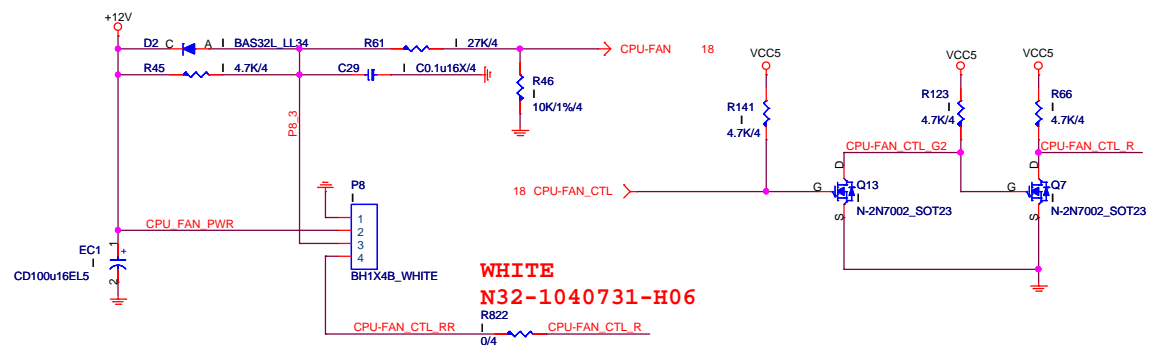
HP SCH P/N: (MSI MS-7826)

Size Custom	Document Description	Rev
	Header/ SPI	1.0
Date:	Sheet 32 of 48	

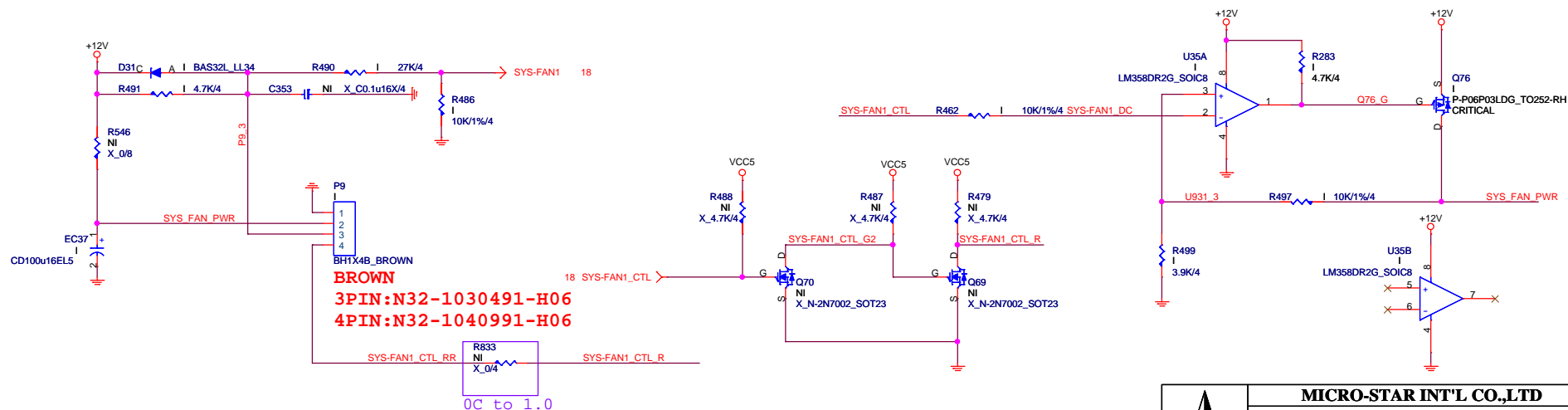
Power Fan



CPU Fan



System Fan



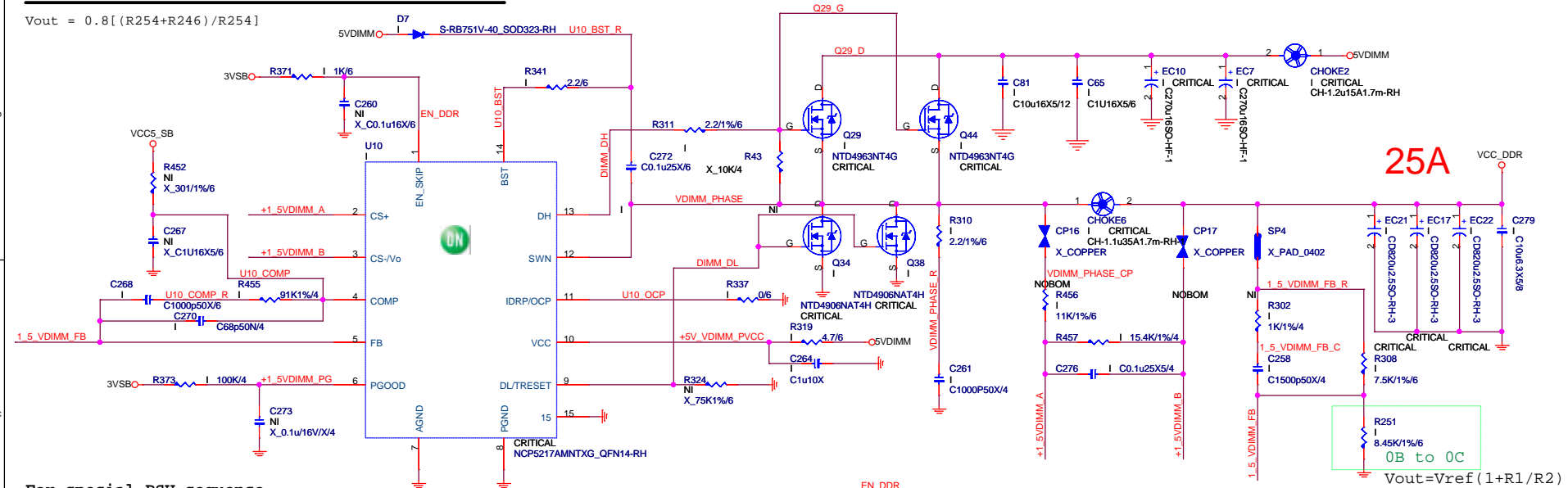
MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

Size	Document Description	Rev
Custom	FAN	1.0
Date:	Sheet 33 of 48	

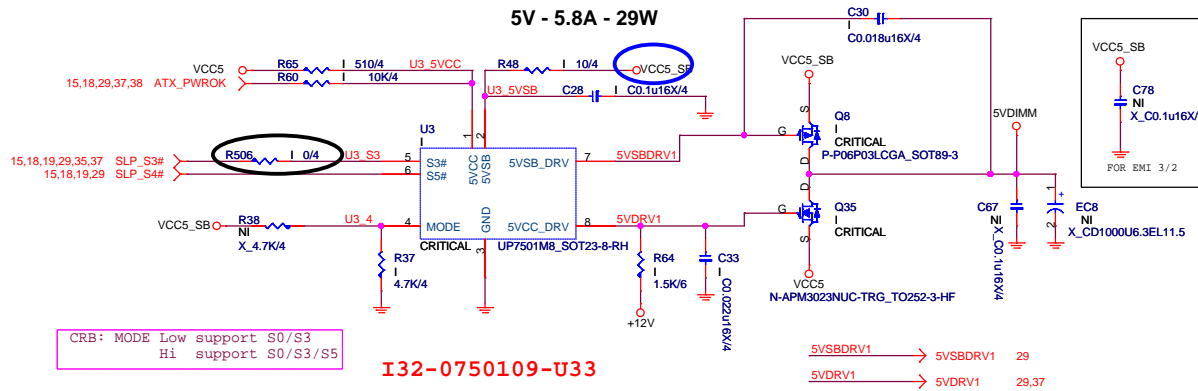
DDRIII DIMM Power

$$V_{out} = 0.8 \left[(R254 + R246) / R254 \right]$$



DDRIII Regulator Power Source

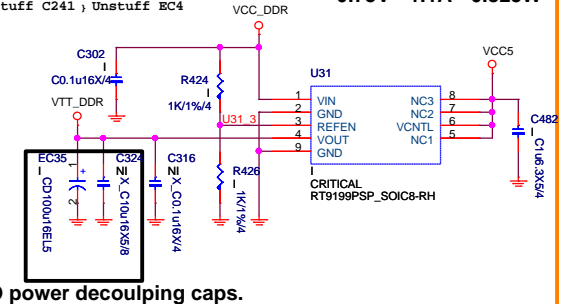
5V - 5.8A - 29W



DDRIII Termination Power

0.75V - 1.1A - 0.825W

RT9199 [1] stuff EC4 ; Unstuff C241
 NCP51199 [1] stuff C241 ; Unstuff EC4



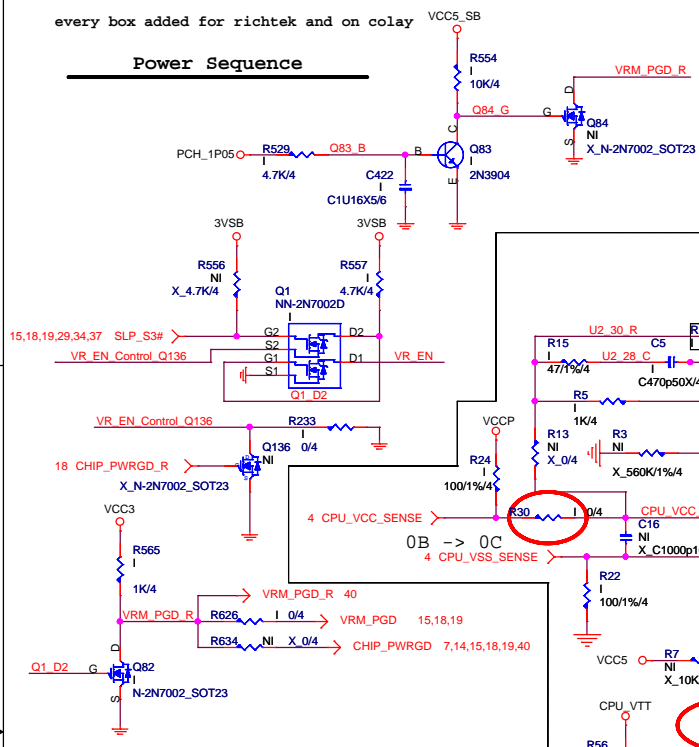
MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

Size	Document Description	Rev
Custom	DDR Power	1.0
Date:	Sheet 34 of 48	

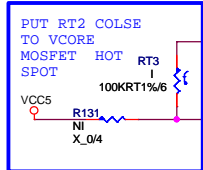
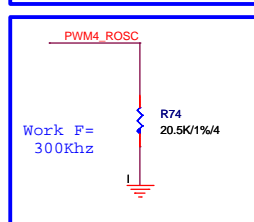
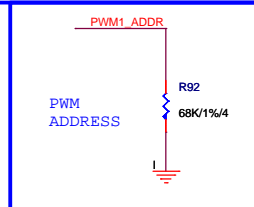
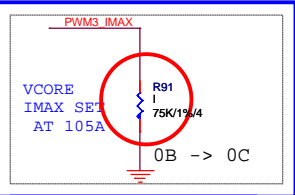
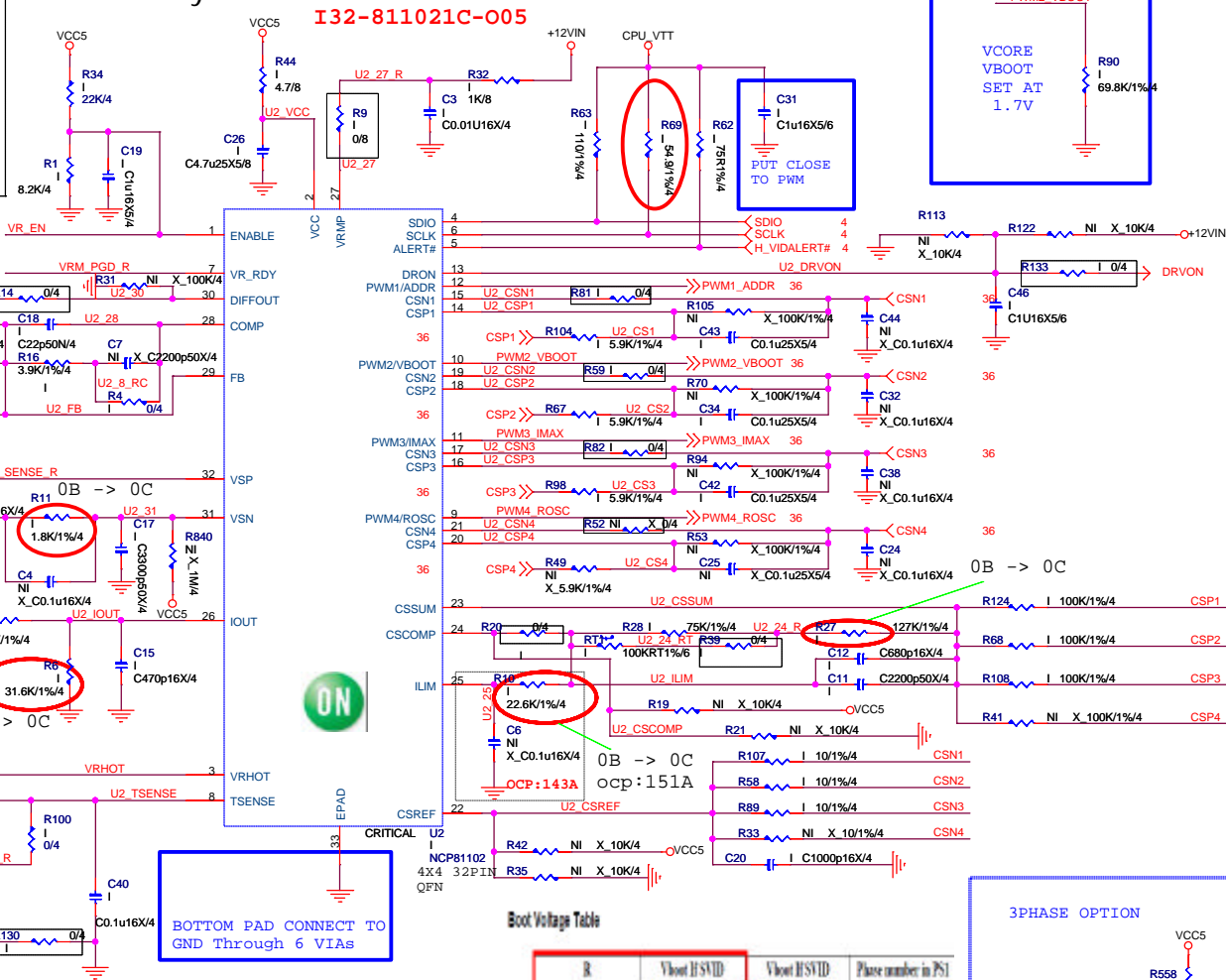
every box added for richtek and on colay

Power Sequence



SharkBay VR12.5 Power Circuit - 4 Phase

I32-811021C-005



BOTTOM PAD CONNECT TO GND Through 6 VIAs

Rosc	Freq	Rosc	Freq	Rosc	Freq	Rosc	Freq	Rosc	Freq
10K	250KHz	30.9K	340KHz	61.9K	436KHz	105K	520KHz	165K	610KHz
12K	260KHz	34K	350KHz	64.9K	446KHz	110K	530KHz	174K	620KHz
14K	270KHz	36.5K	360KHz	69.8K	456KHz	115K	540KHz	182K	630KHz
16.2K	280KHz	40.2K	370KHz	73.2K	466KHz	121K	550KHz	191K	640KHz
18.2K	290KHz	43.2K	380KHz	78.7K	476KHz	130K	560KHz	200K	650KHz
20.5K	300KHz	46.4K	390KHz	82.5K	486KHz	137K	570KHz		
23.2K	310KHz	49.9K	400KHz	86.7K	496KHz	143K	580KHz		
25.5K	320KHz	53.6K	410KHz	93.1K	506KHz	150K	590KHz		
28K	330KHz	57.6K	420KHz	100K	516KHz	158K	600KHz		

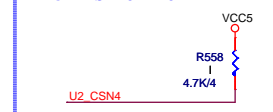
PWM ADDRESS

RESISTOR VALUE	SVID ADDRESS FOR VCORE RAIL
10K	0000
25K	0010
45K	0100
70K	0110
95K	1000
125K	1010
165K	1100

Boot Voltage Table

R	Vboot HSVID address is not 246 or 8	Vboot HSVID address is 246 or 8	Phase number in PS1
30.1K	0V	1.2V	1
49.8K	1.05V	1.15V	1
69.8K	1.70V	1.5V	1
90.4K	1.75V	1.8V	1
130K	0V	1.2V	2
130K	1.05V	1.15V	2
160K	1.70V	1.5V	2
Open	1.75V	1.8V	2

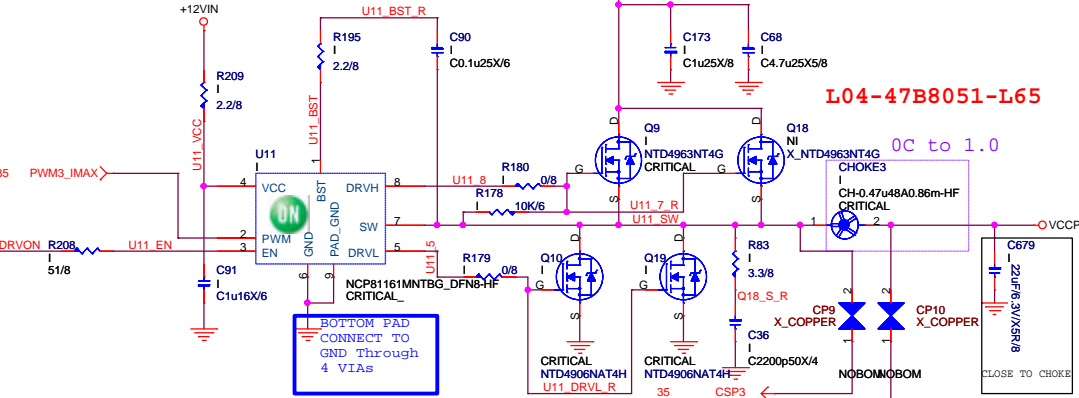
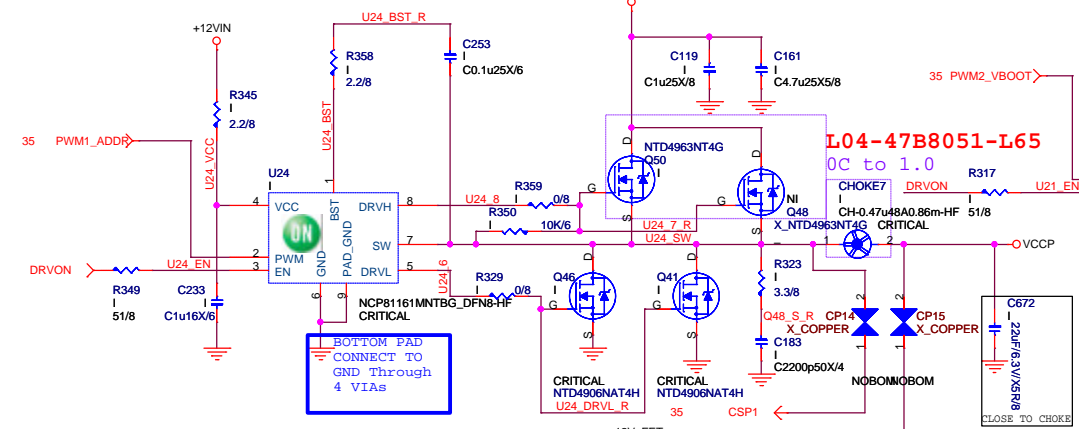
3PHASE OPTION



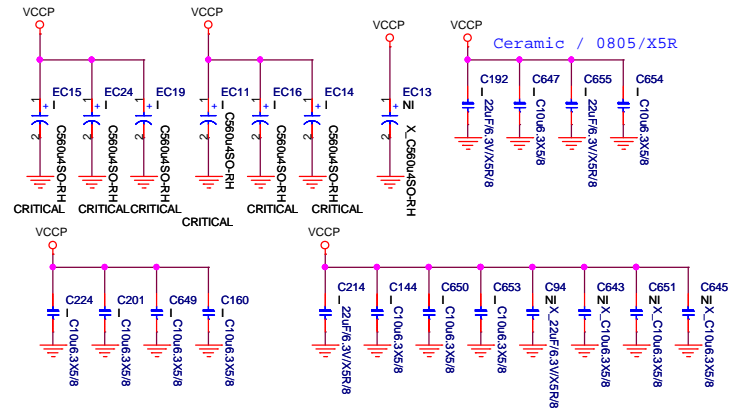
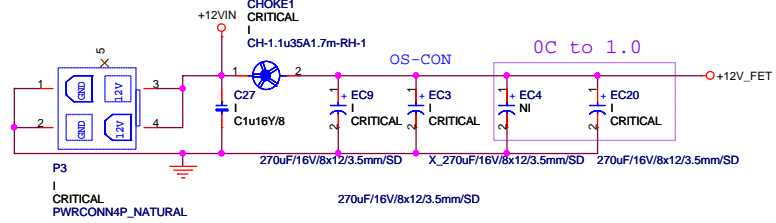
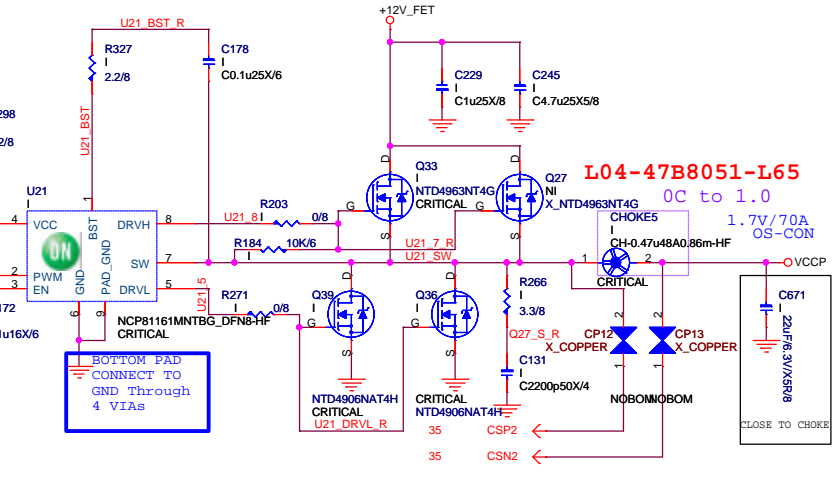
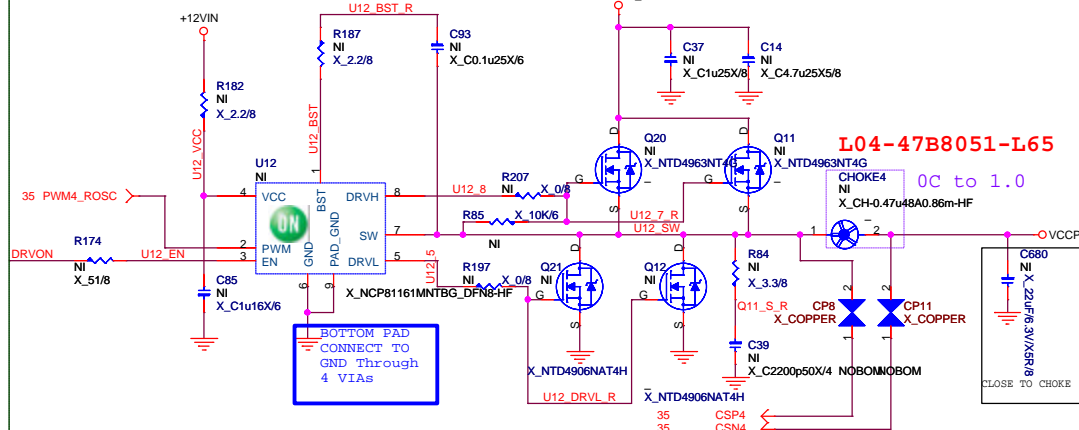
MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

Size Custom	Document Description	Rev
	VRD12-NCP81102 4 Phase	1.0
Date:	Sheet 35 of 48	

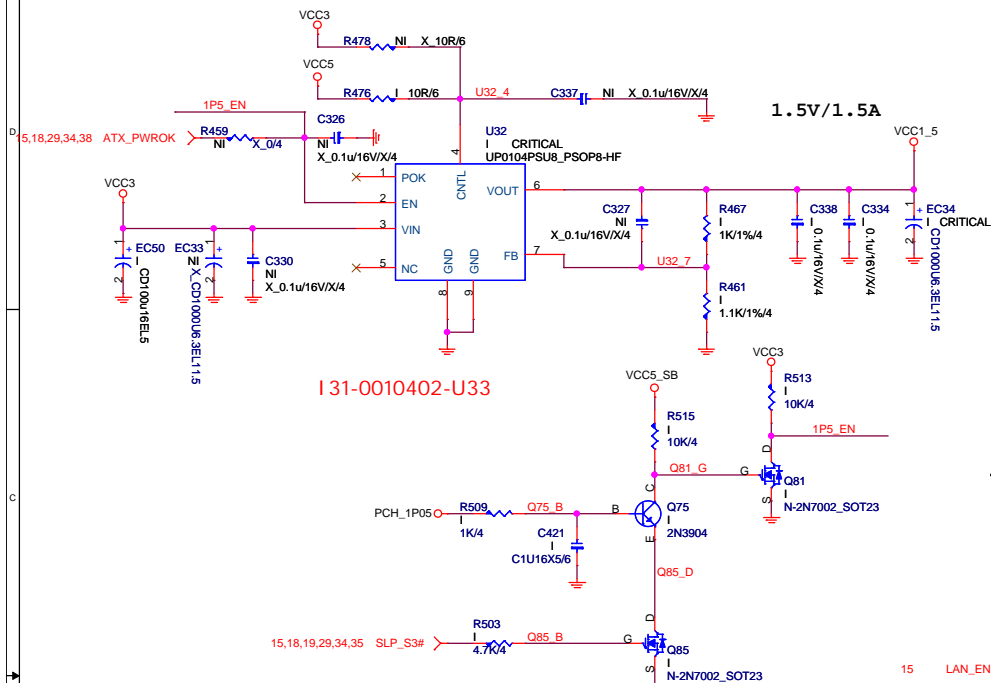


3 phase option circuit

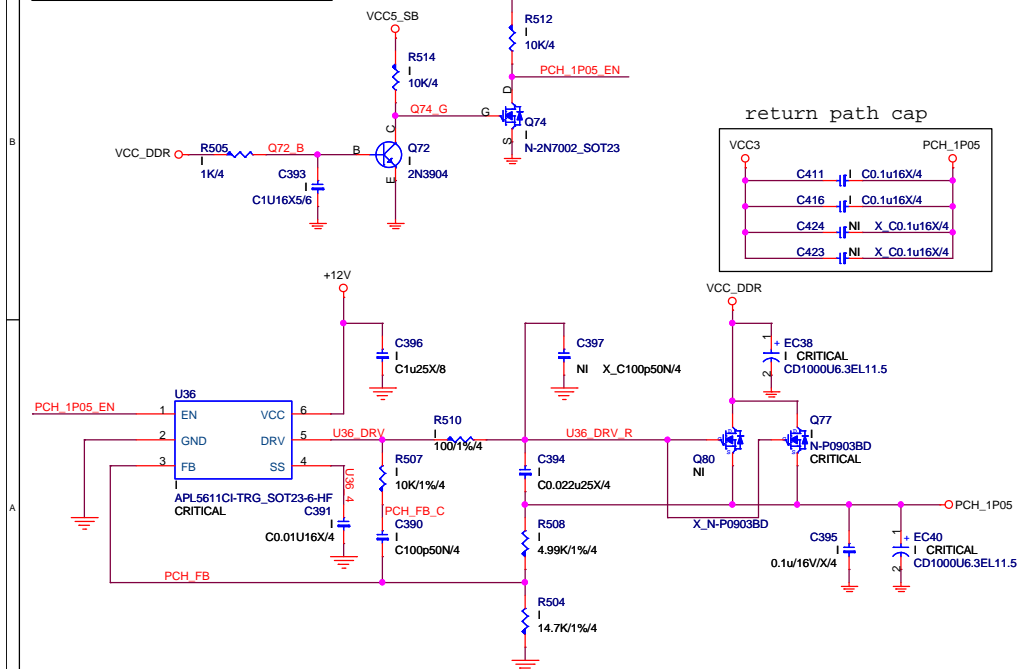


MICRO-STAR INT'L CO.,LTD		
HP SCH P/N: (MSI MS-7826)		
Size Custom	Document Description VCCP	Rev 1.0
Date:	Sheet 36	of 48

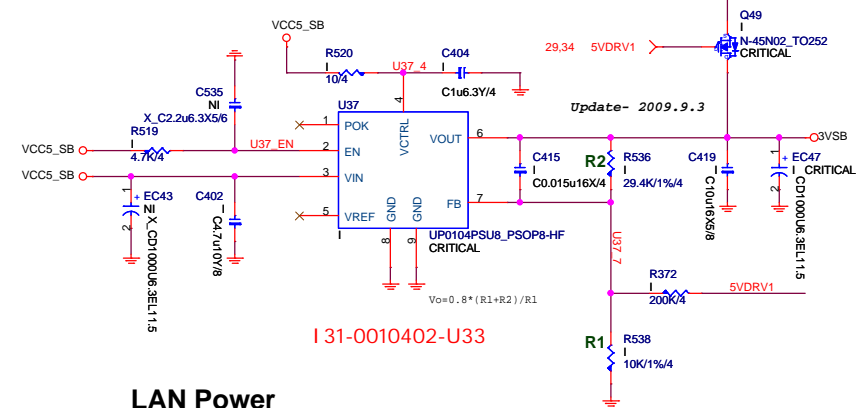
1.5V Power



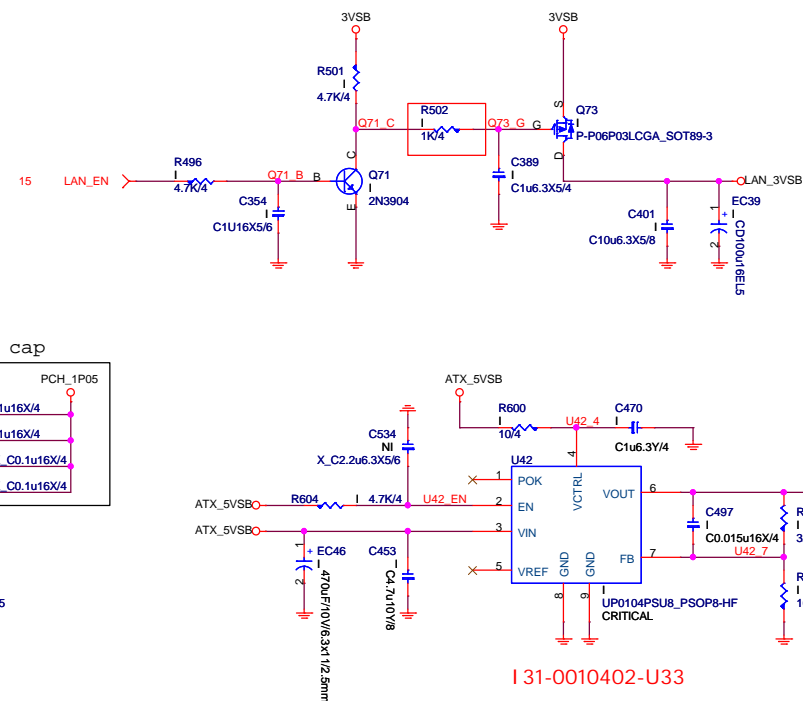
PCH Core Power Control



3V Standby Power



LAN Power



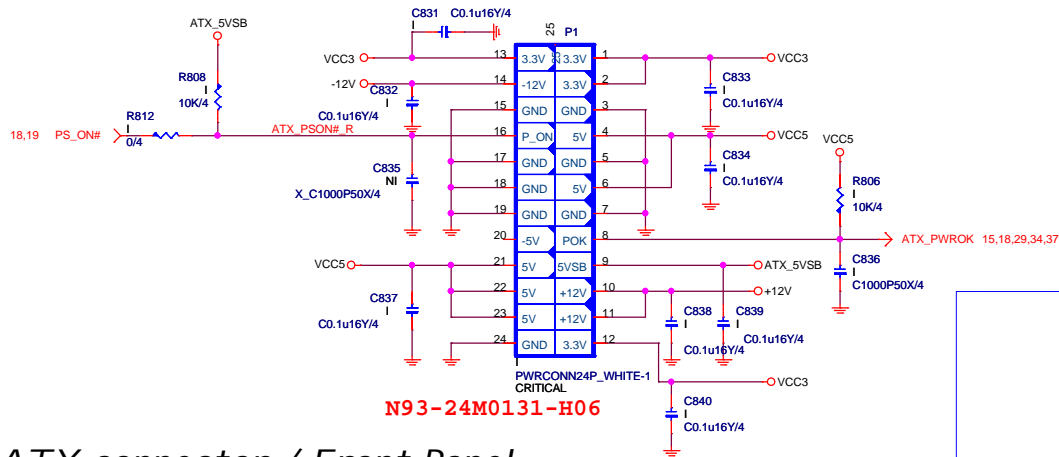
MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

Size Custom	Document Description PCH & ME Core Power	Rev 1.0
Date:	Sheet 37 of 48	

ATX Power Connector / Front Panel / LED/DSW

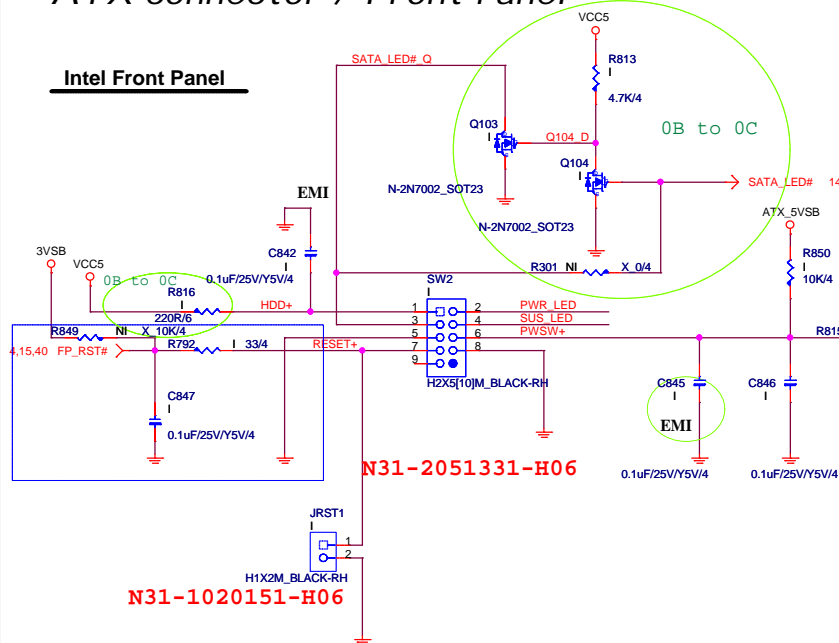
ATX CONNECTOR



N93-24M0131-H06

ATX connector / Front Panel

Intel Front Panel

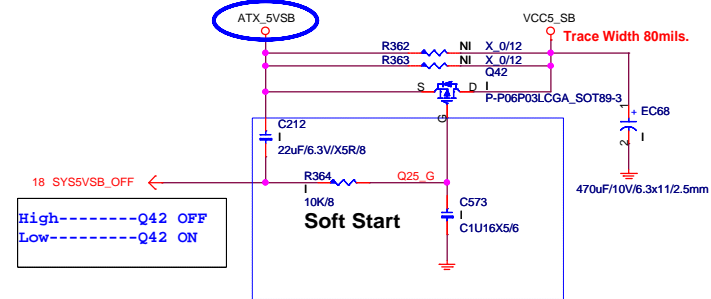


N31-2051331-H06

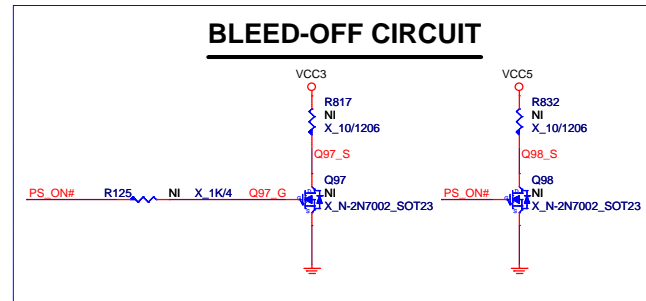
N31-1020151-H06

VCC5_SB Power Switch

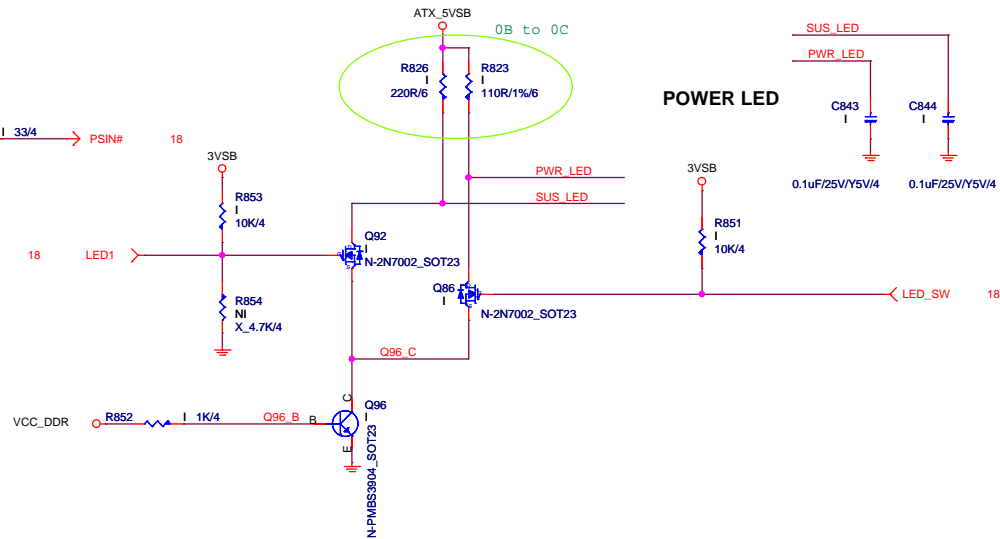
Tune ATX_5VSB inrush current to 2A from 4A



BLEED-OFF CIRCUIT



POWER LED

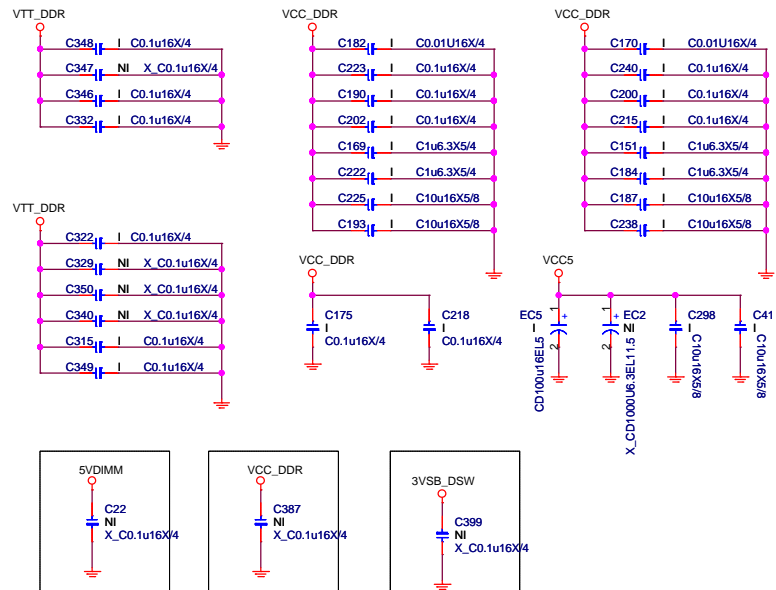


MICRO-STAR INT'L CO.,LTD

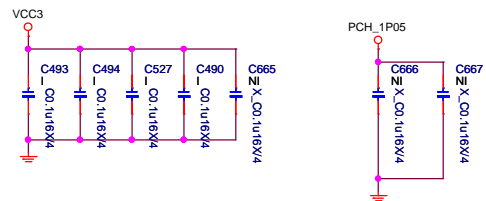
HP SCH P/N: (MSI MS-7826)

Size	Document Description	Rev
Custom	ATX/F_Panel/EMI	1.0
Date:	Sheet 38 of 48	

EMI CAPs



For Moat CAP

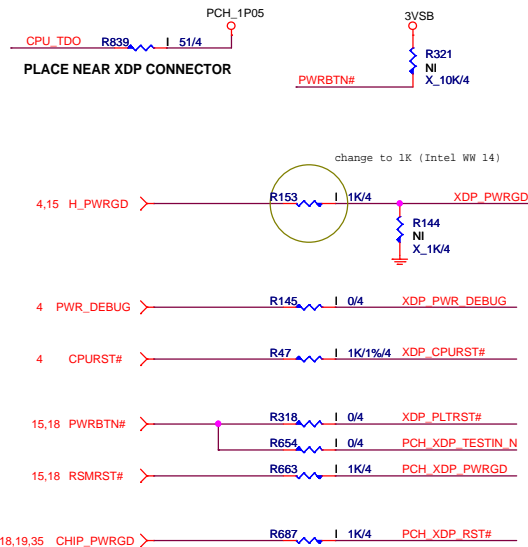
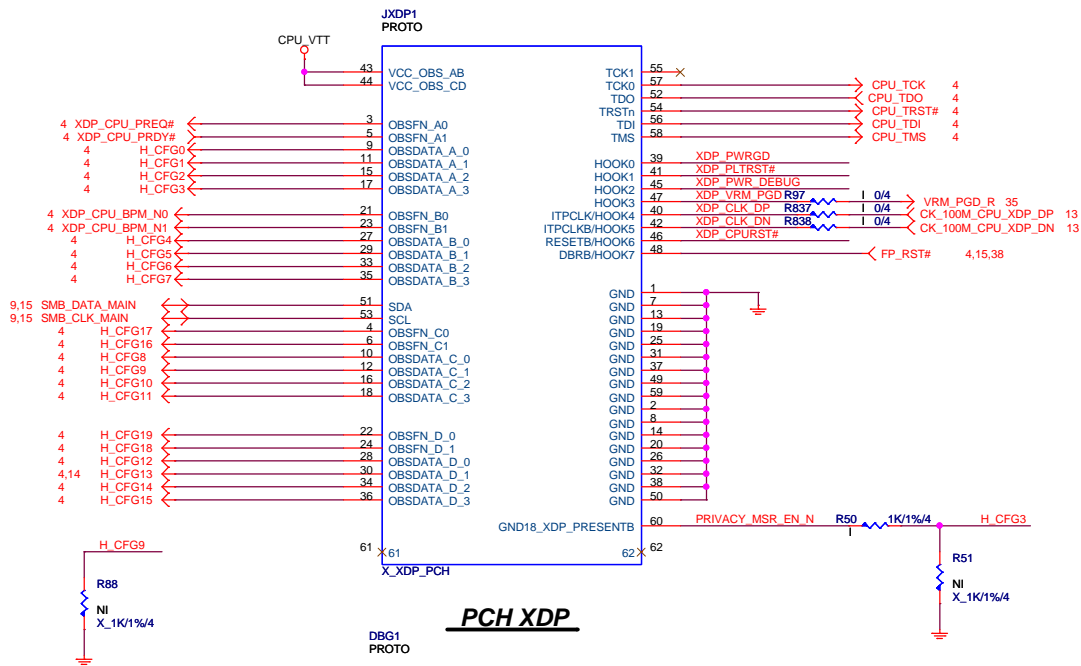


MICRO-STAR INT'L CO.,LTD

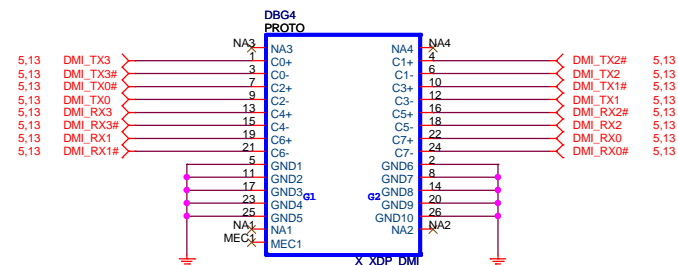
HP SCH P/N: (MSI MS-7826)

Size Custom	Document Description EMI cap	Rev 1.0
Date:	Sheet 39 of 48	

Reserve debug port 5020



DMI XDP

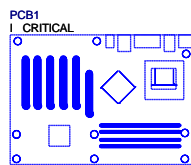


MICRO-STAR INT'L CO.,LTD

HP SCH P/N: (MSI MS-7826)

Size	Document Description	Rev
Custom	CPU/PCH/DMI XDP	1.0
Date:	Sheet 40 of 48	

Manual Parts

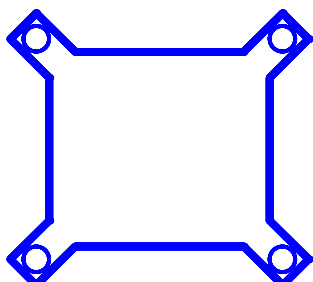


PCB1

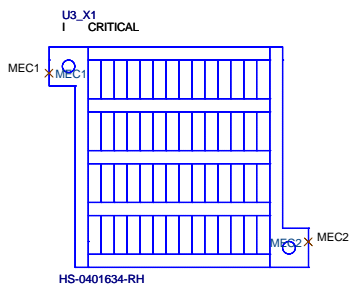
P80-078260A-G37

PF0-078260C-G37
AVL:PF0-078260C-E48
PF0-078260C-E55

XU1_X2
I CRITICAL
E93-0000099-A21



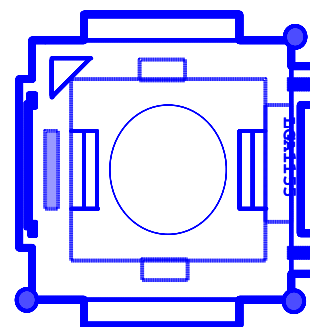
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AVL:E22-B009010-C22



HS-0401634-RH

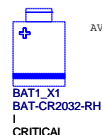
E31-0401634-K08
AVL:E31-040163E-H87

XU1_X1
I CRITICAL
CPU SOCKET



E21-AC71010-L06
AVL:E21-7826010-F02

Simulation

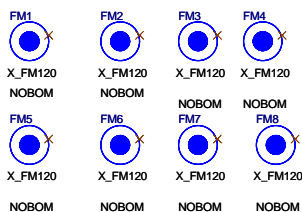


AVL:
D06-0100101-K26

BAT1_X1
BAT-CR2032-RH
I CRITICAL

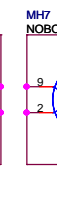
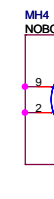
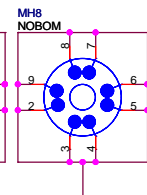
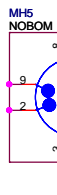
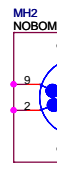
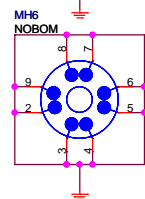
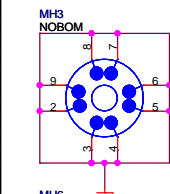
D06-0100101-P01

Optics Orientation Holes



Mounting Holes

Modify for factory request.



HOLES_4S_HP_D7

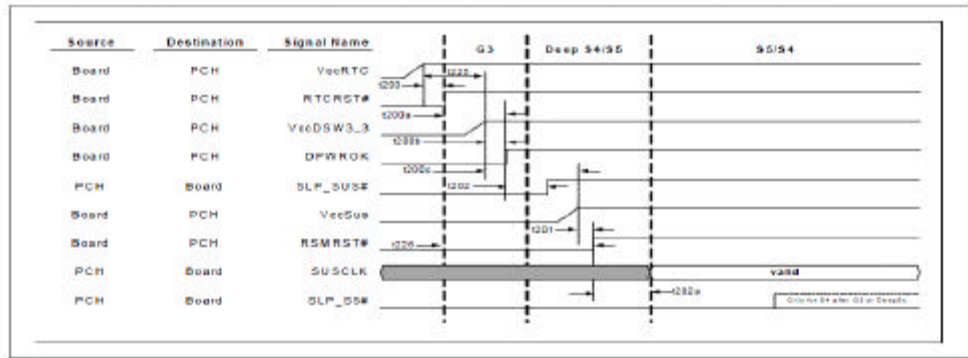


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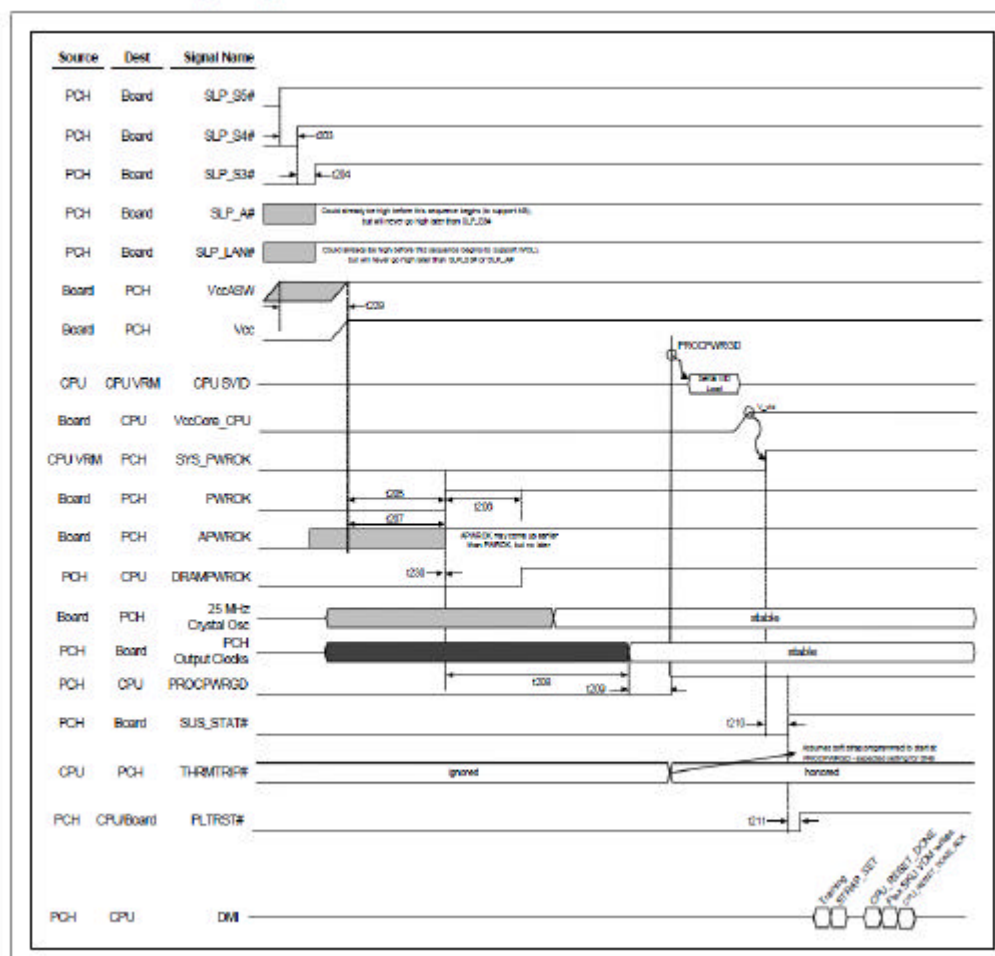
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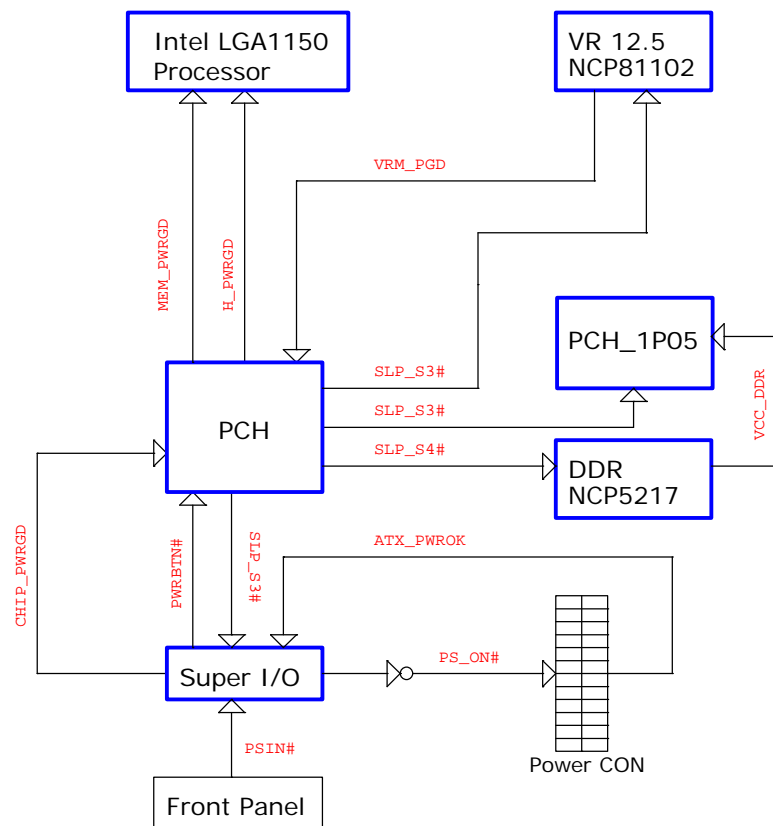
G3 w/RTC Loss to S4/S5 (With Deep Sx Support) Timing Diagram



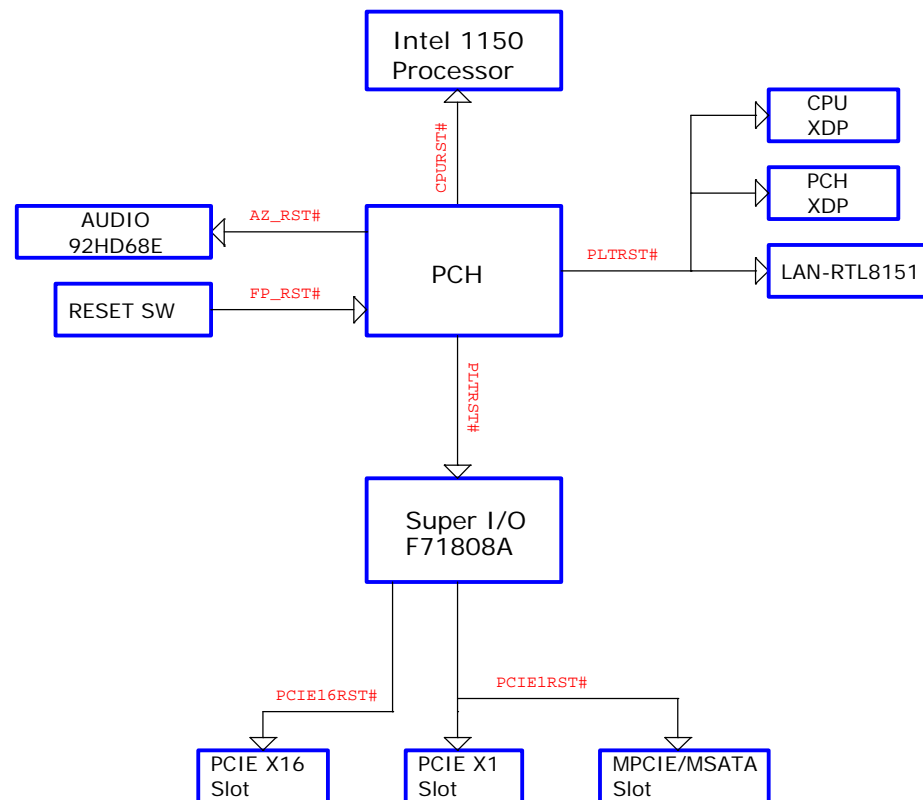
S5 to S0 Timing Diagram



PWROK MAP



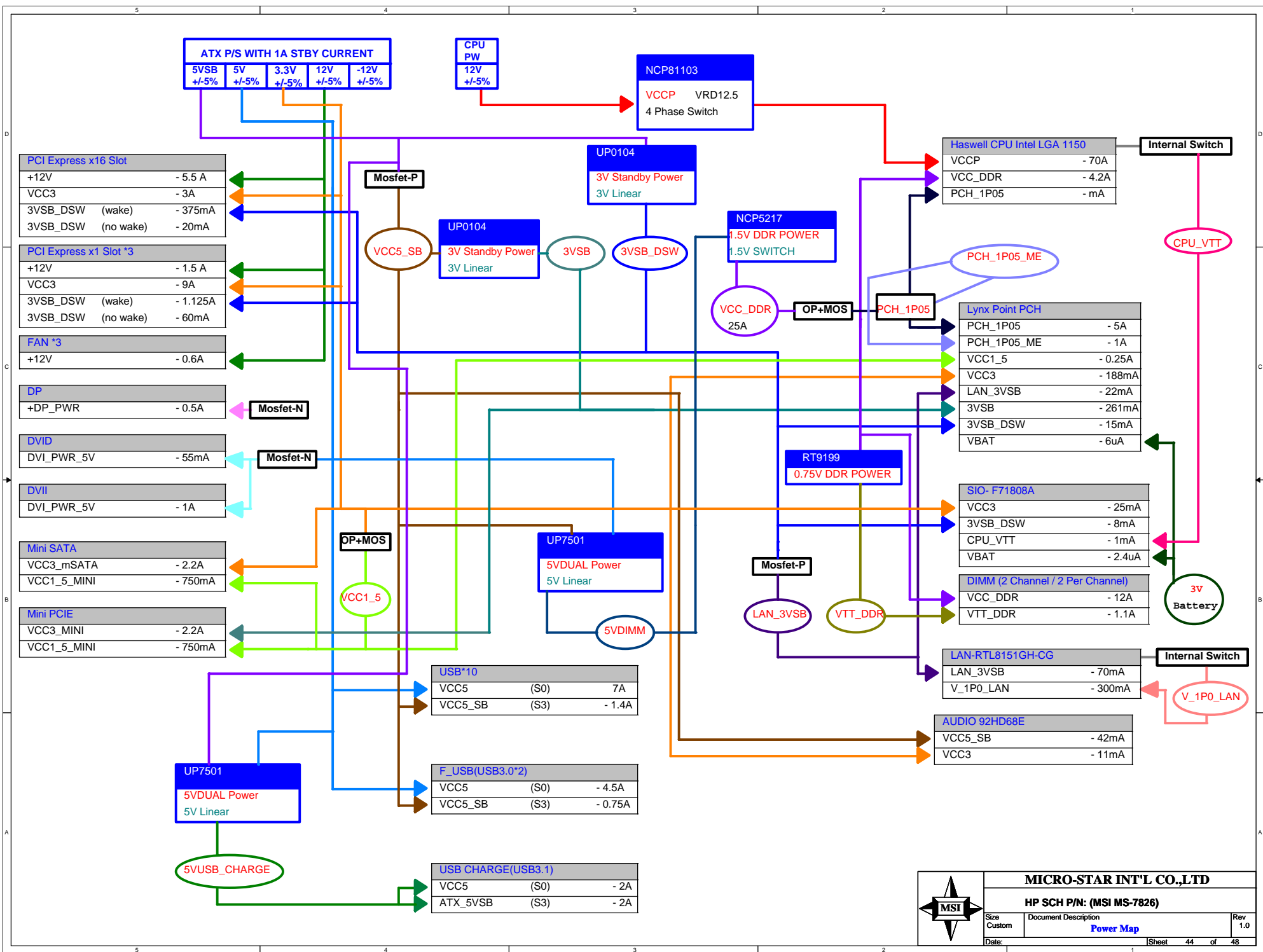
RESET MAP



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PCH

GPIO	Alt Function	I/O/NC	Power	Tol	Default	Signal Name
GPIO[0]	FP_AUD_DET#	I/O	Main	3.3V	GPI	FP_AUD_DET#
GPIO[1]	USB30F5A	I/O	Main	3.3V	GPI	USB30F5A
GPIO[2]	SPI_WP#_PCH	I/O	Main	5V	GPI	SPI_WP#_PCH
GPIO[3]	HW_ID3	I/O	Main	5V	GPI	HW_ID3
GPIO[4]	HW_ID2	I/O	Main	5V	GPI	HW_ID2
GPIO[5]	HW_ID1	I/O	Main	5V	GPI	HW_ID1
GPIO[6]	USB20F2B	I/O	Main	3.3V	GPI	USB20F2B
GPIO[7]	USB20F2A	I/O	Main	3.3V	GPI	USB20F2A
GPIO[8]	PCH_GPIO8	I/O	Resume	3.3V	GPO	PCH_GPIO8
GPIO[9]	USB_OCP#5	I/O	Resume	3.3V	Native	USB_OCP#5
GPIO[10]	USB_OCP#6	I/O	Resume	3.3V	Native	USB_OCP#6
GPIO[11]	PCH_SMBALERT#	I/O	Resume	3.3V	Native	PCH_SMBALERT#
GPIO[12]	PCH_GPIO12	I/O	Resume	3.3V	Native	PCH_GPIO12
GPIO[13]	PCH_SMI#	I/O	Resume	3.3V	GPI	PCH_SMI#
GPIO[14]	GPIO14	I/O	Resume	3.3V	Native	GPIO14
GPIO[15]	LAN_DISABLE#	I/O	Resume	3.3V	GPO	LAN_DISABLE#
GPIO[16]	HOOD_SW_DET#	I/O	Main	3.3V	GPI	HOOD_SW_DET#
GPIO[17]	CLR_CMOS	I/O	Main	3.3V	GPI	CLR_CMOS
GPIO[18]	CLEAR_PASSWORD	I/O	Main	3.3V	Native	CLEAR_PASSWORD
GPIO[19]	PCH_GPIO19	I/O	Main	3.3V	GPI	PCH_GPIO19
GPIO[20]	PCIECLKREQ2#	I/O	Main	3.3V	Native	PCIECLKREQ2#
GPIO[21]	USB20F3B	I/O	Main	3.3V	GPI	USB20F3B
GPIO[22]	PCH_GPIO22	I/O	Main	3.3V	GPI	PCH_GPIO22

GPIO[23]	LDRQ1#	I/O	Main	3.3V	Native	LDRQ1#
GPIO[24]	SKTOCC#	I/O	Resume	3.3V	GPO	SKTOCC#
GPIO[25]	PCIECLKREQ3#	I/O	Resume	3.3V	Native	PCIECLKREQ3#
GPIO[26]	MINI_PWRON	I/O	Resume	3.3V	Native	MINI_PWRON
GPIO[27]	PCH_GPIO27	I/O	DSW	3.3V	GPI	PCH_GPIO27
GPIO[28]	PCH_GPIO28	I/O	Resume	3.3V	GPO	PCH_GPIO28
GPIO[29]	SLP_WLAN#	I/O	Resume	3.3V	Native	SLP_WLAN#
GPIO[30]	PCH_SUSWARN#	I/O	Resume	3.3V	GPI	PCH_SUSWARN#
GPIO[31]	PCH_GPIO31	I/O	DSW	3.3V	GPI	PCH_GPIO31
GPIO[32]	PCH_GPIO32	I/O	Main	3.3V	GPO	PCH_GPIO32
GPIO[33]	SPI_HOLD_GPO#	I/O	Main	3.3V	GPO	SPI_HOLD_GPO#
GPIO[34]	STP_PCI#	I/O	Main	3.3V	GPI	STP_PCI#
GPIO[35]	PCH_GPIO35	I/O	Main	3.3V	GPO	PCH_GPIO35
GPIO[36]	SATA2GP	I/O	Main	3.3V	GPI	SATA2GP



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PCH

GPIO	Alt Function	I/O/NC	Power	Tol	Default	Signal Name
GPIO[37]	PCH_GPIO37	I/O	Main	3.3V	GPI	PCH_GPIO37
GPIO[38]	RECOVERY	I/O	Main	3.3V	GPI	RECOVERY
GPIO[39]	BBR	I/O	Main	3.3V	GPI	BBR
GPIO[40]	USB_OCP#1	I/O	Resume	3.3V	Native	USB_OCP#1
GPIO[41]	USB_OCP#2	I/O	Resume	3.3V	Native	USB_OCP#2
GPIO[42]	USB_OCP#3	I/O	Resume	3.3V	Native	USB_OCP#3
GPIO[43]	USB_OCP#4	I/O	Resume	3.3V	Native	USB_OCP#4
GPIO[44]	PCIECLKREQ5#	I/O	Resume	3.3V	Native	PCIECLKREQ5#
GPIO[45]	PCH_GPIO45	I/O	Resume	3.3V	Native	PCH_GPIO45
GPIO[46]	CHARGE_CB	I/O	Resume	3.3V	Native	CHARGE_CB
GPIO[48]	PCH_GPIO48	I/O	Main	3.3V	GPI	PCH_GPIO48
GPIO[49]	MSATA_MPCIE_DET	I/O	Main	3.3V	GPI	MSATA_MPCIE_DET
GPIO[50]	HW_ID0	I/O	Main	3.3V	GPI	HW_ID0
GPIO[51]	PCH_GPIO51	I/O	Main	3.3V	GPO	PCH_GPIO51
GPIO[52]	USB20F3A	I/O	Main	3.3V	GPI	USB20F3A
GPIO[53]	PCH_GPIO53	I/O	Main	3.3V	GPO	PCH_GPIO53
GPIO[54]	USB20F4	I/O	Main	3.3V	GPI	USB20F3A
GPIO[55]	PCH_GPIO55	I/O	Main	3.3V	GPO	PCH_GPIO55
GPIO[57]	MSATA_EN	I/O	Resume	3.3V	GPI	MSATA_EN
GPIO[58]	PCH_GPIO58	I/O	Resume	3.3V	Native	PCH_GPIO58
GPIO[59]	USB_OCP#0	I/O	Resume	3.3V	Native	USB_OCP#0
GPIO[60]	PCH_SML0ALERT#	I/O	Resume	3.3V	Native	PCH_SML0ALERT#

GPIO[61]	SUS_SATA#	I/O	Resume	3.3V	Native	SUS_SATA#
GPIO[62]	SUS_CLK	I/O	Resume	3.3V	Native	SUS_CLK
GPIO[63]	SLP_S5#	I/O	Resume	3.3V	Native	SLP_S5#
GPIO[64]	CLKOUTFLEX0	I/O	CORE	3.3V	Native	CLKOUTFLEX0
GPIO[65]	CLKOUTFLEX1	I/O	CORE	3.3V	Native	CLKOUTFLEX1
GPIO[66]	CLKOUTFLEX2	I/O	CORE	3.3V	Native	CLKOUTFLEX2
GPIO[67]	CLKOUTFLEX3_48M	I/O	CORE	3.3V	Native	CLKOUTFLEX3_48M
GPIO[68]	PE16PRSNT	I/O	CORE	3.3V	GPI	PE16PRSNT
GPIO[69]	USB30F5B	I/O	CORE	3.3V	GPI	USB30F5B
GPIO[70]	USB30F1B	I/O	CORE	3.3V	GPI	USB30F1B
GPIO[71]	USB30F1A	I/O	CORE	3.3V	GPI	USB30F1A
GPIO[72]	PCH_GPIO72	I/O	DSW	3.3V	Native	PCH_GPIO72
GPIO[73]	LAN_EN	I/O	Resume	3.3V	Native	LAN_EN
GPIO[74]	PCH_SML1ALERT#	I/O	Resume	3.3V	Native	PCH_SML1ALERT#
GPIO[75]	PCH_GPIO75	I/O	Resume	3.3V	Native	PCH_GPIO75



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PIN NAME	USAGE	Input/Output	NOTES
GPIO5	AUX-FAN1_DET	Input	BUMP FAN DET#
GPIO11	SIO_GPIO11	Output	OVT# Function
GPIO14	PWRBTN#	Output	Panel Switch Output
GPIO20	SIO_PME#	Output	PME# event
GPIO21	AUX-FAN1	Input	Fan 3 Tachometer input
GPIO22	POP_MUTE	Input	Pop mute function
GPIO23	PCH_DPWROK	Output	Resume Reset# function
GPIO24	LED1	Output	Power LED for VSB
GPIO25	LED_SW	Output	Power LED for VCC
GPIO26	SLP_SUS#	Input	For Intel CPT function
GPIO27	PSIN#	Input	Main power switch button input
GPIO30	PCH_SUSACK#	Output	For entering DSW power state
GPIO31	VLDT_EN	Output	Enable the VLDT voltage
GPIO32	H_PECI	Output	Intel Peci hardware monitor interface
GPIO34	SYS-FAN1_CTL	Output	Fan 2 Control output
GPIO35	SYS-FAN1	Input	Fan 2 Tachometer input

DDR-III DIMM Config

DEVICE	ADDRESS(SA1:SA0)	CLOCK
DIMM 1	00	MEM_MA_CLK_H0/L0 MEM_MA_CLK_H1/L1
DIMM 2	01	MEM_MA_CLK_H2/L2 MEM_MA_CLK_H3/L3
DIMM 3	10	MEM_MB_CLK_H0/L0 MEM_MB_CLK_H1/L1
DIMM 4	11	MEM_MB_CLK_H2/L2 MEM_MB_CLK_H3/L3

0C to 1.0

History

Page07:R436 change value from 2.67k to 3.16k for 2014 VCCST_PWRGD level ref PDG1.5

Page15: un-install R833 does not to need

Page18: R581 change to 1% for 2014 VCCST_PWRGD level, SIO vender suggettion R587 value 200k change to 20k and R586 470 change 4.7k for HWM

Page27:R290 from 470 change to 4.7k, R809 from 1k change to 10k, R87,R388,R390,R389,R391 and R392 from 2.2k change 4.7k for M/B EUP issue C495 and C496 change value from 2.2uf to 4.7uf for AP TEST

Page29:Q37 and Q47 change D03-0490620-005 and all install for USB Voltage across VBUS to GND with heavy load issue

Page36:choke7,choke3,choke4 and choke5 from L04-47B8010-L65 change to L04-47B8051-L65 for remove SFC logo, EC4 location change to EC20, Q48 location change to Q50 for power VRM suggestions.

0A to 0B

History

Page13:remove msata clk# and msata clk ref msata SPEC does not to need

Page14:Remove C445 and C520 ref CRB, R117 un-intall and add R127(NI) fix VCC3 electric leakage, R553 NI for Peci don't need to connect SIO and CPU, Add TP61 to TEST

Page15:C543 size change from 0402 to 0603 and Value change from 0.1uF to 1uF for G3 to S5 State, C503 size from 0603 to 0402 for ME Remove R611, R608, C471 for SYSPWROK and CHIP PWRGD SEQUENCY, Add R495, C489 and R453(NI) and R678 pull up to 3VDSW For Lan wake function,

Page16:Remove C659 for PCH_1P05 plane

Page18:R581 value change from 4.7k to 1k ohms for chipset good level,add R637(ni) and R6339i0 for VR_GD and CHIP_PWRGD

Page25:remove msata clk# and msata clk ref msata SPEC does not to need, R347 install and R348 un-intall for m-sata power,H3 uninstall fix ME issue

Page26:C948 un install for pltrst

Page28:Modify Amp Circuit for Vendor suggest

Page29:USB fast charger Power change to ATX-5VSB and Q55 change Q45,Q54 for Deep charger power, add R300(un-install) for USB2.0 OCP, CHARGE_CB change to SIO_GPI012 for fast charger

Page31:R_USB30A and R_USB30B power SWAP for charger

Page32:Add ES16 for SPI quand mode

Page33:Add R462 for system Fan control circuit

Page34:U10 power change to 5VDIMM,R102 change value from 20k to 1k ohms and power change to VCC3 for S5 to S0 state, R455 change value to 91K and R457 change vlaue to 15.4k and R456 change to 11k and choke6 change PN to L04-11A7291-L65 for DDR POWER solutions. and add For special PSU sequence circuit

Page35:Add PCH_1P05 circuit to control VRM_GD and CHIP_PWRGD ref CRB 1.0, R30 change to 0ohm R11 change to 1.54k ohms R6 change to 33k R27 chabge to 137k ohms c12 change to 680pF R558 install R33 R41 R49 C25 uninstall for 4 phase to 3 phase.

Page36:R329,R179,R271,R197,R359,R180,R207,R203 change value to 0 ohm and R323,R85,R84,R266 change value to 3.3 ohm and R6 change value to 31.6k ohms for VRM POWER Solutions, 3 phase option circuit are uninstall

Page37:R505 power chang to VCC_DDR and Value change to 1k ohms and R460 POWER change to PCH_1P05 for 1.05 to 1.5 POWER SQUENCY, add C424 and C423 for return path

Page38:Add Bleed_Off circuit for VCC5 and VCC3

Page39:EC05 change value from 470uF to 100uF for Vcc5, Add C666(NI) and C667(NI) for EMI

Page07:R436 change value from 2.67k to 3.16k for VCCST_PWRGD level

Page40:Add R88(NI) to test

0B to 0C

History

Page07:R436 change value from 3.16k to 2.67k for VCCST_PWRGD level ref CRB 1.0

Page35:C15 change value from 0.1uf to 470pf, R11 change value from 3.3k to 1.8k ohms,R30 change value from 510 ohms to 0 ohms for power solutions

Page15:Add C13 2200p uf fixed SA SMBDATA noise, remove R757 for SMI#, R218 and R220 are install for SPI quard modw,C489 uninstall for O.S. shutdown.

Page29:Add HW charger CB control circuit for charger function

Page14:install R624 and R127 ref CRB 1.0

Page30:change usb 3.0 BOX header fix pull up issue

Page31:change usb 3.0 BOX header fix pull up issue

Page32:Remove ES16, change E16 pitch from 2.54 mm to 2.00 mm for HP SPI SPEC,U29 PN from M31-25Q6433-W03 change to M31-25Q6443-W03

Page38:Add R813, Q104 and Q103 for SATA LED power

Page34:change R251 value to 8.45K ohms for DDR power solution

Page28:R394, R444, R463, R464, R480, R489, R500, R549 change value to 18k ohms, R413, R423 change value to 0 ohm, C83, C84, C86, C87 change value to 330 pf, EC6, EC12, EC23, EC26 change type from MLCC to EL, PVDD_HP, PVDD_LD pull to 3VDSW power for audio vendor suggest

Page27:C522 change value 2.2 uf and install

Page18:Add R232 pull 3V_DSW for SIO vendor suggestion

Page35:U2 PN from I32-811020C-005 change to I32-811021C-005



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