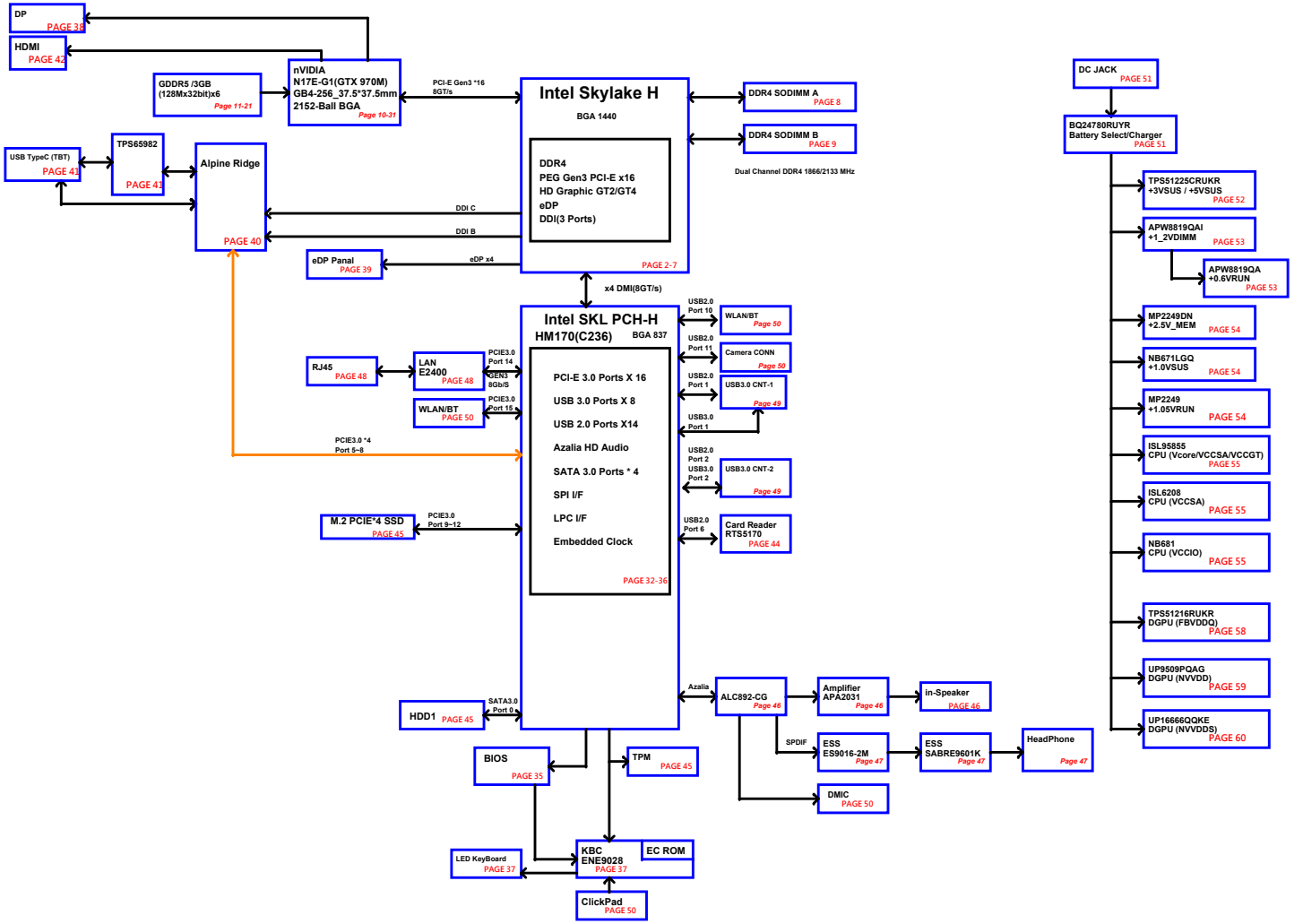
MS-14A3 Ver: 2.0 Intel Skylake platform

Thursday, June 02, 2016

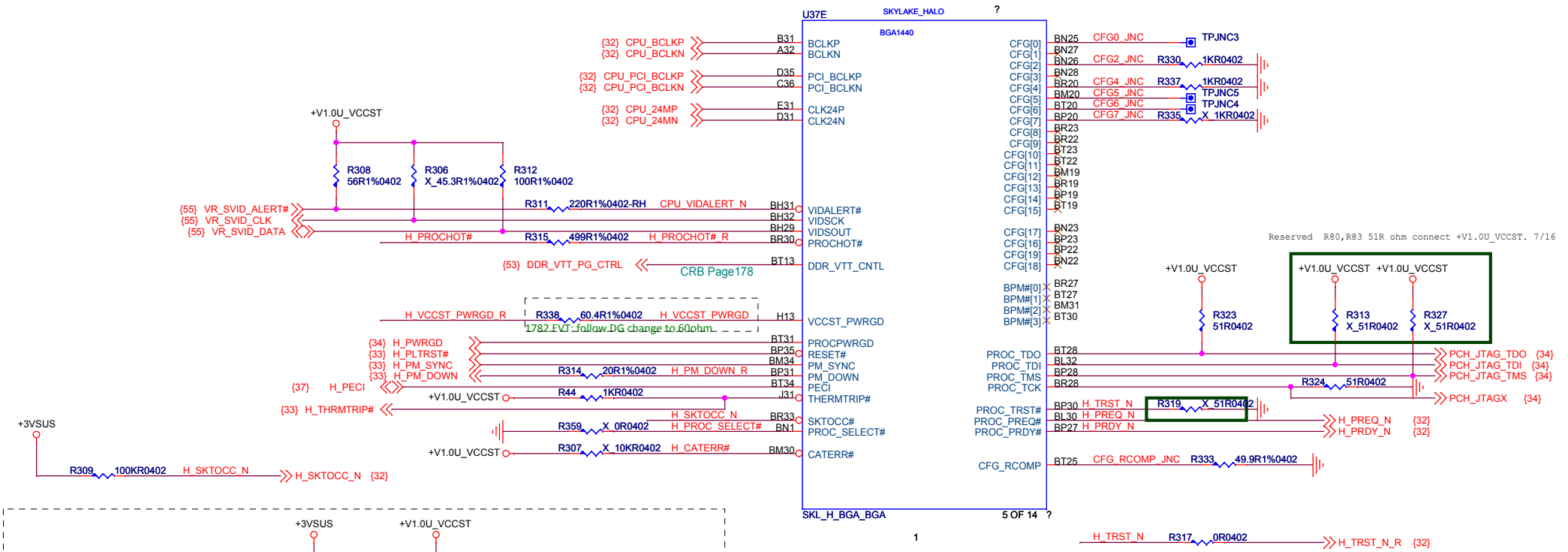


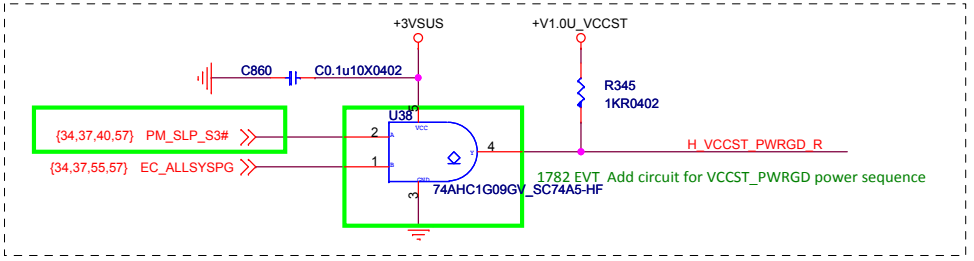
MICRO-STAR INT'L CO.,LTD.

Block Diagram

MS-14A31

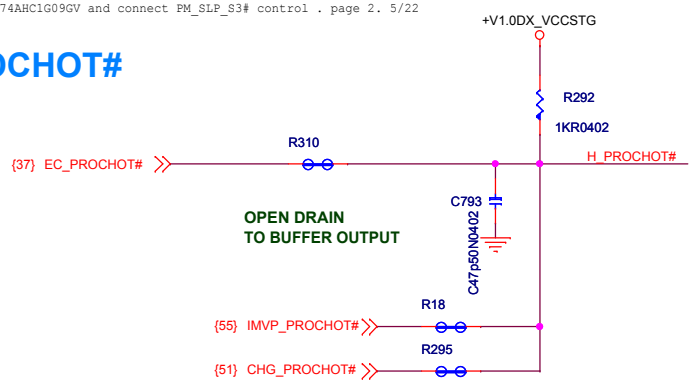
2.0





Modify U83 74AHC1G09GV and connect PM_SLP_S3# control . page 2. 5/22

PROCHOT#



MSR Privacy Bit Feature	
CFG3	1 = Debug capability is determined by IA32_Debug_Interface_MSR (0xC80) bit[0] setting 0 = IA32_Debug_Interface_MSR (0xC80) bit[0] default setting overridden

eDP Enable	
CFG4	1 = Disabled 0 = Enabled

PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

PCIE Express * Static X16 Lane Numbering Reversal	
CFG2	CFG[2]: PCI Express* Static x16 Lane Numbering Reversal. 1 = Normal operation 0 = Lane numbers reversed.

PCI Express* Bifurcation	
CFG[6:5]	00 = 1 x8, 2 x4 PCI Express* 01 = reserved 10 = 2 x8 PCI Express* 11 = 1 x16 PCI Express*

Intel 54492 Page 37,121

Title: Skylake(HOST)			
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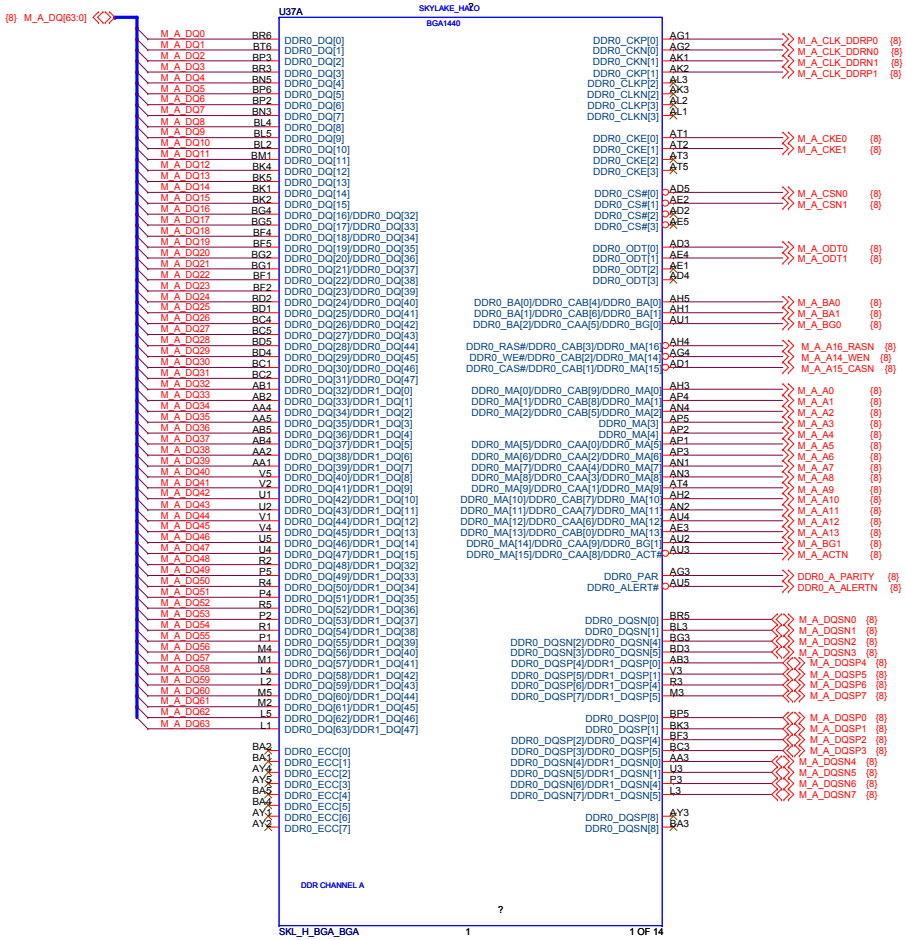
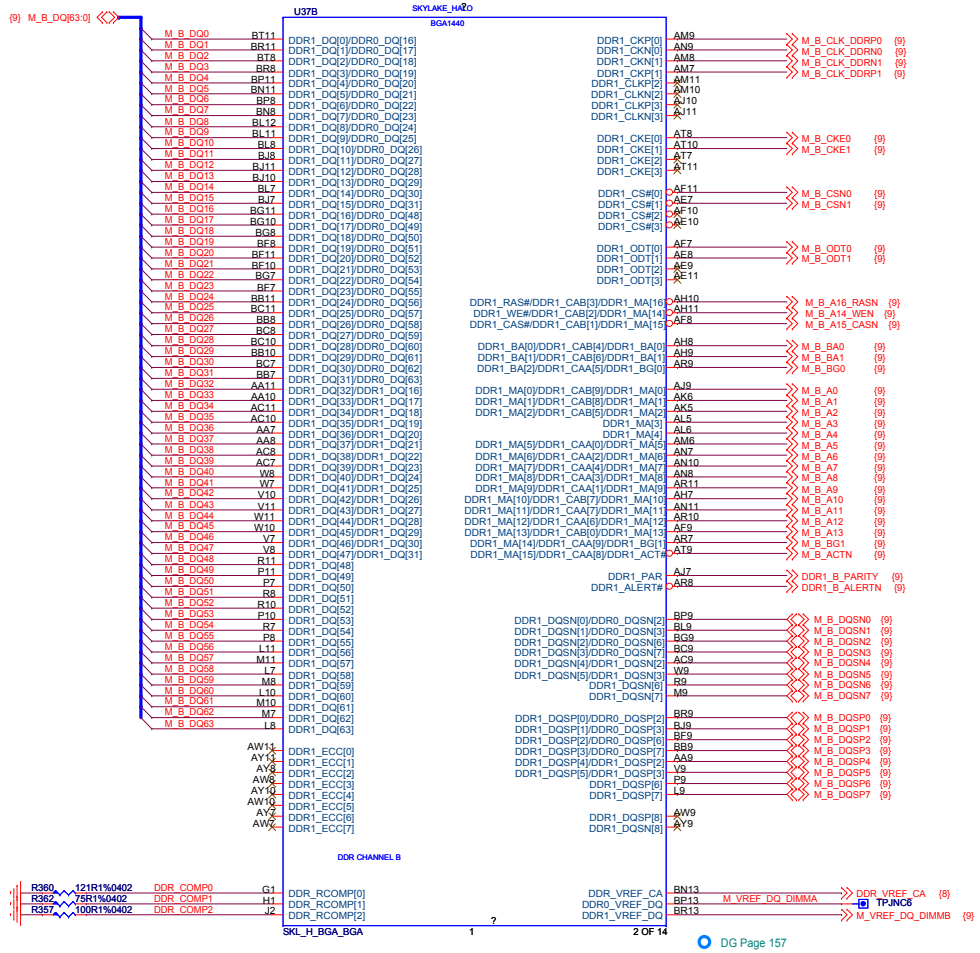
DDR Channel A



DDR Channel B



DG Page 157

Title	Skylake(DDR3)	
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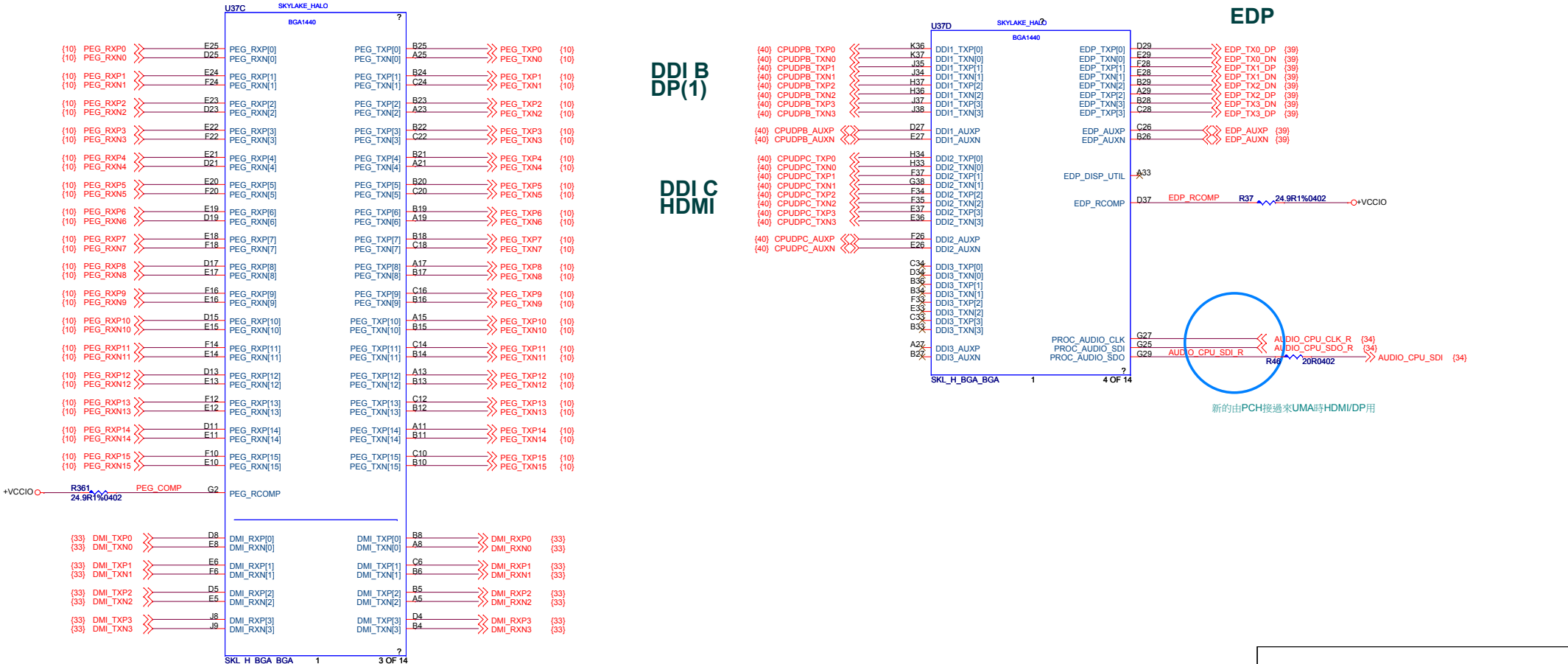

Title	Skylake(DMI/Display)	
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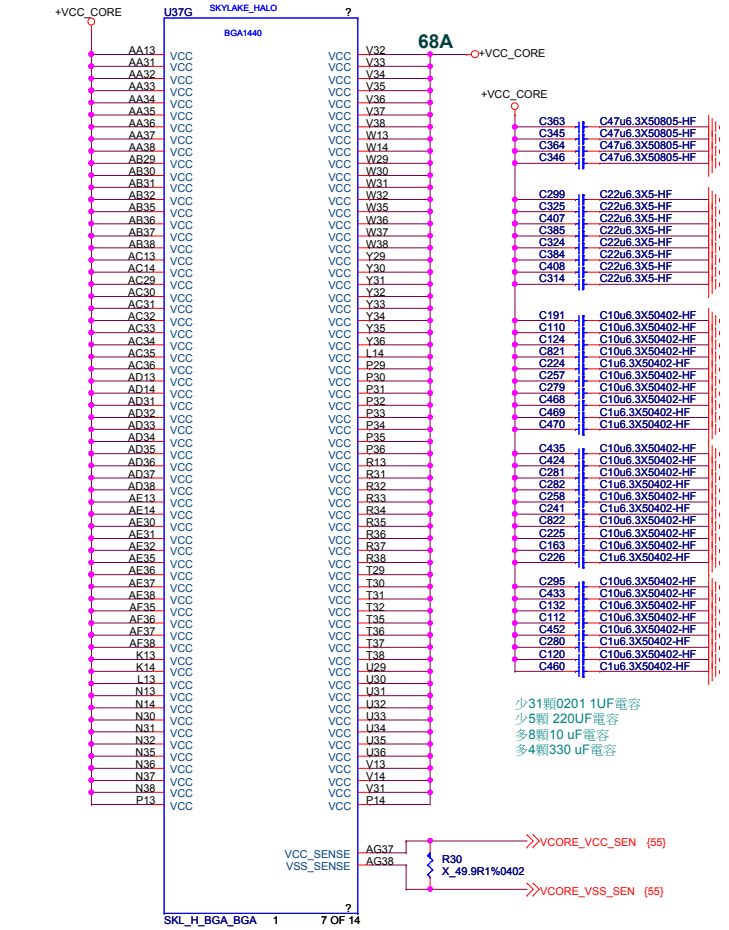

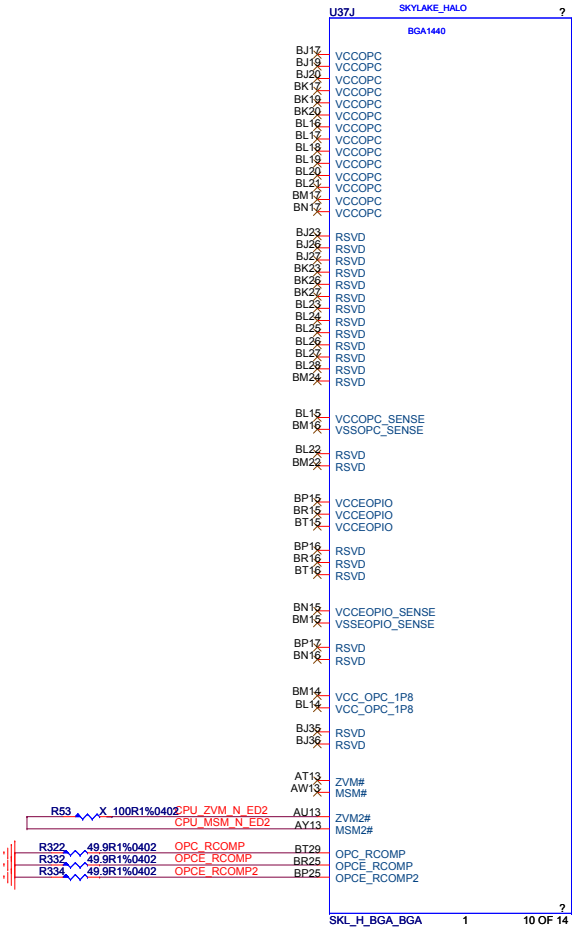

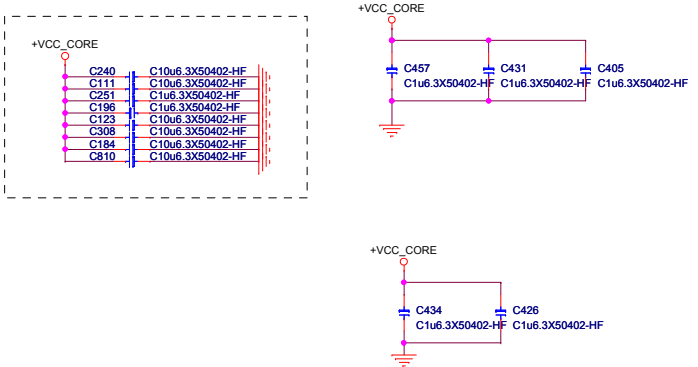

Title	Skylake(Power1)	
Size: Custom	Document Number: MS-14A31	Rev: 2.0
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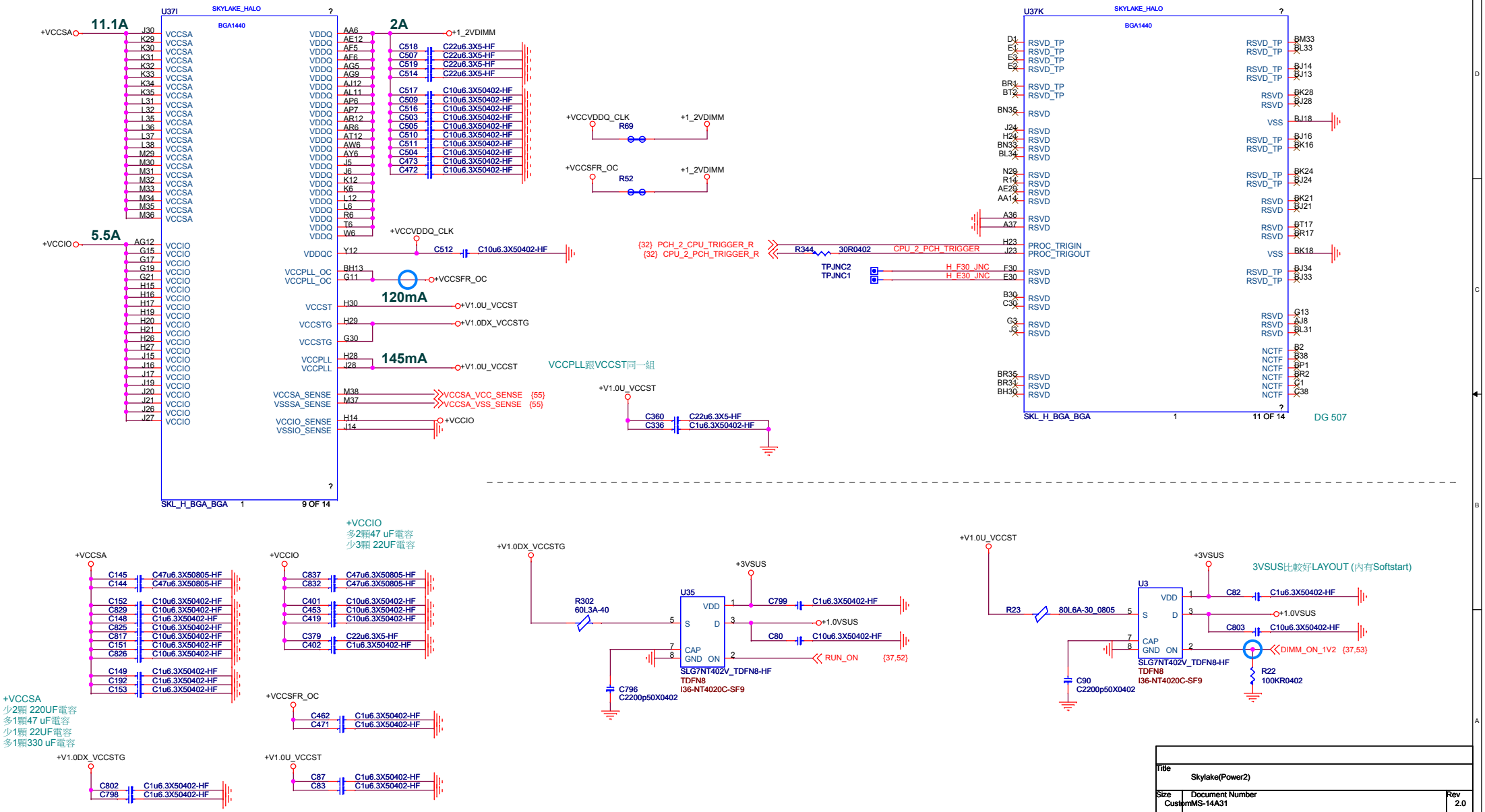
U37I
SKYLAKE_HALO
BGA1440
SKL_H_BGA_BGA
9 OF 14
11.1A
5.5A
2A
120mA
145mA
+VCCSA
+VCCIO
+1_2VDIMM
+VCCVDDQ_CLK
+VCCSFR_OC
+V1.0U_VCCST
+V1.0DX_VCCSTG
VCCPLL跟VCCST同一組
U37K
SKL_H_BGA_BGA
11 OF 14
DG 507
+VCCIO
多2顆47 uF電容
少3顆 22UF電容
+VCCSA
少2顆 220UF電容
多1顆47 uF電容
少1顆 22UF電容
多1顆330 uF電容
U35
SLG7NT402V_TDFN8-HF
TDFN8
I36-NT4020C-SF9
U3
SLG7NT402V_TDFN8-HF
TDFN8
I36-NT4020C-SF9
3VSUS比較好LAYOUT (內有Softstart)
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Skylake(Power2)
Size
Document Number
CustomMS-14A31
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Friday, June 03, 2016
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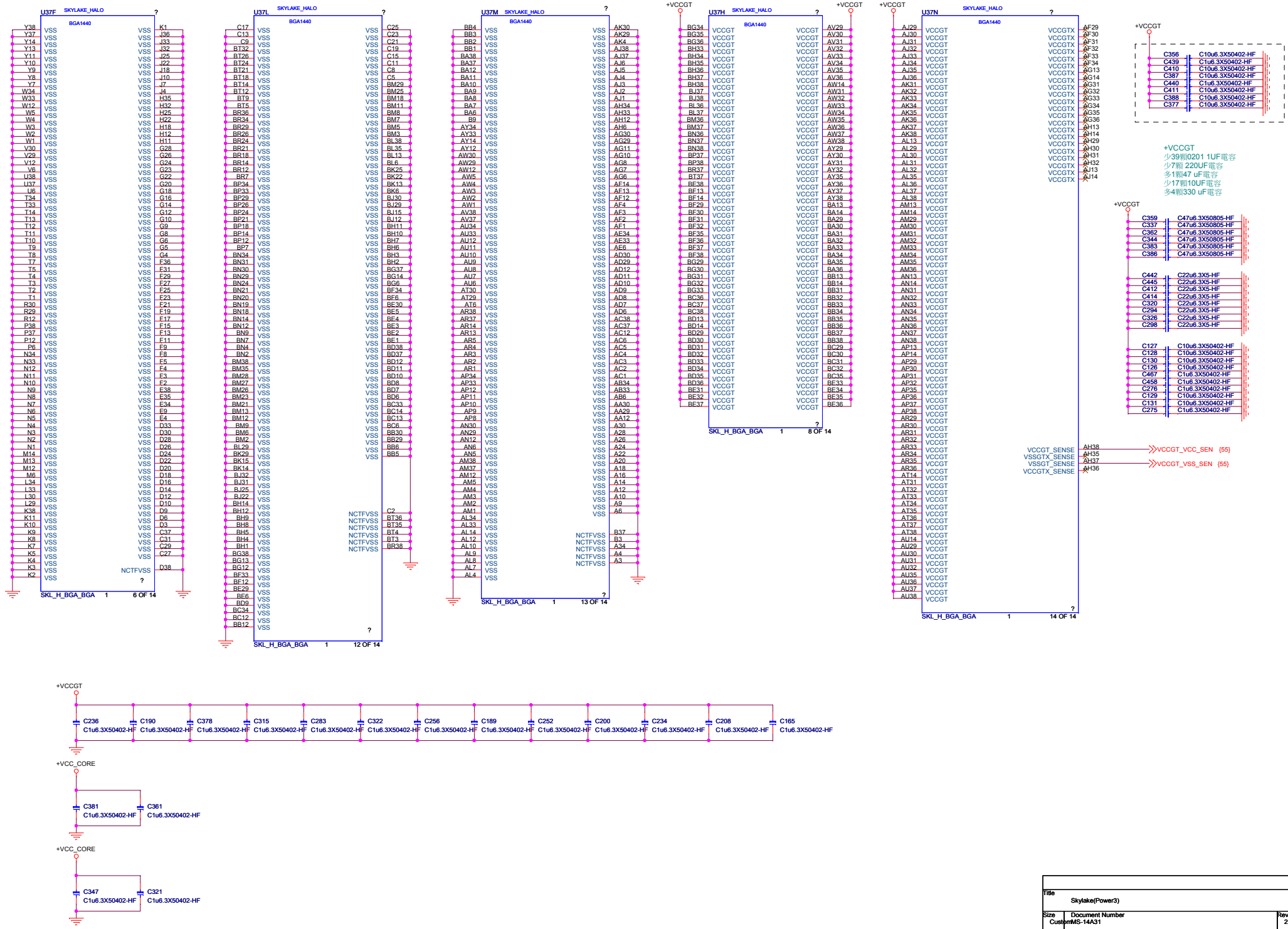

C236	C190	C378	C315	C283	C322	C256	C189	C252	C200	C234	C208	C165					
C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF					

C356	C439	C410	C387	C440	C411	C388	C377										
C10u6.3X50402-HF	C1u6.3X50402-HF	C10u6.3X50402-HF	C10u6.3X50402-HF	C1u6.3X50402-HF	C10u6.3X50402-HF	C10u6.3X50402-HF	C10u6.3X50402-HF										

C359	C337	C362	C344	C383	C386												
C47u6.3X50805-HF	C47u6.3X50805-HF	C47u6.3X50805-HF	C47u6.3X50805-HF	C47u6.3X50805-HF	C47u6.3X50805-HF												

C442	C445	C412	C414	C320	C294	C326	C298										
C22u6.3X5-HF	C22u6.3X5-HF	C22u6.3X5-HF	C22u6.3X5-HF	C22u6.3X5-HF	C22u6.3X5-HF	C22u6.3X5-HF	C22u6.3X5-HF										

C127	C128	C130	C126	C467	C458	C276	C129	C131	C275								
C10u6.3X50402-HF	C10u6.3X50402-HF	C10u6.3X50402-HF	C10u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C1u6.3X50402-HF	C10u6.3X50402-HF	C10u6.3X50402-HF	C1u6.3X50402-HF								

C381	C361																
C1u6.3X50402-HF	C1u6.3X50402-HF																

C347	C321																
C1u6.3X50402-HF	C1u6.3X50402-HF																

Title	Skylake(Power3)
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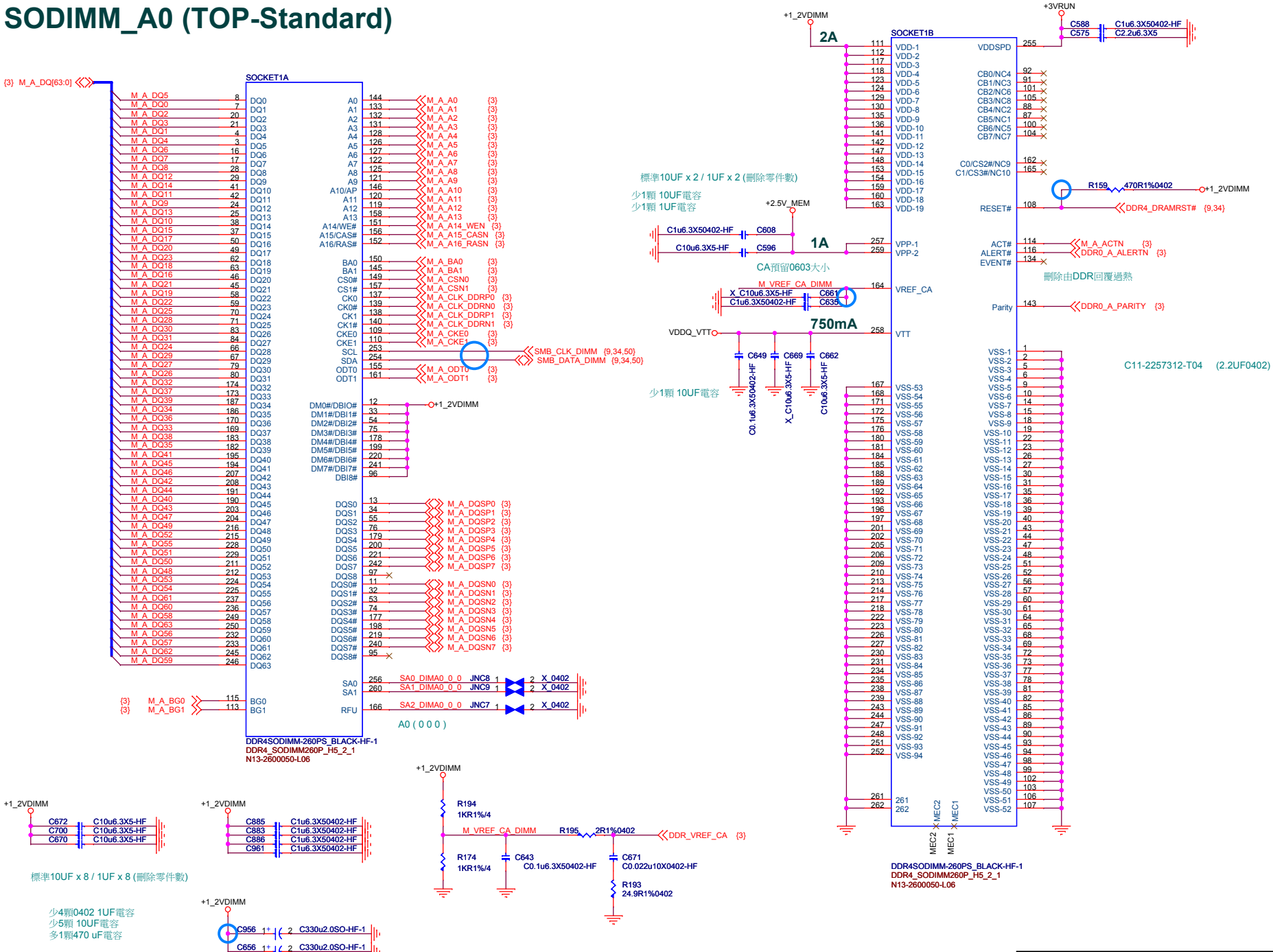
SODIMM_A0 (TOP-Standard)



Title	DDR4_SODIMM_A0		
Size: Custom	Document Number: MS-14A31		Rev: 2.0
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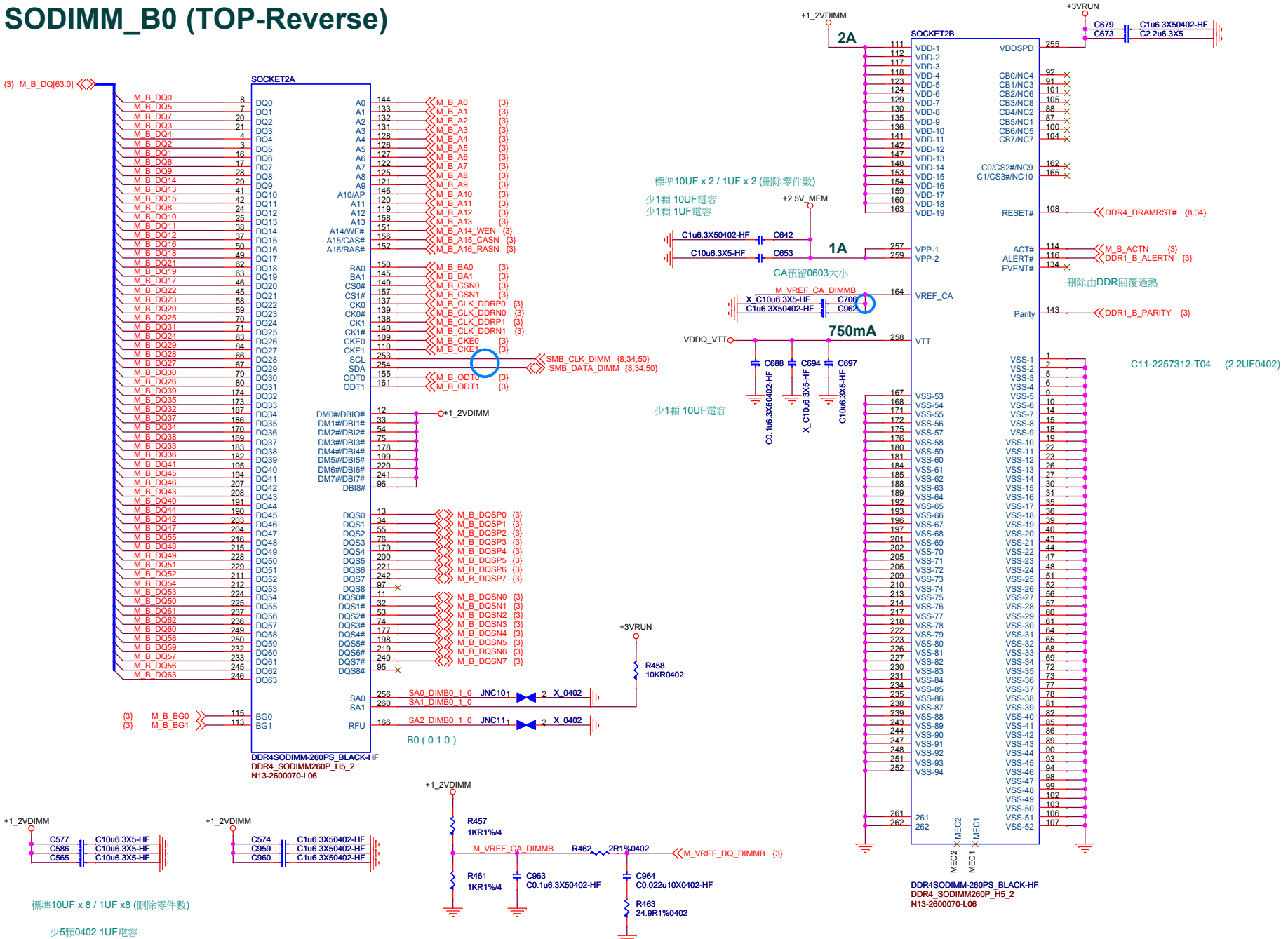
SODIMM_B0 (TOP-Reverse)



Title	DDR4_SODIMM_B0		
Size	Document Number		Rev
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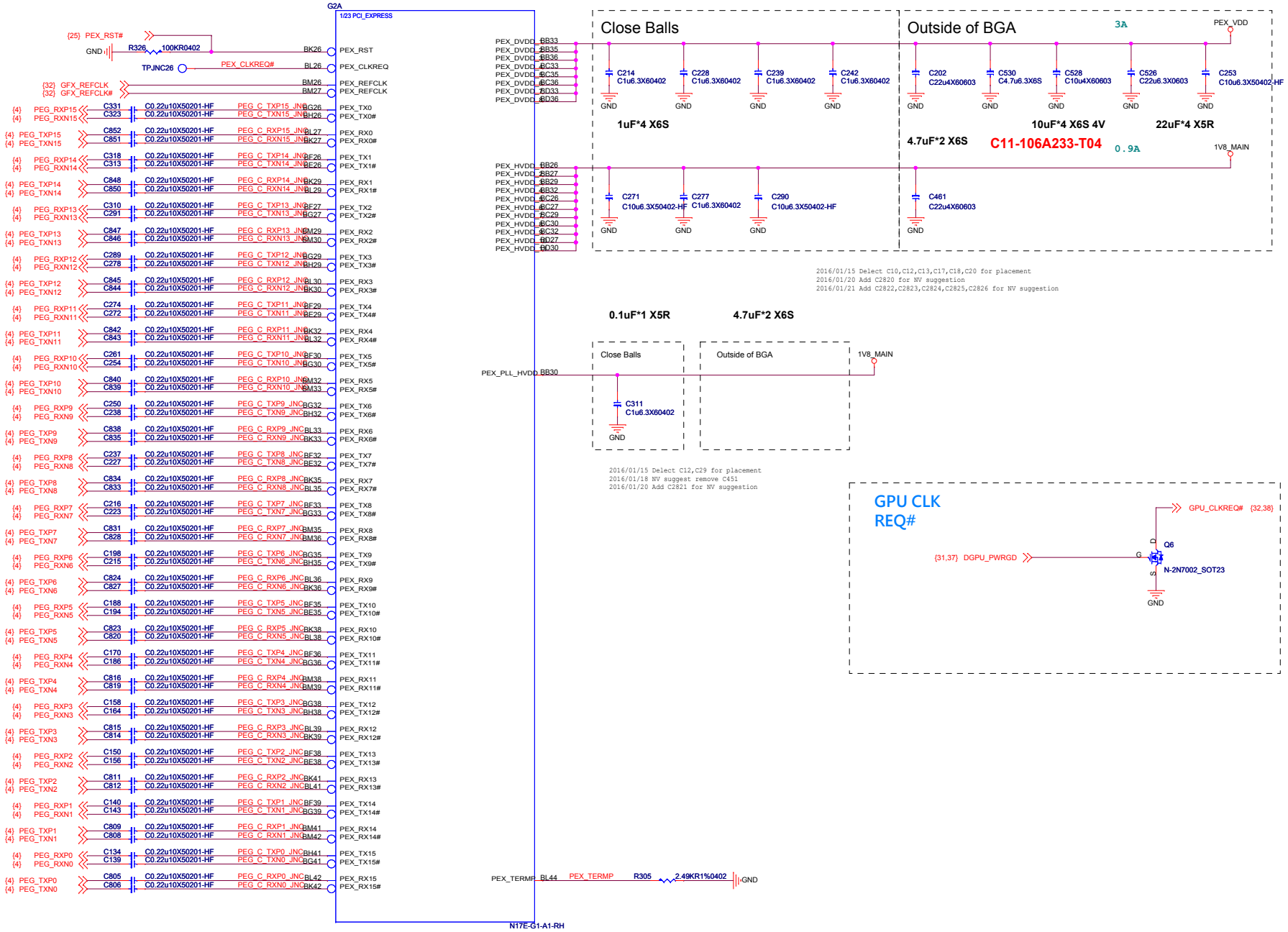
GPU PCI EXPRESS



msi	MICRO-STAR INT'L CO.,LTD.
Title	DGPU_PCI-E Host
Size / Custom	Document Number: MS-14A31
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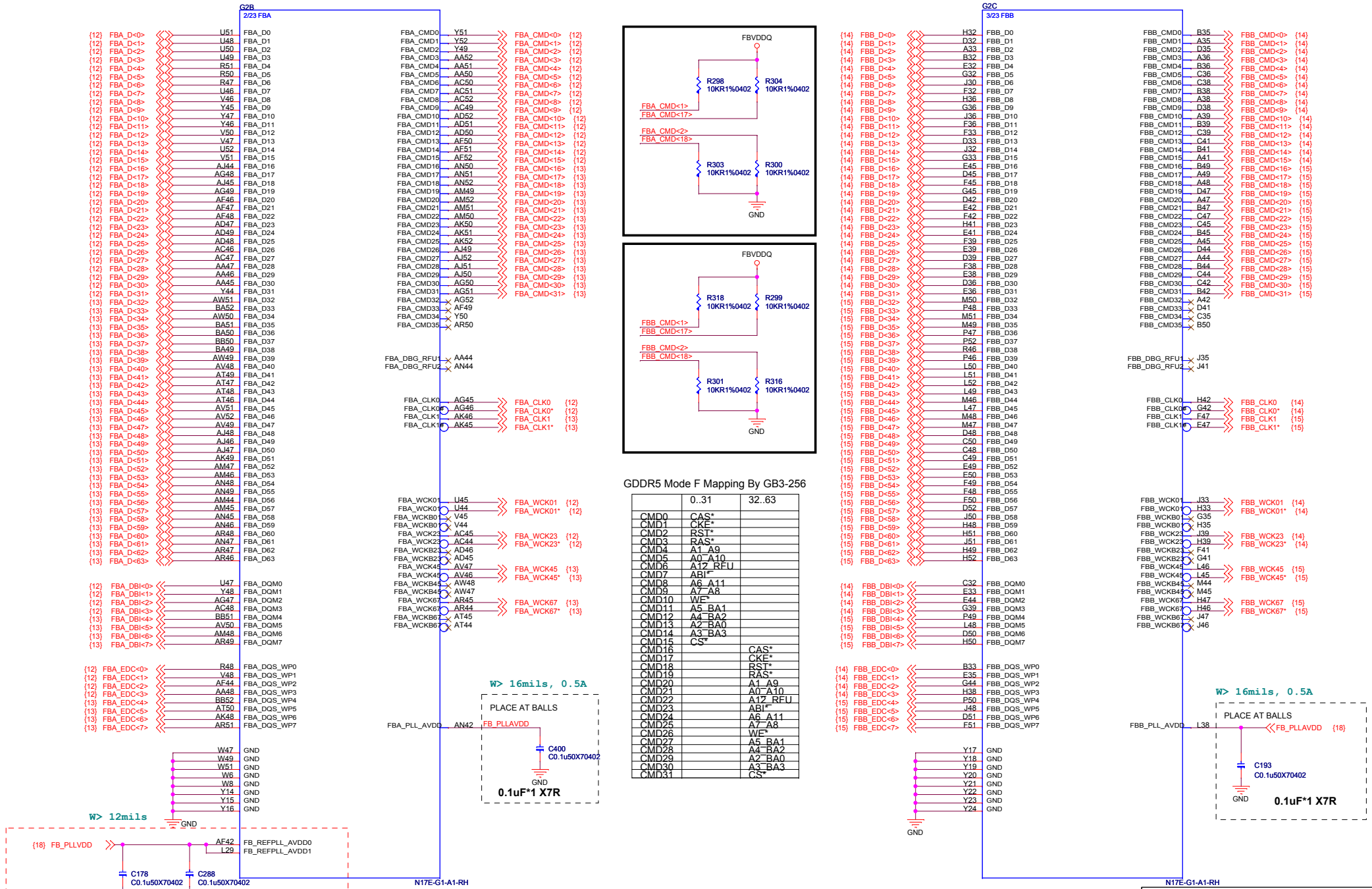
GPU Frame Buffer Partition A/B



MICRO-STAR INT'L CO.,LTD.	
Title	DGPU_MEM IF A/B
Size: Custom	Document Number: MS-14A31
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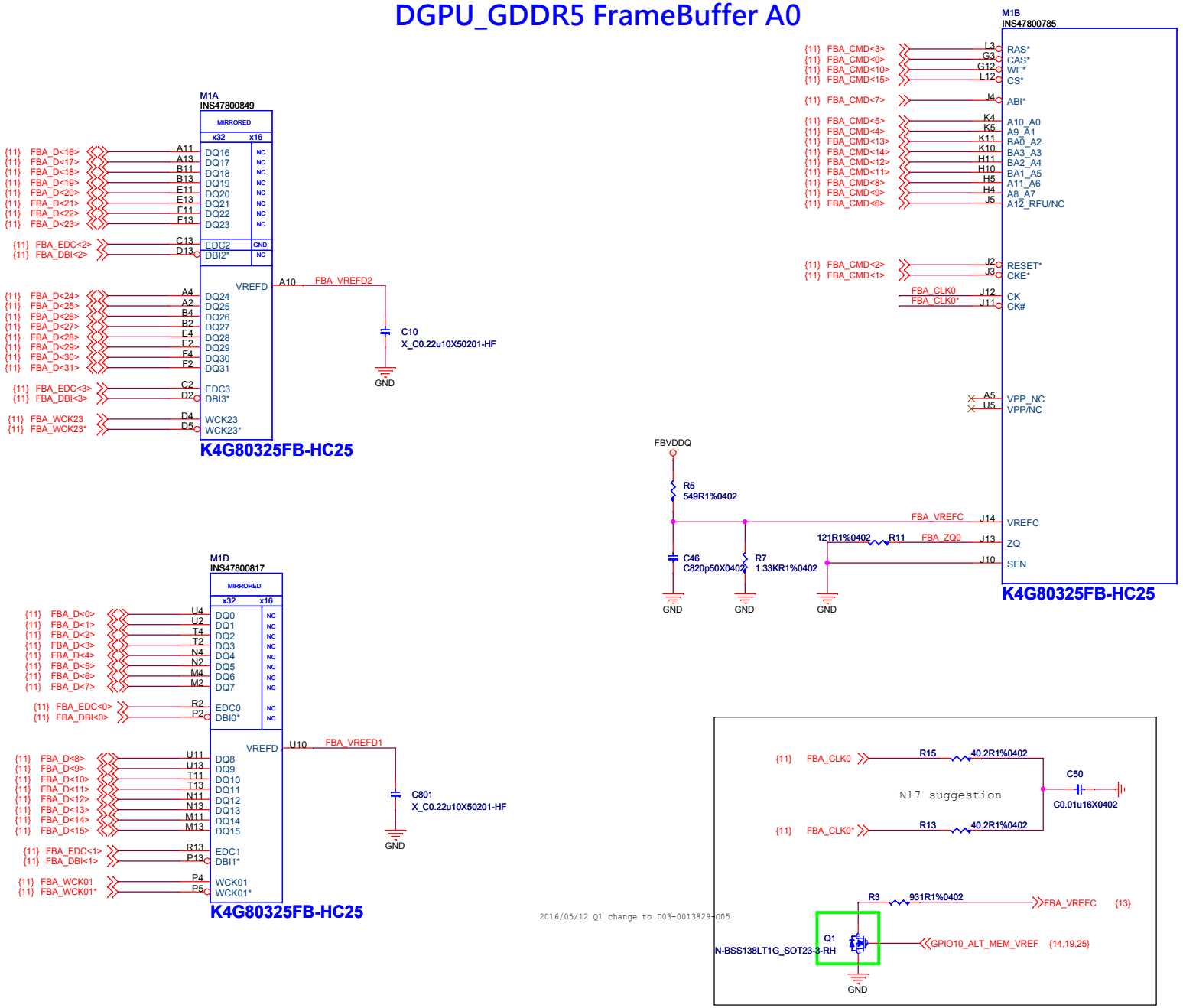
DGPU_GDDR5 FrameBuffer A0



未定

Hynix PN : M12-5GC4H65-H23 3G(128Mx32bit)

Samsung PN : M12-4132525-S02 3G(128Mx32bit)

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Title	DGPU_GDDR5 FrameBuffer A0	
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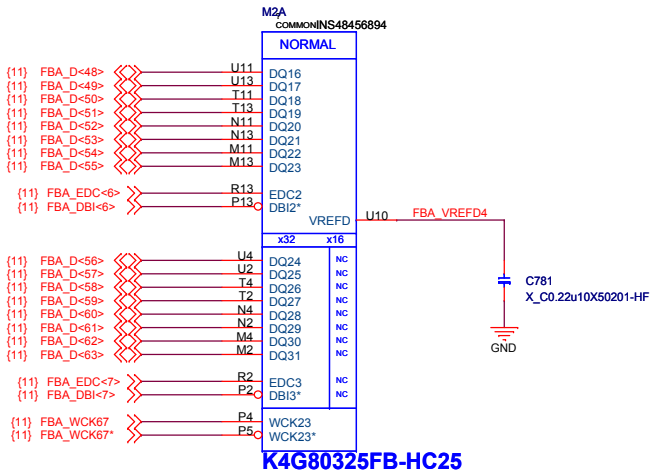
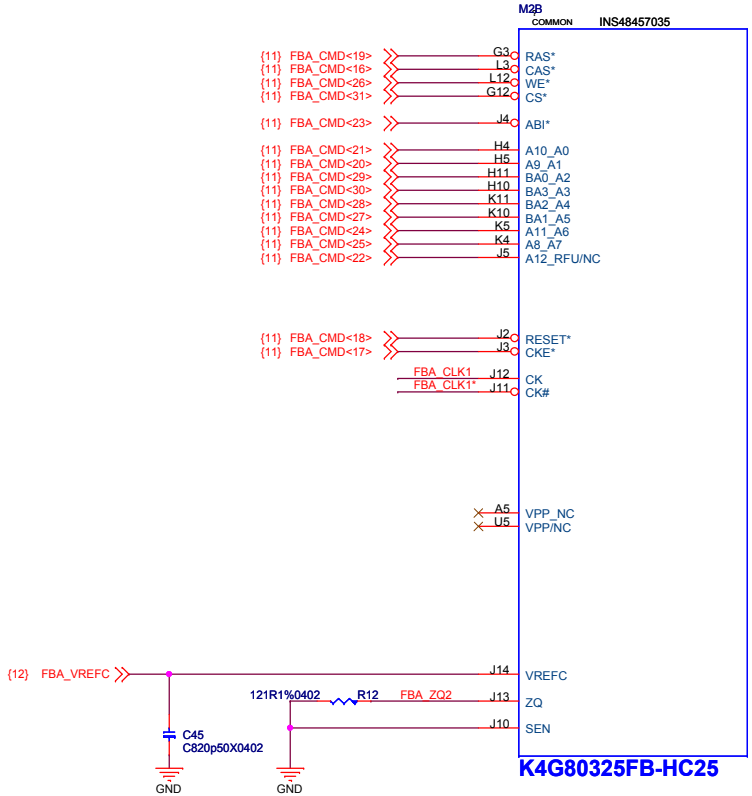
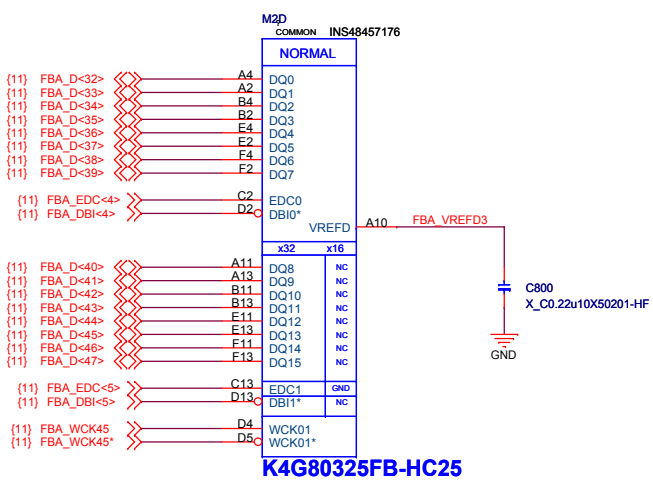
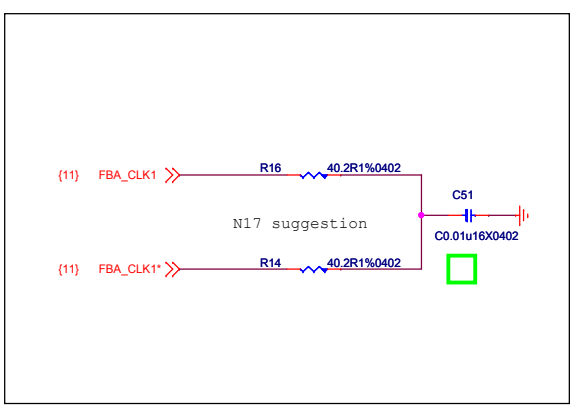
DGPU_GDDR5 FrameBuffer A1









MICRO-STAR INT'L CO.,LTD.

Title: DGPU_GDDR5 FrameBuffer A1

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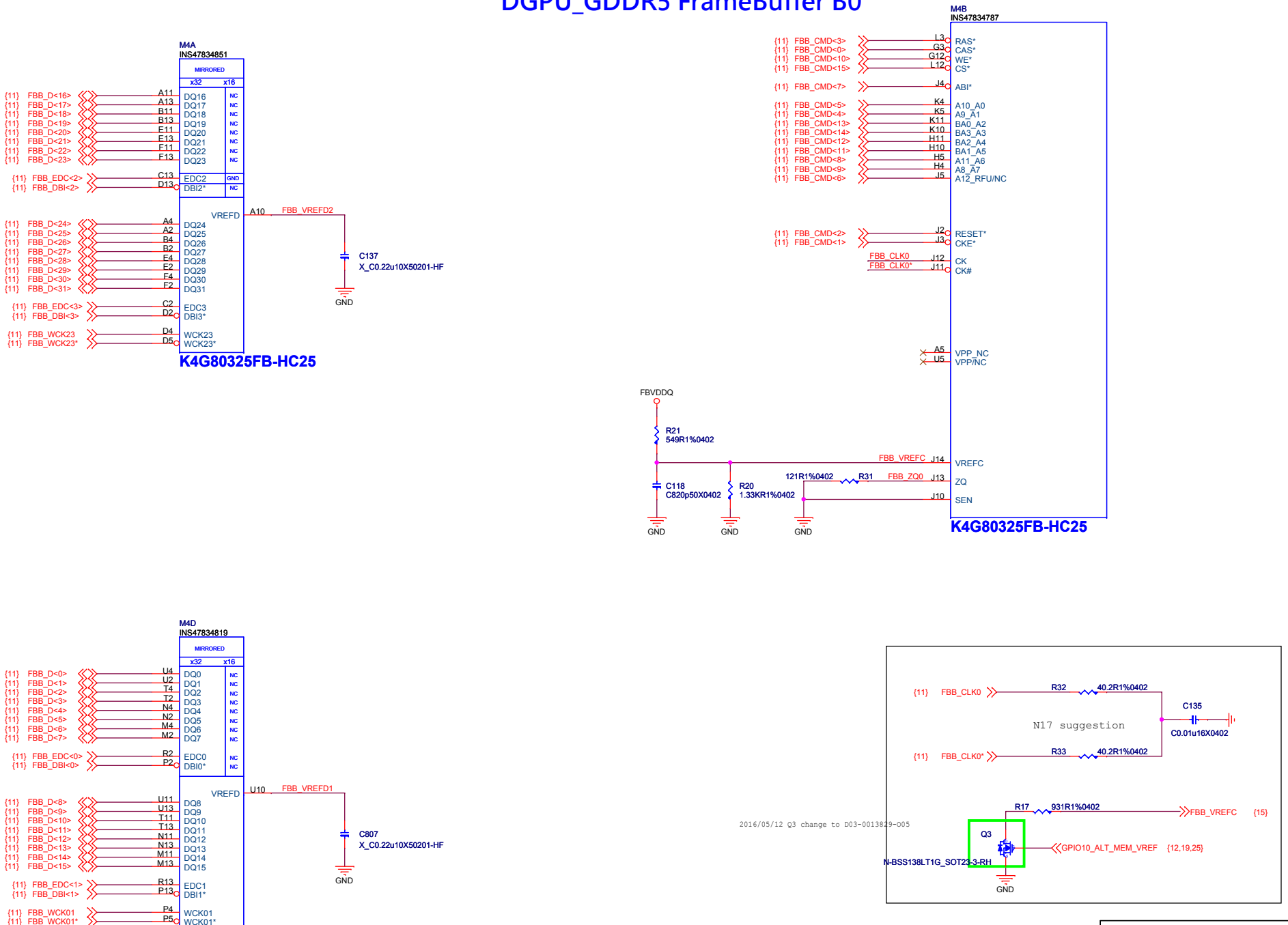
DGPU_GDDR5 FrameBuffer B0



MICRO-STAR INT'L CO.,LTD.

Title: DGPU_GDDR5 FrameBuffer B0

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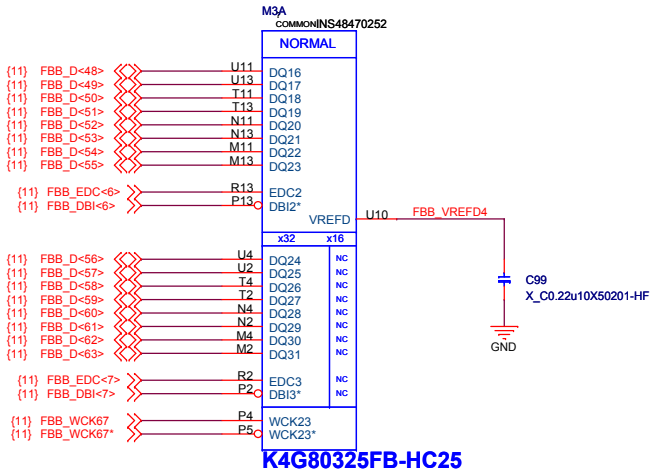
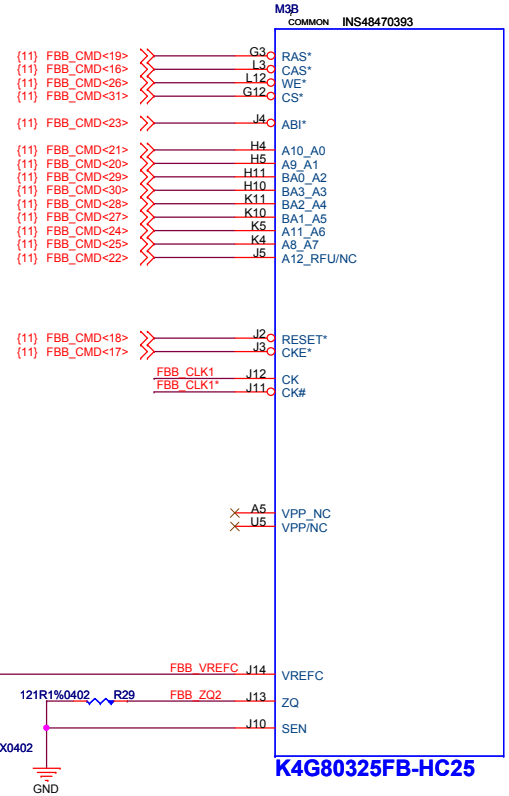
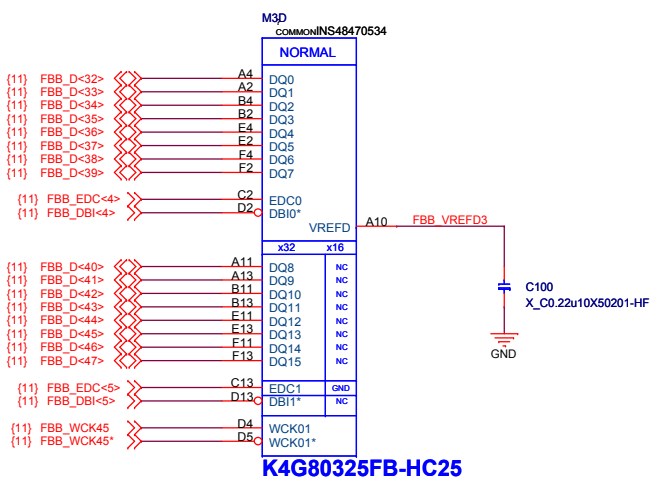
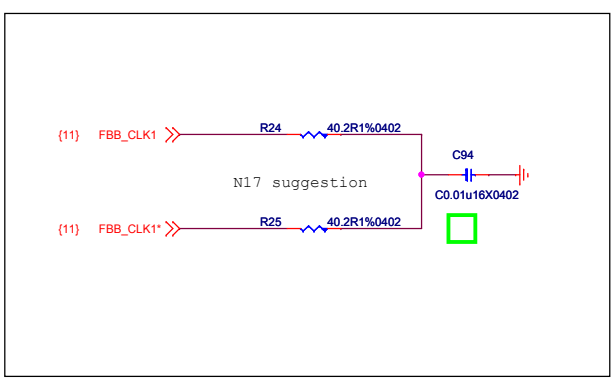
DGPU_GDDR5 FrameBuffer B1









MICRO-STAR INT'L CO.,LTD.

Title: DGPU_GDDR5 FrameBuffer B1

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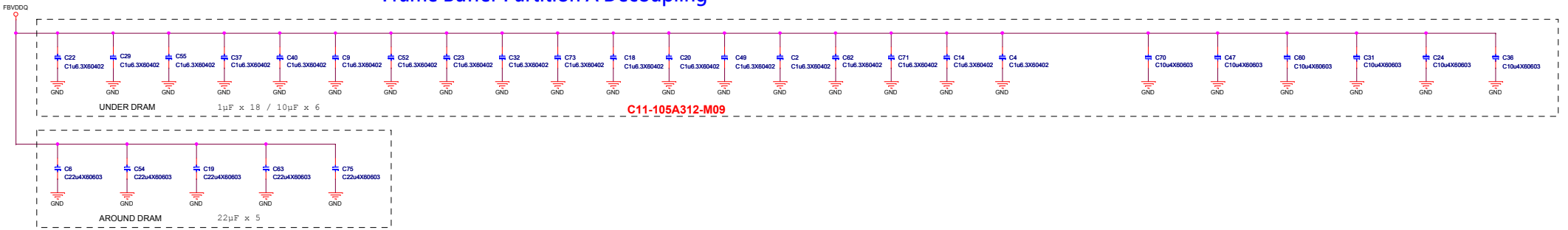
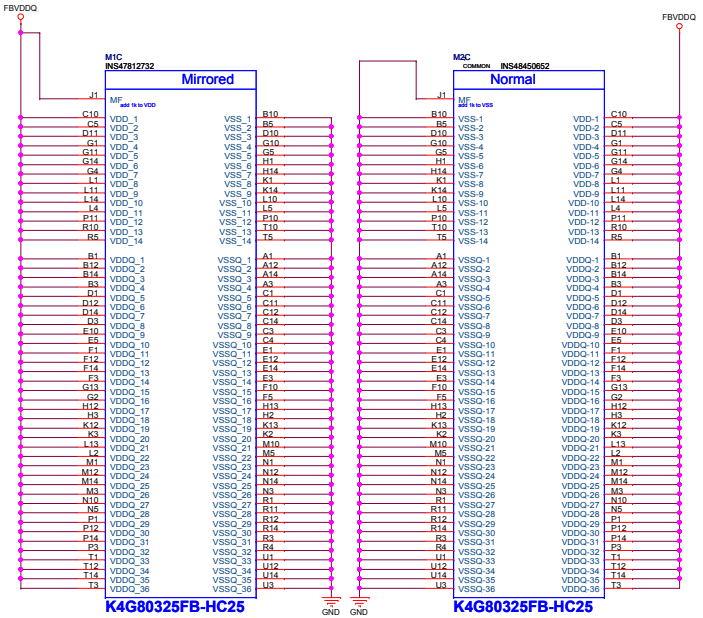
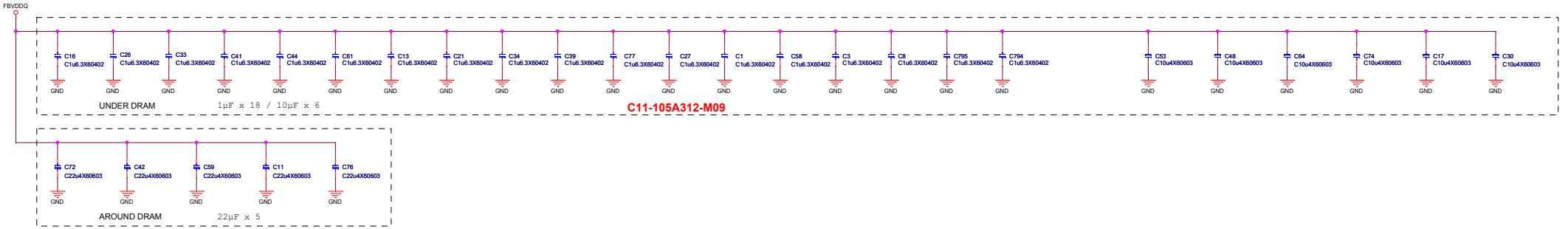
Frame Buffer Partition A Decoupling







msi MICRO-STAR INT'L CO.,LTD.		
Title: DGPU_GDDR5 FB-A_DECOUPLING		
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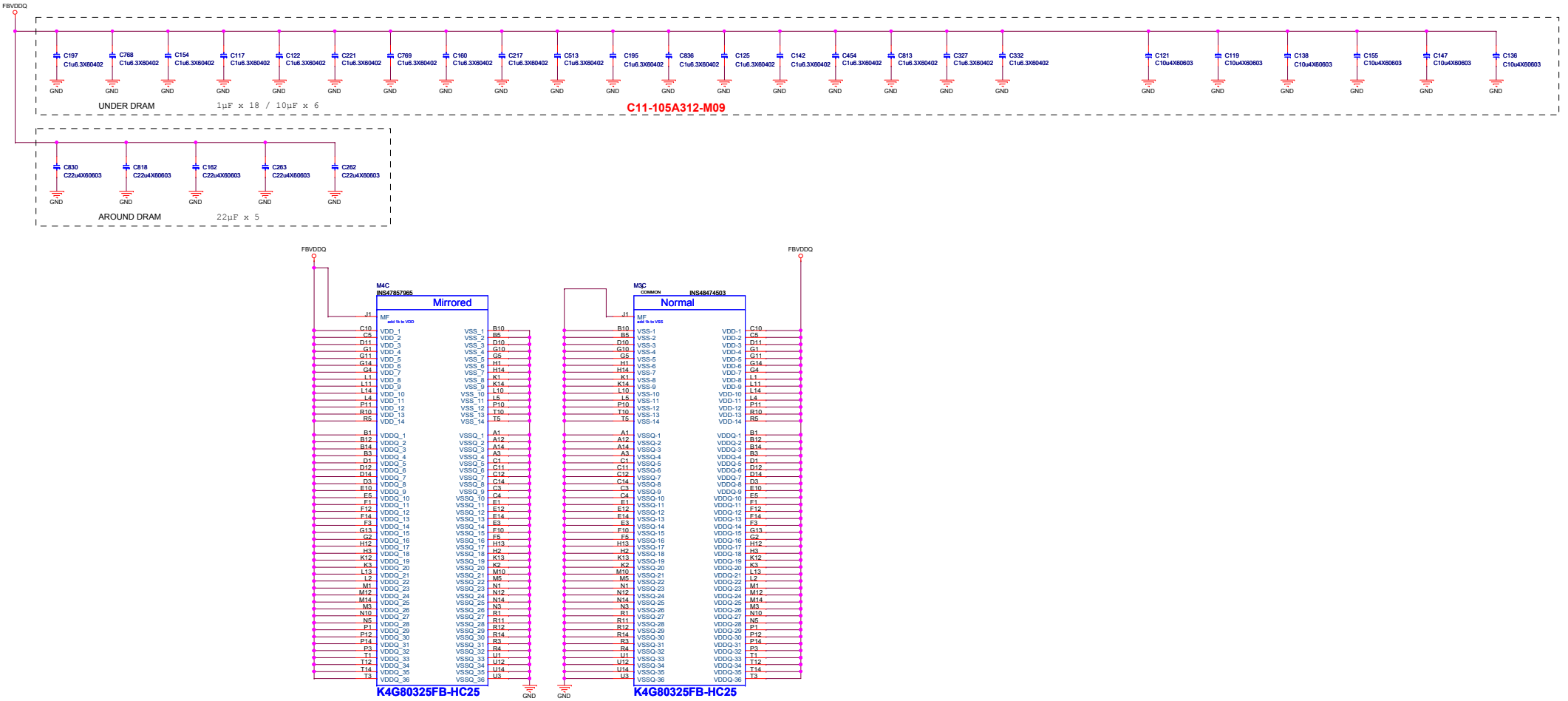
Frame Buffer Partition B Decoupling



msi MICRO-STAR INT'L CO.,LTD.		
Title: DGPU_GDDR5 FB-B_DECOUPLING		
Size: A2	Document Number: MS-14A31	Rev: 2.0
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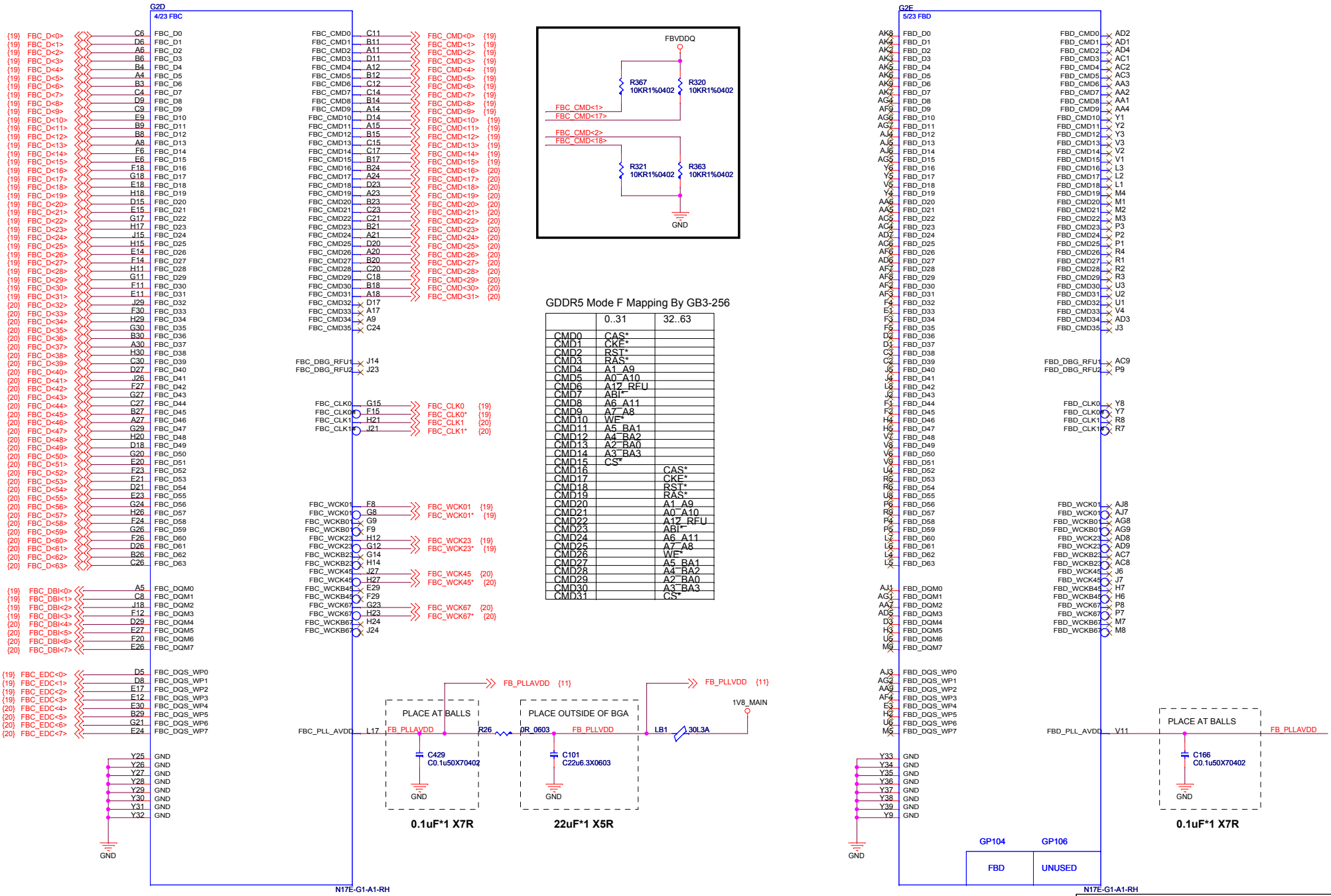
GPU Frame Buffer Partition C/D



Title			
	MICRO-STAR INT'L CO.,LTD.		
	DGPU_MEM IF C/D		
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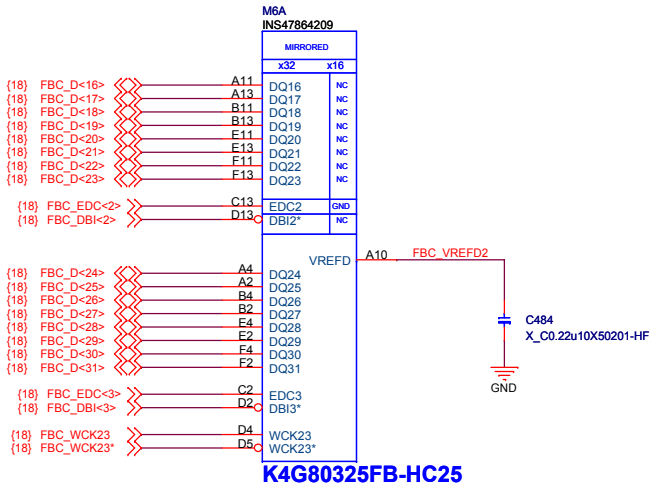
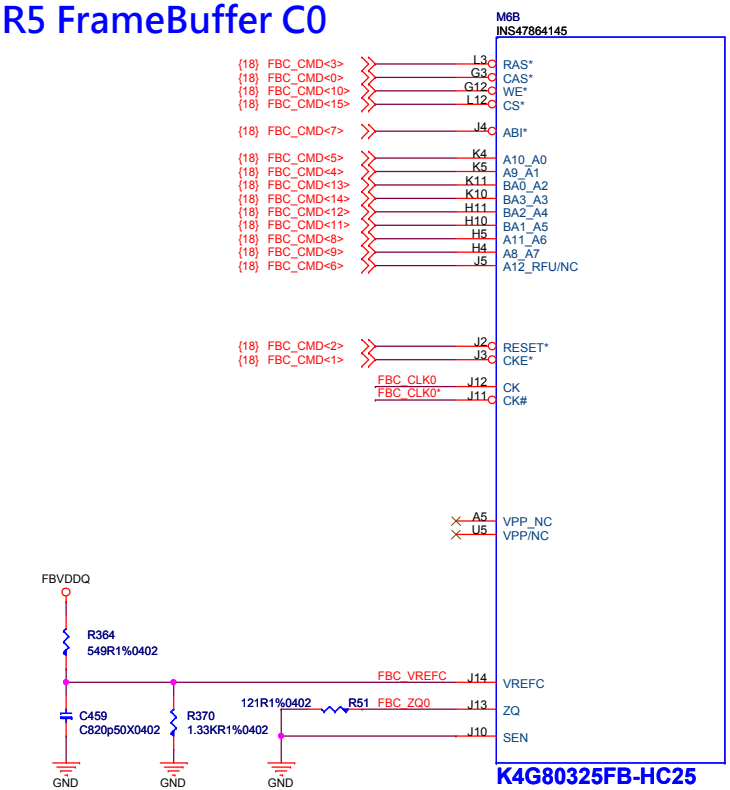
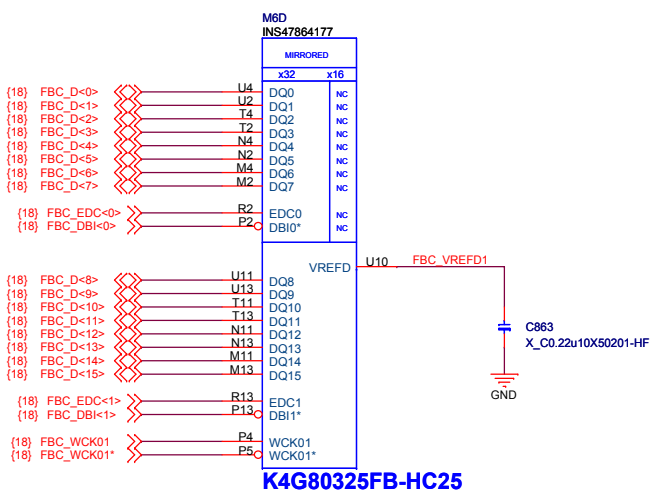
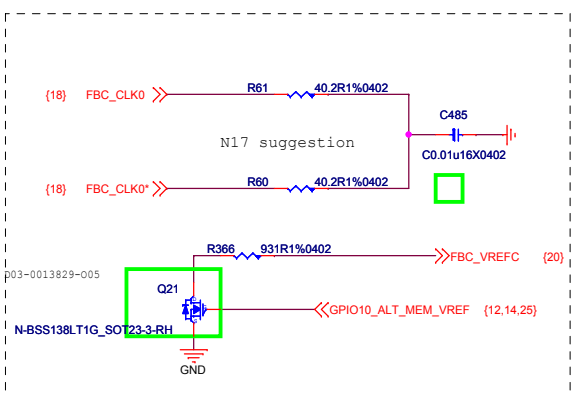
DGPU_GDDR5 FrameBuffer C0









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Title: DGPU_GDDR5 FrameBuffer C

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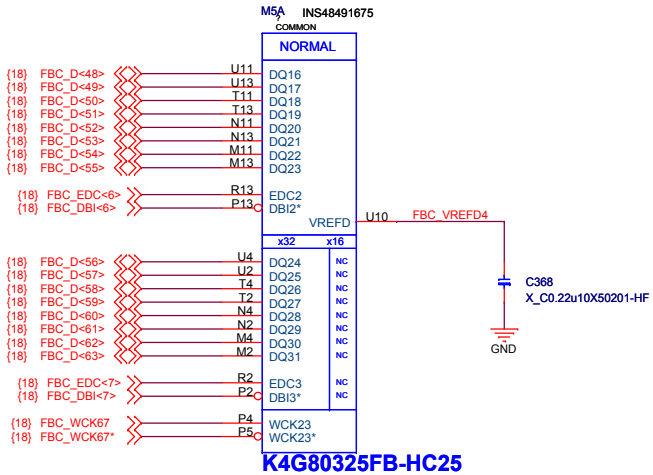
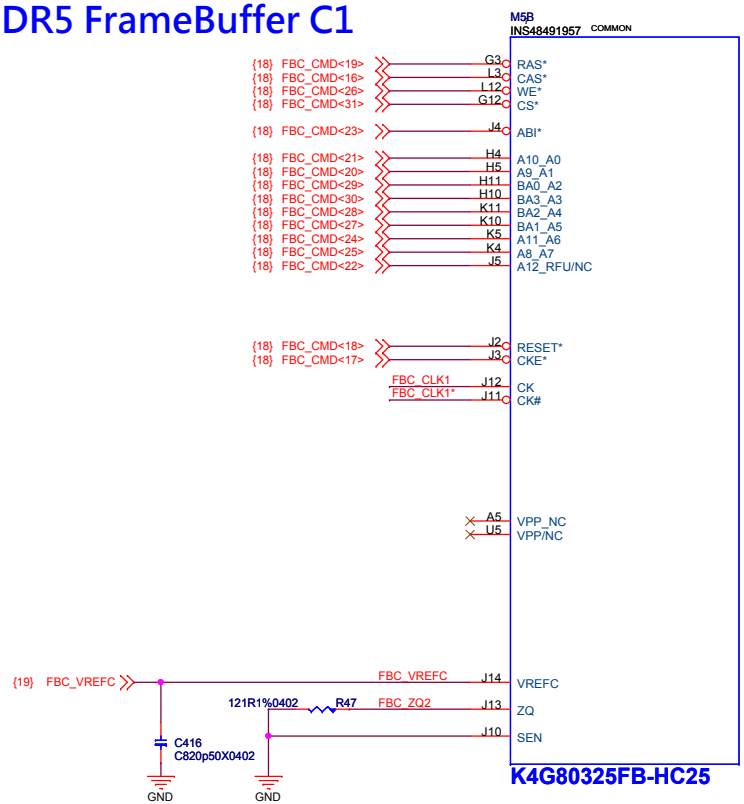
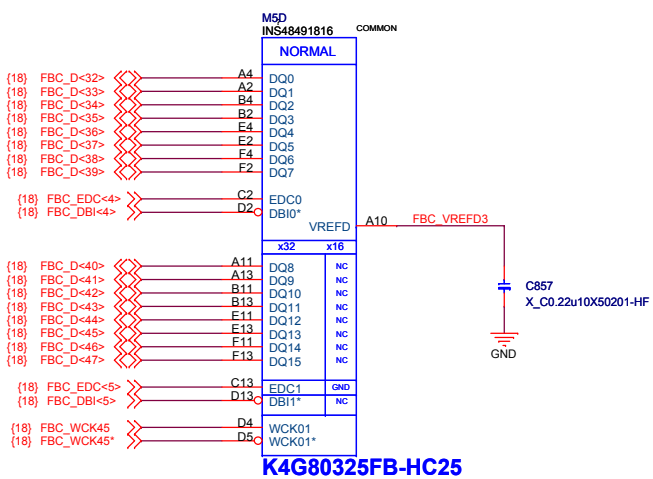
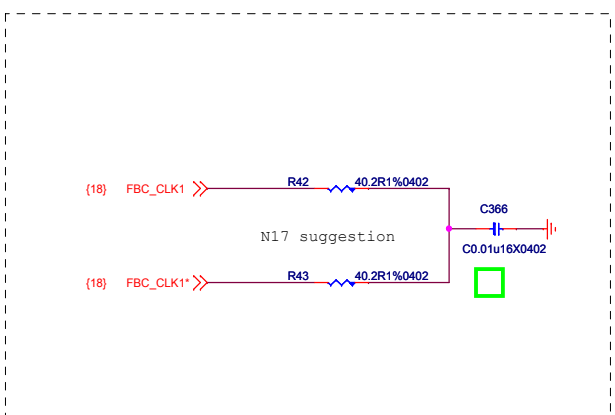
DGPU_GDDR5 FrameBuffer C1









MICRO-STAR INT'L CO.,LTD.

Title: DGPU_GDDR5 FrameBuffer C

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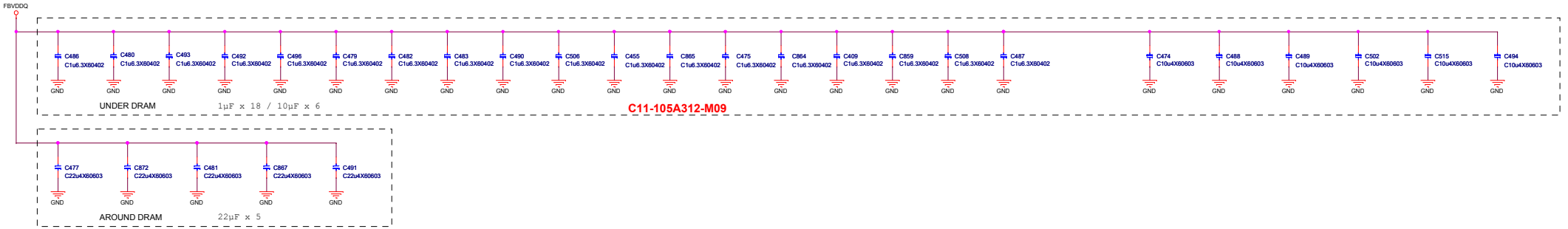
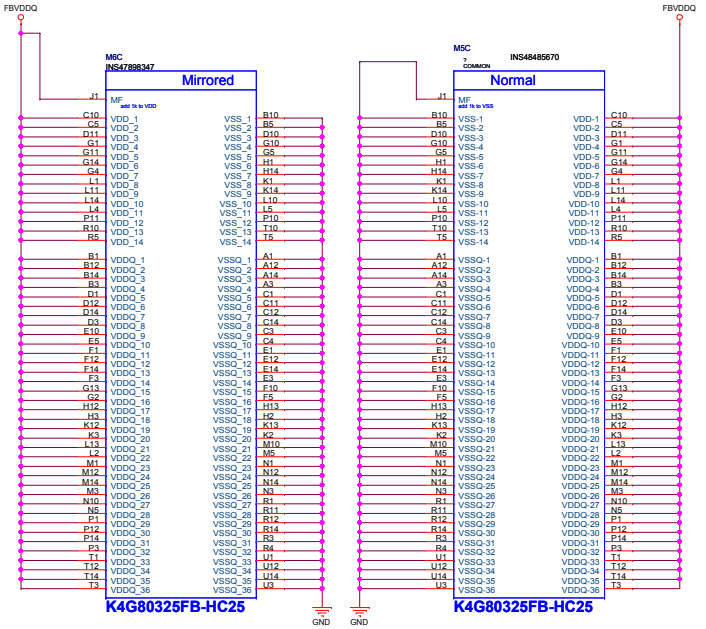
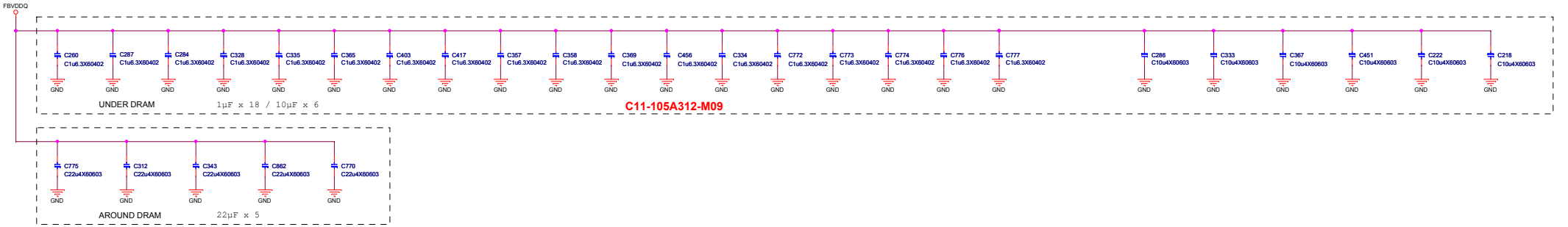
Frame Buffer Partition C Decoupling







Micron PN :M12-2563215-M30 / MT51J256M32HF-80:A (256Mx32bit)
Samsung PN : M12-8032535-S02 / K4G80325FB-HC25 (256Mx32bit)

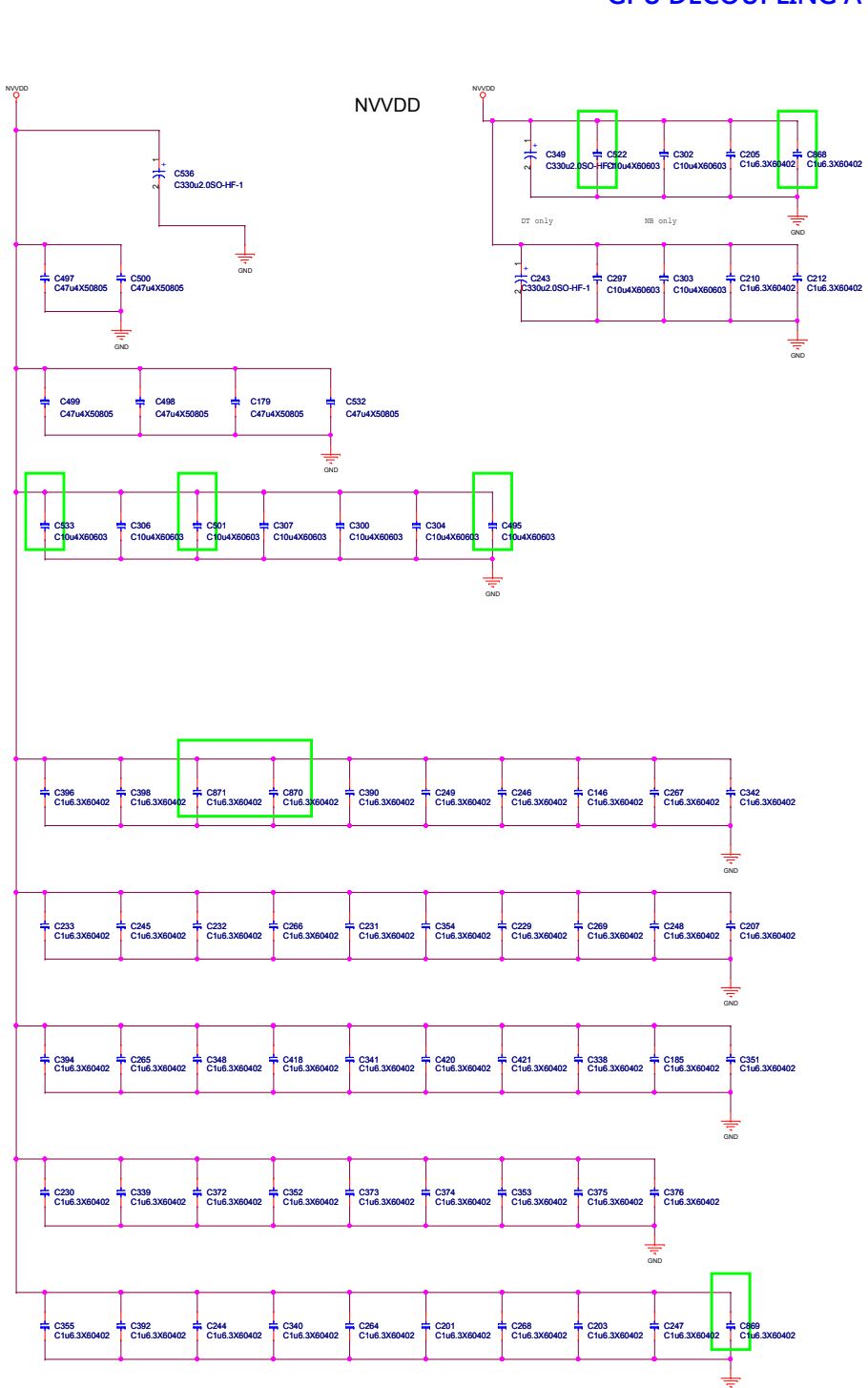
MICRO-STAR INT'L CO.,LTD.

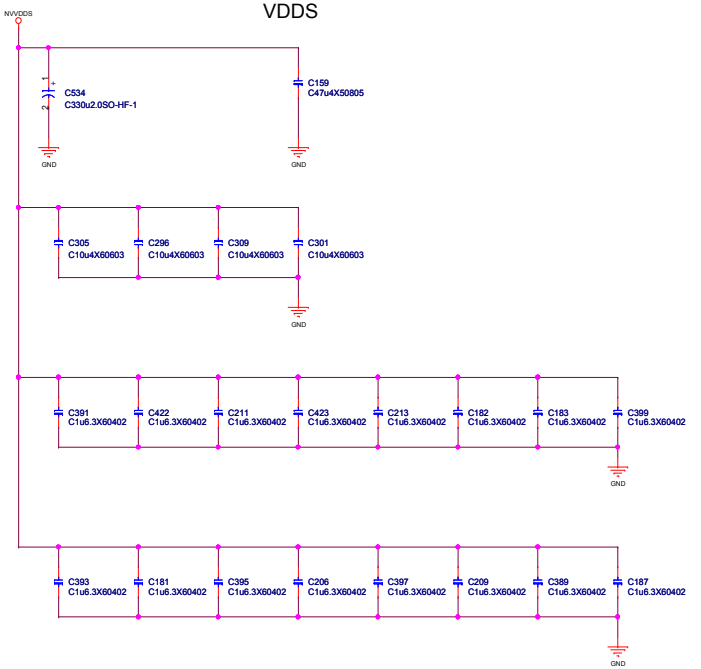
Title: DGPU_GDDR5 FB-C_DECOUPLING

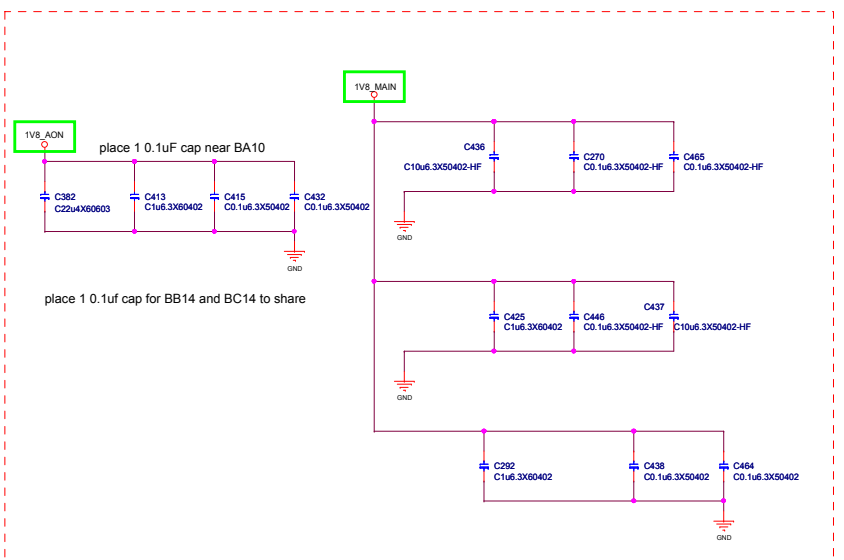
Size: A2 | Document Number: MS-14A31 | Rev: 2.0

Date: Thursday, June 02, 2016 | Sheet 21 of 69

GPU DECOUPLING A







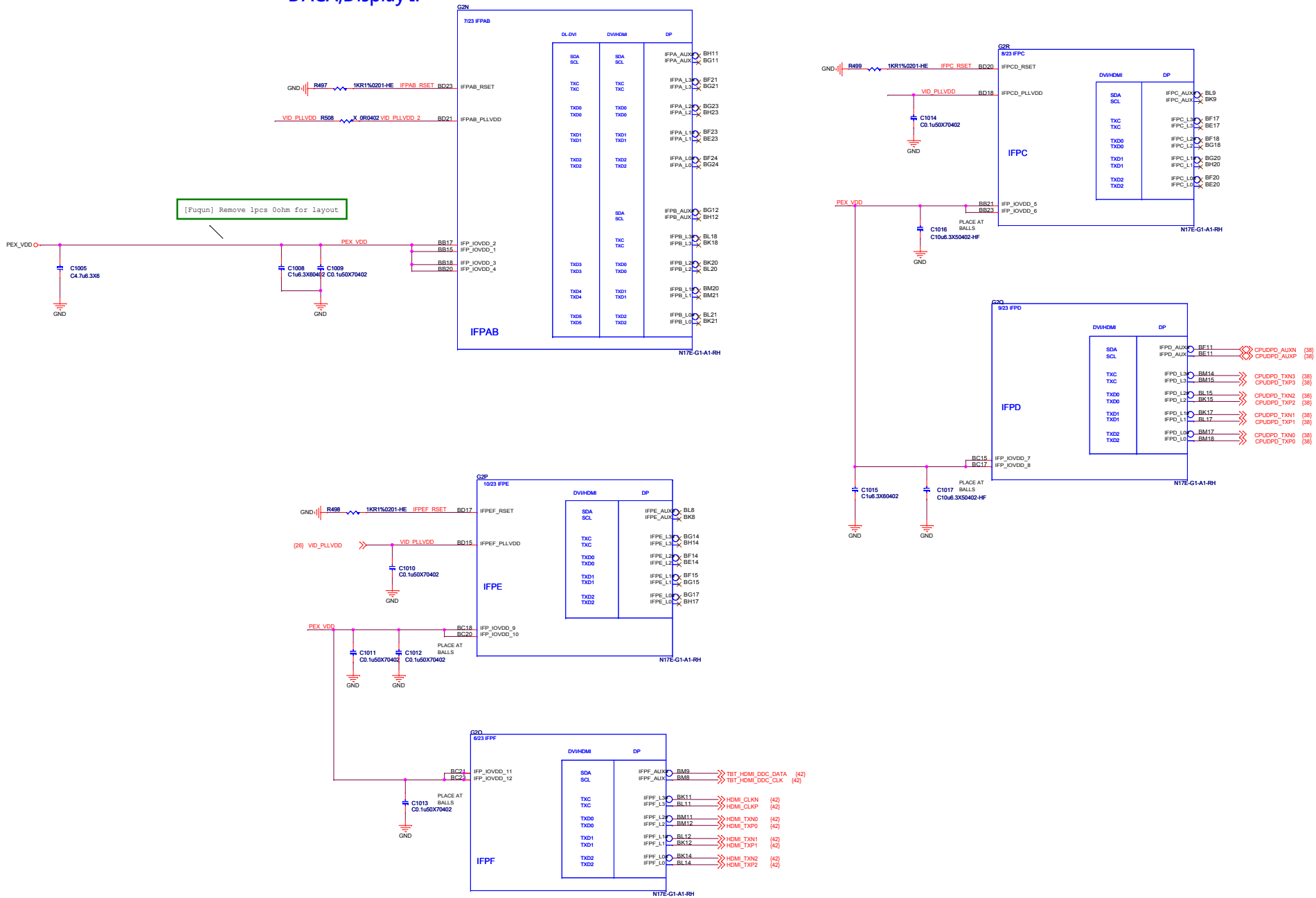
msi MICRO-STAR INT'L CO.,LTD.		
Title: DGPU_GPU DECOUPLING A		
Size: Custom	Document Number: MS-14A31	Rev: 2.0
Date: Thursday, June 02, 2016	Sheet 22 of 69	

GPU DECOUPLING B

FBVDDQ

MICRO-STAR INT'L CO.,LTD.		
Title: DGPU_GPU DECOUPLING B		
Size: A3	Document Number: MS-14A31	Rev: 2.0
Date: Thursday, June 02, 2016	Sheet 23 of 69	

DACA,Display IF



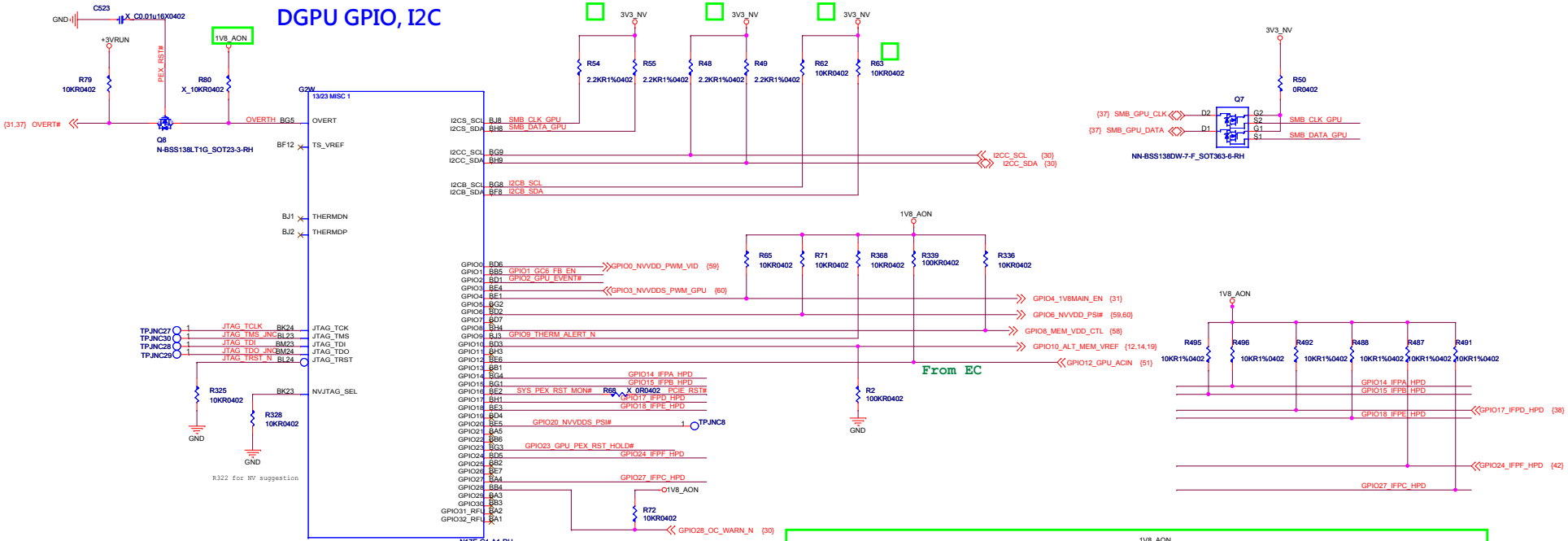
MICRO-STAR INT'L CO.,LTD.

Title: DGPU_DACA,Display IF

Size: A2 | Document Number: MS-14A31 | Rev: 2.0

Date: Thursday, June 02, 2016 | Sheet 24 of 69

DGPU GPIO, I2C



Pin Name	Normal function	I/O	Functional Description	Recommended Default Pull-up or Pull-down
GPIO0	PWR_VID	O	GPU Core VDD PWM control signal	0 to 1V8 PWM output
GPIO1	GC6_FB_EN	O	FB Enable for GC6 2.1	10K pull-down
GPIO2	GPU_EVENT#	I	GPU wake signal for GC6 2.1	10K pull-up to 1V8 _AON
GPIO3	**NVVDD_SRAM_PWM**	O	PWM output to control the SRAM power supply	
GPIO4	**1V8_MAIN_EN**	O	GPU POWER Sequencing for GC6 2.1	10K pull-up to 1V8 _AON
GPIO5	**FRM_LCK**	I	Active low Fram Lock	1V8 pull-up to 1V8 _AON
GPIO6	PSI	O	Phase shedding	10K pull-up to 1V8 _AON
GPIO7	LCD_BL_PWM	O	Panel Backlight PWM Brighteness Control	100K pull-down
GPIO8	**MEM_VDD_CTL**	O	Memory Voltage Control	pull-up/pull-down to set the FBVDD/Q power-on voltage
GPIO9	THERM_ALERT	I/O	Active Low Thermal Alert	10K pull-up to 1V8_AON
GPIO10	MEM_VREF_CTL	O	Memory VREF Control	100K pull-down
GPIO11	LCD_VCC	O	Panel Power Enable	100K pull-down
GPIO12	PWR_LEVEL	I	AC power detect or power supply overdraw input	100K pull-up to 1V8_AON
GPIO13	LCD_BLEN	O	Panel Backlight Enable	100K pull-down
GPIO14	HPD_A	I	Hot Plug Detect for IFPA	
GPIO15	**HPD_B**	I	Hot Plug Detect for IFPB	
GPIO16	SYS_PEX_RST_MON#	I	System side PCI reset Monitor	10K pull-up to 3V3 _AON
GPIO17	HPD_D	I	Hot Plug Detect for IFPD	
GPIO18	HPD_E	I	Hot Plug Detect for IFPE	
GPIO19	3DVision	O	3D Vision L/R signal	100K pull-down
GPIO20	**NVVDDS_PSI GC5_MODE**			
GPIO21	SLI_RASTER_SYNC	I	SLI Raster Sync	100K pull-down
GPIO22	SLI_SWAP_DRY	I	SLI Swap Ready	1K pull-up to 3V3 _AON
GPIO23	GPU_PEX_RST_HOLD	O	GPU PCIE self-reset control	10K pull-up to 3V3
GPIO24	HPD_F	I	Hot Plug Detect for IFPDF	
GPIO25	RESERVED			
GPIO26	RESERVED			
GPIO27	HPD_C	I	Hot Plug Detect for IFPC	
GPIO28	OC_WARN	I	Over current throttling	10K pull-up to 1V8 _AON
GPIO29	EDPc_OUTPUT_CAP	I	Input from power supply	0 to 1V8
GPIO30	RESERVED			

MICRO-STAR INT'L CO.,LTD.

Title: DGPU_GPIO,I2C

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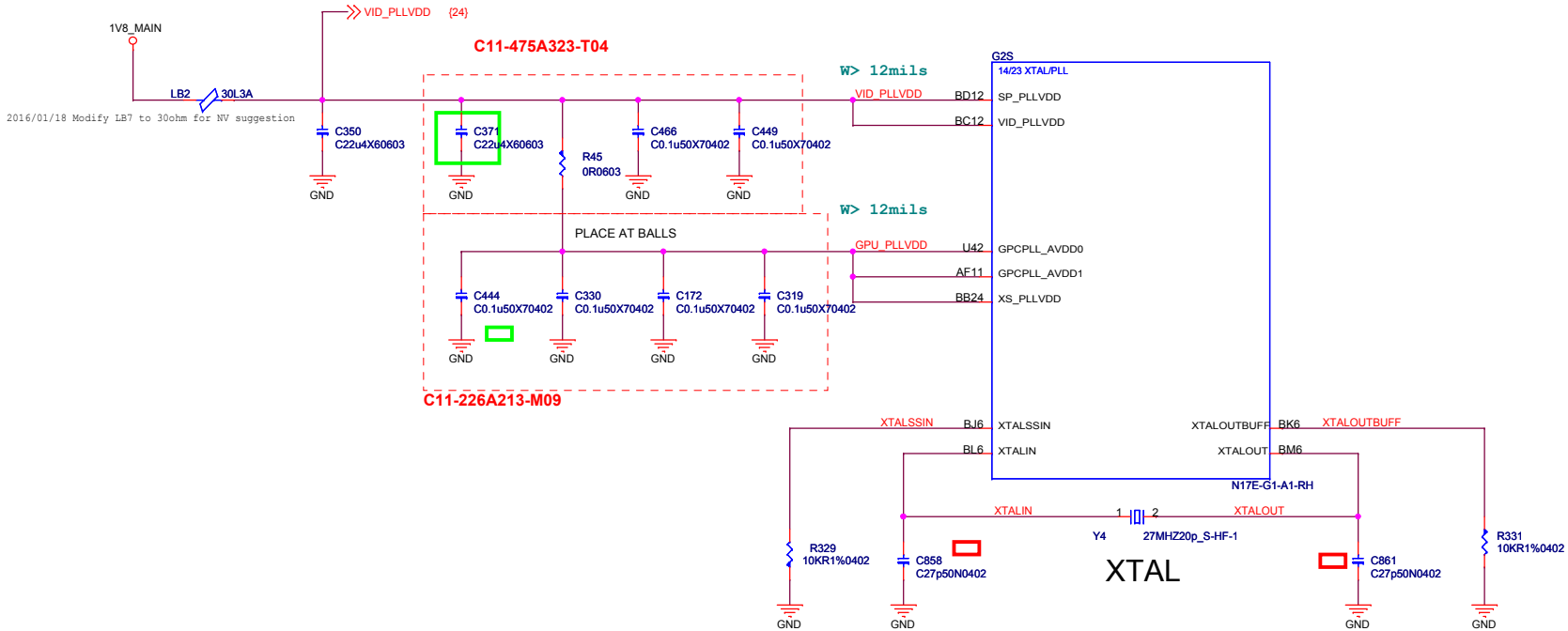
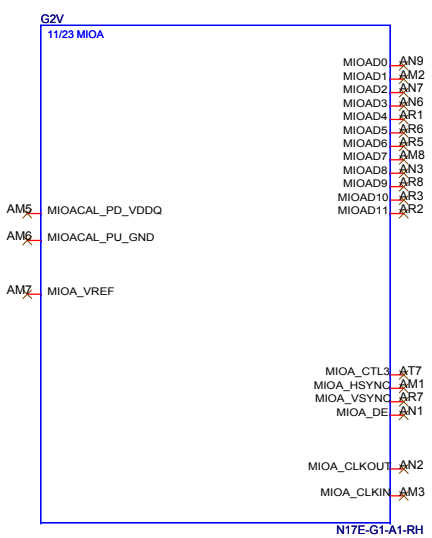
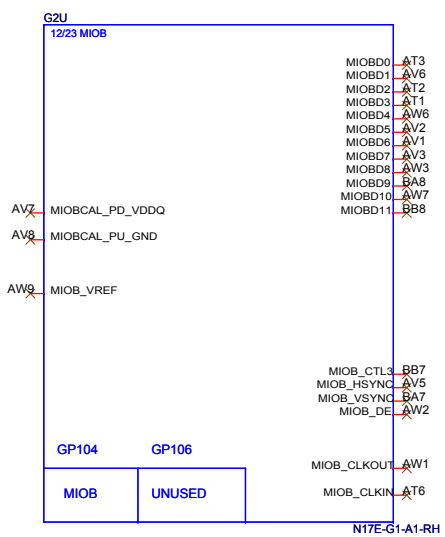
DGPU MIO & XTAL



Multi-use IO(MIO) Interface





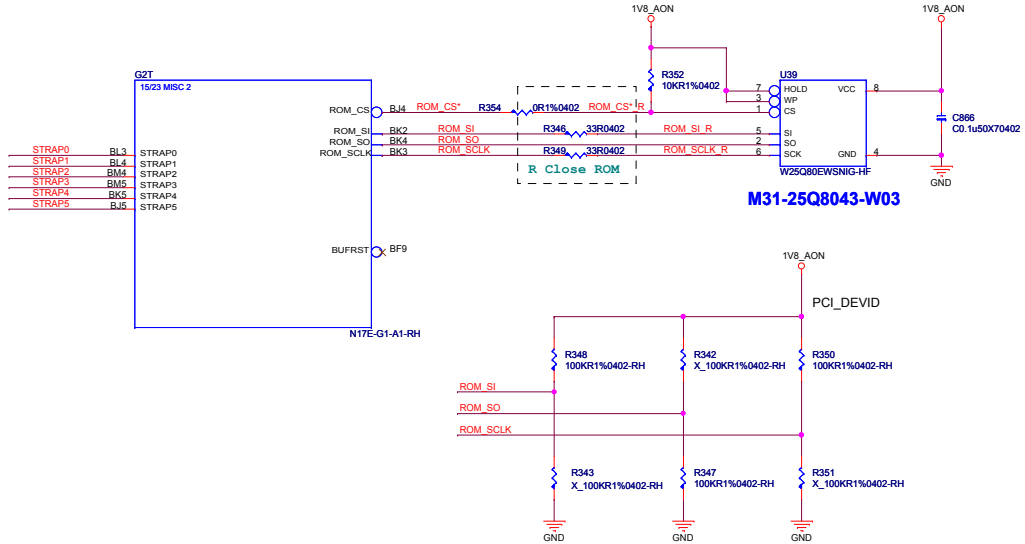
MICRO-STAR INT'L CO.,LTD.

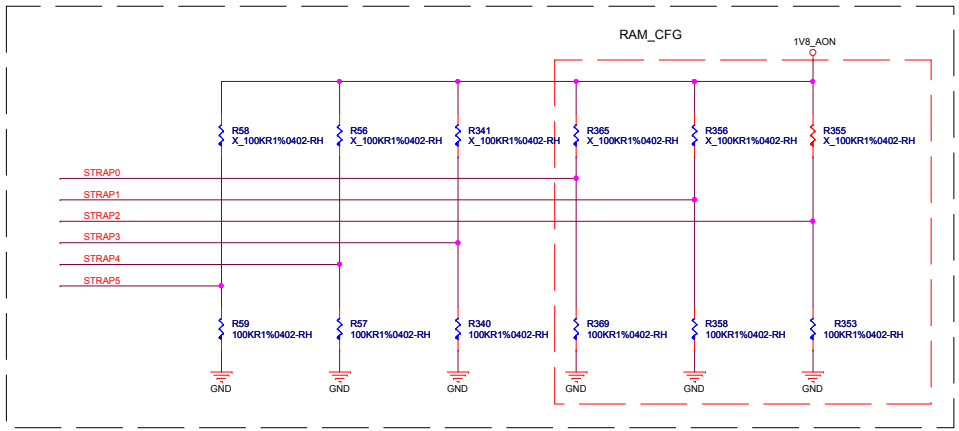
Title: DGPU MIO & XTAL

Size: A3 | Document Number: MS-14A31 | Rev: 2.0

Date: Thursday, June 02, 2016 | Sheet 26 of 69

ROM, MULTI-LEVEL STRAPS





DEFAULT SETTING

V_TOP1
5010
M12-8032535-S02
X_K4G80325FB-HC25

V_TOP2
5010
M12-2563215-M30
X_MT51J256M32HF-80:A

V_TOP3
5010
M12-5GC2H05-H23
X_H5GC2H24BFR-T2C

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	00000	V
L	L	H	00001	V
L	H	L	00010	
L	H	H	00011	
H	H	L	00110	
H	H	H	00111	

H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

SAMSUNG 0X0
MICRON 0X1
HYNIX 0X2

ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]	1:ENABLE 0:DISABLE
L	L	L	1111 DEFAULT	SOR0/1/2/3 ENABLE
L	L	H	1110	
L	H	L	1101	
L	H	H	1100	
H	L	L	1011	
H	L	H	1010	
H	H	L	1001	
H	H	H	1000	
L	L	M	0111	
L	M	L	0110	
L	M	H	0101	
L	H	M	0100	
H	L	M	0011	
H	M	L	0010	
H	M	H	0001	
H	H	M	0000	V

STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1 DEFAULT
L	L	L	0	0	0	0 V

1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

MICRO-STAR INT'L CO.,LTD.

Title: DGPU_ROM,HW Straps

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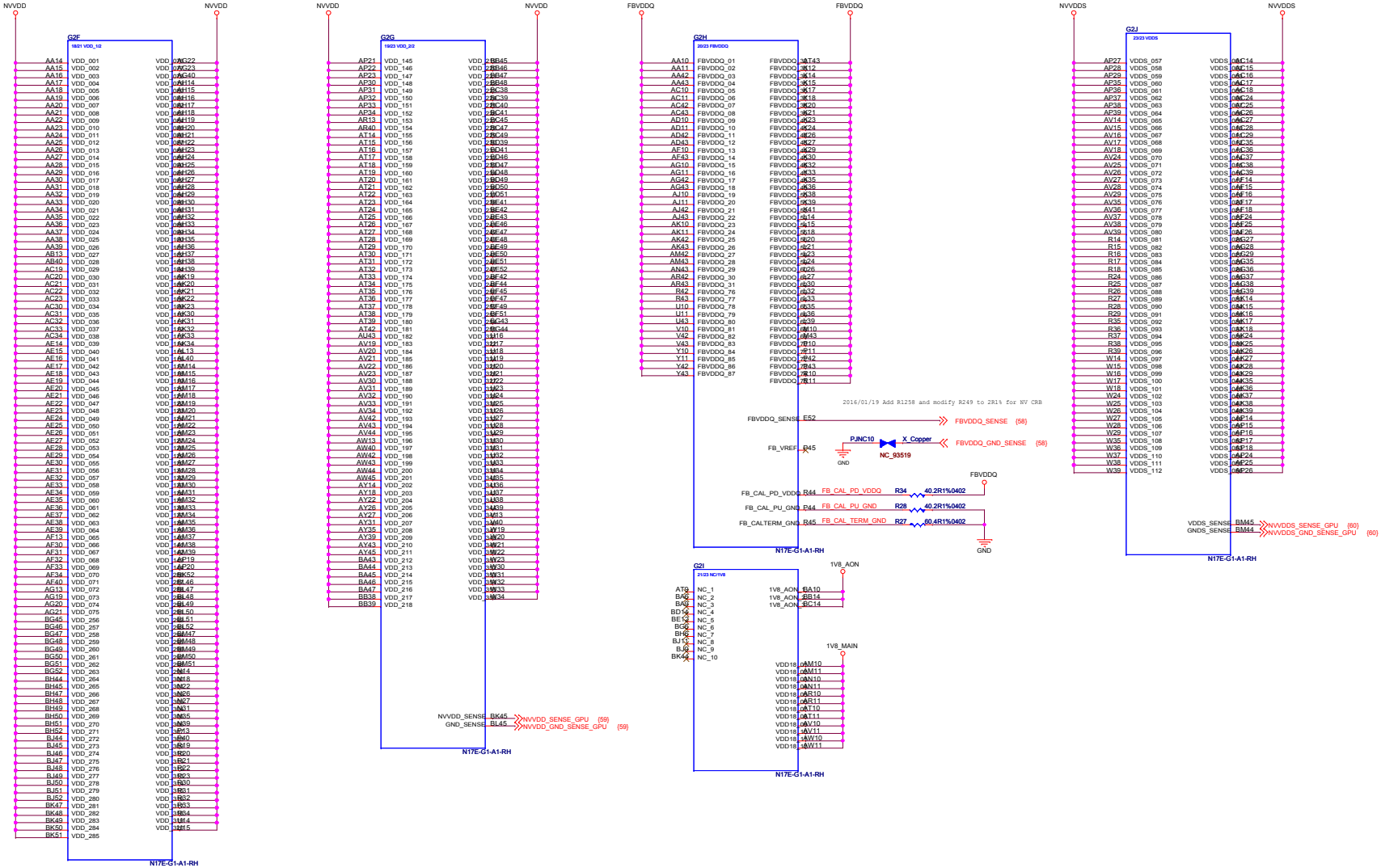
GPU NVVDD, FBVDDQ



MSI	MICRO-STAR INT'L CO.,LTD.	
Title	DGPU NVVDD, FBVDDQ	
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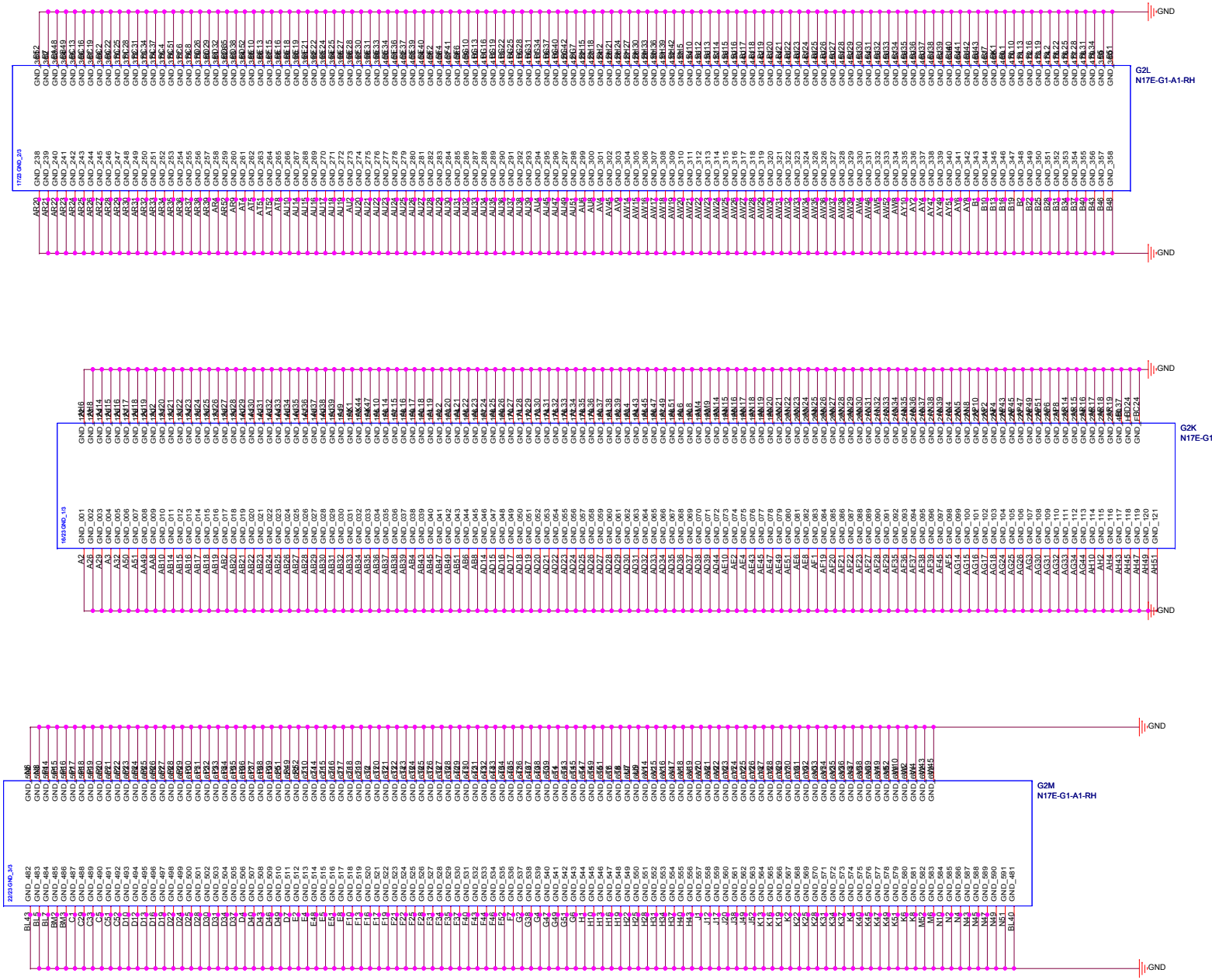
DGPU GND



MSI	MICRO-STAR INT'L CO.,LTD.		
Title	DGPU GND		
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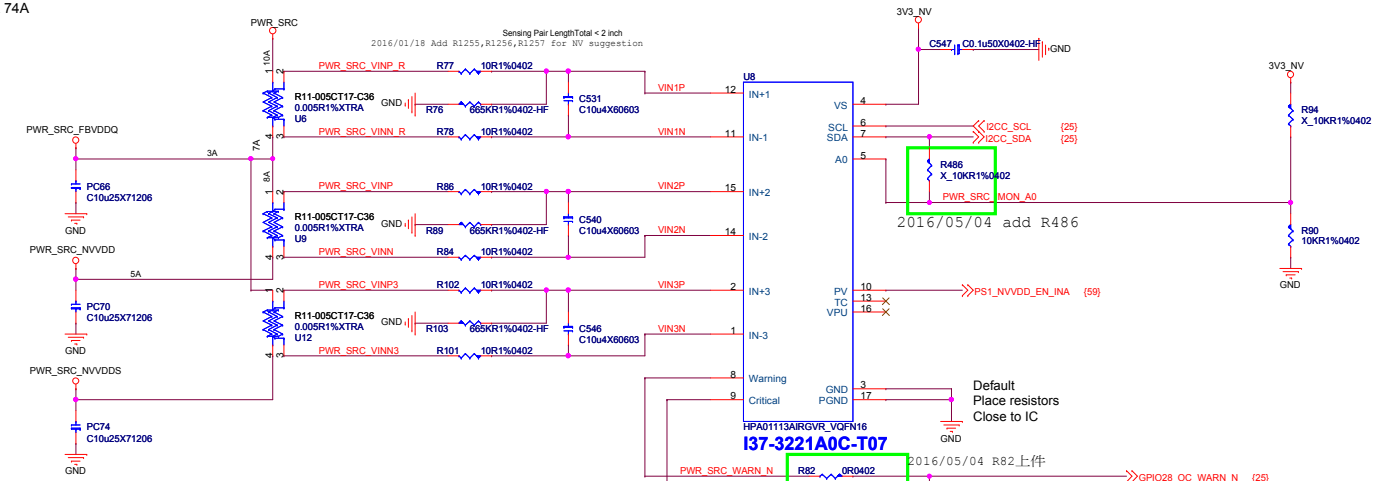
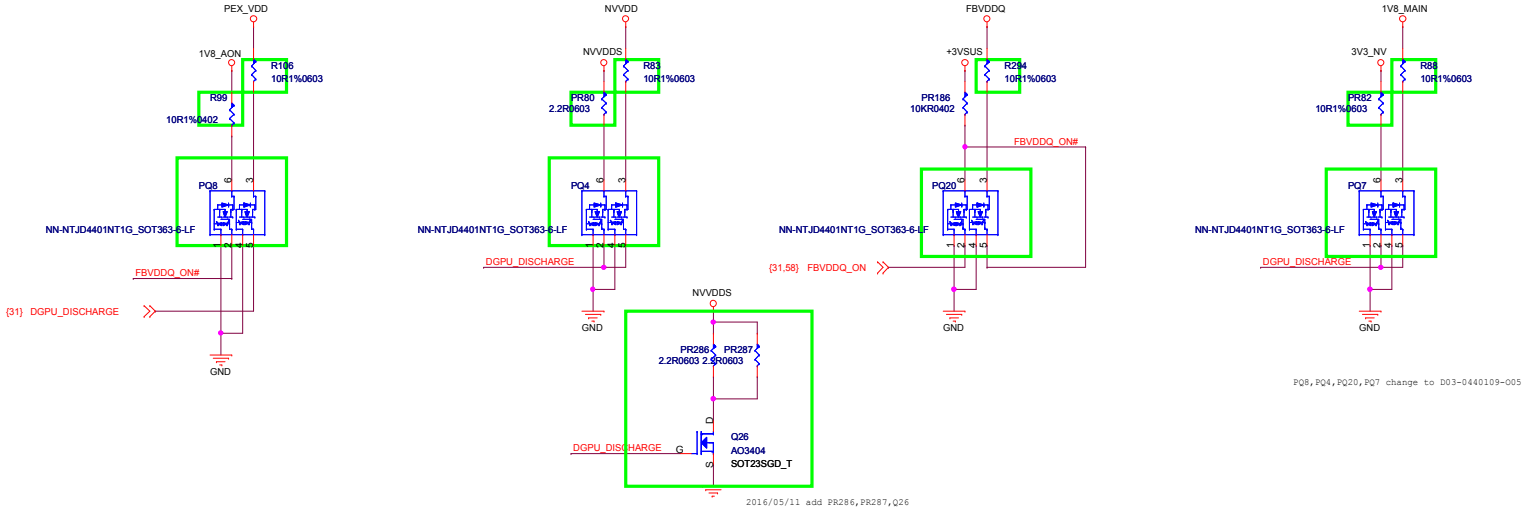
DGPU_Power Control

EDP Design Guide:
N17E-G1(90W)
NVVDD : 58A ; Peak 136A
NVVDDS : 28A ; Peak 74A
1.8V : 0.9A
PEX_VDD : 3A
FBVDDQ : 16A



Discharge

R99,R106,R83,R294,PR82,R88 change to 10ohm



MSI MICRO-STAR INT'L CO.,LTD.			
Title: DGPU_Power Control			
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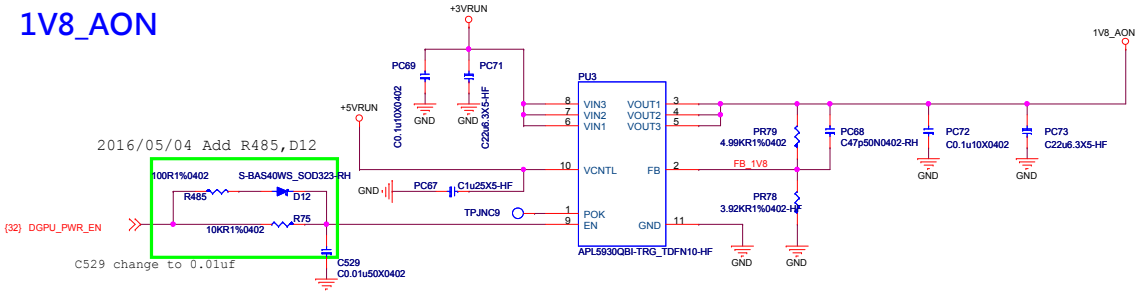
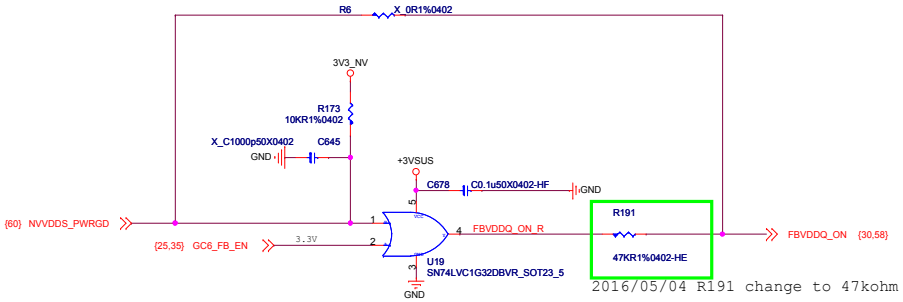
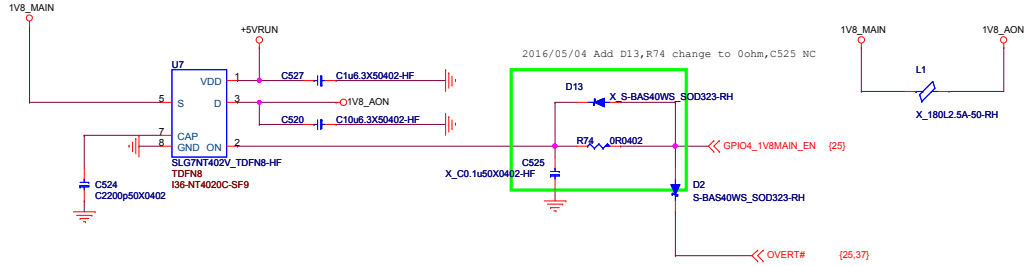
nVIDIA Power Sequence Power UP

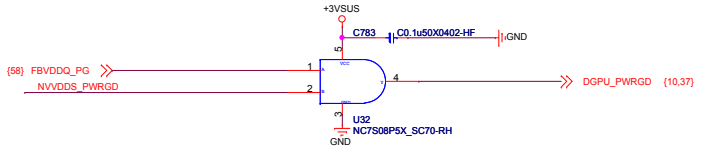
Power on = 1V8_AON -> 1V8_MAIN -> 3V3_NV -> NVVDD -> NVDDS/PEX_VDD -> FBVDDQ -> DGPUPWRGD

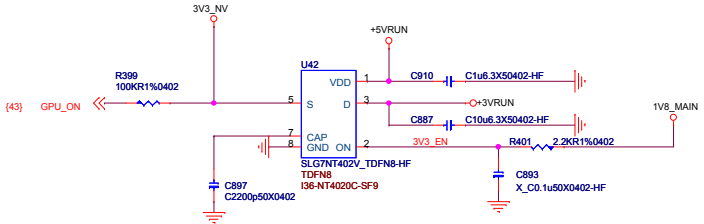
1V8_AON





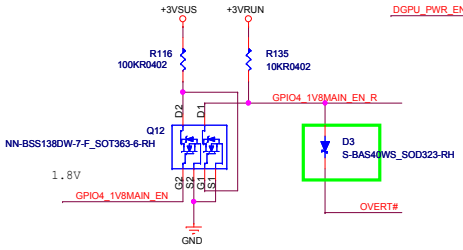


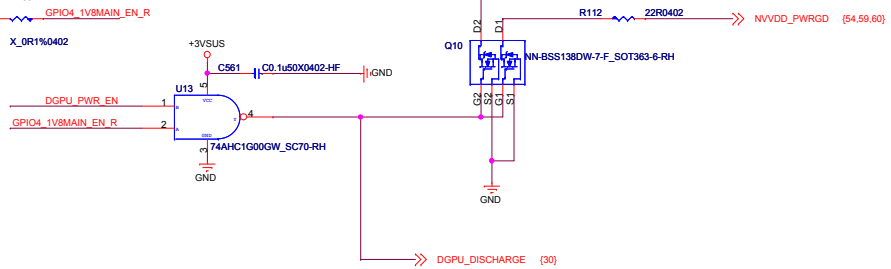


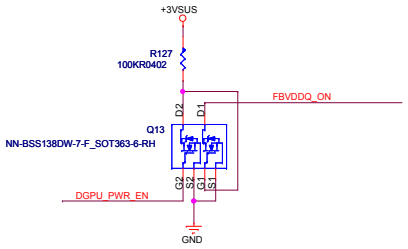


nVIDIA Power Sequence Power Down

Power down = FBVDDQ -> NVDDS/PEX_VDD -> 3V3_NV -> 1V8_AON -> 1V8_MAIN







msi MICRO-STAR INT'L CO.,LTD.		
Title: DGPU_Power control, Discharge		
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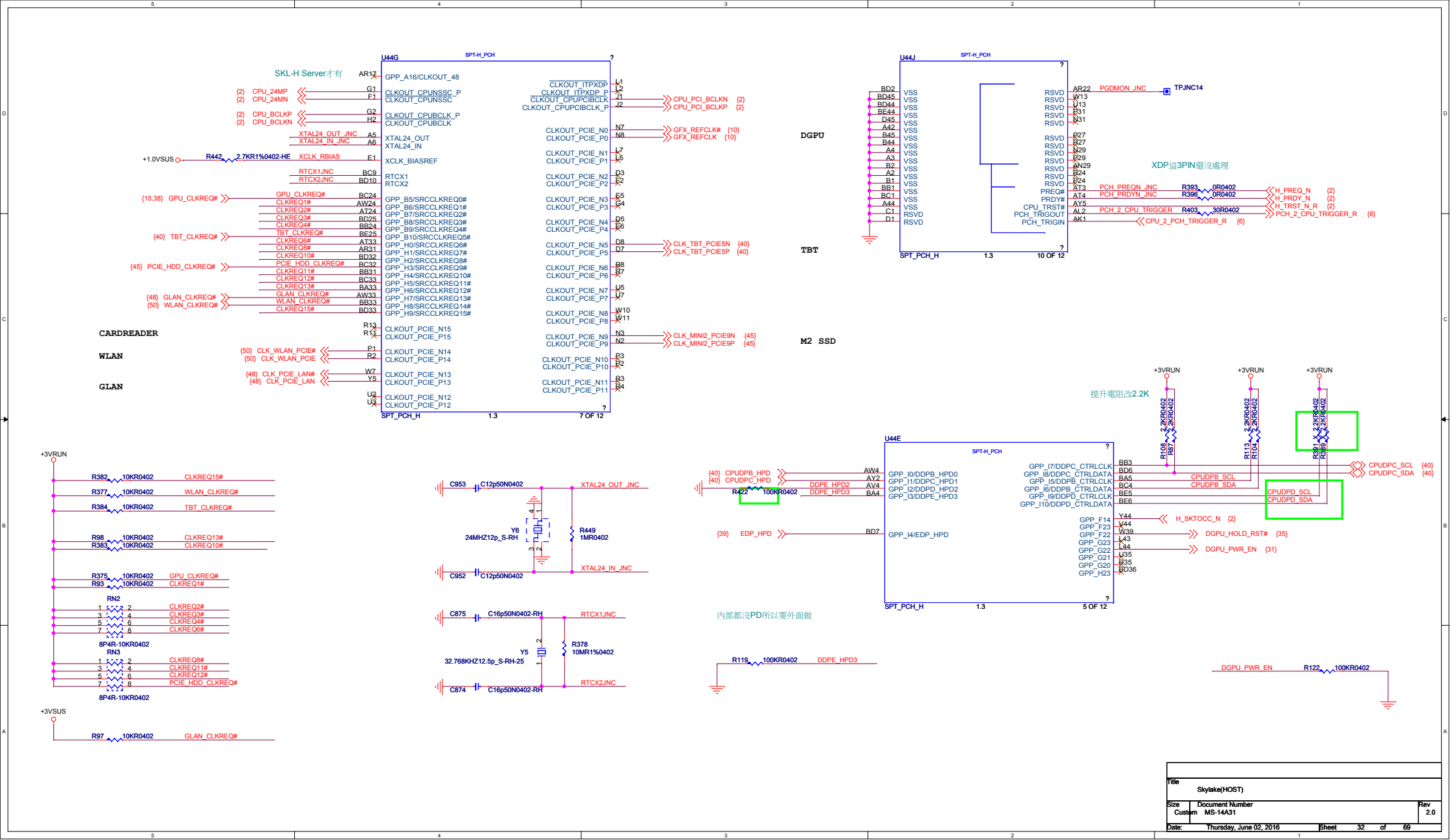
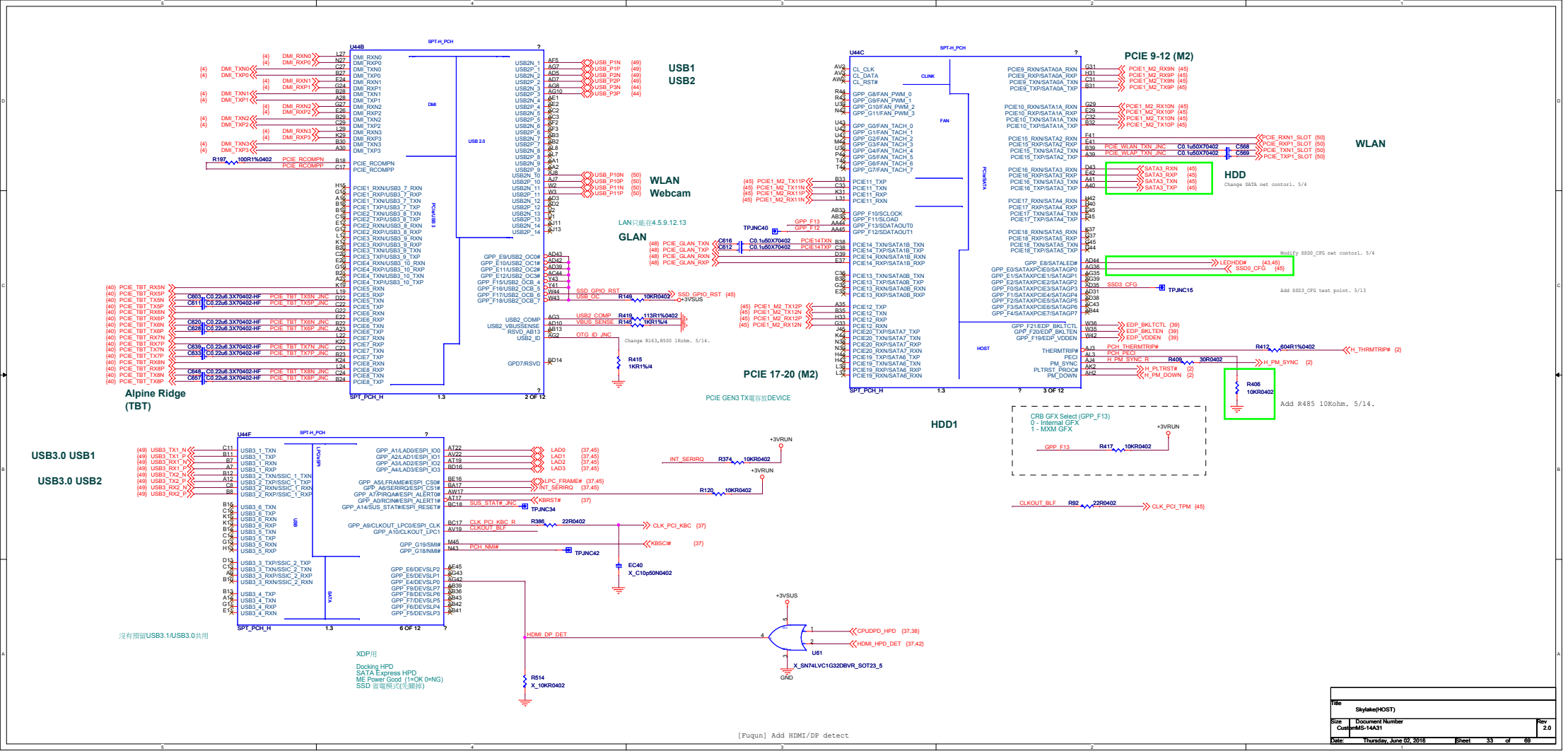

U44G
SPT-H_PCH
SKL-H Server才有
GPP_A16/CLKOUT_48
CPU_24MP
CPU_24MN
CLKOUT_CPUNSSC_P
CLKOUT_CPUNSSC
CPU_BCLKP
CPU_BCLKN
CLKOUT_CPUBCLK_P
CLKOUT_CPUBCLK
XTAL24_OUT_JNC
XTAL24_IN_JNC
XTAL24_OUT
XTAL24_IN
+1.0VSUS
R442 2.7KR1%0402-HE
XCLK_RBIAS
XCLK_BIASREF
RTCX1JNC
RTCX2JNC
RTCX1
RTCX2
GPU_CLKREQ#
CLKREQ1#
CLKREQ2#
CLKREQ3#
CLKREQ4#
TBT_CLKREQ#
CLKREQ6#
CLKREQ8#
CLKREQ10#
PCIE_HDD_CLKREQ#
CLKREQ11#
CLKREQ12#
CLKREQ13#
GLAN_CLKREQ#
WLAN_CLKREQ#
CLKREQ15#
GPP_B5/SRCCLKREQ0#
GPP_B6/SRCCLKREQ1#
GPP_B7/SRCCLKREQ2#
GPP_B8/SRCCLKREQ3#
GPP_B9/SRCCLKREQ4#
GPP_B10/SRCCLKREQ5#
GPP_H0/SRCCLKREQ6#
GPP_H1/SRCCLKREQ7#
GPP_H2/SRCCLKREQ8#
GPP_H3/SRCCLKREQ9#
GPP_H4/SRCCLKREQ10#
GPP_H5/SRCCLKREQ11#
GPP_H6/SRCCLKREQ12#
GPP_H7/SRCCLKREQ13#
GPP_H8/SRCCLKREQ14#
GPP_H9/SRCCLKREQ15#
CARDREADER
WLAN
GLAN
CLKOUT_ITPXDP
CLKOUT_ITPXDP_P
CLKOUT_CPUPCIBCLK
CLKOUT_CPUPCIBCLK_P
CPU_PCI_BCLKN
CPU_PCI_BCLKP
CLKOUT_PCIE_N0
CLKOUT_PCIE_P0
GFX_REFCLK#
GFX_REFCLK
CLKOUT_PCIE_N1
CLKOUT_PCIE_P1
CLKOUT_PCIE_N2
CLKOUT_PCIE_P2
CLKOUT_PCIE_N3
CLKOUT_PCIE_P3
CLKOUT_PCIE_N4
CLKOUT_PCIE_P4
CLKOUT_PCIE_N5
CLKOUT_PCIE_P5
CLK_TBT_PCIE5N
CLK_TBT_PCIE5P
CLKOUT_PCIE_N6
CLKOUT_PCIE_P6
CLKOUT_PCIE_N7
CLKOUT_PCIE_P7
CLKOUT_PCIE_N8
CLKOUT_PCIE_P8
CLKOUT_PCIE_N9
CLKOUT_PCIE_P9
CLK_MINI2_PCIE9N
CLK_MINI2_PCIE9P
CLKOUT_PCIE_N10
CLKOUT_PCIE_P10
CLKOUT_PCIE_N11
CLKOUT_PCIE_P11
CLKOUT_PCIE_N12
CLKOUT_PCIE_P12
CLK_WLAN_PCIE#
CLK_WLAN_PCIE
CLK_PCIE_LAN#
CLK_PCIE_LAN
CLKOUT_PCIE_N13
CLKOUT_PCIE_P13
CLKOUT_PCIE_N14
CLKOUT_PCIE_P14
CLKOUT_PCIE_N15
CLKOUT_PCIE_P15
SPT_PCH_H 1.3 7 OF 12
DGPU
TBT
M2 SSD
U44J
SPT-H_PCH
VSS
RSVD
PREQ#
PRDY#
CPU_TRST#
PCH_TRIGOUT
PCH_TRIGIN
PGDMON_JNC
TPJNC14
XDP這3PIN還沒處理
PCH_PREQN_JNC
PCH_PRDYN_JNC
PCH_2_CPU_TRIGGER
CPU_2_PCH_TRIGGER_R
H_PREQ_N
H_PRDY_N
H_TRST_N_R
PCH_2_CPU_TRIGGER_R
SPT_PCH_H 1.3 10 OF 12
+3VRUN
R382 10KR0402 CLKREQ15#
R377 10KR0402 WLAN_CLKREQ#
R384 10KR0402 TBT_CLKREQ#
R98 10KR0402 CLKREQ13#
R383 10KR0402 CLKREQ10#
R375 10KR0402 GPU_CLKREQ#
R93 10KR0402 CLKREQ1#
RN2
CLKREQ2#
CLKREQ3#
CLKREQ4#
CLKREQ6#
8P4R-10KR0402
RN3
CLKREQ8#
CLKREQ11#
CLKREQ12#
PCIE_HDD_CLKREQ#
8P4R-10KR0402
+3VSUS
R97 10KR0402 GLAN_CLKREQ#
C953 C12p50N0402
C952 C12p50N0402
Y6 24MHZ12p_S-RH
R449 1MR0402
XTAL24_OUT_JNC
XTAL24_IN_JNC
C875 C16p50N0402-RH
C874 C16p50N0402-RH
Y5 32.768KHZ12.5p_S-RH-25
R378 10MR1%0402
RTCX1JNC
RTCX2JNC
U44E
SPT-H_PCH
CPUDPB_HPD
CPUDPC_HPD
DDPE_HPD2
DDPE_HPD3
R422 100KR0402
EDP_HPD
GPP_I0/DDPB_HPD0
GPP_I1/DDPC_HPD1
GPP_I2/DDPD_HPD2
GPP_I3/DDPE_HPD3
GPP_I4/EDP_HPD
GPP_I7/DDPC_CTRLCLK
GPP_I8/DDPC_CTRLDATA
GPP_I5/DDPB_CTRLCLK
GPP_I6/DDPB_CTRLDATA
GPP_I9/DDPD_CTRLCLK
GPP_I10/DDPD_CTRLDATA
CPUDPB_SCL
CPUDPB_SDA
CPUDPD_SCL
CPUDPD_SDA
CPUDPC_SCL
CPUDPC_SDA
H_SKTOCC_N
DGPU_HOLD_RST#
DGPU_PWR_EN
SPT_PCH_H 1.3 5 OF 12
內部都沒PD所以要外面做
R119 100KR0402 DDPE_HPD3
+3VRUN
提升電阻改2.2K
R108 2.2KR0402
R87 2.2KR0402
R113 2.2KR0402
R104 2.2KR0402
R391 2.2KR0402
R389 2.2KR0402
DGPU_PWR_EN
R122 100KR0402
Title
Skylake(HOST)
Size Custom
Document Number MS-14A31
Rev 2.0
Date: Thursday, June 02, 2016
Sheet 32 of 69


Alpine Ridge (TBT)
USB1
USB2
WLAN
Webcam
GLAN
LAN只能在4.5.9.12.13
PCIE 17-20 (M2)
PCIE GEN3 TX電容放DEVICE
PCIE 9-12 (M2)
WLAN
HDD
Change SATA net contorl. 5/4
HDD1
USB3.0 USB1
USB3.0 USB2
沒有預留USB3.1/USB3.0共用
XDP用
Docking HPD
SATA Express HPD
ME Power Good (1=OK 0=NG)
SSD 省電模式(先關掉)
CRB GFX Select (GPP_F13)
0 - Internal GFX
1 - MXM GFX
Add R485 10Kohm. 5/14.
[Fuqun] Add HDMI/DP detect
Skylake(HOST)
Thursday, June 02, 2016

SMBALERT#
0 - Disable (Default Internal 20K PD)
1- Enable (AMT/SBA)

SML0ALERT#
0 - LPC (Default Internal 20K PD)
1- eSPI

PCH EDS Page 52

U44D — SPT-H_PCH — AUDIO — SMBUS — JTAG

HDA_BITCLK, HDA_RST#, HDA_SDI0, HDA_SDI1, HDA_SDO, HDA_SYNC, RSVD_BD1, RSVD_BE2, DISPA_SDO, DISPA_SDI, DISPA_BCLK, GPP_D8/I2S0_SCLK, GPP_D7/I2S0_RXD, GPP_D6/I2S0_TXD, GPP_D5/I2S0_SFRM, GPP_D20/DMIC_DATA0, GPP_D19/DMIC_CLK0, GPP_D18/DMIC_DATA1, GPP_D17/DMIC_CLK1, RTCRST#, SRTCRST#, PCH_PWROK, RSMRST#, DSW_PWROK, GPP_C2/SMBALERT#, GPP_C0/SMBCLK, GPP_C1/SMBDATA, GPP_C5/SML0ALERT#, GPP_C3/SML0CLK, GPP_C4/SML0DATA, GPP_B23/SML1ALERT#/PCHHOT#, GPP_C6/SML1CLK, GPP_C7/SML1DATA

SPT_PCH_H 1.3 ? 4 OF 12

{46} CODEC_HDA_SDIN0
{37} FLASH_SECURITY
R373 1KR0402
HDA_BITCLK, HDA_RST#, HDA_SDO, HDA_SYNC

{4} AUDIO_CPU_SDO_R
{4} AUDIO_CPU_SDI
{4} AUDIO_CPU_CLK_R
R400 30R0402 AUDIO_CPU_SDO
R402 30R0402 AUDIO_CPU_CLK
新的UMA HDMI/DP用

+3VSUS
R111 2.2KR0402 SMBALERT#
R114 X_20KR0402-2
R125 X_2.2KR0402 SML0ALERT#
R129 X_150KR0402 SML1ALERT#
R131 2.2KR0402 SUS_SMBCLK
R130 2.2KR0402 SUS_SMBDATA
R118 1KR0402 SML0_CLK
R107 1KR0402 SML0_DATA
RN6 8P4R-10KR0402
LAN_WAKE#, BATLOW#, AC_PRESENT
應該不用上件

{37} RSMRST#
PCH_PWROK
SMBALERT#, SUS_SMBCLK, SUS_SMBDATA, SML0_CLK, SML0_DATA, SML1ALERT#

GPP_A12/BMBUSY#/ISH_GP6/SX_EXIT_HOLDOFF# BB17 — TPJNC32
GPP_A8/CLKRUN# AW22 — EC_CLKRUN# {37}
GPD11/LANPHYPC AR15
GPD9/SLP_WLAN# AV13
新的DDR由PCH做RESET
DRAM_RESET# BC14 — DDR4_DRAMRST#_R — R381 0R0402 — R376 X_10KR0402 — +3VSUS — DDR4_DRAMRST# {8,9}
GPP_B2/VRALERT# BD23 GPP_B2
GPP_B1 AL27
GPP_B0 AR27
GPP_G17/ADR_COMPLETE N44
GPP_B11 AN24
SYS_PWROK AY1 — SYS_PWROK — GPU_EVENT# {25}
用原本等CPU PWM OK再發也行
由EC過來或多用個AND要想一下
GPP_B11 (GPO)
WAKE# BC13 — R385 1KR0402 — +3VSUS — PCIE_WAKE# {48}
GPD6/SLP_A# BC15
SLP_LAN# AV15
GPP_B12/SLP_S0# BC26
GPD4/SLP_S3# AW15 — PM_SLP_S3# {2,37,40,57}
GPD5/SLP_S4# BD15 — PM_SLP_S4# {37,53}
GPD10/SLP_S5# BA13 — PM_SLP_S5#JNC — TPJNC12
GPD8/SUSCLK AN15 — SUSCLK {37}
GPD0/BATLOW# BD13 — BATLOW#
GPP_A15/SUSACK# BB19 — SUSACK#_JNC
GPP_A13/SUSWARN#/SUSPWRDNACK BD19 — SUSPWRACK — TPJNC35 — TPJNC11
連EC
連EC
GPD2/LAN_WAKE# BD11 — LAN_WAKE#
GPD1/ACPRESENT BB15 — AC_PRESENT {37}
SLP_SUS# BB13 — SLP_SUS#_JNC — TPJNC10
GPD3/PWRBTN# AT13 — PM_PWRBTN# {37}
SYS_RESET# AW1 — PM_SYSRST#
GPP_B14/SPKR BD26 — HDA_SPKR — TPJNC33
PROCPWRGD AM3 — H_PWRGD {2}
0 - Enable TCO

ITP_PMODE AT2
JTAGX AR3 — PCH_JTAGX {2}
JTAG_TMS AR2 — PCH_JTAG_TMS {2}
JTAG_TDO AP1 — PCH_JTAG_TDO {2}
JTAG_TDI AP2 — PCH_JTAG_TDI {2}
JTAG_TCK AN3 — PCH_JTAG_TCK — R397 X_51R0402

+3VRUN
PM_SYSRST# — R392 10KR0402
SMB_CLK_DIMM — R138 2.2KR0402
SMB_DATA_DIMM — R137 2.2KR0402
EC_CLKRUN# — R237 8.2KR1%0402
Modify R139,R141, R149,R151 2.2K page33.5/25

Q11 NN-DMN65D8LDW-7_SOT363-6-HF
SUS_SMBCLK, SUS_SMBDATA
SMB_CLK_DIMM {8,9,50}
SMB_DATA_DIMM {8,9,50}
{47} SUS_SMBCLK
{47} SUS_SMBDATA
+5VRUN

+3VALW
Change R276 TO OR . 9/24
R282 1KR0402
R283 X_C1u10X50405-HF
D9 S-BAT54C_SOT23
Change R279 NC 9/24
Q20 NN-DMN65D8LDW-7_SOT363-6-HF
EC_RTC_RST {37}
R273 100KR0402
PQ17 P-AO3415_SOT23-3-RH
D8 1SS355VMTE_SOD323
R286 22R0402
RTCVCC
Change D7 9/24
C767 C1u10X0603
R91 20KR0402-2 RTCRST#
C550 C1u10X0603
G1
Change R277 TO 1uF . 9/24
RTC_P2
R285 1KR0402
RTC_P3
CN2 BH1X2#S-1.25PITCH_BLACK-HF
R96 20KR0402-2 SRTCRST#
C551 C1u10X0603

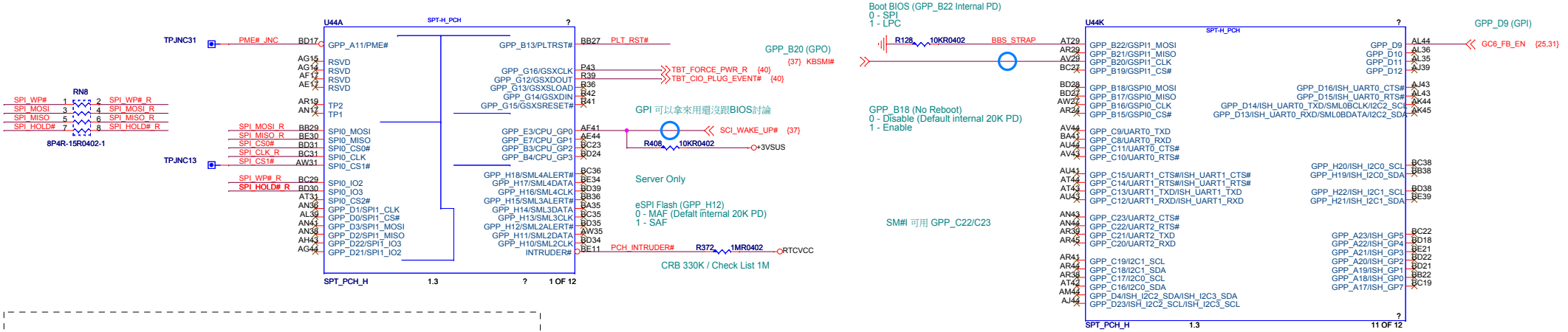
{46} CODEC_HDA_BIT_CLK
{46} CODEC_HDA_SDOUT
{46} CODEC_HDA_RST#
{46} CODEC_HDA_SYNC
RN7 8P4R-33R0402
HDA_BITCLK, HDA_SDO, HDA_RST#, HDA_SYNC
EC63 X_C10p50N0402
EC62 X_C10p50N0402
EC60 X_C10p50N0402
EC59 X_C10p50N0402

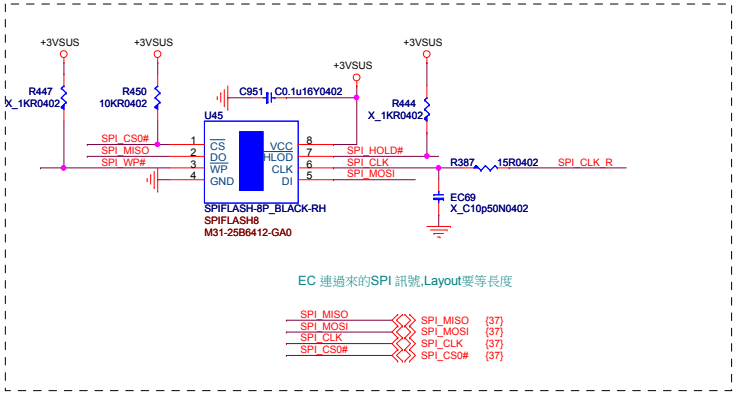
+3VSUS
C879 C0.1u6.3X50402-HF
{55} CPU_PWROK
{2,37,55,57} EC_ALLSYSPG
RUN最後一根
PCH_PWROK
U11 NC7S08P5X_SC70-RH

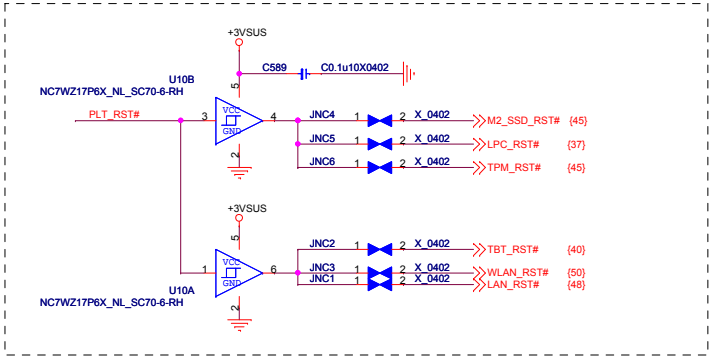
60階
BAT2
BCR1220H2.8AM1KB
D06-0105701-K26

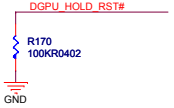
待改
+3VSUS
C552 C0.1u6.3X50402-HF
PCH_PWROK
{37} EC_PCH_PWROK
EC delay 100ms
SYS_PWROK
U40 NC7S08P5X_SC70-RH

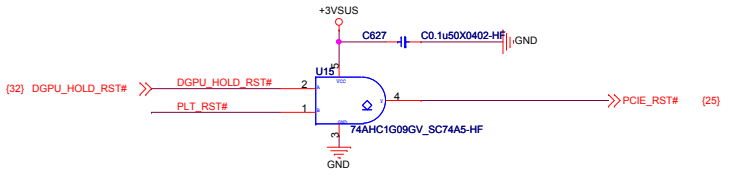
Title	Skylake(HOST)		
Size	Document Number		Rev
Custom	MS-14A31		2.0
Date:	Thursday, June 02, 2016	Sheet 34 of 69	



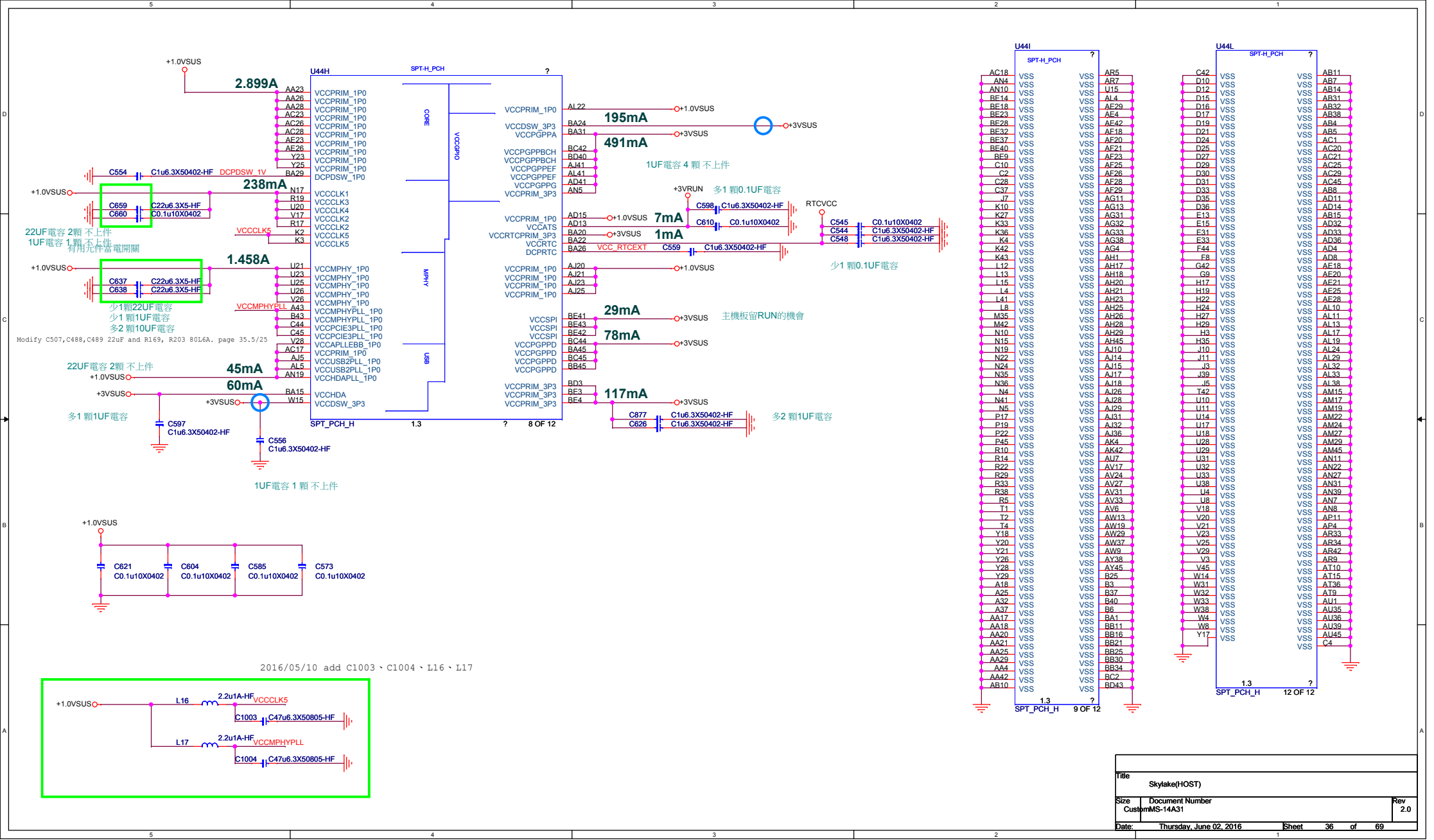








Title	Skylake(HOST)	
Size	Document Number	Rev
Custom	MS-14A31	2.0
Date:	Thursday, June 02, 2016	Sheet 35 of 69



Title	Skylake(HOST)	
Size	Document Number	Rev
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RSMRST# follow DG modify to 10K

KBC/EC/uP (ENE9028)

PU/PD

+3VRUN

R460 X_10KR0402 KBSMI#
R227 X_10KR0402 KBSCI#
R459 X_10KR0402 KBRST#

R239 X_100KR0402 EC_CLKRUN#
R214 47KR0402 RSMRST#
R456 100KR0402 KBRST#

KB pull Hi 10k

+3VALW

RN4: KBIN0, KBIN1, KBIN2, KBIN3 — 8P4R-10KR0402
RN5: KBIN4, KBIN5, KBIN6, KBIN7 — 8P4R-10KR0402

LID pull hi 10K

+3VALW
R238 10KR0402 LID#

BATCLK_M / BATDATA_M

+3VALW
R222 4.7KR0402 BATCLK_M
R223 4.7KR0402 BATDATA_M

Hardware Reset

CN21 — SW-TACTS-RH-2
RST_SW# R250 100R1%0402 ECRST#
C754 C0.1u50X70402
GND

U47 — KB9028Q-C-RH

LPC I/F
SERIRQ
LFARAME#
PCICLK
CLKRUN#/GPIO1D
LAD0
LAD1
LAD2
LAD3

ECRST#
KBRST#/GPIO01
SCI#/GPIO0E
GA20/GPIO00
PCIRST#/GPIO05

FAN&PWM
PWM0/GPIO0F
PWM1/GPIO10
PWM2/GPIO11
PWM3/GPIO19
FANPWM0/GPIO12
FANPWM1/GPIO13
FANFB0/GPIO14
FANFB1/GPIO15

IKB
KSO0/GPIO20
KSO1/GPIO21
KSO2/GPIO22
KSO3/GPIO23
KSO4/GPIO24
KSO5/GPIO25/UART_SOUT
KSO6/GPIO26
KSO7/GPIO27/SERIRQ(LPC_Bypass)UART_RTS
KSO8/GPIO28
KSO9/GPIO29
KSO10/GPIO2A
KSO11/GPIO2B/LAD3(LPC_Bypass)
KSO12/GPIO2C/LAD2(LPC_Bypass)UART_DTR
KSO13/GPIO2D/LAD1(LPC_Bypass)
KSO14/GPIO2E/LAD0(LPC_Bypass)
KSO15/GPIO2F
KSO16/GPIO48/UART_SOUT2
KSO17/GPIO49

KSI0/GPIO30/E51TXD
KSI1/GPIO31
KSI2/GPIO32
KSI3/GPIO33
KSI4/GPIO34
KSI5/GPIO35
KSI6/GPIO36
KSI7/GPIO37/EDI_DO

ESB
GPIO0B/ESB_CLK
GPIO0C/ESB_DAT_O

CIR
GPIO40/AD6
GPIO41/CIR_RLC_TX/AD7
GPIO0A/OWM
GPIO0D/RLC_TX2

SPI FLASH
MISO/GPIO5B
MOSI/GPIO5C
SPICLK/GPIO58
SPICS#/GPIO5A

PS2 I/F
PSCLK3/GPIO4E
PSDAT3/GPIO4F
PSCLK2/GPIO4C/SCL3
PSDAT2/GPIO4D/SDA3
PSCLK1/GPIO4A/SCL2/SMBD_CLK
PSDAT1/GPIO4B/SDA2/SMBD_DAT

UART
E51TXD/GPIO16
E51CLK/GPIO17

GPIO5D
GPIO5E

POWER/GROUND
VCC_LPC
VCC
VCC-1
VCC-2
VCC-3
VCC0
VCC_IO2
AVCC
AGND
GND
GND-1
GND-2
GND-3
GND-4

C734 C0.1u10X0402
C708 C0.1u10X0402
C701 C0.1u10X0402
C949 C0.1u10X0402
C731 C0.1u10X0402

SMBUS
SDA0/GPIO45
SCL0/GPIO44
IEDI_SDA/SDA1/GPIO47
IEDT_SCL/SCL1/GPIO46

SMB_GPU_DATA {25}
SMB_GPU_CLK {25}
EC_SDA {42}
EC_SCL {42}

AD/DA
DA0/GPO3C
DA1/GPO3D
DA2/GPO3E
DA3/GPO3F
AD0/GPI38
AD1/GPI39
AD2/GPI3A
AD3/GPI3B
AD4/GPI42
AD5/GPI43

BT_PWR_ON {50}
CAMERA_ON {50}
DGPU_PWRGD {10,31}
DA3 — TPJNC45
KBIN0
KBIN1
KBIN2
KBIN3
KBIN4
KBIN5

SDI
GPXIOA00/GPIO60/SHICS#
GPXIOA01/GPIO61/SHICLK
GPXIOA02/GPIO62/SHIDO

EAPD {46}
EC_MUTE# {46}
HDMI_HPD_DET {33,42}

POWER_FAIL0/GPIO63/GPXIOA03
GPIO64/GPXIOA04
GPIO65/GPXIOA05
VCOUT1/GPIO66/GPXIOA06
VCOUT0/GPIO67/GPXIOA07
GPIO68/GPXIOA08
GPIO69/GPXIOA09
GPIO6A/GPXIOA10
GWG/GPIO6B/GPXIOA11
SDIDO/GPIO78/GPXIOD00
GPIO79/GPXIOD01
EC_EN#/GPIO7A/GPXIOD02
GPIO7B/GPXIOD03
GPIO7C/GPXIOD04
GPIO7D/GPXIOD05
GPIO7E/GPXIOD06
GPIO7F/PECI

GPIO04
i_clk_8051/GPIO07
PROCHOT#/i_clk_peri/GPIO08
POWER_FAIL1/GPIO18
GPIO50
GPIO52
WDT_LED#/GPIO54
GPIO56
XCLK32K/GPIO57
GPIO59

SUS_ON {52}
MB_ID
DIMM_ON_1V2 {6,53}
EC_PROCHOT# {2}
TB_STAR# {51}
LED_CHARGE {43}
LED_BATLOW {43}
AC_PRESENT {34}
ADP_ICC {51}
AC_OK {51}
GPU_ACIN1 {51}
PWR_SW# {43}
EC_ALLSYSPG
RUN_ON {6,52}
PM_PWRBTN# {34}
H_PECI {2}
H_PECI_R R451 33R0402
KBSMI# {35}
SCI_WAKE_UP# {35}
EC_PCH_PWROK {34}
WLAN_LED {43}
USB_ENABLE {49}
PWR_LED# {43}
RSMRST# {34}
PM_SLP_S3# {2,34,40,57}
PM_SLP_S4# {34,53}

LED
GPIO1A/NUMLED#
GPIO53/CAPSLED#
GPIO55/SCROLED#
CAPSLED#
SCROLED# JNC — TPJNC17

Connections

{33,45} INT_SERIRQ
{33,45} LPC_FRAME#
{33} CLK_PCI_KBC
{34} EC_CLKRUN#
{33,45} LAD0
{33,45} LAD1
{33,45} LAD2
{33,45} LAD3

{33} KBRST#
{33} KBSCI#
{25,31} OVERT#
{35} LPC_RST#

{43} LEDKB_EN
TPJNC21
PWM1
{51} AC_CTL
{34} FLASH_SECURITY
{43} CPU_PWM0
{43} DGPU_PWM1
{43} CPUFAN_FB
{43} GPUFAN_FB

KBOUT0 KBOUT1 KBOUT2 KBOUT3 KBOUT4 KBOUT5 KBOUT6 KBOUT7
{34} EC_RTC_RST

{51} BATT_EN
{51} BAT_IN#
{39} LID#
{54} SUSPWROK
TPJNC20 EC_SDA
TPJNC19 EC_SCL

KBOUT8 KBOUT9 KBOUT10 KBOUT11 KBOUT12 KBOUT13 KBOUT14 KBOUT15

TPJNC44 ESB_CLK
TPJNC18 ESB_DATA
DIMM_ON

KBIN6
KBIN7
{53} DIMM_ON_2V5

{35} SPI_MISO
{35} SPI_MOSI
{35} SPI_CLK
{35} SPI_CS0#

{50} TP_CLK
{50} TP_DATA
{50} WLAN_PWRON
{33,38} CPUDPD_HPD
{51} BATCLK_M
{51} BATDATA_M

TPJNC46 UART_TX
TPJNC47 UART_RX
TPJNC43 — R455 0R0402 — EC_XIN_JNC / EC_XOUT_JNC
{34} SUSCLK — R454 680KR0402-HE

N5A-26F0340-H06 FPC_S26_7 FPC26P-B-1PITCH_BLACK-RH CN23

KBOUT0 KBOUT1 KBOUT2 KBOUT3 KBIN0 KBOUT4 KBIN1 KBIN2 KBIN3 KBIN4 KBOUT5 KBIN5 KBOUT6 KBIN6 KBIN7 KBOUT7 KBOUT8 KBOUT9 KBOUT10 KBOUT11 KBOUT12 KBOUT13 KBOUT14 KBOUT15 CAPSLED#

+5VRUN R480 140R1%0603

For EMI

EC46: KBOUT7 KBOUT6 KBOUT5 KBOUT4 — 8p4C-100p50N0402-RH
EC47: KBOUT3 KBOUT2 KBOUT1 KBOUT0 — 8p4C-100p50N0402-RH
EC45: KBOUT11 KBOUT10 KBOUT9 KBOUT8 — 8p4C-100p50N0402-RH
EC44: KBOUT15 KBOUT14 KBOUT13 KBOUT12 — 8p4C-100p50N0402-RH

MotherBoard ID

+3VALW
R452 10KR0402
MB_ID
R453 X_10KR0402

SMB_GPU_CLK / SMB_GPU_DATA

+3VRUN
SMB_GPU_CLK R465 2.2KR0402
SMB_GPU_DATA R464 2.2KR0402

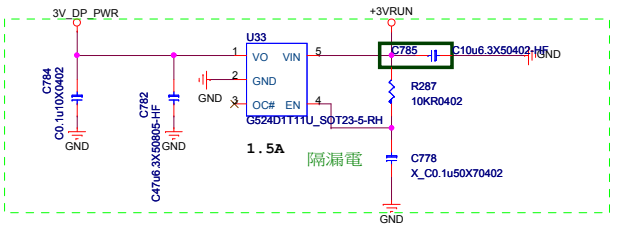
R95 / C681

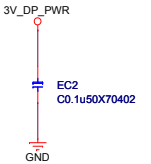
+3VRUN
R95 2.2KR0402
EC_ALLSYSPG {2,34,55,57}
C681 X_C2200p50X0402

MICRO-STAR INT'L CO.,LTD.			
Title: KBC/EC/up (ENE3930)			
Size: Custom	Document Number: MS-14A31		Rev: 2.0
Date: Friday, June 03, 2016	Sheet 37 of 69		

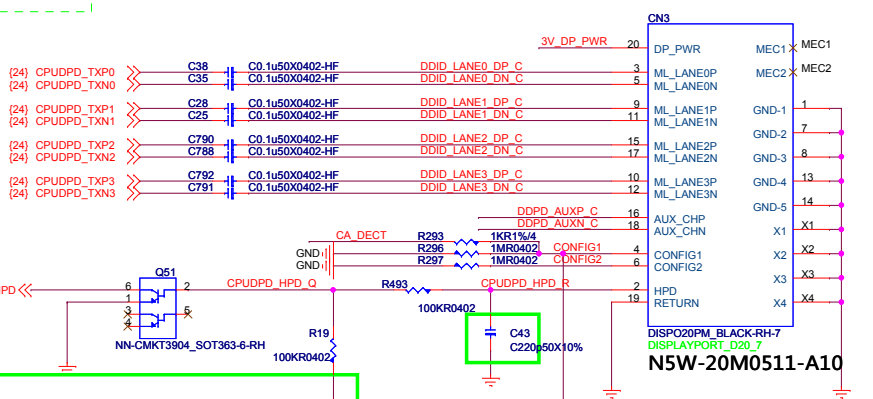
Display Port

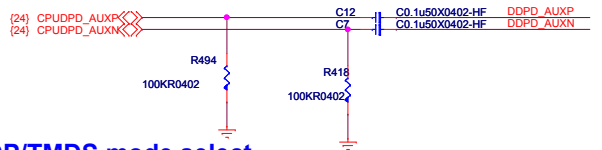
The preset trip limit must not exceed 3A at the Upstream device connector DP_PWR pin and 1.5A at the Downstream device connector DP_PWR pin.



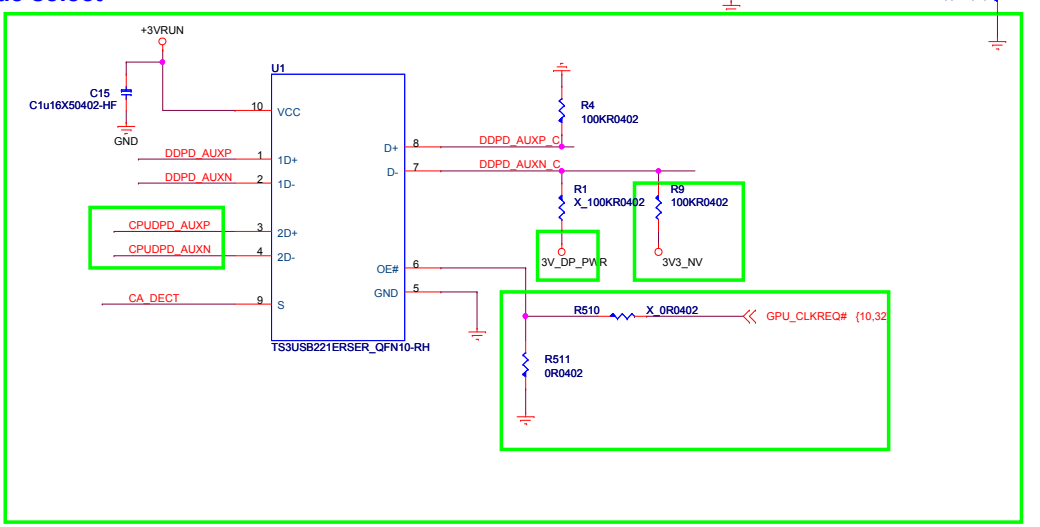


Display Port

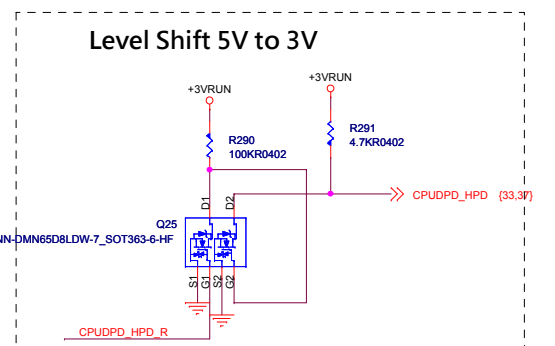




DP/TMDS mode select



Level Shift 5V to 3V



TS3USB221A TRUTH TABLE

S	OE#	FUNCTION
X	H	Disconnect
L	L	D = 1D
H	L	D = 2D

MICRO-STAR INT'L CO.,LTD.

Title: DP

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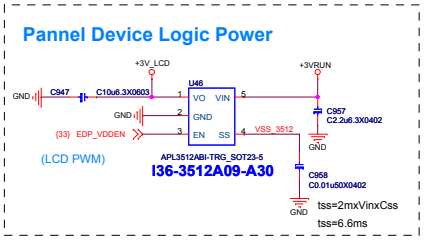
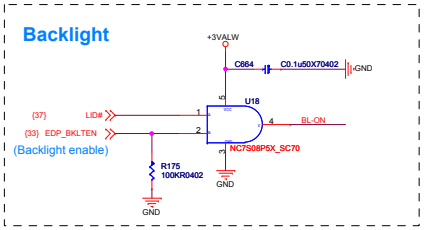
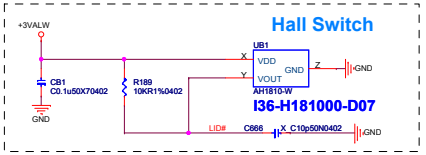
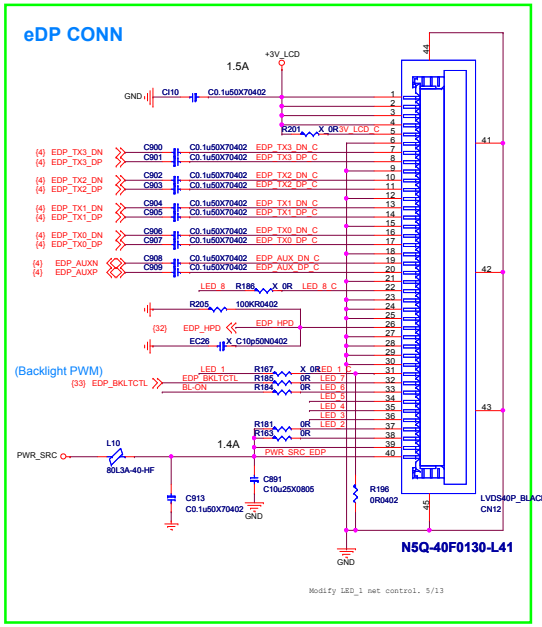
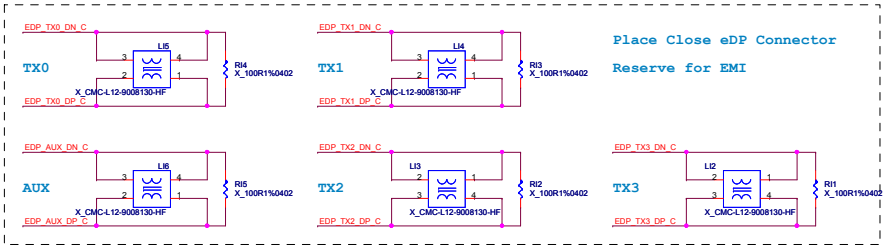
eDP Connector

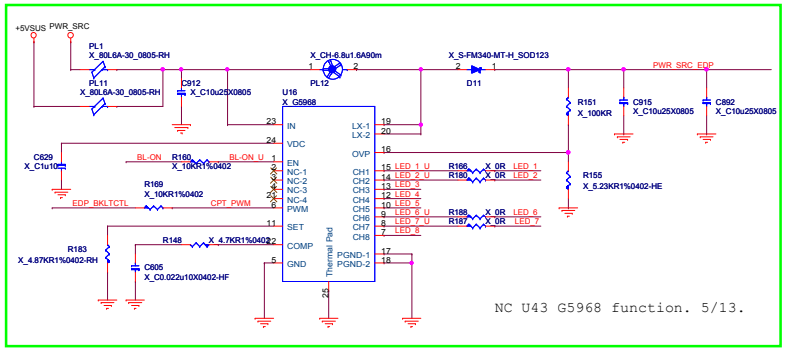












For Sharp14" QHD

SPEC:
Vf=20.8~24V
If , one channel = 19.8mA

LCD Module Pin Define FOR FULL HD PANEL

Pin No	Symbol	Description
1	Vcom SDA	Vcom IIC SDA
2	H_GND	High Speed Ground
3	LAN1_N	Complement Signal-Lane 1
4	LAN1_P	True Signal-Main Lane 1
5	H_GND	High Speed Ground
6	LAN0_N	Complement Signal-Lane 0
7	LAN0_P	True Signal-Main Lane 0
8	H_GND	High Speed Ground
9	AUX+	True Signal-Auxiliary Channel
10	AUX-	Complement Signal-Auxiliary Channel
11	H_GND	High Speed Ground
12	LCD_VCC	Power Supply +3.3 V (typical)
13	LCD_VCC	Power Supply +3.3 V (typical)
14	NC	No Connection (Reserved for CMI test)
15	H_GND	Ground
16	H_GND	Ground
17	HPD	Hot Plug Detect
18	BL_GND	BL Ground
19	BL_GND	BL Ground
20	BL_GND	BL Ground
21	BL_GND	BL Ground
22	BL_EN	BL_Enable Signal of LED Converter
23	BL_PWM	PWM Dimming Control Signal of LED Converter
24	Vcom SCL	Vcom IIC SCL
25	NC	No Connection (Reserved)
26	LED_VCCS	BL Power
27	LED_VCCS	BL Power
28	LED_VCCS	BL Power
29	LED_VCCS	BL Power
30	NC	No Connection (Reserved)

LCD Module Pin Define FOR WQHD PANEL

Pin No	Symbol	Description
1	NC	Reserved for LCD manufactureer's use
2	H_GND	High Speed Ground
3	Lane3_N	Complement Signal Link Lane 3
4	Lane3_P	True Signal Link Lane 3
5	H_GND	High Speed Ground
6	Lane2_N	Complement Signal Link Lane 2
7	Lane2_P	True Signal Link Lane 2
8	H_GND	High Speed Ground
9	Lane1_N	Complement Signal Link Lane 1
10	Lane1_P	True Signal Link Lane 1
11	H_GND	High Speed Ground
12	Lane0_N	Complement Signal Link Lane 0
13	Lane0_P	True Signal Link Lane 0
14	H_GND	High Speed Ground
15	AUX_CH_P	True Signal Auxiliary Channel
16	AUX_CH_N	Complement Signal Auxiliary Channel
17	H_GND	High Speed Ground
18	VDD	LCD logic and driver power(3.3V)
19	VDD	LCD logic and driver power(3.3V)
20	VDD	LCD logic and driver power(3.3V)
21	VDD	LCD logic and driver power(3.3V)
22	BIST	BIST patterns selection L : Disable [default] , H : Enable
23	LCD_GND	LCD logic and driver ground
24	LCD_GND	LCD logic and driver ground
25	LCD_GND	LCD logic and driver ground
26	LCD_GND	LCD logic and driver ground
27	HPD	HPD signal pin
28	BL_GND	Backlight ground
29	BL_GND	Backlight ground
30	BL_GND	Backlight ground
31	BL_GND	Backlight ground
32	BL_ENABLE	Backlight On/0ff
33	BL_PWM_DIM	System PWM
34	NC	Reserved for LCD manufacturer's use
35	NC	Reserved for LCD manufacturer's use
36	VBL	Backlight power
37	VBL	Backlight power
38	VBL	Backlight power
39	VBL	Backlight power
40	NC	No Connection (Reserved)

LCD Module Pin Define FOR QHD+ PANEL

Pin No	Symbol	Description
1	NC	Reserved for LCD manufacturer's use
2	H_GND	High Speed Ground
3	Lane3_N	Complement Signal Link Lane 3
4	Lane3_P	True Signal Link Lane 3
5	H_GND	High Speed Ground
6	Lane2_N	Complement Signal Link Lane 2
7	Lane2_P	True Signal Link Lane 2
8	H_GND	High Speed Ground
9	Lane1_N	Complement Signal Link Lane 1
10	Lane1_P	True Signal Link Lane 1
11	H_GND	High Speed Ground
12	Lane0_N	Complement Signal Link Lane 0
13	Lane0_P	True Signal Link Lane 0
14	H_GND	High Speed Ground
15	AUX_CH_P	True Signal Auxiliary Channel
16	AUX_CH_N	Complement Signal Auxiliary Channel
17	H_GND	High Speed Ground
18	NC	Reserved for LCD manufacturer's use
19	NC	Reserved for LCD manufacturer's use
20	VDD	LCD logic and driver power(3.3V)
21	VDD	LCD logic and driver power(3.3V)
22	VDD	LCD logic and driver power(3.3V)
23	VDD	LCD logic and driver power(3.3V)
24	VDD	LCD logic and driver power(3.3V)
25	NC	Reserved for LCD manufacturer's use
26	LCD_GND	LCD logic and driver ground
27	LCD_GND	LCD logic and driver ground
28	LCD_GND	LCD logic and driver ground
29	LCD_GND	LCD logic and driver ground
30	LCD_GND	LCD logic and driver ground
31	HPD	Backlight ground
32	NC	Reserved for LCD manufacturer's use
33	PWM_OUT	PWM_OUT
34	PWM_IN	PWM_IN
35	NC	Reserved for LCD manufacturer's use
36	NC	Reserved for LCD manufacturer's use
37	NC	Reserved for LCD manufacturer's use
38	VBL	LED Anode
39	VBL	LED Anode
40	NC	Reserved for LCD manufacturer's use
41	LED_C1	LED Cathode 1
42	LED_C2	LED Cathode 2
43	LED_C3	LED Cathode 3
44	LED_C4	LED Cathode 4
45	LED_C5	LED Cathode 5
46	LED_C6	LED Cathode 6
47	LED_C7	LED Cathode 7
48	LED_C8	LED Cathode 8
49	NC	Reserved for LCD manufacturer's use
50	NC	Reserved for LCD manufacturer's use

MICRO-STAR INT'L CO.,LTD.

Title: eDP Connector

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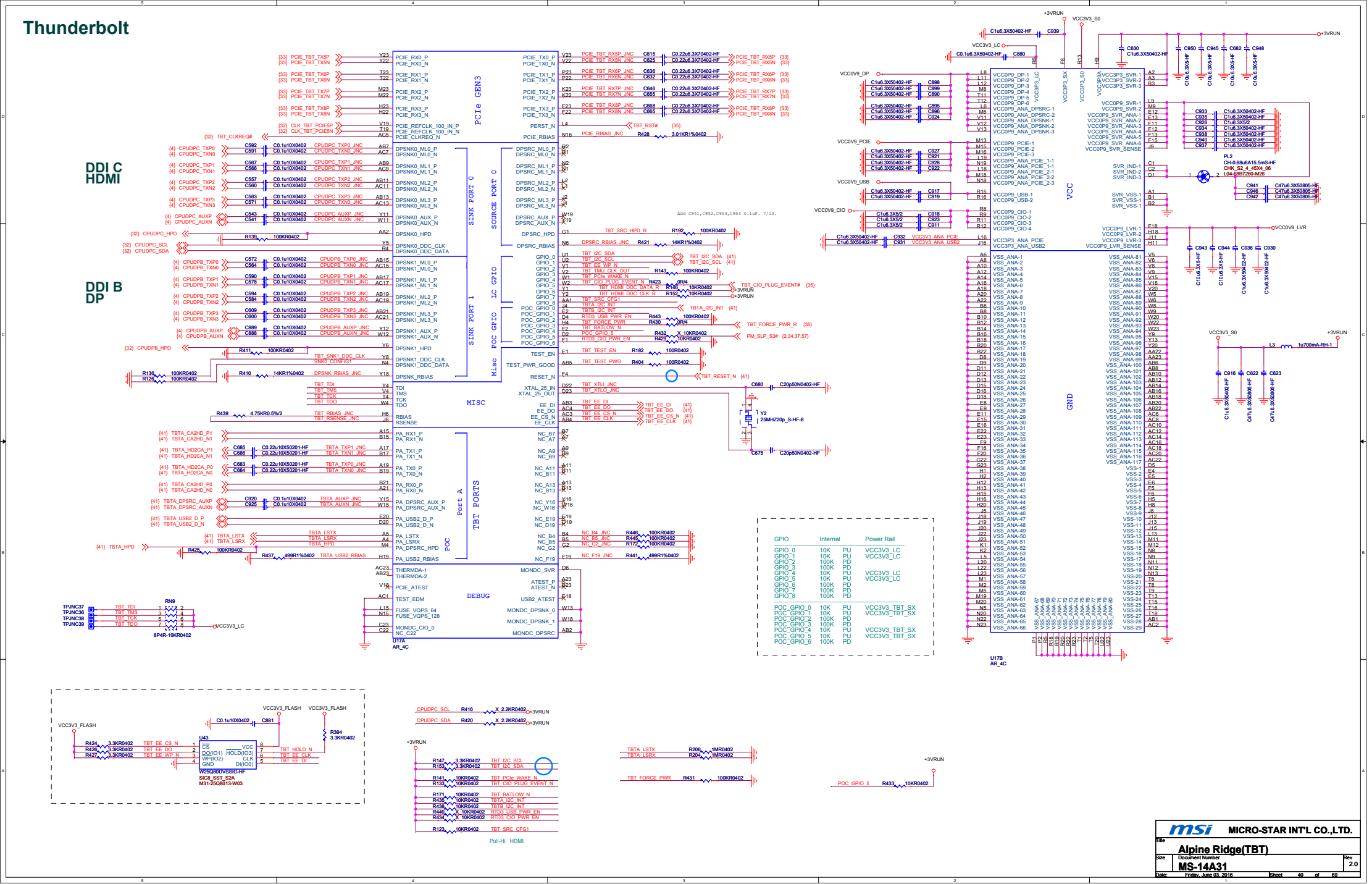
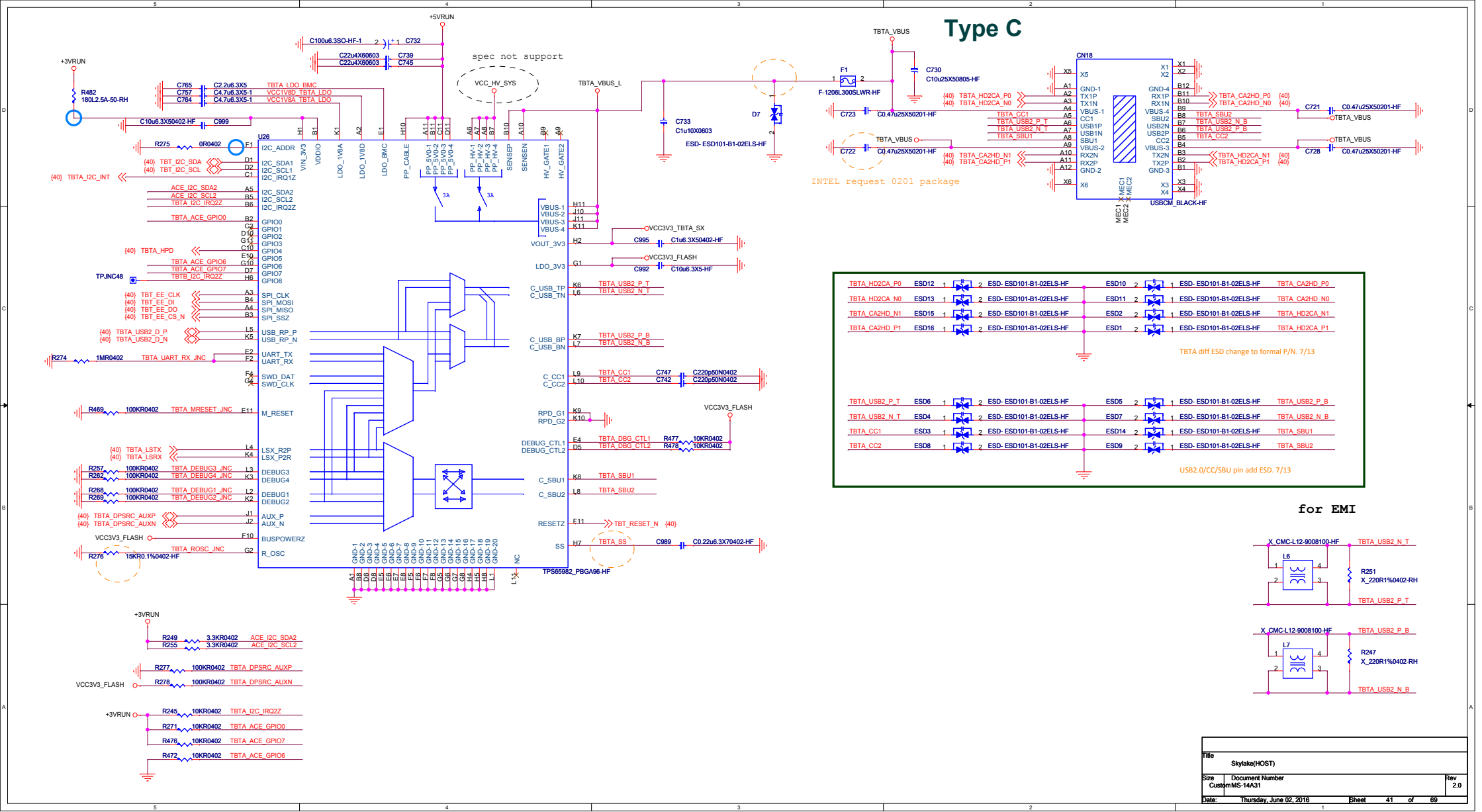
Thunderbolt




Type C
spec not support
INTEL request 0201 package
TBTA diff ESD change to formal P/N. 7/13
USB2.0/CC/SBU pin add ESD. 7/13
for EMI
TPS65982_PBGA98-HF
USBCM_BLACK-HF
Title
Skylake(HOST)
Size
Custom
Document Number
MS-14A31
Rev
2.0
Date:
Thursday, June 02, 2016
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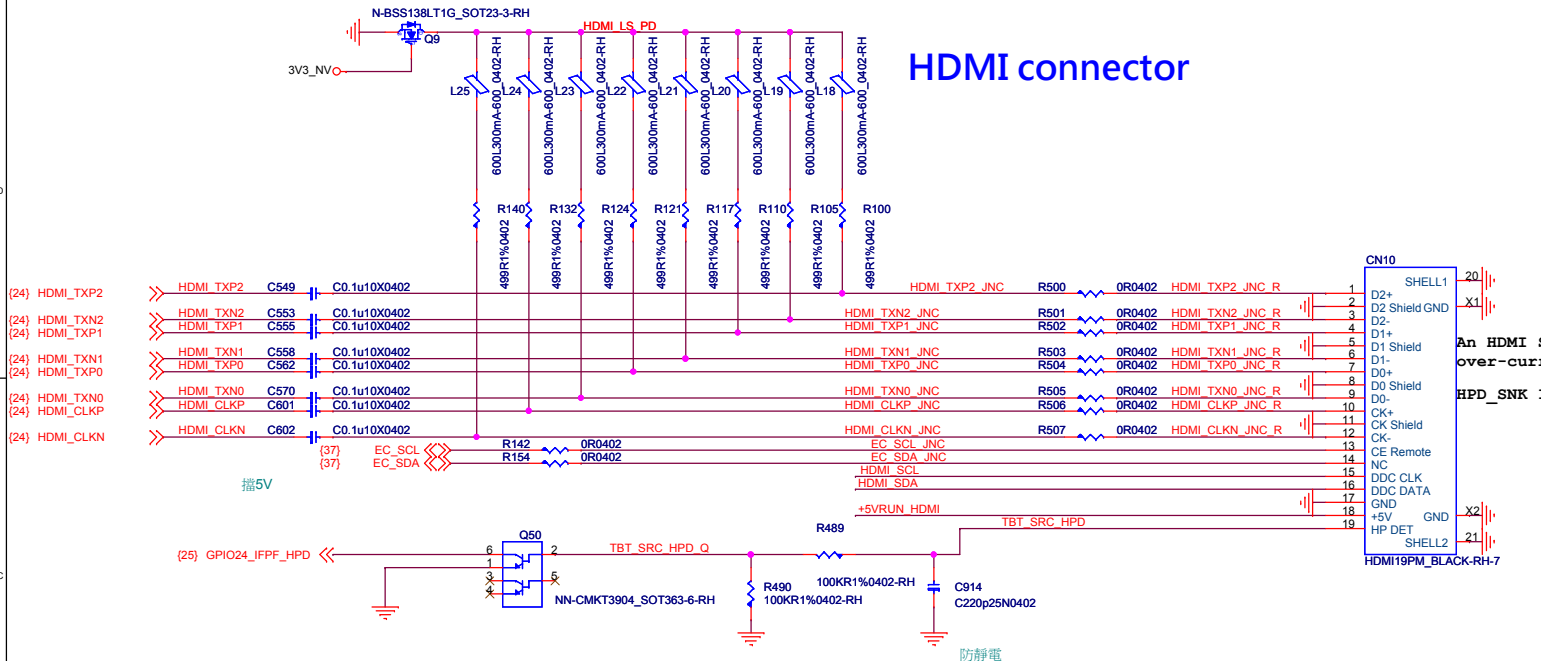
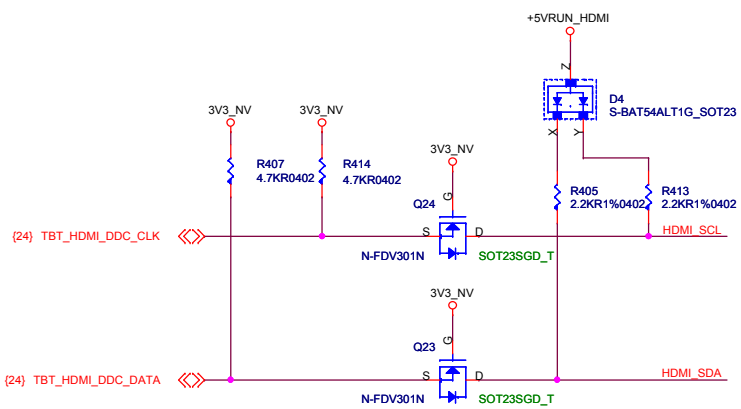
41
of
69

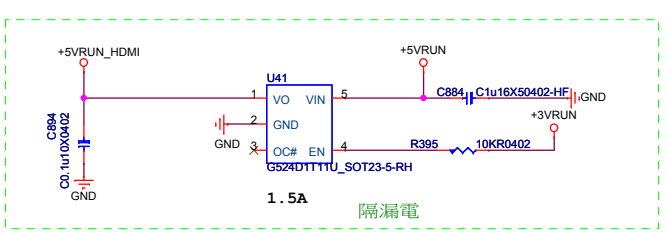
HDMI connector

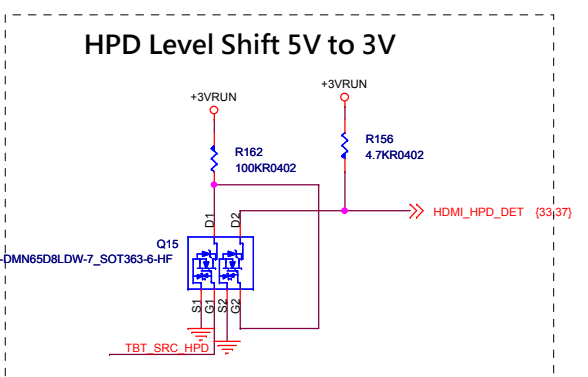


An HDMI Source shall have +5V Power signal over-current protection of no more than 0.5A.

HPD_SNK Internal PD 150kohm

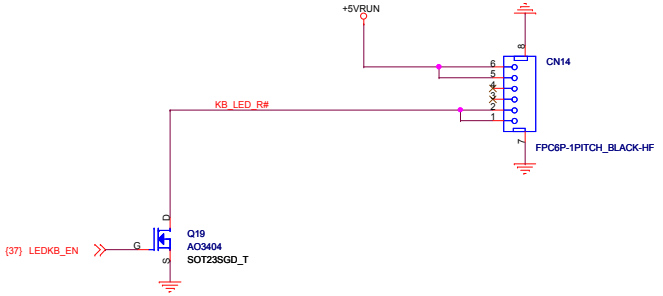




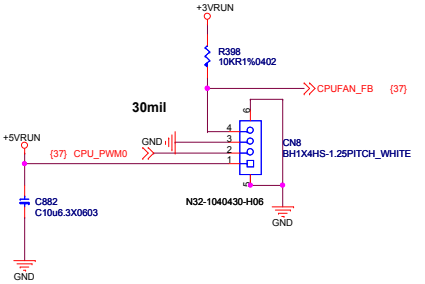


MICRO-STAR INT'L CO.,LTD.		
Title: HDMI		
Size: Custom	Document Number: MS-14A31	Rev: 2.0
Date: Friday, June 03, 2016	Sheet 42 of 69	

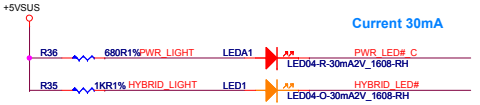
PWR SW/CPU FAN/BTB CONN/ LED CONN



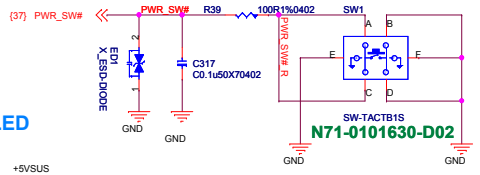
CPU FAN



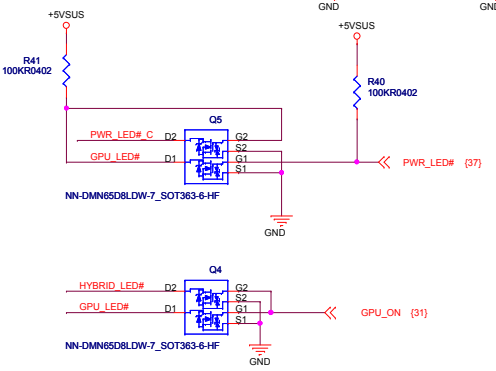
Power LED



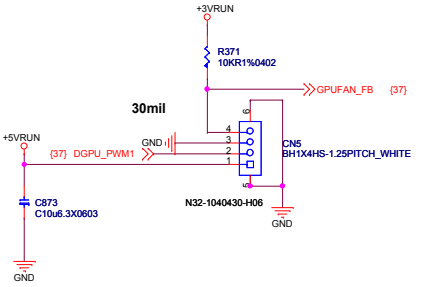
Power Switch



Control PWR LED

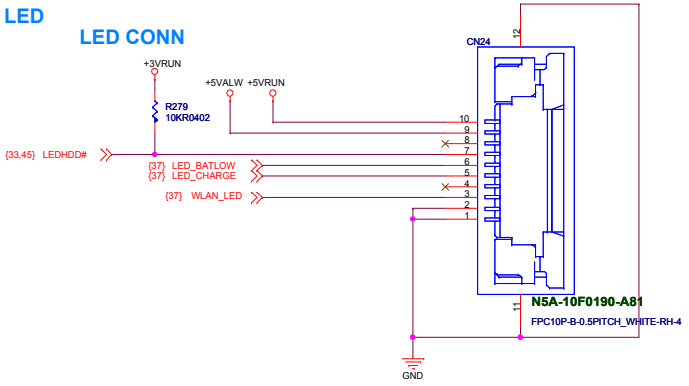


DGPU FAN



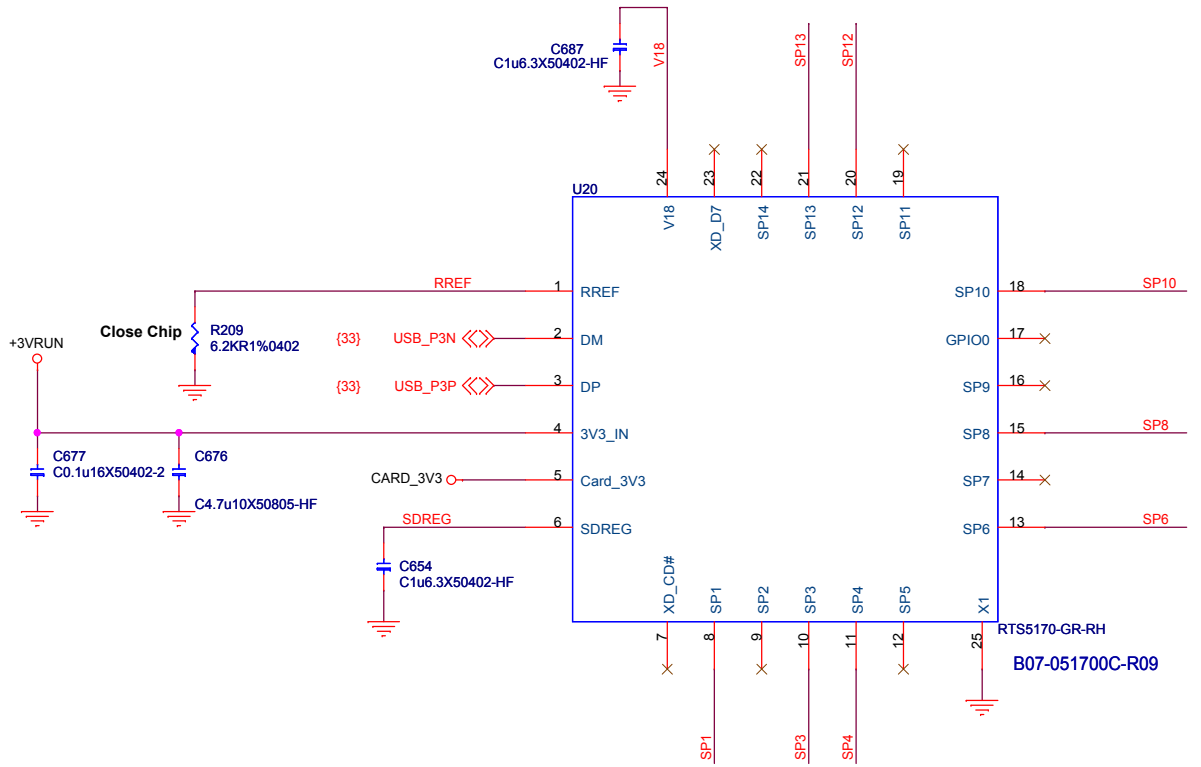
LED

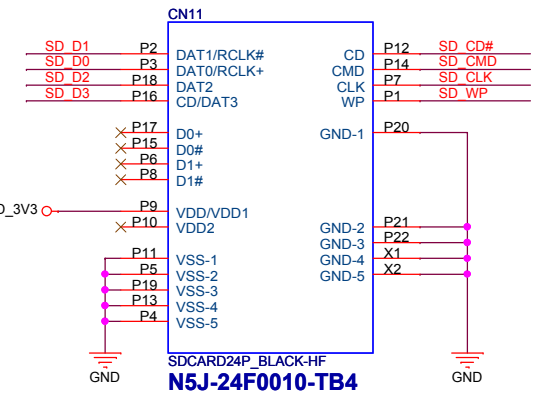
LED CONN



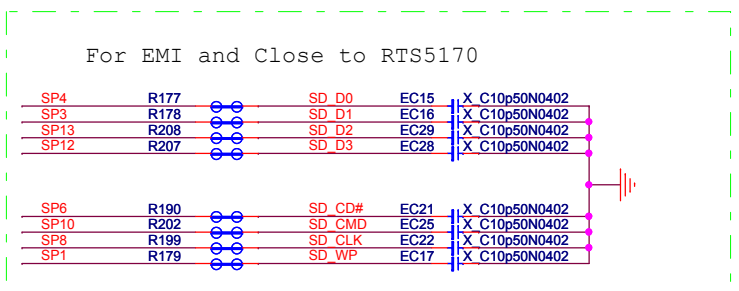
msi	MICRO-STAR INT'L CO.,LTD.		
Title	CPU FAN/BTB CONN/LED		
Size: Custom	Document Number: MS-14A31		Rev: 2.0
Date: Thursday, June 02, 2016	Sheet 43 of 69		

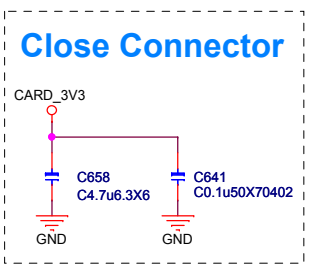
CardReader (RTS5170)





CARD_3V3: 950mA





MICRO-STAR INT'L CO.,LTD.

Title: Card Reader

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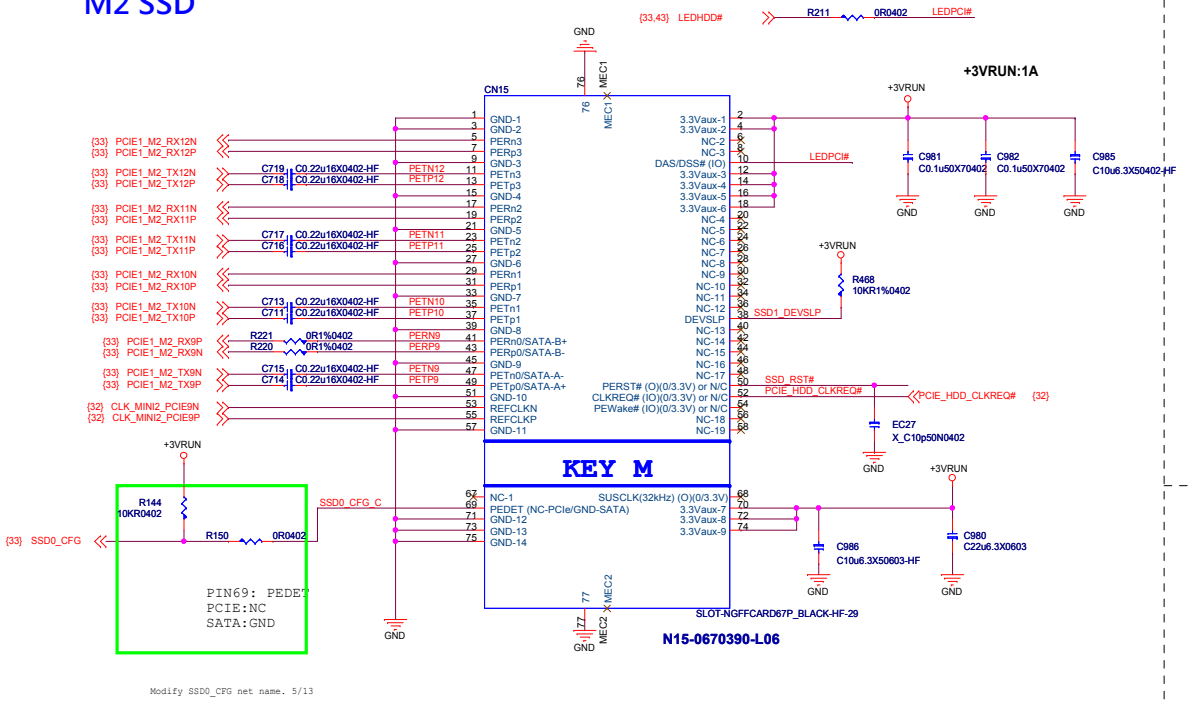
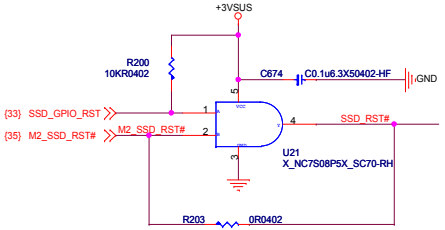
M2 SSD



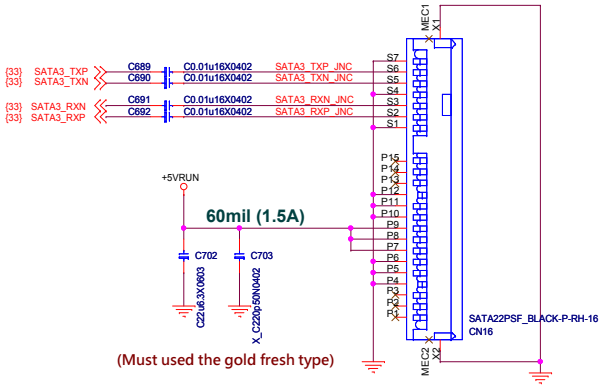
Modify SSD0_CFG net name. 5/13

PCIEx4 /SATA SSD3

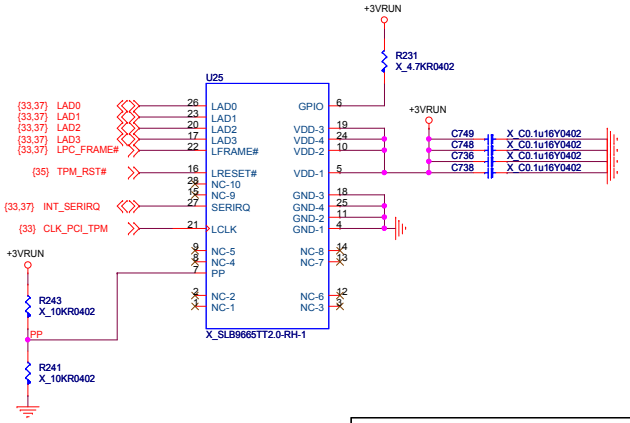


40	NC	No Connect
41	SATA-B+/PERn0	Host receiver differential signal pair
42	NC	No Connect
43	SATA-B-/PERp0	Host receiver differential signal pair
44	NC	No Connect
45	GND	Ground
46	NC	No Connect
47	SATA-A-/PETn0	Host Transmitter differential signal pair
48	NC	No Connect
49	SATA-A+/PETp0	Host transmitter differential signal pair

HDD2



TPM



MICRO-STAR INT'L CO.,LTD.

Title: M2 SSD/HDD/TPM

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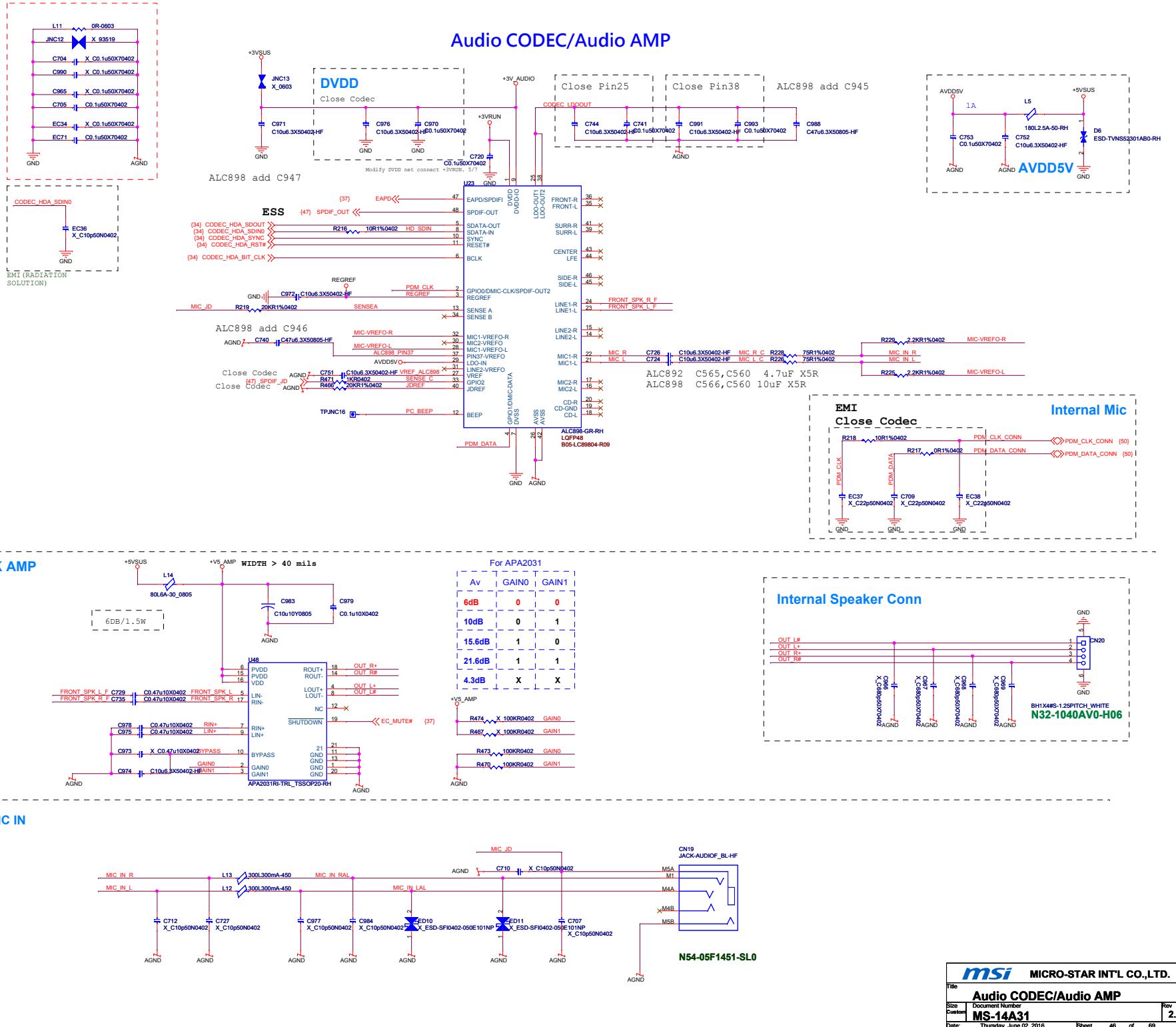
Audio CODEC/Audio AMP



SPK AMP

For APA2031

Av	GAIN0	GAIN1
6dB	0	0
10dB	0	1
15.6dB	1	0
21.6dB	1	1
4.3dB	X	X

Internal Speaker Conn

MIC IN

msi	MICRO-STAR INT'L CO.,LTD.
Title	Audio CODEC/Audio AMP
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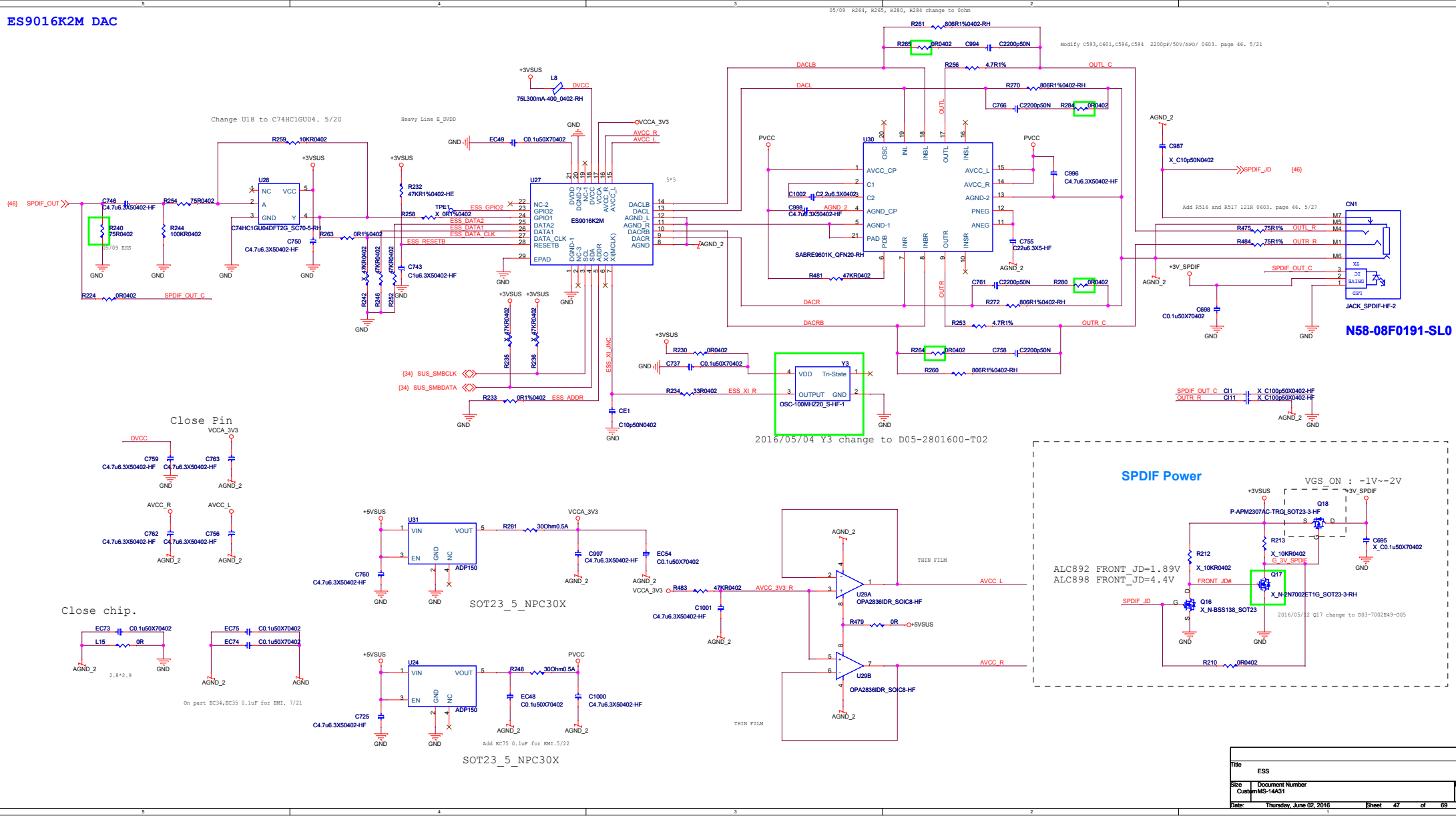
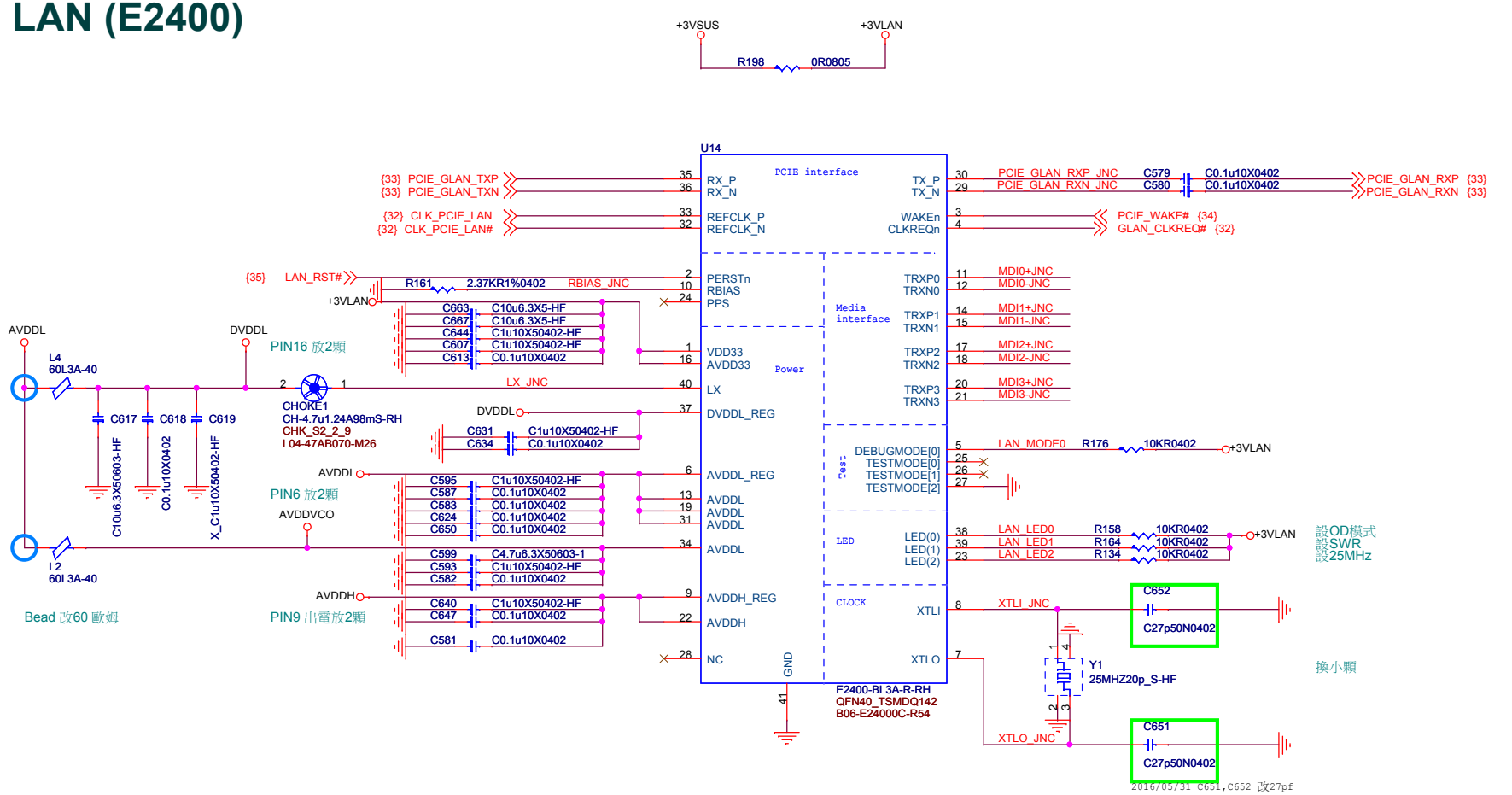
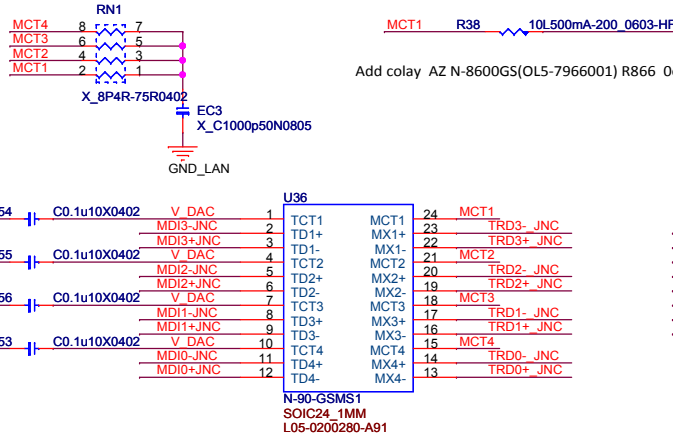
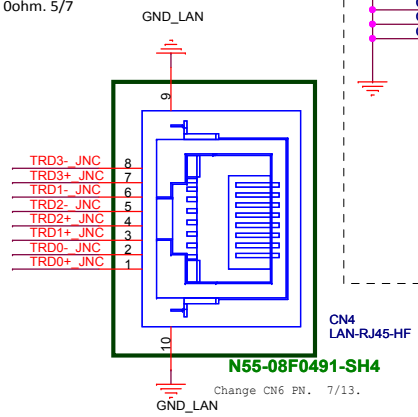
ES9016K2M DAC

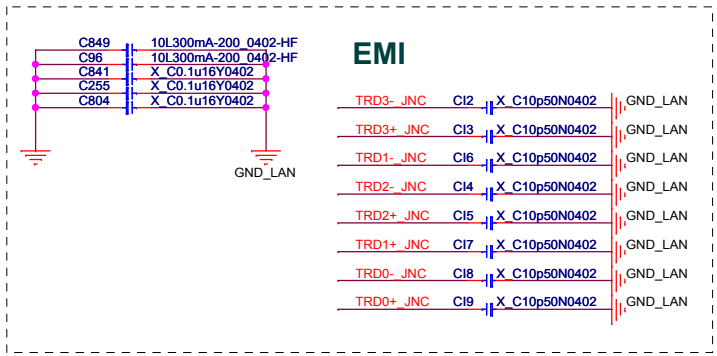


LAN (E2400)









MICRO-STAR INT'L CO.,LTD.			
Title: GigaLAN (E2400)			
Size: Custom	Document Number: MS-14A31		Rev: 2.0
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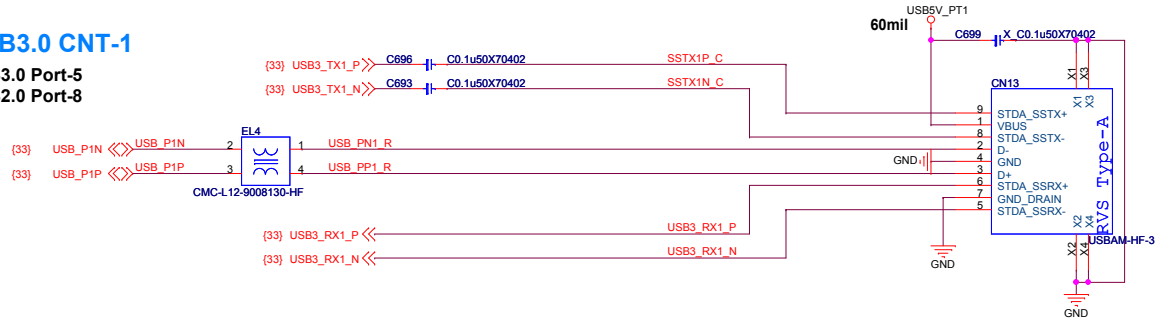
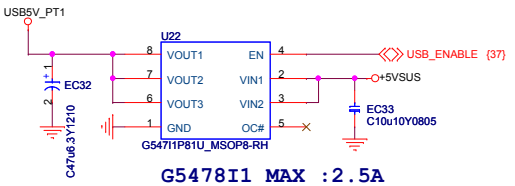
USB2.0/USB 3.0

USB3.0 CNT-1

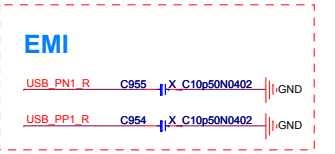
USB3.0 Port-5
USB2.0 Port-8

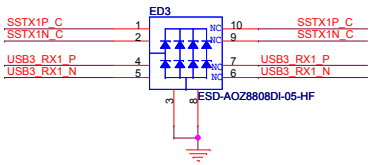


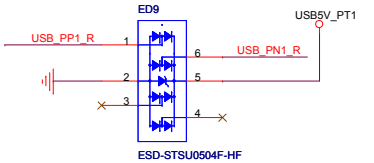


G5478I1 MAX :2.5A

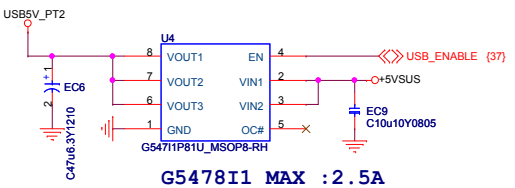
EMI



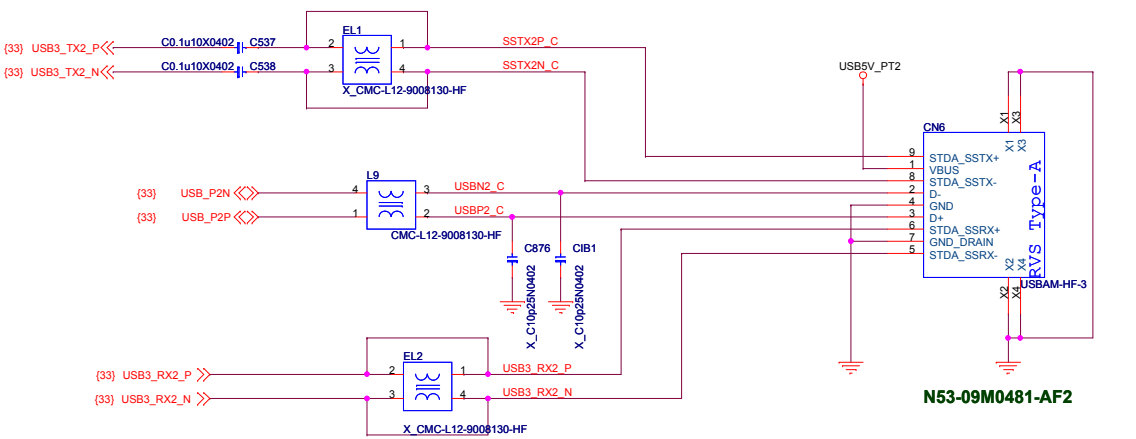


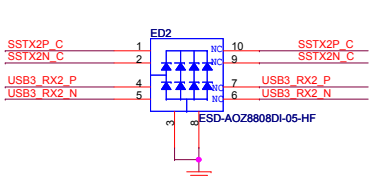


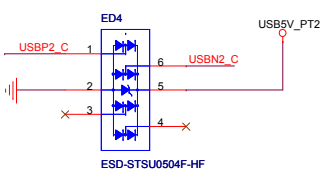
USB 3.0 CNT 2



G5478I1 MAX :2.5A







MICRO-STAR INT'L CO.,LTD.

Title: **USB 3.0 connector**

Size	Document Number	Rev
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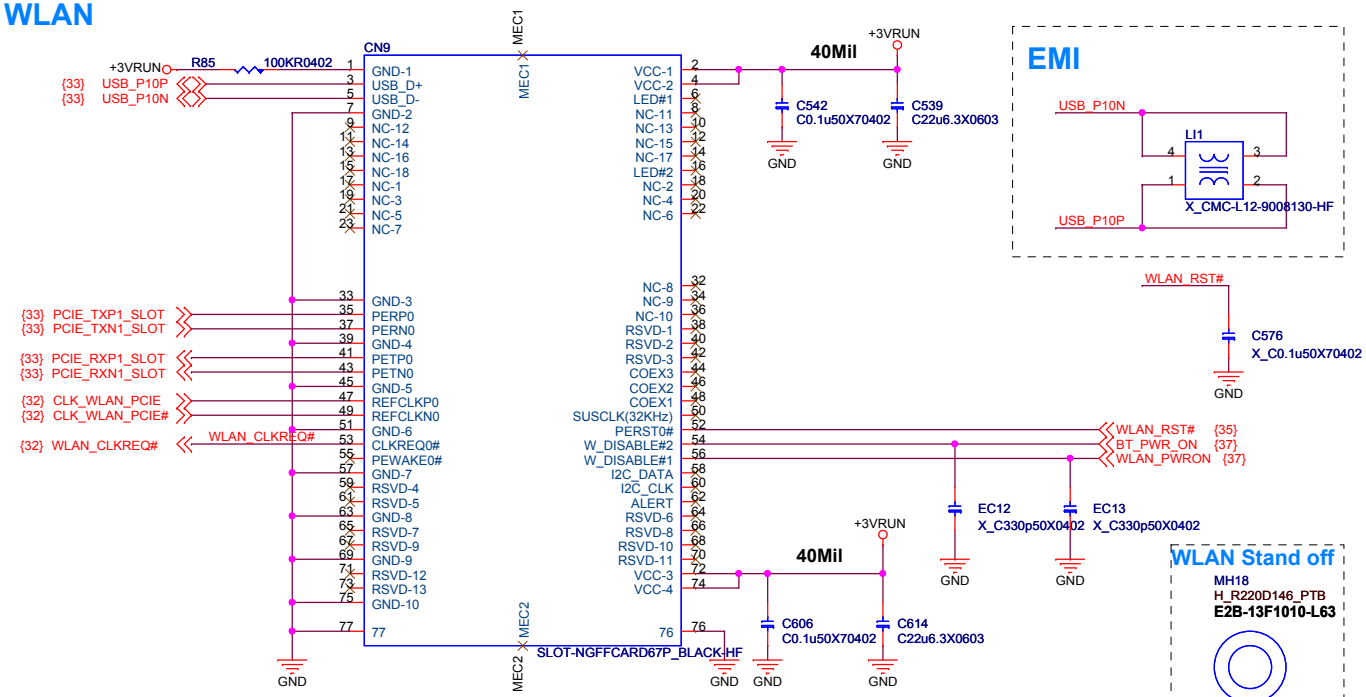
WLAN /Camera/ClickPad/FP

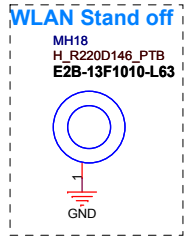
WLAN



EMI

WLAN_RST#

WLAN Stand off



Pin 1	GND		
Pin 3	USB_D+	Pin 2	3.3V
Pin 5	USB_D-	Pin 4	3.3V
Pin 7	GND	Pin 6	LED1#
Pin 9	Module Key	Pin 8	Module Key
Pin 11	Module Key	Pin 10	Module Key
Pin 13	Module Key	Pin 12	Module Key
Pin 15	Module Key	Pin 14	Module Key
Pin 17	N/C	Pin 16	LED2#
Pin 19	N/C	Pin 18	GND
Pin 21	N/C	Pin 20	N/C
Pin 23	N/C	Pin 22	N/C
Pin 25	Module Key	Pin 24	Module Key
Pin 27	Module Key	Pin 26	Module Key
Pin 29	Module Key	Pin 28	Module Key
Pin 31	Module Key	Pin 30	Module Key
Pin 33	GND	Pin 32	N/C
Pin 35	PERP0	Pin 34	N/C
Pin 37	PERN0	Pin 36	N/C
Pin 39	GND	Pin 38	Clink Reset (I 3.3V)
Pin 41	PETP0	Pin 40	N/C
Pin 43	PETN0	Pin 42	N/C
Pin 45	GND	Pin 44	N/C
Pin 47	REFCLKP0	Pin 46	N/C
Pin 49	REFCLKN0	Pin 48	N/C
Pin 51	GND	Pin 50	N/C (SUSCLK (32kHz) for DSx)
Pin 53	CLKREQ0#	Pin 52	PERST0#
Pin 55	PEWAKE0#	Pin 54	BT_EN (W_DISABLE2#)
Pin 57	GND	Pin 56	WLAN_EN (W_DISABLE2#)
Pin 59	N/C	Pin 58	N/C
Pin 61	N/C	Pin 60	N/C
Pin 63	GND	Pin 62	N/C
Pin 65	N/C	Pin 64	Resever
Pin 67	N/C	Pin 66	N/C
Pin 69	GND	Pin 68	N/C
Pin 71	N/C	Pin 70	N/C
Pin 73	N/C	Pin 72	3.3V
Pin 75	GND	Pin 74	3.3V

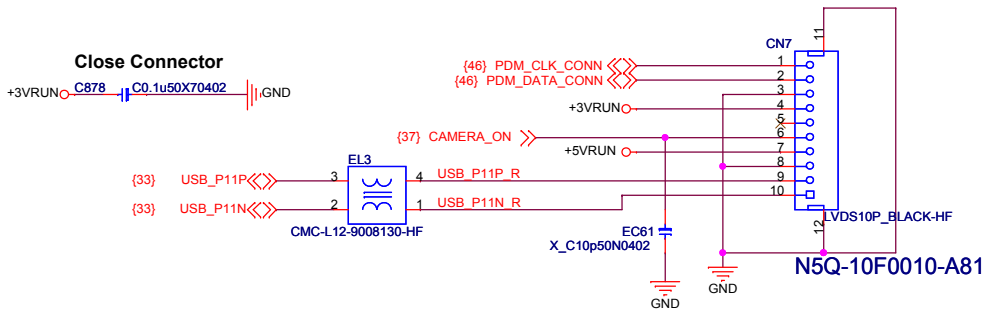
N15-0670160-L41

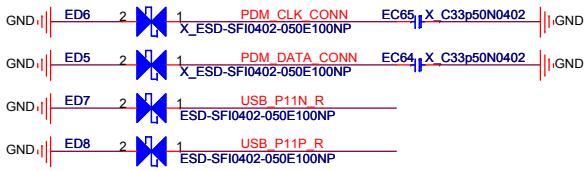
SLOT_NGFFCARD67

CAMERA

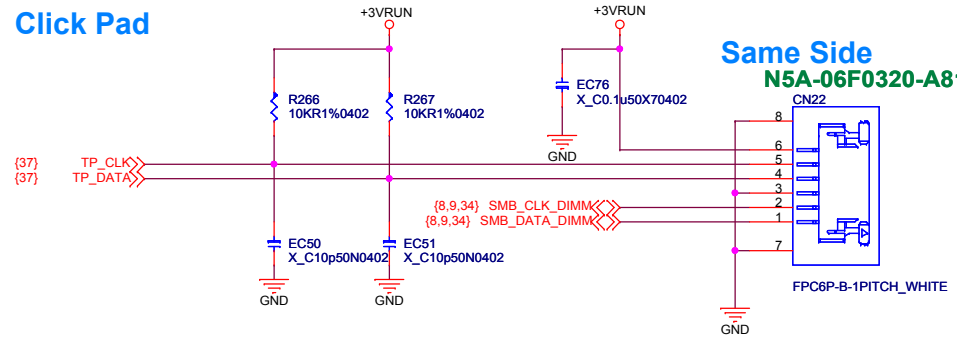
20Mil

Close Connector





Click Pad



Same Side

N5A-06F0320-A81

R473 , R479 0ohm on part for TP SMBus function. 7/15

msi	MICRO-STAR INT'L CO.,LTD.		
Title	WLAN /Camera/ClickPad/FP		
Size: Custom	Document Number: MS-14A31		Rev: 2.0
Date: Thursday, June 02, 2016		Sheet 50 of 69	

180W,19.5V/9.23A

N54-03F0751-S56
9.5A/20V

2016/05/12 add PL18

PL18 80L6A-30_0805-RH
PL10 80L6A-30_0805-RH
PL9 80L6A-30_0805-RH

PWR1 JACK-DCF_BL-RH-1

N92-03M0911-S56

PC191 C220p50N0402
PC64 C0.1u25X50402-HF
PR237 2.2R1206
PC192 C2.2u25X1206-HF-1

PR75 100KR0402
PR74 24.9KR1%0402
PU2 P-AO3409_SOT23-3-RH
PR72 470R
PC55 C0.47u25X0805-HF
PR73 240KR0402
PR77 178KR1%0402
+DC_IN

{37} AC_CTL
PR76 100KR0402
PQ3 N-2N7002ET1G_SOT23-3-RH

ID=-19A @Ta=70
DC_IN+
PQ2 P-SM4309PSKC-TRG_SOP8-HF
PQ40 P-SM4309PSKC-TRG_SOP8-HF
ADP+BATT ON
ADP+BATT+DOCK ON
BATT OFF
DOCK+BATT OFF

PR146 240KR0402
PR147 178KR1%0402
PQ10 N-2N7002ET1G_SOT23-3-RH
AC_OK

2016/05/12 PQ3,PQ10,PQ11,PQ14,PQ15,PQ16 change to D03-7002E49-005

For Docking

PQ11 X_N-2N7002ET1G_SOT23-3-RH
PR145 X_100KR0402
PR150 X_100KR0402
PC127 X_C4700p25X0402
PQ14 X_N-2N7002ET1G_SOT23-3-RH
DC_IN+
PR149 X_15KR1%0402
PR148 X_4.7KR0402

SDC_IN+
PC233 C0.01u25X0402
PC124 C0.1u25X0402-HF
PC234 C10u25X0805-HF

65W,12V/5.42A

For Docking

ADP+BATT OFF
ADP+BATT+DOCK OFF
BATT OFF
DOCK+BATT ON

PD6 X_S-FM540-B-H-HF
DOCK_DC
PC242 X_C0.1u25X0402-HF

PR270 X_100KR0402
PQ39 X_P-AO3409_SOT23-3-RH
PR264 X_1MR0402
PQ41 X_P-SM4309PSKC-TRG_SOP8
PR263 X_100KR0402
PR269 X_24.9KR1%402
+3VALW
PR274 X_10KR1%0402
DC_IN+
PR266 X_15KR1%0402
PQ38 X_N-2N7002ET1G_SOT23-3-RH
PQ44 X_NN-DMN65D8LDW-7_SOT363-6-HF
PR267 X_4.7KR0402
PR275 X_100KR0402
AC_OK

2016/05/12 PQ38 change to D03-7002E49-005

2S2P,70W/6V=11.66A

CN17 BH1X12#S-2PITCH_BROWN-RH
MEC1
MEC2

BATT_EN#
+VBATA
PC244 C0.1u25X50402-HF
PQ15 N-2N7002ET1G_SOT23-3-RH
BATT_EN {37}
PR153 1MR0402

+3VALW
PR157 100KR0402
100R0402 PR158 BAT_IN# {37}
100R0402 PR156 BATDATA_M {37}
BATCLK_M {37}
PC129 C0.1u16Y0402
PC130 X_C10u50N0402
PC131 X_C10u50N0402

ID=5A
PD8 S-FM540-B-H-HF
ID=5A
PD7 S-FM540-B-H-HF
8.4V~6V/11.7A
PEAK 25A
+VBATA_1
PQ42 P-SM4309PSKC-TRG_SOP8-HF
IS=-5A
ADP+BATT OFF
ADP+BATT+DOCK OFF
BATT ON
DOCK+BATT OFF
PWR_SRC
DC_IN+
PD1 SX2-DAN222WMTL_SOT523-3-HF
DOCK_DC
PR154 470KR0402

GPIO12_GPU_ACIN (25)
PQ5 NN-DMN65D8LDW-7_SOT363-6-HF
+3VALW
PR81 10KR0402
{37} GPU_ACIN1
AC_OK#
PQ6 N-2N7002ET1G_SOT23-3-RH
AC_OK {37}

AC_OK#	GPU_ACIN1 (EC_Ctrol)	GPIO12_GPU_ACIN
0	0	AC
0	1	AC
1	0	AC
1	1	DC

EE
DGPU ACIN

2016/05/12 PQ6 change to D03-7002E49-005

SDC_IN+
PR144 0.005R1%-HF
PC139 C0.1u25X50402-HF
PC134 C0.1u25X50402-HF
PC135 C0.1u25X50402-HF
BQ24780_AGND
PR162 0R0402
PR160 430KR1%0402-RH
PR163 10R1%1206
DC_IN+
PD3 1SS355VMTE_SOD323
PD2 1SS355VMTE_SOD323
+VBATA
PWR_SRC
PC256 C10u25X0805-HF
PC132 C10u25X0805-HF
PC133 C0.1u25X50402-HF
+VBATA_1

Modify form BQ24780 to BQ24780S 5/13

PU7
CMSRC
ACDRV
ACDET
SDA
SCL
ACOK
PROCHOT
TB_STAT
IADP
IDCHG
PMOM
CMPIN
CMPOUT
ACP
ACN
VCC
REGN
BTST
HIDRV
PHASE
LODRV
SRP
SRN
BATSRC
BATDRV
BATPRES
ILIM
GND
PowerPAD
BQ24780SRUYR_QFN28-HF

CHG_VCC PC138 C1u25X5-HF
CHG_REGN_6V PC142 C2.2u10X5-HF
PR167 1R PC141 C0.047u25X0402-HF
CHG_DH
CHG_LL
CHG_DL
PC145 C0.1u25X50402-HF
PC143 C0.1u25X50402-HF
PC144 C0.1u25X50402-HF
CHG_BATSRC PR174 0R0402 +VBATA_1
PR170 0R0402
PR171 100KR1%0402-RH
PR173 665KR1%0402-HF +3VALW

PQ47 N-AON7410_DFN3X3A8-HF
PQ48 N-AON7430_DFN3X3A-8-RH
PL17 CH-4.7u10A40mS-RH-2 CHK_PCMC063T_1R5MN L04-47A7560-M26
PR283 X_2.2R0603
PC257 X_C470p50X0402
PR281 0.01R1%2512-HE-1
PR282 0.01R1%2512-HE-1
PR176 0R1%0402
PR175 0R1%0402
+VBATA
PC245 C0.1u25X0402-HF
PC243 C10u25X0805-HF
PC246 C10u25X0805-HF

Voltage = 8.7V for 2S2P
Charge Current = 4.03A
Discharge Current = 11.66A

For Docking ACOK go High
ADP > 17V
DOCK >10V

DC_IN+
PR159 71.5KR1%0402-RH
PC137 C0.1u25X50402-HF
PR151 100KR0402
PQ16 N-2N7002ET1G_SOT23-3-RH
PR155 64.9KR1%0402
PR152 100KR0402
PC128 C1u25X5-HF
BQ24780_AGND BQ24780_AGND

{37} BATDATA_M PR166 0R0402
{37} BATCLK_M PR168 0R0402
{37} AC_OK +3VALW PR161 10KR0402
{2} CHG_PROCHOT#
{37} TB_STAR# +3VALW PR172 10KR0402
{37} ADP_ICC BQ24780_AGND PC136 C100p16X0402
IDCHG_BATT
{55} PMON BQ24780_AGND PR165 0R0402 PC140 C100p16X0402 PR164 10KR0402
TPJNC22
PR169 0R0402
BQ24780_AGND

JNC14 X_93519
BQ24780_AGND

ICHG limi = VILIM/(20*Rsr)=4.342A
IDISCH limit = VILIM/(5*Rsr)=17.368A

Register name	Register address	POR state	Description	Note
Charge current(5mR)	0x14H	07Cx	3.968A	S0
		07Cx	3.968A	S3/S4/S5
Prepare charge(5mR)	0x14H	004x	0.128A	
Input current(5mR)	0x3FH	19.5V 120x	9.216A	180W
		12V 098x	4.864A	65W
Charge voltage	0x15H	220x	8.7V	2S2P
Discharge current(5mR)	0x39H	008x	2.048A	BOOST current

MICRO-STAR INT'L CO.,LTD.

Title: Battery select/Charger
Size: Custom
Document Number: MS-14A31
Rev: 2.0
Date: Thursday, June 02, 2016
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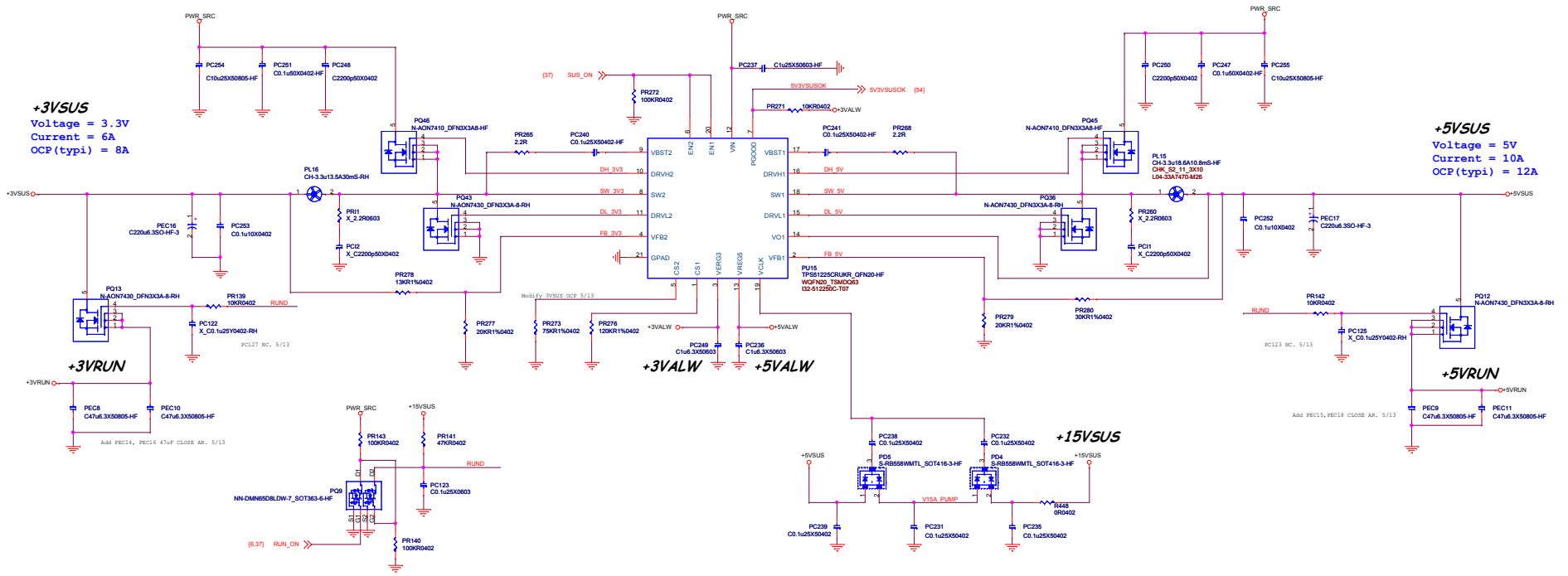
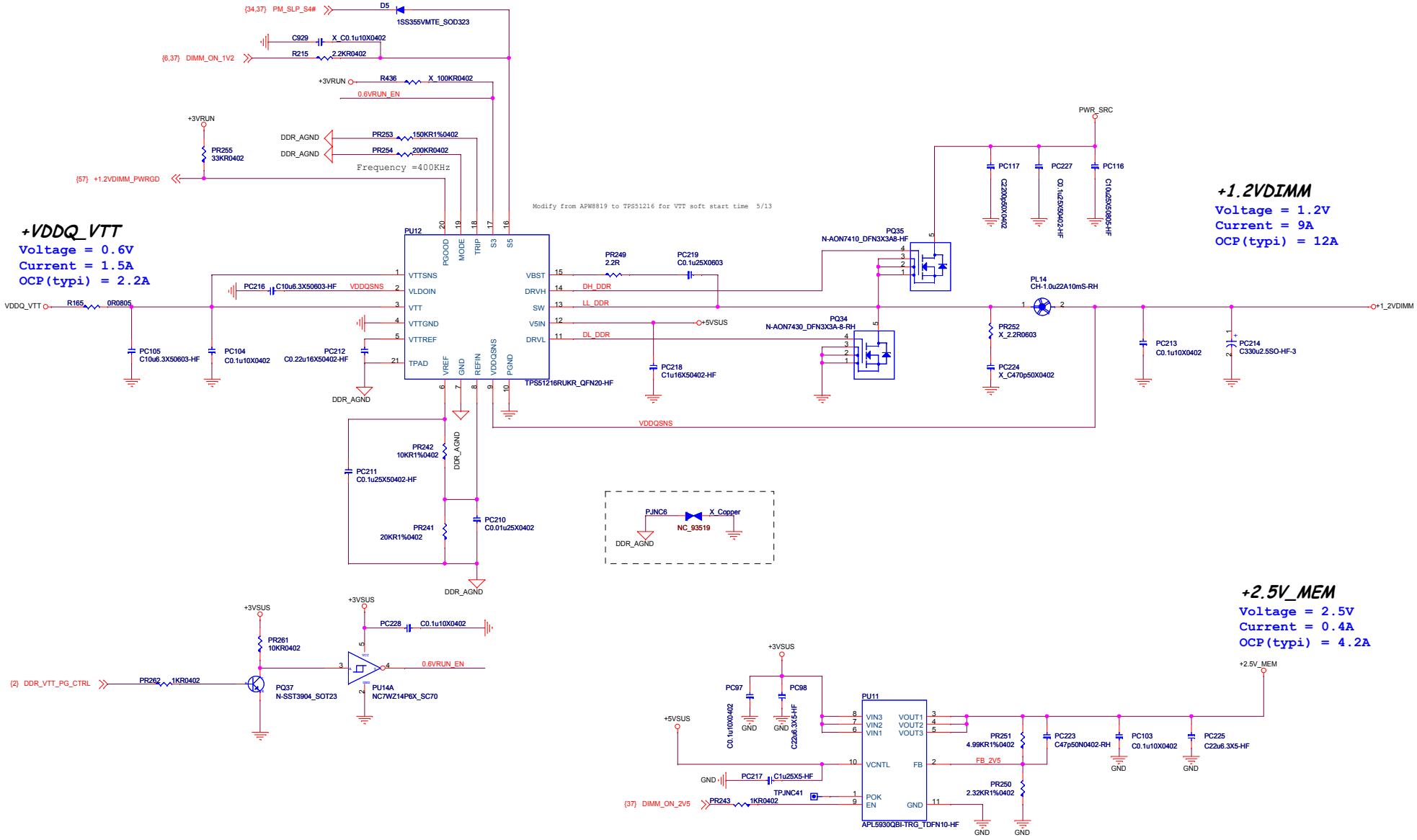


MSI	MICRO-STAR INT'L CO.,LTD.		
Title	System Power		
Size: Custom	Document Number: MS-14A31	Rev: 2.0	
Date: Thursday, June 02, 2016	Sheet 52 of 69		

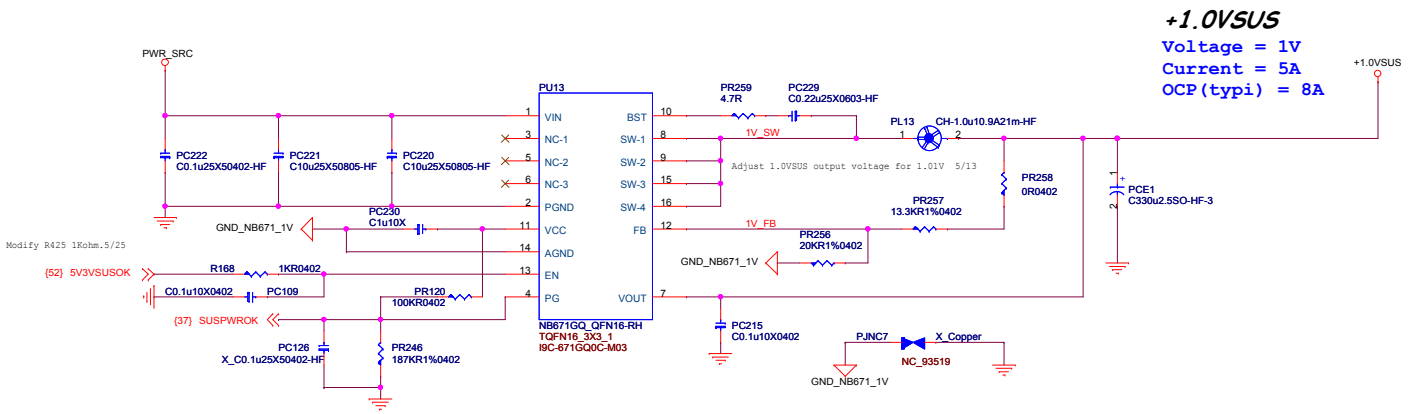


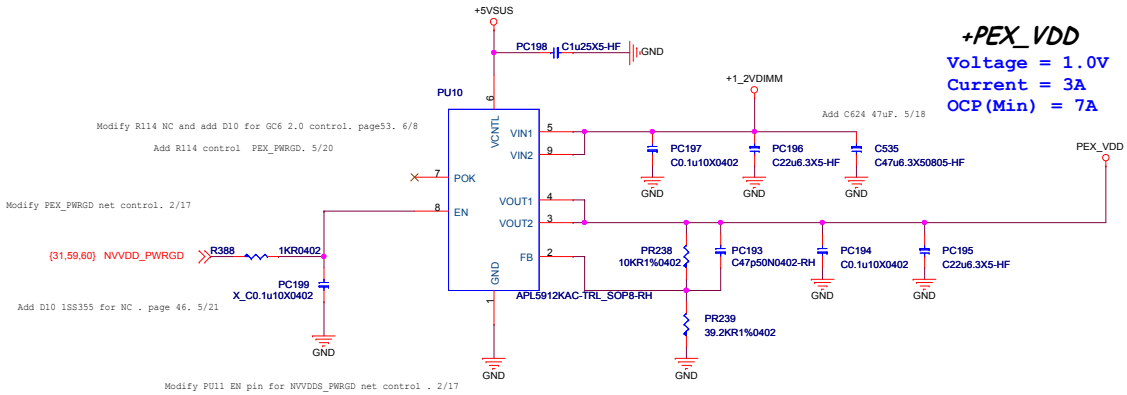
MICRO-STAR INT'L CO.,LTD.

Title: +1.2VDIMM/+0.6VRUN/+2.5V_MEM

Size: Custom | Document Number: MS-14A31 | Rev: 2.0

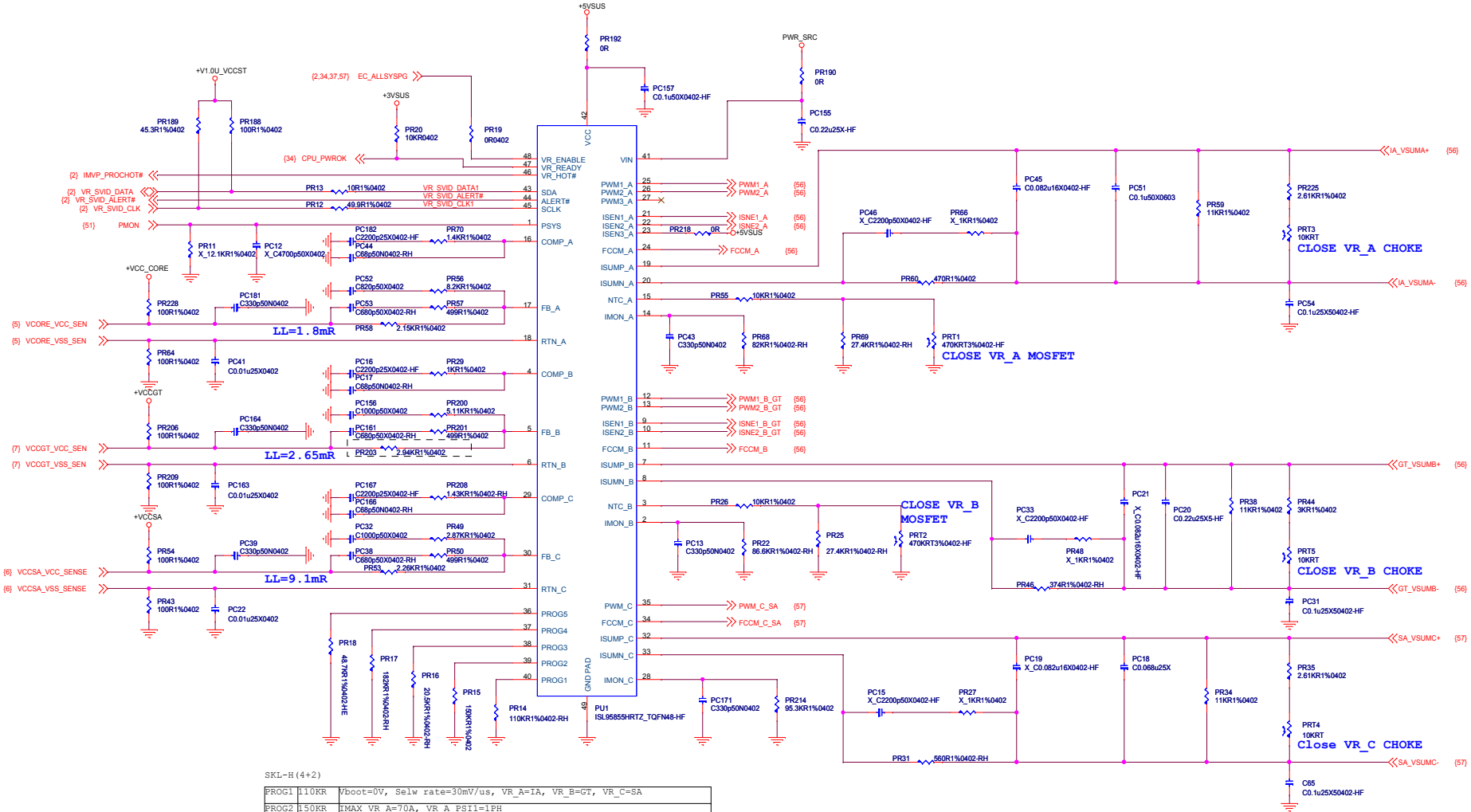
Date: Thursday, June 02, 2016 | Sheet 53 of 69





msi	MICRO-STAR INT'L CO.,LTD.	
Title	+1VSUS/+PEX_VDD	
Size: Custom	Document Number: MS-14A31	Rev: 2.0
Date: Thursday, June 02, 2016	Sheet 54 of 69	

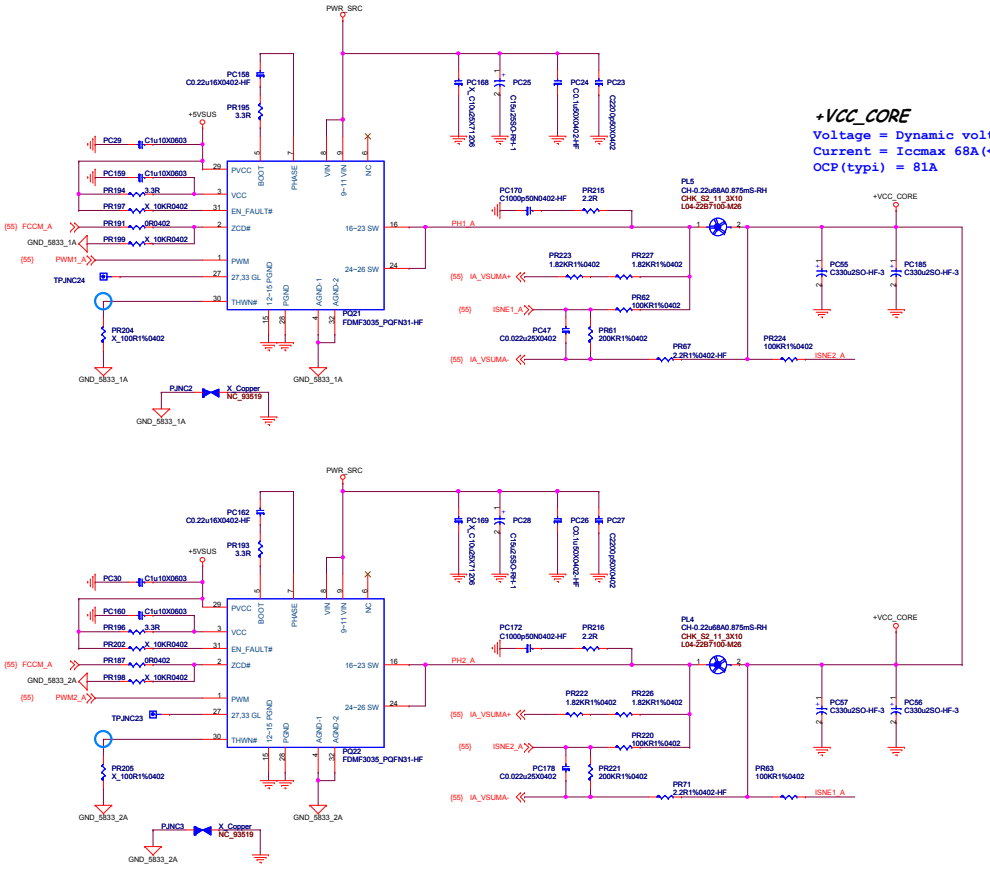
Skylake H-line 42 45W ISL95855

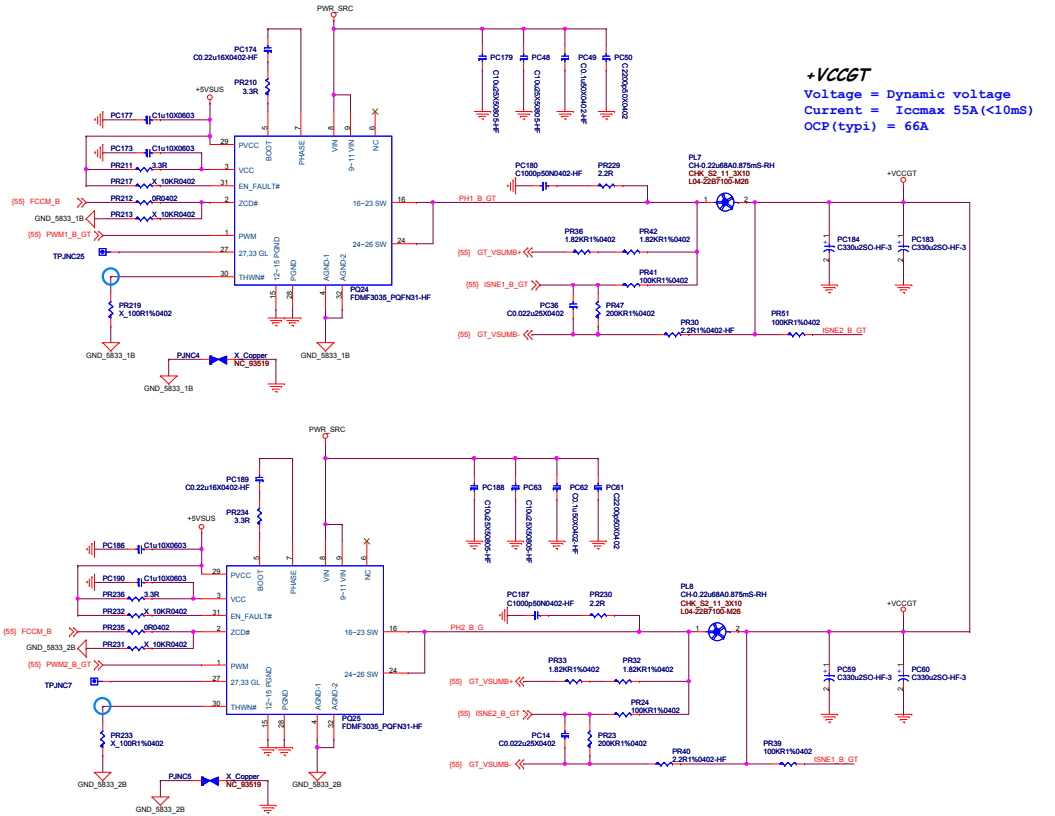


SKL-H(4+2)

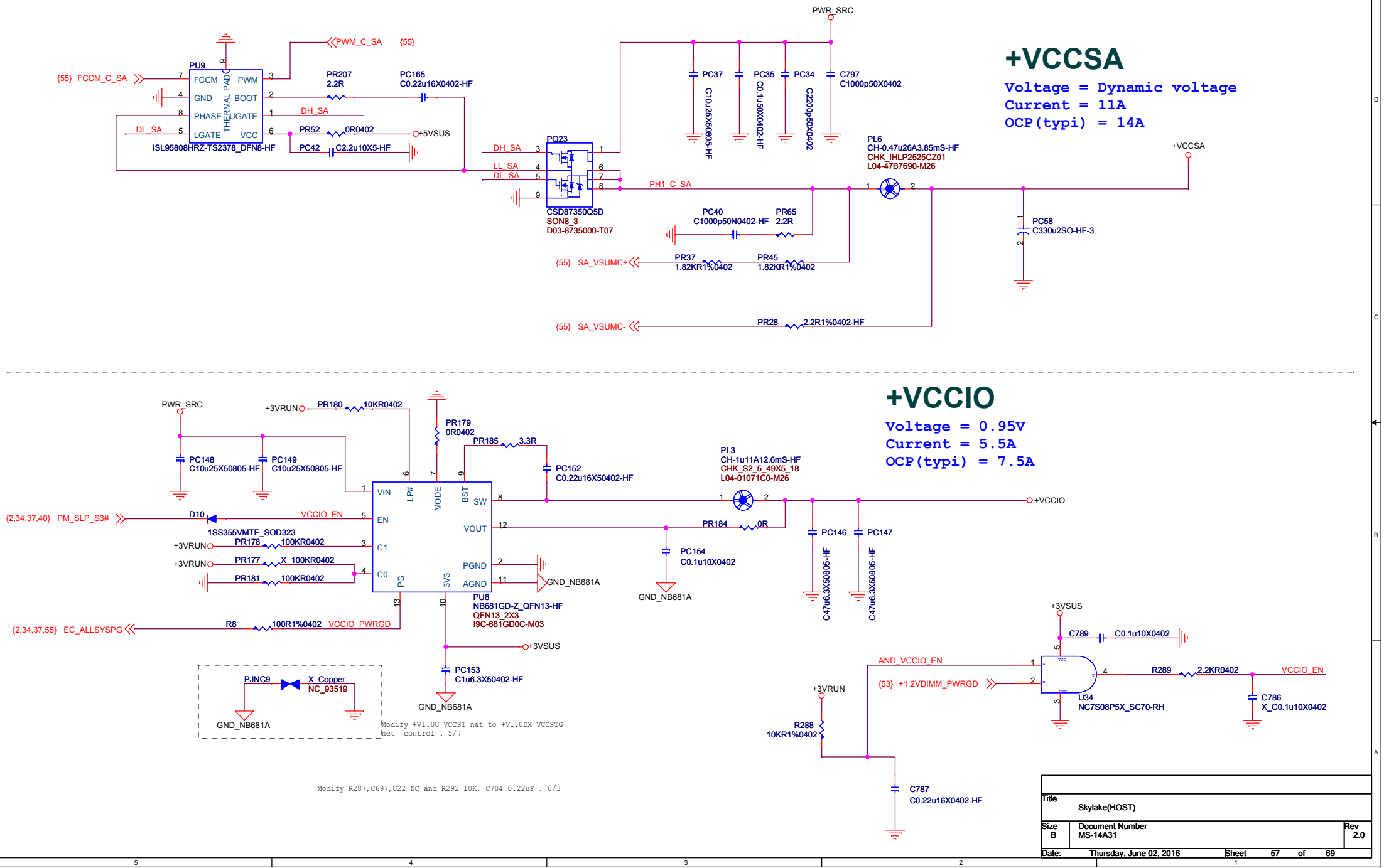
PROG1	110KR	Vboot=0V, Selw rate=30mV/us, VR_A=IA, VR_B=GT, VR_C=SA
PROG2	150KR	IMAX VR_A=70A, VR_A PSI1=1PH
PROG3	20.5KR	IMAX VR_B=60A, DROOP VR_B Active
PROG4	182KR	DROOP VR_A Active, DROOP VR_C Active, VR_A VR_B Frequency=750kHz
PROG5	48.7KR	IMAX VR_C=12A, Frequency=450kHz

Title	Skylake(HOST)		
Size C	Document Number MS-14A31		Rev 2.0
Date: Thursday, June 02, 2016		Sheet 55 of 69	





Title	Skylake(HOST)	
Size	Document Number	Rev
Custom	MS-14A31	2.0
Date: Thursday, June 02, 2016	Sheet 55 of 69	


+VCCSA
Voltage = Dynamic voltage
Current = 11A
OCP(typi) = 14A
PWR_SRC
PU9
ISL95808HRZ-TS2378_DFN8-HF
PQ23
CSD87350Q5D
SON8_3
D03-8735000-T07
PL6
CH-0.47u26A3.85mS-HF
CHK_IHLP2525CZ01
L04-47B7690-M26
+VCCSA
PC58
C330u2SO-HF-3
+VCCIO
Voltage = 0.95V
Current = 5.5A
OCP(typi) = 7.5A
PU8
NB681GD-Z_QFN13-HF
QFN13_2X3
I9C-681GD0C-M03
PL3
CH-1u11A12.6mS-HF
CHK_S2_5_49X5_18
L04-01071C0-M26
U34
NC7S08P5X_SC70-RH
Modify +V1.0U_VCCST net to +V1.0DX_VCCSTG
net control . 5/7
Modify R287,C697,U22 NC and R292 10K, C704 0.22uF . 6/3
Title
Skylake(HOST)
Size
B
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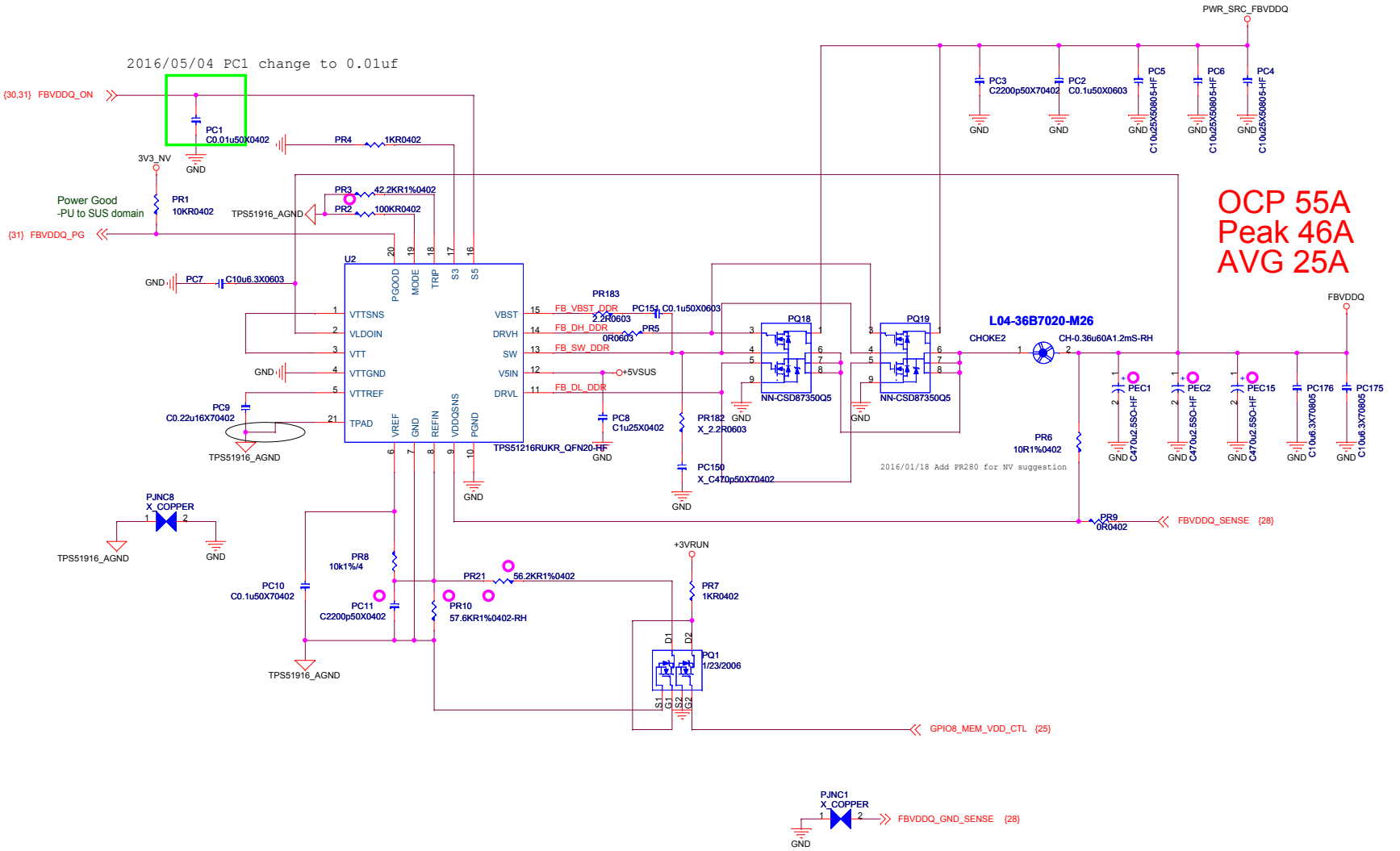
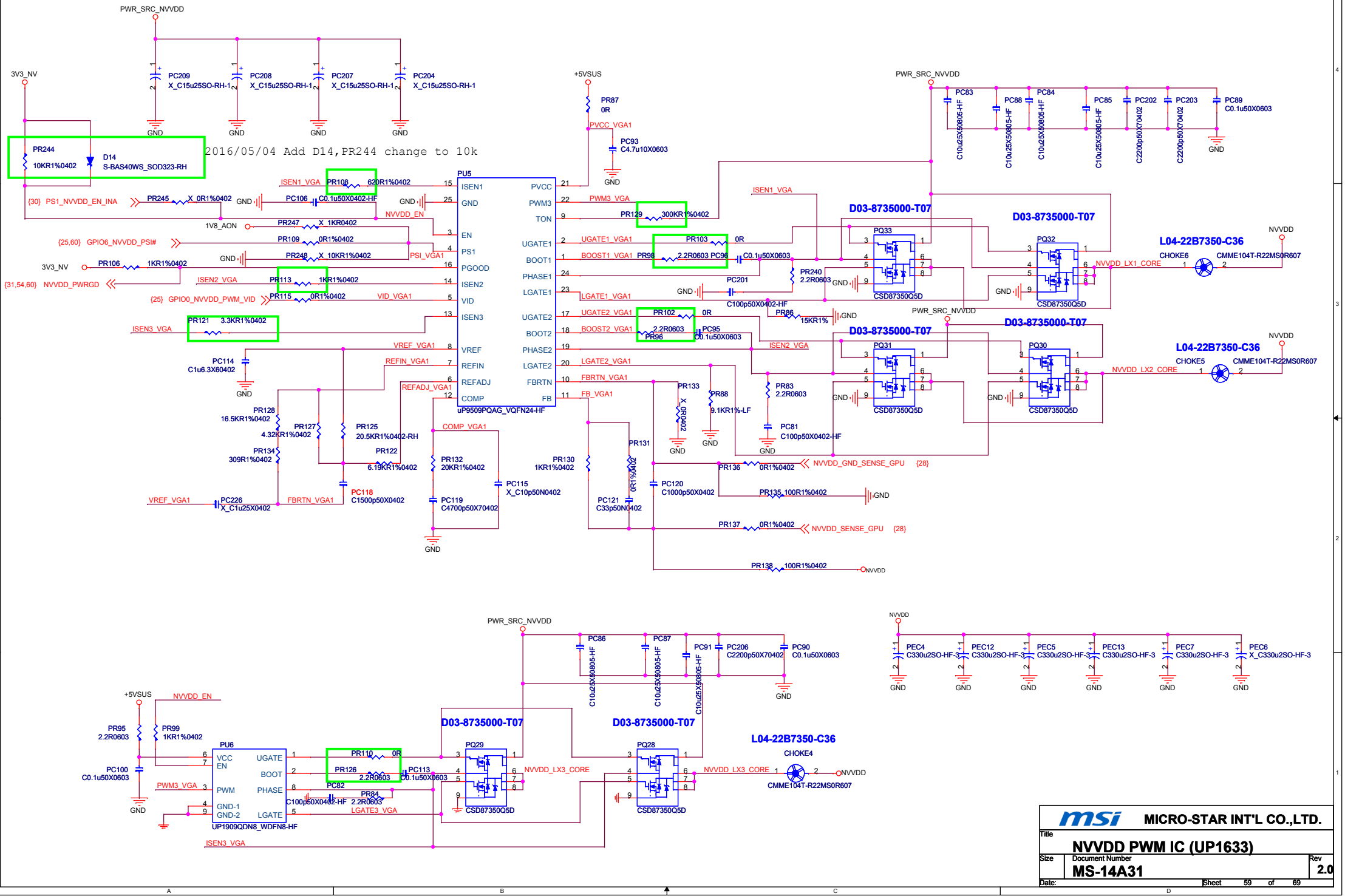
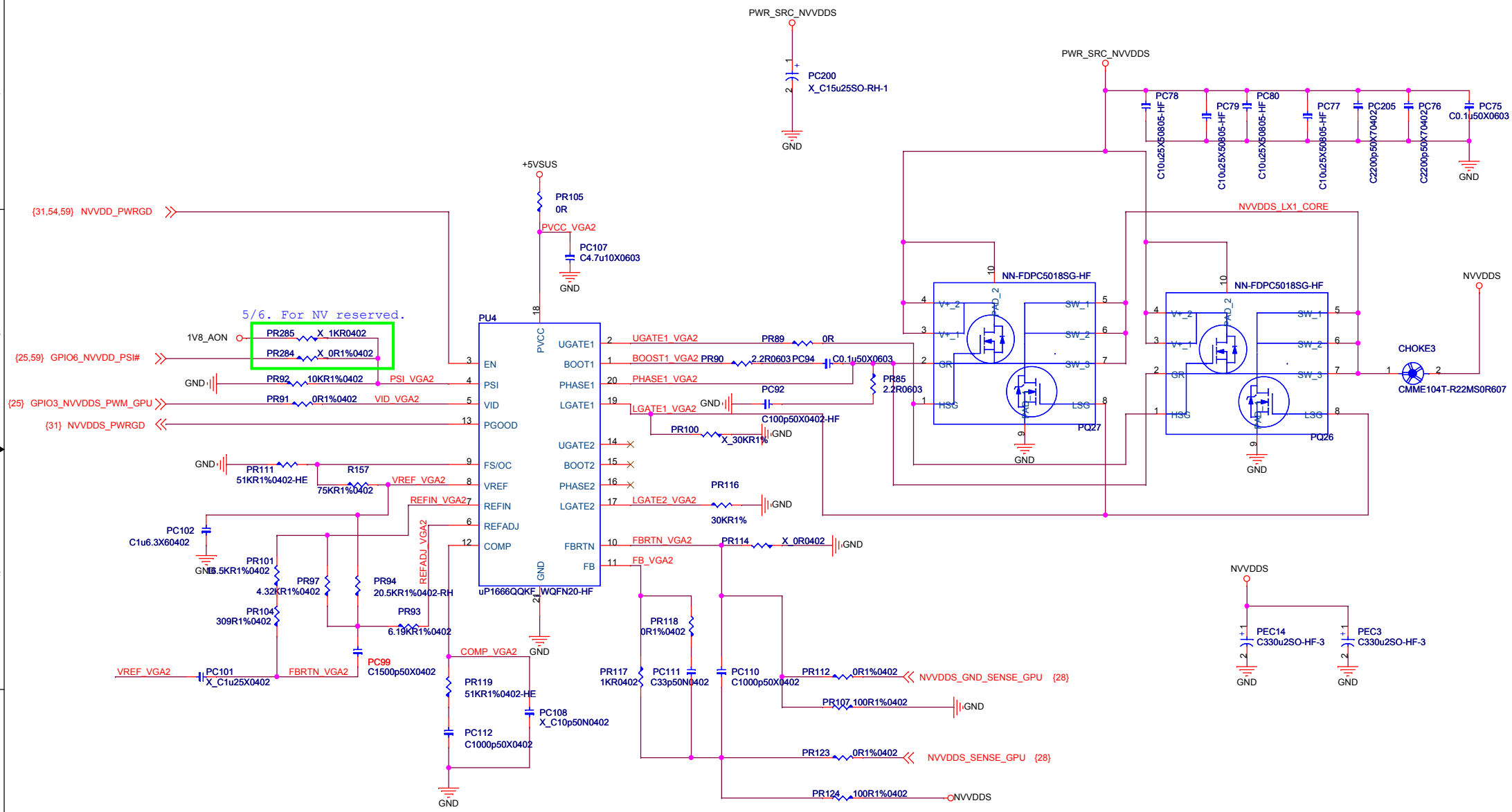
PAGE53: FBVDDQ



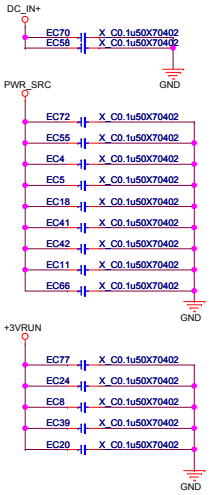
MICRO-STAR INT'L CO.,LTD.		
Title: FBVDDQ		
Size	Document Number: MS-14A31	Rev: 2.0
Date:	Sheet 58 of 69	

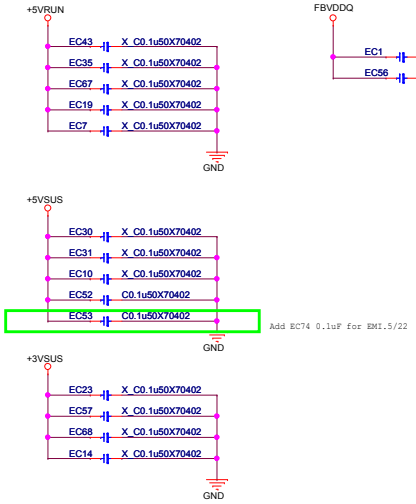


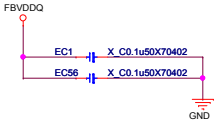
MICRO-STAR INT'L CO.,LTD.	
Title	NVVDD PWM IC (UP1633)
Size	Document Number: MS-14A31
Rev	2.0
Date:	Sheet 59 of 69

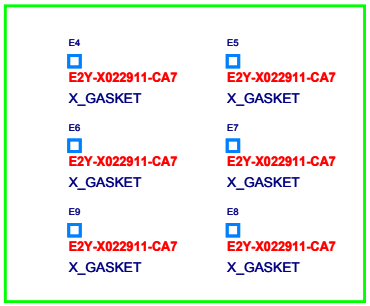


MICRO-STAR INT'L CO.,LTD.		
Title: NVVDD PHASE 1~4		
Size	Document Number: MS-14A31	Rev: 2.0
Date:	Sheet 60 of 69	



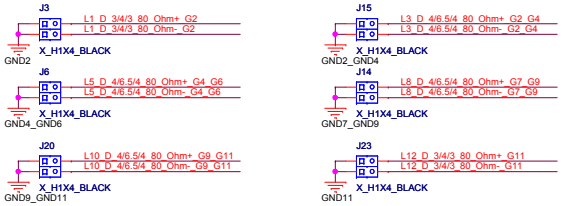




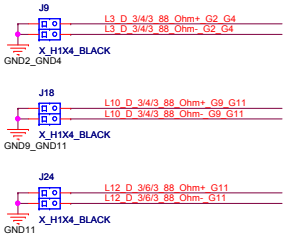


Add E4,E5,E6,E7,E8,E9for EMI.5/22

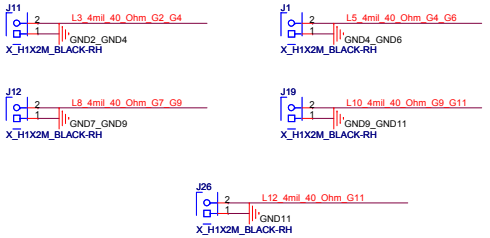
80 OHM / CLK/WCK



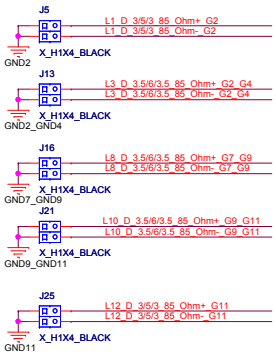
88 OHM /Alpine Ridge/DDR4 CLK



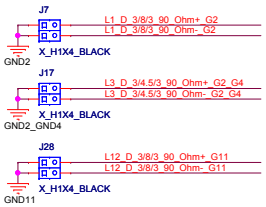
40 OHM / DDR4 CTRL



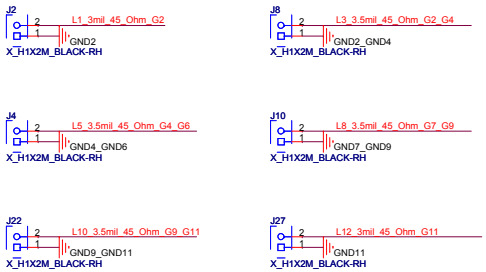
85 OHM /SATA /PCH PCIE/ EDP USB /HDMI/DP/DMI/CLK/PEG



AR type-C



45 OHM / DDR4 Data



MICRO-STAR INT'L CO.,LTD.

Title: EMI

Size: Custom | Document Number: MS-14A31 | Rev: 2.0

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CPU Holes

MCPU4 H_R276D169_PB
MCPU5 H_R276D169_PB
MCPU3 H_R276D169_PB

DGPU Holes

MCPU1 H_R276D169_PB
MCPU7 H_R276D169_PB
MCPU2 H_R276D169_PB
MCPU6 H_R276D169_PB

H_R217D91 MH8 X_HOLES_R236D98_1034
H_R217D91 MH4 X_HOLES_R236D98_1034
H_R217D91 MH7 X_HOLES_R236D98_1034
H_R217D91 MH5 X_HOLES_R236D98_1034
H_R217D91 MH11 X_HOLES_R236D98_1034
H_R217D91 MH13 X_HOLES_R236D98_1034
H_R217D91 MH9 X_HOLES_R236D98_1034
H_R217D91 MH3 X_HOLES_R236D98_1034
H_R217D91 MH10 X_HOLES_R236D98_1034
H_R217D91 MH14 X_HOLES_R236D98_1034

NPTH_O_D81X98 MH6 X_NPTH_O_D81X98
NPTH_81 MH12 X_NPTH_81

Hole118 MH16 X_Hole118
Hole118 MH2 X_Hole118
Hole118 MH1 X_Hole118
Hole118 MH15 X_Hole118

FM11 FM1 FM13 FM14
FM12 FM5 FM3 FM4
FM7 FM6 FM2 FM8
FM16 FM15 FM10 FM17 FM9
FM18 FM19 FM20 FM21
FM22 FM23 FM24 FM25
FM26 FM27 FM28 FM29
FM30 FM31 FM32 FM33

RU1 RU6 RU10 RU14
RU2 RU5 RU9 RU13
RU3 RU8 RU12 RU16
RU4 RU7 RU11 RU15
E2Y-4A10711-Y40 RUBBER

RU17 RU18
E2Y-4A10811-Y40 RUBBER

RU19
E2Y-4A10911-Y40 RUBBER

160529

MH17 MXM Stand-off
E2B-14A1010-A89
MH15 stand-off bottom

UME5 CPU BKT
CPU BKT
E2M-4A11411-A89

UME6 GPU BKT
GPU BKT
E2M-4A11311-A89

UME9 MB MYLAR
MB_mylar
E2Y-X050411-G40

UME3 COMPLIANCE MYLAR
COMPLIANCE_mylar
E2P-4A11411-Y42

UME11 COMPLIANCE MYLAR
COMPLIANCE_mylar
E2Y-4A11011-Y42

PCB1
PD0-14A3120-H73
PD0-14A3120-H73
Hannstar:PD0-14A3120-H73
TRIPOD: PD0-14A3120-T53

UME4 MB MYLAR
X_MB_mylar
X_E2P-4A10711-G40

UME7 DDR MYLAR
MB_mylar
E2P-0112911-Y42

UME8 DDR MYLAR
MB_mylar
E2P-0112911-Y42

UME10 COMPLIANCE MYLAR
COMPLIANCE_mylar
E2Y-4A11011-Y42

UME1 HDMI Lable
HDMI ROYALTY
Y01-RHDMI03-000

UME2 BIOS Lable
BIOS_LABEL
G51-LA01678-A09

For MP

E1 HS-MS1011-RH
E3 X_HS-MS1011-RH
E2 HS-MS1011-RH

GND

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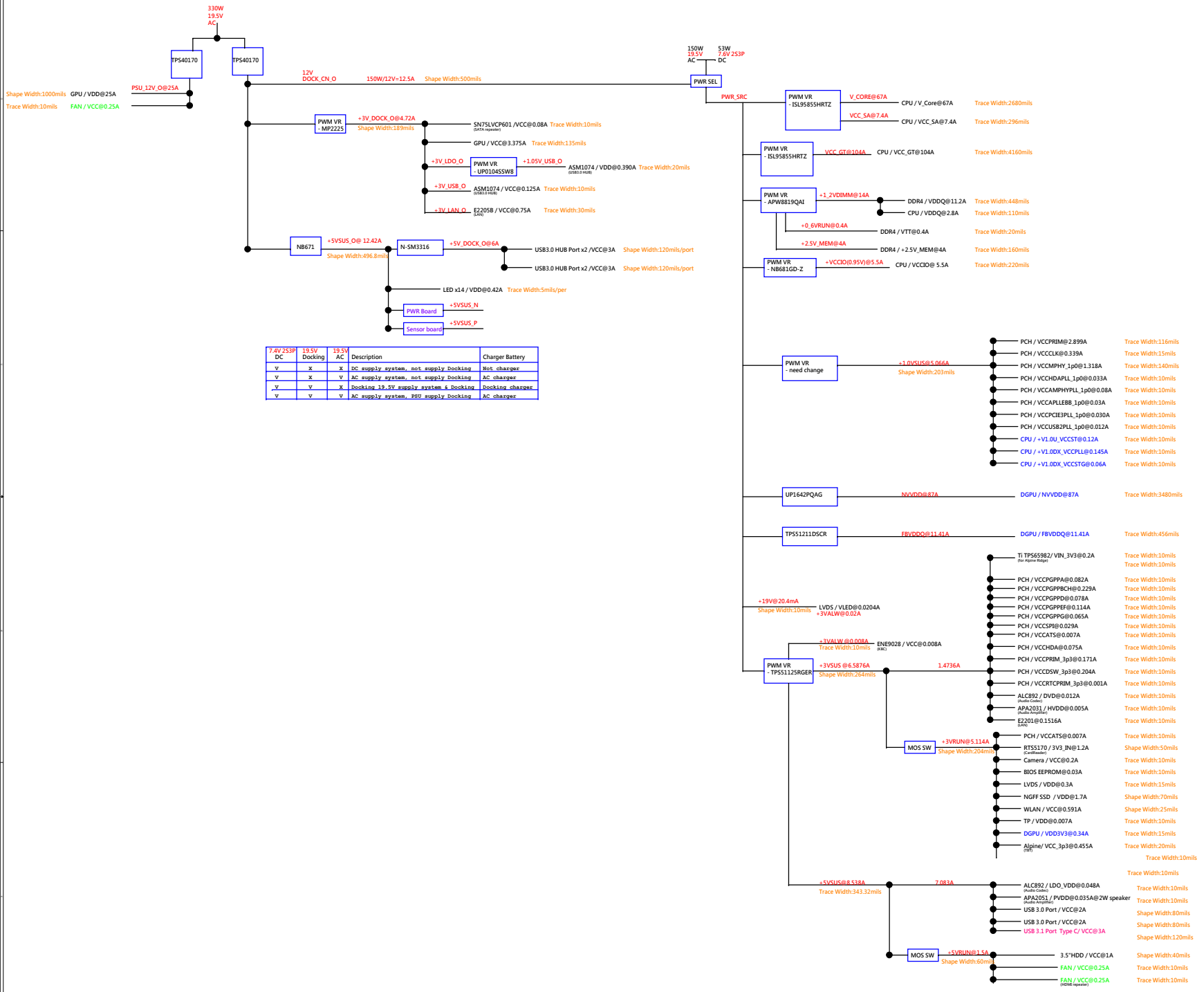
MS-14A3 Power Delivery Chart



7.4V 253P DC	19.5V Docking	19.5V AC	Description	Charger Battery
V	X	X	DC supply system, not supply Docking	Not charger
V	X	V	AC supply system, not supply Docking	AC charger
V	V	X	Docking 19.5V supply system & Docking	Docking charger
V	V	V	AC supply system, PSU supply Docking	AC charger

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Power Delivery Map

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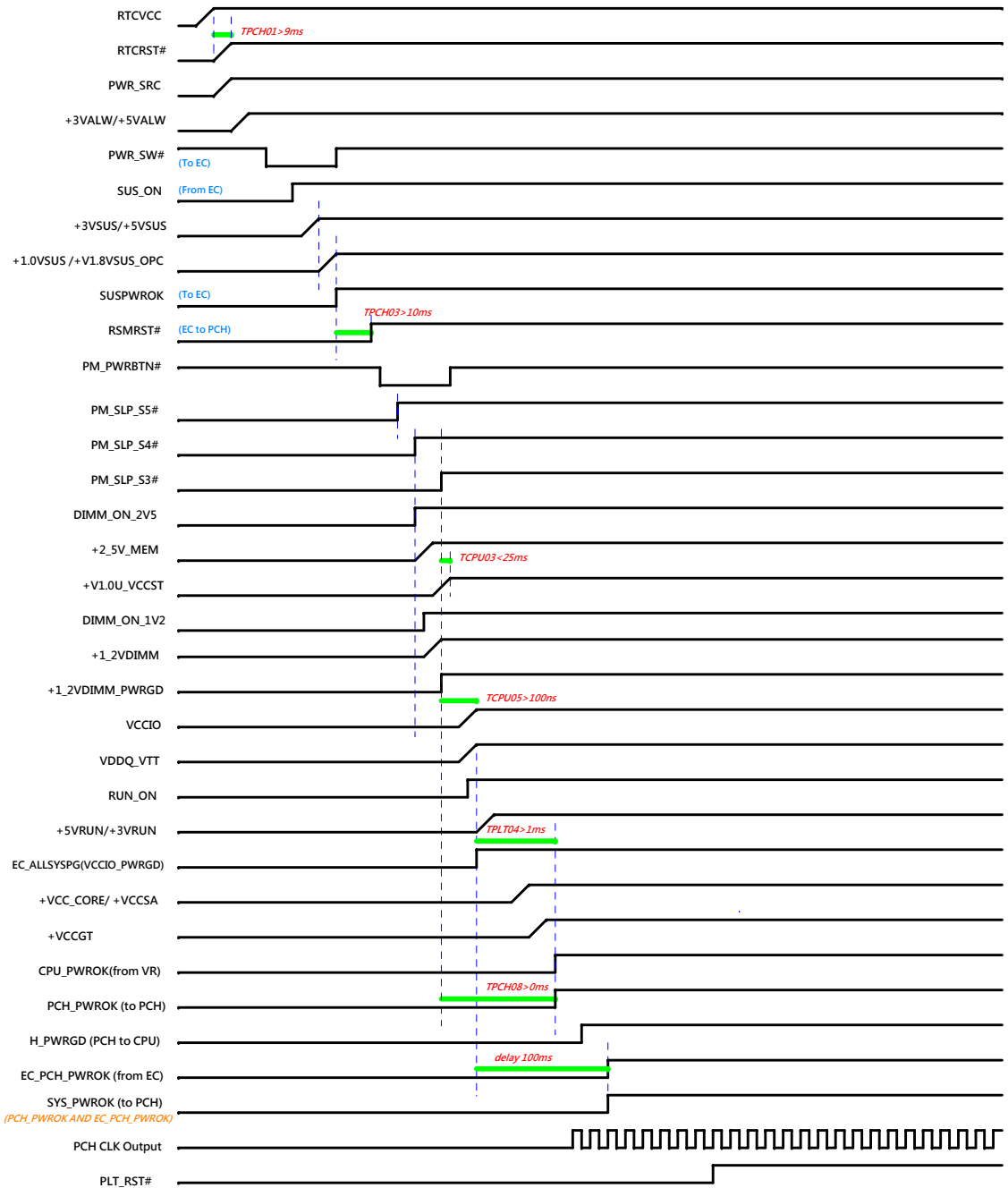
Power on Sequence

G3 -> S0



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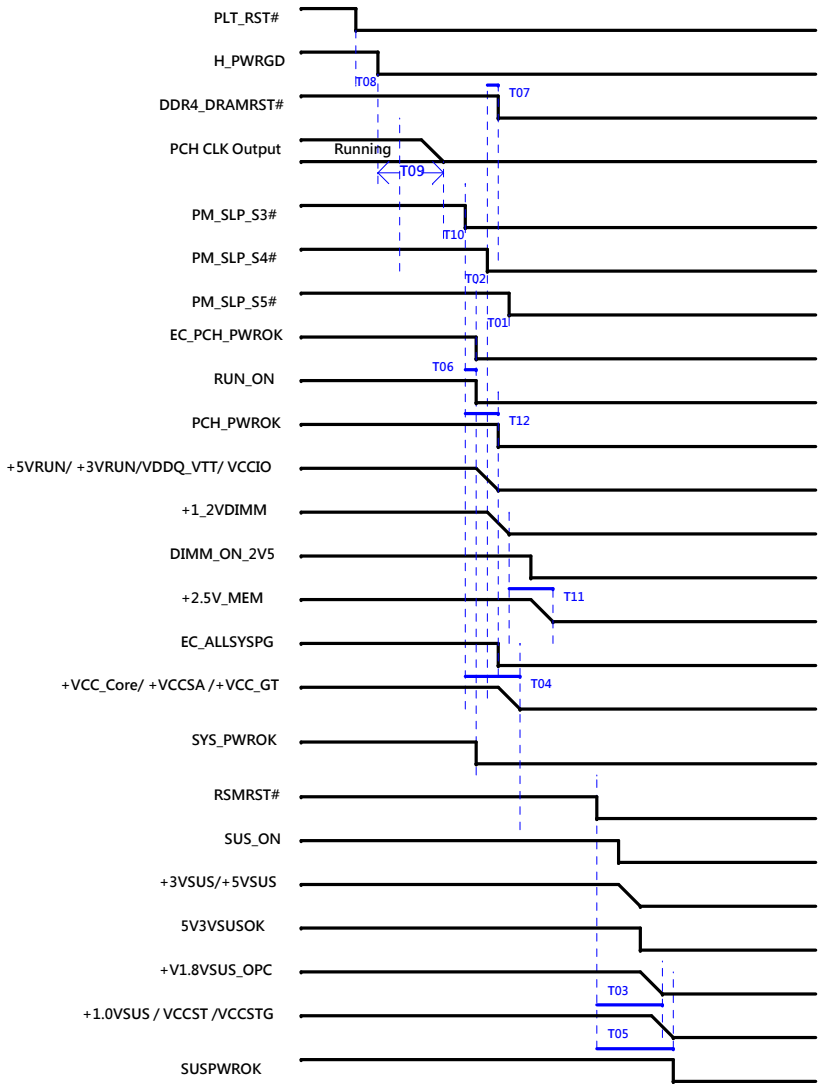
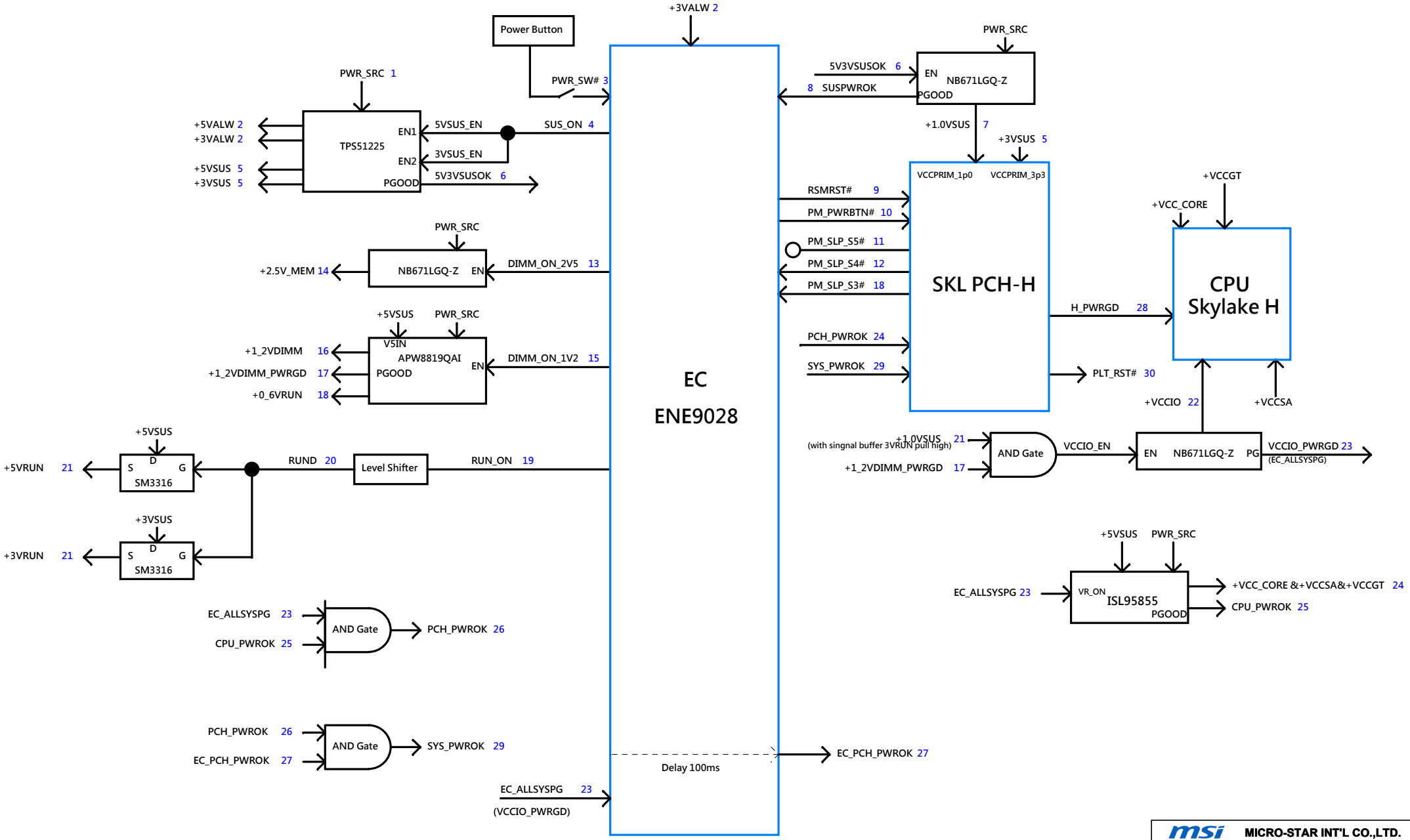
Power down Sequence

S0 -> G3



	MIN	MAX	Units	Description
T01	30		us	SLP_S5# assertion to SLP_S4#
T02	30		us	SLP_S4# assertion to SLP_S3#
T03	1		us	RSMRST# asserting to VccPRIM dropping 5% of nominal value
T04		500	ms	SLP_S3# assertion to VCC, VCCGT, VCCIO and VCCSA rails completely off.
T05	1		us	RSMRST# asserting to VccPRIM dropping 5% of nominal value
T06		1	us	SLP_S3# assertion to VCCIO VR disabled
T07	-100		ns	DDR_RESET# assertion to SLP_S4# assertion
T08	30		us	PLTRST# assertion to PROCPWRGD deassertion
T09	10		us	PROCPWRGD de-assertion to CLKOUT_BCLK turning OFF.
T10	1		us	CLKOUT_BCLK turning OFF to SLP_S3# assertion
T11	30		ms	VDDQ ramped down to VPP ramp down
T12	0		ms	SLP_S3# assertion to PCH_PWROK deassertion

MS-14A3 Power on Block Diagram



msi	MICRO-STAR INT'L CO.,LTD.		
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History

0B:

2016/05/04

1.Add D12、D13、D14、R485、R486、C1003
2.PR244 Change 10kohm,R191、R75 Change 47Kohm,PC1、C529 Change 0.01uf,R74 Change 0ohm
3.Y3 Change to D05-2801600-T02
4.C525 NC

2016/05/06

1.Add PR284、PR285

2016/05/09

1.R264, R265, R280, R284 change to 0ohm

2016/05/17

1.PR108 change to 620ohm,PR113 change to 1Kohm,PR121 change to 3.3Kohm