Airking_JL

Schematics Document

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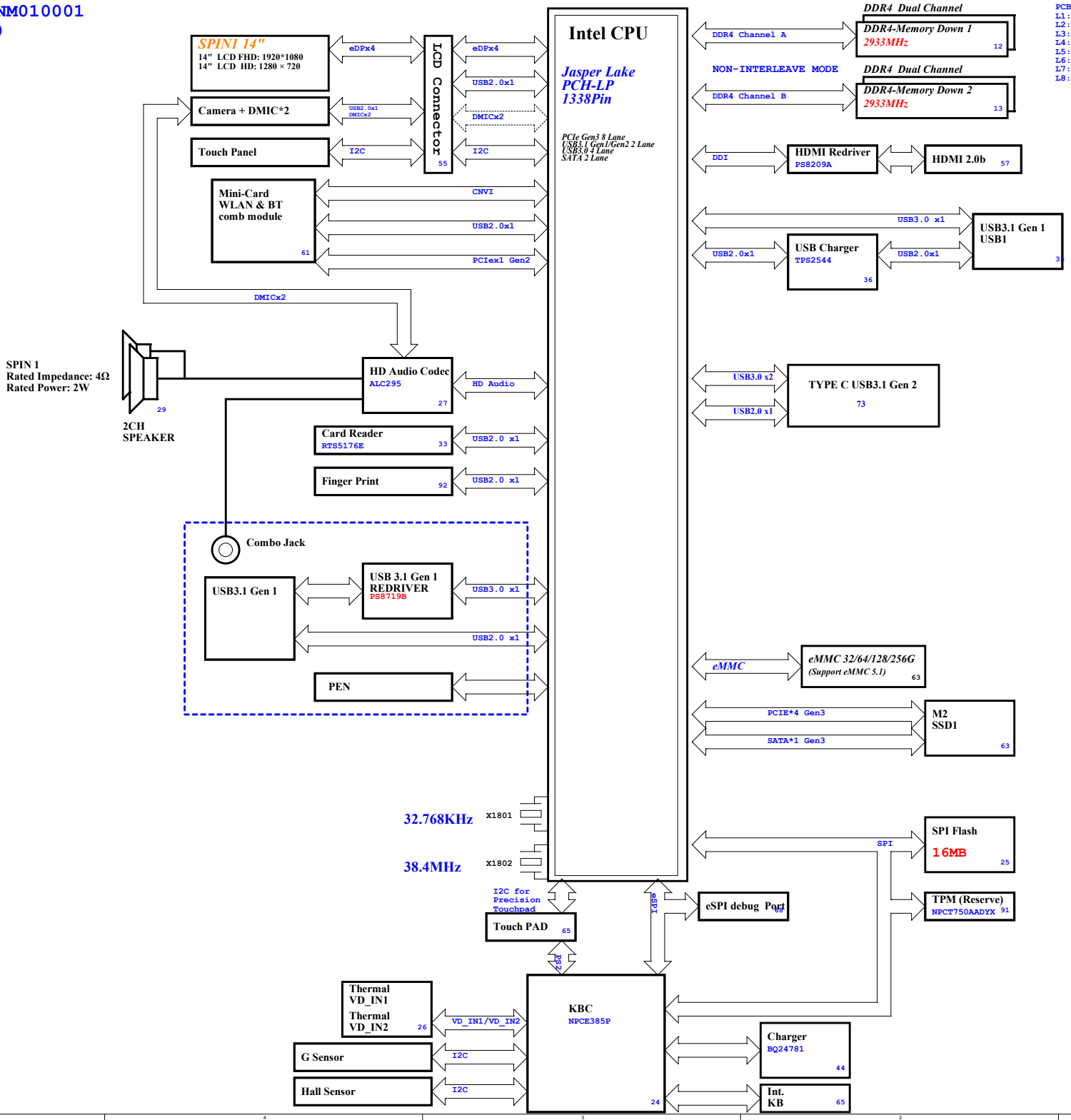
Hynix 4G EMMC

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: Cover Page		
Size: A4	Document Number: Airking_JL	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 1 of 106	

Project Code: 4PD0NM010001
Airking_JL (SPIN 1)
PCB No: 203064



PCB Layer 8-1.0-15
L1: Top
L2: GND
L3: Signal
L4: S/G/P
L5: S/G/P
L6: Signal
L7: GND
L8: Bottom

CHARGER BQ24781	44
INPUTS	OUTPUTS
19V_AD_JK BT+	19V_DCBATOUT

SYSTEM DC/DC SY8388C	45
INPUTS	OUTPUTS
19V_DCBATOUT	5V_AUX_S5 5V_S5

SYSTEM DC/DC SY8388B	45
INPUTS	OUTPUTS
19V_DCBATOUT	3D3V_AUX_S5 3D3V_S5

CPU DC/DC RT3612EB/AOE6932	46,47
INPUTS	OUTPUTS
19V_DCBATOUT	1V_CPU_CORE

CPU DC/DC MP2941B	50
INPUTS	OUTPUTS
19V_DCBATOUT	1D8V_VCCIN_AUX

CPU DC/DC G5416Q	51
INPUTS	OUTPUTS
19V_DCBATOUT	1D2V_S3
1D2V_S3	0D6V_VREF_S0

SYSTEM DC/DC G2822D	53
INPUTS	OUTPUTS
3D3V_S5	1D8V_S5

SYSTEM DC/DC APW8738A	54
INPUTS	OUTPUTS
5V_S5	1D05V_VNN_BYPASS
5V_S5	1D05V_S5_BYPASS

SYSTEM Load switch G2898	40
INPUTS	OUTPUTS
5V_S5	5V_S0
3D3V_S5	3D3V_S0

SYSTEM Load switch G5027C	40
INPUTS	OUTPUTS
1D05V_S5_OUT	1D05V_VCCST
1D05V_S5_OUT	1D05V_VCCSTG

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Title: Block Diagram

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Main Func = CPU

15 DBG_PMODE
24,44,46 PROCHOT#_CPU
46 SVID_ALERT#_CPU
46 SVID_DATA_CPU
46 SVID_CLK_CPU
89 CPU_JTAG_TRST#

CPU1D — 4 OF 19 — JSL-CELERON-QC-GP-U

CPU_POPI_RCOMP	CK50	PROC_POPIRCOMP	PCH_JTAG_TMS	AM3	CPU_JTAG_TMS
DBG_PMODE	AN3	DBG_PMODE	PCH_JTAG_TDO	AJ4	PCH_JTAG_TDO
CPU_JTAG_TCK	AK3	Strap	PCH_JTAG_TDI	AH3	CPU_JTAG_TDI
CPU_JTAG_TDO	AJ2	CPU_JTAG_TCK	PCH_JTAG_TCK	AL2	PCH_JTAG_TCK
CPU_JTAG_TDI	AH1	CPU_JTAG_TDO	PCH_JTAG_X	AL4	CPU_JTAG_TCK
CPU_JTAG_TRST#	AG2	CPU_JTAG_TDI	PCH_JTAG_TRST_N	AG4	CPU_JTAG_TRST#
CPU_JTAG_TMS	AM1	CPU_JTAG_TRST_N	JTAG_PREQ_N	Y1	JTAG_PREQ#
		CPU_JTAG_TMS	JTAG_PRDY_N	Y3	JTAG_PRDY#
SVID_ALERT#_CPU	AD3	SVID_ALERT_N	PROCHOT_N	AC4	PROCHOT#_CPU_R
	AE4	BPM3_N	CATERR_N	AB3	H_CATERR#
	AF3	BPM2_N	THRMTRIP_N	AR3	THERMTRIP#_CPU
BPM_CPU_N1	AD1	BPM1_N	SVID_DATA	AC2	SVID_DATA_CPU
BPM_CPU_N0	AE2	BPM0_N	SVID_CLK	AA2	SVID_CLK_CPU
			PCH_OPIRCOMP	BG1	PCH_OPI_RCOMP

TP303, TP306, TP305, TP302, TP301

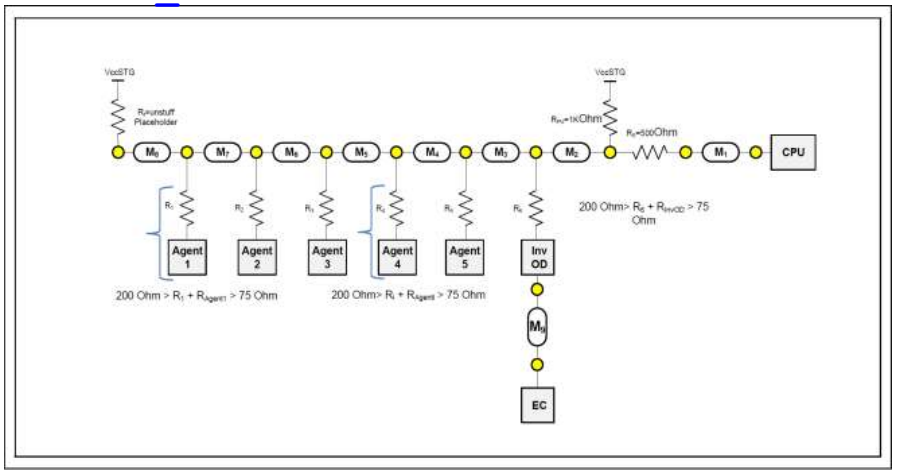
ZZ.00CPU.521

CPU_POPI_RCOMP — R305 49D9R2F-L1-GP
PCH_OPI_RCOMP — R306 49D9R2F-L1-GP
CPU_JTAG_TCK — R310 51R2J-L1-GP (AK3, AL4)
1D05V_VCCSTG_TERM
CPU_JTAG_TDO — R301 100R2J-L-GP
PCH_JTAG_TDO — R313 100R2J-L-GP
CPU_JTAG_TDO — R314 Do Not Stuff — PCH_JTAG_TDO (AJ2, AJ4)
1D05V_VCCSTG_TERM
CPU_JTAG_TDI — R309 51R2J-2-GP (AH1, AH3)
CPU_JTAG_TMS — R311 51R2J-2-GP (AM1, AM3)
for Lab check

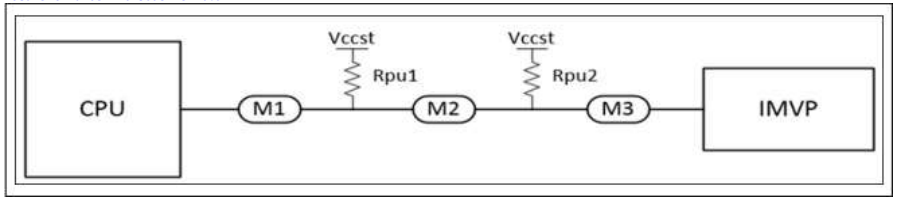
1V_VCCIO
R307 10KR2J-L-GP — BPM_CPU_N1
R308 10KR2J-L-GP — BPM_CPU_N0

PROCHOT_N

1D05V_VCCSTG — R315 Do Not Stuff — 1D05V_VCCSTG_TERM
1D05V_VCCSTG_TERM — R302 1KR2J-L2-GP — PROCHOT#_CPU — R303 499R2F-2-GP — PROCHOT#_CPU_R (CPU)



Document Number: 613095 Ver 0.9



SVID_DATA platform resistors	Rpu1=100Ω, Rpu2=100Ω
SVID_CLK platform resistors	Rpu1=Empty, Rpu2=45Ω
SVID_ALERT_N platform resistors	Rpu1=56Ω, Rpu2=Empty
Platform resistors tolerances	5%
Route ordering	When routing at minimum spacing route Alert between Data and Clock

SVID ALERT

1D05V_VCCST — R317 56R2J-4-GP — SVID_ALERT#_CPU

1D05V_VCCST
H_CATERR# — R320 49D9R2F-L1-GP
THERMTRIP#_CPU — R304 1KR2F-L1-GP

SVID DATA

1D05V_VCCST — R316 100R2J-L-GP — SVID_DATA_CPU

SVID CLOCK

1D05V_VCCST — R318 DY Do Not Stuff — SVID_CLK_CPU

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Title: CPU (THML/JTAG/VID)
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eDP

55 eDP_TX_CPU_P0
55 eDP_TX_CPU_N0
55 eDP_TX_CPU_P1
55 eDP_TX_CPU_N1
55 eDP_TX_CPU_P2
55 eDP_TX_CPU_N2
55 eDP_TX_CPU_P3
55 eDP_TX_CPU_N3
55 eDP_AUX_CPU_P
55 eDP_AUX_CPU_N

55 eDP_HPD_CPU

55 eDP_BKLTCTL_CPU
24 eDP_BKLTEN_CPU
55 eDP_VDDEN_CPU

HDMI

57 HDMI_DDI_TX_P2
57 HDMI_DDI_TX_N2
57 HDMI_DDI_TX_P1
57 HDMI_DDI_TX_N1
57 HDMI_DDI_TX_P0
57 HDMI_DDI_TX_N0
57 HDMI_DDI_TX_P3
57 HDMI_DDI_TX_N3

57 HDMI_SCL_CPU
15,57 HDMI_SDA_CPU

57 HDMI_DET_CPU

15 GP_E14
15 GP_E18
15 GP_A15

24 ME_UNLOCK

CPU1A 1 OF 19

eDP
eDP_TX_CPU_P0 F6 DDI0_TXP0
eDP_TX_CPU_N0 G7 DDI0_TXN0
eDP_TX_CPU_P1 E5 DDI0_TXP1
eDP_TX_CPU_N1 D4 DDI0_TXN1
eDP_TX_CPU_P2 H6 DDI0_TXP2
eDP_TX_CPU_N2 J5 DDI0_TXN2
eDP_TX_CPU_P3 J8 DDI0_TXP3
eDP_TX_CPU_N3 J7 DDI0_TXN3
eDP_AUX_CPU_P F9 DDI0_AUXP
eDP_AUX_CPU_N E10 DDI0_AUXN

HDMI
HDMI_DDI_TX_P2 L4 DDI1_TXP0
HDMI_DDI_TX_N2 M2 DDI1_TXN0
HDMI_DDI_TX_P1 H3 DDI1_TXP1
HDMI_DDI_TX_N1 H4 DDI1_TXN1
HDMI_DDI_TX_P0 J4 DDI1_TXP2
HDMI_DDI_TX_N0 J2 DDI1_TXN2
HDMI_DDI_TX_P3 F3 DDI1_TXP3
HDMI_DDI_TX_N3 G1 DDI1_TXN3
K1 DDI1_AUXP
K3 DDI1_AUXN

E12 DDI2_TXP0
D11 DDI2_TXN0
C10 DDI2_TXP1
D10 DDI2_TXN1
B7 DDI2_TXP2
A7 DDI2_TXN2
C8 DDI2_TXP3
A8 DDI2_TXN3
B9 DDI2_AUXP
D8 DDI2_AUXN

JSL-CELERON-QC-GP-U

EDP_BKLTCTL CC15 eDP_BKLTCTL_CPU
EDP_BKLTEN CB17 eDP_BKLTEN_CPU
EDP_VDDEN CC17 eDP_VDDEN_CPU

EDP_DISP_UTIL/MDSI_DE_TE_1 AA4
MDSI_DE_TE_2 W2

Strap GP_E13/DDI0_DDC_SCL CL6
Strap GP_E14/DDI0_DDC_SDA CM5 GP_E14
GP_A17/DDI0_HPD CM30 eDP_HPD_CPU

Strap GP_E15/DDI1_DDC_SCL CK5 HDMI_SCL_CPU
Strap GP_E16/DDI1_DDC_SDA CN4 HDMI_SDA_CPU
GP_A16/DDI1_HPD/TIME_SYNC_1 CN29 HDMI_DET_CPU

Strap GP_E17/DDI2_DDC_SCL CF7
Strap GP_E18/DDI2_DDC_SDA CF5 GP_E18
Strap GP_A15 CP29 GP_A15

DISP_RCOMP E3 DISP_RCOMP
RSVD_TP_27 E1

R401 150R2F-4-L-GP

ZZ.00CPU.521

3D3V_S0
RN401
HDMI_SCL_CPU 1 4
HDMI_SDA_CPU 2 3
SRN2K2J-1-GP

RN402
eDP_BKLTEN_CPU 1 8
HDMI_DET_CPU 2 7
eDP_HPD_CPU 3 6
4 5
DY
Do Not Stuff

ME_UNLOCK R402 1 2 GP_A15
1KR2F-L1-GP
2020_12_30_SC_FE

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Title: CPU (DDI/eDP)

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A4	Airking_JL	-1

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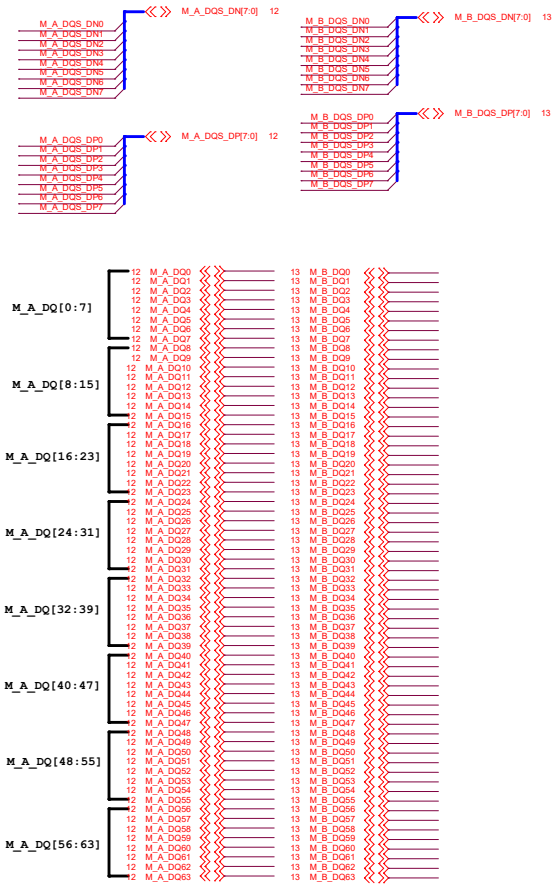
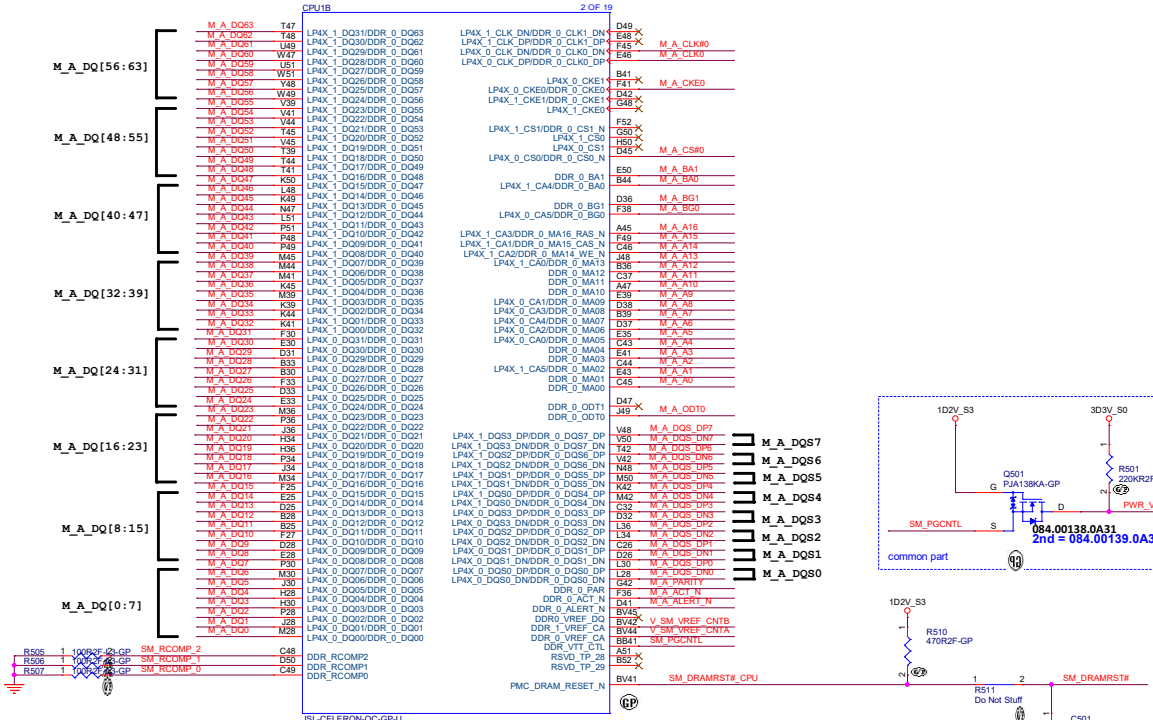
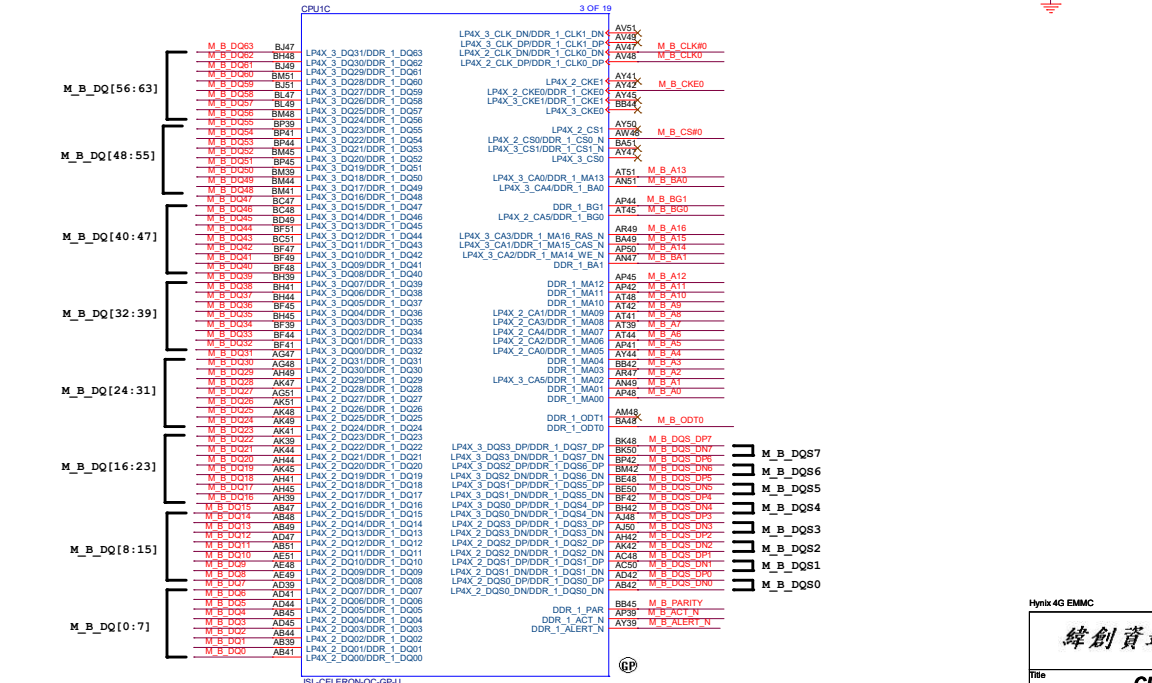
DDR4 ball type: Non-Interleaved







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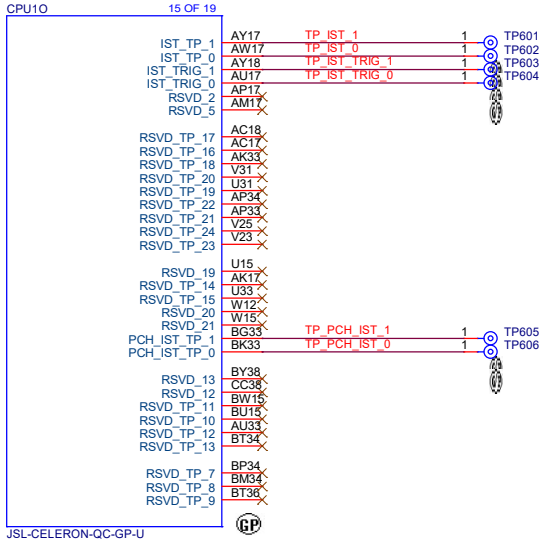
Title: CPU (LPDDR4/X)

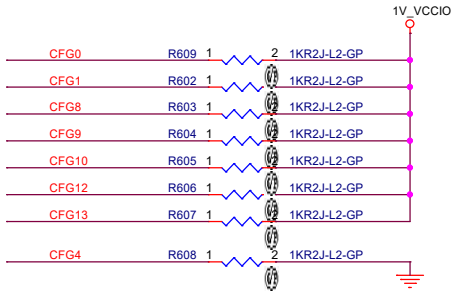
Size: A2 | Document Number: Airking_JL | Rev: -1

Date: Tuesday, February 23, 2021 | Sheet 5 of 106

24 PECI_CPU

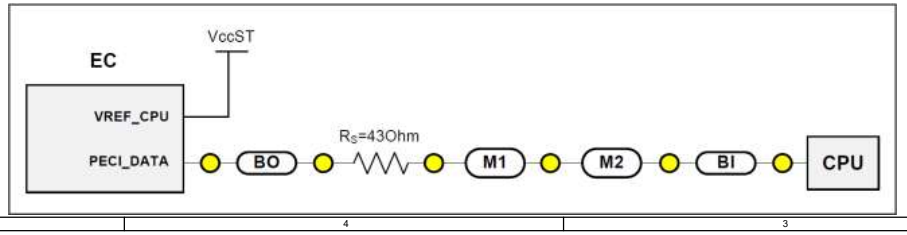


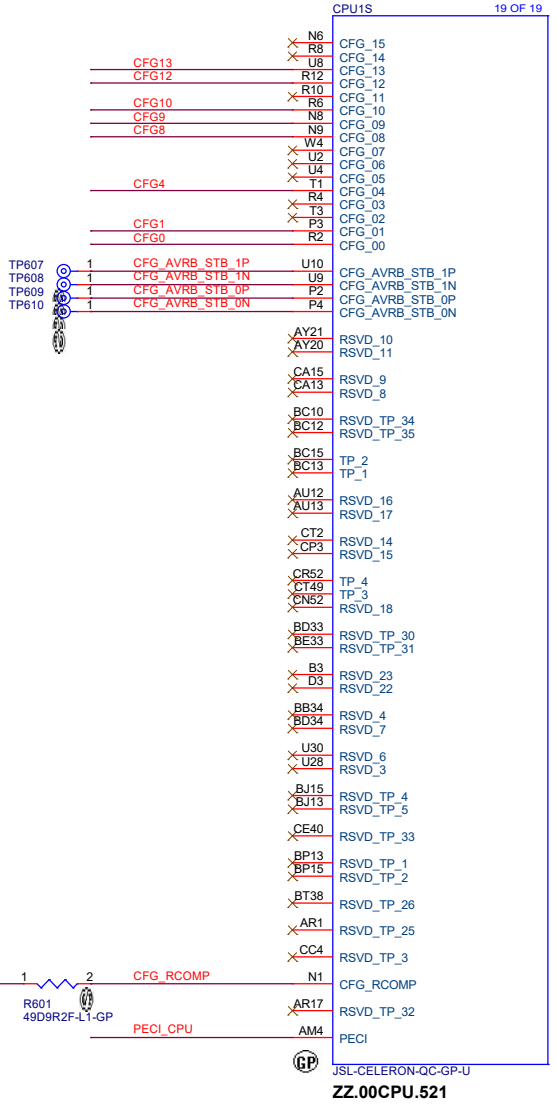
ZZ.00CPU.521



Document Number: 613095 Ver 1.1

CFG	Description	Termination	Resistor
CFG0	CFG[0]: Stall reset sequence after PCU PLL lock until de-asserted: — 1 = (Default) Normal Operation; No stall. — 0 = Stall.	Pull Up to VCCIO_EXT	1K Ohm
CFG1,8,9,10,12,13	RSVD	Pull Up to VCCIO_EXT	1K Ohm
CFG2,3,5,6,7,11,14,15	RSVD	No termination	N/A
CFG4	CFG[4]: eDP enable: — 1 = Disabled. — 0 = Enabled.	Pull Down	1K Ohm





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Title: **CPU (CFG/IST)**

Size: A3 | Document Number: **Airking_JL** | Rev: -1

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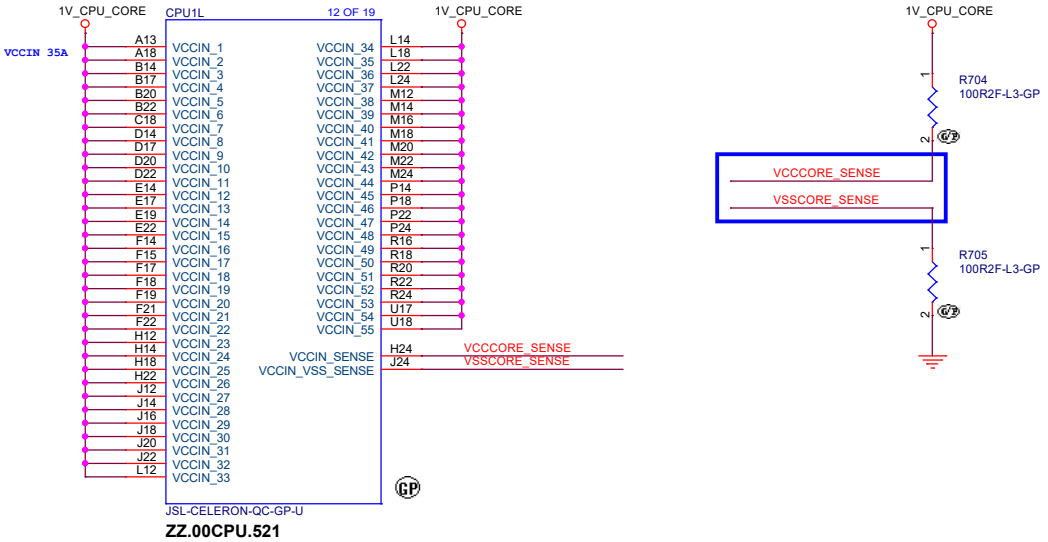
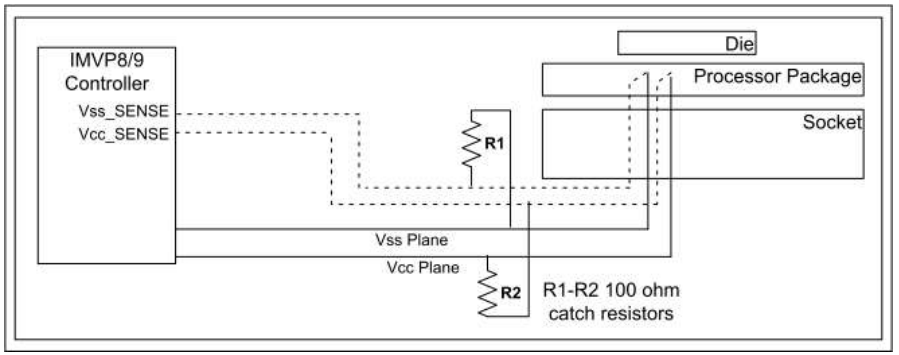
46 VCCCORE_SENSE
46 VSSCORE_SENSE



Document Number: 613095 Ver 0.9

– R1, R2 should be placed within 2 inches (50.8 mm) of the processor socket, minimizing any potential error due to Vcc_SENSE/Vss_SENSE line resistance.

– Preserve the transmission line integrity of Vcc_SENSE/Vss_SENSE lines by avoiding stub routing to R1, R2 catch resistors.



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Title: ***CPU (VCCIN)***

Size: A3 | Document Number: **Airking_JL** | Rev: **-1**

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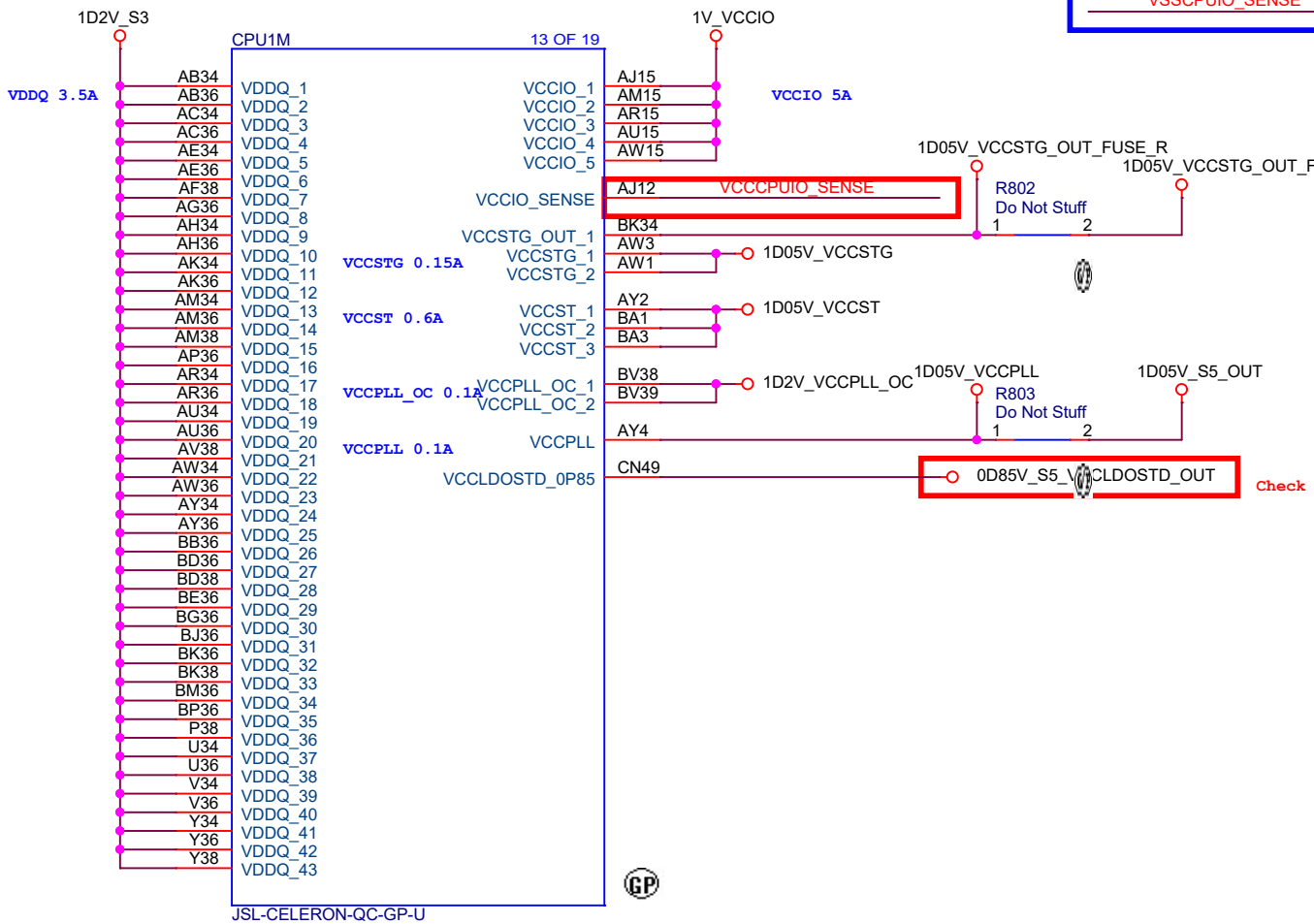
54 VCCCPUIO_SENSE
54 VSSCPUIO_SENSE



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Title	***CPU (VDDQ/VCCIO)***	
Size A4	Document Number **Airking_JL**	Rev -1
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Title	*CPU (RSVD)*	
Size: A4	Document Number: Airking_JL	Rev: -1
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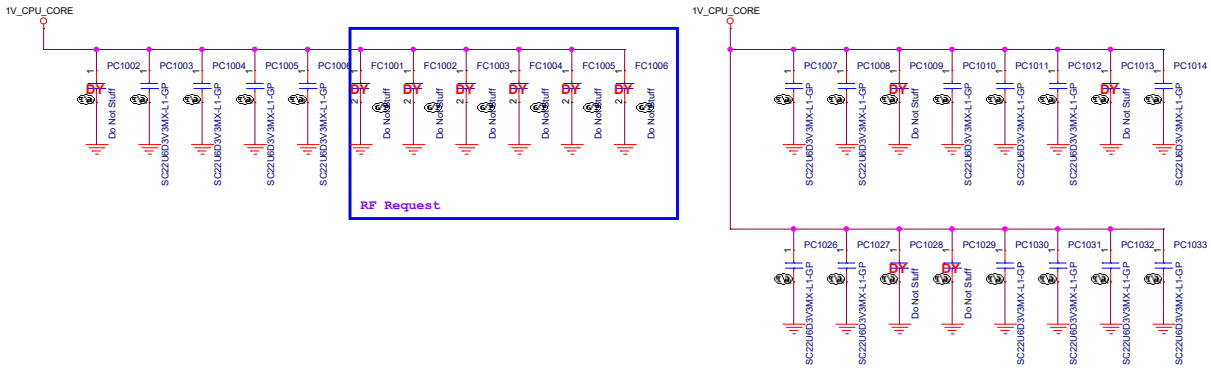
Main Func = CPU

VCORE

JSL_6W

IccMax current-10ms max = 33 A

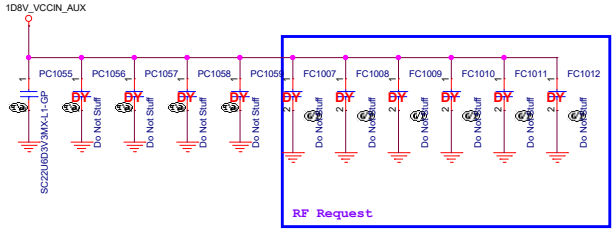
22uF	PCS	Cap
JSL_6W	21	330uF*1

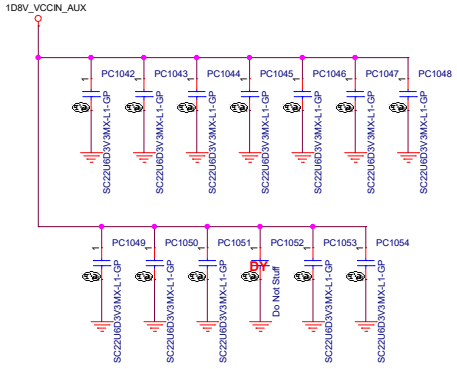


VCCINAUX

IccMax current-10ms max = 24 A

22uF	PCS	Cap
JSL_6W	13	330uF*1





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Title: CPU_(Power CAP1)		
Size: Custom	Document Number: Annie NB STD POWER	Rev: -1
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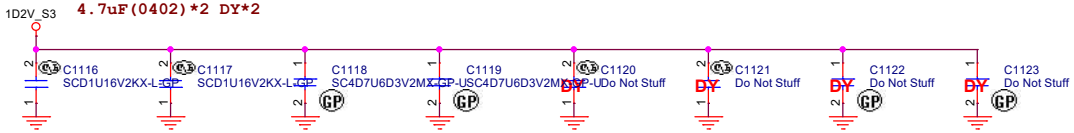
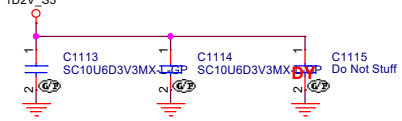
VDDQ

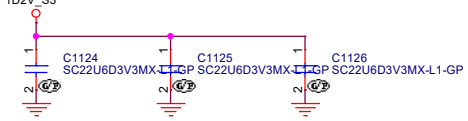
0.1uF(0201)*2 DY*2
4.7uF(0402)*2 DY*2

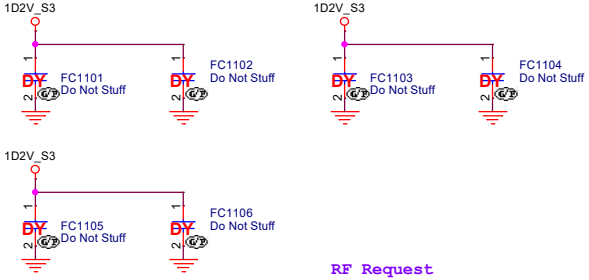


10uF*2 DY*1



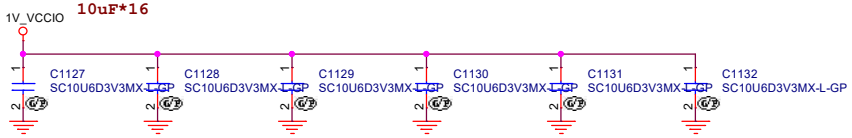
22uF*3

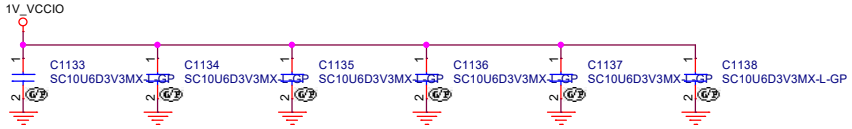


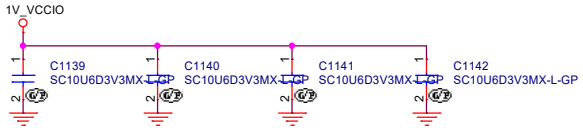


VCCIO

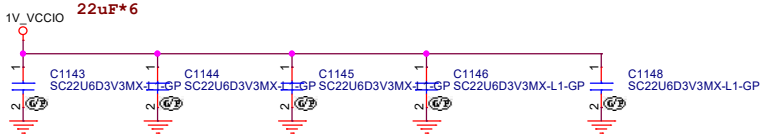
10uF*16



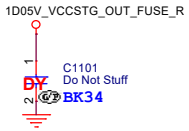




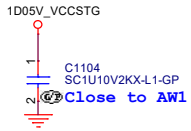
22uF*6



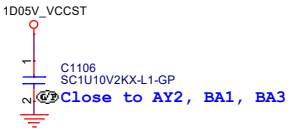
VCCSTG_OUT



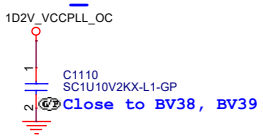
VCCSTG



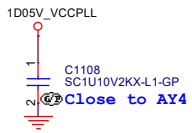
VCCST



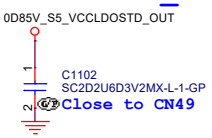
VCCPLL_OC



VCCPLL



VCCLDOSTD_0P85



Domain	Primary Side Cap	Secondary Side Cap	Placement Guideline
VDDQ	3 x 0603_22uF	2 x 0201_0.1uF 2 x 0402_4.7uF 2 x 0402_10uF Place holders: 2 x 0201 2 x 0402 1 x 0402	Secondary Side Cap: Place the secondary caps on the bottom power plane and equally distribute, with the highest cap values closer to the VR. Also place the caps beside or as close as possible to the PTHs that connects to the VDDQ BGAs.

Bulk Decoupling Locations	Capacitors
VDDQ Power Plane at VR output	13 x 0603_22uF *Notes:* 1. VR share MLCC with PI 2. 3 x 0603_22uF is captured in Table 283 on page 412

Domain	Primary Side Cap	Secondary Side Cap
VCCIO_EXT	12 x 0402_10uF 4 x 0603_22uF	4 x 0402_10uF

Bulk Decoupling Locations	Capacitors
VCCIO_EXT Power Plane at VR output	0 x 0603_22uF *Notes:* 1. VR share MLCC with PI 2. 6 x 0603_22uF is captured in Table 281 on page 410, note that PI only has 4x0603_22uF but the 12x0402_10uF is enough to share with VR

Domain	Primary Side Cap	Secondary Side Cap	Placement Guideline
VCCSTG	1 x 0402_1uF	None	Place as close as possible to package BGAs, <10mm.

Domain	Primary Side Cap	Secondary Side Cap	Placement Guideline
VCCST	1 x 0402_1uF	None	Place as close as possible to package BGAs, <10mm.

Domain	Primary Side Cap	Secondary Side Cap	Placement Guideline
VCCPLL_OC	1 x 0402_1uF	None	Place as close as possible to package BGAs, <10mm.

Domain	Primary Side Cap	Secondary Side Cap	Placement Guideline
VCCPLL	1 x 0402_1uF	None	Place as close as possible to package BGAs, <10mm.

Domain	Primary Side Cap	Secondary Side Cap	Placement Guideline
VCCLDOSTD_0P85	1 x 0402_2.2uF	None	Place the capacitor <9mm from the package edge.

Hynix 4G EMMC

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (Power Cap2)

Size: A3 | Document Number: Airking_JL | Rev: -1

Date: Tuesday, February 23, 2021 | Sheet 11 of 106

Document Number: 613095 Ver 0.9

Main Func = MEMORY

SSID = DDR4 CHA

DQS0	DQ0~DQ7
DQS1	DQ8~DQ15
DQS2	DQ16~DQ23
DQS3	DQ24~DQ31
DQS4	DQ32~DQ39
DQS5	DQ40~DQ47
DQS6	DQ48~DQ55
DQS7	DQ56~DQ63

Figure 3-1: DDR4 MD Strobe/Data Signal Topology

Figure 3-2: DDR4 MD CLK Signal Topology

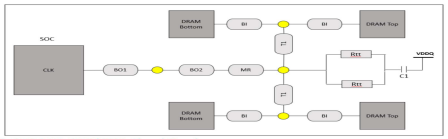


Figure 3-3: DDR4 MD CMD/CTRL Signal Topology

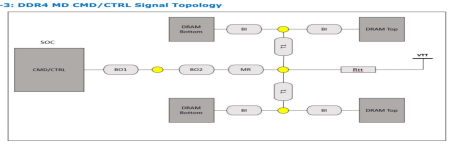


Figure 3-4: DDR4 MD ALERT Signal Topology

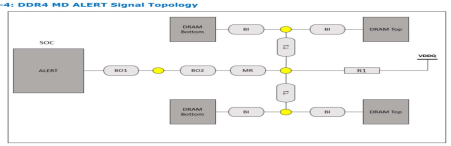
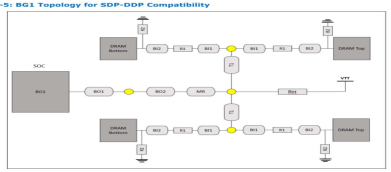


Figure 3-5: BG1 Topology for SDP-DDP Compatibility



NOTE: For BG1 compatibility across SDP and DDP x16 devices:
- For SDP: R1 = Unstuffed, R2[1] = 0 Ohm
- For DDP: R1[1] = 0 Ohms, R2 = Unstuffed
- B2 < 2 mm; B1 + B2 < 12 mm
- R2 to DRAM Ball < 0.25 mm
[1] Choose resistors with very low ESL.

Figure 3-6: DDR4 MD Resets Signal Topology

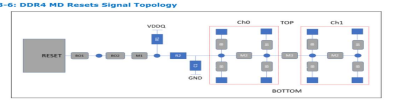


Figure 3-7: RCOMP Topology

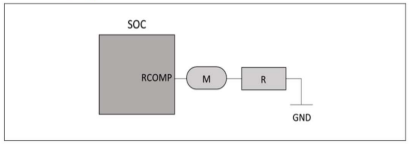
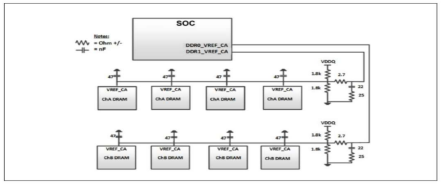


Figure 3-8: DDR4 MD VREF-CA Overview



Memory Configuration	Power Domain	Decoupling Location	Qty x µF (Size)
DDR4 Memory Down x16 - 4 Devices per Channel. Numbers of decoupling capacitors are total for both channels	VDDQ/VDD	4 per dram, as close as possible.	32x 1µF (0402)
		Distribute evenly across domain, close by Drams.	10x 10µF (0603)
	VPP	2 per dram, as close as possible.	16x 1µF (0402)
		Distributed evenly across domain, close by Drams.	5x 10µF (0603)
	VTT	Distributed along termination resistors.	16x 1µF (0402)
		Distribute evenly across domain.	4x 10µF (0603)

VDDQ/VDD 10uF*5 DY*1

VDDQ/VDD 1uF*19 DY*2

VPP 1uF*9 DY*7

VPP 10uF*4

VTT 1uF*5 DY*3

VTT 10uF*1 DY*1

SDP & DDP SETTING

DDP: 240 ohm
SDP: 0 ohm

DDP x16 and SDP x16 Compatible Layout

- Alternate two layout, risk of VSS offset increases a little

Alt 2

	SDP x16	DDP x16
Rs9	VSS	UZQ
Rs10	VSS	BG1

	SDP x16	DDP x16
Rs9	0Ω	240Ω
Rs10	open	0Ω
Rs9b	0Ω	open

0Ω resistors should be low ESL
BG1 should be approx 5ps shorter
L1 < 0.1mm
L2 < 0.25mm
L3 < 2mm

CTRL/CKE/CMD

CLK

ALERT

close to cpu

Hynix 4G EMMC

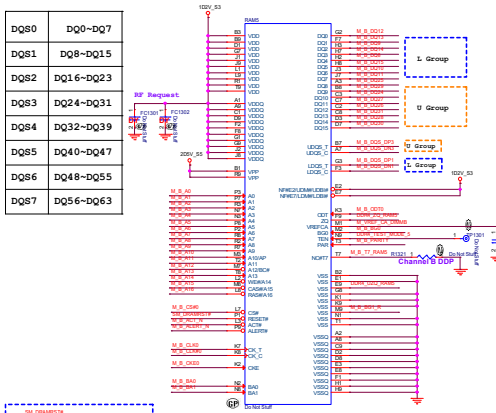
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

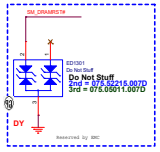
Title: DDR (DDR4-CHA)
Size: A3
Document Number:
Rev: -1
Date: Tuesday, February 22, 2011
Sheet 12 of 58

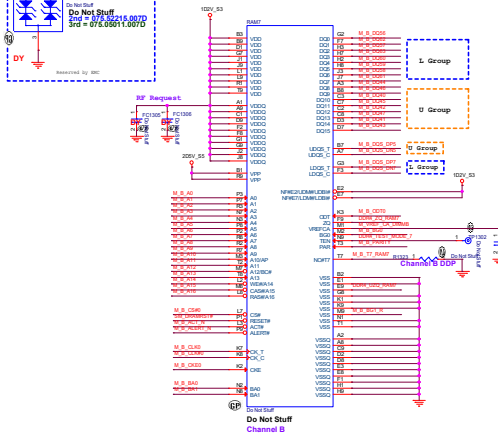
Main Func = MEMORY

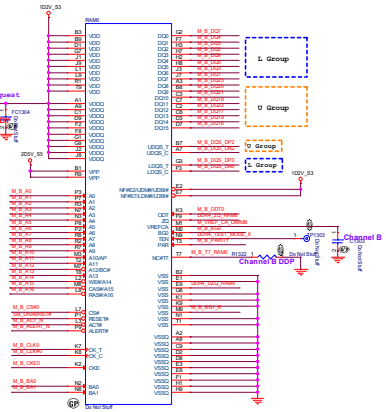
SSID = DDR4 CHB

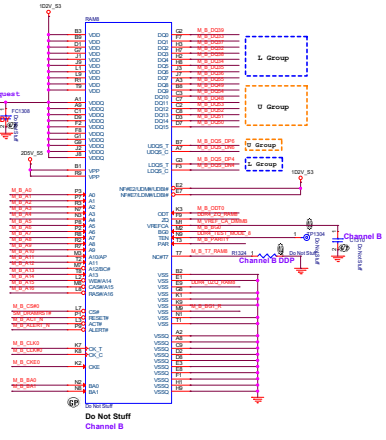
DQS0	DQ0~DQ7
DQS1	DQ8~DQ15
DQS2	DQ16~DQ23
DQS3	DQ24~DQ31
DQS4	DQ32~DQ39
DQS5	DQ40~DQ47
DQS6	DQ48~DQ55
DQS7	DQ56~DQ63











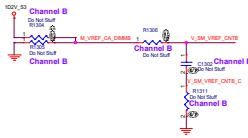


Figure 3-7: RCOMP Topology

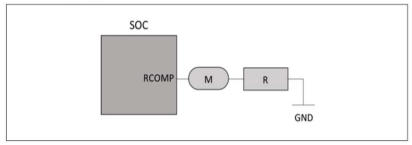
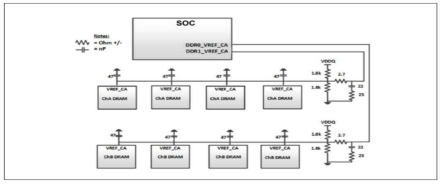


Figure 3-8: DDR4 MD VREF-CA Overview



Memory Configuration	Power Domain	Decoupling Location	Qty x µF (Size)
DDR4 Memory Down x16 - 4 Devices per Channel. Numbers of decoupling capacitors are total for both channels	VDDQ/VDD	4 per dram, as close as possible.	32x 1µF (0402)
		Distribute evenly across domain, close by Drams.	10x 10µF (0603)
	VPP	2 per dram, as close as possible.	16x 1µF (0402)
		Distribute evenly across domain, close by Drams.	5x 10µF (0603)
	VTT	Distributed along termination resistors.	16x 1µF (0402)
		Distribute evenly across domain.	4x 10µF (0603)

Figure 3-1: DDR4 MD Strobe/Data Signal Topology

Figure 3-2: DDR4 MD CLK Signal Topology

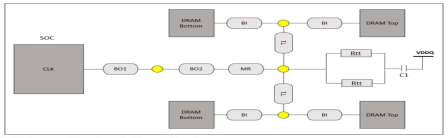


Figure 3-3: DDR4 MD CMD/CTRL Signal Topology

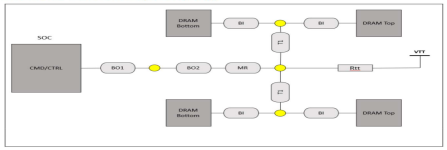


Figure 3-4: DDR4 MD ALERT Signal Topology

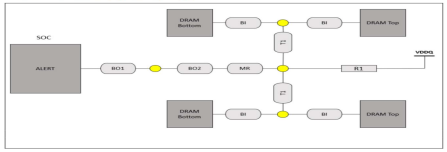
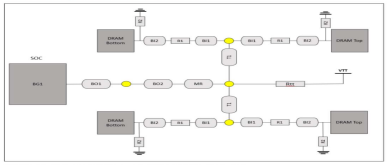


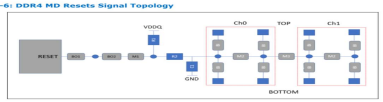
Figure 3-5: BG1 Topology for SDP-DDP Compatibility



NOTE: For BG1 compatibility across SDP and DDP x16 devices:
- For SDP: R1 = Unstuffed, R2[1] = 0 Ohm
- For DDP: R1[1] = 0 Ohms, R2 = Unstuffed
- B12 < 2 mm; B11 = B12 < 12 mm
- R2 to DRAM Ball < 0.25 mm

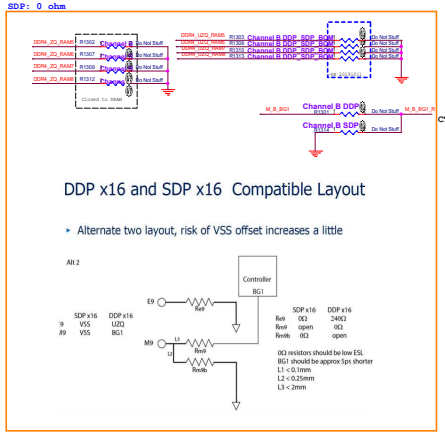
[1] Choose resistors with very low ESL.

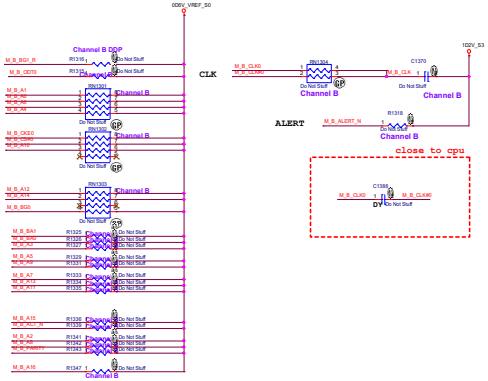
Figure 3-6: DDR4 MD Resets Signal Topology

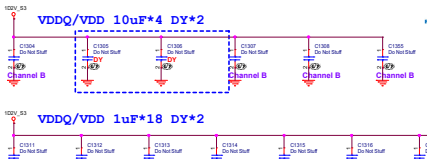


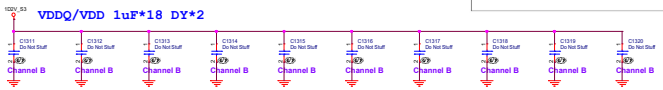
SDP & DDP SETTING

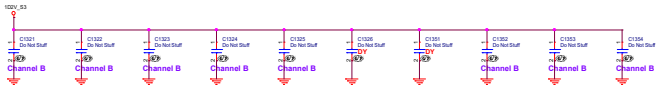
DDP: 240 ohm
SDP: 0 ohm

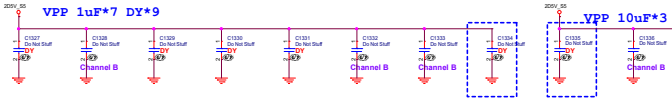


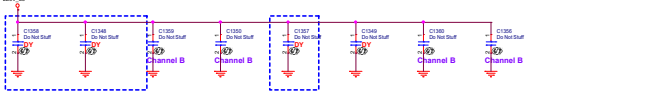


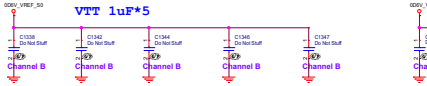


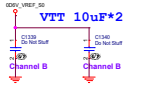












Wistron Corporation
2F, 88, Sec 1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

DDR (DDR4-CHB)

Size: A3 | Document Number: | Rev: -1
Date: Tuesday, February 23, 2021 | Sheet 13 of 106

Blanking

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Hynix 4G EMMC

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title	***DDR (RSVD)***	
Size: A4	Document Number: **Airking_JL**	Rev: **-1**
Date: Tuesday, February 23, 2021	Sheet 14 of 106	

20 GP_C08/UART0_RXD
20 GP_C09/UART0_TXD
20 GP_C10
20 GP_D08
20 GP_D09
4 GP_A15
20 GP_E06
4 GP_E14
4,57 HDMI_SDA_CPU
4 GP_E18
20 GP_E12
3 DBG_PMODE
17 GP_DSW07

20 GP_D11

20 GP_E00
21 CNV_RGI_DT_R

17 RTC_INTRUDER#

Description	Top Swap Override	No Reboot	TLS Confi-dentiality	eSPI Disable	Reserved	CPUNSSC Clock Frequency	Reserved
GPIO	GP_C01	GP_C02	GP_C08	GP_C09	GP_C10	GP_C13	GP_D08
Schematics			3D3V_S5 R1503 DY Do Not Stuff GP_C08/UART0_RXD	3D3V_S5 R1504 DY Do Not Stuff GP_C09/UART0_TXD	3D3V_S5 R1505 100KR2J-4-GP GP_C10		3D3V_S5 R1507 100KR2J-4-GP GP_D08
High	Enable	Enable	Enable	Disable		19.2 MHz clock (derived from 38.4 MHz crystal)	
Low	Disable	Disable	Disable	Enable		38.4 MHz clock (direct from crystal)	
	internal pull-down 20 kohm ± 30%	internal pull-down 20 kohm ± 30%	internal pull-down 20 kohm ± 30%	internal pull-down 20 kohm ± 30%		internal pull-down 20 kohm ± 30%	

Description	Reserved	Flash Descriptor Security Override	Reserved	BSSB_LSX 0 pins VCC configurati on	BSSB_LSX 1 pins VCC configurati on	BSSB_LSX 2 pins VCC configurati on	BSSB_LSX 3 pins VCC configurati on
GPIO	GP_D09	GP_A15	GP_E06	GP_E14	GP_E16	GP_E18	GP_E12
Schematics	3D3V_S5 R1508 100KR2J-4-GP GP_D09	3D3V_S5 R1509 DY Do Not Stuff GP_A15	3D3V_S5 R1510 20KR2J-L3-GP GP_E06	3D3V_S5 R1511 DY Do Not Stuff GP_E14	3D3V_S5 R1512 DY Do Not Stuff HDMI_SDA_CPU	3D3V_S5 R1513 DY Do Not Stuff GP_E18	3D3V_S5 R1514 DY Do Not Stuff GP_E12
High		Disable		3.3V	3.3V	3.3V	3.3V
Low		Enable		1.8V	1.8V	1.8V	1.8V
		internal pull-down 20 kohm ± 30%		internal pull-down 20 kohm	internal pull-down 20 kohm	internal pull-down 20 kohm	internal pull-down 20 kohm

Description	RSVD	Reserved	Reserved	XTAL Frequency Selection	M.2 CNVi Mode Select	eSPI Flash Sharing Mode	SPI Voltage Configuration
GPIO	GP_D10	DBG_PMODE	GP_DSW07	GP_E00	GP_E22	GP_D11	INTRUDER#
Schematics		DBG_PMODE R1516 DY Do Not Stuff	3D3V_S5 R1517 DY Do Not Stuff GP_DSW07	3D3V_S5 R1518 DY Do Not Stuff GP_E00	1D8V_S5 R1519 20KR2J-L3-GP CNV_RGI_DT_R R1520 DY Do Not Stuff	3D3V_S5 R1521 DY Do Not Stuff GP_D11	3D3V_RTC_AUX R1522 DY Do Not Stuff RTC_INTRUDER# R1523 10KR2J-L-GP
High				24 MHz	Disable	(SAFS) enabled	SPI = 1.8V
Low				38.4 MHz/ 19.2 MHz	Enable	(MAFS) enabled	SPI = 3.3V
	internal pull-down 20 kohm	internal pull-up 20 kohm ± 30%	internal pull-down 20 kohm ± 30%	internal pull-down 20 kohm ± 30%	internal pull-down 20 kohm ± 30%	internal pull-down 20 kohm ± 30%	

Hynix 4G EMMC

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (STRAP)
Size: A2 | Document Number: Airking_JL | Rev: -1
Date: Tuesday, February 23, 2021 | Sheet 15 of 106

SSID= PCH

Document Number: 613095 Ver 0.9
220 nF nominal capacitors are recommended for Gen 3
100 nF nominal capacitors are recommended for Gen 2

WLAN
61,89 WLAN_PCIE_RX_N
61,89 WLAN_PCIE_RX_P
61,89 WLAN_PCIE_TX_C_N
61,89 WLAN_PCIE_TX_C_P

TYPE-C
73 USB3_USB30_RX_N0
73 USB3_USB30_RX_P0
73 USB3_USB30_TX_N0
73 USB3_USB30_TX_P0
73 USB3_USB30_RX_N1
73 USB3_USB30_RX_P1
73 USB3_USB30_TX_N1
73 USB3_USB30_TX_P1
73 USB3_USB20_N
73 USB3_USB20_P

M.2 SSD1
63 SSD1_PCIE_RX_N0
63 SSD1_PCIE_RX_P0
63 SSD1_PCIE_TX_N0
63 SSD1_PCIE_TX_P0
63 SSD1_PCIE_RX_N1
63 SSD1_PCIE_RX_P1
63 SSD1_PCIE_TX_N1
63 SSD1_PCIE_TX_P1
63 SSD1_PCIE_RX_N2
63 SSD1_PCIE_RX_P2
63 SSD1_PCIE_TX_N2
63 SSD1_PCIE_TX_P2
63 SSD1_PCIE_RX_N3
63 SSD1_PCIE_RX_P3
63 SSD1_PCIE_TX_N3
63 SSD1_PCIE_TX_P3
63 SSD1_SATA_TX_P0
63 SSD1_SATA_TX_N0
63 SSD1_SATA_RX_P0
63 SSD1_SATA_RX_N0

USB3 Port1 MB
35 USB1_USB30_RX_N
35 USB1_USB30_RX_P
35 USB1_USB30_TX_N
35 USB1_USB30_TX_P
36 Charger_USB20_N
36 Charger_USB20_P

USB3 Port2 DB
66 USB2_USB30_RX_N
66 USB2_USB30_RX_P
66 USB2_USB30_TX_N
66 USB2_USB30_TX_P
66,89 USB2_USB20_P
66,89 USB2_USB20_N

33 CARD1_USB20_P
33 CARD1_USB20_N
92 FP1_USB20_N
92 FP1_USB20_P

CCD
55 CCD_USB20_N
55 CCD_USB20_P

BT (CNVi)
61,89 BT_USB20_N
61,89 BT_USB20_P

63 DEVSLP1

USB1(USB 3.0) MB
USB2(USB 3.0) DB
WLAN
M.2 SSD1

CPU1H — 8 OF 19

USB1_USB30_TX_P BF8
USB1_USB30_TX_N BF6
USB1_USB30_RX_P BJ4
USB1_USB30_RX_N BJ2
SSD1_SATA_TX_P0 BF12
SSD1_SATA_TX_N0 BF10
SSD1_SATA_RX_P0 BK3
SSD1_SATA_RX_N0 BK1
USB2_USB30_TX_P BP8
USB2_USB30_TX_N BP6
USB2_USB30_RX_P BV1
USB2_USB30_RX_N BV3
WLAN_PCIE_TX_C_P BP10
WLAN_PCIE_TX_C_N BP12
WLAN_PCIE_RX_P BU4
WLAN_PCIE_RX_N BU2
SSD1_PCIE_TX_P3 BL9
SSD1_PCIE_TX_N3 BL8
SSD1_PCIE_RX_P3 BR4
SSD1_PCIE_RX_N3 BR2
SSD1_PCIE_TX_P2 BL13
SSD1_PCIE_TX_N2 BL12
SSD1_PCIE_RX_P2 BP3
SSD1_PCIE_RX_N2 BP1
SSD1_PCIE_TX_P1 BJ8
SSD1_PCIE_TX_N1 BJ6
SSD1_PCIE_RX_P1 BN4
SSD1_PCIE_RX_N1 BN2
SSD1_PCIE_TX_P0 BJ12
SSD1_PCIE_TX_N0 BJ10
SSD1_PCIE_RX_P0 BL2
SSD1_PCIE_RX_N0 BL4
PCIE_RCOMPP BH2
PCIE_RCOMPN BH4
SATAGP1 CP8
SATAGP0 CH3
DEVSLP1 CH2
CL1

SATA_1_TXP/USB30_4_TXP/PCIE_8_TXP
SATA_1_TXN/USB30_4_TXN/PCIE_8_TXN
SATA_1_RXP/USB30_4_RXP/PCIE_8_RXP
SATA_1_RXN/USB30_4_RXN/PCIE_8_RXN
SATA_0_TXP/PCIE_7_TXP
SATA_0_TXN/PCIE_7_TXN
SATA_0_RXP/PCIE_7_RXP
SATA_0_RXN/PCIE_7_RXN
PCIE_6_TXP/USB30_1_TXP
PCIE_6_TXN/USB30_1_TXN
PCIE_6_RXP/USB30_1_RXP
PCIE_6_RXN/USB30_1_RXN
PCIE_5_TXP/USB30_2_TXP
PCIE_5_TXN/USB30_2_TXN
PCIE_5_RXP/USB30_2_RXP
PCIE_5_RXN/USB30_2_RXN
PCIE_4_TXP/USB30_3_TXP
PCIE_4_TXN/USB30_3_TXN
PCIE_4_RXP/USB30_3_RXP
PCIE_4_RXN/USB30_3_RXN
PCIE_3_TXP
PCIE_3_TXN
PCIE_3_RXP
PCIE_3_RXN
PCIE_2_TXP
PCIE_2_TXN
PCIE_2_RXP
PCIE_2_RXN
PCIE_1_TXP
PCIE_1_TXN
PCIE_1_RXP
PCIE_1_RXN
PCIE_RCOMPP
PCIE_RCOMPN
GP_E09/SML_CLK0/SATA_1_GP
GP_E08/SATA_0_GP
GP_E07/SATA_1_DEVSLP
GP_E03/SATA_0_DEVSLP

USB31_1_TXP BU12
USB31_1_TXN BU13
USB31_1_RXP BY1
USB31_1_RXN BY3
USB31_2_TXP BU8
USB31_2_TXN BU9
USB31_2_RXP CA2
USB31_2_RXN CA4
USB2P_8 BW8
USB2N_8 BW6
USB2P_7 CG3
USB2N_7 CG4
USB2P_6 BW10
USB2N_6 BW12
USB2P_5 CA10
USB2N_5 CA12
USB2P_4 CD3
USB2N_4 CD1
USB2P_3 CE2
USB2N_3 CE4
USB2P_2 CA6
USB2N_2 CA8
USB2P_1 CF3
USB2N_1 CF1
CN27
CR33
CL30
CR27
USB_VBUSSENSE CC7
USB_ID CC6
USB2_RCOMP CC3
RSVD_1 AT4

USB3_USB30_TX_P0
USB3_USB30_TX_N0
USB3_USB30_RX_P0
USB3_USB30_RX_N0
USB3_USB30_TX_P1
USB3_USB30_TX_N1
USB3_USB30_RX_P1
USB3_USB30_RX_N1
BT_USB20_P
BT_USB20_N
FP1_USB20_P
FP1_USB20_N
CCD_USB20_P
CCD_USB20_N
CARD1_USB20_P
CARD1_USB20_N
USB2_USB20_P
USB2_USB20_N
Charger_USB20_P
Charger_USB20_N
USB3_USB20_P
USB3_USB20_N
USB_OC3#
USB_OC2#
USB_OC1#
USB_OC0#
USB_VBUSSENSE
USB_ID
USB2_RCOMP

USB3(TypeC)
BT (CNVi)
FP
CCD
Card Reader
USB2(USB 2.0) DB
USB1(USB 2.0) MB
USB3(TypeC)

R1601 1 — 2 100R2F-L1-GP-U
R1603 1 — 2 113R2F-GP

JSL-CELERON-QC-GP-U
ZZ.00CPU.521

USB_ID
USB_VBUSSENSE
RN1601
SRN10KJ-GP

SATAGP0
SATAGP1
RN1602
Do Not Stuff
3D3V_S0

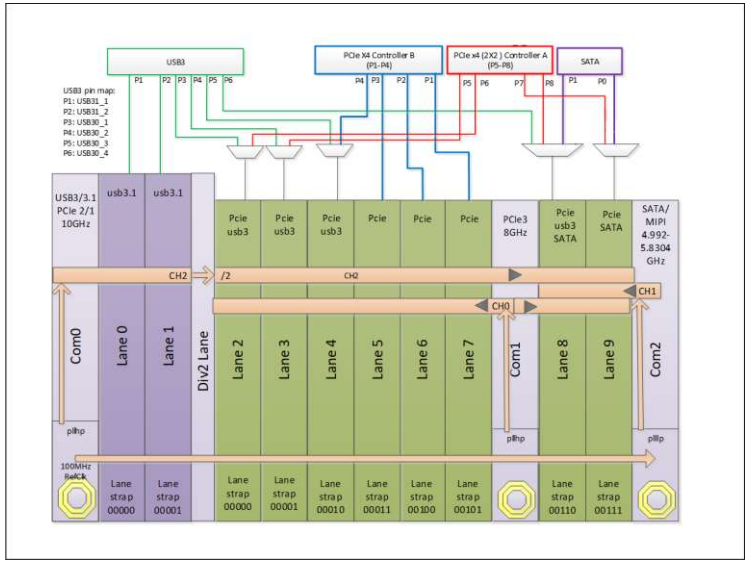
DEVSLP1
R1602
Do Not Stuff
3D3V_S0

USB_OC0#
USB_OC1#
USB_OC2#
USB_OC3#
RN1603
SRN10KJ-GP
3D3V_S5

SATA_[0:1]_GP	10 kΩ ±10% pull-up to V3.3	• When configured as SATAGP0, this is an input pin that is used as an interlock switch status indicator for SATA Port 0. Drive the pin to '0' to indicate that the switch is closed and to '1' to indicate that the switch is open. The PCH is required to pull-up the Device Present pin to 3.3 Volts by means of a 10 kΩ pull-up resistor. • If MPS/interlock switches are not required, this pin can be configured as GPIO. • Unused SATAGP[2:0] pins can be left as no connect and need to be default to GPIO functionality; refer to an unused GPIO for termination guidance.

Example Internal USB Port Assignments in PCH

PCH	Jasper Lake PCH
USB Port Number (Zero-based) (When starting with "1", e.g., BIOS)	Port 7 Port 8



Hynix 4G EMMC

Wistron Corporation
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Title: CPU (PCIE/SATA/USB)
Size: A2
Document Number: Airking_JL
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24,40,51 PM_SLP_S4#
24,40,57 PM_SLP_S3#
40 PM_SLP_S0#
53 PM_SLP_SUS#
24 RSMRST#_KBC
61,63,89,91 PLTRST#_CPU
24 DSW_PWROK
40 PCH_PWROK
24 SYS_PWROK
15 RTC_INTRUDER#
24 PM_PWRBTN#
24 AC_PRESENT
40,66 CPU_C10_GATE#
61,63,89 PCIE_WAKE#
40 VCCST_OVERRIDE
24,40 ALL_SYS_PWRGD
15 GP_DSW07

CPU1K 11 OF 19

TP1701 PM_SLP_SUS# BU51 PMC_SLP_SUS_N
TP1702 PM_SLP_S5# BW51 GP_DSW10/PMC_SLP_S5_N
PM_SLP_S4# BW47 GP_DSW05/PMC_SLP_S4_N
PM_SLP_S3# CB47 GP_DSW04/PMC_SLP_S3_N
CB49 GP_DSW06/PMC_SLP_A_N
TP1704 PM_SLP_S0# CN41 GP_B12/PMC_SLP_S0_N
CA48 GP_DSW09/PMC_SLP_WLAN_N
PM_RSMRST# BU49 PMC_RSMRST_N
SYS_RESET# CF9 PMC_SYS_RESET_N
PM_PWRBTN# BU48 GP_DSW03/PMC_PWRBTN_N
DSW_PWROK R1723 1 2 DSW_PWROK_R BP49 PMC_DSW_PWROK
SYS_PWROK R1724 1 2 SYS_PWROK_R CC9 PMC_SYS_PWROK
PCH_PWROK R1720 1 2 PM_PCH_PWROK BT50 PMC_PCH_PWROK
RTC_INTRUDER# BP51 INTRUDER_N Strap
TP1703 PROCPWRGD AM2 PROC_PWR_GD

GP_DSW00/PMC_BATLOW_N BW48 BATLOW#
GP_DSW01/PMC_ACPRESENT CA50 AC_PRESENT
GP_B13/PMC_PLTRST_N CM41 PLTRST#_CPU
RSVD_TP_6 AW18
GP_H10/CPU_C10_GATE_N CL22 CPU_C10_GATE#
PMC_WAKE_N BU47 PCIE_WAKE#
GP_DSW02/LAN_WAKE_N CB48
Strap GP_DSW07 CB51 GP_DSW07
VCCST_OVERRIDE AP2 VCCST_OVERRIDE_R
VCCST_PWRGD AP4 VCCST_PWRGD_R

JSL-CELERON-QC-GP-U

ZZ.00CPU.521

Out
R1728 1 2 VCCST_OVERRIDE

RSMRST#_KBC 1 R1702 2 PM_RSMRST#
Do Not Stuff

U1701
1 NC#1 VCC 5
2 A
3 GND Y 4
74LVC1G07GW-GP
ALL_SYS_PWRGD
3D3V_S5
C1702 SCD1U16V2KX-L-GP
1D05V_VCCST
R1719 1KR2F-3-GP
VCCST_PWRGD
Output
VCCST_PWRGD_R
R1721 60D4R2F-GP

73.01G07.0HG
2nd = 073.7SZ07.000G
3rd = 73.17S07.0AG

3D3V_S5
RN1701
AC_PRESENT 1 8
BATLOW# 2 7
PM_PWRBTN# 3 6
PCIE_WAKE# 4 5
SRN10KJ-GP

3D3V_S0
SYS_RESET# R1701 1 2 1KR2F-L1-GP
CPU_C10_GATE# R1712 1 2 100KR2J-4-GP
VCCST_OVERRIDE_R R1730 1 2 100KR2J-4-GP
PM_RSMRST# R1703 1 2 100KR2J-4-GP

Hynix 4G EMMC

緯創資通 Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (PMU)
Size: A3
Document Number: Airking_JL
Rev: -1
Date: Tuesday, February 23, 2021
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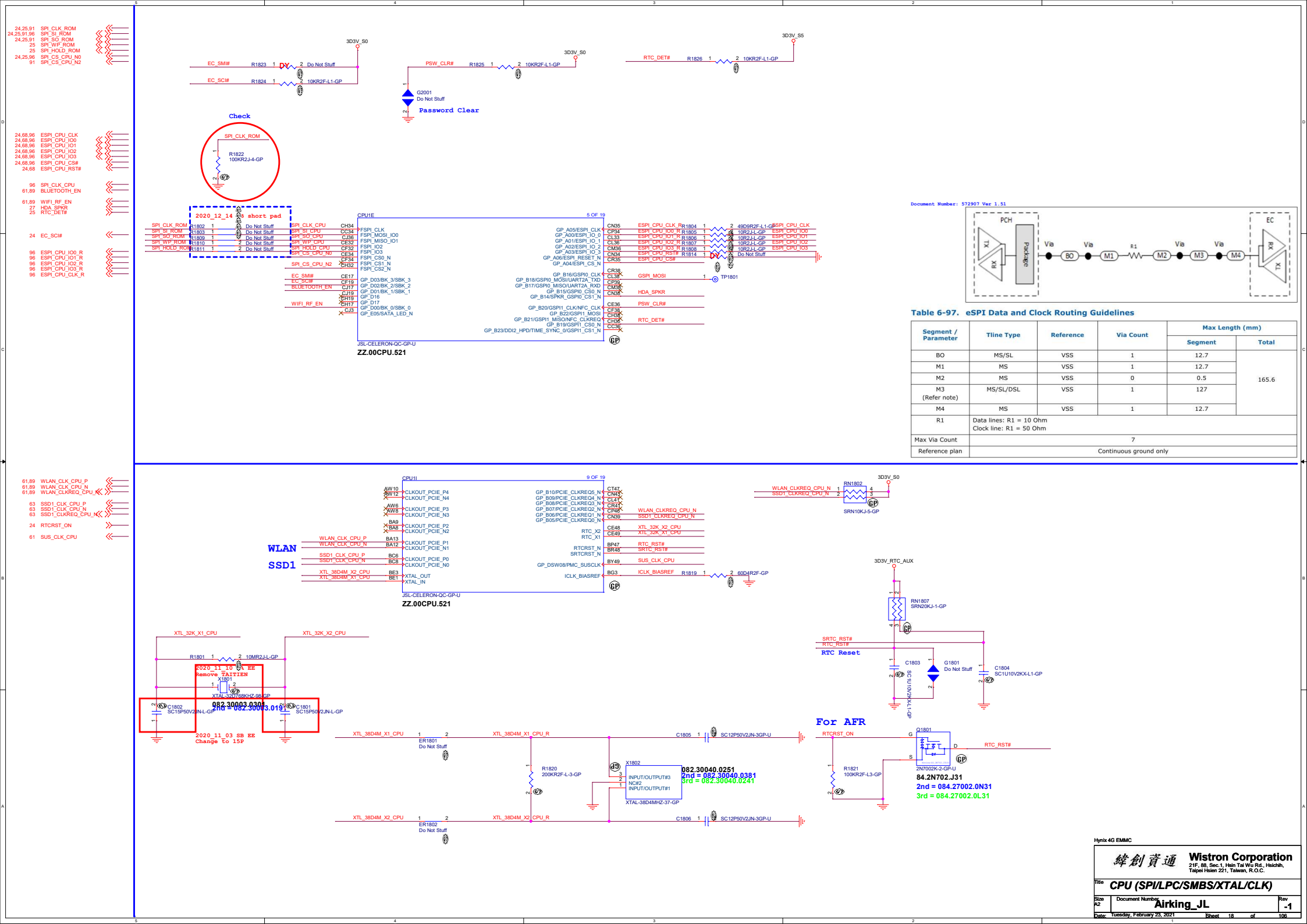
SPI_CLK_ROM
SPI_SI_ROM
SPI_SO_ROM
SPI_WP_ROM
SPI_HOLD_ROM
SPI_CS_CPU_N0
SPI_CS_CPU_N2
3D3V_S0
EC_SMI#
EC_SCI#
R1823
DY
Do Not Stuff
10KR2F-L1-GP
PSW_CLR#
R1825
G2001
Password Clear
3D3V_S5
RTC_DET#
R1826
Check
R1822
100KR2J-4-GP
ESPI_CPU_CLK
ESPI_CPU_IO0
ESPI_CPU_IO1
ESPI_CPU_IO2
ESPI_CPU_IO3
ESPI_CPU_CS#
ESPI_CPU_RST#
SPI_CLK_CPU
BLUETOOTH_EN
WIFI_RF_EN
HDA_SPKR
RTC_DET#
EC_SCI#
2020_12_14 3 short pad
C1802
C1803
C1809
C1810
R1811
CPU1E
5 OF 19
JSL-CELERON-QC-GP-U
ZZ.00CPU.521
R1804
R1805
R1806
R1807
R1808
R1814
49D9R2F-L1-GP
10R2J-L-GP
TP1801
GSPI_MOSI
HDA_SPKR
PSW_CLR#
RTC_DET#
Document Number: 572907 Ver 1.51
PCH
EC
Via
BO
M1
M2
M3
M4
R1
X1
RX
Package
TX
Table 6-97. eSPI Data and Clock Routing Guidelines
Segment / Parameter
Tline Type
Reference
Via Count
Max Length (mm)
Segment
Total
BO
MS/SL
VSS
1
12.7
M1
MS
VSS
1
12.7
M2
MS
VSS
0
0.5
M3 (Refer note)
MS/SL/DSL
VSS
1
127
M4
MS
VSS
1
12.7
165.6
R1
Data lines: R1 = 10 Ohm
Clock line: R1 = 50 Ohm
Max Via Count
7
Reference plan
Continuous ground only
WLAN_CLK_CPU_P
WLAN_CLK_CPU_N
WLAN_CLKREQ_CPU_N
SSD1_CLK_CPU_P
SSD1_CLK_CPU_N
SSD1_CLKREQ_CPU_N
RTCRST_ON
SUS_CLK_CPU
CPU1I
9 OF 19
WLAN
SSD1
RN1802
SRN10KJ-5-GP
3D3V_S0
XTL_32K_X1_CPU
XTL_32K_X2_CPU
R1801
10MR2J-L-GP
X1801
XTAL-32D768KHZ-98-GP
082.30003.0301
2nd = 082.30003.019
C1802
C1801
SC15P50V2JN-L-GP
2020_11_10 5 EE
Remove TAITIEN
2020_11_03 SB EE
Change to 15P
RN1807
SRN20KJ-1-GP
SRTC_RST#
RTC_RST#
RTC Reset
C1803
C1804
G1801
Do Not Stuff
SC1U10V2KX-L1-GP
3D3V_RTC_AUX
For AFR
Q1801
2N7002K-2-GP-U
R1821
100KR2F-L3-GP
84.2N702.J31
2nd = 084.27002.0N31
3rd = 084.27002.0L31
ER1801
ER1802
Do Not Stuff
XTL_38D4M_X1_CPU_R
XTL_38D4M_X2_CPU_R
R1820
200KR2F-L-3-GP
X1802
XTAL-38D4MHZ-37-GP
082.30040.0251
2nd = 082.30040.0381
3rd = 082.30040.0241
C1805
C1806
SC12P50V2JN-3GP-U
Hynix 4G EMMC
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
CPU (SPI/LPC/SMBS/XTAL/CLK)
Size
A2
Document Number
Airking_JL
Rev
-1
Date: Tuesday, February 23, 2021
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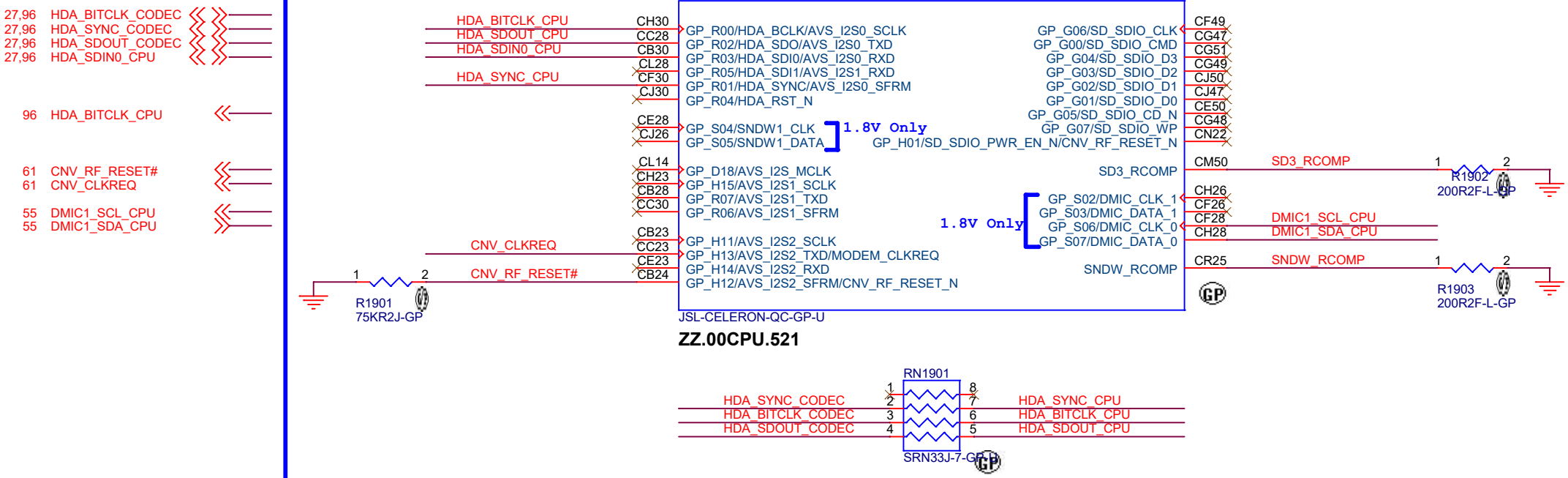
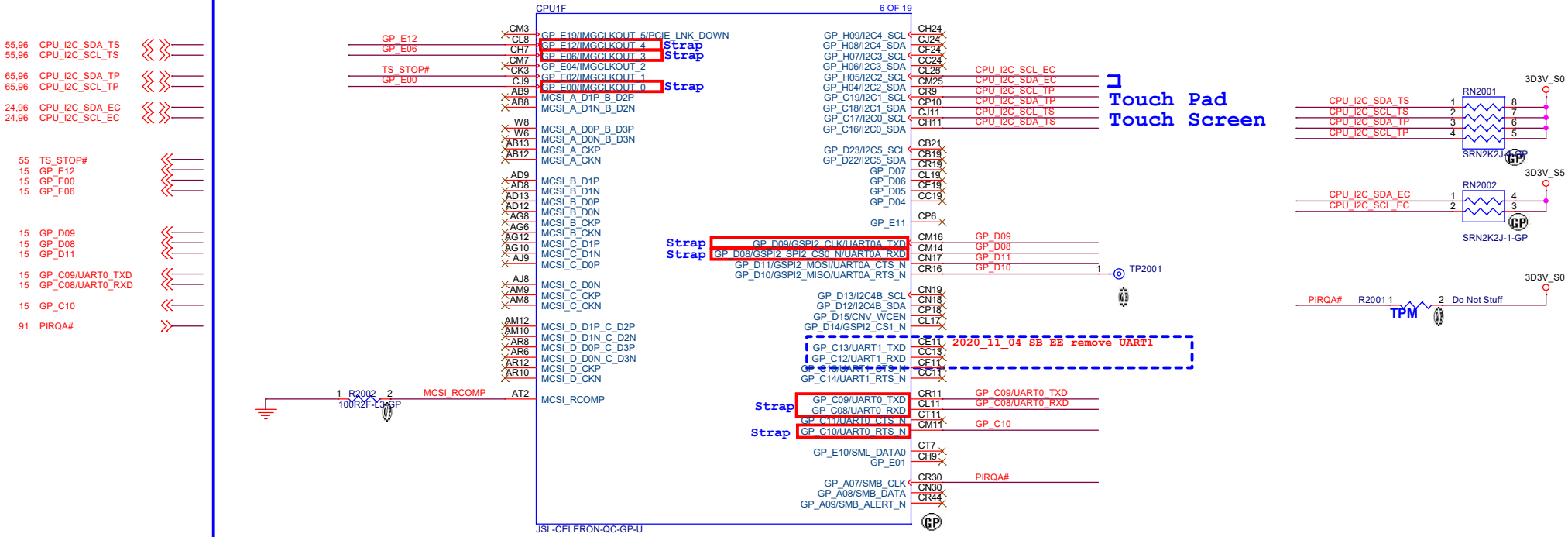


Hynix 4G EMMC

緯創資通	**Wistron Corporation** 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.	
Title	***CPU (HDA/I2S/SD/DMIC)***	
Size: A4	Document Number: **Airking_JL**	Rev: **-1**
Date: Tuesday, February 23, 2021	Sheet 19 of 106	



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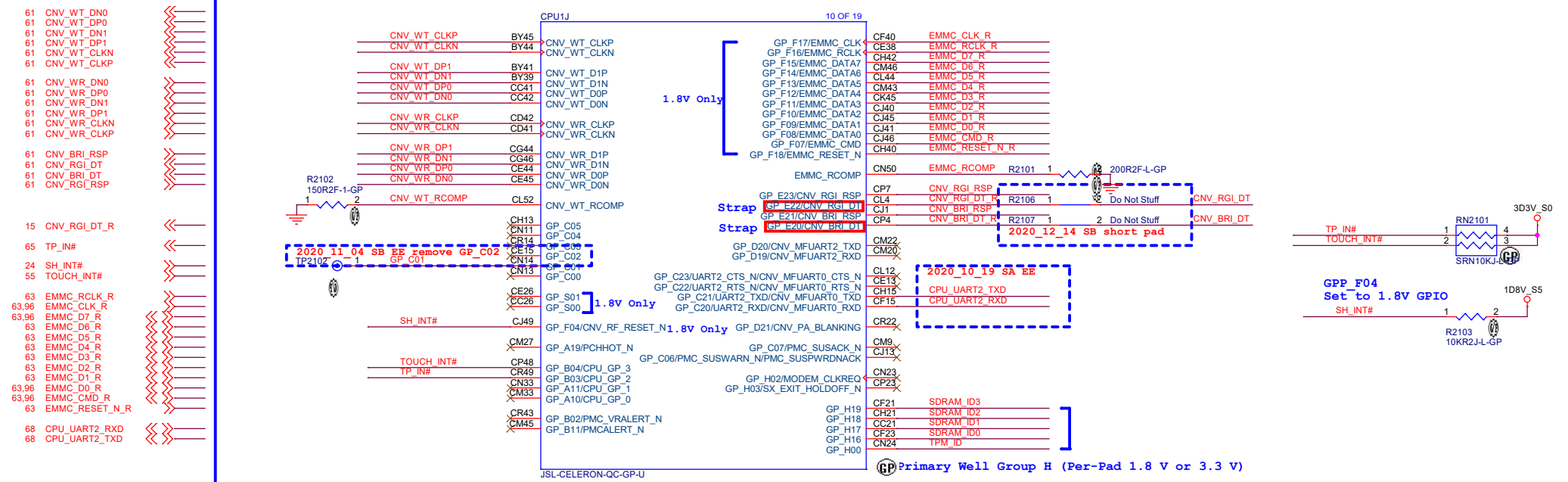
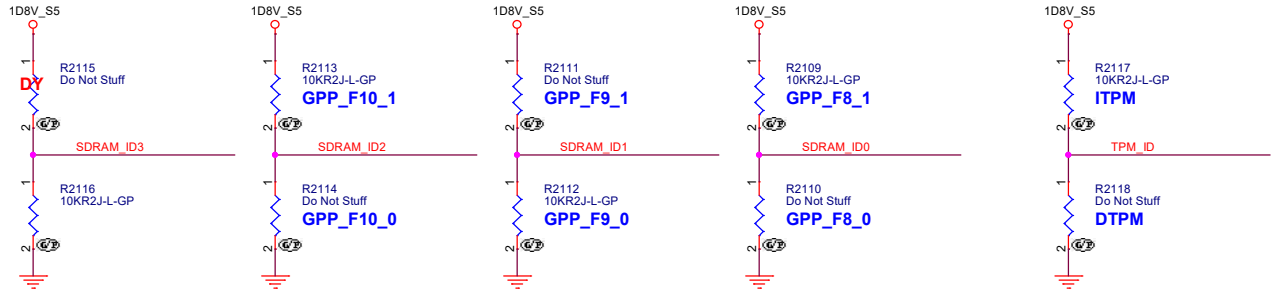
Title: CPU (UART/I2C/ISH)		
Size: A3	Document Number: Airking_JL	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 20 of 106	





Vendor	SDRAM_ID3	SDRAM_ID2	SDRAM_ID1	SDRAM_ID0	WISTRON PN	Vendor PN	Capacity	Channel	DDP/SDP
MICRON	0	0	0	0	KN.8GB04.050	MT40A512M16LY-062E	8Gb	A+B	SDP
	0	0	0	1					
HYNIX	0	0	1	0	KN.8GB0G.071	H5AN8G6NDJR-XNC	8Gb	A+B	SDP
MICRON	0	0	1	1	KN.8GB04.050	MT40A512M16LY-062E	4Gb	A	SDP
	0	1	0	0					
HYNIX	0	1	0	1	KN.8GB0G.071	H5AN8G6NDJR-XNC	4Gb	A	SDP

Hynix 4G EMMC

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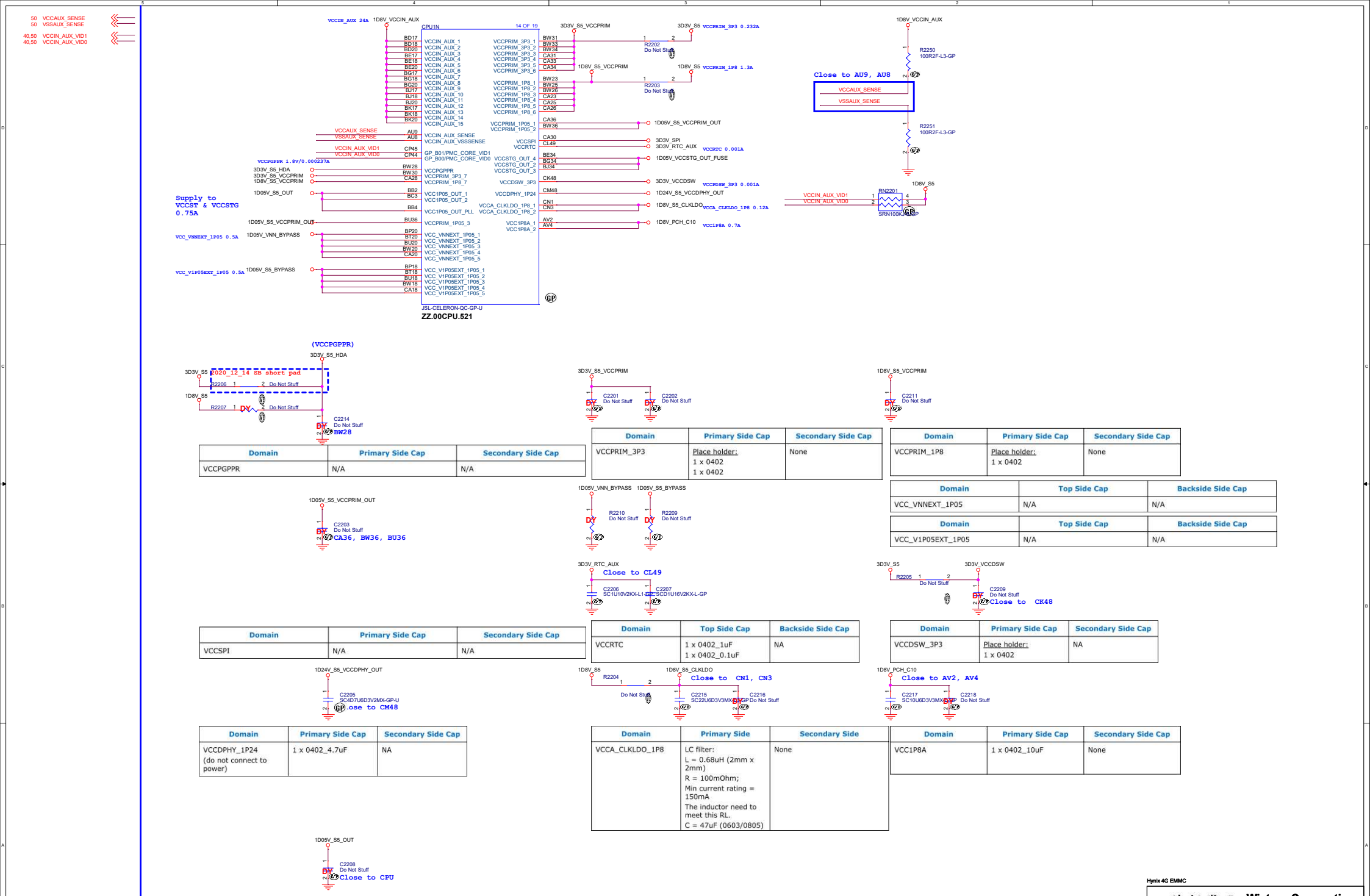
Taipei Hsien 221, Taiwan, R.O.C.

Title	CPU (CSI/EMMC/CNVi)		
Size A3	Document Number Airking_JL		Rev -1
Date: Tuesday, February 23, 2021	Sheet 21 of 106		



Domain	Primary Side Cap	Secondary Side Cap
VCCPGPPR	N/A	N/A

Domain	Primary Side Cap	Secondary Side Cap
VCCPRIM_3P3	Place holder: 1 x 0402 1 x 0402	None

Domain	Primary Side Cap	Secondary Side Cap
VCCPRIM_1P8	Place holder: 1 x 0402	None

Domain	Top Side Cap	Backside Side Cap
VCC_VNNEXT_1P05	N/A	N/A

Domain	Top Side Cap	Backside Side Cap
VCC_V1P05EXT_1P05	N/A	N/A

Domain	Primary Side Cap	Secondary Side Cap
VCCSPI	N/A	N/A

Domain	Top Side Cap	Backside Side Cap
VCCRTC	1 x 0402_1uF 1 x 0402_0.1uF	NA

Domain	Primary Side Cap	Secondary Side Cap
VCCDSW_3P3	Place holder: 1 x 0402	NA

Domain	Primary Side Cap	Secondary Side Cap
VCCDPHY_1P24 (do not connect to power)	1 x 0402_4.7uF	NA

Domain	Primary Side	Secondary Side
VCCA_CLKLDO_1P8	LC filter: L = 0.68uH (2mm x 2mm) R = 100mOhm; Min current rating = 150mA The inductor need to meet this RL. C = 47uF (0603/0805)	None

Domain	Primary Side Cap	Secondary Side Cap
VCC1P8A	1 x 0402_10uF	None

Hynix 4G EMMC

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Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (PCH-LP PWR&Caps)

Size: A2 | Document Number: Airking_JL | Rev: -1

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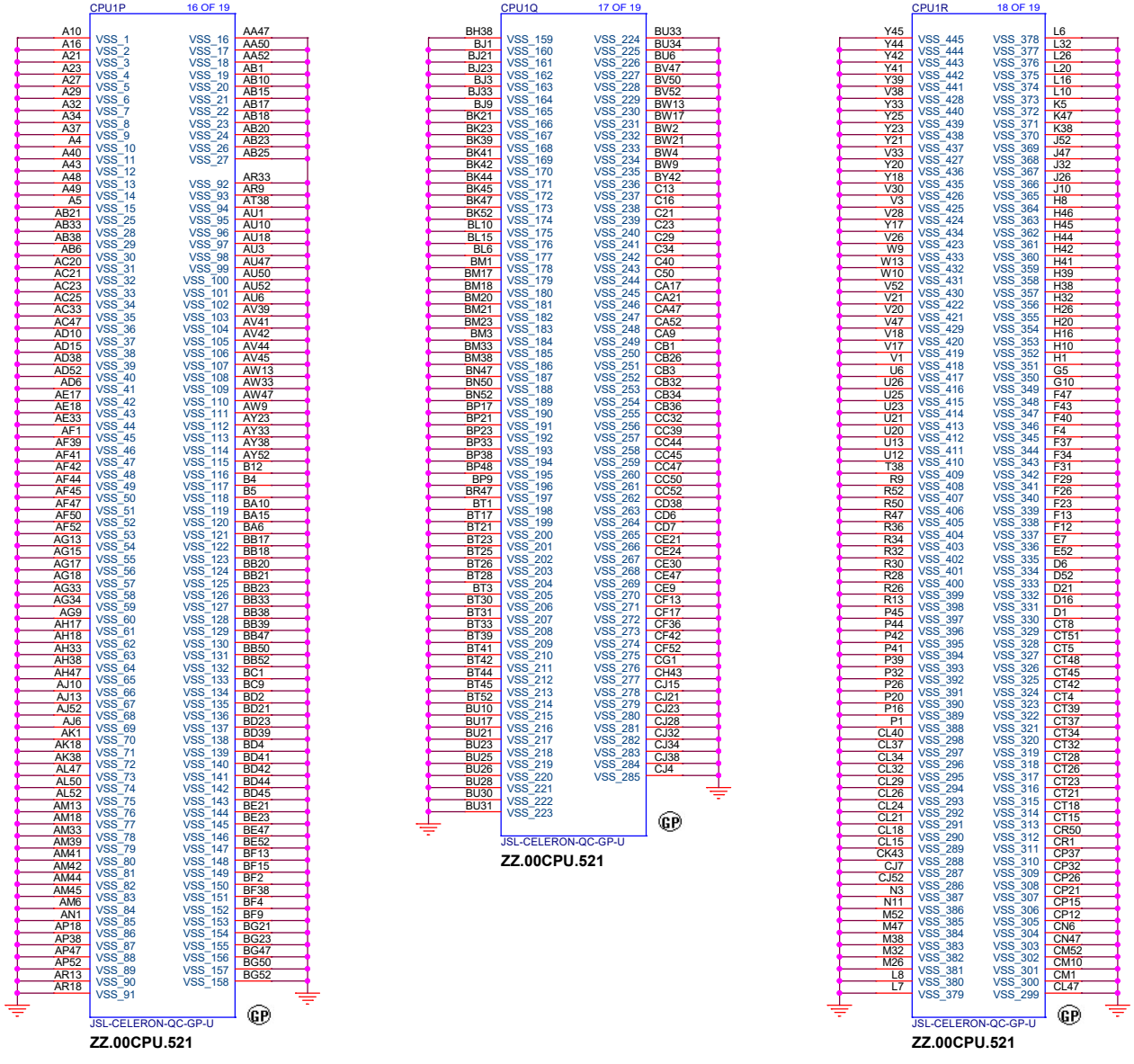

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Taipei Hsien 221, Taiwan, R.O.C.

Title: CPU (VSS)

Size: A3 | Document Number: Airking_JL | Rev: -1

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SSID = KBC

72	TPS25810_CHG_HI_EN
72	TYPEC_PWR_EN
44	PWR_CHG_IMON
65	EC_TP_IN#
65	PTP_PWR_EN
44	PWR_CHG_BMON
27	AMP_MUTE#
44	AD_OFF
17	DSW_PWROK
17,40	ALL_SYS_PWRGD
4	eDP_BKLTEN_CPU
17	PM_PWRBTN#
26	VD_IN1
26	VD_IN2
26	VD_OUT1
65,89	FUN_OFF#
43,44	PWR_CHG_BAT_IN#
44	PWR_AC_IN#
64,66,89	KBC_PWRBTN#
66	USB_PWR_EN
66,89	LID_CLOSE2#
17	AC_PRESENT
45	PWR_5V_EN
65	KB_BL_DET
43	DC_IN_OK
68	ESPI_ALERT_N
17,61,63,89,91	PLTRST#_CPU
18,68,96	ESPI_CPU_CLK
18,68,96	ESPI_CPU_CS#
18,68,96	ESPI_CPU_IO3
18,68,96	ESPI_CPU_IO2
18,68,96	ESPI_CPU_IO1
18,68,96	ESPI_CPU_IO0
18,68	ESPI_CPU_RST#
44	PWR_CHG_ON#
18	EC_SCI#
21	SH_INT#
66,70	GSR_INT1#
55	TS_RST#
65	CAPS_LED
65	EC_PSDAT_TP
65	EC_PSCLK_TP
36	USB_CHARGER_EN
66,89	LID_CLOSE1#
43,44,96	PWR_SMB_SCL_CHG
43,44,96	PWR_SMB_SDA_CHG
66,70,96	EC_I2C_SCL_GSR
66,70,96	EC_I2C_SDA_GSR
20,96	CPU_I2C_SCL_EC
20,96	CPU_I2C_SDA_EC
17,40,51	PM_SLP_S4#
4	ME_UNLOCK
18,25,96	SPI_CS_CPU_N0
18,25,91	SPI_CLK_ROM
18,25,91,96	SPI_SI_ROM
18,25,91	SPI_SO_ROM
17	SYS_PWROK
55	BLON_OUT
96	SPI_SI_KBC
96	SPI_CS_KBC_N0
96	SPI_CLK_KBC
66,89	STDBY_LED
17,40,57	PM_SLP_S3#
66,89	DC_BATFULL
27	KBC_BEEP
65	KB_BL_PWM
66,89	CHARGE_LED
66,89	POWER_LED
18	RTCRST_ON
17	RSMRST#_KBC
40	3V_S5_ENABLE
3,44,46	PROCHOT#_CPU
61,68	E51_TXD
36	USB_CHAR_CT1
36	USB_CHAR_SEL
26,40	PURE_HW_SHUTDOWN#
6	PECI_CPU
65,89	KSO0
65,89	KSO1
65,89	KSO2
65,89	KSO3
65,89	KSO4
65,89	KSO5
65,89	KSO6
65,89	KSO7
65,89	KSO8
65,89	KSO9
65,89	KSO10
65,89	KSO11
65,89	KSO12
65,89	KSO13
65,89	KSO14
65,89	KSO15
65,89	KSO16
65,89	KSO17
65,89	KSI0
65,89	KSI1
65,89	KSI2
65,89	KSI3
65,89	KSI4
65,89	KSI5
65,89	KSI6
65,89	KSI7

Vcc GPI06, GPI42~43, GPI70
Vcc GPO33, GPO64, GPOB0, GPOB4, GPOC1
AVcc GPIO05, GPIO80, GPIO90~97
VDD/VeSPI GPIO10~11, GPIO24, GPIOF0~GPIOF7
VccSPI(D5) GPIO75~77, GPIO81, GPIOC4~C7

LPC and eSPI Strapping Function Selection. These two strap pins (LPC_eSPI_Strap1,LPC_eSPI_Strap0) select one of the four function modes:

00: Intel eSPI Interface with eSPI Flash share structure.

01: eSPI Interface with Share Flash structure.

10: AMD eSPI Interface with SPI (eSPI pins) Flash share structure.

11: LPC Interface with Share Flash structure.

PCB_VER_AD	Pull-Low Register	Pull-High Register		Typical Voltage
SA	100.0 K	10.0 K		3.000 V
SB	100.0 K	20.0 K		2.750 V
SC	100.0 K	33.0 K		2.481 V
-1	100.0 K	47.0 K		2.245 V
-1M	100.0 K	64.9 K		2.001 V

PWR_CHG_IMON= AD_IA
PWR_CHG_BMON= BT_IA

PAE: Non PSL Mode, PSL_OUT#/GPIO71 N/C

PM_SLP_S3# DELAY 120ms = SYS_PWROK

071.00385.0A0G

071.00385.0A0G

84.T3906.E11
2nd = 084.03906.0C1
3nd = 84.03906.R11

GPIO0 High Active

84.2N702.J31
2nd = 084.27002.0N31
3rd = 084.27002.0L31

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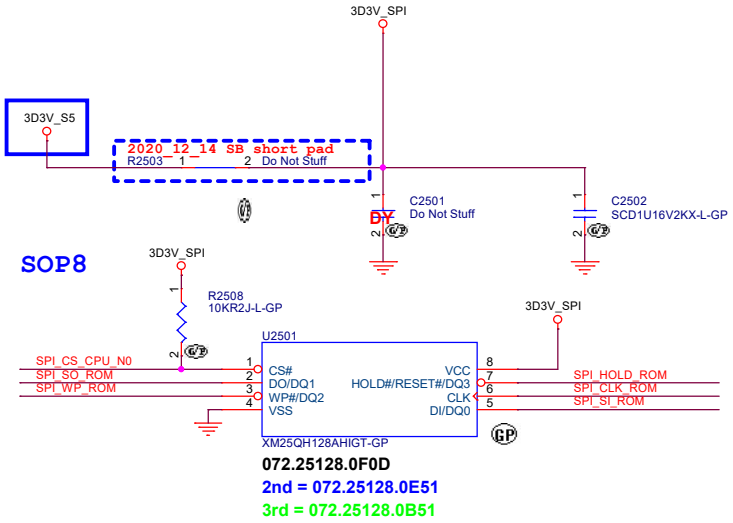
Title: ECIO (Nuvoton_NPCE385PB0BX)
Size: A2 | Document Number: Airking_JL | Rev: -1
Date: Tuesday, February 23, 2021 | Sheet 24 of 106

18,24,96 SPI_CS_CPU_N0
18,24,91 SPI_SO_ROM
18 SPI_WP_ROM
18 SPI_HOLD_ROM
18,24,91 SPI_CLK_ROM
18,24,91,96 SPI_SI_ROM

18 RTC_DET#

Main Func = SPI Flash

SPI Flash ROM (16M Byte)

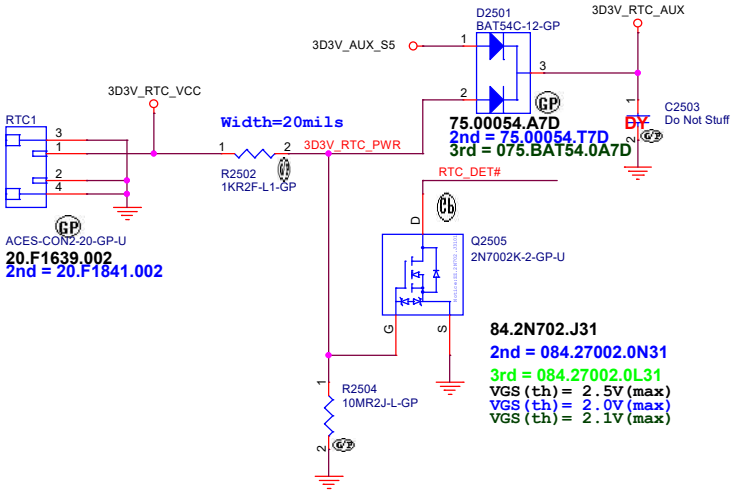


072.25128.0D61 MXIC MX25L12872F

RPMC (Replay-Protected Monotonic Counter)

072.12850.0001 MXIC MX77L12850FM2I40
072.25128.0A81 WINBOND W25R128JVSIQ
072.25127.0C01 GigaDevice GD25R127DSIGR

Main Func = RTC



RTC BATTERY (90mm)
1st= 23.21212.091 KTS
2nd= 023.22032.0901 TIANQIU
3rd= 23.21221.091 JHT

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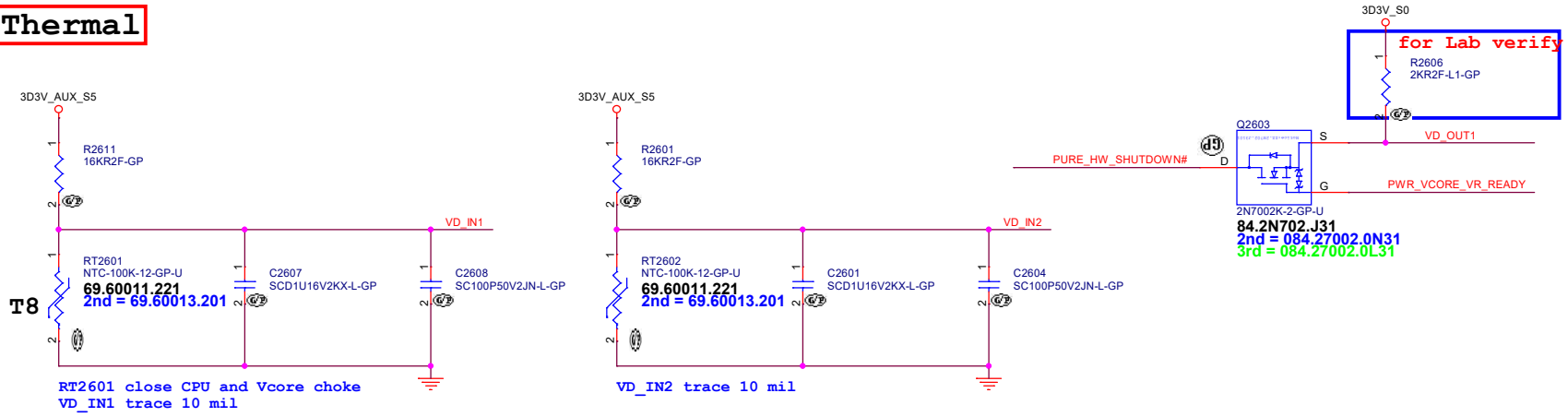
Taipei Hsien 221, Taiwan, R.O.C.

Title: Flash/RTC
Size: A3 | Document Number: Airking_JL | Rev: -1
Date: Tuesday, February 23, 2021 | Sheet 25 of 106

SSID = Thermal

24 VD_IN1
24 VD_IN2
24,40 PURE_HW_SHUTDOWN#
24 VD_OUT1
40,46 PWR_VCORE_VR_READY



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Title: INT IO (Thermal/Fan)

Size: A3 | Document Number: Airking_JL | Rev: -1

Date: Tuesday, February 23, 2021 | Sheet 26 of 106

SSID = AUDIO

19,96 HDA_SYNC_CODEC
19,96 HDA_BITCLK_CODEC
19,96 HDA_SDOUT_CODEC
19,96 HDA_SDIN0_CPU

24 KBC_BEEP
18 HDA_SPKR
24 AMP_MUTE#

66,89 AUD_HP1_JACK_L2
66,89 AUD_HP1_JACK_R2

66,89 RING2
66 SLEEVE
66 AUD_HP1_JD#

29 AUD_SPK1_L+
29 AUD_SPK1_L-
29 AUD_SPK1_R+
29 AUD_SPK1_R-

55 DMIC1_SDA_CODEC
55 DMIC_SCL_CODEC

65 AMP_MUTE#_LED

5V_S0 — Close to Pin40 — R2719 Do Not Stuff — 5V_AVDD1 — C2709 DY Do Not Stuff — C2708 SC10U6D3V3MX-GP — AUD_AGND

1D8V_S0 — Close to pin20 — R2739 Do Not Stuff — 1D8V_AVDD2 — C2732 DY Do Not Stuff — C2733 SC10U6D3V3MX-GP — AUD_AGND

3D3V_S0 — Close to pin3 — R2737 Do Not Stuff — 3D3V_DVDD — C2726 SCD1U16V2KX-L-GP

3D3V_S0 — Close to pin18 — R2736 Do Not Stuff — 3D3V_DVDD_IO_U2701 — C2717 — C2716 DY Do Not Stuff — SC10U6D3V3MX-L-GP

5V_S0 — Close to Pin41 — R2738 Do Not Stuff — 5V_PVDD1 — C2727 DY — C2728 Do Not Stuff SC10U6D3V3MX-GP

Close to Pin46 — C2729 DY — C2730 Do Not Stuff SC10U6D3V3MX-GP

AUDIO_PC_BEEP — C2725 SCD1U16V2KX-L-GP — KBC_BEEP_C — R2730 10KR2F-2-GP — RN2701 SRN47K-2-GP-U — KBC_BEEP HDA_SPKR

Placed nearby codec PIN34

AUD_HP1_JACK_L2 — ED2701 AZ5725-01FDR7G-GP — 83.05725.0A0 — 2nd = 83.0005V.CAF — 3rd = 083.00051.00AF — AUD_AGND

AUD_HP1_JACK_R2 — ED2702 AZ5725-01FDR7G-GP — 83.05725.0A0 — 2nd = 83.0005V.CAF — 3rd = 083.00051.00AF — AUD_AGND

SLEEVE — ED2703 AZ5725-01FDR7G-GP — 83.05725.0A0 — 2nd = 83.0005V.CAF — 3rd = 083.00051.00AF — AUD_AGND

RING2 — ED2704 AZ5725-01FDR7G-GP — 83.05725.0A0 — 2nd = 83.0005V.CAF — 3rd = 083.00051.00AF — AUD_AGND

AUD_AGND Close to Codec IC

U2701

5V_AVDD1 40 — AVDD1
1D8V_AVDD2 20 — CPVDD/AVDD2
3D3V_DVDD 3 — DVDD
3D3V_DVDD_IO_U2701 18 — DVDD-IO
5V_PVDD1 41 — PVDD1
46 — PVDD2
5V_STB 33 — 5VSTB/AUX_MODE

2020_12_14 SB short pad — 5V_AUX_S5 — R2758 Do Not Stuff — 5V_S5 — R2757 DY Do Not Stuff

HDA_BITCLK_CODEC 14 — AUDIOLINK_BCLK
HDA_SYNC_CODEC 15 — AUDIOLINK_SYNC
HDA_SDIN0_CODEC 16 — AUDIOLINK_SDATA-IN
HDA_SDOUT_CODEC 17 — AUDIOLINK_SDATA-OUT

HDA_SDIN0_CPU — R2718 33R2J-2-GP

G2703 Do Not Stuff — G2701 Do Not Stuff — G2702 Do Not Stuff — AUD_AGND

6 — I2C-DATA
7 — I2C-CLK
8 — I2S-IN
9 — I2S-OUT
10 — I2S-BCLK
11 — I2S-MCLK
12 — I2S-LRCK

LDO1_CAP 39 — LDO1-CAP
LDO2_CAP 21 — LDO2-CAP
LDO3_CAP 19 — LDO3-CAP

P25_CPVEE 25 — CPVEE
AUDIO_EAPD 13 — DC-DET/EAPD
AUDIO_PC_BEEP 34 — PCBEEP
EAPD# 2 — PDB
VREF 38 — VREF

AMP_MUTE# — R2731 Do Not Stuff

GPIO0/DMIC-DATA12 4 — DMIC1_SDA_CODEC
GPIO1/DMIC-CLK 5 — DMIC_SCL_CODEC
DMIC-CLK-IN/I2S-EN/SPDIF-OUT/GPIO2/DMIC-DATA34 1 — AMP_MUTE#_LED

HPOUT-L/PORT-I-L 27 — AUD_HP1_JACK_L2
HPOUT-R/PORT-I-R 26 — AUD_HP1_JACK_R2

LINE1-L/PORT-C-L 36 — LINE1_L — C2723 — SC4D7U6D3V2MX-GP-U — AUD_HP1_JACK_L2
LINE1-R/PORT-C-R 35 — LINE1_R — C2724 — SC4D7U6D3V2MX-GP-U — AUD_HP1_JACK_R2

MIC2-VREFO-L 28 — MIC2-VREFO-L
MIC2-VREFO-R 29 — MIC2-VREFO-R — RN2702 SRN2K2J-5-GP — RING2 SLEEVE

MIC2-L/PORT-F-L/RING2 30
MIC2-R/PORT-F-R/SLEEVE 31

MIC2-CAP 32 — MIC2_CAP

SPK-OUT-L+ 42 — AUD_SPK1_L+
SPK-OUT-L- 43 — AUD_SPK1_L-
SPK-OUT-R+ 45 — AUD_SPK1_R+
SPK-OUT-R- 44 — AUD_SPK1_R-

R2702 — 100KR2F-L3-GP — 3D3V_DVDD

HP/LINE1-JD/JD1 48 — AUD_SENSE_A — R2713 — 200KR2F-L-3-GP — AUD_HP1_JD#
I2S-IN/I2S-OUT-JD/JD2 47 — I2S_IN_OUT — R2701 DY — 3D3V_DVDD Do Not Stuff

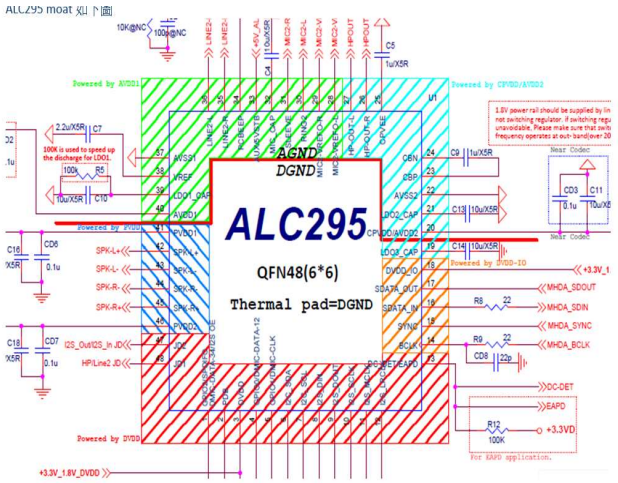
CBN 24 — CBN — C2703 SC2D2U6D3V2MX-L-1-GP
CBP 23 — CBP

AVSS1 37
AVSS2 22
GND 49 — AUD_AGND

ALC295-CG-GP

071.00295.0003

ALC295 moat 如下圖



3D3V_S0 — R2760 DY Do Not Stuff — AUDIO_EAPD

HDA_SYNC_CODEC — EC2701 DY Do Not Stuff

HDA_BITCLK_CODEC — C2701 DY Do Not Stuff

LDO1_CAP — R2711 100KR2F-L1-GP — C2702 SC10U6D3V3MX-L-GP — AUD_AGND

LDO2_CAP — C2712 SC10U6D3V3MX-L-GP — AUD_AGND

LDO3_CAP — C2718 SC10U6D3V3MX-L-GP

P25_CPVEE — C2710 SC1U10V2KX-L1-GP — AUD_AGND

MIC2_CAP — C2713 SC10U6D3V3MX-L-GP — AUD_AGND

VREF — C2731 SC2D2U6D3V2MX-L-1-GP — AUD_AGND

Hynix 4G EMMC

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Title	Audio (Codec ALC295)	
Size A3	Document Number Airking_JL	Rev -1
Date: Tuesday, February 23, 2021	Sheet 27 of 106	

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Title: *Audio (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

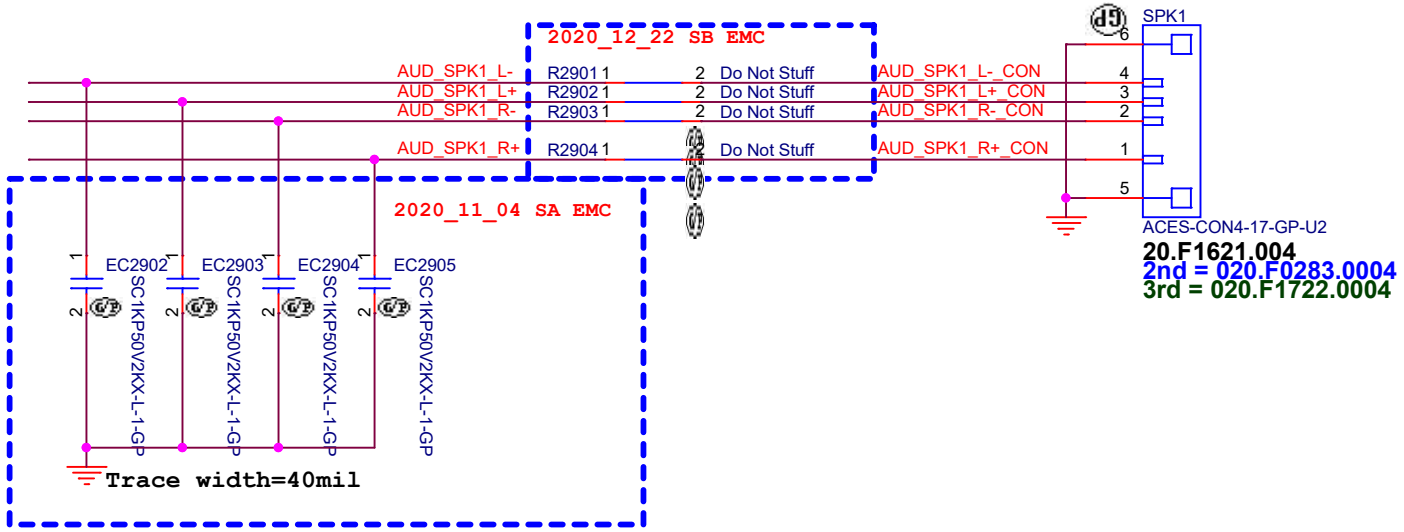
Date: Tuesday, February 23, 2021 Sheet 28 of 106

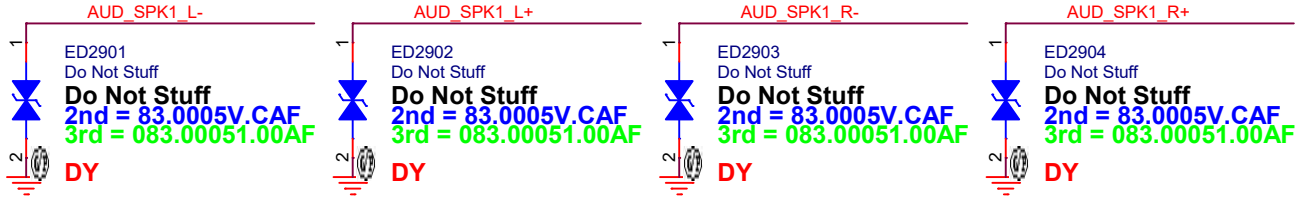
SSID = AUDIO

Speaker

27 AUD_SPK1_L-
27 AUD_SPK1_L+
27 AUD_SPK1_R-
27 AUD_SPK1_R+

89 AUD_SPK1_R+_CON
89 AUD_SPK1_R-_CON
89 AUD_SPK1_L+_CON
89 AUD_SPK1_L-_CON





ALC295:

		DVDD (1.8V/3.3V) (mA)	DVDD-IO (1.5V/3.3V) (mA)	AVDD1 (5V) (mA)	AVDD2+CPVDD (1.8V) (mA)	PVDD1/2 (5V) (mA)
1	DVDD=1.8V, DVDD-IO=1.5V	10	5	50	200	1500
2	DVDD=3.3V, DVDD-IO=3.3V	10	5	50	200	1500

Hynix 4G EMMC

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Title: Audio (SPK)

Size: A4 | Document Number: Airking_JL | Rev: -1

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Title: *Audio (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

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Title	*LAN (RSVD)*	
Size: A4	Document Number: Airking_JL	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 31 of 106	

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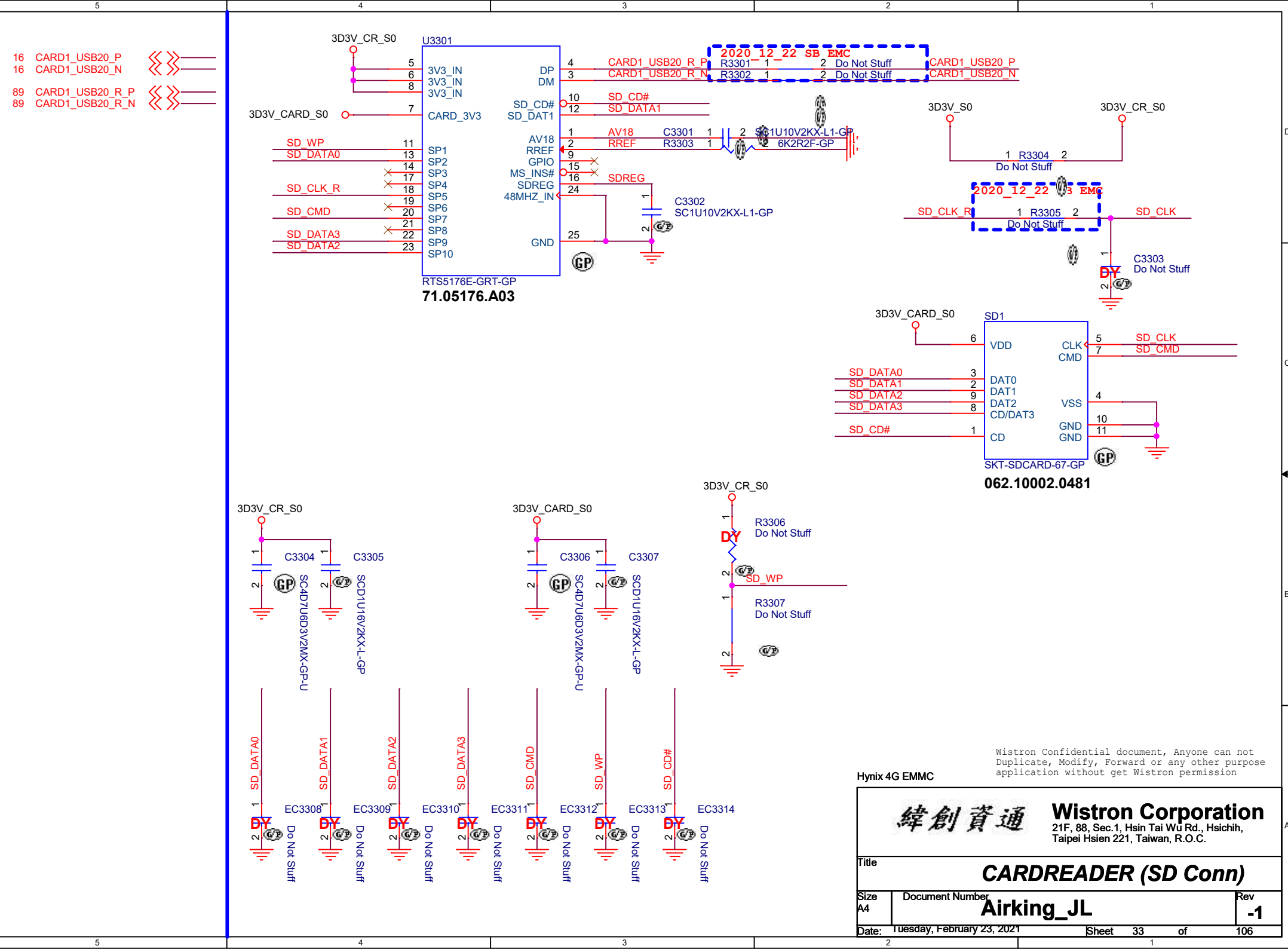
Title: *LAN (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

Date: Tuesday, February 23, 2021 Sheet 32 of 106


16 CARD1_USB20_P
16 CARD1_USB20_N
89 CARD1_USB20_R_P
89 CARD1_USB20_R_N
3D3V_CR_S0
U3301
3V3_IN
3V3_IN
3V3_IN
CARD_3V3
DP
DM
SD_CD#
SD_DAT1
AV18
RREF
GPIO
MS_INS#
SDREG
48MHZ_IN
GND
SP1
SP2
SP3
SP4
SP5
SP6
SP7
SP8
SP9
SP10
RTS5176E-GRT-GP
71.05176.A03
3D3V_CARD_S0
SD_WP
SD_DATA0
SD_CLK_R
SD_CMD
SD_DATA3
SD_DATA2
CARD1_USB20_R_P
CARD1_USB20_R_N
SD_CD#
SD_DATA1
AV18
RREF
SDREG
C3302
SC1U10V2KX-L1-GP
2020_12_22 SB EMC
R3301 Do Not Stuff
R3302 Do Not Stuff
CARD1_USB20_P
CARD1_USB20_N
SC1U10V2KX-L1-GP
6K2R2F-GP
C3301
R3303
3D3V_S0
3D3V_CR_S0
R3304
Do Not Stuff
2020_12_22 SB EMC
SD_CLK_R
R3305
Do Not Stuff
SD_CLK
C3303
Do Not Stuff
3D3V_CARD_S0
SD1
VDD
CLK
CMD
DAT0
DAT1
DAT2
CD/DAT3
CD
VSS
GND
GND
SD_CLK
SD_CMD
SD_DATA0
SD_DATA1
SD_DATA2
SD_DATA3
SD_CD#
SKT-SDCARD-67-GP
062.10002.0481
3D3V_CR_S0
C3304
C3305
SC4D7U6D3V2MX-GP-U
SCD1U16V2KX-L-GP
3D3V_CARD_S0
C3306
C3307
SC4D7U6D3V2MX-GP-U
SCD1U16V2KX-L-GP
3D3V_CR_S0
R3306
Do Not Stuff
SD_WP
R3307
Do Not Stuff
SD_DATA0
SD_DATA1
SD_DATA2
SD_DATA3
SD_CMD
SD_WP
SD_CD#
EC3308
EC3309
EC3310
EC3311
EC3312
EC3313
EC3314
Do Not Stuff
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Title
CARDREADER (SD Conn)
Size A4
Document Number Airking_JL
Rev -1
Date: Tuesday, February 23, 2021
Sheet 33 of 106

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Title: *USB (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

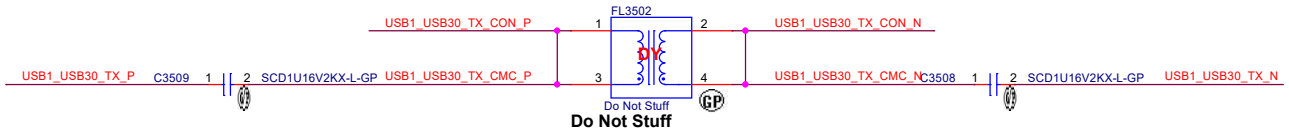
Date: Tuesday, February 23, 2021 Sheet 34 of 106

36 USB1_USB20_CHAR_N
36 USB1_USB20_CHAR_P

16 USB1_USB30_RX_N
16 USB1_USB30_RX_P
16 USB1_USB30_TX_N
16 USB1_USB30_TX_P

89 USB1_CON_USB20_N
89 USB1_CON_USB20_P

USB 3.0 Connector Pin definition		
1	POWER	
2	USB 2.0 D-	
3	USB 2.0 D+	
4	GND	
5	StdA_SSRX-	SuperSpeed RX
6	StdA_SSRX+	
7	GND	
8	StdA_SSTX-	SuperSpeed TX
9	StdA_SSTX+	



Do Not Stuff
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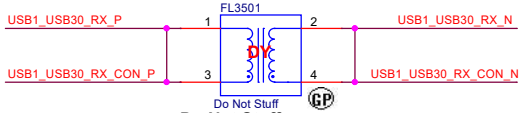
3rd = 068.01210.2031



Do Not Stuff
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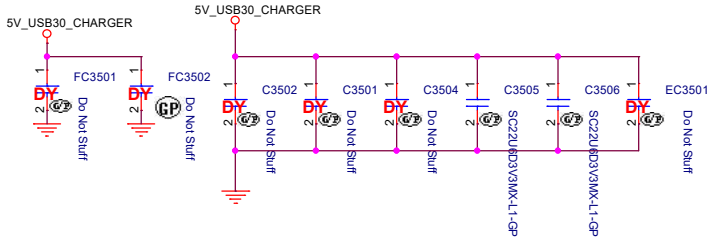
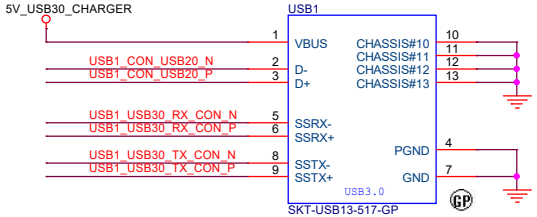
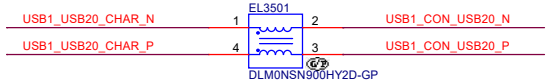
3rd = 068.01210.2031

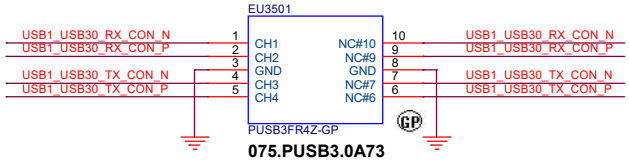




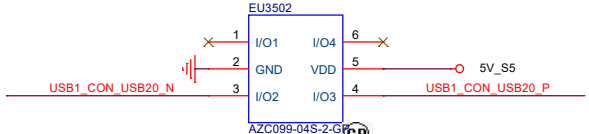
SKT-USB13-517-GP
022.10005.0KQ1



DLM0NSN900HY2D-GP
068.09002.2001
2nd = 68.02002.061
3rd = 068.MCF86.2001



PUSB3FR4Z-GP
075.PUSB3.0A73
2nd = 075.73034.0073
3rd = 075.00176.0073



AZC099-04S-2-GP
075.09904.0A7C
2nd = 075.53456.000C
3rd = 075.54236.007C

Hynix 4G EMMC

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Title: **USB (USB3.0 CONN)**

Size	Document Number	Rev
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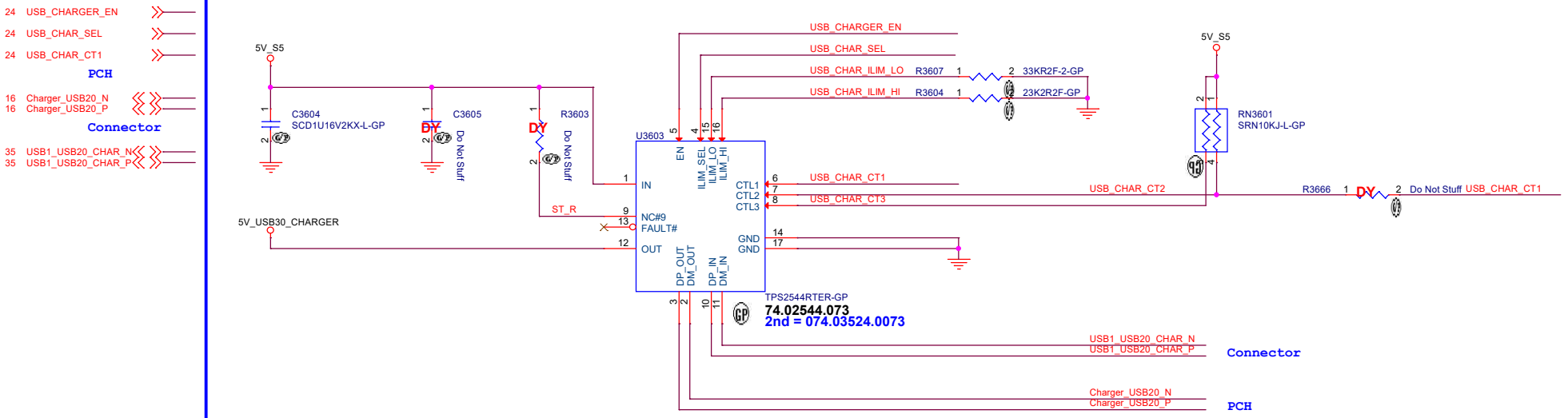
Date: Tuesday, February 23, 2021 Sheet 35 of 106



CTL1	CTL2	CTL3	ILIM_SEL	Mode	Current Limit Setting	Comment
0	0	0	0	Discharge	NA	OUT held low
0	0	0	1	Discharge	NA	
0	0	1	0	DCP_Auto	ILIM_HI	Data Lines
0	1	1	X			Disconnected
0	1	0	0	SDP1	ILIM_LO	Data Lines connected
0	1	0	1		ILIM_HI	
1	0	0	0	DCP Forced Shorted	ILIM_LO	Device Forced to stay in DCP BC 1.2 charging mode
1	0	0	1		ILIM_HI	
1	0	1	0	DCP / Divider1	ILIM_LO	Device Forced to stay in DCP Divider 1 Charging Mode
1	0	1	1		ILIM_HI	
1	1	0	0	SDP1	ILIM_LO	Data Lines Connected
1	1	0	1	SDP1	ILIM_HI	
1	1	1	0	SDP2 (1)	ILIM_LO	
1	1	1	1	CDP (1)	ILIM_HI	Data Lines Connected

S5 (at low bateery and non support charger)

S3 and S5 state

S0 and S3 (at low bateery and non support charger)

S0 state

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Title: USB (USB Charger)

Size: A3 | Document Number: Airking_JL | Rev: -1

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Title: *USB (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

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Title: *USB (RSVD)*

Size	Document Number	Rev
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Title	*Sequence (RSVD)*	
Size A4	Document Number **Airking_JL**	Rev **-1**
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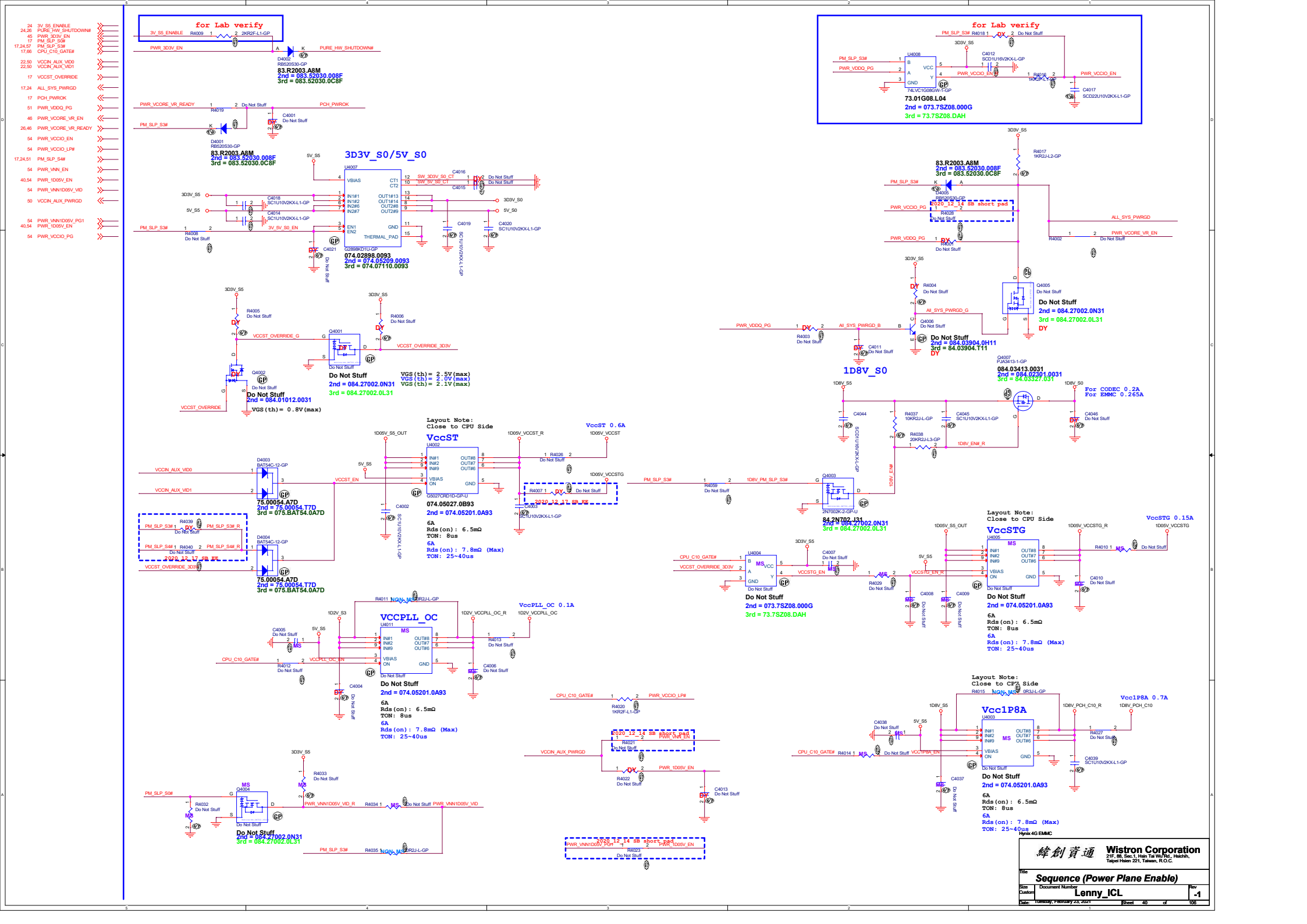
for Lab verify
3V_S5_ENABLE
R4009
2KR2F-L1-GP
PWR_3D3V_EN
PURE_HW_SHUTDOWN#
D4002
RB520S30-GP
83.R2003.A8M
2nd = 083.52030.008F
3rd = 083.52030.0C8F
PWR_VCORE_VR_READY
R4019
Do Not Stuff
PCH_PWROK
C4001
PM_SLP_S3#
D4001
3D3V_S0/5V_S0
U4007
G2898KD1U-GP
C4016
C4015
C4018
C4014
3V_5V_S0_EN
R4008
C4021
C4019
C4020
SC1U10V2KX-L1-GP
074.02898.0093
2nd = 074.05209.0093
3rd = 074.07110.0093
R4005
VCCST_OVERRIDE_G
Q4001
VCCST_OVERRIDE_3D3V
Q4002
VCCST_OVERRIDE
Do Not Stuff
2nd = 084.27002.0N31
3rd = 084.27002.0L31
VGS(th)= 2.5V(max)
VGS(th)= 2.0V(max)
VGS(th)= 2.1V(max)
VGS(th)= 0.8V(max)
2nd = 084.01012.0031
Layout Note:
Close to CPU Side
VccST
VccST 0.6A
U4002
D4003
BAT54C-12-GP
VCCIN_AUX_VID0
VCCIN_AUX_VID1
VCCST_EN
R4039
PM_SLP_S3#_R
R4040
PM_SLP_S4#_R
2020_12_17_SB_PS
VCCST_OVERRIDE_3D3V
D4004
75.00054.A7D
2nd = 75.00054.T7D
3rd = 075.BAT54.0A7D
1D05V_S5_OUT
1D05V_VCCST_R
1D05V_VCCST
R4026
1D05V_VCCSTG
R4007
C4002
C4003
074.05027.0B93
2nd = 074.05201.0A93
6A
Rds(on): 6.5mΩ
TON: 8us
6A
Rds(on): 7.8mΩ (Max)
TON: 25~40us
VccPLL_OC 0.1A
VCCPLL_OC
U4011
R4011
NGN_MS
R2RZJ-L-GP
1D2V_S3
1D2V_VCCPLL_OC_R
1D2V_VCCPLL_OC
C4005
CPU_C10_GATE#
R4012
VCCPLL_OC_EN
R4013
C4004
C4006
Do Not Stuff
2nd = 074.05201.0A93
6A
Rds(on): 6.5mΩ
TON: 8us
6A
Rds(on): 7.8mΩ (Max)
TON: 25~40us
3D3V_S5
R4033
PM_SLP_S0#
Q4004
R4032
PWR_VNN1D05V_VID_R
R4034
PWR_VNN1D05V_VID
R4035
2nd = 084.27002.0N31
3rd = 084.27002.0L31
CPU_C10_GATE#
R4020
1KR2F-L1-GP
PWR_VCCIO_LP#
2020_12_14_SB_short_pad
R4021
PWR_VNN_EN
VCCIN_AUX_PWRGD
R4022
PWR_1D05V_EN
C4013
2020_12_14_SB_short_pad
PWR_VNN1D05V_PG1
R4023
PWR_1D05V_EN
for Lab verify
PM_SLP_S3#
R4018
PWR_VDDQ_PG
U4008
74LVC1G08GW-1-GP
3D3V_S5
C4012
SCD1U16V2KX-L-GP
PWR_VCCIO_EN
R4016
1KR2F-L-GP
C4017
SCD22U10V2KX-L1-GP
73.01G08.L04
2nd = 073.7SZ08.000G
3rd = 73.7SZ08.DAH
83.R2003.A8M
2nd = 083.52030.008F
3rd = 083.52030.0C8F
PM_SLP_S3#
D4005
RB520S30-GP
2020_12_14_SB_short_pad
R4028
R4017
1KR2J-L2-GP
ALL_SYS_PWRGD
R4002
PWR_VCORE_VR_EN
PWR_VDDQ_PG
R4003
ALL_SYS_PWRGD_B
C4011
Q4006
Q4005
Do Not Stuff
2nd = 084.27002.0N31
3rd = 084.27002.0L31
DY
Do Not Stuff
2nd = 084.03904.0H11
3rd = 084.03904.T11
DY
1D8V_S0
Q4007
PJA3413-1-GP
084.03413.0031
2nd = 084.02301.0031
3rd = 84.03327.031
For CODEC 0.2A
For EMMC 0.265A
1D8V_S5
C4044
SCD1U10V2KX-L-GP
R4037
10KR2J-L-GP
C4045
SC1U10V2KX-L1-GP
R4038
20KR2J-L3-GP
1D8V_EN#_R
C4046
1D8V_EN#
PM_SLP_S3#
R4059
1D8V_PM_SLP_S3#
Q4003
2N7002K-2-GP-U
84.2N702.J31
2nd = 084.27002.0N31
3rd = 084.27002.0L31
Layout Note:
Close to CPU Side
VccSTG
VccSTG 0.15A
U4005
1D05V_VCCSTG_R
1D05V_VCCSTG
R4010
CPU_C10_GATE#
U4004
VCCST_OVERRIDE_3D3V
C4007
VCCSTG_EN
R4029
VCCSTG_EN_R
C4008
C4009
C4010
Do Not Stuff
2nd = 073.7SZ08.000G
3rd = 73.7SZ08.DAH
2nd = 074.05201.0A93
6A
Rds(on): 6.5mΩ
TON: 8us
6A
Rds(on): 7.8mΩ (Max)
TON: 25~40us
Layout Note:
Close to CPU Side
Vcc1P8A
Vcc1P8A 0.7A
U4003
R4015
0R3J-L-GP
1D8V_PCH_C10_R
1D8V_PCH_C10
R4014
VCC1P8A_EN
C4038
C4037
R4027
C4039
SC1U10V2KX-L1-GP
2nd = 074.05201.0A93
6A
Rds(on): 6.5mΩ
TON: 8us
6A
Rds(on): 7.8mΩ (Max)
TON: 25~40us
Hynix 4G EMMC
24 3V_S5_ENABLE
24,26 PURE_HW_SHUTDOWN#
45 PWR_3D3V_EN
17 PM_SLP_S0#
17,24,57 PM_SLP_S3#
17,66 CPU_C10_GATE#
22,50 VCCIN_AUX_VID0
22,50 VCCIN_AUX_VID1
17 VCCST_OVERRIDE
17,24 ALL_SYS_PWRGD
17 PCH_PWROK
51 PWR_VDDQ_PG
46 PWR_VCORE_VR_EN
26,46 PWR_VCORE_VR_READY
54 PWR_VCCIO_EN
54 PWR_VCCIO_LP#
17,24,51 PM_SLP_S4#
54 PWR_VNN_EN
40,54 PWR_1D05V_EN
54 PWR_VNN1D05V_VID
50 VCCIN_AUX_PWRGD
54 PWR_VNN1D05V_PG1
40,54 PWR_1D05V_EN
54 PWR_VCCIO_PG
Wistron Corporation
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Taipei Hsien 221, Taiwan, R.O.C.
Title
Sequence (Power Plane Enable)
Size
Custom
Document Number
Lenny_ICL
Rev
-1
Date: Tuesday, February 23, 2021
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Title: *Sequence (RSVD)*

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Hynix 4G EMMC

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Title: ***INT IO (TYPEC DC-DC)***

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Annie Solution

44 AC_ADPID#
24 DC_IN_OK

2020_10_29 SB
EE

DCIN1
DC-JACK439-GP-U
022.10015.M003
2nd = 022.10015.M004

AC_ADPID#
19V_AD_JK
C4301
SC1KP50V2KX-L-1-GP
PD4304
Do Not Stuff
DY
R4301
470KR3J-GP
AC_DET
3.33V
R4302
100KR2F-L3-GP
R4303
Do Not Stuff
DC_IN_OK

SCHEMATIC
#2 (−)SPRING & SHELL
#1 (+)PIN
#3 SIGNAL

Battery Connector

24,44,96 PWR_SMB_SCL_CHG
24,44,96 PWR_SMB_SDA_CHG
24,44 PWR_CHG_BAT_IN#
64,89 BI_RST
89 PWR_CHG_BAT_IN#_R
89,96 PWR_SMB_SCL_CHG_R
89,96 PWR_SMB_SDA_CHG_R
89 BI

BT+
PC4301
SCD1U25V2KX-L-GP
PC4302
SC1KP50V2KX-L-1-GP
PWR_CHG_BAT_IN#
PWR_SMB_SCL_CHG
PWR_SMB_SDA_CHG
RN4301
SRN33J-7-GP-U
BT+
BI
PWR_CHG_BAT_IN#_R
PWR_SMB_SCL_CHG_R
PWR_SMB_SDA_CHG_R
BATT1
ACES-CON8-53-GP
20.F2132.008
2nd = 020.F1084.0008

3D3V_RTC_AUX
PR4310
1MR2F-L-GP
BI_RST
BI
Q4301
2N7002K-2-GP-U
84.2N702.J31
2nd = 084.27002.0N31
3rd = 084.27002.0L31

BT+
PD4301
Do Not Stuff
Do Not Stuff
DY
PWR_SMB_SDA_CHG_R
PWR_SMB_SCL_CHG_R
ED4301
Do Not Stuff
Do Not Stuff
2nd = 075.52215.007D
3rd = 075.05011.007D
DY

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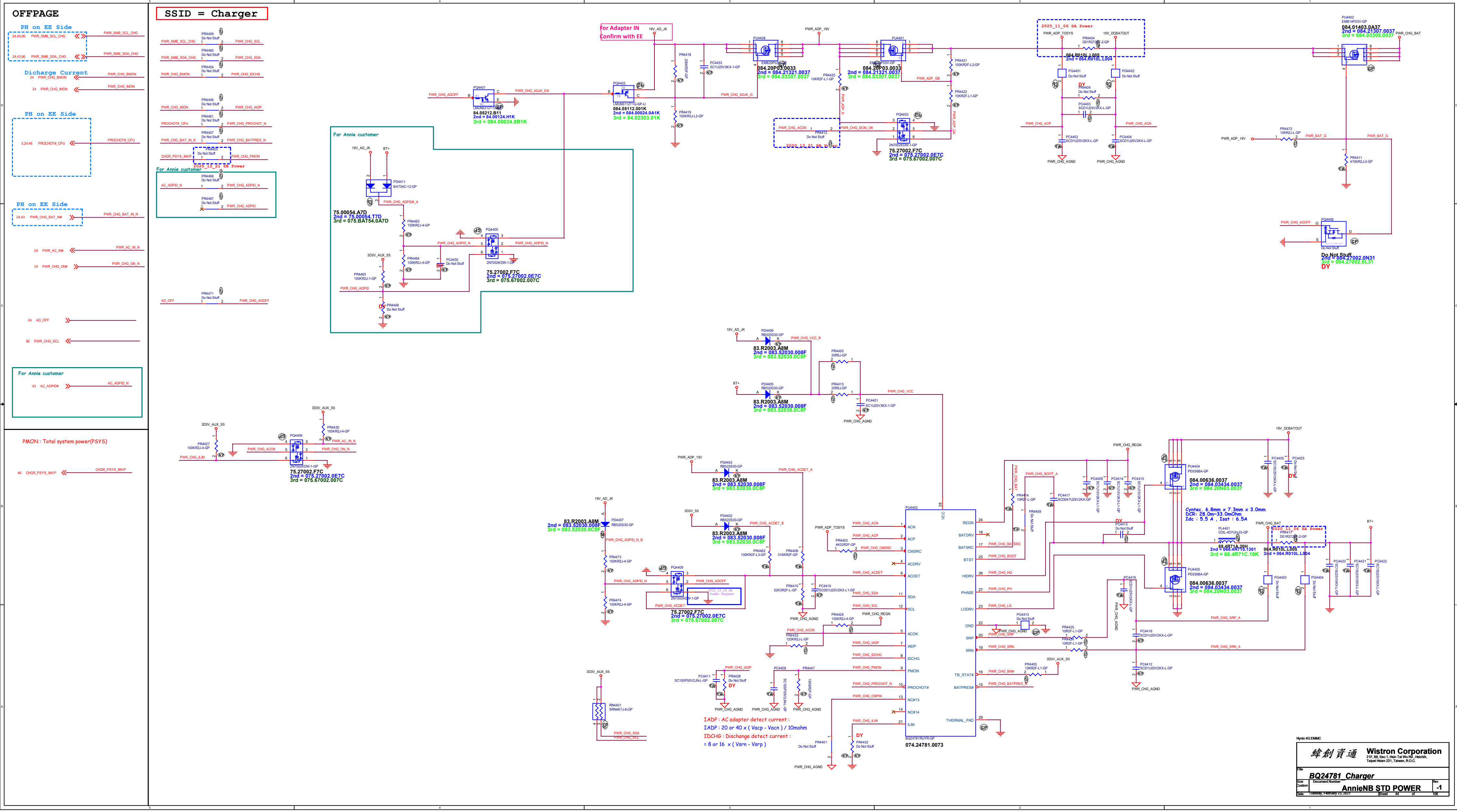
Title: INT IO (DC/BATT Conn)
Size: A3
Document Number: Airking_JL
Rev: -1
Date: Tuesday, February 23, 2021
Sheet 43 of 106



OFFPAGE
SSID = Charger
PH on EE Side
PWR_SMB_SCL_CHG
PWR_SMB_SDA_CHG
Dicharge Current
PWR_CHG_BMON
PWR_CHG_IMON
PROCHOT#_CPU
PWR_CHG_BAT_IN_N
PWR_AC_IN_N
PWR_CHG_ON_N
AD_OFF
PWR_CHG_SCL
For Annie customer
AC_ADPID_N
PMON : Total system power(PSYS)
CHGR_PSYS_IMVP
For Adapter IN
Confirm with EE
2020_12_21 SB Power
2020_11_06 SA Power
PWR_ADP_19V
PWR_ADP_TOSYS
19V_DCBATOUT
PWR_CHG_BAT
PWR_CHG_AGND
PWR_CHG_VCC
PWR_CHG_REGN
Do Not Stuff
DY
BQ24781RUYR-GP
074.24781.0073
Cyntec 6.8mm x 7.3mm x 3.0mm
DCR: 28.0m~33.0mOhm
Idc : 5.5 A , Isat : 6.5A
IADP : AC adapter detect current :
IADP : 20 or 40 x (Vacp - Vacn) / 10mohm
IDCHG : Discharge detect current :
= 8 or 16 x (Vsrn - Vsrp)
Wistron Corporation
BQ24781_Charger
AnnieNB STD POWER
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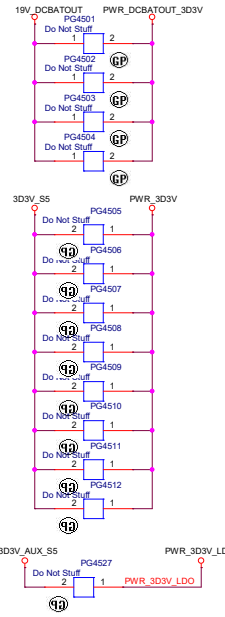
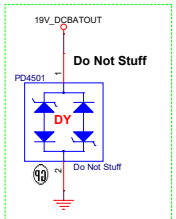
OFFPAGE-Signal

40 PWR_3D3V_EN >> PWR_3D3V_EN

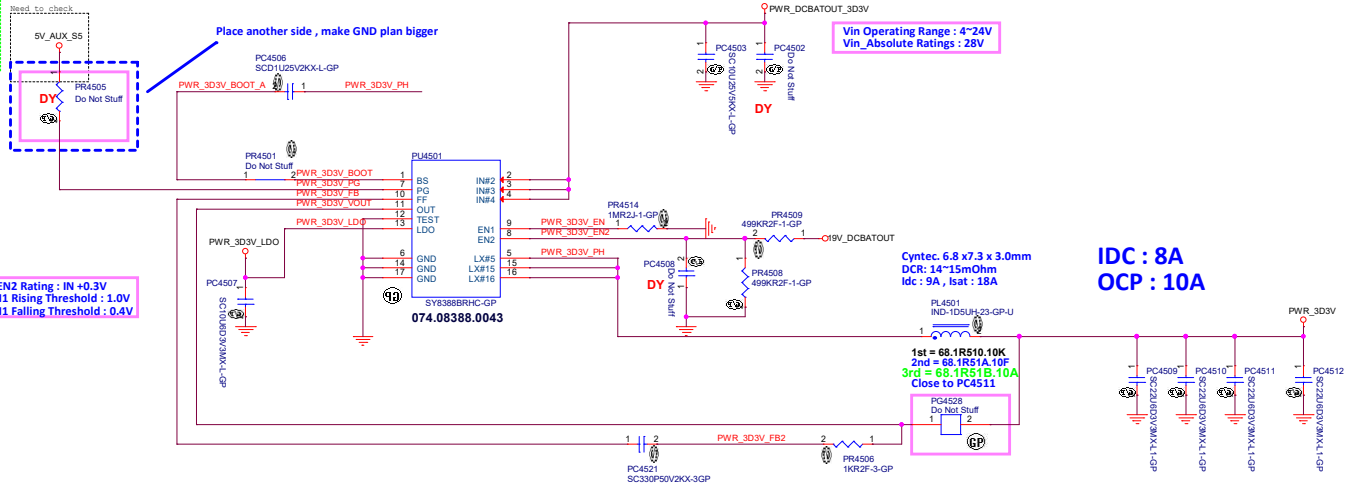
PH on EE Side

OFFPAGE-GAP



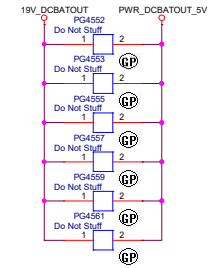


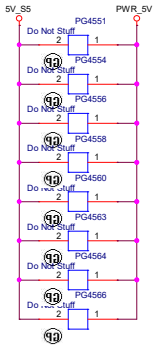
SY8388BR 3D3V

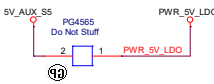


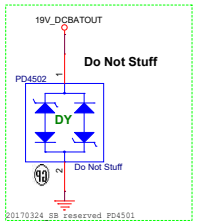
OFFPAGE-GAP

24 PWR_5V_EN >> PWR_5V_EN

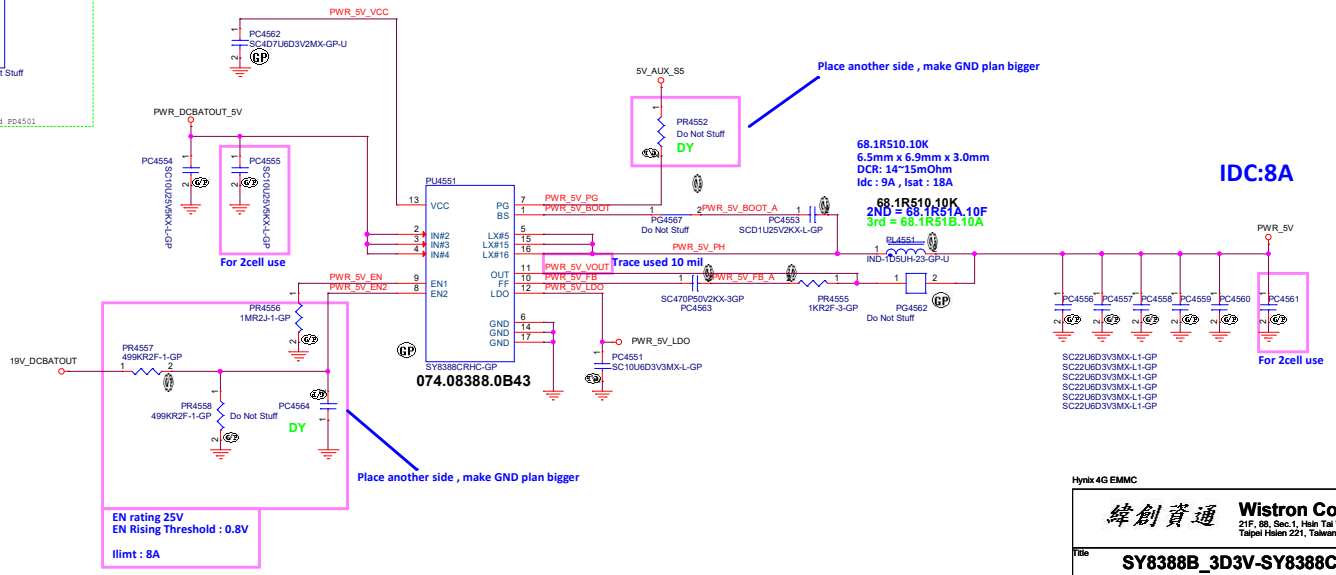








SY8388C 5D0V



Hynix 4G EMMC

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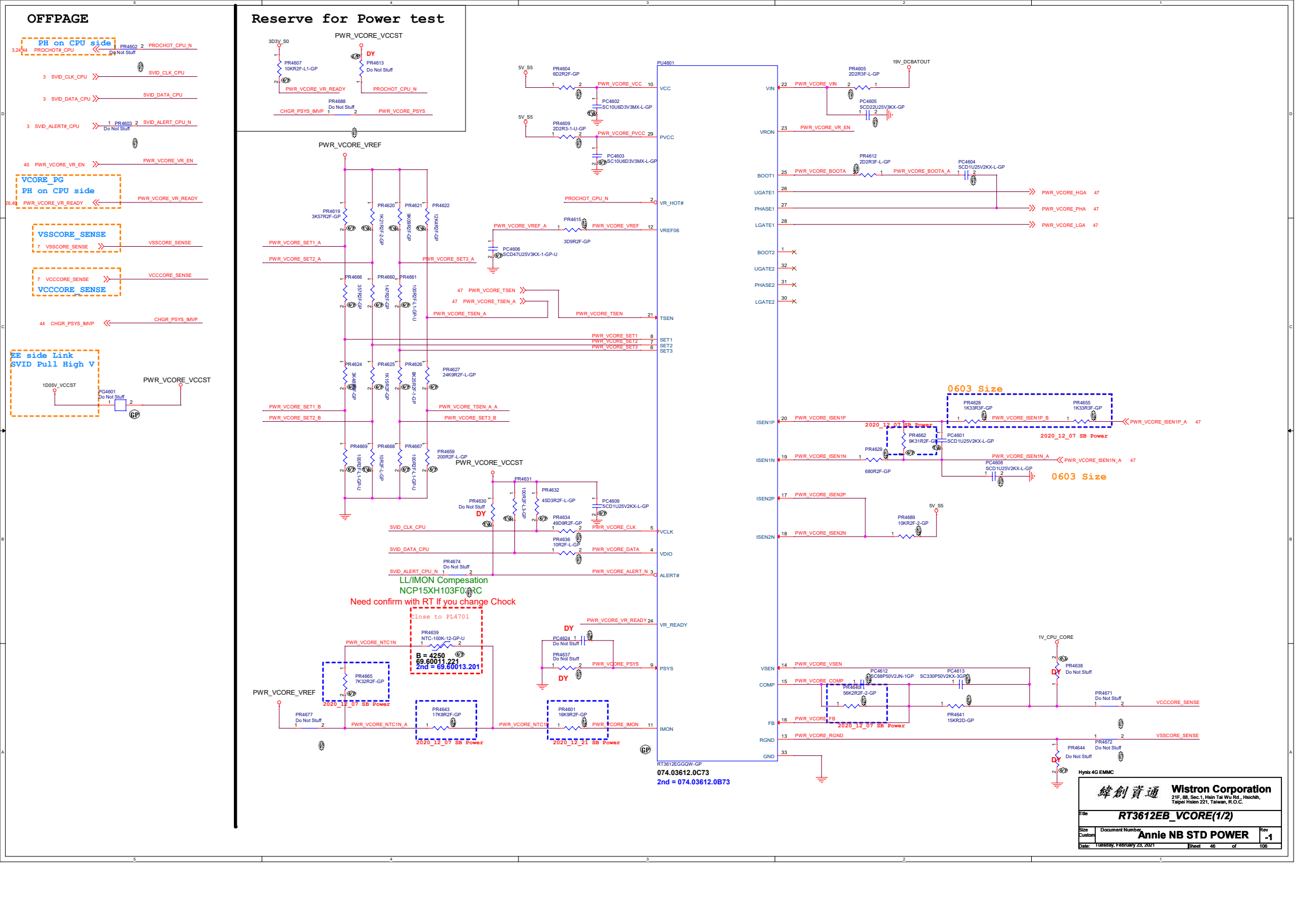
Title: SY8388B_3D3V-SY8388C_5D0V		
Size: Custom	Document Number: AnnieNB STD POWER	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 45 of 100	


OFFPAGE
PH on CPU side
PROCHOT# CPU
PR4602
Do Not Stuff
PROCHOT_CPU_N
SVID_CLK_CPU
SVID_DATA_CPU
SVID_ALERT#_CPU
PR4603
Do Not Stuff
SVID_ALERT_CPU_N
PWR_VCORE_VR_EN
VCORE_PG
PH on CPU side
PWR_VCORE_VR_READY
VSSCORE_SENSE
VCCCORE_SENSE
CHGR_PSYS_IMVP
EE side Link
SVID Pull High V
1D05V_VCCST
PG4601
Do Not Stuff
PWR_VCORE_VCCST
Reserve for Power test
PWR_VCORE_VCCST
3D3V_S0
PR4607
10KR2F-L1-GP
DY
PR4613
Do Not Stuff
PWR_VCORE_VR_READY
PROCHOT_CPU_N
PR4688
Do Not Stuff
CHGR_PSYS_IMVP
PWR_VCORE_PSYS
PWR_VCORE_VREF
PR4619
3K57R2F-GP
PR4620
1K21R2F-2-GP
PR4621
9K09R2F-GP
PR4622
12K4R2F-GP
PWR_VCORE_SET1_A
PWR_VCORE_SET2_A
PWR_VCORE_SET3_A
PR4666
357R2F-GP
PR4660
1K47R2F-GP
PR4661
100R2F-L-GP-U
PR4624
3K48R2F-GP
PR4625
1K15R2F-GP
PR4626
8K25R2-L-GP
PR4627
24K9R2F-L-GP
PWR_VCORE_SET1_B
PWR_VCORE_SET2_B
PWR_VCORE_TSEN_A_A
PWR_VCORE_SET3_B
PR4669
100R2F-L-GP-U
PR4668
10R2F-L-GP
PR4667
100R2F-L-GP-U
PR4659
200R2F-L-GP
PWR_VCORE_VCCST
PR4630
Do Not Stuff
DY
PR4631
100R2F-L-3-GP
PR4632
45D3R2F-L-GP
PR4634
49D9R2F-GP
PR4636
10R2F-L-GP
PC4609
SCD1U25V2KX-L-GP
SVID_CLK_CPU
SVID_DATA_CPU
SVID_ALERT_CPU_N
PR4674
Do Not Stuff
PWR_VCORE_CLK
PWR_VCORE_DATA
PWR_VCORE_ALERT_N
LL/IMON Compesation
NCP15XH103F03RC
Need confirm with RT If you change Chock
Close to PL4701
PR4639
NTC-100K-12-GP-U
B = 4250
69.60011.221
2nd = 69.60013.201
PWR_VCORE_NTC1N
PR4665
7K32R2F-GP
2020_12_07 SB Power
PR4677
Do Not Stuff
PR4643
17K8R2F-GP
PWR_VCORE_NTC1N_A
PWR_VCORE_NTC1
PR4601
16K9R2F-GP
PWR_VCORE_IMON
2020_12_21 SB Power
PWR_VCORE_VR_READY
PC4624
Do Not Stuff
PR4637
Do Not Stuff
PWR_VCORE_PSYS
PU4601
5V_S5
PR4604
6D2R2F-GP
PWR_VCORE_VCC
PC4602
SC10U6D3V3MX-L-GP
PR4609
2D2R3-1-U-GP
PWR_VCORE_PVCC
PC4603
SC10U6D3V3MX-L-GP
PROCHOT_CPU_N
PR4615
3D9R2F-GP
PWR_VCORE_VREF
PC4606
SCD47U25V3KX-1-GP-U
PWR_VCORE_TSEN
PWR_VCORE_TSEN_A
PWR_VCORE_SET1
PWR_VCORE_SET2
PWR_VCORE_SET3
VCC
PVCC
VR_HOT#
VREF06
TSEN
SET1
SET2
SET3
VCLK
VDIO
ALERT#
VR_READY
PSYS
IMON
RT3612EGQW-GP
074.03612.0C73
2nd = 074.03612.0B73
19V_DCBATOUT
PR4605
2D2R3F-L-GP
PC4605
SCD22U25V3KX-GP
PWR_VCORE_VIN
PWR_VCORE_VR_EN
VIN
VRON
PR4612
2D2R3F-L-GP
PC4604
SCD1U25V2KX-L-GP
PWR_VCORE_BOOTA
PWR_VCORE_BOOTA_A
BOOT1
UGATE1
PHASE1
LGATE1
PWR_VCORE_HGA
PWR_VCORE_PHA
PWR_VCORE_LGA
BOOT2
UGATE2
PHASE2
LGATE2
0603 Size
PR4628
1K33R3F-GP
PR4655
1K33R3F-GP
PWR_VCORE_ISEN1P_B
PWR_VCORE_ISEN1P_A
ISEN1P
2020_12_07 SB Power
PR4662
9K31R2F-GP
PC4601
SCD1U25V2KX-L-GP
PR4629
680R2F-GP
PWR_VCORE_ISEN1N_A
PC4608
SCD1U25V2KX-L-GP
ISEN1N
0603 Size
PWR_VCORE_ISEN2P
PWR_VCORE_ISEN2N
PR4689
10KR2F-2-GP
5V_S5
VSEN
COMP
FB
RGND
GND
PWR_VCORE_VSEN
PWR_VCORE_COMP
PWR_VCORE_FB
PWR_VCORE_RGND
PC4612
SC68P50V2JN-1GP
PC4613
SC330P50V2KX-3GP
PR4640
56K2R2F-2-GP
PR4641
15KR2D-GP
2020_12_07 SB Power
1V_CPU_CORE
PR4638
Do Not Stuff
DY
PR4671
Do Not Stuff
VCCCORE_SENSE
PR4672
Do Not Stuff
VSSCORE_SENSE
PR4644
Do Not Stuff
DY
Hynix 4G EMMC
Wistron Corporation
21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih,
Taipei Hsien 221, Taiwan, R.O.C.
Title
RT3612EB_VCORE(1/2)
Size
Custom
Document Number
Annie NB STD POWER
Rev
-1
Date: Tuesday, February 23, 2021
Sheet 46 of 106

OFFPAGE

19V_DCBATOUT

PWR_DCBATOUT_VCOREA

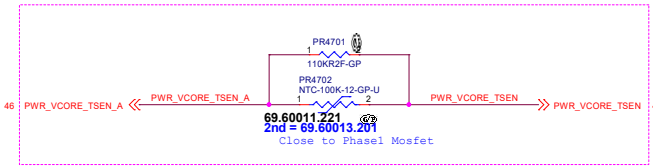
PG4702 Do Not Stuff

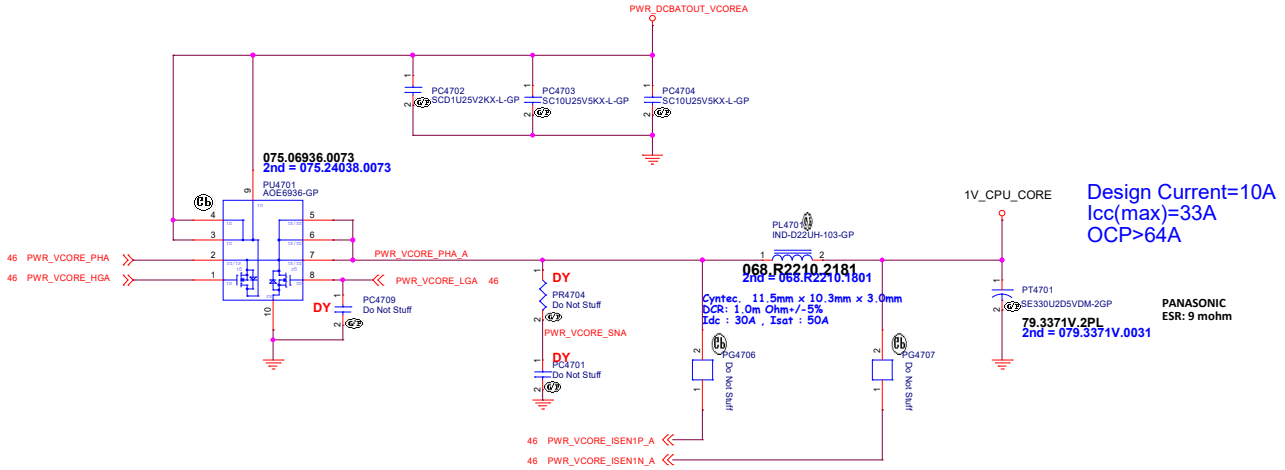
PG4703 Do Not Stuff

PG4704 Do Not Stuff

PG4705 Do Not Stuff

2020_11_10 EE Delete PT4703





Design Current=10A
Icc(max)=33A
OCP>64A

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Title	RT3612EB_VCORE(2/2)	
Size: Custom	Document Number: Annie NB STD POWER	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 47 of 106	

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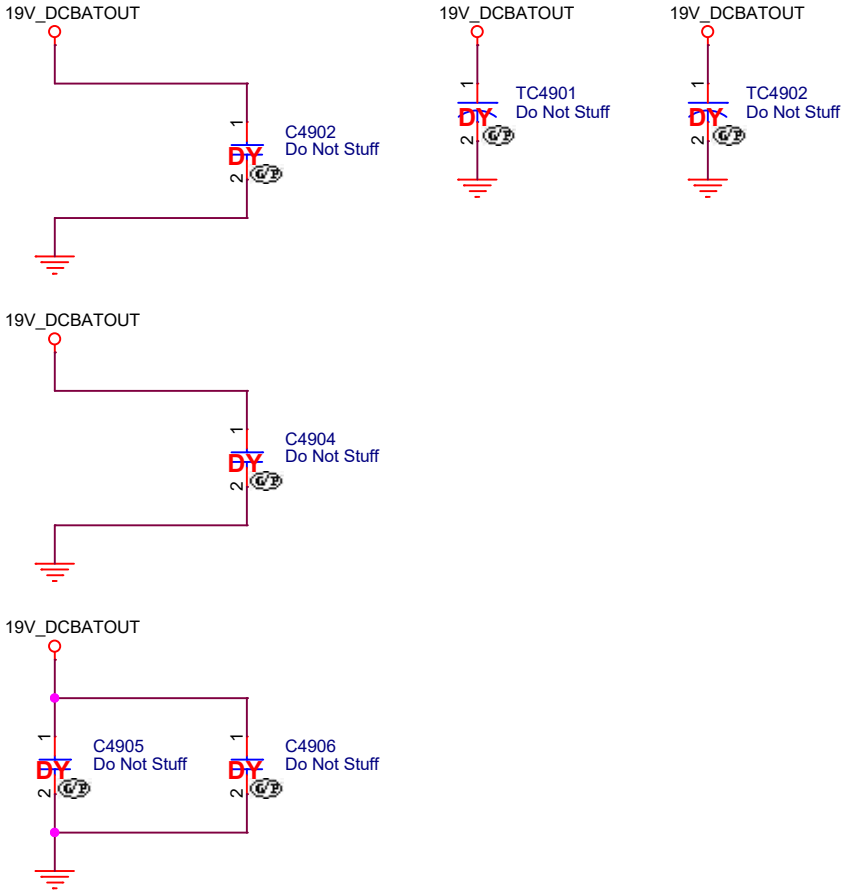
Title: *Power (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

Date: Tuesday, February 23, 2021 Sheet 48 of 106

Low Noise MLCC



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Title: ***POWER (EE Acoustic Noise)***

Size	Document Number	Rev
A4	**Airking_JL**	-1

Date: Tuesday, February 23, 2021 Sheet 49 of 106

OFFPAGE

53 PWR_VCCAUX_EN → PWR_VCCAUX_EN

PH on EE Side

40 VCCIN_AUX_PWRGD → VCCIN_AUX_PWRGD

PH on CPU side

22,40 VCCIN_AUX_VID1 → PR5019 2 Do Not Stuff 1 VCCAUX_VID1

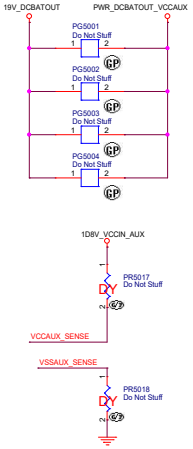
22,40 VCCIN_AUX_VID0 → PR5020 2 Do Not Stuff 1 VCCAUX_VID0

PH on CPU side

22,50 VCCAUX_SENSE → VCCAUX_SENSE

22,50 VSSAUX_SENSE → VSSAUX_SENSE

OFFPAGE_GAP



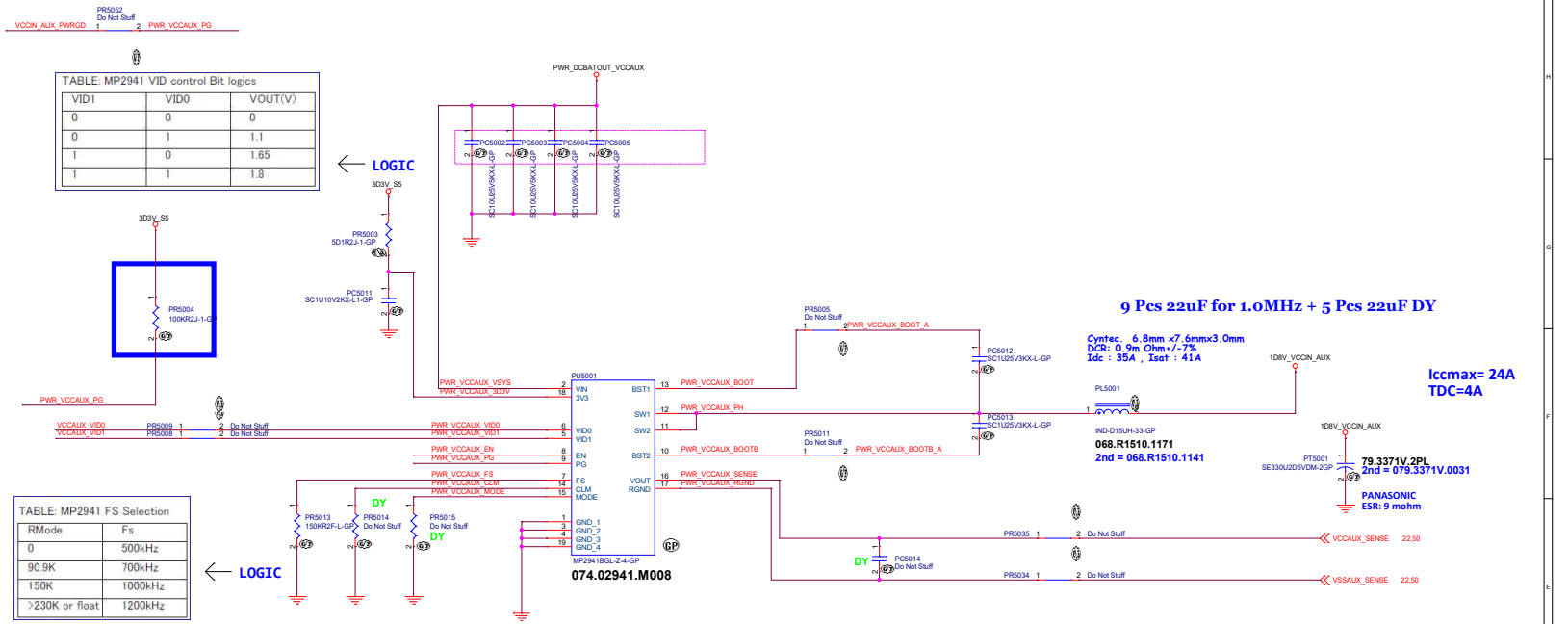


TABLE: MP2941 FS Selection

RMode	Fs
0	500kHz
90.9K	700kHz
150K	1000kHz
>230K or float	1200kHz

LOGIC

TABLE: MP2941 CLM/Phase Selection

RCLM	CLM
0	7A
90.9K	10A
150K	13A
>230K or float	16A

LOGIC

TABLE: MP2941 Mode Selection

RMode	Interleaving	VID Down
0	N	Slew down
90.9K	Y	Slew down
150K	Y	Decay
>230K or float	N	Decay

LOGIC

TABLE : MP2941

Item	R0 sample	R1 sample
VOUT	1.65V fixed	Defined by VCCPCHCORE_VID1/VID0
RMode	0 ohm	Float
RFS	Float	Float or 150K
1Kohm bleeder	Necessary	Not necessary

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Title: 050_RT6543A_VCCAUX

Size: Custom | Document Number: Annie NB STD POWER | Rev: -1

Date: Tuesday, February 23, 2021 | Sheet 50 of 106

OFFPAGE

S5
11,24,40 PM_SLP_S4# → PR5102 Do Not Stuff → PWR_VDDQ_EN

S3
5 PWR_VTT_EN → PWR_VTT_EN

PH on EE Side
40 PWR_VDDQ_PG → PWR_VDDQ_PG

OFFPAGE_GAP

OFFPAGE_GAP

19V_DCBATOUT → PG5101 Do Not Stuff → PWR_DCBATOUT_VDDQ
PG5102 Do Not Stuff
PG5103 Do Not Stuff

1D2V_S3 → PG5105 Do Not Stuff → PWR_VDDQ
PG5106 Do Not Stuff
PG5107 Do Not Stuff
PG5108 Do Not Stuff
PG5109 Do Not Stuff
PG5110 Do Not Stuff
PG5112 Do Not Stuff
PG5114 Do Not Stuff

1D2V_S3 → PG5115 Do Not Stuff → PWR_VDDQ_VLDOIN

0D6V_VREF_S0 → PG5111 Do Not Stuff → PWR_VDDQ_VTT

3D3V_S5 → PG5119 Do Not Stuff → PWR_VDDQ_V3V

2D5V_S5 → PG5118 Do Not Stuff → PWR_VDDQ_V2P5

PC5104因為layout關係所以直接下PGND即可
獨立下地並遠離NOISE

5V_S5 → PR5101 Do Not Stuff → PWR_VDDQ_PH
PR5108 620KR2F-GP
PWR_VDDQ_TON
PWR_VDDQ_VCC
PWR_VDDQ_V3V
PWR_VDDQ_AGND
3D3V_S5 → PR5104 100KR2J-1-GP
PC5104 SC1U10V2KX-L1-GP
PC5117 SC1U10V2KX-L-GP
DY PC5102 Do Not Stuff
If 5V has droop Please mount it

PU5101 G5416QS1U-GP
TON VCC GND V3V S3 S5 PGOOD VLODIN VTT VTTGND VTTSNS VTTREF
V+ BST LX#12 LX#11 LX#10 LX/9 LX#32 V2P5 PGND VDDQSNS VDDQSET

PWR_VTT_EN
PWR_VDDQ_EN
PWR_VDDQ_PG
PWR_VDDQ_VLDOIN
PWR_VDDQ_VTTSNS
PWR_VDDQ_VTTREF
PWR_VDDQ_VTT
PWR_VDDQ_BOOT
PWR_VDDQ_V2P5
PWR_VDDQ_SNS
PWR_VDDQ_VDDQSNS
PWR_VDDQ_VDDQSET

PC5111 DY Do Not Stuff
PC5112 SC10U6D3V3MX-L-GP
PC5114 SCD1U16V2KX-L-GP
PG5120 Do Not Stuff
PR5112 Do Not Stuff
PWR_VDDQ_AGND

PR5111 Do Not Stuff
PC5110 SCD1U25V2KX-L-GP
PL5101 COIL-1UH-3.3A-GP-U1
68.1R01A.20B
2nd = 68.1R01B.10K
3rd = 68.1R01E.10C
PC5116 SC10U6D3V3MX-L-GP
PR5110 Do Not Stuff DY
PC5115 Do Not Stuff
PR5113 DY Do Not Stuff

PWR_DCBATOUT_VDDQ
PC5101 SC10U25V6KX-L-GP
PC5105 SC10U25V6KX-L-GP
PC5106 SC22U6D3V3MX-L1-GP
PC5107 SC22U6D3V3MX-L1-GP
PC5109 SC22U6D3V3MX-L1-GP
PC5113 SC22U6D3V3MX-L1-GP
PWR_VDDQ

TDC : 8A
Cyntec 7 x 7 x 3.0 mm
DCR: 9m~10mOhm
Idc : 11 A , Isat : 22A

PC5104 Do Not Stuff
Close to PC5113
PWR_VDDQ_VDDQSET_A

R1 PR5105 6K2R2F-GP
PC5124 Do Not Stuff DY
R2 PR5106 10K2R2F-GP

074.05416.0073

Vout = 0.75*(1+R1/R2) = 1.2
= 0.75*(1+6.2/10.2) = 1.205

Hynix 4G EMMC

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Title: G5497_VDDQ/VTT
Size: A2
Document Number: AnnieNB STD POWER
Rev: -1
Date: Tuesday, February 23, 2021
Sheet 51 of 106

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Title	***Power (RSVD)***	
Size: A4	Document Number: **Airking_JL**	Rev: **-1**
Date: Tuesday, February 23, 2021	Sheet 52 of 106	

OFFPAGE

PH on EE Side

50 PWR_VCCAUX_EN — PR5301 1 / 2 PWR_1D8V_PG, Do Not Stuff

17 PM_SLP_SUS# — PR5302 1 / 2 PWR_1D8V_EN, Do Not Stuff

OFFPAGE_GAP

3D3V_S5 — PG5301 Do Not Stuff — PWR_1D8V_VIN

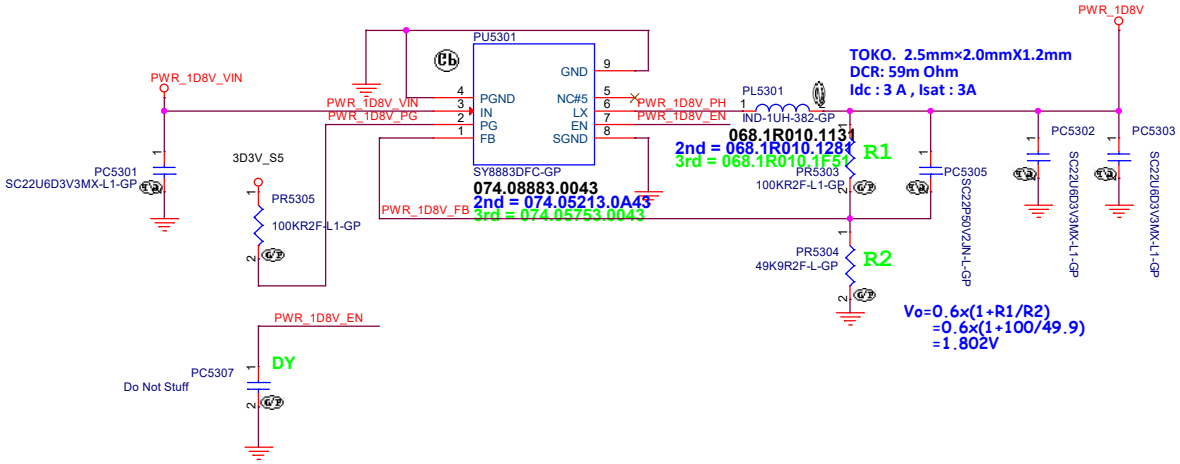
PG5302 Do Not Stuff (GP)

1D8V_S5 — PG5303 Do Not Stuff — PWR_1D8V

PG5304 Do Not Stuff

PG5305 Do Not Stuff

TDC=2A
Imax= 3A



Hynix 4G EMMC

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Title: G2822_1D8V		
Size: A3	Document Number: AnnieNB STD POWER	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 53 of 106	

OFFPAGE

PH on EE Side

VCCIN_AUX_PWRGD
40 PWR_VNN_EN → PWR_VNN_EN

1D05V_BP_PWRGD
40,54 PWR_VNN1D05V_PG1 → PWR_VNN1D05V_PG1

40,54 PWR_1D05V_EN → PWR_1D05V_EN

PH on EE Side

1D05V_BP_PWRGD
40,54 PWR_VNN1D05V_PG1 → PWR_VNN1D05V_PG1

PM_SLP_S3#
40 PWR_VNN1D05V_VID → PWR_VNN1D05V_VID

40,54 PWR_VNN1D05V_PG1 → PWR_VNN1D05V_PG1
40,54 PWR_1D05V_EN → PWR_1D05V_EN

OFFPAGE-GAP

1D05V_VNN_BYPASS — PG5401 Do Not Stuff — PWR_VNN

1D05V_S5_BYPASS — PG5402 Do Not Stuff — PWR_1D05V

3D3V_S5 — PR5420 100KR2J-1-GP → PWR_VNN1D05V_PG1; PR5421 Do Not Stuff → PWR_VNN1D05V_PG2 — DY

Murata. 2.7mm×2.2mmX1.2mm
DCR: 59m Ohm
Idc : 3A , Isat : 3A

PL5401 IND-115AL362-GP
068.1R010.1131
2nd = 068.1R010.1281
3rd = 068.1R010.1F51

Murata. 2.7mm×2.2mmX1.2mm
DCR: 460m Ohm
Idc : 0.85A , Isat : 1A

PL5402 IND-101H-330-GP
68.1001S.10K
2nd = 068.1001S.10A1

PWR_VNN — PC5411 SC10U6D3V3MX-L-GP; PC5412 SC10U6D3V3MX-L-GP

PWR_1D05V — PC5410 SC10U6D3V3MX-L-GP

PR5419 Do Not Stuff — PWR_VNN

PR5407 10KR2F-2-GP

5V_S5 — PR5413 2D2R2J-L-GP; PC54021 SC10U6D3V3MX-L-GP; PR5422 Do Not Stuff; PR5410 Do Not Stuff; PC54031 SC10U6D3V3MX-L-GP

PU5401 APW8798AQBI-TRG-GP
074.08738.0073

PWR_VNN1D05V_VCC 8 — VCC
PWR_VNN1D05V_VINA 11 / PWR_VNN1D05V_VINB 10 — VIN1 / VIN2
PWR_VNN1D05V_VID 13 — VID
PWR_VNN1D05V_BOOTA 2 — BOOT1
PWR_VNN1D05V_BOOTB 3 — BOOT2
AGND 17
PWR_VNN1D05V_PG1 14 — POK1
PGND 9 / 12 — PGND / POK2
PWR_VNN1D05V_VOUT1 16 — VOUT1
PWR_VNN1D05V_FB2 5 — FB2
PWR_VNN1D05V_PHA 4 — LX1 / LX2
PWR_VNN_EN 15 — EN1
PWR_1D05V_EN 6 — EN2

PWR_VNN1D05V_BOOTA_A PC5404 SCD1U25V2KX-L-GP
PWR_VNN1D05V_BOOTB_A PC5405 SCD1U25V2KX-L-GP

DY PC5406 Do Not Stuff; DY PC5407 Do Not Stuff

PR5423 1R2J-GP PWR_VNN1D05V_PHB
PR5401 1R2J-GP PWR_VNN1D05V_PHA

Need EE confirm

40 PWR_VCCIO_LP# → PWR_VCCIO_LP#
40 PWR_VCCIO_EN → PWR_VCCIO_EN

PH on EE Side

SA_200227
Del PWR_VCCIO_PG

8,54 VCCCPUIO_SENSE
8,54 VSSCPUIO_SENSE
40 PWR_VCCIO_PG → PWR_VCCIO_PG

19V_DCBATOUT — PG5452 Do Not Stuff; PG5453 Do Not Stuff — PWR_DCBATOUT_VCCIO

1V_VCCIO — PG5456 Do Not Stuff; PG5457 Do Not Stuff; PG5458 Do Not Stuff; PG5451 Do Not Stuff; PG5459 Do Not Stuff; PG5460 Do Not Stuff — PWR_VCCIO

TPS51371 for VCCIO

PWR_DCBATOUT_VCCIO — PC5460 SCD1U25V2KX-L-GP; PC5461 SCD1U25V2KX-L-GP; PC5451 SCD1U25V2KX-GP

5V_S5 — PR5464 1R2J-GP → PWR_VCCIO_VCC — PC5464 SC1U10V2KX-1GP — PWR_VCCIO_AGND

3D3V_S5 — PR5460 100KR2F-L1-GP

PU5451 TPS51371RJNR-1-GP
074.51371.0043

PWR_VCCIO_VCC 10 — VCC
PWR_VCCIO_EN 5 — EN
PWR_VCCIO_C0 4 — C0
PWR_VCCIO_C1 3 — C1
VIN 1
PG 13 — PWR_VCCIO_PG
LP# 6 — PWR_VCCIO_LP#
MODE 7 — PWR_VCCIO_MODE
VBST 8 — PWR_VCCIO_BOOT
SW 9 — PWR_VCCIO_PH
VOUT 12 — PWR_VCCIO_VOUT
PGND 2
AGND 11

SA_200227 ->Common
DY PC5458 Do Not Stuff

PG5461 Do Not Stuff — PWR_VCCIO_AGND

PR5465 Do Not Stuff; PWR_VCCIO_BOOT_A — PC5463 SCD1U25V2KX-L-GP

SA_200224
Cyntec, 6.5 × 6.9 × 3.0 mm
DCR: 9m~10mOhm
Idc : 11 A , Isat : 22A
PL5451 CDRL-1UH-380P-U1
68.1R01A.20B
2nd = 68.1R01B.10K
3rd = 68.1R01E.10C

Iccmax : 6.5A

PR5453 10R2J-2-GP-U — PWR_VCCIO

PC5457 SC22U6D3V3MX-1-GP; PC5456 SC22U6D3V3MX-1-GP; PC5455 SC22U6D3V3MX-1-GP; PC5454 SC22U6D3V3MX-1-GP; PC5453 DY Do Not Stuff

3D3V_S5 — PDG 100K — PR5466 20KR2F-L-GP; PR5455 20KR2F-L-GP; PR5456 DY Do Not Stuff — PWR_VCCIO_AGND

PR5459 Do Not Stuff; 020_12_21 SS Power — VCCCPUIO_SENSE 8,54; VSSCPUIO_SENSE 8,54

Differential Lines

Note: PR5459 should be 0ohm if remote sense is not used.

PWR_VCCIO_LP# — PR5458 Do Not Stuff; PR5454 20KR2F-L-GP — PWR_VCCIO_AGND

PWR_VCCIO_C0

PWR_VCCIO_C1

PR5467 Do Not Stuff; 020_12_21 SS Power — PWR_VCCIO_MODE — PWR_VCCIO_AGND

PWR_VCCIO_PH

SA_200226
Del PR5467, PC5459

TABLE : TPS51371 MODE M1 (0 to GND)

LP#	C1	C0	VOUT	
0	X	X	0.000V	← SLP_S0#
1	0	0	0.850V	
1	0	1	0.875V	
1	1	0	0.950V	← LOGIC
1	1	1	0.975V	

Hynix 4G EMMC

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Title	APW8743_ByPASS-TPS51371_VCCIO	
Size: Custom	Document Number: Annie NB STD POWER	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 54 of 106	

Main Func = LCD

Touch Screen Power

Camera Power for Lab verify power drop

CPU (DMIC1)

From CPU (1D8V) To DMIC (3D3V)

From CPU (1D8V) To DMIC (3D3V)

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Title: Display (LCD)

Size: Custom | Document Number: Airking_JL | Rev: -1

Date: Tuesday, February 23, 2021 | Sheet 55 of 106

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Title	*Display (RSVD)*	
Size A4	Document Number Airking_JL	Rev -1
Date: Tuesday, February 23, 2021	Sheet 56 of 106	

HDMI 2.0 Repeater

4 HDMI_DDI_TX_N2
4 HDMI_DDI_TX_P2
4 HDMI_DDI_TX_N1
4 HDMI_DDI_TX_P1
4 HDMI_DDI_TX_N0
4 HDMI_DDI_TX_P0
4 HDMI_DDI_TX_N3
4 HDMI_DDI_TX_P3
4 HDMI_SCL_CPU
4,15 HDMI_SDA_CPU

4 HDMI_DET_CPU

17,24,40 PM_SLP_S3#

89 HDMI_DDI_TX_CON_P0
89 HDMI_DDI_TX_CON_N0
89 HDMI_DDI_TX_CON_P1
89 HDMI_DDI_TX_CON_N1
89 HDMI_DDI_TX_CON_P2
89 HDMI_DDI_TX_CON_N2
89 HDMI_DDI_TX_CON_P3
89 HDMI_DDI_TX_CON_N3

89,96 HDMI_SCL_CON
89,96 HDMI_SDA_CON

89 HDMI_DET_CON

From GPU **To Repeater**

HDMI_DDI_TX_P0 C5701 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_P0
HDMI_DDI_TX_N0 C5702 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_N0
HDMI_DDI_TX_P1 C5703 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_P1
HDMI_DDI_TX_N1 C5704 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_N1
HDMI_DDI_TX_P2 C5705 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_P2
HDMI_DDI_TX_N2 C5706 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_N2
HDMI_DDI_TX_P3 C5707 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_P3
HDMI_DDI_TX_N3 C5708 SCD1U16V2KX-L-GP HDMI_DDI_TX_C_N3

FAE: CPU to PS8209A recommend 6" inch

3D3V_S0
1D2V_HDMI
U5701
PS8209AQFN48GTR2-A2-GP
071.08209.0003

2020_12_14 SB short pad
R5722 Do Not Stuff
R5723 Do Not Stuff
R5724 Do Not Stuff
R5725 Do Not Stuff
R5726 Do Not Stuff
R5727 Do Not Stuff
R5728 Do Not Stuff
R5729 Do Not Stuff
R5702 4K7R2F-L-GP
TP5703
R5701 10KR2J-L-GP
C5710 SC1U10V2KX-L1-GP

PS8209_HDMI_ID
PS8209_REXT
HDMI_RST#
PS8209_PD#
PS8209_CSCL
PS8209_CSDA
PS8209_I2C_ADDR
PS8209_PRE
PS8209_DCIN_ENB
PS8209_EQ
HDMI_DET_CON
HDMI_SCL_CON
HDMI_SDA_CON
HDMI_DET_CPU
R5715 Do Not Stuff
TP5701
TP5702

PS8209_HDMI_ID R5721 DY Do Not Stuff
PS8209_I2C_ADDR R5720 DY Do Not Stuff
PS8209_PRE R5711 DY Do Not Stuff
PS8209_DCIN_ENB R5705 4K7R2J-L-GP
PS8209_EQ R5706 4K7R2J-L-GP
R5708 4K7R2J-L-GP

HDMI ID enable : Internal pull down, 3.3V I/O.
L:Default.HDMI ID enable.
H: HDMI ID Disable.

I2C Slave address selection :
Internal pull down, 3.3V I/O.
L: Default.Slave address 0x10-0x2F.
H: Alternative salve address 0x90-0x9F, 0xD0-0xDF

Output pre-emphasis setting : Internal pull up, 3.3V I/O.
L: Pre-emphasis =2.5db.
H:Default ,No pre-emphasis

DC coupling enable; Internal pull up, 3.3V I/O.
L: DC coupling input.
H:Default , AC copuling input

Receiver equalization setting ; Internal pull up ,3.3V I/O.

L: Compensation for channel loss up to 13db

H:Default , compensation for channel loss up to 17db

M:Compensation for channel loss up to 11db

5V_S0
5V_HDMI_S0
F5701 POLYSW-1D1A6V-9-GP-U
69.48001.081
2nd = 69.50011.081
3rd = 69.50013.061
C5711 SCD1U16V2KX-L-GP

D5716 BAW56-9-GP-U
75.00056.07D
2nd = 076.00056.0B7D
3rd = 75.00056.B7D
RN5712 SRN4K7J-8-GP

HDMI_SCL_R
HDMI_SDA_R
HDMI_SCL_CON
HDMI_SDA_CON

HDMI1
SKT-HDMI23-238-GP
022.10025.0681

HDMI_DDI_TX_CON_P2
HDMI_DDI_TX_CON_N2
HDMI_DDI_TX_CON_P1
HDMI_DDI_TX_CON_N1
HDMI_DDI_TX_CON_P0
HDMI_DDI_TX_CON_N0
HDMI_DDI_TX_CON_P3
HDMI_DDI_TX_CON_N3
HDMI_SCL_CON
HDMI_SDA_CON
5V_HDMI_S0
HDMI_DET_CON

3D3V_S0
Q5701 2N7002KDW1-GP
HDMI_SCL_CPU
HDMI_SDA_CPU
HDMI_SCL_CON
HDMI_SDA_CON
75.27002.F7C
2nd = 075.27002.0E7C
3rd = 075.67002.007C

0.3A LDO

3D3V_S5
U5722 LR9101G-12-AE5-R-GP
074.09101.003F
C5712 SCD1U16V2KX-L-GP
1D2V_HDMI
C5727 SC4D7U6D3V2MX-GP-U

FAE: 1D2V_HDMI's power ripple, Must be under 30mVp-p at 20MHz BW.

3D3V_S0
C5721 NEAR Pin1 SCD1U16V2KXL-GP
C5725 NEAR Pin24 SCD1U16V2KXL-GP
C5713 NEAR Pin24 DY Do Not Stuff

1D2V_HDMI
C5722 NEAR Pin6,11 SCD1U16V2KXL-GP
C5723 NEAR Pin6,11 SCD1U16V2KXL-GP
C5724 NEAR Pin6,11 DY Do Not Stuff
C5718 NEAR Pin15,18 SCD1U16V2KXL-GP
C5719 NEAR Pin15,18 SCD1U16V2KXL-GP
C5716 NEAR Pin15,18 SCD01U25V2KX-L1-GP
C5709 NEAR Pin30 SCD1U16V2KXL-GP
C5726 NEAR Pin30 SCD01U25V2KX-L1-GP
C5717 NEAR Pin43,46 SC4D7U6D3V2MX-GP-U
C5714 NEAR Pin43,46 SCD1U16V2KXL-GP
C5715 NEAR Pin43,46 SCD1U16V2KXL-GP
C5720 DY Do Not Stuff

2020_12_22 SB EMC
HDMI_DDI_TX_CMC_N0 R5703 Do Not Stuff HDMI_DDI_TX_CON_N0
HDMI_DDI_TX_CMC_N2 R5710 Do Not Stuff HDMI_DDI_TX_CON_N2
HDMI_DDI_TX_CMC_P0 R5704 Do Not Stuff HDMI_DDI_TX_CON_P0
HDMI_DDI_TX_CMC_P2 R5712 Do Not Stuff HDMI_DDI_TX_CON_P2
HDMI_DDI_TX_CMC_N1 R5707 Do Not Stuff HDMI_DDI_TX_CON_N1
HDMI_DDI_TX_CMC_P1 R5709 Do Not Stuff HDMI_DDI_TX_CON_P1

HDMI_DDI_TX_CMC_N3
HDMI_DDI_TX_CON_N3
L5704 FILTER-4P-264-GP
068.24900.2021
2nd = 068.10129.2041
C5728 Do Not Stuff DY
HDMI_DDI_TX_CMC_P3
HDMI_DDI_TX_CON_P3

Hynix 4G EMMC

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Taipei Hsien 221, Taiwan, R.O.C.

Title: **Display (HDMI Conn/Repeater)**
Size: A2
Document Number: Airking_JL
Rev: -1
Date: Tuesday, February 23, 2021
Sheet 57 of 106

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Title	*Display (RSVD)*	
Size A4	Document Number Airking_JL	Rev -1
Date: Tuesday, February 23, 2021	Sheet 58 of 106	

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Title: *Display (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

Date: Tuesday, February 23, 2021 Sheet 59 of 106

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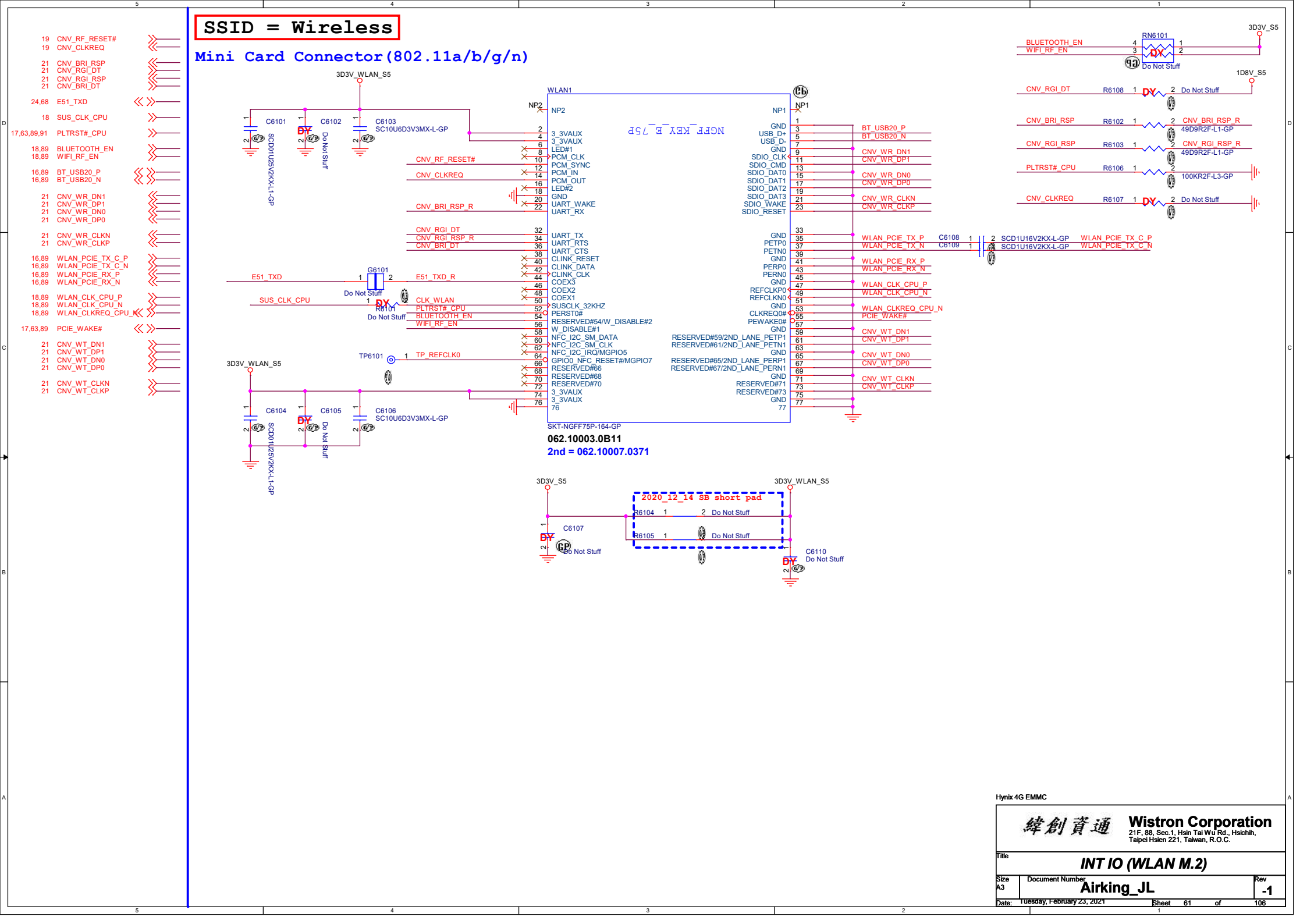
Title	*INT IO (RSVD)*	
Size: A4	Document Number: Airking_JL	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 60 of 106	

SSID = Wireless

Mini Card Connector(802.11a/b/g/n)



Hynix 4G EMMC

緯創資通 Wistron Corporation 21F, 88, Sec.1, Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221, Taiwan, R.O.C.		
Title: INT IO (WLAN M.2)		
Size: A3	Document Number: Airking_JL	Rev: -1
Date: Tuesday, February 23, 2021	Sheet 61 of 106	

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Title	*(Reserved)*	
Size A3	Document Number Airking_JL	Rev -1
Date: Tuesday, February 23, 2021	Sheet 62 of 106	

SSID = mPCIe

Mini Card Connector

17,61,89 PCIE_WAKE#
18 SSD1_CLKREQ_CPU_N
17,61,89,91 PLTRST#_CPU
16 DEVSLP1

18 SSD1_CLK_CPU_P
18 SSD1_CLK_CPU_N

16 SSD1_PCIE_TX_P0
16 SSD1_PCIE_TX_N0
16 SSD1_PCIE_RX_P0
16 SSD1_PCIE_RX_N0

16 SSD1_PCIE_TX_P1
16 SSD1_PCIE_TX_N1
16 SSD1_PCIE_RX_P1
16 SSD1_PCIE_RX_N1

16 SSD1_PCIE_TX_P2
16 SSD1_PCIE_TX_N2
16 SSD1_PCIE_RX_P2
16 SSD1_PCIE_RX_N2

16 SSD1_PCIE_TX_P3
16 SSD1_PCIE_TX_N3
16 SSD1_PCIE_RX_P3
16 SSD1_PCIE_RX_N3

16 SSD1_SATA_TX_P0
16 SSD1_SATA_TX_N0
16 SSD1_SATA_RX_N0
16 SSD1_SATA_RX_P0

PLTRST#_CPU

ED6301 DY
Do Not Stuff
2nd = D75.52215.007D
3rd = 075.05011.007D

3D3V_S0 — 2020_12_14 SB short pad — 3D3V_mPCIe1_S0
R6301 1 2 Do Not Stuff
R6302 1 2 Do Not Stuff

3D3V_mPCIe1_S0
C6301 SSD Do Not Stuff
C6302 DY Do Not Stuff
C6303 DY Do Not Stuff
C6304 SSD Do Not Stuff
C6305 SSD Do Not Stuff

3D3V_mPCIe1_S0 — SSD1

PCIE_WAKE#
SSD1_CLKREQ_CPU_N
PLTRST#_CPU
TP6301 1 DEVSLP1

NP2 76 74 72 70 68 66 64 62 60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2
3_3VAUX SUSCLK_32KHZ NC#58 NC#56 PEWAKE#/NC#54 CLKREQ#/NC#52 PERST#/NC#50 NC#48 NC#46 NC#44 NC#42 NC#40 NC#38 DEVSLP NC#36 NC#34 NC#32 NC#30 NC#28 NC#26 NC#24 NC#22 NC#20 3_3VAUX 3_3VAUX 3_3VAUX DAS/DSS# NC#8 NC#6 3_3VAUX 3_3VAUX

NP1 77 75 73 71 69 67 65 63 61 59 57 55 53 51 49 47 45 43 41 39 37 35 33 31 29 27 25 23 21 19 17 15 13 11 9 7 5 3 1
GND PEDET(OC_PCIE/GND_SATA) NC#67 REFCLKP REFCLKN PERP0/SATA_A+ PERN0/SATA_A- PETP0/SATA_B- PETN0/SATA_B+ PERP1 PERN1 PETP1 PETN1 PERP2 PERN2 PETN2 PETP2 PERP3 PERN3 PETN3 PETP3

NGFF_KEY_M 75P

SSD1_CLK_CPU_P
SSD1_CLK_CPU_N
SSD1_PCIE_TX_CON_P0
SSD1_PCIE_TX_CON_N0
SSD1_PCIE_TX_CON_P1
SSD1_PCIE_TX_CON_N1
SSD1_PCIE_TX_CON_P2
SSD1_PCIE_TX_CON_N2
SSD1_PCIE_TX_CON_P3
SSD1_PCIE_TX_CON_N3

C6308 SSD 2 Do Not Stuff
C6309 SSD 2 Do Not Stuff
C6310 SSD 2 Do Not Stuff
C6311 SSD 2 Do Not Stuff
C6312 SSD 2 Do Not Stuff
C6313 SSD 2 Do Not Stuff

SSD1_PCIE_RX_CON_P1
SSD1_PCIE_RX_CON_N1
SSD1_PCIE_RX_CON_P2
SSD1_PCIE_RX_CON_N2
SSD1_PCIE_RX_CON_P3
SSD1_PCIE_RX_CON_N3

SSD1_PCIE_TX_P1
SSD1_PCIE_TX_N1
SSD1_PCIE_TX_P2
SSD1_PCIE_TX_N2
SSD1_PCIE_TX_P3
SSD1_PCIE_TX_N3
SSD1_PCIE_RX_P1
SSD1_PCIE_RX_N1
SSD1_PCIE_RX_P2
SSD1_PCIE_RX_N2
SSD1_PCIE_RX_P3
SSD1_PCIE_RX_N3

Do Not Stuff
Do Not Stuff
2nd = 062.10003.0581
3rd = 062.10003.0591
SSD

SSD1_SATA_TX_P0 — SATA SSD C6319 1 2 Do Not Stuff — SSD1_PCIE_TX_CON_P0
SSD1_SATA_TX_N0 — SATA SSD C6320 1 2 Do Not Stuff — SSD1_PCIE_TX_CON_N0
SSD1_SATA_RX_N0 — SATA SSD R6304 1 2 Do Not Stuff — SSD1_PCIE_RX_CON_P0
SSD1_SATA_RX_P0 — SATA SSD R6306 1 2 Do Not Stuff — SSD1_PCIE_RX_CON_N0

SSD1_PCIE_TX_P0 — PCIE SSD C6306 1 2 Do Not Stuff — SSD1_PCIE_TX_CON_P0
SSD1_PCIE_TX_N0 — PCIE SSD C6307 1 2 Do Not Stuff — SSD1_PCIE_TX_CON_N0
SSD1_PCIE_RX_P0 — PCIE SSD R6309 1 2 Do Not Stuff — SSD1_PCIE_RX_CON_P0
SSD1_PCIE_RX_N0 — PCIE SSD R6310 1 2 Do Not Stuff — SSD1_PCIE_RX_CON_N0

SSID = eMMC

96 EMMC_CLK
96 EMMC_CMD
21,96 EMMC_CLK_R
21 EMMC_RCLK_R
21,96 EMMC_D7_R
21 EMMC_D6_R
21 EMMC_D5_R
21 EMMC_D4_R
21 EMMC_D3_R
21 EMMC_D2_R
21 EMMC_D1_R
21,96 EMMC_D0_R
21,96 EMMC_CMD_R
21 EMMC_RESET_N_R
96 EMMC_D7
96 EMMC_D0

3D3V_S0 — 2020_12_14 SB short pad — 3D3V_EMMC
R6315 1 2 Do Not Stuff

1D8V_S0 — 2020_12_14 SB short pad — 1D8V_EMMC
R6316 1 2 Do Not Stuff

3D3V_EMMC
C6314 SC4D7U6D3V2MX-GP-U EMMC
C6315 SCD1U16V2KX-L-GP EMMC

1D8V_EMMC
C6316 SC4D7U6D3V2MX-GP-U EMMC
C6317 SCD1U16V2KX-L-GP EMMC

VDDI
C6318 SCD1U16V2KX-L-GP EMMC

VDDI
3D3V_EMMC
1D8V_EMMC

EMMC1A 1 OF 2

VDDIM C2
VCC E6 F5 J10 K9
VCCQ C6 M4 N4 P3 P5
CLK M6
CMD M5
DS H5
RST# K5
VSS A6 E7 G5 H10 J5 K8 C4 N2 N5 P4 P6
DAT0 A3
DAT1 A4
DAT2 A5
DAT3 B2
DAT4 B3
DAT5 B4
DAT6 B5
DAT7 B6

MTFC32GAPALBH-IT-GP
072.MTFC3.M002
EMMC

EMMC_D0_R R6312 1 2 Do Not Stuff EMMC_D0
EMMC_D1_R R6335 1 2 Do Not Stuff EMMC_D1
EMMC_D2_R R6337 1 2 Do Not Stuff EMMC_D2
EMMC_D3_R R6336 1 2 Do Not Stuff EMMC_D3
EMMC_D4_R R6338 1 2 Do Not Stuff EMMC_D4
EMMC_D5_R R6339 1 2 Do Not Stuff EMMC_D5
EMMC_D6_R R6318 1 2 Do Not Stuff EMMC_D6
EMMC_D7_R R6319 1 2 Do Not Stuff EMMC_D7

2020_11_04 SA EE

2020_11_04 SA EE
EMMC_CLK R6320 1 2 Do Not Stuff EMMC_CLK_R
EMMC_CMD R6321 1 2 Do Not Stuff EMMC_CMD_R
EMMC_RCLK R6322 1 2 Do Not Stuff EMMC_RCLK_R
EMMC_RESET_N R6356 1 2 Do Not Stuff EMMC_RESET_N_R

R6353 10KR2J-L-GP EMMC
R6314 20KR2J-1-GP EMMC
R6313 20KR2J-1-GP EMMC

1D8V_EMMC
R6324 R6325 R6326 R6327 R6328 R6329 R6330 R6331 R6332
20KR2J-1-GP EMMC
EMMC_D0_R
EMMC_D1_R
EMMC_D2_R
EMMC_D3_R
EMMC_D4_R
EMMC_D5_R
EMMC_D6_R
EMMC_D7_R
EMMC_CMD_R

EMMC1B 2 OF 2

A1 A10 A11 A12 A13 A14 A2 A6 A9 B1 B10 B11 B12 B13 B14 B7 B8 B9 C1 C10 C11 C12 C13 C14 C3 C5 C7 C8 C9 D1 D12 D13 D14 D2 D3 D4 E1 E12 E13 E14 E2 E3 F1 F12 F13 F14 F2 F3 G1 G2 G3 G12 G13 G14 H1 H12 H13 H14 H2 H3 J1
NC#A1 NC#A10 NC#A11 NC#A12 NC#A13 NC#A14 NC#A2 NC#A8 NC#A9 NC#B1 NC#B10 NC#B11 NC#B12 NC#B13 NC#B14 NC#B7 NC#B8 NC#B9 NC#C1 NC#C10 NC#C11 NC#C12 NC#C13 NC#C14 NC#C3 NC#C5 NC#C7 NC#C8 NC#C9 NC#D1 NC#D12 NC#D13 NC#D14 NC#D2 NC#D3 NC#D4 NC#E1 NC#E12 NC#E13 NC#E14 NC#E2 NC#E3 NC#F1 NC#F12 NC#F13 NC#F14 NC#F2 NC#F3 NC#G1 NC#G2 NC#G3 NC#G12 NC#G13 NC#G14 NC#H1 NC#H12 NC#H13 NC#H14 NC#H2 NC#H3 NC#J1
J12 J13 J14 J2 J3 K1 K12 K13 K14 K2 K3 L1 L12 L13 L14 L2 L3 M1 M10 M11 M12 M13 M14 M2 M3 M7 M8 M9 N1 N10 N11 N12 N13 N14 N3 N6 N7 N8 N9 P1 P2 P7 P8 P9 P11 P12 P13 P14 A7 E5 E8 E9 E10 F10 G10 K6 K7 K10 P10
NC#J12 NC#J13 NC#J14 NC#J2 NC#J3 NC#K1 NC#K12 NC#K13 NC#K14 NC#K2 NC#K3 NC#L1 NC#L12 NC#L13 NC#L14 NC#L2 NC#L3 NC#M1 NC#M10 NC#M11 NC#M12 NC#M13 NC#M14 NC#M2 NC#M3 NC#M7 NC#M8 NC#M9 NC#N1 NC#N10 NC#N11 NC#N12 NC#N13 NC#N14 NC#N3 NC#N6 NC#N7 NC#N8 NC#N9 NC#P1 NC#P2 NC#P7 NC#P8 NC#P9 NC#P11 NC#P12 NC#P13 NC#P14
RFU#A7 RFU#E5 VSF1 VSF2 VSF3 VSF4 VSF5 RFU#K6 RFU#K7 VSF6 VSF7

MTFC32GAPALBH-IT-GP
072.MTFC3.M002
EMMC

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Hynix 4G EMMC

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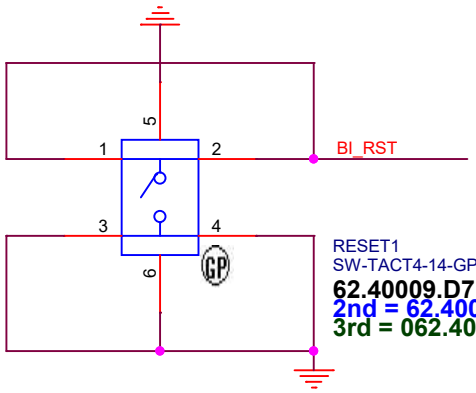
Title: INT IO (SSD1 M.2)
Size: A2
Document Number: Airking_JL
Rev: -1
Date: Tuesday, February 23, 2021
Sheet 63 of 106

43,89 BI_RST

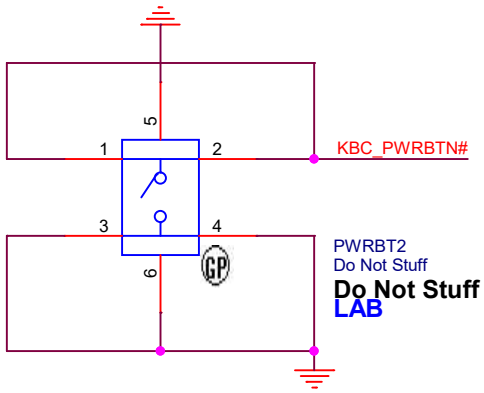
24,66,89 KBC_PWRBTN#

Battery Reset



RESET1
SW-TACT4-14-GP
62.40009.D71
2nd = 62.40078.001
3rd = 062.40001.0991

Power Button



PWRBT2
Do Not Stuff
Do Not Stuff
LAB

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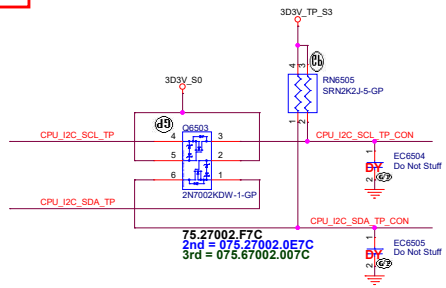
Title: LED / Button / Power Button

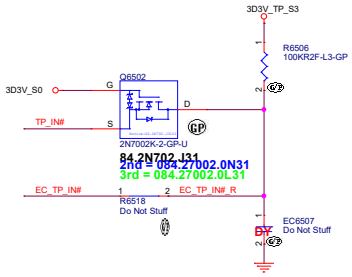
Size	Document Number	Rev
A4	Airking_JL	-1

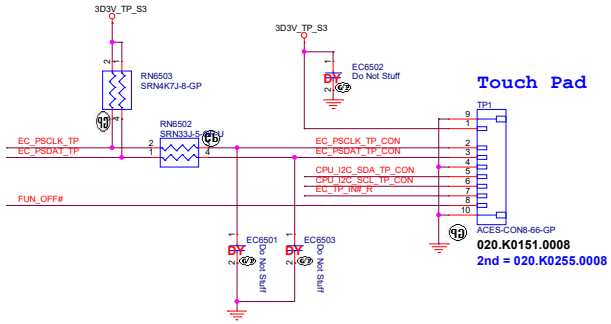
Date: Tuesday, February 23, 2021 Sheet 64 of 106

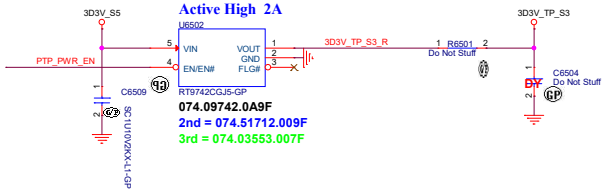
SSID = KBC

20,96 CPU_I2C_SCL_TP
20,96 CPU_I2C_SDA_TP
21 TP_IN#
24 EC_TP_IN#
24 PTP_PWR_EN
24 EC_PSCLK_TP
24 EC_PSDAT_TP
24,89 FUN_OFF#
89 EC_PSCLK_TP_CON
89 EC_PSDAT_TP_CON
89,96 CPU_I2C_SDA_TP_CON
89,96 CPU_I2C_SCL_TP_CON
89 EC_TP_IN#_R









Internal KeyBoard Connector

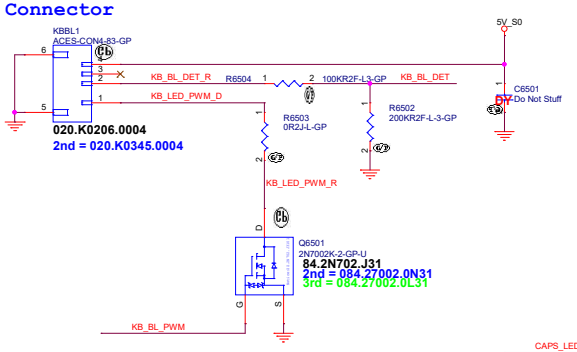
24,89 KSO0
24,89 KSO1
24,89 KSO2
24,89 KSO3
24,89 KSO4
24,89 KSO5
24,89 KSO6
24,89 KSO7
24,89 KSO8
24,89 KSO9
24,89 KSO10
24,89 KSO11
24,89 KSO12
24,89 KSO13
24,89 KSO14
24,89 KSO15
24,89 KSO16
24,89 KSO17

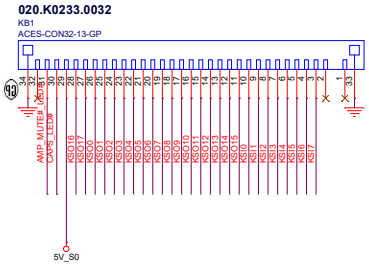
24,89 KSI0
24,89 KSI1
24,89 KSI2
24,89 KSI3
24,89 KSI4
24,89 KSI5
24,89 KSI6
24,89 KSI7

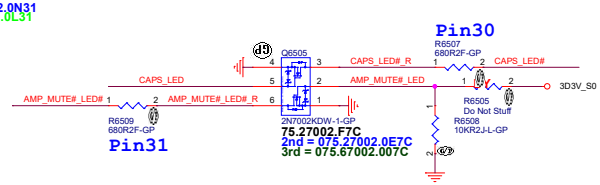
24 KB_BL_DET
24 KB_BL_PWM

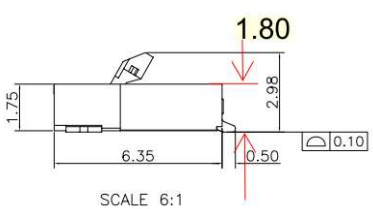
89 KB_BL_DET_R
89 KB_LED_PWM_D

24 CAPS_LED
27 AMP_MUTE#_LED

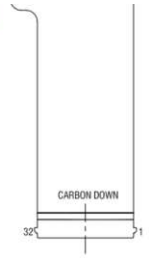


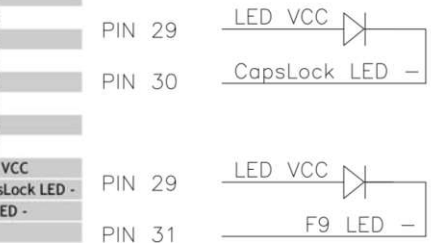






1	NC
2	NC
3	C08
4	C07
5	C06
6	C05
7	C04
8	C03
9	C02
10	C01
11	R16
12	R15
13	R14
14	R13
15	R12
16	R11
17	R10
18	R09
19	R08
20	R07
21	R06
22	R05
23	R04
24	R03
25	R02
26	R01
27	R18
28	R17
29	LED VCC
30	CapsLock LED -
31	F9 LED -
32	NC





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Title: ***INT IO (KB/TP)***
Size: A2 | Document Number: Yacht_TL | Rev: -1
Date: Tuesday, February 23, 2021 | Sheet 65 of 106

SSID = User.Interface

27,89 RING2
27 SLEEVE
27,89 AUD_HP1_JACK_R2
27,89 AUD_HP1_JACK_L2
27 AUD_HP1_JD#

24 USB_PWR_EN

16 USB2_USB30_RX_N
16 USB2_USB30_RX_P
16 USB2_USB30_TX_N
16 USB2_USB30_TX_P

16,89 USB2_USB20_N
16,89 USB2_USB20_P

17,40 CPU_C10_GATE#

24,64,89 KBC_PWRBTN#

24,89 STDBY_LED
24,89 POWER_LED
24,89 CHARGE_LED
24,89 DC_BATFULL

24,89 LID_CLOSE1#
24,89 LID_CLOSE2#

24,70 GSR_INT1#
24,70,96 EC_I2C_SDA_GSR
24,70,96 EC_I2C_SCL_GSR

IOBD1:
5V_USB30 for USB 3.0
5V_AUX_S5 & 5V_S5 for LED
3D3V_PEN_S5 for PEN
3D3V_S5 for USB3.0 ReDriver

Active High 2A

5V_S5 → C6601 SC1U10V2KX-L1-GP (USB_PWR_EN) → U6601 RT9742CGJ5-GP (VIN, EN/EN#, VOUT, GND, FLG#) → 5V_USB30
C6602 Do Not Stuff (DY)
C6603 Do Not Stuff (DY)

074.09742.0A9F
2nd = 074.51712.009F
3rd = 074.03553.007F

Active High 2A

3D3V_S5 → C6605 Do Not Stuff (DY) (CPU_C10_GATE#) → U6602 Do Not Stuff (DY) (VIN, EN/EN#, VOUT, GND, FLG#) → 3D3V_PEN_S5
C6606 Do Not Stuff (DY)
C6607 Do Not Stuff (DY)

Do Not Stuff
2nd = 074.51712.009F
3rd = 074.03553.007F

3D3V_S0 → R6601T 2 Do Not Stuff (2020_12_14 SB short pad) → 3D3V_PEN_S5

GSR1 ACES-CON5-22-GP-U
3D3V_S5
EC_I2C_SCL_GSR
EC_I2C_SDA_GSR
GSR_INT1#

20.F1639.005
2nd = 020.F0146.0005
3rd = 020.F1145.0005

LID

3D3V_AUX_S5 → C6604 SCD1U16V2KX-L-GP (LID_CLOSE1#, LID_CLOSE2#) → LIDCN1 ACES-CON4-96-GP

020.F001A.0004
2nd = 020.F1274.0004

EL6601 DLM0NSN900HY2D-GP
USB2_USB20_P ↔ USB2_USB20_CMC_P
USB2_USB20_N ↔ USB2_USB20_CMC_N

068.09002.2001
2nd = 68.02002.061
3rd = 068.MCF86.2001

IOBD1
HRS-CON32-GP
020.K0032.0032
2nd = 020.K0370.0032

AUD_AGND
RING2
RING2
SLEEVE
SLEEVE
AUD_HP1_JACK_R2
AUD_HP1_JACK_L2
AUD_HP1_JD#
USB2_USB30_RX_N
USB2_USB30_RX_P
USB2_USB30_TX_N
USB2_USB30_TX_P
USB2_USB20_CMC_N
USB2_USB20_CMC_P
5V_S5
KBC_PWRBTN#
5V_USB30
5V_AUX_S5
3D3V_PEN_S5
3D3V_S5
STDBY_LED
POWER_LED
CHARGE_LED
DC_BATFULL

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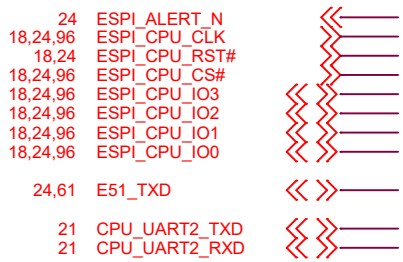
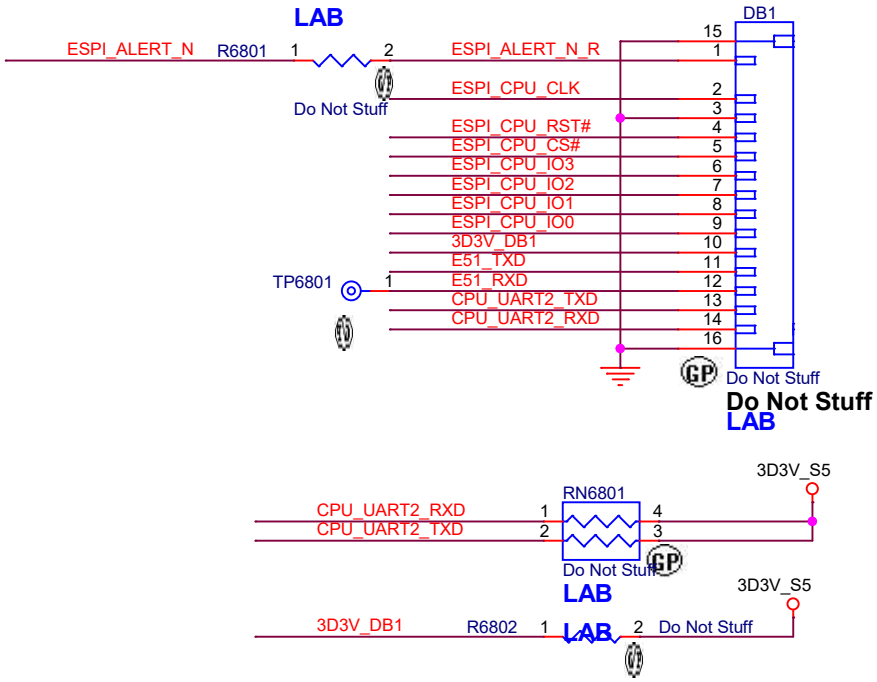
Title: *Sensor (RSVD)*

Size	Document Number	Rev
A4	Airking_JL	-1

Date: Tuesday, February 23, 2021 Sheet 67 of 106





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Title: ***Debug (ESPI Conn)***

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Title: *Sensor (RSVD)*

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Date: Tuesday, February 23, 2021 Sheet 69 of 106

24,66 GSR_INT1#

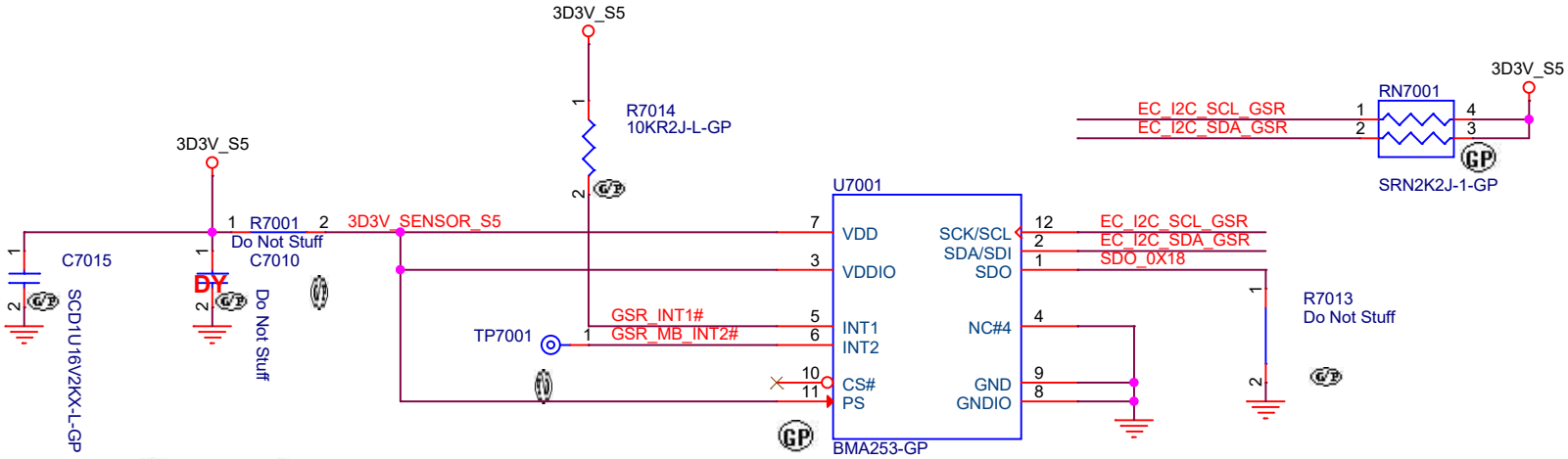
24,66,96 EC_I2C_SCL_GSR

24,66,96 EC_I2C_SDA_GSR

SSID = G Sensor

The default I²C address of the device is 0011000b (0x18). It is used if the SDO pin is pulled to 'GND'. The alternative address 0011001b (0x19) is selected by pulling the SDO pin to 'V_{DDIO}'.

Note
- no via, trace, under the sensor (keep out area around 2mm)
- stay away from the screw hole or metal shield soldering joints
- design PCB pad based on our sensor LGA pad size (add 0.1mm)
- solder stencil opening to 90% of the PCB pad size
- mount the sensor near the center of mass of the NB as possible as you can



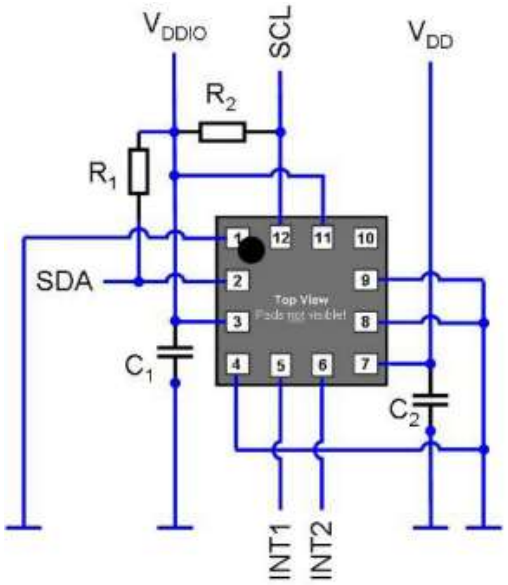


Figure 26: I²C connection

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Title	EXT IO (RSVD)	
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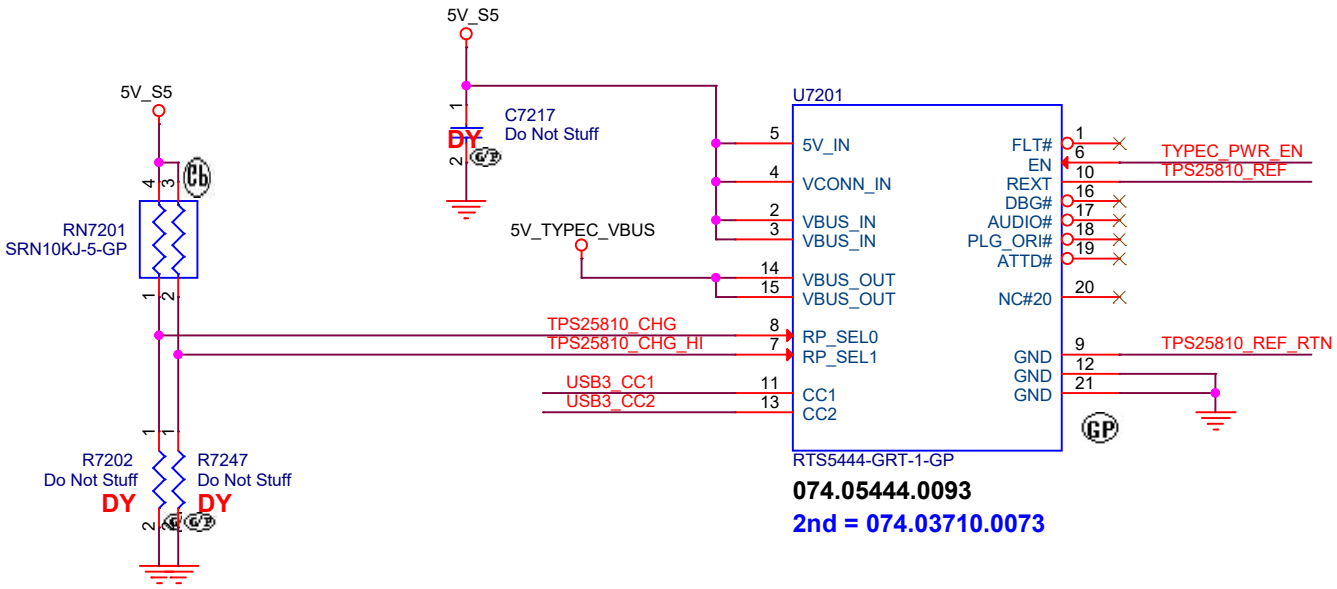
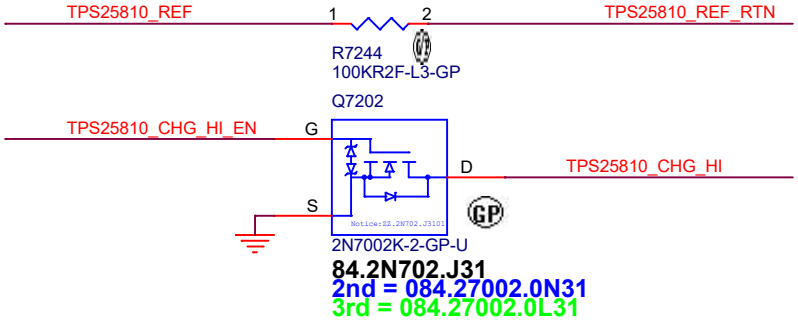
24 TPS25810_CHG_HI_EN
24 TYPEC_PWR_EN
73 USB3_CC1
73 USB3_CC2





CHG	CHG_HI	CC Capability Broadcast	Current Limit	Load Detect Threshold
0	0	STD	1.67 A	NA
0	1	STD	1.67 A	NA
1	0	1.5 A	1.67 A	NA
1	1	3.0 A	3.34 A	1.77 A

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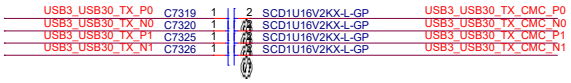
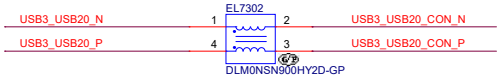
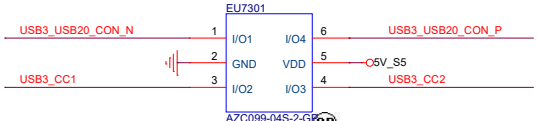
USB HOST

16 USB3_USB20_N
16 USB3_USB20_P
16 USB3_USB30_TX_P0
16 USB3_USB30_TX_N0
16 USB3_USB30_RX_P0
16 USB3_USB30_RX_N0
16 USB3_USB30_TX_P1
16 USB3_USB30_TX_N1
16 USB3_USB30_RX_P1
16 USB3_USB30_RX_N1
72 USB3_CC1
72 USB3_CC2

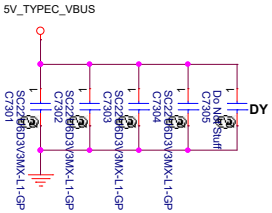


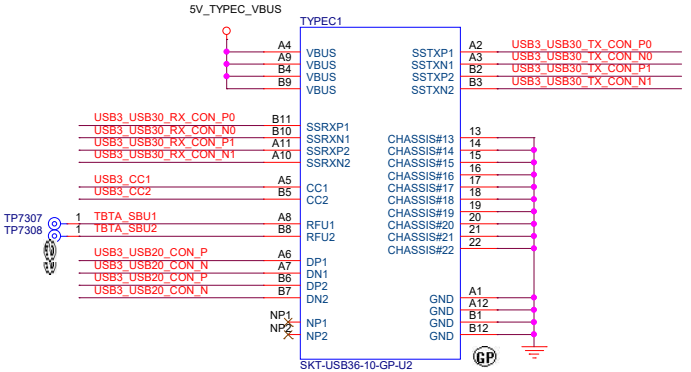


068.09002.2001
2nd = 68.02002.061
3rd = 068.MCF86.2001

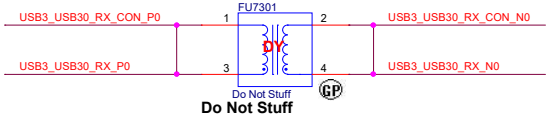


075.09904.0A7C
2nd = 075.53456.000C
3rd = 075.54236.007C





022.10005.02Z1



Do Not Stuff
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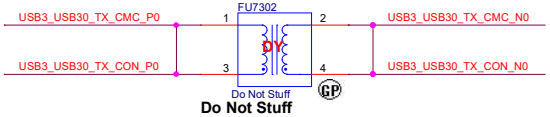
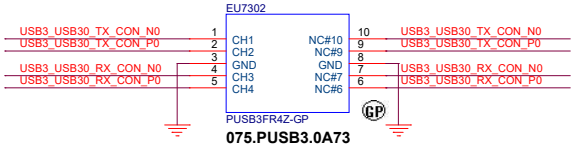
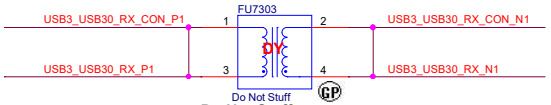
3rd = 068.01210.2031



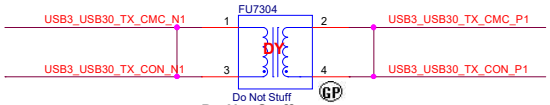
Do Not Stuff
2nd = 068.10129.2021
3rd = 068.01210.2031



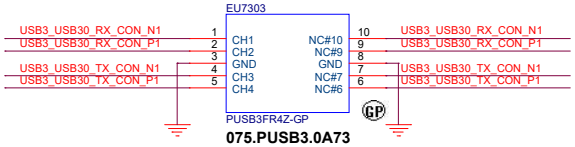
075.PUSB3.0A73
2nd = 075.73034.0073
3rd = 075.00176.0073



Do Not Stuff
2nd = 068.10129.2021
3rd = 068.01210.2031



Do Not Stuff
2nd = 068.10129.2021
3rd = 068.01210.2031



075.PUSB3.0A73
2nd = 075.73034.0073
3rd = 075.00176.0073

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Title: *GPU (RSVD)*

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DCIN

19V_AD_JK	1	AFTP2
19V_AD_JK	1	AFTP3
	1	AFTP4
	1	AFTP5

JTAG

3 CPU_JTAG_TRST#	1	AFTP232

Battery

BT+	1	AFTP6
BT+	1	AFTP11
	1	AFTP13
	1	AFTP14
43 BI	1	AFTP174
43 PWR_CHG_BAT_IN#_R	1	AFTP22
43,96 PWR_SMB_SCL_CHG_R	1	AFTP23
43,96 PWR_SMB_SDA_CHG_R	1	AFTP36

WLAN

17,61,63 PCIE_WAKE#	1	AFTP76
16,61 BT_USB20_P	1	AFTP77
16,61 BT_USB20_N	1	AFTP78
17,61,63,91 PLTRST#_CPU	1	AFTP195
18,61 WLAN_CLKREQ_CPU_N	1	AFTPA4
18,61 WLAN_CLK_CPU_P	1	AFTPA5
18,61 WLAN_CLK_CPU_N	1	AFTPA6
16,61 WLAN_PCIE_TX_C_P	1	AFTPA7
16,61 WLAN_PCIE_TX_C_N	1	AFTPA8
16,61 WLAN_PCIE_RX_P	1	AFTPA9
16,61 WLAN_PCIE_RX_N	1	AFTPB1
18,61 BLUETOOTH_EN	1	AFTPB3
18,61 WIFI_RF_EN	1	AFTPB5
	1	AFTP82
3D3V_WLAN_S5	1	AFTP196

USB3.0

5V_USB30_CHARGER	1	AFTP150
35 USB1_CON_USB20_N	1	AFTP119
35 USB1_CON_USB20_P	1	AFTP120
	1	AFTP144

LCD1

19V_DCBATOUT_LCD	1	AFTP183
55 eDP_BKLTCTL_CON	1	AFTP184
55 eDP_BLEN_CON	1	AFTP185
55 eDP_HPD_CON	1	AFTP186
55 DMIC1_SCL_C_CON	1	AFTP133
55 DMIC1_SDA_C_CON	1	AFTP134
3D3V_CAMERA_S0	1	AFTP135
5V_S0	1	AFTP136
3D3V_LCDVDD_S0	1	AFTP137
	1	AFTP201

Stand off 1

HS2	HS3	HS4	HS5
STF237R117H81-1-GP	STF237R117H81-1-GP	STF237R117H81-1-GP	STF237R117H81-1-GP
34.44L12.001	34.44L12.001	34.44L12.001	34.44L12.001

Screw pad

H1	H2	H3	H4	H5
Do Not Stuff	Do Not Stuff	Do Not Stuff	Do Not Stuff	Do Not Stuff
Do Not Stuff	**Do Not Stuff**	**Do Not Stuff**	**Do Not Stuff**	**Do Not Stuff**

Touch PAD

	1	AFTP148
65 EC_PSCLK_TP_CON	1	AFTP56
65 EC_PSDAT_TP_CON	1	AFTP57
65,96 CPU_I2C_SCL_TP_CON	1	AFTP58
65,96 CPU_I2C_SDA_TP_CON	1	AFTP59
65 EC_TP_IN#_R	1	AFTP90
3D3V_TP_S3	1	AFTP91
24,65 FUN_OFF#	1	AFTP85

HDMI

57 HDMI_DDI_TX_CON_N3	1	AFTP121
57 HDMI_DDI_TX_CON_P3	1	AFTP122
57 HDMI_DDI_TX_CON_P0	1	AFTP124
57 HDMI_DDI_TX_CON_N0	1	AFTP123
57 HDMI_DDI_TX_CON_P1	1	AFTP126
57 HDMI_DDI_TX_CON_N1	1	AFTP125
57 HDMI_DDI_TX_CON_P2	1	AFTP128
57 HDMI_DDI_TX_CON_N2	1	AFTP127
57,96 HDMI_SCL_CON	1	AFTP130
57,96 HDMI_SDA_CON	1	AFTP129
57 HDMI_DET_CON	1	AFTP132
5V_HDMI_S0	1	AFTP131
	1	AFTP146

Speaker

29 AUD_SPK1_R+_CON	1	AFTP227
29 AUD_SPK1_R-_CON	1	AFTP228
29 AUD_SPK1_L+_CON	1	AFTP229
29 AUD_SPK1_L-_CON	1	AFTP230

IOBD1

5V_USB30	1	AFTP83
24,66 STDBY_LED	1	AFTP35
24,66 POWER_LED	1	AFTP190
24,66 DC_BATFULL	1	AFTP86
24,66 CHARGE_LED	1	AFTP87
16,66 USB2_USB20_N	1	AFTP94
16,66 USB2_USB20_P	1	AFTP95
33 CARD1_USB20_R_N	1	AFTP89
33 CARD1_USB20_R_P	1	AFTP191
24,66 LID_CLOSE1#	1	AFTP72
24,66 LID_CLOSE2#	1	AFTP38
43,64 BI_RST	1	AFTP71
5V_AUX_S5	1	AFTP96
5V_S5	1	AFTP193
3D3V_AUX_S5	1	AFTP194
3D3V_S5	1	AFTP37
3D3V_S0	1	AFTP97
3D3V_FP_S5	1	AFTP34
	1	AFTP197

KBBL1

5V_S0	1	AFTP219
65 KB_BL_DET_R	1	AFTP221
65 KB_LED_PWM_D	1	AFTP222
	1	AFTP199

RTC1

3D3V_RTC_VCC	1	AFTP100
	1	AFTP198

AUDIO1

27,66 AUD_HP1_JACK_R2	1	AFTP224
27,66 AUD_HP1_JACK_L2	1	AFTP223
27,66 RING2	1	AFTP210
AUD_AGND	1	AFTP93

KB

KSO0	1	AFTP24	KSI0 1 AFTP48
KSO1	1	AFTP26	KSI1 1 AFTP50
KSO2	1	AFTP25	KSI2 1 AFTP49
KSO3	1	AFTP27	KSI3 1 AFTP51
KSO4	1	AFTP28	KSI4 1 AFTP53
KSO5	1	AFTP30	KSI5 1 AFTP52
KSO6	1	AFTP29	KSI6 1 AFTP54
KSO7	1	AFTP32	KSI7 1 AFTP55
KSO8	1	AFTP33	24,64,66 KBC_PWRBTN# 1 AFTP149
KSO9	1	AFTP40	24,65 KSI[0..7]
KSO10	1	AFTP39	24,65 KSO[0..17]
KSO11	1	AFTP41	1 AFTP145
KSO12	1	AFTP42	
KSO13	1	AFTP44	
KSO14	1	AFTP43	
KSO15	1	AFTP45	
KSO16	1	AFTP156	
KSO17	1	AFTP157	

RF Request:

1V_CPU_CORE	1V_CPU_CORE	1V_CPU_CORE
FC8901 Do Not Stuff	FC8902 Do Not Stuff	FC8903 Do Not Stuff
1V_CPU_CORE	1V_CPU_CORE	1V_CPU_CORE
FC8904 Do Not Stuff	FC8905 Do Not Stuff	FC8906 Do Not Stuff

1D8V_VCCIN_AUX	1D8V_VCCIN_AUX	1D8V_VCCIN_AUX
FC8907 Do Not Stuff	FC8908 Do Not Stuff	FC8909 Do Not Stuff
1D8V_VCCIN_AUX	1D8V_VCCIN_AUX	1D8V_VCCIN_AUX
FC8910 Do Not Stuff	FC8911 Do Not Stuff	FC8912 Do Not Stuff

EMI Request:

PWR_DCBATOUT_3D3V	PWR_DCBATOUT_5V	
EC8901 Do Not Stuff	EC8902 Do Not Stuff	
1V_CPU_CORE	1V_CPU_CORE	
EC8903 Do Not Stuff	EC8904 Do Not Stuff	

3D3V_S5	19V_DCBATOUT
EC8905 Do Not Stuff	EC8906 Do Not Stuff
5V_S5	
EC8907 Do Not Stuff	

20200729

19V_DCBATOUT	19V_DCBATOUT	19V_DCBATOUT
EC8908 Do Not Stuff	EC8909 Do Not Stuff	EC8910 Do Not Stuff
19V_DCBATOUT	19V_DCBATOUT	19V_DCBATOUT
EC8911 Do Not Stuff	EC8912 Do Not Stuff	EC8913 Do Not Stuff

20200909

19V_DCBATOUT	19V_DCBATOUT
EC8914 Do Not Stuff	EC8915 Do Not Stuff
	19V_DCBATOUT_LCD
	EC8917 Do Not Stuff

20200910

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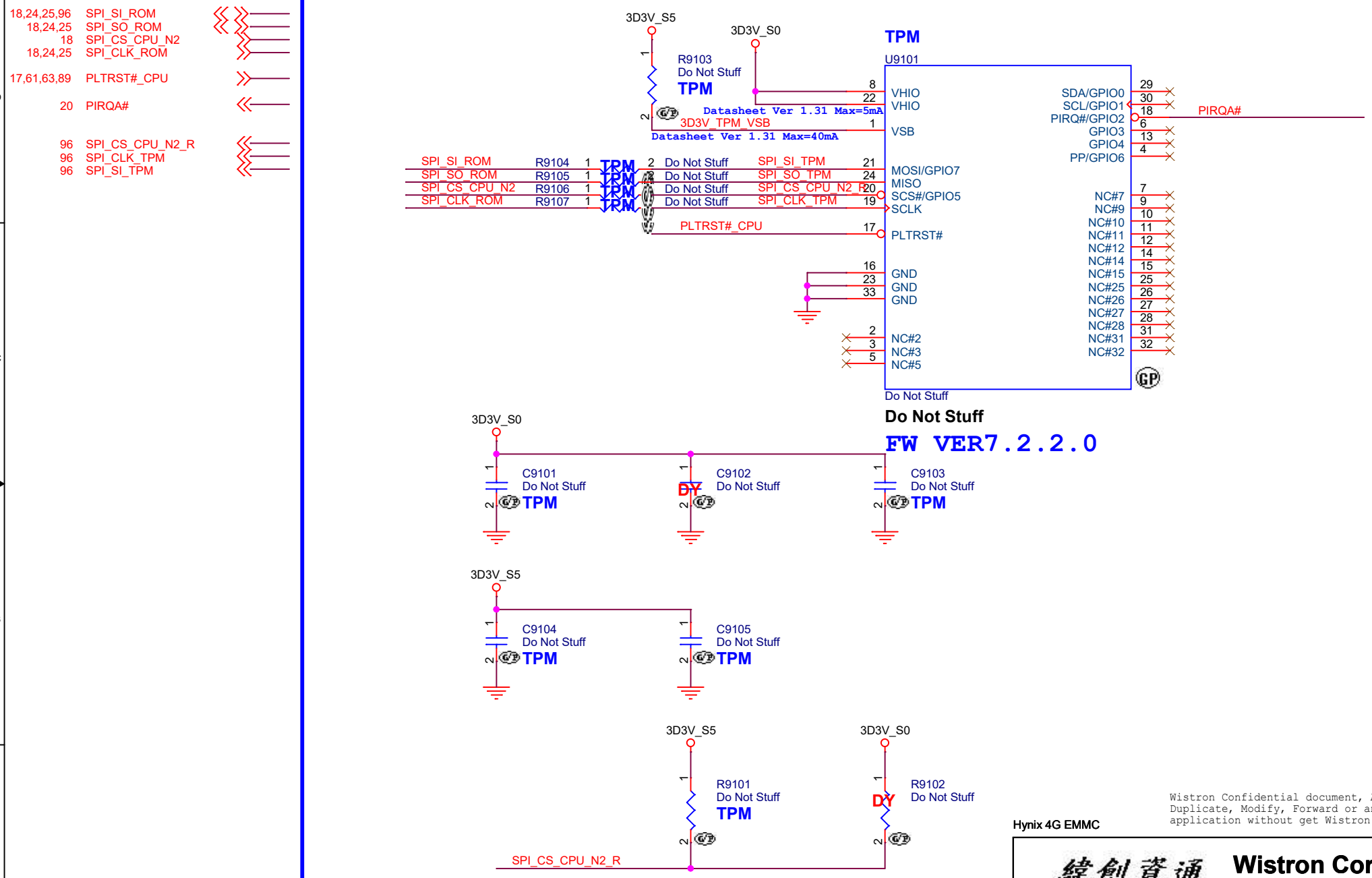

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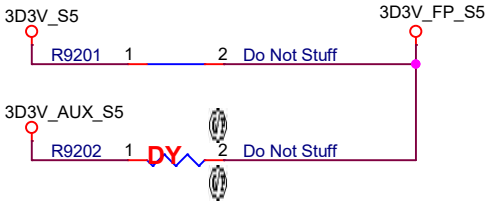
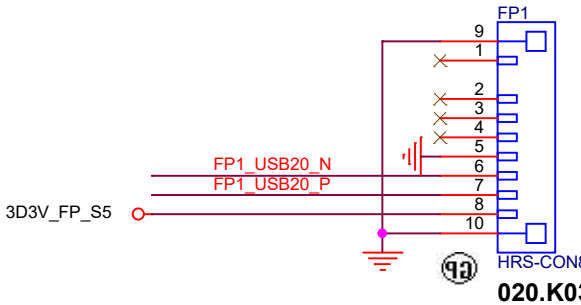
16 FP1_USB20_P





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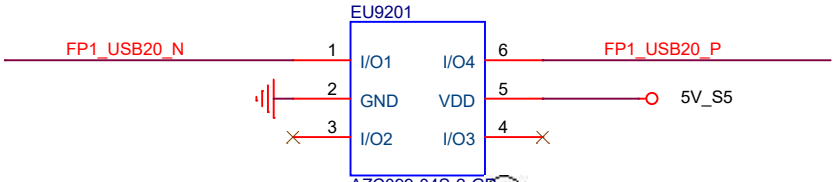

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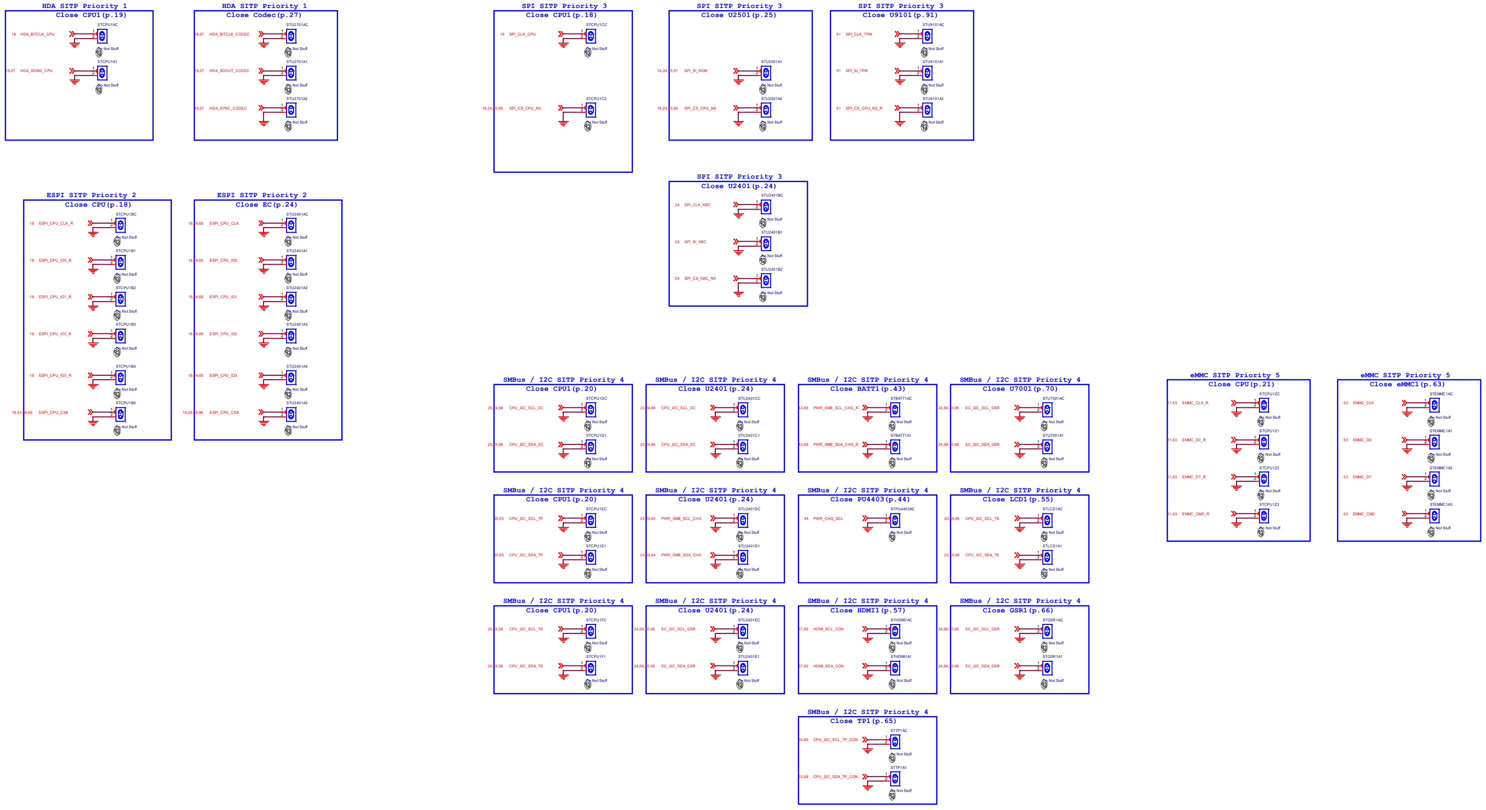
SITP DSN Template for 203064_Airking



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Title: *Change History*

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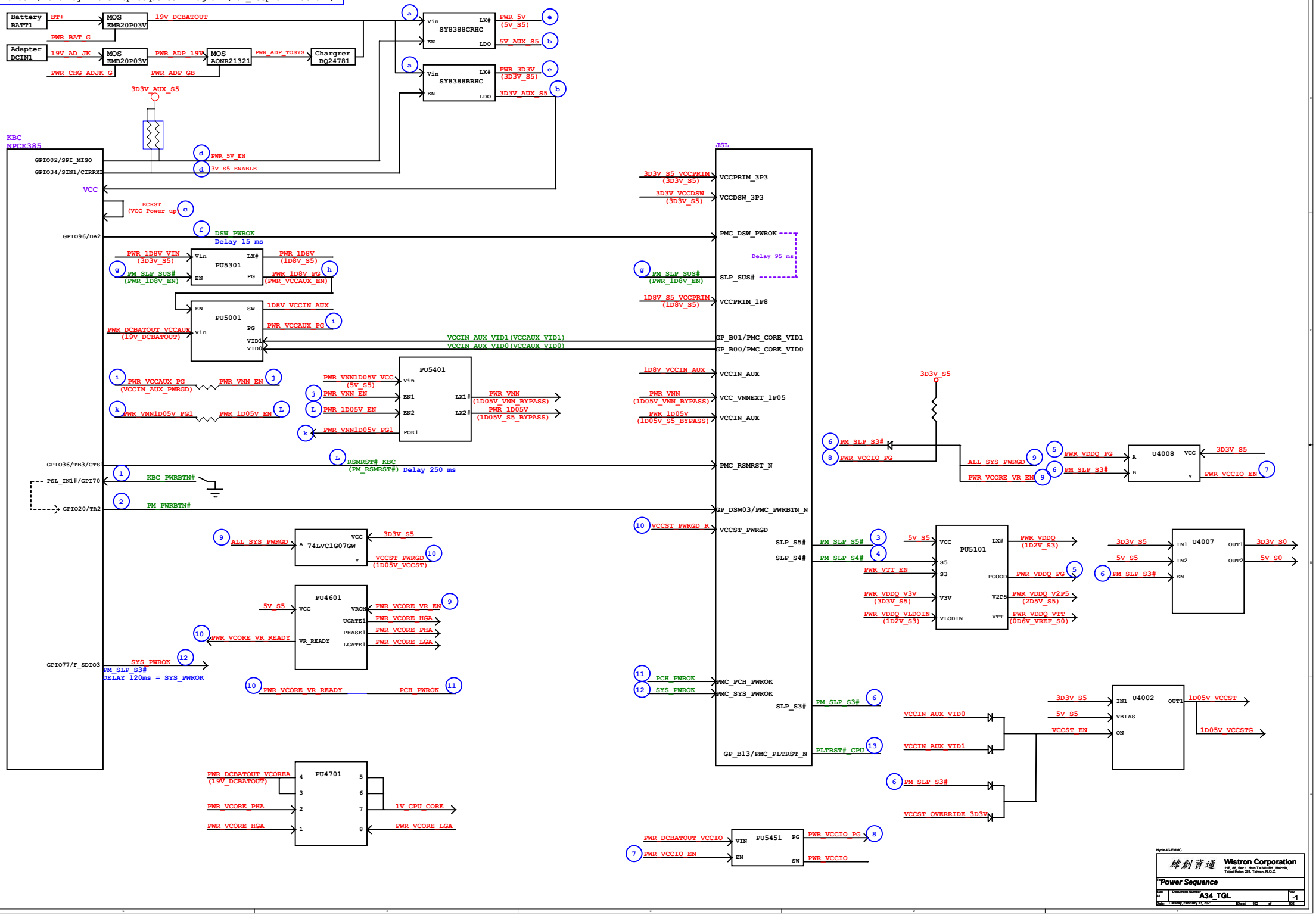
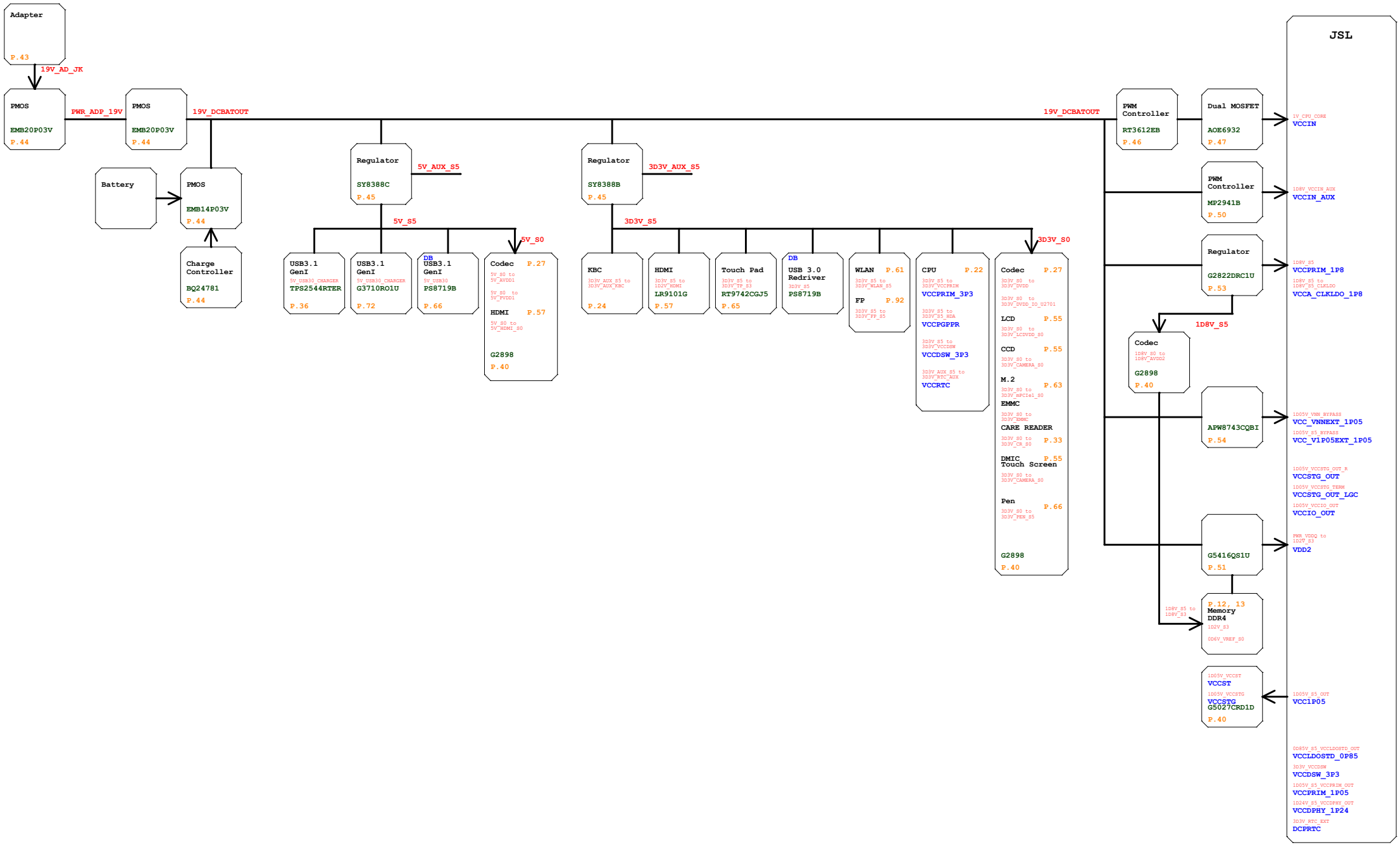
Bandon /NorthBay Power Up Sequence Diagram (Non_Deep Sx Platform)





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Title: ***Power Block Diagram***

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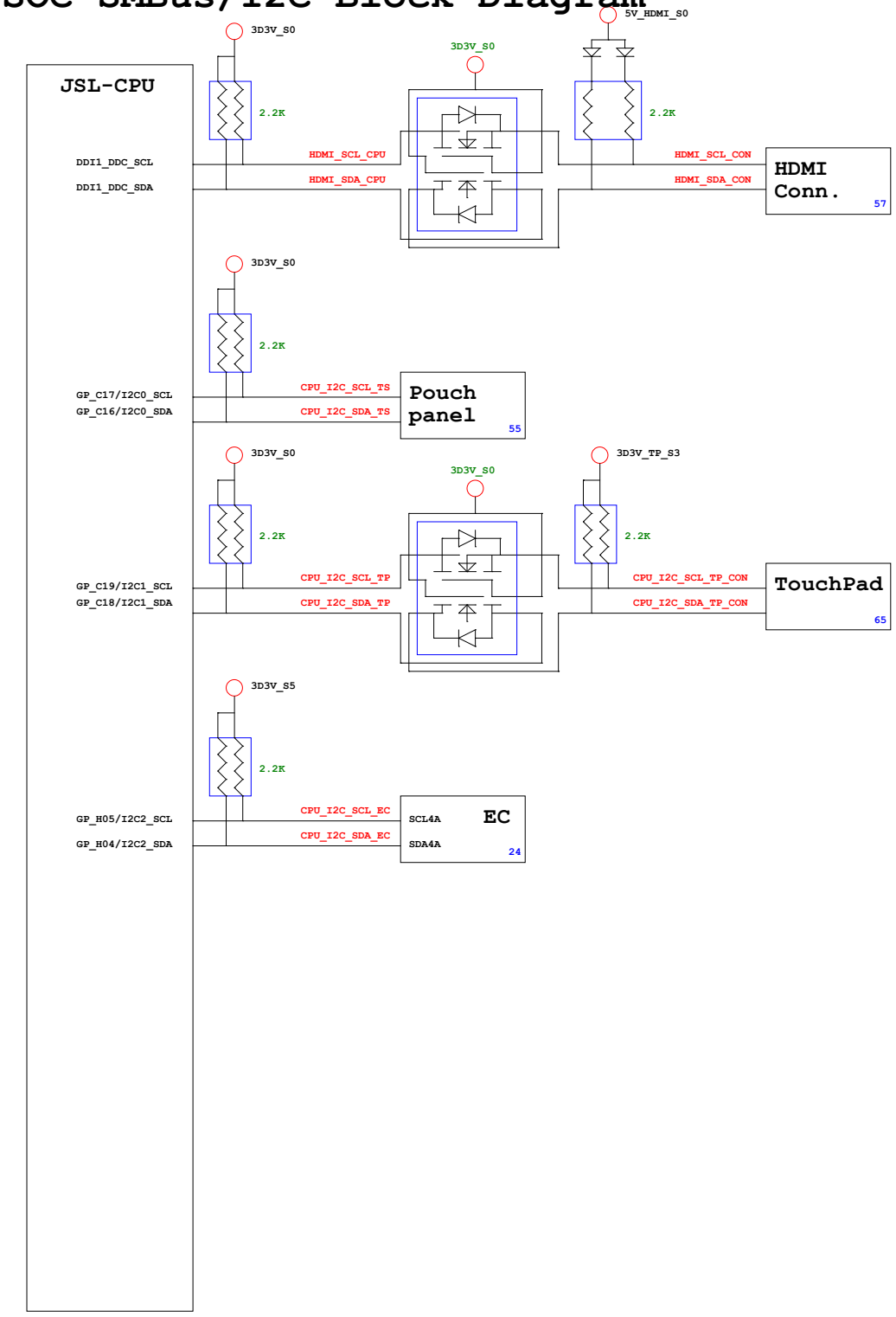
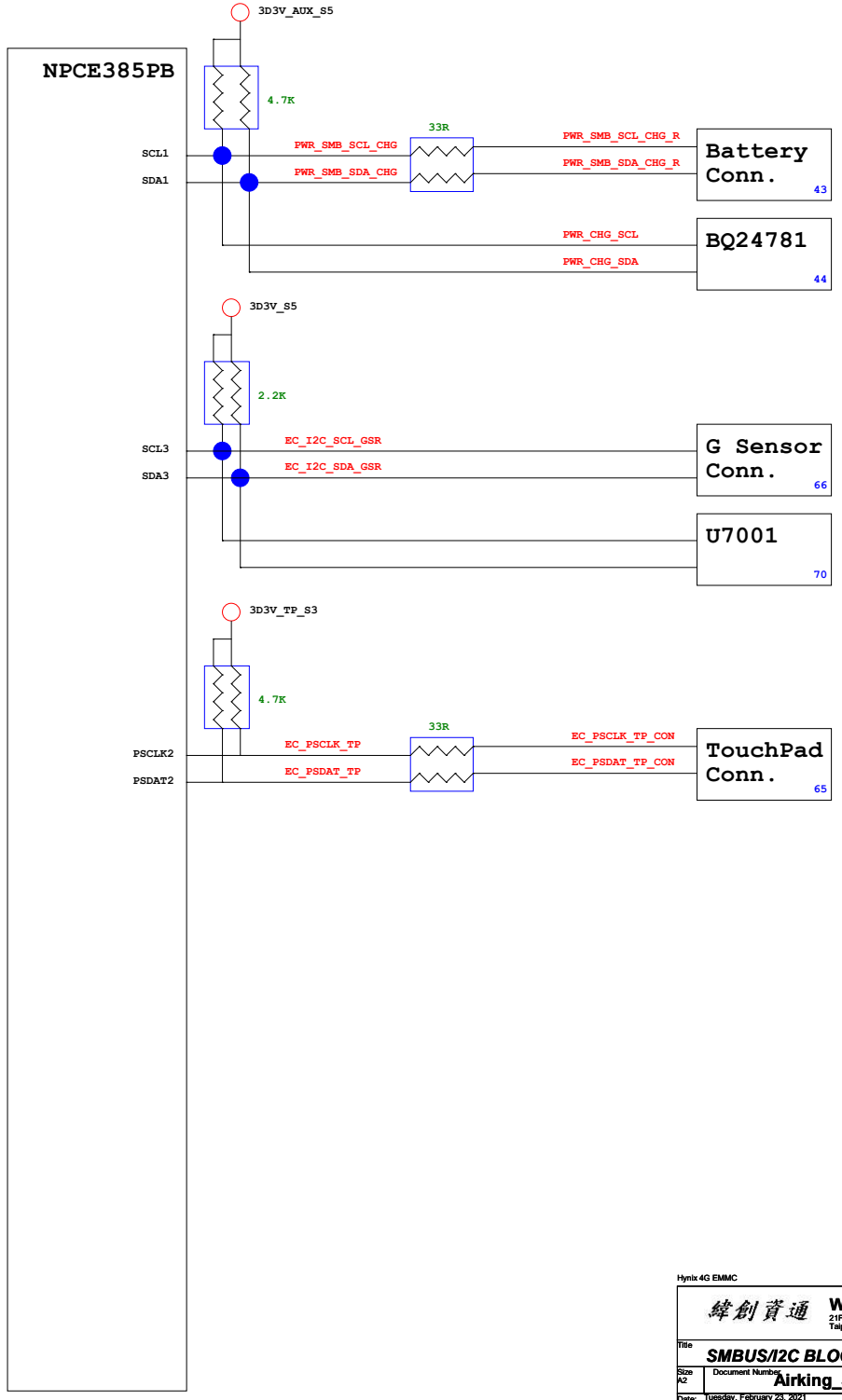
SOC SMBus/I2C Block Diagram



EC SMBus/I2C Block Diagram



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Title: SMBUS/I2C BLOCK DIAGRAM		
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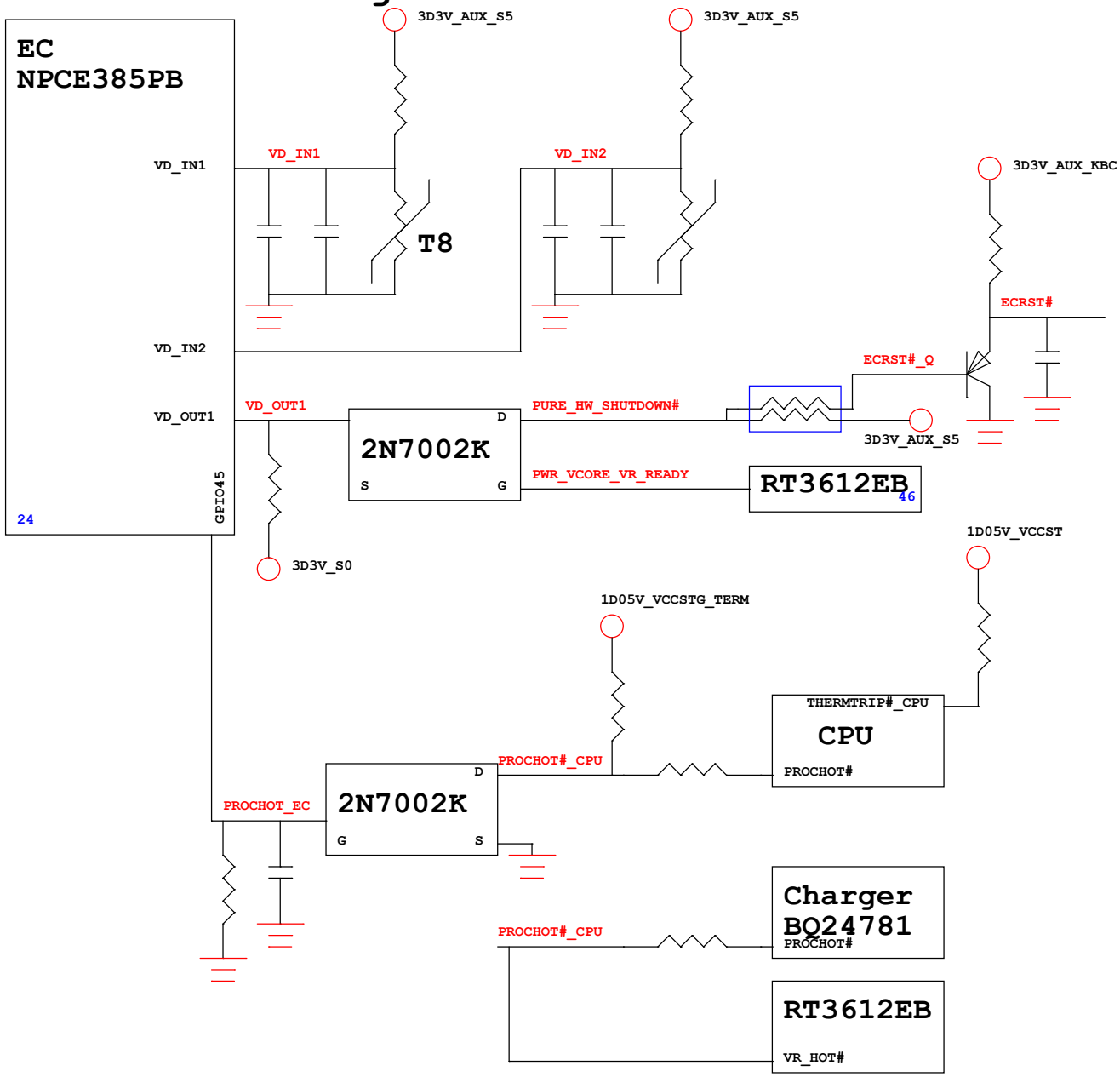
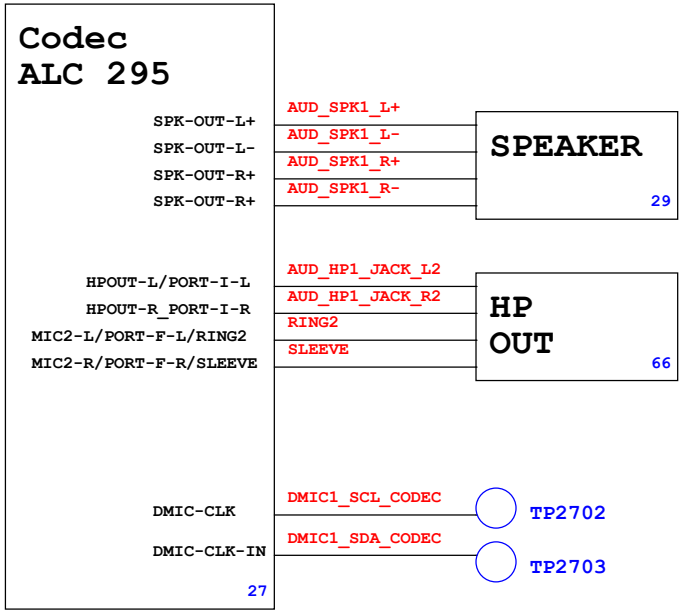
Thermal Block Diagram



Audio Block Diagram



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Title: THERMAL/AUDIO BLOCK DIAGRAM		
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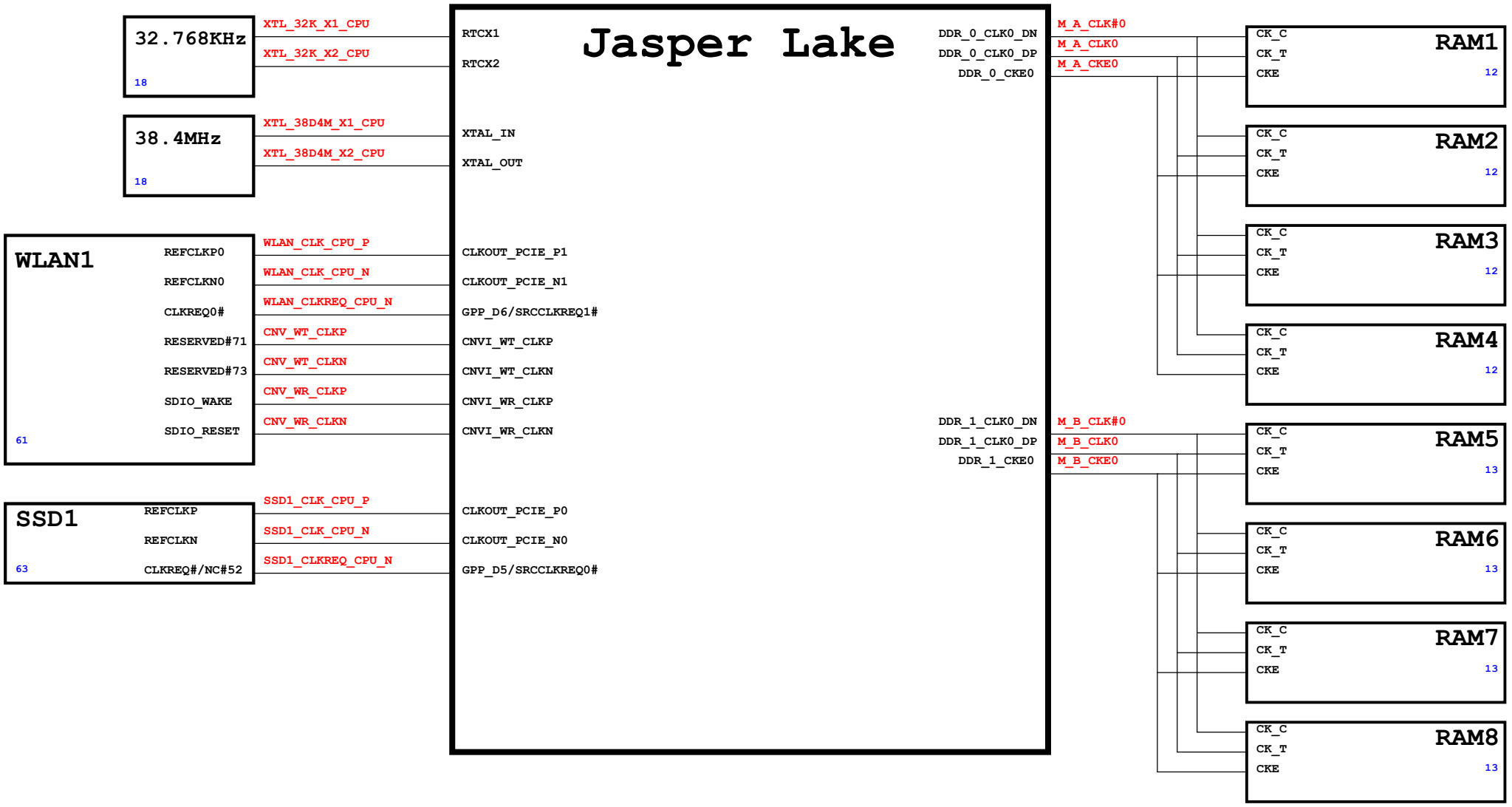

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Title: CLK Block

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