Bitland Confidential

M/B Schematics Document

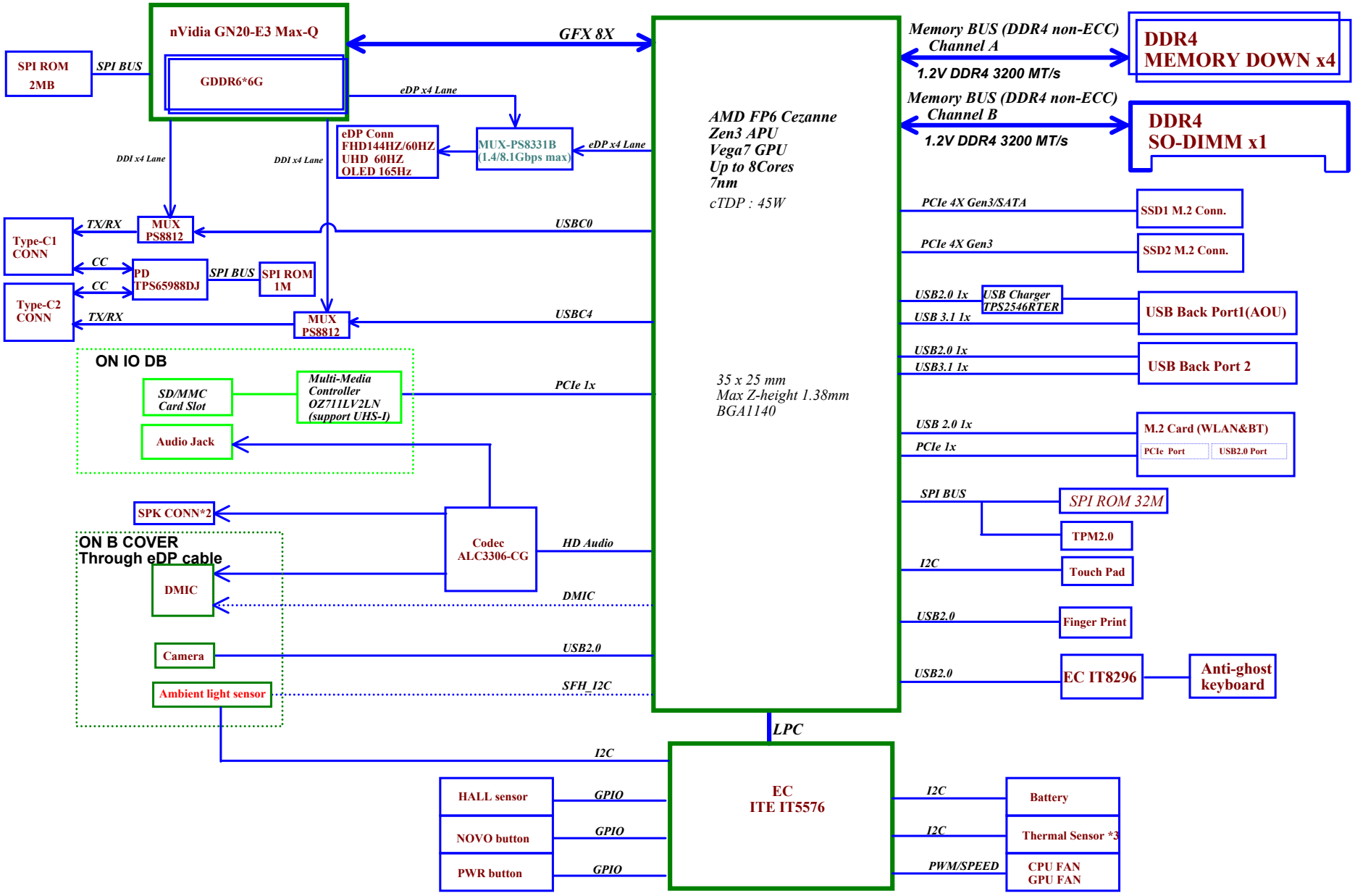
AMD FP6 Cezanne H Platform with DDR4+NV GN20-E3 GPU

Content

BITLAND 智达

Page Name	01 Title and Content	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Wednesday, January 13, 2021	Sheet of 73	

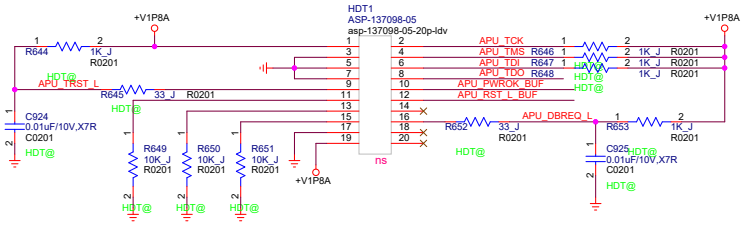
Thinkbook 16Pro System Block Diagram

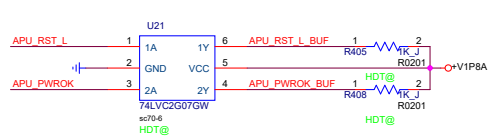


Page Name	02 System Block Diagram	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Wednesday, January 13, 2021	Sheet 2 of 73	

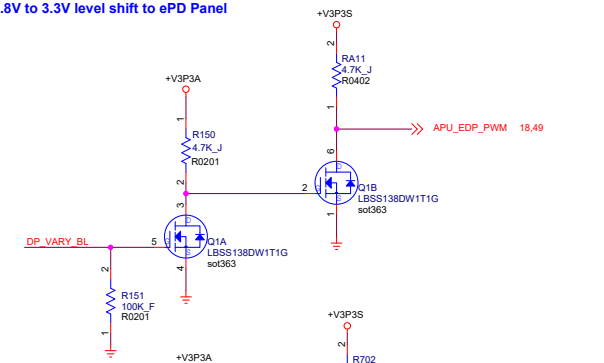
BITLAND 智芯微				
Page Name	03 Remark			
Size C	Project Name	Thinkbook16Pro		Rev V1.0
Date:	Wednesday, January 13, 2021	Sheet	3 of	73

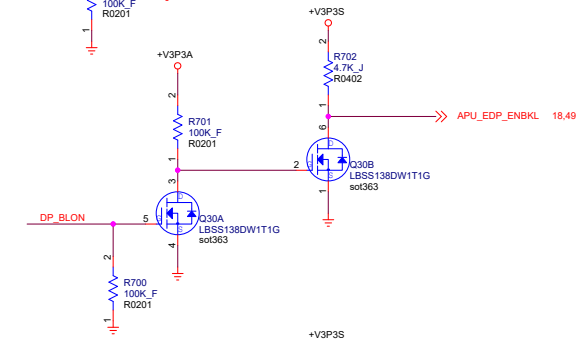
HDT Header only for AMD Debug

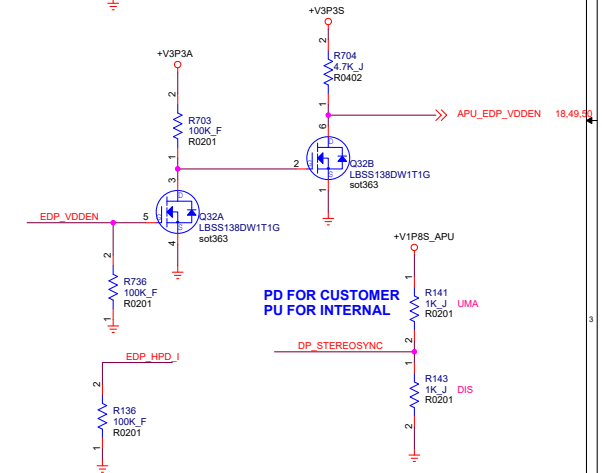


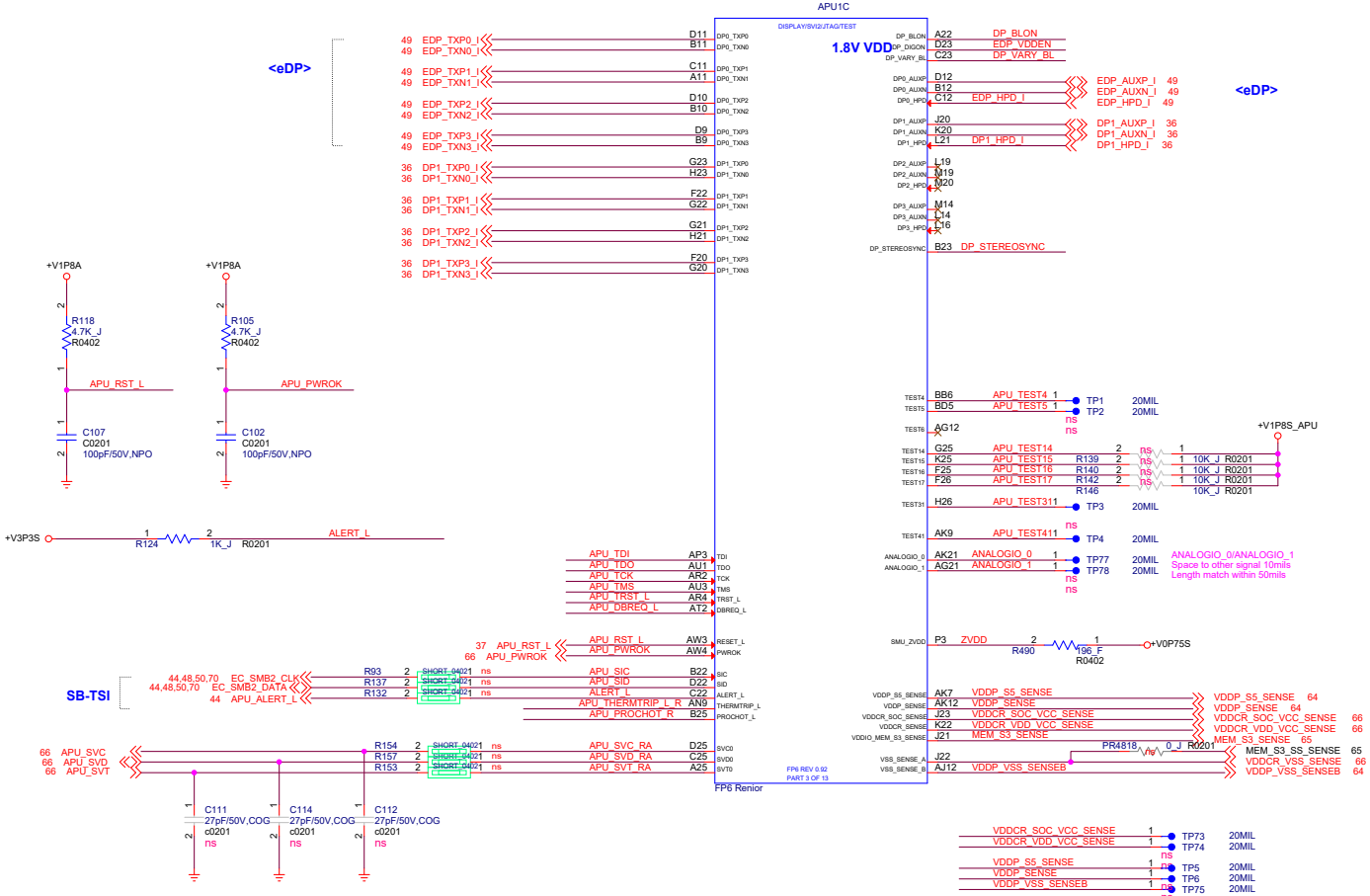


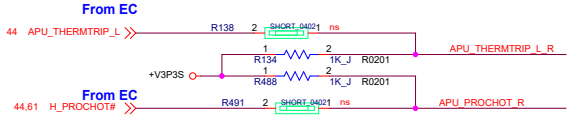
1.8V to 3.3V level shift to ePD Panel









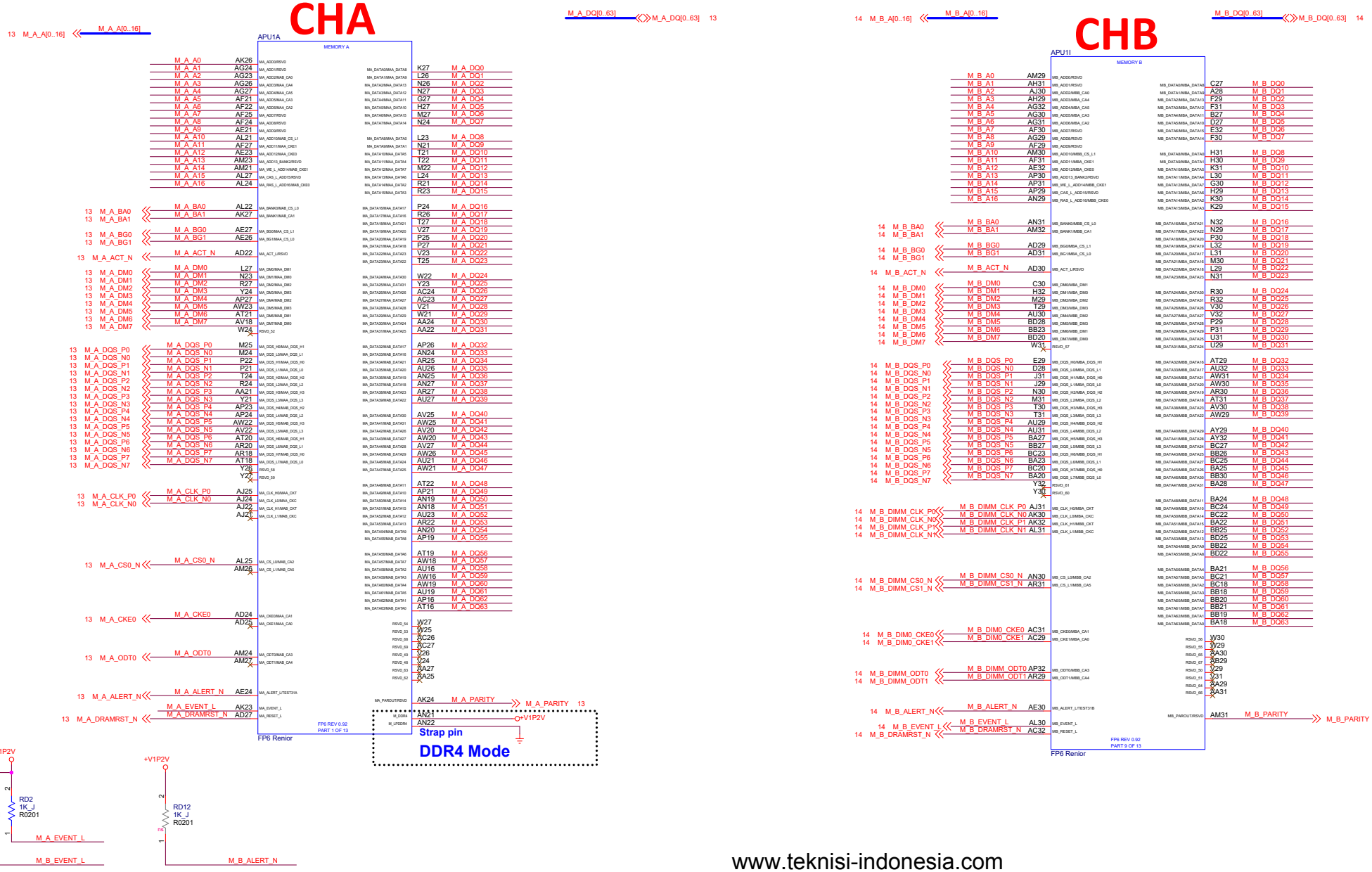


BITLAND 宝龙达

Page Name	FP6 Renior Display/SVI/HDT
Size: Custom	Project Name: Thinkbook16Pro
Rev	V1.0
Date: Monday, February 22, 2021	Sheet 4 of 73

CHA

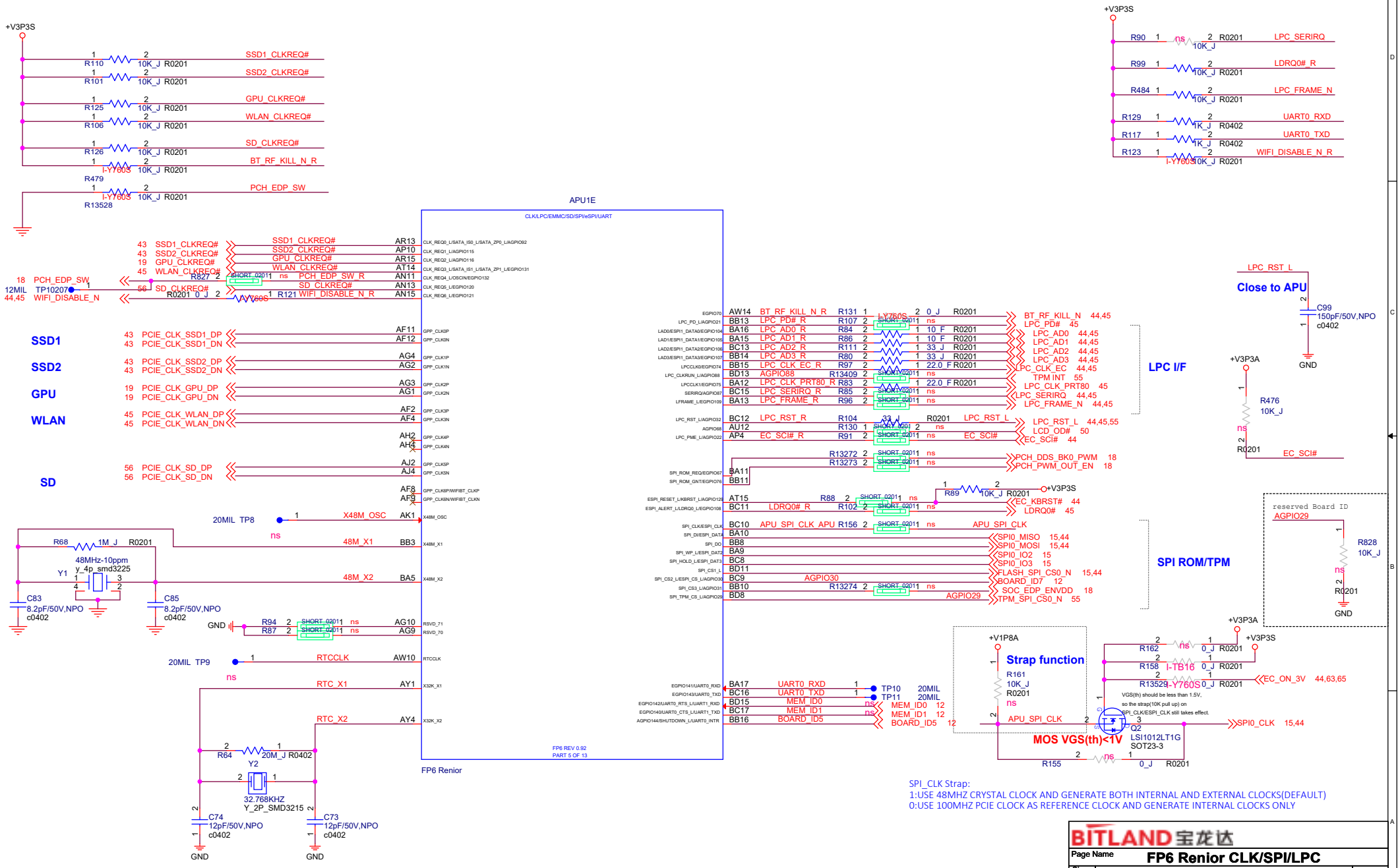
CHB



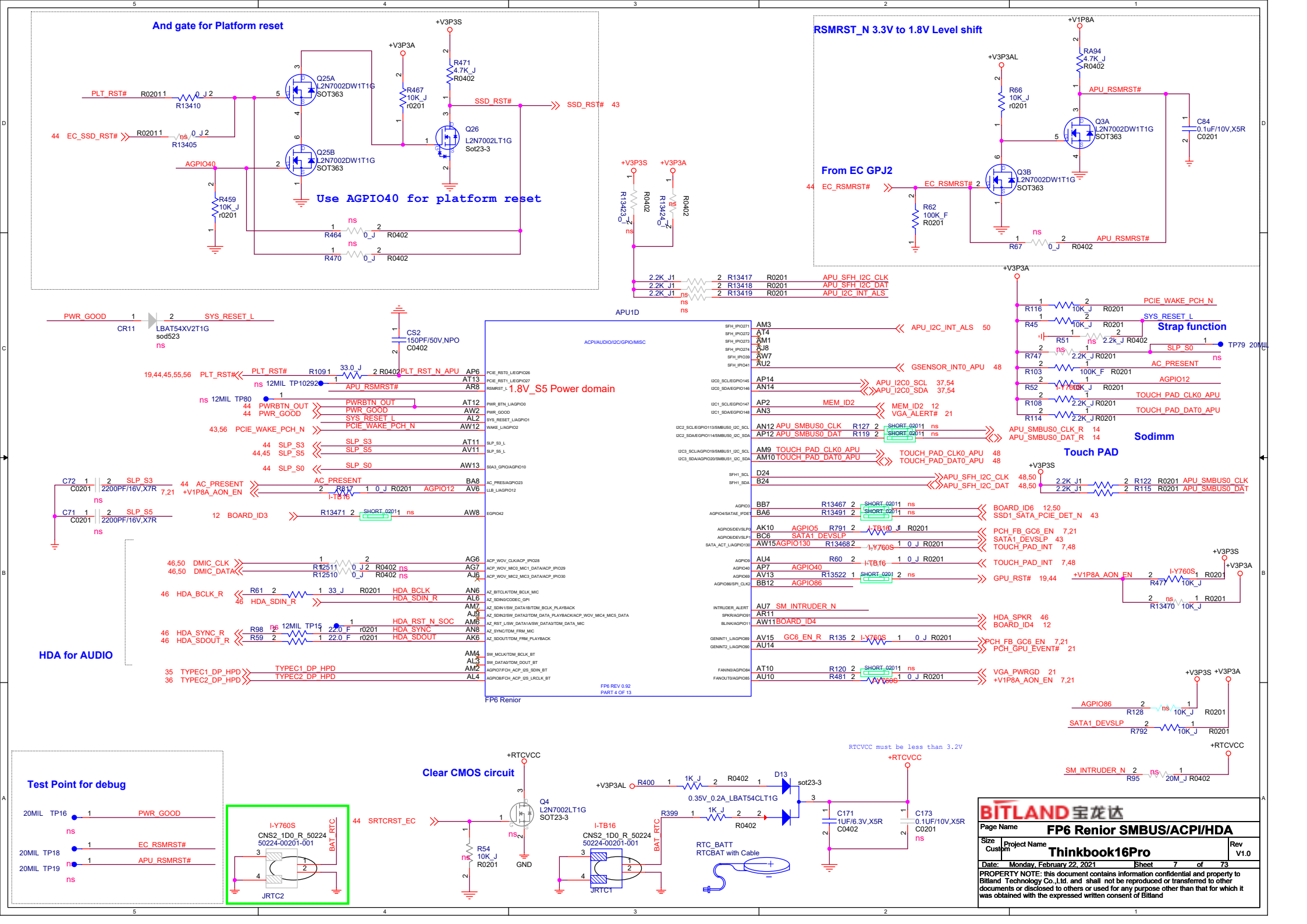
www.teknisi-indonesia.com

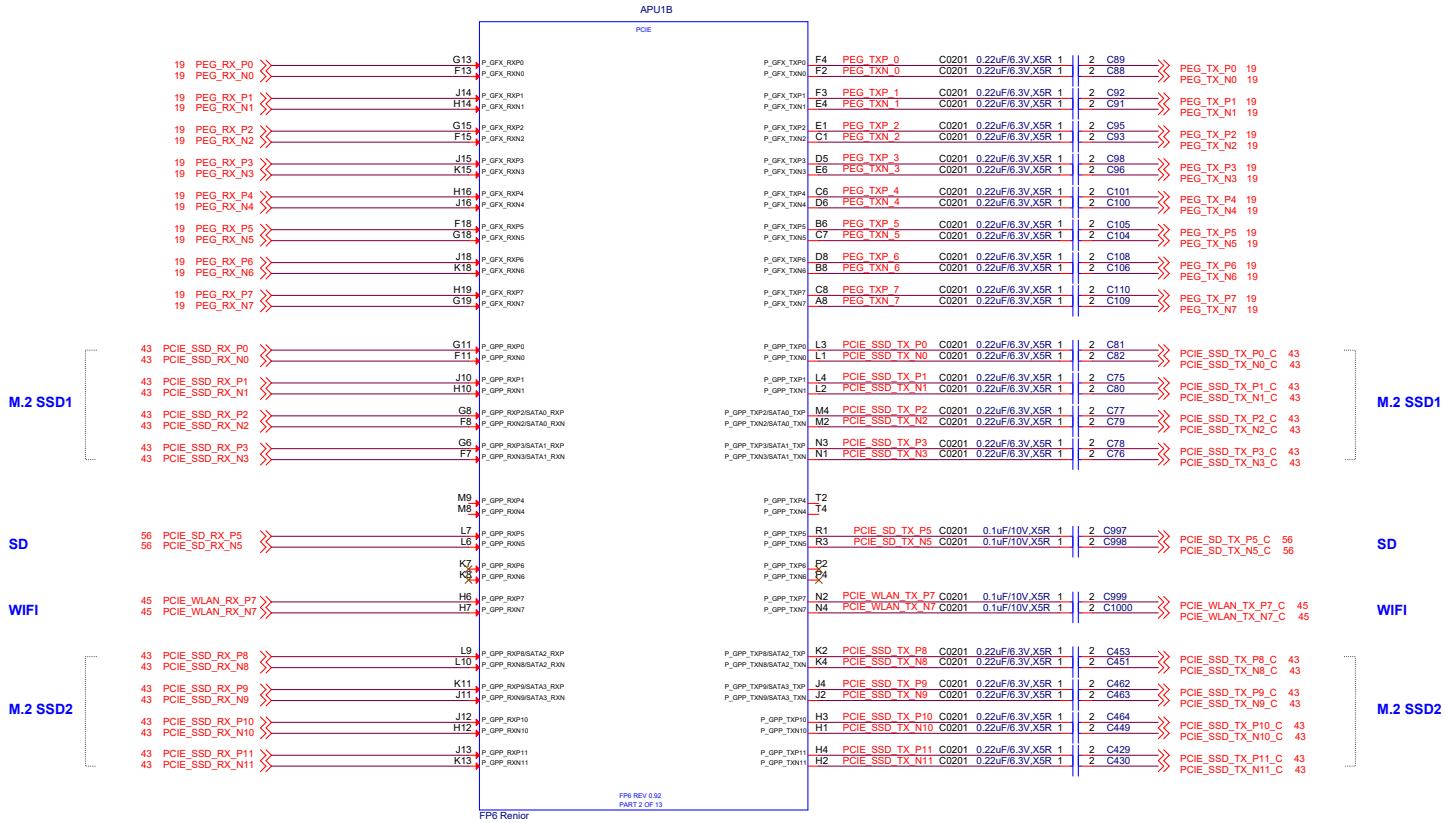
BITLAND 宝龙达

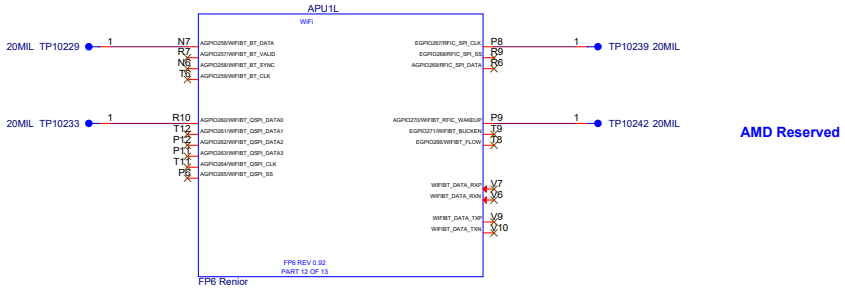
Page Name	FP6 Renior Memory
Size: Custom	Project Name: Thinkbook16Pro
Rev	V1.0
Date: Monday, February 22, 2021	Sheet 5 of 73



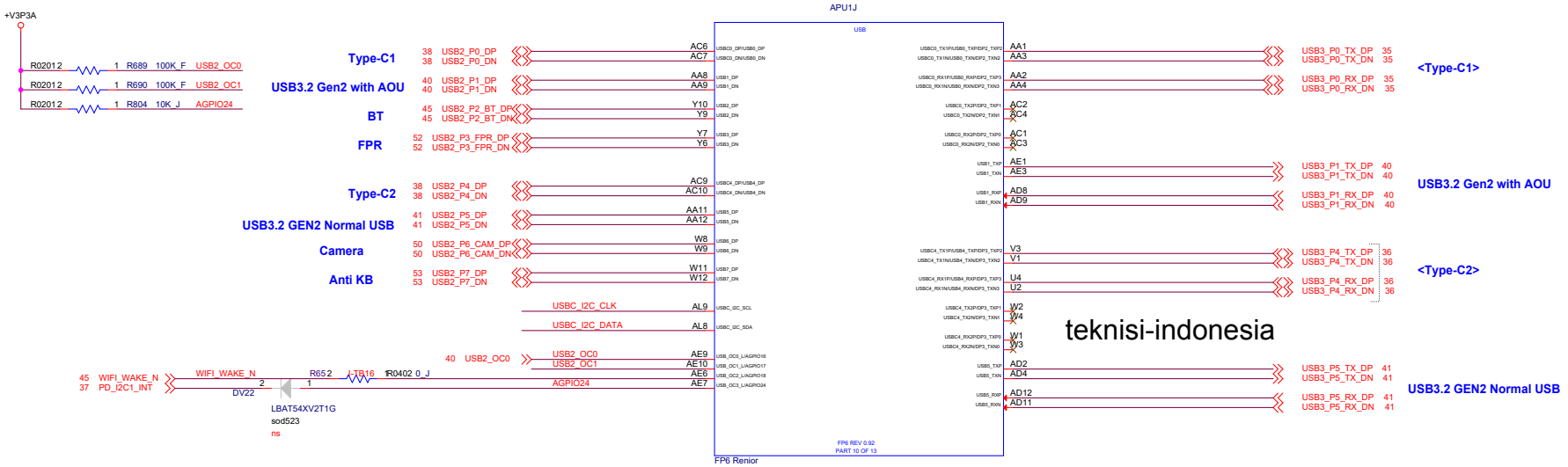
Page Name	FP6 Renior CLK/SPI/LPC
Size	Custom
Project Name	Thinkbook16Pro
Rev	V1.0
Date:	Thursday, February 25, 2021
Sheet	6 of 73


And gate for Platform reset
Use AGPIO40 for platform reset
RSMRST_N 3.3V to 1.8V Level shift
From EC GPJ2
1.8V_S5 Power domain
APU1D
FP6 Renior
Strap function
Sodimm
Touch PAD
HDA for AUDIO
Test Point for debug
Clear CMOS circuit
RTCVCC must be less than 3.2V
BITLAND 宝龙达
Page Name FP6 Renior SMBUS/ACPI/HDA
Project Name Thinkbook16Pro
Size Custom
Rev V1.0
Date: Monday, February 22, 2021 Sheet 7 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

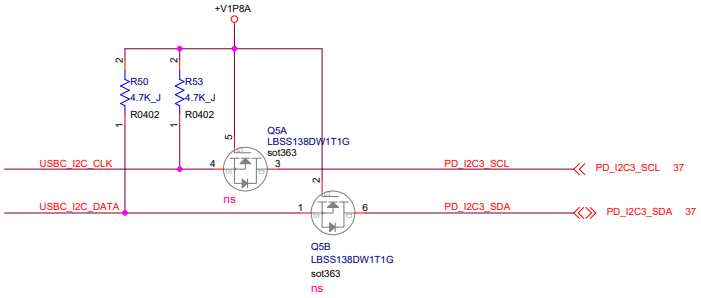


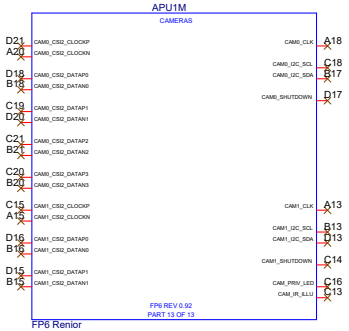


BITLAND 宝龙达	
Page Name	FP6 Renior PCIE/SATA
Size: Custom	Project Name: Thinkbook16Pro
Rev	V1.0
Date: Wednesday, January 13, 2021	Sheet 8 of 73

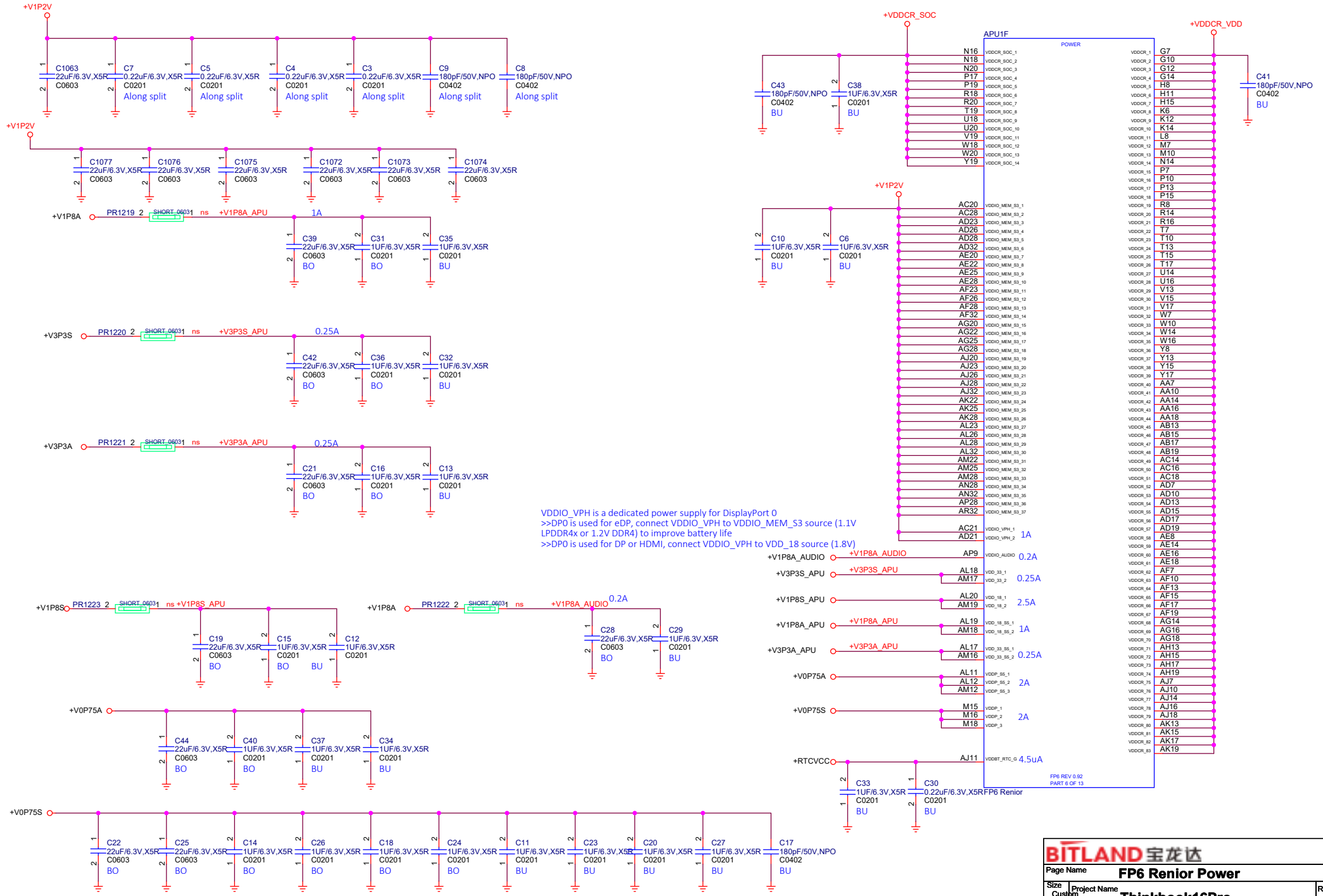


USB-C I2C to PD Level shift



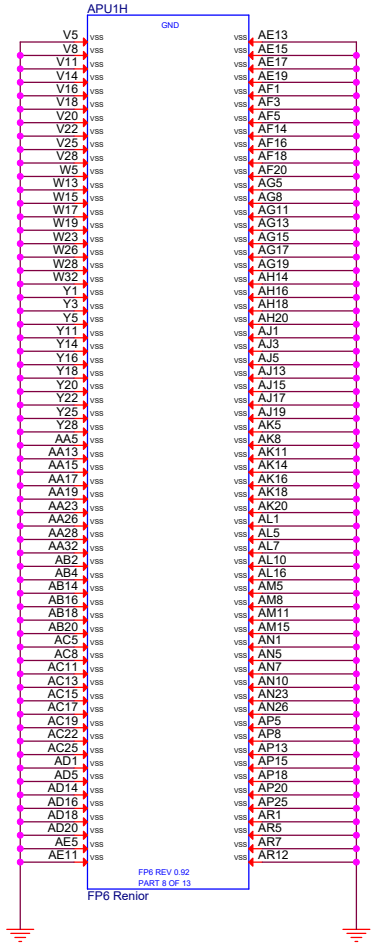


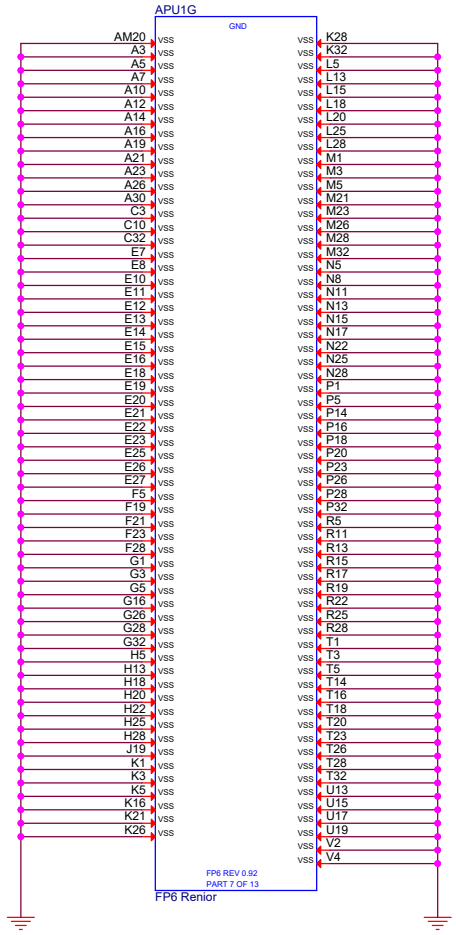
BITLAND 宝龙达			
Page Name	FP6 Renior USB/Camera		
Size Custom	Project Name Thinkbook16Pro		Rev V1.0
Date: Monday, February 22, 2021	Sheet 9 of 73		

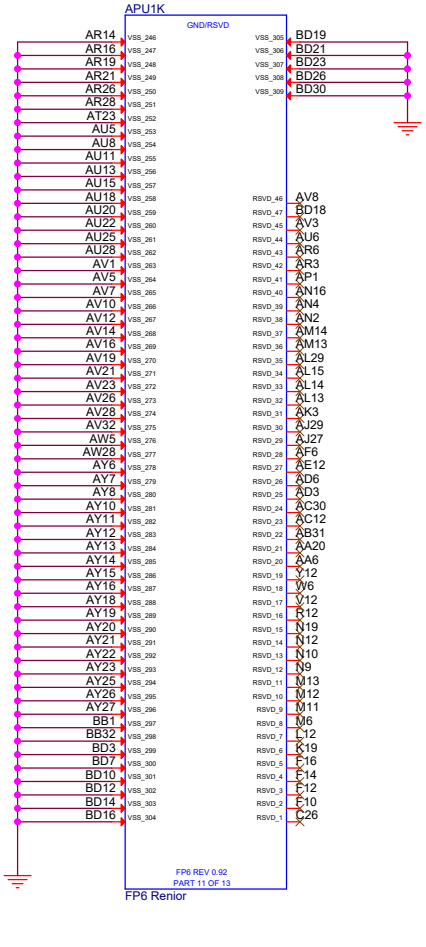


BITLAND 宝龙达

Page Name	FP6 Renior Power	
Size Custom	Project Name Thinkbook16Pro	Rev V1.0
Date: Monday, February 22, 2021	Sheet 10 of 73	







BITLAND 宝龙达

Page Name	FP6 Renior GND	
Size: Custom	Project Name: Thinkbook16Pro	Rev: V1.0
Date: Monday, February 22, 2021	Sheet 11 of 73	

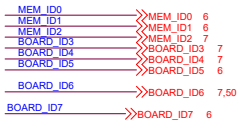
PH/PL	EGPIO142 MEM_ID0	EGPIO140 MEM_ID1	EGPIO147 MEM_ID2
PH	R56	R58	R55
PL	R47	R49	R46

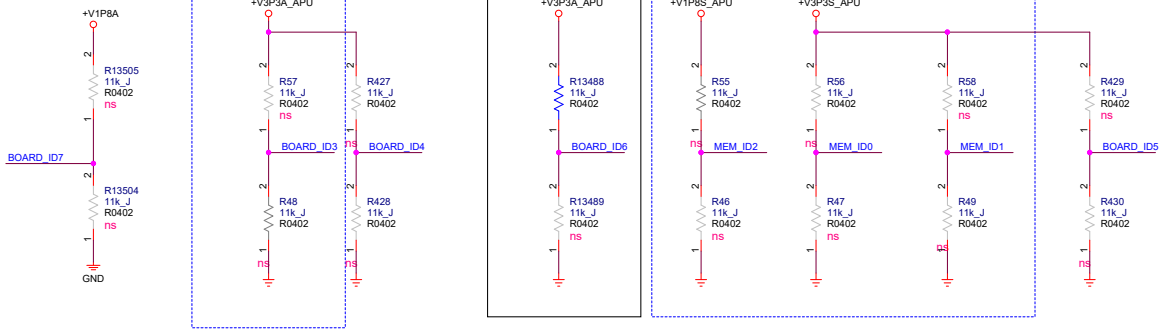
Memory Config	EGPIO142 MEM_ID0	EGPIO140 MEM_ID1	EGPIO147 MEM_ID2	EGPIO42 BOARD_ID3	
Sansung 8Gb	0	0	0	0	0
Sansung 16Gb	1	0	0	0	1
Sansung 32Gb	0	1	0	0	2
Micron 8Gb	0	0	1	0	4
Micron 16Gb	0	0	0	1	8
Micron 32Gb	1	1	0	0	3
SK Hynix 8Gb	1	1	1	0	7
SK Hynix 16Gb	0	1	1	0	6
SK Hynix 32Gb	1	0	1	0	5
Micron 16Gb-B	1	0	0	1	9
Hynix 16Gb-JR	0	1	0	1	10

PH/PL	GPU CFG	AGPIO30 BOARD_ID7
PH	DIS	R13505
PL	UMA	R13504

PH/PL	AGPIO11 BOARD_ID4	AGPIO144 BOARD_ID5
PH	R427	R429
PL	R428	R430

GPU Config	AGPIO11 BOARD_ID4
GN20_P1	0
GN20_E3	1





BITLAND 宝龙达

Page Name	Memory ID	
Size Custom	Project Name Thinkbook16Pro	Rev V1.0
Date: Tuesday, February 23, 2021	Sheet 12 of 73	

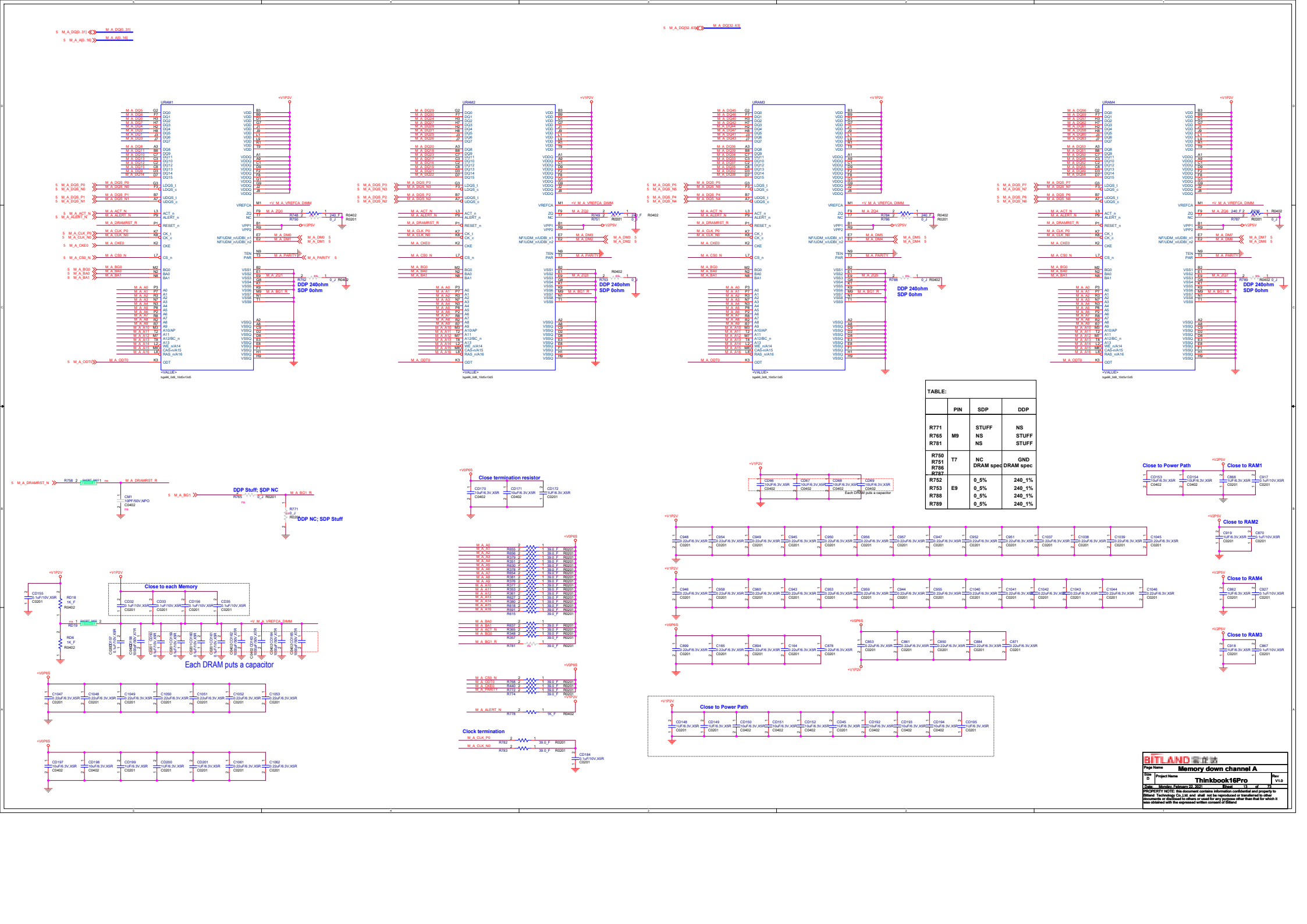
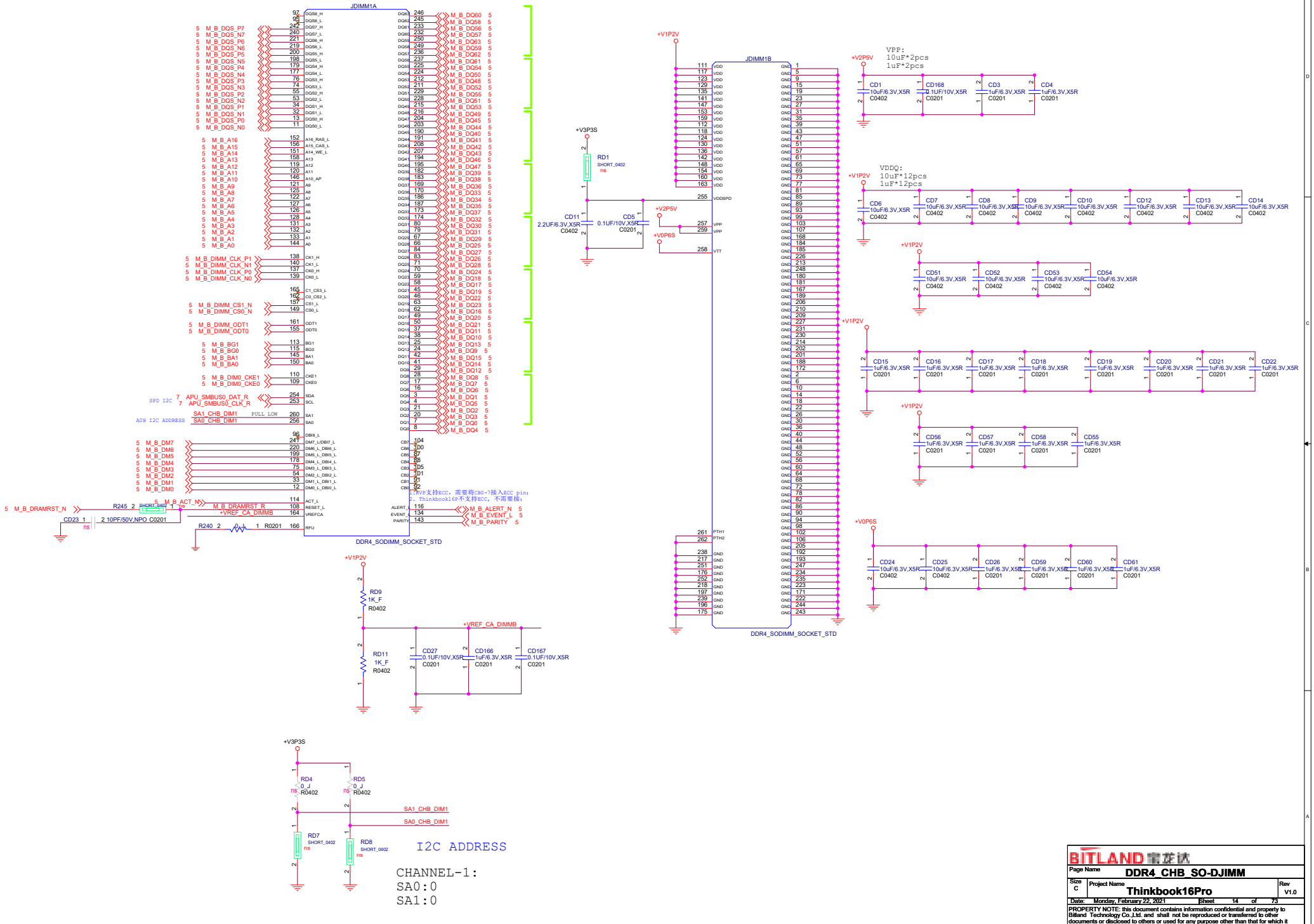
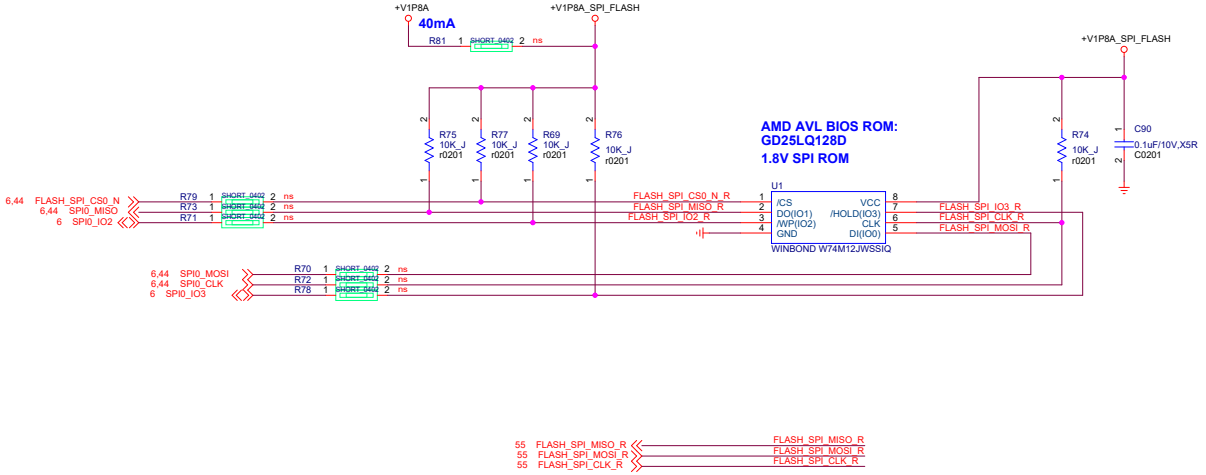


TABLE:

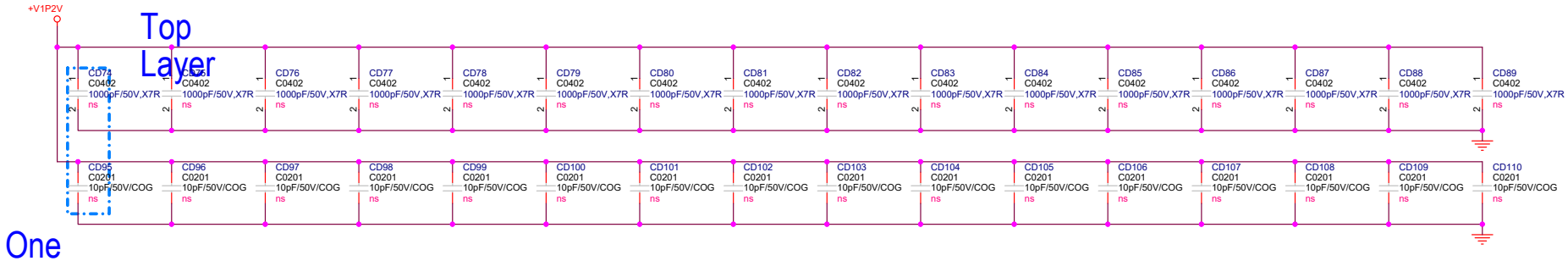
	PIN	SDP	DDP
R771 R765 R781	M9	STUFF NS NS	NS STUFF STUFF
R750 R751 R786 R787	T7	NC DRAM spec	GND DRAM spec
R752	E9	0_5%	240_1%
R753		0_5%	240_1%
R788		0_5%	240_1%
R789		0_5%	240_1%

Page Name	Memory down channel A
Size: D	Project Name: Thinkbook16Pro
Rev: V1.0	
Date: Monday, February 22, 2021	Sheet 13 of 73

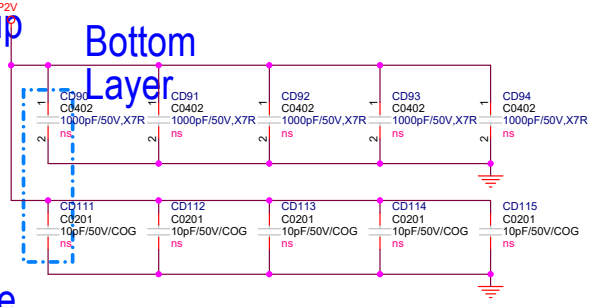

JDIMM1A
JDIMM1B
DDR4_SODIMM_SOCKET_STD
+V1P2V
+V3P3S
+V2P5V
+V0P6S
VPP:
10uF*2pcs
1uF*2pcs
VDDQ:
10uF*12pcs
1uF*12pcs
+VREF_CA_DIMMB
SPD I2C
APU_SMBUS0_DAT_R
APU_SMBUS0_CLK_R
A0H I2C ADDRESS
SA1_CHB_DIM1
SA0_CHB_DIM1
PULL LOW
M_B_DRAMRST_N
M_B_ACT_N
+VREF_CA_DIMMB
M_B_ALERT_N
M_B_EVENT_L
M_B_PARITY
I2C ADDRESS
CHANNEL-1:
SA0:0
SA1:0
BITLAND
Page Name
DDR4_CHB_SO-DJIMM
Size
C
Project Name
Thinkbook16Pro
Rev
V1.0
Date: Monday, February 22, 2021
Sheet 14 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland



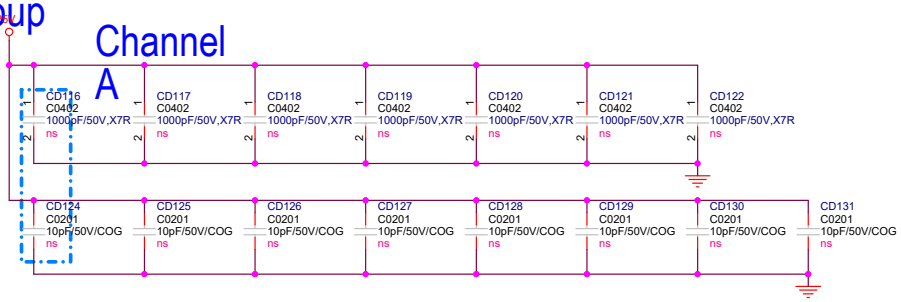
BITLAND 市芯微		
Page Name	NA	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Tuesday, February 23, 2021	Sheet 15 of 73	



One Group



One Group



Each group contains 1000pF and 10pF.
Please place them according to the group.

BITLAND 宝龙达

Page Name	16 Memory_RF_CAP	
Size Custom	Project Name Thinkbook16Pro	Rev V1.0
Date: Monday, February 22, 2021	Sheet 16 of 73	

BITLAND 比特兰

Page Name: NA		
Size: C	Project Name: Thinkbook16Pro	Rev: V1.0
Date: Wednesday, January 13, 2021	Sheet 17 of 73	

DDS only support Hybrid mode
Discrete mode no support;

EDP_SW

DDS1

PWM

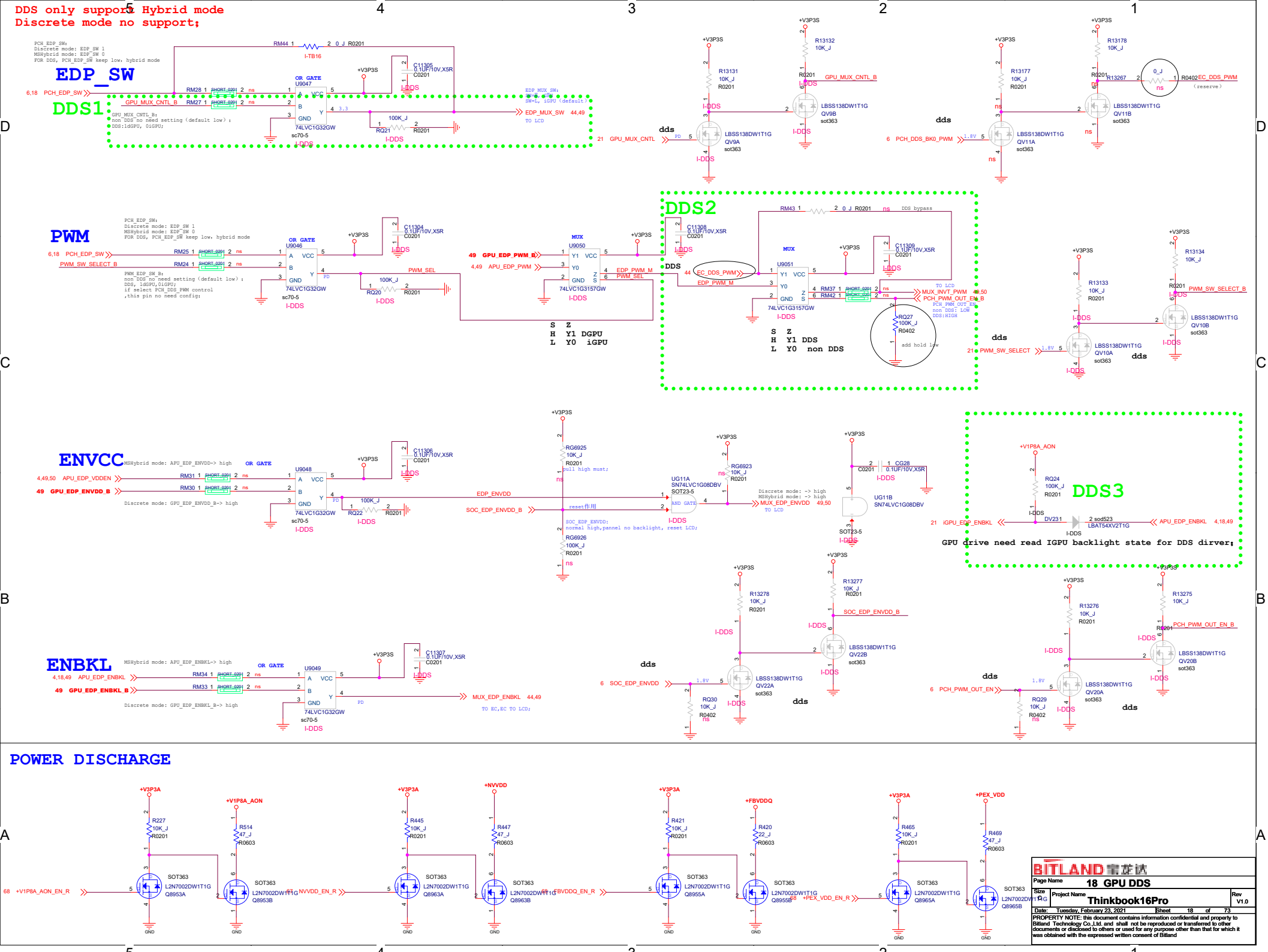
DDS2

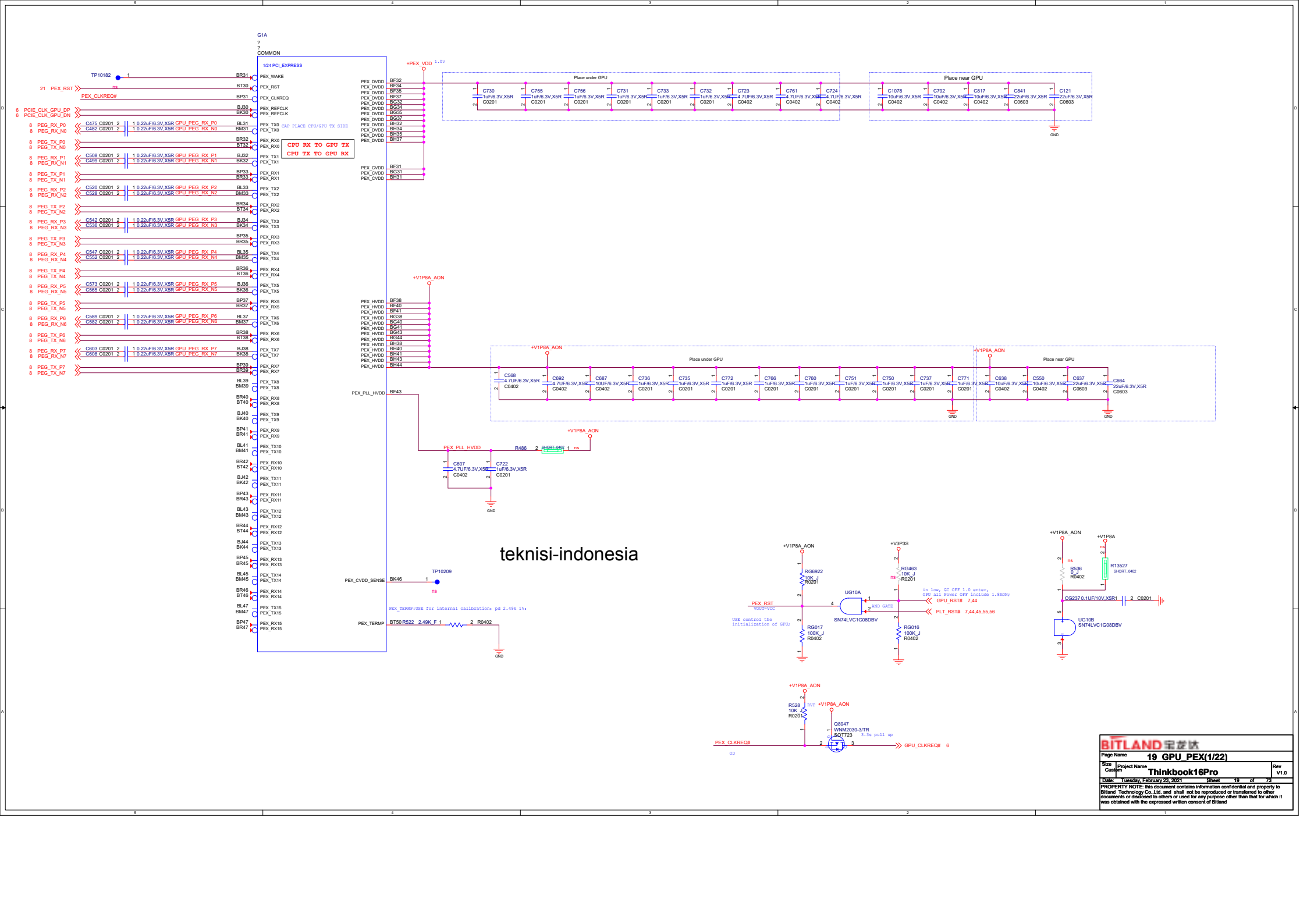
ENVCC

DDS3

ENBKL

POWER DISCHARGE




G1A
COMMON
1/24 PCI_EXPRESS
PEX_WAKE
PEX_RST
PEX_CLKREQ#
PEX_REFCLK
PEX_REFCLK
PEX_TX0
PEX_TX0
PEX_RX0
PEX_RX0
PEX_TX1
PEX_TX1
PEX_RX1
PEX_RX1
PEX_TX2
PEX_TX2
PEX_RX2
PEX_RX2
PEX_TX3
PEX_TX3
PEX_RX3
PEX_RX3
PEX_TX4
PEX_TX4
PEX_RX4
PEX_RX4
PEX_TX5
PEX_TX5
PEX_RX5
PEX_RX5
PEX_TX6
PEX_TX6
PEX_RX6
PEX_RX6
PEX_TX7
PEX_TX7
PEX_RX7
PEX_RX7
PEX_TX8
PEX_TX8
PEX_RX8
PEX_RX8
PEX_TX9
PEX_TX9
PEX_RX9
PEX_RX9
PEX_TX10
PEX_TX10
PEX_RX10
PEX_RX10
PEX_TX11
PEX_TX11
PEX_RX11
PEX_RX11
PEX_TX12
PEX_TX12
PEX_RX12
PEX_RX12
PEX_TX13
PEX_TX13
PEX_RX13
PEX_RX13
PEX_TX14
PEX_TX14
PEX_RX14
PEX_RX14
PEX_TX15
PEX_TX15
PEX_RX15
PEX_RX15
CAP PLACE CPU/GPU TX SIDE
CPU RX TO GPU TX
CPU TX TO GPU RX
+PEX_VDD 1.0v
PEX_DVDD
PEX_CVDD
Place under GPU
Place near GPU
+V1P8A_AON
PEX_HVDD
PEX_PLL_HVDD
PEX_CVDD_SENSE
PEX_TERMP
PEX_TERMP:USE for internal calibration: pd 2.49k 1%
TP10182
TP10209
R486 SHORT_0402
R522 2.49K_F
R0402
teknisi-indonesia
+V3P3S
UG10A
SN74LVC1G08DBV
AND GATE
PEX_RST
GPU_RST# 7,44
PLT_RST# 7,44,45,55,56
USE control the initialization of GPU;
in low, GC OFF 1.0 enter, GPU all Power OFF include 1.8AON;
+V1P8A
R13527 SHORT_0402
R536
CG237 0.1UF/10V_X5R1
C0201
UG10B
SN74LVC1G08DBV
R528 10K_J R0201
Q8947 WNM2030-3/TR SOT723
PEX_CLKREQ#
GPU_CLKREQ# 6
3.3s pull up
OD
BITLAND 毕凌达
Page Name 19_GPU_PEX(1/22)
Size Custom
Project Name Thinkbook16Pro
Rev V1.0
Date: Tuesday, February 23, 2021
Sheet 19 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

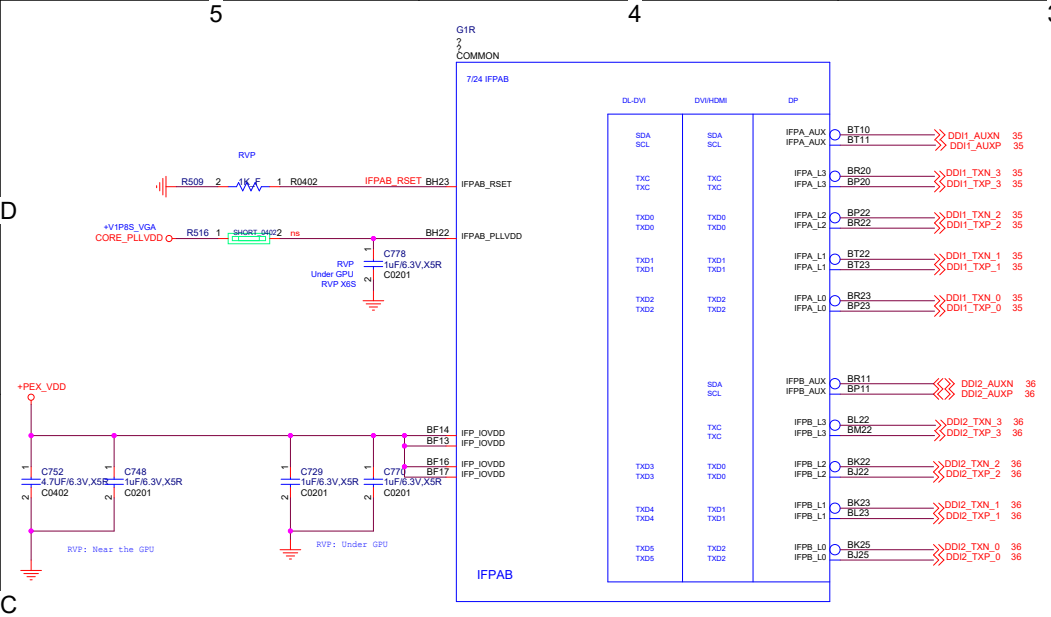
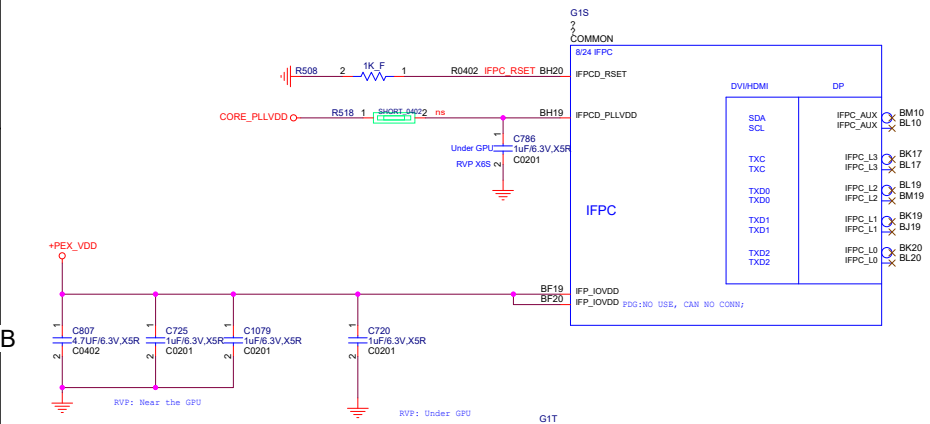
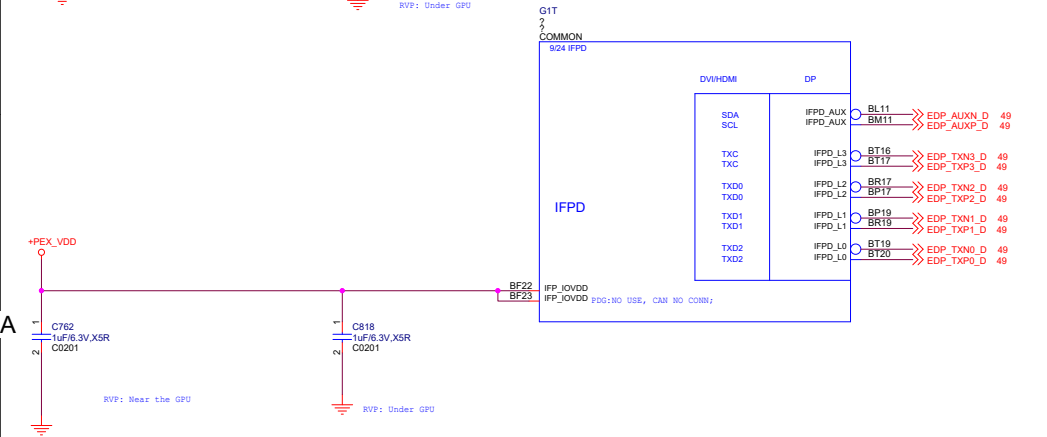


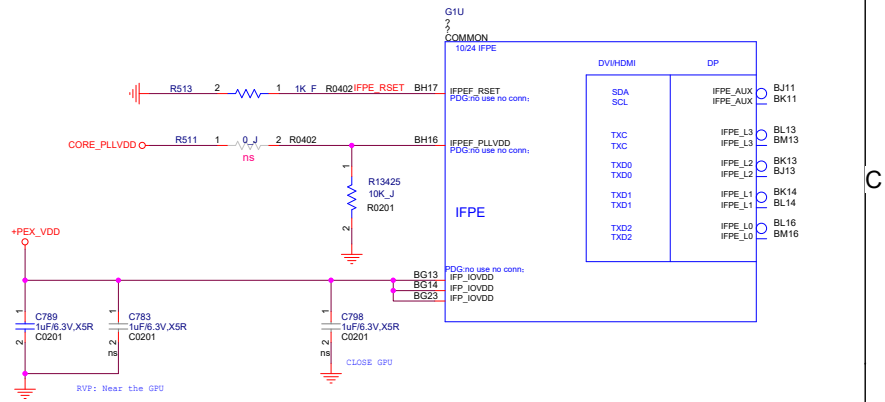
Table 9.4 GB4B-256 Standard Configurations

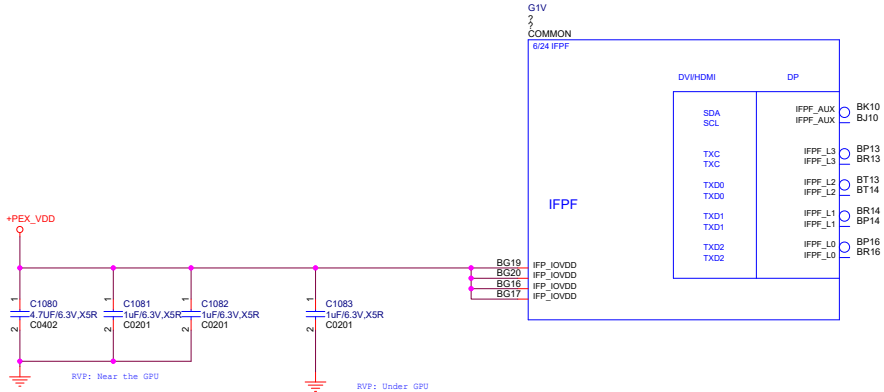
Link	Standard Display Configurations	
Link A	DisplayPort, DVI (Single Link)	DVI (Dual Link)
Link B	DisplayPort, DVI (Single Link)	
Link C	DisplayPort, HDMI, DVI (Single Link)	
Link D	eDP only (does not support drive of an external display)	
Link E	DisplayPort, HDMI, DVI (Single Link)	
Link F	USBC, Dongle support for DP	

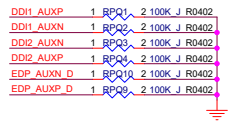
Note: Maximum of four independent simultaneously served display heads supported.
Note: eDP is supported on IFPD only











BITLAND 智芯微

Page Name	20_GPU_IFPABCDE(6~10/22)
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Tuesday, February 23, 2021
Sheet	20 of 73

Power on/off sequence

GPIO BY AON POWER(All Power Rail IS 1.8V)

EC

DDS

NVVDD

FHD 144HZ USE

AND GATE

GC6 2.1 function;
OR GATE

JTAG_SEL	
PD	NO JTAG DONGLE
PU	JTAG DONGLE

BITLAND 比亚迪

Page Name	21_GPU_MISC(12/22)
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Tuesday, February 23, 2021
Sheet	21 of 73

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

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	00000	RAMCFG Samsung
L	H	L	00010	RAMCFG Hynix
L	H	H	00011	RAMCFG TBD
H	H	L	00110	RAMCFG TBD
L	L	H	00001	RAMCFG MICRON

DEFAULT

1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

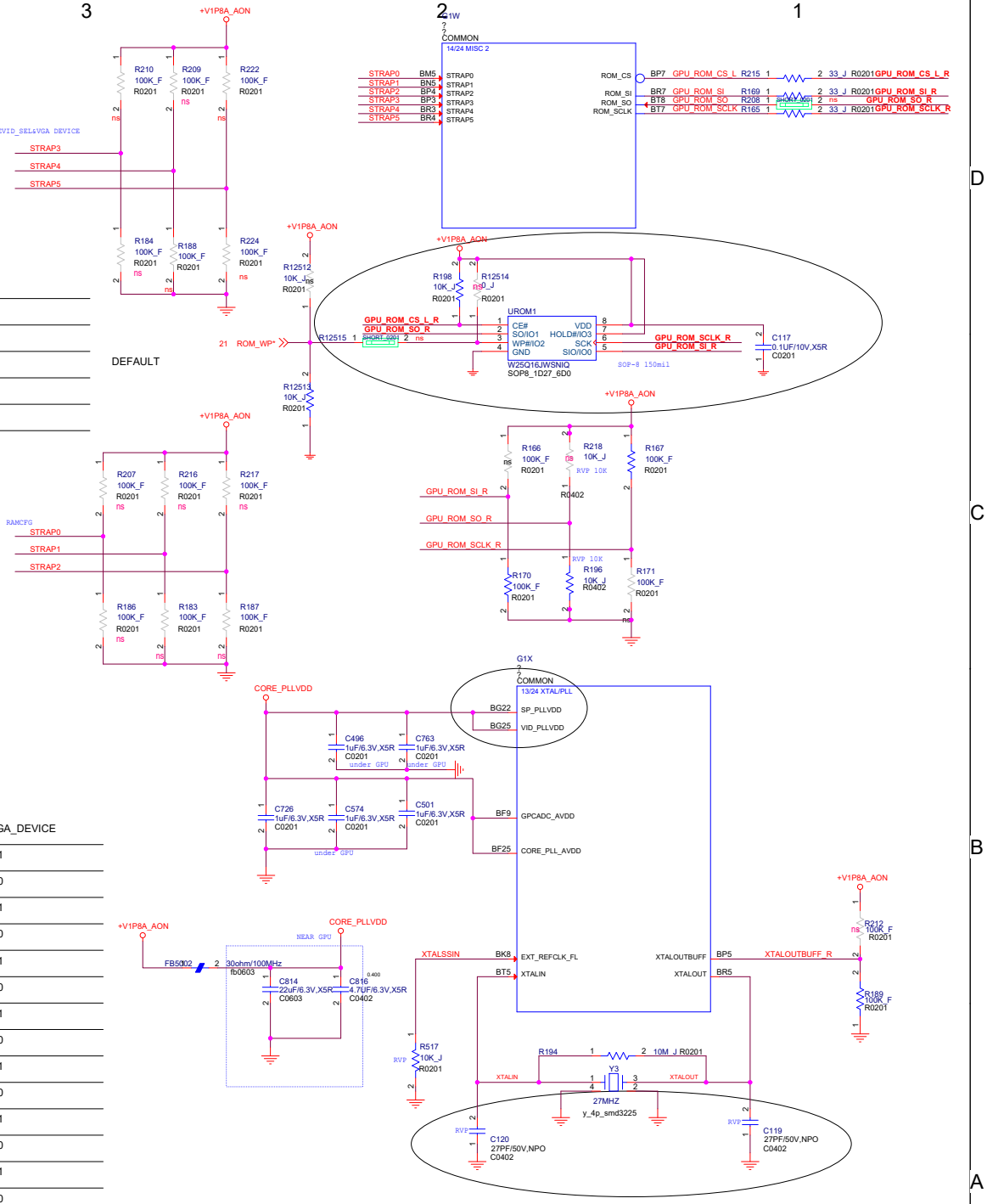
1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

Table 9.4 FS_OVERT* Strap Enablement

Strap Pins (see Note 1)			FS_OVERT* Function
ROM_SO (see Note 2)	ROM_SI	ROM_SCLK	
L	L	L	FS_OVERT* function DISABLED
L	L	H	FS_OVERT* function ENABLED (default)
all other configurations			(Invalid; do not configure)

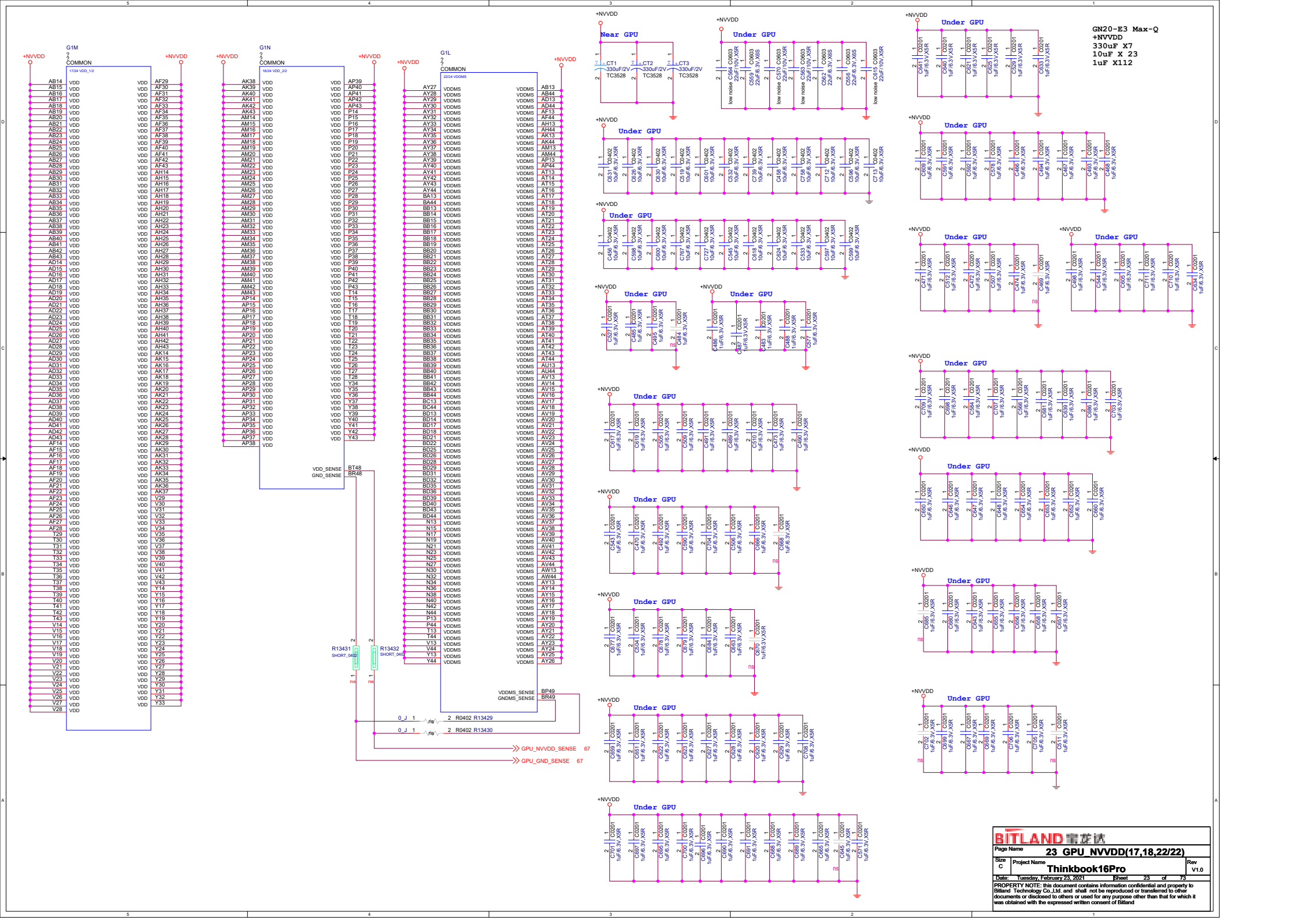
STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1
L	L	L	0	0	0	0

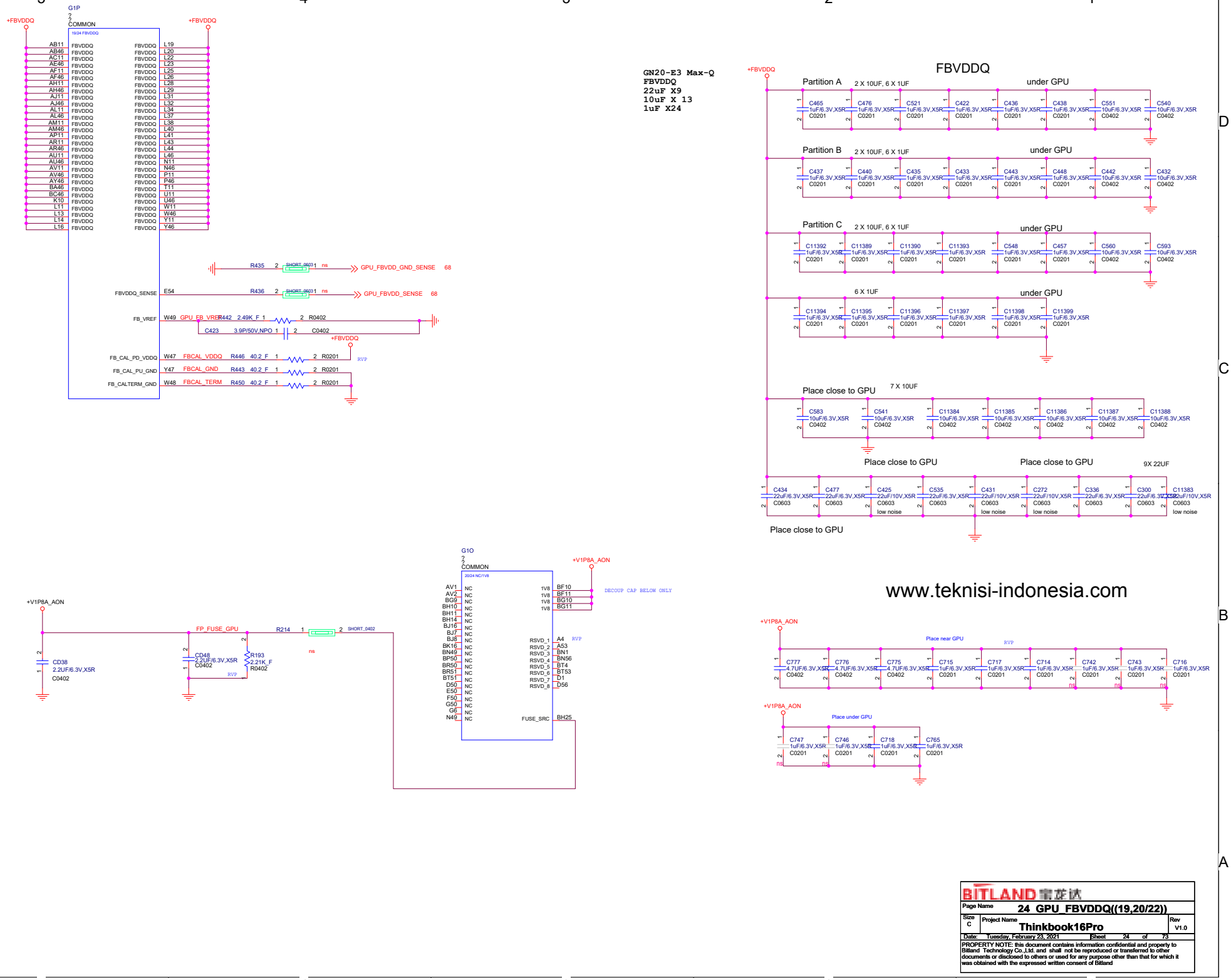
Default



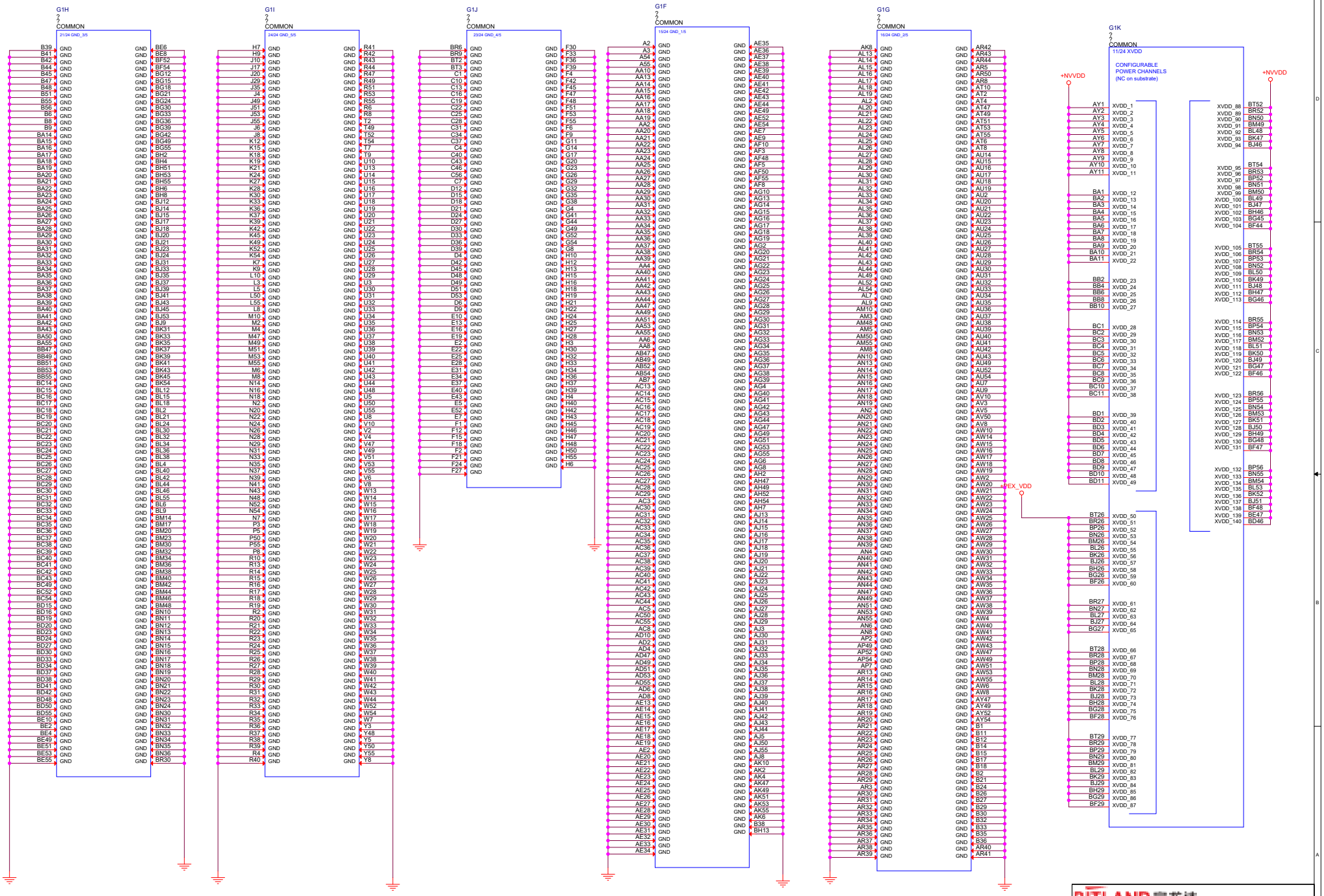
BITLAND 比亚迪

Page Name	22_GPU_Strap/ROM/XTA(13/14/22)	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Thursday, February 25, 2021	Sheet 22 of 73	


GN20-E3 Max-Q
+NVVDD
330uF X7
10uF X 23
1uF X112
Near GPU
Under GPU
G1M
G1N
G1L
COMMON
VDD_SENSE
GND_SENSE
VDDMS_SENSE
GNDMS_SENSE
GPU_NVVDD_SENSE 67
GPU_GND_SENSE 67
BITLAND
Page Name 23_GPU_NVVDD(17,18,22/22)
Size C
Project Name Thinkbook16Pro
Rev V1.0
Date: Tuesday, February 23, 2021
Sheet 23 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

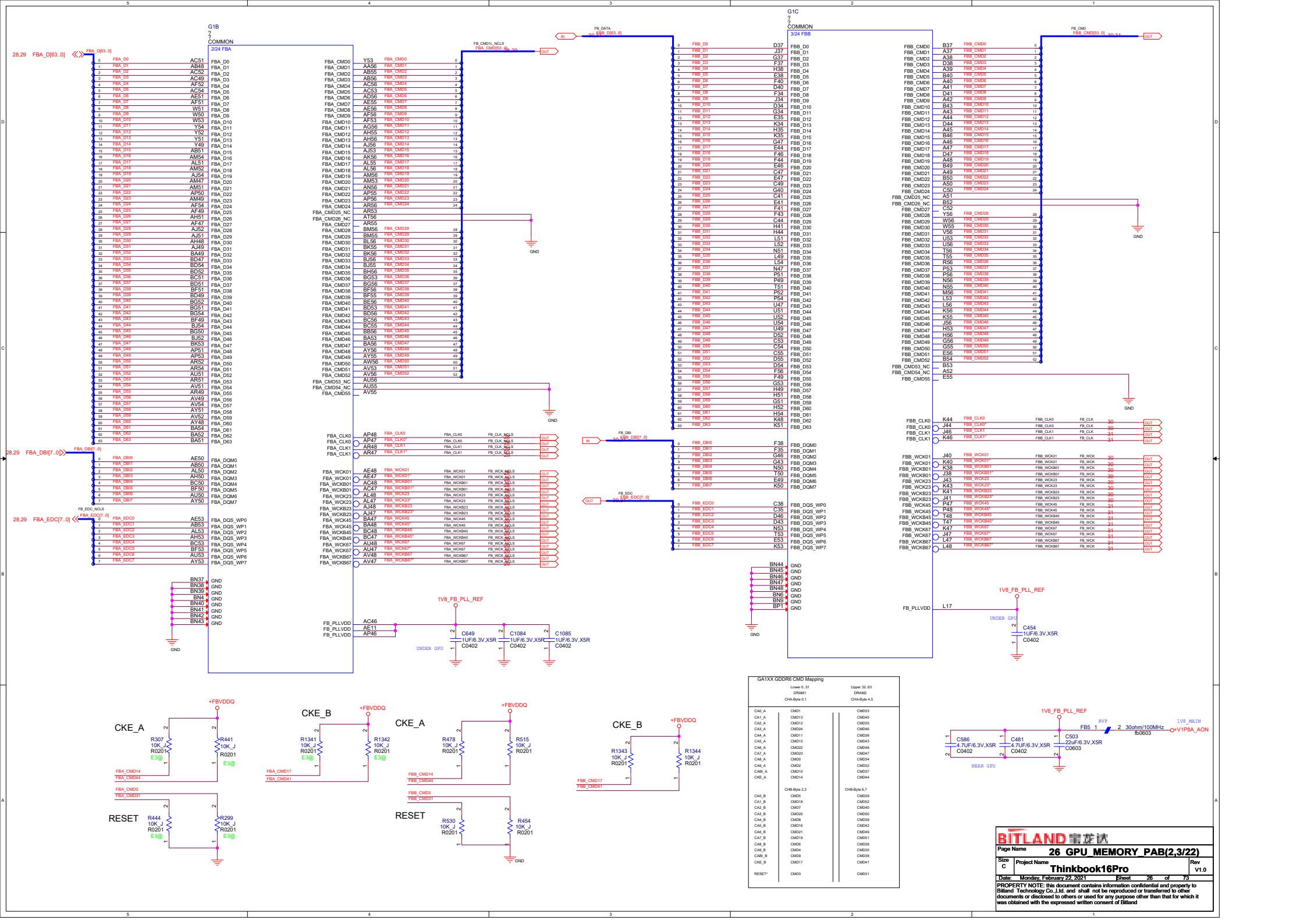


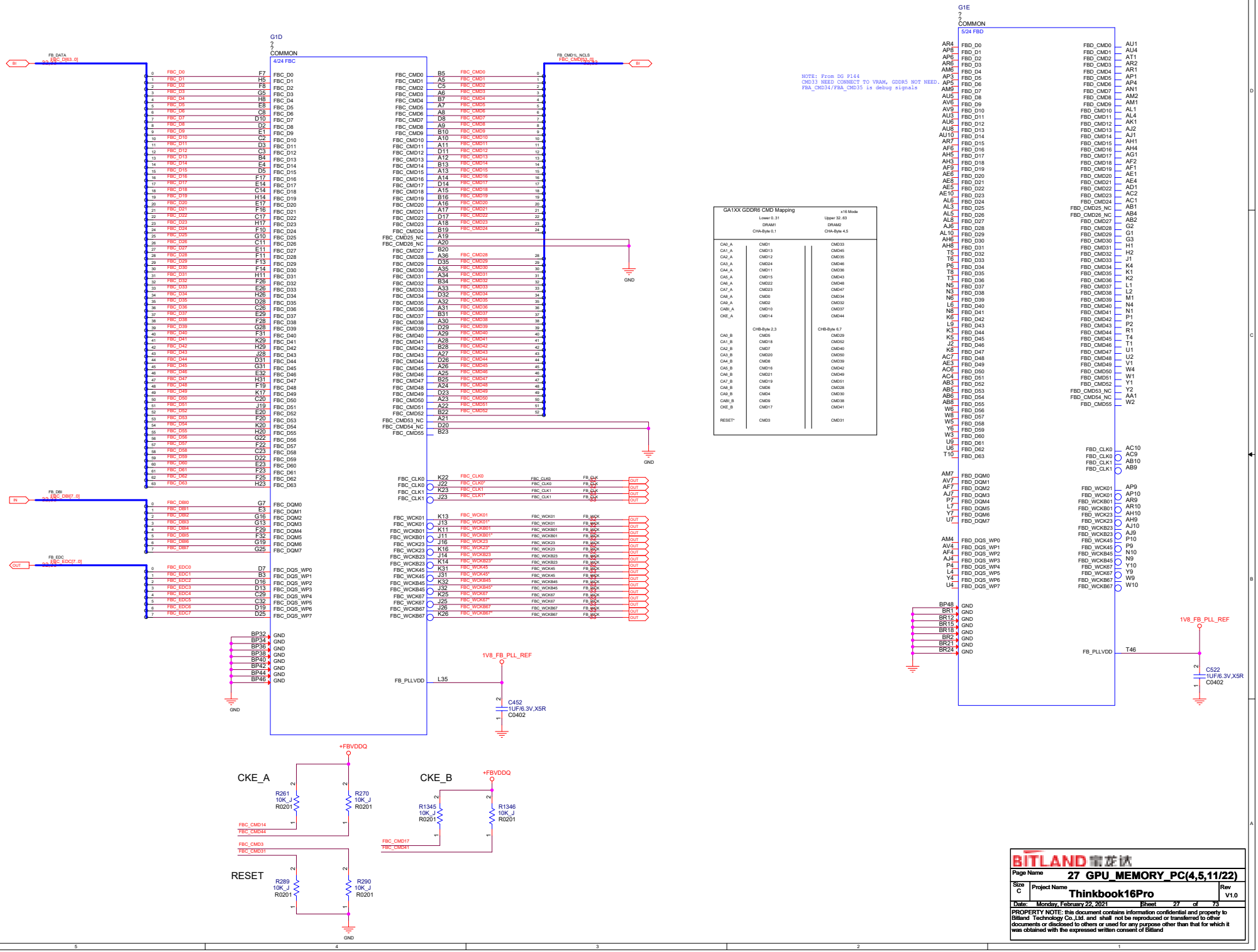
Page Name	24_GPU_FBVDDQ((19,20/22))
Size	C
Project Name	Thinkbook16Pro
Rev	V1.0
Date	Tuesday, February 23, 2021
Sheet	24 of 73



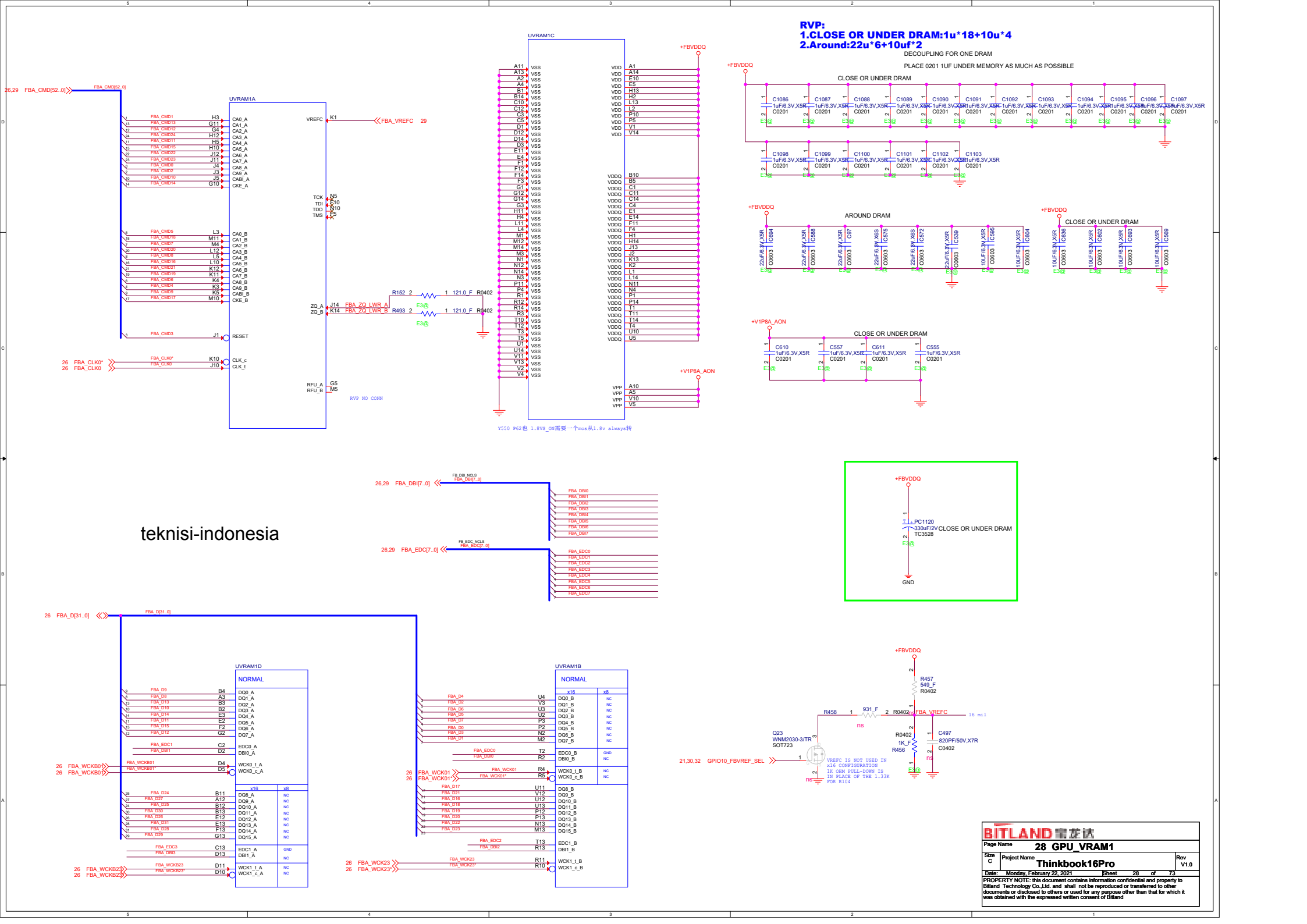
BITLAND 智芯微

Page Name	25 GPU_GND((15,16,21/22)
Size C	Project Name: Thinkbook16Pro
Rev	V1.0
Date: Monday, February 22, 2021	Sheet 25 of 73

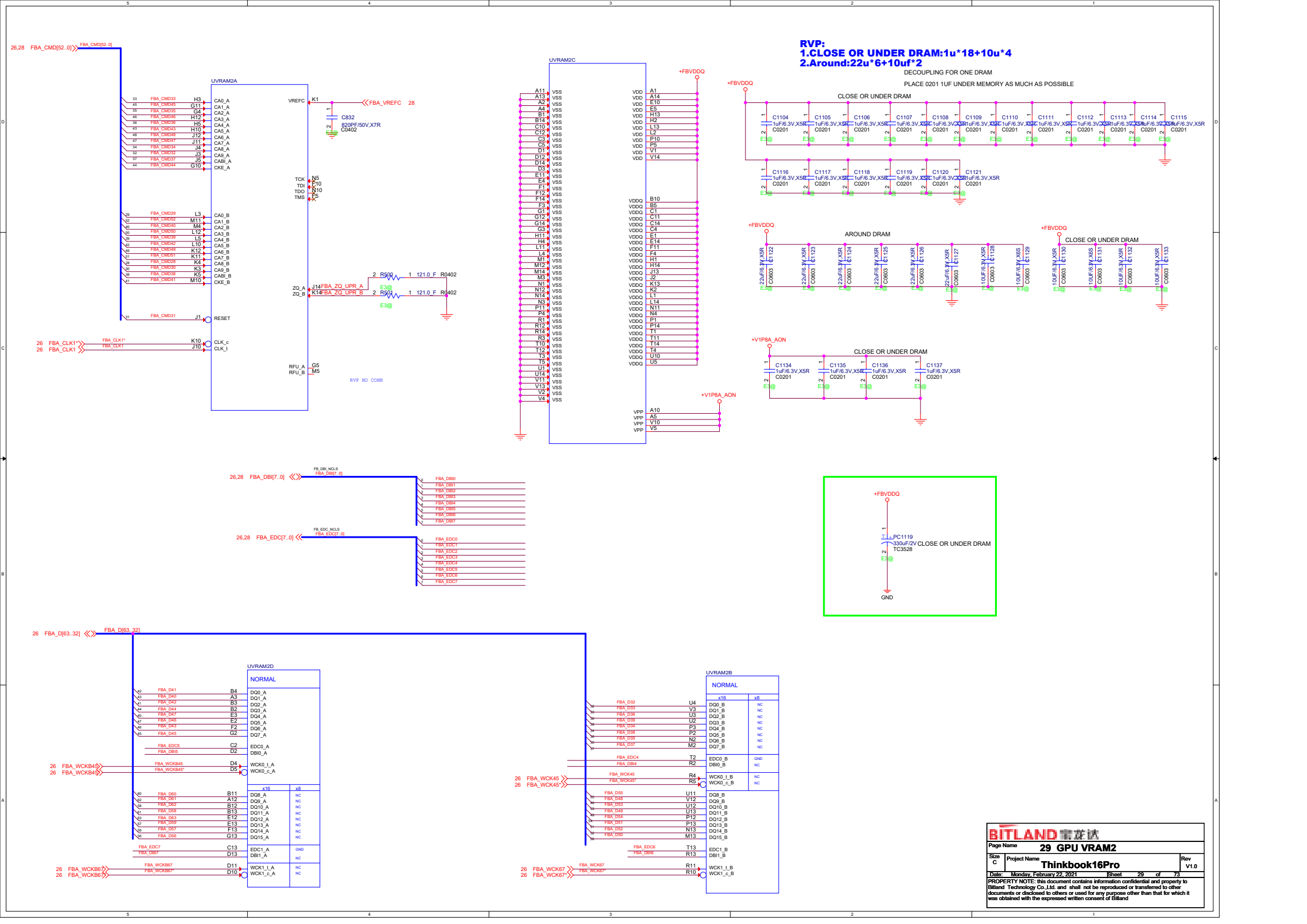

G1B
COMMON
2/24 FBA
G1C
COMMON
3/24 FBB
FBA_D[63..0]
FBA_DBI[7..0]
FBA_EDC[7..0]
FB_EDC_NCLS
FB_DATA
FB_CMD
FB_CMD1L_NCLS
FB_DBI
FB_EDC
FB_CLK0
FB_CLK1
FB_WCK01
FB_WCKB01
FB_WCK23
FB_WCKB23
FB_WCK45
FB_WCKB45
FB_WCK67
FB_WCKB67
FB_PLLVDD
1V8_FB_PLL_REF
UNDER GPU
C649 1UF/6.3V,X5R C0402
C1084 1UF/6.3V,X5R C0402
C1085 1UF/6.3V,X5R C0402
C454 1UF/6.3V,X5R C0402
GA1XX GDDR6 CMD Mapping
CKE_A
CKE_B
RESET
+FBVDDQ
R307 10K_J R0201
R441 10K_J R0201
R1341 10K_J R0201
R1342 10K_J R0201
R478 10K_J R0201
R515 10K_J R0201
R1343 10K_J R0201
R1344 10K_J R0201
R444 10K_J R0201
R299 10K_J R0201
R530 10K_J R0201
R454 10K_J R0201
E3@
FBA_CMD14
FBA_CMD44
FBA_CMD17
FBA_CMD41
FBA_CMD3
FBA_CMD31
FBB_CMD14
FBB_CMD44
FBB_CMD17
FBB_CMD41
FBB_CMD3
FBB_CMD31
C586 4.7UF/6.3V,X5R C0402
C481 4.7UF/6.3V,X5R C0402
C503 22uF/6.3V,X5R C0603
NEAR GPU
RVP
1V8_MAIN
FB5 1 2 30ohm/100MHz fb0603
+V1P8A_AON
BITLAND
Page Name 26 GPU_MEMORY_PAB(2,3/22)
Size C
Project Name Thinkbook16Pro
Rev V1.0
Date: Monday, February 22, 2021 Sheet 26 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland



Page Name	27_GPU_MEMORY_PC(4,5,11/22)
Size	C
Project Name	Thinkbook16Pro
Rev	V1.0
Date:	Monday, February 22, 2021
Sheet	27 of 73


RVP:
1.CLOSE OR UNDER DRAM:1u*18+10u*4
2.Around:22u*6+10uf*2
DECOUPLING FOR ONE DRAM
PLACE 0201 1UF UNDER MEMORY AS MUCH AS POSSIBLE
CLOSE OR UNDER DRAM
AROUND DRAM
UVRAM1A
UVRAM1C
UVRAM1D
UVRAM1B
NORMAL
RVP NO CONN
Y550 P62也 1.8VS_ON需要一个mos从1.8v always转
teknisi-indonesia
VREFC IS NOT USED IN x16 CONFIGURATION 1K OHM PULL-DOWN IS IN PLACE OF THE 1.33K FOR R104
BITLAND
Page Name 28 GPU_VRAM1
Project Name Thinkbook16Pro
Rev V1.0
Date: Monday, February 22, 2021 Sheet 28 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

RVP:
1.CLOSE OR UNDER DRAM:1u*18+10u*4
2.Around:22u*6+10uf*2

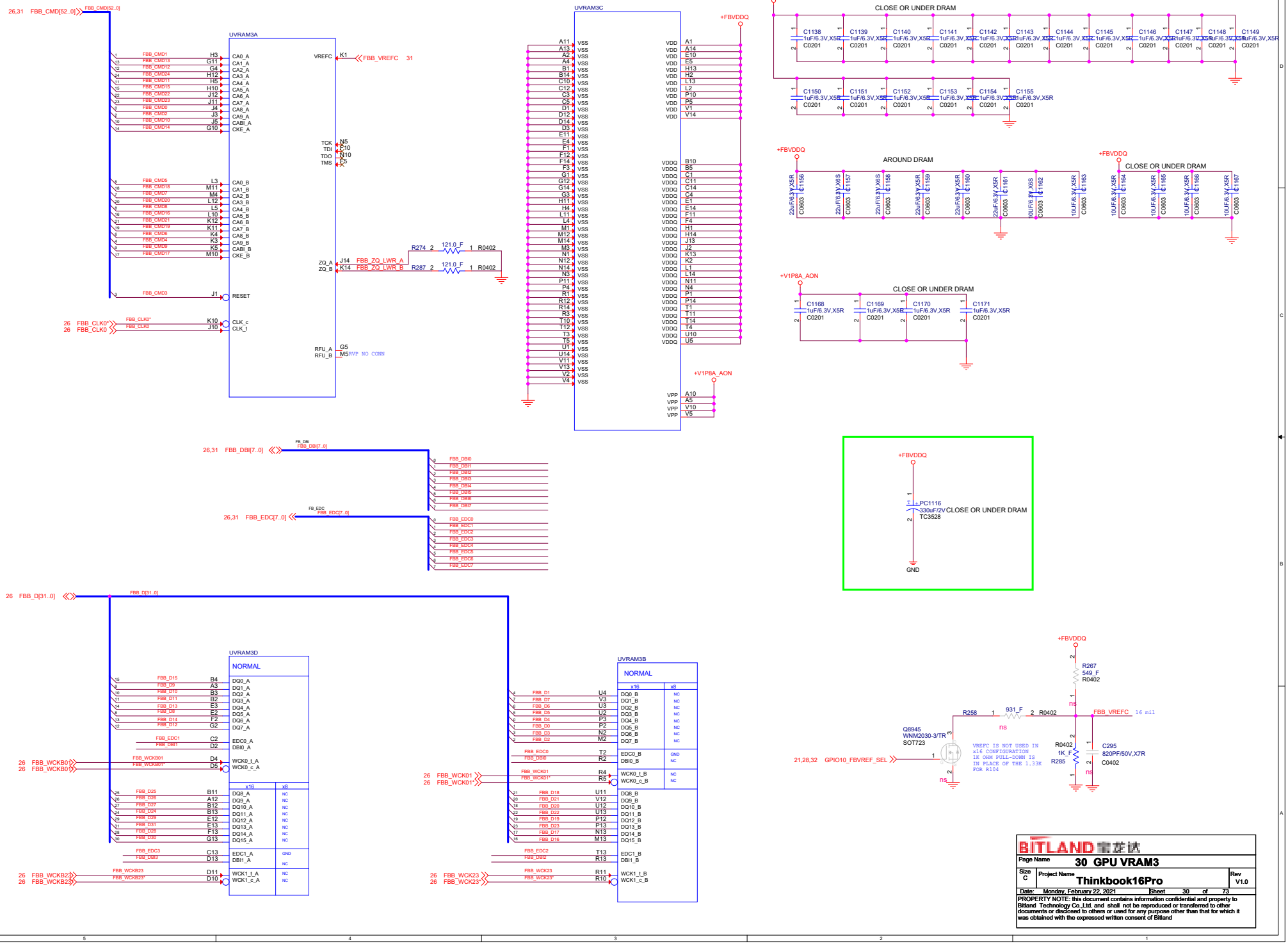


Page Name	29 GPU VRAM2
Size	C
Project Name	Thinkbook16Pro
Rev	V1.0
Date:	Monday, February 22, 2021
Sheet	29 of 73

RVP:
1.CLOSE OR UNDER DRAM:1u*18+10u*4
2.Around:22u*6+10uf*2

DECOUPLING FOR ONE DRAM

PLACE 0201 1UF UNDER MEMORY AS MUCH AS POSSIBLE



BITLAND 比特兰

Page Name	30 GPU VRAM3		
Size C	Project Name Thinkbook16Pro		Rev V1.0
Date: Monday, February 22, 2021	Sheet 30 of 73		

RVP:
1.CLOSE OR UNDER DRAM:1u*18+10u*4
2.Around:22u*6+10uf*2

DECOUPLING FOR ONE DRAM

PLACE 0201 1UF UNDER MEMORY AS MUCH AS POSSIBLE

CLOSE OR UNDER DRAM

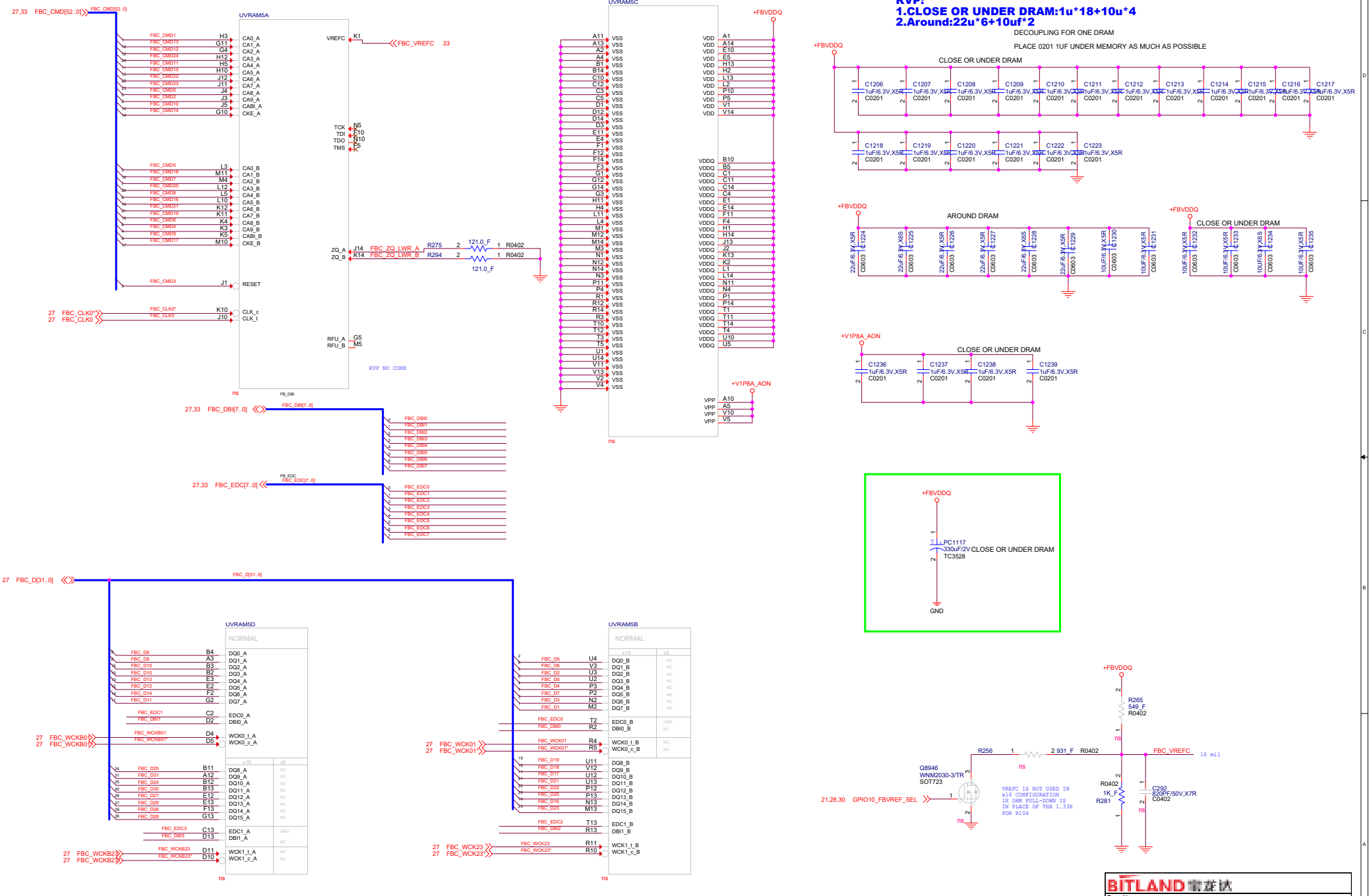
AROUND DRAM

CLOSE OR UNDER DRAM

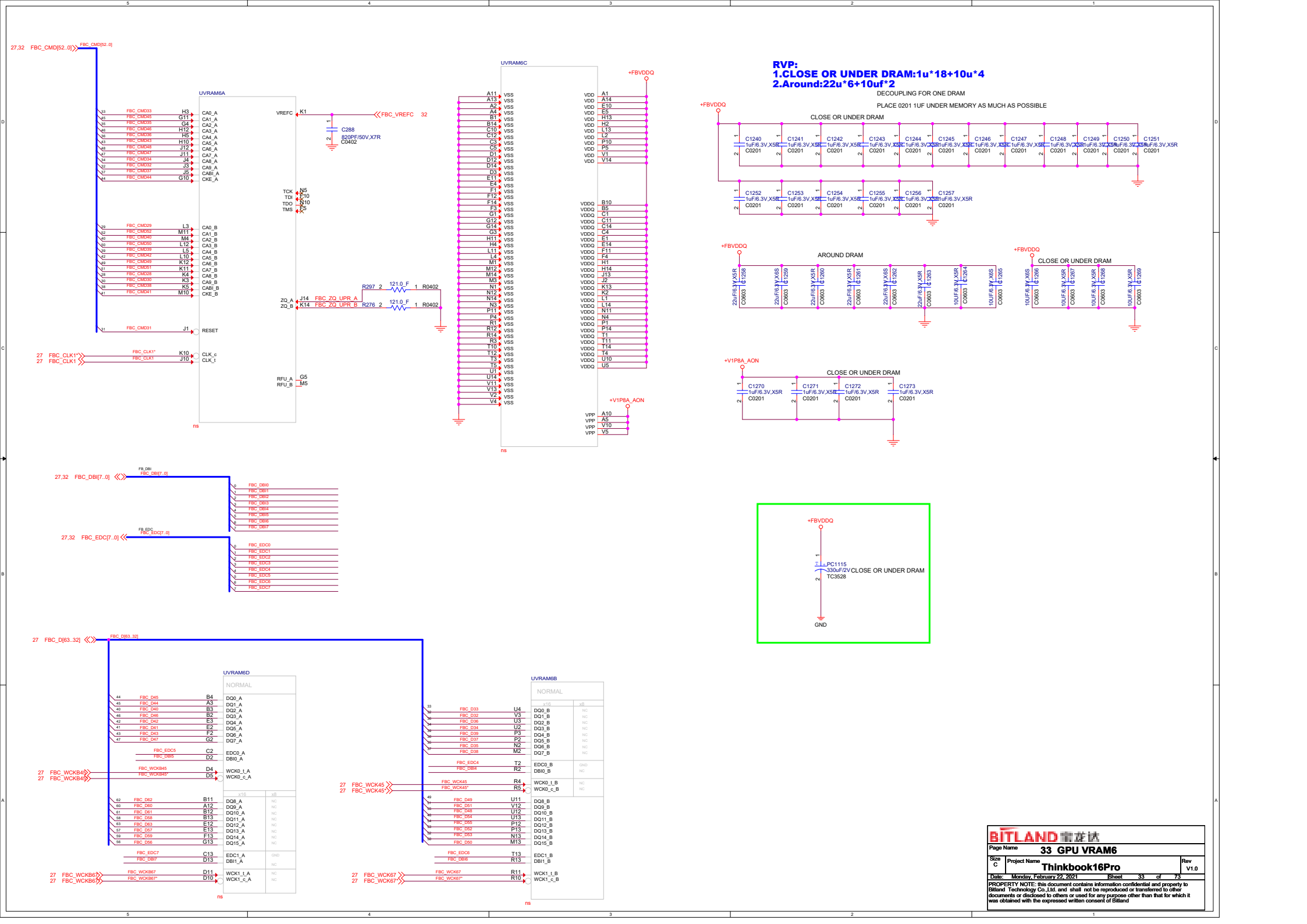
CLOSE OR UNDER DRAM

RVP NO CONN

Page Name	31 GPU VRAM4
Size	C
Project Name	Thinkbook16Pro
Rev	V1.0
Date:	Monday, February 22, 2021
Sheet	31 of 73



Page Name	32 GPU VRAM5
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Monday, February 22, 2021
Sheet	32 of 73


RVP:
1.CLOSE OR UNDER DRAM:1u*18+10u*4
2.Around:22u*6+10uf*2
DECOUPLING FOR ONE DRAM
PLACE 0201 1UF UNDER MEMORY AS MUCH AS POSSIBLE
CLOSE OR UNDER DRAM
AROUND DRAM
CLOSE OR UNDER DRAM
CLOSE OR UNDER DRAM
UVRAM6A
UVRAM6C
UVRAM6D
UVRAM6B
+FBVDDQ
+V1P8A_AON
GND
BITLAND
Page Name
33 GPU VRAM6
Project Name
Thinkbook16Pro
Rev
V1.0
Date: Monday, February 22, 2021
Sheet 33 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

GN20-E3 GPIO

GPIO	I/O	GPIO Name	Function Description	Net name	I/O Termination
GPIO0	OUT	NVVDD_PWM_VID	PWM Output to control NVVDD	NVVDD_PWM_VID	NO PU OR PD
GPIO1	OUT	GC6:GC6_FB_EN	GC6 FRAME BUFFER ENABLE	FB_GC6_EN	(10K pull down)
GPIO2	IN	GC6:GPU_EVENT*	Wake the GPU from GC6 state	GPU_EVENT#_R	(10K pull High)
GPIO3	OUT	UNUSED	UNUSED	UNUSED	
GPIO4	OUT	GC6:1V8_MAIN_EN	GPU power sequencing for GC6 --- 1V8_MAIN_EN	1V8_MAIN_EN	(10K pull High)
GPIO5	IN	FRAME_LOCK*	Active low Frame Lock for NVSR panel	GPU_FRAME_LOCK#	(10K pull High)
GPIO6	OUT	NVVDD_PSI*	Phase Shedding, NVVDD_PSI	NVVDD_PSI	depend power topology;
GPIO7	OUT	LCD_BL_PWM	LCD Panel Backlight PWM	GPU_EDP_PWM	(100K pull down)
GPIO8	OUT	MEM_VDD_CTL	Memory voltage Control	FBVDDQ_SEL	depend DVS topology;
GPIO9	I/O	THERM_ALERT*	Active Low Thermal Alert	VGA_ALERT#	(10K pull High)
GPIO10	OUT	MEM_VREF_CTL	Memory VREF Control	MEM_VREF	(1K pull down)
GPIO11	OUT	LCD_VCC	LCD Panel VOLTAGE	GPU_EDP_ENVDD	(10K pull down)
GPIO12	IN	PWR_LEVEL	AC power detect or power supply overdraw input	VGA_AC_DET_R	(10K pull High)
GPIO13	OUT	UNUSED	UNUSED	UNUSED	
GPIO14	IN	HPD_IFPA*	Hot Plug Detect for IFPA	IFPA_HPD	(10K pull High)
GPIO15	IN	HPD_IFPB*	Hot Plug Detect for IFPB	UNUSED	(10K pull High)
GPIO16	OUT	UNUSED	UNUSED	UNUSED	
GPIO17	IN	HPD_IFPD*	Hot Plug Detect for IFPD	GPU_EDP_ENBKL	(10K pull High)
GPIO18	IN	HPD_IFPE*	Hot Plug Detect for IFPE	IFPE_HPD	(10K pull High)
GPIO19	OUT	Reserved	UNUSED	UNUSED	
GPIO20	OUT	GC6:NB_FGC6	Low Power States Fast CG6	NB_FGC6	(10K pull down)
GPIO21	OUT	LCD_BLEN	LCD Panel Backlight Enable	GPU_EDP_ENBKL	(100K pull down)
GPIO22		UNUSED	UNUSED	UNUSED	(2.2K pull High)
GPIO23		UNUSED	UNUSED	RASTER_SYNC1	(100K pull down)
GPIO24	IN	HPD_IFPF*/USBC_HPD* or DONGLE_DET*	Hot Plug Detect for IFPF or USBC	UNUSED	(10K pull High)
GPIO25	OUT	FBVDD_PSI	Turns off phases of the Frame buffer power supply	FBVDDQ_PSI	depend power topology;
GPIO26		FP_FUSE	Field-programming of select fuses	GPIO26_FP_FUSE	(10K pull down)
GPIO27	IN	HPD_IFPC*	Hot Plug Detect for IFPC	IFPC_HPD	(10K pull High)
GPIO28		ADC_MUX_SEL	OVRM MUX SEL	ADC_MUX_SEL_R	(10K pull High)
GPIO29	OUT	IDLE_IN_SW	IDLE_IN_SW	IDLE_IN_SW	(10K pull down)
GPIO30		UNUSED	UNUSED	UNUSED	

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]		
L	L	L	00000	RAMCFG TBD	
L	H	L	00010	RAMCFG TBD	
L	H	H	00011	RAMCFG TBD	DEFAULT
H	H	L	00110	RAMCFG TBD	
L	L	H	00001	RAMCFG MICRON	

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

ROM_SO	ROM_SI	ROM_SCLK	SMARTFAN[2:0],FS_OVERT	1:ENABLE 0:DISABLE	
H	H	H	0111	FS_OVERT ENABLE	DEFAULT
H	H	M	0000	FS_OVERT DISABLE	

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

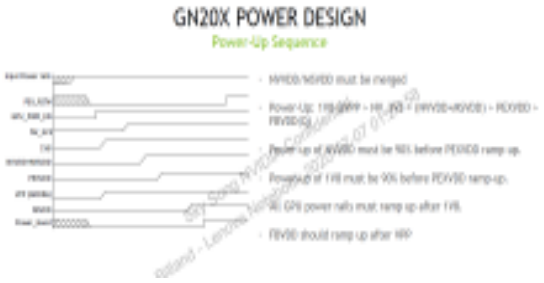
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

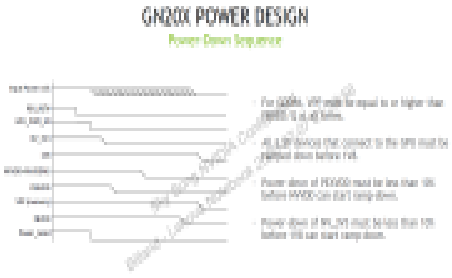
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

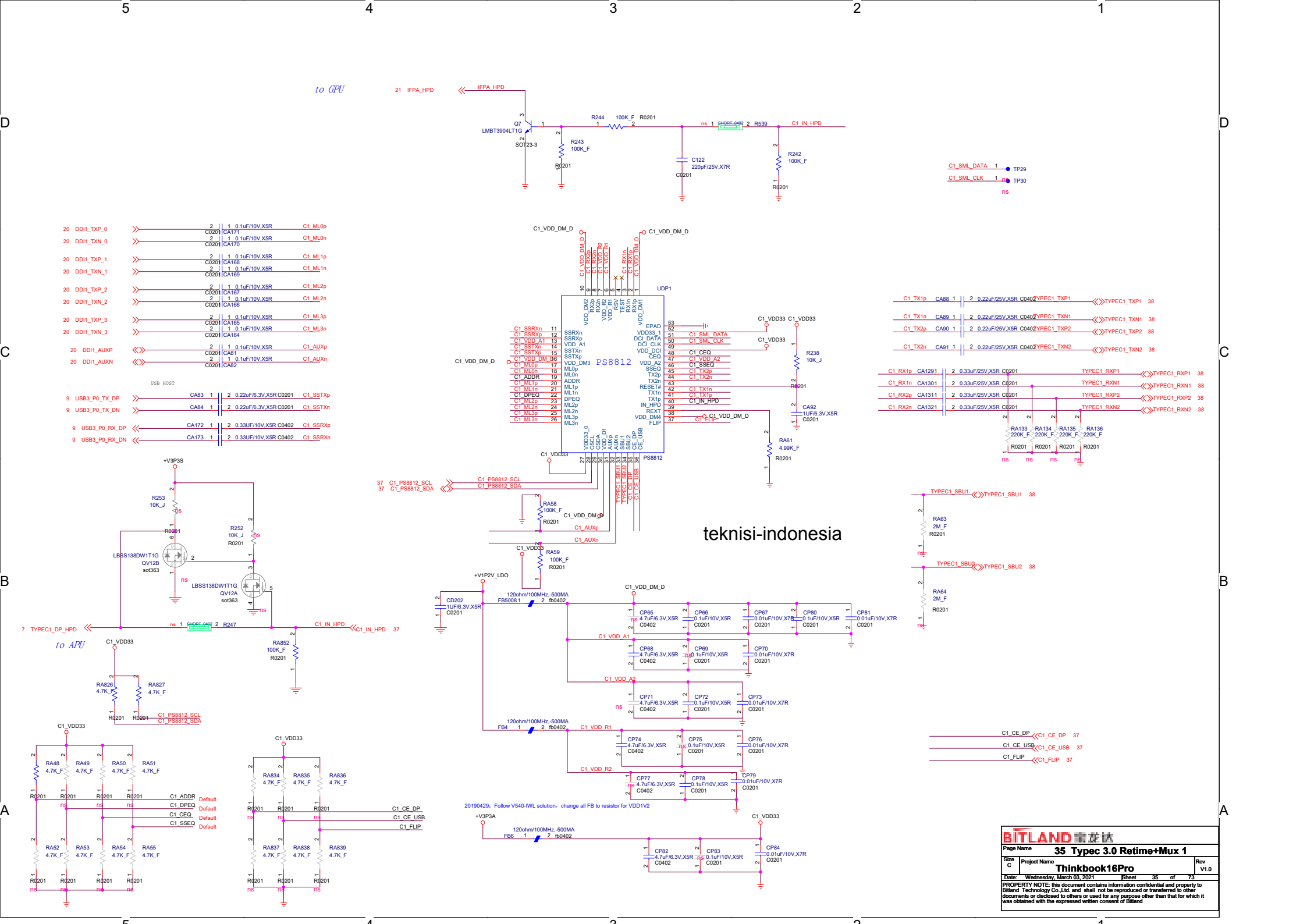
GN20-E3 Power Sequence

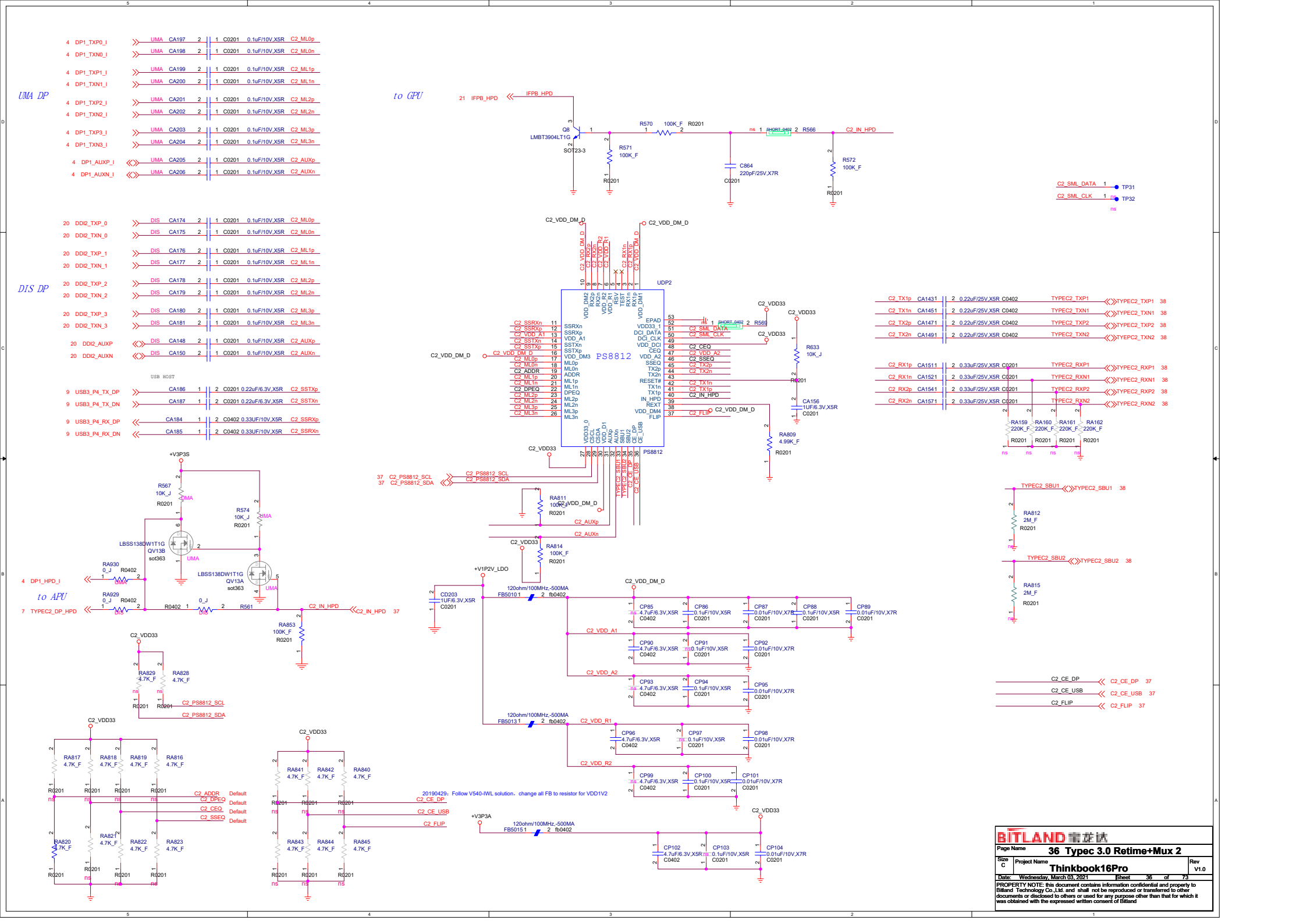


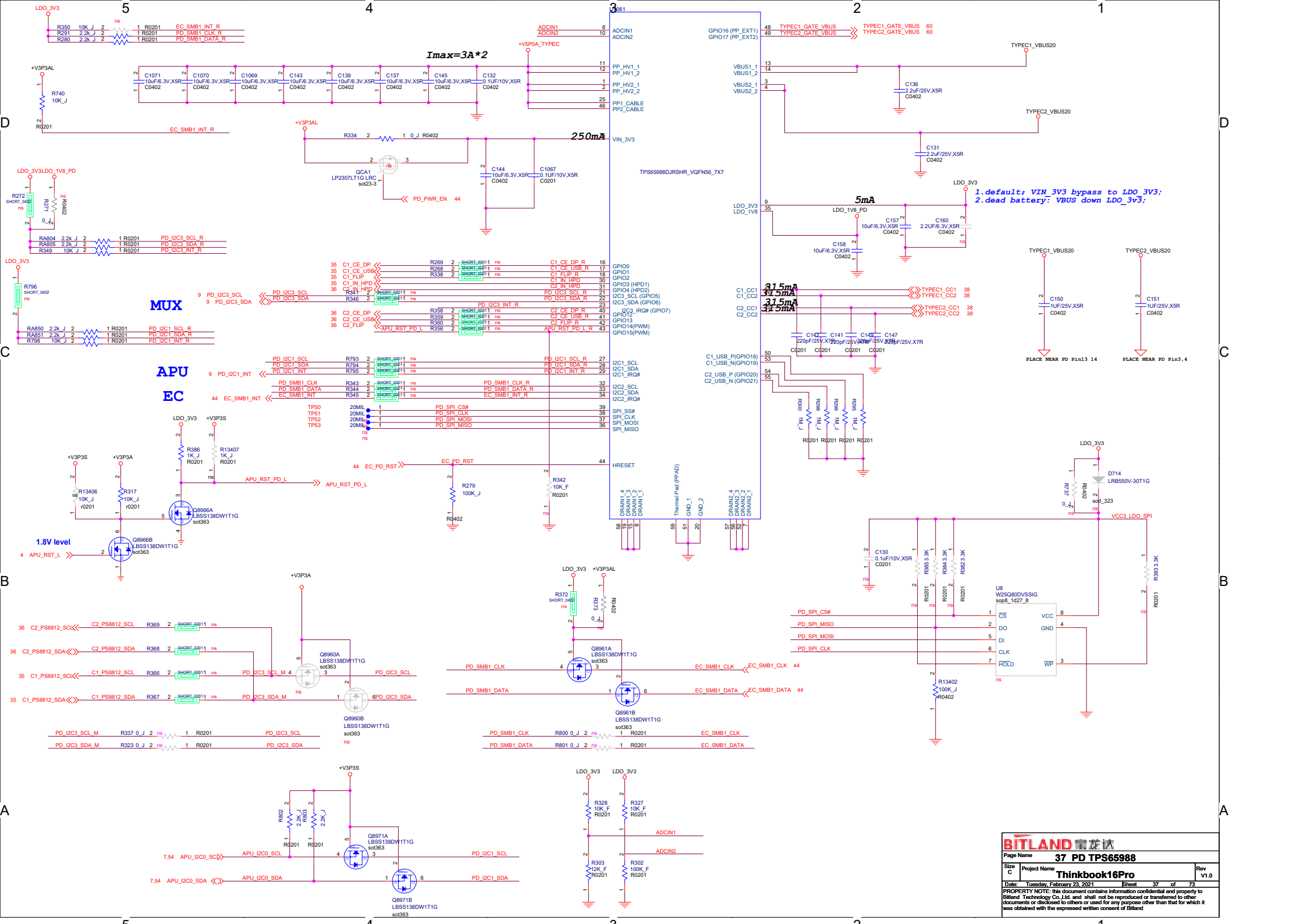


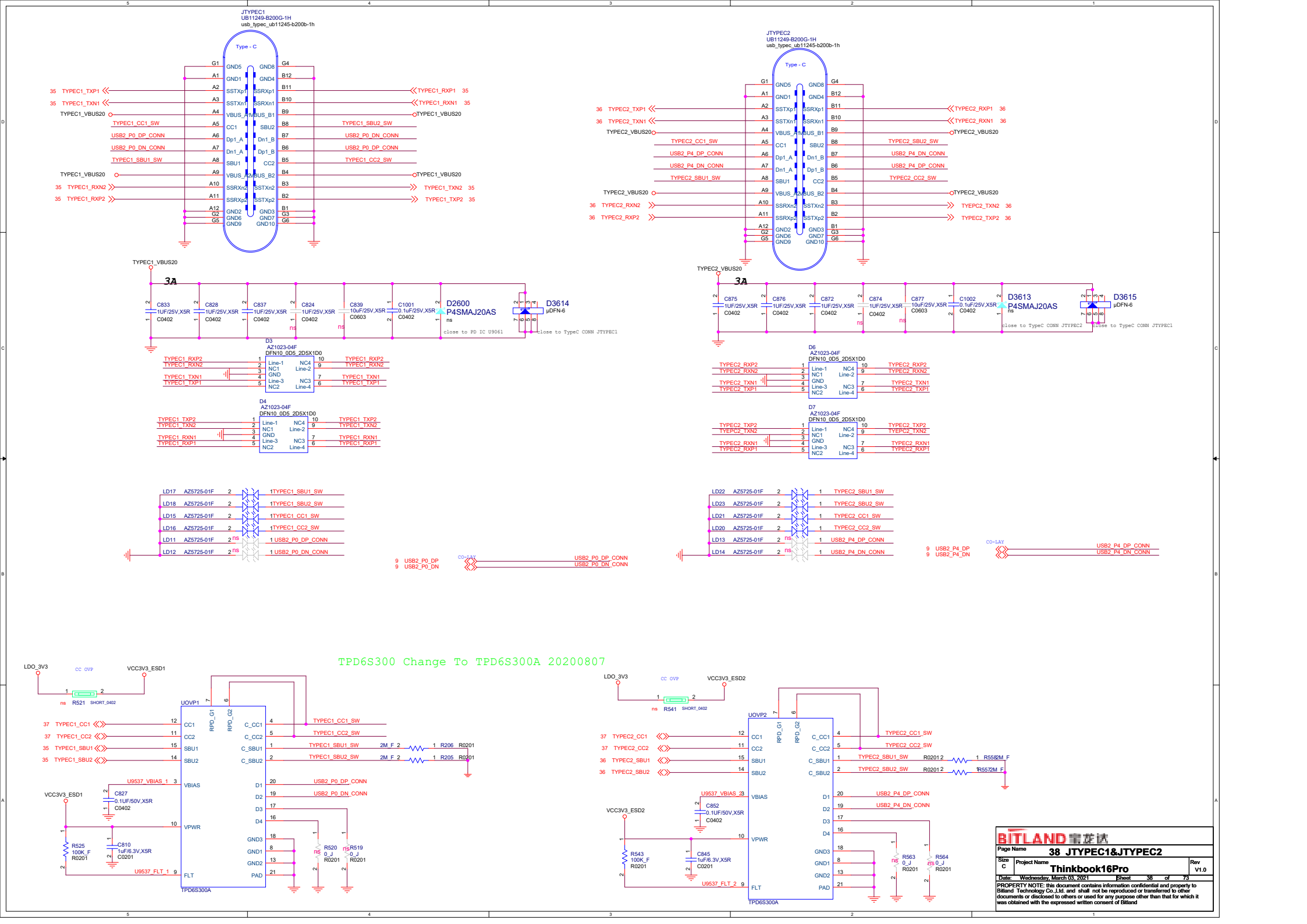
BITLAND 智芯微

Page Name	34_N18E_VGA Notes List	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Wednesday, January 13, 2021	Sheet 34 of 73	


to GPU
21 IFPA_HPD
IFPA_HPD
Q7
LMBT3904LT1G
SOT23-3
R244 100K_F R0201
R243 100K_F R0201
C122 220pF/25V,X7R C0201
R242 100K_F R0201
R539
C1_IN_HPD
C1_SML_DATA
C1_SML_CLK
TP29
TP30
20 DDI1_TXP_0
20 DDI1_TXN_0
20 DDI1_TXP_1
20 DDI1_TXN_1
20 DDI1_TXP_2
20 DDI1_TXN_2
20 DDI1_TXP_3
20 DDI1_TXN_3
20 DDI1_AUXP
20 DDI1_AUXN
0.1uF/10V,X5R C0201
C1_ML0p
C1_ML0n
C1_ML1p
C1_ML1n
C1_ML2p
C1_ML2n
C1_ML3p
C1_ML3n
C1_AUXp
C1_AUXn
USB HOST
9 USB3_P0_TX_DP
9 USB3_P0_TX_DN
9 USB3_P0_RX_DP
9 USB3_P0_RX_DN
CA83 CA84 0.22uF/6.3V,X5R C0201
CA172 CA173 0.33UF/10V,X5R C0402
C1_SSTXp
C1_SSTXn
C1_SSRXp
C1_SSRXn
C1_VDD_DM_D
UDP1
PS8812
C1_SSRXn
C1_SSRXp
C1_VDD_A1
C1_SSTXn
C1_SSTXp
C1_ADDR
C1_ML0p
C1_ML0n
C1_ML1p
C1_ML1n
C1_DPEQ
C1_ML2p
C1_ML2n
C1_ML3p
C1_ML3n
EPAD
VDD33_1
DCI_DATA
DCI_CLK
VDD_DCI
CEQ
VDD_A2
SSEQ
TX2p
TX2n
RESET#
TX1n
TX1p
IN_HPD
REXT
VDD_DM4
FLIP
C1_SML_DATA
C1_SML_CLK
C1_CEQ
C1_VDD_A2
C1_SSEQ
C1_TX2p
C1_TX2n
C1_TX1n
C1_TX1p
C1_IN_HPD
C1_FLIP
R238 10K_J R0201
CA92 1UF/6.3V,X5R C0201
RA61 4.99K_F R0201
C1_TX1p CA88
C1_TX1n CA89
C1_TX2p CA90
C1_TX2n CA91
0.22uF/25V,X5R C0402
TYPEC1_TXP1
TYPEC1_TXN1
TYPEC1_TXP2
TYPEC1_TXN2
C1_RX1p CA1291
C1_RX1n CA1301
C1_RX2p CA1311
C1_RX2n CA1321
0.33uF/25V,X5R C0201
TYPEC1_RXP1
TYPEC1_RXN1
TYPEC1_RXP2
TYPEC1_RXN2
RA133 RA134 RA135 RA136 220K_F R0201
37 C1_PS8812_SCL
37 C1_PS8812_SDA
C1_PS8812_SCL
C1_PS8812_SDA
RA58 100K_F R0201
C1_AUXp
C1_AUXn
RA59 100K_F R0201
TYPEC1_SBU1
TYPEC1_SBU2
RA63 2M_F R0201
RA64 2M_F R0201
+V3P3S
R253 10K_J R0201
R252 10K_J R0201
LBSS138DW1T1G
QV12B
QV12A
sot363
7 TYPEC1_DP_HPD
R247
RA852 100K_F R0201
to APU
RA826 RA827 4.7K_F R0201
RA48 RA49 RA50 RA51 4.7K_F R0201
RA52 RA53 RA54 RA55 4.7K_F R0201
C1_ADDR
C1_DPEQ
C1_CEQ
C1_SSEQ
Default
RA834 RA835 RA836 4.7K_F R0201
RA837 RA838 RA839 4.7K_F R0201
C1_CE_DP
C1_CE_USB
C1_FLIP
+V1P2V_LDO
CD202 1UF/6.3V,X5R C0201
120ohm/100MHz,-500MA
FB5008 fb0402
CP65 CP66 CP67 CP80 CP81 4.7uF/6.3V,X5R 0.1uF/10V,X5R 0.01uF/10V,X7R C0402 C0201
C1_VDD_A1
CP68 CP69 CP70 4.7uF/6.3V,X5R 0.1uF/10V,X5R 0.01uF/10V,X7R C0402 C0201
C1_VDD_A2
CP71 CP72 CP73 4.7uF/6.3V,X5R 0.1uF/10V,X5R 0.01uF/10V,X7R C0402 C0201
FB4 fb0402
C1_VDD_R1
CP74 CP75 CP76 4.7uF/6.3V,X5R 0.1uF/10V,X5R 0.01uF/10V,X7R C0402 C0201
C1_VDD_R2
CP77 CP78 CP79 4.7uF/6.3V,X5R 0.1uF/10V,X5R 0.01uF/10V,X7R C0402 C0201
20190429：Follow V540-IWL solution，change all FB to resistor for VDD1V2
+V3P3A
FB6 fb0402
CP82 CP83 CP84 4.7uF/6.3V,X5R 0.1uF/10V,X5R 0.01uF/10V,X7R C0402 C0201
C1_CE_DP
C1_CE_USB
C1_FLIP
teknisi-indonesia
BITLAND
Page Name
35 Typec 3.0 Retime+Mux 1
Size C
Project Name
Thinkbook16Pro
Rev V1.0
Date: Wednesday, March 03, 2021
Sheet 35 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

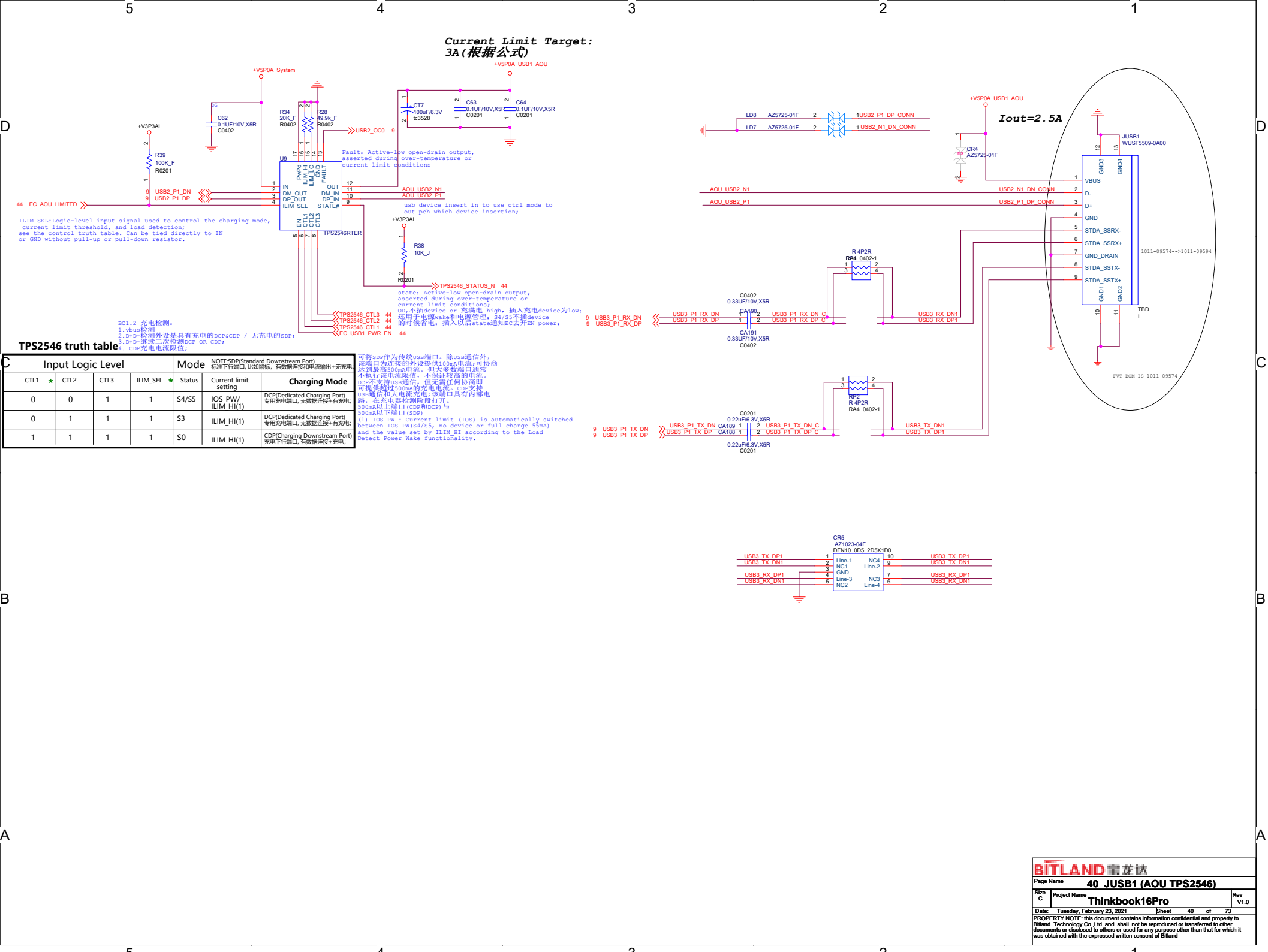

UMA DP
DIS DP
to GPU
to APU
PS8812
UDP2
Q8
LMBT3904LT1G
SOT23-3
LBSS138DW1T1G
QV13B
QV13A
sot363
USB HOST
+V3P3S
+V1P2V_LDO
+V3P3A
C2_VDD33
C2_VDD_DM_D
C2_VDD_A1
C2_VDD_A2
C2_VDD_R1
C2_VDD_R2
C2_ADDR Default
C2_DPEQ Default
C2_CEQ Default
C2_SSEQ Default
20190429：Follow V540-IWL solution，change all FB to resistor for VDD1V2
Page Name 36 Typec 3.0 Retime+Mux 2
Project Name Thinkbook16Pro
Size C
Rev V1.0
Date: Wednesday, March 03, 2021
Sheet 36 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland


MUX
APU
EC
Imax=3A*2
250mA
5mA
315mA
1.8V level
TPS65988DJRSHR_VQFN56_7X7
1.default: VIN_3V3 bypass to LDO_3V3;
2.dead battery: VBUS down LDO_3V3;
PLACE NEAR PD Pin13 14
PLACE NEAR PD Pin3,4
BITLAND
Page Name 37 PD TPS65988
Size C
Project Name Thinkbook16Pro
Rev V1.0
Date: Tuesday, February 23, 2021
Sheet 37 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland


JTYPEC1
UB11249-B200G-1H
usb_typec_ub11245-b200b-1h
Type - C
JTYPEC2
UB11249-B200G-1H
usb_typec_ub11245-b200b-1h
Type - C
TPD6S300 Change To TPD6S300A 20200807
TPD6S300A
TPD6S300A
BITLAND
Page Name
38 JTYPEC1&JTYPEC2
Project Name
Thinkbook16Pro
Size C
Rev V1.0
Date: Wednesday, March 03, 2021
Sheet 38 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

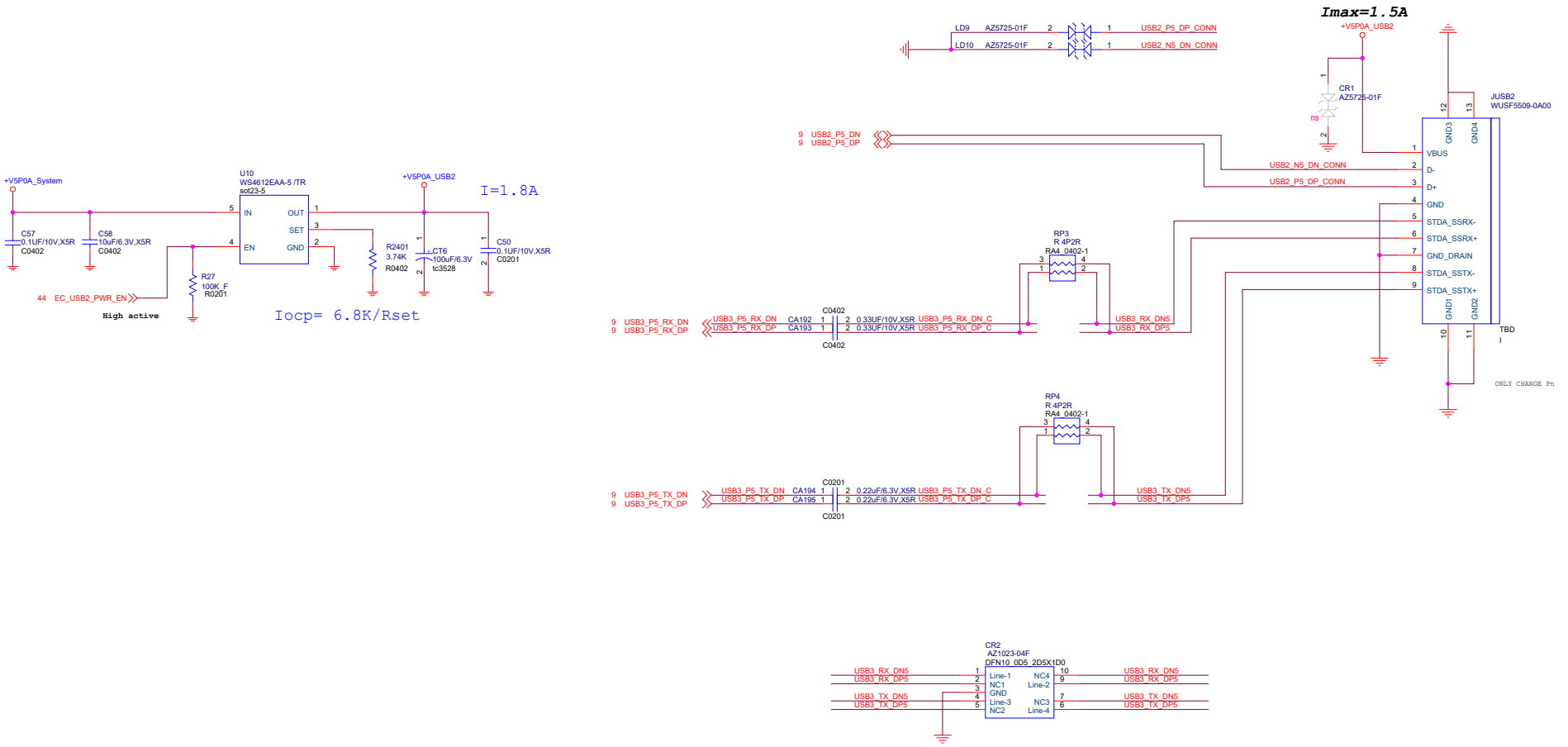
BITLAND 智昌科技

Page Name: NA		
Size: C	Project Name: Thinkbook16Pro	Rev: V1.0
Date: Wednesday, January 13, 2021	Sheet 39 of 73	



BITLAND 智芯达

Page Name	40 JUSB1 (AOU TPS2546)
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Tuesday, February 23, 2021
Sheet	40 of 73



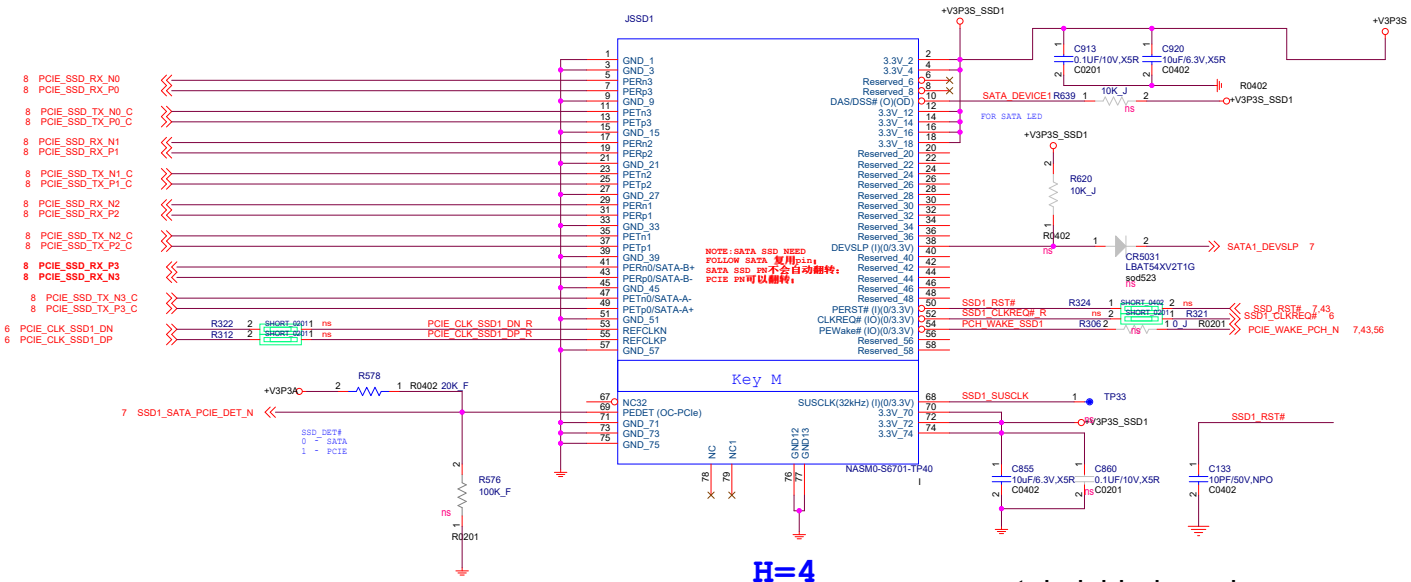
Page Name	41 JUSB2	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Tuesday, February 23, 2021	Sheet 41 of 73	

5 4 3 2 1

D C B A

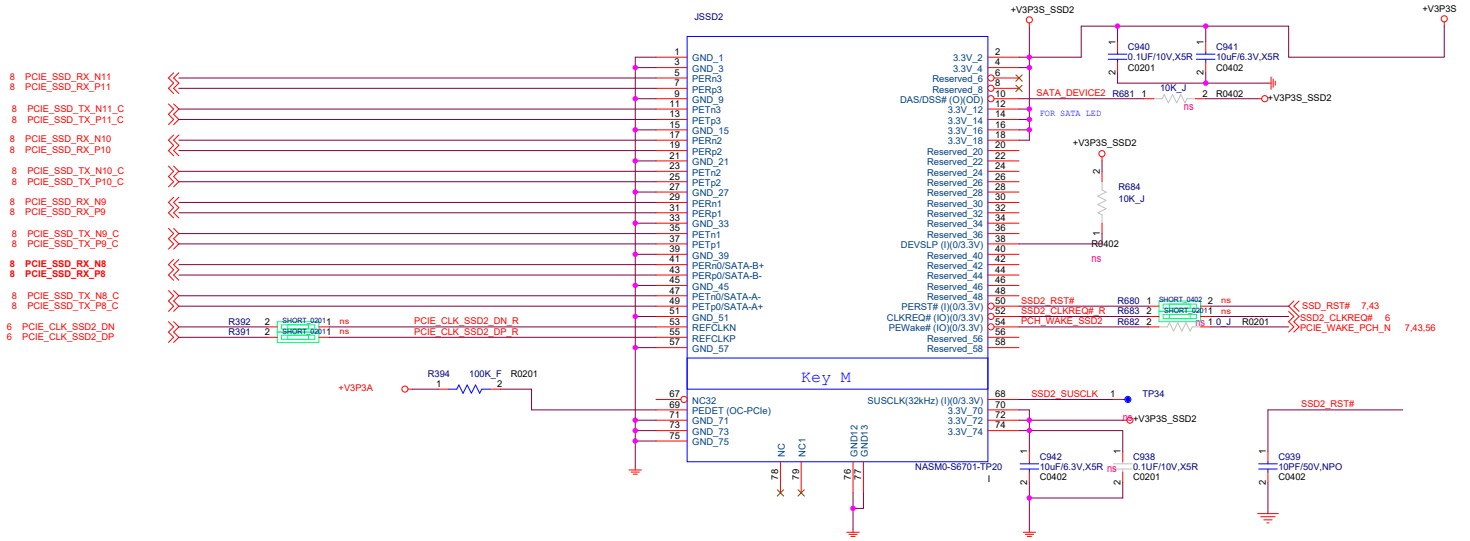
BITLAND 比亚迪

Page Name	43 NA	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Wednesday, January 13, 2021	Sheet 42 of 73	



H=4

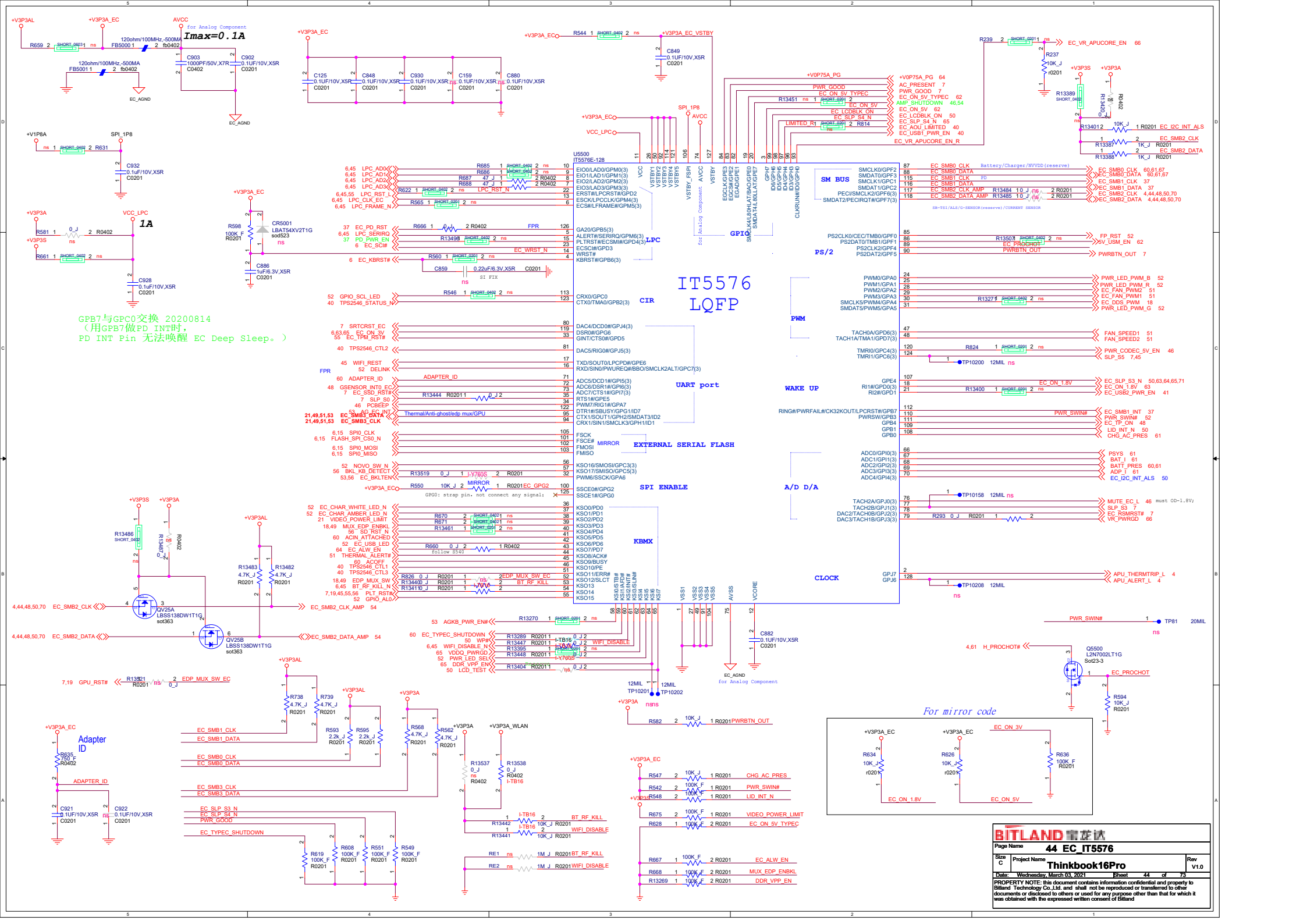
teknisi-indonesia

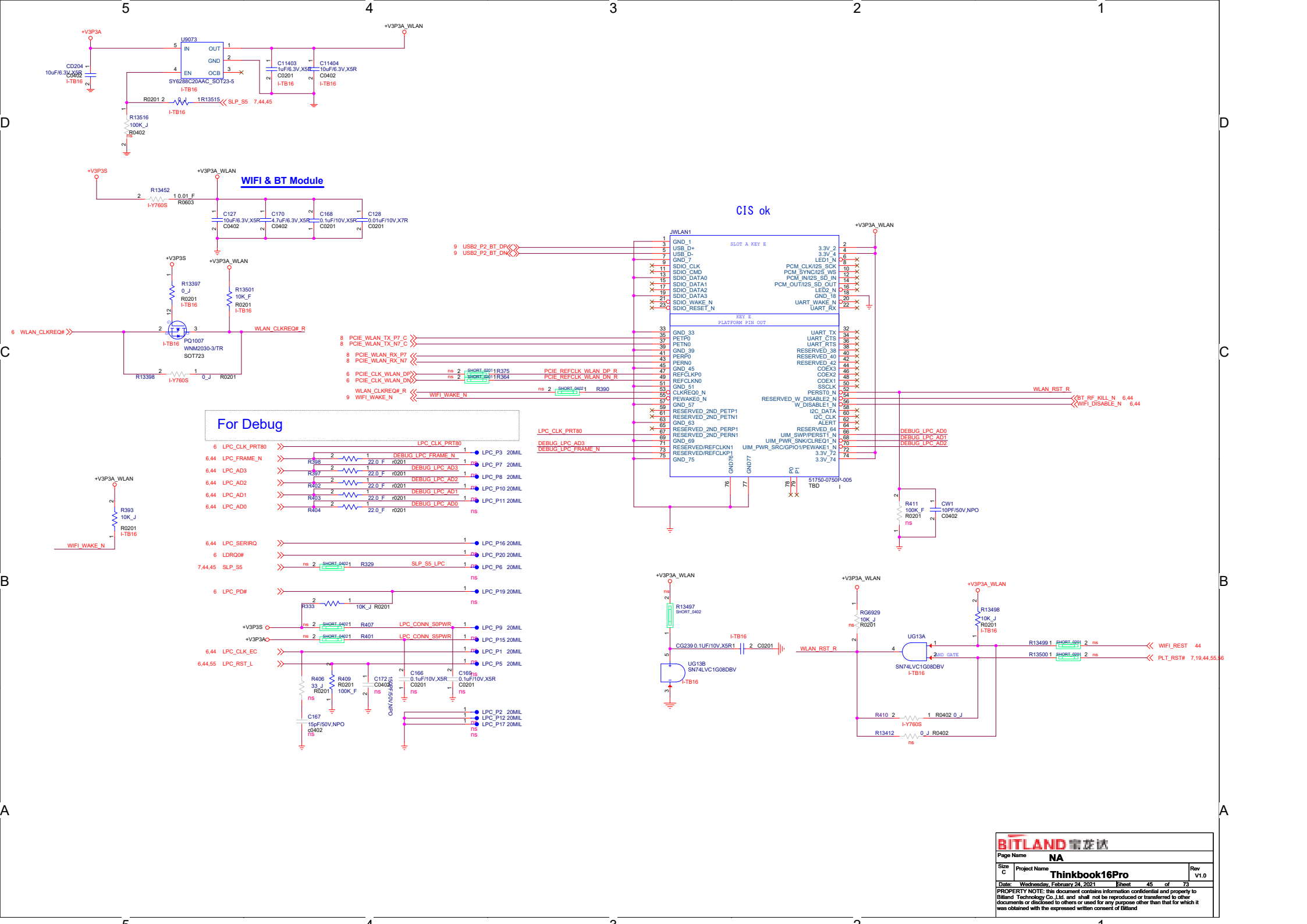


H=2

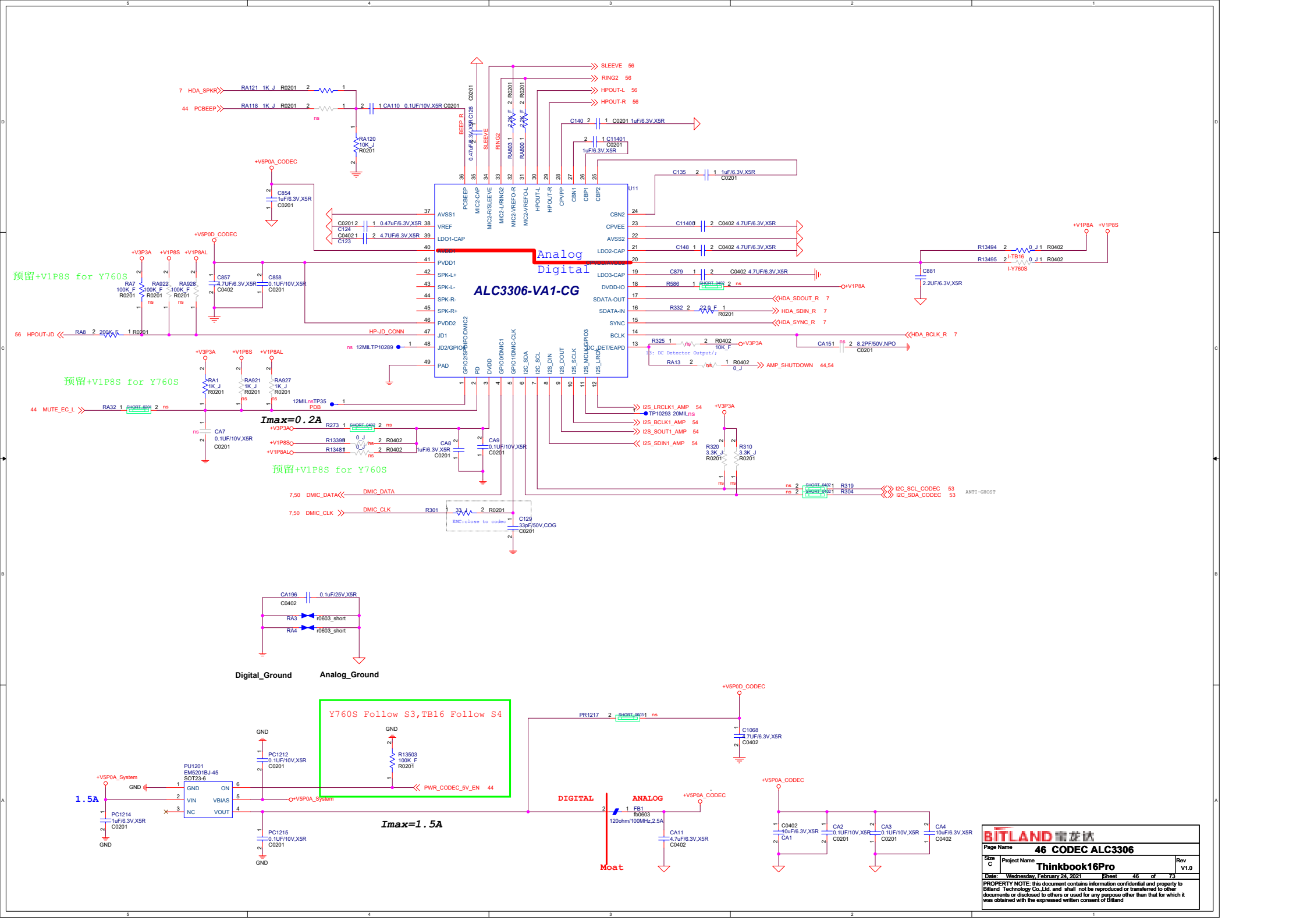
BITLAND 智芯达

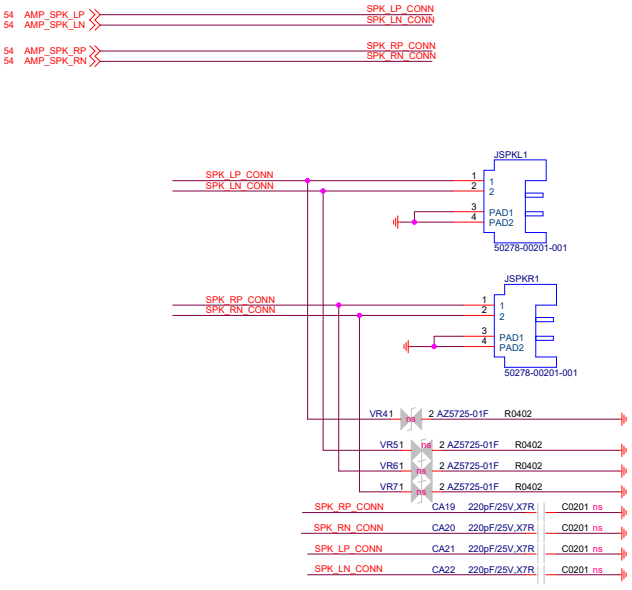
Page Name	42 JSSD1&JSSD2
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Tuesday, February 23, 2021
Sheet	43 of 73


IT5576
LQFP
GPB7与GPC0交换 20200814
（用GPB7做PD INT时，
PD INT Pin 无法唤醒 EC Deep Sleep。）
SM BUS
PS/2
PWM
WAKE UP
UART port
EXTERNAL SERIAL FLASH
SPI ENABLE
A/D D/A
KBMX
CLOCK
LPC
CIR
GPIO
Imax=0.1A
1A
Adapter ID
For mirror code
BITLAND
Page Name 44_EC_IT5576
Project Name Thinkbook16Pro
Size C
Rev V1.0
Date: Wednesday, March 03, 2021
Sheet 44 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland



Page Name	NA
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Wednesday, February 24, 2021
Sheet	45 of 73

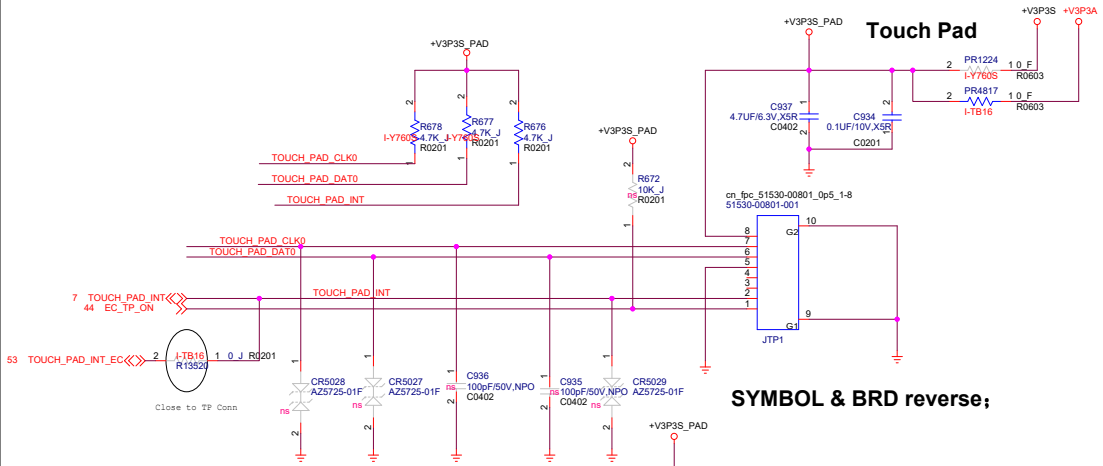

ALC3306-VA1-CG
Analog
Digital
预留+V1P8S for Y760S
Imax=0.2A
Imax=1.5A
1.5A
Digital_Ground
Analog_Ground
Y760S Follow S3,TB16 Follow S4
DIGITAL
ANALOG
Moat
BITLAND
Page Name 46 CODEC ALC3306
Project Name Thinkbook16Pro
Rev V1.0
Date: Wednesday, February 24, 2021
Sheet 46 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland



BITLAND 比亚迪

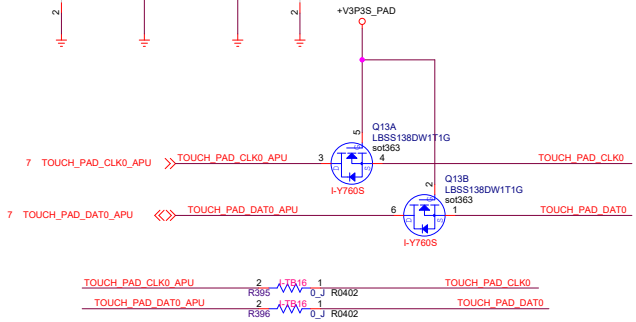
Page Name	47 AMP TAS2770	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Monday, February 22, 2021	Sheet 47 of 73	

Touch Pad

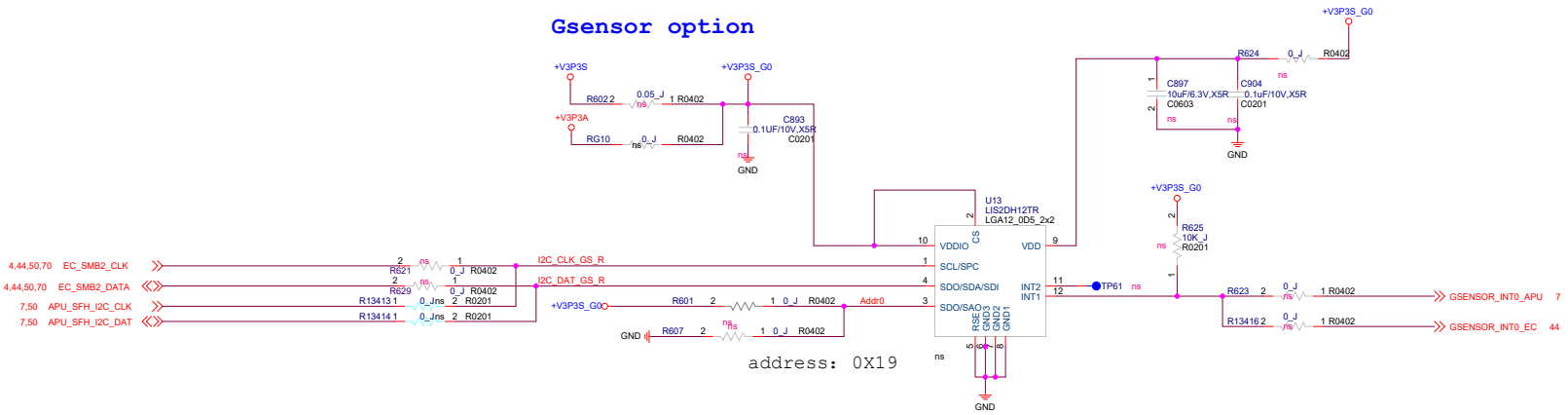


Pin Number	Pin Name	Description
1	VDD	Power
2	I2C-CLK	I2C_Clock
3	I2C-DAT	I2C_Data
4	GND	Ground
5	N/C	N/C
6	N/C	N/C
7	ATTN	Attention(Interrupt (Active Low, Open Drain)
8	LID CLOSE	Input for LID Close event/Disable Touch Pad (Active Low)

SYMBOL & BRD reverse;



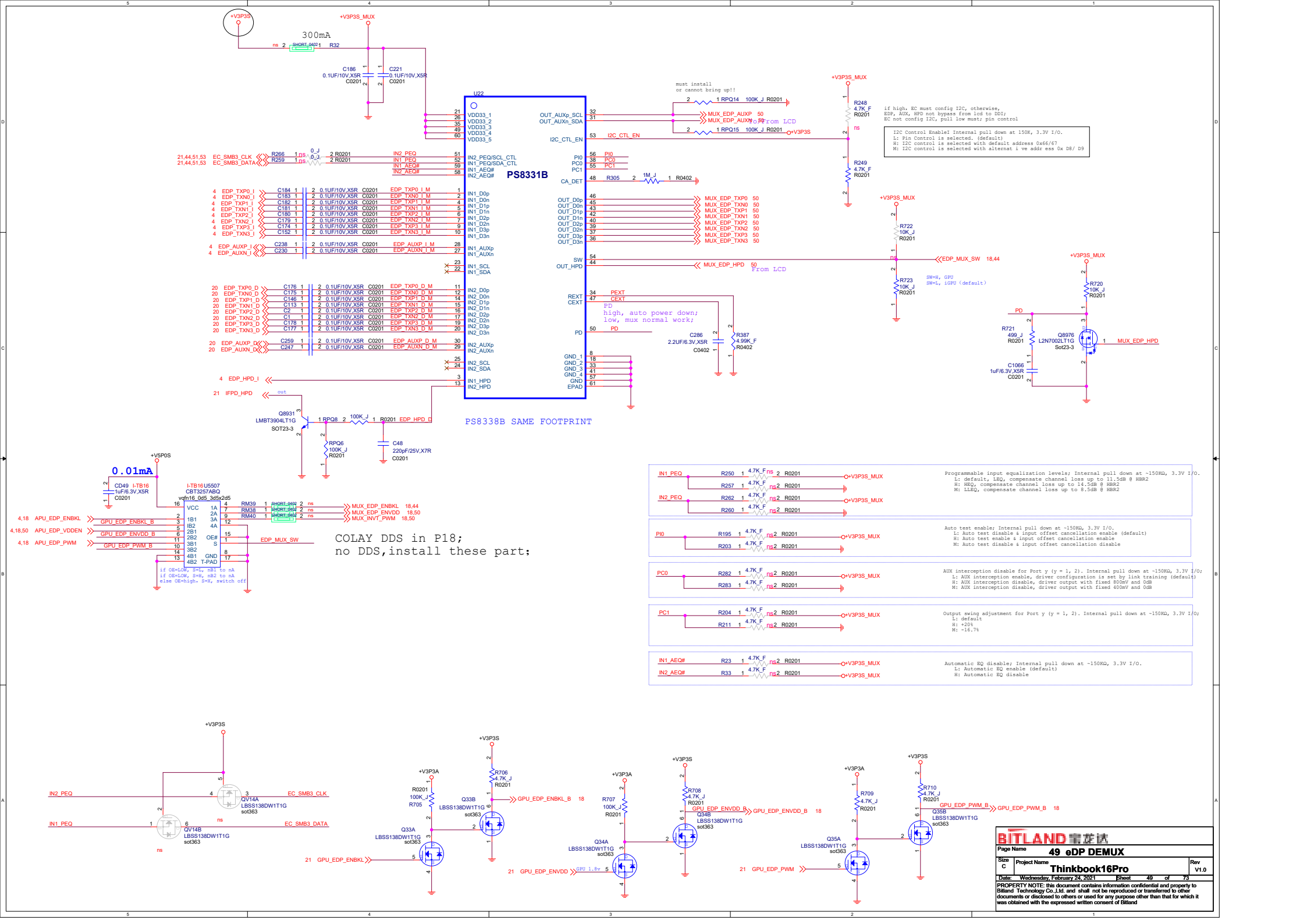
Gsensor option



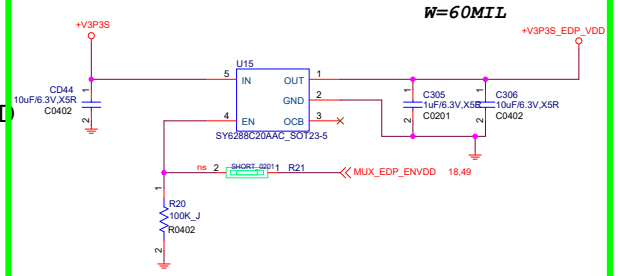
address: 0X19

BITLAND 華勤技術

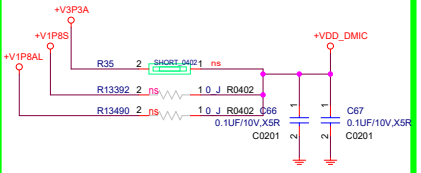
Page Name	48 TP/G-SENSOR	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Wednesday, February 24, 2021	Sheet 48 of 73	


U22
PS8331B
PS8338B SAME FOOTPRINT
300mA
0.01mA
COLAY DDS in P18;
no DDS,install these part;
must install
or cannot bring up!!
From LCD
I2C_CTL_EN
MUX_EDP_AUXP
MUX_EDP_AUXN
MUX_EDP_TXP0
MUX_EDP_TXN0
MUX_EDP_TXP1
MUX_EDP_TXN1
MUX_EDP_TXP2
MUX_EDP_TXN2
MUX_EDP_TXP3
MUX_EDP_TXN3
MUX_EDP_HPD
EDP_MUX_SW
SW=H, GPU
SW=L, iGPU (default)
PD
high, auto power down;
low, mux normal work;
Programmable input equalization levels; Internal pull down at ~150KΩ, 3.3V I/O.
L: default, LEQ, compensate channel loss up to 11.5dB @ HBR2
H: HEQ, compensate channel loss up to 14.5dB @ HBR2
M: LLEQ, compensate channel loss up to 8.5dB @ HBR2
Auto test enable; Internal pull down at ~150KΩ, 3.3V I/O.
L: Auto test disable & input offset cancellation enable (default)
H: Auto test enable & input offset cancellation enable
M: Auto test disable & input offset cancellation disable
AUX interception disable for Port y (y = 1, 2). Internal pull down at ~150KΩ, 3.3V I/O;
L: AUX interception enable, driver configuration is set by link training (default)
H: AUX interception disable, driver output with fixed 800mV and 0dB
M: AUX interception disable, driver output with fixed 400mV and 0dB
Output swing adjustment for Port y (y = 1, 2). Internal pull down at ~150KΩ, 3.3V I/O;
L: default
H: +20%
M: -16.7%
Automatic EQ disable; Internal pull down at ~150KΩ, 3.3V I/O.
L: Automatic EQ enable (default)
H: Automatic EQ disable
BITLAND
Page Name 49 eDP DEMUX
Size C
Project Name Thinkbook16Pro
Rev V1.0
Date: Wednesday, February 24, 2021 Sheet 49 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

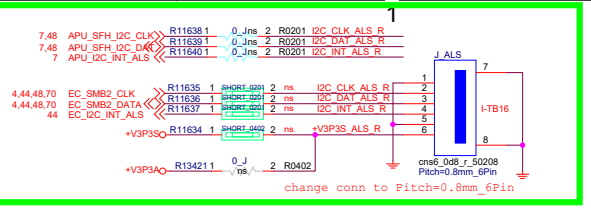
EDP Logic Power



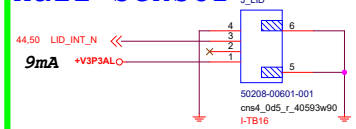
DMIC Power



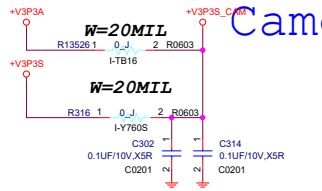
ALS



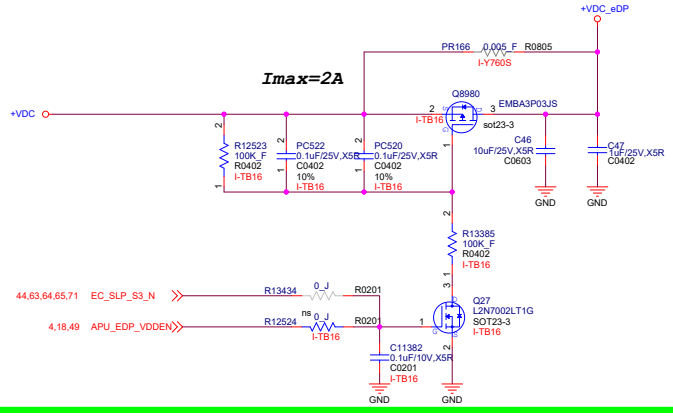
Hall Sensor

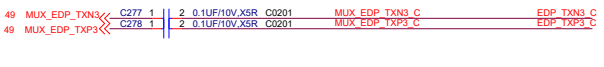


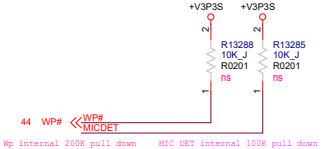
Camera

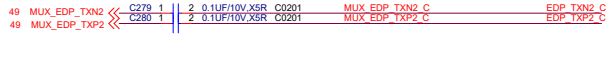


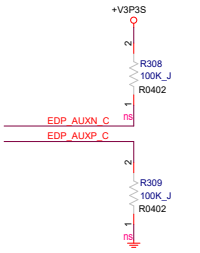
LCD Backlight Power

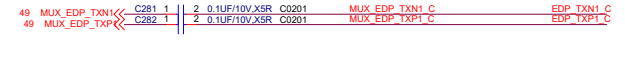


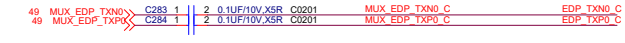


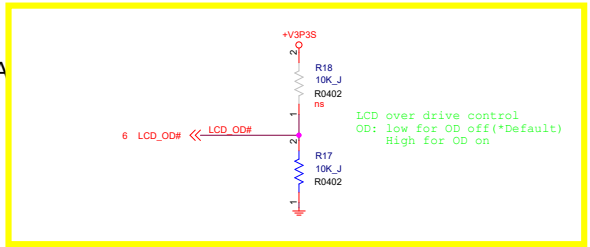


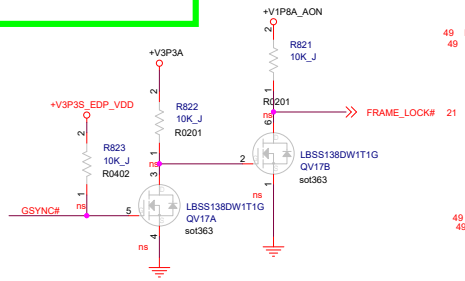






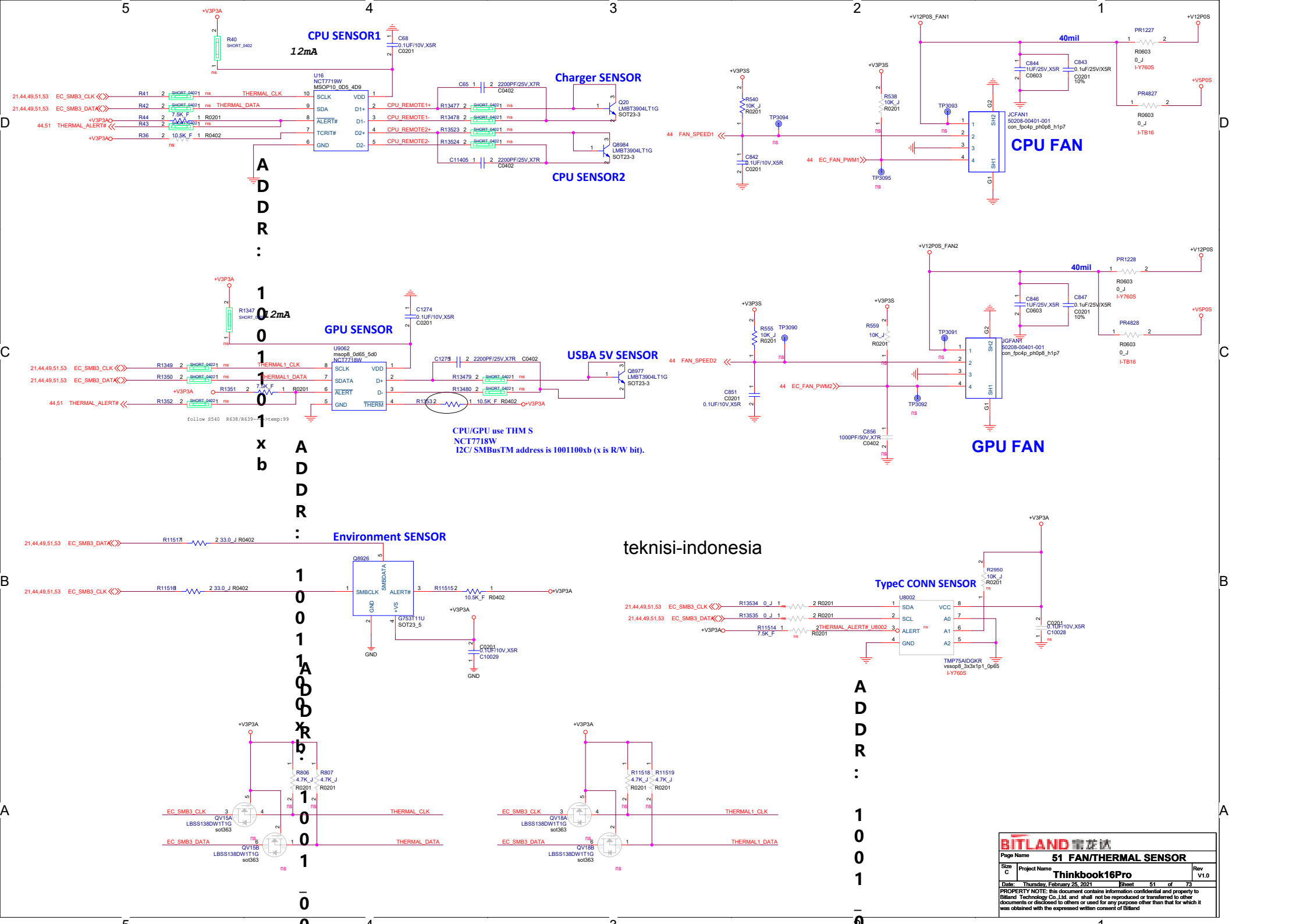


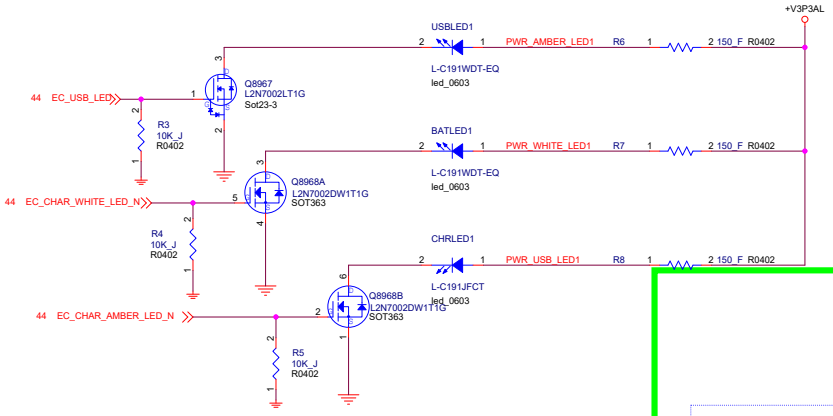


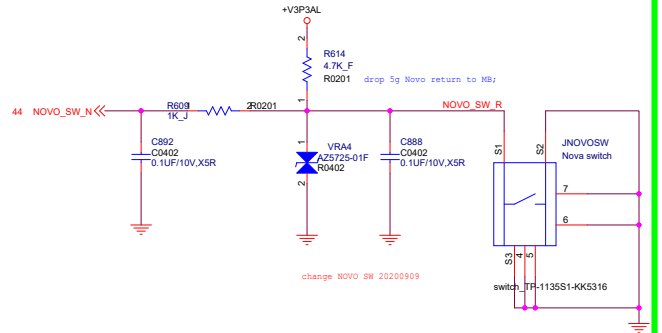


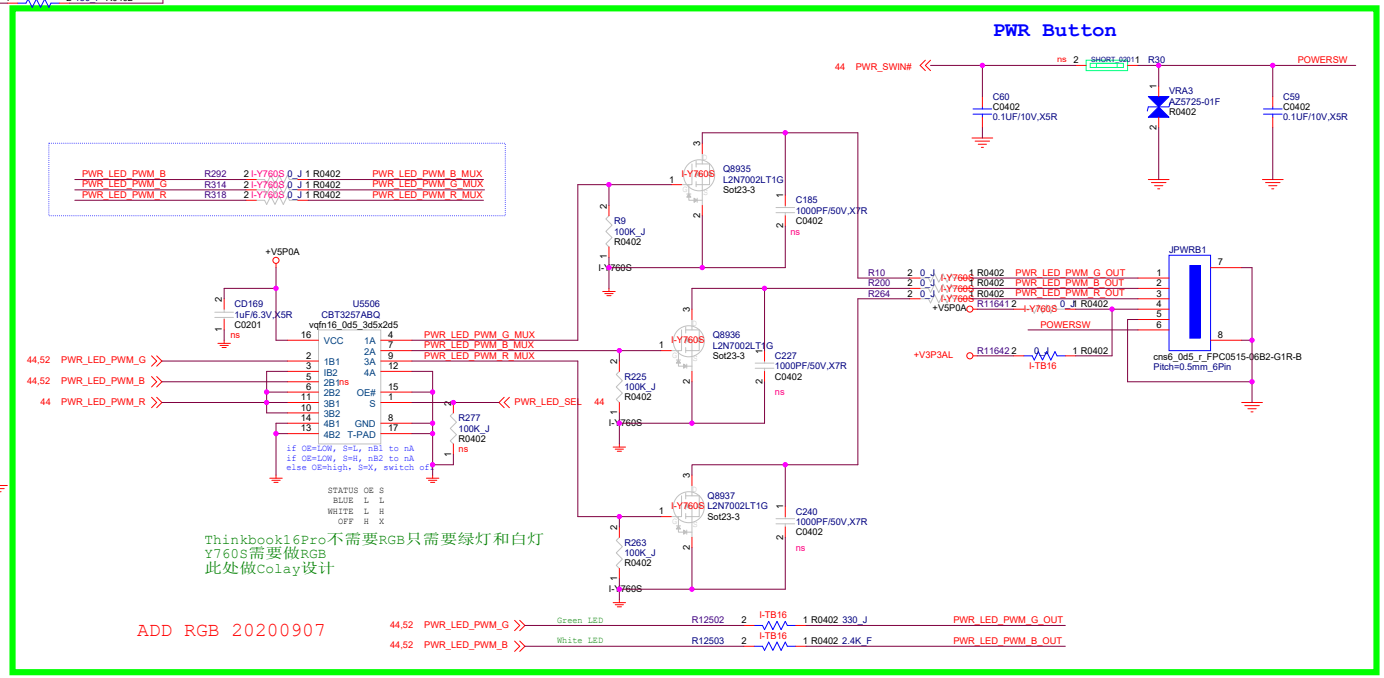
BITLAND

Page Name	50 JLCD/Camera
Size C	Project Name: Thinkbook16Pro
Rev	V1.0
Date:	Thursday, February 25, 2021
Sheet	50 of 73

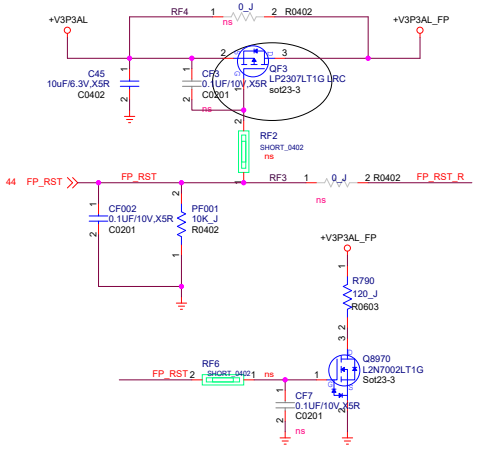

CPU SENSOR1
12mA
Charger SENSOR
CPU SENSOR2
ADDR: 1001100xb
GPU SENSOR
USBA 5V SENSOR
CPU/GPU use THM S
NCT7718W
I2C/ SMBusTM address is 1001100xb (x is R/W bit).
CPU FAN
GPU FAN
Environment SENSOR
ADDR: 1001101xb
TypeC CONN SENSOR
ADDR: 1001_000xb
teknisi-indonesia
BITLAND
Page Name 51 FAN/THERMAL SENSOR
Project Name Thinkbook16Pro
Rev V1.0
Date: Thursday, February 25, 2021
Sheet 51 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

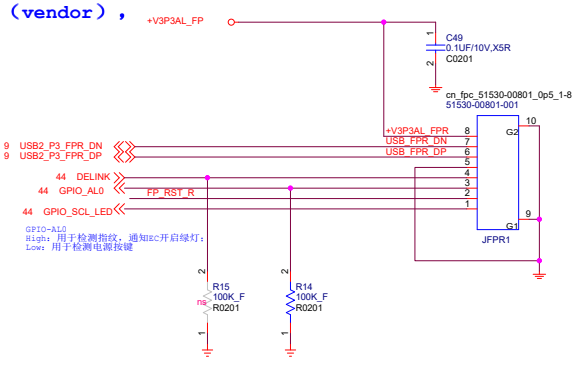




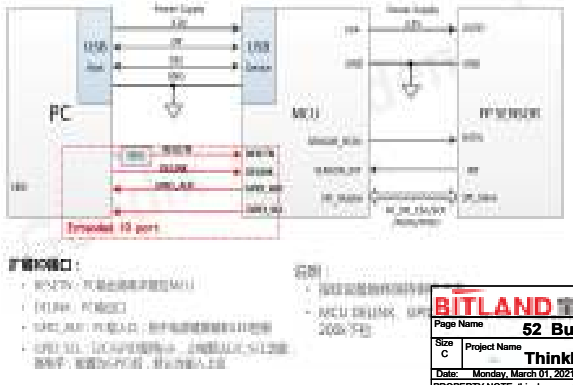


FRP和PWR Button led是集成到一个小板上（vendor），到主板是两个CONN, same as V540;



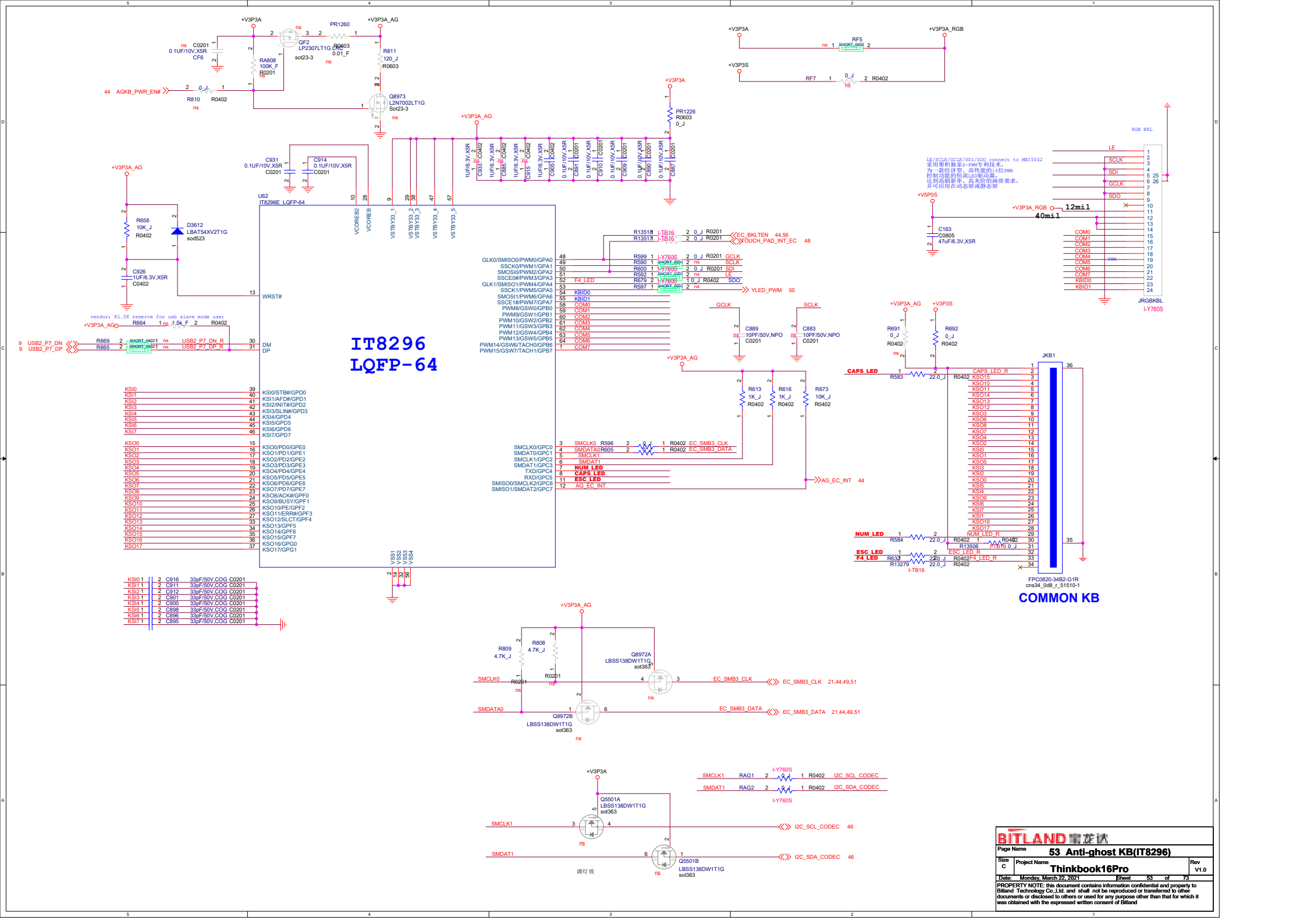


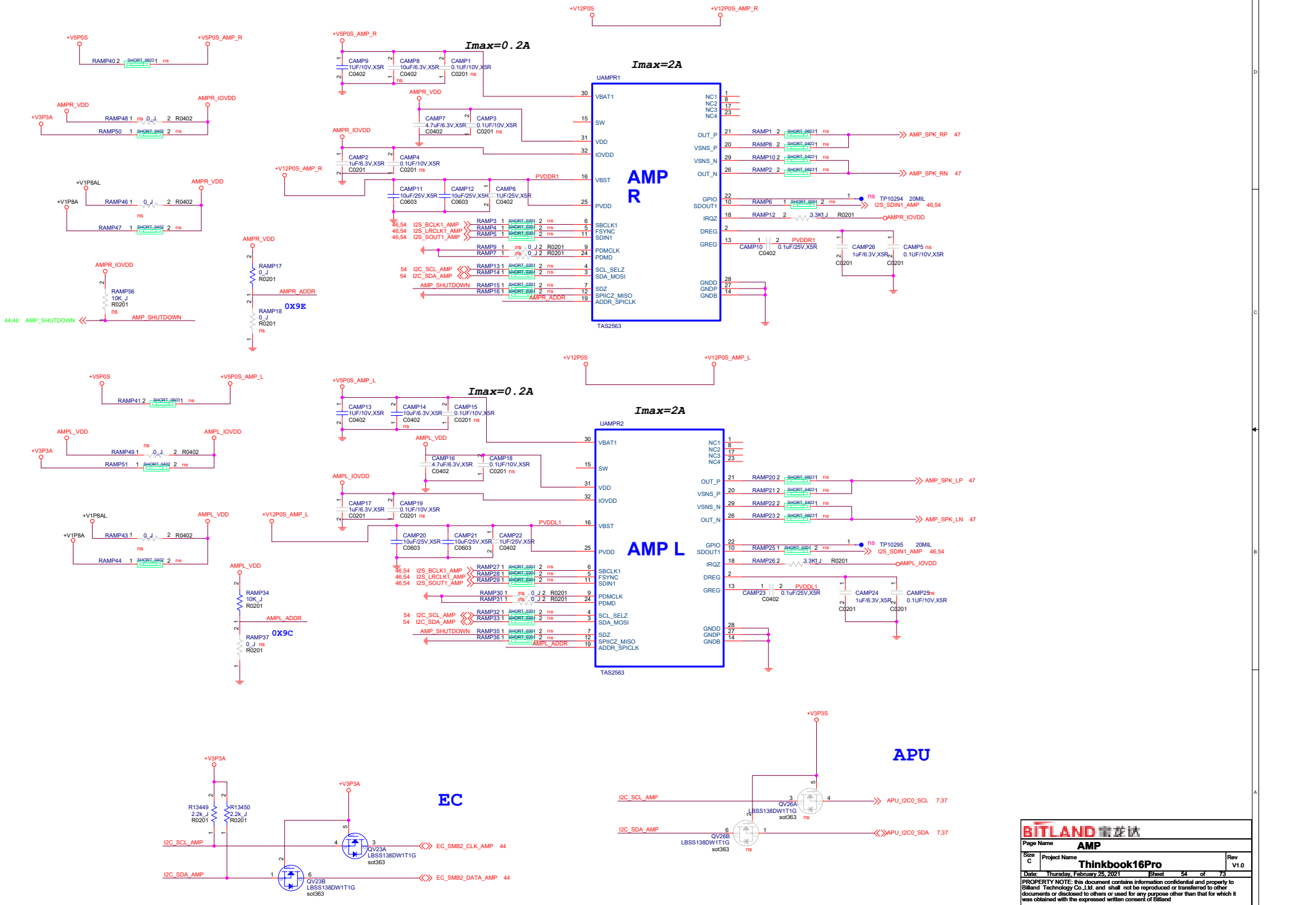
NO.	PIN NAME	PIN DEFINE
1	LED	LED控制信号
2	RESETN	MCU 复位信号
3	GPIO_AL0	电源屏蔽
4	DELINK	电源状态指示
5	GND	信号地
6	DP	USB信号DP
7	DM	USB信号DM
8	D3V3	3.3V电源



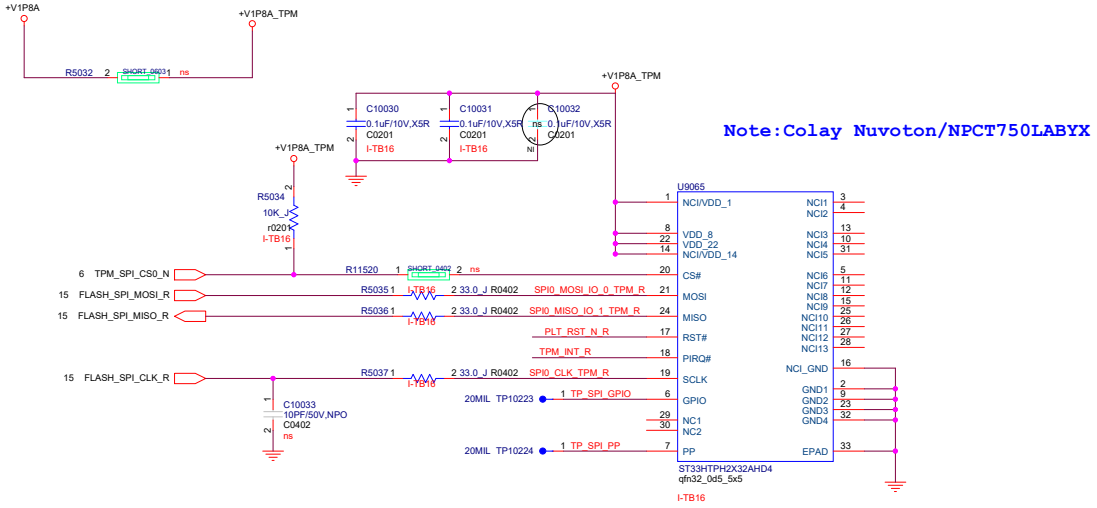
BITLAND 智莱科

Page Name	52 Buttons/PWR LED/FPR/ICON
Size C	Project Name: Thinkbook16Pro
Rev	V1.0
Date:	Monday, March 01, 2021
Sheet	52 of 73

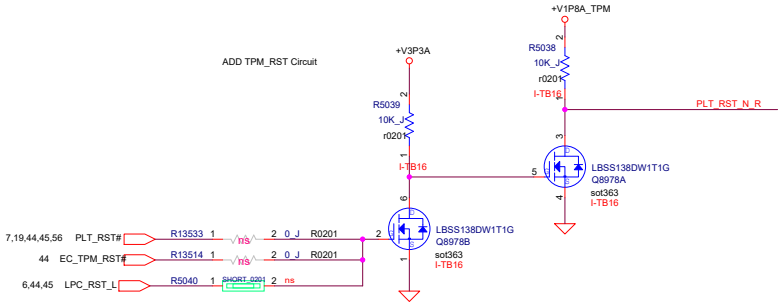

IT8296
LQFP-64
U62
IT8296E_LQFP-64
COMMON KB
JKB1
FPC0820-34B2-G1R
cns34_0d8_r_51510-1
JRGBKBL
I-Y760S
Q8973
L2N7002LT1G
Sot23-3
Q8972A
LBSS138DW1T1G
sot363
Q8972B
LBSS138DW1T1G
sot363
Q5501A
LBSS138DW1T1G
sot363
Q5501B
LBSS138DW1T1G
sot363
D3612
LBAT54XV2T1G
sod523
QF2
LP2307LT1G
sot23-3
调灯效
BITLAND
Page Name
53 Anti-ghost KB(IT8296)
Size
C
Project Name
Thinkbook16Pro
Rev
V1.0
Date: Monday, March 22, 2021
Sheet 53 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

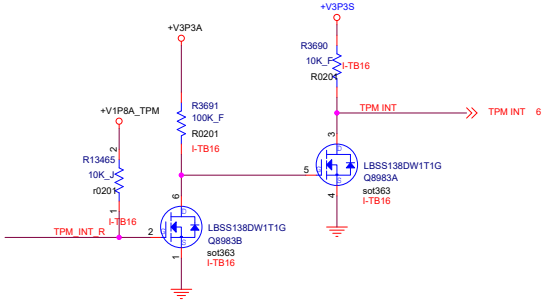

AMP R
AMP L
APU
EC
UAMPR1
UAMPR2
TAS2563
Imax=0.2A
Imax=2A
AMPR_ADDR
0X9E
AMPL_ADDR
0X9C
AMP_SHUTDOWN
I2C_SCL_AMP
I2C_SDA_AMP
I2S_BCLK1_AMP
I2S_LRCLK1_AMP
I2S_SOUT1_AMP
I2S_SDIN1_AMP
EC_SMB2_CLK_AMP
EC_SMB2_DATA_AMP
APU_I2C0_SCL
APU_I2C0_SDA
AMP_SPK_RP
AMP_SPK_RN
AMP_SPK_LP
AMP_SPK_LN
Page Name AMP
Project Name Thinkbook16Pro
Size C
Rev V1.0
Date: Thursday, February 25, 2021
Sheet 54 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

TPM 2.0



Note:Colay Nuvoton/NPCT750LABYX





BITLAND 比特兰德

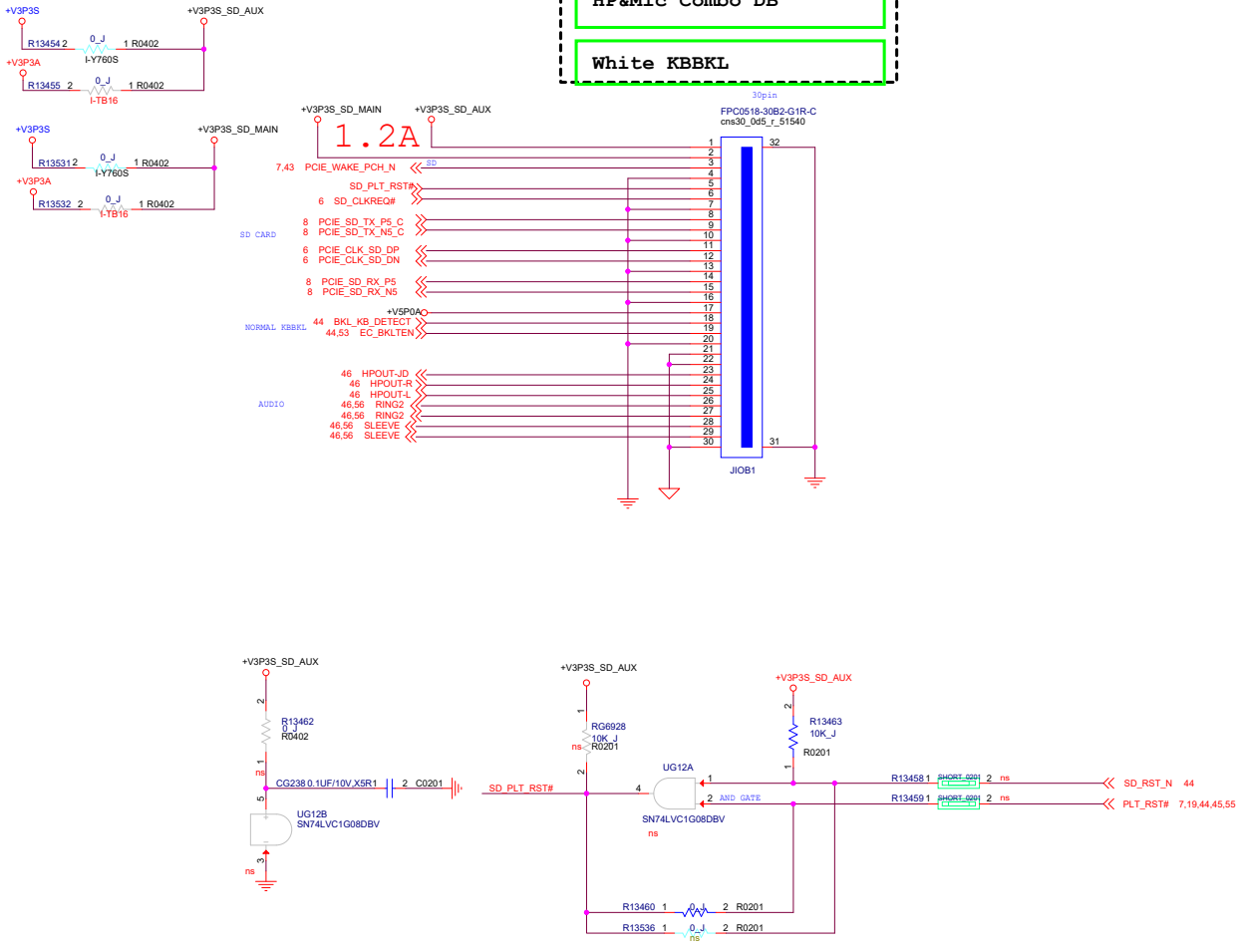
Page Name	NA
Size C / Project Name	Thinkbook16Pro
Rev	V1.0
Date: Thursday, February 25, 2021	Sheet 55 of 73

IO board

SD CARD DB

HP&Mic Combo DB

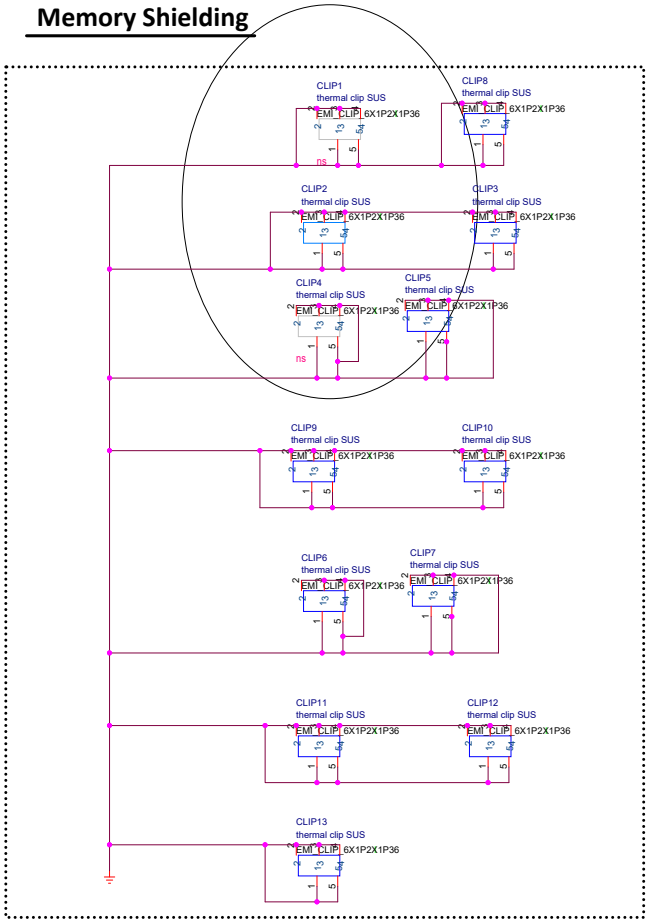
White KBBKL

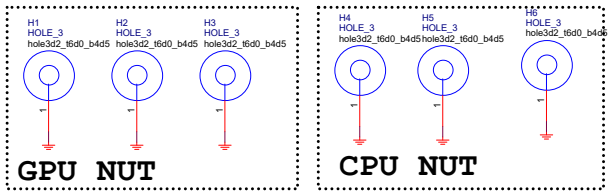


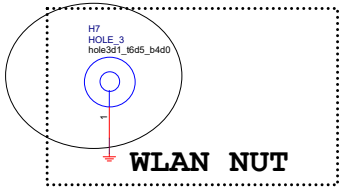
BITLAND 智正达

Page Name	56 LEFT IO BOARD（Audio&SD）	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Thursday, February 25, 2021	Sheet 56 of 73	

Memory Shielding

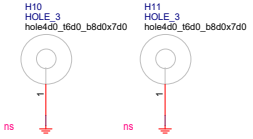




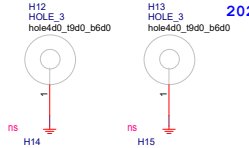


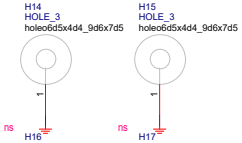
hole3d2_t6d0_b4d5 x6--CPU&GPU
hole3d1_t4d0_b6d5 x1--wlan

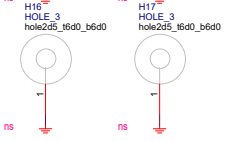
hole4d0_t6d0_b8d0x7d0 x3
holeo5d2x4_to7d2x6_bo7d2x6 x1
hole4d0_t9d0_b6d0 x2
hole4d4_c7d5 x2
hole2d5_t6d0_b6d0 x2

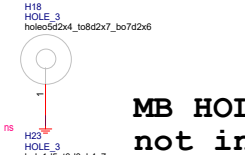


20200923: Delete H9 for Y760S UMA and DIS colay

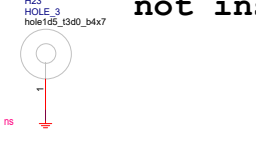


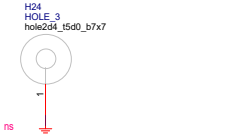




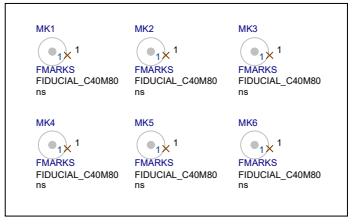


MB HOLE
not install





optical dot
top 3pcs
bot 3pcs



BITLAND

Page Name	57 Hole	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Thursday, March 04, 2021	Sheet 57 of 73	

DRAM and RES

DRAM PN	BOARD ID	CONFIGURE	UZQ E9 Pin	T7 Pin	SDP/DDP M9 Pin
		Samsung 16Gb		NC	SDP
		Samsung 32Gb			DDP
		Micron 16Gb MT40A1G16KD-062E:E		NC	SDP
		Micron 32Gb		NC	DDP
		SK Hynix 16Gb H5ANAG6NCMR-XNC			DDP
		SK Hynix 32Gb			DDP
		Micron 16Gb MT40A1G16RC-062E:B		NC	SDP
		Hynix 16Gb MT40A1G16RC-062E:B		NC	SDP

VRAM and RES

VRAM CONFIGURE	BOARD ID	VRAM PN
SAMSUNG		
SK Hynix		
MICRON		

APU PN

MB PN

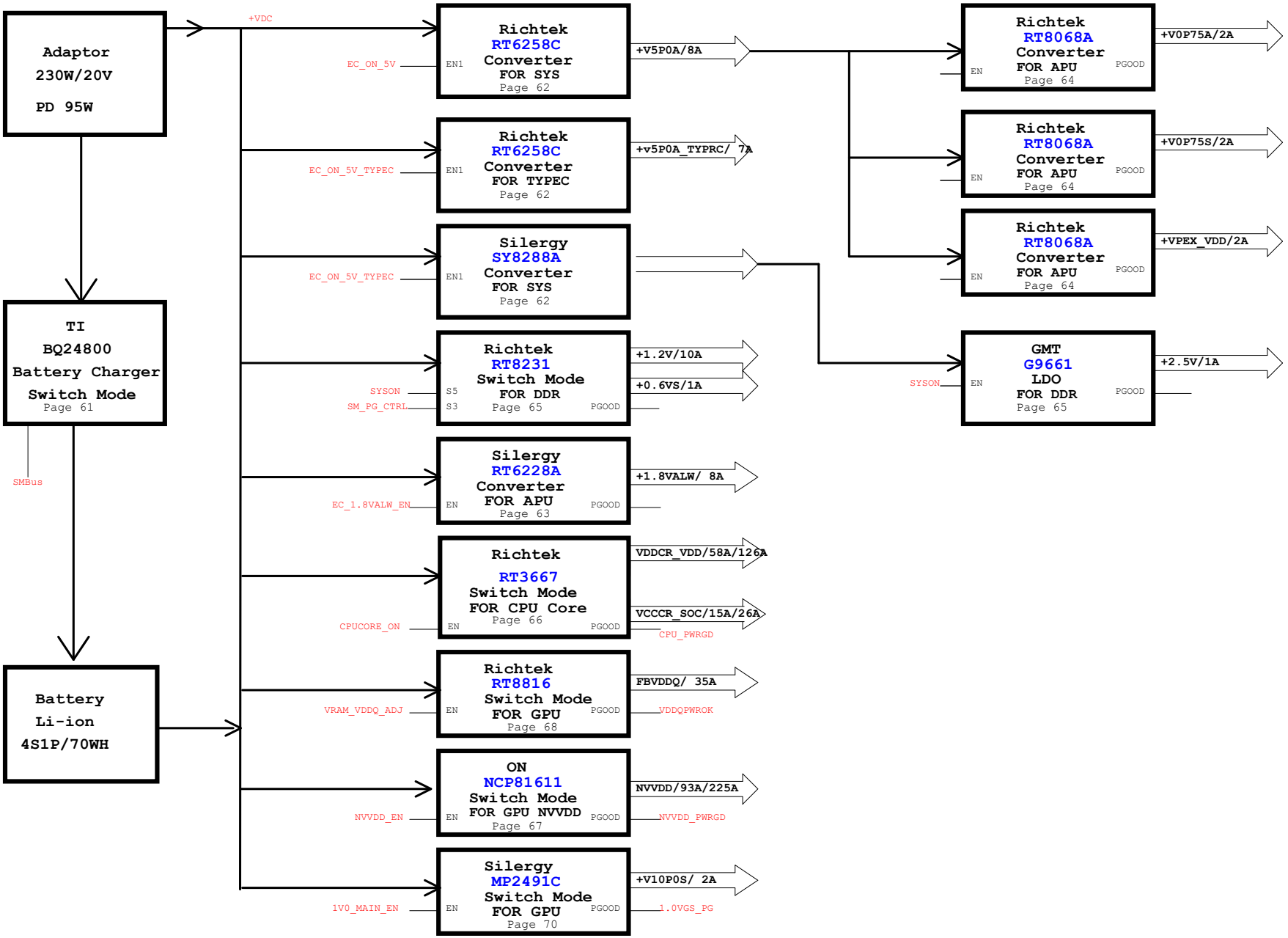
DIS or UMA

UMA or DIS	BOARD ID
UMA	
DIS	

GPU CONFIGURE	BOARD ID	
E3		
P1-B		

GPU_DID

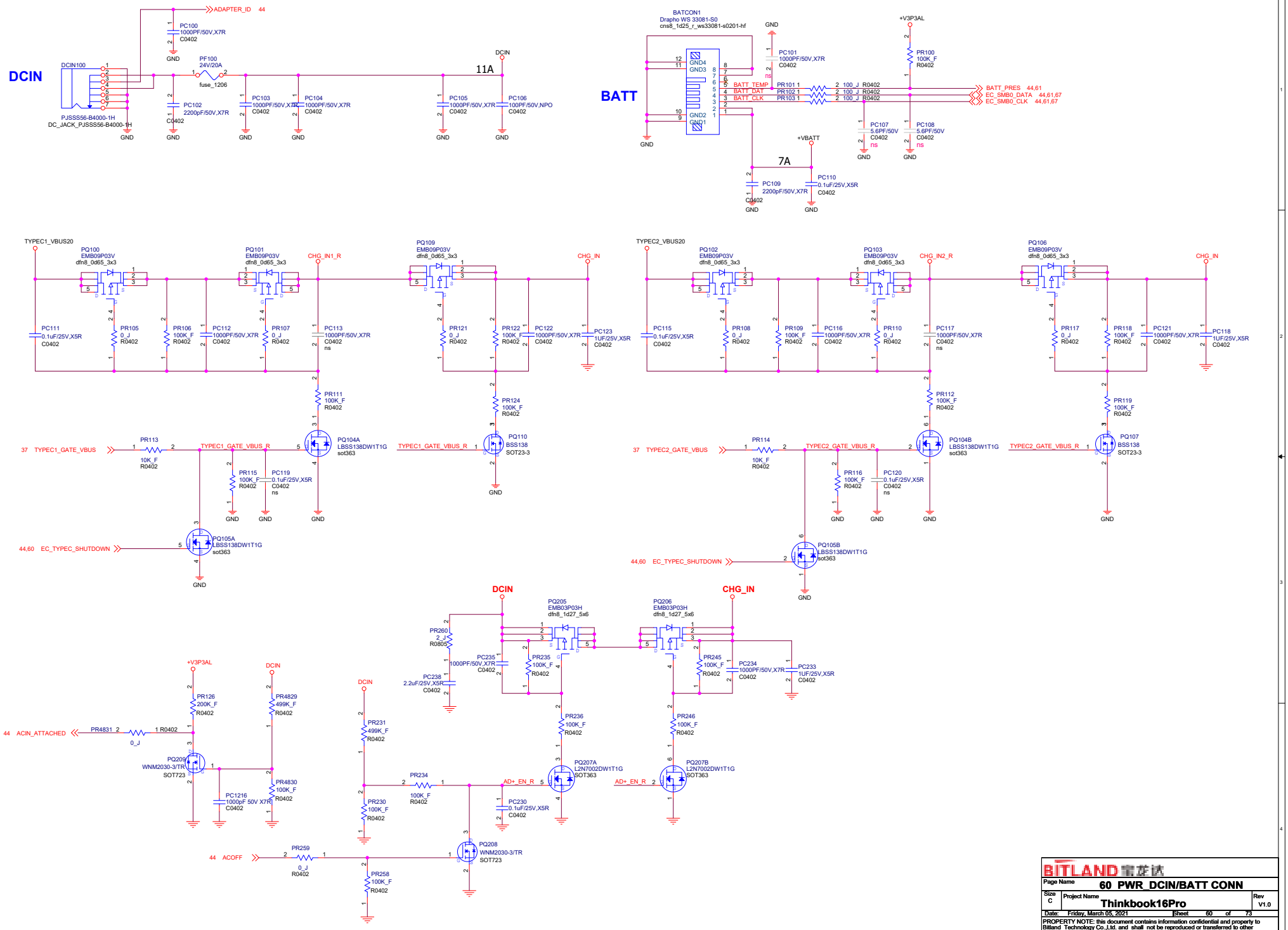
Page Name	NA
Size	Project Name Y7000S
Date	Rev 01.0



BITLAND 比泰电子

Page Name	59 NA	
Size C	Project Name Thinkbook16Pro	Rev V1.0
Date: Wednesday, January 13, 2021	Sheet 59 of 73	

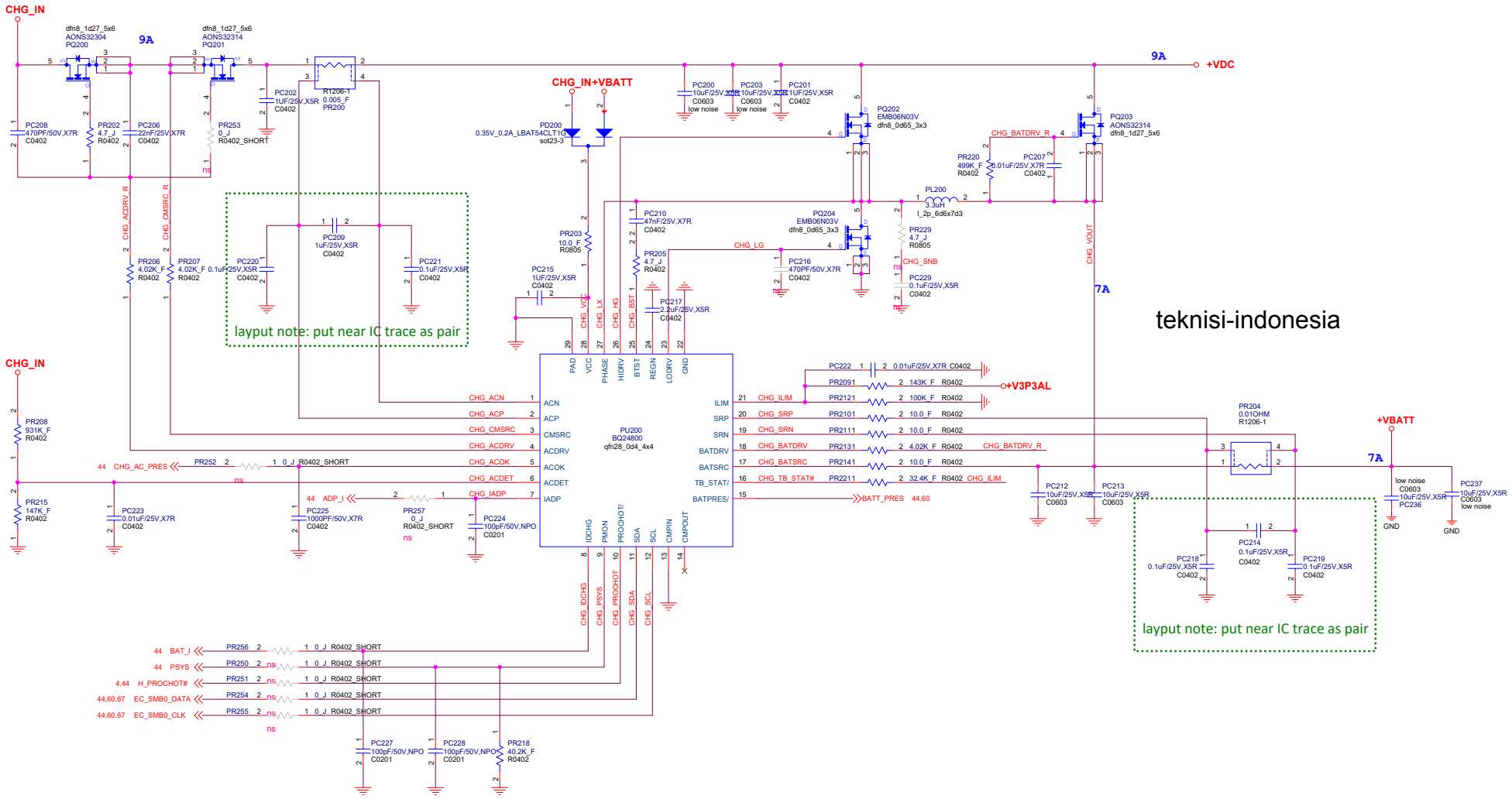
DCIN/BATTERY CONNECTOR



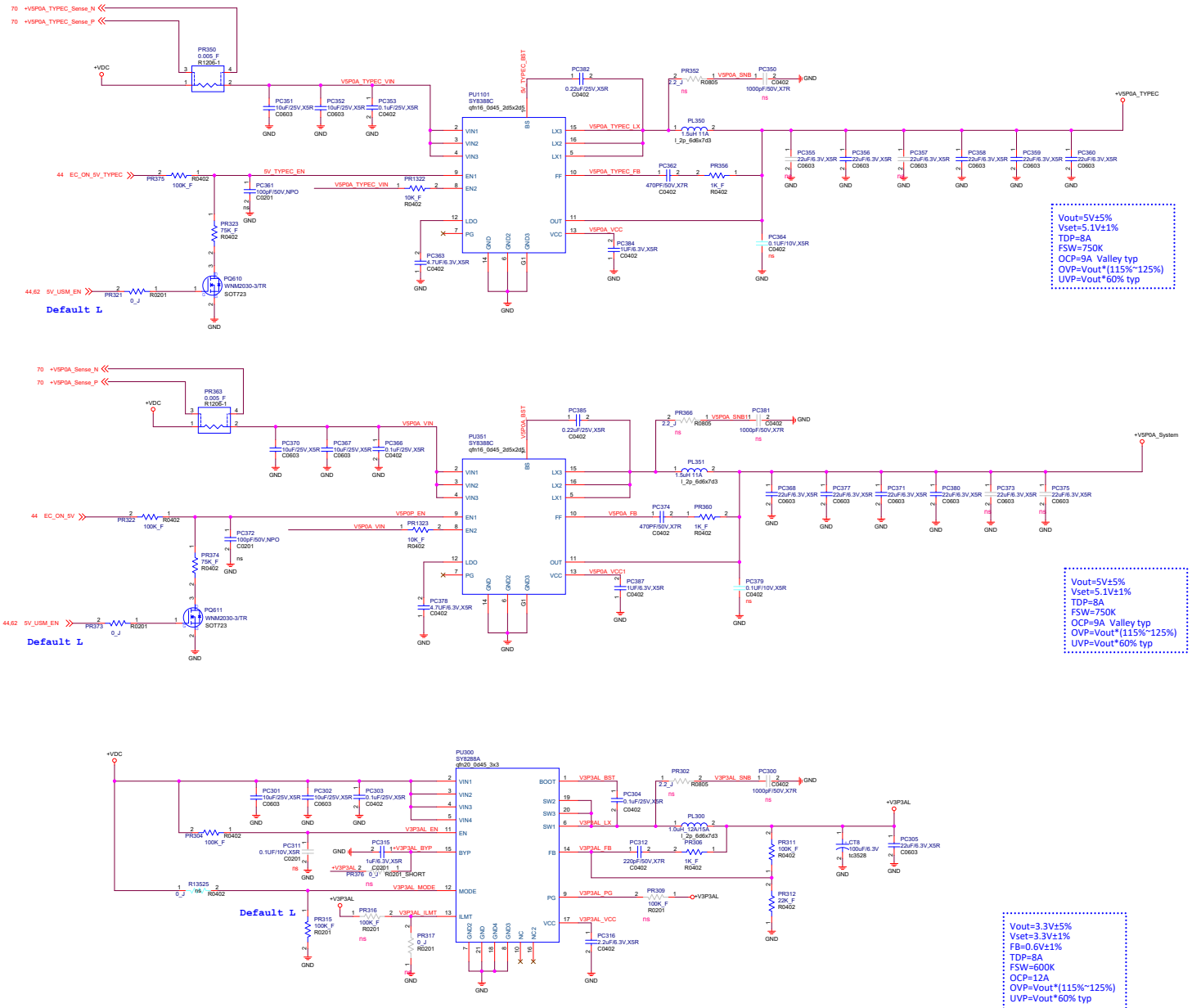
BITLAND 比特大陆

Page Name	60 PWR_DCIN/BATT CONN
Size C	Project Name: Thinkbook16Pro
Rev	V1.0
Date:	Friday, March 05, 2021
Sheet	60 of 73

BATTERY CHARGER

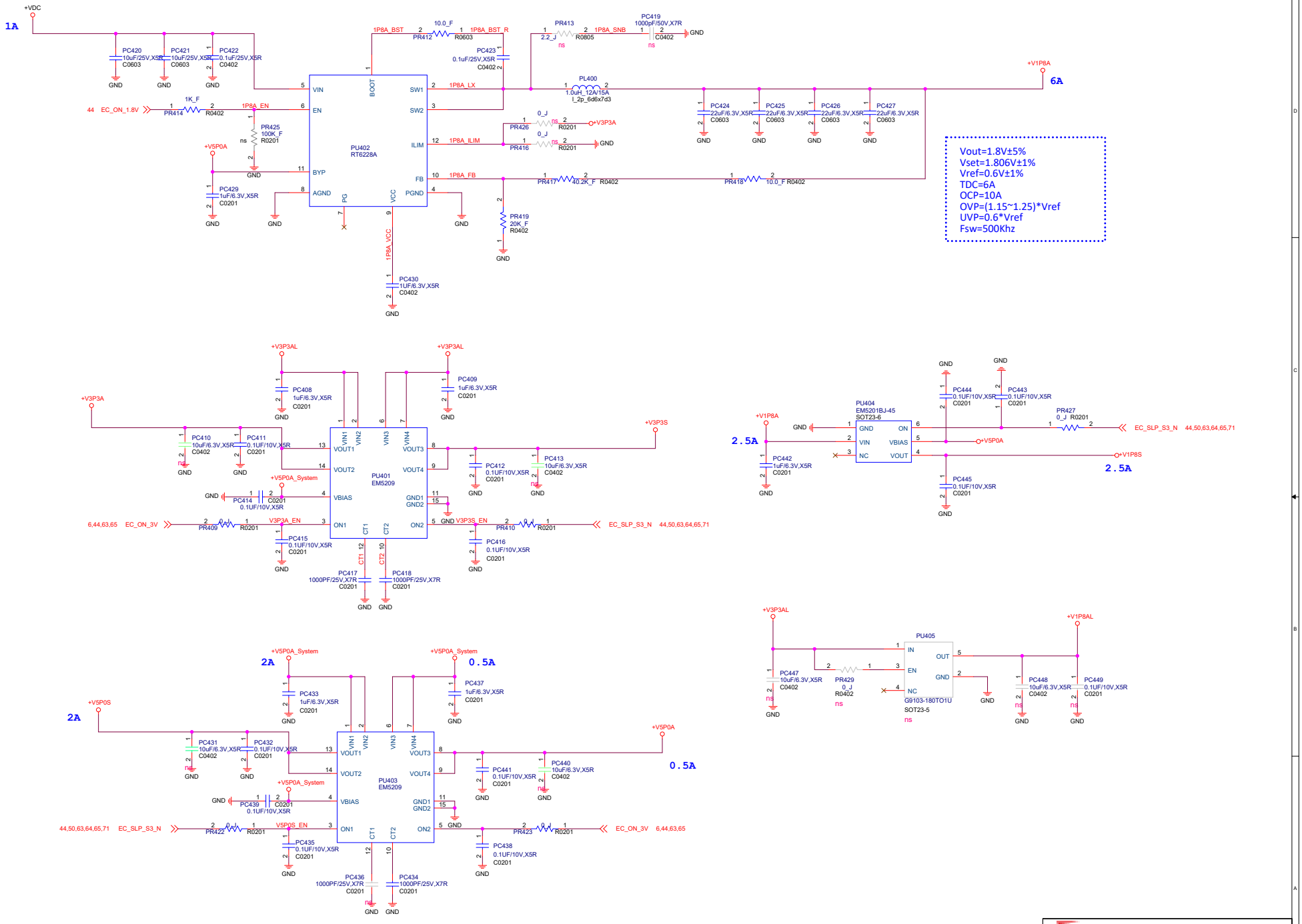


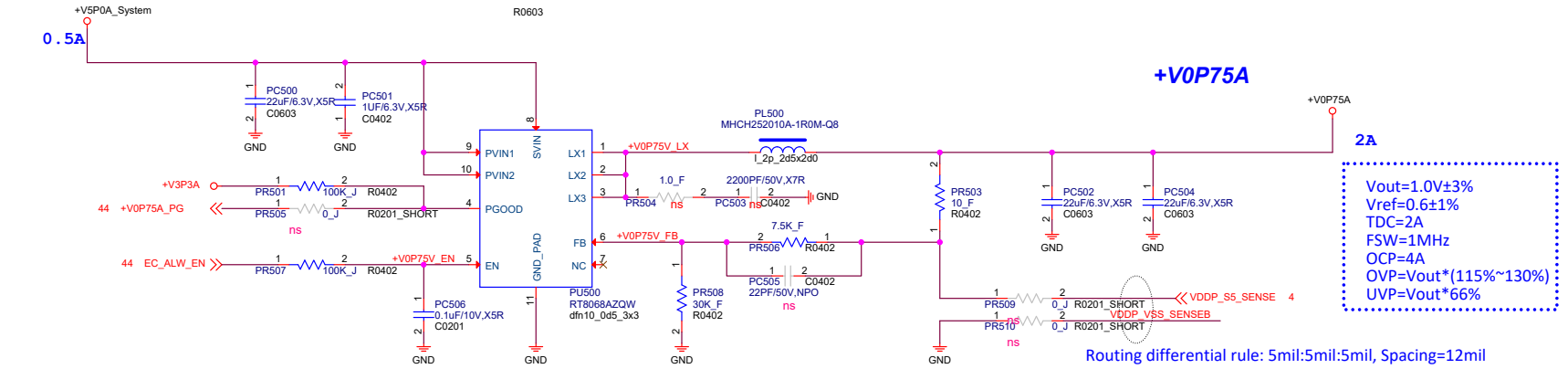
Page Name	61 PWR CHARGE BQ24800
Size	C
Project Name	Thinkbook16Pro
Rev	V1.0
Date:	Friday, March 05, 2021
Sheet	61 of 73

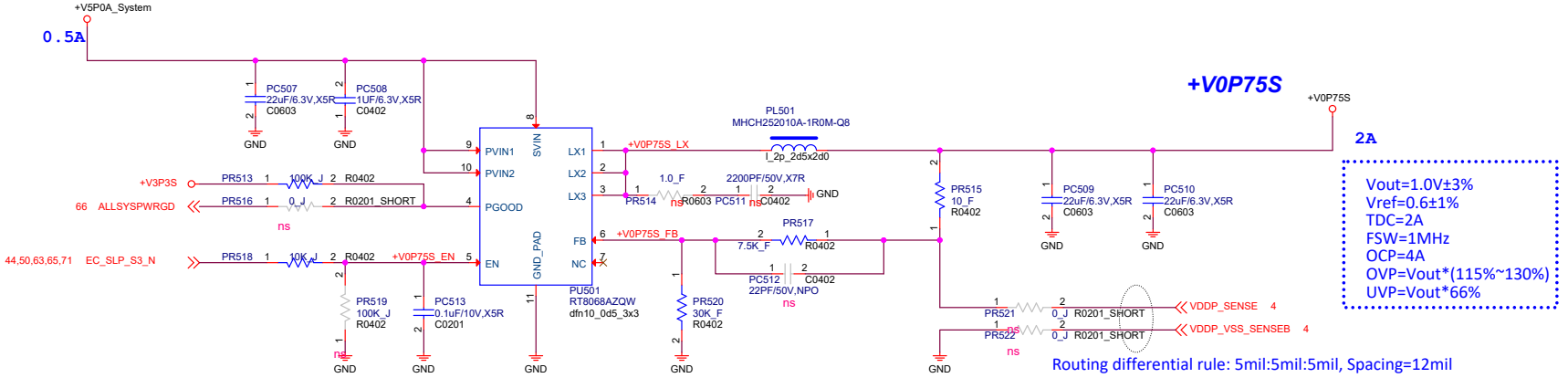


BITLAND 比亚迪

Page Name	62_PWR V5P0A/V3P3A
Size: Custom	Project Name: Thinkbook16Pro
Rev: V1.0	
Date: Friday, March 05, 2021	Sheet 62 of 73

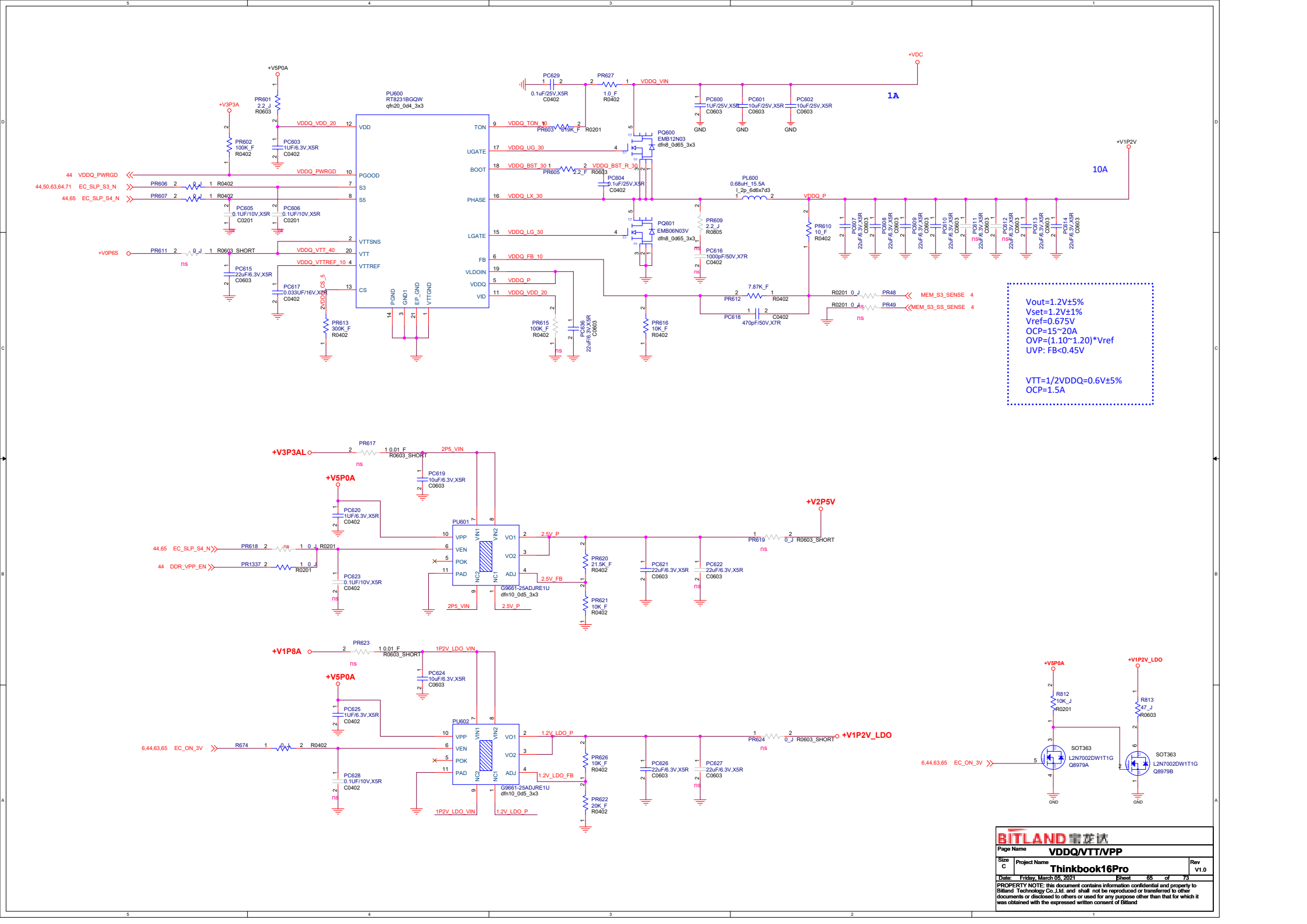

1A
+VDC
PU402
RT6228A
VIN
EN
BYP
AGND
BOOT
SW1
SW2
ILIM
FB
PGND
PG
VCC
1P8A_BST
1P8A_LX
1P8A_ILIM
1P8A_FB
1P8A_VCC
1P8A_EN
1P8A_BST_R
1P8A_SNB
+V1P8A
6A
+V3P3A
+V5P0A
Vout=1.8V±5%
Vset=1.806V±1%
Vref=0.6V±1%
TDC=6A
OCP=10A
OVP=(1.15~1.25)*Vref
UVP=0.6*Vref
Fsw=500Khz
PU401
EM5209
+V3P3AL
+V3P3A
+V3P3S
+V5P0A_System
V3P3A_EN
EC_ON_3V
EC_SLP_S3_N
PU404
EM5201BJ-45
SOT23-6
2.5A
+V1P8S
PU403
EM5209
2A
+V5P0S
V5P0S_EN
0.5A
PU405
G9103-180TO1U
SOT23-5
+V1P8AL
Page Name
63 PWR V1P8A/V5P0S/V3P3S
Size
C
Project Name
Thinkbook16Pro
Rev
V1.0
Date: Friday, March 05, 2021
Sheet 63 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland

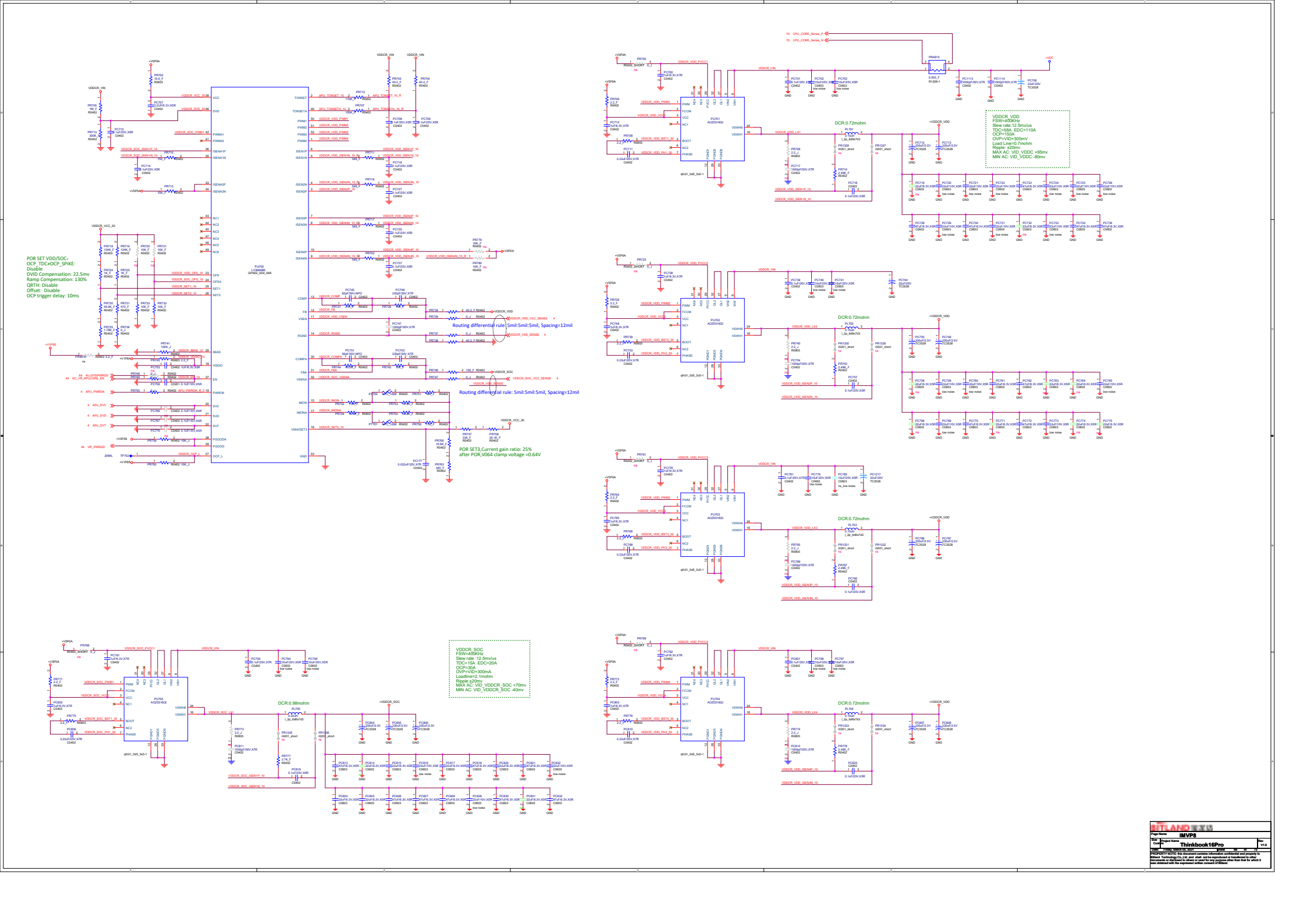




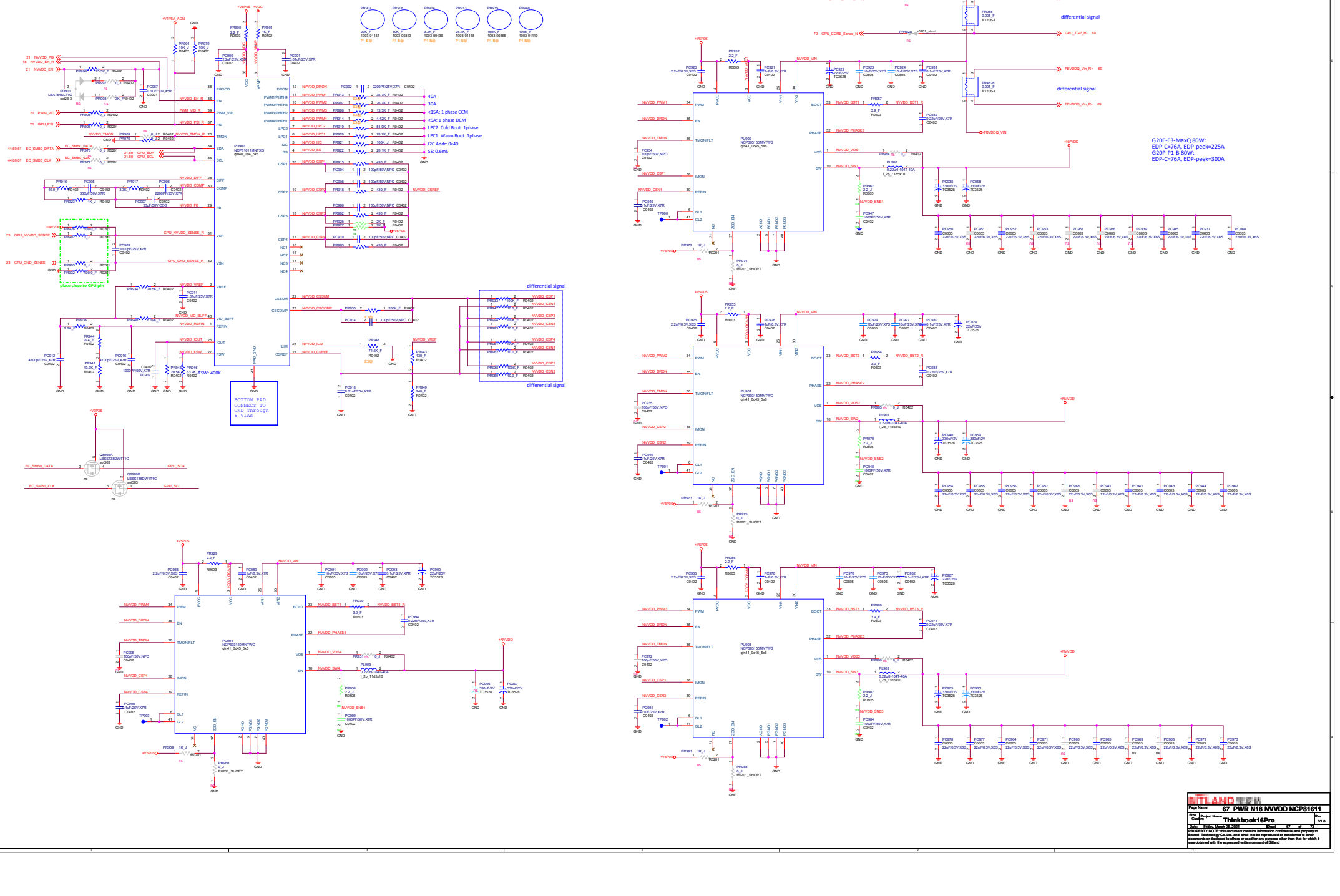
BITLAND 宝龙达

Page Name	+0.75V	
Size: Custom	Project Name: Thinkbook16Pro	Rev: V1.0
Date: Friday, March 05, 2021	Sheet 64 of 73	


+V5P0A
+V3P3A
PR601 2.2_J R0603
PR602 100K_F R0402
PC603 1UF/6.3V,X5R C0402
PU600 RT8231BGQW qfn20_0d4_3x3
VDD
PGOOD
S3
S5
VTTSNS
VTT
VTTREF
CS
TON
UGATE
BOOT
PHASE
LGATE
FB
VLDOIN
VDDQ
VID
PGND
GND1
EP_GND
VTTGND
VDDQ_VDD_20
VDDQ_PWRGD
VDDQ_VTT_40
VDDQ_VTTREF_10
VDDQ_TON_10
VDDQ_UG_30
VDDQ_BST_30
VDDQ_LX_30
VDDQ_LG_30
VDDQ_FB_10
VDDQ_P
VDDQ_VDD_20
2VDDQ_CS_5
44 VDDQ_PWRGD
44,50,63,64,71 EC_SLP_S3_N
44,65 EC_SLP_S4_N
PR606 0_J R0402
PR607 0_J R0402
PC605 0.1UF/10V,X5R C0201
PC606 0.1UF/10V,X5R C0201
+V0P6S
PR611 0_J R0603_SHORT
ns
PC615 22uF/6.3V,X5R C0603
PC617 0.033UF/16V,X5R C0402
PR613 300K_F R0402
PC629 0.1uF/25V,X5R C0402
PR627 1.0_F R0402
VDDQ_VIN
1A
PC600 1UF/25V,X5R C0603
PC601 10uF/25V,X5R C0603
PC602 10uF/25V,X5R C0603
GND
+VDC
PR603 619K_F R0201
PQ600 EMB12N03 dfn8_0d65_3x3
PR605 2.2_F R0603
PC604 0.1uF/25V,X5R C0402
PL600 0.68uH_15.5A I_2p_6d6x7d3
PQ601 EMB06N03V dfn8_0d65_3x3
PR609 2.2_J R0805
PC616 1000pF/50V,X7R C0402
PR610 10_F R0402
PC607 22uF/6.3V,X5R C0603
PC608 22uF/6.3V,X5R C0603
PC609 22uF/6.3V,X5R C0603
PC610 22uF/6.3V,X5R C0603
PC611 22uF/6.3V,X5R C0603
PC612 22uF/6.3V,X5R C0603
PC613 22uF/6.3V,X5R C0603
PC614 22uF/6.3V,X5R C0603
+V1P2V
10A
PR612 7.87K_F R0402
PC618 470pF/50V,X7R C0402
R0201 0_J PR48
R0201 0_J PR49
MEM_S3_SENSE 4
MEM_S3_SS_SENSE 4
PR615 100K_F R0402
PC636 22uF/6.3V,X5R C0603
PR616 10K_F R0402
Vout=1.2V±5%
Vset=1.2V±1%
Vref=0.675V
OCP=15~20A
OVP=(1.10~1.20)*Vref
UVP: FB<0.45V
VTT=1/2VDDQ=0.6V±5%
OCP=1.5A
+V3P3AL
PR617 0.01_F R0603_SHORT
2P5_VIN
PC619 10uF/6.3V,X5R C0603
PC620 1UF/6.3V,X5R C0402
PU601 G9661-25ADJRE1U dfn10_0d5_3x3
VPP
VEN
POK
PAD
VIN1
VIN2
NC2
NC1
VO1
VO2
ADJ
2.5V_P
2.5V_FB
+V2P5V
44,65 EC_SLP_S4_N
44 DDR_VPP_EN
PR618 0_J R0201
PR1337 0_J R0201
PC623 0.1UF/10V,X5R C0402
PR620 21.5K_F R0402
PR621 10K_F R0402
PC621 22uF/6.3V,X5R C0603
PC622 22uF/6.3V,X5R C0603
PR619 0_J R0603_SHORT
+V1P8A
PR623 0.01_F R0603_SHORT
1P2V_LDO_VIN
PC624 10uF/6.3V,X5R C0603
PC625 1UF/6.3V,X5R C0402
PU602 G9661-25ADJRE1U dfn10_0d5_3x3
1.2V_LDO_P
1.2V_LDO_FB
6,44,63,65 EC_ON_3V
R674 0_J R0402
PC628 0.1UF/10V,X5R C0402
PR626 10K_F R0402
PR622 20K_F R0402
PC626 22uF/6.3V,X5R C0603
PC627 22uF/6.3V,X5R C0603
PR624 0_J R0603_SHORT
+V1P2V_LDO
+V5P0A
R812 10K_J R0201
R813 47_J R0603
SOT363 L2N7002DW1T1G Q8979A
SOT363 L2N7002DW1T1G Q8979B
6,44,63,65 EC_ON_3V
GND
BITLAND
Page Name VDDQ/VTT/VPP
Size C
Project Name Thinkbook16Pro
Rev V1.0
Date: Friday, March 05, 2021
Sheet 65 of 73
PROPERTY NOTE: this document contains information confidential and property to Bitland Technology Co.,Ltd. and shall not be reproduced or transferred to other documents or disclosed to others or used for any purpose other than that for which it was obtained with the expressed written consent of Bitland


POR SET VDD/SOC:
OCP_TDC=OCP_SPIKE:
Disable
DVID Compensation: 22.5mv
Ramp Compensation: 130%
QRTH: Disable
Offset: Disable
OCP trigger delay: 10ms
Routing differential rule: 5mil:5mil:5mil, Spacing=12mil
Routing differential rule: 5mil:5mil:5mil, Spacing=12mil
POR SET3,Current gain ratio: 25%
after POR,V064 clamp voltage =0.64V
VDDCR_SOC
FSW=400KHz
Slew rate :12.5mv/us
TDC=15A EDC=20A
OCP=30A
OVP=VID+300mA
Loadline=2.1mohm
Ripple: ±20mv
MAX AC: VID_VDDCR_SOC +70mv
MIN AC: VID_VDDCR_SOC -40mv
VDDCR_VDD
FSW=400KHz
Slew rate:12.5mv/us
TDC=58A, EDC=110A
OCP=150A
OVP=VID+300mV
Load Line=0.7mohm
Ripple: ±20mv
MAX AC: VID_VDDC +95mv
MIN AC: VID_VDDC -80mv
DCR:0.72mohm
DCR:0.98mohm
Thinkbook16Pro
IMVP8

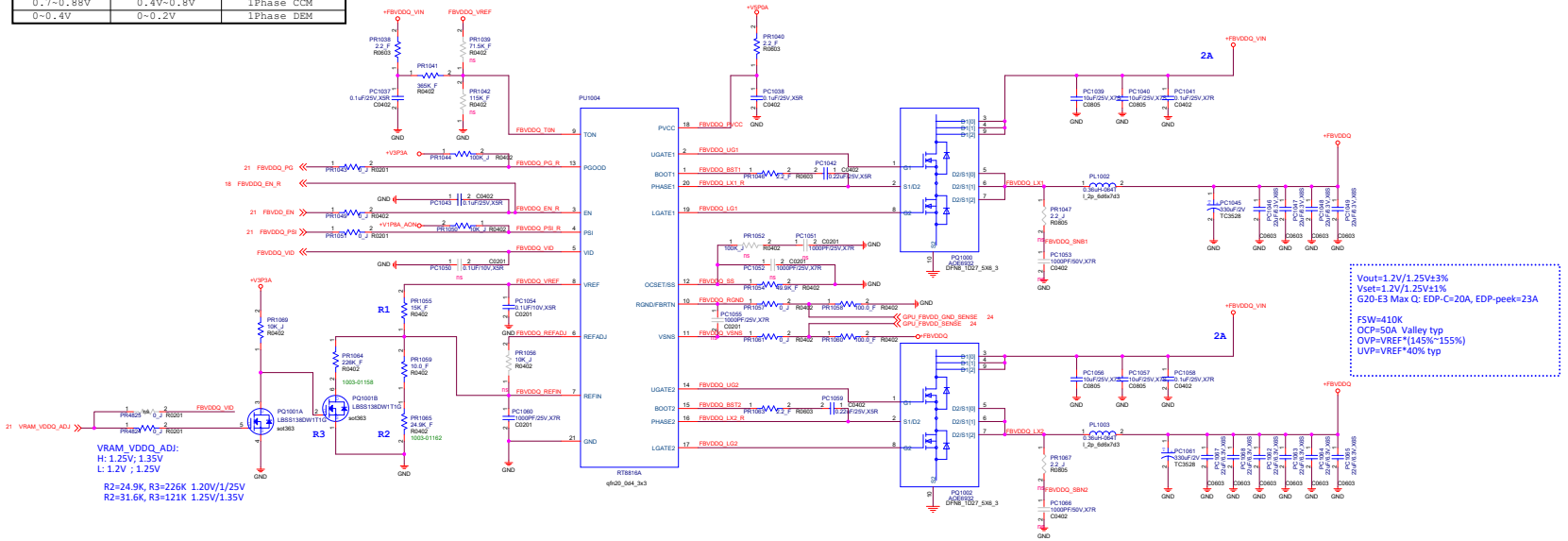
GPU Core power



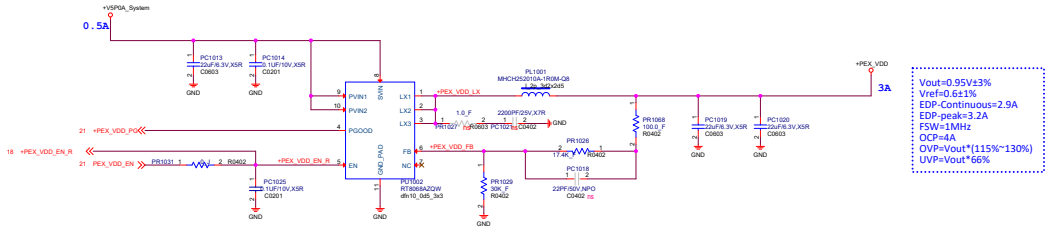
Page Name	67_PWR N18 NVVDD NCP81611
Size	Project Name: Thinkbook16Pro
Custom	Rev: V1.0
Date: Friday, March 05, 2021	Sheet 67 of 73

RT8816 PSI	UP1666 PSI	Phase Configuration
1.6V~5.5V	1.6~5.5V	2Phase CCM
1.08~1.35V	1~1.4V	2Phase DEM
0.7~0.88V	0.4V~0.8V	1Phase CCM
0~0.4V	0~0.2V	1Phase DEM

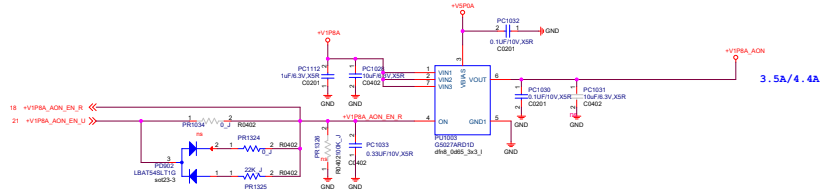
GPU VRAM POWER



GPU PEX_VDD

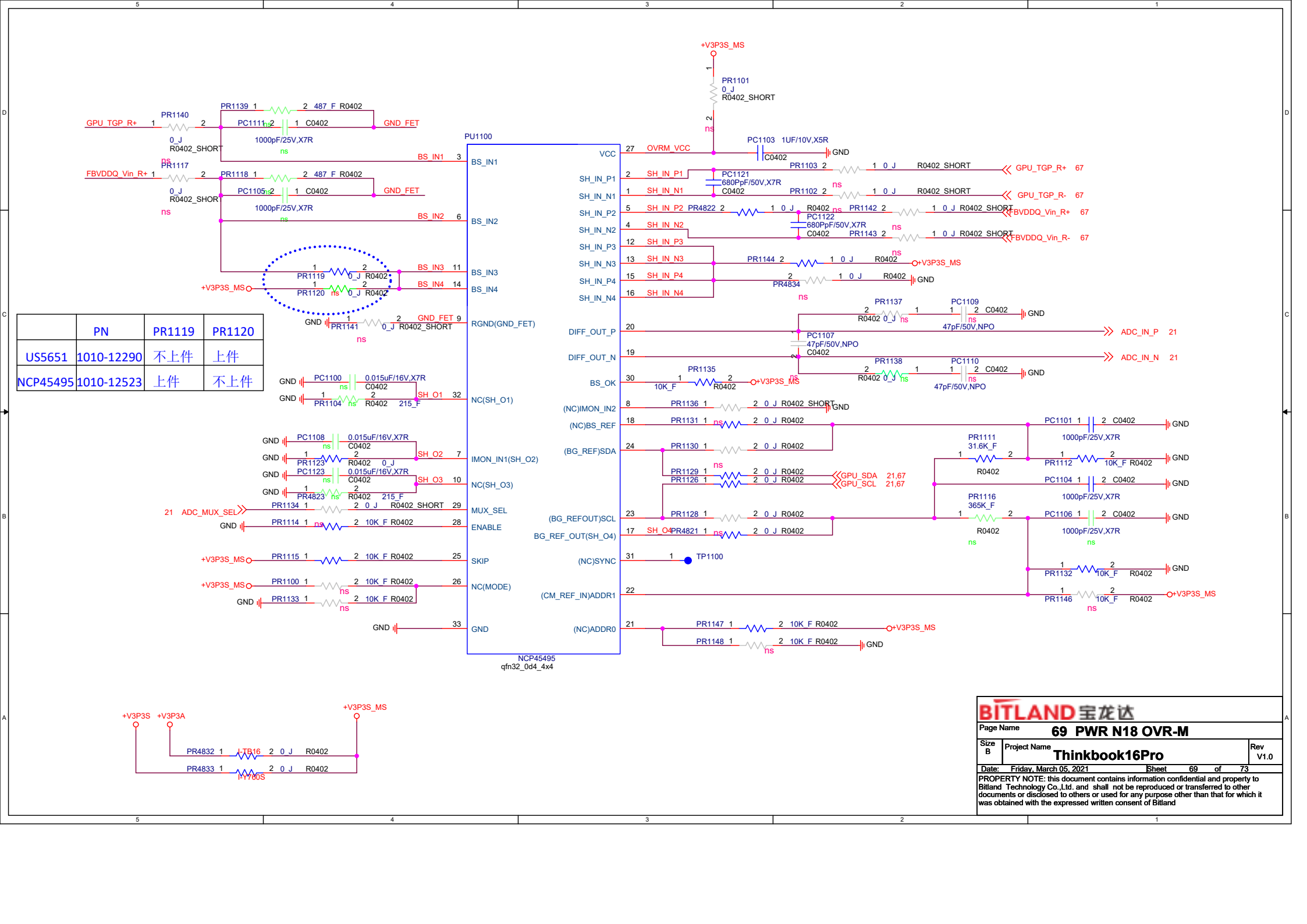


GPU 1.8V



BITLAND

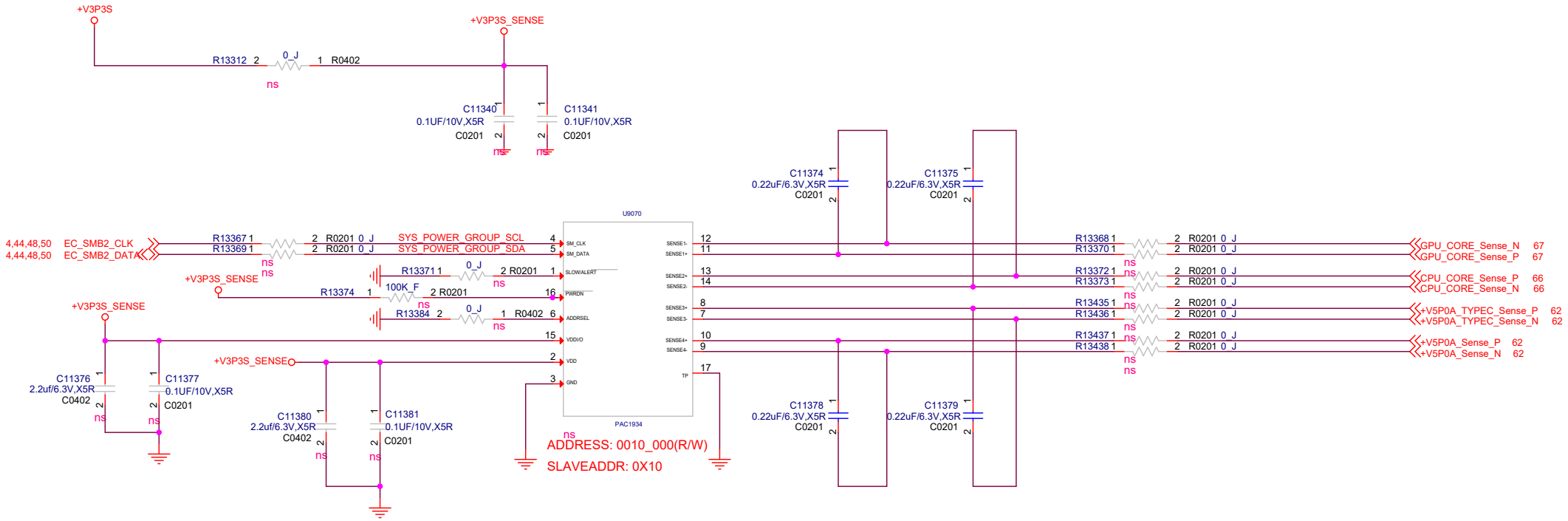
Page Name	68 PWR N18 FBVDD RT8816
Size: D	Project Name: Thinkbook16Pro
Rev: V1.0	
Date: Friday, March 05, 2021	Sheet 68 of 73



	PN	PR1119	PR1120
US5651	1010-12290	不上件	上件
NCP45495	1010-12523	上件	不上件

BITLAND 宝龙达

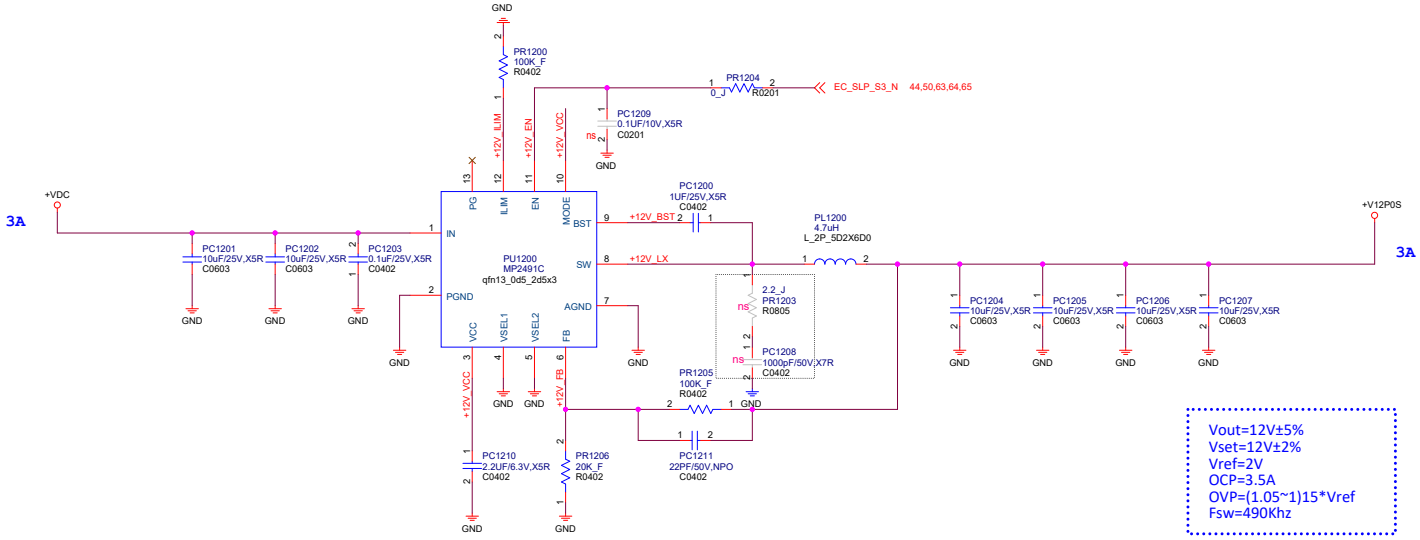
Page Name	69 PWR N18 OVR-M	
Size B	Project Name Thinkbook16Pro	Rev V1.0
Date: Friday, March 05, 2021	Sheet 69 of 73	



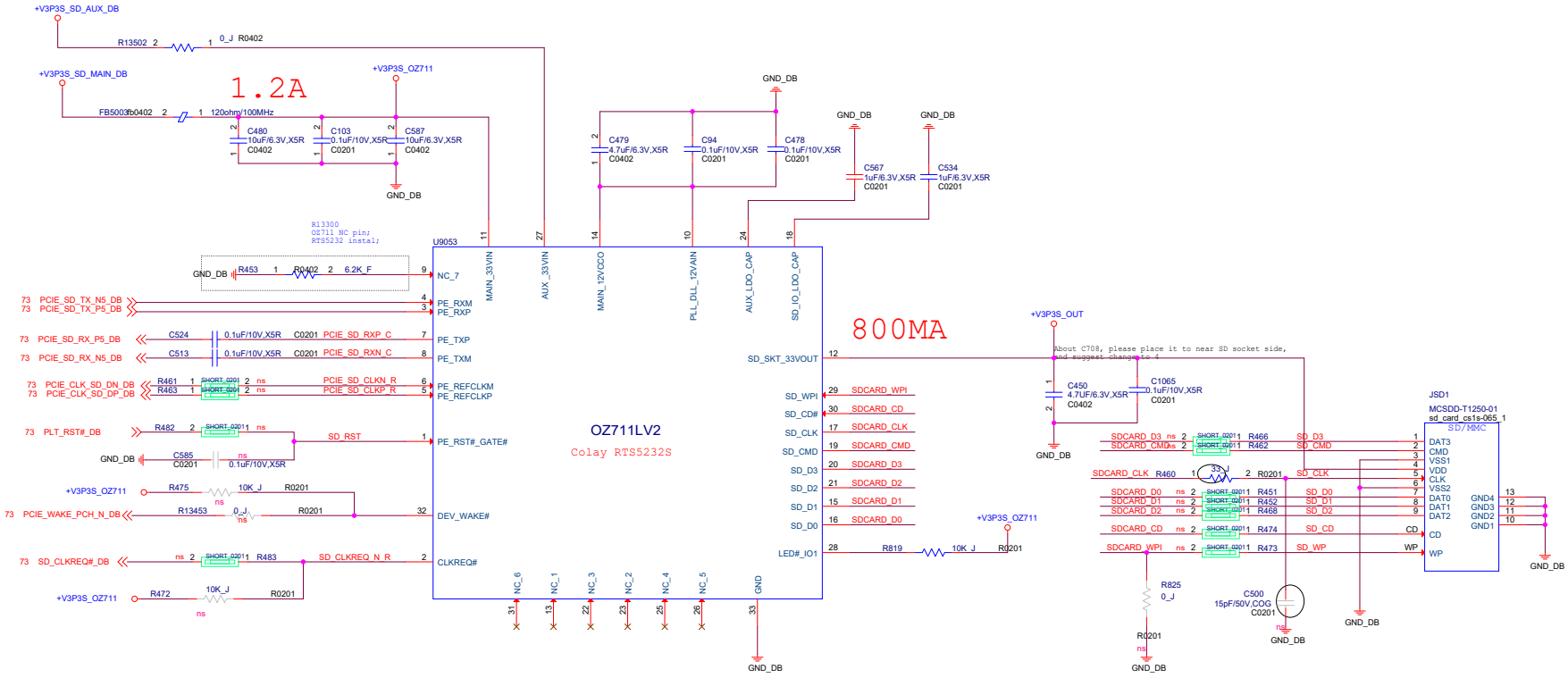
BITLAND 宝龙达

Page Name	70 PWR CPU&GPU Current Sensor	
Size B	Project Name Thinkbook16Pro	Rev V1.0
Date: Friday, March 05, 2021	Sheet 70 of 73	

12V for Fan and SMAMP



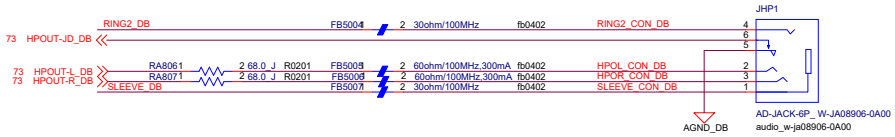
BITLAND 比特兰		
Page Name	71 NA	
Size C	Project Name Y760S	Rev V1.0
Date: Friday, March 05, 2021	Sheet 71 of 73	

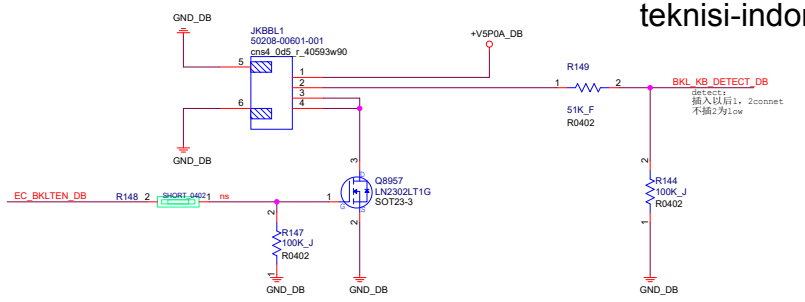


BITLAND 比特兰

Page Name	72 Sub board(SD)
Size C	Project Name Thinkbook16Pro
Rev	V1.0
Date:	Wednesday, March 03, 2021
Sheet	72 of 73

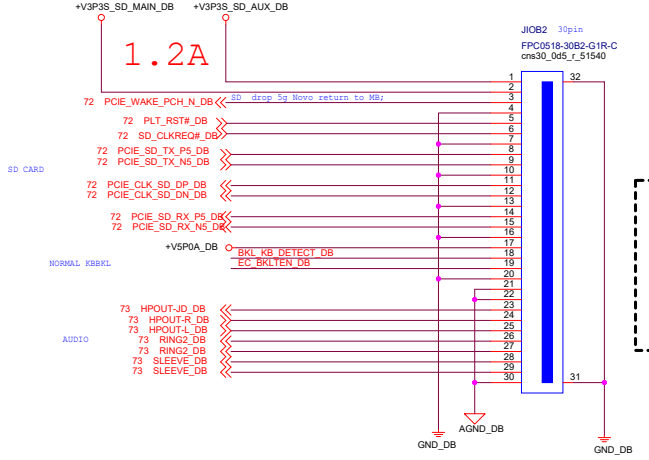
Two MIC-VREFO design is able to save more power consumption for the headset application.





teknisi-indonesia

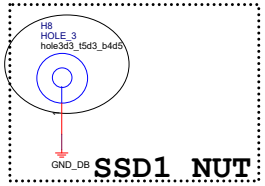
Digital_Ground Analog_Ground



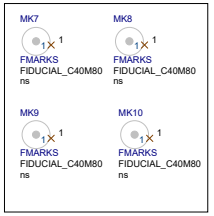
Sub-board

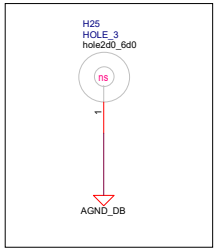
- SD CARD DB
- AUDIO

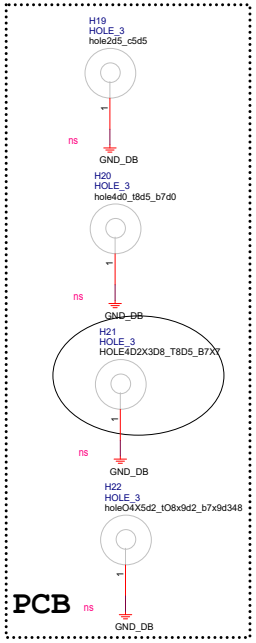
hole3d3_t4d5_b5d3--SSD
hole2d5_c5d5
hole4d0_t8d5_b7d0
hole4d0_t8d5_b7x7
holeO4X5d2_tO8x9d2_b7x9d348



optical dot
top 2pcs
bot 2pcs







BITLAND 智微

Page Name	73 Sub board(IO BOARD)
Size C / Project Name	Thinkbook16Pro
Rev	V1.0
Date:	Thursday, February 25, 2021
Sheet	73 of 73