LCFC Confidential

TGL-U LCFC RVP Schematics Document

Drift3/Ironhide3 NM-D351 M/B SCHEMATICS

Intel TigerLake Processy with DDR4

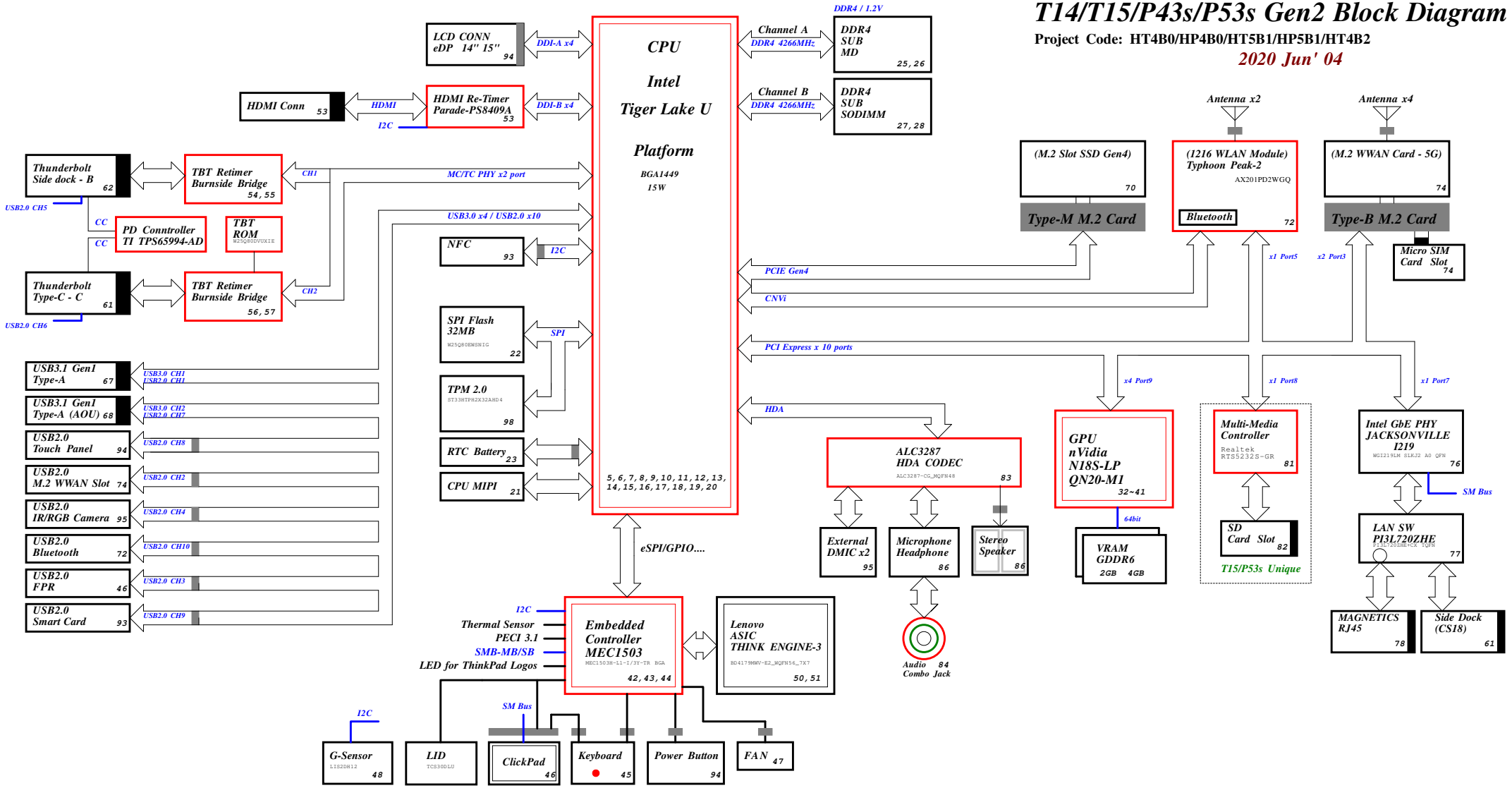
REV:1.0

Title	<Title>	
Size: Custom	Document Number	Rev 0.1
Date: Friday, December 04, 2020	Sheet 1 of 130	

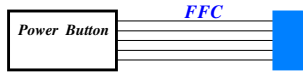
T14/T15/P43s/P53s Gen2 Block Diagram

Project Code: HT4B0/HP4B0/HT5B1/HP5B1/HT4B2

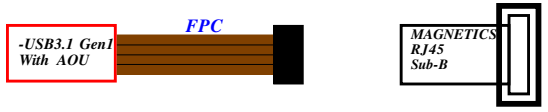
2020 Jun' 04



Common Sub-Board



T14/P43s Sub-Board



T15/P53s Sub-Board

- Sub Board
- Different with CS20
- External Connector/Socket
- Internal Connector/Socket
- Internal Switch

Document Number		LCFC
Size: Custom	Title: Block Diagram	Rev
Date: Friday, December 04, 2020	Sheet 2 of 130	

Document Number			LCFC
Size: Custom	Title: BLANK		Rev: 0.01
Date: Friday, December 04, 2020	Sheet 3 of 130		

CS21-Project Page Rule

001.Project Name
002.Block diagram
003.EC list Or Component Tolence
004.Title Page
005.CPU(01/16):DDI/Type-C
006.CPU(02/16):DDR(1/2)
007.CPU(03/16):DDR(2/2)
008.CPU(04/16):MISC/JTAG
009.CPU(05/16):SPI/ESPI/SMB/CL
010.CPU(06/16):I2C/ISH/UART/GPIO
011.CPU(07/16):AUDIO
012.CPU(08/16):PCIE/USB/SATA
013.CPU(09/16):CSI-2/CNVI
014.CPU(10/16):CLOCK SIGNALS
015.CPU(11/16):SYSTEM PM
016.CPU(12/16):CPU Power (1/2)
017.CPU(13/16):CPU Power (2/2)
018.CPU(14/16):PCH Power
019.CPU(15/16):GND
020.CPU(16/16):CFG/RESERVED
021.MIPI60 DEBUG PORT
022.SPI FIASH
023.RTC BATTERY
024.BLANK
025.DDR4 SUB CHANNEL-A MD_1
026.DDR4 SUB CHANNEL-A MD_2
027.DDR4 SUB CHANNEL-B SODIMM_1
028.DDR4 SUB CHANNEL-B SODIMM_2
029.(BLANK)
030.(BLANK)
031.(BLANK)
032.N18S-G5(1/7) PEG I/F
033.N18S-G5(2/7) VRAM I/F
034.N18S-G5(3/7) DIGITA / XTAL
035.N18S-G5(4/7) STRAP / GPIO
036.N18S-G5(5/7) POWER
037.N18S-G5(6/7) POWER 2
038.N18S-G5(7/7) GND
039.N18S : GDDR6 VRAM CH_A
040.N18S : GDDR6 VRAM CH_A CAP

041.Load SW VGA
042.MEC1503 (1/3)
043.MEC1503 (2/3)
044.MEC1503 (3/3)
045.Keyboard / Track point
046.TOUCH PAD
047.FAN
048.APS G-SENSOR
049.(BLANK)
050.Think Engine (1/2)
051.Think Engine (2/2)
052.BLANK
053.HDMI Retimer & Connector
054.Thunderbolt Retimer B (1/2)
055.Thunderbolt Retimer B(2/2)
056.Thunderbolt Retimer C(1/2)
057.Thunderbolt Retimer C(2/2)
058.(BLANK)
059.USB PD Controller
060.(BLANK)
061.Thunderbolt C Connector
062.Docking Connector
063.(BLANK)
064.(BLANK)
065.TYPEC_DCIN
066.(BLANK)
067.USB TYPE-A CONNECTOR
068.USB TYPE-A CONNECTOR (AOU)
069.(BLANK)
070.M.2 Socket 3 Module I/F
071.(BLANK)
072.M.2 Type 1216 Module
073.(BLANK)
074.M.2 Socket 2 Module I/F
075.(BLANK)
076.GBE Jacksonville
077.GBE Swtich
078.LAN_B Connector
079.(BLANK)
080.(BLANK)

081.Media Card Controller
082.Media Connector
083.Audio Codec (ALC3306)
084.Audio Connector
085.Audio Smart AMP
086.Audio Speaker
087.Audio Beep
088.ENERGY ESTIMATION ENGINE
089.(BLANK)
090.(BLANK)
091.(BLANK)
092.(BLANK)
093.Smart Card Reader / NFC
094.LCD / Touch interface
095.LID / IR Camera / MIC
096.(BLANK)
097.(BLANK)
098.Discrete TPM 2.0
099.(BLANL)
100.(BLANK)

101.Battery Connector
102.BATTERY CHARGER (BQ25710)
103.DC/DC VCC5M (NB690)
104.DC/DC VCC5M_PD (NB693GQ)
105.DC/DC VCC3M (TPS51393P)
106.(BLANK)
107.DC/DC VCC1R8_SUS (TVL62585)
108.DC/DC VCCCPUCORE (MP2940A)
109.DC/DC VCCCPUCORE (MP86941*2)
110.(BLANK)
111.DC/DC VCCPCHCORE(MP2941B)
112.DC/DC VCC1R2A/2R5A (NB687)
113.(BLANK)
114.DC/DC VCC1R0VIDEO (BD9B304)
115.DC/DC VCCGFXCORE_D (NCP8127)
116.DC/DC VCC1R35VIDEO (NB693)
117.DC/DC VCC1R8VIDEO (BD9B304)
118.Load SW VIDEO
119.(BLANK)
120.LOAD SW VCC3_SUS
121.LOAD SW B
122.LOAD SW VCCST & VCCSTG
123.(BLANK)
124.(BLANK)
125.(BLANK)
126.(BLANK)
127.(BLANK)
128.System Power Tree
129.System Power Sequence
130.(BLANK)

TABLE: Chip Part Dimension

Size [mm]	mm Size Code	Inch Size Code
0.40 x 0.20	0402	01005
0.60 x 0.30	0603	0201
1.00 x 0.50	1005	0402
1.60 x 0.80	1608	0603
2.00 x 1.25	2125	0805
2.00 x 1.60	2016	0806
2.50 x 2.00	2520	1008
3.20 x 1.60	3216	1206
3.20 x 2.50	3225	1210
4.50 x 1.60	4516	1806
4.50 x 2.50	4525	1810
4.50 x 3.20	4532	1812
5.00 x 2.50	5025	2010
6.40 x 3.20	6432	2512

LOGIC

TABLE: Chip Capacitor Thermal Characteristics

		Code
-55 to 150degC -55 to 125degC	+/-30ppm/degC +/-30ppm/degC	NPO C0G
-55 to 125degC -55 to 105degC -55 to 85degC	+/-15% +/-22% +/-15%	X7R X6S X5R

TABLE: Chip Capacitor Tolerance

Tolerance	Code
+/-0.25pF +/-0.5pF	C D
+/-5% +/-10% +/-20% +80/-20%	J K M Z

Document Number
LCFC
Size Custom
Title EC list & Component tolence
Rev 0.01
Date: Friday, December 04, 2020 Sheet 4 of 130

TABLE : Functional Strap

GPP_E19/DDP1_CTRLDATA/TBT_LSX0_RXD (DDP1 I2C / TBT_LSX0 Pin VCC Configuration)	
GPP_E21/DDP2_CTRLDATA/TBT_LSX1_RXD (DDP2 I2C / TBT_LSX1 Pin VCC Configuration)	
GPP_D10/DDP3_CTRLDATA/TBT_LSX2_RXD (DDP3 I2C / TBT_LSX2 Pin VCC Configuration)	
GPP_D12/DDP4_CTRLDATA/TBT_LSX3_RXD (DDP4 I2C / TBT_LSX3 Pin VCC Configuration)	
HIGH	3.3V for HDMI Display I2C (External Pull-Up Resistor Required)
LOW	1.8V for Thunderbolt LSX (Default)

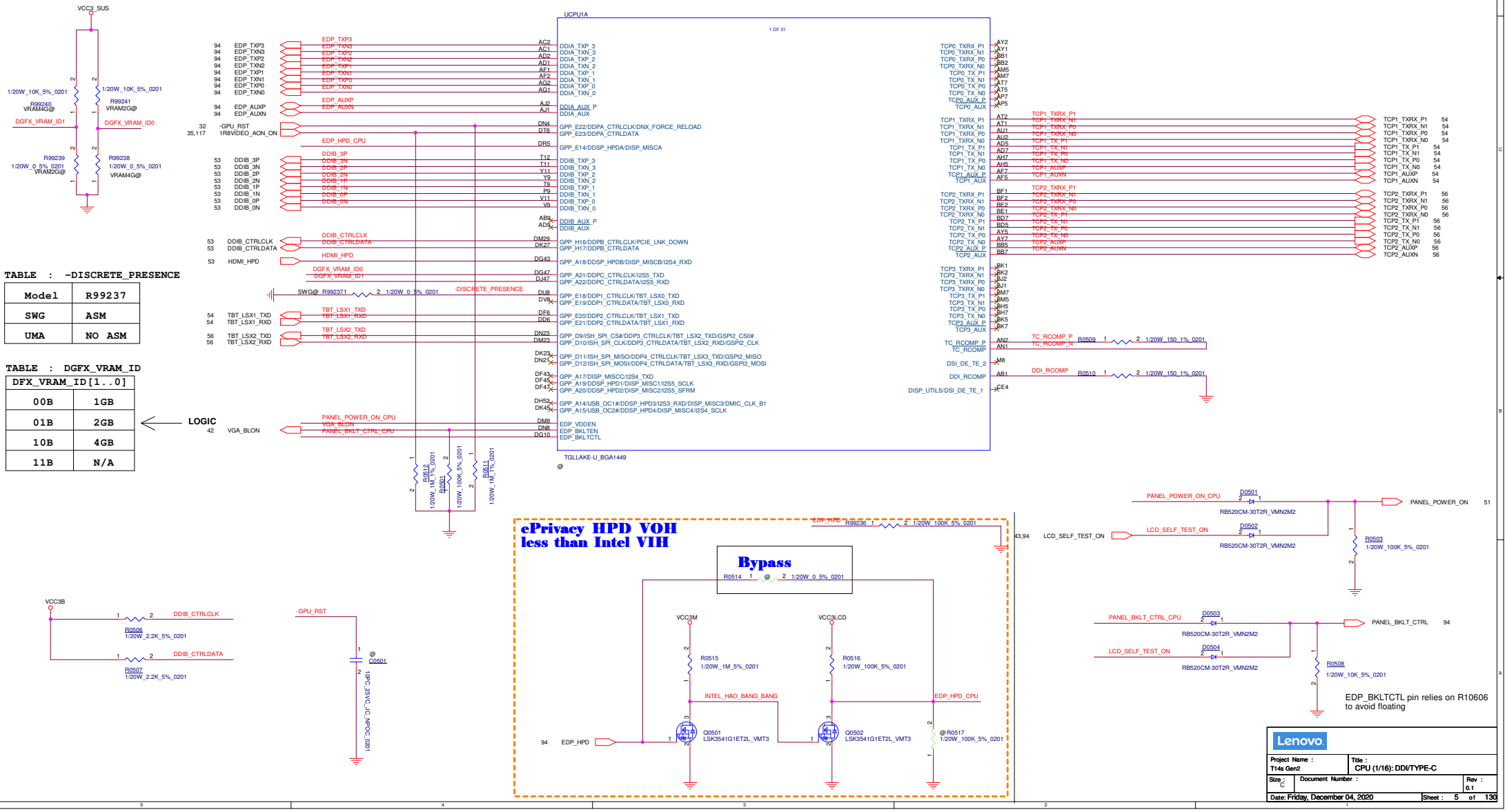
TABLE : -DISCRETE_PRESENCE

Model	R99237
SWG	ASM
UMA	NO ASM

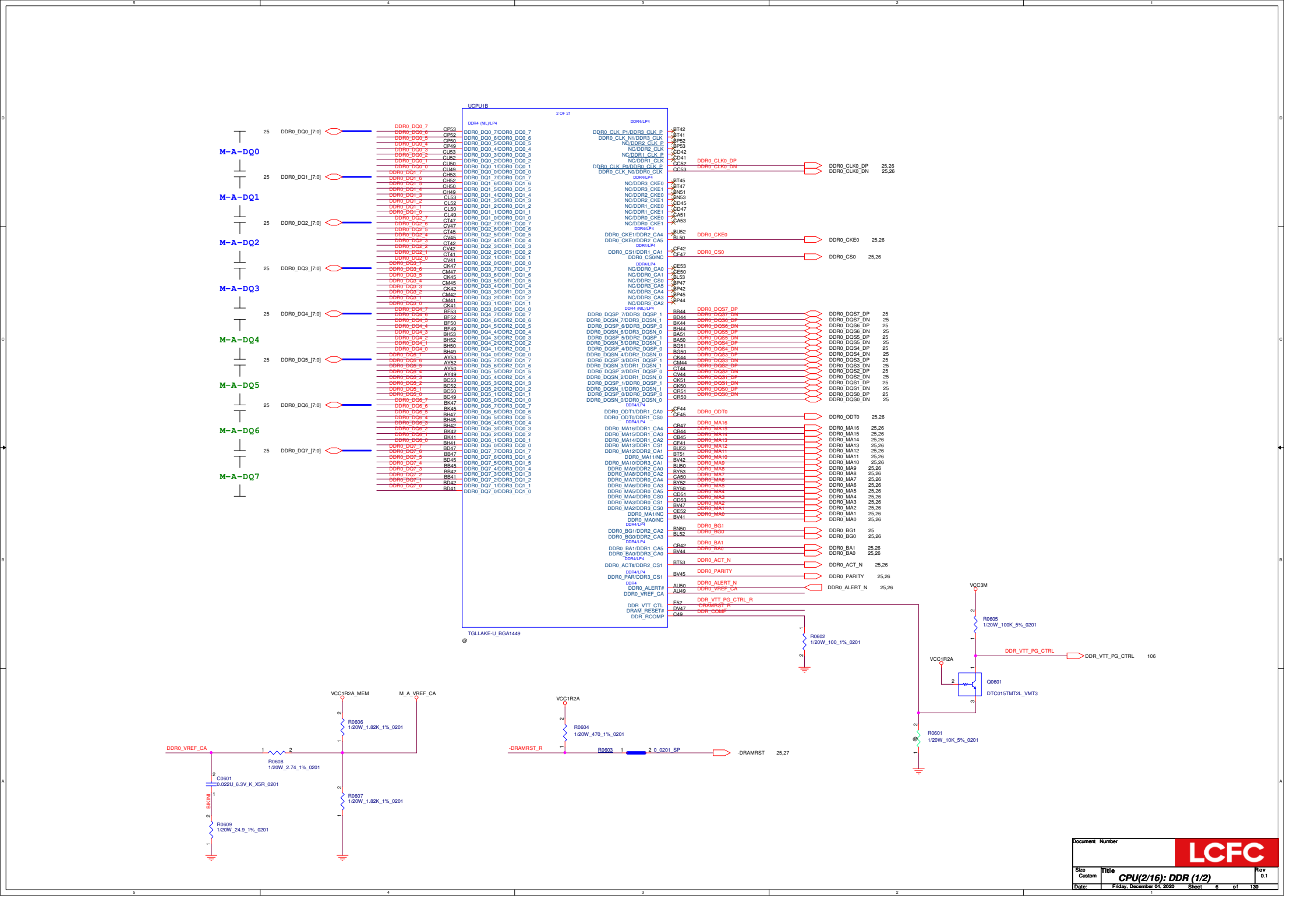
TABLE : DGFX_VRAM_ID

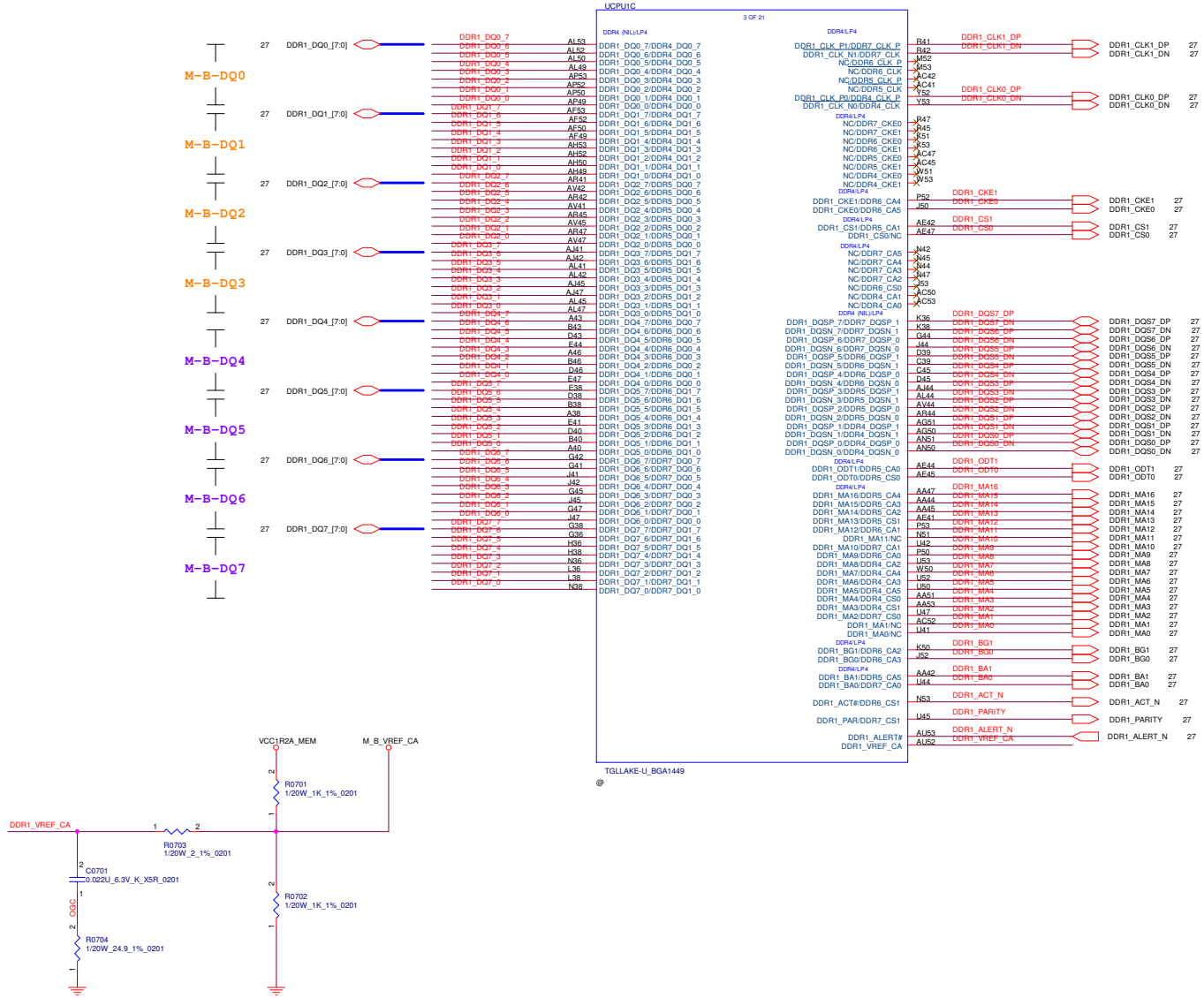
DFX_VRAM_ID[1..0]	
00B	1GB
01B	2GB
10B	4GB
11B	N/A

LOGIC



Lenovo			
Project Name : T14s Gen2		Title : CPU (1/16): DDI/TYPE-C	
Size : C	Document Number :		Rev : 0.1
Date: Friday, December 04, 2020		Sheet : 5 of 130	


UCPU1B
2 OF 21
TGLLAKE-U_BGA1449
M-A-DQ0
M-A-DQ1
M-A-DQ2
M-A-DQ3
M-A-DQ4
M-A-DQ5
M-A-DQ6
M-A-DQ7
DDR0_CLK0_DP
DDR0_CLK0_DN
DDR0_CKE0
DDR0_CS0
DDR0_ODT0
DDR0_ALERT_N
DDR0_PARITY
DDR0_ACT_N
DDR0_BG1
DDR0_BG0
DDR0_BA1
DDR0_BA0
DDR_VTT_PG_CTRL_R
-DRAMRST_R
DDR_COMP
R0602 1/20W_100_1%_0201
VCC3M
R0605 1/20W_100K_5%_0201
DDR_VTT_PG_CTRL
VCC1R2A
Q0601 DTC015TMT2L_VMT3
R0601 1/20W_10K_5%_0201
VCC1R2A_MEM
M_A_VREF_CA
R0606 1/20W_1.82K_1%_0201
R0608 1/20W_2.74_1%_0201
C0601 0.022U_6.3V_K_X5R_0201
R0609 1/20W_24.9_1%_0201
R0607 1/20W_1.82K_1%_0201
R0604 1/20W_470_1%_0201
R0603 2_0_0201_SP
-DRAMRST
Document Number
LCFC
Size Custom
Title CPU(2/16): DDR (1/2)
Rev 0.1
Date: Friday, December 04, 2020
Sheet 6 of 130



Document Number			
Size: Custom	Title: CPU(3/16): DDR (2/2)		Rev: 0.1
Date: Friday, December 04, 2020	Sheet 7 of 130		

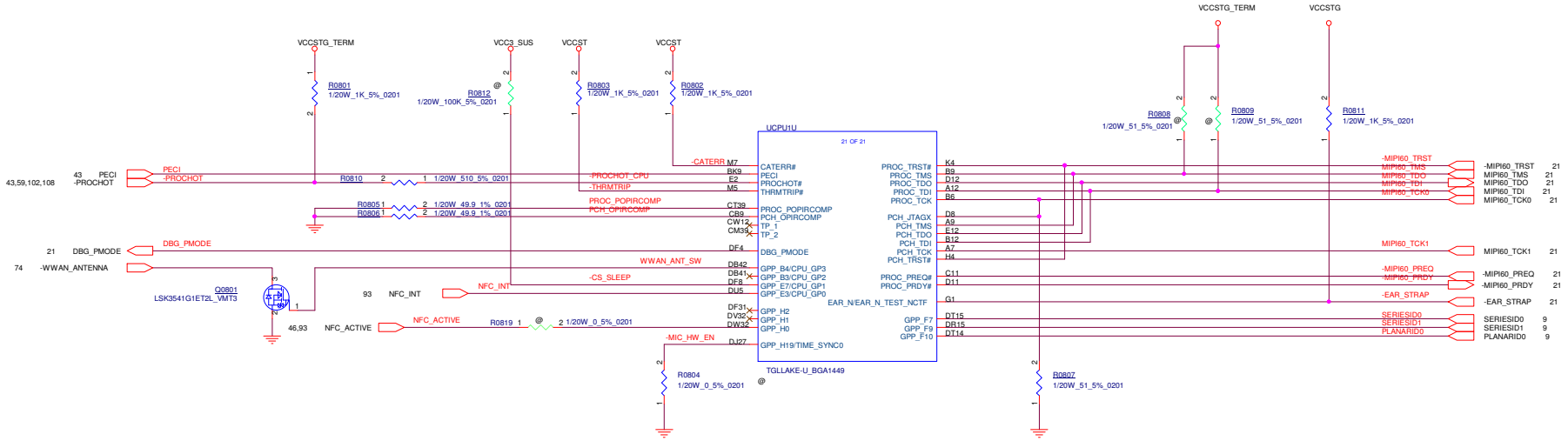


TABLE : Functional Strap

GPP_C5/SML0ALERT# (Boot Strap Bit 0)	
GPP_H0 (Boot Strap Bit 1)	
GPP_H1 (Boot Strap Bit 2)	
GPP_H2 (Boot Strap Bit 3)	
0000b	Master Attached Flash Configuration (Default)

TABLE : Functional Strap

DBG_PMODE (DFx Test Mode)	
HIGH	DFx Test Mode Disabled (default)
LOW	DFx Test Mode Enabled

TABLE : Functional Strap

GPP_F7 (Reserved) - Should Sample LOW	
HIGH	
LOW	(Default)

TABLE : Functional Strap

GPP_F10 (Reserved) - Should Sample LOW	
HIGH	
LOW	(Default)

Lenovo

Project Name : T14s Gen2	Title : CPU (4/16): MISC/JTAG	
Size : C	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 8 of 130	

TABLE : Functional Strap

SPI0_MOSI (Boot Halt)	
HIGH	Disabled
LOW	Enabled

← LOGIC

TABLE : Functional Strap

SPI0_IO2 (Consent Strap)	
HIGH	Disabled
LOW	Enabled

← LOGIC

TABLE : Functional Strap

SPI0_IO3 (A0 Personality Strap)	
HIGH	Disabled
LOW	Enabled

← LOGIC

TABLE : Functional Strap

GPP_E6 (JTAG ODT Disable)	
HIGH	JTAG ODT Enabled
LOW	JTAG ODT Disabled

← LOGIC

TABLE : Functional Strap

GPP_C2/SMBALERT# (TLS Confidentiality)	
HIGH	Enable ME Crypto TLS with Confidentiality
LOW	Disable ME Crypto TLS (Default)

← LOGIC

TABLE : Functional Strap

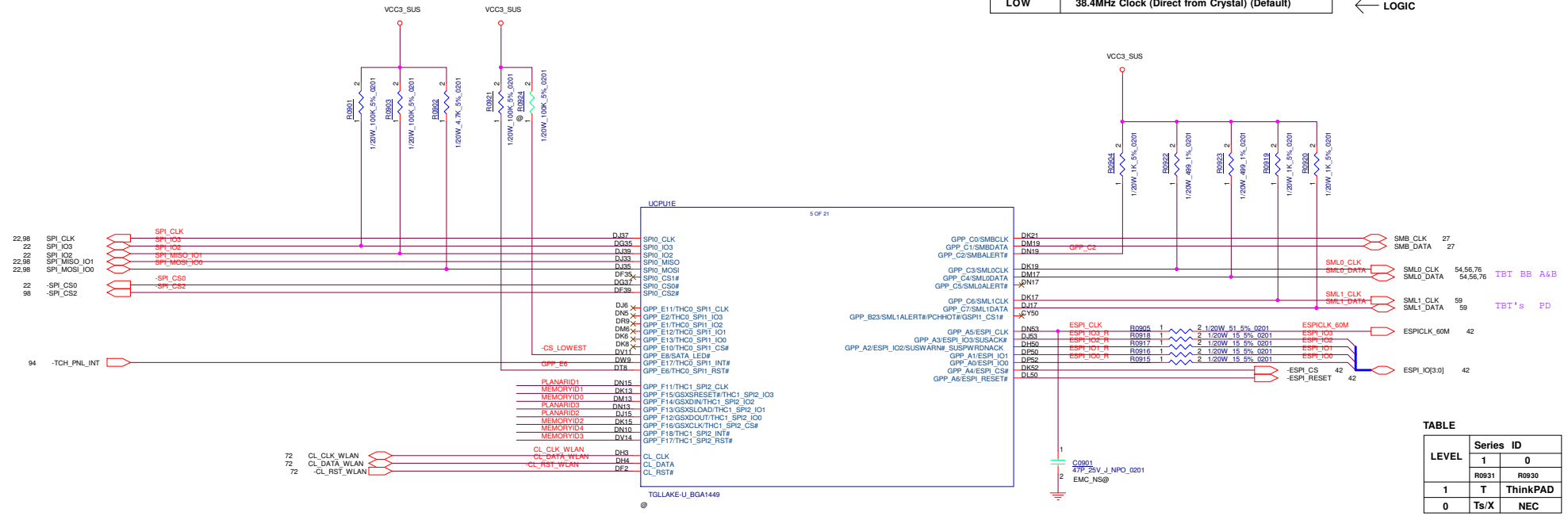
GPP_C5/SML0ALERT# (Boot Strap Bit 0)
GPP_H0 (Boot Strap Bit 1)
GPP_H1 (Boot Strap Bit 2)
GPP_H2 (Boot Strap Bit 3)

0000b	Master Attached Flash Configuration (Default)

TABLE : Functional Strap

GPP_B23/SML1ALERT#/PCHHOT# (CPUNSSC Clock Frequency)	
HIGH	19.2MHz Clock (Derived from 38.4MHz Crystal)
LOW	38.4MHz Clock (Direct from Crystal) (Default)

← LOGIC

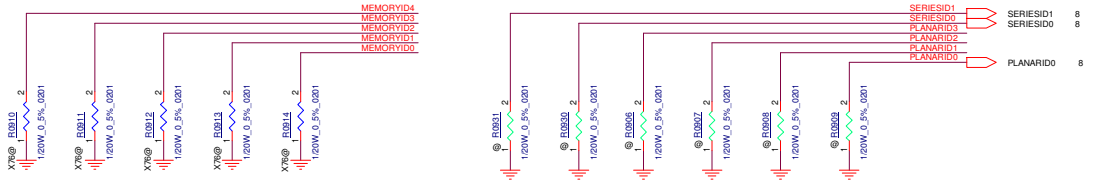


TABLE

LEVEL	Series ID	
	1	0
	R0931	R0930
1	T	ThinkPAD
0	Ts/X	NEC

TABLE

LEVEL	MEMORY ID				
	4	3	2	1	0
	R0910	R0911	R0912	R0913	R0914
1	NA	NA	NA	NA	NA
0	ASM	ASM	ASM	ASM	ASM



TABLE

LEVEL	PLANAR ID			
	3	2	1	0
	R0906	R0907	R0908	R0909
1	NA	NA	NA	NA
0	ASM	ASM	ASM	ASM

TABLE

LEVEL	PLANARID[3:0]
EVT	0000b
FVT	0001b
SIT	0100b
SVT	1111b

TABLE: MEMORYID

MEMORYID[4:0]	Vendor	U2501,U2502,U2503,U2504			Capacity		
		Part Number	Component	Qty	Channel-0	Channel-1	
05h (00101b)	Micron	MT40A1G16KD-062E:E	16Gbit SDP	4pcs	8GB	SO-DIMM	
04h (00100b)		MT40A2G16SKL-062E:B	32Gbit DDP	4pcs	16GB	SO-DIMM	
08h (01000b)	Samsung						
09h (01001b)		K4AAG165WA-BCWE	16Gbit SDP	4pcs	8GB	SO-DIMM	
0Ah (01010b)		K4ABG165WA-MCWE	32Gbit DDP	4pcs	16GB	SO-DIMM	
0Ch (01100b)	SK hynix	H5ANAG6NCJR-XNC	16Gbit SDP	4pcs	8GB	SO-DIMM	
0Dh (01101b)		H5ANAG6NCMR-XNC	16Gbit DDP	4pcs	8GB	SO-DIMM	
0Fh (01111b)		H5ANBG6NAMR-XNC	32Gbit DDP	4pcs	16GB	SO-DIMM	
06h (00110b)							
07h (00111b)							

Lenovo

Project Name : T14s Gen2	Title : CPU (5/16): ESPI/SPI/SMBUS/C-LINK	
Size : C	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 9 of 130	

TABLE : Functional Strap

GPP_B14/SPKR (Top Swap Override)	
HIGH	Enable "Top Swap" mode
LOW	Disable "Top Swap" mode (Default)

LOGIC ← ISH I2C0: 1.8V / ISH I2C1: 3.3V

TABLE : Functional Strap

GPP_B18/GSPI0_MOSI (No Reboot)	
HIGH	Enable "No Reboot" Mode
LOW	Disable "No Reboot" Mode (Default)

LOGIC

VCC3_SUS
VCC3B
R1003 2 1/20W_10K_5%_0201 1
@ R1004 2 1/20W_51K_5%_0201 1
@ R1005 2 1/20W_51K_5%_0201 1
R1008 1/20W_4.7K_5%_0201
R1009 1/20W_4.7K_5%_0201

UCPU1F
6 OF 21

DC53	GPP_B16/GSPI0_CLK	DB27	GPP_D14/ISH_UART0_TXD
DA51	GPP_B18/GSPI0_MOSI	DW27	GPP_D13/ISH_UART0_RXD
DC49	GPP_B17/GSPI0_MISO	DV25	GPP_D16/ISH_UART0_CTS#
DC50	GPP_B14/SPKR/TIME_SYNC1/GSPI0_CS1#	DT25	GPP_D15/ISH_UART0_RTS#/GSPI2_CS1#/IMGCLKOUT5
DC52	GPP_B15/GSPI0_CS0#		
CY49	GPP_B20/GSPI1_CLK	DB45	GPP_B6/ISH_I2C0_SCL
CY53	GPP_B22/GSPI1_MOSI	DB44	GPP_B5/ISH_I2C0_SDA
CY52	GPP_B21/GSPI1_MISO	CY39	GPP_B8/ISH_I2C1_SCL
DA50	GPP_B19/GSPI1_CS0#	DB47	GPP_B7/ISH_I2C1_SDA
DV21	GPP_C9/UART0_TXD	DD47	GPP_B10/I2C5_SCL/ISH_I2C2_SCL
DT21	GPP_C8/UART0_RXD	DD44	GPP_B9/I2C5_SDA/ISH_I2C2_SDA
DR21	GPP_C11/UART0_CTS#	DJ8	GPP_E16/ISH_GP7
DW21	GPP_C10/UART0_RTS#	DR7	GPP_E15/ISH_GP6
DV19	GPP_C13/UART1_TXD/ISH_UART1_TXD	DR24	GPP_D18/ISH_GP5
DT19	GPP_C12/UART1_RXD/ISH_UART1_RXD	DU25	GPP_D17/ISH_GP4
DR19	GPP_C15/UART1_CTS#/ISH_UART1_CTS#	DV31	GPP_D3/ISH_GP3/BK3/SBK3
DU19	GPP_C14/UART1_RTS#/ISH_UART1_RTS#	DU31	GPP_D2/ISH_GP2/BK2/SBK2
DJ21	GPP_C21/UART2_TXD	DT27	GPP_D1/ISH_GP1/BK1/SBK1
DG23	GPP_C20/UART2_RXD	DV27	GPP_D0/ISH_GP0/BK0/SBK0
DJ19	GPP_C23/UART2_CTS#	DR51	GPP_RCOMP
DF21	GPP_C22/UART2_RTS#	DN33	GPP_T3
DV18	GPP_C17/I2C0_SCL	DT35	GPP_T2
DW18	GPP_C16/I2C0_SDA	DG17	GPP_U5
DJ23	GPP_C19/I2C1_SCL	DG19	GPP_U4
DT18	GPP_C18/I2C1_SDA		
DJ29	GPP_H5/I2C2_SCL		
DJ31	GPP_H4/I2C2_SDA		
DF29	GPP_H7/I2C3_SCL		
DG29	GPP_H6/I2C3_SDA		
DF25	GPP_H9/I2C4_SCL/CNV_MFUART2_TXD		
DF27	GPP_H8/I2C4_SDA/CNV_MFUART2_RXD		

TGLLAKE-U_BGA1449
@

R1014 1 2 1/20W_0_5%_0201

44	TOP_SWAP_EN		
74	-WWAN_PERST	-WWAN_PERST	
87	PCH_SPKR	PCH_SPKR	
94	Size CTL	Size CTL	
95	-IR_CAM_DTCT	-IR_CAM_DTCT	
74	-WWAN_PEWAKE	-WWAN_PEWAKE	
	Test_Point_12MIL TP8815	-PAD_INT	
74	-FULL_CARD_POWER_OFF	-FULL_CARD_POWER_OFF	
74	-WWAN_RESET	-WWAN_RESET	
124	SMARTCARD_ON	SMARTCARD_ON	
98	-TPM_IRQ	-TPM_IRQ	
61	LPSS_UART2_TXD	LPSS_UART2_TXD	
61	LPSS_UART2_RXD	LPSS_UART2_RXD	
94	LPSS_I2C1_SCL_PNL		
94	LPSS_I2C1_SDA_PNL		
93	LPSS_I2C3_SCL_NFC	LPSS_I2C3_SCL_NFC	
93	LPSS_I2C3_SDA_NFC	LPSS_I2C3_SDA_NFC	
93	-RFID_DTCT	-RFID_DTCT	

LPSS_UART2_RXD 1 TP1001 Test_Point_16MIL
LPSS_UART2_TXD 1 TP1002 Test_Point_16MIL
1 TP1003 Test_Point_16MIL

VCC3_SUS
R1012 2 1/20W_10K_5%_0201 1
R1017 1 @ 2 1/16W_0_5%_0402 -TCH_PNL_RST
R1016 1 2 1/16W_0_5%_0402 TOUCHPANEL_ON_U
EPRIVACY_ON
TOUCHPANEL_ON
-SSD_PERST_R
-WWAN_DISABLE
EPRIVACY_ON 94
TOUCHPANEL_ON 13,124
-WWAN_DISABLE 74

-TCH_PNL_RST_U
R1018 1 2 1/16W_0_5%_0402
RB521CM-30T2R_YMN2M-2 2 1 D1001
-TCH_PNL_RST
-LID_CLOSE
-TCH_PNL_RST 94
-LID_CLOSE 43,46,94,95
-RFID_LOW_POWER 93
-RFID_CARD_READ 93
-RFID_COIL_ACTIVE 93

GPP_RCOMP
R1013 1/20W_200_1%_0201
R1015 1/20W_100K_5%_0201

VCC3M
U0501
1 N.C. Vcc 5
-SSD_PERST_R 2 A
3 GND Y 4 -SSD_PERST
SN74LVC1G17DRLR_SOT-5
@
-SSD_PERST -SSD_PERST 70

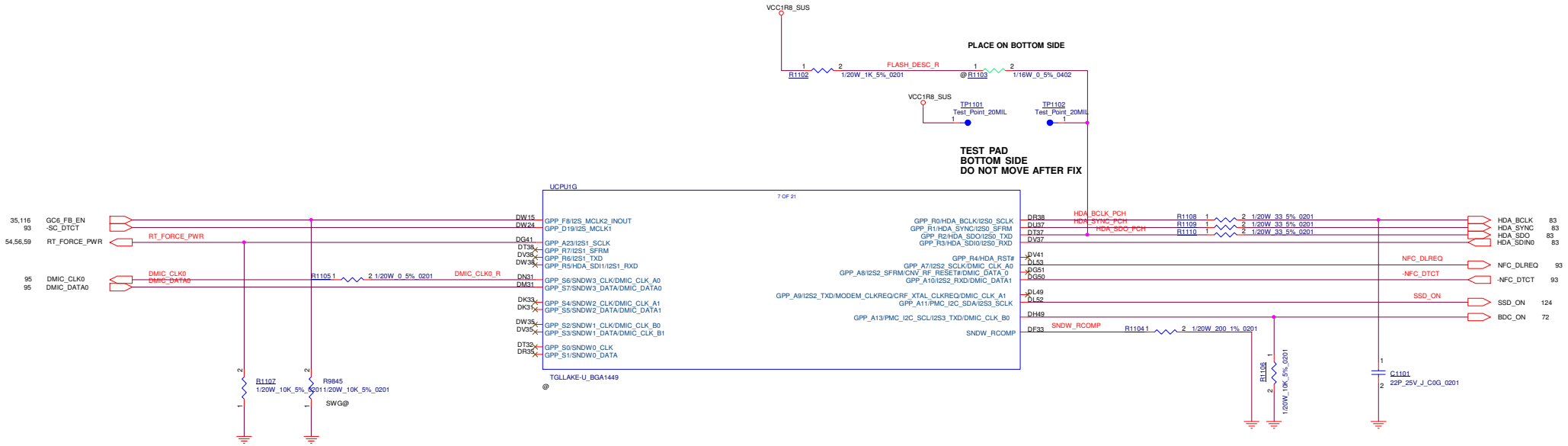
LPSS Port Assignment	
I2C0	Touch Pad
I2C1	Touch Panel
I2C2	(Smart Light)
I2C3	NFC
I2C4	(MIPI CSI Camera)
I2C5	(E3)
UART0	
UART1	
UART2	Debug Port
GSPI0	
GSPI1	(Fingerprint Reader)
GSPI2	

Lenovo

Project Name : T14s Gen2	Title : CPU (6/16): LPSS/ISH
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 10 of 130

TABLE : Functional Strap

GPP_R2/HDA_SDO/I2S0_TXD Flash Descriptor Security Override	
HIGH	Disable Flash Descriptor Security (Override)
LOW	Enable Flash Descriptor Security (Default)



Project Name : T14s Gen2	Title : CPU (7/16): AUDIO
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 11 of 130

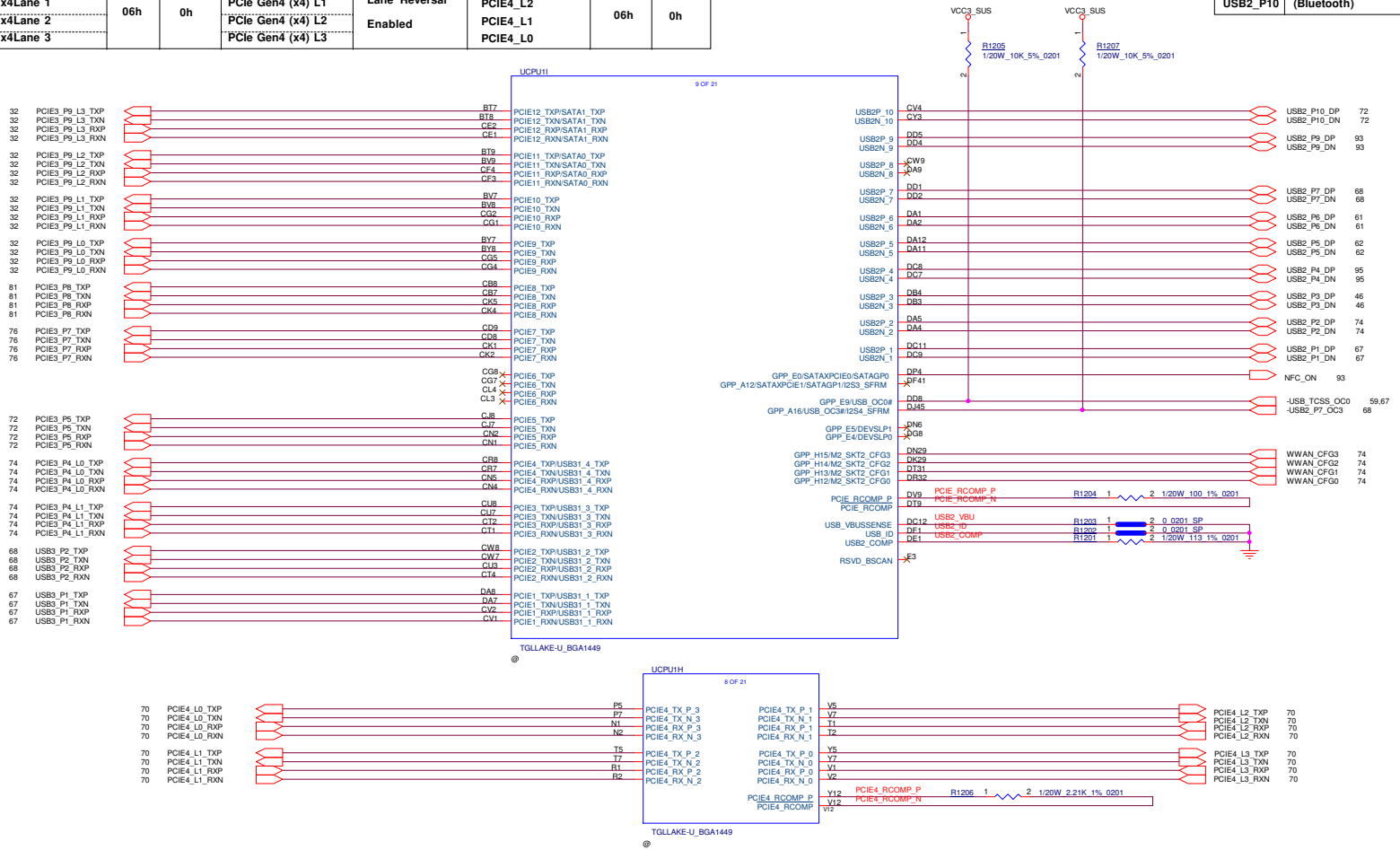
Flexible I/O Configuration								
HSIO Port	High Speed Signals	PCI Device	PCI Function	HSIO Configuration	Descriptor for PCIe	Net Name	PCI Device	PCI Function
PCH L0	USB 3.1 #1 / PCIe Gen3 #1	1Ch	0h	USB 3.1 #1	1x2, 2x1 Lane Reversal Enabled	N/A	14h	0h
PCH L1	USB 3.1 #2 / PCIe Gen3 #2		1h	USB 3.1 #2		USB3_P2		
PCH L2	USB 3.1 #3 / PCIe Gen3 #3		2h	PCIe Gen3 #3		PCIE3_P1_L1		
PCH L3	USB 3.1 #4 / PCIe Gen3 #4		3h	PCIe Gen3 #4		PCIE3_P1_L0	1Ch	0h
PCH L4	PCIe Gen3 #5	1Ch	4h	PCIe Gen3 #5	4x1 Lane Reversal Disabled	N/A	1Fh	6h
PCH L5	PCIe Gen3 #6		5h	PCIe Gen3 #6		N/A		
PCH L6	PCIe Gen3 #7 (GbE)		6h	PCIe Gen3 #7 (GbE)		PCIE3_P7		
PCH L7	PCIe Gen3 #8 (GbE)		7h	PCIe Gen3 #8		N/A		
PCH L8	PCIe Gen3 #9 (GbE)	1Dh	0h	PCIe Gen3 #9 (x4)	1x4 Lane Reversal Disabled	N/A		
PCH L9	PCIe Gen3 #10		1h	PCIe Gen3 #10 (x4)		N/A		
PCH L10	PCIe Gen3 #11 / SATA #0		2h	PCIe Gen3 #11 (x4)		N/A		
PCH L11	PCIe Gen3 #12 / SATA #1		3h	PCIe Gen3 #12 (x4)		N/A		
CPU L0	PCIe Gen4 x4Lane 0	06h	0h	PCIe Gen4 (x4) L0	1x4 Lane Reversal Enabled	PCIE4_L3	06h	0h
CPU L1	PCIe Gen4 x4Lane 1			PCIe Gen4 (x4) L1		PCIE4_L2		
CPU L2	PCIe Gen4 x4Lane 2			PCIe Gen4 (x4) L2		PCIE4_L1		
CPU L3	PCIe Gen4 x4Lane 3			PCIe Gen4 (x4) L3		PCIE4_L0		

PCIe Port Assignment	
PCIE3_P1	(USB3_P1)
PCIE3_P2	(USB3_P2)
PCIE3_P3	WWAN Lane 1
PCIE3_P4	WWAN Lane 0
PCIE3_P5	(WLAN)
PCIE3_P6	(Reserved)
PCIE3_P7	GbE PHY
PCIE3_P8	(SD Card)
PCIE3_P9 (x4)	(dGPU)
PCIE4 (x4)	NVMe SSD

SATA Port Assignment	
SATA_P0	(PCIE3_P11)
SATA_P1	(PCIE3_P12)

USB 3.1 Port Assignment	
USB3_P1	(Type-A Port)
USB3_P2	Type-A Port (AOU)
USB3_P3	(PCIE3_P3)
USB3_P4	(PCIE3_P4)

USB 2.0 Port Assignment	
USB2_P1	(Type-A Port)
USB2_P2	WWAN
USB2_P3	Fingerprint Reader
USB2_P4	RGB / IR Hybrid Camera
USB2_P5	Type-C Port B
USB2_P6	Type-C Port C
USB2_P7	Type-A Port (AOU)
USB2_P8	(Reserve)
USB2_P9	(Smart Card Reader)
USB2_P10	(Bluetooth)



Lenovo

Project Name : T14s Gen2	Title : CPU (8/16): PCIE/USB/SATA
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 12 of 130

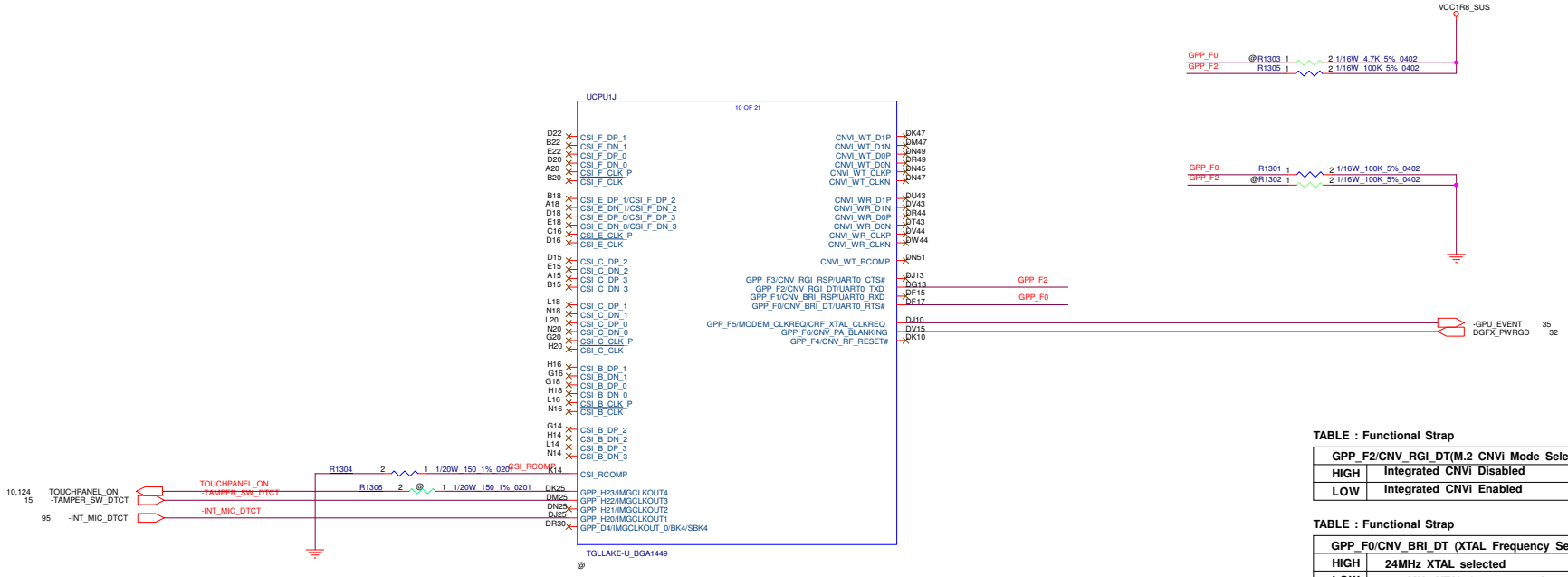


TABLE : Functional Strap

GPP_F2/CNV_RGI_DT(M.2 CNVi Mode Select)	
HIGH	Integrated CNVi Disabled
LOW	Integrated CNVi Enabled

TABLE : Functional Strap

GPP_F0/CNV_BRI_DT (XTAL Frequency Selection)	
HIGH	24MHz XTAL selected
LOW	38.4MHz XTAL frequency selected (Default)

← LOGIC

[Issue Symptom]
All PCIe device can't recognize

[Root cause]
GPP_F0 strap not correct setting.

[Solution]
GPIO need to set up "native" and can't have PU resistance.

Project Name : T14s Gen2	Title : CPU (9/16): CSI-2/CNVI	
Size : C	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 13 of 130	

PCIECLK and CLKREQ# Port Assignment		
Port 0	PCIe Gen4 (x4)	NVMe SSD
Port 1	PCIe Gen3 P5	(M.2 WLAN)
Port 2	PCIe Gen3 P1	M.2 WWAN
Port 3	PCIe Gen3 P9 (x4)	(dGPU)
Port 4	PCIe Gen3 P7	GbE PHY
Port 5	PCIe Gen3 P8	(SD Card)
Port 6	PCIe Gen3 P6	(Reserved)

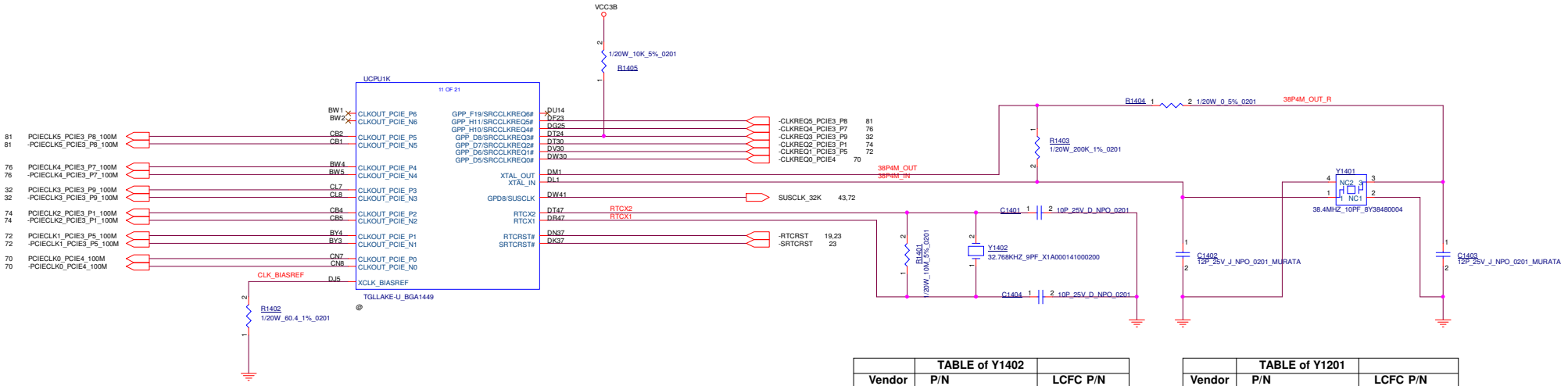


TABLE of Y1402		
Vendor	P/N	LCFC P/N
EPSON	X1A000141000201	SJ10000IX01
TXC	9H03280012	SJ10000J900
KDS	1TJF090DJ1A000B	SJ100069400

TABLE of Y1201		
Vendor	P/N	LCFC P/N
TXC	8Y38480004	SJ10000SN00

Lenovo

Project Name : T14s Gen2	Title : CPU (10/16): CLOCK SUGNALS
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 14 of 130

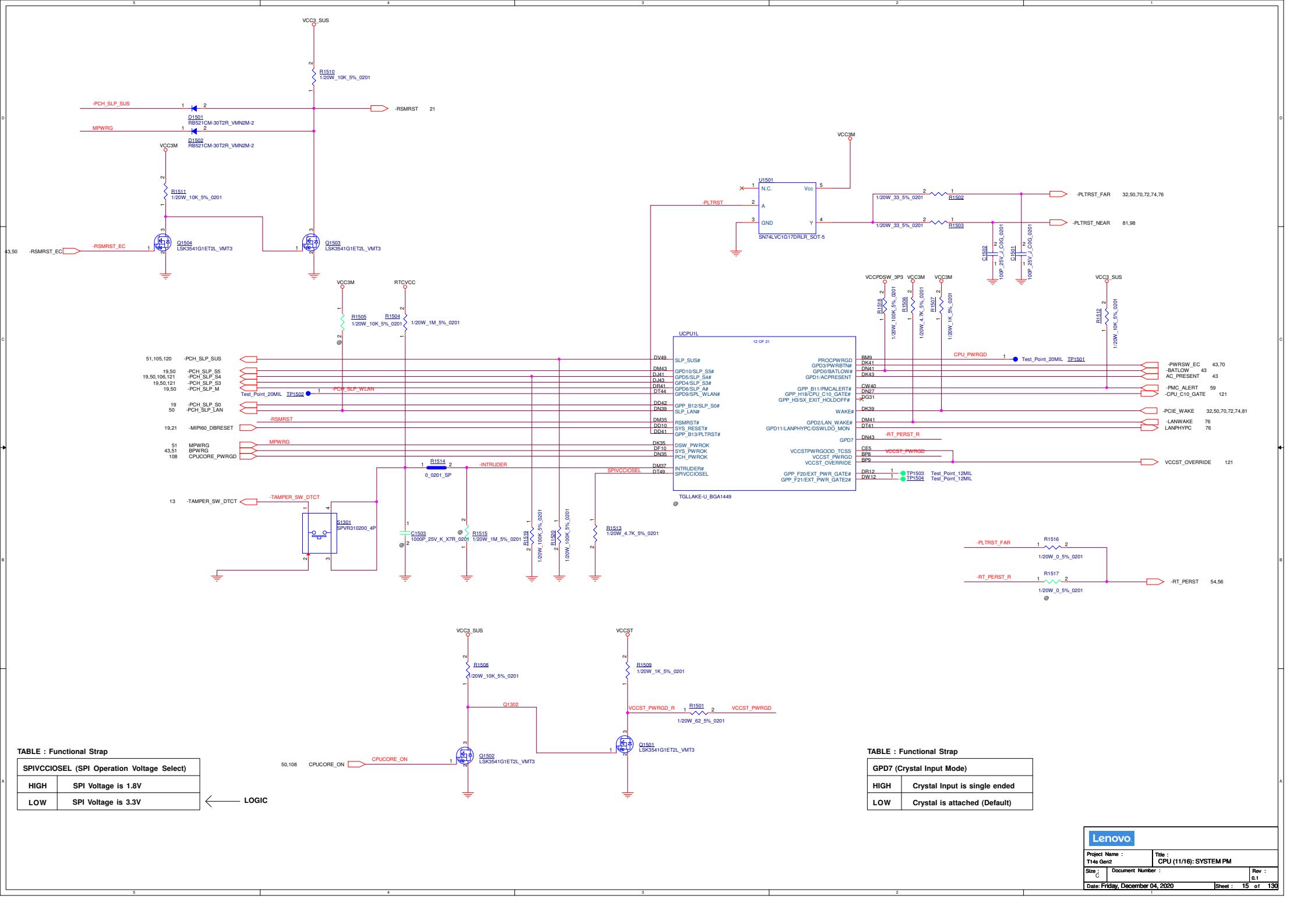


TABLE : Functional Strap

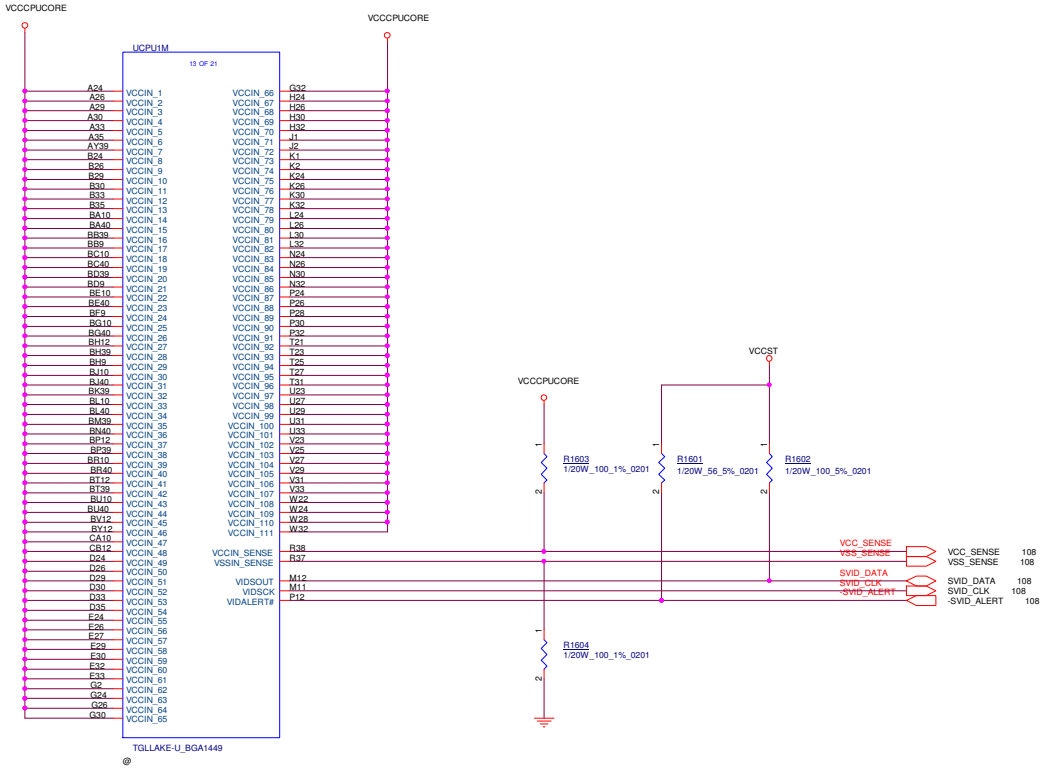
SPIVCCIOSEL (SPI Operation Voltage Select)	
HIGH	SPI Voltage is 1.8V
LOW	SPI Voltage is 3.3V

← LOGIC

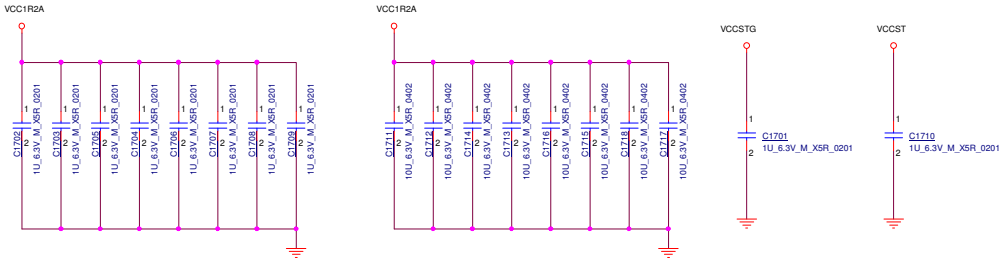
TABLE : Functional Strap

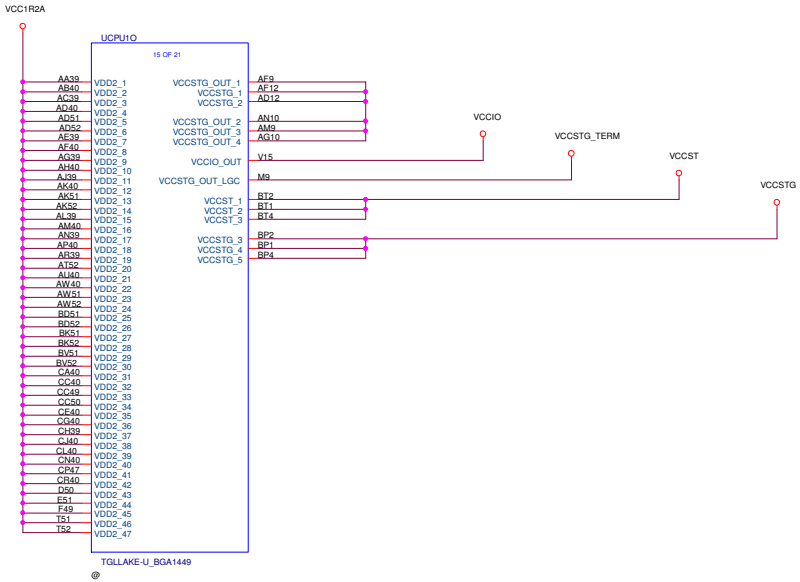
GPD7 (Crystal Input Mode)	
HIGH	Crystal Input is single ended
LOW	Crystal is attached (Default)

Project Name : T14s Gen2	Title : CPU (11/16): SYSTEM PM
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 15 of 130



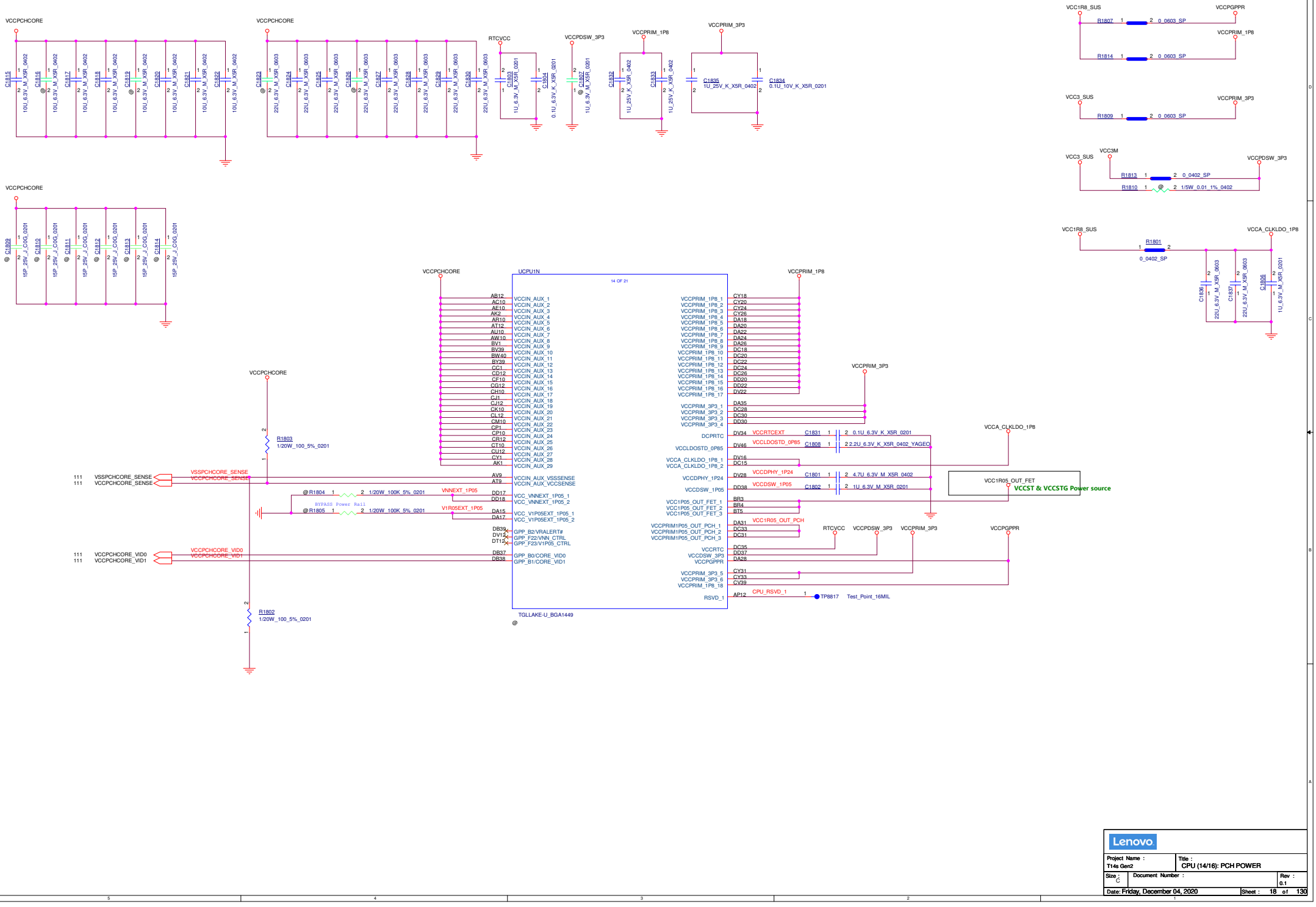
Project Name : T14s Gen2	Title : CPU (12/16): CPU POWER (1/2)	
Size :	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 16 of 130	





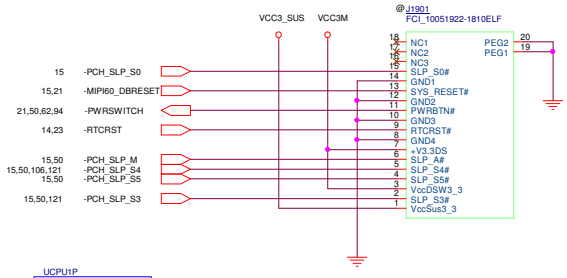
Lenovo

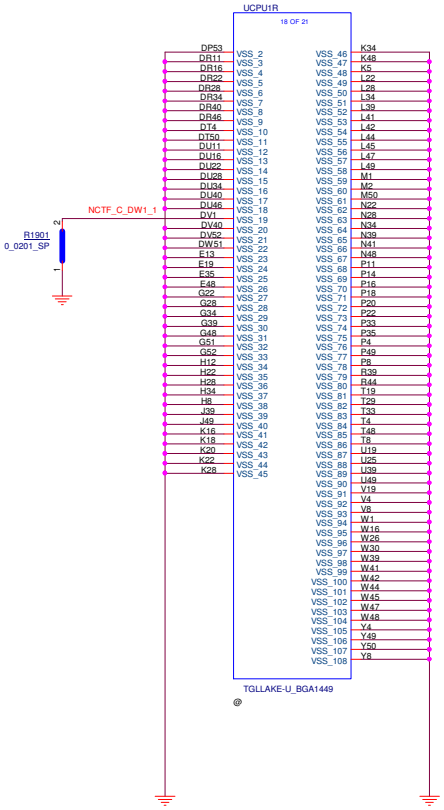
Project Name : T14s Gen2	Title : CPU (13/16): CPU POWER (2/2)
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 17 of 130

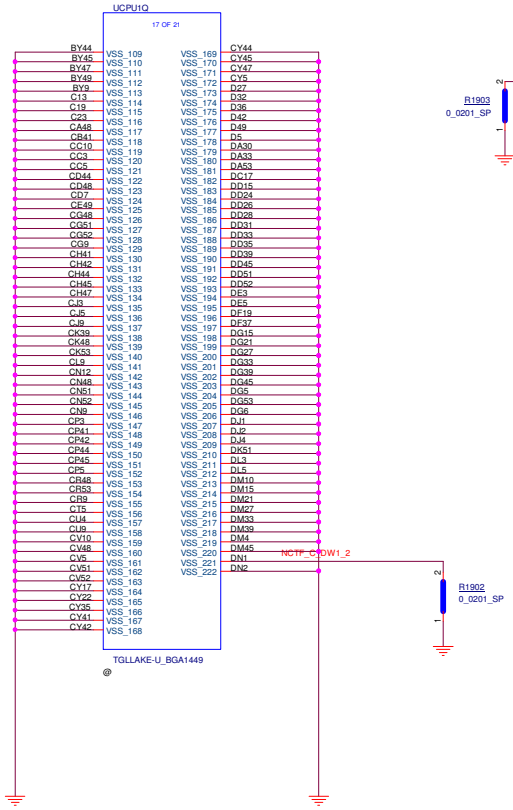


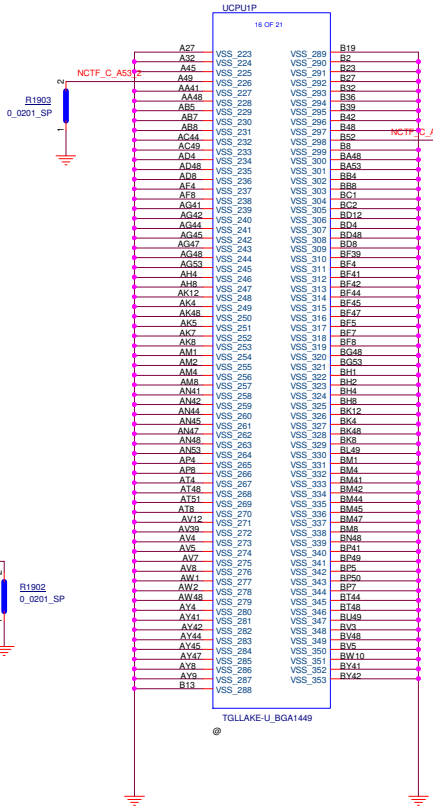
Project Name : T14s Gen2	Title : CPU (14/16): PCH POWER
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 18 of 130

APS/PETS Interface





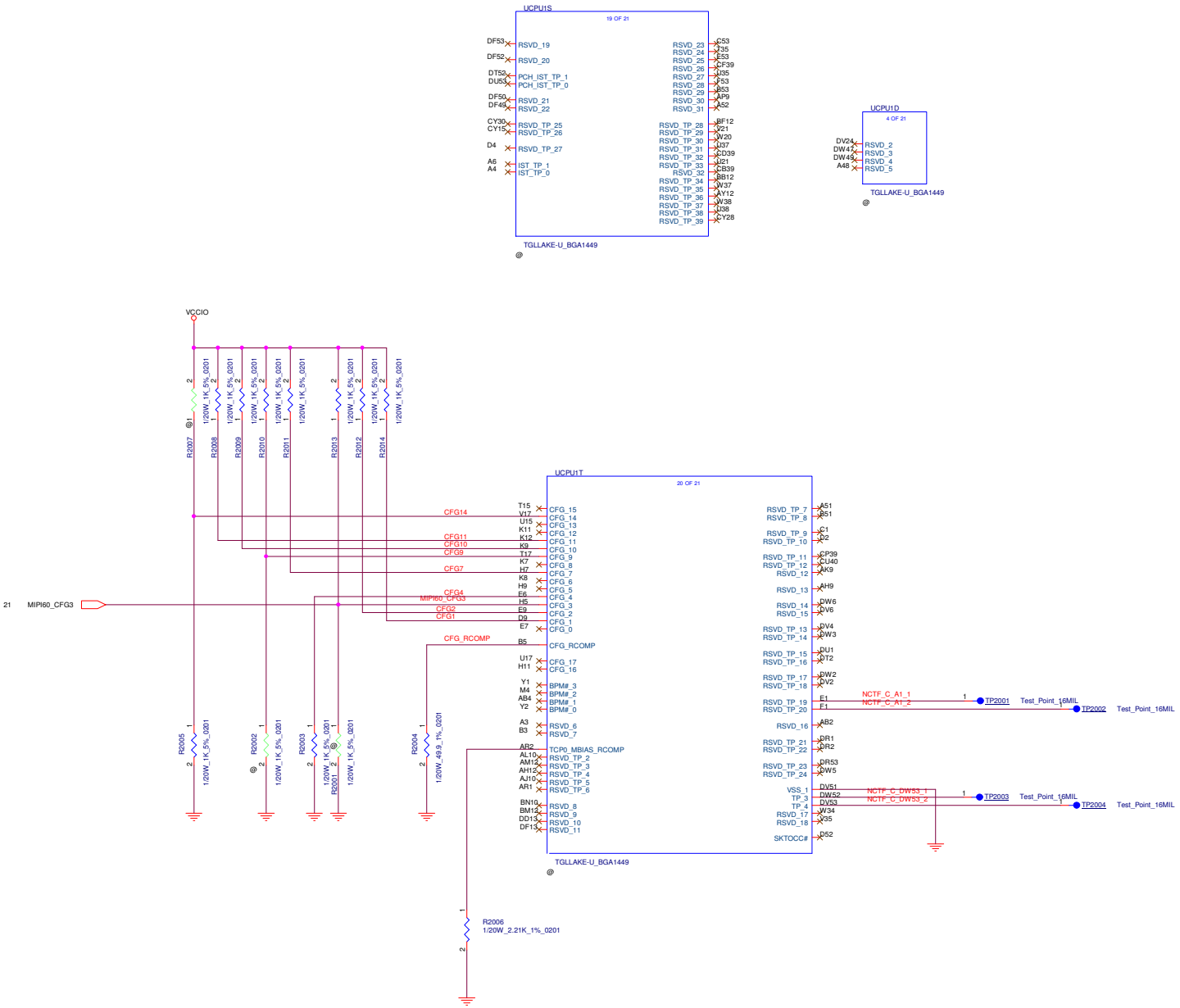


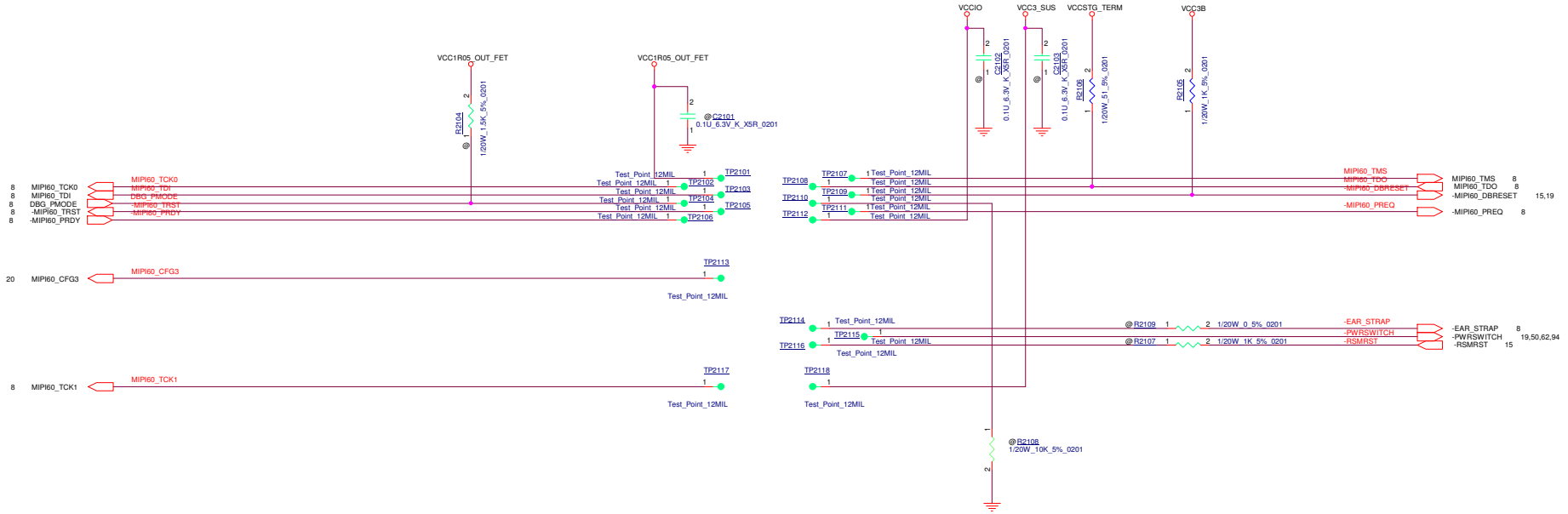


Lenovo			
Project Name : T14s Gen2		Title : CPU (15/16): GND	
Size : C	Document Number :		Rev : 0.1
Date: Friday, December 04, 2020		Sheet : 19 of 130	

TABLE

CFG3: MSR Privacy Bit Feature **1: MSR (C80h) bit[0] setting** **0: MSR (C80h) bit[0] overridden**
CFG4: eDP Enable **1:Disabled** **0:Enabled**
CFG9: SVID Bus Communication **1:Enabled** **0:Disabled**
CFG14: PEG60 Lane Reversal **1:Normal** **0:Reversed**





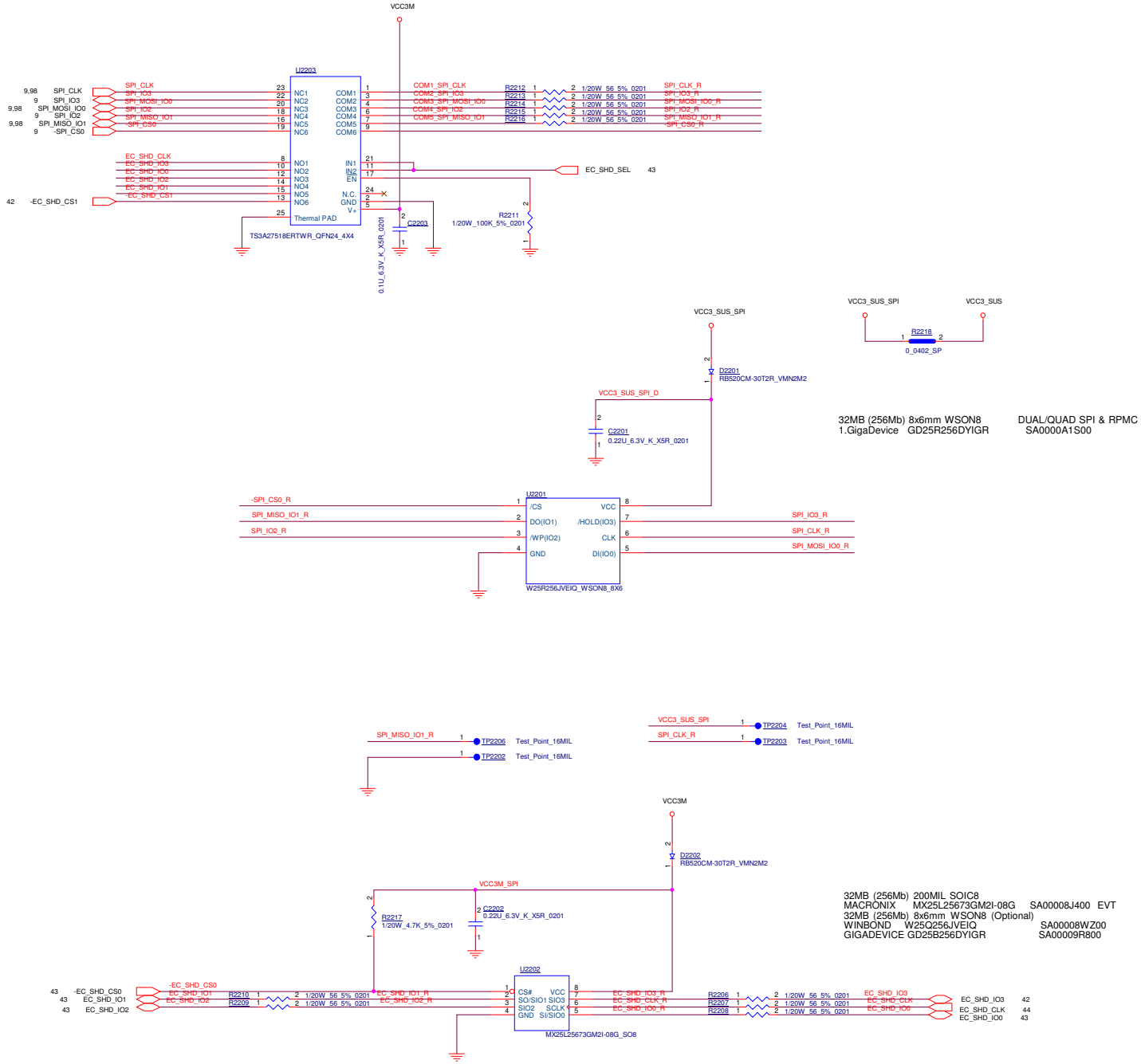
TABLE

Logic	Ref Des	MIPI60	DCI 2.0
Page8	R0808	ASM	NO_ASM
	R0809	ASM	NO_ASM
Page 20	R2001	ASM	NO_ASM
Page 22	J8	ASM	NO_ASM
	C2101	ASM	NO_ASM
	C2102	ASM	NO_ASM
	C2103	ASM	NO_ASM
	R2108	ASM	NO_ASM
	R2106	ASM	ASM
	R2105	ASM	ASM
	R2104	ASM	NO_ASM
	R2107	ASM	NO_ASM
	R2109	ASM	NO_ASM

LOGIC

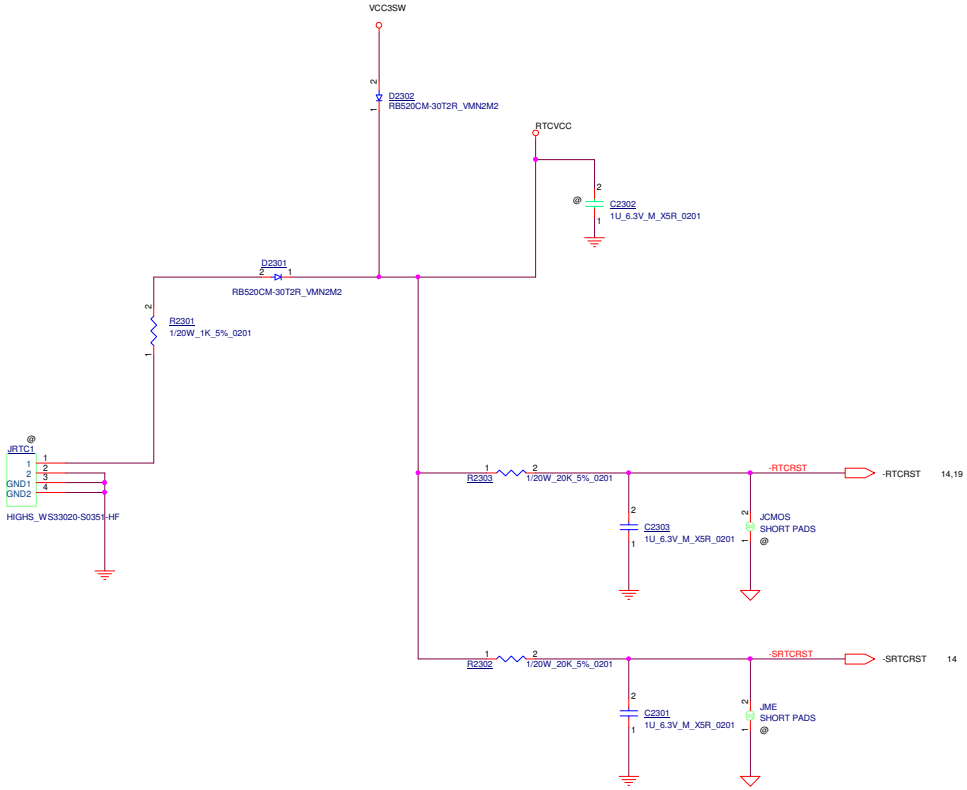
Lenovo

Project Name : T14s Gen2	Title : MIPI60 DEBUG PORT
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 21 of 130



Lenovo

Project Name : T14s Gen2	Title : SPI FLASH
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 22 of 130



Project Name : T14s Gen2	Title : RTC BATTERY
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 23 of 130

ON BOARD MEMORY

ZZZ
K4AAG165WA-BCWE
X764AT01001
S8G@
SA0000AC000

ZZZ
MT40A1G16KD-062E:E
X764AT01002
M8G@
SA0000ADK10

ZZZ
H5ANAG6NCJR-XNC
X764AT0100C
H8G@
SA0000B5K00

ZZZ
K4ABG165WA-MCWE
X764AT01004
S16G@
SA0000ACK00

ZZZ
MT40A2G16SKL-062E:B
X764AT01005
M16G@
SA0000ADR00

ZZZ
H5ANBG6NAMR-XNC
X764AT01006
H16G@
SA0000ANN00

Media card select

U8101
RTS5232S-GR
SA000077K00
M@

U8101
GL9750-OIYL3
SA00009JG10
S@

GBE

U7601
WGI219LM SLKJ2
SA000073020
GBE_V@

U7601
WGI219V SLKJ4
SA000072Z10
GBE_NV@

PCB

ZZZ
PCB 1VA NM-D351 REV0 M/B
DAZ1VA00100
SVT@

N18S-LP VX76

ZZZ
Samsung 2G
X764AT01007
S18G5@

ZZZ
Micron2G
X764AT01008
M18G5@

ZZZ
Hynix 2G
X764AT0100B
H18G5@

QN20-M VX76

ZZZ
Samsung 4G
X764AT01009
S20M@

ZZZ
Hynix 4G
X764AT0100A
H20M@

CML Vpro CPU Config

UCPU1
I5-1145G7-B1
SA0000AY030
I5_VP@

UCPU1
I7-1185G7-B1
SA0000AY140
I7_VP@

CML non Vpro CPU Config

UCPU1
I5-1135G7-B1
SA0000AY270
I5_NVP@

UCPU1
I7-1165G7-B1
SA0000AWZ70
I7_NVP@

UCPU1
I5-1135G7-B1-IPU
SA0000AY280
I5_INVP@

UCPU1
I7-1165G7-B1-IPU
SA0000AWZ80
I7_INVP@

Typhoon Peak2 vPro

UWLAN1
Typhoon Peak2 AX210.D2WG
PK29S001K20
TP2@

Cyclone Peak2 vPro

UWLAN1
Cyclone Peak2 vPro
PK29S001620
CP2@

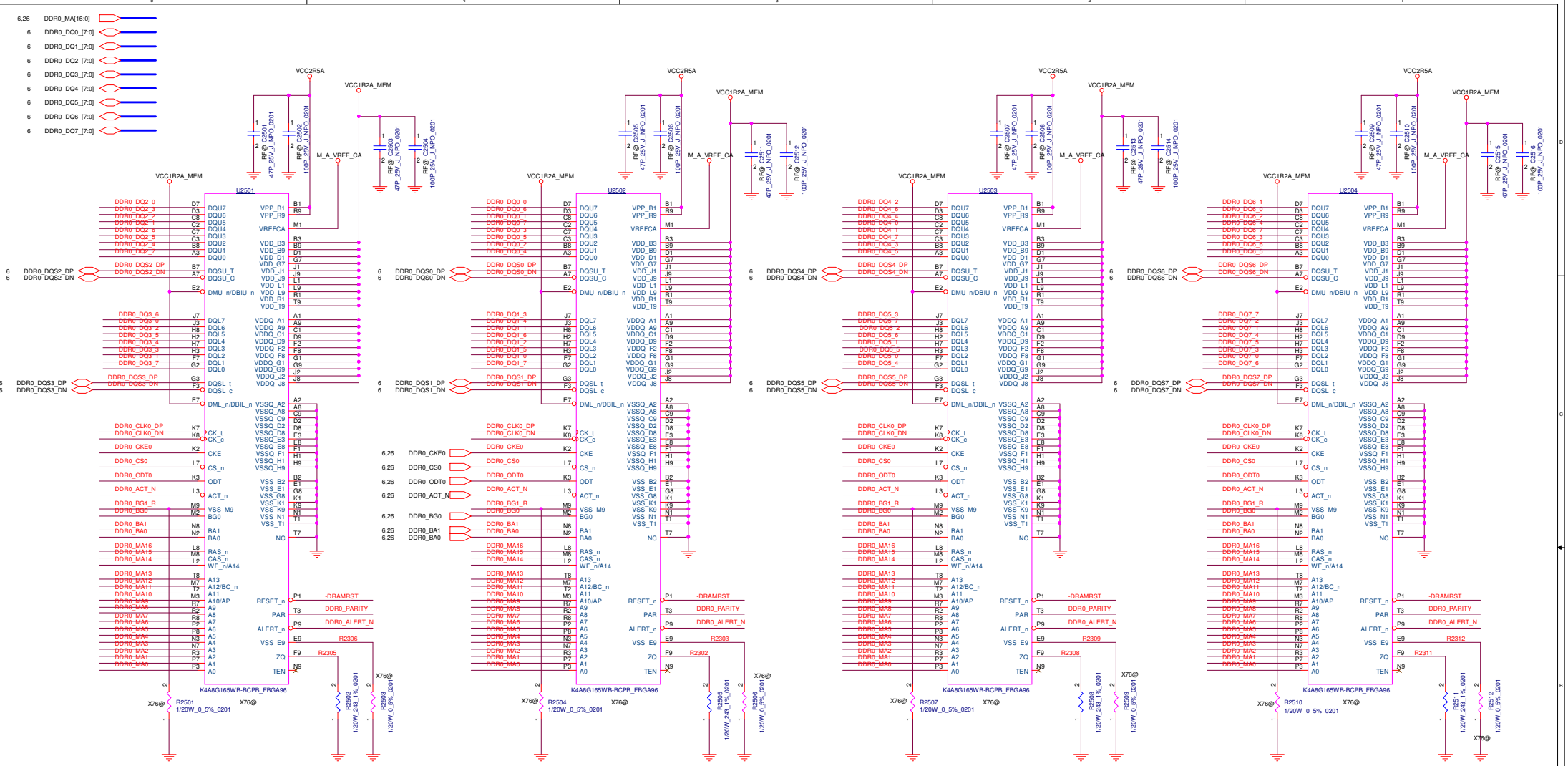
Security Classification	LC Future Center Secret Data		
Issued Date	2019/8/1	Deciphered Date	2019/08/01

Title: BLANK
<Title>

Size: Custom | Document Number: mT14s Gen2 | Rev: 0.1

Drift2/Ironhide2

Date: Friday, December 04, 2020 | Sheet 24 of 130



Original PN:SA00007DA00
Original Footprint : K4A8G165WB-BCPB_FBGA_96P
Temp Footprint : Samsung_memorydown_4G-XX

teknisi indonesia

Supplier	Capacity	Supplier's P/N	Package Size		Die	Configuration	VSS_E9	BG1 / VSS	Ch. A	Ch. B
Micron	16Gbit	MT40A1G16KD-062E:E	7.5 x 13.5 mm	SDP	16Gb (1Gx16)	1 Rank x (1Gx16)	0_5%	BG1	8GB	SODIMM
	32Gbit	MT40A2G16SKL-062E:B	10.5 x 13.3 mm	DDP	32Gb (2Gx16)	1 Rank x (2Gx16)	243_1%	BG1	16GB	SODIMM
Samsung	16Gbit	K4AAG165WA-BCWE	7.5 x 13.3 mm	SDP	16Gb (1Gx16)	1 Rank x (1Gx16)	0_5%	BG1	8GB	SODIMM
	32Gbit	K4ABG165WA-MCWE	10.5 x 13.3 mm	DDP	32Gb (2Gx16)	1 Rank x (2Gx16)	243_1%	BG1	16GB	SODIMM
SK hynix	16Gbit	H5ANAG6NCJR-XNC	7.5 x 13.0 mm	SDP	16Gb (1Gx16)	1 Rank x (1Gx16)	0_5%	BG1	8GB	SODIMM
	16Gbit	H5ANAG6NCMR-XNC	7.5 x 13.0 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	243_1%	BG1	8GB	SODIMM
	32Gbit	H5ANBG6NAMR-XNC	10.5 x 13.3 mm	DDP	32Gb (2Gx16)	1 Rank x (2Gx16)	243_1%	BG1	16GB	SODIMM

TABLE:

	SDP	DDP
R2501	ASM	NA
R2504	ASM	NA
R2507	ASM	NA
R2510	ASM	NA
R2513	NA	ASM
R2618	NA	ASM
R2503	0_5%	243_1%
R2506	0_5%	243_1%
R2509	0_5%	243_1%
R2512	0_5%	243_1%

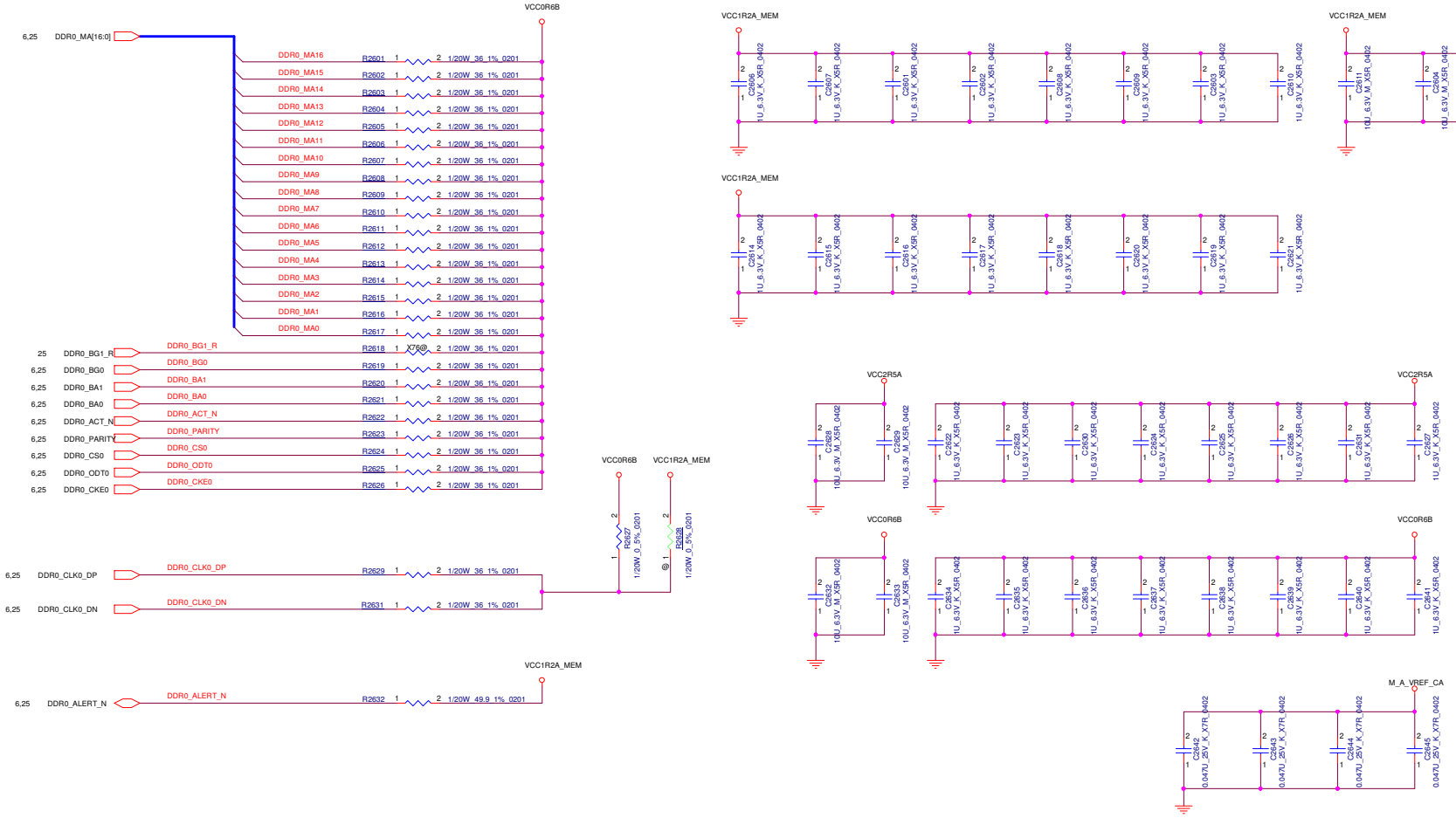
DRAM Configuration: X76@

Document Number
LCFC
Size Custom
Title DDR4 SUB CHANNEL-A MD_1
Rev 0.01
Date: Friday, December 04, 2020 Sheet 25 of 130

VCC1R2A	PDG	LCFC
1uF_0402	16	HW:16/PWR:0
10uF_0603	5	HW:5/PWR:0

VCC0R6B	PDG	LCFC
1uF_0402	8	HW:8/PWR:0
10uF_0603	2	HW:2/PWR:0

VCC2R5A	PDG	LCFC
1uF_0402	8	HW:8/PWR:0
10uF_0603	2	HW:2/PWR:0



Document Number			LCFC	
Size Custom	Title DDR4 SUB CHANNEL-A MD_2			Rev 0.01
Date: Friday, December 04, 2020	Sheet 26 of 130			

7 DDR1_MA[16:0]
7 DDR1_DQ0_[7:0]
7 DDR1_DQ1_[7:0]
7 DDR1_DQ2_[7:0]
7 DDR1_DQ3_[7:0]
7 DDR1_DQ4_[7:0]
7 DDR1_DQ5_[7:0]
7 DDR1_DQ6_[7:0]
7 DDR1_DQ7_[7:0]

Current Sense Resistor
R2501 1m

VCC1R2A
VCC1R2A_MEM
R2701 0_5%_1206

JDDR1A
ARGOS_D4ASL-26010-1P40
ME@

JDDR1B
ARGOS_D4ASL-26010-1P40
ME@

VCC2R5A VCC3B

M_B_VREF_CA

VCC3B VCC0R6B
R2702 0_0201_SP

SPD ADDRESS: 51H

VCC1R2A_MEM

@R2703 1/20W_240_1%_0201
@R2704 1/20W_240_1%_0201
@R2705 1/20W_240_1%_0201
@R2706 1/20W_240_1%_0201
JDDR1_CB0
JDDR1_CB1
JDDR1_CB2
JDDR1_CB3

@R2715 1/20W_240_1%_0201
@R2716 1/20W_240_1%_0201
@R2714 1/20W_240_1%_0201
@R2717 1/20W_240_1%_0201
JDDR1_CB4
JDDR1_CB5
JDDR1_CB6
JDDR1_CB7

@R2718 1/20W_240_1%_0201
@R2719 1/20W_240_1%_0201
@R2720 1/20W_240_1%_0201
JDDR_EVENT_N
M_B_DQS8
M_B_DQS8

VCC3B VCC3_SUS

R2708 1/20W_10K_5%_0201
R2709 1/20W_10K_5%_0201
R2710 1/20W_10K_5%_0201
R2711 1/20W_10K_5%_0201
R2712 1/20W_10K_5%_0201

SMB_CLK_3B SMB_CLK
SMB_DATA_3B SMB_DATA
@R2707 1/16W_0_5%_0402
@R2713 1/16W_0_5%_0402

Q2701 SSM3K15AMFV_2-1L1B
Q2702 SSM3K15AMFV_2-1L1B

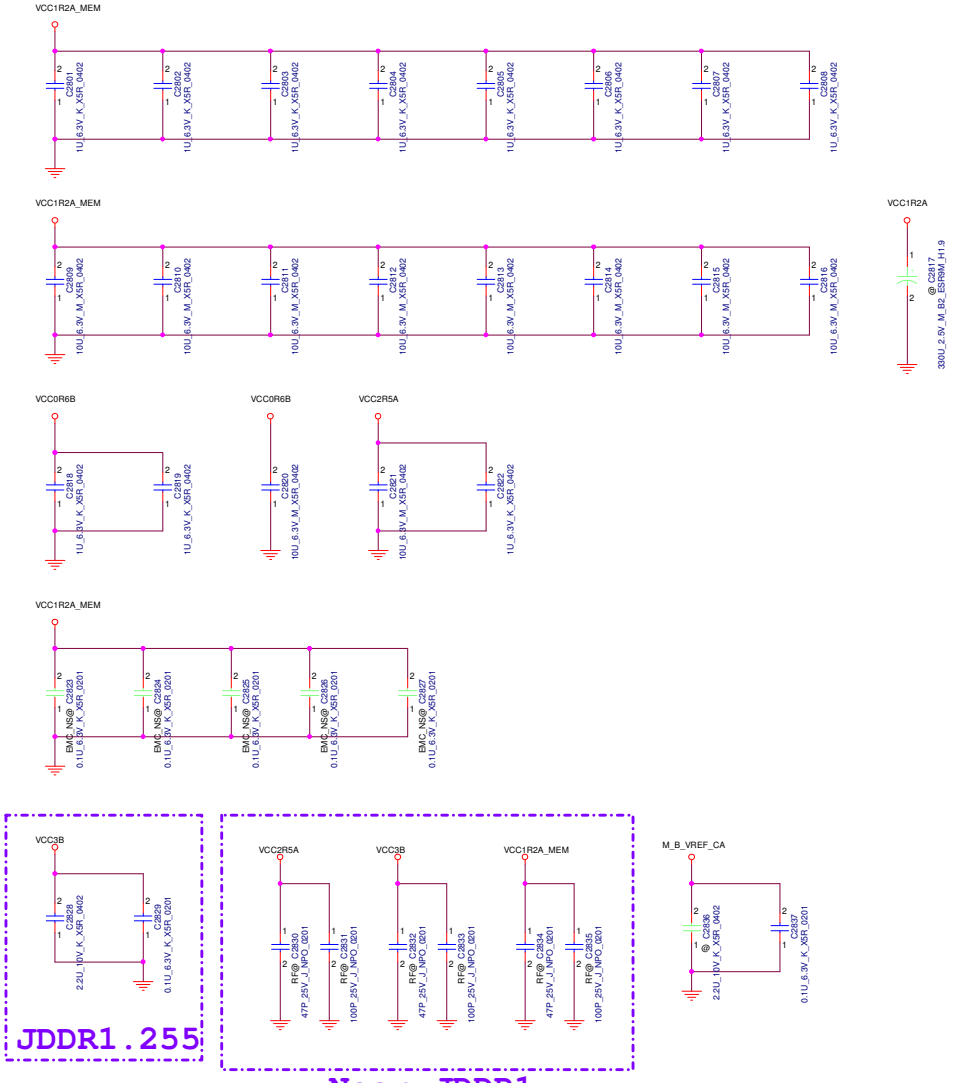
Document Number	LCFC
Size Custom	Title DDR4 SUB CHANNEL-B SODIMM
Rev 0.01	
Date: Friday, December 04, 2020	Sheet 27 of 130

VCC1R2A	PDG	LCFC
1uF_0402	8	HW:8/PWR:0
10uF_0603	8	HW:8/PWR:0
330uF_B2	1	HW:0/PWR:0

JDDR1.255	PDG	LCFC
0.1uF_0402	1	HW:1/PWR:0
2.2uF_0402	1	HW:1/PWR:0

VCC0R6B	PDG	LCFC
1uF_0402	2	HW:2/PWR:0
10uF_0603	1	HW:1/PWR:0

VCC2R5A	PDG	LCFC
1uF_0402	1	HW:1/PWR:0
10uF_0603	1	HW:1/PWR:0



Document Number			LCFC
Size: Custom	Title: DDR4 SUB CHANNEL-B SODIMM_2		Rev: 0.01
Date: Friday, December 04, 2020	Sheet 28 of 130		

Lenovo

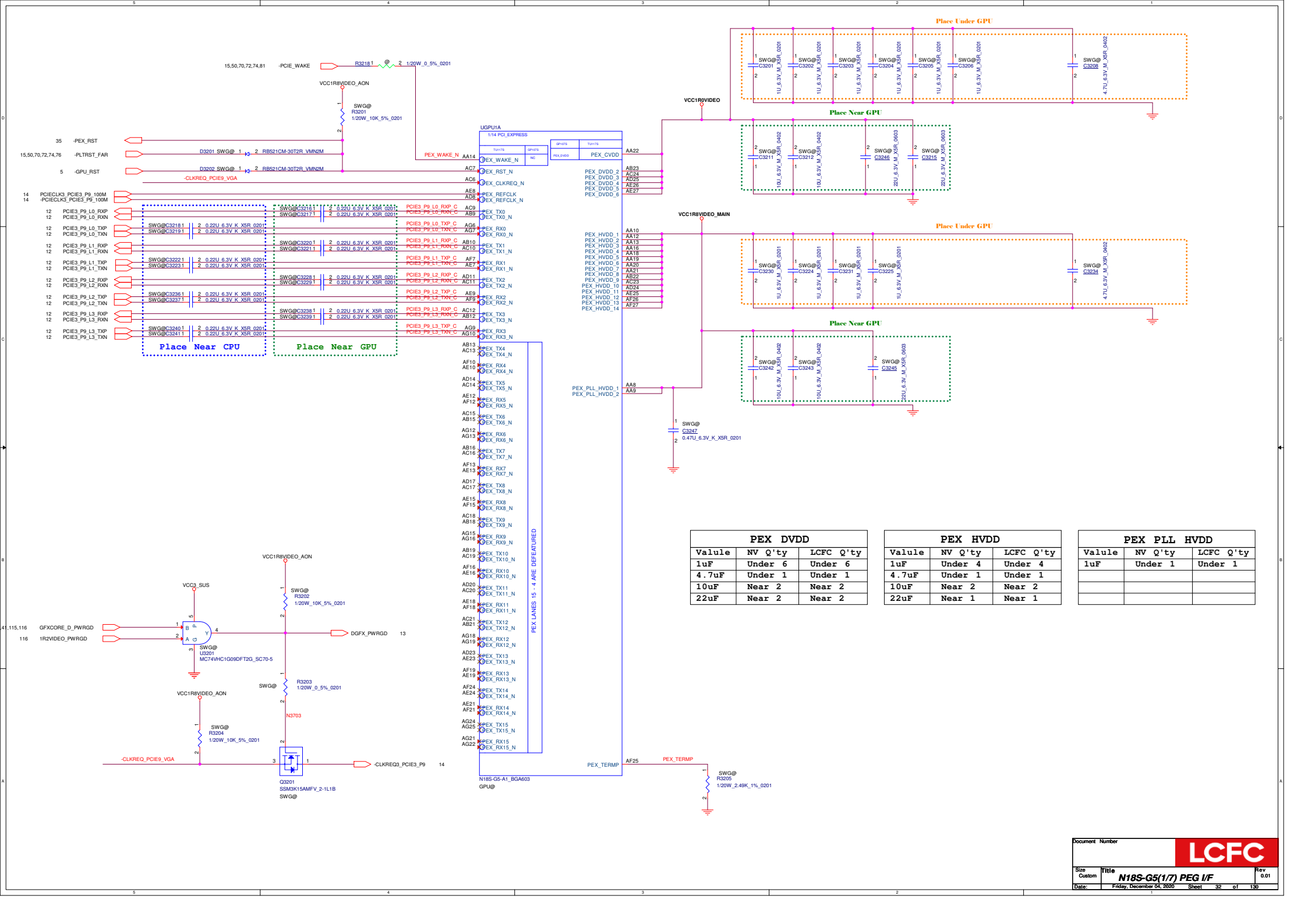
Project Name : T14s Gen2	Title : PWR SW/PEN CHARGER INTERFACE
Size :	Document Number : Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 29 of 130

Lenovo

Project Name : T14s Gen2	Title : HDMI CONNECTOR
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 30 of 130

Lenovo

Project Name : T14s Gen2	Title : THUNDERBOLT RETIMER B (1/2)
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 31 of 130



PEX DVDD		
Valule	NV Q'ty	LCFC Q'ty
1uF	Under 6	Under 6
4.7uF	Under 1	Under 1
10uF	Near 2	Near 2
22uF	Near 2	Near 2

PEX HVDD		
Valule	NV Q'ty	LCFC Q'ty
1uF	Under 4	Under 4
4.7uF	Under 1	Under 1
10uF	Near 2	Near 2
22uF	Near 1	Near 1

PEX PLL HVDD		
Valule	NV Q'ty	LCFC Q'ty
1uF	Under 1	Under 1

Document Number			LCFC
Size Custom	Title N18S-G5(1/7) PEG I/F		Rev 0.01
Date: Friday, December 04, 2020	Sheet 32	of 130	

N18S-G5
Package : GB2E-64
NV Symbol : TU117S

	0..31		32..63		Pin
	DRAM1		DRAM2		Loading
	CHA	CHB	CHA	CHB	
	Bytes 0,1	*Bytes 2,3*	*Bytes 4,5*	*Bytes 6,7*	**x16 mode**
CMD0	CA0_A				1
CMD9	CA1_A				1
CMD8	CA2_A				1
CMD32	CA3_A				1
CMD4		CA0_B			1
CMD12		CA1_B			1
CMD5		CA2_B			1
CMD13		CA3_B			1
CMD7	CA4_A	CA4_B			2
CMD11	CA5_A	CA5_B			2
CMD15	CA6_A	CA6_B			2
CMD14	CA7_A	CA7_B			2
CMD3	CA8_A	CA8_B			2
CMD1	CA9_A	CA9_B			2
CMD6	CABI_A	CABI_B			2
CMD10	CKE_A	CKE_B			2
CMD2	RST*				1
CMD20			CA0_A		1
CMD28			CA1_A		1
CMD21			CA2_A		1
CMD29			CA3_A		1
CMD16				CA0_B	1
CMD25				CA1_B	1
CMD24				CA2_B	1
CMD33				CA3_B	1
CMD23			CA4_A	CA4_B	2
CMD27			CA5_A	CA5_B	2
CMD30			CA6_A	CA6_B	2
CMD31			CA7_A	CA7_B	2
CMD19			CA8_A	CA8_B	2
CMD17			CA9_A	CA9_B	2
CMD22			CABI_A	CABI_B	2

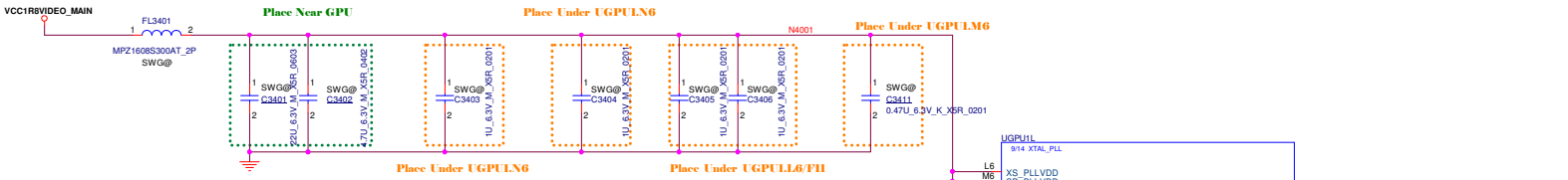
Place Under GPU

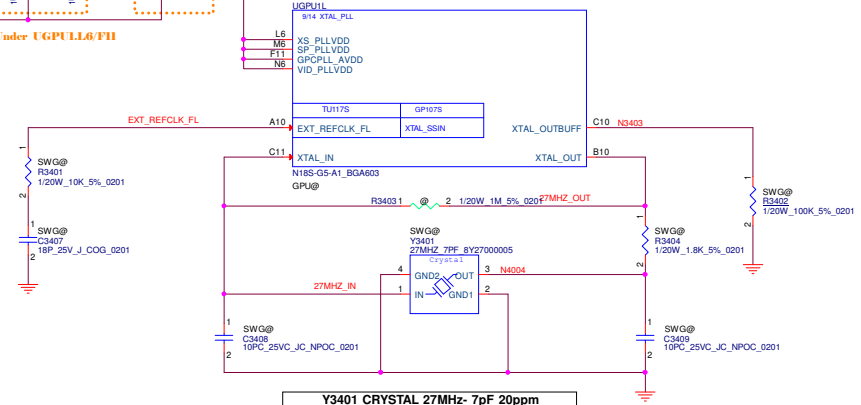
Place Near GPU

PLL AVDD		
Valule	NV Q'ty	LCFC Q'ty
1uF	Under 3	Under 4
4.7uF	Near 2	Near 2
22uF	Near 1	Near 1
Beed : 30ohm/100Mhz (ESR=0.010ohm)		

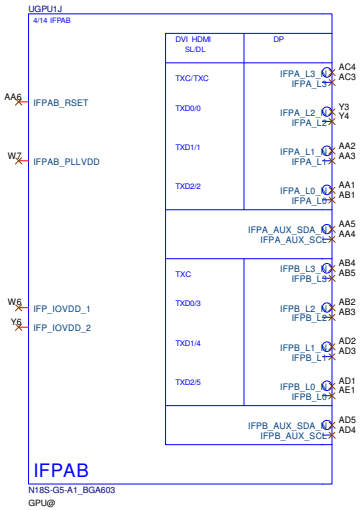
Document Number			LCFC
Size Custom	Title N18S-G5(2/7) VRAM I/F		Rev 0.01
Date: Friday, December 04, 2020	Sheet 33 of 130		

30ohm@100MHz ESR=0.01





Y3401 CRYSTAL 27MHz- 7pF 20ppm		
Vendor	P/N	LCFC P/N
TXC	8Y27000005	SJ10000IB00
KDS	1ZZHAE27000CC0A	SJ10000I800



Document Number			
Size Custom	Title N18S-G5(3/7) DIGITA / XTAL		Rev 0.01
Date: Friday, December 04, 2020	Sheet 34 of 130		

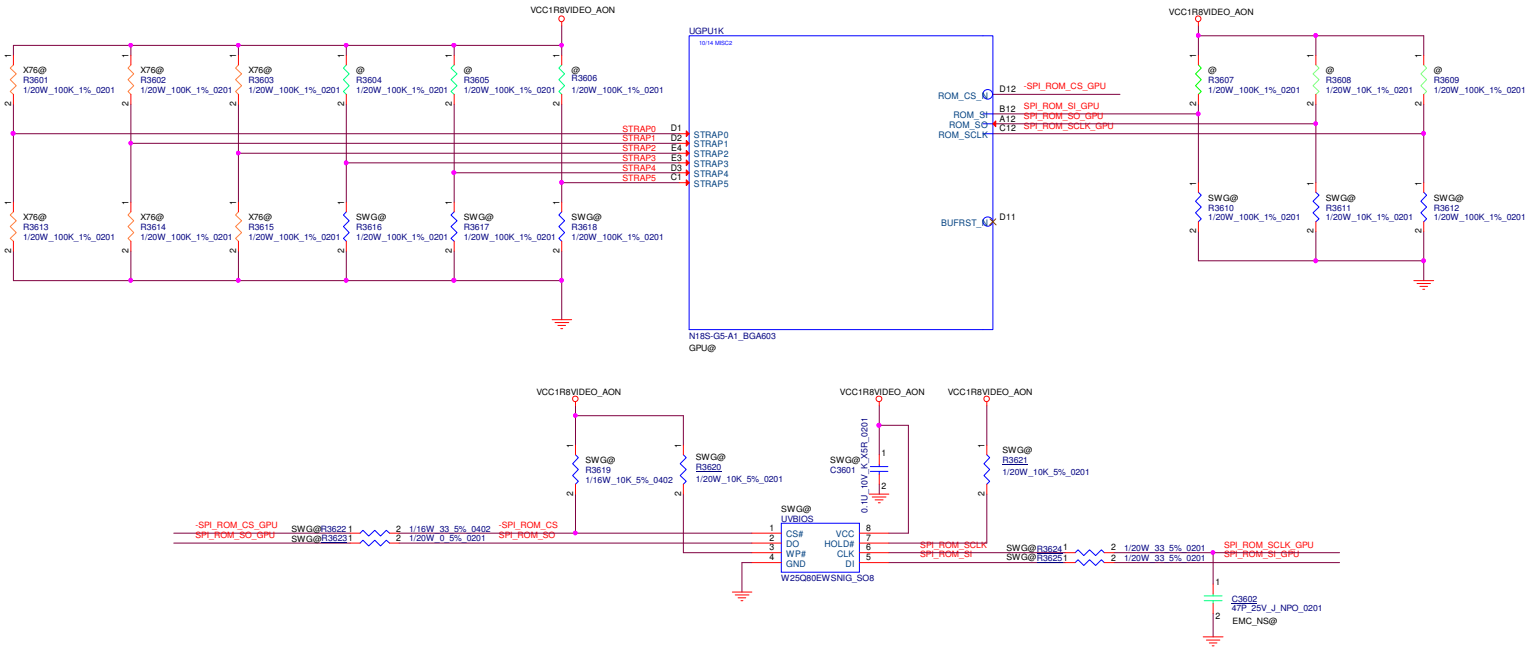
I2C Specification

GPU does "Not support multiple masters" on its I2C buses.
1, The default I2CS address is 0x9E.This address cannot be used by another device on the same bus.
2, The GPU has an alternative I2CS address (0x9C).
3, This alternative address is enabled by using the SMB_ALT_ADDR strap(see GPU straps).

Gpio Pin Name	GPIO Name	I/O
GPIO0	NVVDD_PWM_VID	O
GPIO1	GC6:GC6_FB_EN	O
GPIO2	GC6:GPU_EVENT*	I/O
GPIO3	UNUSED	O
GPIO4	GC6:1V8_MAIN_EN	O
GPIO5	FRAME_LOCK*	O
GPIO6	NVVDD_PSI* - Please check netname	O
GPIO7	LCD_BL_PWM	O
GPIO8	MEM_VDD_CTL	O
GPIO9	THERM_ALERT*	O
GPIO10	MEM_VREF_CTL	O
GPIO11	LCD_VCC	O
GPIO12	PWR_LEVEL	I
GPIO13	Reserved	O
GPIO14	HPD_IFPA*	I
GPIO15	HPD_IFPB*	I
GPIO16	Reserved	O
GPIO17	UNUSED	I
GPIO18	FP_FUSE	I
GPIO19	UNUSED	O
GPIO20	GC6:NB_FGC6	O
GPIO21	LCD_BLEN	O
GPIO22	INA_HT* / ADC_MUX_SEL	
GPIO23	Reserved	

Delay core power disable for around 100us to make sure PCIE power drop earlier than core power.

Document Number			LCFC
Size: Custom	Title: N18S-G5(4/7) GPIO		Rev: 0.01
Date: Friday, December 04, 2020	Sheet 35 of 130		



N18S-LP VX76 Config (VRAM + Resistance)

Memory Density	Vendor	Manufacturer P/N	RAMCFG Setting Number	STRAP 3 H R3604	STRAP 3 L R3616	STRAP 2 H R3603	STRAP 2 L R3615	STRAP 1 H R3602	STRAP 1 L R3614	STRAP 0 H R3601	STRAP 0 L R3613
8Gb (256M x 32)	Micron A-die	MT61K256M32JE-14:A SA0009SL510	1 (0x0001)	No ASM	ASM	No ASM	ASM	No ASM	ASM	ASM	No ASM
	SAMSUNG C-die	K4Z80325BC-HC14 SA0009SL410	0 (0x0000)	No ASM	ASM	No ASM	ASM	No ASM	ASM	No ASM	ASM
	Hynix A-die	H56C8H24AIR-S2C SA0000B4E00	2 (0x0010)	No ASM	ASM	No ASM	ASM	ASM	No ASM	No ASM	ASM

Table 12. N18S-G5-B, N18S-G5 and N18S-LP GDDR6 Recommended Memories

Memory Density	Allowed Memory Configuration	FBVDD/Q	Vendor	Manufacturer Part Number	Die Revision	Strap	Memory Speed Grade	Date Code Alert	Qual Plan	Status
8 Gb	2Chx256Mx16	1.2V	Micron	MT61K256M32JE-14:A	A-die	0x1	14 Gbps	1940[2]	Full	Production ready
			Samsung	K4Z80325BC-HC14	C-die	0x0	14 Gbps	2001[3]	Full	Production ready
			Hynix	H56C8H24AIR-S2C	A-die	0x2	14 Gbps	N/A	Full	Production ready

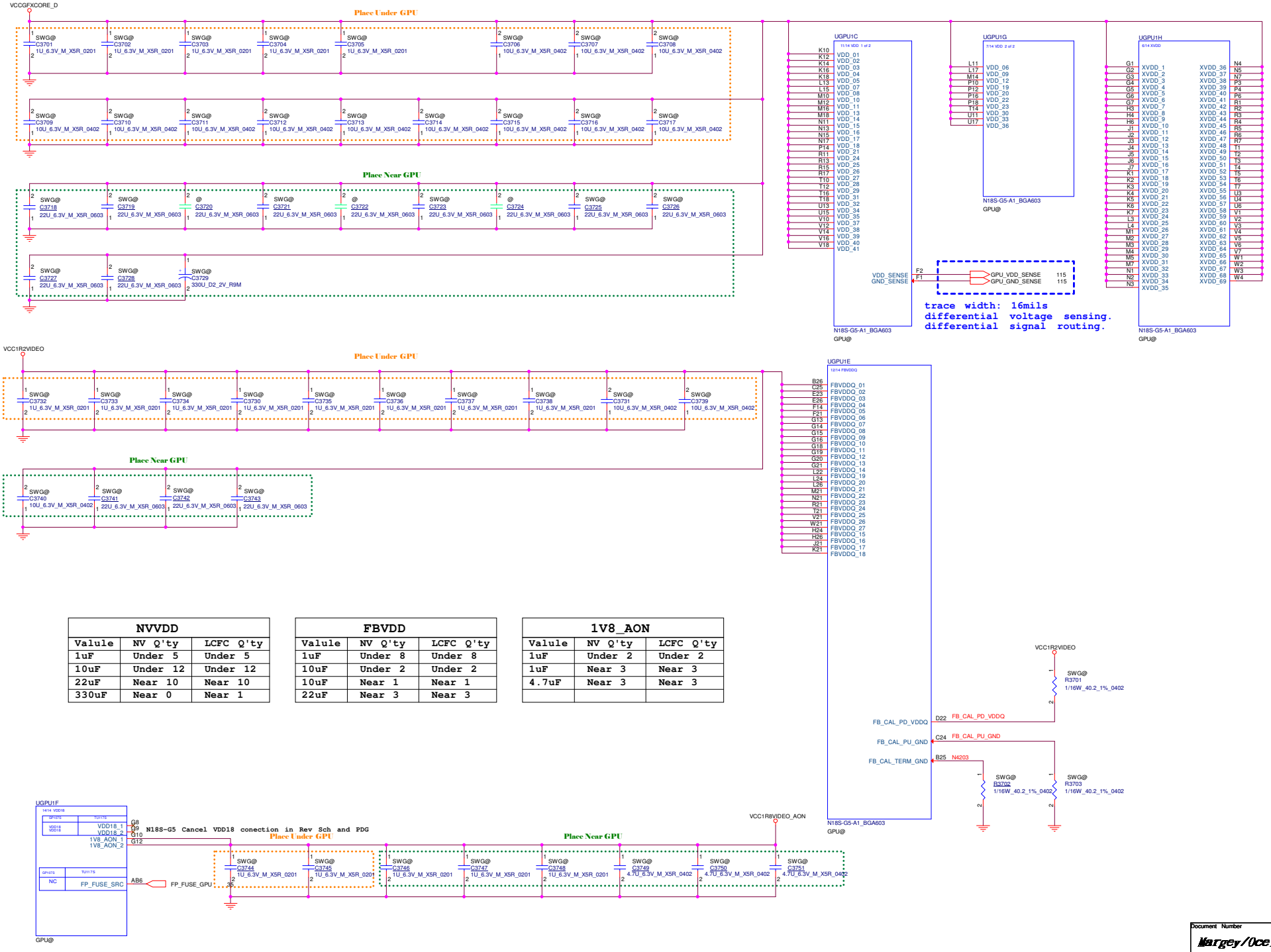
QN20-M1 VX76 Config (VRAM + Resistance)

Memory Density	Vendor	Manufacturer P/N	RAMCFG Setting Number	STRAP 3 H R3604	STRAP 3 L R3616	STRAP 2 H R3603	STRAP 2 L R3615	STRAP 1 H R3602	STRAP 1 L R3614	STRAP 0 H R3601	STRAP 0 L R3613
16Gb (256M x 32)	SAMSUNG M-die	K4ZAF325BM-HC14 SA0009QV20	6 (0x0006)	No ASM	ASM	ASM	No ASM	ASM	No ASM	No ASM	ASM
	Hynix M-die	H56CBM24MIR-S2C SA0000B1W00	8 (0x0008)	No ASM	ASM	No ASM	ASM	No ASM	ASM	ASM	ASM

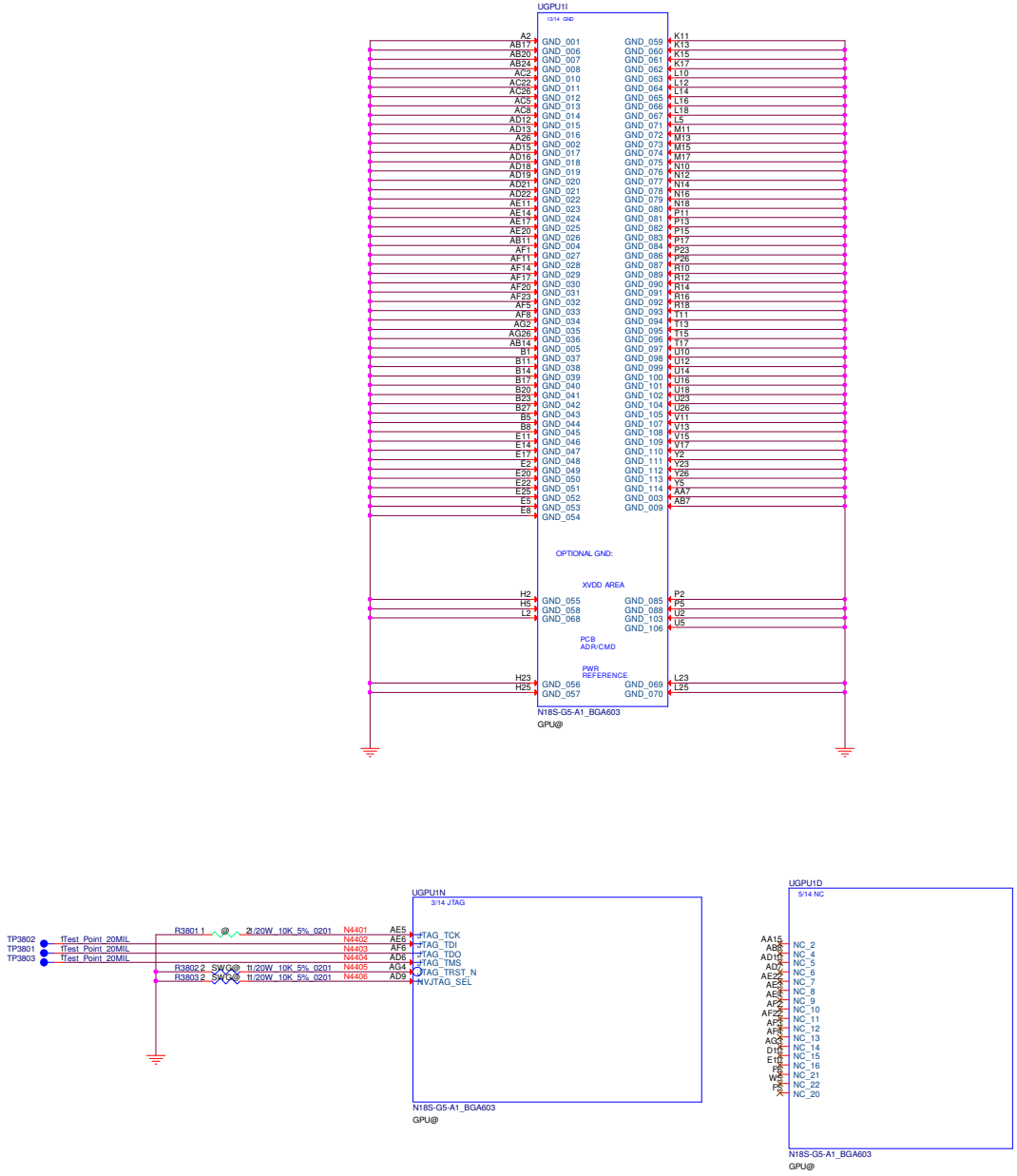
Table 6. QN20-M1 GDDR6 Recommended Memories

Memory Density	Allowed Memory Configuration	FBVDD/Q	Vendor	Manufacturer Part Number	Die Revision	Strap	Memory Speed Grade	Date Code Alert	Qual Plan	Status
16 Gb	2Chx512Mx16	1.2V	Samsung	K4ZAF325BM-HC14	M-die	0x6	14 Gbps	2028[2]	Full	Production candidate
			Hynix	H56CBM24MIR-S2C	M-die	0x8	14 Gbps	N/A	Full	Post-production candidate

Document Number		LCFC	
Size Custom	Title N18S-G5(5/7) STRAP		Rev 0.01
Date: Friday, December 04, 2020	Sheet 36 of 130		

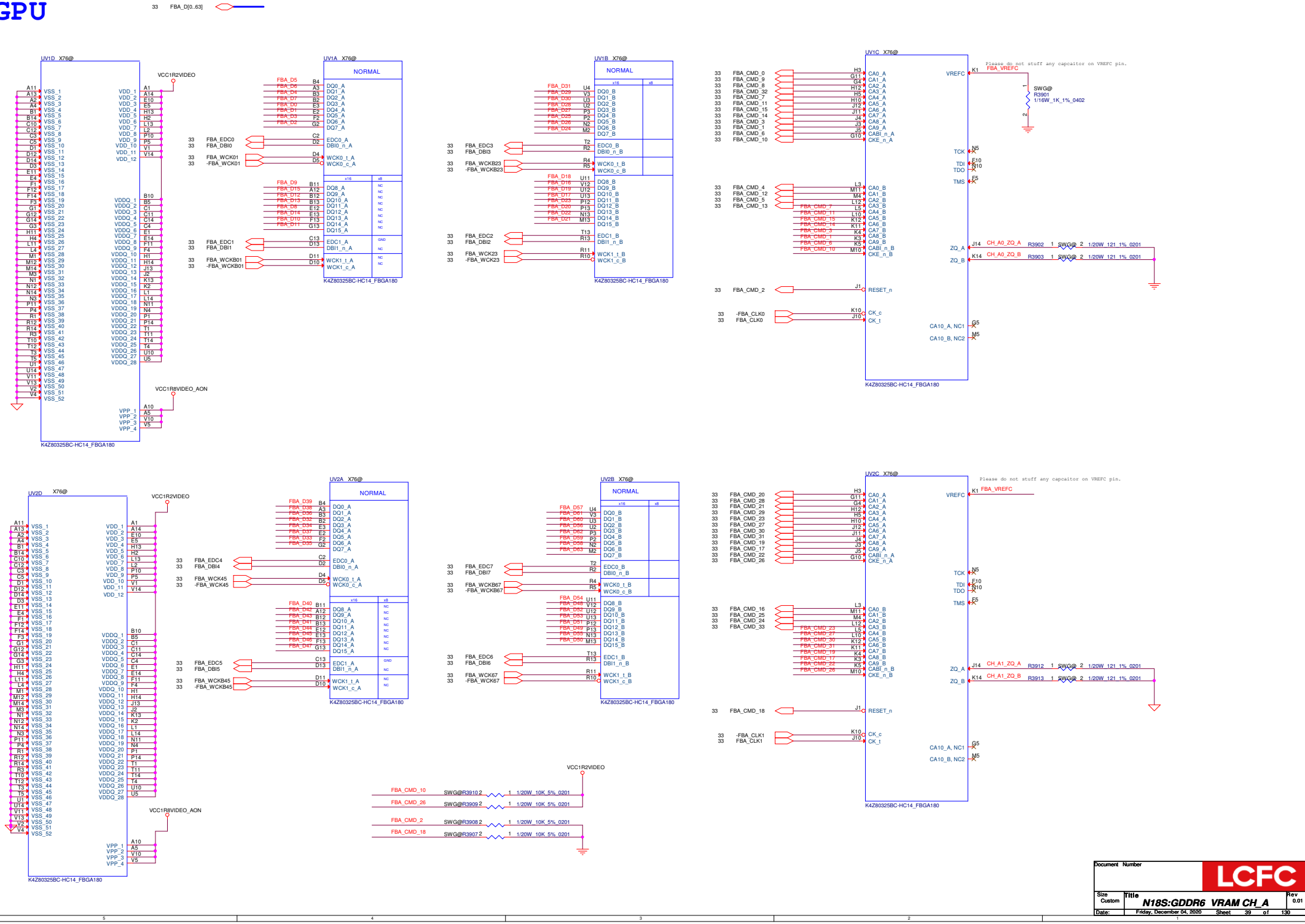


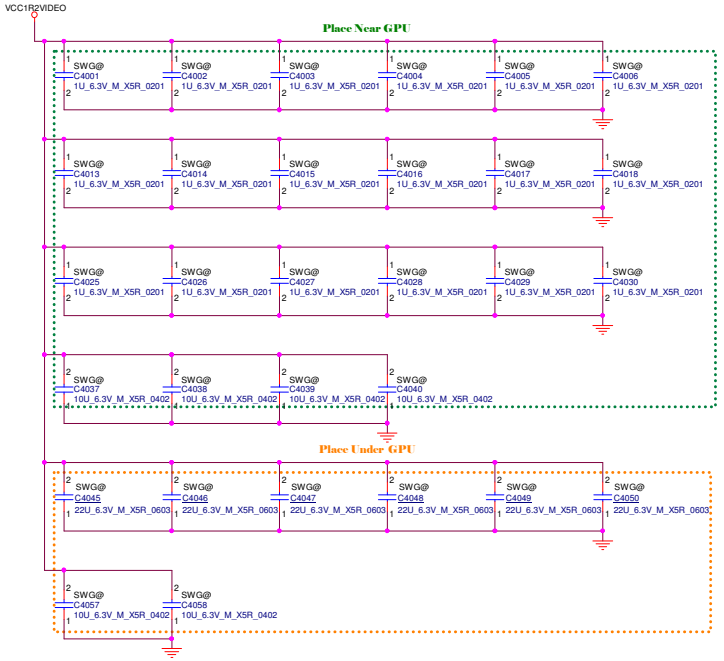
Document Number		
Margey/Ocelot	LCFC	
Size: Custom	Title: N18S-G5(5/7) POWER	Rev: 0.01
Date: Friday, December 04, 2020	Sheet 37 of 130	

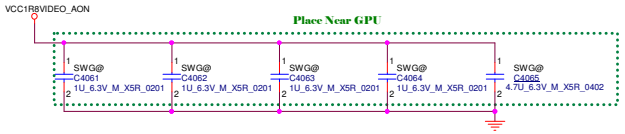


Document Number			LCFC
Size: Custom	Title: N18S-G5(7/7) GND		Rev: 0.01
Date: Friday, December 04, 2020	Sheet 38 of 130		

GPU

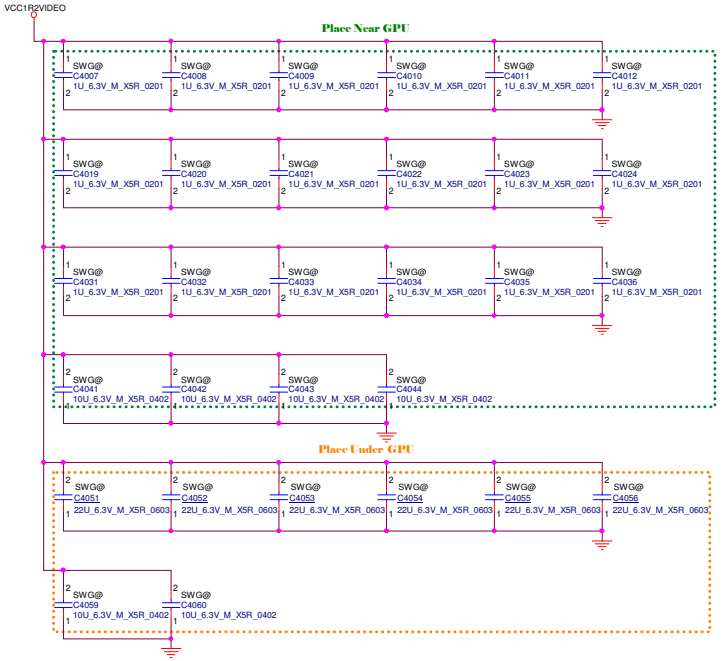

33 FBA_D[0..63]
UV1D X76@
K4Z80325BC-HC14_FBGA180
VCC1R2VIDEO
VCC1R8VIDEO_AON
UV1A X76@
NORMAL
FBA_D5 FBA_D6 FBA_D4 FBA_D7 FBA_D0 FBA_D1 FBA_D3 FBA_D2
33 FBA_EDC0 33 FBA_DBI0
33 FBA_WCK01 33 -FBA_WCK01
FBA_D9 FBA_D15 FBA_D12 FBA_D13 FBA_D8 FBA_D14 FBA_D10 FBA_D11
33 FBA_EDC1 33 FBA_DBI1
33 FBA_WCKB01 33 -FBA_WCKB01
UV1B X76@
FBA_D31 FBA_D29 FBA_D30 FBA_D28 FBA_D27 FBA_D25 FBA_D26 FBA_D24
33 FBA_EDC3 33 FBA_DBI3
33 FBA_WCKB23 33 -FBA_WCKB23
FBA_D18 FBA_D16 FBA_D19 FBA_D17 FBA_D23 FBA_D20 FBA_D22 FBA_D21
33 FBA_EDC2 33 FBA_DBI2
33 FBA_WCK23 33 -FBA_WCK23
UV1C X76@
Please do not stuff any capcaitor on VREFC pin.
FBA_VREFC
SWG@ R3901 1/16W_1K_1%_0402
33 FBA_CMD_0 33 FBA_CMD_9 33 FBA_CMD_8 33 FBA_CMD_32 33 FBA_CMD_7 33 FBA_CMD_11 33 FBA_CMD_15 33 FBA_CMD_14 33 FBA_CMD_3 33 FBA_CMD_1 33 FBA_CMD_6 33 FBA_CMD_10
33 FBA_CMD_4 33 FBA_CMD_12 33 FBA_CMD_5 33 FBA_CMD_13
FBA_CMD_7 FBA_CMD_11 FBA_CMD_15 FBA_CMD_14 FBA_CMD_3 FBA_CMD_1 FBA_CMD_6 FBA_CMD_10
33 FBA_CMD_2
33 -FBA_CLK0 33 FBA_CLK0
TCK TDI TDO TMS
CA10_A, NC1 CA10_B, NC2
ZQ_A ZQ_B
CH_A0_ZQ_A R3902 1 SWG@ 2 1/20W 121 1% 0201
CH_A0_ZQ_B R3903 1 SWG@ 2 1/20W 121 1% 0201
UV2D X76@
K4Z80325BC-HC14_FBGA180
VCC1R2VIDEO
VCC1R8VIDEO_AON
UV2A X76@
NORMAL
FBA_D39 FBA_D38 FBA_D36 FBA_D32 FBA_D34 FBA_D37 FBA_D33 FBA_D35
33 FBA_EDC4 33 FBA_DBI4
33 FBA_WCK45 33 -FBA_WCK45
FBA_D40 FBA_D42 FBA_D43 FBA_D41 FBA_D44 FBA_D45 FBA_D46 FBA_D47
33 FBA_EDC5 33 FBA_DBI5
33 FBA_WCKB45 33 -FBA_WCKB45
UV2B X76@
FBA_D57 FBA_D61 FBA_D60 FBA_D56 FBA_D62 FBA_D59 FBA_D58 FBA_D63
33 FBA_EDC7 33 FBA_DBI7
33 FBA_WCKB67 33 -FBA_WCKB67
FBA_D54 FBA_D48 FBA_D52 FBA_D53 FBA_D51 FBA_D49 FBA_D55 FBA_D50
33 FBA_EDC6 33 FBA_DBI6
33 FBA_WCK67 33 -FBA_WCK67
UV2C X76@
Please do not stuff any capcaitor on VREFC pin.
FBA_VREFC
33 FBA_CMD_20 33 FBA_CMD_28 33 FBA_CMD_21 33 FBA_CMD_29 33 FBA_CMD_23 33 FBA_CMD_27 33 FBA_CMD_30 33 FBA_CMD_31 33 FBA_CMD_19 33 FBA_CMD_17 33 FBA_CMD_22 33 FBA_CMD_26
33 FBA_CMD_16 33 FBA_CMD_25 33 FBA_CMD_24 33 FBA_CMD_33
FBA_CMD_23 FBA_CMD_27 FBA_CMD_30 FBA_CMD_31 FBA_CMD_19 FBA_CMD_17 FBA_CMD_22 FBA_CMD_26
33 FBA_CMD_18
33 -FBA_CLK1 33 FBA_CLK1
CH_A1_ZQ_A R3912 1 SWG@ 2 1/20W 121 1% 0201
CH_A1_ZQ_B R3913 1 SWG@ 2 1/20W 121 1% 0201
FBA_CMD_10 SWG@R3910 2 1 1/20W 10K 5% 0201
FBA_CMD_26 SWG@R3909 2 1 1/20W 10K 5% 0201
FBA_CMD_2 SWG@R3908 2 1 1/20W 10K 5% 0201
FBA_CMD_18 SWG@R3907 2 1 1/20W 10K 5% 0201
Document Number
LCFC
Size Custom
Title N18S:GDDR6 VRAM CH_A
Rev 0.01
Date: Friday, December 04, 2020
Sheet 39 of 130

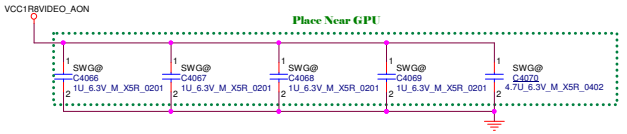




VDD/VDDQ		
Valule	NV Q'ty	LCFC Q'ty
1uF	Near 18	Near 18
10uF	Near 4	Near 4
10uF	Under 2	Under 2
22uF	Under 6	Under 6

VPP		
Valule	NV Q'ty	LCFC Q'ty
1uF	Near 4	Near 4
4.7uF	Near 1	Near 1





VDD/VDDQ		
Valule	NV Q'ty	LCFC Q'ty
1uF	Near 18	Near 18
10uF	Near 4	Near 4
10uF	Under 2	Under 2
22uF	Under 6	Under 6

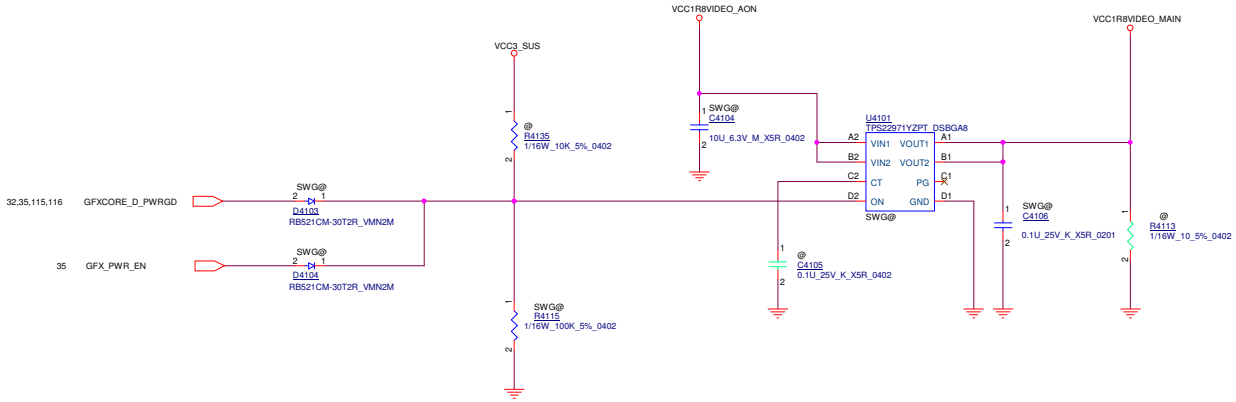
VPP		
Valule	NV Q'ty	LCFC Q'ty
1uF	Near 4	Near 4
4.7uF	Near 1	Near 1

Document Number

LCFC

Size: Custom | Title: N18S: VRAM CH_A_CAP | Rev: 0.01

Date: Friday, December 04, 2020 | Sheet 40 of 130



Project Name : T14s Gen2		Title : Load SW VGA	
Size : C	Document Number :		Rev : 0.1
Date: Friday, December 04, 2020		Sheet : 41 of 130	

TABLE: Functional Strap

KSO01(Crisis Recovery over keyscan conn)	
HIGH	Normal Boot
LOW	Crash Recovery

LOGIC

TABLE: EC JTAG Debug Port

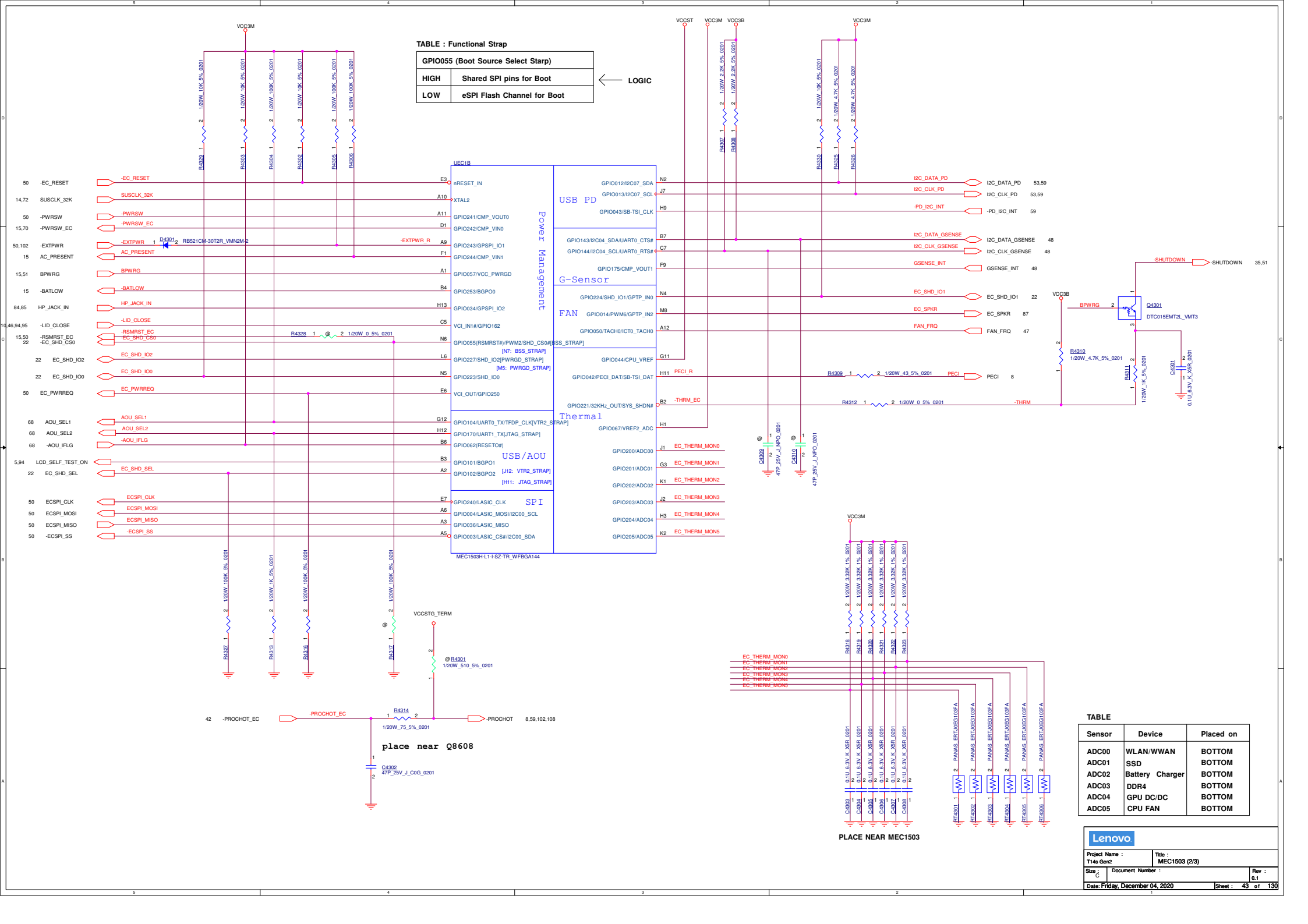
Logic	Ref Des	Enable	Disable
Page 42	R4201	ASM	NO_ASM
	R4212	ASM	NO_ASM
	R4215	ASM	NO_ASM
	R4214	ASM	NO_ASM
	R4213	ASM	NO_ASM
Page 44	R4410	ASM	NO_ASM
	R4411	No_ASM	ASM

LOGIC

MEC1503H-L1-I-SZ-TR_WFBGA144

Lenovo

Project Name : T14s Gen2	Title : MEC1503 (1/3)
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 42 of 130

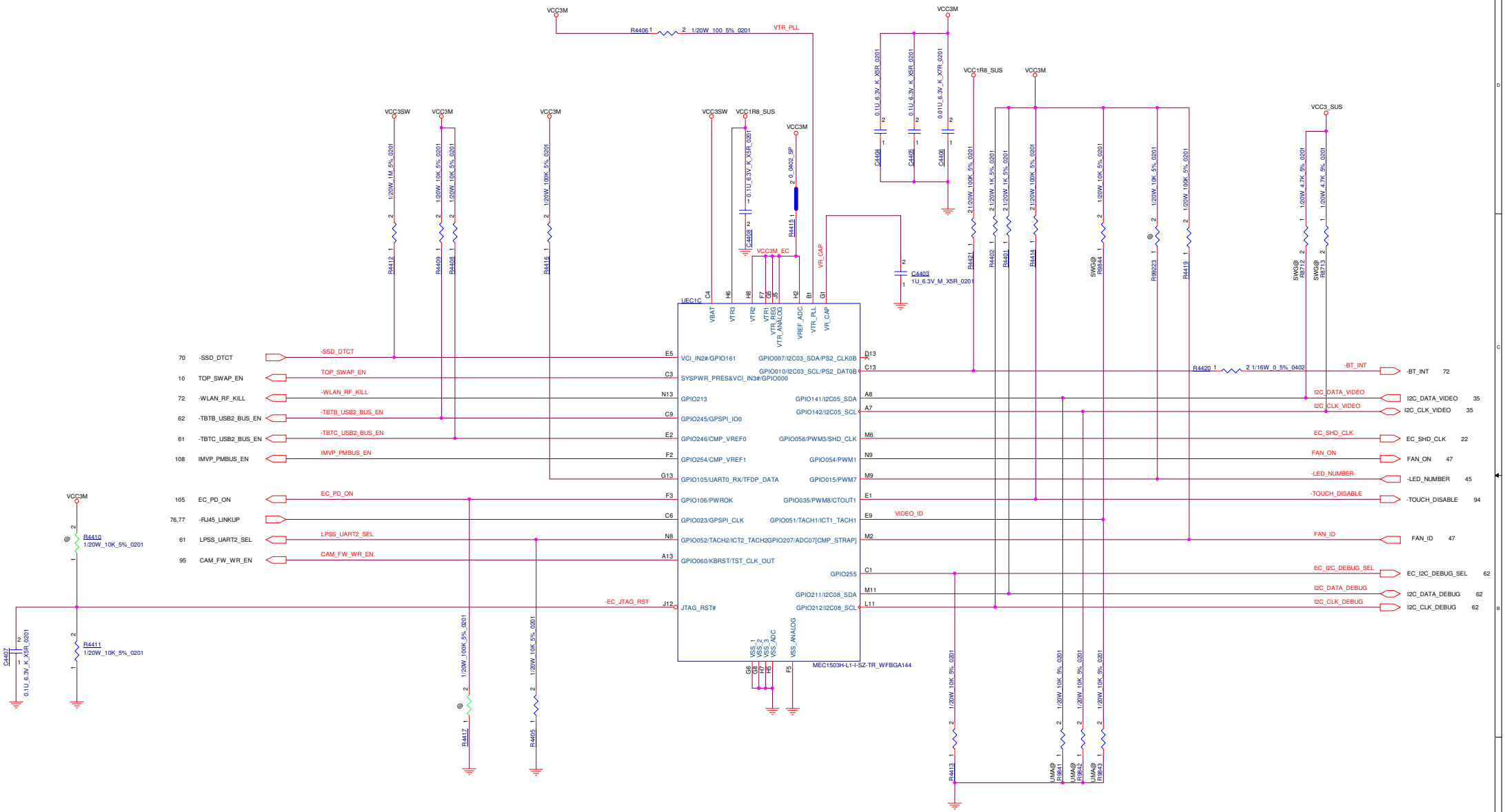


TABLE

Sensor	Device	Placed on
ADC00	WLAN/WWAN	BOTTOM
ADC01	SSD	BOTTOM
ADC02	Battery Charger	BOTTOM
ADC03	DDR4	BOTTOM
ADC04	GPU DC/DC	BOTTOM
ADC05	CPU FAN	BOTTOM

Lenovo

Project Name : T14s Gen2	Title : MEC1503 (2/3)
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 43 of 130



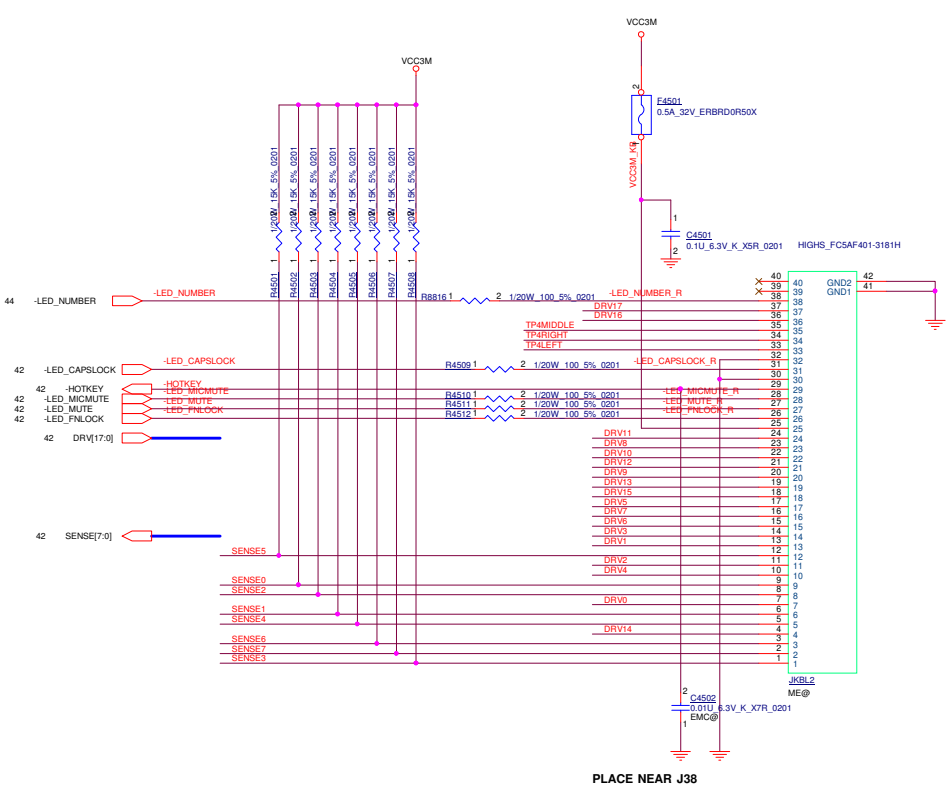
FAN_ID(GPIO207)

T14 Drift3.0	
Supplier	ID
AVC	High(2)_3.2v
Toshiba	Middle(1)_1.65v
DELTA	Low(0)_0v

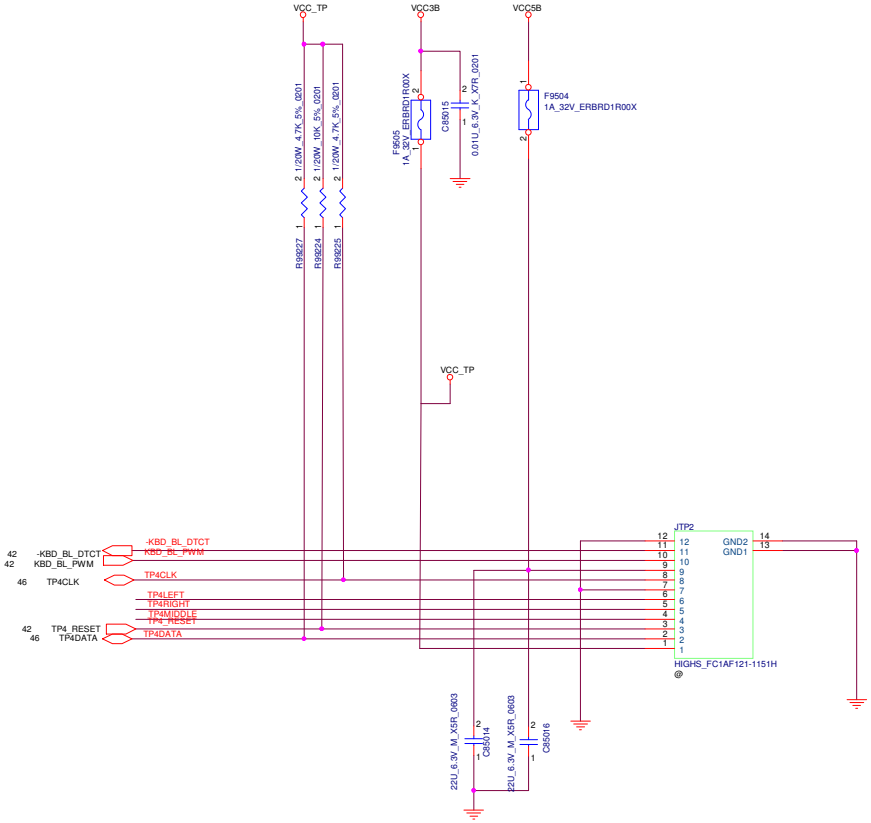
Ironhide3.0	
Supplier	ID
AVC	High(2)_3.2v
Toshiba	Middle(1)_1.65v
DELTA	Low(0)_0v

Lenovo

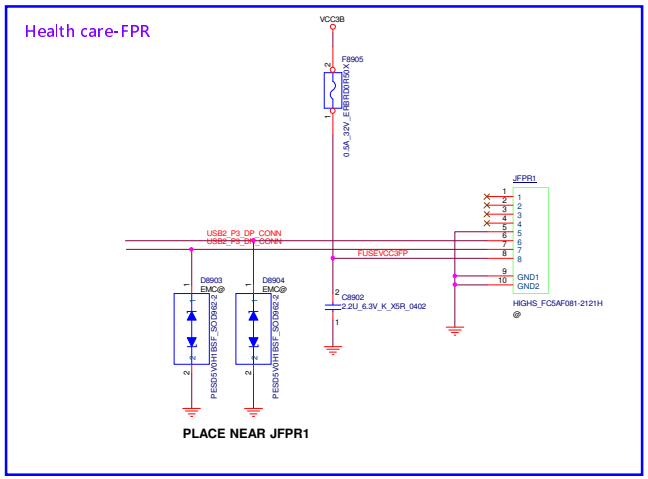
Project Name : T14s Gen2	Title : MEC1503 (3/3)
Size : C	Document Number :
Date: Friday, December 04, 2020	Rev : 0.1
	Sheet : 44 of 130



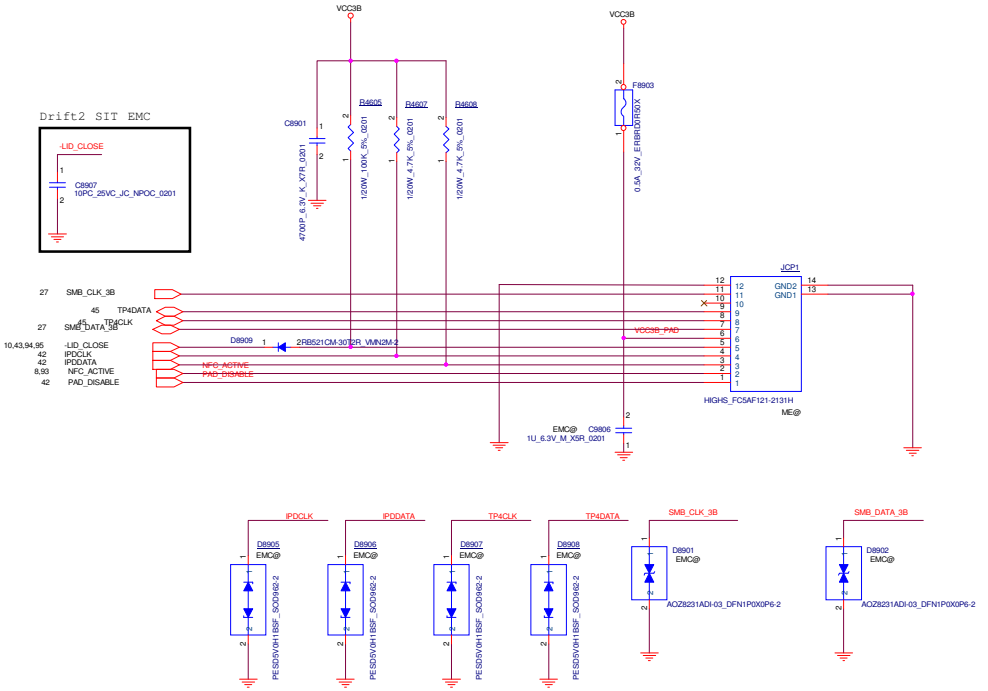
PLACE NEAR J38



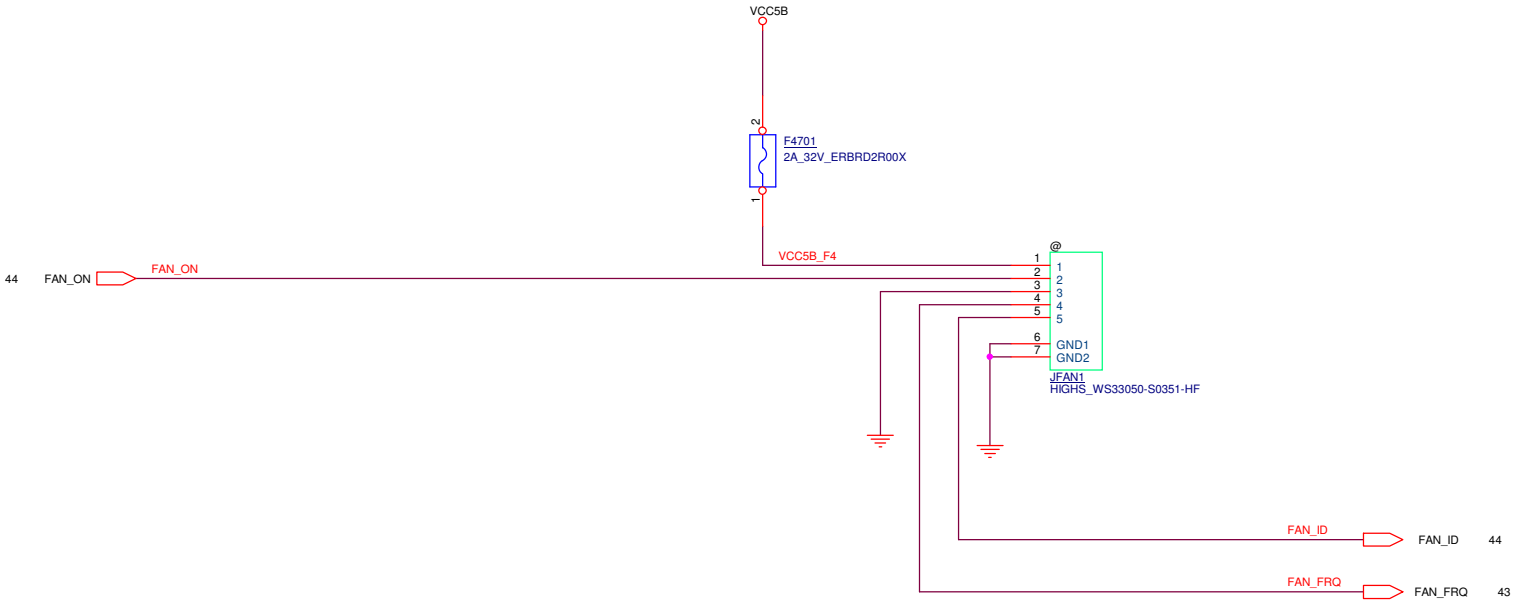
Lenovo		
Project Name : T14s Gen2	Title : KEYBOARD & TRACK POINT	
Size :	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 45 of 130	



PLACE NEAR JFPR1



Lenovo			
Project Name : T14s Gen2		Title : TOUCH PAD/FPR	
Size :	Document Number :		Rev : 0.1
Date: Friday, December 04, 2020		Sheet : 46 of 130	



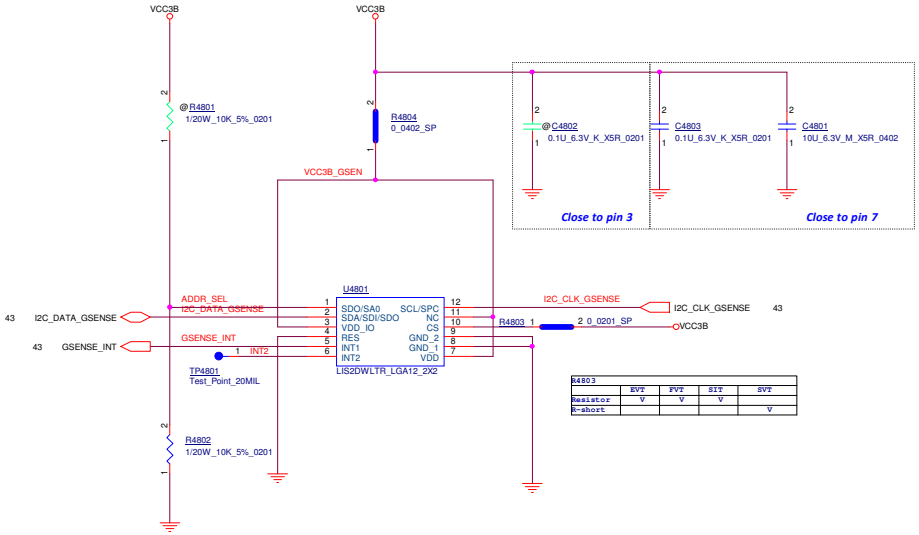
Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

Title: **FAN CONNECTOR**

Size: Custom	Document Number: T14s Gen2	Rev: 0.1
Date: Friday, December 04, 2020	Sheet 47 of 130	

TABLE : G-Sensor Power

HDD Support	VCC3M
SSD Only	VCC3B



R4803	EVT	FVT	SIT	SVT
Resistor	V	V	V	
R-short				V

TABLE

P/N	ADDR_SEL	Address
LIS2DWLTR	H	32h (W) & 33h (R)
	L	30h (W) & 31h (R)
KX022-1020	H	3Eh (W) & 3Fh (R)
	L	3Ch (W) & 3Dh (R)

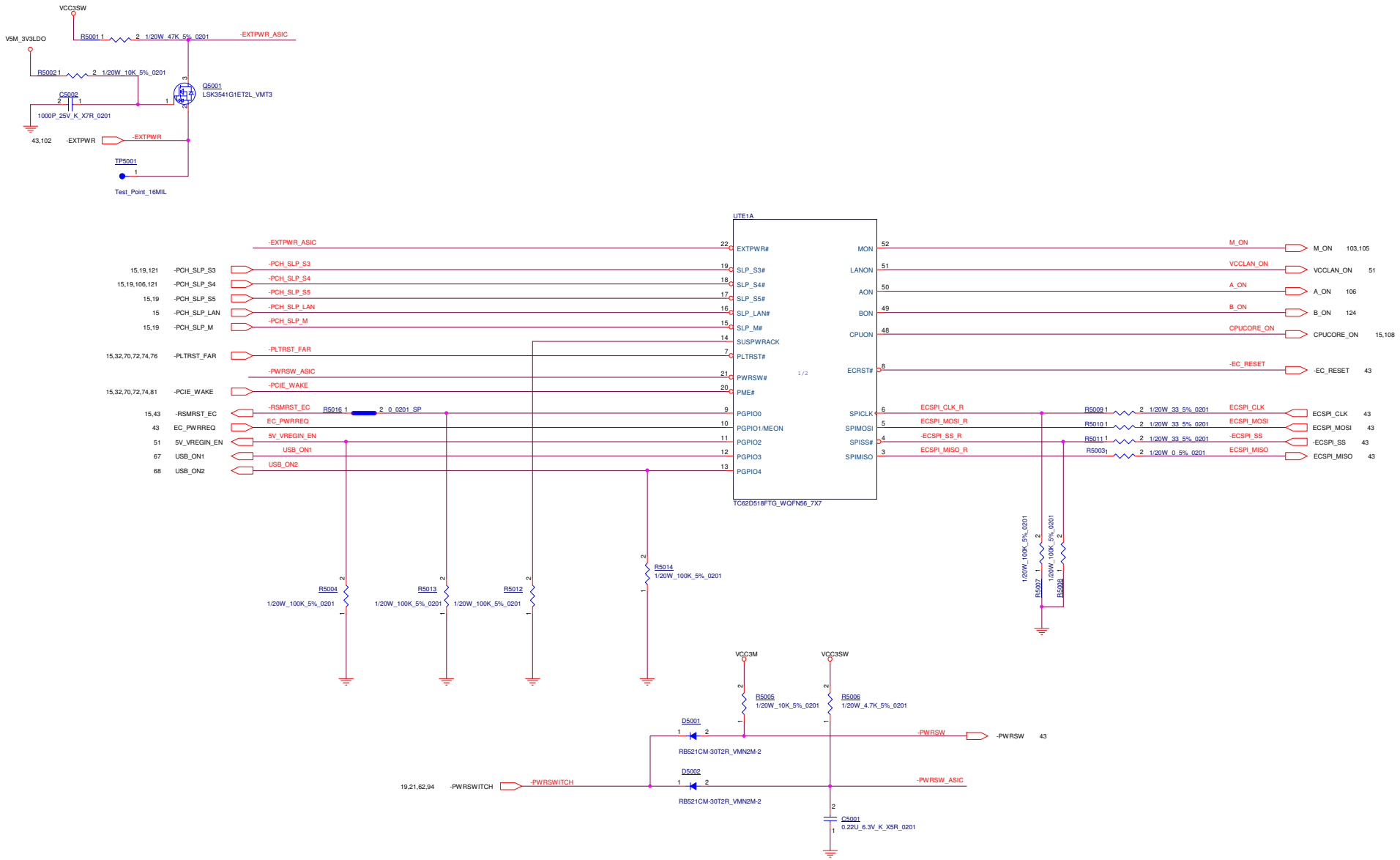
TABLE of G-Sensor (U4801)		
Vendor	P/N	LCFC P/N
ST	LIS2DWLTR	SA00009AQ00
Kionix	KX022-1020	SA000081E00

Lenovo

Project Name : T14s Gen2	Title : APS G-SENSOR	
Size : C	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 48 of 130	

Lenovo

Project Name : T14s Gen2	Title : dGPU
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 49 of 130



Project Name : T14s Gen2		Title : THINK ENGINE 3 (1/2)	
Size :	Document Number :		Rev : 0.1
Date: Friday, December 04, 2020		Sheet : 50 of 130	

Table D381,D19,D498,D8658

ROHM: RB530CM-30
Toshiba: 1SS417

R413, R422 : Need Anti-surge Chip Resistors

Total capacitance of VCC3SW MLCCs must be less than 4.7uF.

TABLE

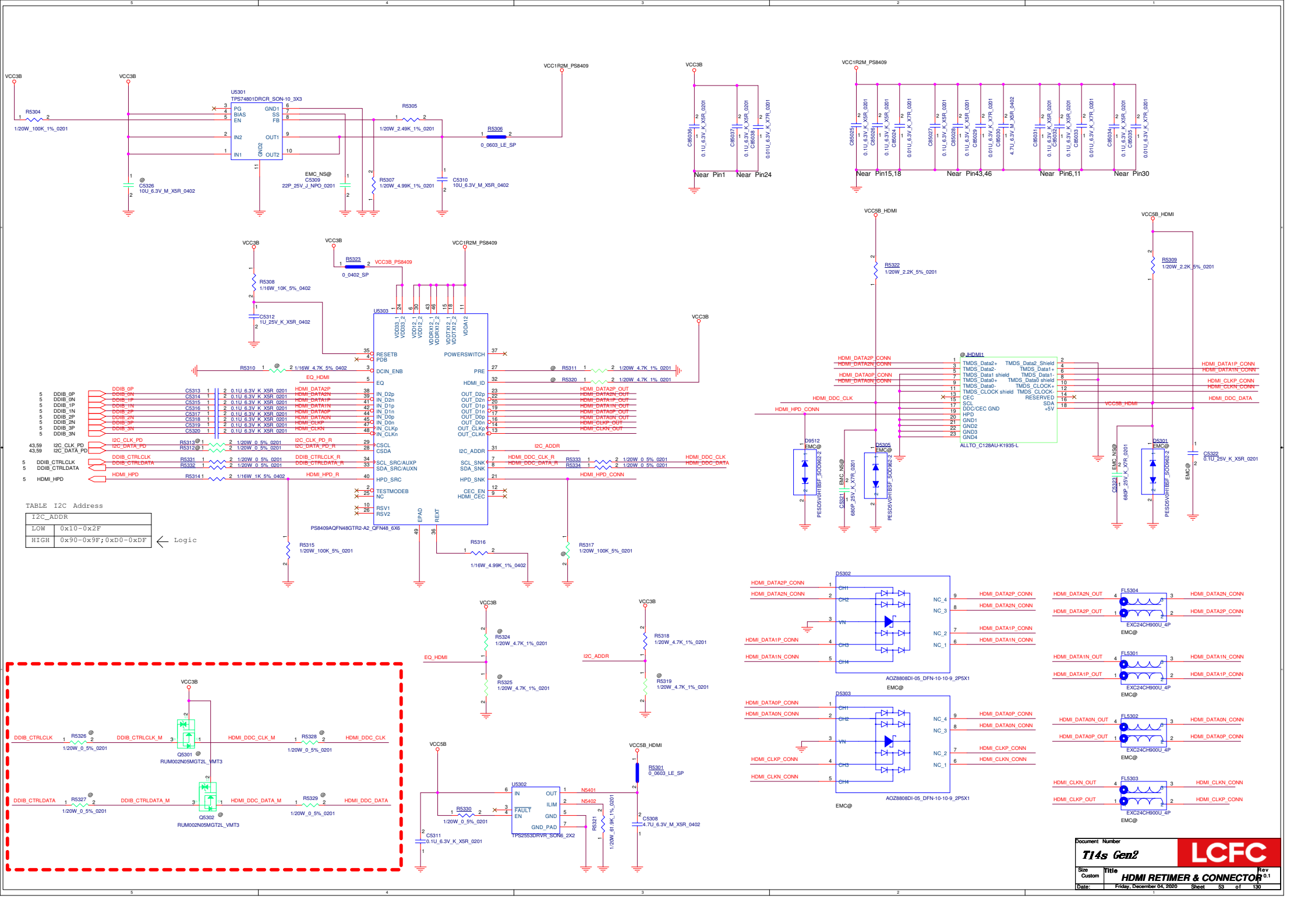
ID	Target
RT5101	TBTC_VBUS20_F to VINT20_IN FET (Q6505)
RT5102	TBTB_VBUS20_F to VINT20_IN FET (Q6501)
RT5103	VCCCPUCORE DrMOS (PL1101)
RT5104	VCCCPUCORE DrMOS (PL0902)
RT5105	VCCCPUCORE DrMOS (PL0901)
RT5106	VCCPCHCORE VR IC (PU1101)
RT5107	CPU Die (UCPU1)
RT5108	VCC1R2A VR IC (PU0601)
RT5109	Battery Charger BATDRV FET (PQ0203)
RT5110	MBAT_PWR15 to BAT_PWR15 FET (PQ0101)
RT5111	Battery Charger BOOST Dual FET (PQ0202)
RT5112	Battery Charger BUCK Dual FET (PQ0201)

Lenovo

Project Name : T14s Gen2	Title : THINK ENGINE 3 (2/2)
Size :	Document Number : Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 51 of 130

Lenovo

Project Name : T14s Gen2	Title : dGPU
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 52 of 130



Document Number		Rev
T14s Gen2	LCFC	0.1
Size: Custom	Title: HDMI RETIMER & CONNECTOR	
Date: Friday, December 04, 2020	Sheet 53 of 130	

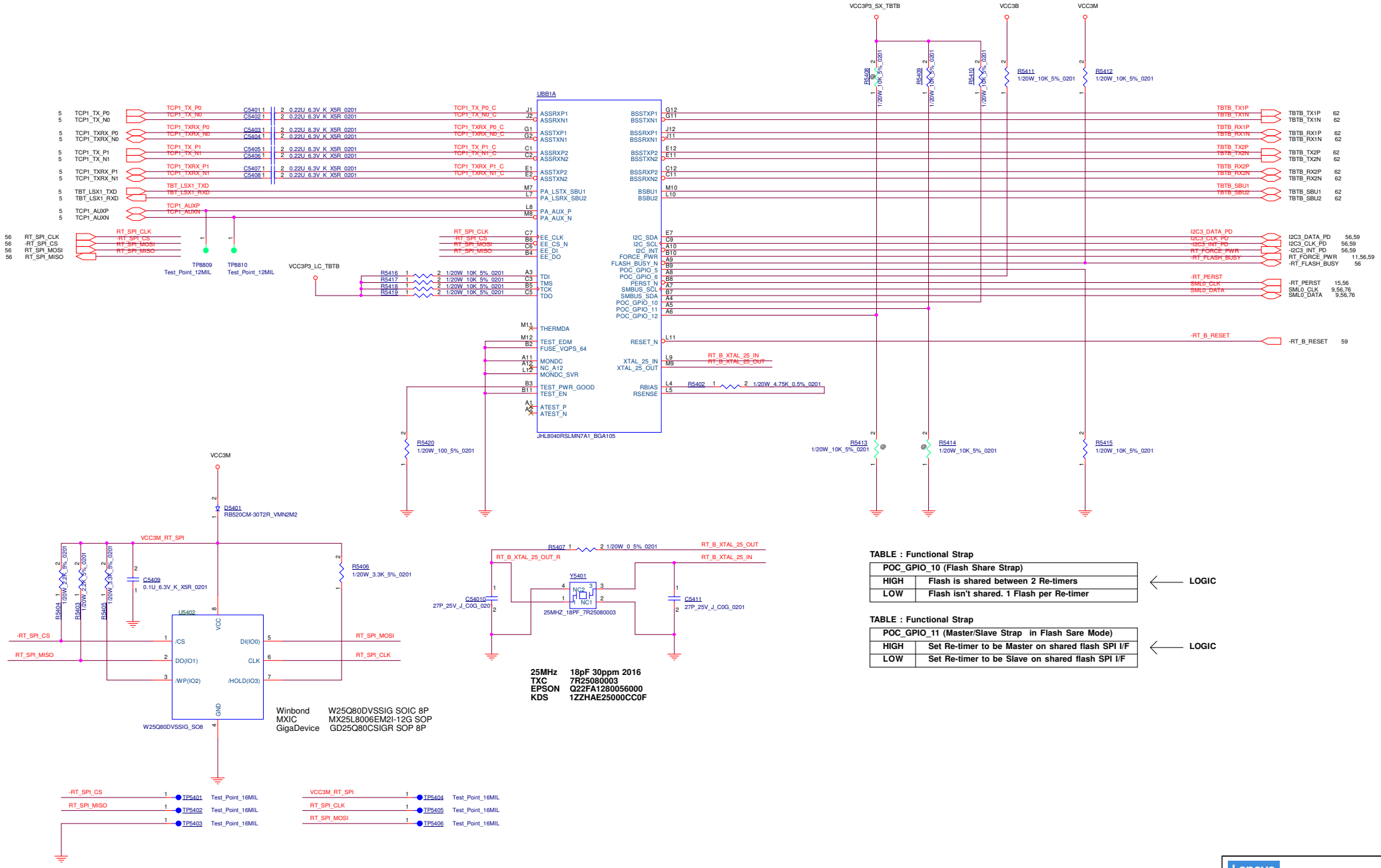


TABLE : Functional Strap

POC_GPIO_10 (Flash Share Strap)		
HIGH	Flash is shared between 2 Re-timers	← LOGIC
LOW	Flash isn't shared. 1 Flash per Re-timer	

TABLE : Functional Strap

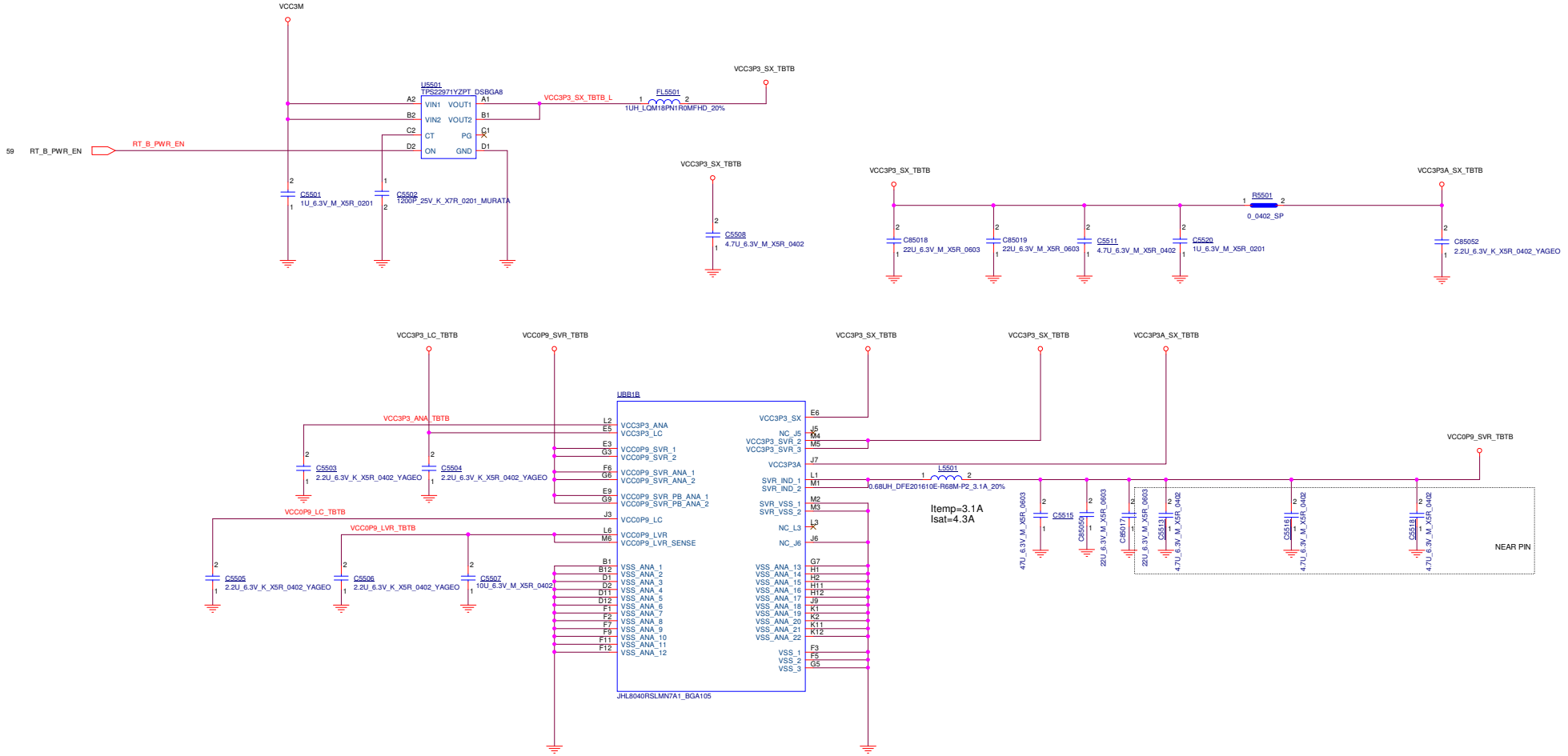
POC_GPIO_11 (Master/Slave Strap in Flash Sare Mode)		
HIGH	Set Re-timer to be Master on shared flash SPI I/F	← LOGIC
LOW	Set Re-timer to be Slave on shared flash SPI I/F	

25MHz 18pF 30ppm 2016
TXC 7R25080003
EPSON Q22FA1280056000
KDS 1ZZHAE25000CC0F

Winbond W25Q80DVSSIG SOIC 8P
MXIC MX25L8006EM2I-12G SOP
GigaDevice GD25Q80CSIGR SOP 8P

Lenovo

Project Name : T14s Gen2	Title : THUNDERBOLT RETIMER B (1/2)
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 54 of 130



Project Name : T14s Gen2	Title : THUNDERBOLT RETIMER B (2/2)
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 55 of 130

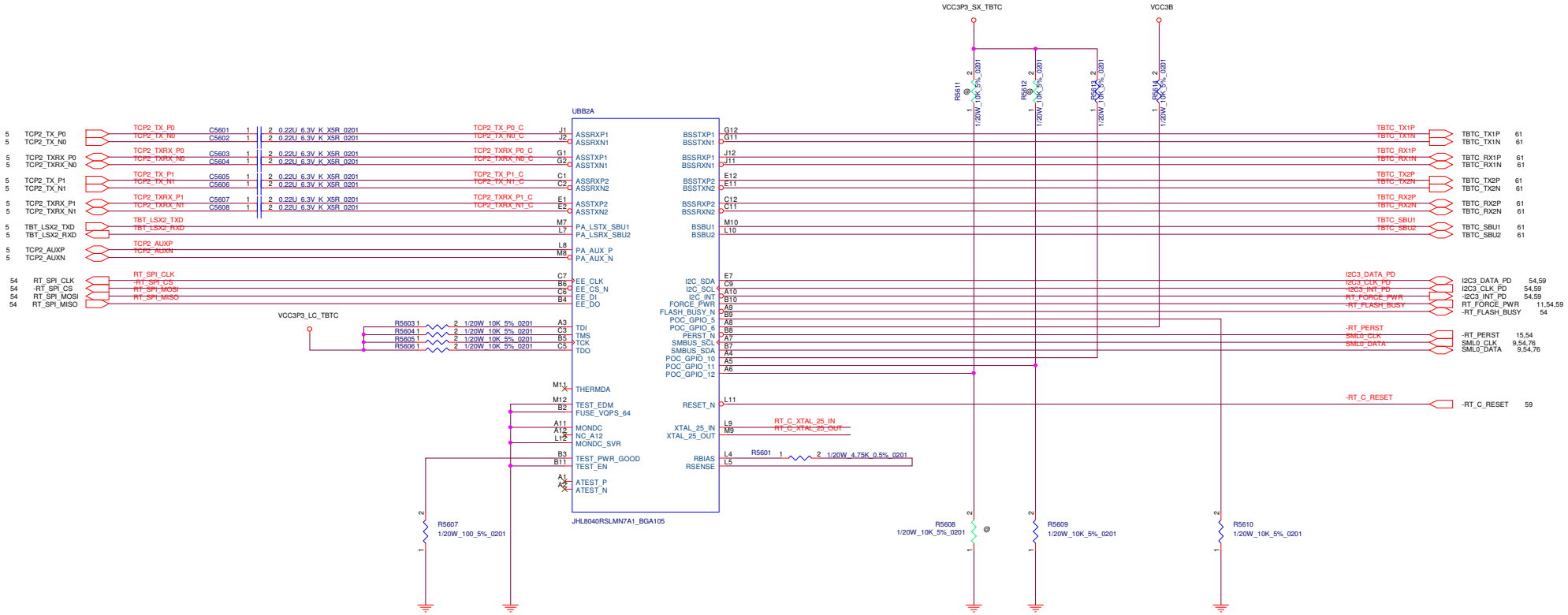


TABLE : Functional Strap

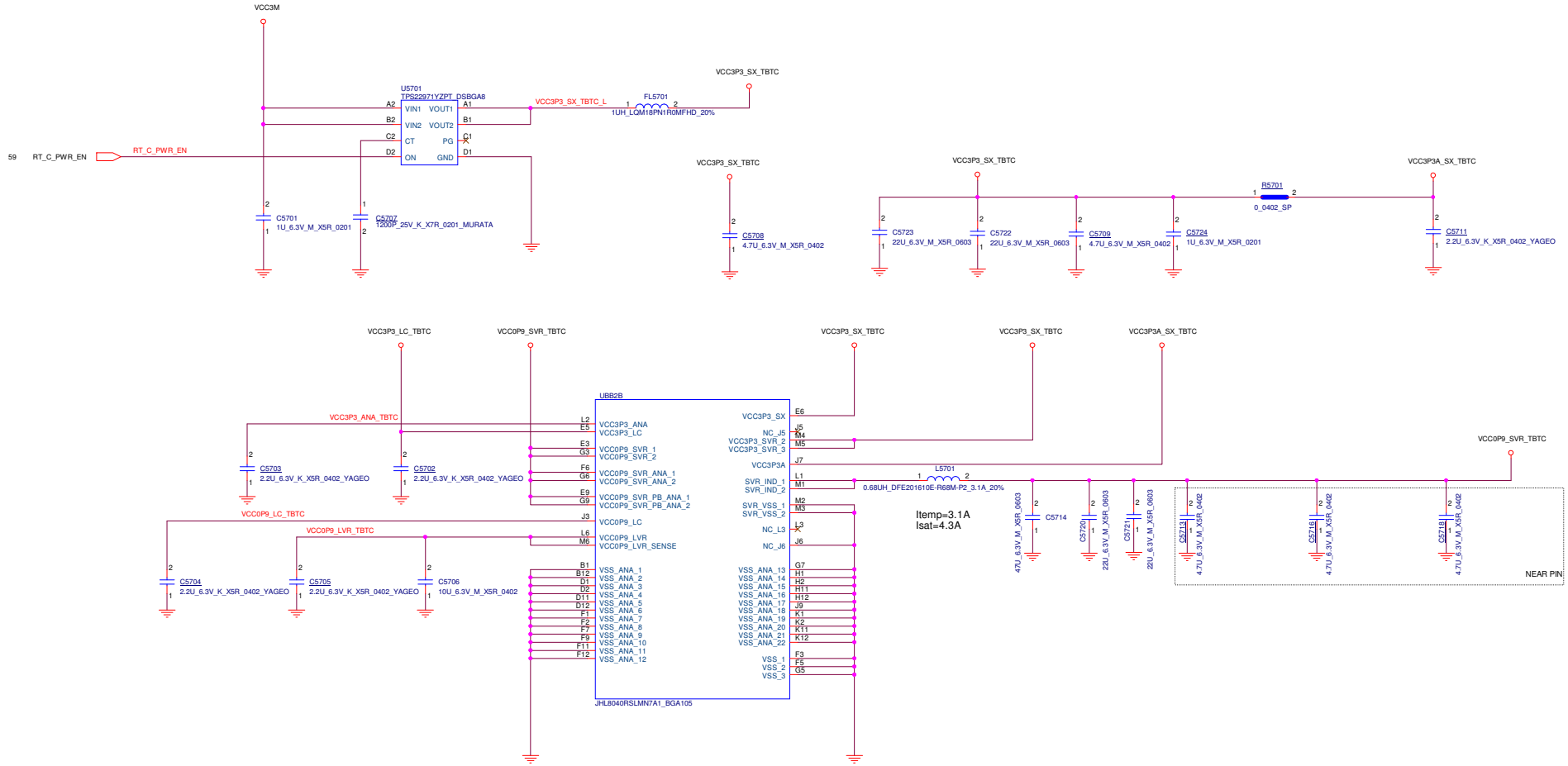
POC_GPIO_10 (Flash Share Strap)		
HIGH	Flash is shared between 2 Re-timers	← LOGIC
LOW	Flash isn't shared. 1 Flash per Re-timer	

TABLE : Functional Strap

POC_GPIO_11 (Master/Slave Strap in Flash Sare Mode)		
HIGH	Set Re-timer to be Master on shared flash SPI I/F	← LOGIC
LOW	Set Re-timer to be Slave on shared flash SPI I/F	

25MHz 18pF 30ppm 2016
TXC 7R25080003
EPSON Q22FA1280056000
KDS 1ZZHAE25000CC0F

Project Name : T14s Gen2	Title : THUNDERBOLT RETIMER C (1/2)
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 56 of 130



Project Name : T14s Gen2	Title : THUNDERBOLT RETIMER C (2/2)
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 57 of 130

Lenovo

Project Name : T14s Gen2	Title : DDR VR
Size : C	Document Number :
Date: Friday, December 04, 2020	Sheet : 58 of 130
	Rev : 0.1

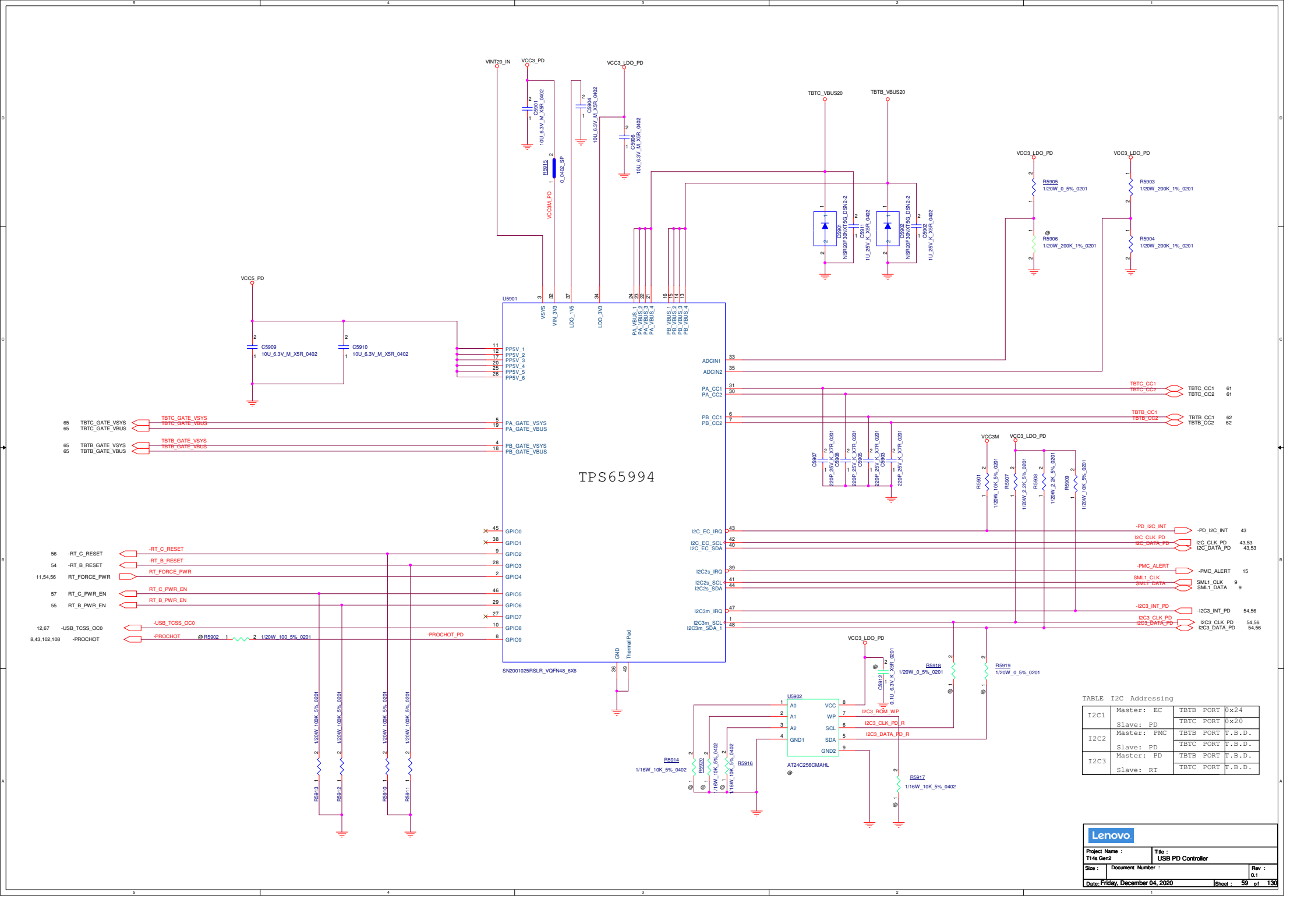


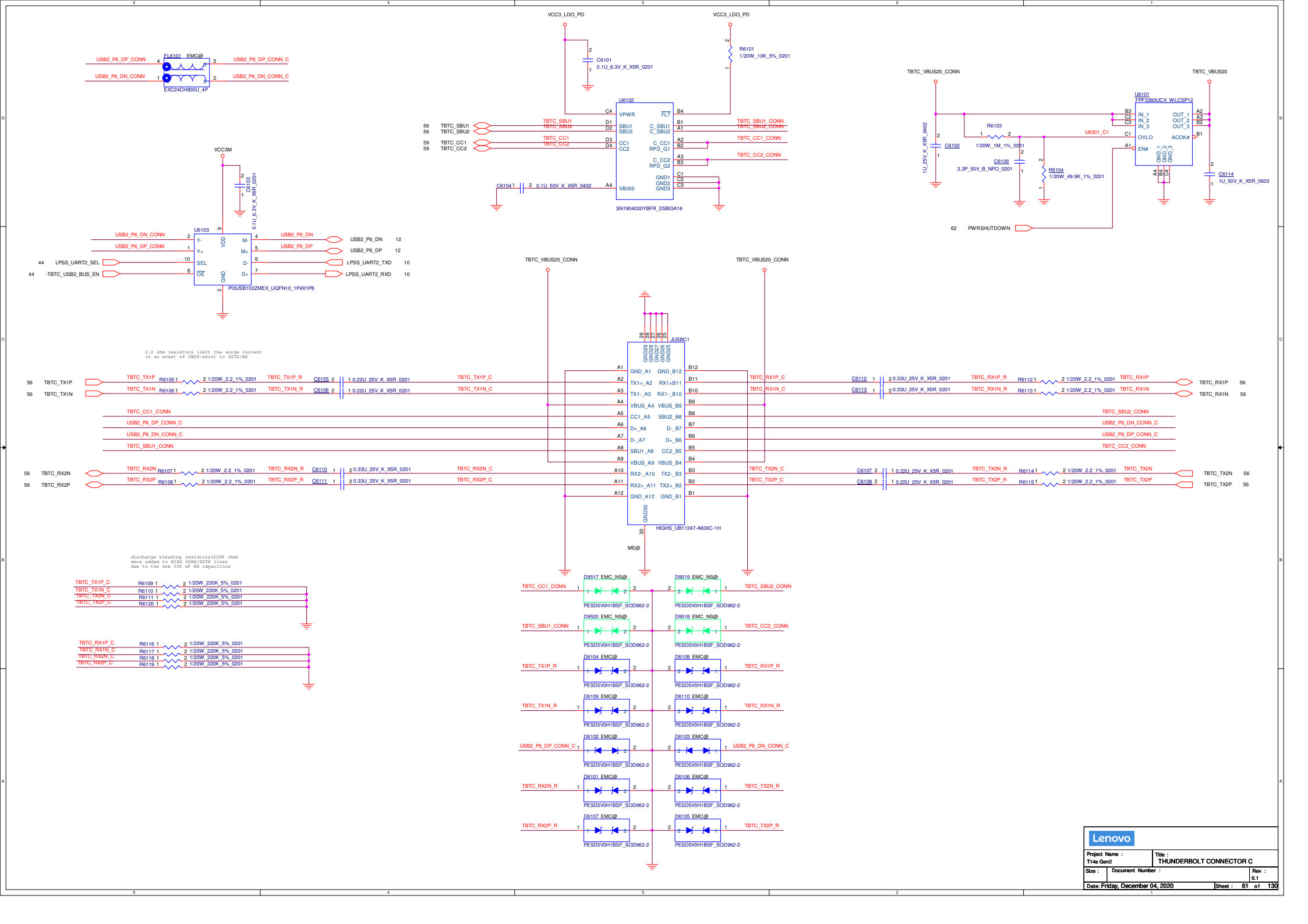
TABLE I2C Addressing

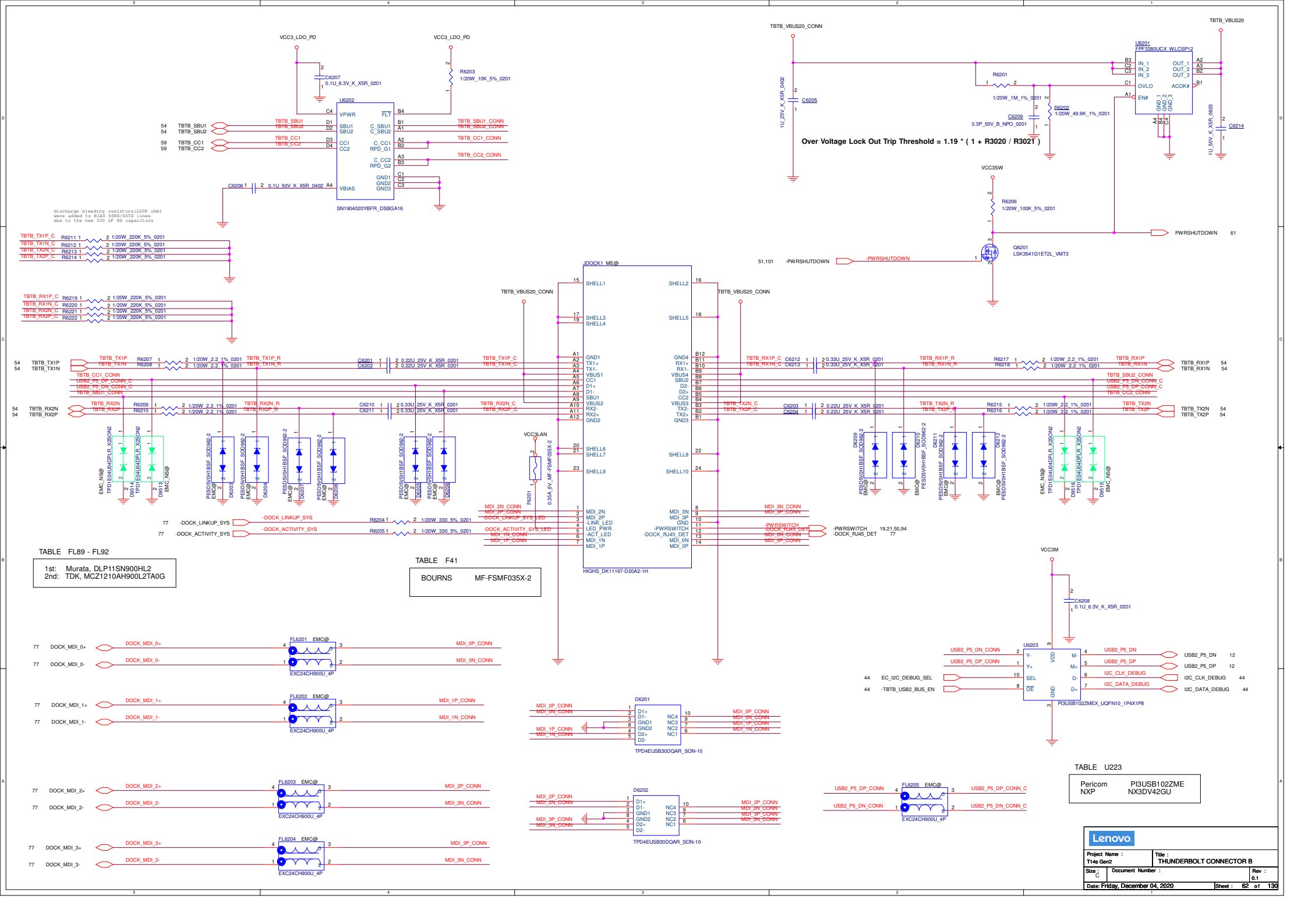
I2C1	Master: EC	TBTB PORT	0x24
	Slave: PD	TBTC PORT	0x20
I2C2	Master: PMC	TBTB PORT	T.B.D.
	Slave: PD	TBTC PORT	T.B.D.
I2C3	Master: PD	TBTB PORT	T.B.D.
	Slave: RT	TBTC PORT	T.B.D.

Lenovo

Project Name : T14s Gen2	Title : USB PD Controller	
Size :	Document Number :	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 59 of 130	

Title	<Title>	
Size A	Document Number T14s Gen2	Rev 0.1
Date: Friday, December 04, 2020	Sheet 60 of 130	


USB2_P6_DP_CONN
USB2_P6_DN_CONN
FL6101 EMC@
EXC24CH900U_4P
USB2_P6_DP_CONN_C
USB2_P6_DN_CONN_C
VCC3_LDO_PD
C6101 0.1U_6.3V_K_X5R_0201
R6101 1/20W_10K_5%_0201
U6102
VPWR
FLT
TBTC_SBU1
TBTC_SBU2
SBU1
SBU2
C_SBU1
C_SBU2
TBTC_SBU1_CONN
TBTC_SBU2_CONN
TBTC_CC1
TBTC_CC2
CC1
CC2
RPD_G1
RPD_G2
TBTC_CC1_CONN
TBTC_CC2_CONN
VBIAS
GND1
GND2
GND3
C6104 0.1U_50V_K_X5R_0402
SN1904020YBFR_DSBGA16
TBTC_VBUS20_CONN
TBTC_VBUS20
U6101
FPF3380UCX_WLCSP12
IN_1
IN_2
IN_3
OUT_1
OUT_2
OUT_3
OVLO
ACOK#
EN#
U6301_C1
R6103 1/20W_1M_1%_0201
C6102 1U_25V_K_X5R_0402
C6109 3.3P_50V_B_NPO_0201
R6104 1/20W_49.9K_1%_0201
C6114 1U_50V_K_X5R_0603
PWRSHUTDOWN
VCC3M
C6103 0.1U_6.3V_K_X5R_0201
U6103
Y-
Y+
SEL
OE
VDD
GND
M-
M+
D-
D+
USB2_P6_DN
USB2_P6_DP
LPSS_UART2_SEL
-TBTC_USB2_BUS_EN
LPSS_UART2_TXD
LPSS_UART2_RXD
PI3USB102ZMEX_UQFN10_1P4X1P8
2.2 ohm resistors limit the surge current
in an event of VBUS-short to SSTX/RX
JUSBC1
HIGHS_UB11247-A600C-1H
ME@
TBTC_TX1P
TBTC_TX1N
TBTC_RX2N
TBTC_RX2P
R6105 1/20W_2.2_1%_0201
R6106 1/20W_2.2_1%_0201
R6107 1/20W_2.2_1%_0201
R6108 1/20W_2.2_1%_0201
C6105 0.22U_25V_K_X5R_0201
C6106 0.22U_25V_K_X5R_0201
C6110 0.33U_25V_K_X5R_0201
C6111 0.33U_25V_K_X5R_0201
C6112 0.33U_25V_K_X5R_0201
C6113 0.33U_25V_K_X5R_0201
C6107 0.22U_25V_K_X5R_0201
C6108 0.22U_25V_K_X5R_0201
R6112 1/20W_2.2_1%_0201
R6113 1/20W_2.2_1%_0201
R6114 1/20W_2.2_1%_0201
R6115 1/20W_2.2_1%_0201
TBTC_CC1_CONN
TBTC_SBU1_CONN
TBTC_SBU2_CONN
USB2_P6_DP_CONN_C
USB2_P6_DN_CONN_C
TBTC_CC2_CONN
discharge bleeding resistors(220K ohm)
were added to BIAS SSRX/SSTX lines
due to the new 330 nF RX capacitors
R6109 1/20W_220K_5%_0201
R6110 1/20W_220K_5%_0201
R6111 1/20W_220K_5%_0201
R6120 1/20W_220K_5%_0201
R6116 1/20W_220K_5%_0201
R6117 1/20W_220K_5%_0201
R6118 1/20W_220K_5%_0201
R6119 1/20W_220K_5%_0201
D9517 EMC_NS@
D9519 EMC_NS@
D9520 EMC_NS@
D9518 EMC_NS@
D6104 EMC@
D6108 EMC@
D6109 EMC@
D6110 EMC@
D6102 EMC@
D6103 EMC@
D6101 EMC@
D6106 EMC@
D6107 EMC@
D6105 EMC@
PESD5V0H1BSF_SOD962-2
Lenovo
Project Name : T14s Gen2
Title : THUNDERBOLT CONNECTOR C
Size :
Document Number :
Rev : 0.1
Date: Friday, December 04, 2020
Sheet : 61 of 130

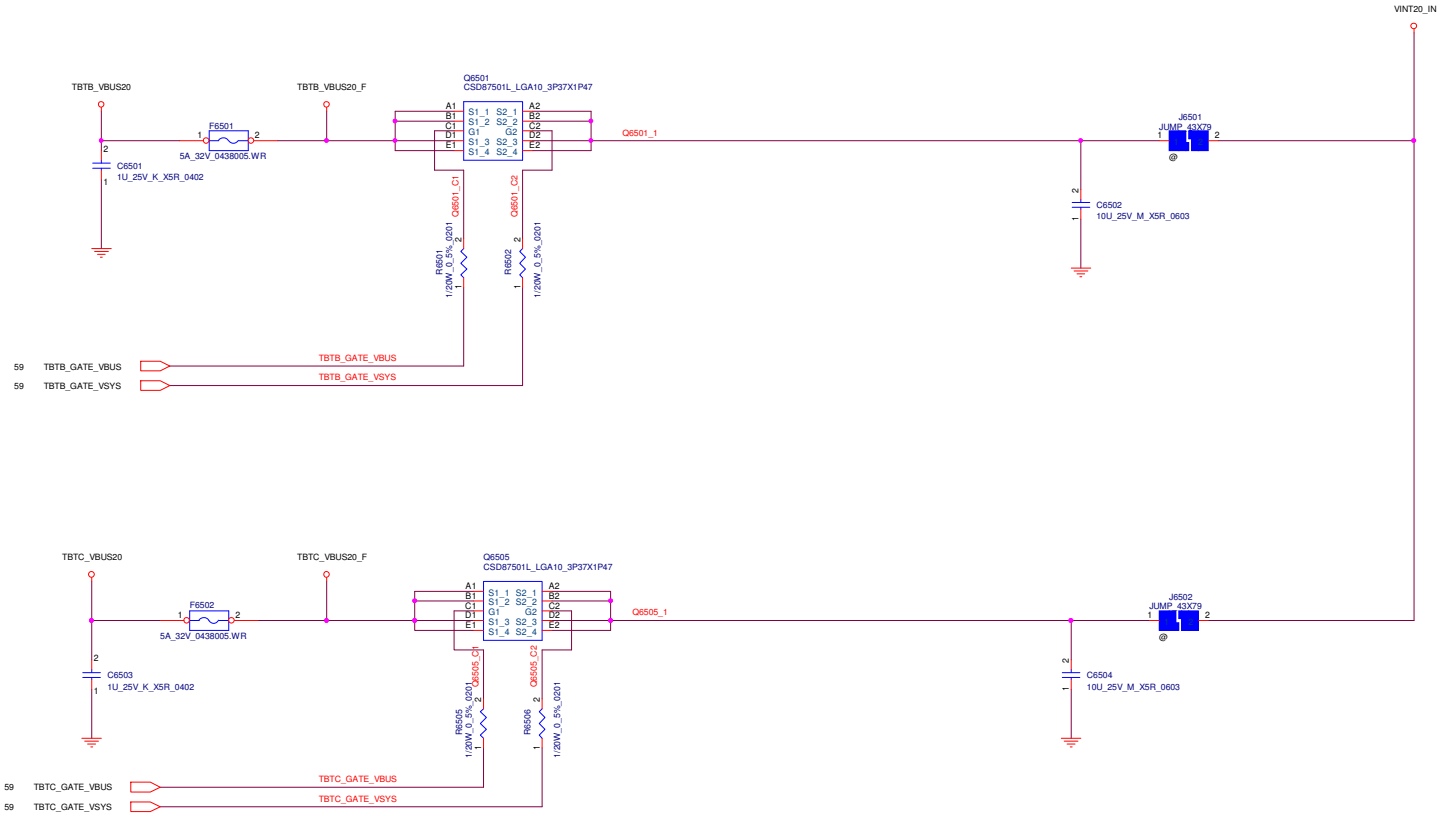

VCC3_LDO_PD
C6207 0.1U_6.3V_K_X5R_0201
U6202
SN1904020YBFR_DSBGA16
R6203 1/20W_10K_5%_0201
TBTB_SBU1_CONN
TBTB_SBU2_CONN
TBTB_CC1_CONN
TBTB_CC2_CONN
C6206 0.1U_50V_K_X5R_0402
discharge bleeding resistors(220K ohm) were added to BIAS SSRX/SSTX lines due to the new 330 nF RX capacitors
R6211 R6212 R6213 R6214 1/20W_220K_5%_0201
R6219 R6220 R6221 R6222 1/20W_220K_5%_0201
TBTB_VBUS20_CONN
U6201 FPF3380UCX_WLCSP12
Over Voltage Lock Out Trip Threshold = 1.19 * (1 + R3020 / R3021)
R6201 1/20W_1M_1%_0201
R6202 1/20W_49.9K_1%_0201
C6205 1U_25V_K_X5R_0402
C6209 3.3P_50V_B_NPO_0201
C6214 1U_50V_K_X5R_0603
VCC3SW
R6206 1/20W_100K_5%_0201
Q6201 LSK3541G1ET2L_VMT3
PWRSHUTDOWN
-PWRSHUTDOWN
JDOCK1 ME@
HIGHS_DK11197-D20A2-1H
R6207 R6208 1/20W_2.2_1%_0201
C6201 C6202 0.22U_25V_K_X5R_0201
R6209 R6210 1/20W_2.2_1%_0201
C6210 C6211 0.33U_25V_K_X5R_0201
C6212 C6213 0.33U_25V_K_X5R_0201
R6217 R6218 1/20W_2.2_1%_0201
C6203 C6204 0.22U_25V_K_X5R_0201
R6215 R6216 1/20W_2.2_1%_0201
TBTB_RX1P
TBTB_RX1N
TBTB_TX2N
TBTB_TX2P
VCC3LAN
R6201 0.35A_6V_MF-FSMF035X-2
-DOCK_LINKUP_SYS
-DOCK_ACTIVITY_SYS
R6204 R6205 1/20W_330_5%_0201
-PWRSWITCH
-DOCK_RJ45_DET
MDI_2N_CONN
MDI_2P_CONN
MDI_1N_CONN
MDI_1P_CONN
MDI_3N_CONN
MDI_3P_CONN
MDI_0N_CONN
MDI_0P_CONN
TABLE FL89 - FL92
1st: Murata, DLP11SN900HL2
2nd: TDK, MCZ1210AH900L2TA0G
TABLE F41
BOURNS MF-FSMF035X-2
VCC3M
C6208 0.1U_6.3V_K_X5R_0201
U6203
PI3USB102ZMEX_UQFN10_1P4X1P8
EC_I2C_DEBUG_SEL
-TBTB_USB2_BUS_EN
I2C_CLK_DEBUG
I2C_DATA_DEBUG
USB2_P5_DN
USB2_P5_DP
DOCK_MDI_0+
DOCK_MDI_0-
DOCK_MDI_1+
DOCK_MDI_1-
DOCK_MDI_2+
DOCK_MDI_2-
DOCK_MDI_3+
DOCK_MDI_3-
FL6201 FL6202 FL6203 FL6204 FL6205 EMC@
EXC24CH900U_4P
D6201 D6202
TPD4EUSB30DQAR_SON-10
TABLE U223
Pericom PI3USB102ZME
NXP NX3DV42GU
Lenovo
Project Name : T14s Gen2
Title : THUNDERBOLT CONNECTOR B
Size : C
Document Number :
Rev : 0.1
Date: Friday, December 04, 2020
Sheet : 62 of 130

Lenovo

Project Name : T14s Gen2	Title : RJ45 Connector
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 63 of 130

Lenovo

Project Name : T14s Gen2	Title : TOUCH PAD/NFC/FPR
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 64 of 130



Document Number	DORAEMON	LCFC
Size: Custom	Title: TYPEC_DCIN	Rev: 0.01
Date: Friday, December 04, 2020	Sheet 65 of 130	

Lenovo

Project Name : T14s Gen2	Title : FAN CONNECTOR
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 66 of 130

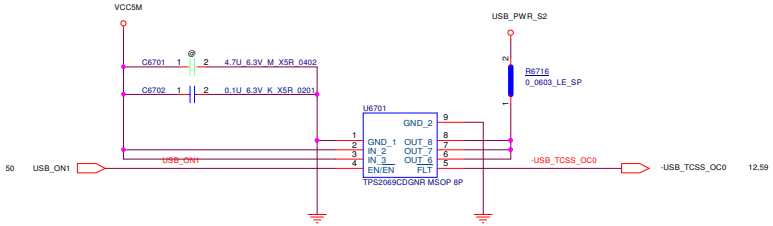
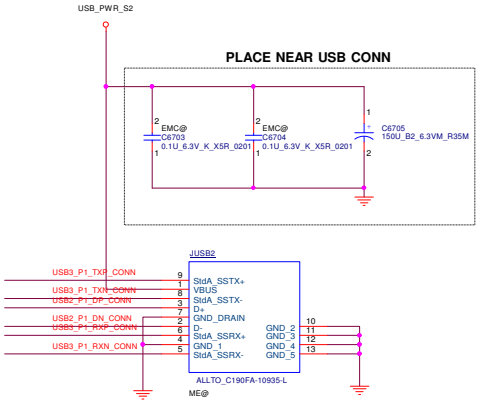
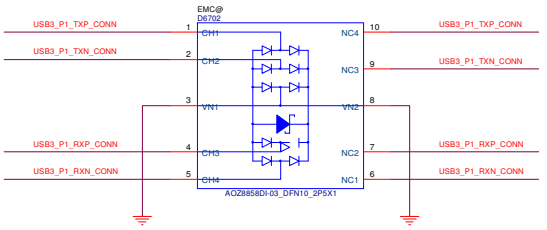
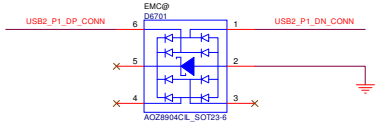


TABLE of USB3.0 Single (U6701)		
Vendor	**P/N**	**LCFC P/N**
TI	**TPS2069CDGNR**	**SA00005TE00**
Rohm	**BD82032FVJ-GE2**	**SA000084S00**





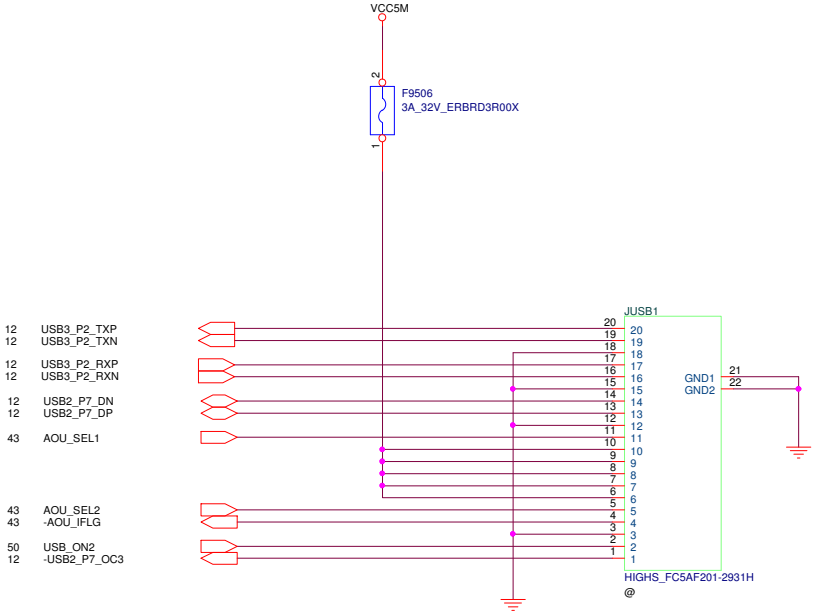


Security Classification	LC Future Center Secret Data		
Issued Date	2019/01/12	Deciphered Date	2019/04/12

Title: **USB TYPE-A CONNECTOR**

Size	Document Number	Rev
Custom	T14s Gen2	0.1

Date: Friday, December 04, 2020 | Sheet 67 of 130



Security Classification	LC Future Center Secret Data		
Issued Date	2019/01/12	Deciphered Date	2019/04/12

Title: **USB TYPE-A CONNECTOR**

Size	Document Number	Rev
Custom	T14s Gen2	0.1

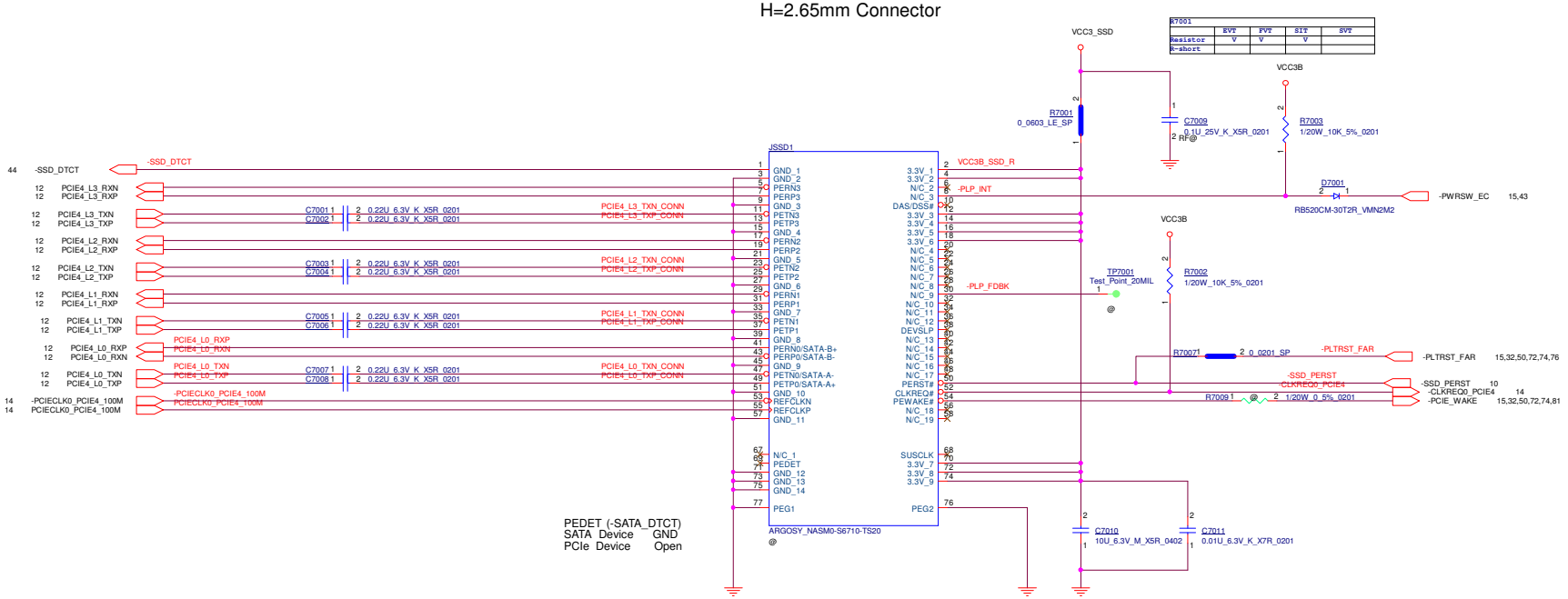
Date: Friday, December 04, 2020 Sheet 68 of 130

Lenovo

Project Name : T14s Gen2	Title : LAN Switch
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 69 of 130

M.2 Socket 3 (Key-M) for 2280 S3 SSD

H=2.65mm Connector



Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

Title: M.2 SOCKET 3 MODULE I/F

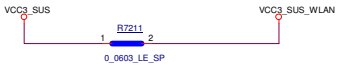
Size	Document Number	Rev
Custom	C T14s Gen2	0.1

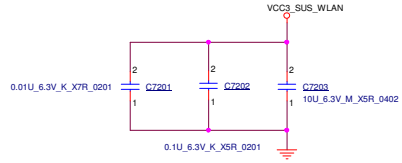
Date: Friday, December 04, 2020 Sheet 70 of 130

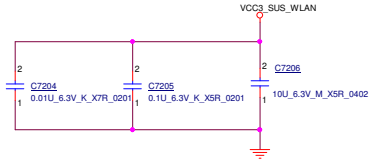
Lenovo

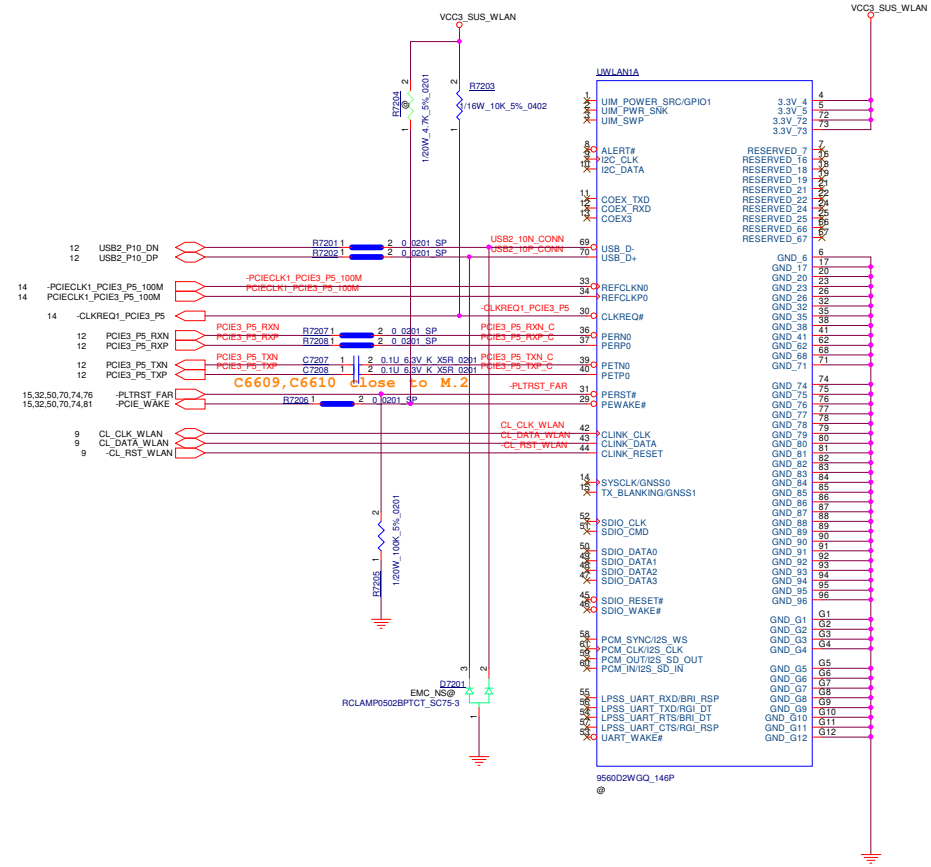
Project Name : T14s Gen2	Title : SMBus Switch
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 71 of 130

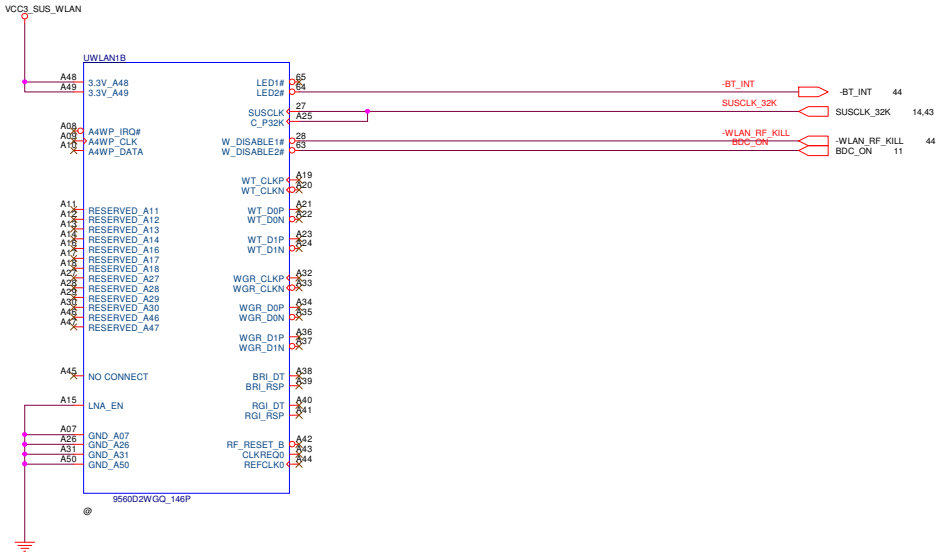
M.2 Type 1216 Module for WLAN / Bluetooth











Project Name : T14s Gen2	Title : M.2 TYPE 1216 MODULE
Size :	Document Number : Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 72 of 130

Lenovo

Project Name : T14s Gen2	Title : dGPU
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 73 of 130

M.2 Socket 2 (Key-B) for 3042 S3 WWAN

H=2.00mm Connector

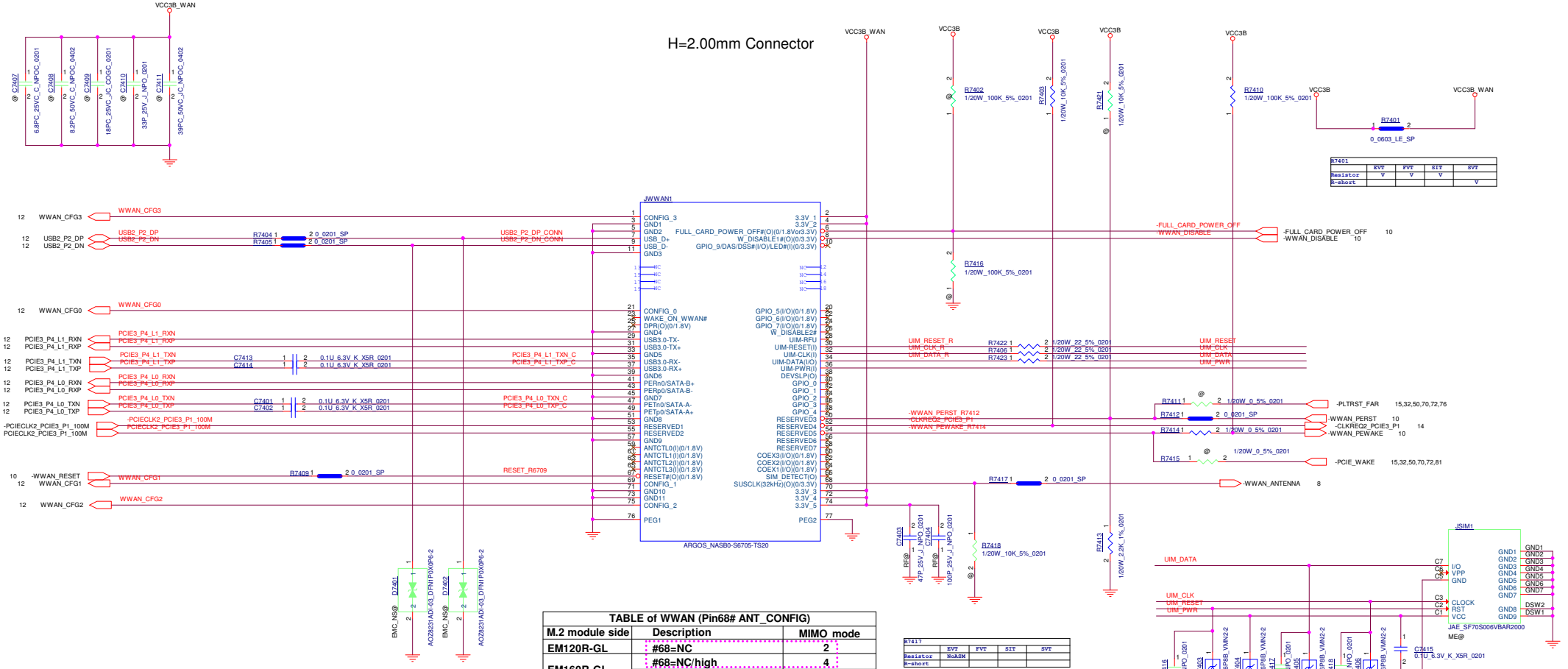


TABLE of WWAN (Pin68# ANT_CONFIG)		
M.2 module side	Description	MIMO mode
EM120R-GL	#68=NC	2
	#68=NC/high	4
EM160R-GL	#68=low level	2

TABLE:

State #	Module Configuration Decodes				Module Type and Main Host Interface	Port Configuration	Module
	CONFIG_0 (Pin 21)	CONFIG_3 (Pin 1)	CONFIG_2 (Pin 75)	CONFIG_1 (Pin 69)			
0	GND	GND	GND	GND	SSD - SATA	N/A	
1	GND	GND	GND	NC	SSD - PCIe	N/A	
2	GND	GND	NC	GND	WWAN - PCIe	0	
3	GND	GND	NC	NC	WWAN - PCIe	1	
4	GND	NC	GND	GND	WWAN - PCIe, USB 3.1 Gen1	0	EM120R-GL
5	GND	NC	GND	NC	WWAN - PCIe, USB 3.1 Gen1	1	
6	GND	NC	NC	GND	WWAN - PCIe, USB 3.1 Gen1	2	
7	GND	NC	NC	NC	WWAN - PCIe, USB 3.1 Gen1	3	
8	NC	GND	GND	GND	WWAN - SSIC	0	
9	NC	GND	GND	NC	WWAN - SSIC	1	
10	NC	GND	NC	GND	WWAN - SSIC	2	
11	NC	GND	NC	NC	WWAN - SSIC	3	
12	NC	NC	GND	GND	WWAN - PCIe	2	
13	NC	NC	GND	NC	WWAN - PCIe	3	
14	NC	NC	NC	GND	WWAN - PCIe, USB 3.1 Gen1	Vendor Defined	EM160R-GL
15	NC	NC	NC	NC	No Module Present	N/A	

EM160R-GL

Table 26: List of EM160R-GL Configuration Pins

Config_0 (Pin 21)	Config_1 (Pin 69)	Config_2 (Pin 75)	Config_3 (Pin 1)	Module Type and Main Host Interface	Port Configuration
NC	GND	NC	NC	Vender defined	N/A

EM120R-GL

Table 28: List of EM120R-GL Configuration Pins

Config_0 (Pin 21)	Config_1 (Pin 69)	Config_2 (Pin 75)	Config_3 (Pin 1)	Module Type and Main Host Interface	Port Configuration
GND	GND	NC	NC	Vender defined	N/A

R7401	EVT	FVT	SIT	SVT
Resistor	V	V	V	
R-short				V

R7417	EVT	FVT	SIT	SVT
Resistor	NoASM			
R-short				

Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

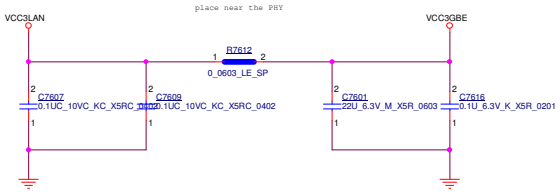
Title: M.2 SOCKET 2 MODULE I/F

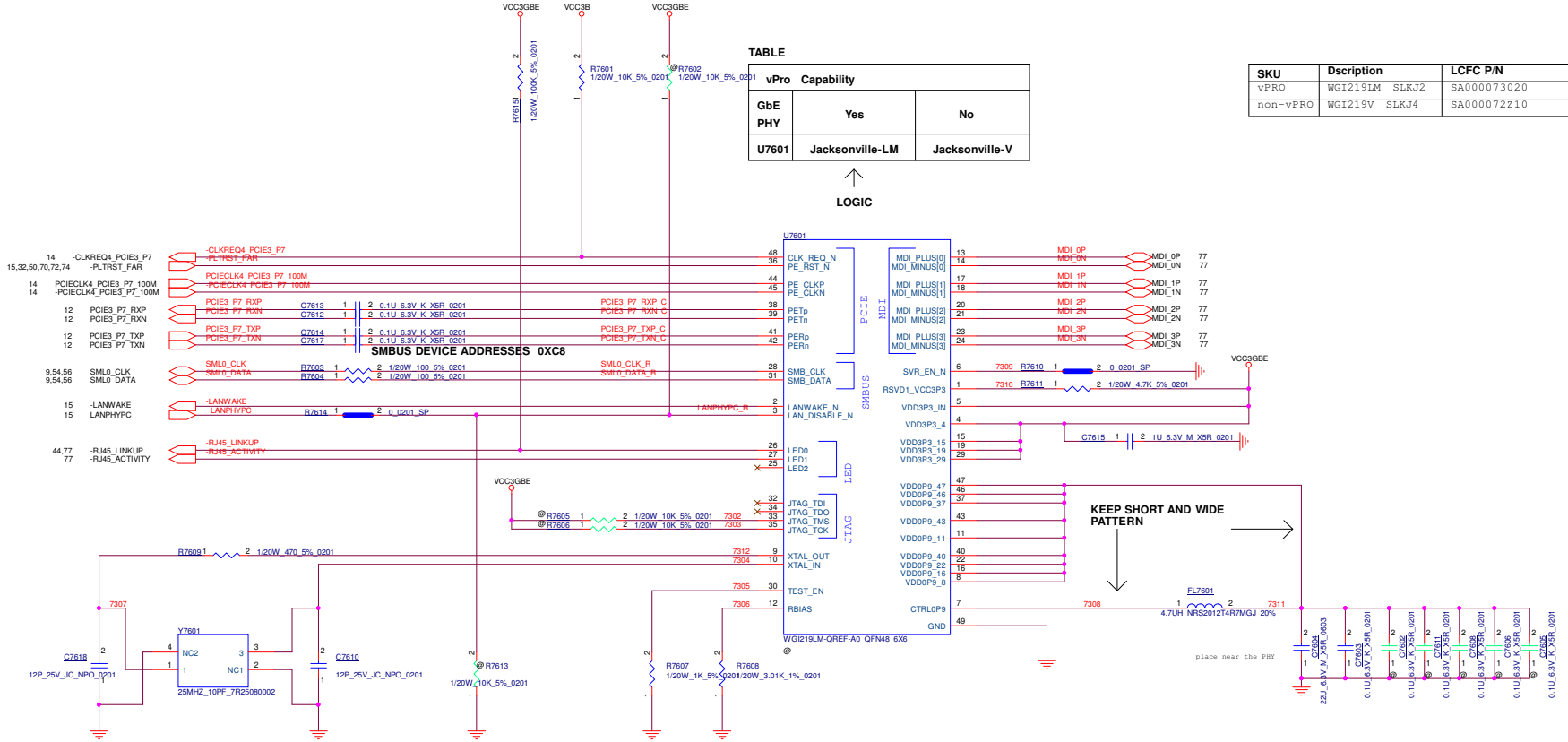
Size: Custom | Document Number: C | T14s Gen2 | Rev: 0.1

Date: Friday, December 04, 2020 | Sheet 74 of 130

Lenovo

Project Name : T14s Gen2	Title : dGPU
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 75 of 130





SKU	Dscription	LCFC P/N
vPRO	WGI219LM SLKJ2	SA000073020
non-vPRO	WGI219V SLKJ4	SA000072Z10

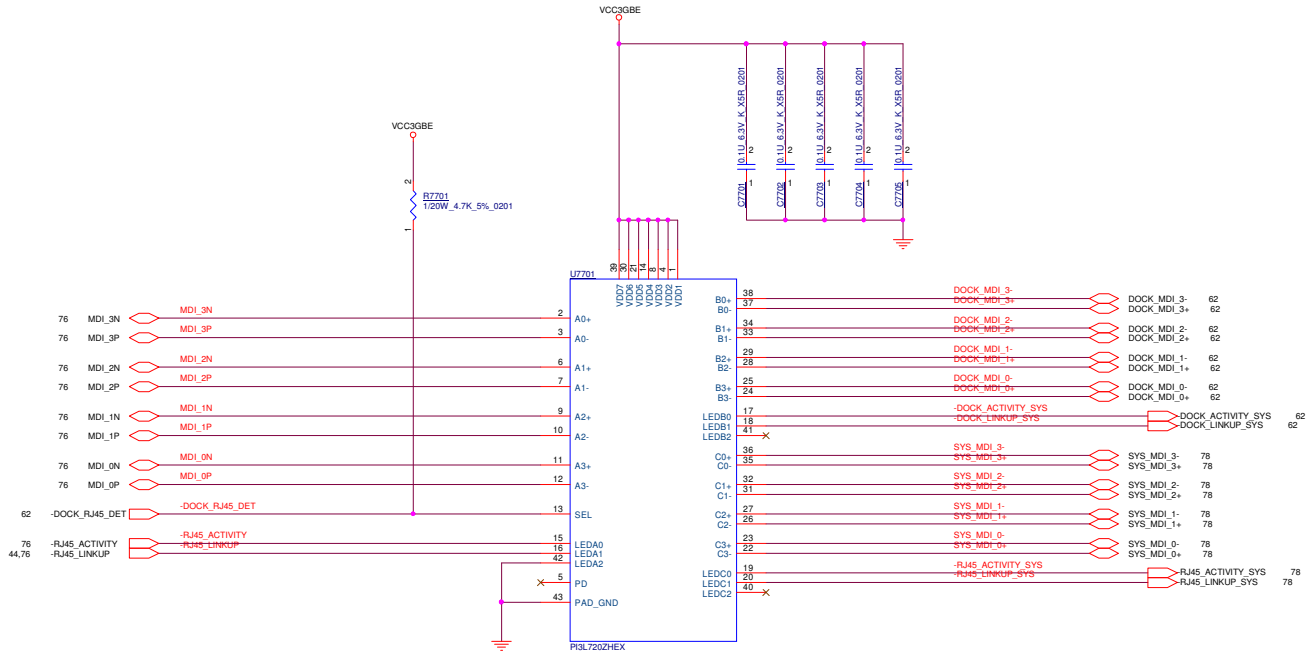
Y7601 CRYSTAL - 25MHz 10pF 30ppm 2016		
Vendor	P/N	LCFC P/N
TXC	7R25080002	SJ10000PP00
KDS	1ZZHAE25000CC0B	SJ10000MN00
Epson	Q22FA1280055900	SJ10000PU00

Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

Title: GBE JACKSONVILLE

Size	Document Number	Rev
Custom	T14s Gen2	0.1

Date: Friday, December 04, 2020 Sheet 76 of 130

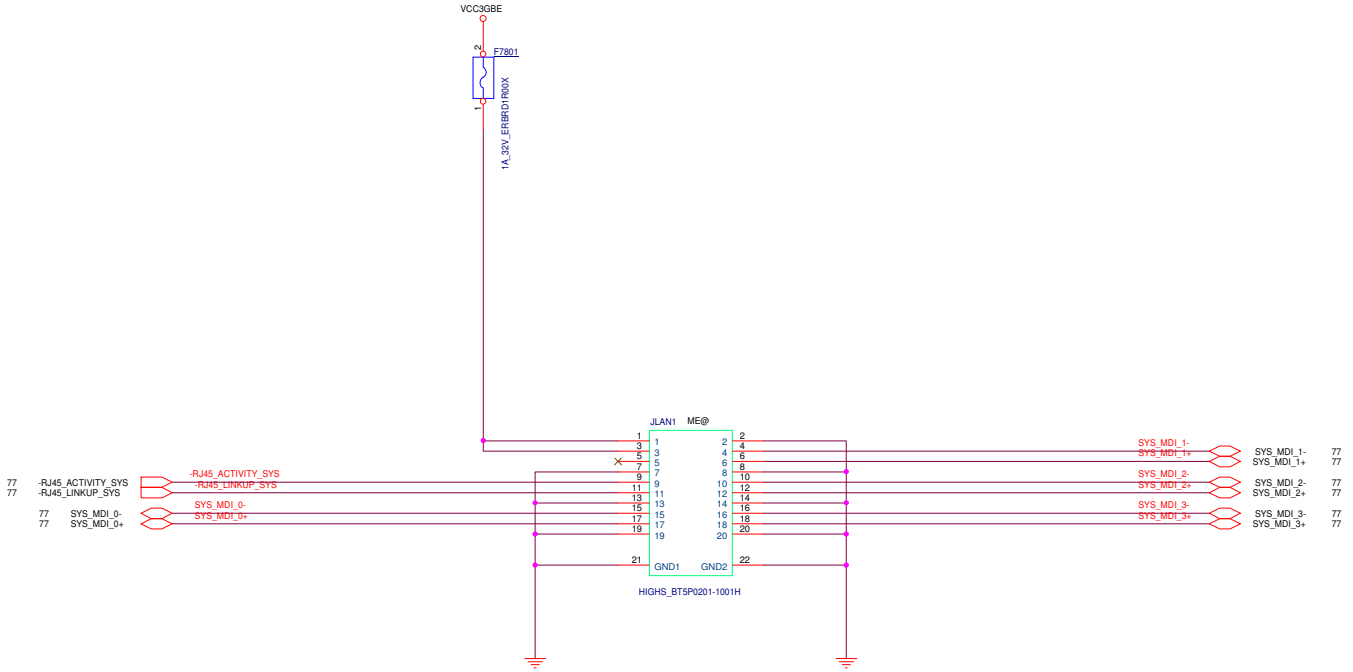


Security Classification	LC Future Center Secret Data		
Issued Date	2019/8/1	Deciphered Date	2019/08/01

Title: GBE LAN SWITCH

Size	Document Number	Rev
Custom C	T14s Gen2	0.1

Date: Friday, December 04, 2020 | Sheet 77 of 130



Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

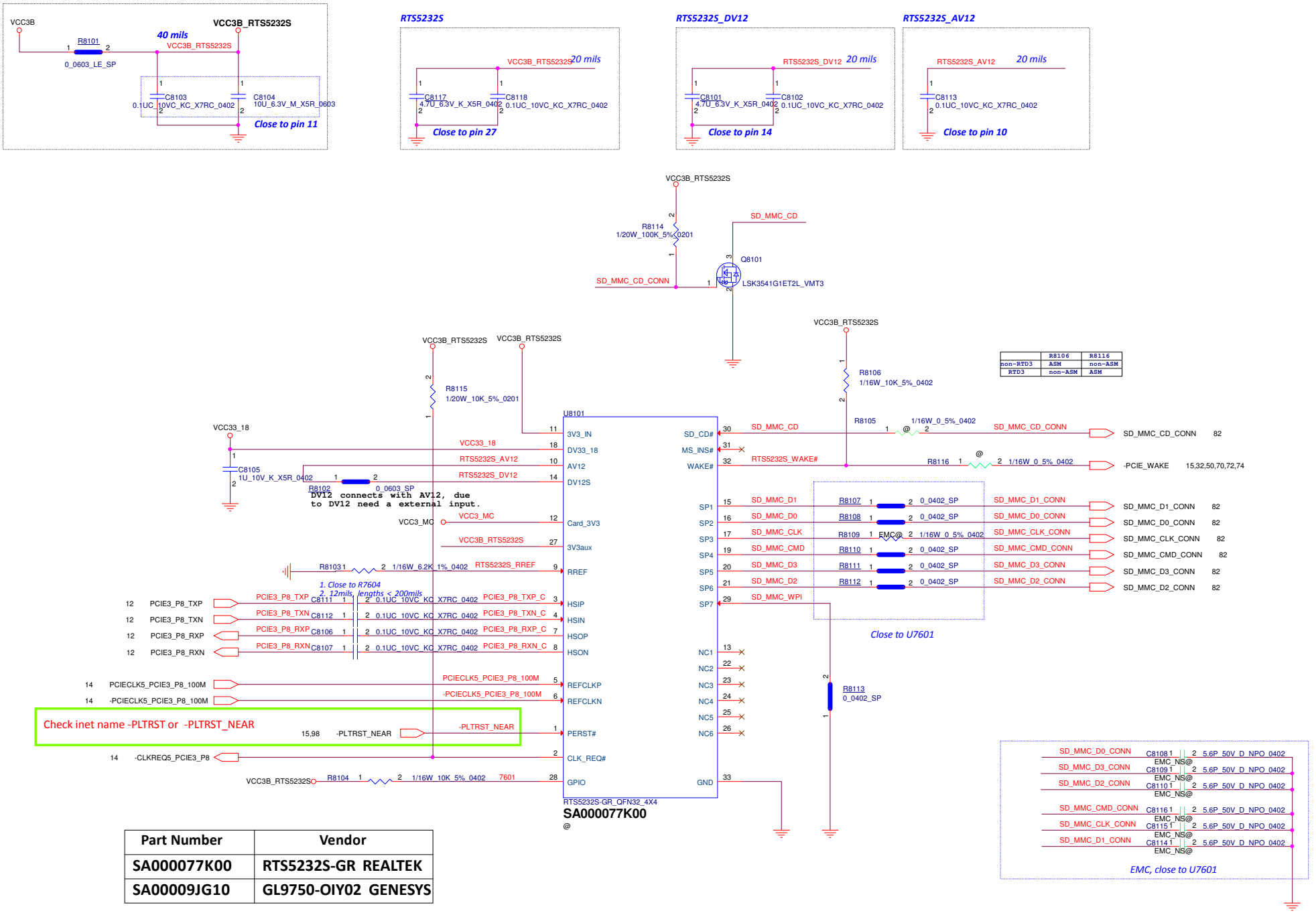
Title: **GBE MAGNETICS**

Size	Document Number	Rev
C	T14s Gen2	0.1

Date: Friday, December 04, 2020 Sheet 78 of 130

Title	<Title>
Size A	Document Number T14s Gen2
Rev	0.1
Date:	Friday, December 04, 2020
Sheet	79 of 130

Title	<Title>	
Size A	Document Number T14s Gen2	Rev 0.1
Date: Friday, December 04, 2020	Sheet 80 of 130	



	R8106	R8116
non-RTD3	ASM	non-ASM
RTD3	non-ASM	ASM

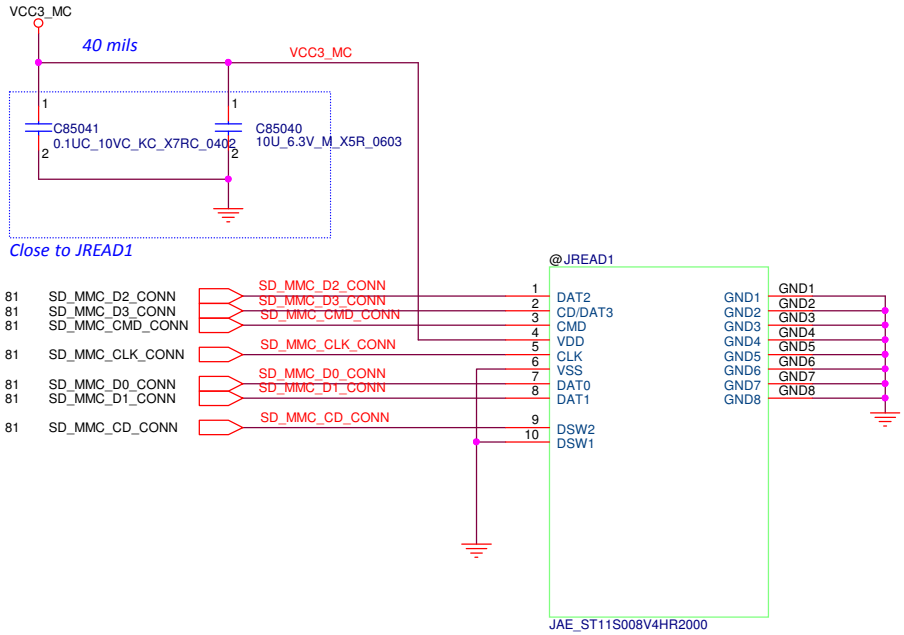
Part Number	Vendor
SA000077K00	RTS5232S-GR REALTEK
SA00009JG10	GL9750-OIY02 GENESYS

Security Classification	LC Future Center Secret Data		
Issued Date	2019/01/12	Deciphered Date	2019/04/12

Title: MEDIA CARD CONTROLLER

Size	Document Number	Rev
Custom	T14s Gen2	0.1

Date: Friday, December 04, 2020 Sheet 81 of 130



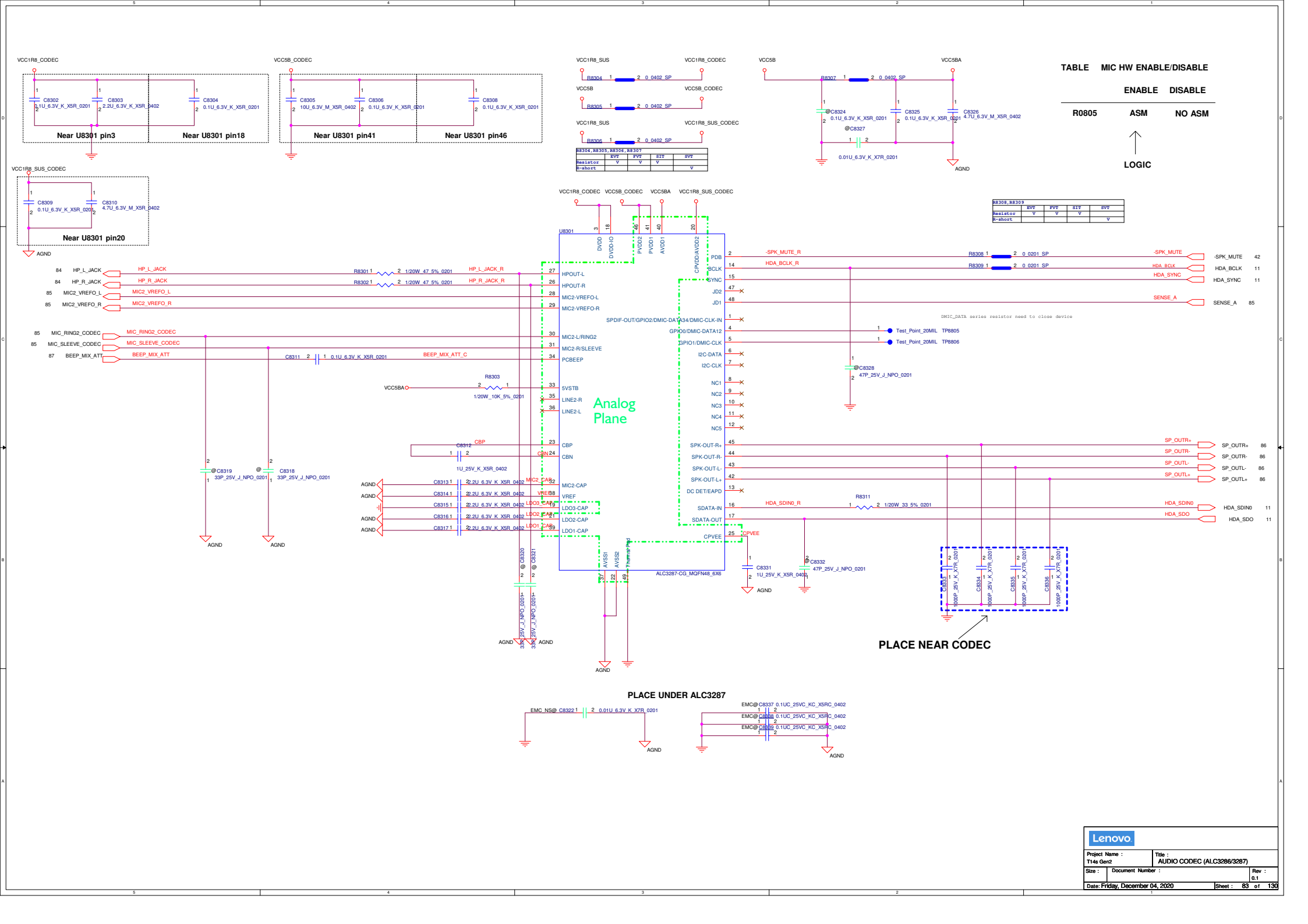
Mode	Detect
Normal	short
Card Insert	open

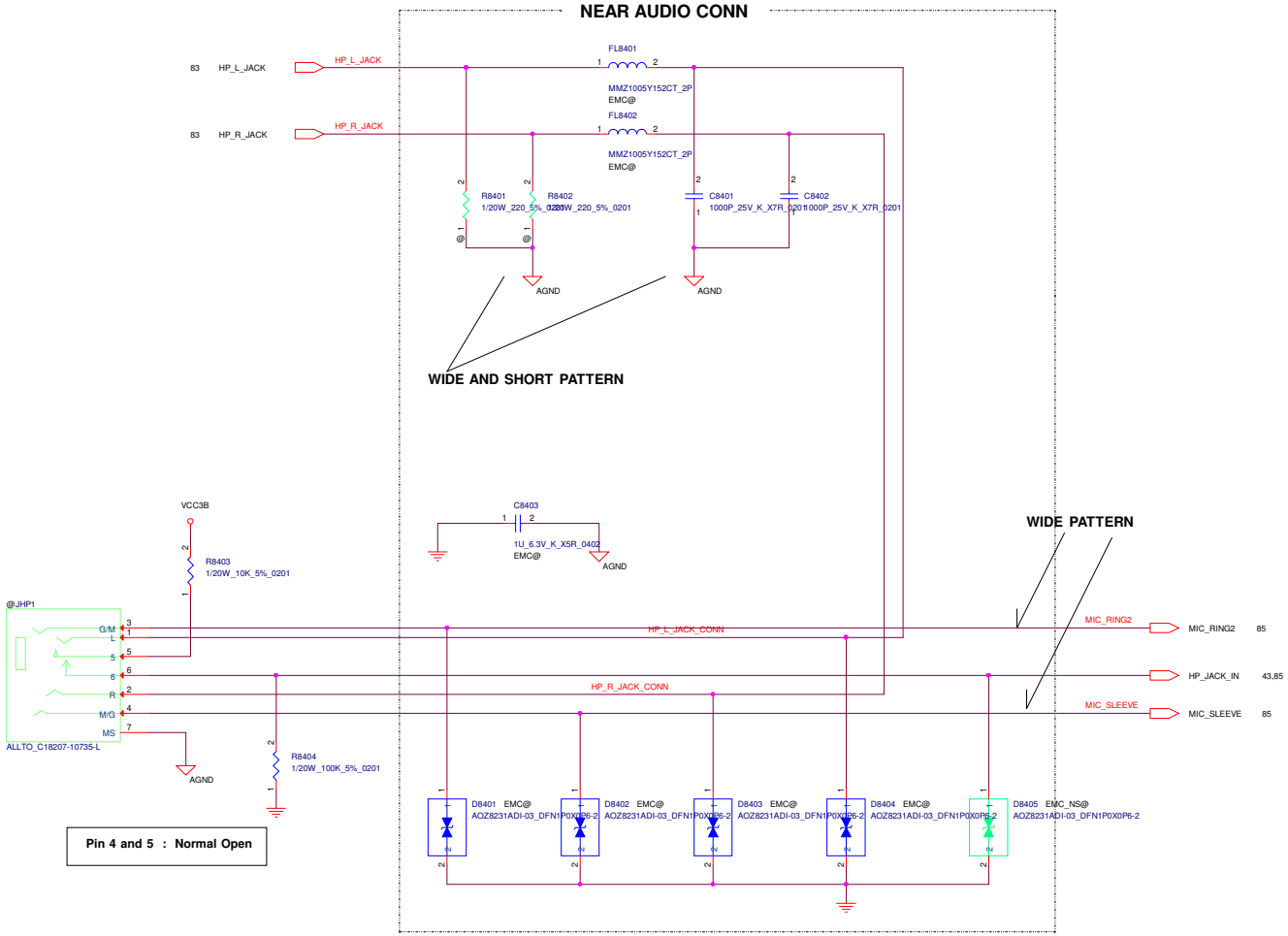
Security Classification	LC Future Center Secret Data		
Issued Date	2019/01/12	Deciphered Date	2019/04/12

Title: MEDIA CARD CONTROLLER

Size	Document Number	Rev
B	T14s Gen2	0.1

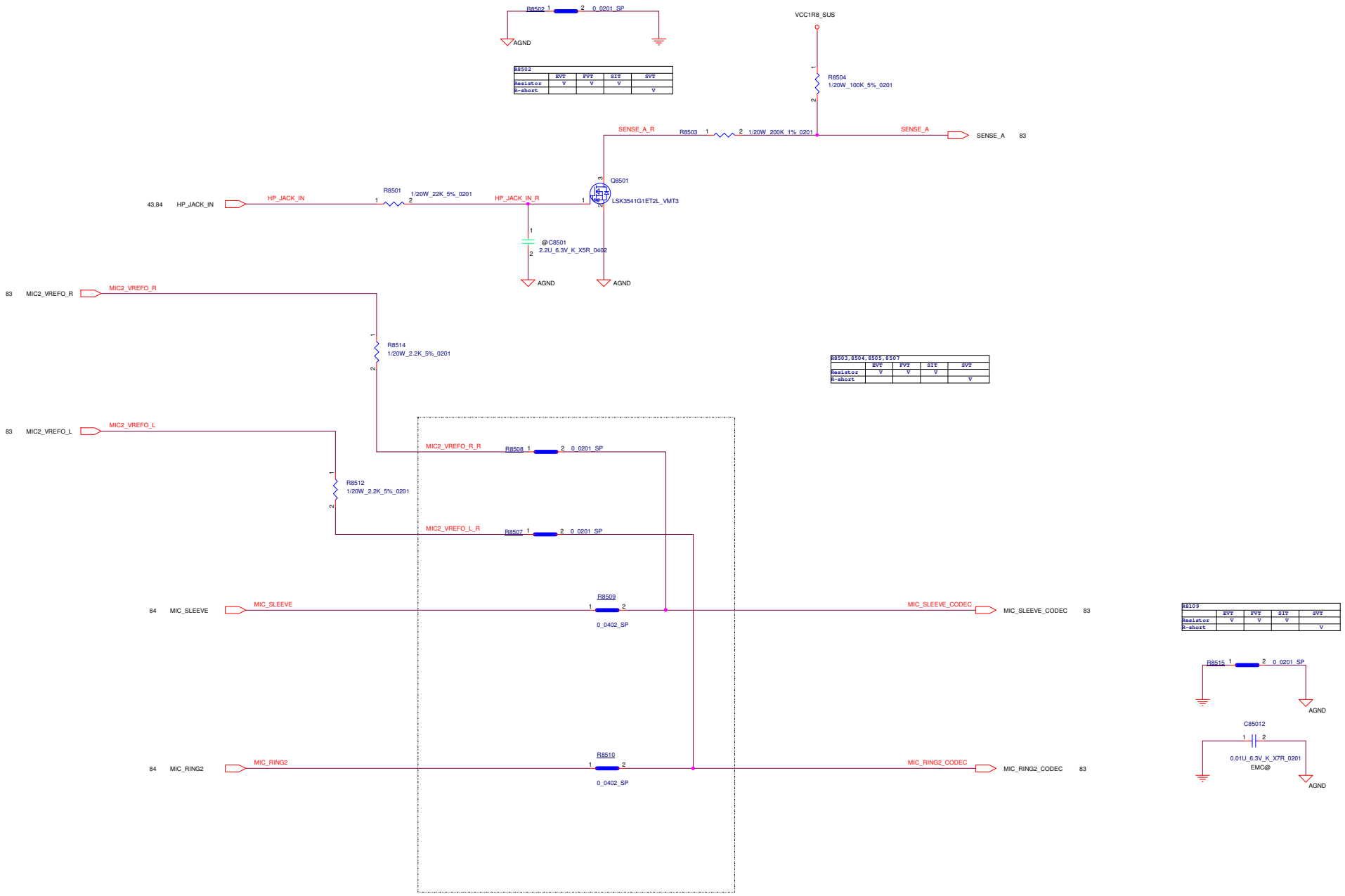
Date: Friday, December 04, 2020 Sheet 82 of 130


VCC1R8_CODEC
C8302 1U_6.3V_K_X5R_0201
C8303 2.2U_6.3V_K_X5R_0402
C8304 0.1U_6.3V_K_X5R_0201
Near U8301 pin3
Near U8301 pin18
VCC5B_CODEC
C8305 10U_6.3V_M_X5R_0402
C8306 0.1U_6.3V_K_X5R_0201
C8308 0.1U_6.3V_K_X5R_0201
Near U8301 pin41
Near U8301 pin46
VCC1R8_SUS
VCC1R8_CODEC
R8304 0_0402_SP
VCC5B
VCC5B_CODEC
R8305 0_0402_SP
VCC1R8_SUS
VCC1R8_SUS_CODEC
R8306 0_0402_SP
R8304,R8305,R8306,R8307
EVT FVT SIT SVT
Resistor V V V
X-short V
VCC5B
VCC5BA
R8307 0_0402_SP
@C8324 0.1U_6.3V_K_X5R_0201
C8325 0.1U_6.3V_K_X5R_0201
C8326 4.7U_6.3V_M_X5R_0402
@C8327
0.01U_6.3V_K_X7R_0201
AGND
TABLE MIC HW ENABLE/DISABLE
ENABLE DISABLE
R0805 ASM NO ASM
LOGIC
VCC1R8_SUS_CODEC
C8309 0.1U_6.3V_K_X5R_0201
C8310 4.7U_6.3V_M_X5R_0402
Near U8301 pin20
AGND
R8308,R8309
EVT FVT SIT SVT
Resistor V V V
X-short V
VCC1R8_CODEC VCC5B_CODEC VCC5BA VCC1R8_SUS_CODEC
U8301
DVDD DVDD-IO PVDD2 PVDD1 AVDD1 CPVDD/AVDD2
HP_L_JACK
HP_R_JACK
MIC2_VREFO_L
MIC2_VREFO_R
R8301 1/20W_47_5%_0201
R8302 1/20W_47_5%_0201
HP_L_JACK_R
HP_R_JACK_R
HPOUT-L
HPOUT-R
MIC2-VREFO-L
MIC2-VREFO-R
MIC_RING2_CODEC
MIC_SLEEVE_CODEC
BEEP_MIX_ATT
C8311 0.1U_6.3V_K_X5R_0201
BEEP_MIX_ATT_C
MIC2-L/RING2
MIC2-R/SLEEVE
PCBEEP
R8303 1/20W_10K_5%_0201
5VSTB
LINE2-R
LINE2-L
Analog Plane
C8312 1U_25V_K_X5R_0402
CBP
CBN
@C8319 33P_25V_J_NPO_0201
@C8318 33P_25V_J_NPO_0201
C8313 2.2U_6.3V_K_X5R_0402
C8314 2.2U_6.3V_K_X5R_0402
C8315 2.2U_6.3V_K_X5R_0402
C8316 2.2U_6.3V_K_X5R_0402
C8317 2.2U_6.3V_K_X5R_0402
MIC2_CAP
VREF
LDO3_CAP
LDO2_CAP
LDO1_CAP
@ C8320 33P_25V_J_NPO_0201
@ C8321 33P_25V_J_NPO_0201
AVSS1
AVSS2
Thermal Pad
ALC3287-CG_MQFN48_6X6
PDB
BCLK
SYNC
JD2
JD1
SPDIF-OUT/GPIO2/DMIC-DATA34/DMIC-CLK-IN
GPIO0/DMIC-DATA12
GPIO1/DMIC-CLK
I2C-DATA
I2C-CLK
NC1
NC2
NC3
NC4
NC5
SPK-OUT-R+
SPK-OUT-R-
SPK-OUT-L-
SPK-OUT-L+
DC DET/EAPD
SDATA-IN
SDATA-OUT
CPVEE
-SPK_MUTE_R
HDA_BCLK_R
R8308 0_0201_SP
R8309 0_0201_SP
-SPK_MUTE
HDA_BCLK
HDA_SYNC
SENSE_A
DMIC_DATA series resistor need to close device
Test_Point_20MIL TP8805
Test_Point_20MIL TP8806
@C8328 47P_25V_J_NPO_0201
HDA_SDIN0_R
R8311 1/20W_33_5%_0201
HDA_SDIN0
HDA_SDO
C8331 1U_25V_K_X5R_0402
@C8332 47P_25V_J_NPO_0201
SP_OUTR+
SP_OUTR-
SP_OUTL-
SP_OUTL+
C8333 1000P_25V_K_X7R_0201
C8334 1000P_25V_K_X7R_0201
C8335 1000P_25V_K_X7R_0201
C8336 1000P_25V_K_X7R_0201
PLACE NEAR CODEC
PLACE UNDER ALC3287
EMC_NS@ C8322 0.01U_6.3V_K_X7R_0201
EMC@C8337 0.1UC_25VC_KC_X5RC_0402
EMC@C8338 0.1UC_25VC_KC_X5RC_0402
EMC@C8339 0.1UC_25VC_KC_X5RC_0402
Lenovo
Project Name : T14s Gen2
Title : AUDIO CODEC (ALC3286/3287)
Size :
Document Number :
Rev : 0.1
Date: Friday, December 04, 2020
Sheet : 83 of 130



Lenovo

Project Name : T14s Gen2	Title : AUDIO CONNECTOR
Size : C	Document Number :
	Rev : 0.1
Date: Friday, December 04, 2020	Sheet : 84 of 130



R8502	EVT	FVT	SIT	SVT
Resistor	V	V	V	
R-short				V

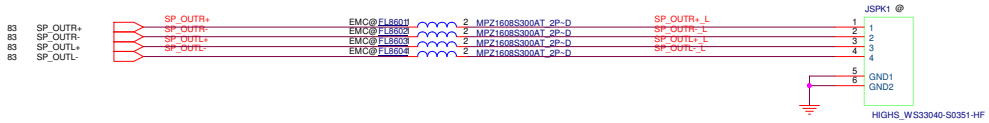
R8503,8504,8505,8507	EVT	FVT	SIT	SVT
Resistor	V	V	V	
R-short				V

R8109	EVT	FVT	SIT	SVT
Resistor	V	V	V	
R-short				V

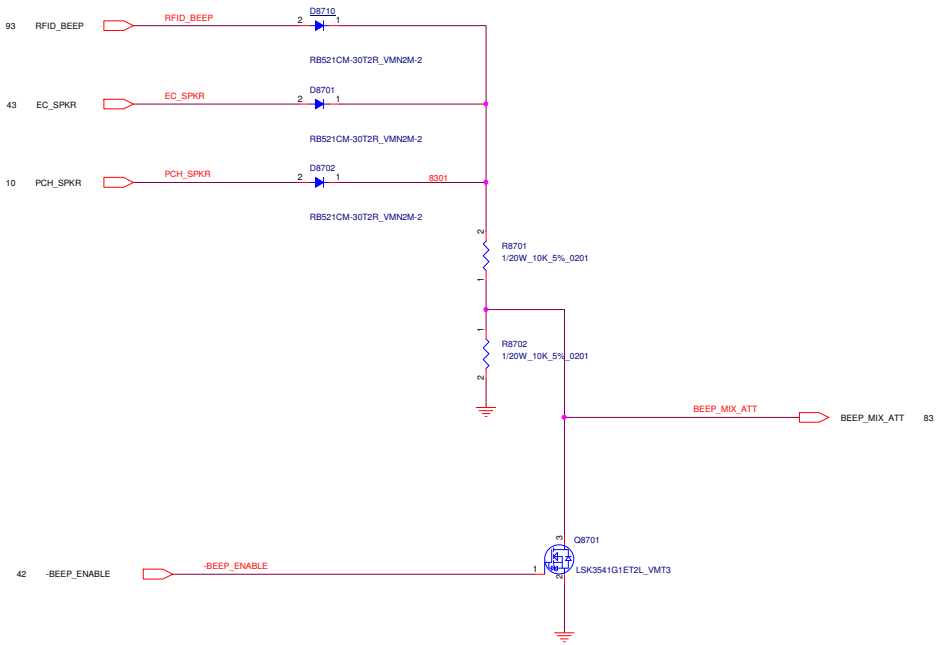
NEAR EXT MIC CONN

Lenovo

Project Name : T14s Gen2	Title : AUDIO JACK SENSE_MIC_I/F
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 85 of 130



Lenovo			
Project Name : T14s Gen2		Title : AUDIO SPEAKER	
Size : C	Document Number :		Rev : 0.1
Date: Friday, December 04, 2020		Sheet : 86 of 130	



Project Name : T14s Gen2	Title : AUDIO BEEP
Size : C	Document Number :
Rev : 0.1	
Date: Friday, December 04, 2020	Sheet : 87 of 130

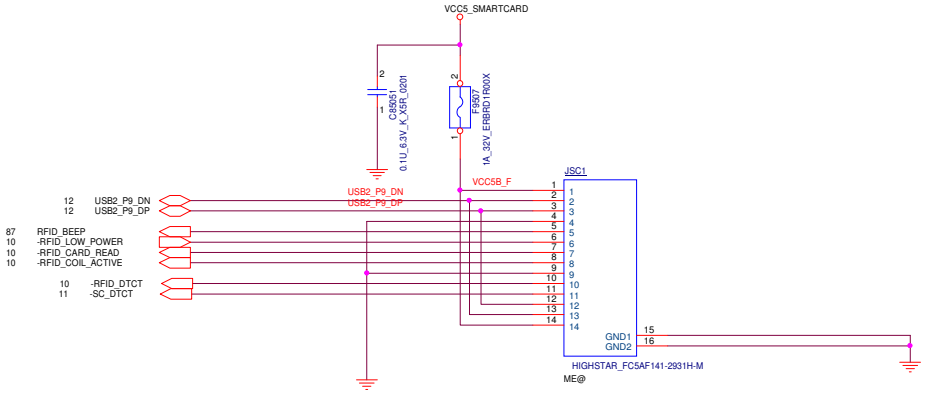
Title	<Title>			
Size	Document Number			Rev
Custom	T14s Gen2			0.1
Date:	Friday, December 04, 2020	Sheet	88 of	130

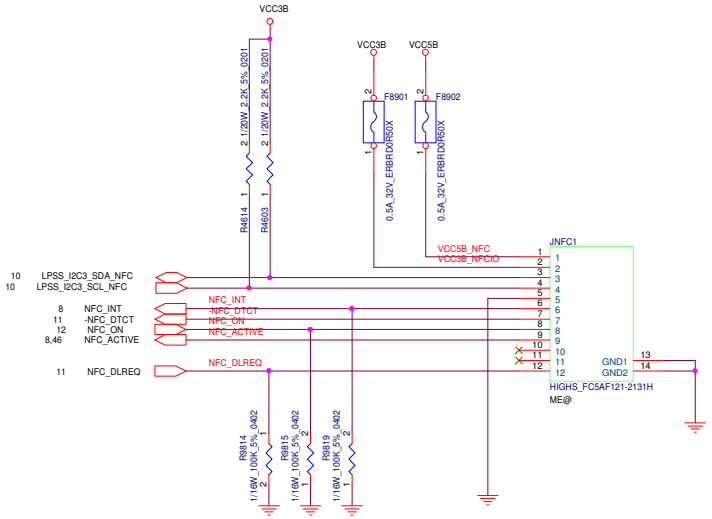
Title	<Title>
Size A	Document Number T14s Gen2
Rev	0.1
Date:	Friday, December 04, 2020
Sheet	89 of 130

Title	<Title>
Size: A	Document Number: T14s Gen2
Rev: 0.1	
Date: Friday, December 04, 2020	Sheet 90 of 130

Title	<Title>
Size: A	Document Number: T14s Gen2
Rev: 0.1	
Date: Friday, December 04, 2020	Sheet 91 of 130

Title	<Title>
Size A	Document Number T14s Gen2
Rev	0.1
Date:	Friday, December 04, 2020
Sheet	92 of 130





總共pin數	Pin Count	Pin Assignment	SCR	RFID
1	1	VBUS_5V		
2	2	Data- (D-)		
3	3	Data+ (D+)		
4	4	GND		
5	5	Audio_Feedback		
6	6	Low_power_mode		
7	7	Card_read		
8	8	Module_Detect		
9	6	GND		
10	5	NC		
11	4	GND		
12	3	USB D+		
13	2	USB D-		
14	1	VCC +5V		

RFID Pin Assignment

	PIN	Description
	1	VBUS_5V
	2	Data- (D-)
	3	Data+ (D+)
	4	GND
	5	Audio_Feedback
	6	Low_power_mode
	7	Card_read
	8	Module_Detect
重疊區域	9	GND
	10	GND

SCR Pin Assignment

	PIN	Description
	1	VCC +5V
	2	USB D-
	3	USB D+
	4	GND
重疊區域	5	NC
	6	GND

RFID & Smart Card

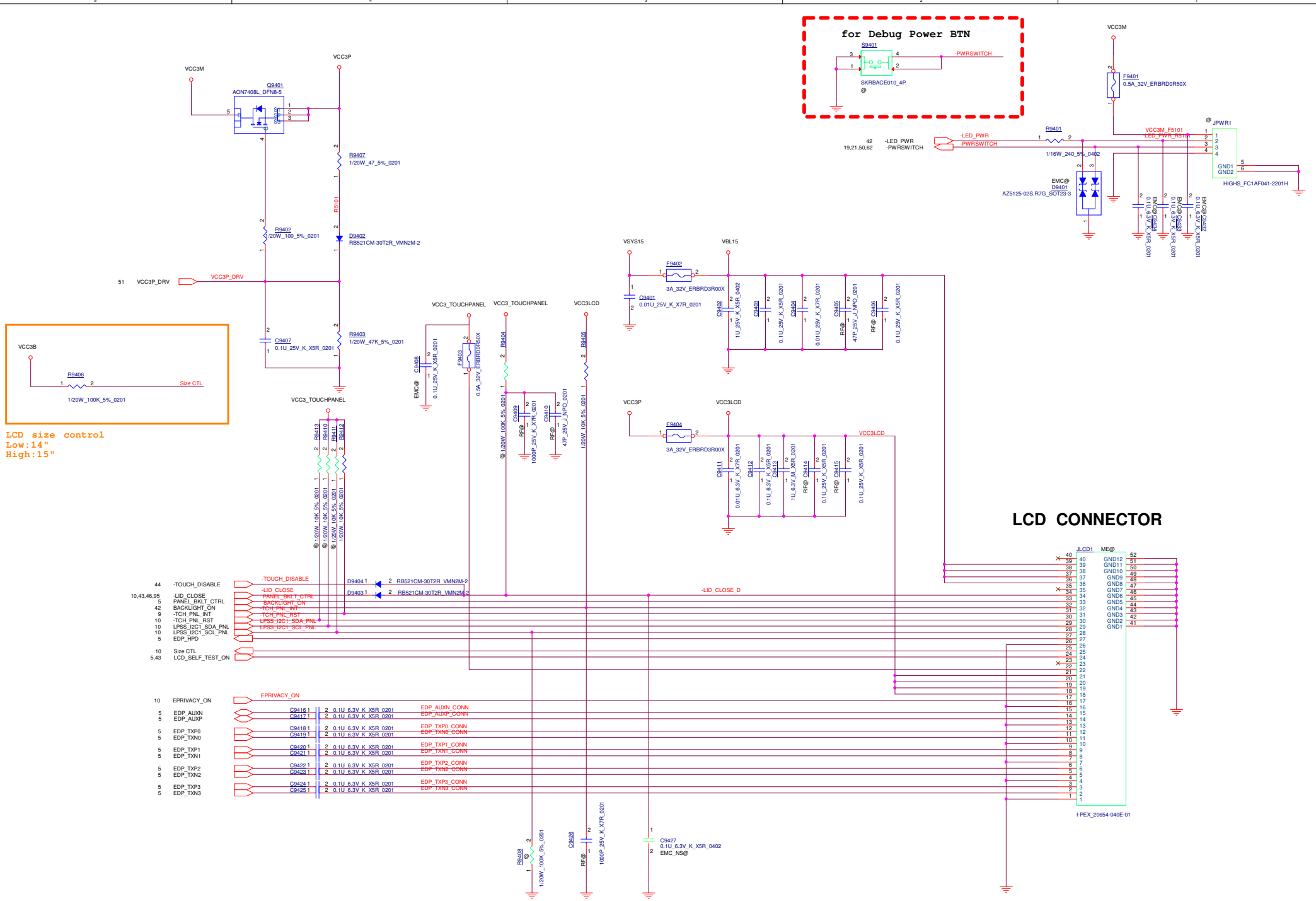
Pin1	VBUS_5V
Pin2	USB_D-
Pin3	USB_D+
Pin4	GND
Pin5	BEEP
Pin6	CARD_READ
Pin7	COIL_ACTIVE
Pin8	GND
Pin9	GND
Pin10	NC
Pin11	-SC_DTCT
Pin12	USB_D+
Pin13	USB_D-
PIN14	VCC +5V

NFC

VBUS_5V_NFC
VBUS_3V_NFC
I2C0_DATA_NFC
I2C0_CLK_NFC
GND
NFC_INT
-NFC_DTCT
NFC_ON
NFC_ACTIVE
NC
NC
NFC_DLREQ

Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

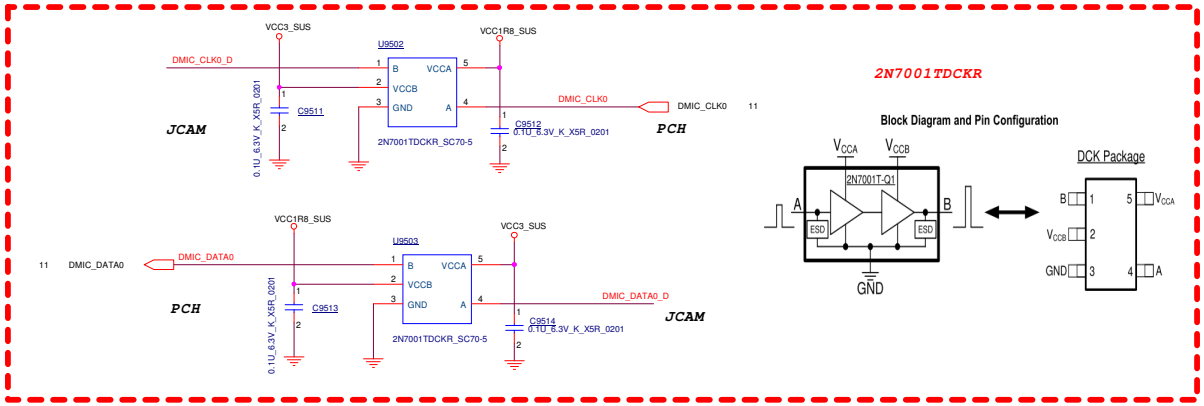
Title	SCR&FPR&NEC LED		
Size	Document Number		Rev
C	T14s Gen2		0.1
Date:	Friday, December 04, 2020	Sheet	93 of 130

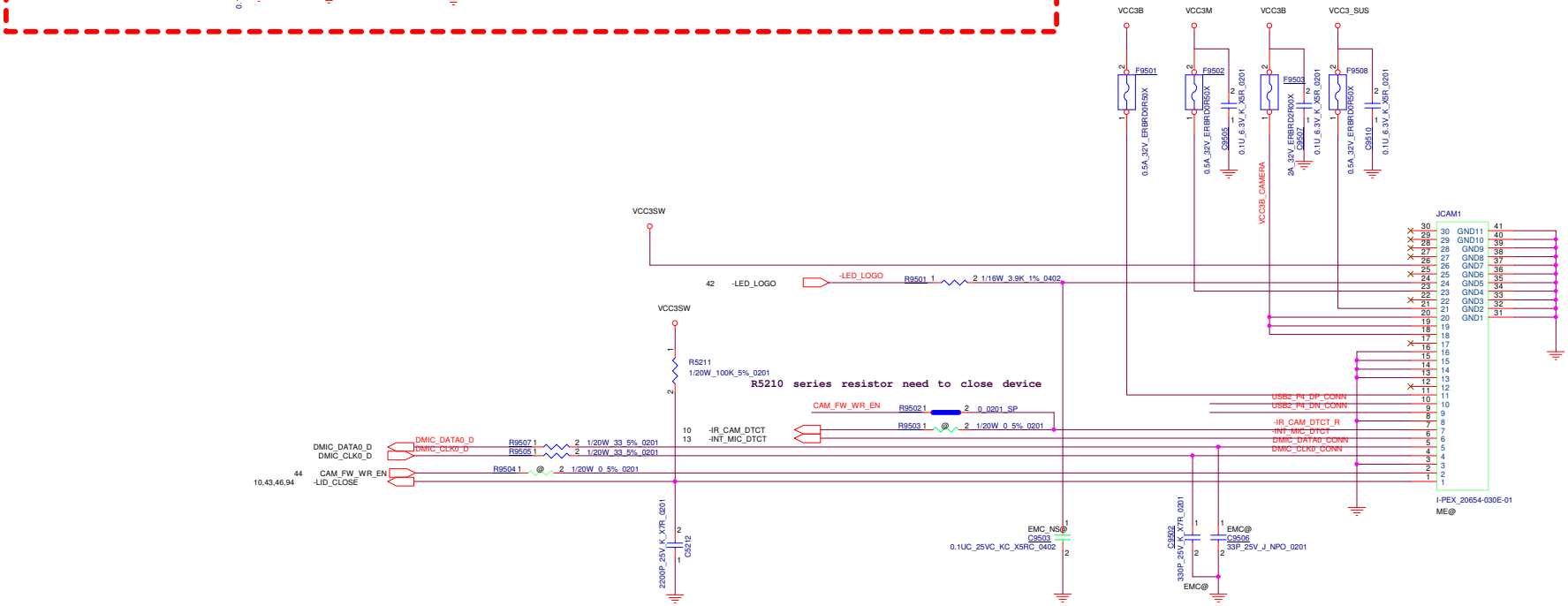


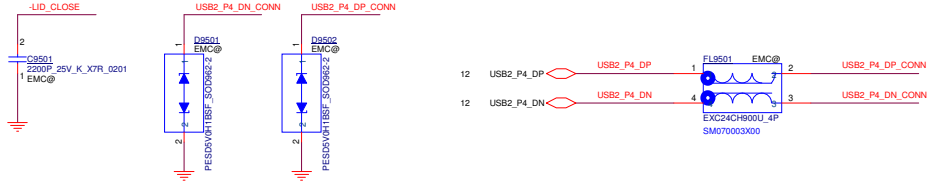
Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

Title: LCD INTERFACE

Size	Document Number	Rev
Custom	C T14s Gen2	0.1
Date: Friday, December 04, 2020	Sheet 94 of 130	







Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

Title: LID/CAMERA/MIC/TOUCH INTERFACE

LCFC

Size	Document Number	Rev
Custom	C T14s Gen2	0.1
Date: Friday, December 04, 2020	Sheet 95 of 130	

Title	<Title>
Size A	Document Number T14s Gen2
Rev	0.1
Date:	Friday, December 04, 2020
Sheet	96 of 130

Title	<Title>
Size A	Document Number T14s Gen2
Rev	0.1
Date:	Friday, December 04, 2020
Sheet	97 of 130

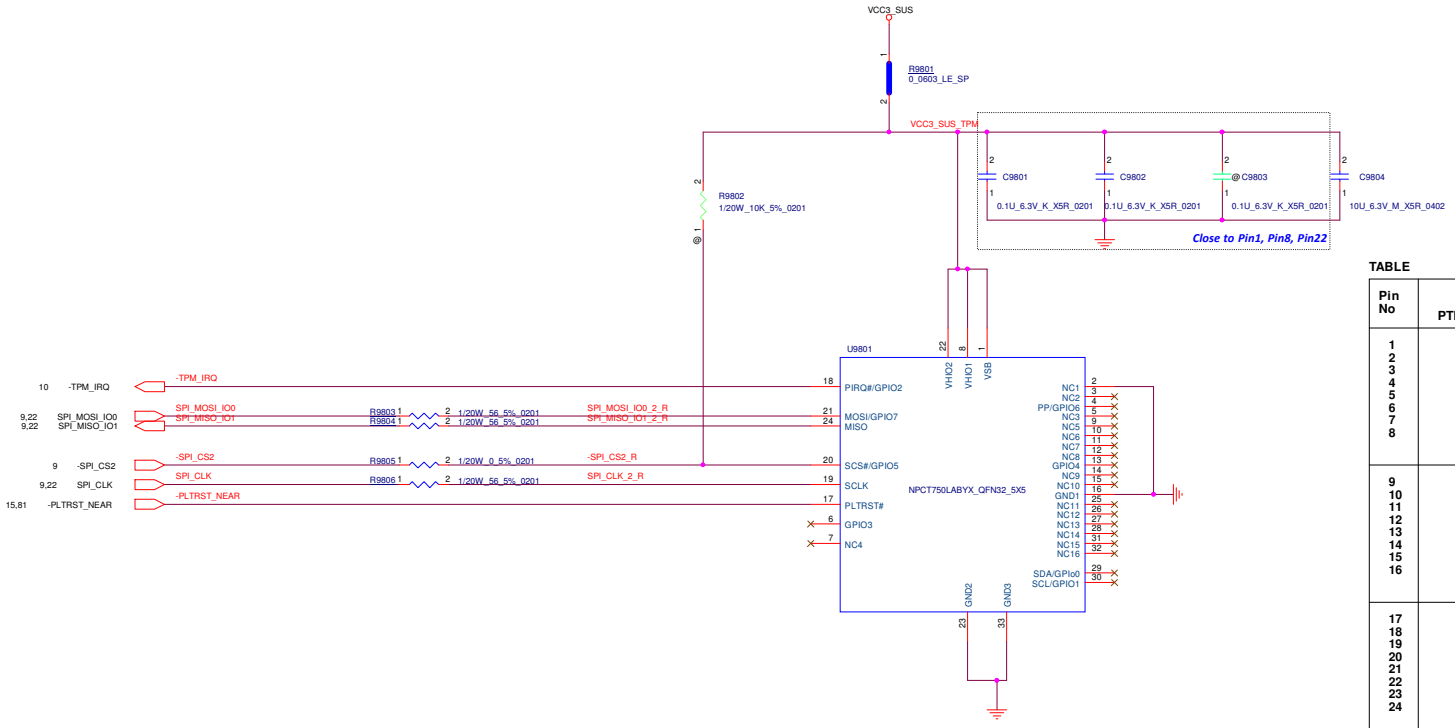


TABLE of TPM (U9801)		
Vendor	P/N	LCFC P/N
ST Micro	ST33HTPH2E32AHC0	SA0000AB710
Nuvoton	NPCT750LABYX	SA00008KS20

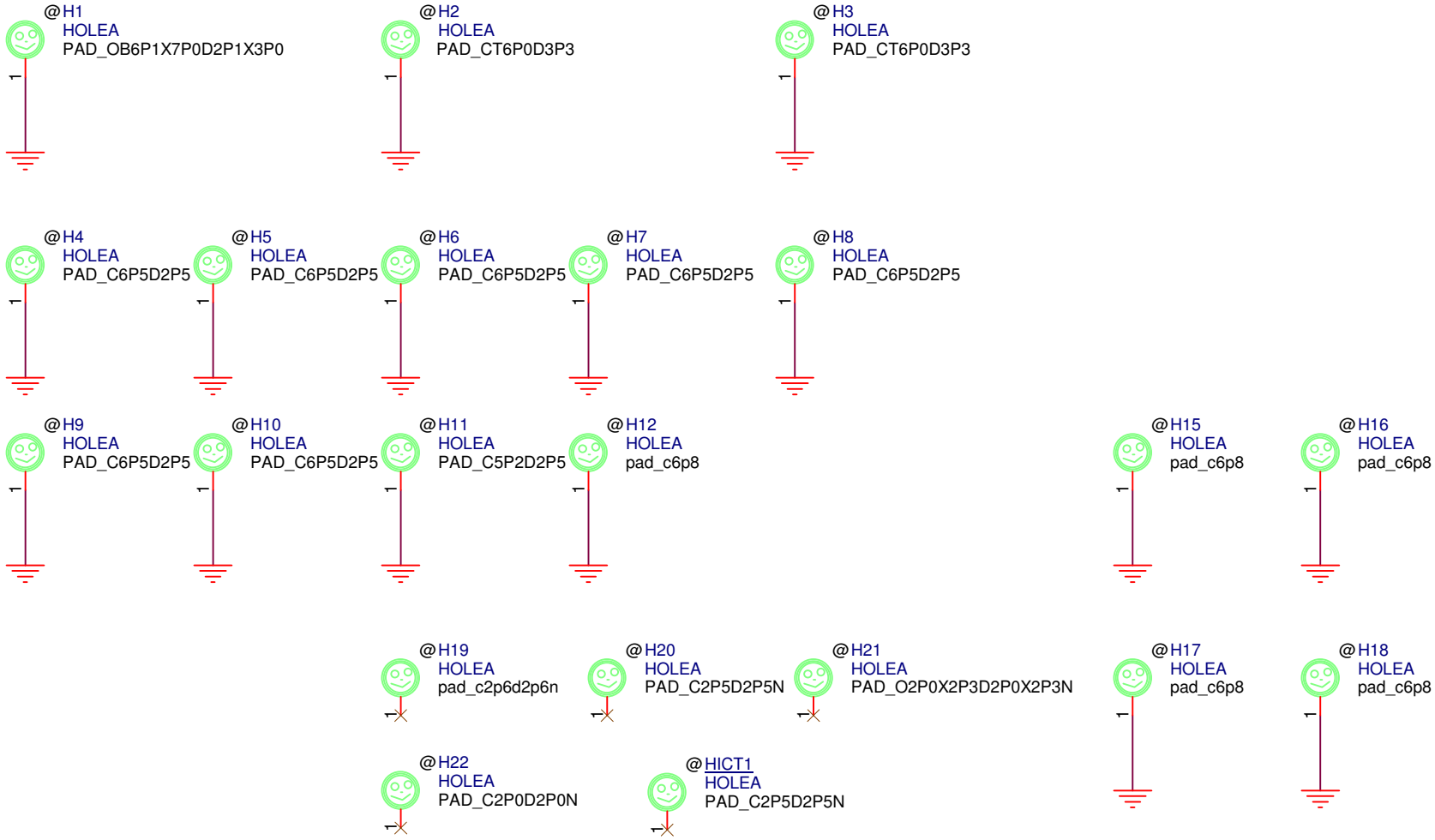
TABLE

Pin No	TCG PTP Spec (v38)	Nuvoton NPCT750LABYX	ST Micro ST33HTPH2E32AHC0
1	VDD	VSB	NC
2	GND	NC	GND
3	NC	NC	NC
4	GPIO	GPIO/PP	PP
5	NC	NC	NC
6	GPIO	GPIO3	NC
7	GPIO	NC	GPIO
8	VDD	VHIO	NC
9	NC	NC	NC
10	NC	NC	NC
11	NC	NC	NC
12	NC	NC	NC
13	GPIO	GPIO4	NC
14	NC	NC	NC
15	NC	NC	NC
16	GND	GND	NC
17	SPI_RST#	RST#	SPI_RST#
18	SPI_PIRQ#	PIRQ#/GPIO2	SPI_PIRQ#
19	SPI_CLK	SCLK	SPI_CLK
20	SPI_CS#	SCS#/GPIO5	SPI_CS#
21	MOSI	MOSI/GPIO7	MOSI
22	VDD	VHIO	VPS
23	GND	GND	NC
24	MISO	MISO	MISO
25	NC	NC	NC
26	NC	NC	NC
27	NC	NC	NC
28	NC	NC	NC
29	SDA/GPIO1	SDA/GPIO1	NC
30	SDA/GPIO0	SDA/GPIO0	NC
31	NC	NC	NC
32	NC	NC	NC

Security Classification	LC Future Center Secret Data		
Issued Date	2018/01/12	Deciphered Date	2018/01/12

Title: DISCRETE TPM 2.0

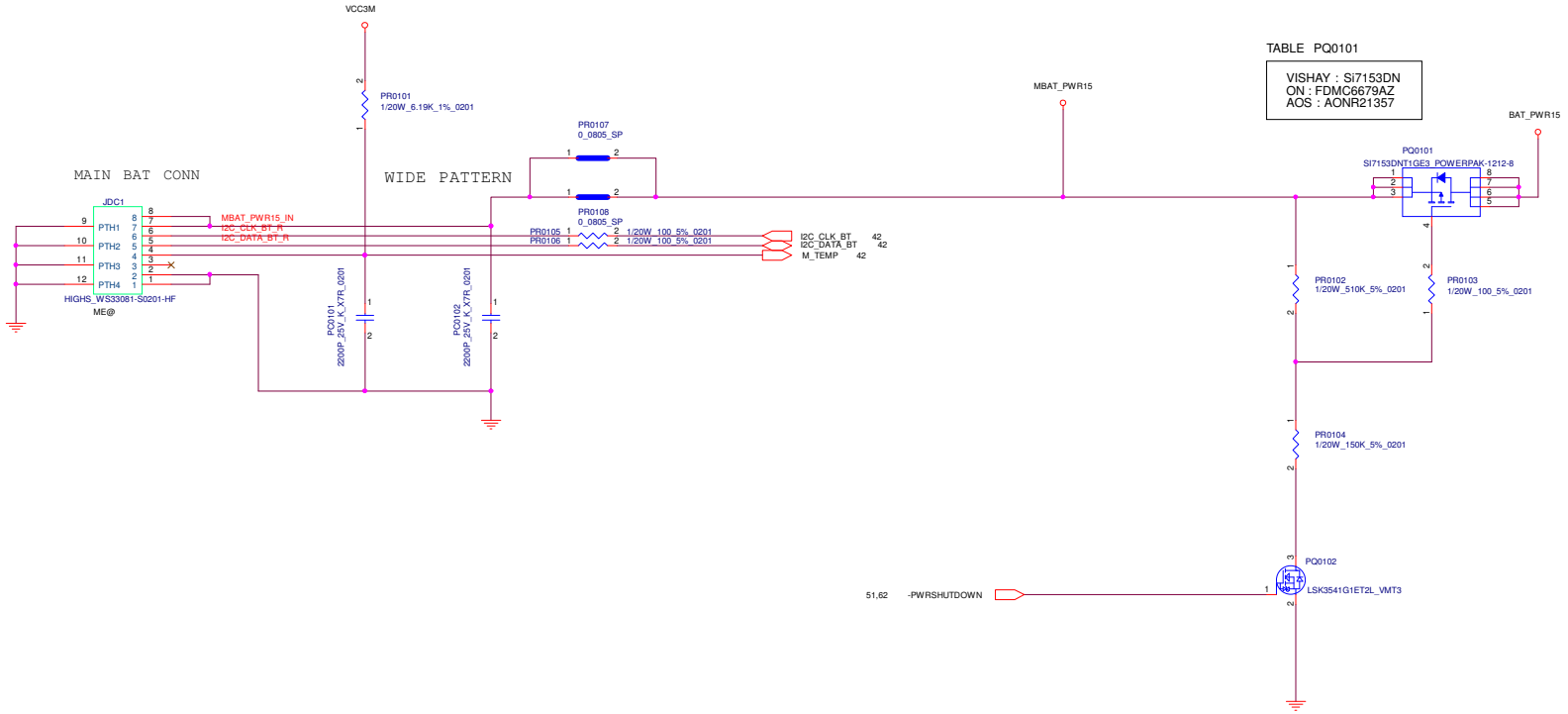
Size	Document Number	Rev
Custom	C T14s Gen2	0.1
Date: Friday, December 04, 2020	Sheet 98 of 130	



Title	<Title>	
Size: A	Document Number: T14s Gen2	Rev: 0.1
Date: Friday, December 04, 2020	Sheet 99 of 130	

BLANK

Document Number: DORAEMON		LCFC
Size: Custom	Title: Hole&FIP	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 100 of 130	



Document Number	DORAEMON	LCFC
Size: Custom	Title: Battery Conn	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 101 of 130	

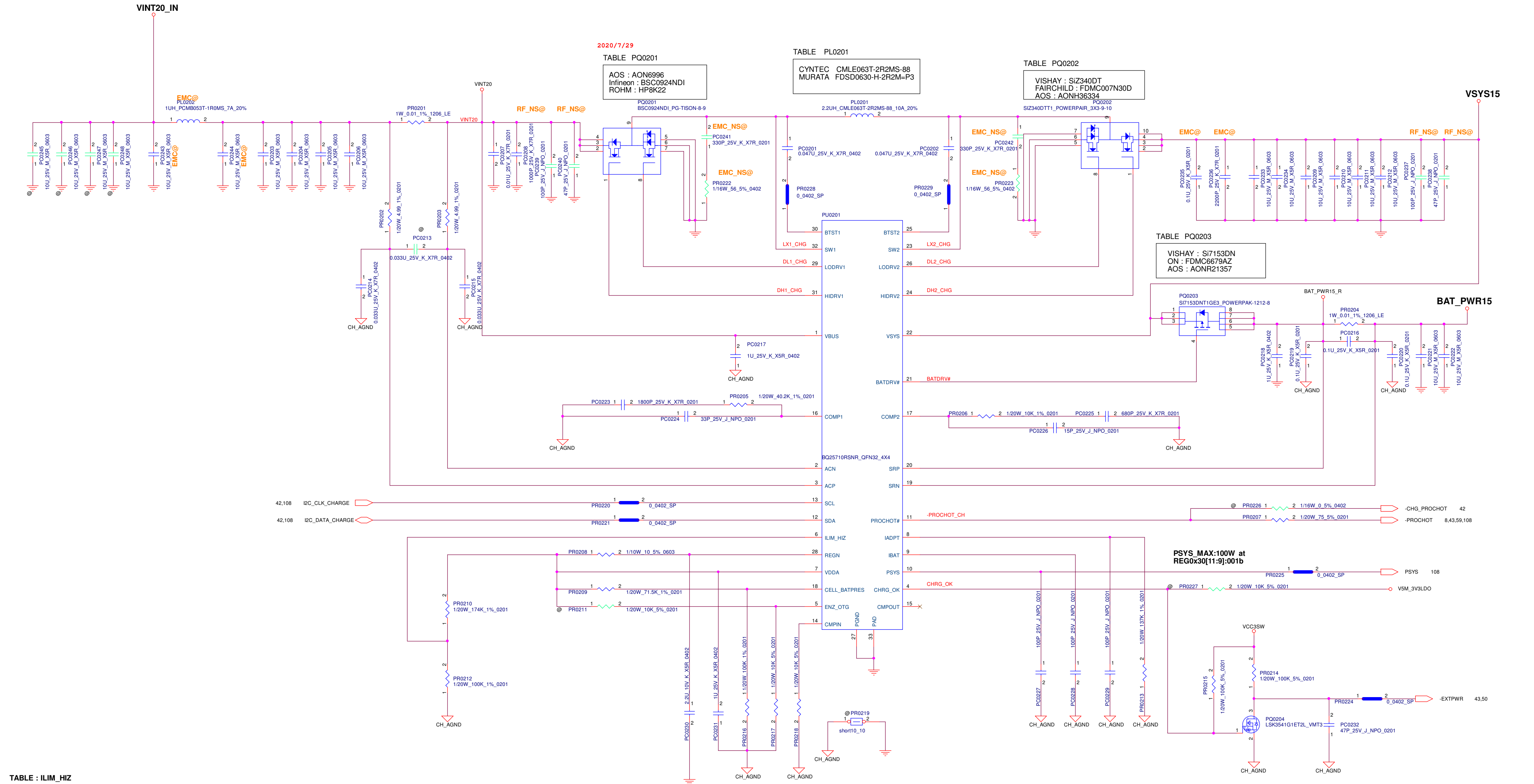


TABLE : ILIM_HIZ

IDPM	V (ILIM)	
500mA	1.2V	
1.0A	1.4V	
1.5A	1.6V	
2.0A	1.8V	237K
3.0A	2.2V	174K
3.25A	2.3V	162K

LOGIC

TABLE : CELL_BATPRES

# of CELL	V (CELL_PRES)	R3079
1-CELL	1.5V	301K
2-CELL	2.5V	140K
3-CELL	3.5V	71.5K
4-CELL	4.5V	33.2K

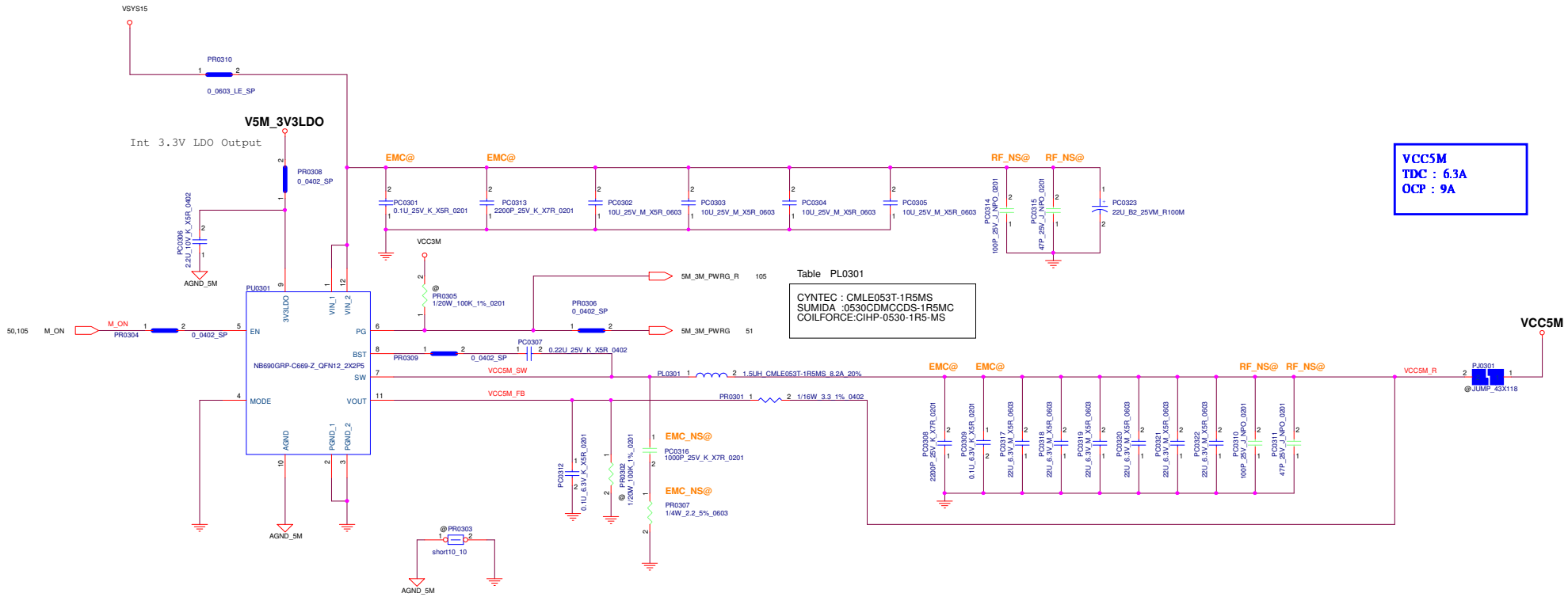
LOGIC

TABLE

Inductor	R(IADP)	fsw@POR
1.0uH	93kohm	800kHz
2.2uH	137kohm	800kHz
3.3uH	169kohm	800kHz

LOGIC

Document Number		
DORAEMON		LCFC
Size: Custom	Title: BATTERY CHARGER(BQ25710)	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 102 of 130	



VCC5M
TDC : 6.3A
OCP : 9A

Table PL0301

CYNTEC : CMLE053T-1R5MS
SUMIDA :0530CDMCCDS-1R5MC
COILFORCE:CIHP-0530-1R5-MS

TABLE: NB690 Mode Control

RMode	MODE	VOUT	3V3LDO
0	Ceramic Cout	5.1V	3.3V
60K	POSCAP Cout	5.1V	3.3V
120K	Ceramic Cout	5V	3.3V
180K	POSCAP Cout	5V	3.3V
Floating	X	3.3V	3.3V

LOGIC

Document Number	DORAEMON	LCFC	
Size: Custom	Title: DC/DC VCC5M (NB690)		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 103 of 130		

TABLE : NB693 Mode Control

Mode	VOUT		RMode
M1	Vo<3V	DCM	0
M2	Vo<3V	CCM	90K
M3	Vo>=3V	CCM	150K
M4	Vo>=3V	DCM	>230K or Float

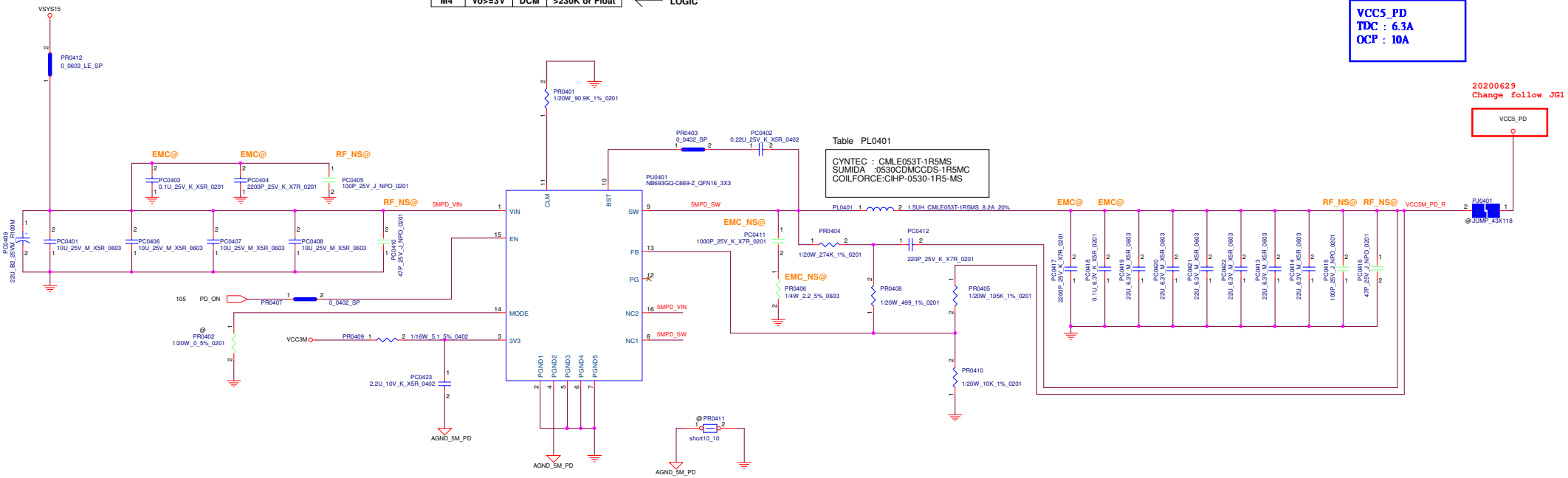
← LOGIC

VCC5_PD
TDC : 6.3A
OCP : 10A

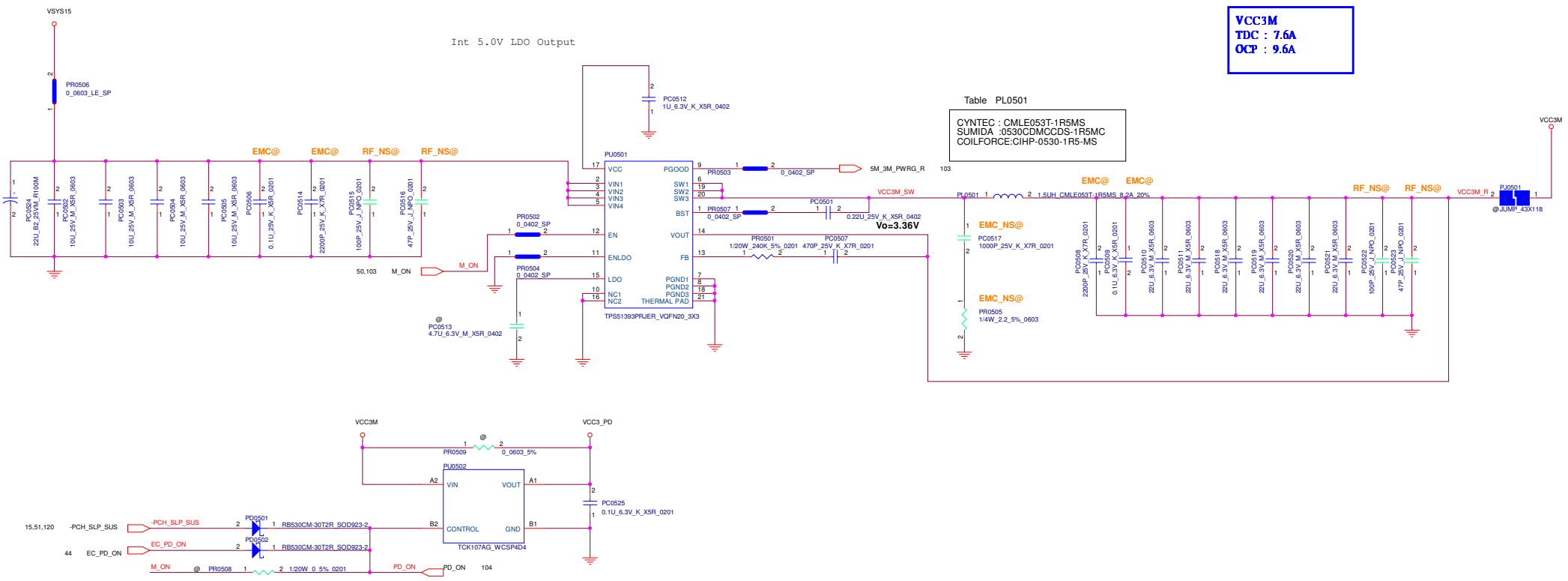
20200629
Change follow JG1

Table PL0401

CYNTEC : CMLE053T-1R5MS
SUMIDA :0530CDMCCDS-1R5MC
COILFORCE:CIHP-0530-1R5-MS



Document Number: DORAEMON			LCFC
Size: Custom	Title: DC/DC VCC5M_PD (NB693GQ)		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 104 of 130		



Document Number	DORAEMON	LCFC	
Size: Custom	Title: DC/DC VCC3M (TPS51393P)		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 105 of 130		

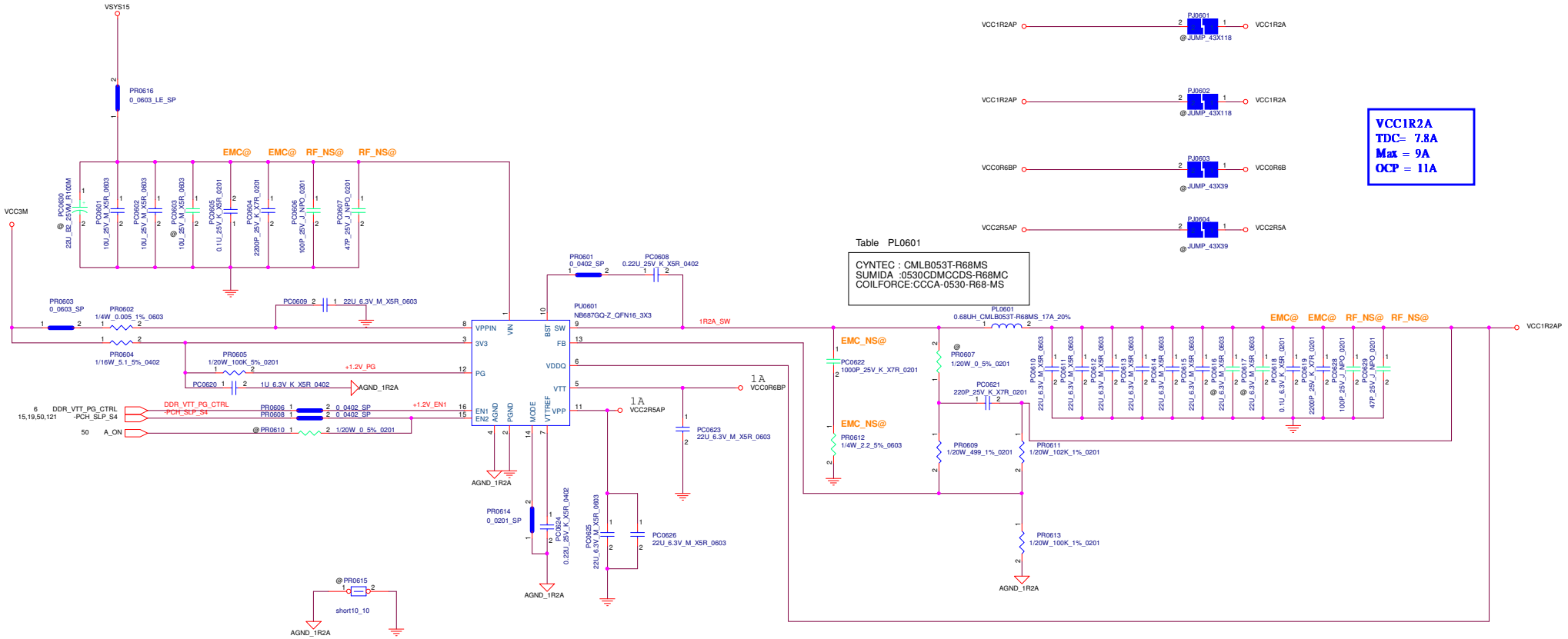


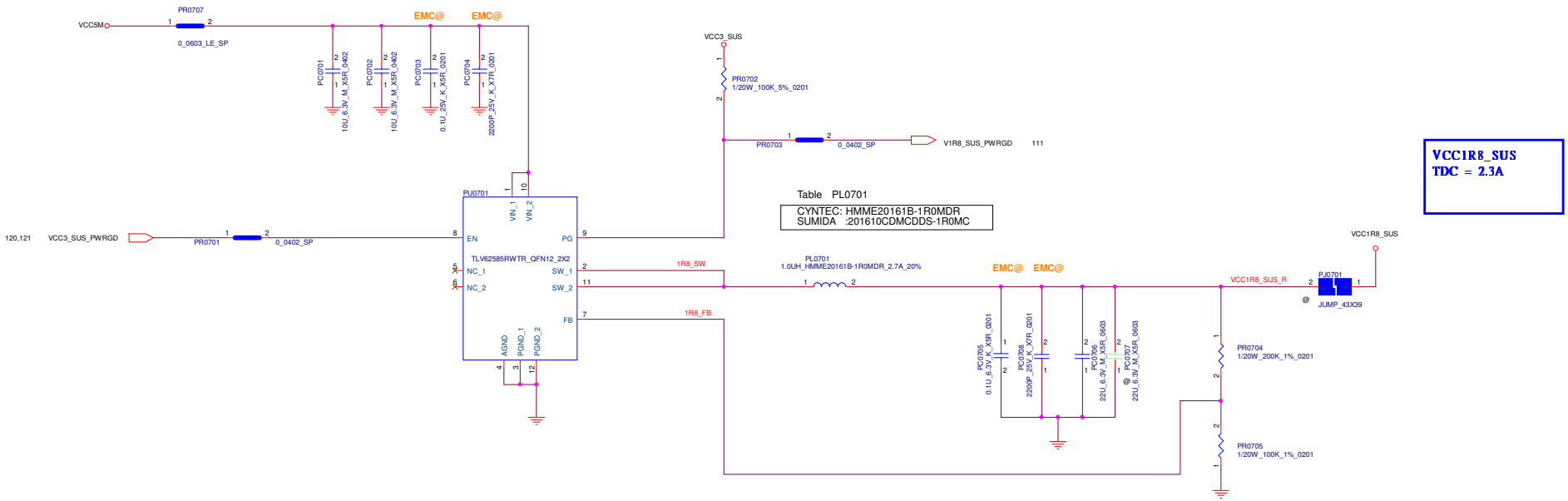
TABLE NB687GQ:EN1/EN2

State	EN1	EN2	VDDQ	VTTREF	VTT	VPP
S0	High	High	ON	ON	ON	ON
S3	Low	High	ON	ON	OFF(High-Z)	ON
S4/S5	Low	Low	OFF	OFF	OFF	OFF
Others	High	Low	OFF	OFF	OFF	OFF

TABLE NB687GQ:MODE

State	USM	Fs	Resistor to GND
M1	NO	700KHz	0
M2	YES	700KHz	90K
M3	NO	500KHz	150K
M4	YES	500KHz	>230K or Float

Document Number	DORAEMON	LCFC	
Size: Custom	Title: DC/DC VCC1R2A/2R5A(NB687)		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 106 of 130		



Document Number: DORAEMON			LCFC
Size: Custom	Title: DC/DC VCC1R8_SUS (TLV62585)		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 107 of 130		

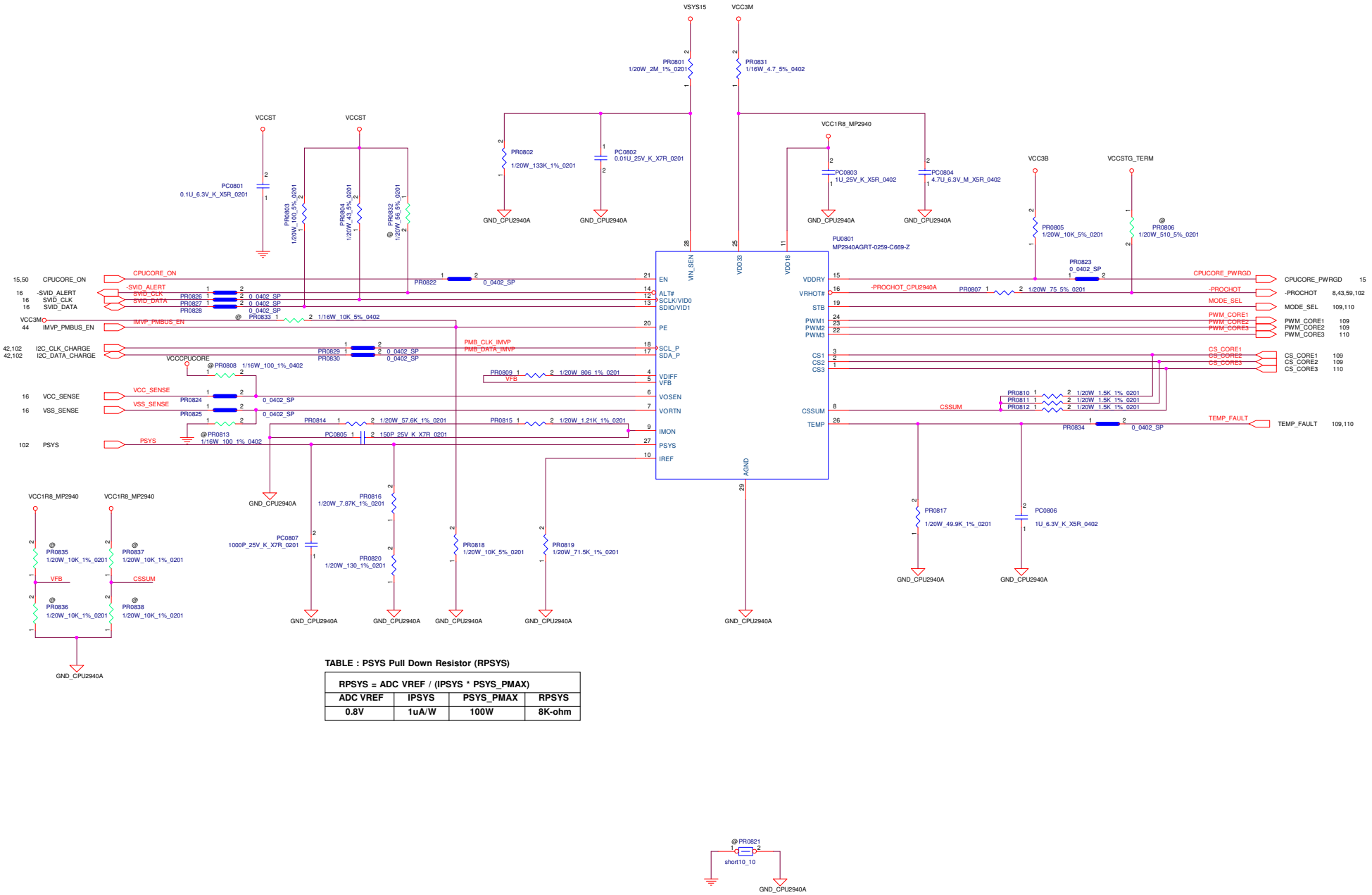


TABLE : PSYS Pull Down Resistor (RPSYS)

RPSYS = ADC VREF / (IPSYS * PSYS_PMAX)			
ADC VREF	**IPSYS**	**PSYS_PMAX**	**RPSYS**
0.8V	**1uA/W**	**100W**	**8K-ohm**

Document Number	DORAEMON	LCFC	
Size Custom	Title DC/DC VCCCPUCORE (MP2940A)		Rev 0.01
Date: Monday, December 14, 2020	Sheet 108 of 130		

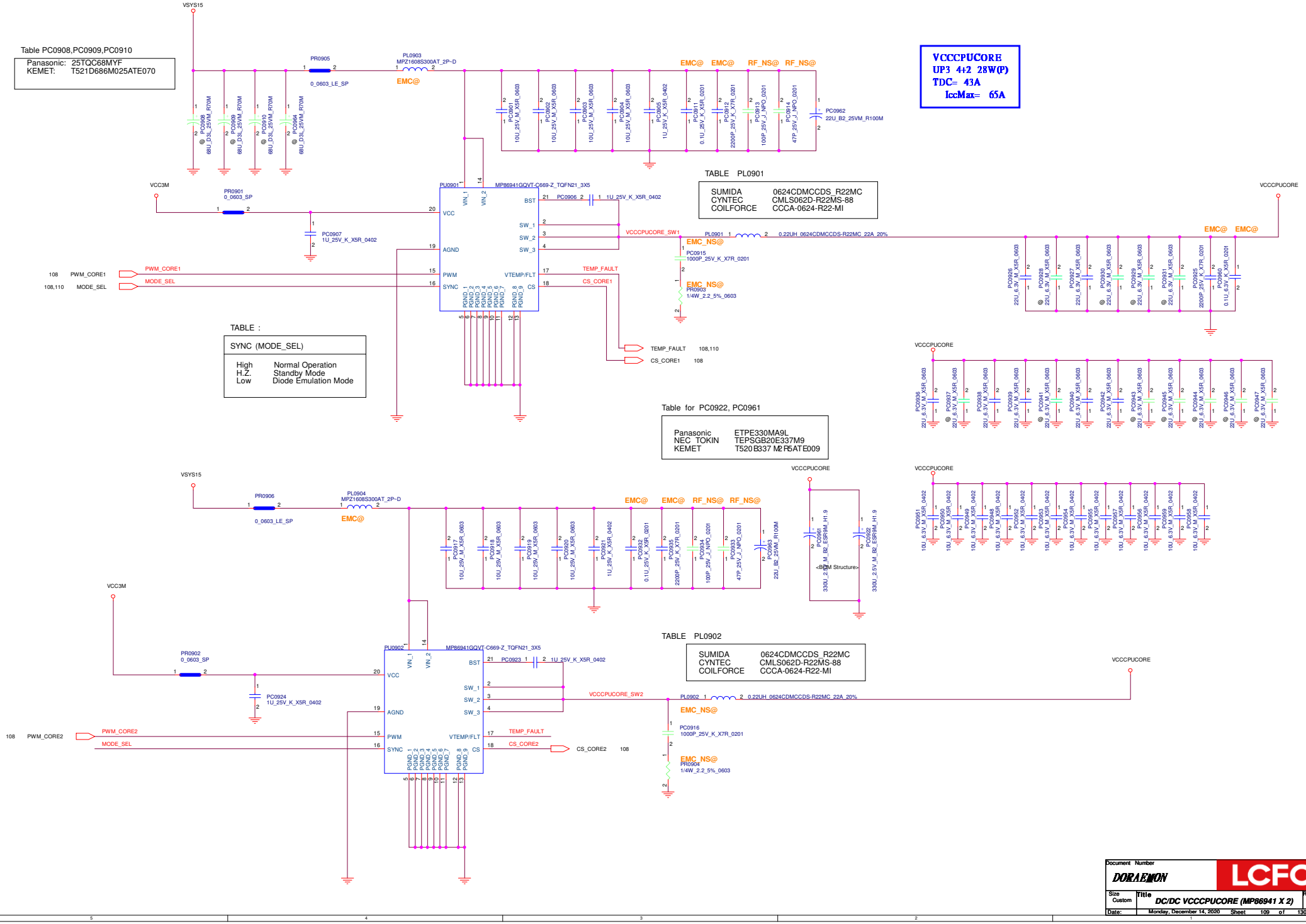
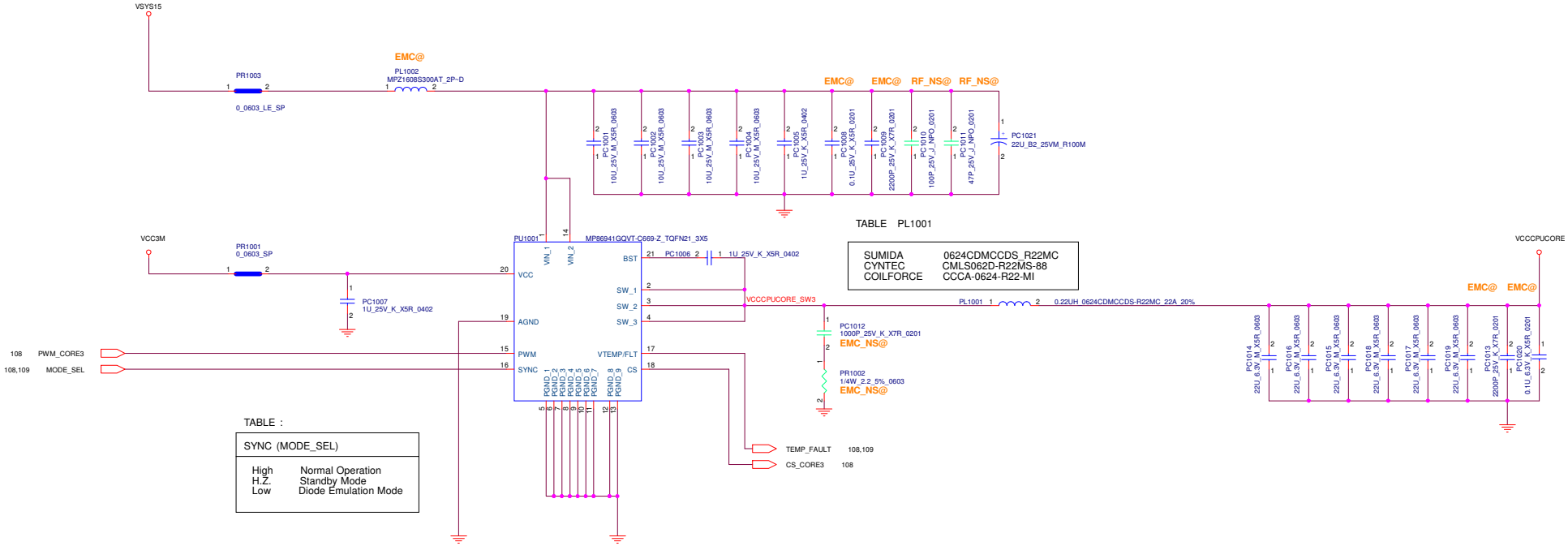


Table PC0908,PC0909,PC0910
Panasonic: 25TQC68MYF
KEMET: T521D686M025ATE070
VCCCPUCORE
UP3 4+2 28W(P)
TDC= 43A
IccMax= 65A
TABLE PL0901
SUMIDA 0624CDMCCDS_R22MC
CYNTEC CMLS062D-R22MS-88
COILFORCE CCCA-0624-R22-MI
TABLE :
SYNC (MODE_SEL)
High Normal Operation
H.Z. Standby Mode
Low Diode Emulation Mode
Table for PC0922, PC0961
Panasonic ETPE330MA9L
NEC TOKIN TEPSGB20E337M9
KEMET T520B337M2R5ATE009
TABLE PL0902
SUMIDA 0624CDMCCDS_R22MC
CYNTEC CMLS062D-R22MS-88
COILFORCE CCCA-0624-R22-MI
VSYS15
VCC3M
VCCCPUCORE
MP86941GQVT-C669-Z_TQFN21_3X5
PU0901
PU0902
PL0901
PL0902
PWM_CORE1
PWM_CORE2
MODE_SEL
TEMP_FAULT
CS_CORE1
CS_CORE2
VCCCPUCORE_SW1
VCCCPUCORE_SW2
EMC@
EMC_NS@
RF_NS@
Document Number
DORAEMON
LCFC
Size Custom
Title DC/DC VCCCPUCORE (MP86941 X 2)
Rev 0.01
Date: Monday, December 14, 2020
Sheet 109 of 130



Document Number	DORAEMON	LCFC		
Size Custom	Title DC/DC VCCCPUCORE (MP86941 X 2)			Rev 0.01
Date: Monday, December 14, 2020	Sheet 110 of 130			

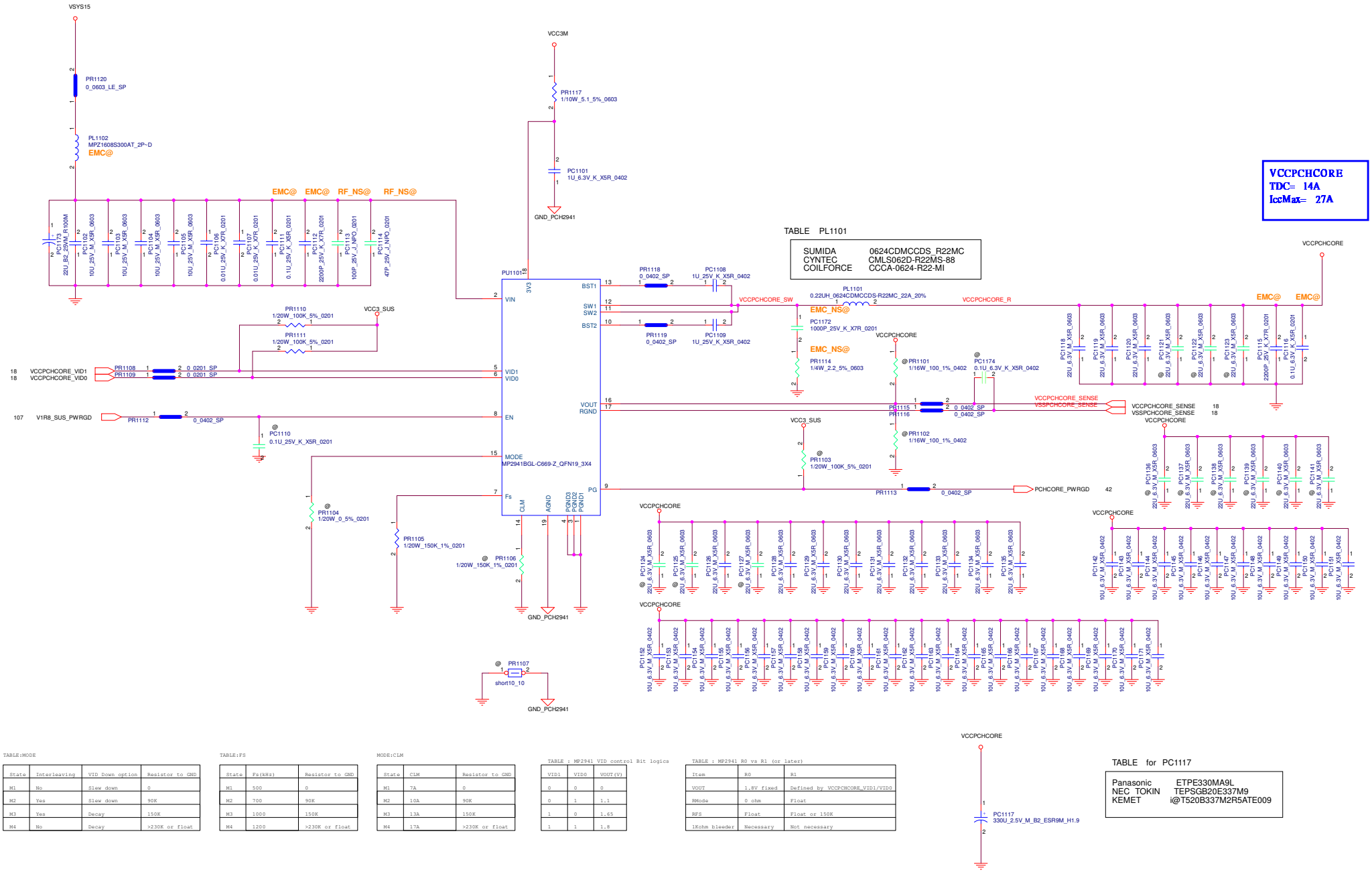


TABLE:MODE

State	Interleaving	VID Down option	Resistor to GND
M1	No	Slew down	0
M2	Yes	Slew down	90K
M3	Yes	Decay	150K
M4	No	Decay	>230K or float

TABLE:FS

State	Fs(kHz)	Resistor to GND
M1	500	0
M2	700	90K
M3	1000	150K
M4	1200	>230K or float

MODE:CLM

State	CLM	Resistor to GND
M1	7A	0
M2	10A	90K
M3	13A	150K
M4	17A	>230K or float

TABLE : MP2941 VID control Bit logics

VID1	VID0	VOUT(V)
0	0	0
0	1	1.1
1	0	1.65
1	1	1.8

TABLE : MP2941 R0 vs R1 (or later)

Item	R0	R1
VOUT	1.8V fixed	Defined by VCCPCHCORE_VID1/VID0
RMode	0 ohm	Float
RFS	Float	Float or 150K
1Kohm bleeder	Necessary	Not necessary

Document Number	DORAEMON				LCFC
Size Custom	Title	DC/DC VCCPCHCORE(MP2941B)			Rev 0.01
Date:	Monday, December 14, 2020	Sheet	111	of	130

BLANK

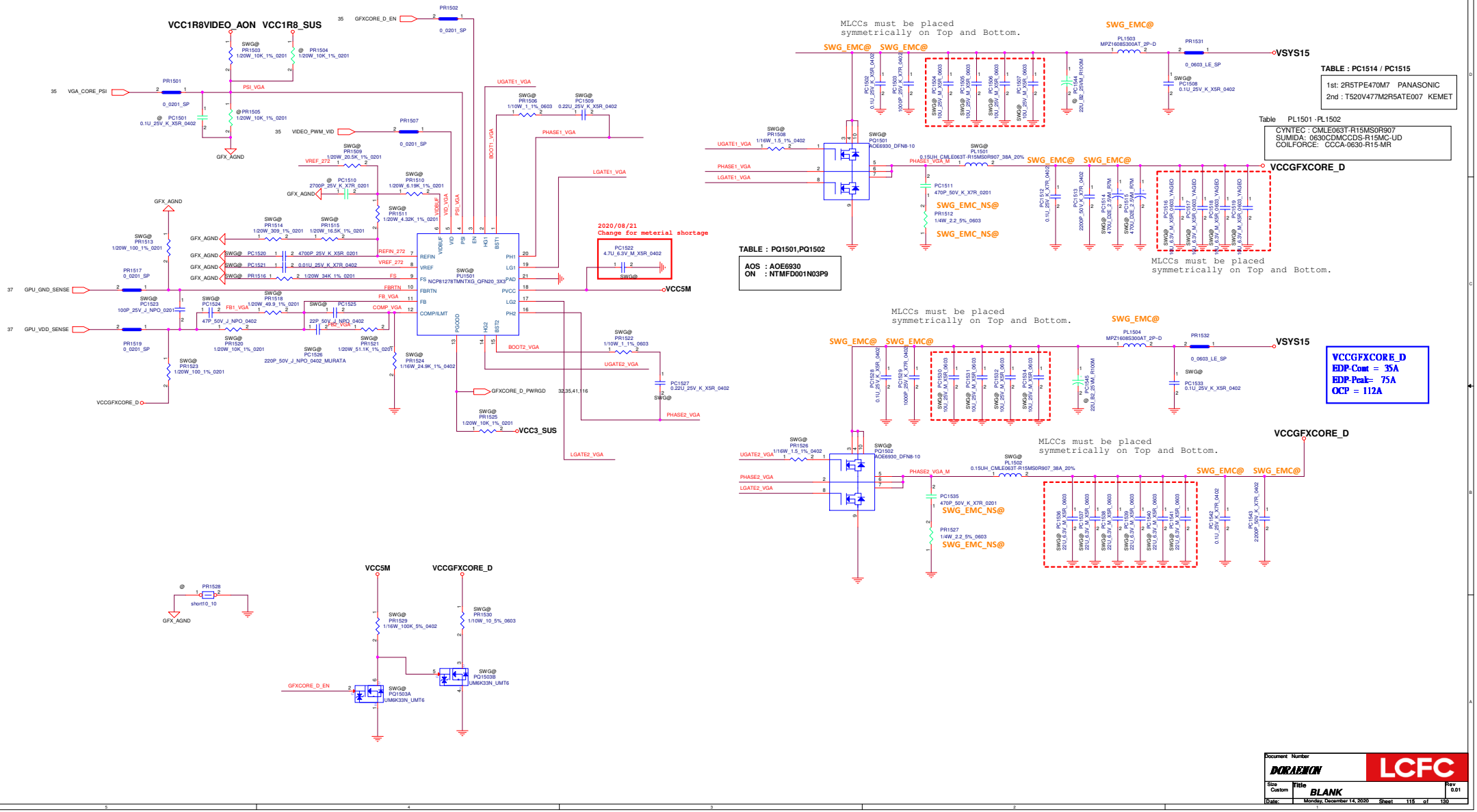
Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 112 of 130	

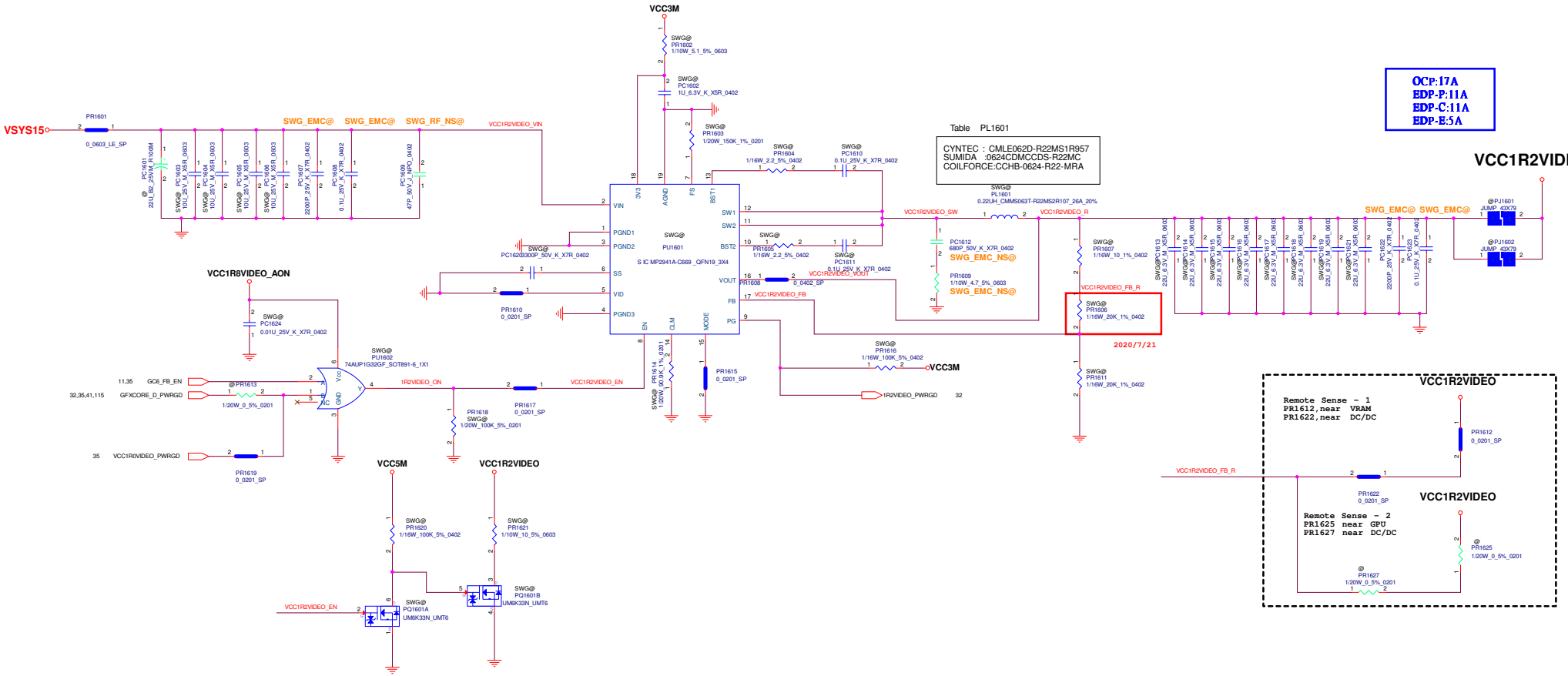
BLANK

Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 113 of 130	

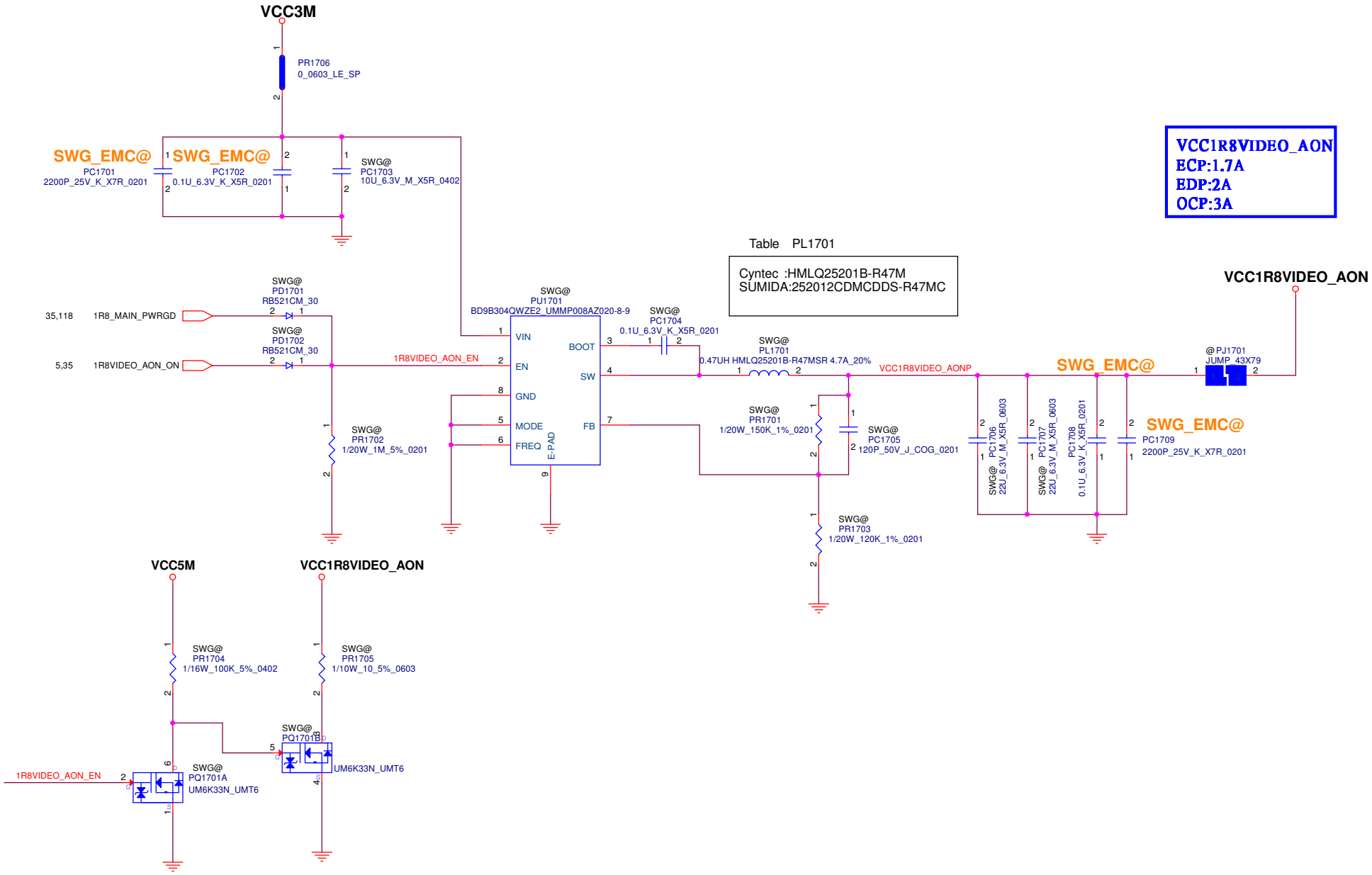
BLANK

Document Number: DORAEMON		LCFC
Size: Custom	Title: DC/DC VCC5M_PD1 (NB693GQ)	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 114 of 130	

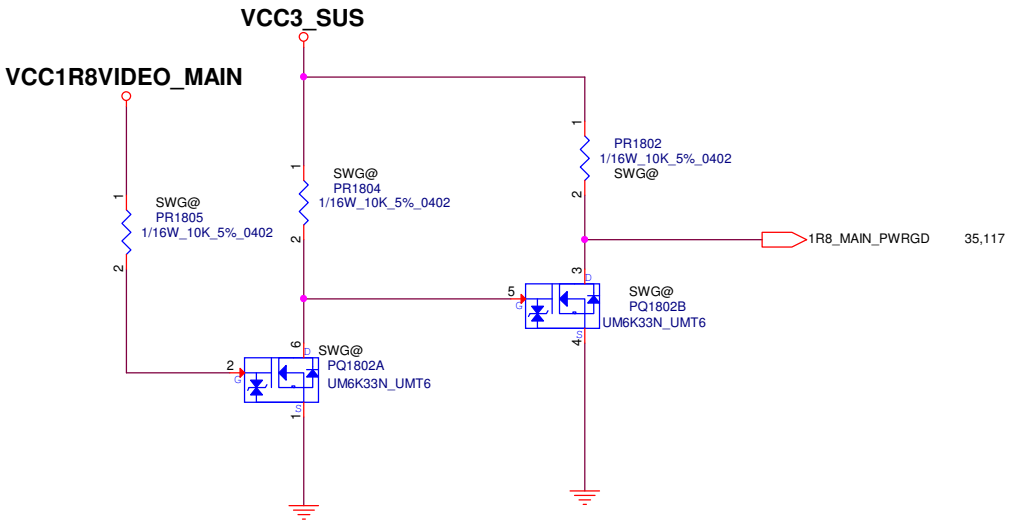

VCC1R8VIDEO_AON VCC1R8_SUS
GFXCORE_D_EN
VGA_CORE_PSI
VIDEO_PWM_VID
GFX_AGND
PSI_VGA
VREF_272
REFIN_272
VREF_272
FBRTN
FS
FB1_VGA
FB_VGA
COMP_VGA
UGATE1_VGA
BOOT1_VGA
PHASE1_VGA
LGATE1_VGA
BOOT2_VGA
UGATE2_VGA
PHASE2_VGA
LGATE2_VGA
2020/08/21
Change for meterial shortage
VCC5M
VCC3_SUS
GPU_GND_SENSE
GPU_VDD_SENSE
VCCGFXCORE_D
GFXCORE_D_PWRGD
NCP81278TMNTXG_QFN20_3X3
SWG@ PU1501
short10_10
SWG@ PQ1503A UM6K33N_UMT6
SWG@ PQ1503B UM6K33N_UMT6
MLCCs must be placed symmetrically on Top and Bottom.
SWG_EMC@
VSYS15
VCCGFXCORE_D
SWG@ PQ1501 AOE6930_DFN8-10
0.15UH_CMLE063T-R15MS0R907_38A_20%
SWG_EMC_NS@
TABLE : PC1514 / PC1515
1st: 2R5TPE470M7 PANASONIC
2nd : T520V477M2R5ATE007 KEMET
Table PL1501 ~PL1502
CYNTEC : CMLE063T-R15MS0R907
SUMIDA: 0630CDMCCDS-R15MC-UD
COILFORCE: CCCA-0630-R15-MR
TABLE : PQ1501,PQ1502
AOS : AOE6930
ON : NTMFD001N03P9
SWG@ PQ1502 AOE6930_DFN8-10
VCCGFXCORE_D
EDP-Cont = 35A
EDP-Peak= 75A
OCP = 112A
Document Number
DORAEMON
LCFC
Size Custom
Title
BLANK
Rev 0.01
Date: Monday, December 14, 2020
Sheet 115 of 130



Document Number	DORAEMON	LCFC	
Size: Custom	Title: BLANK		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 116 of 130		



Document Number	DORAEMON	LCFC	
Size Custom	Title BLANK		Rev 0.01
Date: Monday, December 14, 2020	Sheet 117 of 130		



Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 118 of 130	

VCC1R0VIDEO
ECP:1.6A
EDP:1.9A
OCP:3A

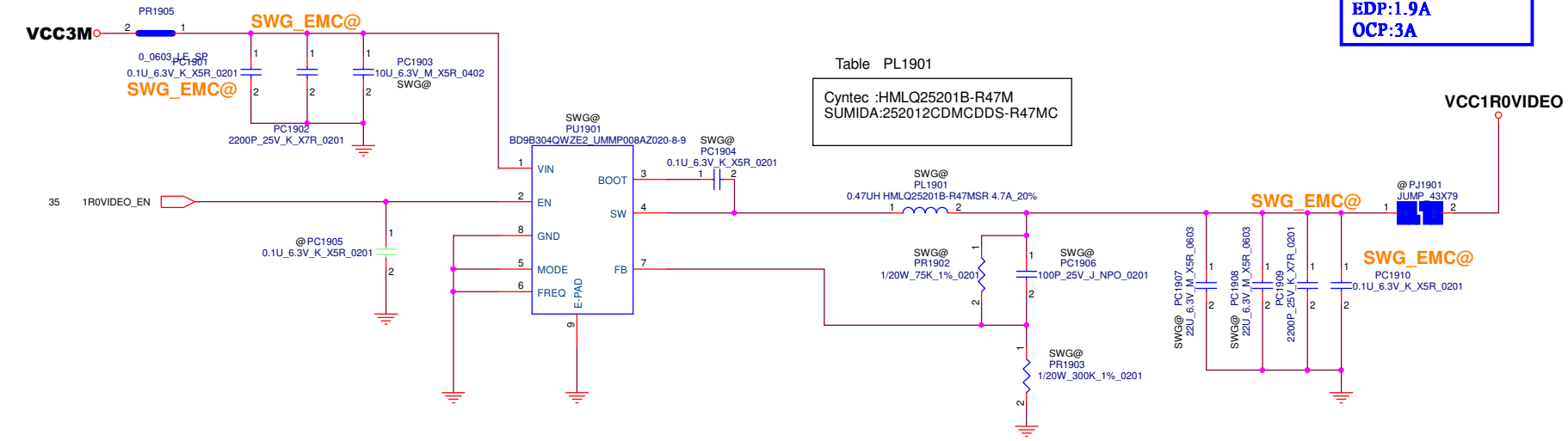
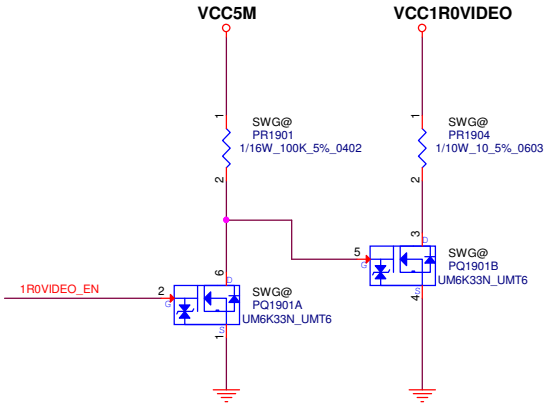
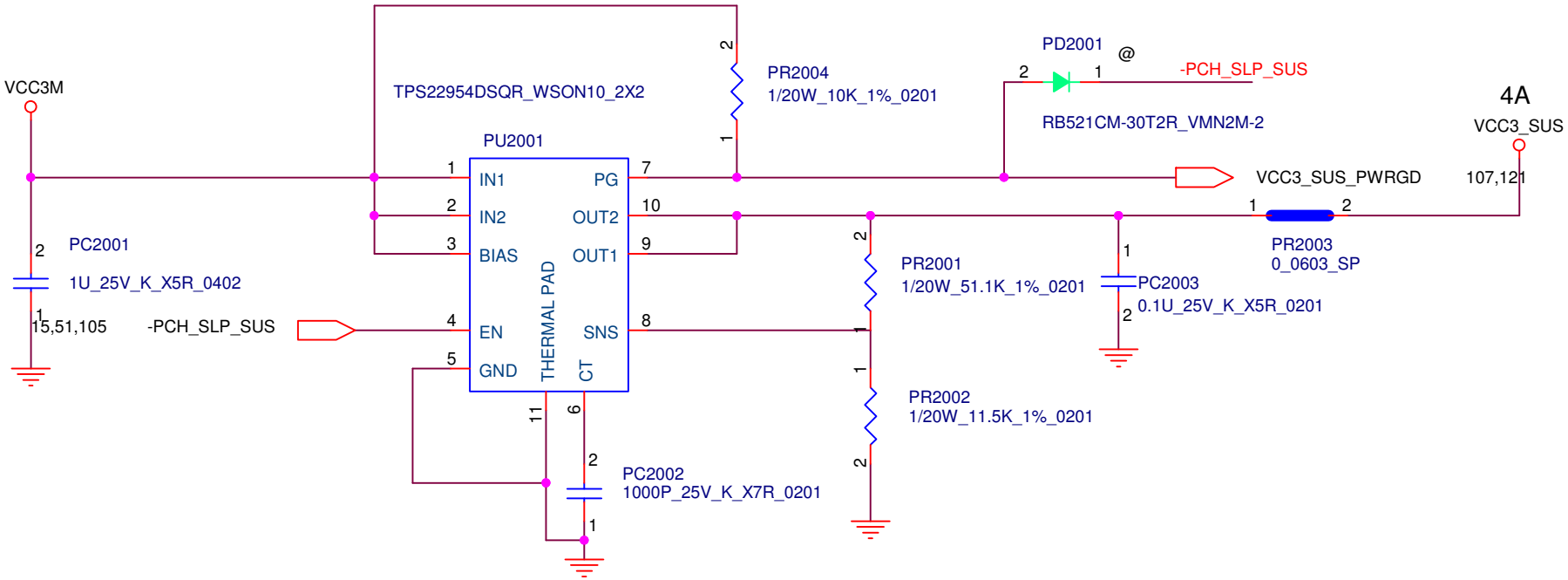


Table PL1901

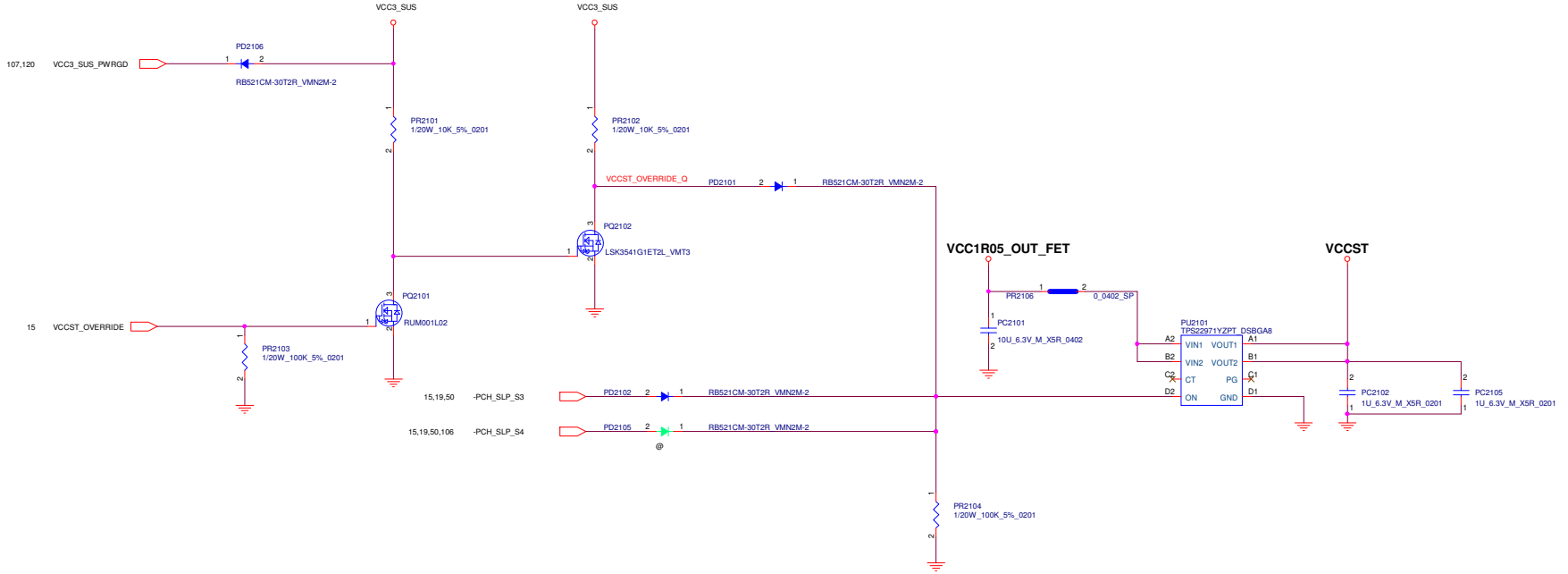
Cyntec :HMLQ25201B-R47M
SUMIDA:252012CDMCDDS-R47MC



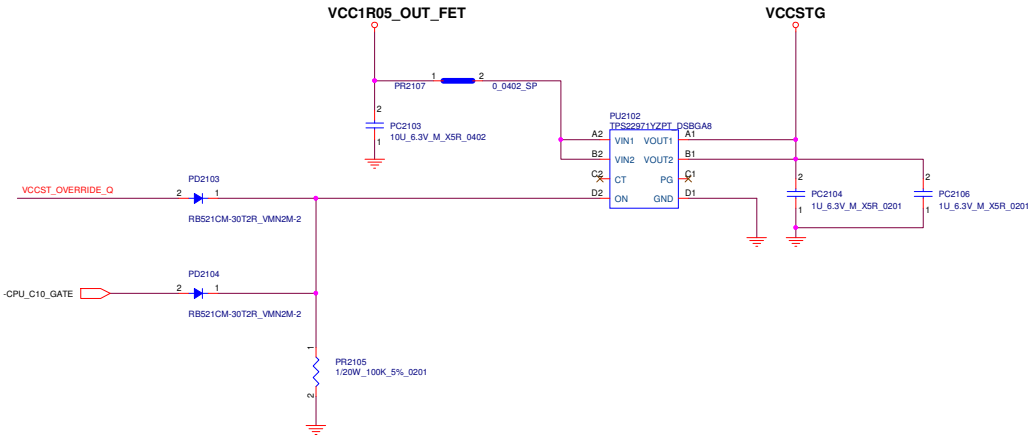
Document Number: DORAEMON			LCFC
Size: Custom	Title: BLANK		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 119 of 130		



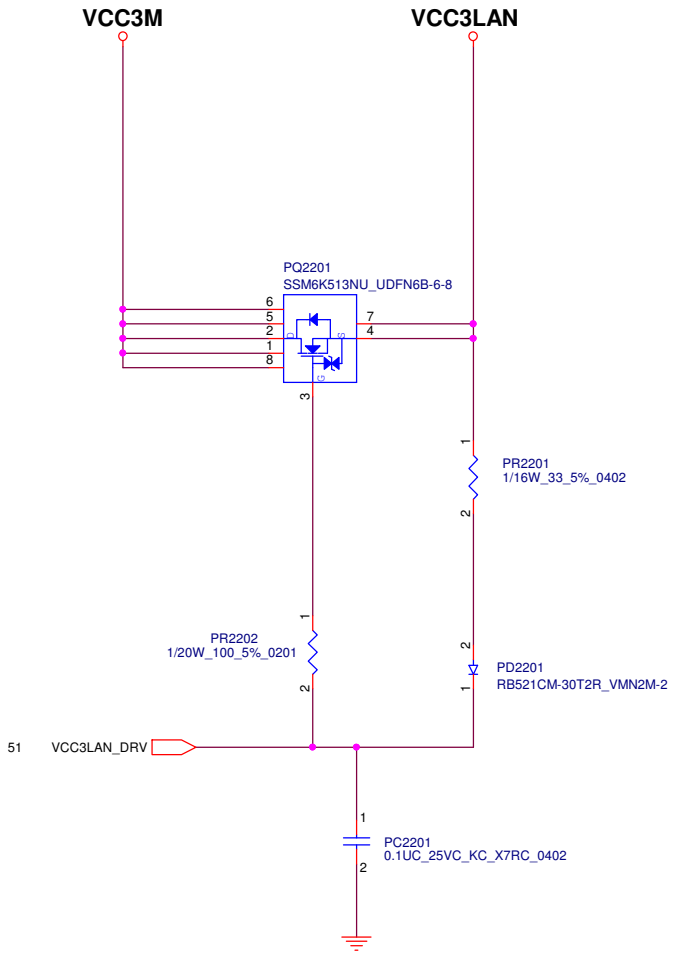
Project Name : CS21 X1 HDI	Title : LOAD SW VCC3_SUS	
Size :	Document Number :	Rev : 0.14
Date: Monday, December 14, 2020	Sheet : 120 of 130	



T_on<65us



Lenovo		
Project Name : CS21 X1 HDI	Title : LOAD SW VCCST & VCCSTG	
Size :	Document Number :	Rev : 0.14
Date: Monday, December 14, 2020	Sheet : 121 of 130	

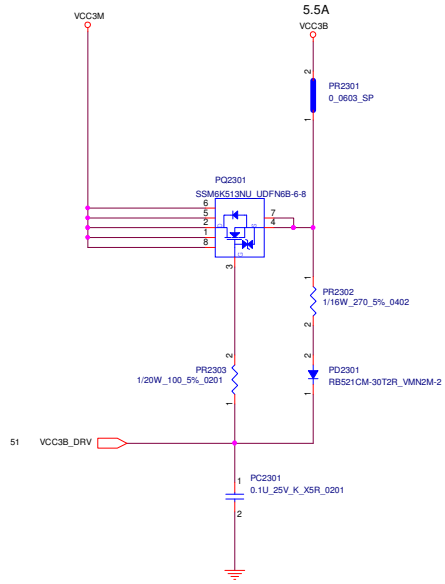


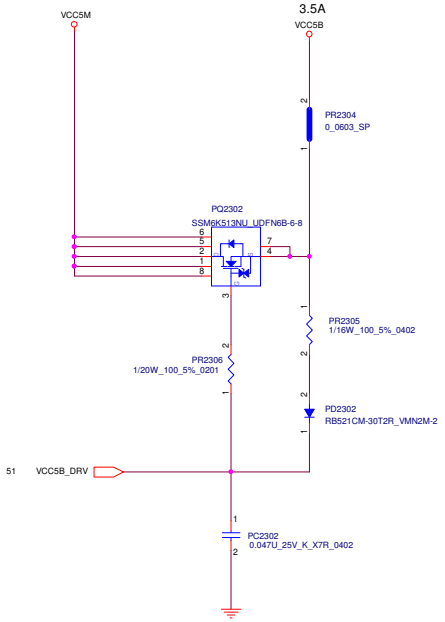
Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title	LOAD SW LAN	
Size: B	Document Number: Drift/Ironhide_CML	Rev: 1.0
Date: Monday, December 14, 2020	Sheet 122 of 130	

PQ2301

TOSHIBA : SSM6K513NU
AOS : AON2420
FAIRCHILD : FDMA8878

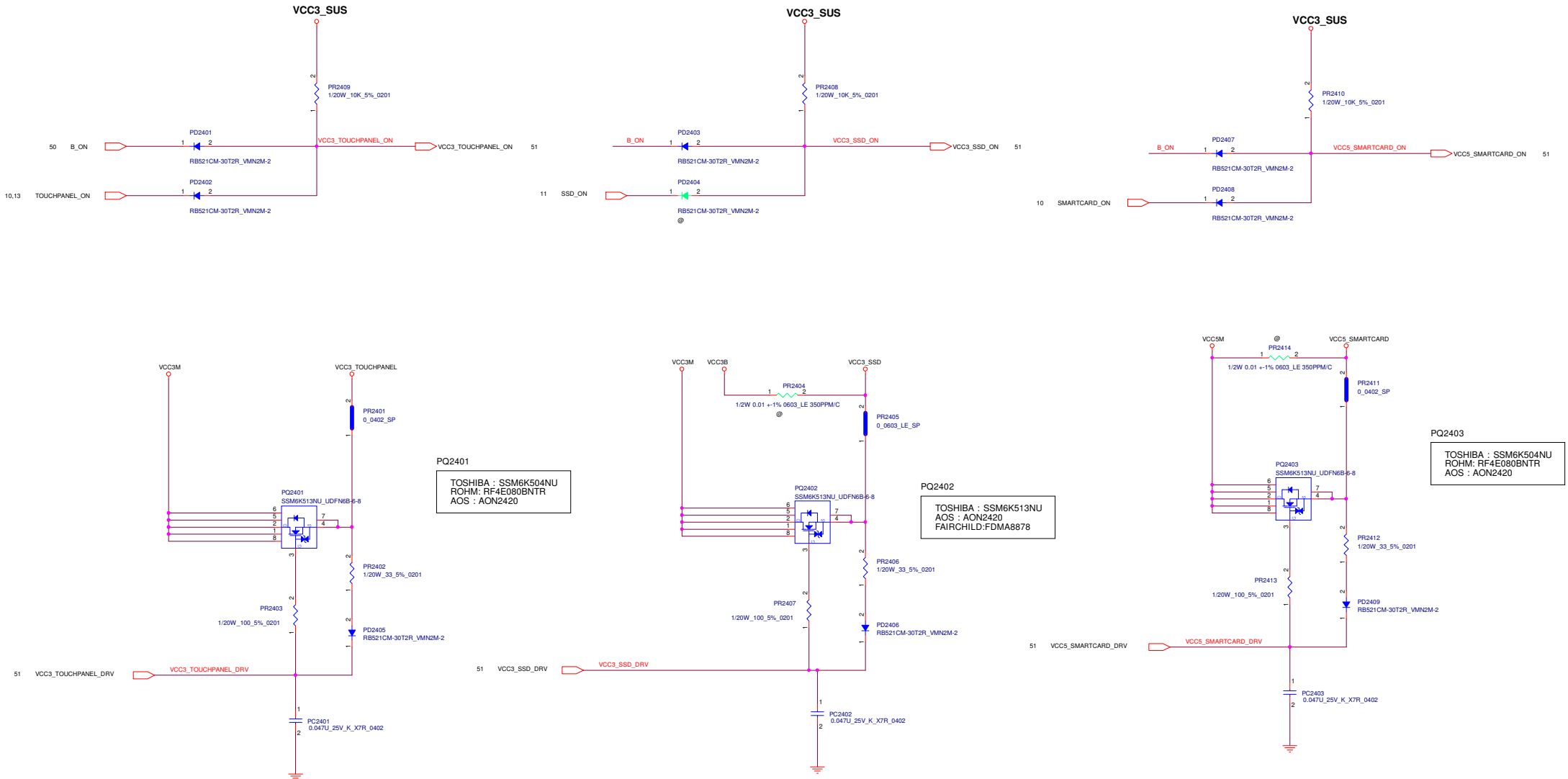




PQ2302

TOSHIBA : SSM6K504NU
ROHM : RF4E080BNTR
AOS : AON2420

Project Name : CS21 X1 HDI	Title : LOAD SW B
Size :	Document Number : Rev : 0.14
Date: Monday, December 14, 2020	Sheet : 123 of 130



Project Name : CS21 X1 HDI	Title : LOAD SW TOUCH PANEL & SSD
Size : C	Document Number :
Rev : 0.14	
Date: Monday, December 14, 2020	Sheet : 124 of 130

BLANK

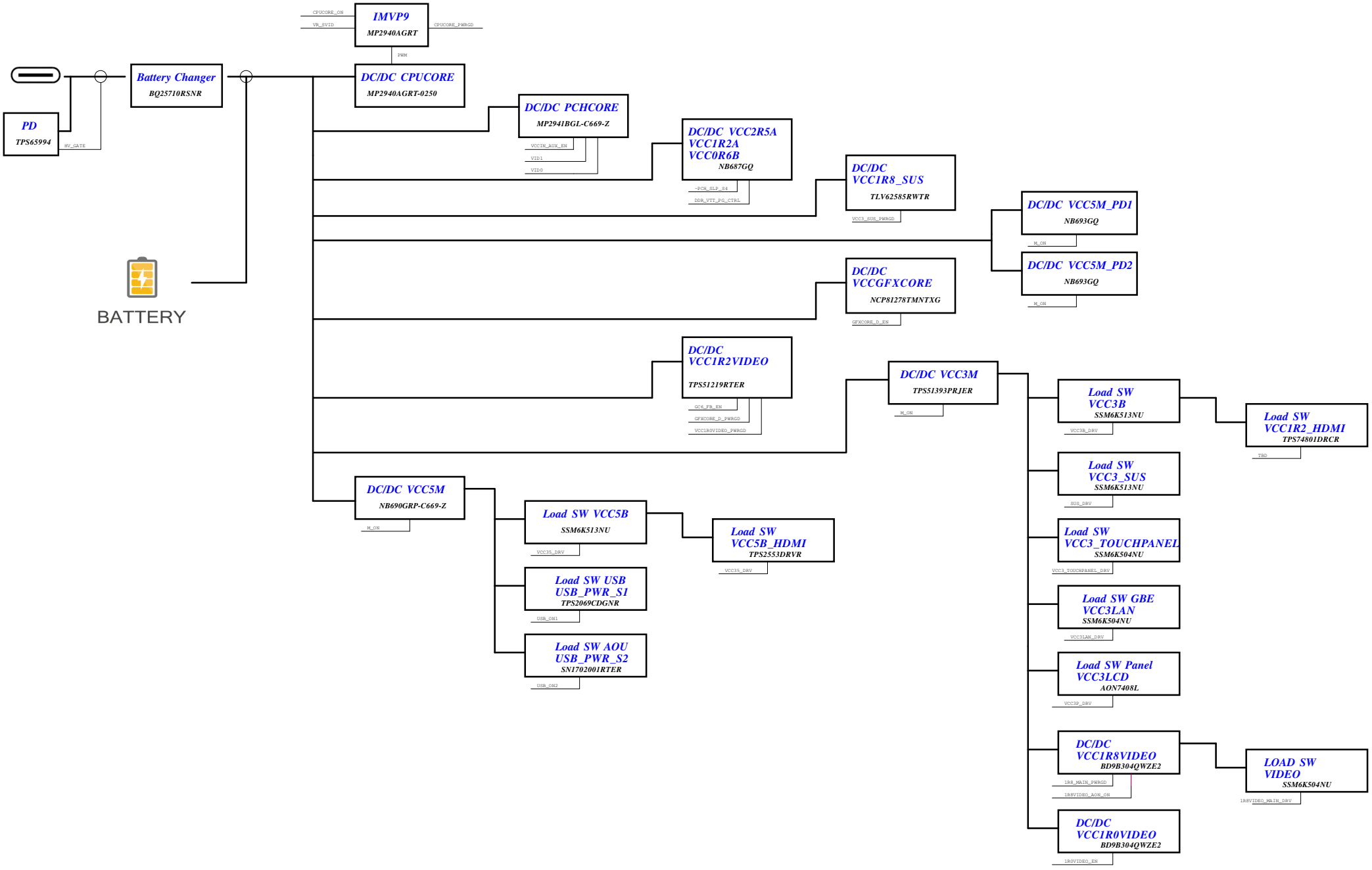
Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 125 of 130	

BLANK

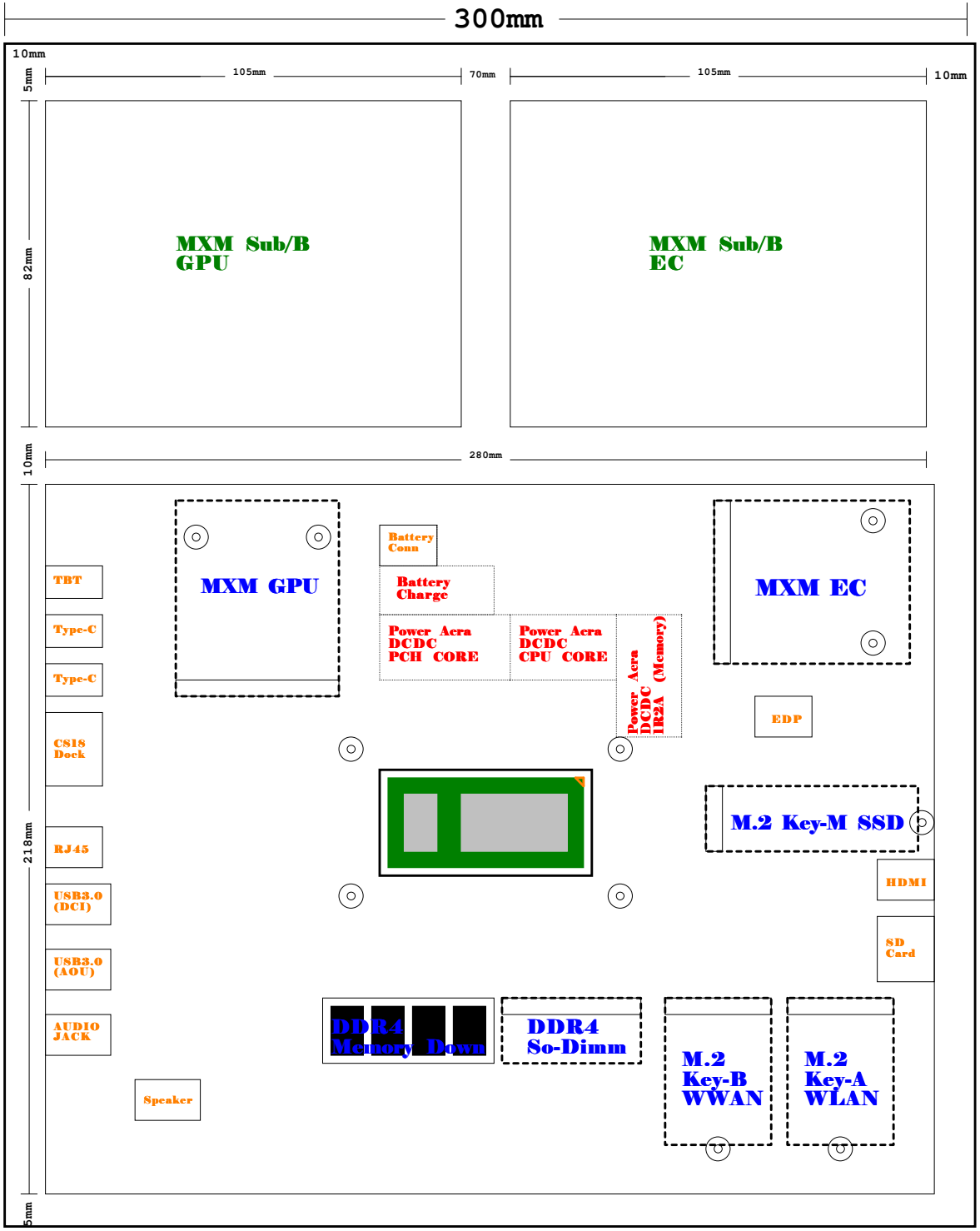
Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 126 of 130	

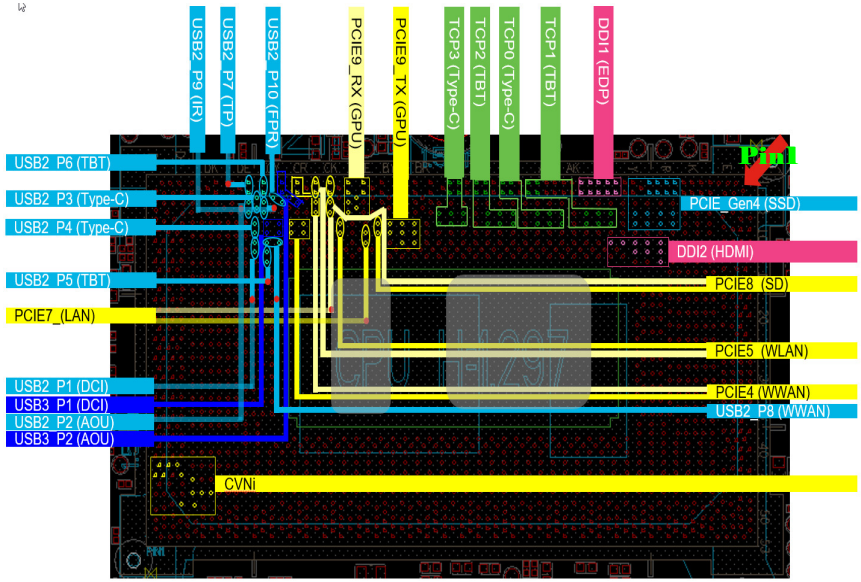
BLANK

Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 127 of 130	



Document Number	DORAEMON	LCFC	
Size: Custom	Title: System Power Tree		Rev: 0.01
Date: Monday, December 14, 2020	Sheet 128 of 130		





Document Number	DORAEMON	LCFC
Size: Custom	Title: Plancement	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 129 of 130	

BLANK

Document Number: DORAEMON		LCFC
Size: Custom	Title: BLANK	Rev: 0.01
Date: Monday, December 14, 2020	Sheet 130 of 130	