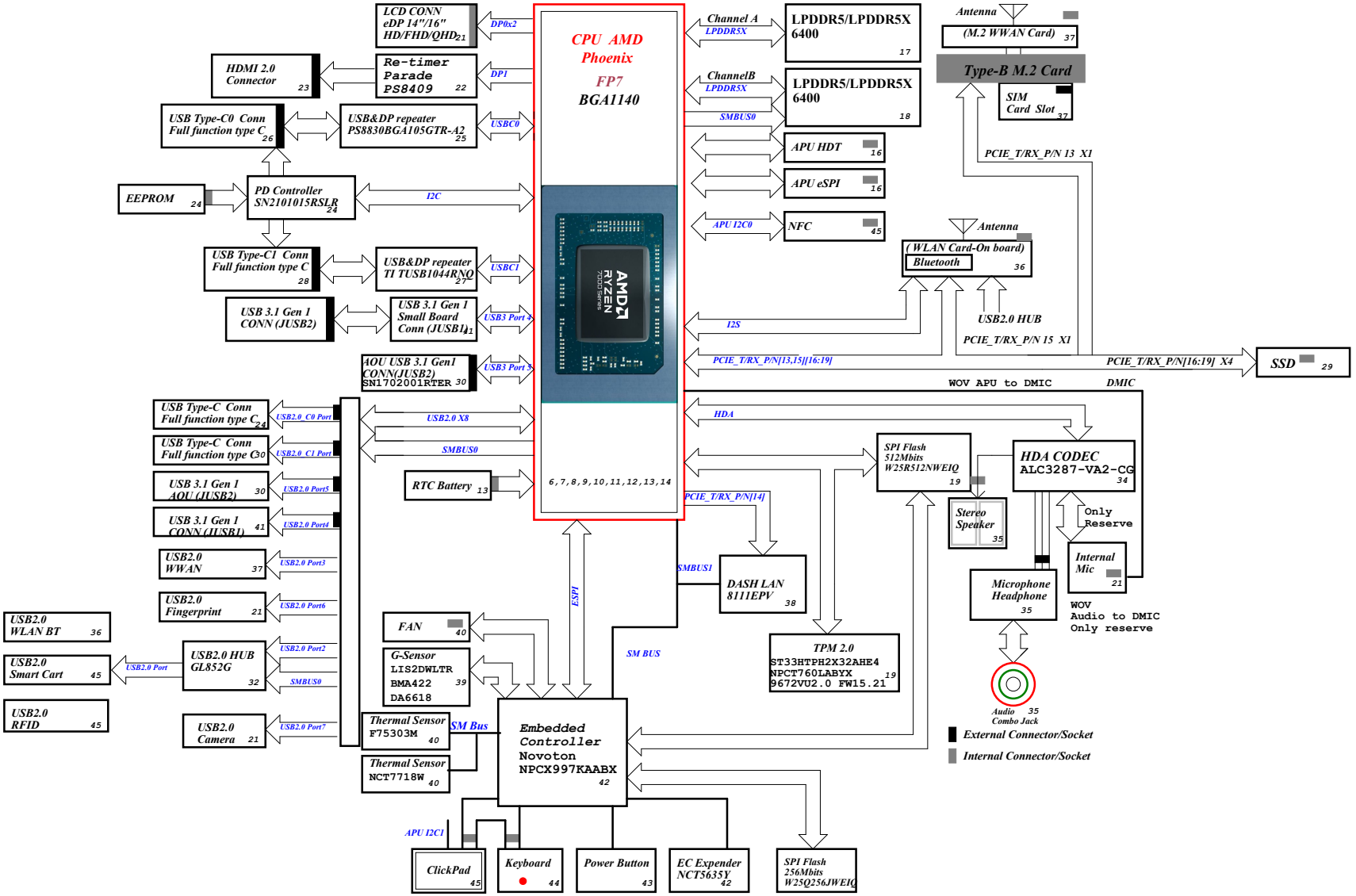
NM-F261 / AMD Phoenix

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title	Cover Page	LCFC
Size: Custom	Document Number: NM-F261 / Phoenix AMD	Rev: 0.1
Date: Monday, May 01, 2023	Sheet 1 of 61	

Project Code: KT4D2/KP4D5/KT6D2/KP6D5
Platforma: NM-F261



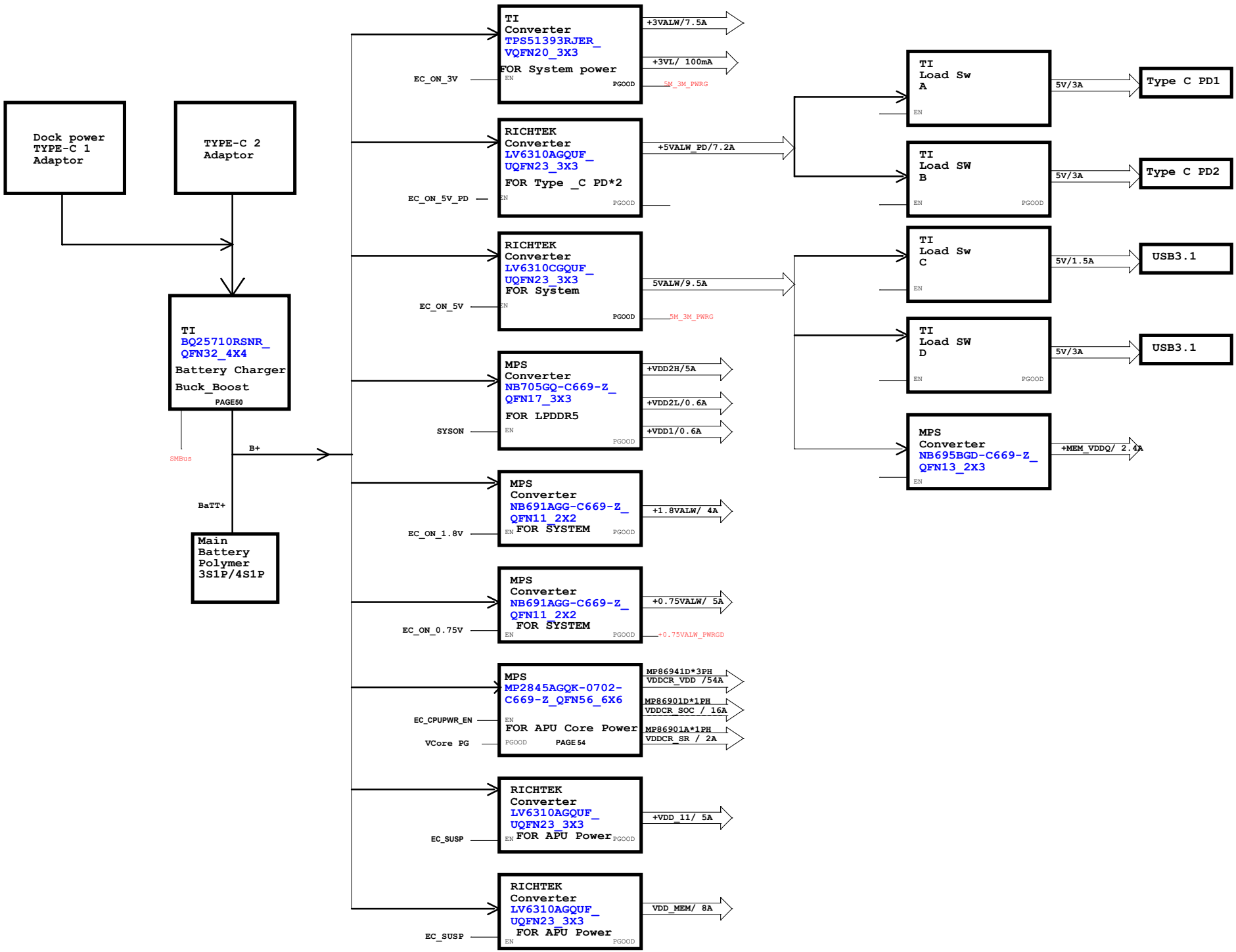
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: Block Diagram_EE

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix_AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 2 of 61



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: Block Diagram_PWR

LCFC

Size	Document Number	Rev
Custom	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 3 of 62

PD I2C address table

Port	Master	Slave	End Port	Address	Description
I2C_EC	EC	PD	PORTA	0x23	ADCIN1=0.057#1 ; ADCIN2=1#7 ADCIN1 decoded value = 1 ADCIN2 decoded value = 7 I2C address index = #4 A port: 0100011 B port: 0100111
			PORTB	0x27	
I2C2S	NC	NC	PORTA	0x23	NC
			PORTB	0x27	
I2C3M	PD	APU	PORTA-TypeC1	0x54	The USB PD I2C Slave responds to a 7-bit address.
			portb-TypeC0	0x58	
	PD	TYPEC1-5460	PortA-5460	0X1F	[PIN35,38]: LL: 0X10; HH: 0X1F
		TYPEC0-8830	portB-8830	0X18	[GPIO1,GPIO0] : LL:0x10/0x11; LH:0x20/0x21; HL:0x30/0x31; HH:0x40/0x41;

EC I2C address table

Port	Master	Slave	End Port	Address	Description
SDA1A SCL1A	EC	P sensor	P sensor	0x44	The I2C device has a 7 bit Slave Address (default 0x44H) in the control byte
SDA2A SCL2A	EC	Expander1	Expander1		The I2C slave address is {0100,A2,A1,A0,R/W} Address:0100101R/W
	EC	Expander2	Expander2		Address:0100110R/W
	EC	Expander3	Expander3		Address:0100010R/W
SDA2B SCL2B	EC	HDMI	HDMI	0x10 - 0x2F	
	EC	Audio	SN6147	0x66	
	EC	APU	APU Thermal	0x98	confirm with David Liu
SDA3A SCL3A	EC	VRM	VRM	0x20	To support multiple VR devices used with the same PMBusTM interface, PMBusTM address programming either by ADDR
	EC	CHARGER	CHARGER	0x12	The device performs only as a SMBus slave device with address 0b00010010 (0x12H) and does not initiate communication on the bus.
	EC	Battery	Battery		Need Battery support
SDA4A SCL4A	EC	TS 1	TS 1	0x4D	1001_101xb
	EC	TS 2	TS 2 (SMBUS)	0x4C	NCT7718W I2C/ SMBusTM address is 1001100xb
	EC	G sensor	G sensor (I2C)	30h W&31h R(ST) 30h W&31h R(BOSCH) (Miramems)	The Slave Address (SAD) associated to the LIS2DWL is 001100xb where the x bit is modified by the SA0/SDO pin in order to modify the device address(0011000) The I2C slave address is {0,1,0,0,1,1,0,W/R}
SDA5A SCL5A	EC	PD	PD	N/A	Refer to PD table
SDA6A SCL6A	EC	TYPEA Port Debug	TYPEA		
	EC	TYPEC Port Debug	TYPEC		

APU I2C address table

Port	Master	Slave	End Port	Address	Description
I2C0	APU				
		T_PANEL	T_PANEL	0x10 ELAN 0x09 Siliconworks 0x40/0x10 G2	
I2C1	APU	NFC	NFC	0x29	
	APU	CP	CP	0x15	
	APU	8830 I2C	8830 I2C	0x20	
I2C2	APU	USB Hub	USB Hub	0x2C	
I2C3 (SMBUS)	APU	DASH LAN	DASH LAN		
SFH_I2C	APU	NC	NC	NC	
	APU	NC	NC	NC	

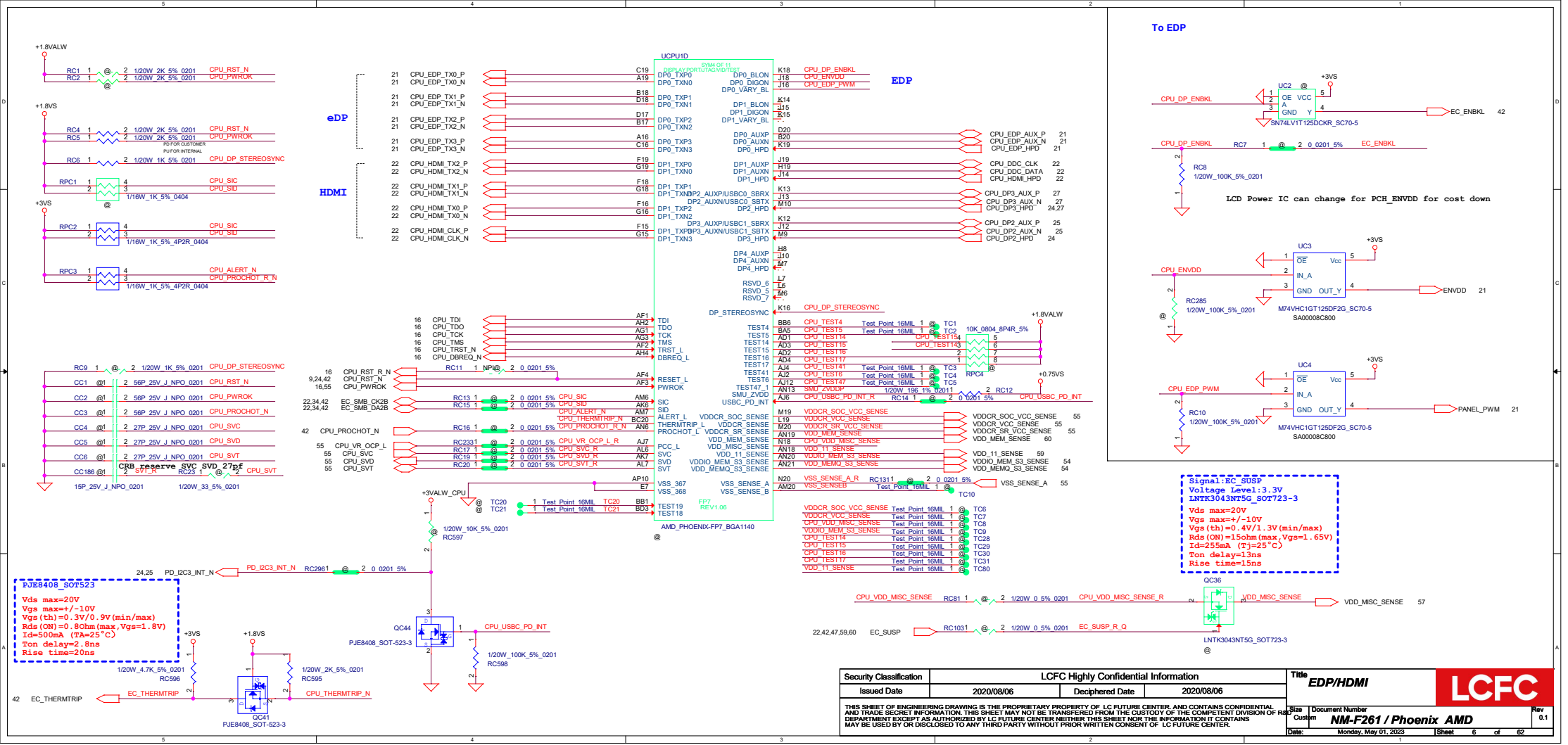
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

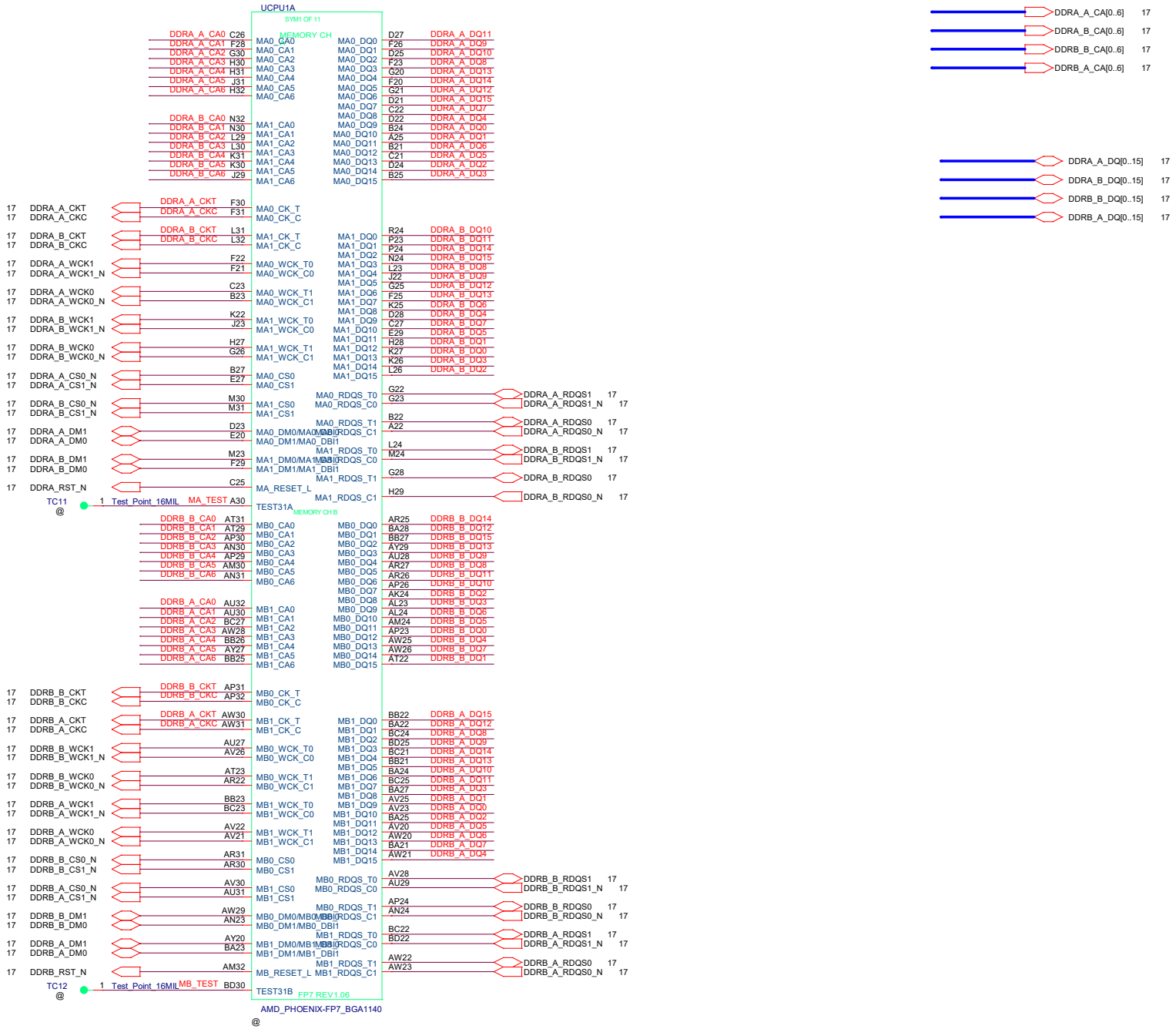
Title: Map/SMBUS/HSIO

LCFC

Size	Document Number	Rev
Custom	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 4 of 61


To EDP
UC2
SN74LV1T125DCKR_SC70-5
EC_ENBKL 42
LCD Power IC can change for PCH_ENVDD for cost down
UC3
M74VHC1GT125DF2G_SC70-5
SA00008C800
ENVDD 21
UC4
PANEL_PWM 21
eDP
HDMI
EDP
UCPU1D
AMD_PHOENIX-FP7_BGA1140
CRB reserve SVC SVD 27pf
PJE8408_SOT523
Vds max=20V
Vgs max=+/-10V
Vgs(th)=0.3V/0.9V(min/max)
Rds(ON)=0.8Ohm(max,Vgs=1.8V)
Id=500mA (TA=25°C)
Ton delay=2.8ns
Rise time=20ns
Signal:EC_SUSP
Voltage Level:3.3V
LNTK3043NT5G_SOT723-3
Vds max=20V
Vgs max=+/-10V
Vgs(th)=0.4V/1.3V(min/max)
Rds(ON)=15ohm(max,Vgs=1.65V)
Id=255mA (Tj=25°C)
Ton delay=13ns
Rise time=15ns
QC41
QC44
QC36
Security Classification
LCFC Highly Confidential Information
Issued Date
2020/08/06
Deciphered Date
2020/08/06
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.
Title
EDP/HDMI
LCFC
Size
Custom
Document Number
NM-F261 / Phoenix AMD
Rev
0.1
Date:
Monday, May 01, 2023
Sheet
6
of
62



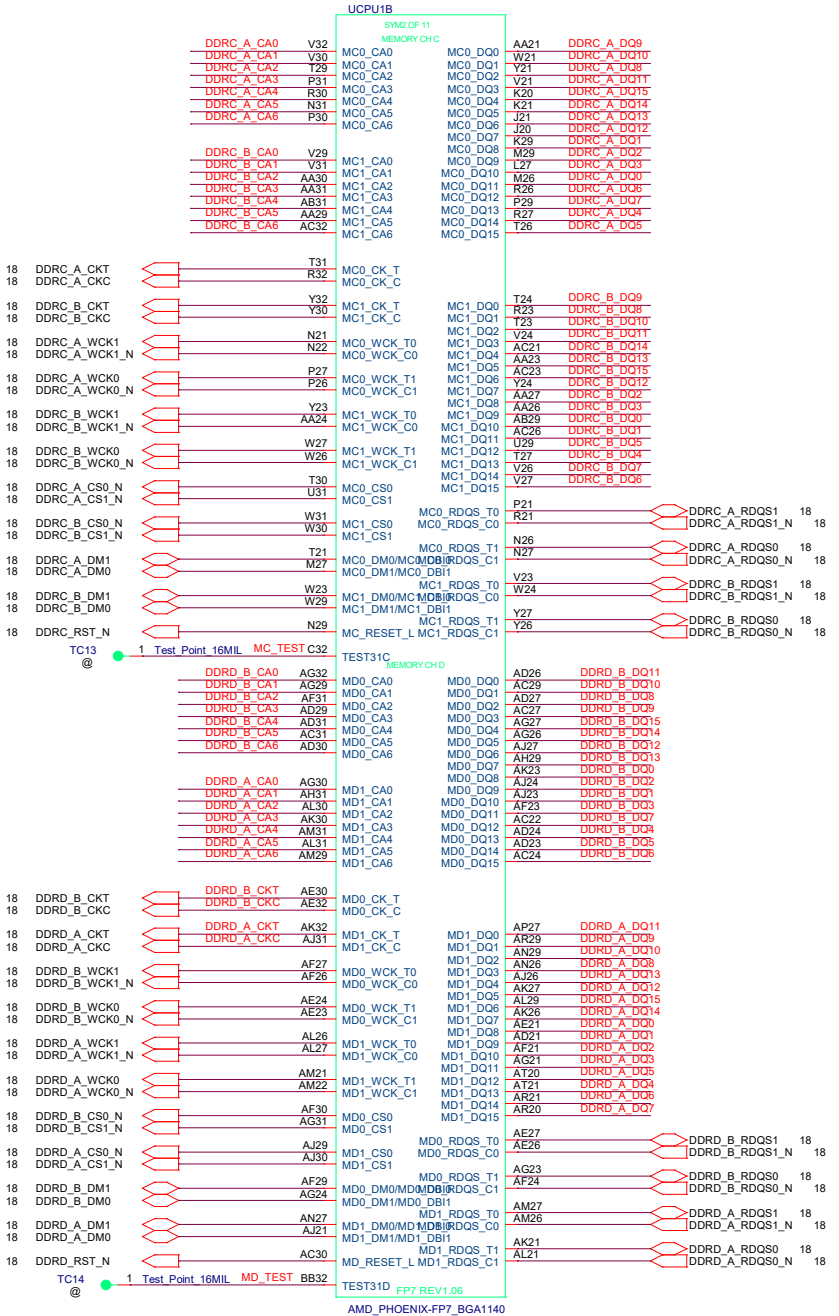
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: LPDDR5-CHA

LCFC

Size	Document Number	Rev
Custom	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 7 of 62



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

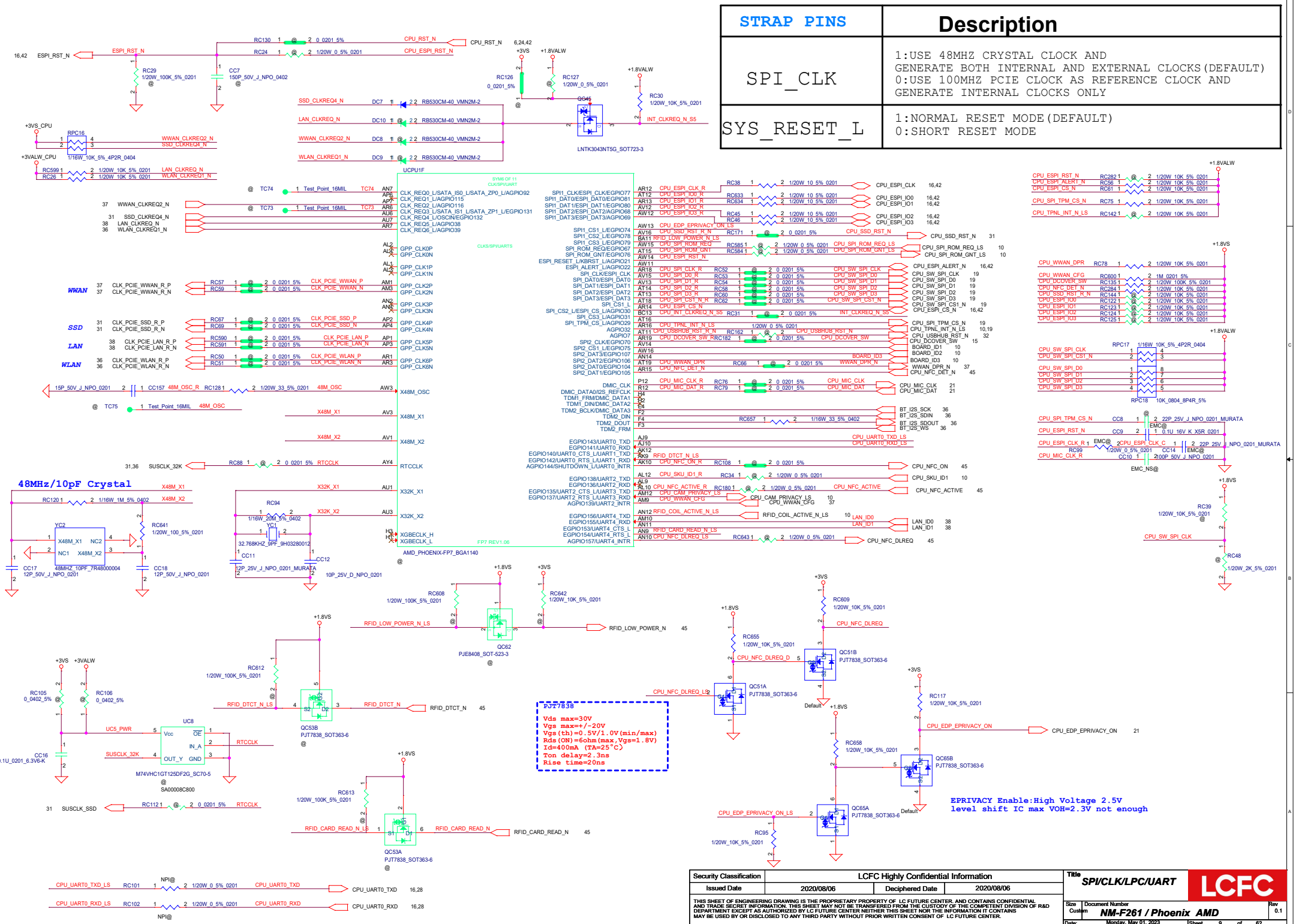
Title: LPDDR5-CHB

LCFC

Size	Document Number	Rev
Custom	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 8 of 62

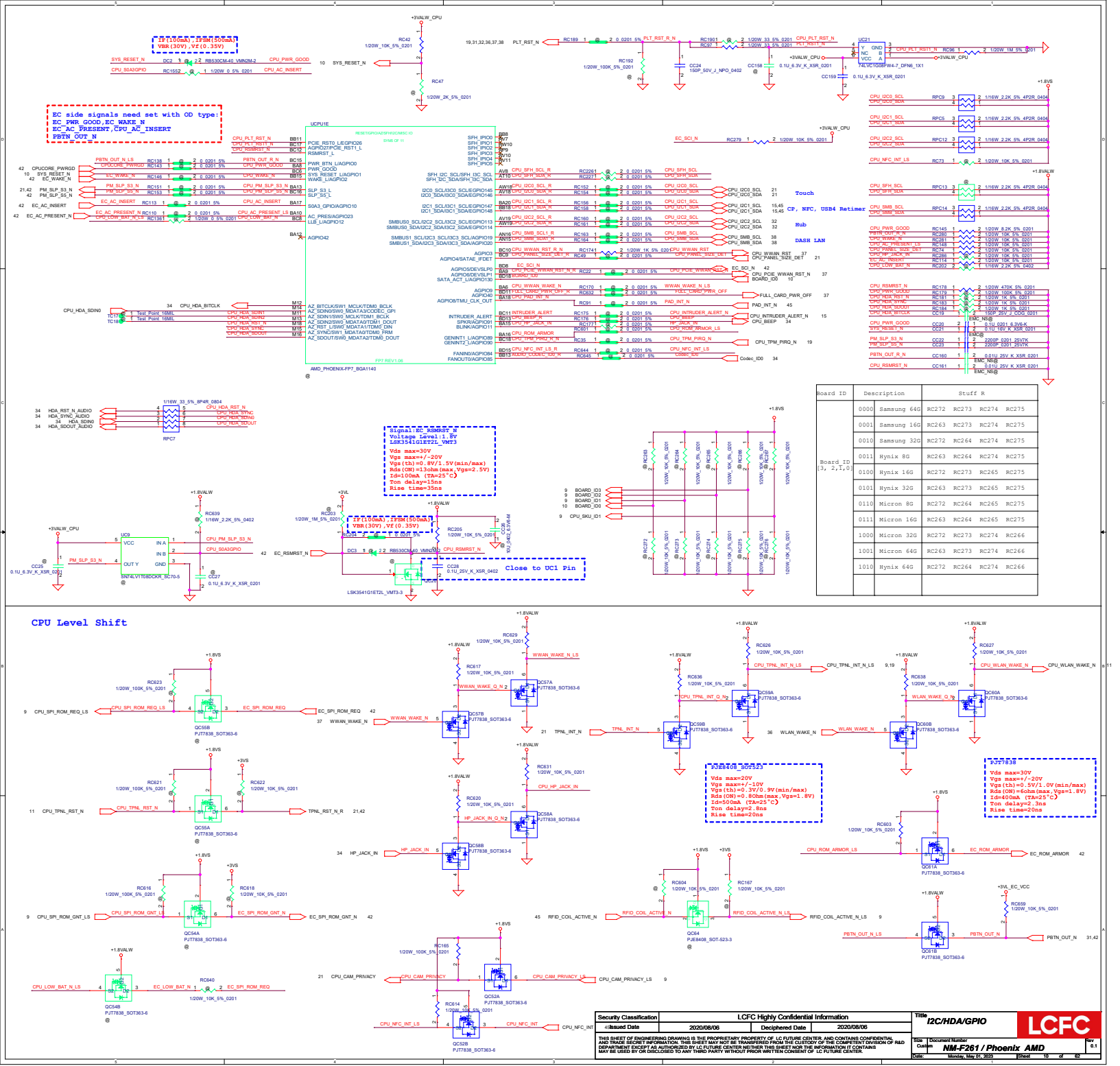
STRAP PINS	Description
SPI_CLK	1:USE 48MHZ CRYSTAL CLOCK AND GENERATE BOTH INTERNAL AND EXTERNAL CLOCKS(DEFAULT) 0:USE 100MHZ PCIE CLOCK AS REFERENCE CLOCK AND GENERATE INTERNAL CLOCKS ONLY
SYS_RESET_L	1:NORMAL RESET MODE(DEFAULT) 0:SHORT RESET MODE

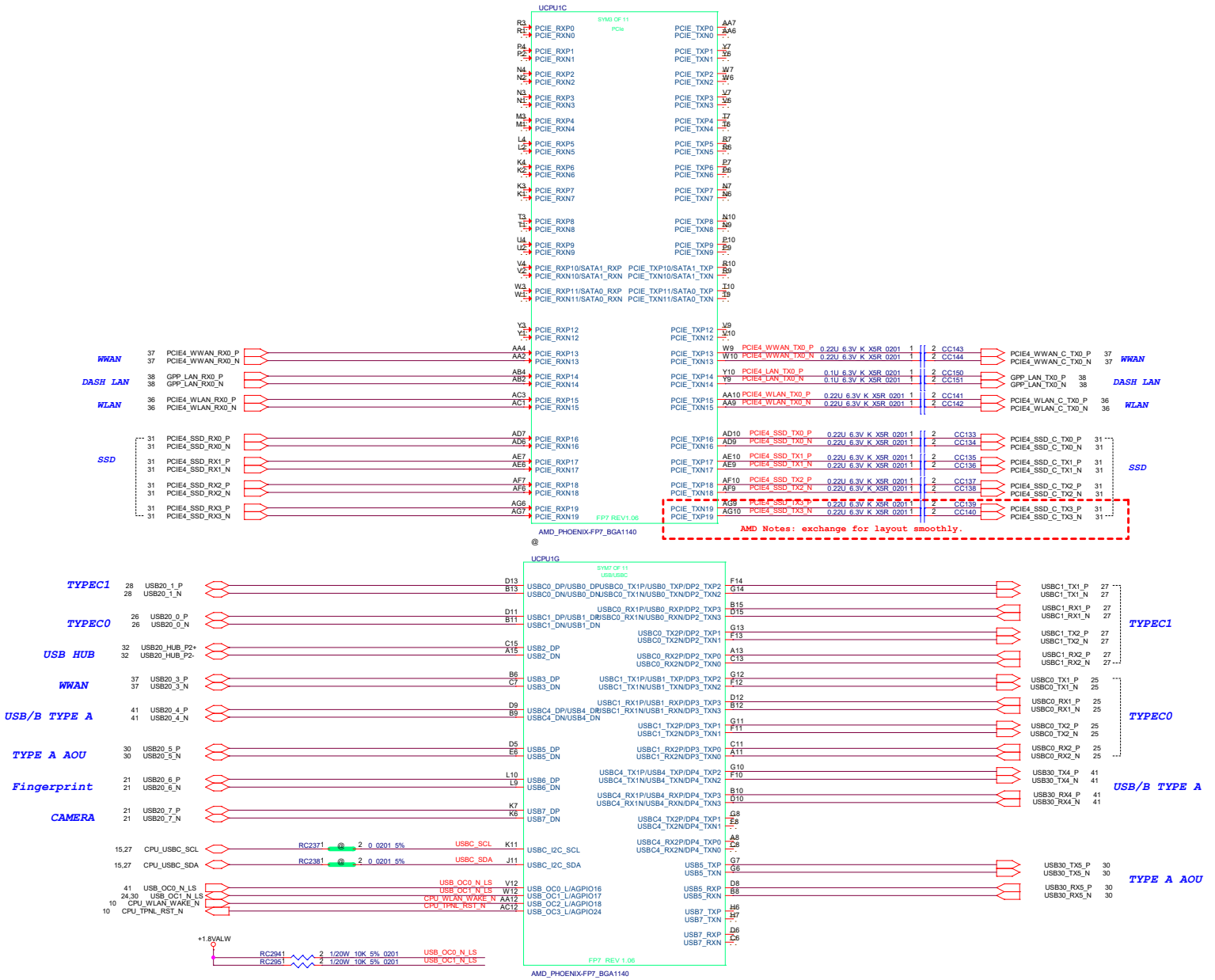


Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Title	SPI/CLK/LPC/UART	LCFC	
Size	Document Number		Rev
Custom	NM-F261 / Phoenix AMD		0.1
Date:	Monday, May 01, 2023	Sheet 9 of 62	


IF(100mA),IFSM(500mA)
VBR(30V),VF(0.35V)
EC side signals need set with OD type:
EC_PWR_GOOD,EC_WAKE_N
EC_AC_PRESENT,CPU_AC_INSERT
PBTN_OUT_N
UCPU1E
AMD_PHOENIX-FP7_BGA1140
Touch
CP, NFC, USB4 Retimer
Hub
DASH LAN
Board ID
Description
Stuff R
0000 Samsung 64G RC272 RC273 RC274 RC275
0001 Samsung 16G RC263 RC273 RC274 RC275
0010 Samsung 32G RC272 RC264 RC274 RC275
0011 Hynix 8G RC263 RC264 RC274 RC275
0100 Hynix 16G RC272 RC273 RC265 RC275
0101 Hynix 32G RC263 RC273 RC265 RC275
0110 Micron 8G RC272 RC264 RC265 RC275
0111 Micron 16G RC263 RC264 RC265 RC275
1000 Micron 32G RC272 RC273 RC274 RC266
1001 Micron 64G RC263 RC273 RC274 RC266
1010 Hynix 64G RC272 RC264 RC274 RC266
Signal:EC_RSMRST_N
Voltage Level:1.8V
LSK3541GIET2L_VMT3
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.8V/1.5V(min/max)
Rds(ON)=13ohm(max,Vgs=2.5V)
Id=100mA (TA=25°C)
Ton delay=15ns
Rise time=35ns
Close to UC1 Pin
CPU Level Shift
PJT7838_SOT363
Vds max=20V
Vgs max=+/-10V
Vgs(th)=0.3V/0.9V(min/max)
Rds(ON)=0.8Ohm(max,Vgs=1.8V)
Id=500mA (TA=25°C)
Ton delay=2.8ns
Rise time=20ns
PJT7838
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.5V/1.0V(min/max)
Rds(ON)=6ohm(max,Vgs=1.8V)
Id=400mA (TA=25°C)
Ton delay=2.3ns
Rise time=20ns
Security Classification
LCFC Highly Confidential Information
Issued Date
2020/08/06
Deciphered Date
2020/08/06
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.
Title
I2C/HDA/GPIO
LCFC
Size
Document Number
NM-F261 / Phoenix AMD
Rev
0.1
Date:
Monday, May 01, 2023
Sheet
10
of
62



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: PCIE/USB

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

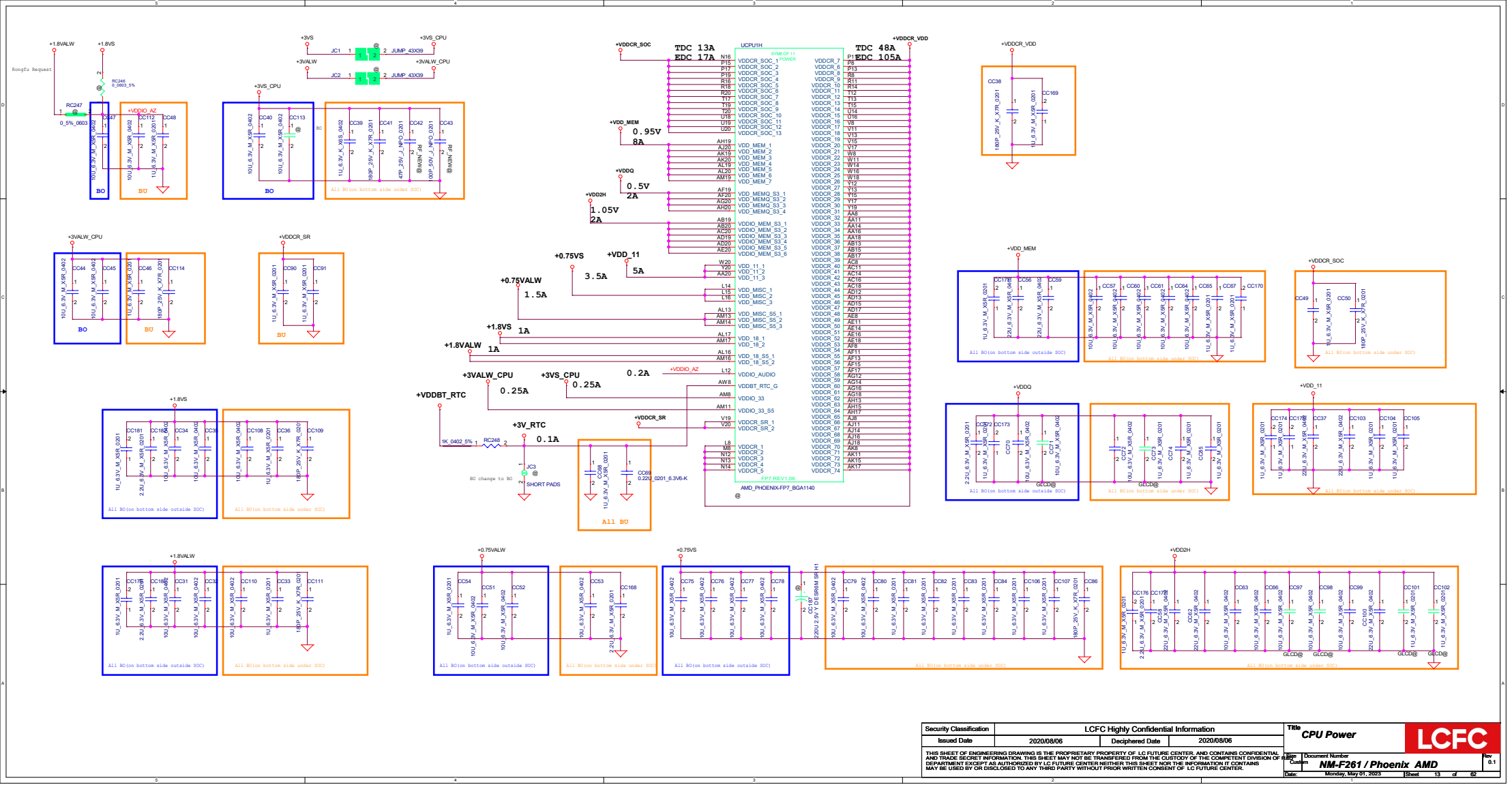
Date: Monday, May 01, 2023 | Sheet 11 of 62

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: WIFIBT/CAM

LCFC

Size	Document Number	Rev
E	NM-F261 / Phoenix AMD	0.1



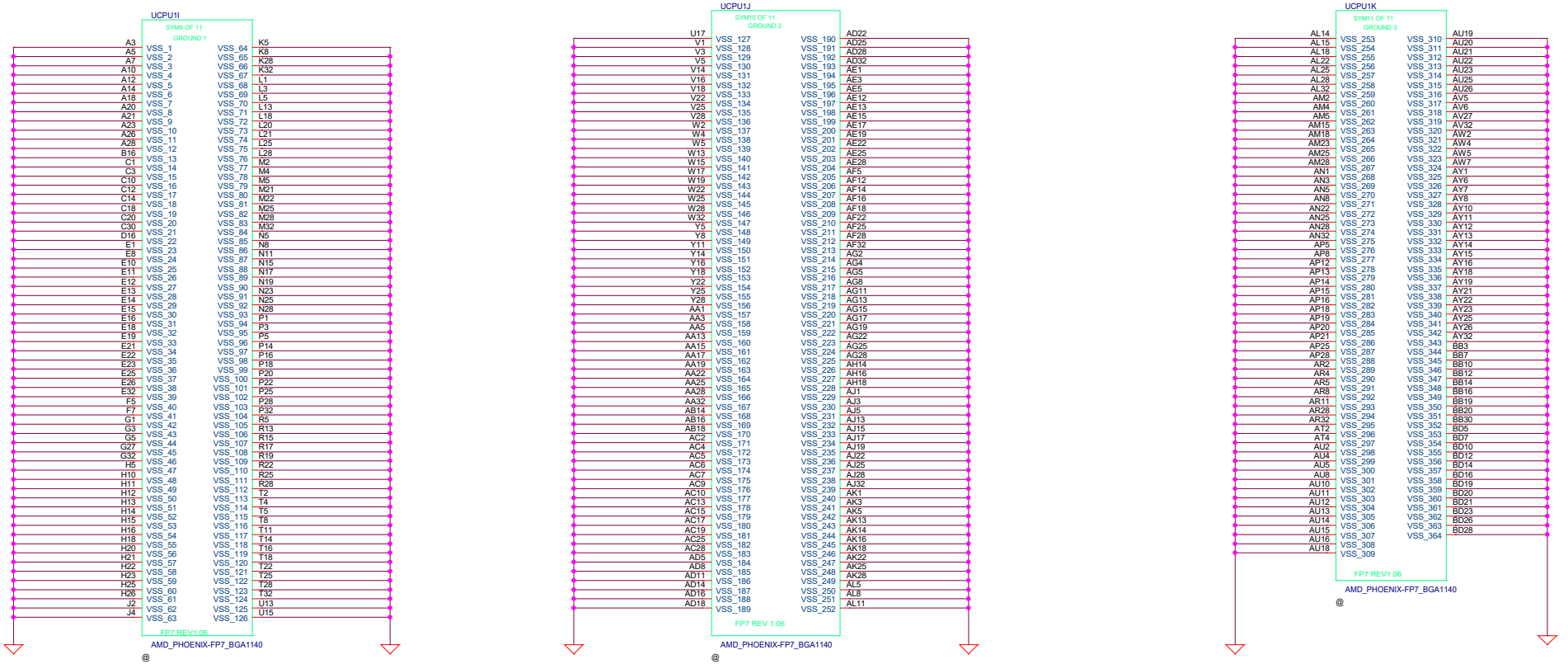
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Title: **CPU Power**

LCFC

Size: Custom	Document Number: NM-F261 / Phoenix AMD	Rev: 0.1
Date: Monday, May 01, 2023	Sheet 13 of 62	

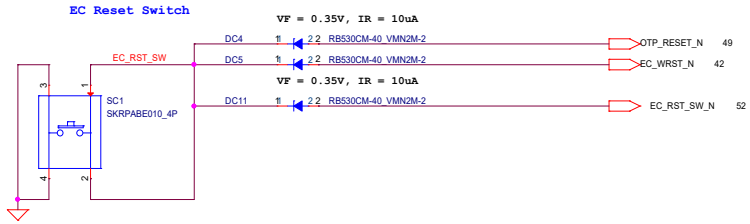


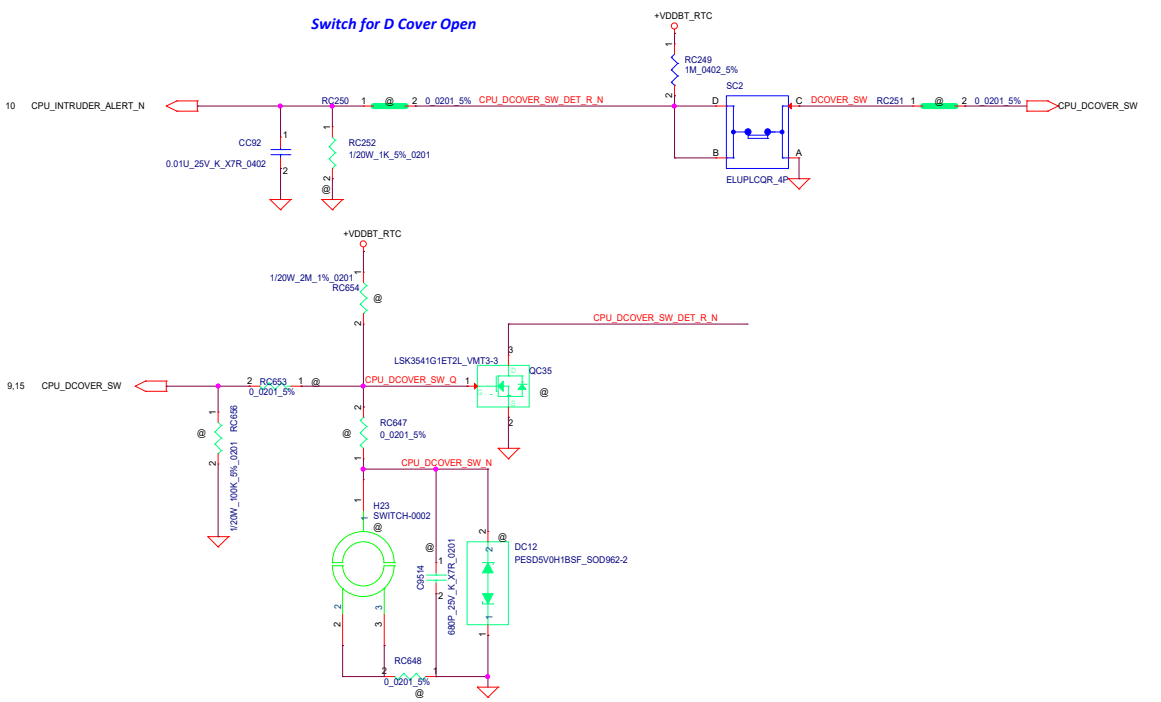
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

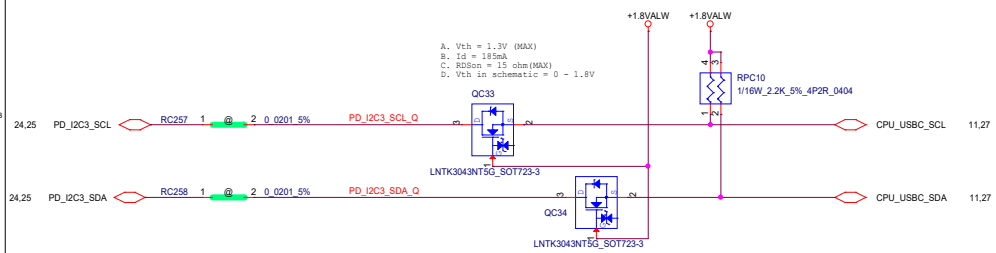
Title: **GND**

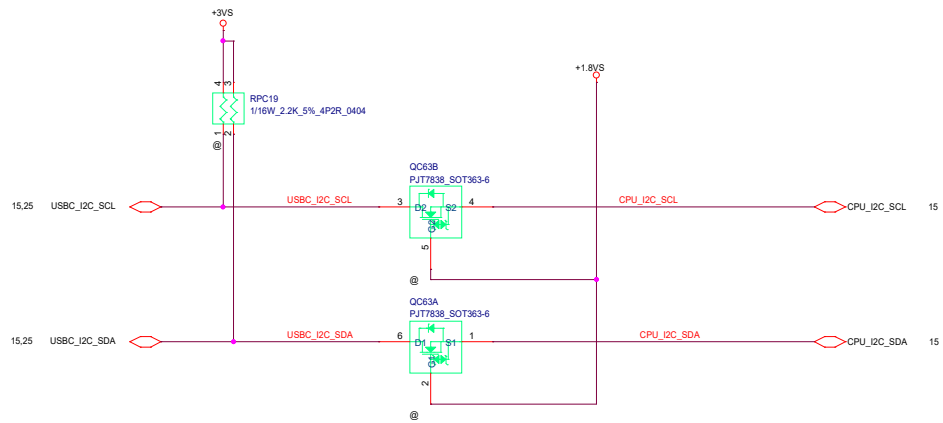
LCFC

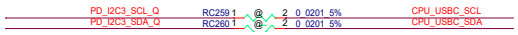
Size	Document Number	Rev
Custom	NM-F261 / Phoenix AMD	0.1
Date: Monday, May 01, 2023	Sheet 14 of 62	











Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

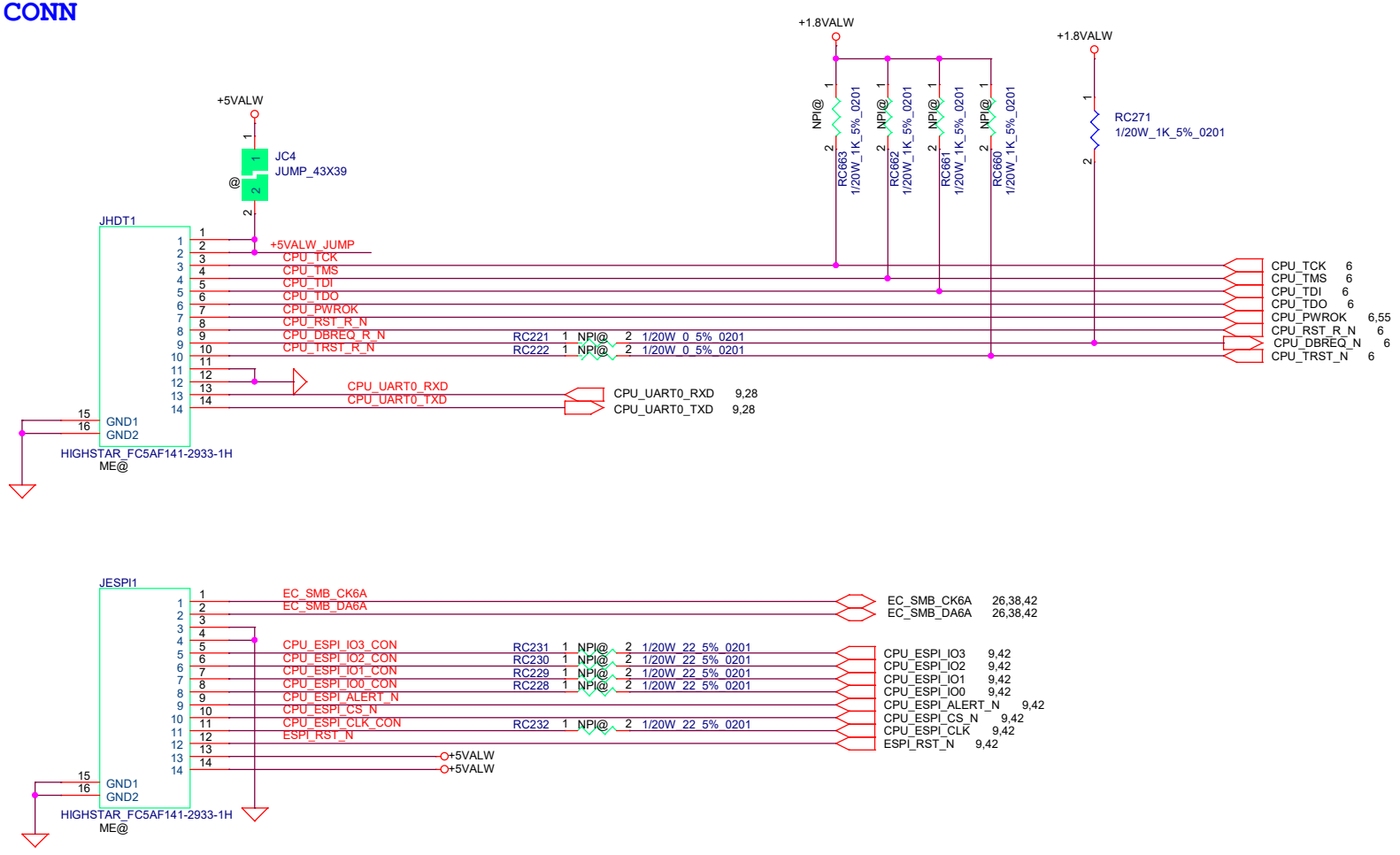
Title: SMBUS/SW

LCFC

Size	Document Number	Rev
C	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 15 of 61

Debug CONN



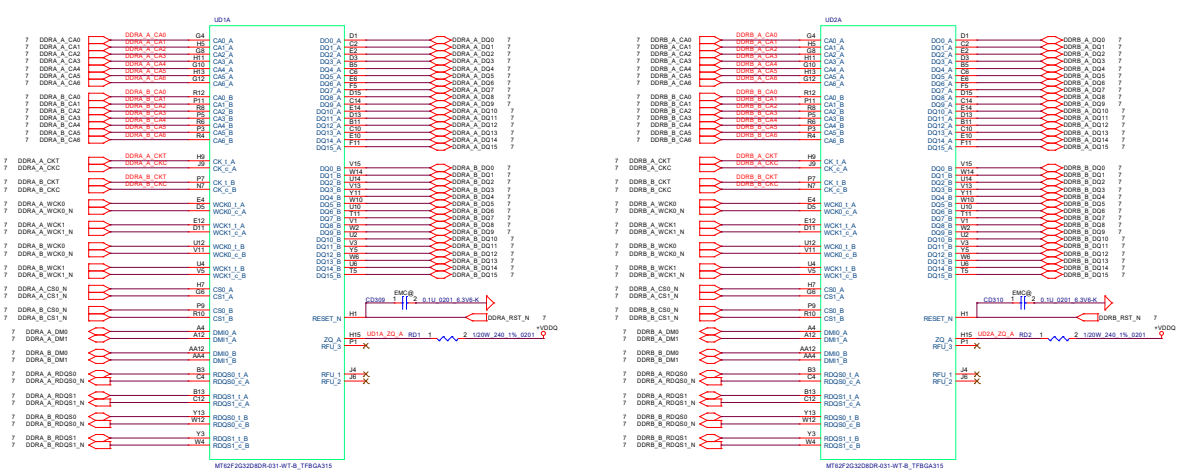
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

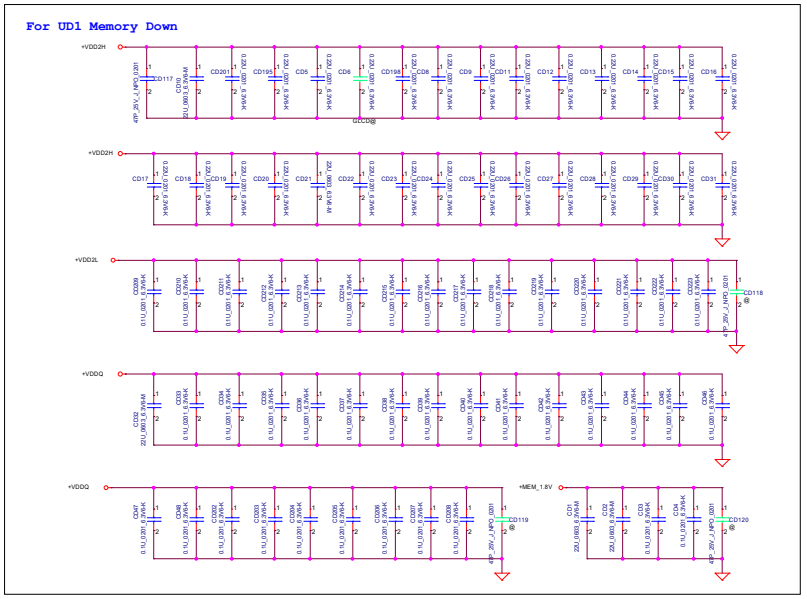
Title: ***HDT/eSPI Debug***

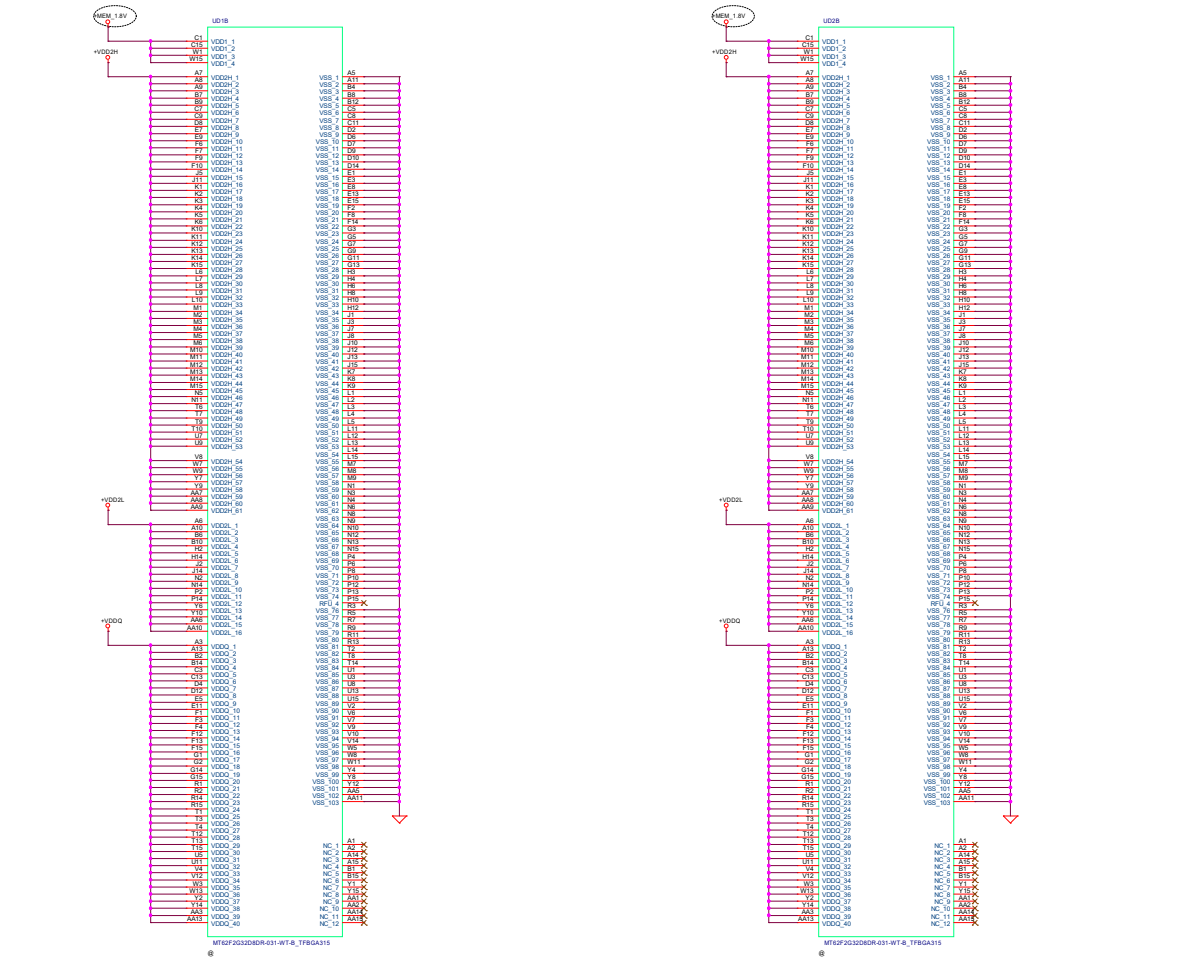
LCFC

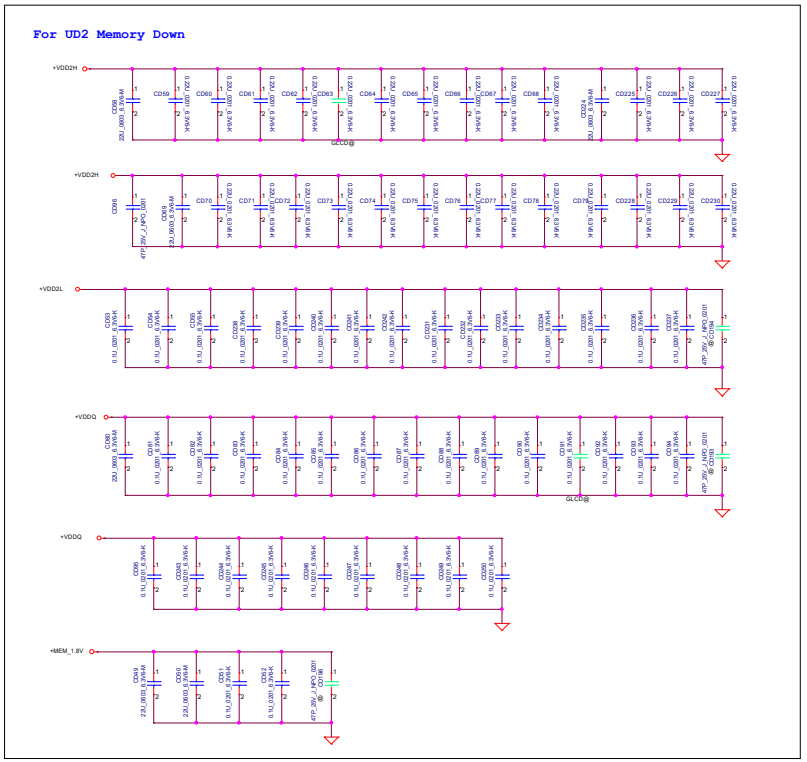
Size	Document Number	Rev
B	***NM-F261 / Phoenix AMD***	0.1

Date: Monday, May 01, 2023 Sheet 16 of 62









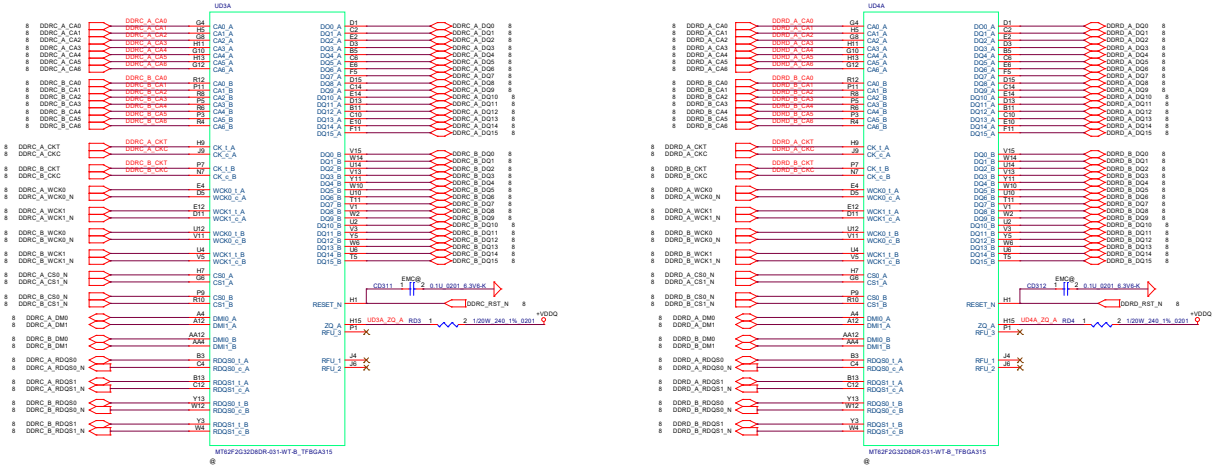
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: Memory_CHA

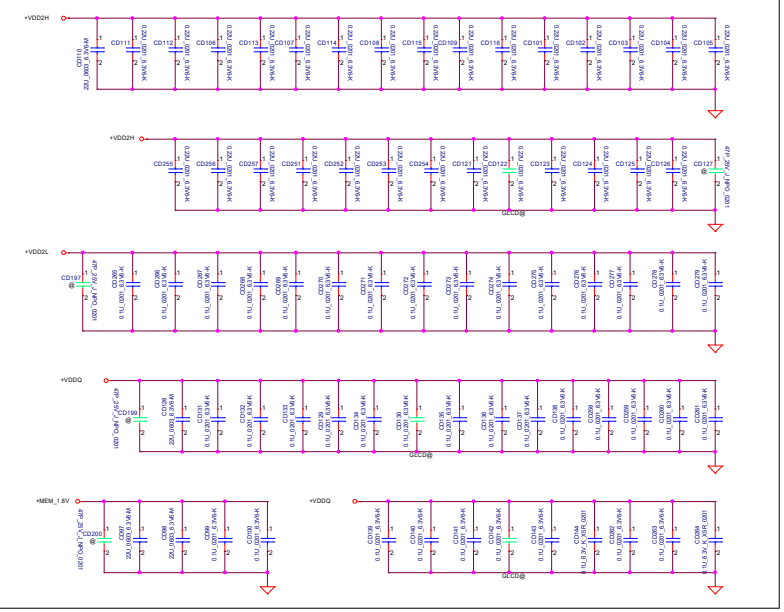
LCFC

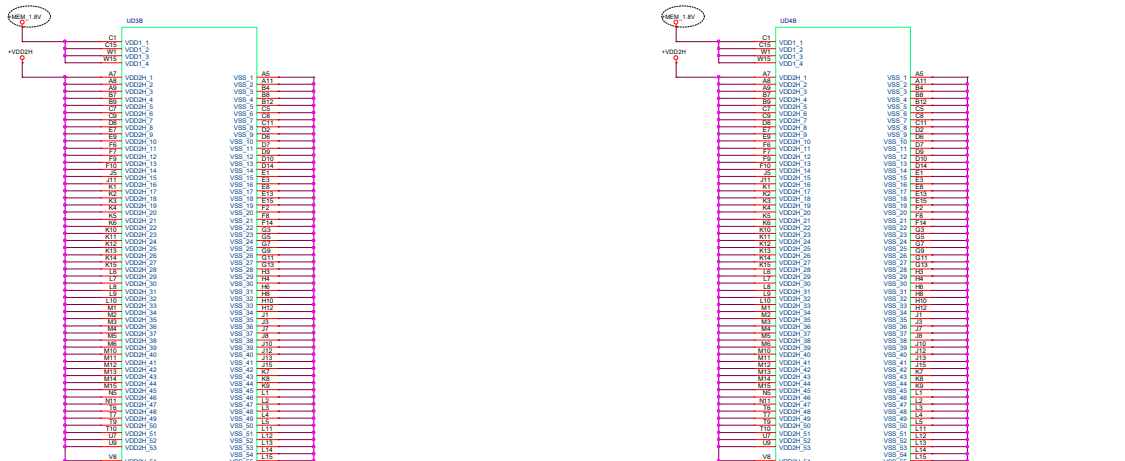
Size: | Document Number: | Rev:
Custom | NM-F261 / Phoenix AMD | 0.1

Date: Monday, May 01, 2023 | Sheet 17 of 62

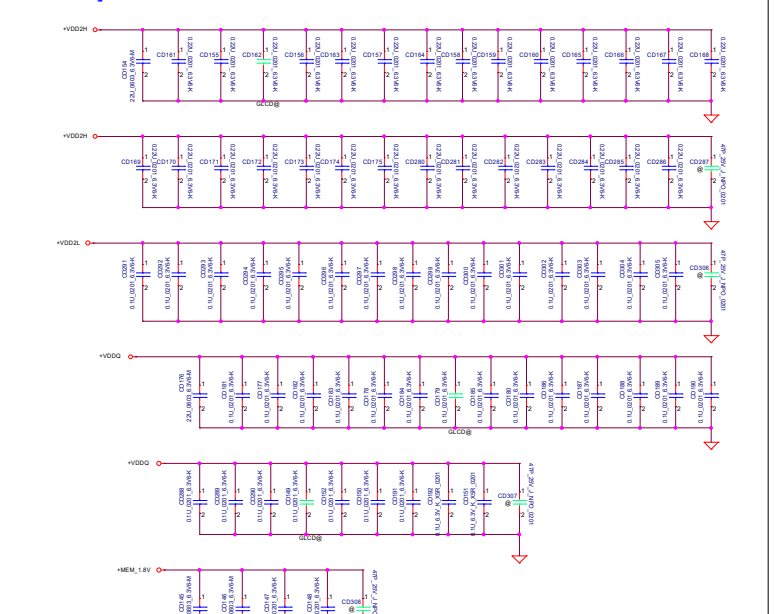


For UD3 Memory Down





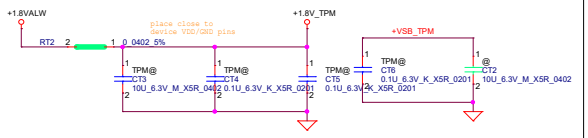
For UD4 Memory Down

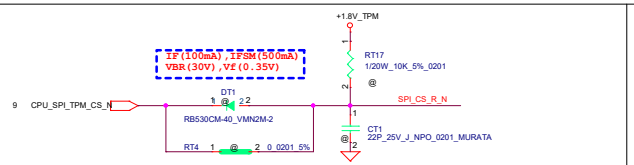


Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D EXCEPT AS AUTHORIZED BY LC FUTURE CENTER MANAGEMENT AND NOT BE REPRODUCED IN ANY FORM. NEITHER MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

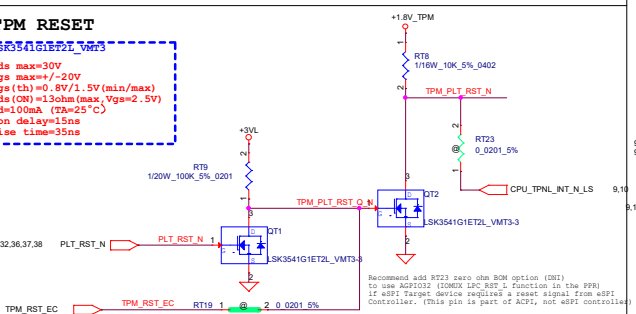
Title	Memory_CHB	LCFC	
Size	Document Number		Rev
Custom	NM-F261 / Phoenix_AMD		0.1
Date:	Monday, May 01, 2023	Sheet 18 of 62	

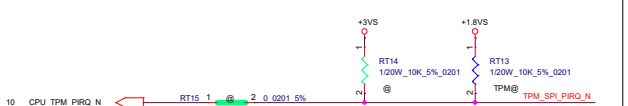




TPM RESET

LSK3541G1ET2L_VMT3
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.8V/1.5V(min/max)
Rds(ON)=13ohm(max,Vgs=2.5V)
Id=100mA (TA=25°C)
Ton delay=15ns
Rise time=35ns





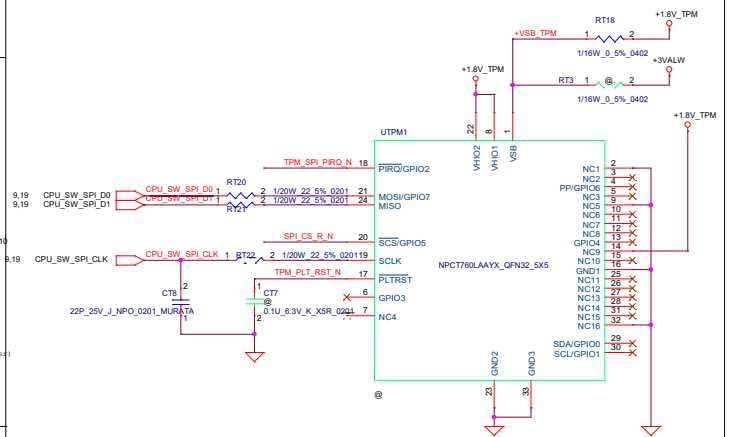
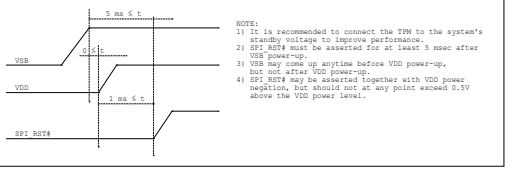


TABLE of TPM		
Vendor	P/N	LCFC P/N
Nuvoton	NPCT760LAAYX	SA0000C3000
ST Micro	ST33HTPH2X32AHE0	SA0000C8600
INFINEON	9672VU2.0 FW15.21	SA0000CNZ00

NOTE:
Check timing sequence in EVT phase.

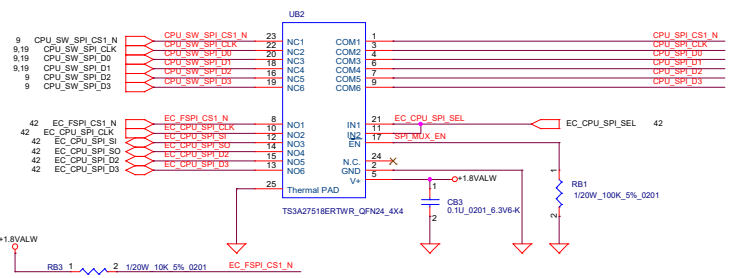


TABLE

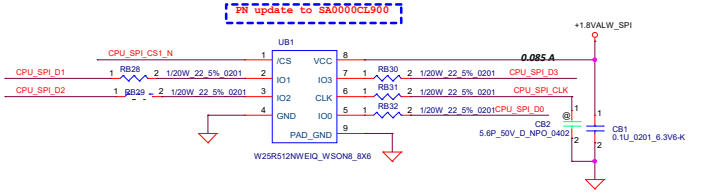
Pin No	Nuvoton NPCT760LAAYX	ST Micro ST33HTPH2X32AHE0	INFINEON SLB9670VQ2.0FW7.85
1	VSB	NiC	NCI/VDD
2	NC	GND	GND
3	NC	NiC	NCI
4	GPIO/PP	NiC	NCI
5	NC	NiC	NCI
6	GPIO3	GPIO_LP	GPIO
7	NC	GPIO_PP	PP
8	VHIO	NiC	VDD
9	NC	NiC	GND
10	NC	NiC	NCI
11	NC	NiC	NCI
12	NC	NiC	NCI
13	NC	NiC	NCI
14	GPIO4	NiC	NCI
15	NC	NiC	NCI/VDD
16	GND	NiC	NCI/VDD
17			
18	RLTRST#	SPI_RST#	RST#
19	PIRQ#/GPIO2	SPI_PIRQ#	PIRQ#
20	SCLK	SPI_CLK	SCLK
21	SCS#/GPIO5	SPI_CS#	CS#
22	MOSI/GPIO7	MOSI	MOSI
23	VHIO	VPS	VDD
24	GND	NiC	GND
	MISO	MISO	MISO
25			
26	NC	NiC	NCI
27	NC	NiC	NCI
28	NC	NiC	NCI
29	NC	NiC	NCI
30	SDA/GPIO0	NiC	NC
31	SCL/GPIO1	NiC	NC
32	NC	NiC	NCI
	NC	NiC	GND

SPI SWITCH

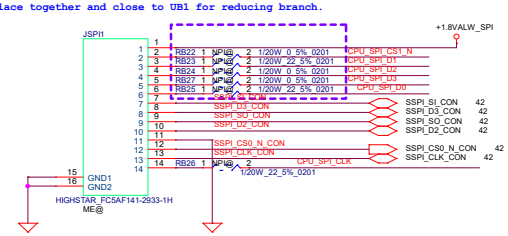
PN update to SA0000CL900

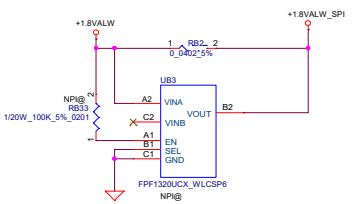


$\overline{EN}$	IN1	IN2	NC1/2/3 TO COM1/2/3, COM1/2/3 TO NC1/2/3	NC4/5/6 TO COM4/5/6, COM4/5/6 TO NC4/5/6	NO1/2/3 TO COM1/2/3, COM1/2/3 TO NO1/2/3	NO4/5/6 TO COM4/5/6, COM4/5/6 TO NO4/5/6
H	X	X	OFF	OFF	OFF	OFF
L	L	L	ON	ON	OFF	OFF
L	H	L	OFF	ON	ON	OFF
L	L	H	ON	OFF	OFF	ON
L	H	H	OFF	OFF	ON	ON



Place together and close to UB1 for reducing branch.





Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: SPI ROM/TPM
LCFC
Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1
Date: Monday, May 01, 2023 | Sheet 19 of 62

BLANK

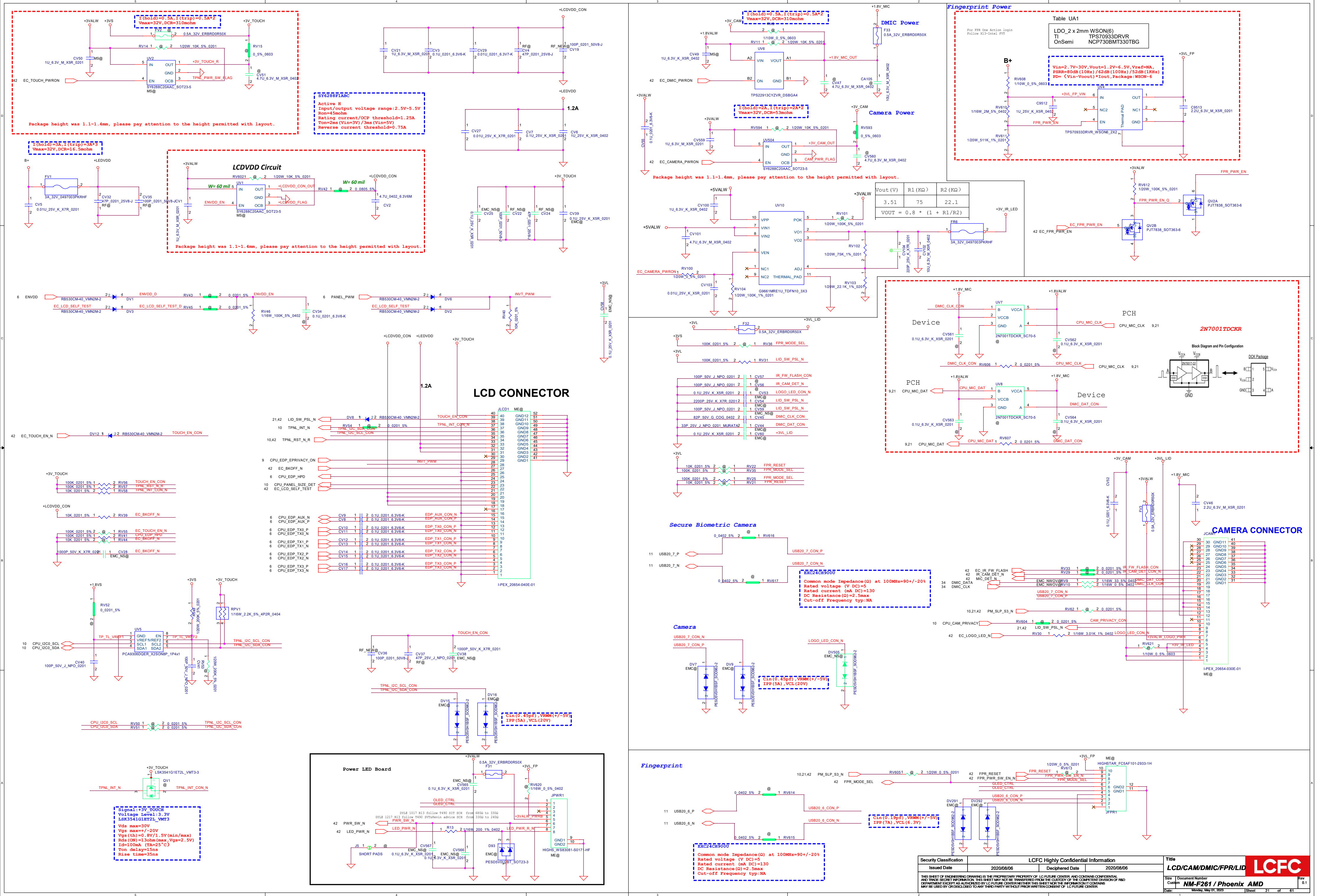
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: BLANK

LCFC

Size	Document Number	Rev
Custom	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 20 of 61



I(hold)=0.5A,I(trip)=0.5A*2
Vmax=32V,DCR=310mohm
Package height was 1.1~1.4mm, please pay attention to the height permitted with layout.
SY6288F1ABC
Active H
Input/output voltage range:2.5V~5.5V
Ron=45mohm
Rating current/OCP threshold=1.25A
Ton=2ms(Vin=3V)/3ms(Vin=5V)
Reverse current threshold=0.75A
I(hold)=3A,I(trip)=3A*3
Vmax=32V,DCR=16.5mohm
LCDVDD Circuit
W= 60 mil
Package height was 1.1~1.4mm, please pay attention to the height permitted with layout.
LCD CONNECTOR
1.2A
Signal:+3V_TOUCH
Voltage Level:3.3V
LSK3541G1ET2L_VMT3
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.8V/1.5V(min/max)
Rds(ON)=13ohm(max,Vgs=2.5V)
Id=100mA (TA=25°C)
Ton delay=15ns
Rise time=35ns
Cin(0.45pf),VRWM(+/-5V)
IPP(5A),VCL(20V)
Power LED Board
SHORT PADS
DMIC Power
I(hold)=0.5A,I(trip)=0.5A*2
Vmax=32V,DCR=310mohm
I(hold)=2A,I(trip)=2A*2
Vmax=32V,DCR=53mohm
Camera Power
Package height was 1.1~1.4mm, please pay attention to the height permitted with layout.
Fingerprint Power
Table UA1
LDO_2 x 2mm WSON(6)
TI TPS70933DRVR
OnSemi NCP730BMT330TBG
Vin=2.7V~30V,Vout=1.2V~6.5V,Vref=NA,
PSRR=80dB(10Hz)/62dB(100Hz)/52dB(1KHz)
PD= (Vin-Vout)*Iout,Package:WSON-6
Vout(V) | R1(KΩ) | R2(KΩ)
3.51 | 75 | 22.1
VOUT = 0.8 * (1 + R1/R2)
Device
PCH
2N7001TDCKR
Block Diagram and Pin Configuration
DCK Package
Secure Biometric Camera
EXC24CH900U
Common mode Impedance(Ω) at 100MHz=90+/-20%
Rated voltage (V DC)=5
Rated current (mA DC)=130
DC Resistance(Ω)=2.5max
Cut-off Frequency typ:NA
Camera
Cin(0.45pf),VRWM(+/-5V)
IPP(5A),VCL(20V)
CAMERA CONNECTOR
Fingerprint
Cin(0.19pf),VRWM(+/-5V)
IPP(7A),VCL(6.3V)
EXC24CH900U
Common mode Impedance(Ω) at 100MHz=90+/-20%
Rated voltage (V DC)=5
Rated current (mA DC)=130
DC Resistance(Ω)=2.5max
Cut-off Frequency typ:NA

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

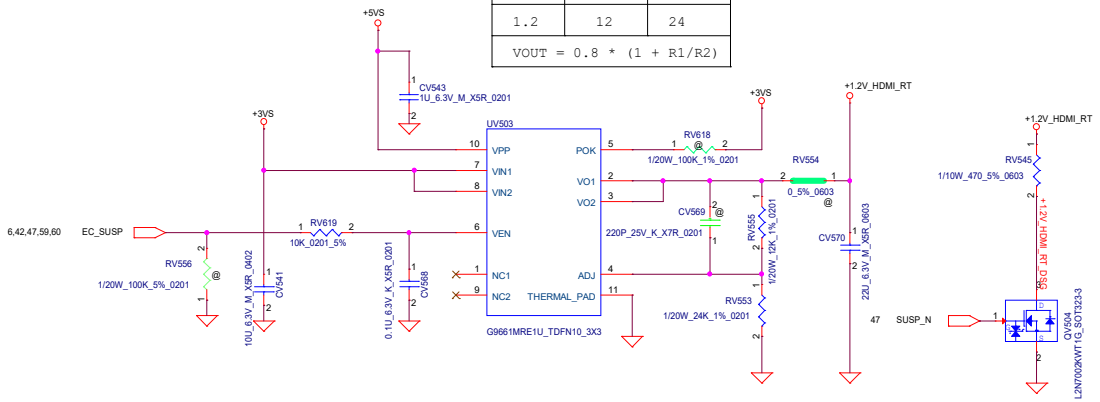
Title: LCD/CAM/DMIC/FPR/LID

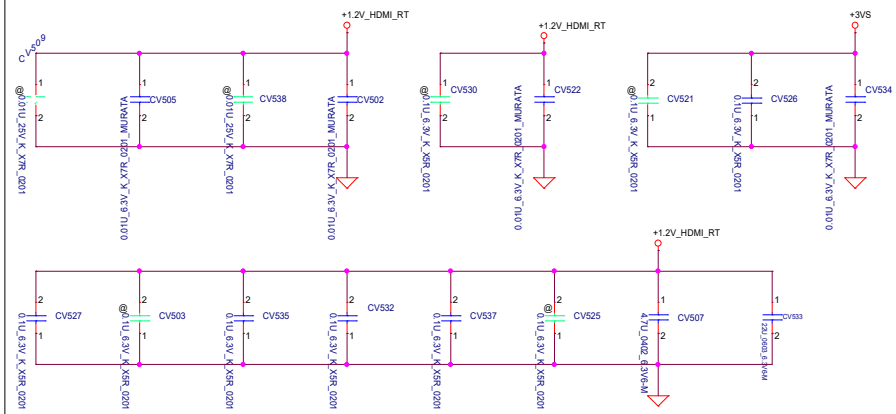
LCFC

Size: Custom | Document Number: NM-F261 / Phoenix_AMD | Rev: 0.1

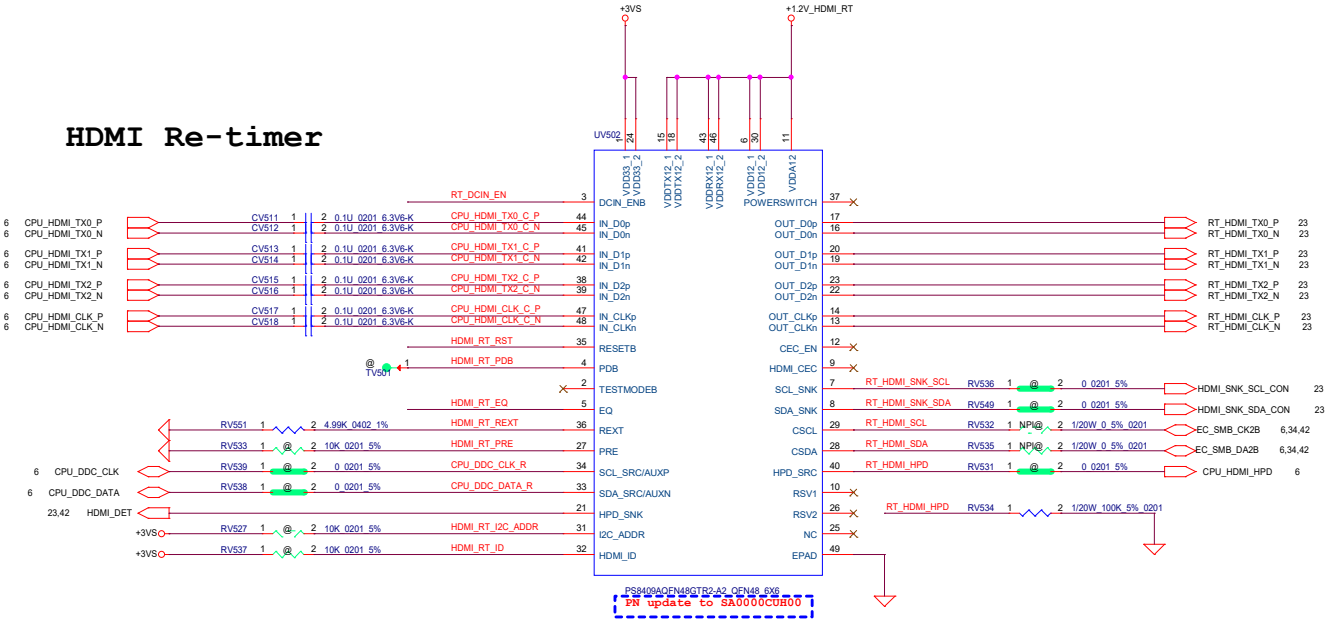
Date: Monday, May 01, 2023 | Sheet 21 of 61

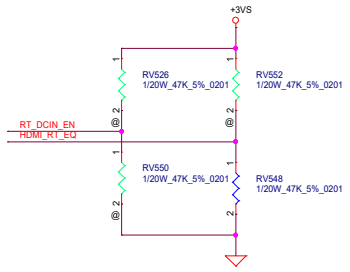
Vout(V)	R1(KΩ)	R2(KΩ)
1.2	12	24
VOUT = 0.8 * (1 + R1/R2)		

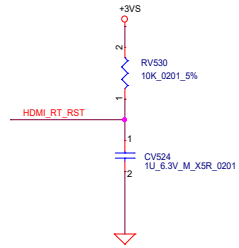


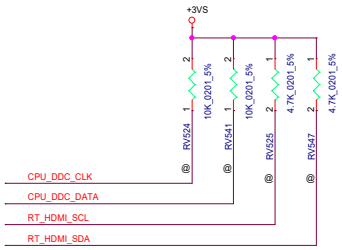


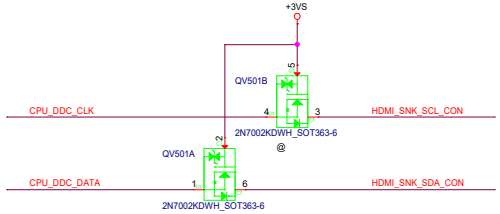
HDMI Re-timer











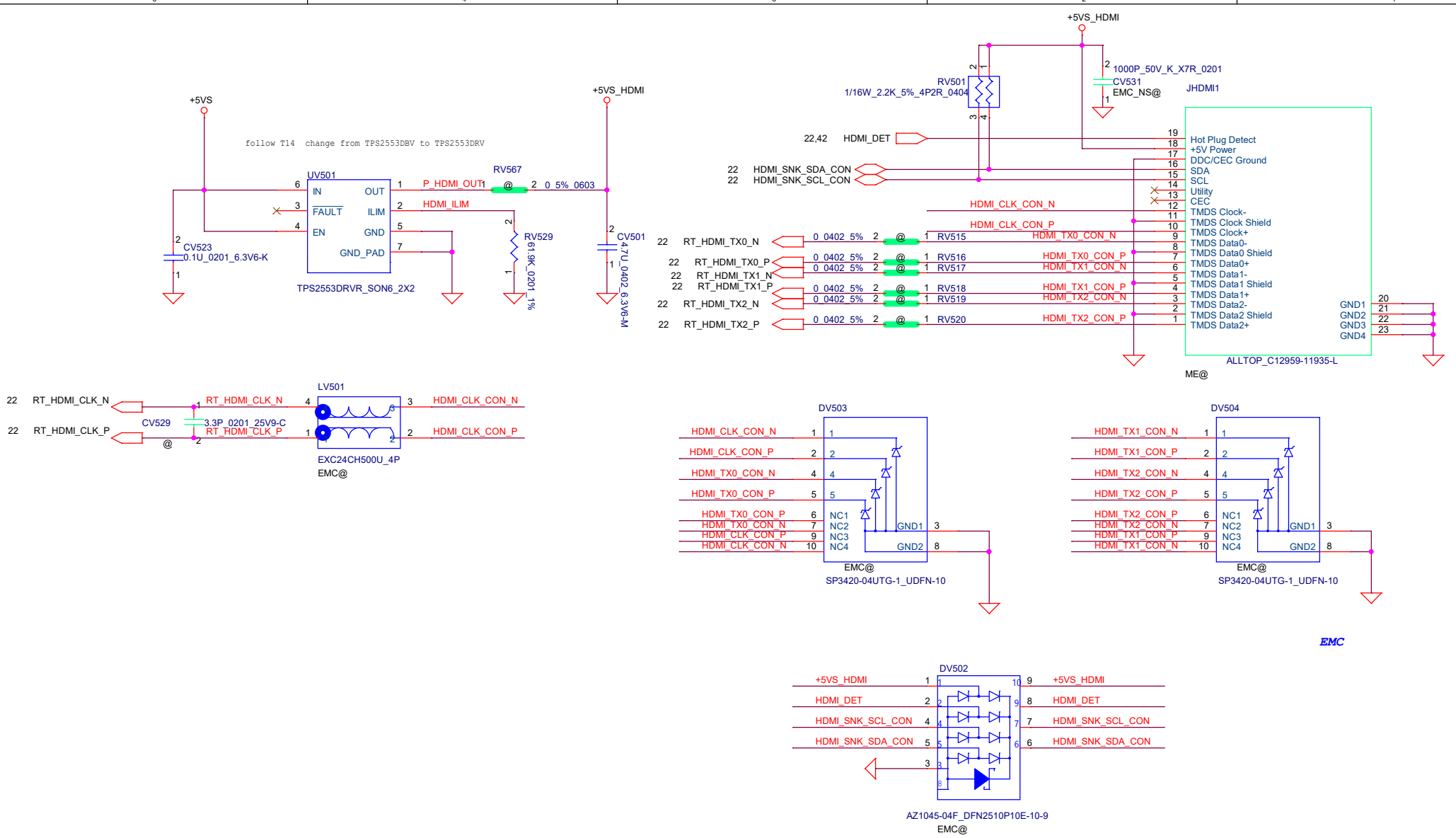
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: HDMI2.1_RETIMER

LCFC

Size	Document Number	Rev
C	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 22 of 61



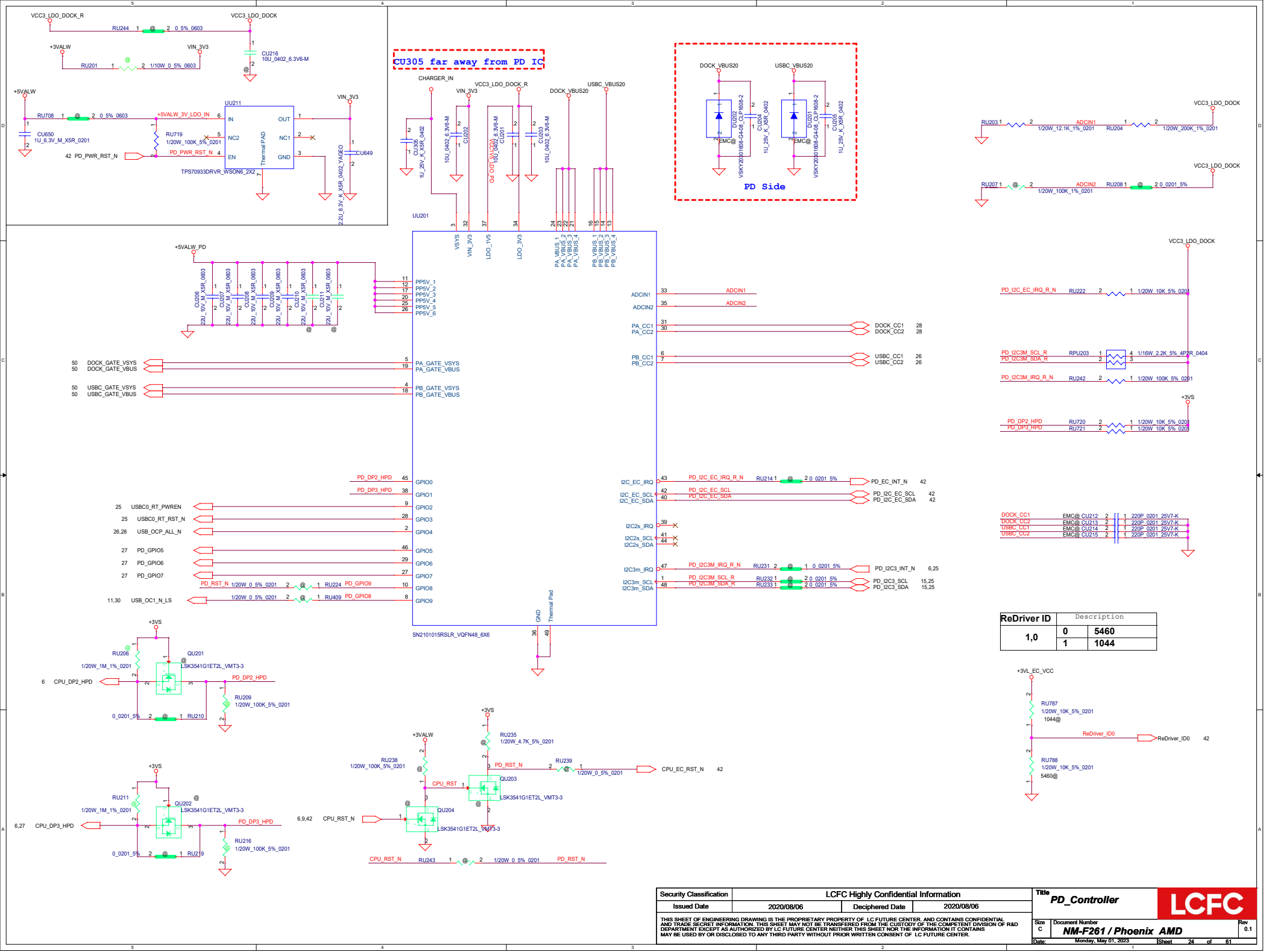
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

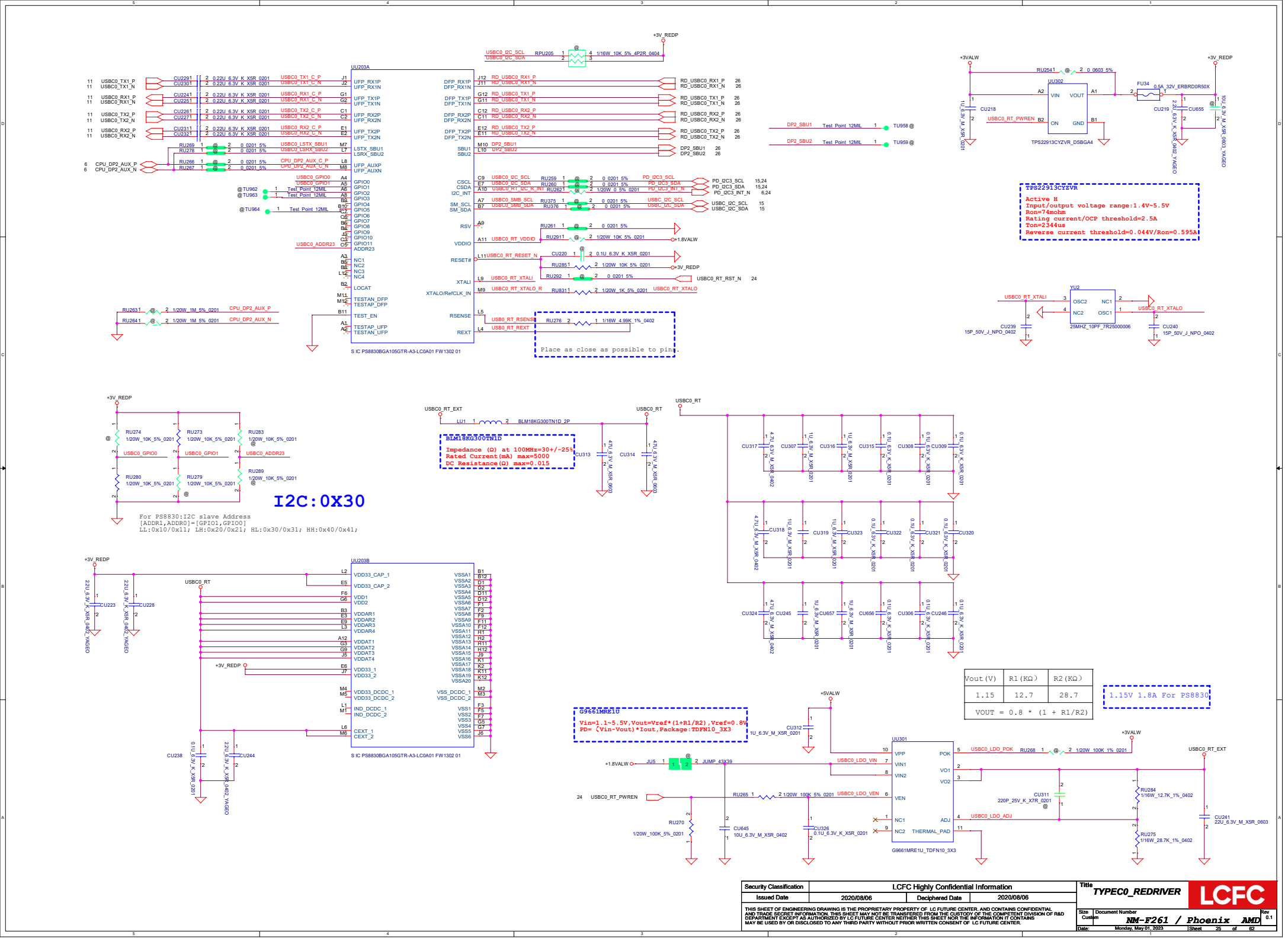
Title: ***HDMI_CONN***

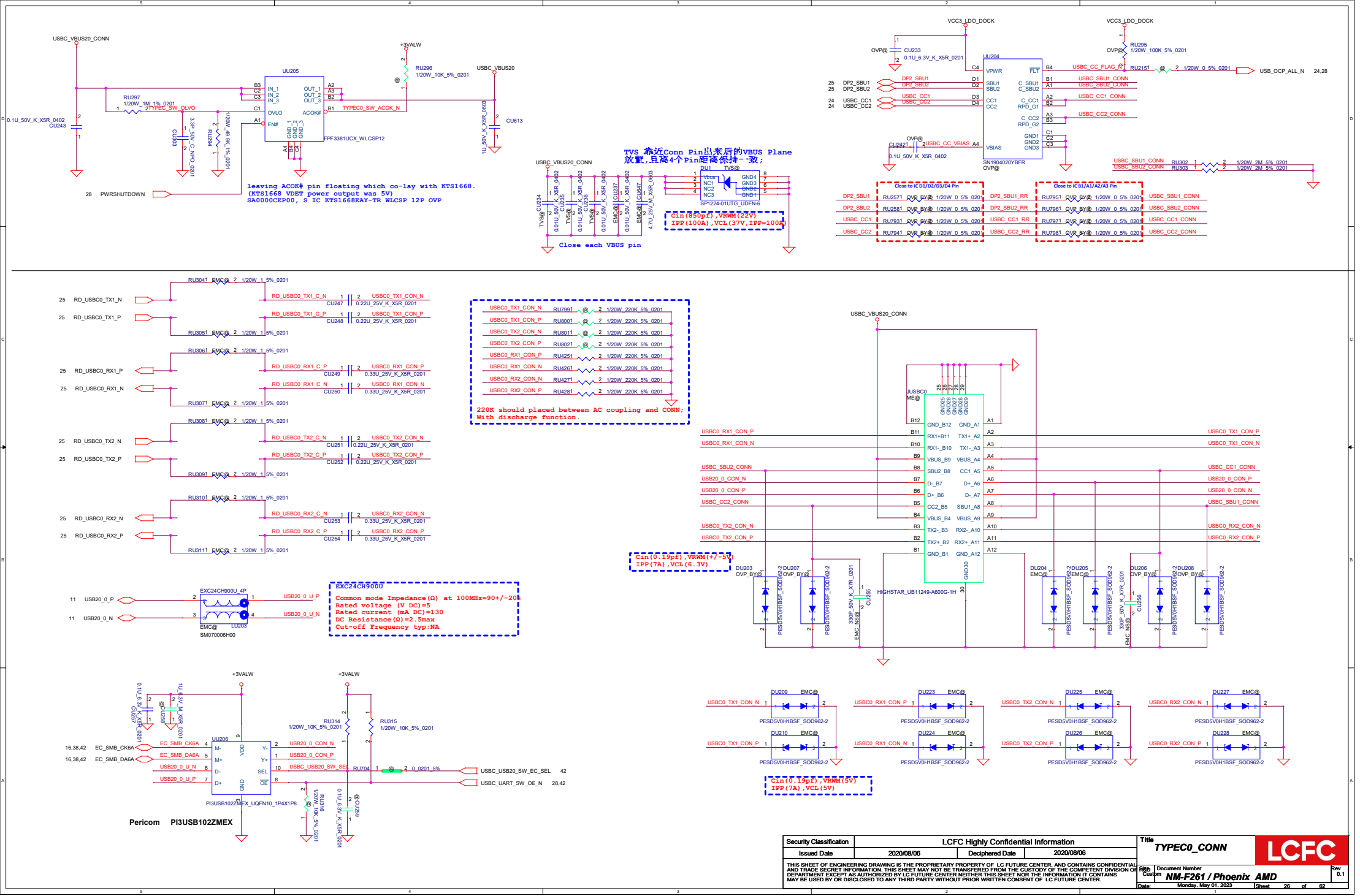
LCFC

Size	Document Number	Rev
B	***NM-F261 / Phoenix AMD***	0.1

Date: Monday, May 01, 2023 Sheet 23 of 61


CU305 far away from PD IC
PD Side
VCC3_LDO_DOCK_R
VCC3_LDO_DOCK
RU244
CU216
10U_0402_6.3V6-M
+3VALW
VIN_3V3
RU201
+5VALW
UU211
RU708
+5VALW_3V_LDO_IN
RU719
1/20W_100K_5%_0201
PD_PWR_RST_N
TPS70933DRVR_WSON6_2X2
CU650
1U_6.3V_M_X5R_0201
CU649
2.2U_6.3V_K_X5R_0402_YAGEO
CHARGER_IN
CU305
1U_25V_K_X5R_0402
CU202
CU201
CU203
CU204
UU201
SN2101015RSLR_VQFN48_6X6
DOCK_VBUS20
USBC_VBUS20
DU202
DU201
EMC@
VSKY2010160B-G4-08_CLP1608-2
CU206
CU207
CU208
CU209
CU210
CU211
22U_6V_M_X5R_0603
+5VALW_PD
PP5V_1
PP5V_2
PP5V_3
PP5V_4
PP5V_5
PP5V_6
DOCK_GATE_VSYS
DOCK_GATE_VBUS
USBC_GATE_VSYS
USBC_GATE_VBUS
PA_GATE_VSYS
PA_GATE_VBUS
PB_GATE_VSYS
PB_GATE_VBUS
ADCIN1
ADCIN2
PA_CC1
PA_CC2
PB_CC1
PB_CC2
DOCK_CC1
DOCK_CC2
USBC_CC1
USBC_CC2
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
PD_DP2_HPD
PD_DP3_HPD
USBC0_RT_PWREN
USBC0_RT_RST_N
USB_OCP_ALL_N
PD_GPIO5
PD_GPIO6
PD_GPIO7
USB_OC1_N_LS
PD_RST_N
RU224
RU409
I2C_EC_IRQ
I2C_EC_SCL
I2C_EC_SDA
I2C2s_IRQ
I2C2s_SCL
I2C2s_SDA
I2C3m_IRQ
I2C3m_SCL
I2C3m_SDA
PD_I2C_EC_IRQ_R_N
PD_I2C_EC_SCL
PD_I2C_EC_SDA
PD_I2C3M_IRQ_R_N
PD_I2C3M_SCL_R
PD_I2C3M_SDA_R
PD_EC_INT_N
PD_I2C3_INT_N
PD_I2C3_SCL
PD_I2C3_SDA
GND
Thermal Pad
RU203
RU204
RU207
RU208
ADCIN1
ADCIN2
RU222
RPU203
RU242
RU720
RU721
EMC@ CU212
EMC@ CU213
EMC@ CU214
EMC@ CU215
220P_0201_25V7-K
ReDriver ID
Description
1,0
0
5460
1
1044
RU787
RU788
ReDriver_ID0
+3VL_EC_VCC
QU201
QU202
QU203
QU204
LSK3541G1ET2L_VMT3-3
RU206
RU209
RU210
RU211
RU216
RU219
RU235
RU238
RU239
CPU_DP2_HPD
CPU_DP3_HPD
CPU_RST
CPU_RST_N
CPU_EC_RST_N
RU243
Security Classification
LCFC Highly Confidential Information
Issued Date
2020/08/06
Deciphered Date
2020/08/06
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.
Title
PD_Controller
LCFC
Size
C
Document Number
NM-F261 / Phoenix AMD
Rev
0.1
Date:
Monday, May 01, 2023
Sheet
24
of
61


UU203A
S IC PS8830BGA105GTR-A3-LC0A01 FW1302 01
Place as close as possible to pins.
TPS22913CYZVR
Active H
Input/output voltage range:1.4V~5.5V
Ron=74mohm
Rating current/OCP threshold=2.5A
Ton=2344us
Reverse current threshold=0.044V/Ron=0.595A
BLM18KG300TN1D
Impedance (Ω) at 100MHz=30+/-25%
Rated Current(mA) max=5000
DC Resistance(Ω) max=0.015
I2C:0X30
For PS8830:I2C slave Address
[ADDR1,ADDR0]=[GPIO1,GPIO0]
LL:0x10/0x11; LH:0x20/0x21; HL:0x30/0x31; HH:0x40/0x41;
UU203B
S IC PS8830BGA105GTR-A3-LC0A01 FW1302 01
G9661MRE1U
Vin=1.1~5.5V,Vout=Vref*(1+R1/R2),Vref=0.8V
PD= (Vin-Vout)*Iout,Package:TDFN10_3X3
Vout(V) | R1(KΩ) | R2(KΩ)
1.15 | 12.7 | 28.7
VOUT = 0.8 * (1 + R1/R2)
1.15V 1.8A For PS8830
Security Classification
LCFC Highly Confidential Information
Issued Date
2020/08/06
Deciphered Date
2020/08/06
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.
Title
TYPEC0_REDRIVER
LCFC
Size
Custom
Document Number
NM-F261 / Phoenix
AMD
Rev
0.1
Date:
Monday, May 01, 2023
Sheet
25
of
62



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: TYPEC0_CONN

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 26 of 62

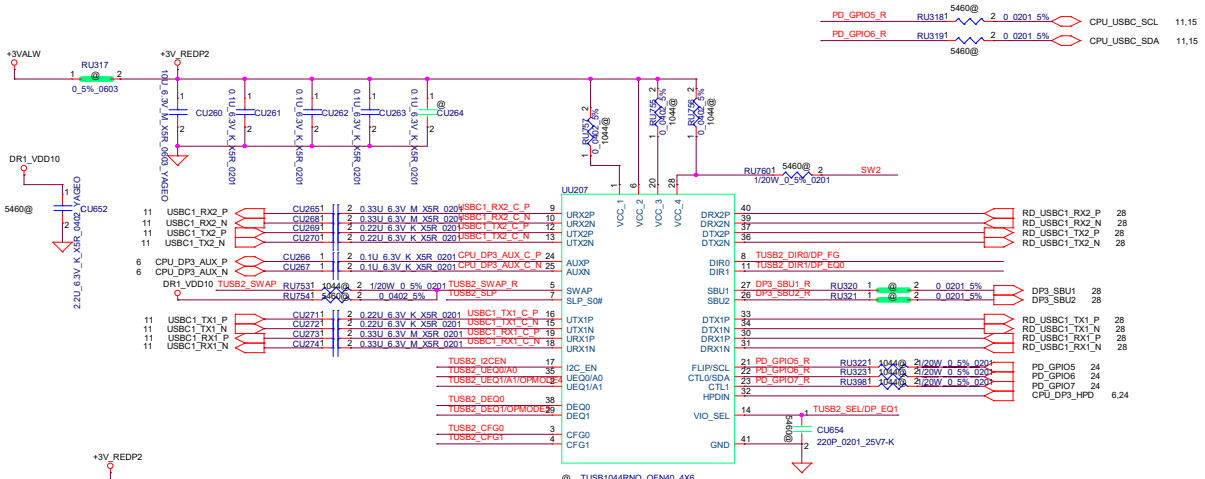
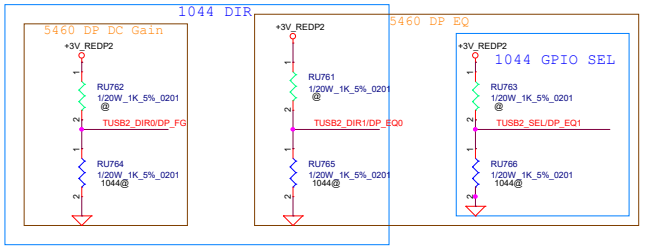


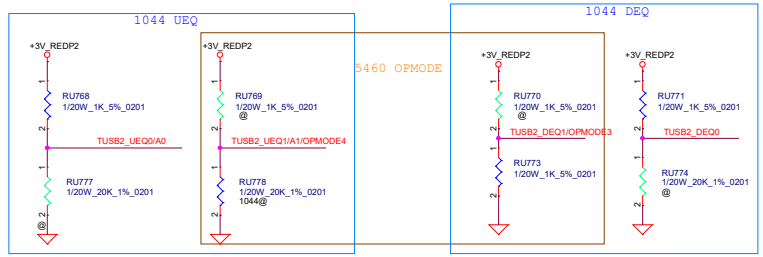
TABLE of DIR/EQ		
	1044	5460
RU763	1K	1K/200K/47K
RU766	1K	1K
RU761	@	1K/200K/47K
RU765	1k	1K
RU762	@	1K/200K/47K
RU764	1k	1K

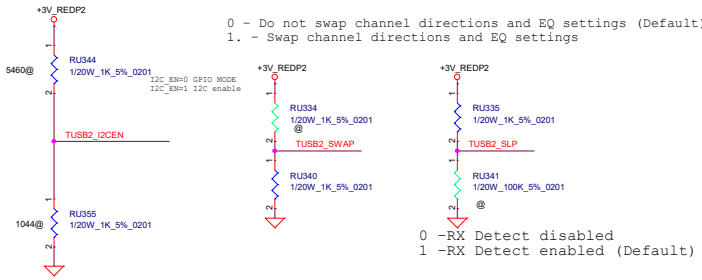


EQ setting

TABLE of 1044&5406		
	1044	5460
RU768	1k	1K/200K/47K
RU777	1K/20k	1K
RU769	1k	@
RU778	1K/20k	1K

TABLE of 1044&5406		
	1044	5460
RU771	1k	1K/200K/47K
RU774	1K/20k	1K
RU770	1k	@
RU773	1K/20k	1K

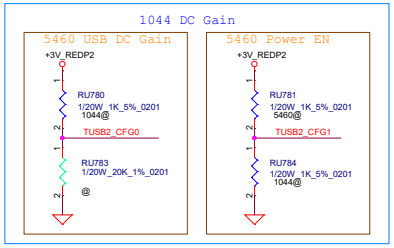


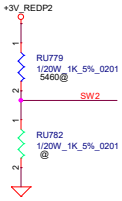


0 - Do not swap channel directions and EQ settings (Default)
1. - Swap channel directions and EQ settings

0 -RX Detect disabled
1 -RX Detect enabled (Default)

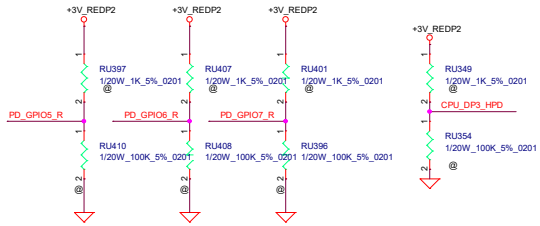
TABLE of 1044&5406		
	1044	5460
RU780	1k	1K/200K/47K
RU783	1K/20k	1K
RU781	1k	@
RU784	1K/20k	1K





0 option1: Tie 1K 5% to GND option2:Tie directly to GND
R Tie to 20K 5% to GND
F Float(leave PIN open)
1 option1: Tie 1K 5% to VCC option2 :Tie directly to VCC

This PIN selects I/O valtage levels for the 2-level GPIO and I2C
0 = 3.3-V configuration I/O voltage, 3.3-V I2C interface (Default)
R = 3.3-V configuration I/O voltage, 1.8-V I2C interface
F = 1.8V configuration I/O voltage,3.3-V I2C interface
1 = 1.8-V configuration I/O voltage, 1.8-V I2C interface



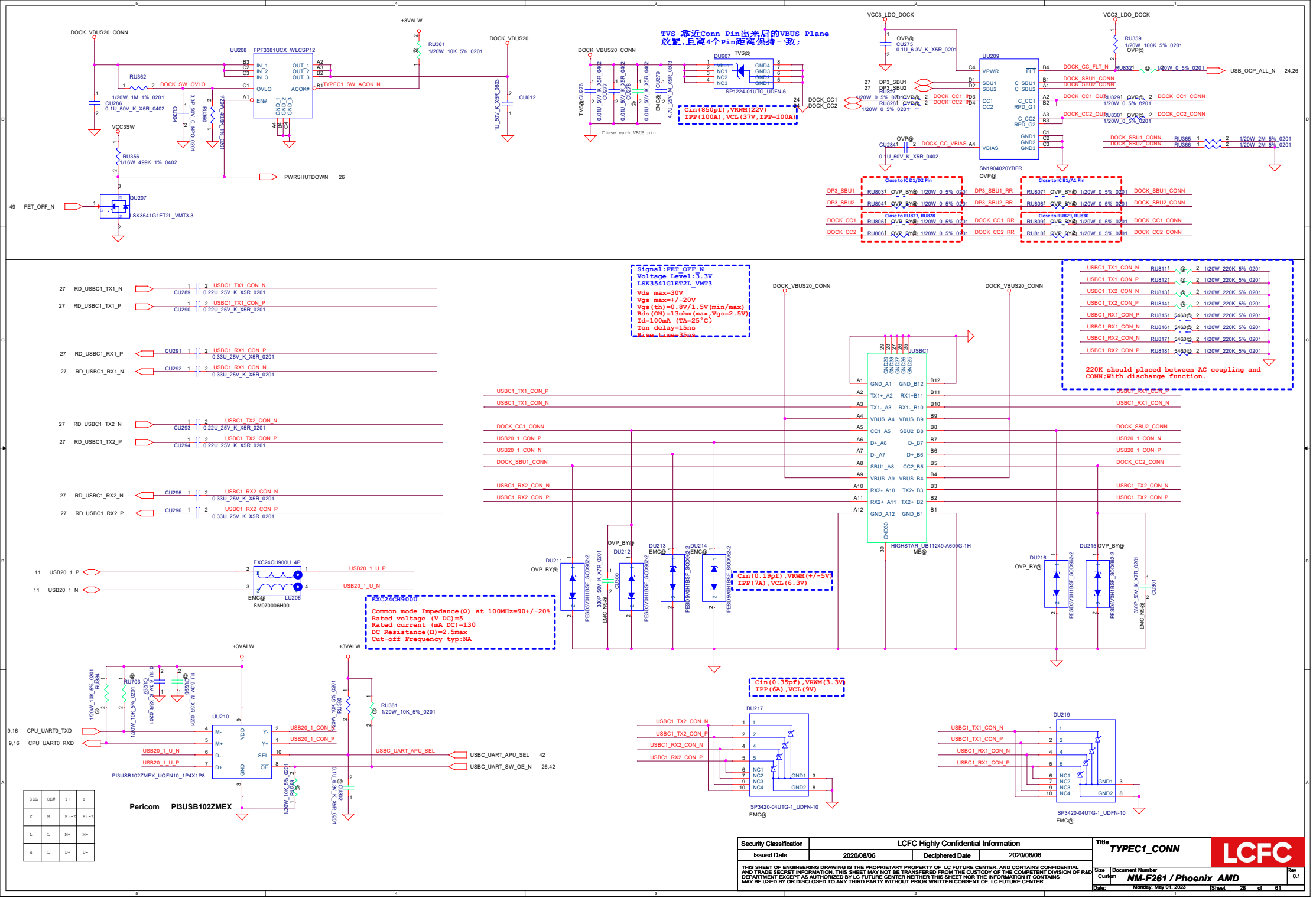
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

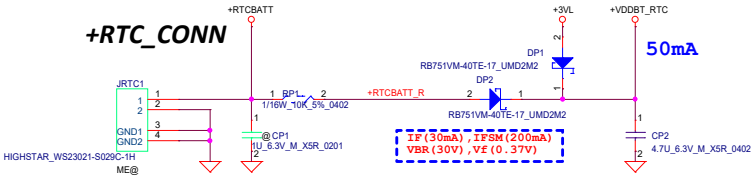
Title: TYPEC1_REDRIVER

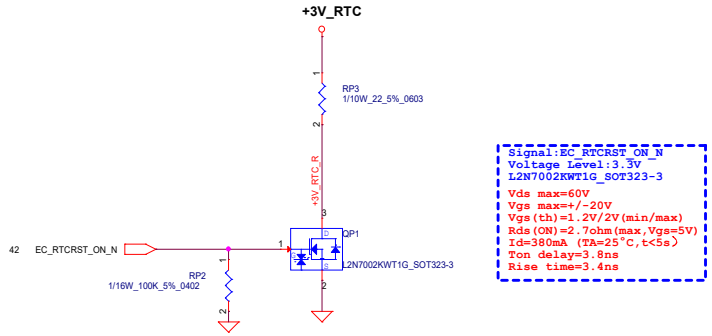
LCFC

Size: Custom | Document Number: NM-F261 / Phoenix_AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 27 of 61


TVS 靠近Conn Pin出来后的VBUS Plane 放置,且离4个Pin距离保持一致;
Cin(850pF),VRWM(22V) IPP(100A),VCL(37V,IPP=100A)
Signal:FET_OFF_N
Voltage Level:3.3V
LSK3541G1ET2L_VMT3
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.8V/1.5V(min/max)
Rds(ON)=13ohm(max,Vgs=2.5V)
Id=100mA (TA=25°C)
Ton delay=15ns
Rise time=35ns
220K should placed between AC coupling and CONN;With discharge function.
Cin(0.19pF),VRWM(+/-5V) IPP(7A),VCL(6.3V)
EXC24CH900U
Common mode Impedance(Ω) at 100MHz=90+/-20%
Rated voltage (V DC)=5
Rated current (mA DC)=130
DC Resistance(Ω)=2.5max
Cut-off Frequency typ:NA
Cin(0.35pF),VRWM(3.3V) IPP(6A),VCL(9V)
Pericom PI3USB102ZMEX
Security Classification
LCFC Highly Confidential Information
Issued Date
2020/08/06
Deciphered Date
2020/08/06
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.
Title
TYPEC1_CONN
LCFC
Size
Custom
Document Number
NM-F261 / Phoenix AMD
Rev
0.1
Date:
Monday, May 01, 2023
Sheet
28
of
61





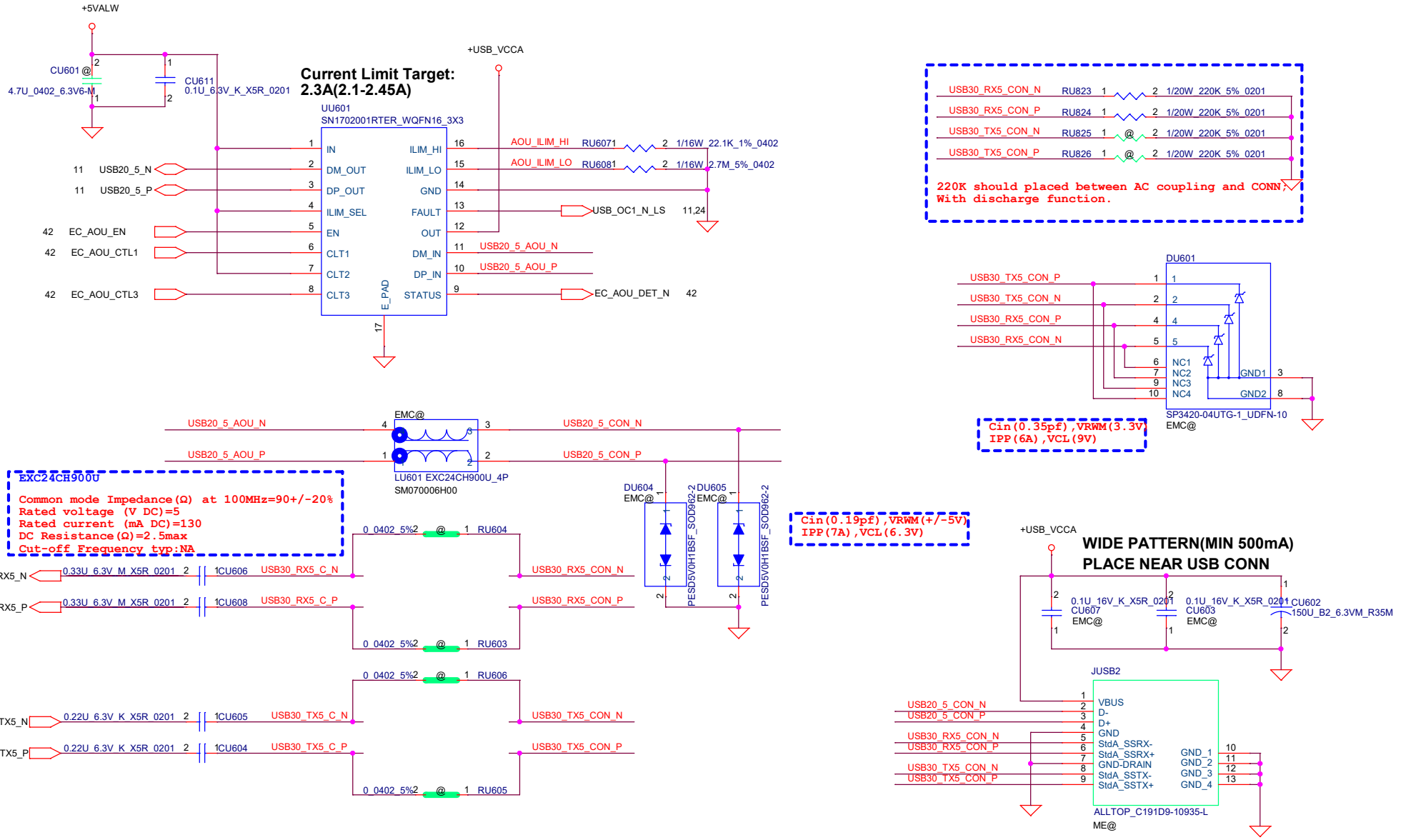
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: RTC

LCFC

Size	Document Number	Rev
C	NM-F261 / Phoenix AMD	0.1

Date: Monday, May 01, 2023 Sheet 29 of 61



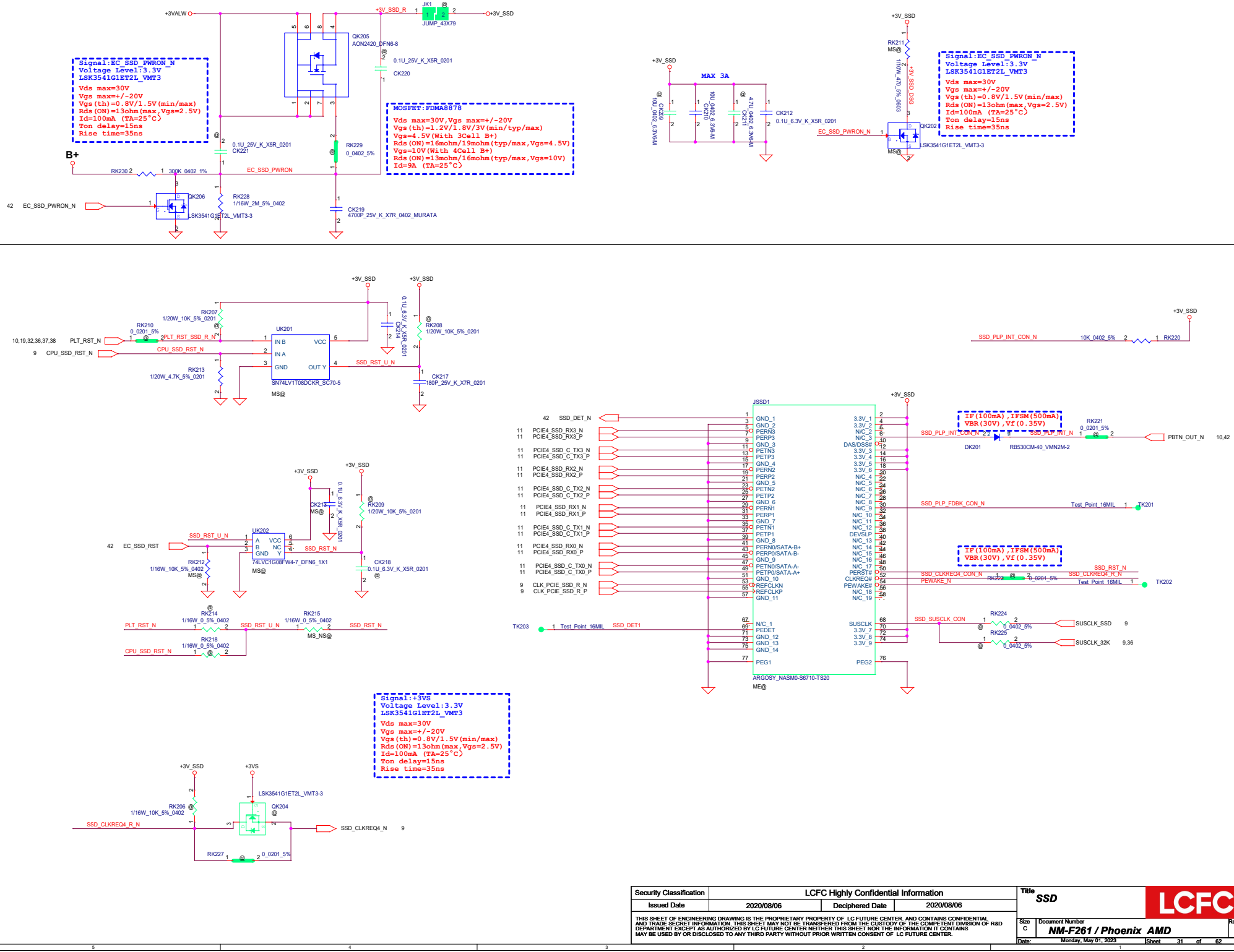
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: *USBA_PortA*

LCFC

Size	Document Number	Rev
B	NM-F261 / Phoenix AMD	0.1

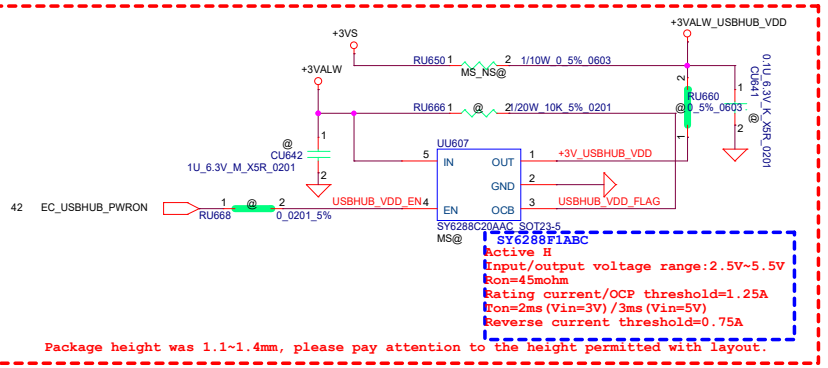
Date: Monday, May 01, 2023 Sheet 30 of 61

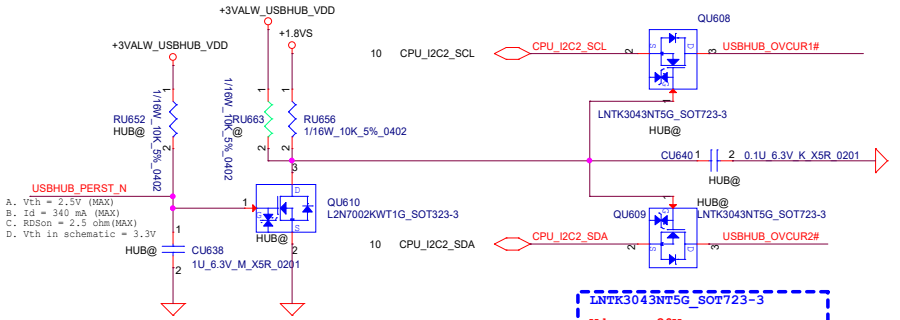


Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title	SSD		
Size	Document Number		Rev
C	NM-F261 / Phoenix AMD		0.1
Date:	Monday, May 01, 2023	Sheet	31 of 62

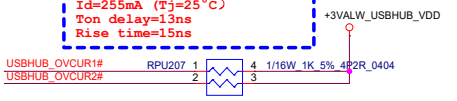
+3VALW TO +3VALW_USBHUB_VDD

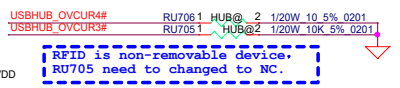




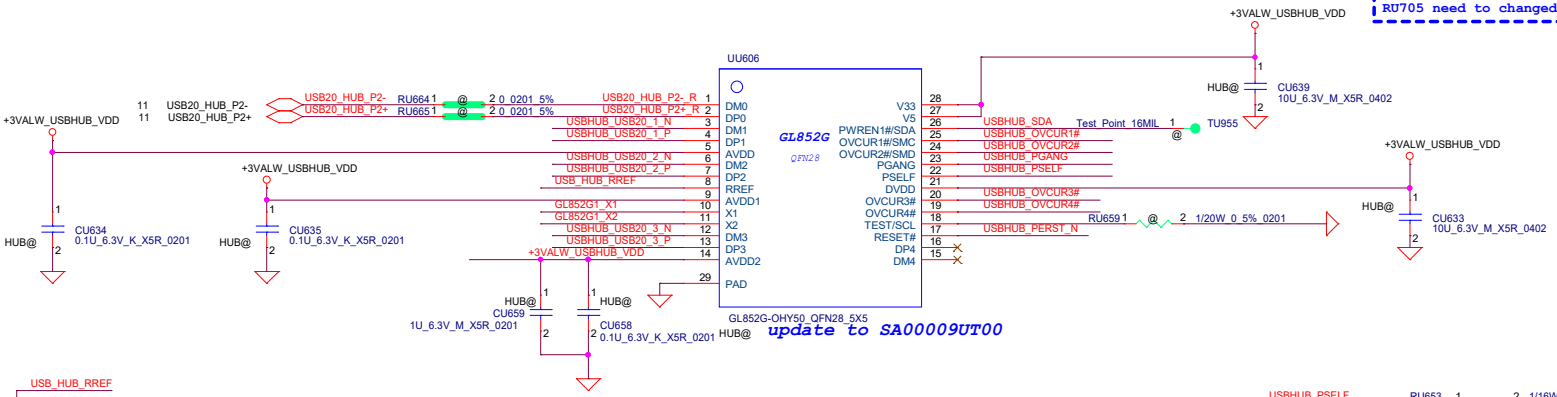
Signal:USBHUB_PERST_N
Voltage Level:3.3V
L2N7002KWT1G_SOT323-3
Vds max=60V
Vgs max=+/-20V
Vgs(th)=1.2V/2V(min/max)
Rds(ON)=2.7ohm(max,Vgs=5V)
Id=380mA (TA=25°C,t<5s)
Ton delay=3.8ns
Rise time=3.4ns

LNTK3043NT5G_SOT723-3
Vds max=20V
Vgs max=+/-10V
Vgs(th)=0.4V/1.3V(min/max)
Rds(ON)=15ohm(max,Vgs=1.65V)
Id=255mA (Tj=25°C)
Ton delay=13ns
Rise time=15ns

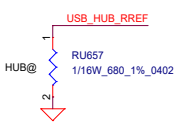


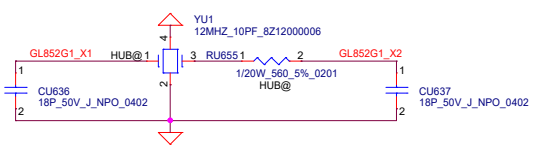


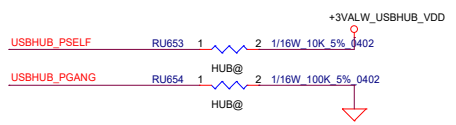
RFID is non-removable device.
RU705 need to changed to NC.

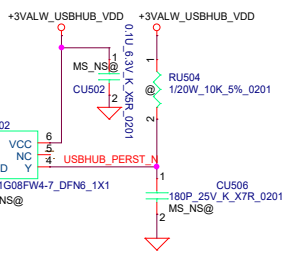


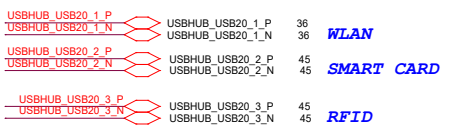
update to SA00009UT00

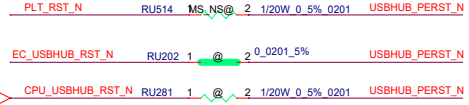






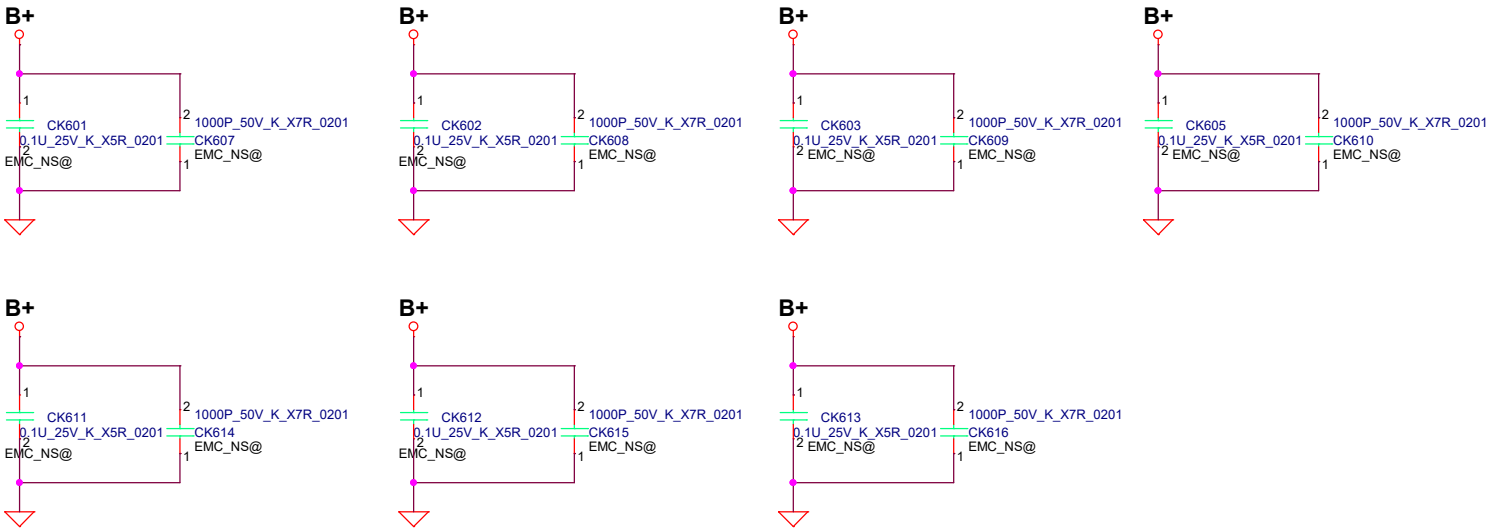






Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title	USB HUB		
Size: Custom	Document Number: NM-F261 / Phoenix AMD		Rev: 0.1
Date: Monday, May 01, 2023	Sheet 32 of 61		



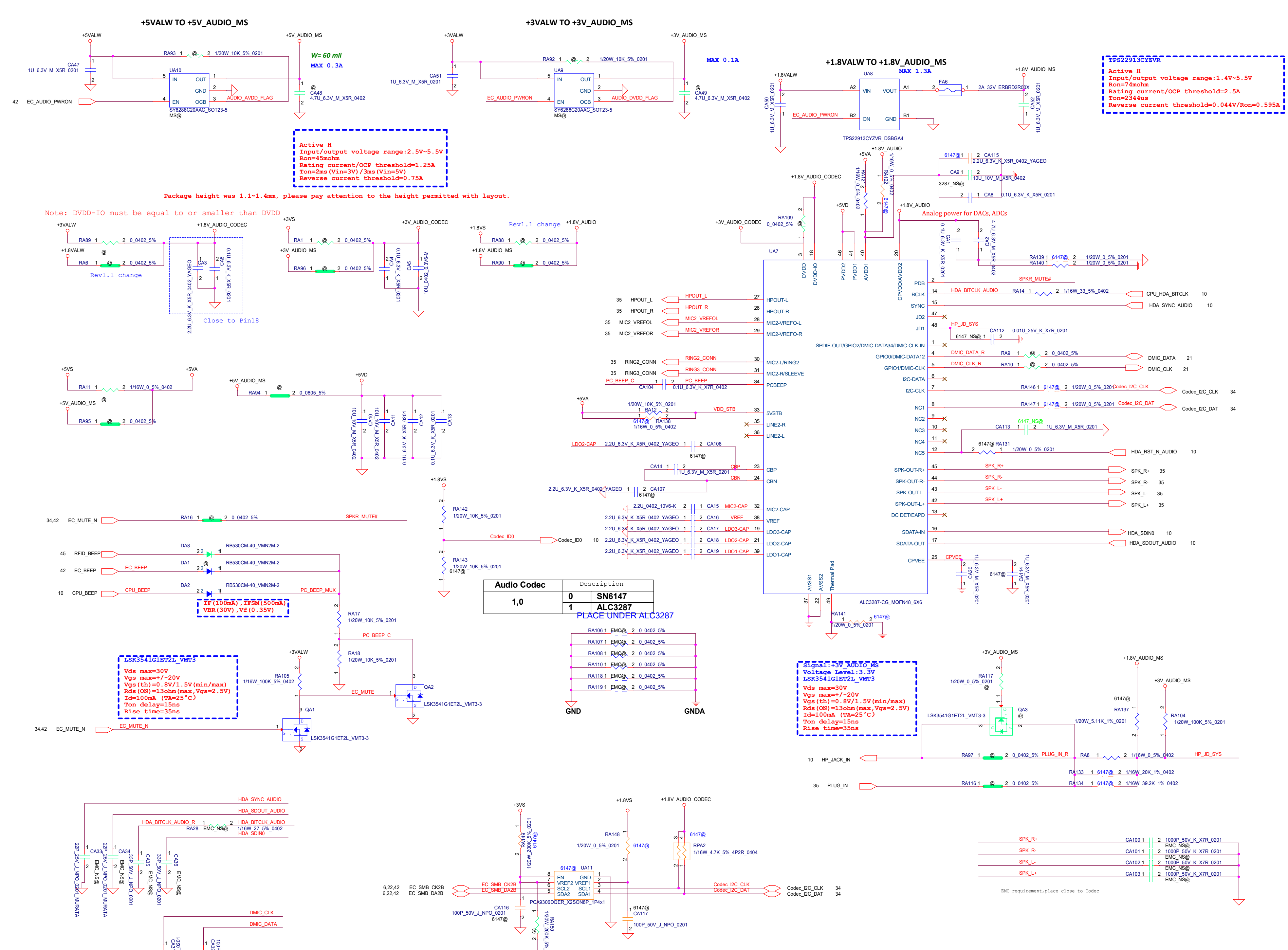
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: ***EMI CAP***

LCFC

Size	Document Number	Rev
B	***NM-F261 / Phoenix AMD***	0.1

Date: Monday, May 01, 2023 Sheet 33 of 61



Audio Codec	Description	
1,0	0	SN6147
	1	ALC3287

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

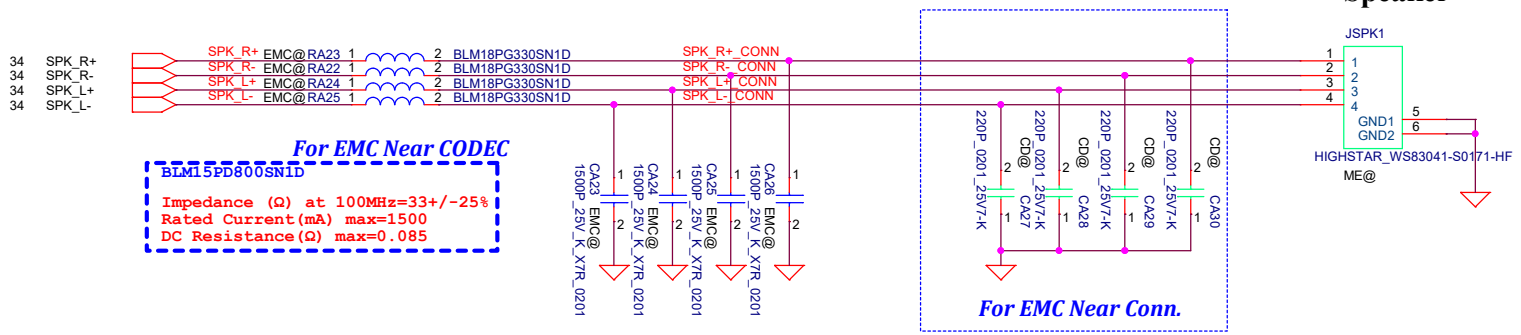
Title: Audio_Codec

LCFC

Size: Custom
Document Number: NM-F261 / Phoenix_AMD
Rev: 0.1

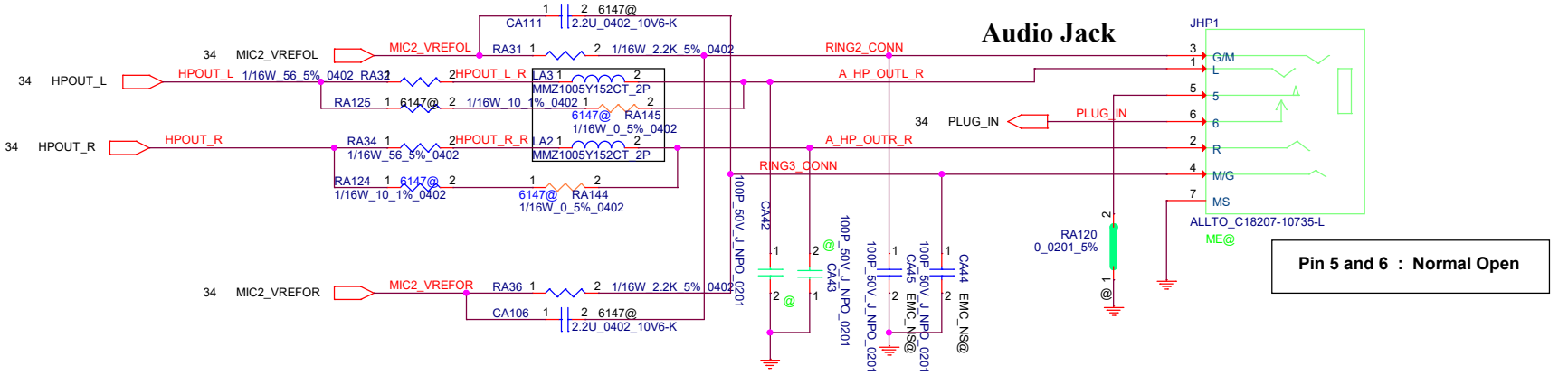
Date: Monday, May 01, 2023
Sheet 34 of 61

Speaker



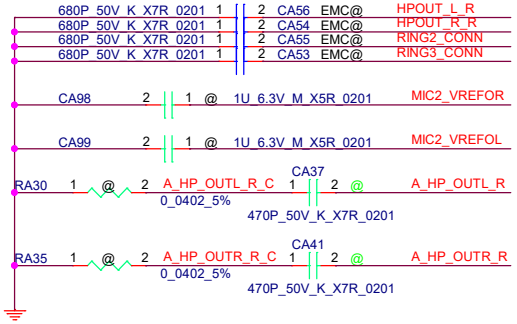
Rev1.1 change

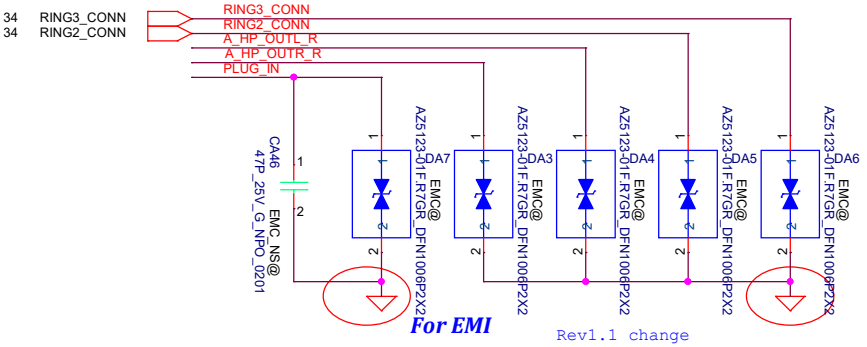
Audio Jack



Pin 5 and 6 : Normal Open

MMZ1005Y152CT
Impedance (Ω) at 100MHz=1500+/-25%
Rated Current(mA) max=100
DC Resistance(Ω) max=1





Rev1.1 change

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title	Audio_SPK/Jack		
Size	B	Document Number	NM-F261 / Phoenix AMD
Rev	0.1		
Date:	Monday, May 01, 2023	Sheet	35 of 61

M.2 Type 1418 Module for WLAN / Bluetooth

MOSFET:FDMA8878
Vds max=30V,Vgs max=+/-20V
Vgs(th)=1.2V/1.8V/3V(min/typ/max)
Vgs=4.5V(With 3Cell B+)
Rds(ON)=16mohm/19mohm(typ/max,Vgs=4.5V)
Vgs=10V(With 4Cell B+)
Rds(ON)=13mohm/16mohm(typ/max,Vgs=10V)
Id=9A (TA=25°C)

Signal:EC_WLAN_PWRON_N
Voltage Level:3.3V
LSK3541G1ET2L_VMT3
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.8V/1.5V(min/max)
Rds(ON)=13ohm(max,Vgs=2.5V)
Id=100mA (TA=25°C)
Ton delay=15ns
Rise time=35ns

Signal:EC_WLAN_PWRON_N
Voltage Level:3.3V
LZN7002KWT1G_SOT323-3
Vds max=60V
Vgs max=+/-20V
Vgs(th)=1.2V/2V(min/max)
Rds(ON)=2.7ohm(max,Vgs=5V)
Id=380mA (TA=25°C,t<5s)
Ton delay=3.8ns
Rise time=3.4ns

item	Part Number	Description
Source One	PK29S001P00	S_B_T_MOD USI _ 8501-602200-01 01 !
Source Two	PK29S001U00	S_B_T_MOD FOXCONN T99H318.00

LSK3541G1ET2L_VMT3
Vds max=30V
Vgs max=+/-20V
Vgs(th)=0.8V/1.5V(min/max)
Rds(ON)=13ohm(max,Vgs=2.5V)
Id=100mA (TA=25°C)
Ton delay=15ns
Rise time=35ns

UART_WAKE_N reversed for AMD WLAN Uart function.

EC_WLAN_OFF with Qualcomm WLAN GPIO was 1.8V and internal PU, So EC_WLAN_OFF_N on EC side should be set with OD without PU

Security Classification	LCFC Highly Confidential Information
Issued Date	2020/08/06
Deciphered Date	2020/08/06

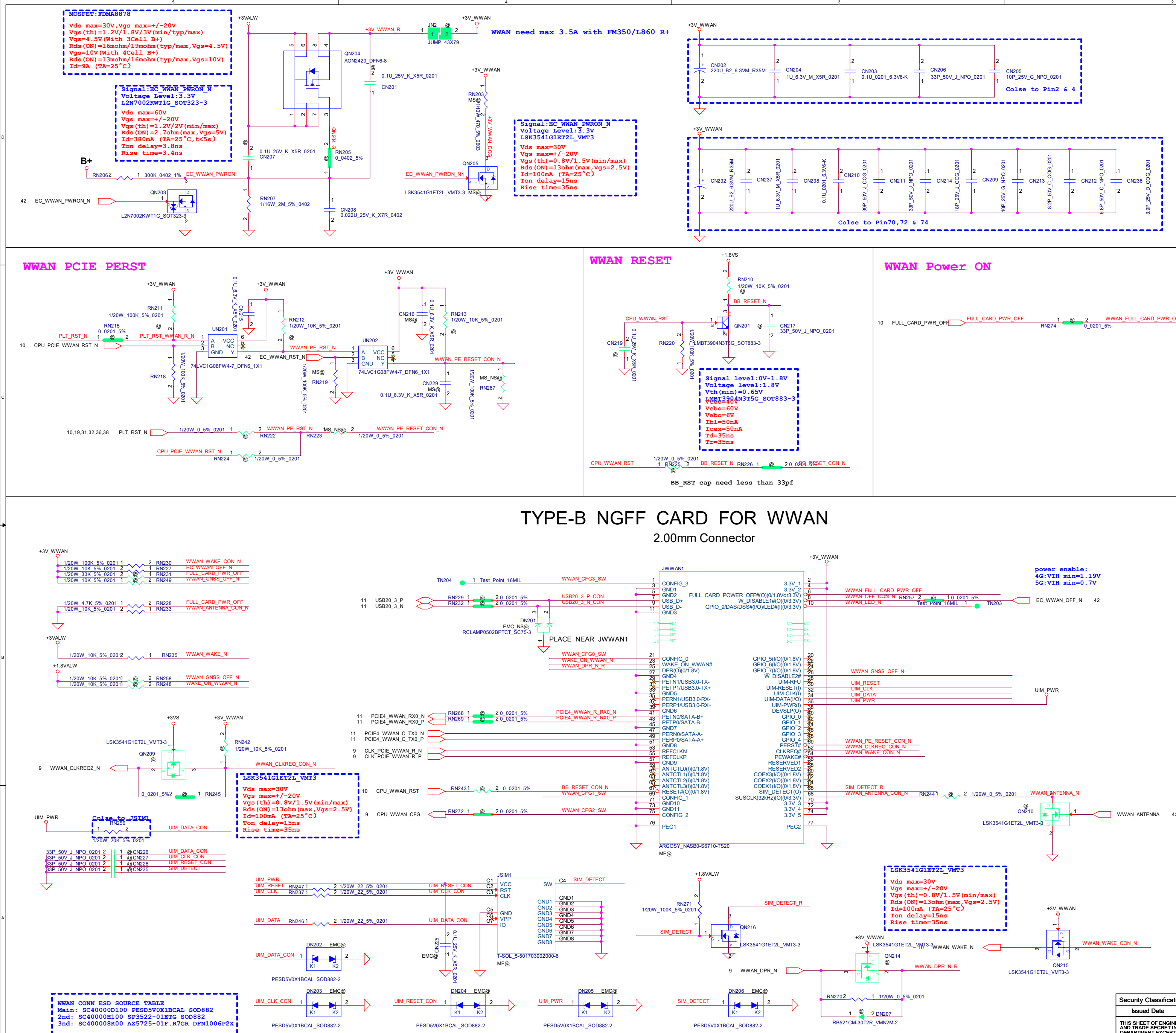
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Title: WLAN

LCFC

Size: C | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 36 of 62



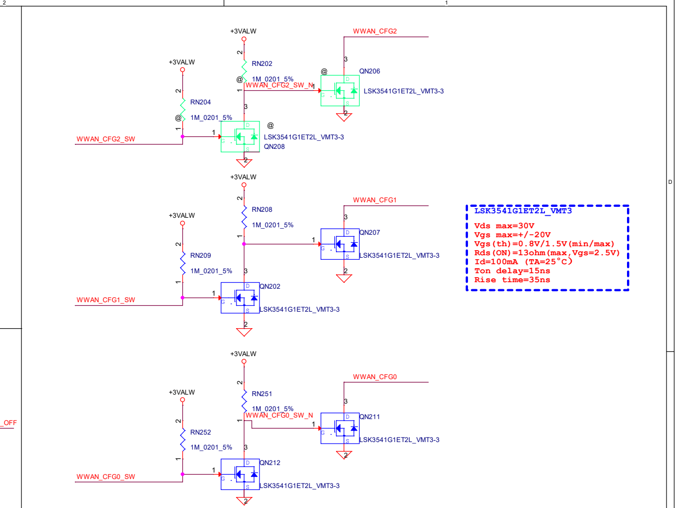
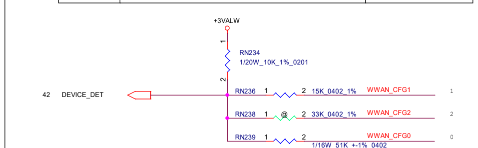


TABLE 3-15. Socket 2 Add-in Card Configuration

State #	Module Configuration Decodes				Module Type and Main Host Interface	Port Configuration
	CONFIG_0 (Pin 21)	CONFIG_1 (Pin 69)	CONFIG_2 (Pin 75)	CONFIG_3 (Pin 1)		
0	GND	GND	GND	GND	SSD - SATA	N/A
1	GND	NC	GND	GND	SSD - PCIe	N/A
2	GND	GND	NC	GND	WWAN - PCIe	0
3	GND	NC	NC	GND	WWAN - PCIe	1
4	GND	GND	GND	NC	WWAN-PCIe, USB3.1 Gen1	0 Notes 4,5
5	GND	NC	GND	NC	WWAN-PCIe, USB3.1 Gen1	1 Notes 4,5
6	GND	GND	NC	NC	WWAN-PCIe, USB3.1 Gen1	2 Notes 4,5
7	GND	NC	NC	NC	WWAN-PCIe, USB3.1 Gen1	3 Notes 4,5
8	NC	GND	GND	GND	WWAN - SSIC	0
9	NC	NC	GND	GND	WWAN - SSIC	1
10	NC	GND	NC	GND	WWAN - SSIC	2
11	NC	NC	NC	GND	WWAN - SSIC	3
12	NC	GND	GND	NC	WWAN - PCIe	2
13	NC	NC	GND	NC	WWAN - PCIe	3
14	NC	GND	NC	NC	WWAN-PCIe, USB3.1 Gen1	Vendor-defined Notes 3,5
15	NC	NC	NC	NC	No Add-in Card Present	N/A

TABLE:

	Module Configuration Decodes				
	CONFIG_0 (Pin 21)	CONFIG_1 (Pin 69)	CONFIG_2 (Pin 75)	CONFIG_3 (Pin 1)	
Fibcom FM350-GL	GND	NC	NC	NC	
L860-GL	NC	GND	NC	NC	
Quectel EM05-G	NC	GND	GND	GND	
EM05-CE	NC	GND	GND	GND	



Vcc	3.32V
R10955	10K +/- 1%

DEVICE_DETECT1#	1.533V	1.686V	1.782V	1.992V	2.215V	2.548V	2.776V	3.32V
WWAN_CFG1	V	V	V	V	X	X	X	X
WWAN_CFG2	V	V	X	X	V	V	X	X
WWAN_CFG0	V	X	V	X	V	X	V	X
Configuration				L860 EM05			FM350	NWWAN

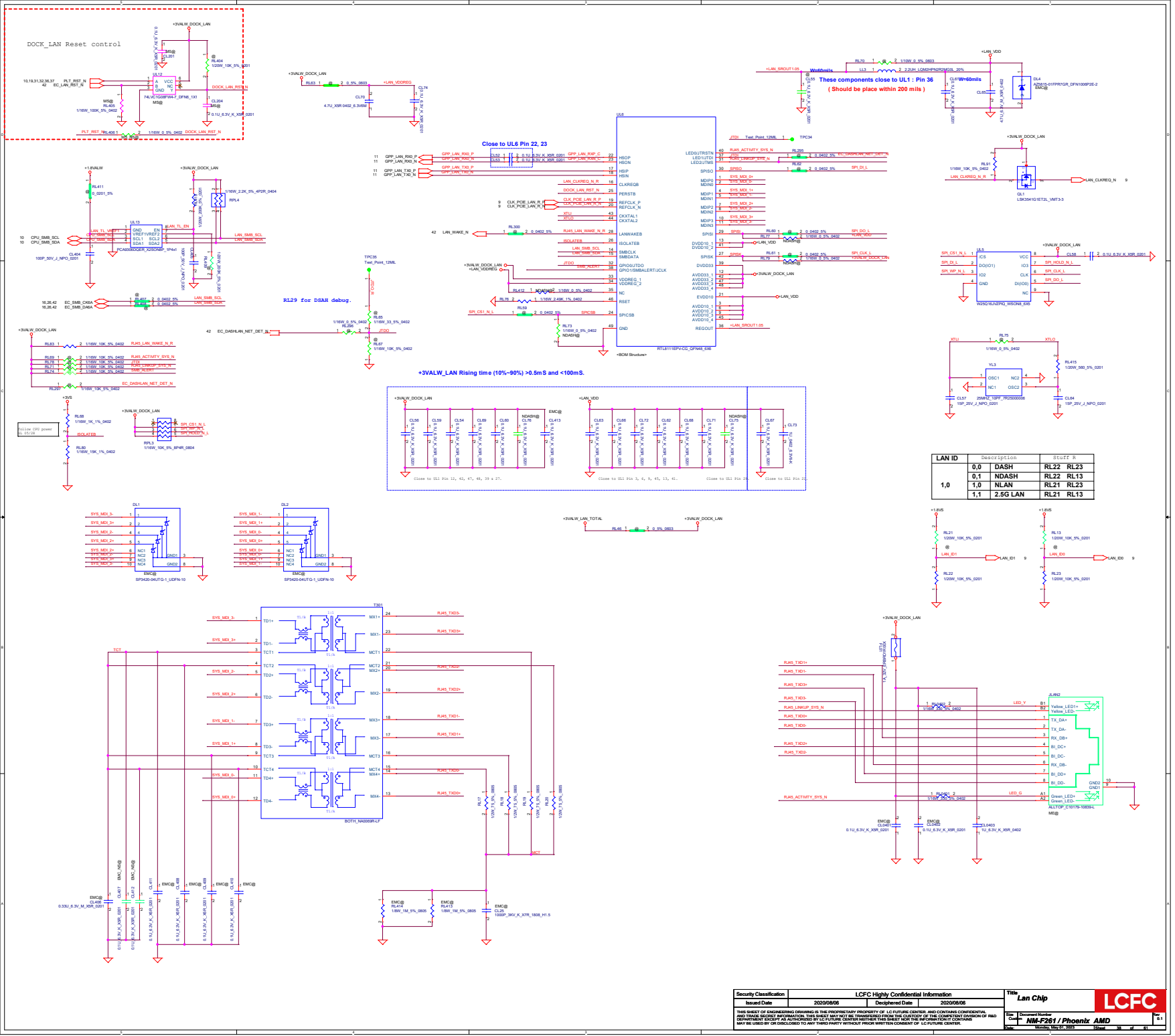
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: WWAN

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023

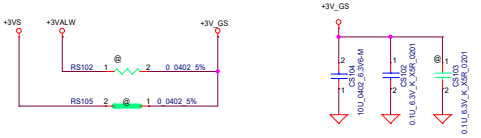


LAN ID	Description	Stuff R	
1,0	0,0	DASH	RL22 RL23
	0,1	NDASH	RL22 RL13
	1,0	NLAN	RL21 RL23
	1,1	2.5G LAN	RL21 RL13

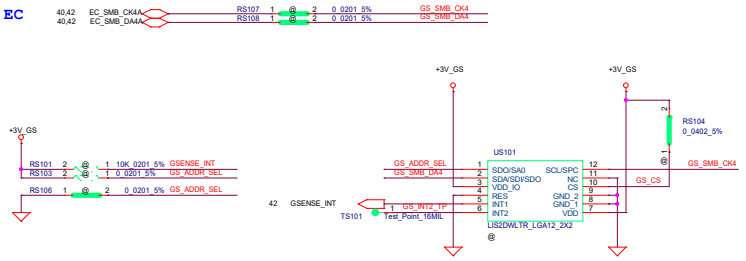
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title	Lan Chip	LCFC	
Size	Document Number		Rev
C	NM-F261 / Phoenix AMD		0.1
Date:	Monday, May 31, 2021	Sheet	38 of 51

G sensor# (On Board)



EC



TABLE

P/N	ADDR_SEL	Address
LIS2DWLTR/ BMA422	H	32h (W) & 33h (R)
	L	30h (W) & 31h (R)

TABLE of G-Sensor (U148)		
Vendor	P/N	LCFC P/N
ST	LIS2DWLTR	SA00009AQ00
BOSCH	BMA422	SA0000C1V00
Miramems	DA6618	SA0000CE000

Table 17. SAD+Read/Write patterns

Command	SAD[6:1]	SAD[0] = SA0	R/W	SAD+R/W
Read	001100	0	1	00110001 (31h)
Write	001100	0	0	00110000 (30h)
Read	001100	1	1	00110011 (33h)
Write	001100	1	0	00110010 (32h)

Miramems

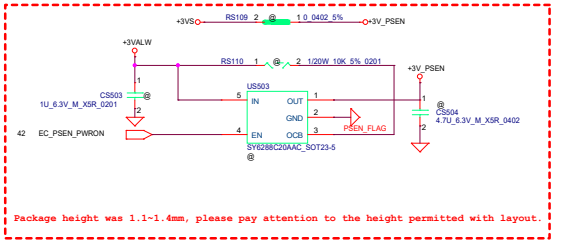
Table 9.I2C Address

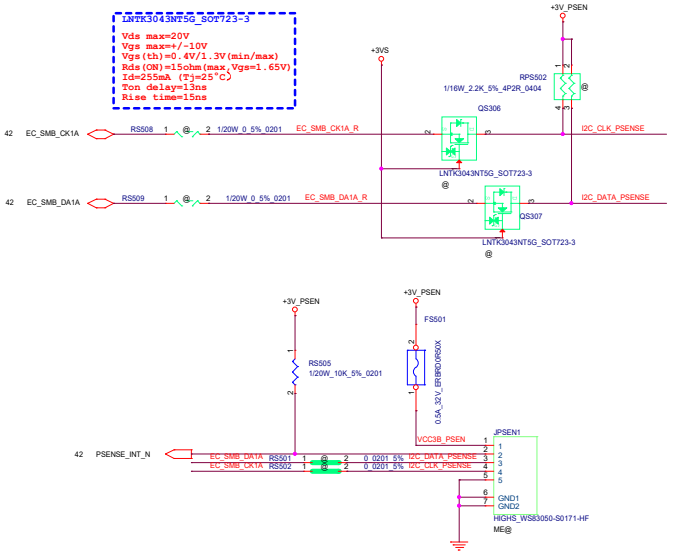
SAD6	SAD5	SAD4	SAD3	SAD2	SAD1	SAD0	W/R
0	1	0	0	1	1	SA0	0/1

Table 10.SAD+Read/Write patterns

Command	SAD[6:1]	SAD[0]=SA0	R/W	SAD+R/W
Read	010011	0	1	01001101(4dh)
Write	010011	0	0	01001100(4ch)
Read	010011	1	1	01001111(4fh)
Write	010011	1	0	01001110(4eh)

P sensor





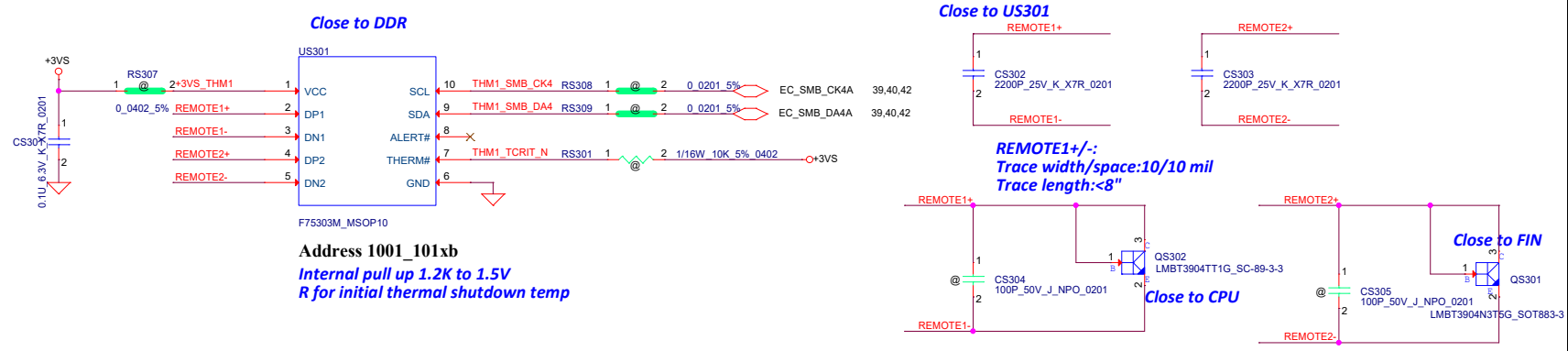
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

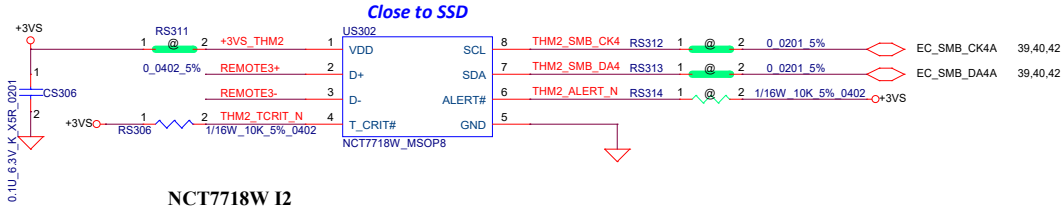
Title: Sensor

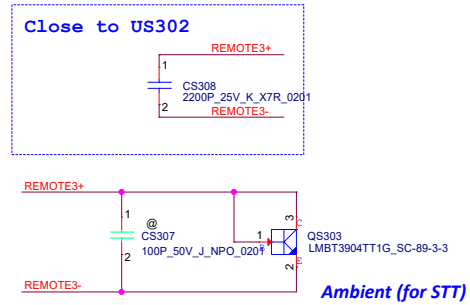
LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 39 of 61

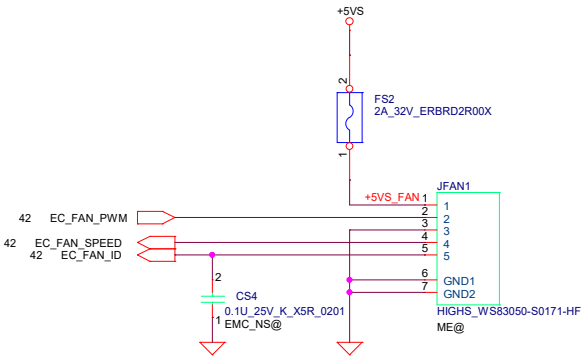






FAN CURRENT
IS 0.5A MAX

FUSE 2.0A



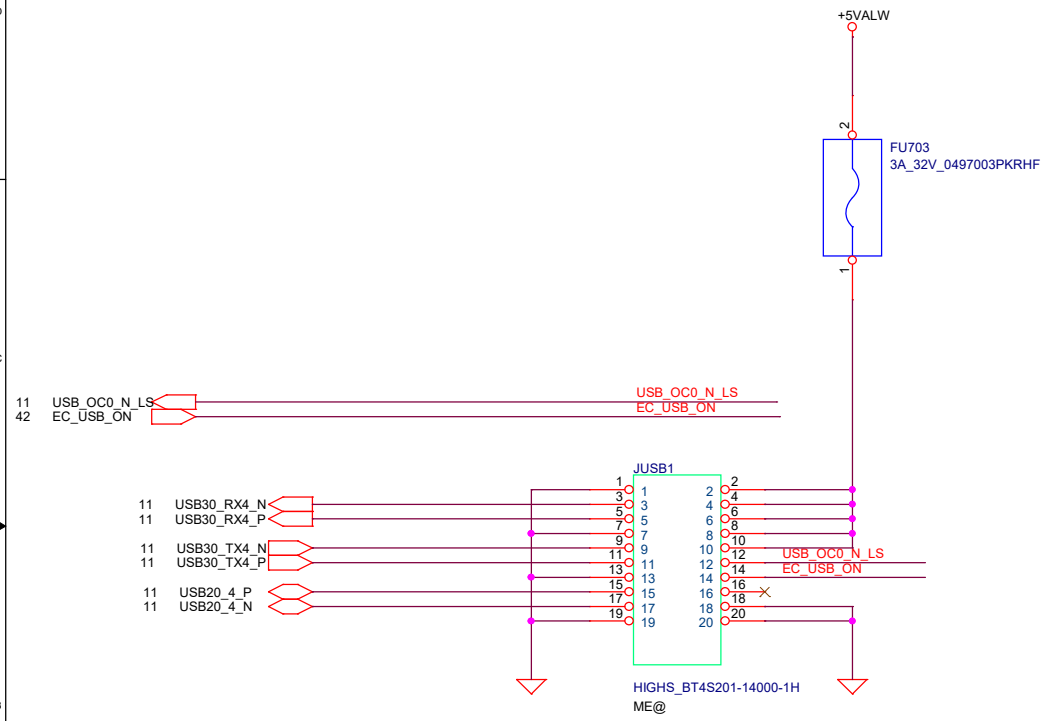
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: Thermal

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 40 of 61



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: ***Sub Board CONN***

LCFC

Size	Document Number	Rev
B	***NM-F261 / Phoenix AMD***	0.1

Date: Monday, May 01, 2023 Sheet 41 of 61

NCT5635Y/W SMBus Address is:

Inputs			SMBus slave address
A2	A1	A0	(0, 1, 0, A2, A1, A0, R/W)

The I2C slave address is (0100,A2,A1,A0), followed by a R/W bit.

NCT5635Y SMBus Address

Example1	0	1	0	0	A2	A1	A0	R/W
38501	0	1	0	0	1	0	1	

NCT5635Y SMBus Address

Example2	0	1	0	0	A2	A1	A0	R/W
38502	0	1	0	0	1	1	0	

NCT5635Y SMBus Address

Example3	0	1	0	0	A2	A1	A0	R/W
38503	0	1	0	0	1	1	1	

EC ROM

Place together and close to UE4 for reducing branch.

EC to PD I2C

Please make sure SPI power (1.8VALW) is default turned on and follows EC VCC (+3VL) power-on within 9.4ms.

TABLE of EC ROM		
Vendor	P/N	LCFC P/N
WINBOND	W25Q128JWSIQ	SA0000A6Z00
GD	GD25LB128ESIGR	
MXIC	Z32H330TC-SQN-L4	SA0000AN000

HDMI 2.0 Retimer
APD Thermal
SN6147 Audio Codec

Expanders

Close to EC Pin

G Sensor,Thermal Sensor 1 & 2

BAT,Charge,VR

TypeA,TypeC Port Debug

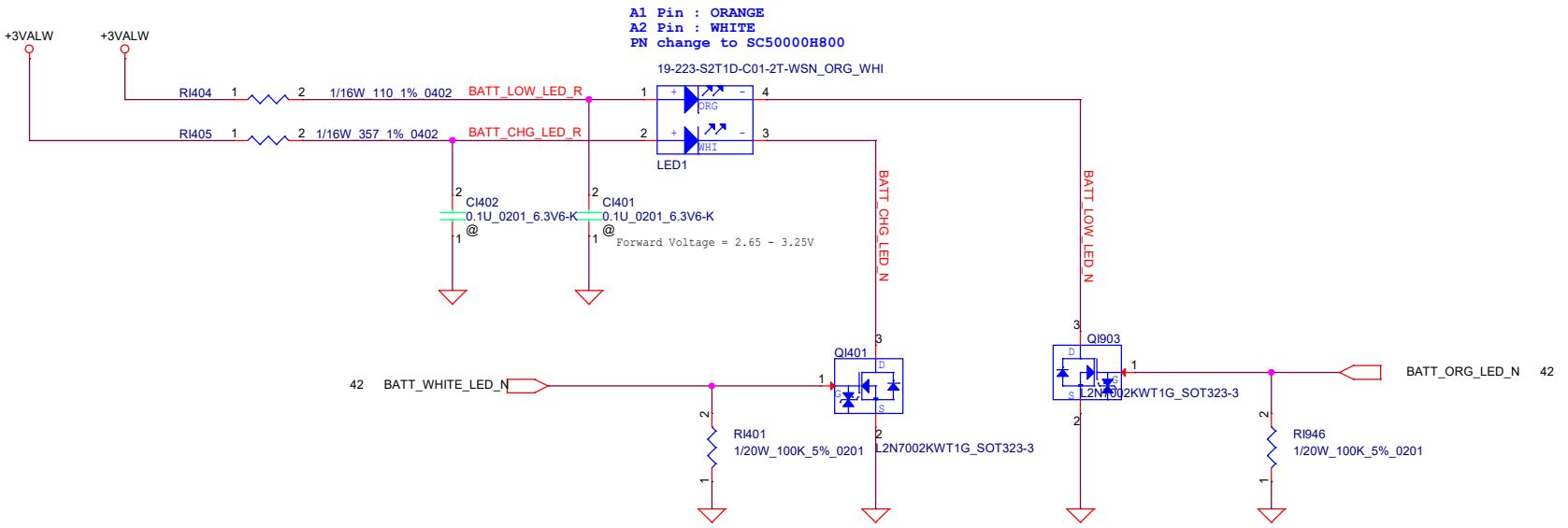
P-Sensor

PD

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. RECIPIENT AGREES NOT TO COPY, REPRODUCE, OR TRANSFER TO ANY THIRD PARTY OR USE IN ANY MANNER NOT EXPRESSLY AUTHORIZED BY LC FUTURE CENTER WITHOUT PRIOR WRITTEN CONSENT. EXPORT AND DEPARTMENT EXPORT AS AUTHORIZED BY LC FUTURE CENTER. RECIPIENT SHALL NOT USE THIS INFORMATION EXCEPT AND MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Title	EC_NPCX997KA0BX	LCFC
Size	Document Number	Rev
C	NM-P261 / Phoenix AMD	0.1
Date: Monday, May 31, 2021	Sheet 43 of 52	



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

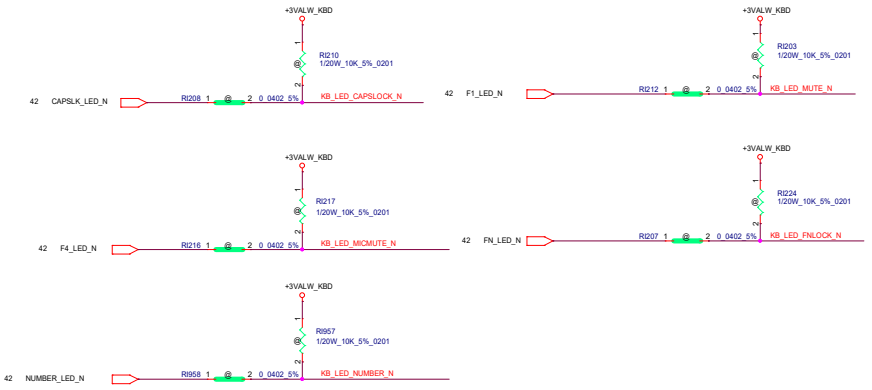
Title: ***BATTERY LED***

LCFC

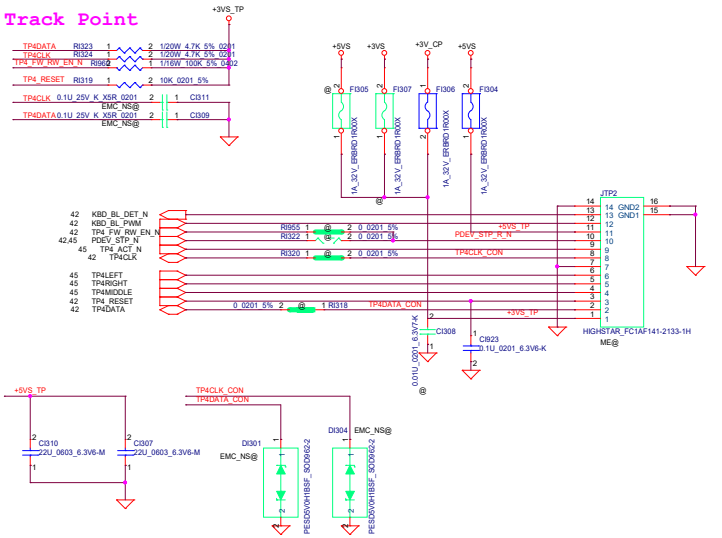
Size	Document Number	Rev
B	***NM-F261 / Phoenix AMD***	0.1

Date: Monday, May 01, 2023 Sheet 43 of 61

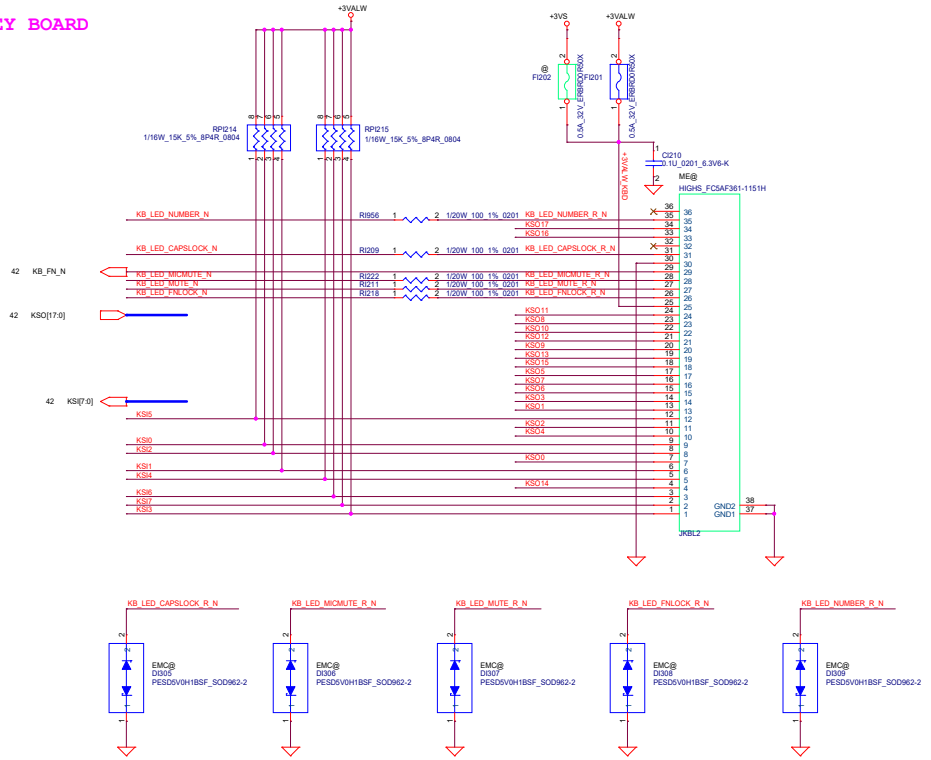
KB LED CONTROL

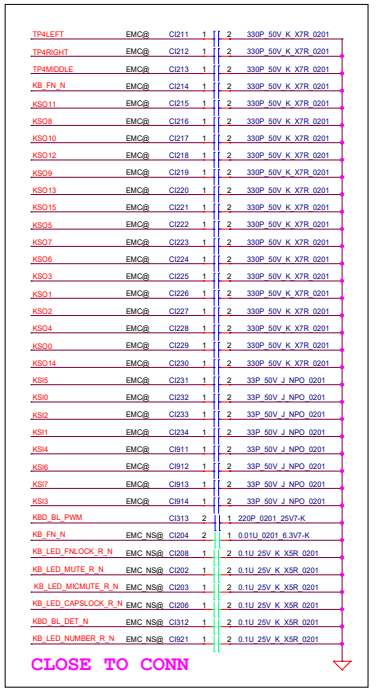


Track Point



KEY BOARD





CLOSE TO CONN

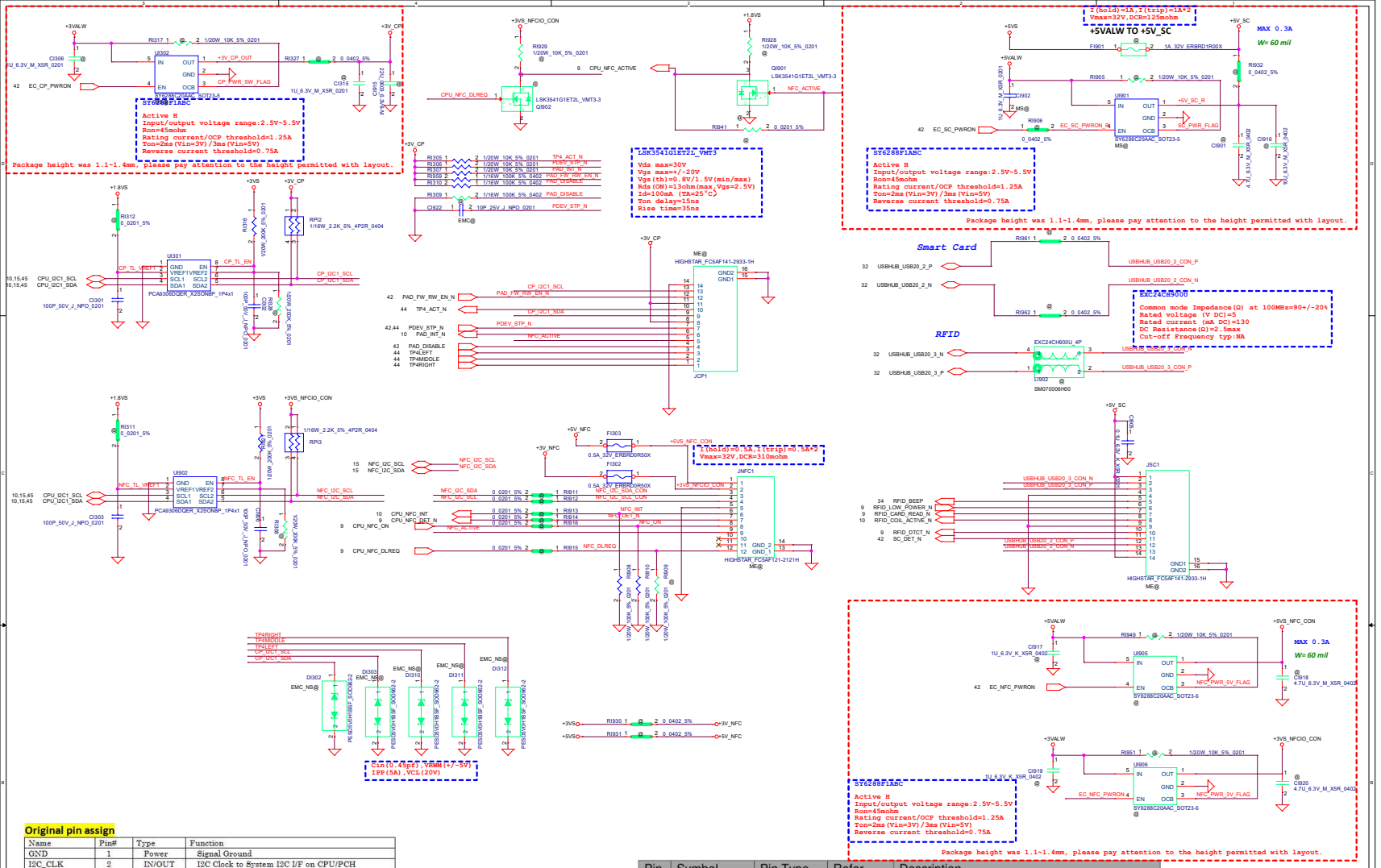
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: KB/KBBL CONN

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 44 of 61



Original pin assign

Name	Pin#	Type	Function
GND	1	Power	Signal Ground
I2C_CLK	2	IN/OUT	I2C Clock to System I2C I/F on CPU/PCH
IPD_GND	3	IN	TrackPoint ground
NC	4		
-TP4_ACT	5	IN	TrackPoint Activity status. Please refer to "4.2.8"
I2C_DAT	6	IN/OUT	I2C Data to System I2C I/F on CPU/PCH
V_{DD}	7	Power	Supply power from system. Power is not supplied when system is in S3, S4, S5 and G5 state. (Refer to electrical requirement)
- PDEV_STP	8	IN	This signal is used to disable to report button status and finger status to system when system LCD lid is closed or is in Tent /Stand /Tablet modes (Yoga case). Please refer to "4.2.5 PDEV_STP"
-I2C_INT	9	OUT	Interrupt for I2C communication
NFC_Active	10	IN	This signal should use if NFC Antenna is implemented under touch pad PCBA. This signal should be NC or not be used in touch pad PCBA if NFC antenna is not implemented under touch pad PCBA. Please refer to "4.2.6 NFC_Active"
PAD_DISABLE	11	IN	This signal is used to disable touch pad. Please refer to "4.2.4 PAD_DISABLE".
TP4LEFT	12	IN	TrackPoint button signal
TP4MIDDLE	13	IN	TrackPoint button signal
TP4RIGHT	14	IN	TrackPoint button signal

Pin	Symbol	Pin Type	Refer	Description
1	VBAT	Input Power	N/A	Power supply from system (4.5V - 5.5V)
2	PVDD	Input Power	N/A	Power supply to I/O (3.0V – 3.6V)
3	I2C_SDA	I/O	PVDD	I2C data
4	I2C _SCL	I	PVDD	I2C clock
5	GND	G	N/A	Ground
6	IRQ	O	PVDD	Interrupt from NFC module to the host (Host_Wake)
7	NFC_Presence	G	N/A	Connect to ground for NFC module presence bit (Low active)
8	VEN	I	VBAT	Reset pin. Set the device in Hard Power Down
9	TX_PWR_REQ	O	VDD	(External TX power supply request) (Active high 1.8V level output) Indicates NFC busy state during NFC communication to touchpad.
10	PMUVCC	Input Power	N/A	Power supply to UICC(1.78V~3.3V)
11	SWIO_UICC	I/O	VDD(SIM)	SWP data connection to SIM
12	DWL_REQ	I	PVDD	Firmware download control pin
S1	GND	G	N/A	Ground
S2	GND	G	N/A	Ground

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

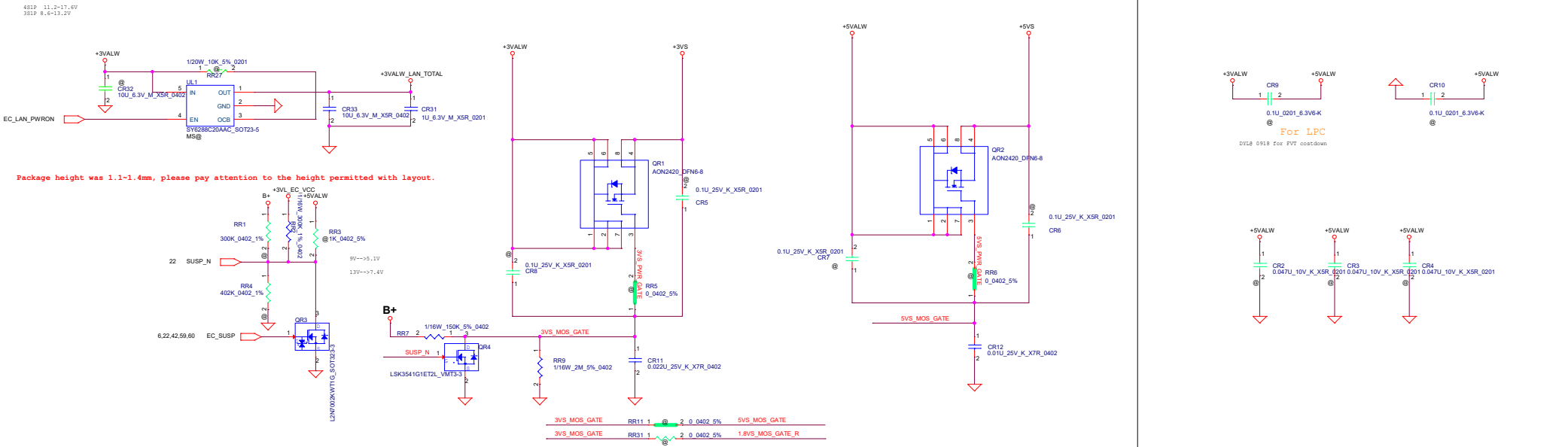
Title	TouchPad CONN	LCFC	
Size	Document Number	Rev	
Custom	NM-F261 / Phoenix AMD	0.1	
Date:	Monday, May 01, 2023	Sheet	45 of 61

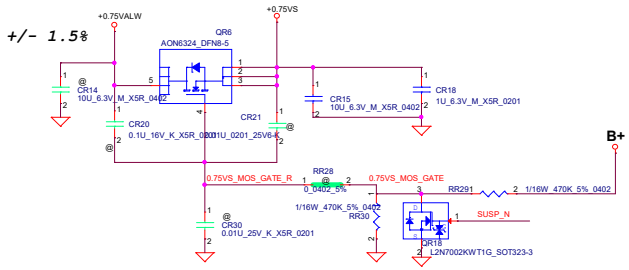
Security Classification	LC Future Center Secret Data		
Issued Date	2020/9/15	Deciphered Date	2020/7/6

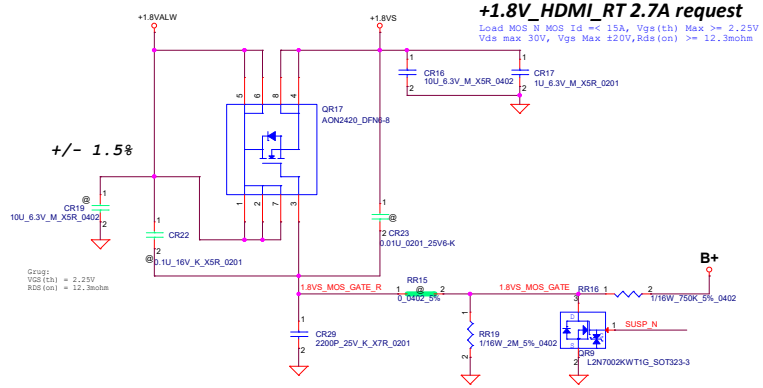
Title

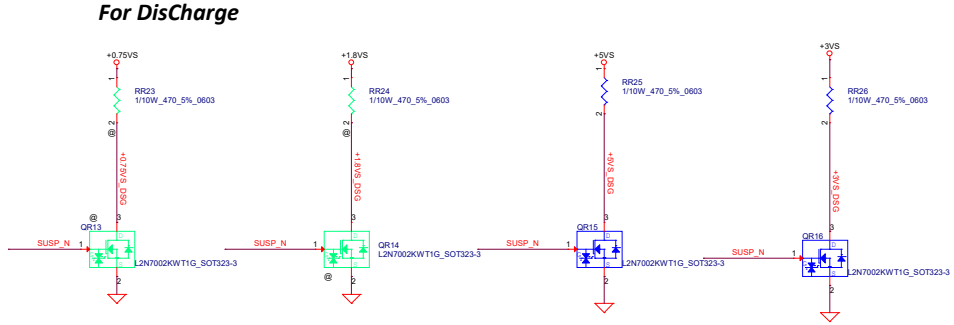
MEDIA CARD CONTROLLER

Size: Custom	Document Number: ***NM-F261 / Phoenix***	Rev: A2
Date: Monday, May 01, 2023	Sheet 46 of 68	AMD



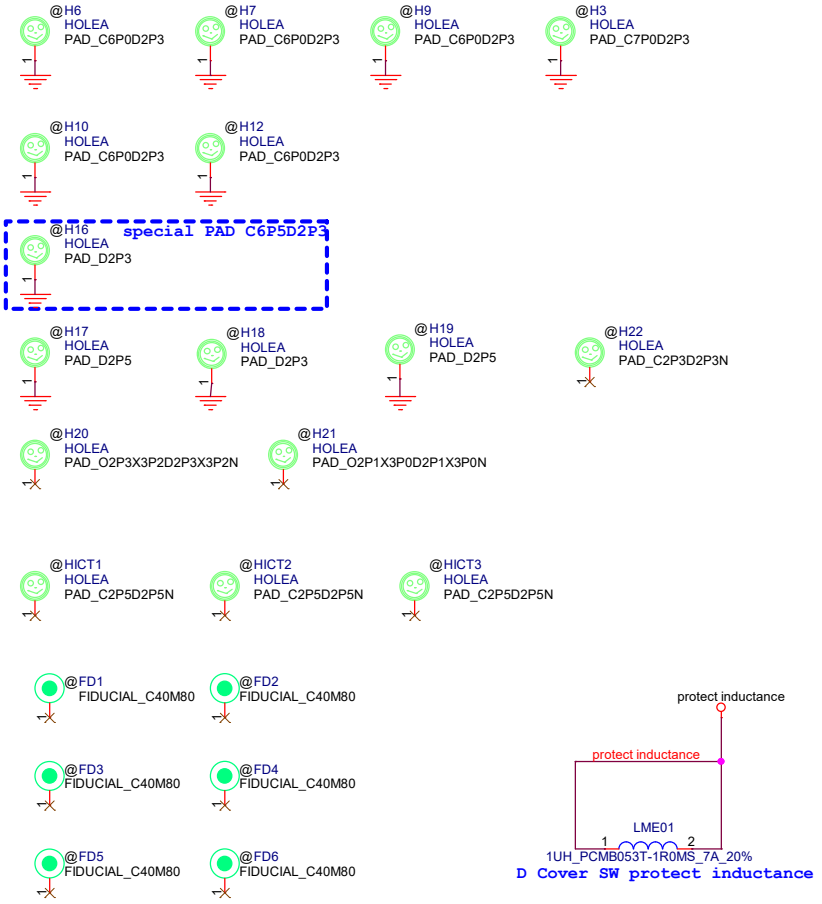


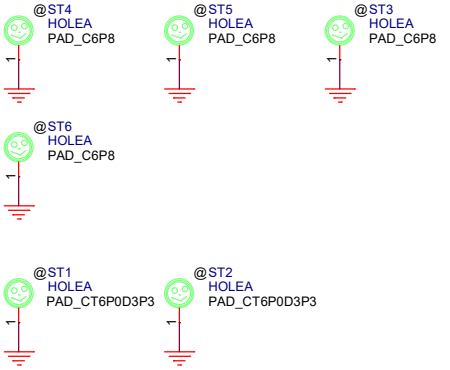




Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title	DCDC_SYSTEM PWR	LCFC	
Size	Document Number		Rev
Custom	NM-F261 / Phoenix AMD		0.1
Date:	Monday, May 01, 2023	Sheet	47 of 61





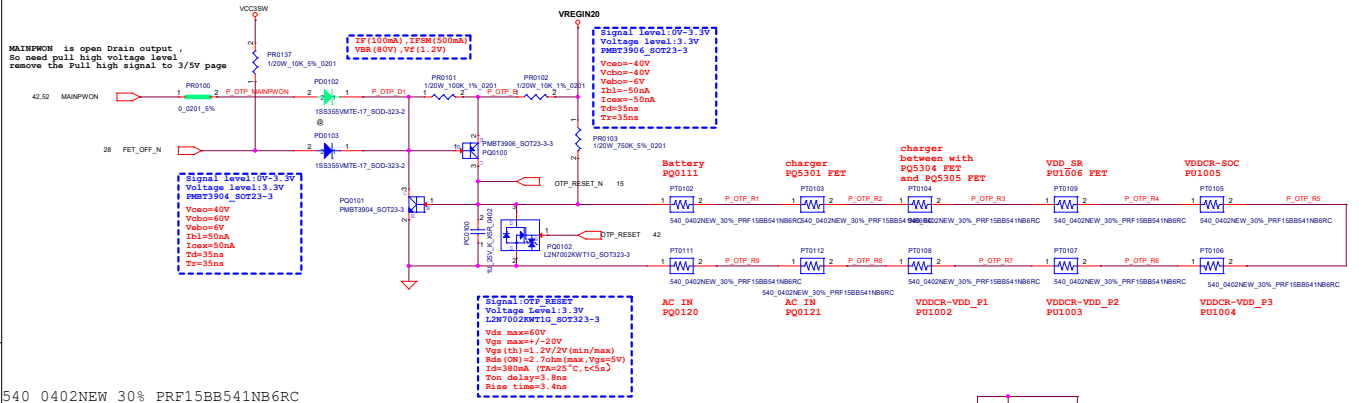
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

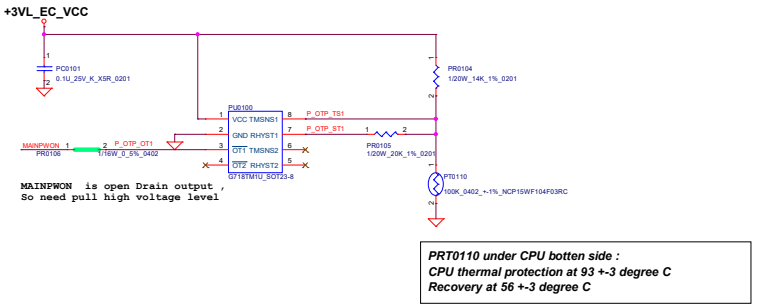
Title: ***Hole/Shielding***

LCFC

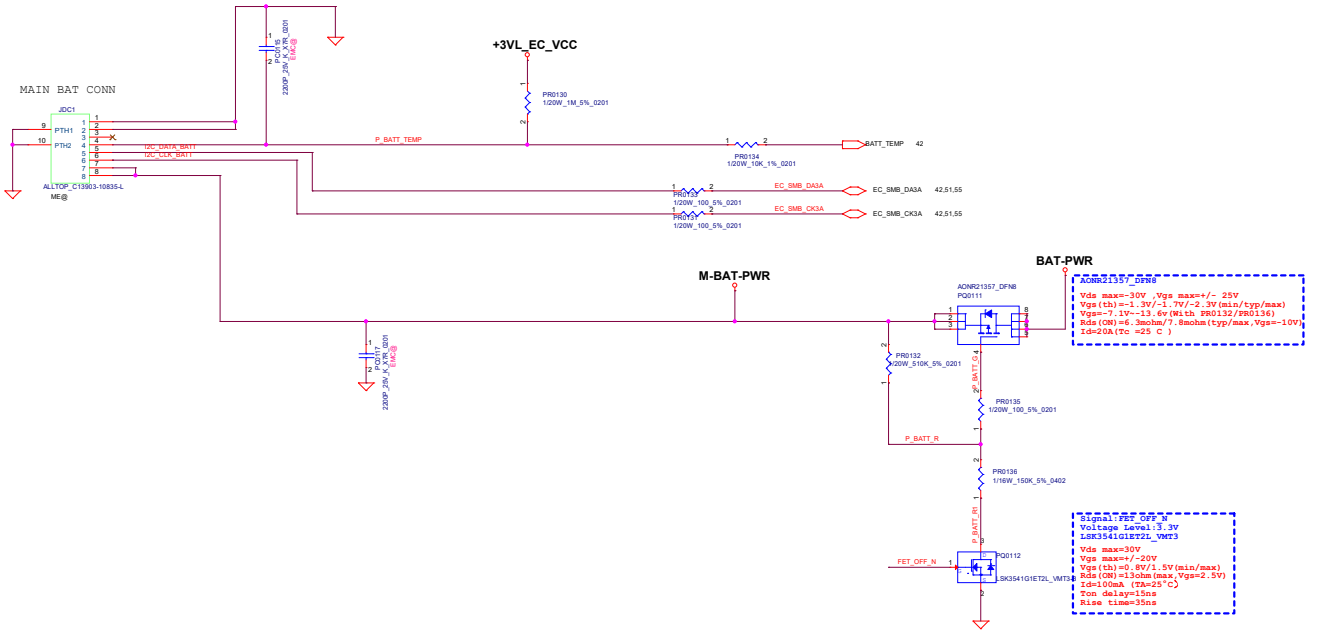
Size	Document Number	Rev
B	***NM-F261 / Phoenix AMD***	0.1

Date: Monday, May 01, 2023 Sheet 48 of 61





540_0402NEW_30%_PRF15BB541NB6RC
25~100Degree
0.54@25 Degree
1.2*0.54*k@85Degree
2*0.54 k@100 Degree
20*0.54 k@120Degree
100*0.54 k@130Degree
350*0.54 k@140Degree
Vbattrey min =9V,Vbattery max =12.6V
Vthreshold min=0.65V,Vthreshold min=0.85V,
TotalR (PTC)*(VBatt-1.25)/(TotalR (PTC)+750)=0.65V
TotalR (PTC)max=59.8K~==110 times 0.54 k
TotalR (PTC)min=43.72K~==80times 0.54 k
Normal run 3Dmark
the max T maybe 85 Degree
the total R PTC= 1.2*0.54*10=12*0.54 k
if only one PTC over 130 degree,
the total PTC is 100*0.54K+11*0.54k,>80*0.54K
and over the min Vthreshold,and active the OTP
if only one PTC over 140 degree,
the total PTC is 350*0.54K>>80*0.54K
,can over the min Vthreshold
and active the OTP
so,the OTP function is ok



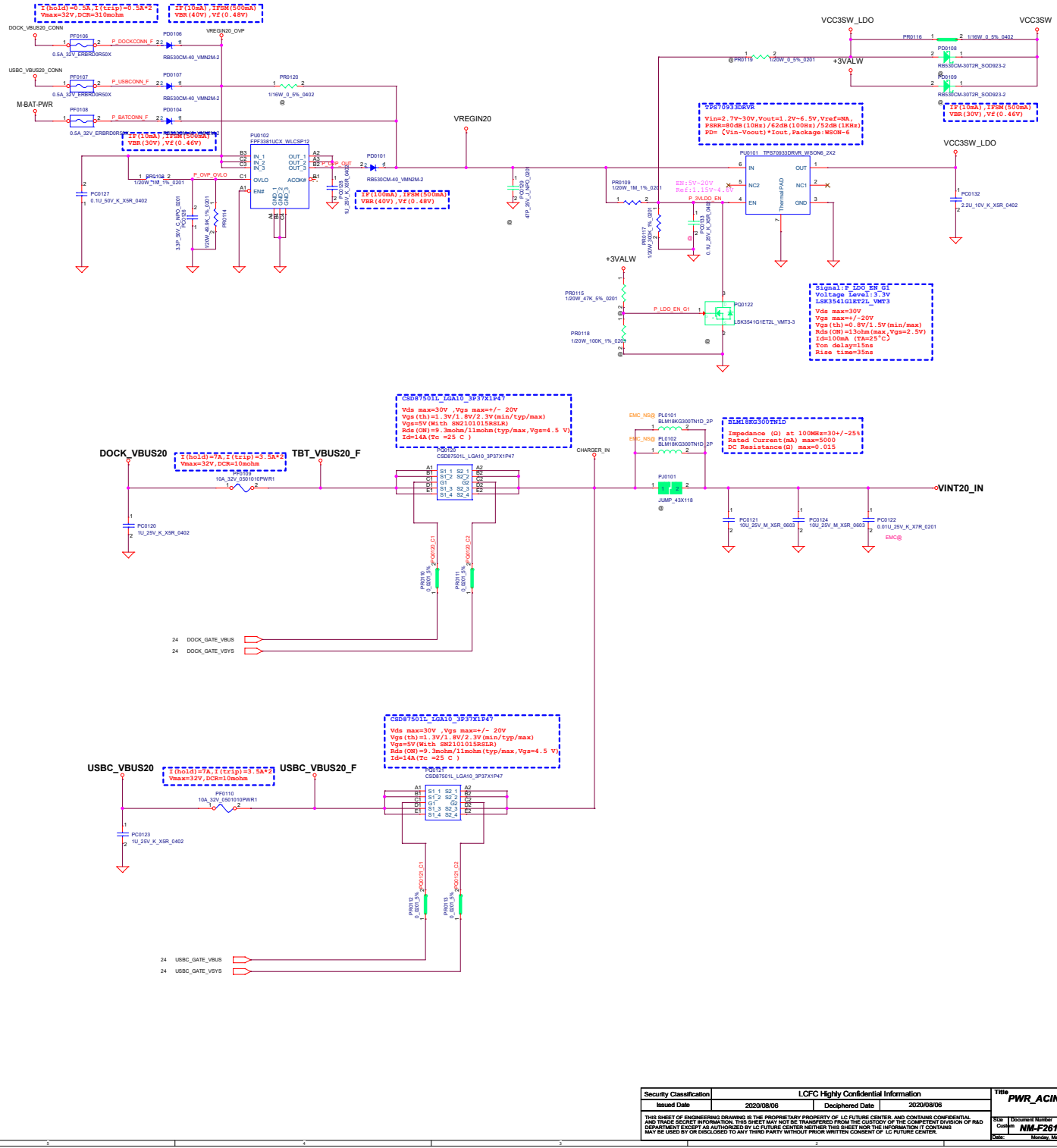
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: PWR_DCIN/RTC

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 49 of 62



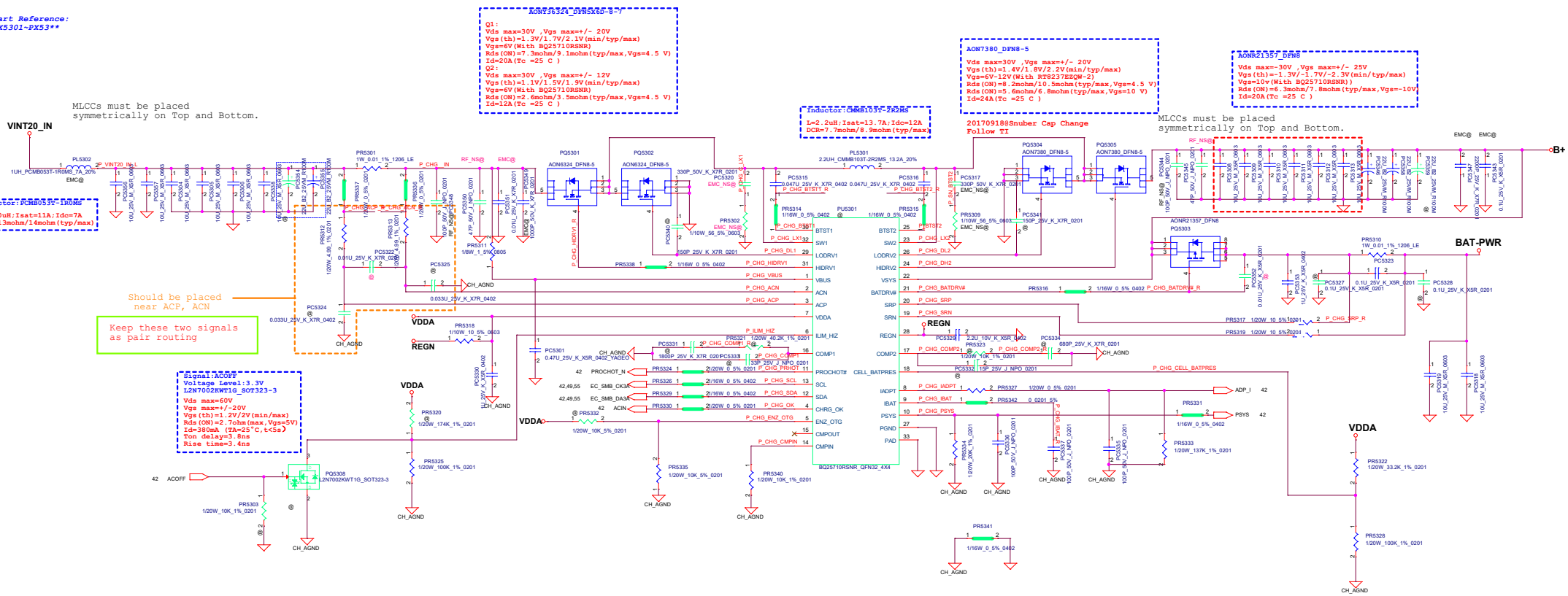
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: PWR_ACIN

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 50 of 62



CHGTI@: Install for BQ25710RSNR
CHGSOUTH@: Install for SC8885SQDER

IDPM	V(ILIM)	PR5320
500mA	1.2V	402K
1.0A	1.4V	332K
1.5A	1.6V	280K
2.0A	1.8V	237K
3.0A	2.2V	174K
3.25A	2.3V	162K

LOGIC

TABLE of Main/2nd

IC	PU5301	TI BQ25710RSNR (1st)	Southchip SC8885SQDER (2nd)
ACP	PC5324	0.033U_25V_K_X7R_0402	NO_ASM
ACN	PC5325	0.033U_25V_K_X7R_0402	NO_ASM
COMP1	PR5321	40.2K_1%_0201	1/20W_68K_1%_0201
COMP1	PC5331	1800P_25V_K_X7R_0201	220P_50V_K_X7R_0201
COMP1	PC5333	33P_25V_J_NPO_0201	NO_ASM
COMP2	PR5323	10K_1%_0201	1/20W_27K_1%_0201
COMP2	PC5332	15P_25V_J_NPO_0201	NO_ASM
COMP2	PC5334	680P_25V_K_X7R_0201	330P_50V_K_X7R_0201
ILIM_HZ	PR5320	174K_1%_0201	137K +-1% 0201

TABLE of PU5301

	Vendor	P/N	LCFC P/N
1st	TI	BQ25710RSNR	SA00009K300
2nd	Southchip	SC8885SQDER	SA0000DDA00

# of CELL	VCELL_PRES	PR5322
1-CELL	1.5V	301K
2-CELL	2.5V	140K
3-CELL	3.5V	71.5K
4-CELL	4.5V	33.2K

LOGIC

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title	PWR_CHARGER	LCFC	
Size	Document Number	Rev	
Custom	NM-F261 / Phoenix AMD	0.1	
Date:	Monday, May 01, 2023	Sheet 51 of 62	

Part Reference:
PX6001~PX60**

TABLE of PU6001			
	Vendor	P/N	LCFC P/N
1st	TI	TPS51393PRJER	SA00009A200
2nd	SILERGY	SYV768BRAC	SA0000CHC00
3rd	Joulwatt	JW5168BQFN	SA0000DFD00

TABLE of Main/2nd/3rd			
IC	PU6001	TI TPS51393PRJER (1st)	Silergy SYV768BRAC (2nd) / Joulwatt JW5168BQFN (3rd)
VCC	PC6004	1U_25V_K_X5R_0402	4.7U_6.3V_M_X5R_0402
VCC	PR6009	NO_ASM	0_5%_0603
LDO	PR6010	0_5%_0603	NO_ASM
LDO	PC6005	4.7U_6.3V_M_X5R_0402	NO_ASM
BST	PC6001	0.22U_25V_K_X5R_0402	0.1U 25V K X7R 0402
FB	PR6011	240K_1%_0201	1K +-1% 0201
FB	PC6003	470P_50V_K_X7R_0201	1000P 50V K X7R 0201

3VTI@: Install for TPS51393
3VSILERGY@: Install for SYV768B

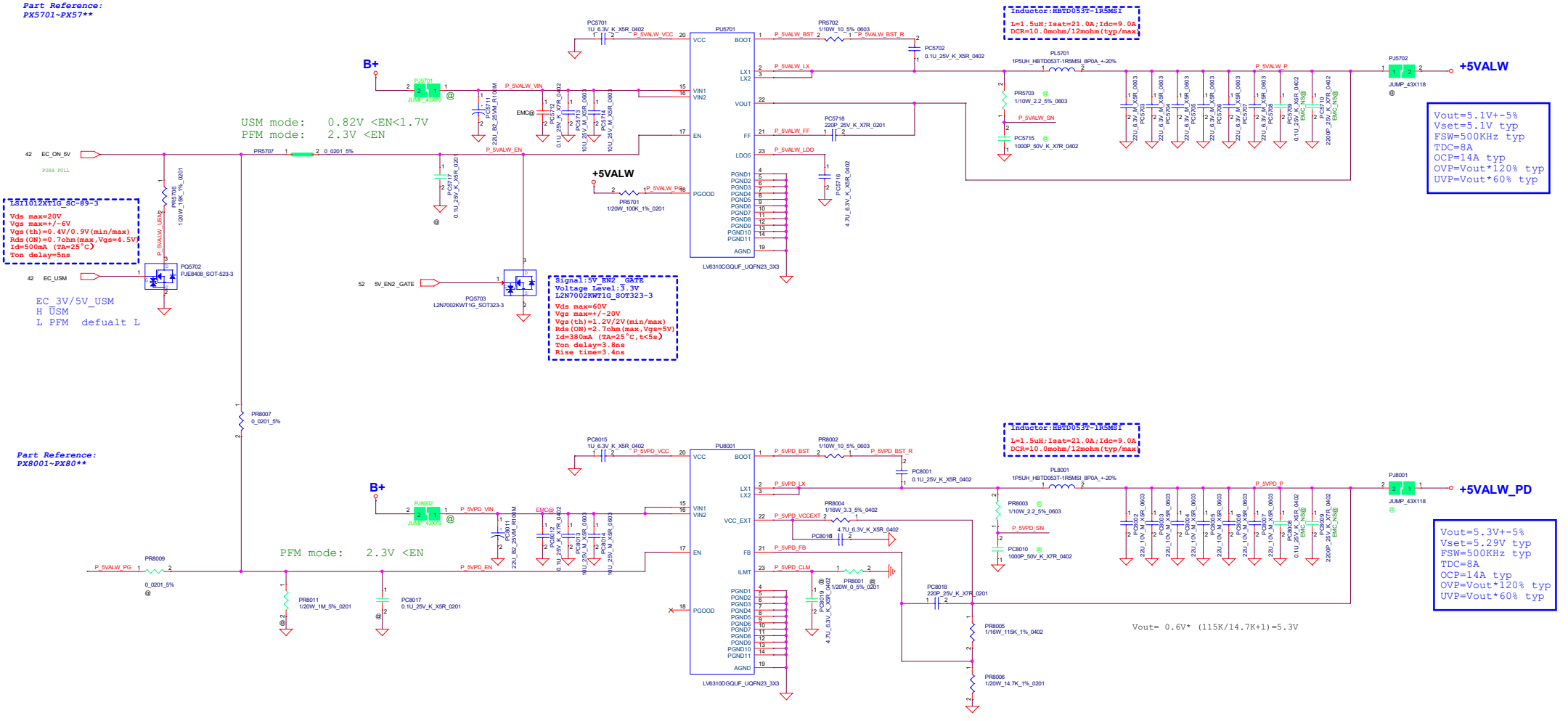
Vout=3.3V+-5%
Vset=3.36V typ
FSW=625KHz typ
TDC=7.5A
OCP=9.6A typ
OVP=Vout*123% typ
UVP=Vout*64% typ

Inductor:CMLE053T-1R5MS
L=1.5uH;Isat=8.0A;Idc=7.2A
DCR=14.7mohm/17mohm(typ/max)

NTJD5121NT1G_SC88-6
Vds max=60V
Vgs max=+/-20V
Vgs(th)=1V/2.5V(min/max)
Rds(ON)=2.5ohm(max,Vgs=4.5V)
Id=295mA (TA=25°C)
Ton delay=22ns

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: +3VALW
LCFC
Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1
Date: Monday, May 01, 2023 | Sheet 52 of 62



BOM Option			
IC	PU8001	LV6310DGQUF	LV6310CGQUF
VCC_EXT	PC8016	4.7U_6.3V_K_X5R_0402	NO_ASM
VCC_EXT	PR8005	1/16W_115K_1%_0402	1/16W_309K_1%_0402
VCC_EXT	PR8006	1/20W_14.7K_1%_0201	1/20W_120K_1%_0201
VCC_EXT	PR8004	1/16W_3.3_5%_0402	1/16W_0_5%_0402
ILMT	PC8019	NO_ASM	4.7U_6.3V_K_X5R_0402

BOM Option			
IC	PU8001	JW5138A	JW5138C
VCC_EXT	PC8016	4.7U_6.3V_K_X5R_0402	NO_ASM
VCC_EXT	PR8005	1/16W_115K_1%_0402	NO_ASM
VCC_EXT	PR8006	1/20W_14.7K_1%_0201	1/20W_332K_1%_0201
VCC_EXT	PR8004	1/16W_3.3_5%_0402	1/16W_0_5%_0402
ILMT	PC8019	NO_ASM	4.7U_6.3V_K_X5R_0402

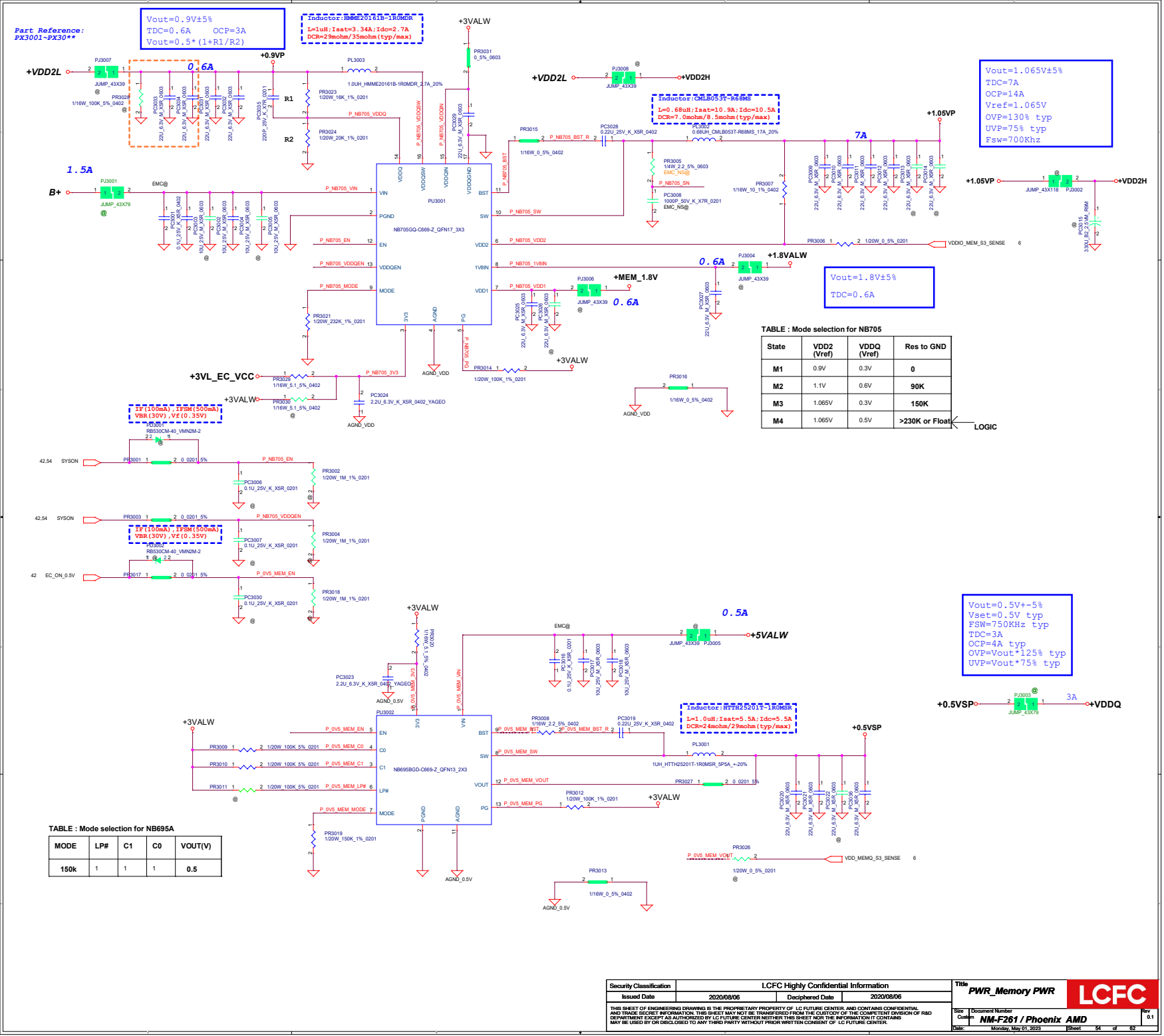
Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: +5VALW/+5VALW_PD

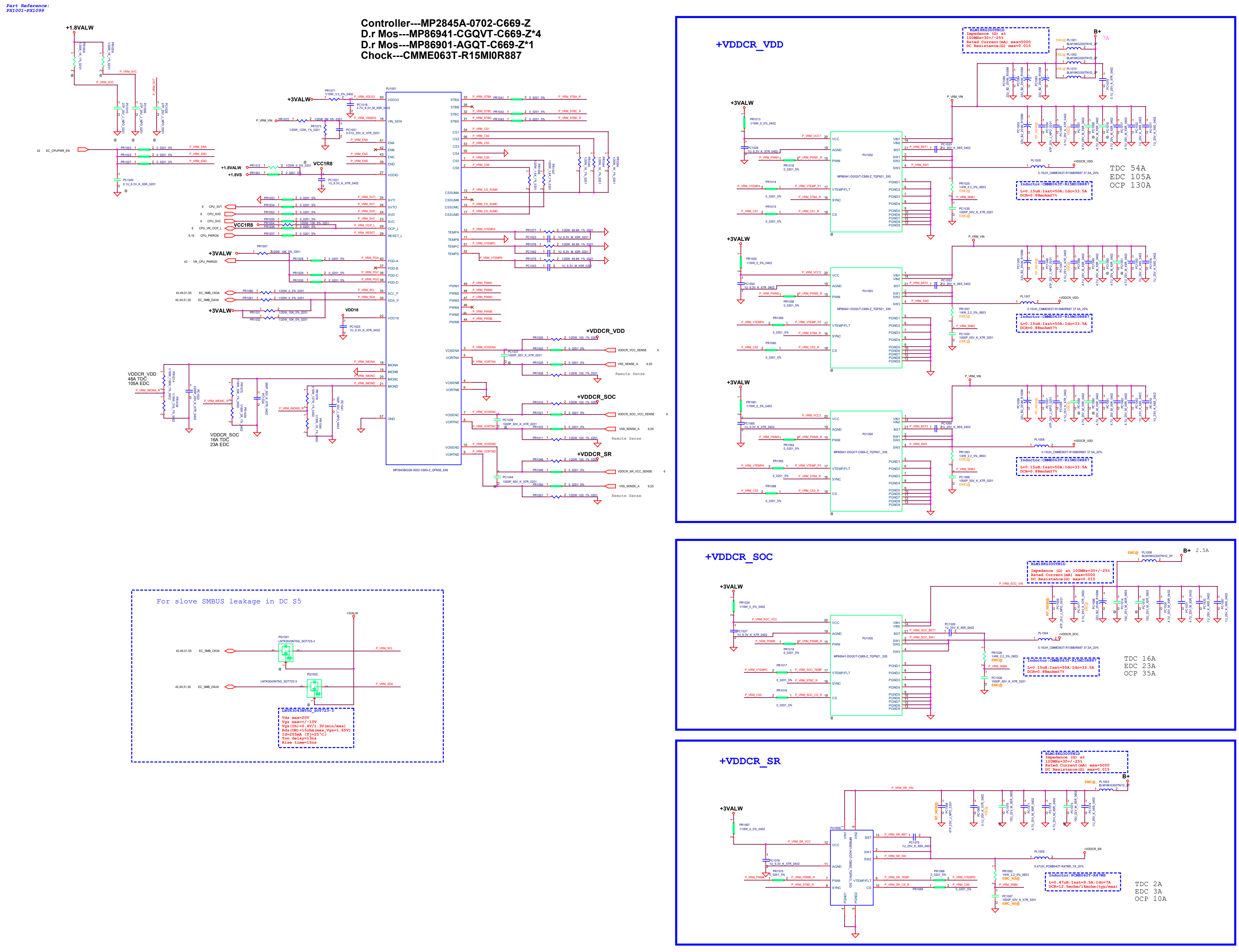
LCFC

Size: Custom | Document Number: NM-P261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 53 of 62



Title	PWR_Memory PWR		LCFC
Size	Document Number		Rev
Custom	NM-F261 / Phoenix AMD		0.1
Date:	Monday, May 01, 2023	Sheet 54 of 62	



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: **CPU PWR Controller**

LCFC

Size: Custom | Document Number: **NM-F261 / Phoenix AMD** | Rev: 0.1

Date: Monday, May 01, 2023 |

Part Reference:
PX1100~PX12**

+VDDCR_VDD

Place on Bot side

Place on TOP side

Note--Rembrandt
470uF/4.5mohm*7pcs D2+220uF/6mohm D2*4
22uF/0603*12pcss
22uF/0402*40pcs

Place on VR side

All BU(on bot side beside CPU)

+VDDCR_SOC

Rembrandt
470uF/4.5mohm*2pcs D2+220uF/6mohm D2*1
22uF/0603*6pcs
22uF/0402*20 pcs

All BU(on bot side beside CPU)

+VDDCR_VDD

All BU(on top side under CPU)

+VDDCR_SOC

All BU(on top side under CPU)

Place on VR side

+VDDCR_SR

Rembrandt
22uF/0603*8pcs
10uF/0402*2pcs

Place on VR side

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

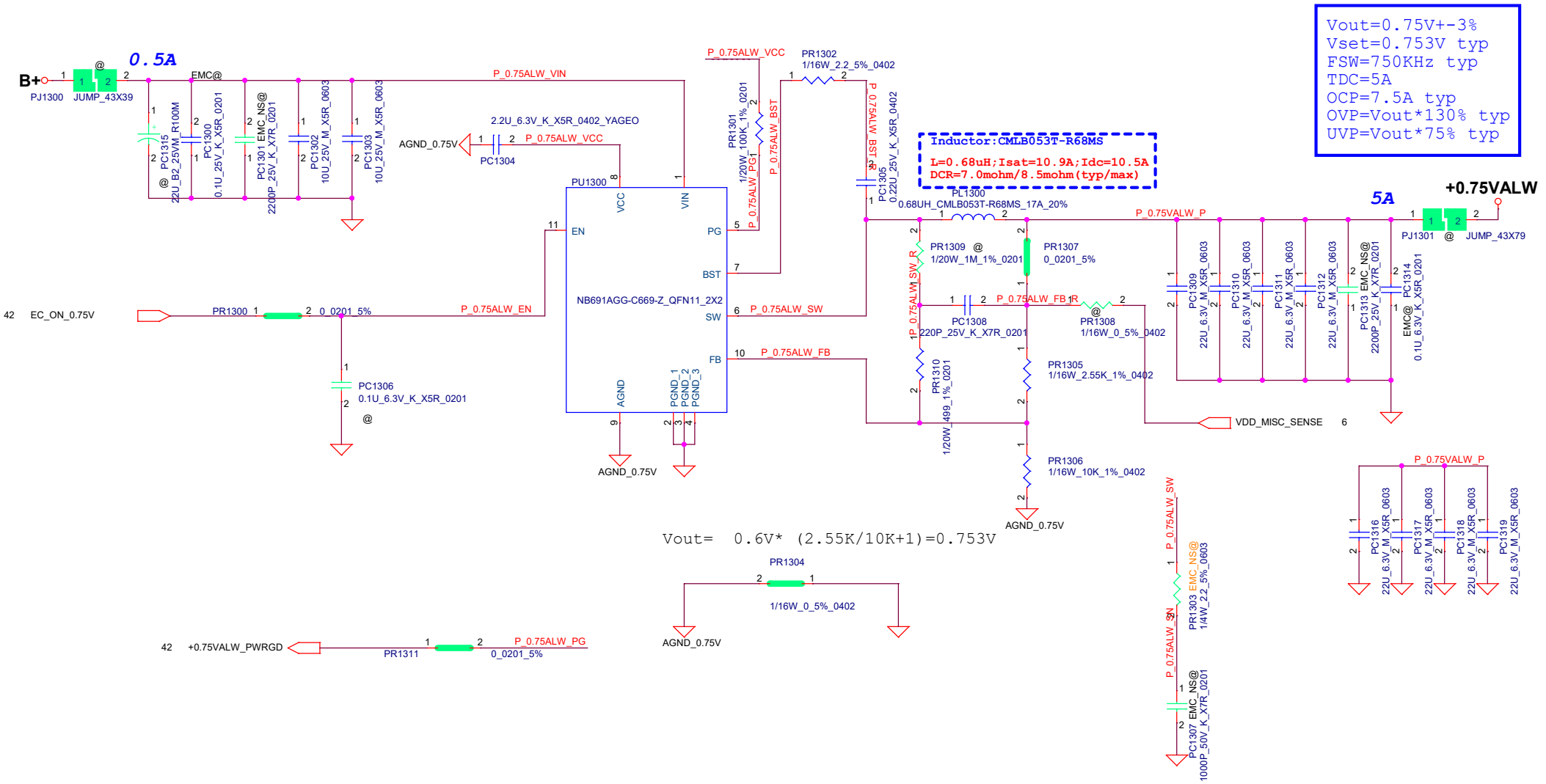
Title: PWR Decoupling

LCFC

Size: C | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 56 of 62

Part Reference:
PX1300~PX1399



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

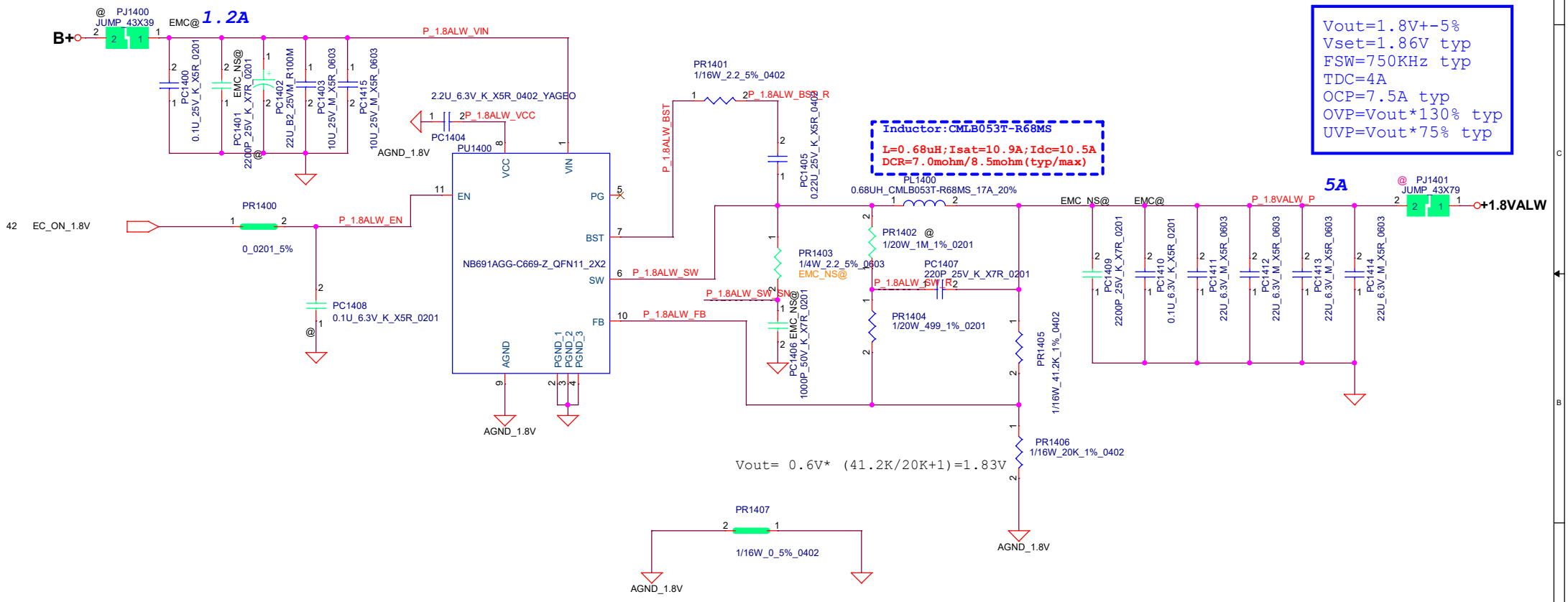
Title: **PWR1_+0.75VALW**

LCFC

Size	Document Number	Rev
B	NM-F261 / Phoenix AMD	0.1

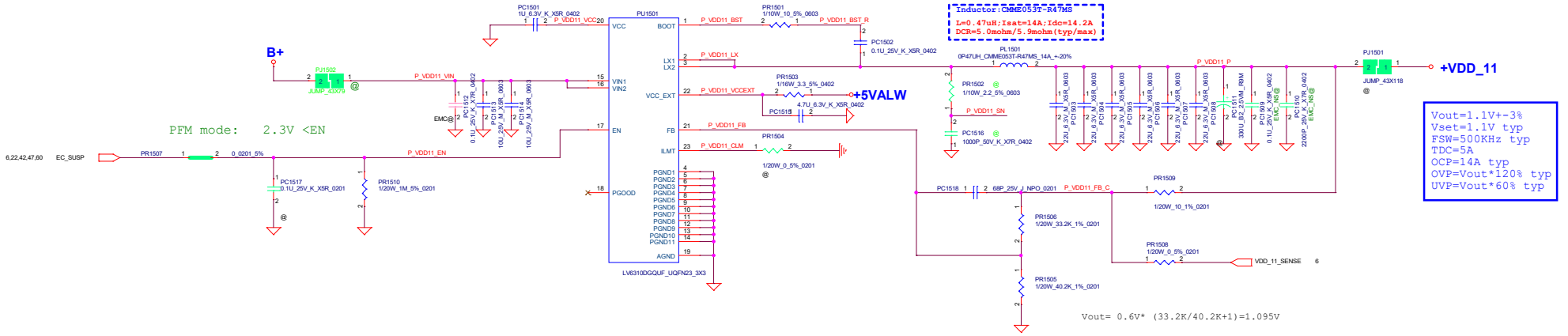
Date: Monday, May 01, 2023 Sheet 57 of 62

Part Reference:
PX1400~PX1499



Title	PWR2_+1.8VALW	LCFC
Size B	Document Number NM-F261 / Phoenix AMD	Rev 0.1
Date: Monday, May 01, 2023	Sheet 58 of 62	

Part Reference:
PX1500~PX1599



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

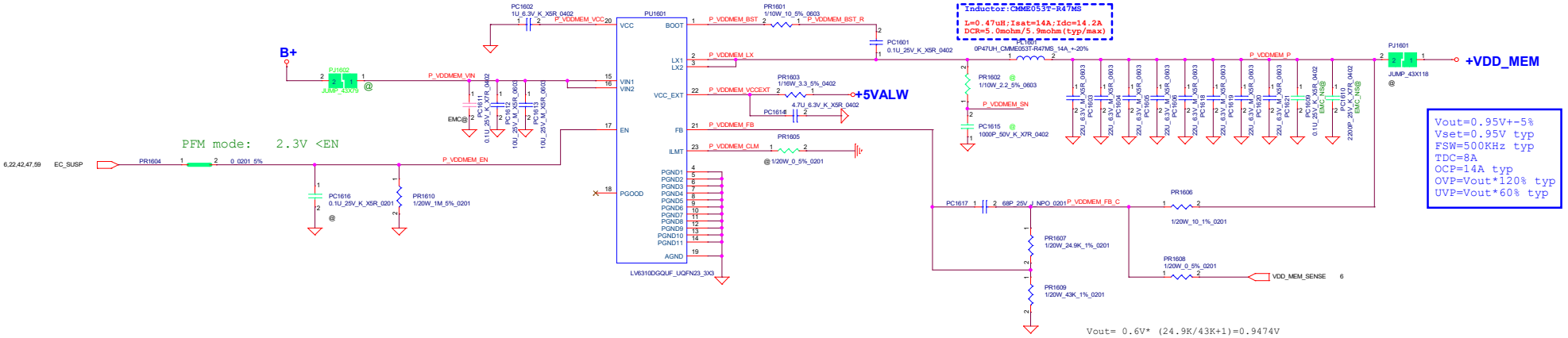
Title: *PWR3_+VDD_11*

LCFC

Size: Custom | Document Number: *NM-F261 / Phoenix AMD* | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 59 of 62

Part Reference:
PX1600~PX1699



Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Title: PWR4_+VDD_MEM

LCFC

Size: Custom | Document Number: NM-F261 / Phoenix AMD | Rev: 0.1

Date: Monday, May 01, 2023 | Sheet 60 of 62

BLANK

Security Classification	LCFC Highly Confidential Information		
Issued Date	2020/08/06	Deciphered Date	2020/08/06

Title: *Change List_EE*

LCFC

Size	Document Number	Rev
C	*NM-F261 / Phoenix AMD*	0.1

Date: Monday, May 01, 2023 Sheet 61 of 62