

***LCFC Confidential***

***BL460***


***( L460 )***

***NM-A651 Rev1.0 Schematic***

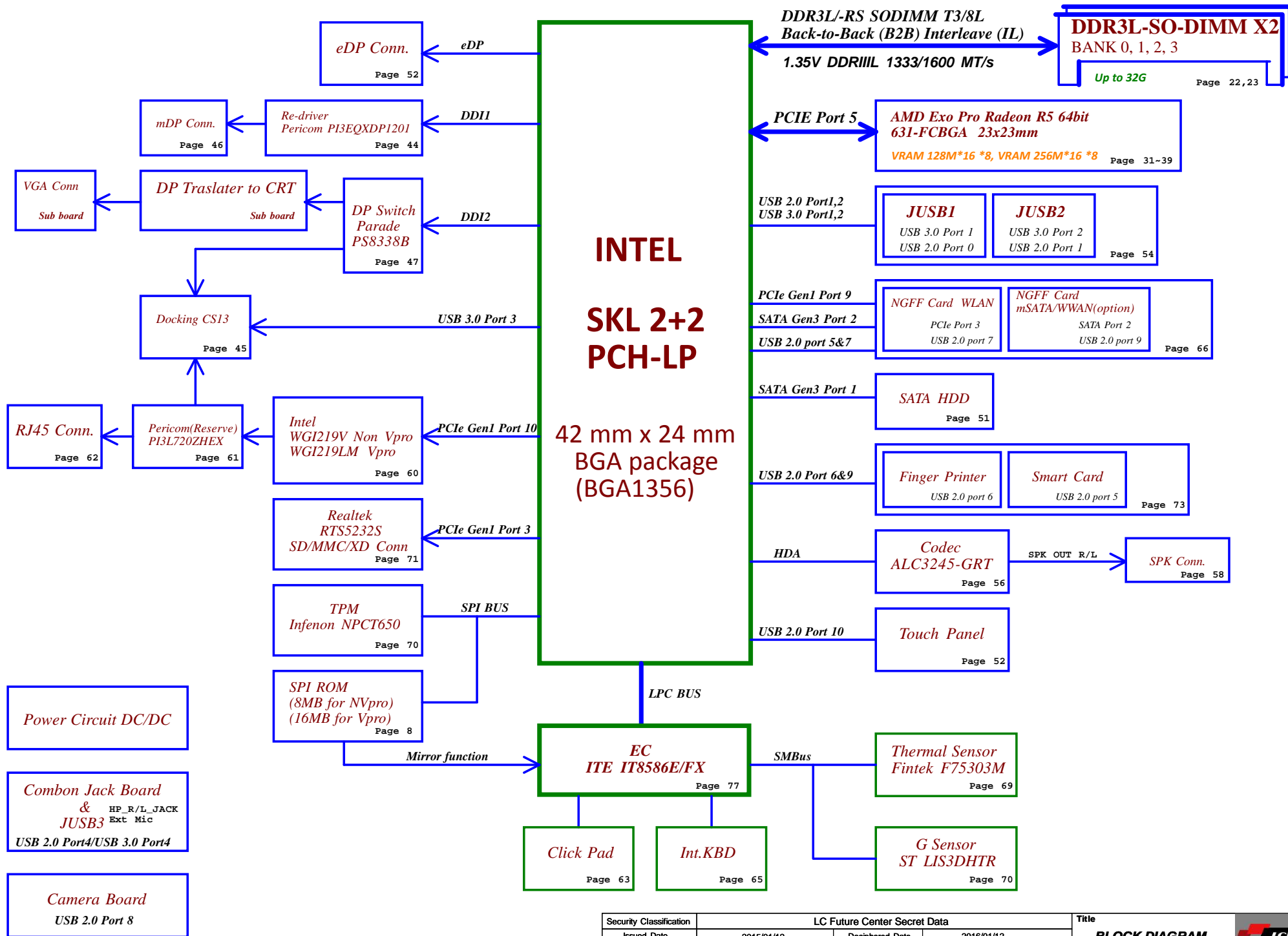
***Intel SKL Processor with DDRIII L + PCH***

***AMD Exo Pro Radeon R5 64bit***

***2015-10-22 Rev1.0***

Security Classification	LC Future Center Secret Data			Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	COVER PAGE		
<small>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&amp;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.</small>				Size	Document Number	Rev
				Custom	<b><i>BL460 NM-A651</i></b>	0.1
Date:				Friday, October 23, 2015	Sheet	1 of 99





Security Classification		LC Future Center Secret Data	
Issued Date	2015/01/12	Deciphered Date	2016/01/12
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		BLOCK DIAGRAM	
Size	Document Number	Rev	0.1
Custom	BLA60_NW-A651		
Date:	Friday, October 23, 2015	Sheet	2 of 99



## Voltage Rails

O --> Means ON  
X --> Means OFF

Power Plane / State	B+	+1VALW +3VALW +1.8VALW +5VALW	+1.35V +0.675VS +VCC_ST	+5VS +3VS +VCC_CORE +VCC_GT +VCC_SA +VCC_IO +VCC_STG +VGA_CORE +1.5VS +0.95VS_VGA +1.5VS_VGA +1.8VS_VGA +3VS_VGA
S0	O	O	O	O
S3	O	O	O	X
S5 S4/AC Only	O	O	X	X
S5 S4 Battery only	O	X	X	X
S5 S4 AC & Battery don't exist	X	X	X	X

	SIGNAL						
STATE	SLP_A#	SLP_S3#	SLP_S4#	SLP_S5#	VM_PWRON	EC_ON	SUSP#
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON
S1 (Power on)	HIGH	HIGH	HIGH	HIGH	ON	ON	ON
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	ON	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	ON	OFF

## SMBUS Control Table

	SOURCE	Main VGA	BATT	SODIMM	WLAN WIMAX	Thermal Sensor	PCH	CP Module	Security ROM	LAN PHY
EC_SMB_CK1 EC_SMB_DA1	IT8586E +3VL	X	V +3VALW	X	X	X	X	X	X	X
EC_SMB_CK3 EC_SMB_DA3	IT8586E +3VS	V +3VS_VGA	X	X	X	V +3VS	V +3V_PCH	X	X	X
PCH_SMB_CLK PCH_SMB_DATA	PCH +3V_PCH	X	X	V +3VS	V +3VS	V +3VS	X	V +5VS	V +3VS	X
PCH_SML0_CLK PCH_SML0_DAT	PCH +3V_PCH	X	X	X	X	X	X	X	X	V +3VALW

## HSIO Port

Port	Device
1	USB3.0 port (On Board)
2	USB3.0 port (On Board)
3	USB3.0 port (Docking)
4	USB3.0 port (Sub Board)
5	N/A
6	N/A
7	PCIE (Card Reader)
8	N/A
9	PCIE (GPU)
10	PCIE (GPU)
11	PCIE (GPU)
12	PCIE (GPU)
13	PCIE (WLAN)
14	PCIE (LAN)
15	SATA (HDD)
16	SATA (NGFF)

## USB2.0 Port

Port	Device
1	USB port (On Board)
2	USB port (On bBoard)
3	USB port (Docking)
4	USB port (Sub Board)
5	WWAN
6	Finger Printer
7	BT
8	Camera
9	Smart Card
10	Touch Panel



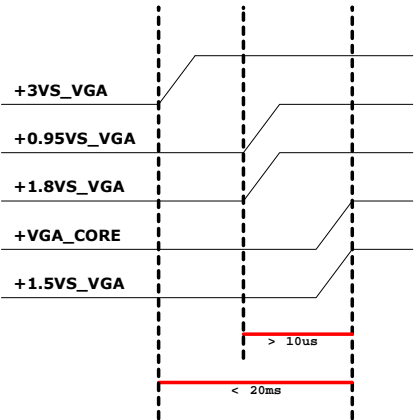
VGA GPIO (EXO-PRO-S3)

GPIO	I/O	ACTIVE	Function Description
GPIO0	OUT	N/A	
GPIO5	IN		GPIO5_AC_BATT
GPIO6	IN		GPIO6
GPIO7	OUT	N/A	
GPIO8	OUT	N/A	GPIO8_ROMSO
GPIO9	OUT	N/A	GPIO9_ROMSI
GPIO10	OUT	N/A	GPIO10_ROMSCK
GPIO11	OUT	N/A	
GPIO12	OUT	N/A	
GPIO13	OUT	N/A	
GPIO15	IN		SVI2_SVD
GPIO16	OUT	N/A	
GPIO17	OUT	N/A	
GPIO19	OUT	N/A	GPIO19_CTF
GPIO20	IN		SVI2_SVC
GPIO21	OUT	N/A	
GPIO22	OUT	N/A	GPIO22_ROMCSB
GPIO29	OUT	N/A	
GPIO30	OUT	N/A	

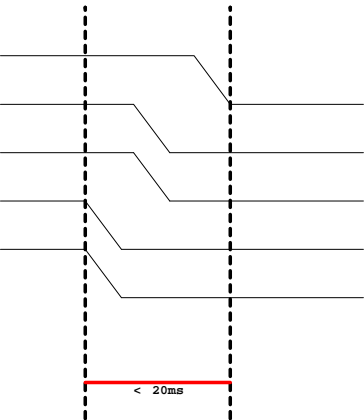
BOM Structure Table

BOM Structure	NOTE
PCB@	For PCB load BOM
3G@	3G function with WWAN
DIS@	Discreate SKU
UMA@	UMA SKU
DPRE@	With DP re-driver
NODPRE@	Bypass DP re-driver
NVPRO@	For Non-VPRO function
VPRO@	For VPRO function
MIRROR@	For mirror function
TPM@	TPM function
X76@	GPU VRAM Setting
XDP@	XDP function
EXO@	EXO function
ME@	ME Connector
EMC@	For EMC function
EMC_NS@	For EMC function (no mount)
RF@	For RF function
RF_NS@	For RF function (no mount)

GPU POWER UP sequence



GPU POWER DOWN sequence



	Device ID
EXO-pro	6660

GPU		EXO-Pro-S3	
VRAM (GDDR3)		PS_3 (RV104)	PS_3 (RV105)
Samsung 1000MHz	K4W4G1646E-BC1A (2G)	PH 3.4K	PD 10K
Hynix 1000MHz	H5TC4G63CFR-N0C (2G)	PH 4.75K	NC
Micro 1000MHz	MT41J256M16HA-093G:E (2G)	PH 3.24K	PD 5.62K

Security Classification

LC Future Center Secret Data

Issued Date

2015/01/12

Deciphered Date

2016/01/12

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

VGA NOTE

Size

Document Number

Custom

BLA60\_NW-A651

Date:

Friday, October 23, 2015

Sheet

4

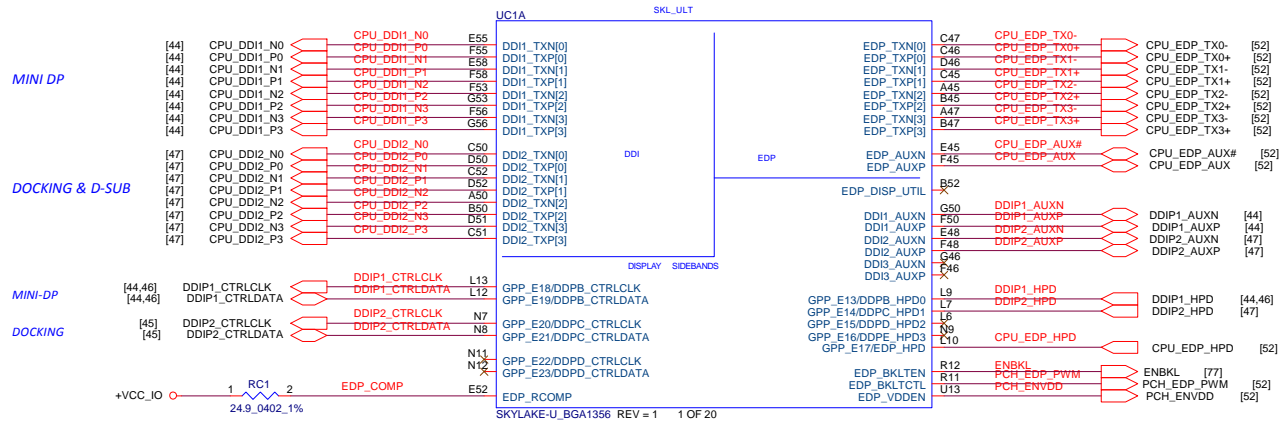
of

99

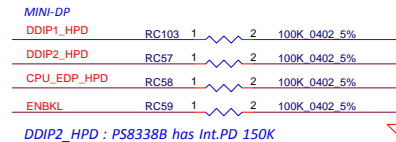
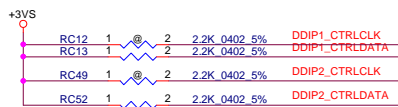
Rev

0.1



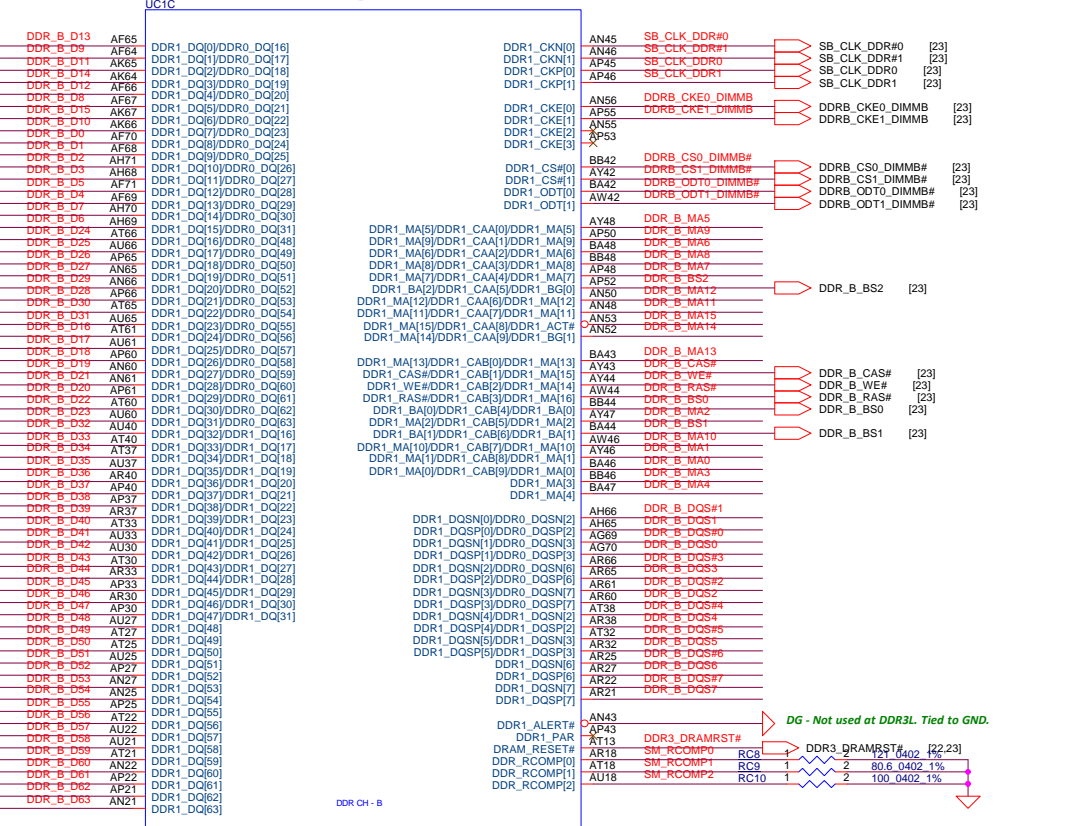
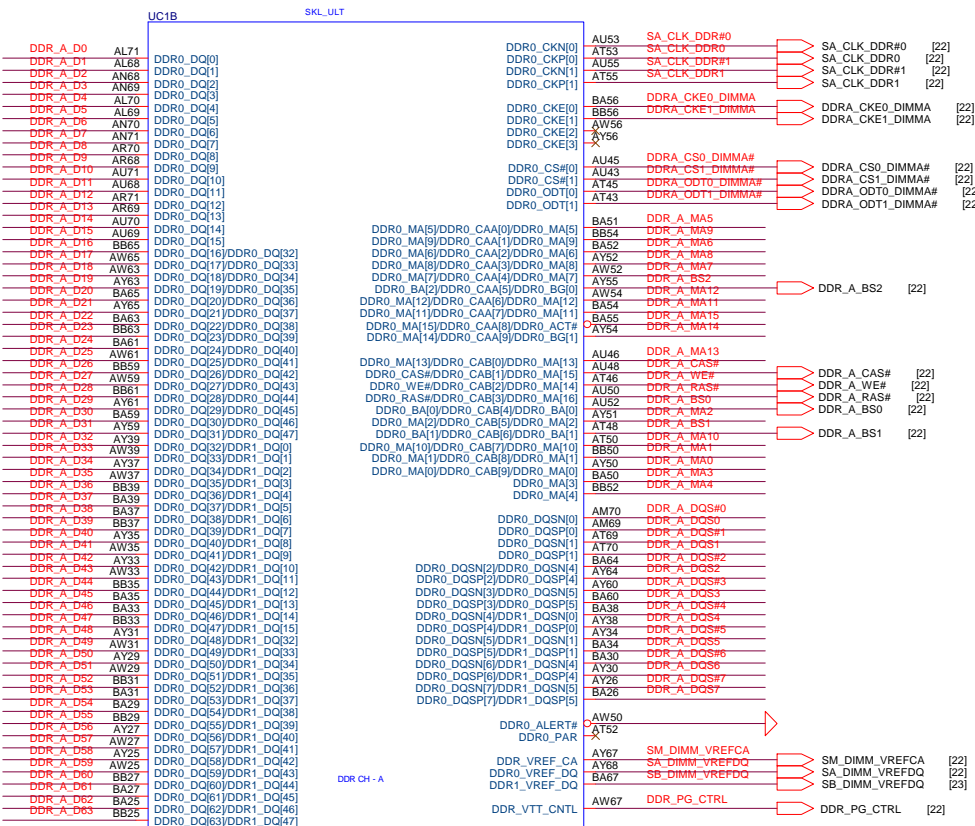
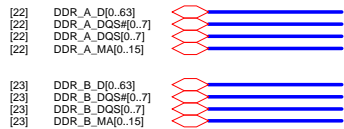


**EDP\_RCOMP**  
 1. Trace width=20 mils, Spacing=25mil, Max length=100mils  
 2. RC1 close to MCP  
 Trace Width=20mil, Spacing=25mil, Max length=100mil

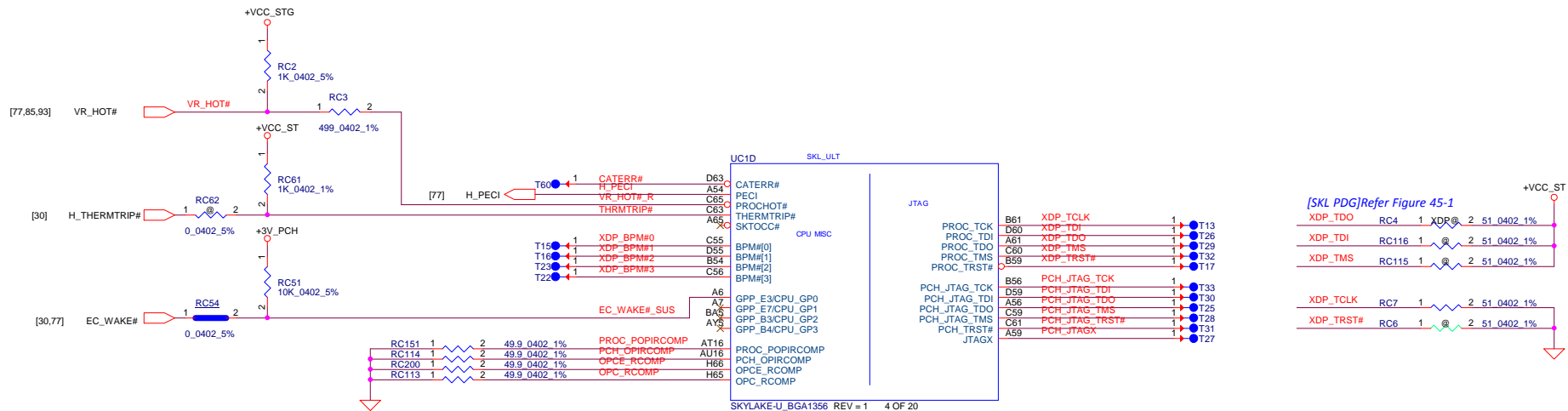


DP port	Enable	Disable
DDPB_CTRLDATA	pull-high	no connect
DDPC_CTRLDATA	pull-high	no connect









[SKL PDG]Refer Figure 45-1

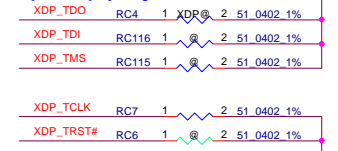
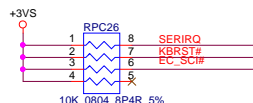
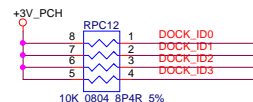




Diagram illustrating the SPI interface between the SD3000 and the RP32 microcontroller. The RP32 is connected to the SD3000 via an 8-pin SPI interface. The connections are as follows:

RP32 Pin	SD3000 Pin	Signal Name
1	1	SPL_I03_8MB
2	2	SPL_CLK_8MB
3	3	SPL_SI_8MB
4	4	SPL_IO2_8MB
5	5	SPL_I03
6	6	SPL_CLK
7	7	SPL_SI
8	8	SPL_IO2

The SD3000 is labeled with the part number 33\_0B04\_8F4R\_5% and the manufacturer code SD30000370T.



[70] SPI\_CLK SPI\_CLK

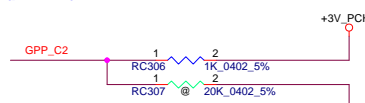
[70] SPI\_SI SPI\_SI

[70] SPI\_SO SPI\_SO

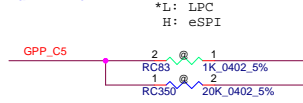
[70] SPI\_CS2#\_TPM SPI\_CS2#\_TPM

```
L:Disable Intel ME Crypto TLS cipher suite (no confidentiality).
*H:Enable Intel ME Crypto Transport Layer Security (TLS) cipher
suite (with confidentiality).Support Intel AMT with TLS and Intel
SBA (Small Business Advantage) with TLS.
```

GPP C2, Internal PD 20K



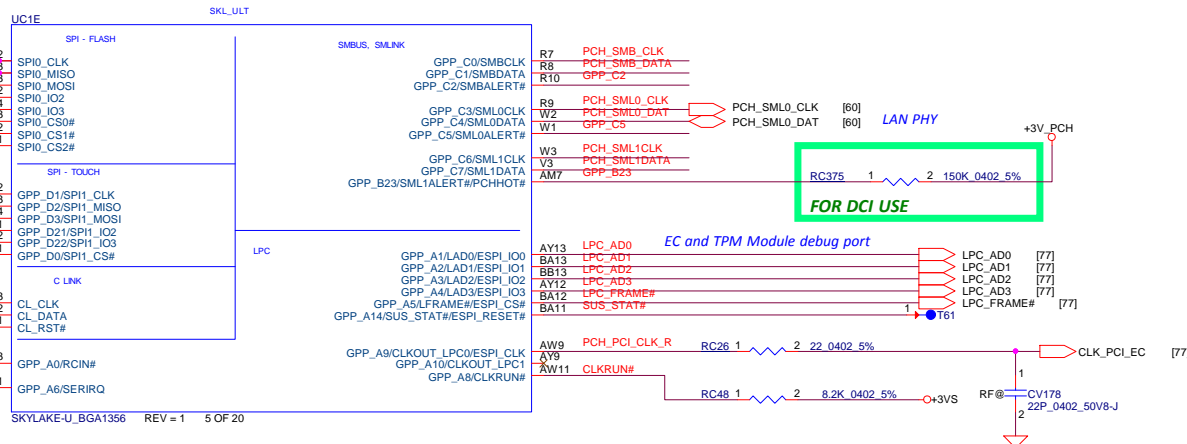
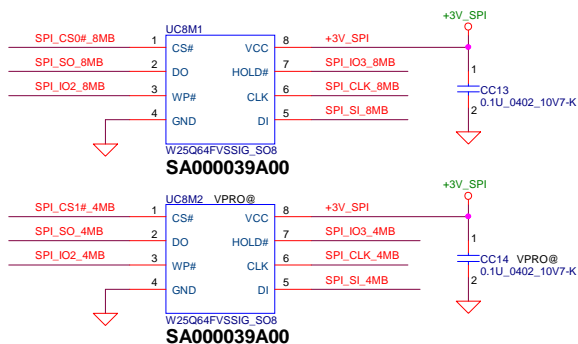
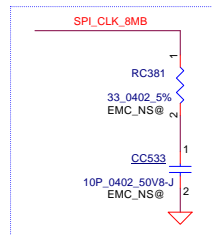
GPP C5, Internal PD 20K



20121218

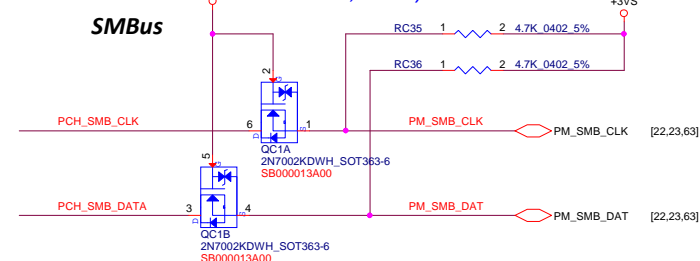
+3VM = +3V<sub>SPI</sub>  
 1. VPRO : Q6, +3VLAW To +3VM  
 2. NVPRO :  
     a. R17 and RC38. +3VAL

a. R17 and RC38, +3VALW to +3VM



The schematic diagram illustrates the PMIC section of the system. Key components and their connections include:

- PLT\_RST#**: A reset signal input connected to the **USR0M1** pin.
- PCA24S08AD\_S08**: An I2C-to-SMBus bridge chip connected to the **SCL** and **SDA** lines.
- SA00004MK00/SA00004ML00**: The main PMIC component, which interfaces with the bridge and provides power regulation.
- VCC** and **GND**: Power supply connections for the PMIC and bridge.
- PCH\_SMB\_CLK** and **PCH\_SMB\_DATA**: SMBus communication lines connecting the PMIC to the rest of the system.
- PCH\_SMTDOUT**, **PCH\_SMLTDATA**, and **PCH\_SML0\_CLK**: Additional control and status signals from the PMIC.
- RC30**, **RC29**, and **RC28**: Resistors used for signal conditioning or termination.
- +3V\_PCH**: The positive power supply rail for the PMIC section.

**SMBus**

GPU, Thermal Sensor,  
Embedded Controller, G sensor

PCH\_SML1CLK

EC\_SMB\_CK3

EC\_SMB\_CK3 [30,69,70,77]

PCH\_SML1DATA

EC\_SMB\_DA3

EC\_SMB\_DA3 [30,69,70,77]


2N7002KDWHS\_SOT363-6  
SB000013A00

2N7002KDWHS\_SOT363-6  
SB000013A00

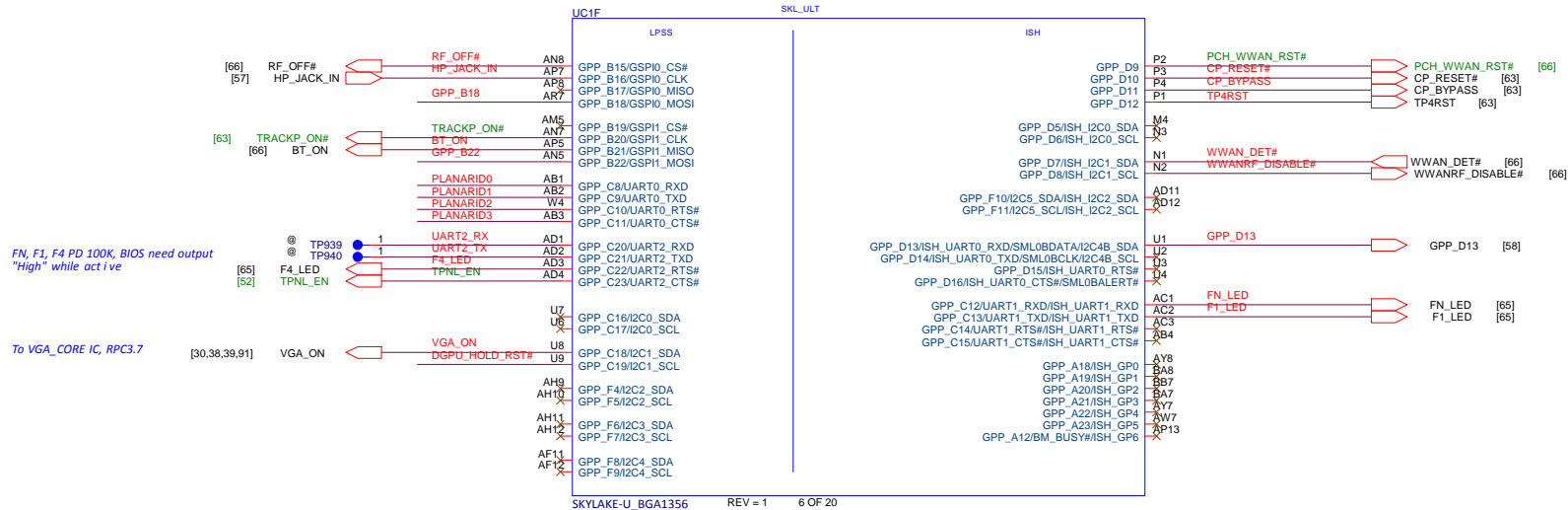
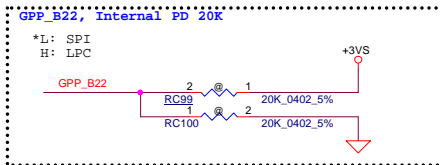
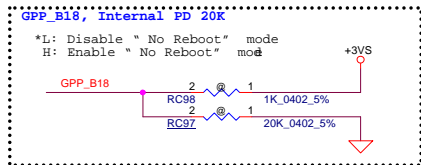
V<sub>th</sub>: min 1V, max 2.5V  
ESD 2KV

Signal	Direction	Width	Frequency	Period	Duty Cycle	Source
[77] FSCE#	Output	1	2	0.0402	5%	SPL_CS0#_8MB
[77] SPI_FMOI#	Output	2	2	0.0402	5%	SPL_SI_8MB
[77] SPI_FMISO	Output	2	2	0.0402	5%	SPL_SO_8MB
[77] SPI_FMISO	Output	2	2	0.0402	5%	SPL_CLK_8MB
[77] SPI_FSCK	Output	2	2	0.0402	5%	

Security Classification	LC Future Center Secret Data		
Issued Date	2015/01/12	Deciphered Date	2016/01/12
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 OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			

Title			
SKL_LPC/SP/SMBUS			
Size	Document Number	Rev	
Custom	BLA60 NM-A651	0.1	
Date:	Friday, October 23, 2015	Sheet	8 of 99



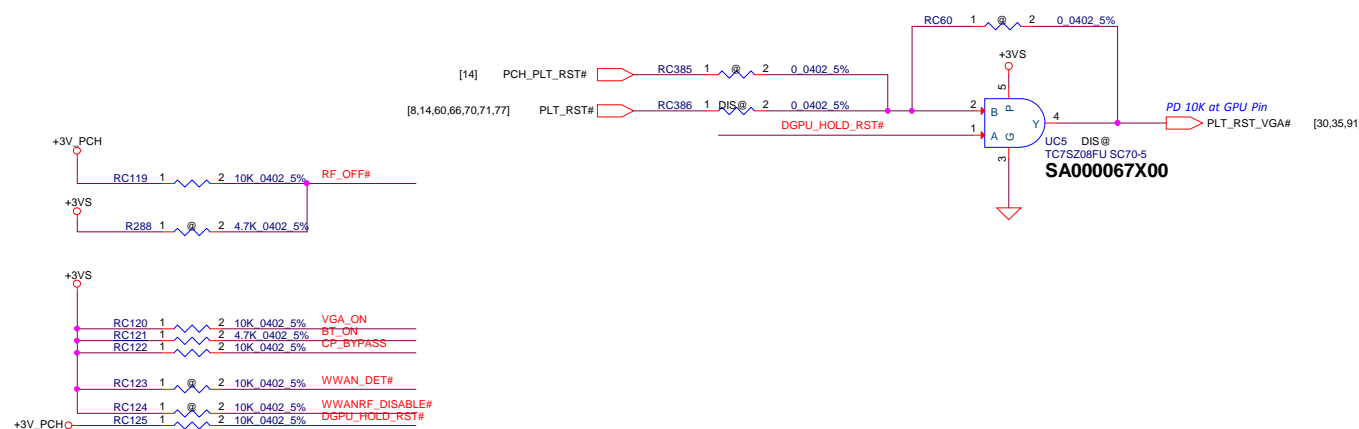
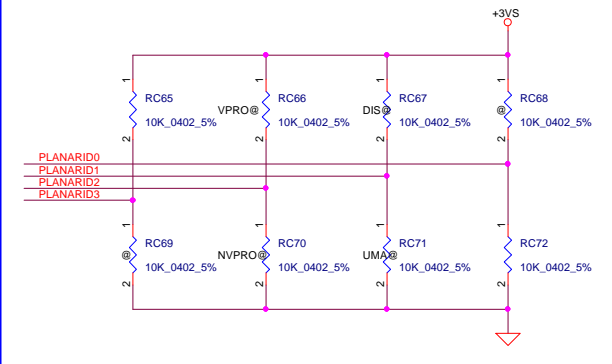


FN, F1, F4 PD 100K, BIOS need output "High" while active

To VGA\_CORE IC, RPC3.7

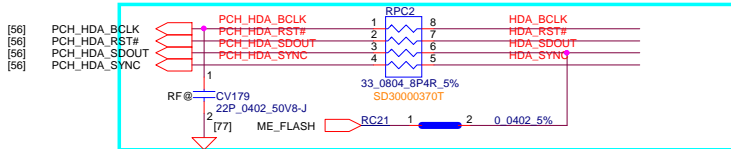
Project/SKU ID

	PLANARID3 (GPP_C11)	PLANARID2 (GPP_C10)	PLANARID1 (GPP_C9)	PLANARID0 (GPP_C8)
1	1(RC65)	VPRO SKU (RC66)	DIS (RC67)	15" (RC68)
0	X	NVPRO SKU (RC70)	UMA (RC71)	14" (RC72)

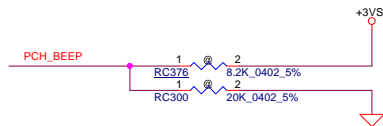




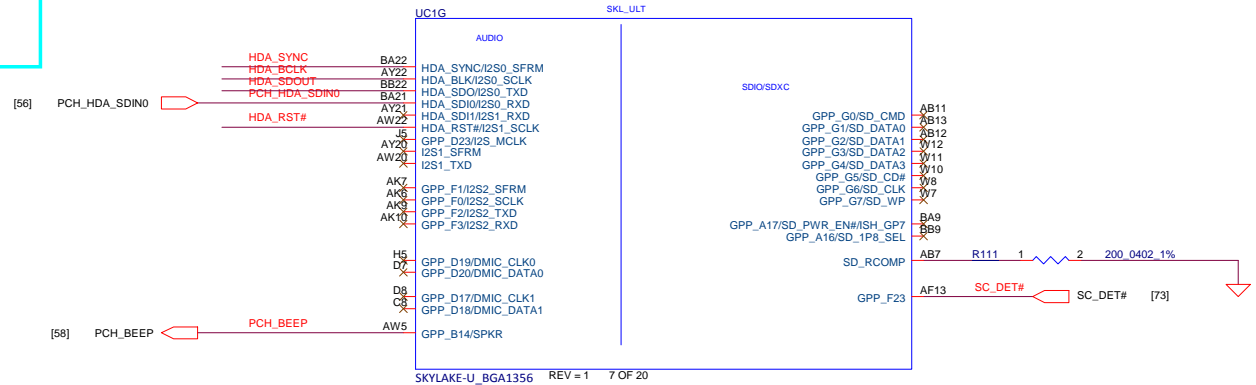
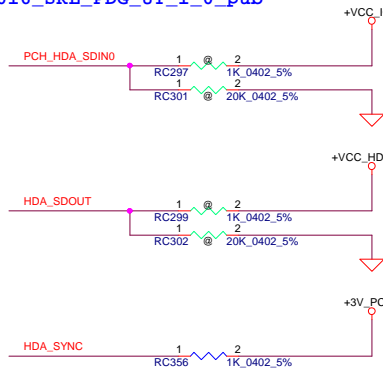
Need to check again?



GPP\_B14, Internal PD 20K  
No Reboot on TCO  
Timer expiration  
pull-up to VCC3.3 through a 1~8.2KΩ  
resistor to disable this capability



Processor Strapping  
543016\_SKL\_PDG\_UY\_1\_0\_pub  
P780



Security Classification				LC Future Center Secret Data		Title		SKL_HDA/GPIO		ICFC	
Issued Date		2015/01/12		Deciphered Date		2016/01/12		Size		Document Number	
								Custom		BL460_NM-A651	
										Rev	
										0.1	
										Date:	
										Friday, October 23, 2015	
										Sheet	
										10	
										of	
										99	

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.

Size Custom  
Date: Friday, October 23, 2015  
Sheet 10 of 99



Card Reader

WLAN

LAN

HDD

SSD(NGFF)

GPU

UC1H SKL\_ULT

PCIe/USB3/SATA

SSIC / USB3

USB2

SKYLAKE-U\_BGA1356 REV = 1 8 OF 20

On Board (Right-Front)

On Board (Right-Back)

DOCKING

S/B (AOU Port)

On Board (Right-Front)

On Board (Right-Back)

DOCKING

S/B (AOU Port)

SMART CARD

Finger Printer

BT

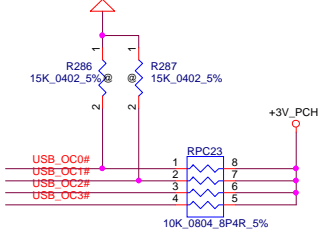
CAMERA

WWAN

Touch Panel

On Board (Right-Front)  
S/B (AOU Port)

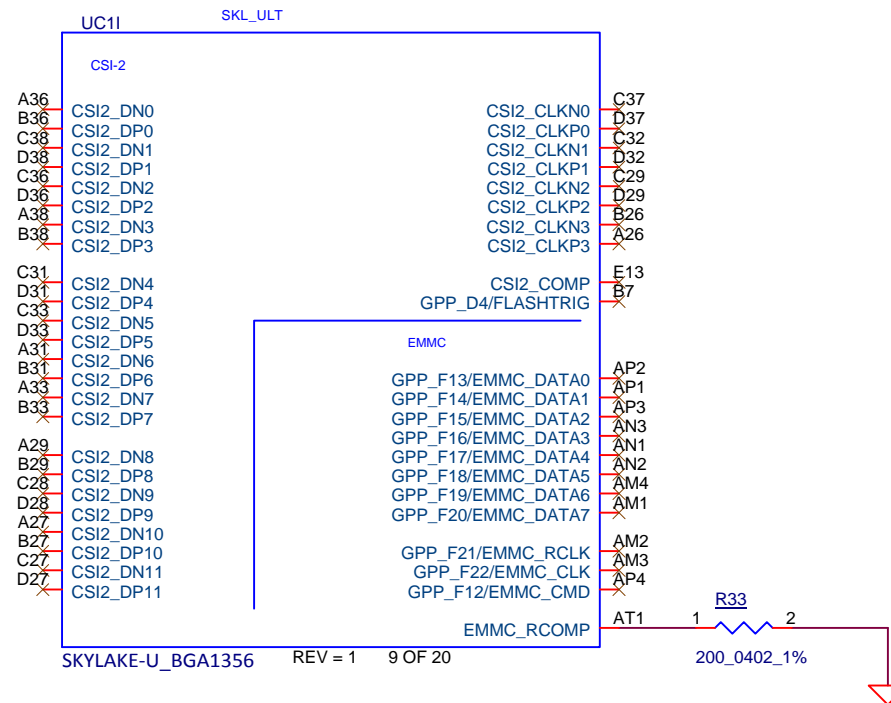
HDD\_DEVSLP0 RC377 2 1 10K 0402 5%  
SSD\_DEVSLP1 RC378 2 1 10K 0402 5%



Pin.	USB3.0 Port NO.	USB2.0 Port NO.	Default Port Mapping
USB_OC0#	Port 1, 2	Port 0, 1	Port 0, 1
USB_OC1#	Port 4	Port 3	Port 2, 3
USB_OC2#	Unused.	Unused.	Port 4, 5
USB_OC3#	Unused.	Unused.	Port 6, 7

Security Classification				LC Future Center Secret Data				Title			
Issued Date				2015/01/12				Deciphered Date			
2015/01/12				2016/01/12				SKL_PCIE/ SATA/ USB			
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.								Size Document Number			
								BLA60_NW-A651			
								Rev 0.1			
								Date: Friday, October 23, 2015			
								Sheet 11 of 99			



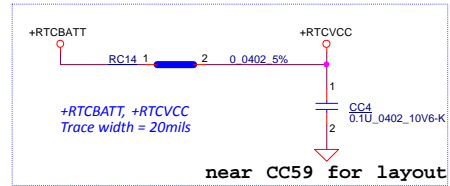


Security Classification	LC Future Center Secret Data		
Issued Date	2015/01/12	Deciphered Date	2016/01/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE 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.			

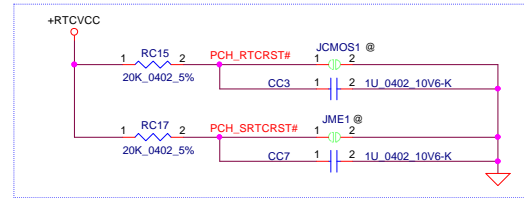
Title		LCFC	
SKL_CS12/EMMC			
Size A4	Document Number	Rev	0.1
Date:	Friday, October 23, 2015	Sheet	12 of 99
		BL460_NM-A651	



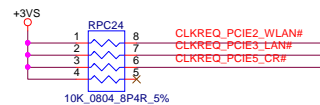
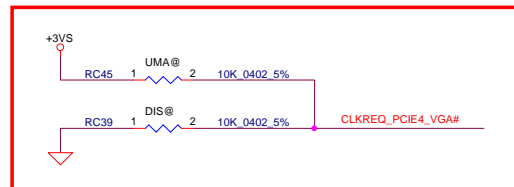
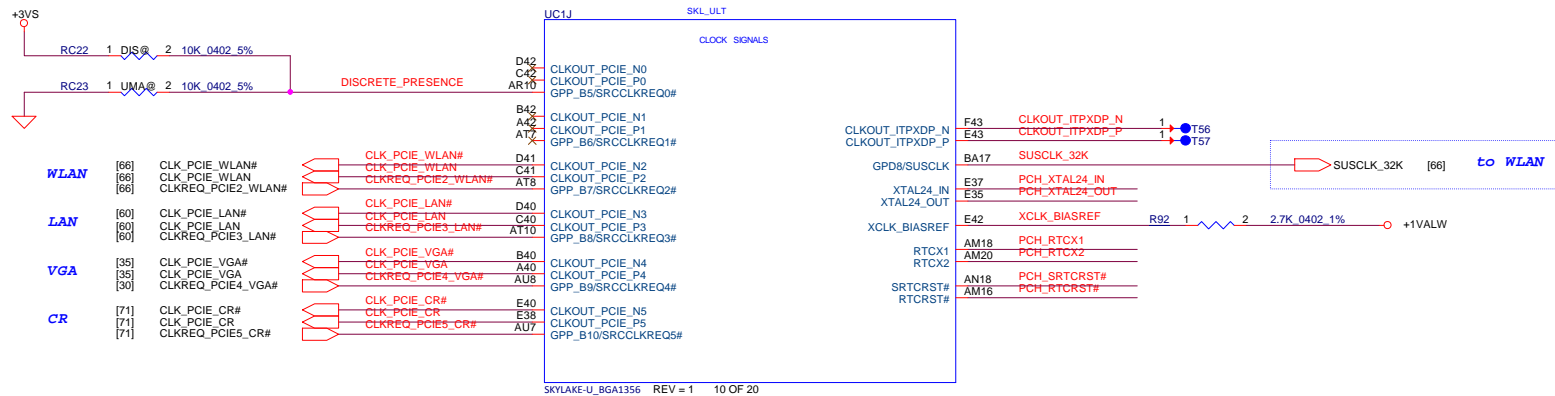
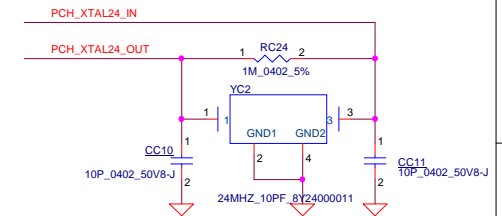
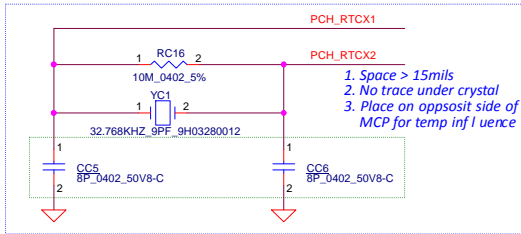
# RTC External Circuit



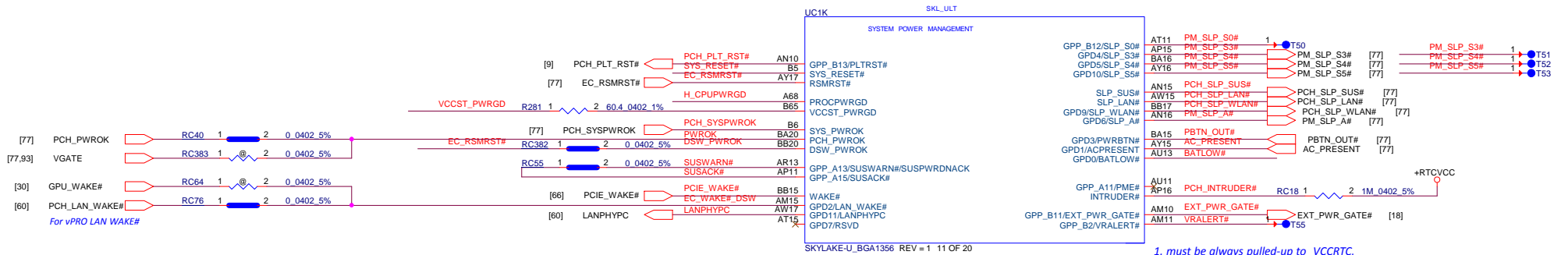
# JCMOS, JME Set ting Need Undr DDR Dao



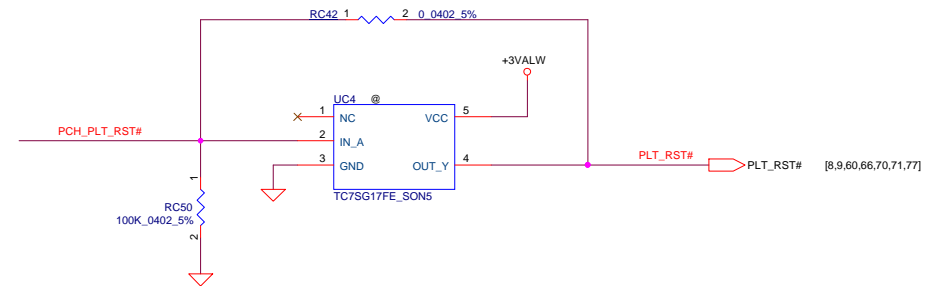
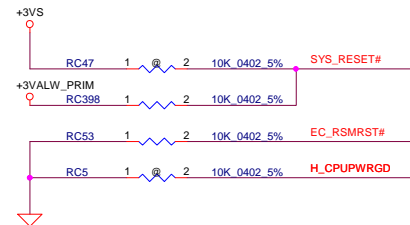
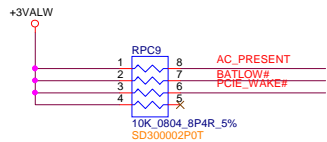
# RTC Crystal



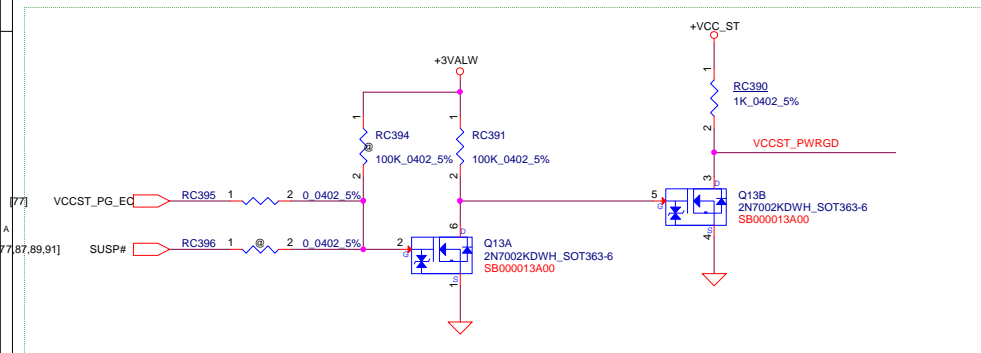




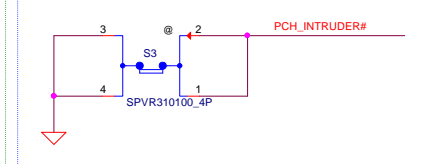
1. must be always pulled-up to VCCRTC.  
2. 1 = Enable DSW 3.3V-to-1.05V Integrated DeepSx Well (DSW) On-Die Voltage Regulator.  
This must always be pulled high on product i on board.



Reserved for HW control

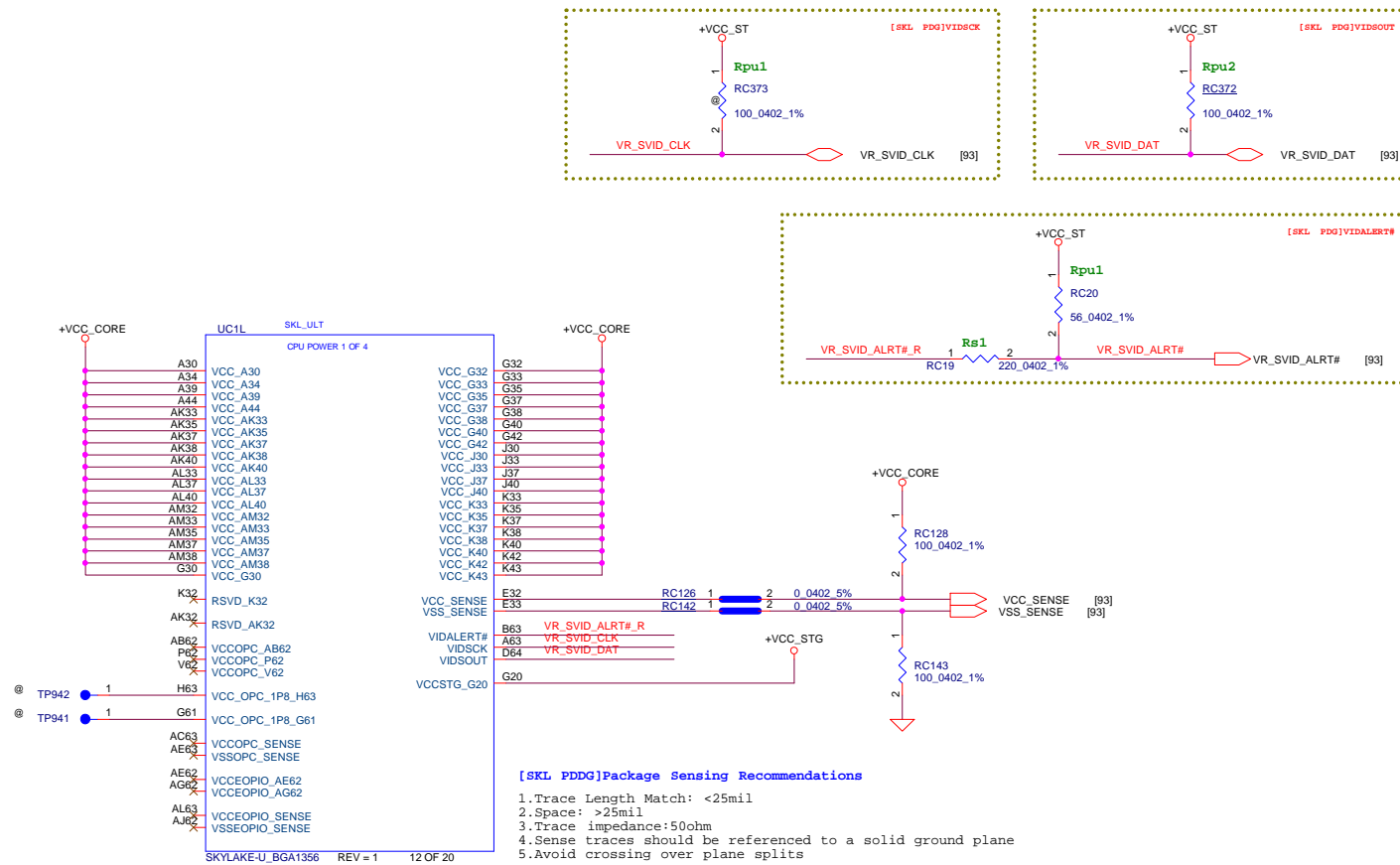


RTC clock debounce



Security Classification				LC Future Center Secret Data				Title			
Issued Date				2015/01/12				SKL_SYS / PM			
Deciphered Date				2016/01/12				LCFC			
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.				Size				BLA60_NW-A651			
Date:				Friday, October 23, 2015				Sheet 14 of 99			

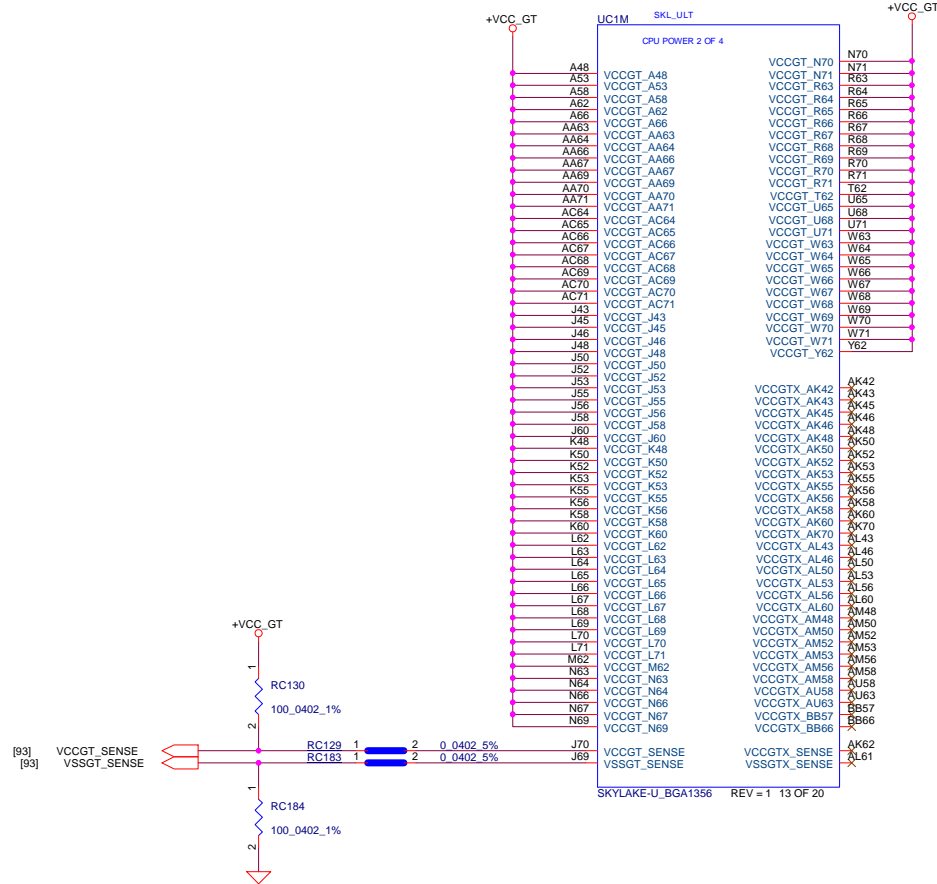




Security Classification			
LC Future Center Secret Data			
Issued Date	2015/01/12	Deciphered Date	2016/01/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF 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		LCFC	
SKL_POWER_VCCCORE			
Size	Document Number	Rev	
Custom	BL460_NW-A651	0.1	
Date:	Friday, October 23, 2015	Sheet	15 of 99

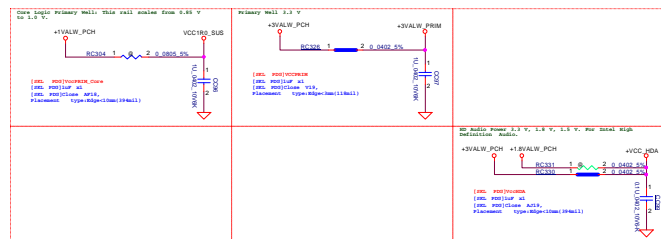
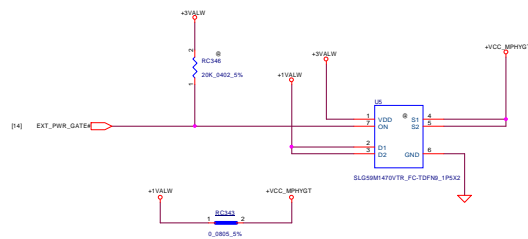
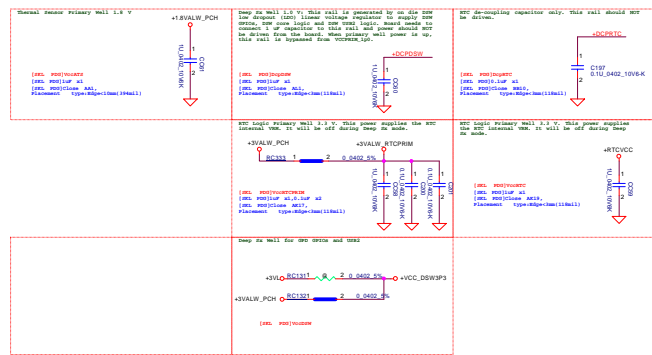






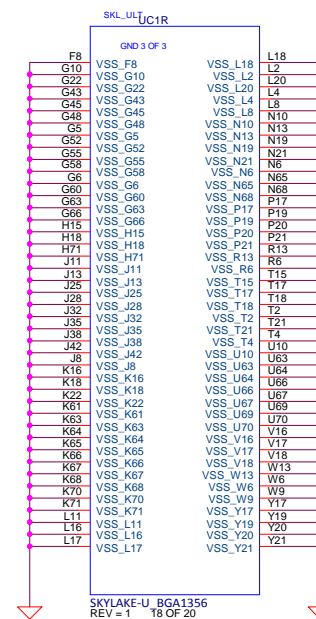
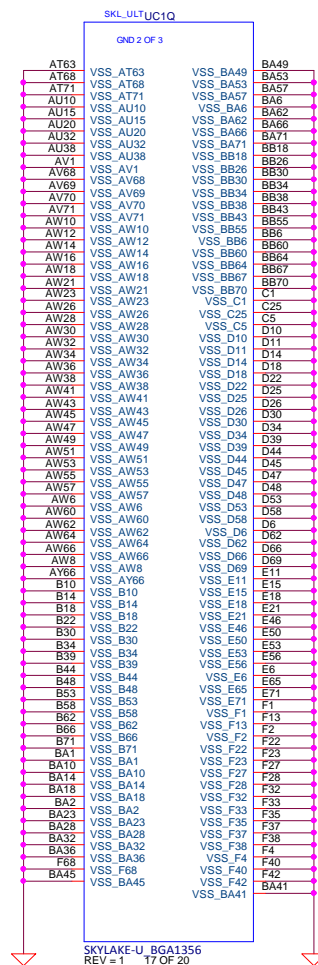
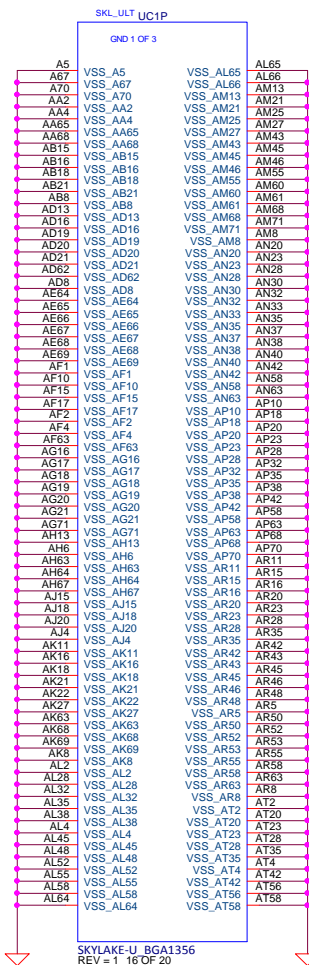







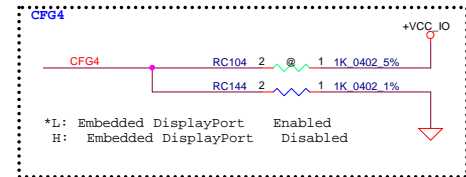
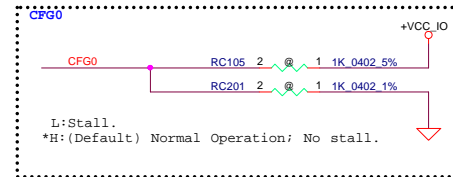
**WWW.AliSaler.Com**





Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	SKL_VSS		
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 OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				Size Custom	Document Number <b>BL460 NW-A651</b>	
				Date:	Friday, October 23, 2015	Sheet 19 of 99 Rev 0.1





**CFG0 : Stall Reset Sequence**  
**after PCU PLL Lock until de-asserted**  
**1 : No Stall**  
**0 : Stall**

**CFG4 : eDP Enable**  
**1 : Disabled**  
**0 : Enabled**

**CFG9 : SVID Bus Communication**  
**1 : Enabled**  
**0 : Disabled**

[SKL EDS]Zero Voltage Mode:VCCOPC is fixed OPC VR output voltage of 1V, the processor can drive VR to LPM (Low Power Mode) which sets VR output to 0V using ZVM# signal as shown below:

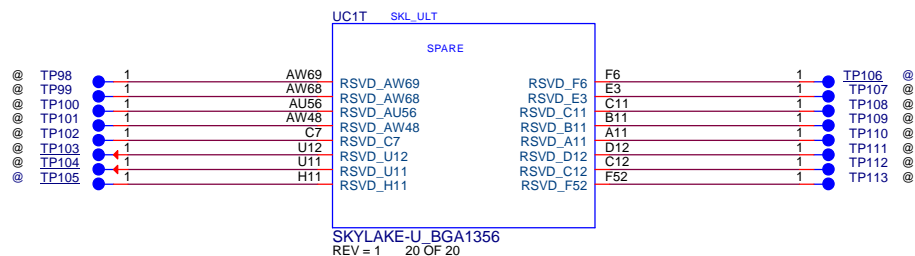
ZVM# state	VCCOPC
0V	0V
1V	1V


[SKL EDS] Minimum Speed Mode: VCCEPIO can be connected to OPC VR in this case VCCEPIO is fixed to 1V. The processor can drive VR to LPM (Low Power Mode) which sets VR output to 0V using ZVM# signal.

In order to achieve better power/performance it is recommended to use a separate VR for VCCEPIO in this case VCCEPIO is configurable to 0.8V/1V. The processor drives the VR to set VCCEPIO value(0.8V/1V) using MSM# signal, based on the required bandwidth for the EPIO interface as shown below:

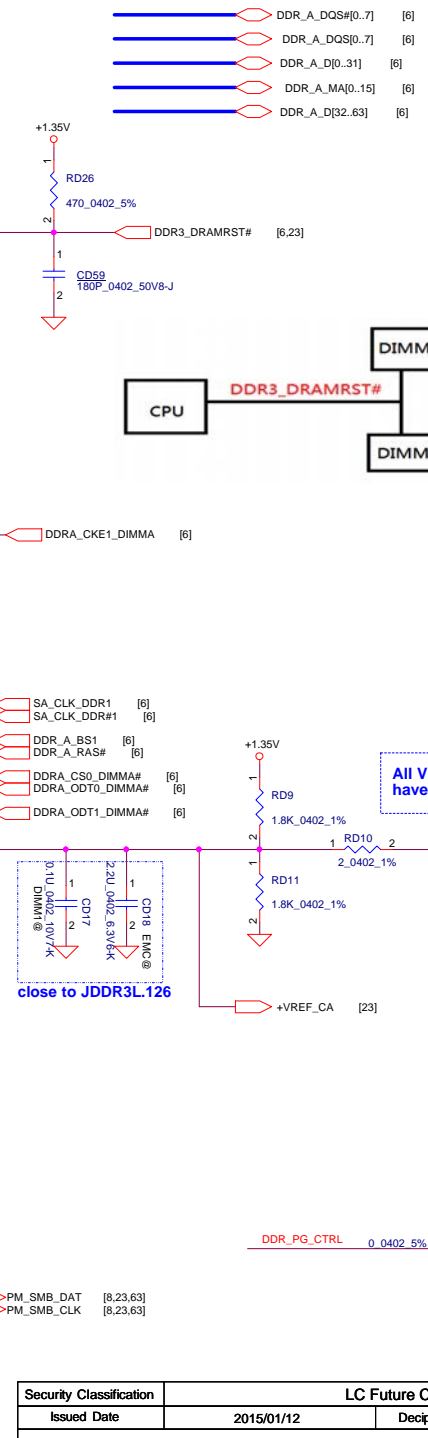
ZVM# state	MSM# state	VCCEOPI
0V	X	0V
1V	0V	0.8V
1V	1V	1V



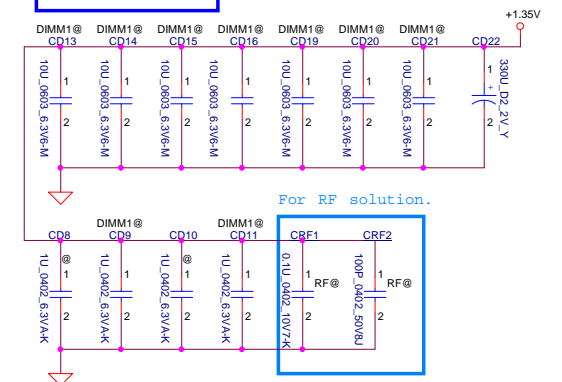


Security Classification		LC Future Center Secret Data		Title  <b>SKL_RSVD</b>			
Issued Date	2015/01/12	Deciphered Date	2016/01/12				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Size B	Document Number	<b>BL460 NM-A651</b>	Rev 0.1
				Date	Friday, October 23, 2015	Sheet 21 of 99	

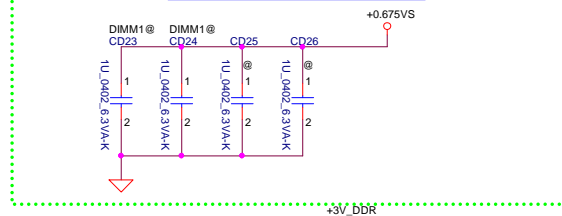




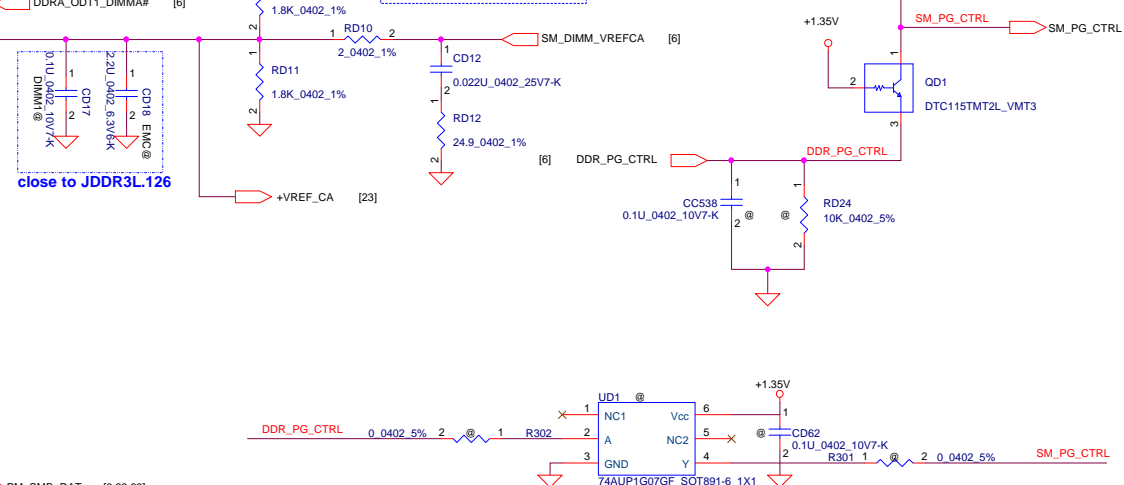
Layout Note:  
Place near JDIMM1



Layout Note:  
Place near JDIMM1.203,204



All VREF traces should  
have 10 mil trace width

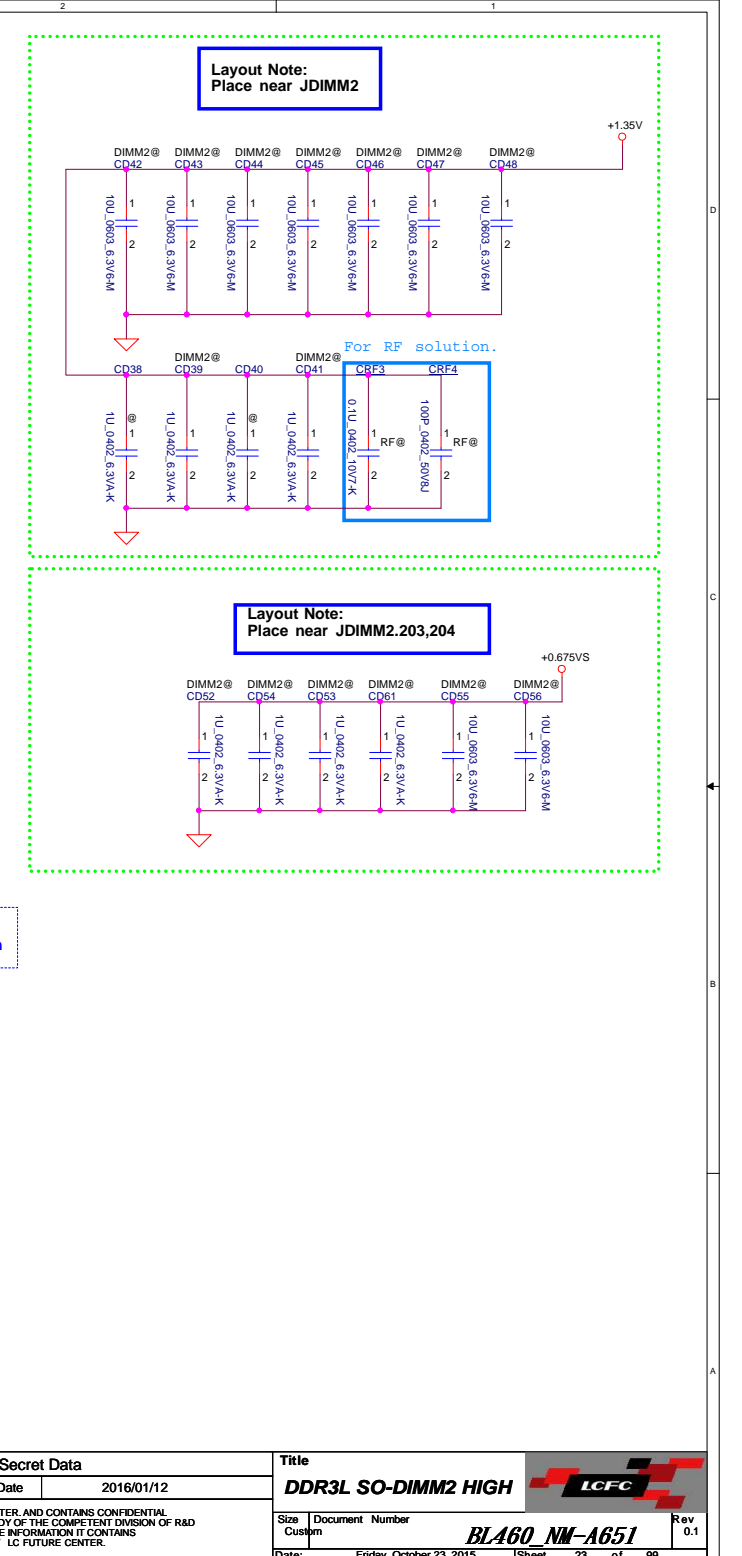
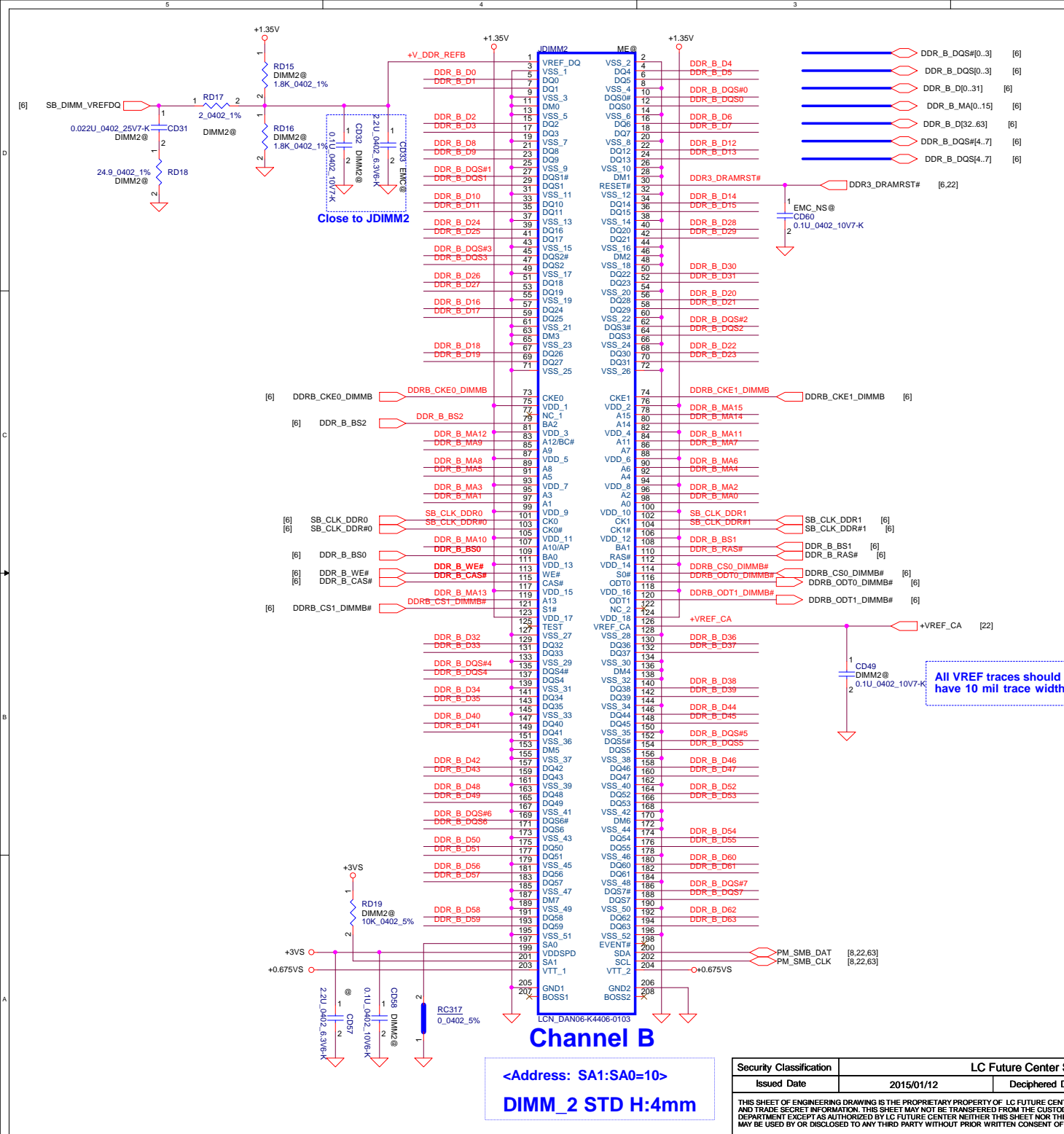


Channel A

WWW.AliSaler.Com

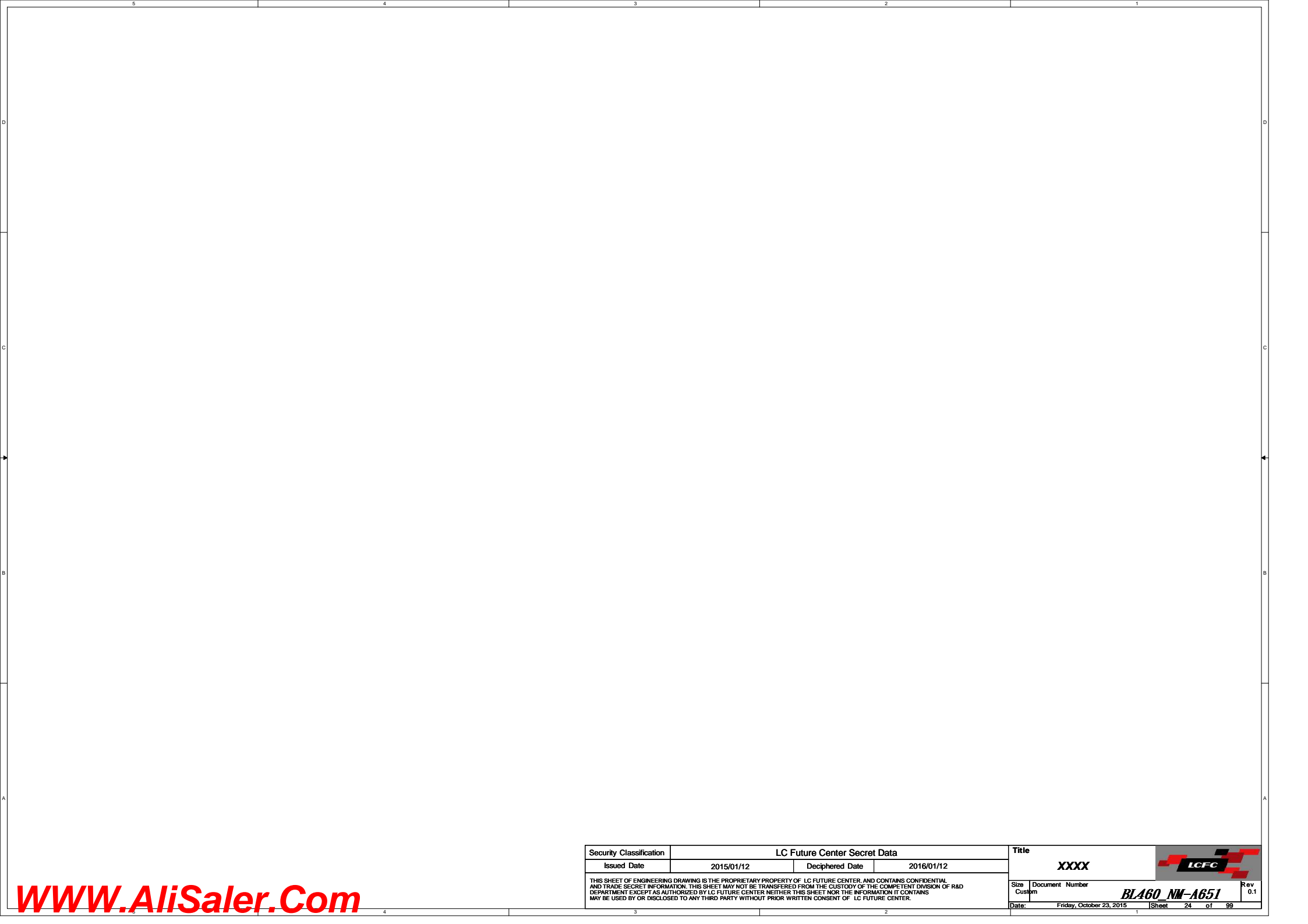
Security Classification				LC Future Center Secret Data				Title			
Issued Date				2015/01/12				DDR3L SO-DIMM1 LOW			
Deciphered Date				2016/01/12				BLA60_NW-A651			
This sheet of engineering drawing is the proprietary property of LC Future Center, and contains confidential and trade secret information. 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.				Size				Rev			
Date:				Friday, October 23, 2015				Sheet			
				22				of			
				99							






Security Classification				LC Future Center Secret Data				Title		BL600-NM-A651	
Issued Date				2015/01/12				DDR3L SO-DIMM2 HIGH		Rev 0.1	
Deciphered Date				2016/01/12				Size		Document Number	
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.								Date:		Friday, October 23, 2015	
								Sheet		23 of 99	

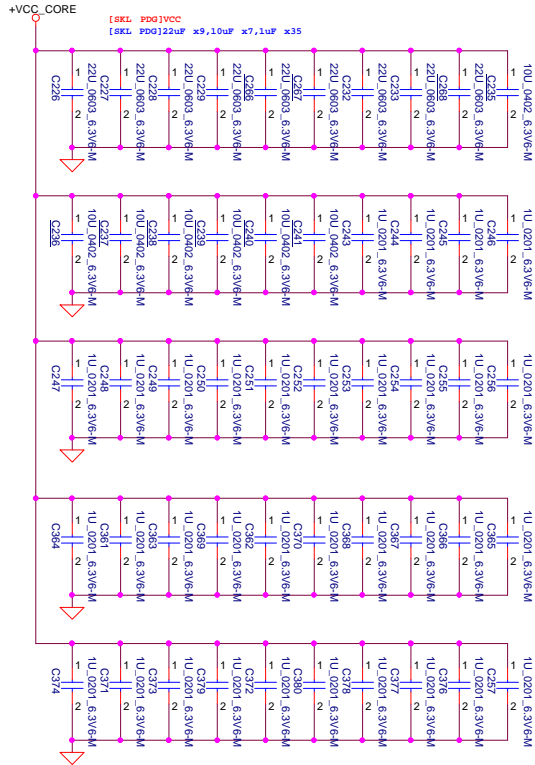
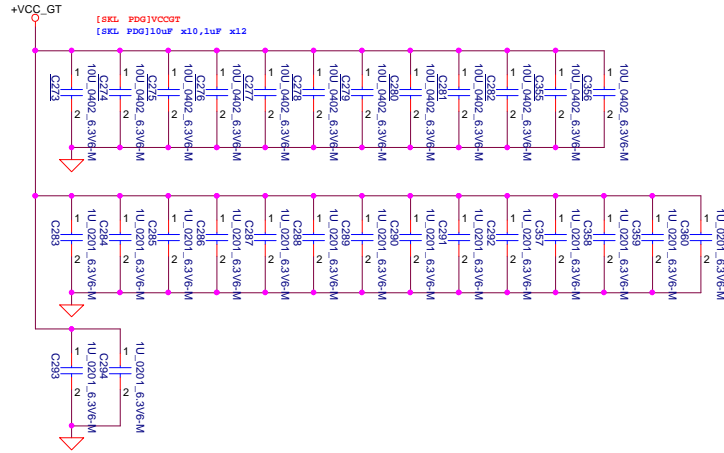




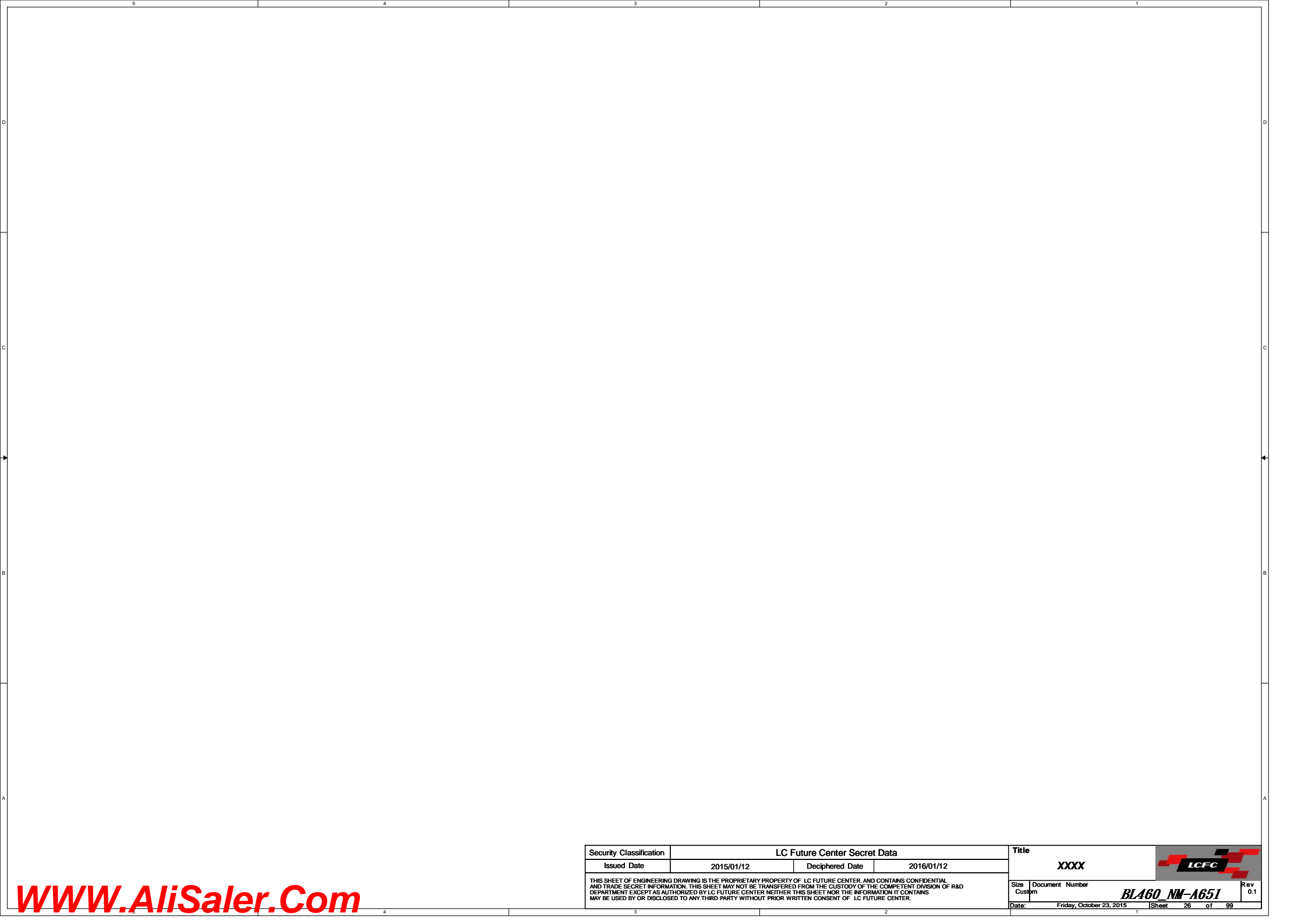
WWW.AliSaler.Com

Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX		
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.				Size Custom	Document Number BL460_NW-A651	
				Date: Friday, October 23, 2015	Sheet 24 of 99	Rev 0.1






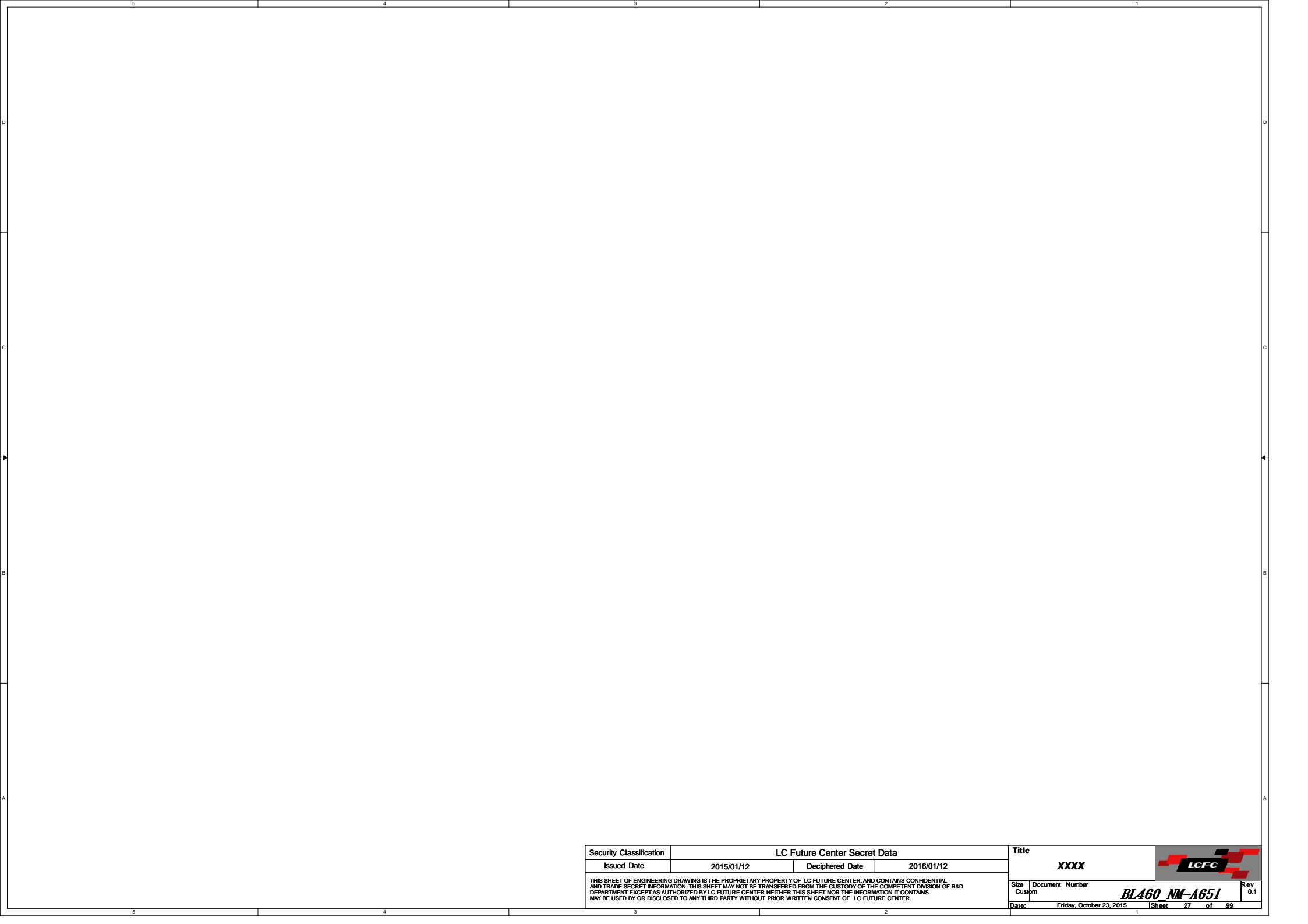





WWW.AliSaler.Com

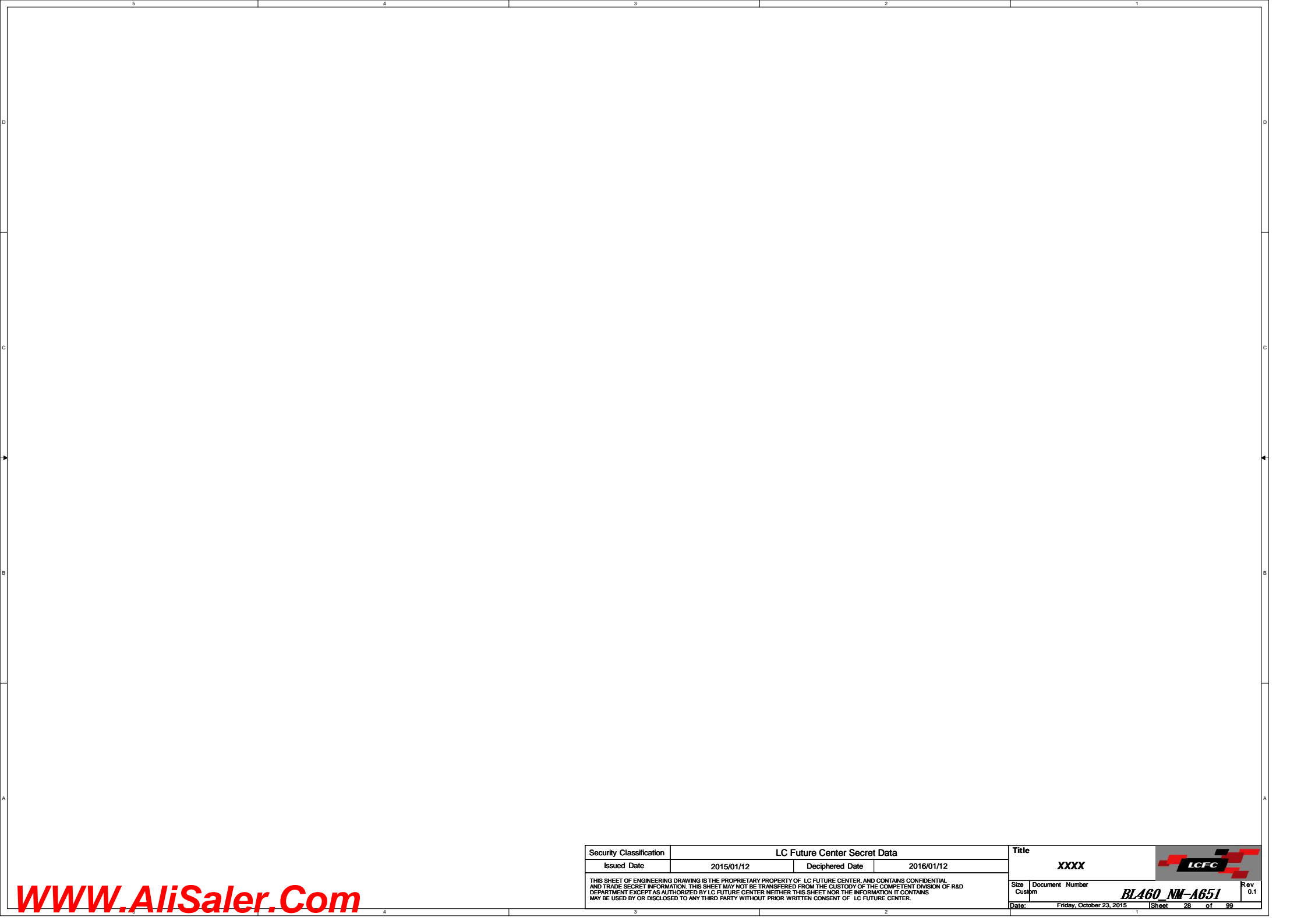
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	26 of 99






Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
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.				Size Custom	Document Number	Rev 0.1	
				Date:	Friday, October 23, 2015	Sheet 27 of 99	

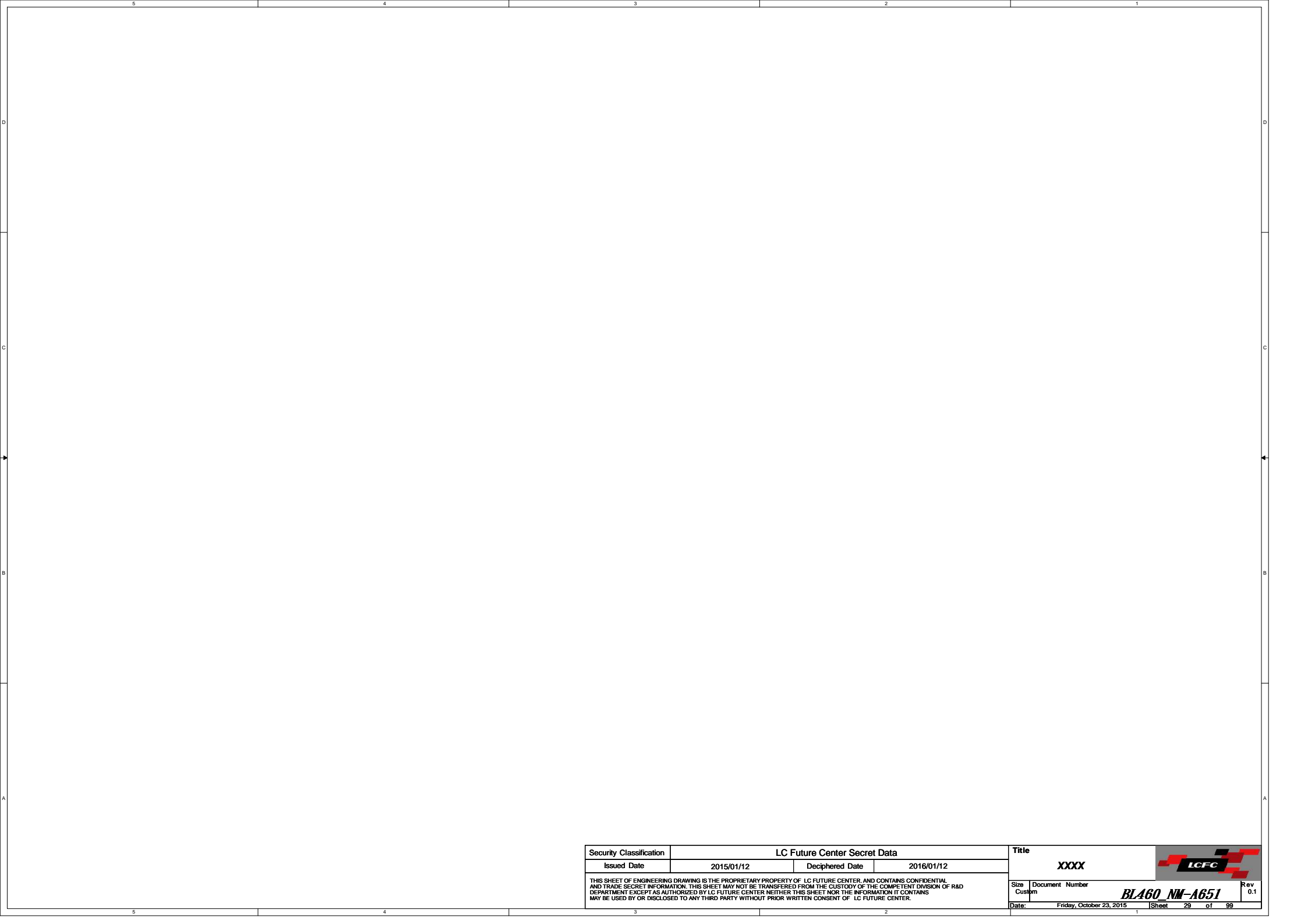





WWW.AliSaler.Com

Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
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.				Size Custom	Document Number	Rev	
				BL460_NW-A651		0.1	
				Date:	Friday, October 23, 2015	Sheet	28 of 99



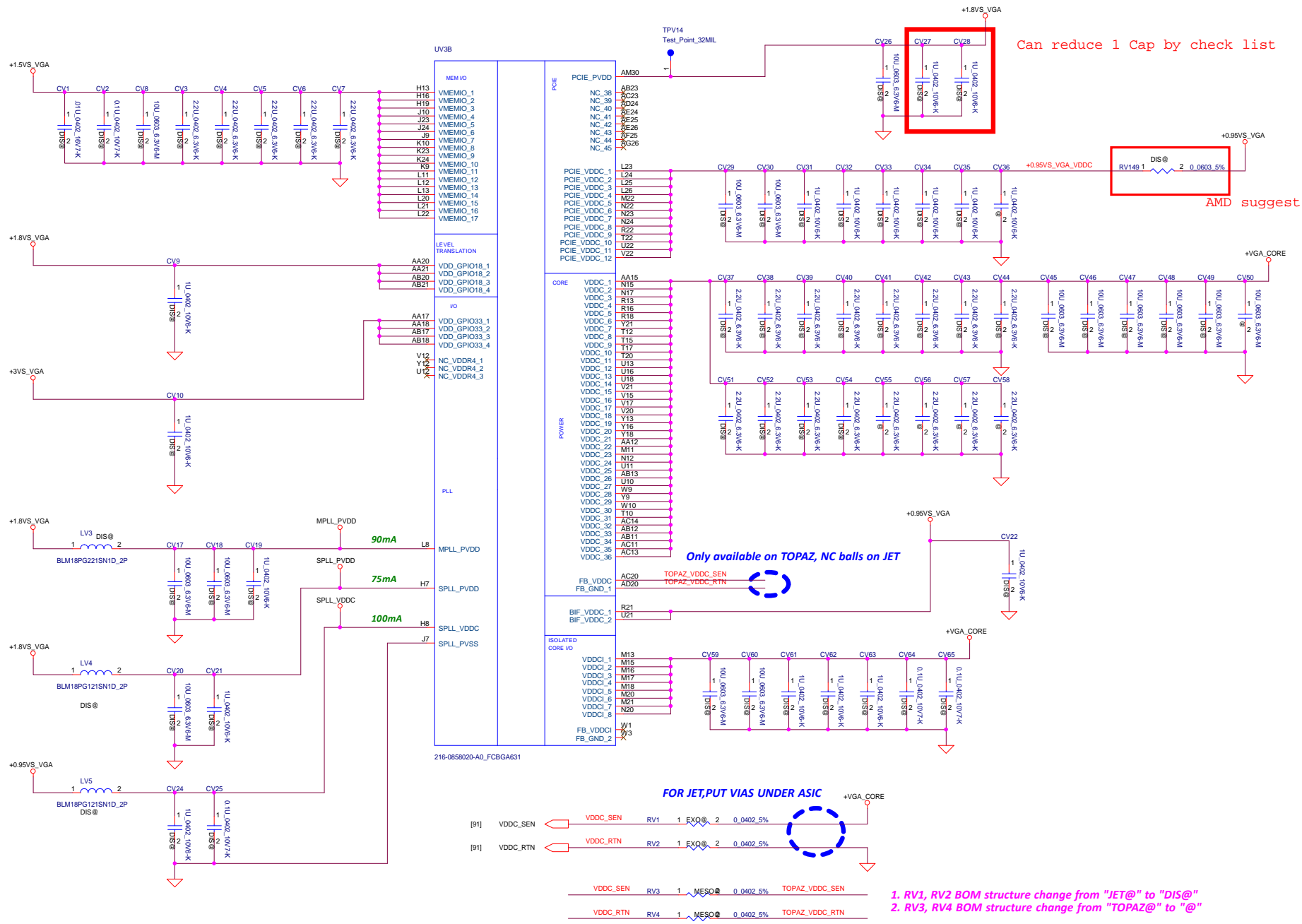


Security Classification		LC Future Center Secret Data		Title  XXXX			
Issued Date	2015/01/12	Deciphered Date	2016/01/12				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM 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.				Size Custom	Document Number  BL460 NW-A651		Rev 0.1
				Date:	Friday, October 23, 2015		Sheet 29 of 99



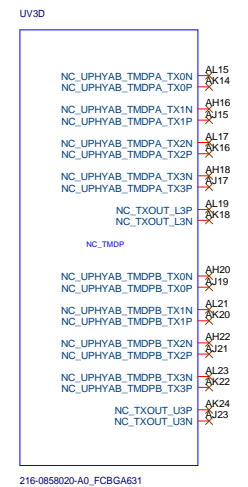
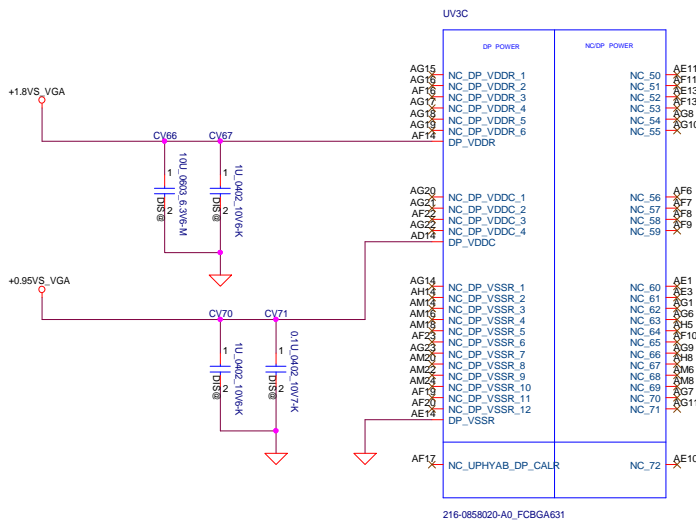






Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	EXO_S3_POWER	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM 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.					
Size	Document	Number		BL460 NM-A651	
Date:	Friday, October 23, 2015	Sheet	31	of 99	





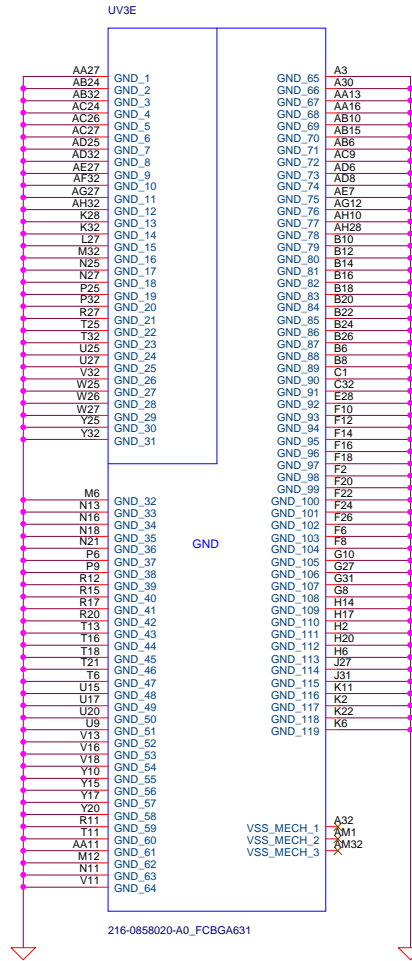
ASIC Ball	Topaz	Jet
U10, T10 AB13, W9 AB11, AB12 AC11, AC13 AC14, Y9, W10	VDDC	NC
AC20	FB_VDDC	NC
AD20	FB_VSS	NC
W1	FB_VDDCI	NC
W3	FB_VSS	NC
AJ11	GPIO_SVC	NC_SVI2
AK12	GPIO_SVD	NC_SVI2
AL11	GPIO_SVT	NC_SVI2
N6	GPIO_11	NC_GPIO11
N5	GPIO_12	NC_GPIO12
N3	GPIO_13	NC_GPIO13
AJ27	WAKEB	NC_VSYNC
T8	PCC/GPIO_6	GPIO_6
AA3	PLL_ANALOG_OUT	NC
AA1	PLL_ANALOG_IN	NC

ASIC Ball	Topaz	Jet
U1	BP_0	NC
U3	BP_1	NC
AM26	DIECRACKMON	NC
Y11	NC	DBG_DATA13
AE9	NC	DBG_DATA14
L9	NC	DBG_DATA15
N9	NC	DBG_DATA16
AE8	NC	DBG_DATA12
AL9	NC	DBG_CNTL0
H13, H16, H19, J10 J23, J24, J9, K10 K23, K24, K9, L11 L12, L13, L20, L21 L22	VMEMIO	VDDR1
AA17, AA18 AB17, AB18	VDD_GPIO33	VDDR3
AA20, AA21 AB20, AB21	VDD_GPIO18	VDD_CT

	Bits5	Bits4	Bits3	Bits2	Bits1
PS0	1	1	0	0	1
PS1	1	1	0	0	0
PS2	0	0	0	0	0
PS3	1	1	?	?	?

Security Classification	LC Future Center Secret Data				Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12		EXO_S3_VDDR/VDDC	
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.						
Size	Document	Number	BL460 NM-A651		Rev	0.1
Date:	Friday, October 23, 2015	Sheet	32	of	99	











[11] PCIE\_CTX\_C\_GRX\_N[0..3] PCIE\_CTX\_C\_GRX\_N[0..3]  
[11] PCIE\_CTX\_C\_GRX\_P[0..3] PCIE\_CTX\_C\_GRX\_P[0..3]  
[11] PCIE\_CRX\_GTX\_N[0..3] PCIE\_CRX\_GTX\_N[0..3]  
[11] PCIE\_CRX\_GTX\_P[0..3] PCIE\_CRX\_GTX\_P[0..3]

PCIE\_CTX\_C\_GRX\_P0 AF30  
PCIE\_CTX\_C\_GRX\_N0 AE31  
PCIE\_CTX\_C\_GRX\_P1 AE29  
PCIE\_CTX\_C\_GRX\_N1 AD28  
PCIE\_CTX\_C\_GRX\_P2 AD30  
PCIE\_CTX\_C\_GRX\_N2 AC31  
PCIE\_CTX\_C\_GRX\_P3 AC29  
PCIE\_CTX\_C\_GRX\_N3 AB28  
PCIE\_RX0P  
PCIE\_RX0N  
PCIE\_RX1P  
PCIE\_RX1N  
PCIE\_RX2P  
PCIE\_RX2N  
PCIE\_RX3P  
PCIE\_RX3N

PCIE\_TX0P AH30  
PCIE\_TX0N AG31  
PCIE\_TX1P AG29  
PCIE\_TX1N AF28  
PCIE\_TX2P AF27  
PCIE\_TX2N AF26  
PCIE\_TX3P AD27  
PCIE\_TX3N AD26  
PCIE\_CRX\_C\_GTX\_P0  
PCIE\_CRX\_C\_GTX\_N0  
PCIE\_CRX\_C\_GTX\_P1  
PCIE\_CRX\_C\_GTX\_N1  
PCIE\_CRX\_C\_GTX\_P2  
PCIE\_CRX\_C\_GTX\_N2  
PCIE\_CRX\_C\_GTX\_P3  
PCIE\_CRX\_C\_GTX\_N3

PCIE\_CRX\_GTX\_P0 CV132 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_P0  
PCIE\_CRX\_GTX\_N0 CV133 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_N0  
PCIE\_CRX\_GTX\_P1 CV134 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_P1  
PCIE\_CRX\_GTX\_N1 CV135 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_N1  
PCIE\_CRX\_GTX\_P2 CV136 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_P2  
PCIE\_CRX\_GTX\_N2 CV137 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_N2  
PCIE\_CRX\_GTX\_P3 CV138 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_P3  
PCIE\_CRX\_GTX\_N3 CV139 DIS@ 1 2 0.1U 0402 10V7-K PCIE\_CRX\_C\_GTX\_N3

AB30 PCIE\_RX4P  
AA31 PCIE\_RX4N  
AA29 PCIE\_RX5P  
Y28 PCIE\_RX5N  
Y30 PCIE\_RX6P  
W31 PCIE\_RX6N  
W28 PCIE\_RX7P  
V28 PCIE\_RX7N  
V30 NC\_121  
U31 NC\_122  
U29 NC\_123  
T28 NC\_124  
T30 NC\_125  
R31 NC\_126  
R29 NC\_127  
P28 NC\_128  
P30 NC\_129  
N31 NC\_130  
N29 NC\_131  
M28 NC\_132  
M30 NC\_133  
L31 NC\_134  
L29 NC\_135  
K30 NC\_136

PCIE\_TX4P AC25  
PCIE\_TX4N AB25  
PCIE\_TX5P Y23  
PCIE\_TX5N Y24  
PCIE\_TX6P AB27  
PCIE\_TX6N AB26  
PCIE\_TX7P Y27  
PCIE\_TX7N Y26  
NC\_137 W24  
NC\_138 W23  
NC\_139 V27  
NC\_140 U26  
NC\_141 U24  
NC\_142 U23  
NC\_143 T26  
NC\_144 T27  
NC\_145 T24  
NC\_146 T23  
NC\_147 P27  
NC\_148 P26  
NC\_149 P24  
NC\_150 P23  
NC\_151 M27  
NC\_152 M26

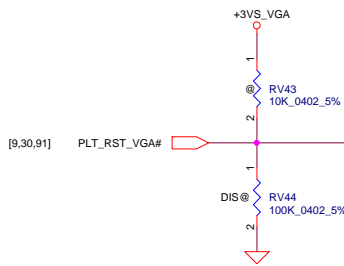
PCI EXPRESS INTERFACE

[13] CLK\_PCIE\_VGA AK30  
[13] CLK\_PCIE\_VGA# AK32  
RV40 1 DIS@ 2 1K 0402 5% N10  
PLT\_RST\_VGA# AL27

CLOCK  
PCIE\_REFCLKP  
PCIE\_REFCLKN  
TEST\_PG  
PERSTB

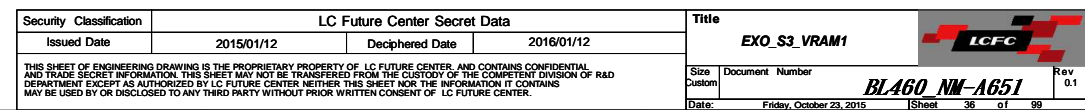
216-0858020-A0\_FCBGA631

CALIBRATION  
PCIE\_CALR\_TX Y22 RV47 1 DIS@ 2 1.69K 0402 1%  
PCIE\_CALR\_RX AA22 RV48 1 DIS@ 2 1K 0402 1%





**VW.AliSaler.Com**

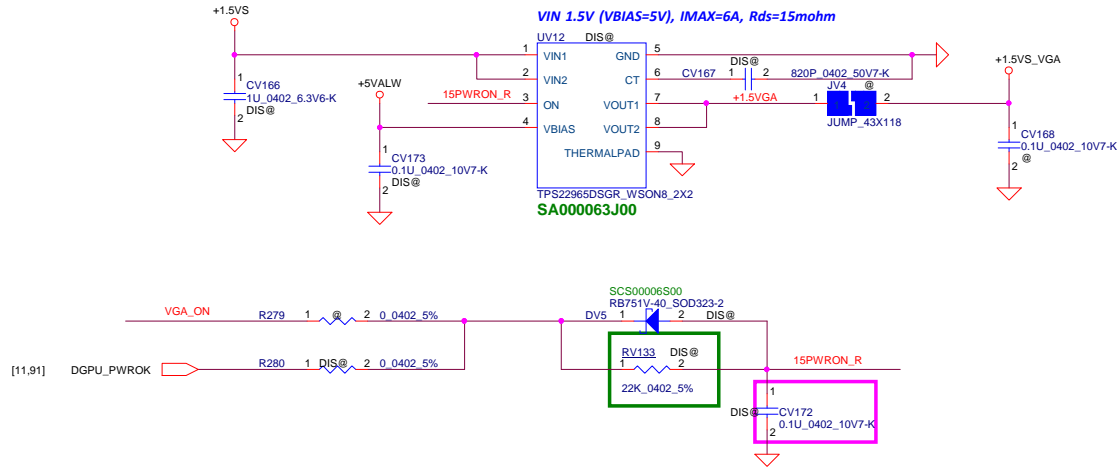




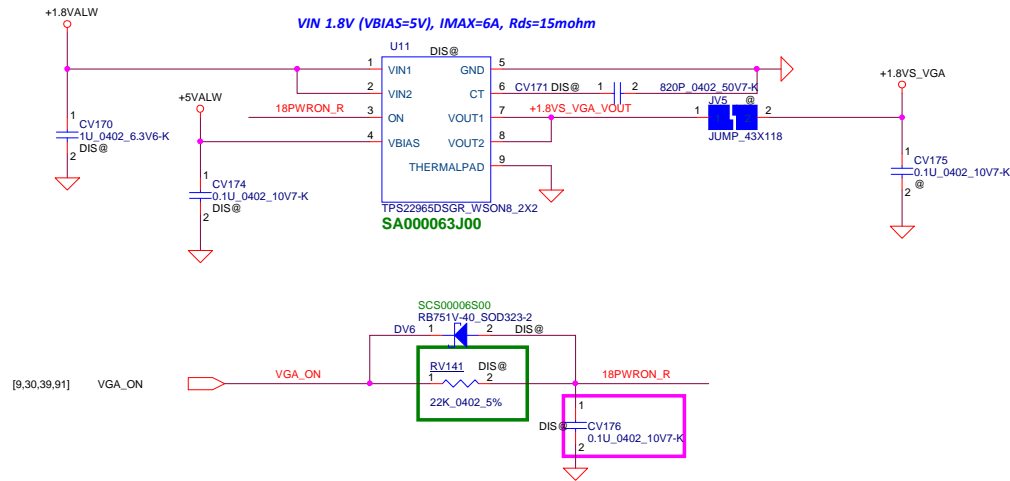




### +1.5VS to +1.5VS\_VGA



### +1.8VALW to +1.8VS\_VGA



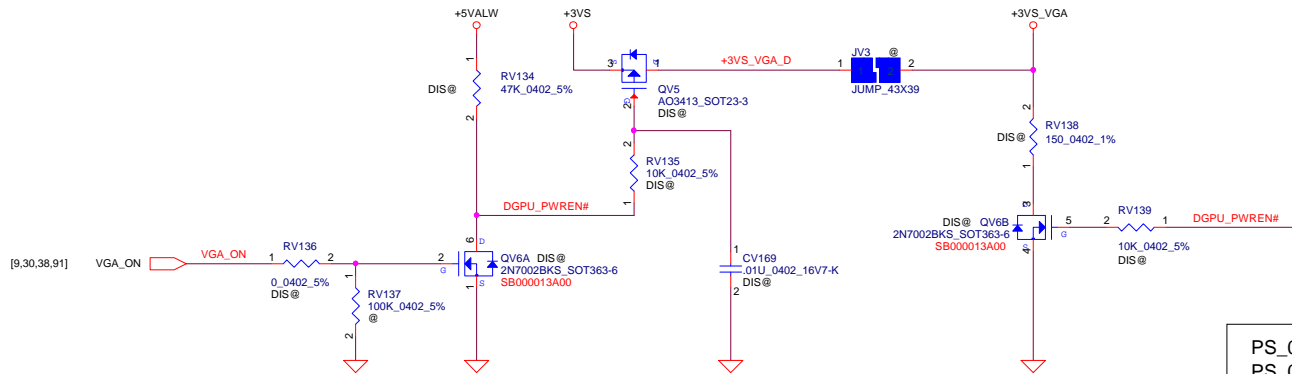
Security Classification			
Issued Date	2015/01/12	Deciphered Date	2016/01/12
LC Future Center Secret Data			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF 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			
GPU_PW SWITCH			
Size	Document Number	Rev	0.1
Custom	BLA60_NW-A651		
Date:	Friday, October 23, 2015	Sheet	38 of 99



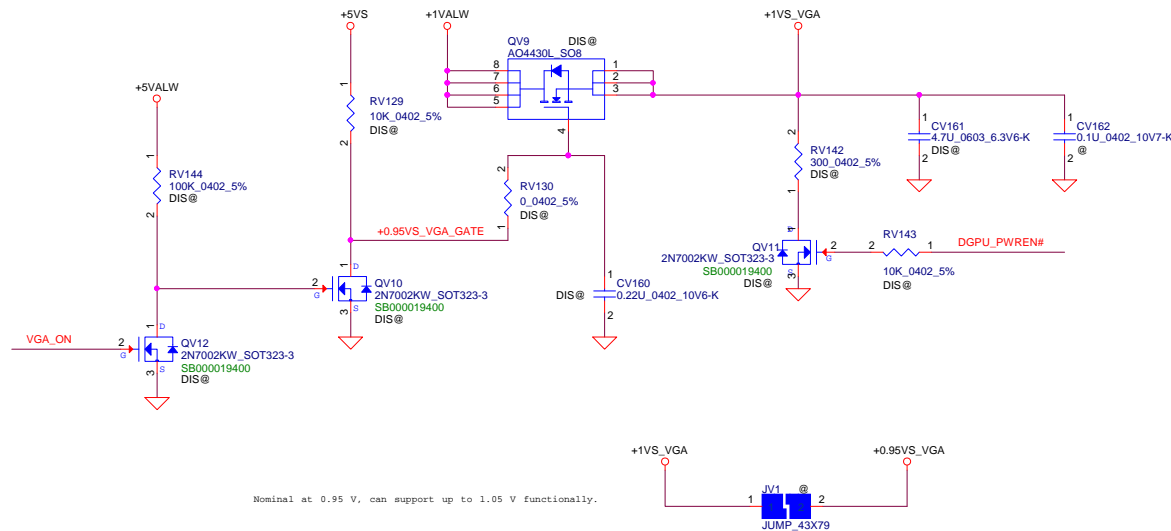


## +3VS to +3VS\_VGA



MLPS	Bit				
	5	4	3	2	1
PS_0[5:1]	1	1	0	0	1
PS_1[5:1]	1	1	0	0	0
PS_2[5:1]	1	1	0	0	0
PS_3[5:1]	1	1	X	X	X

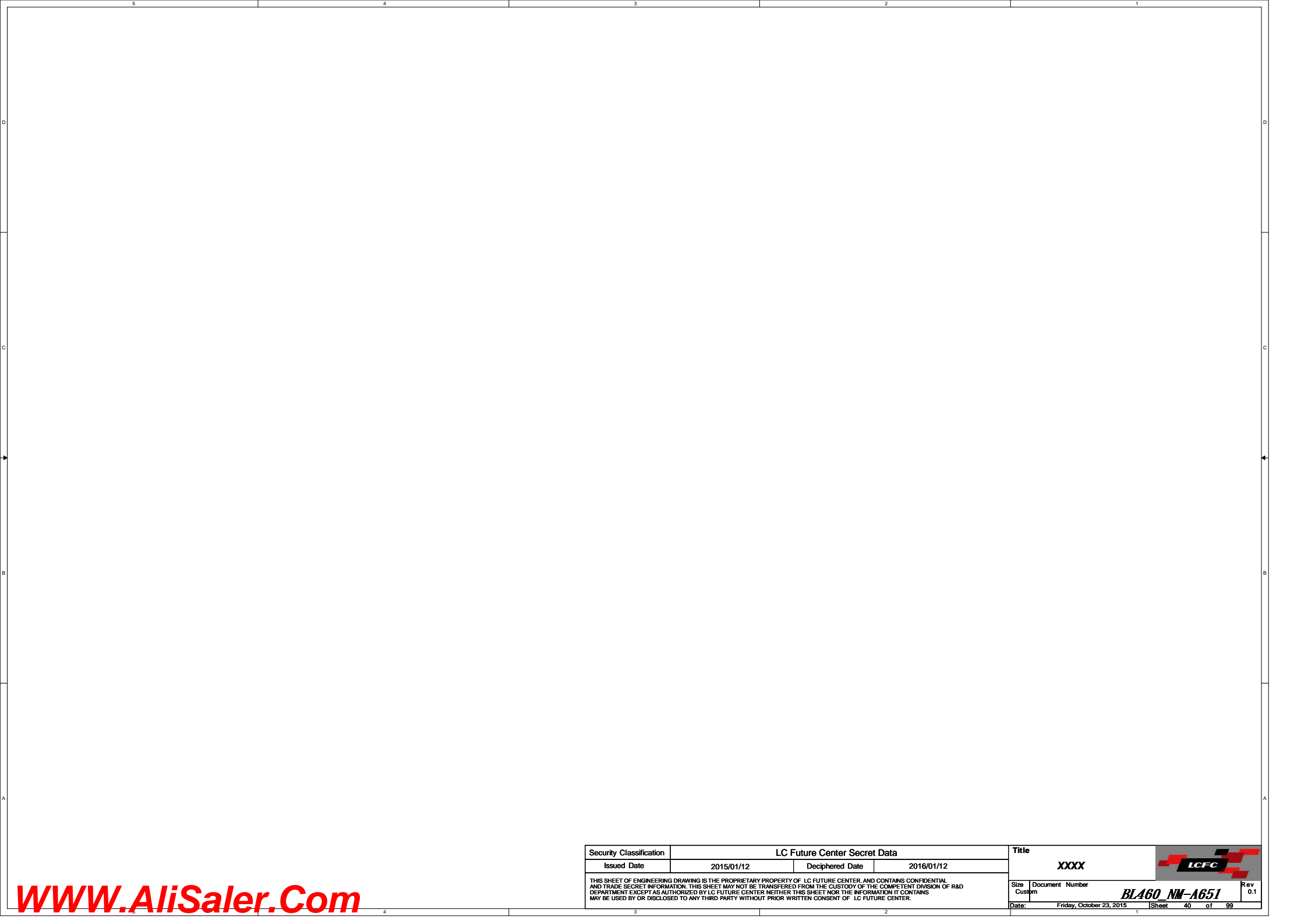
## +1VALW to +1VS\_VGA




Nominal at 0.95 V, can support up to 1.05 V functionally.

PS_0[1] PS_0[2] PS_0[3]	ROM_CONFIG[0] ROM_CONFIG[1] ROM_CONFIG[2]	STRAP_BIOS_ROM_EN = 1 ROM_CONFIG[2:0] = [001] 256MB
PS_0[4]	N/A	1 (Default)
PS_0[5]	N/A	1 (Default)
PS_1[1]	STRAP_BIF_GEN3_EN_A	0 = PCIe GEN3 is not supported
PS_1[2]	STRAP_BIF_CLK_PM_EN	0 = The CLKREQB power management capability is disabled
PS_1[3]	N/A	0 (Default)
PS_1[4]	STRAP_TX_CFG_DRV_FULL_SWING	1 = The transmitter full-swing is enabled
PS_1[5]	STRAP_TX_DEEMPH_EN	1 = Tx deemphasis enabled
PS_2[1]	N/A	0 (Default)
PS_2[2]	N/A	0 (Default)
PS_2[3]	STRAP_BIOS_ROM_EN	0 = Disable the external BIOS ROM device
PS_2[4]	N/A	1 (Default)
PS_2[5]	N/A	1 (Default)
PS_3[1] PS_3[2] PS_3[3]	BOARD_CONFIG[0] BOARD_CONFIG[1] BOARD_CONFIG[2]	PS_3[3..1] 101 = Micron 2G 110 = Samsung 2G 111 = Hynix 2G
PS_3[4]	N/A	1 (Default)
PS_3[5]	N/A	1 (Default)

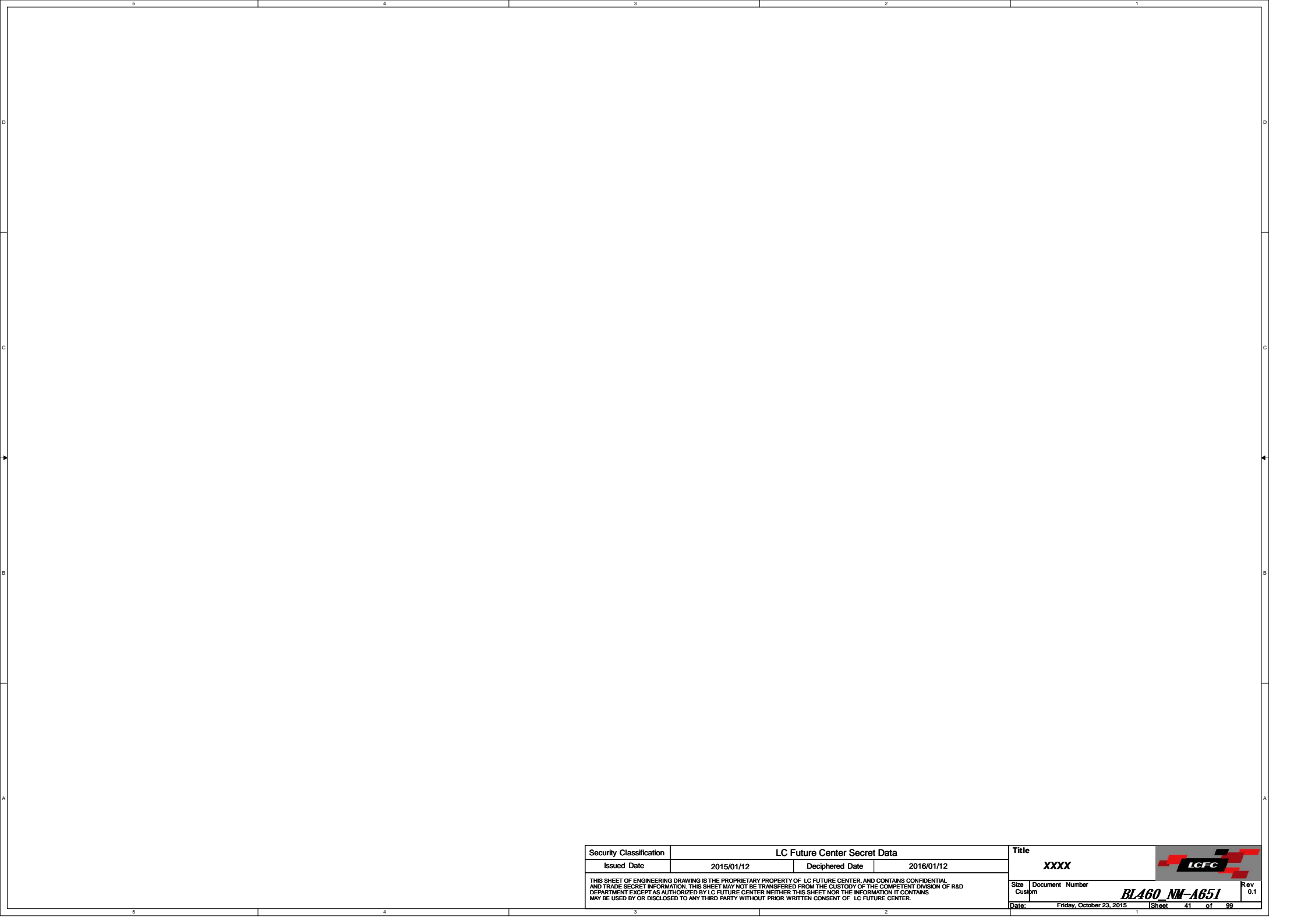





WWW.AliSaler.Com

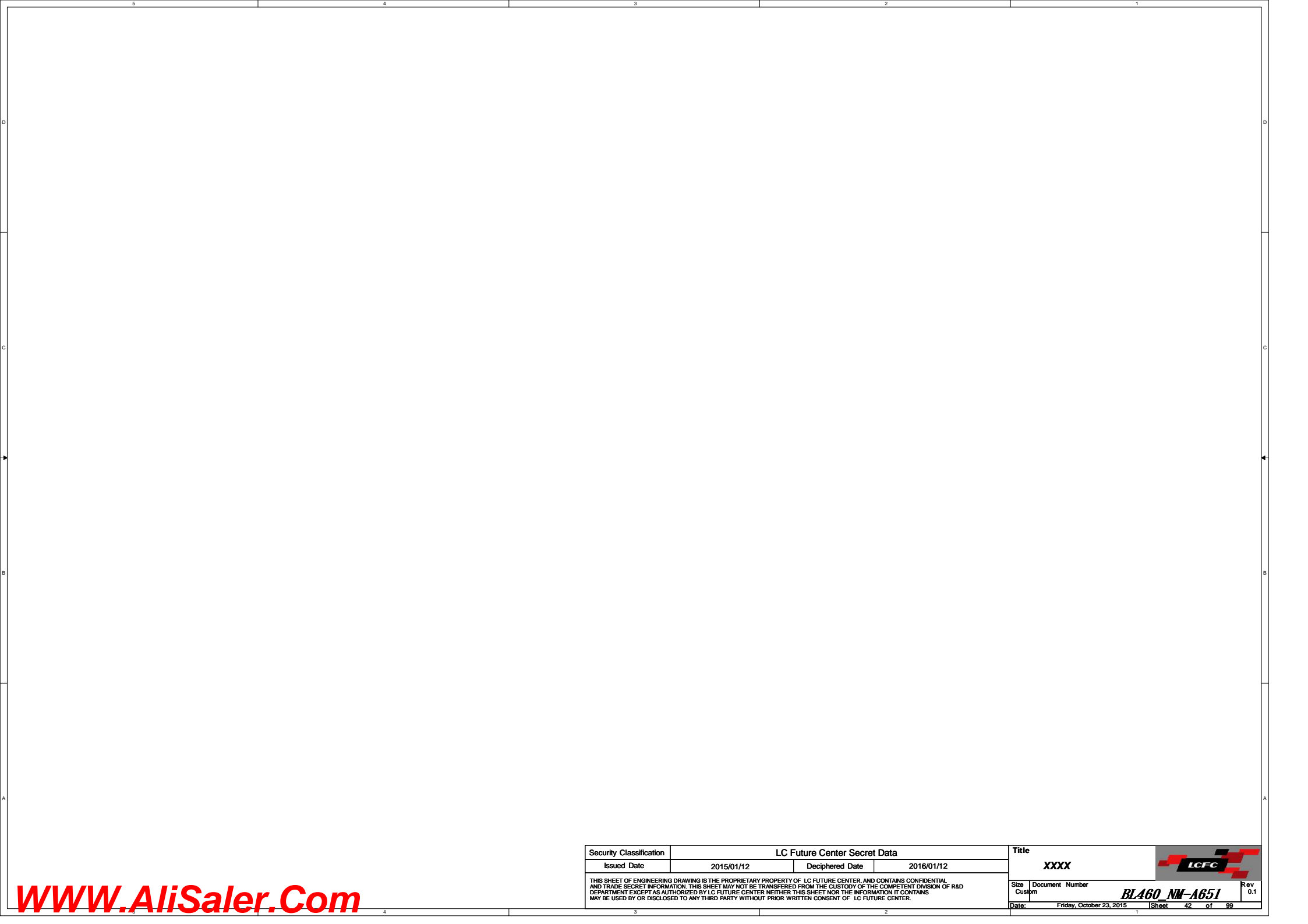
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size Custom	Document Number	Rev	
				BL460_NW-A651		0.1	
				Date:	Friday, October 23, 2015	Sheet	40 of 99






Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
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.				Size	Document Number	Rev 0.1	
				Custom	BL460 NW-A651		
				Date:	Friday, October 23, 2015	Sheet	41 of 99

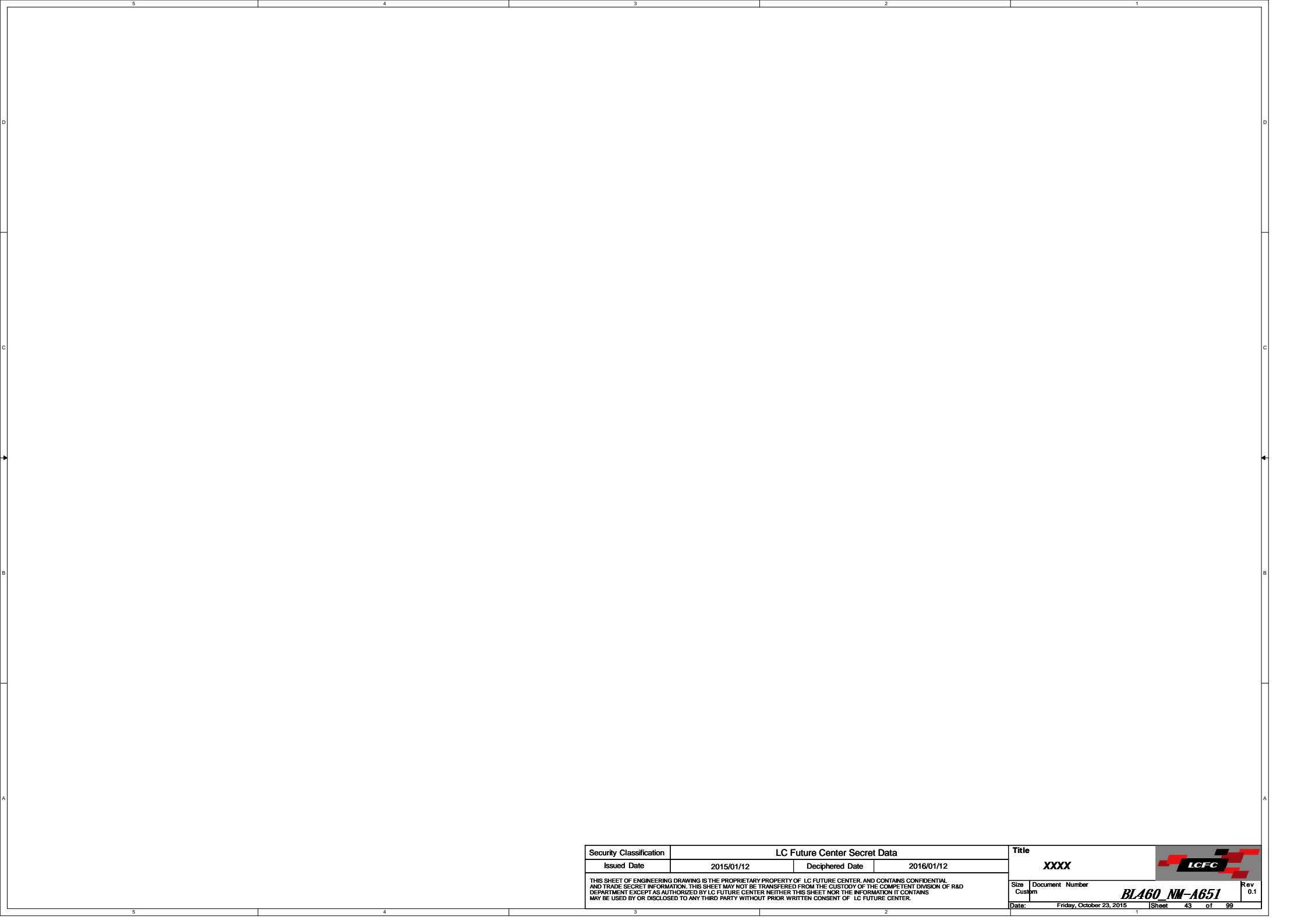





WWW.AliSaler.Com

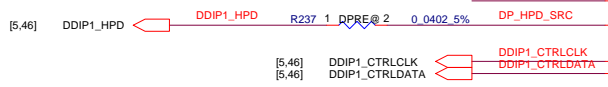
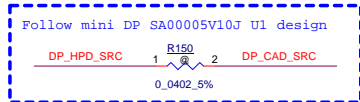
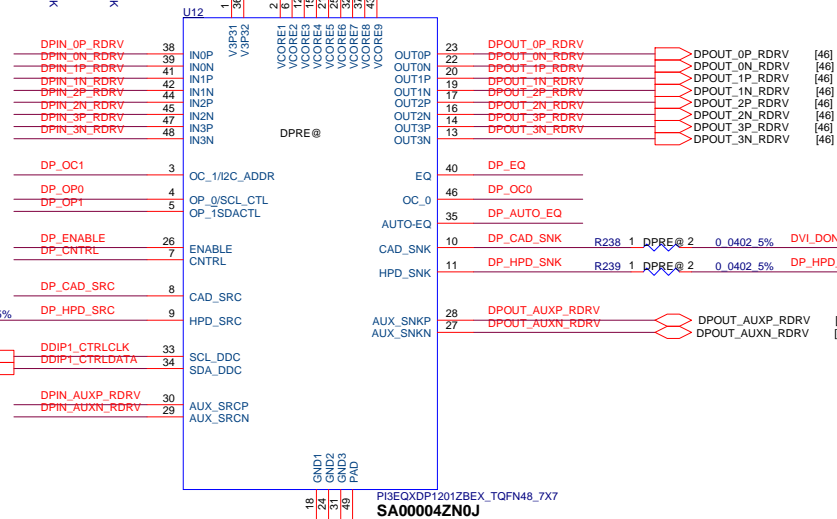
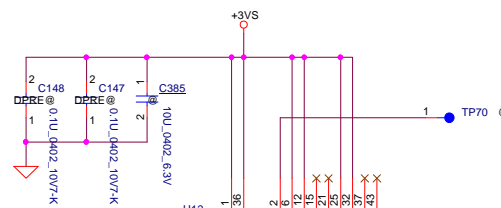
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	42 of 99





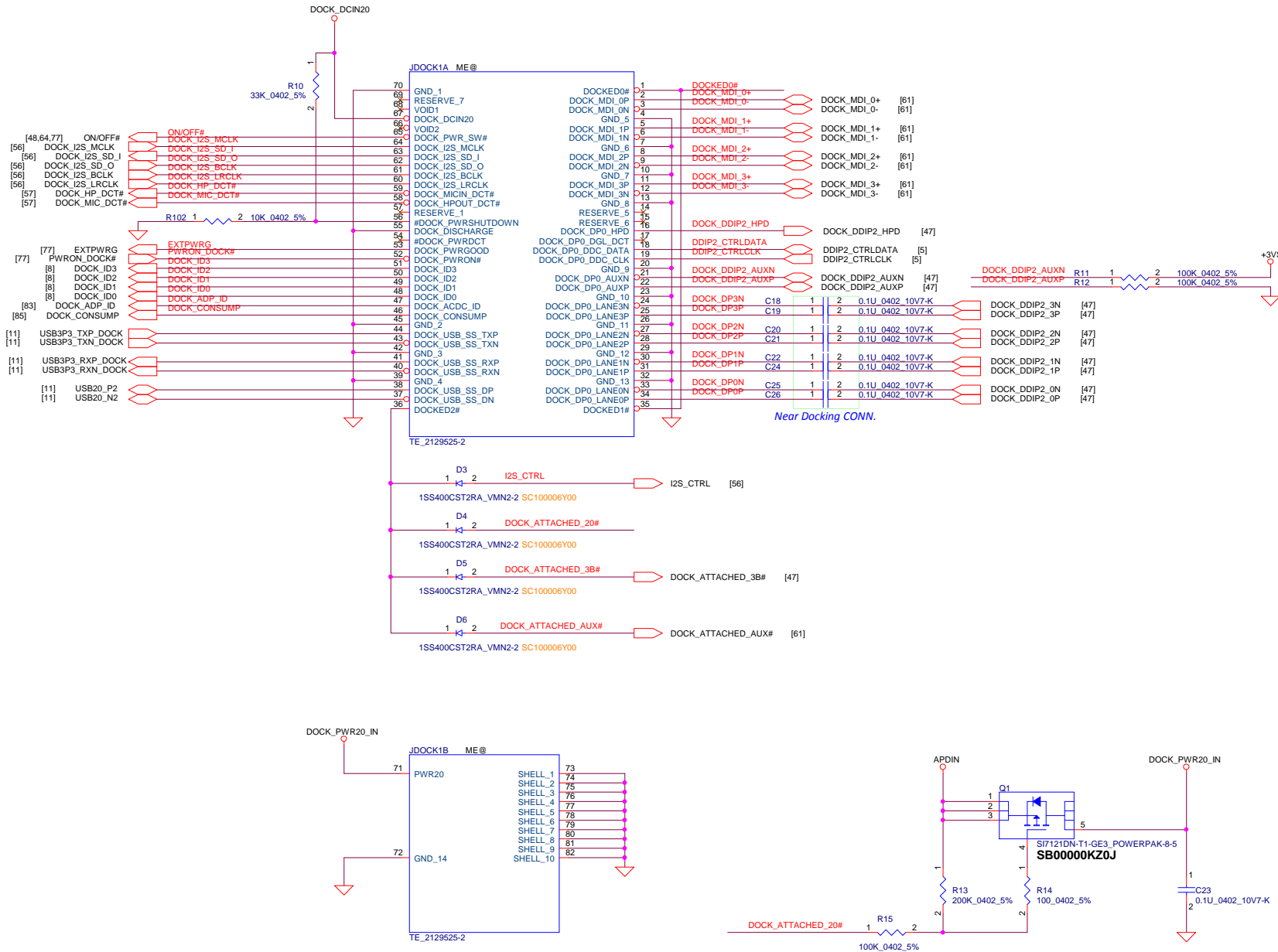
Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size Custom	Document Number <b>BL460 NW-A651</b>	
				Date:	Friday, October 23, 2015	Sheet 43 of 99



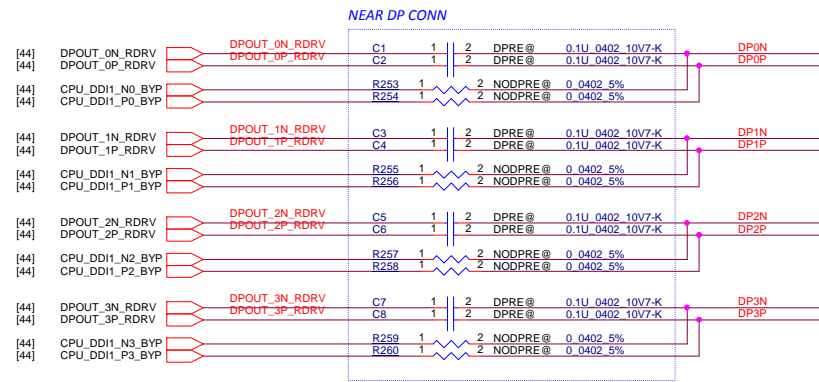


CNTRL	CAD_SNK	
0	0	Normal Mode for AUX
0	1	Normal Mode for DDC
1	X	Test Mode



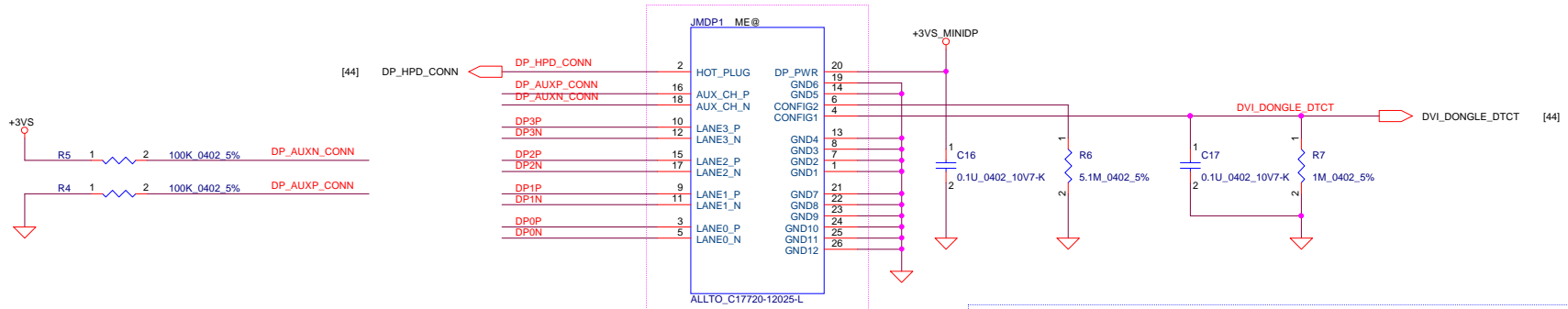
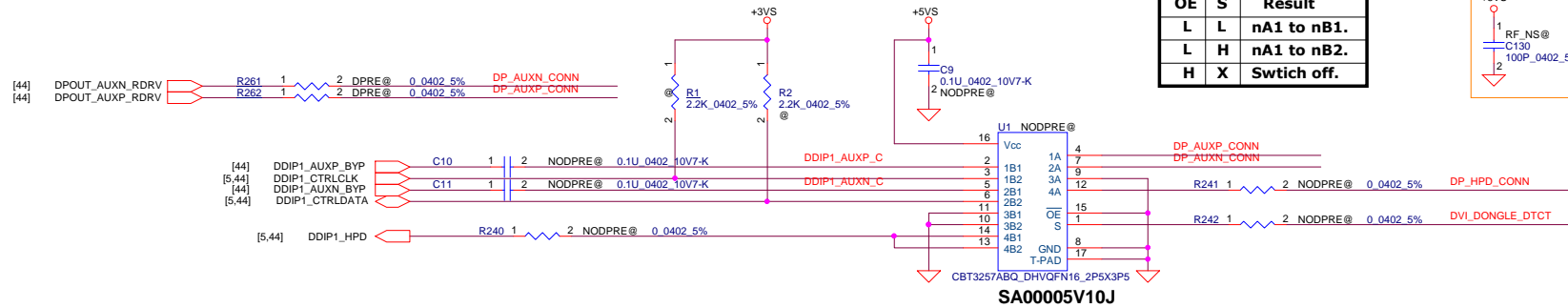
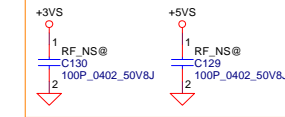




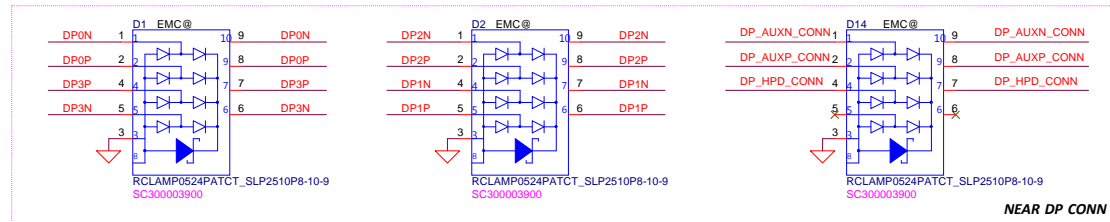


OE	S	Result
L	L	nA1 to nB1.
L	H	nA1 to nB2.
H	X	Switch off.

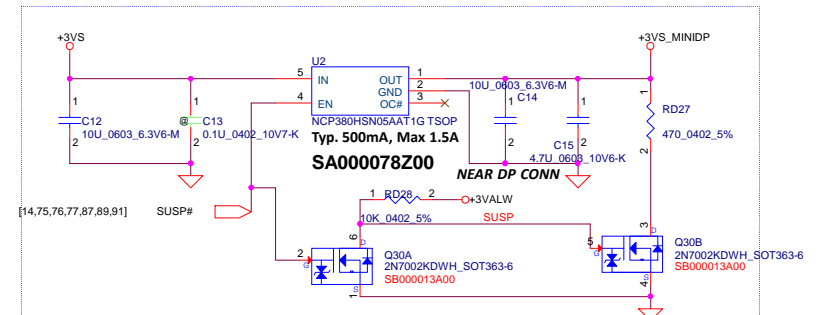
Reserve capacitor for LTE noise 2014.5.21



EMC (ESD solut i on)



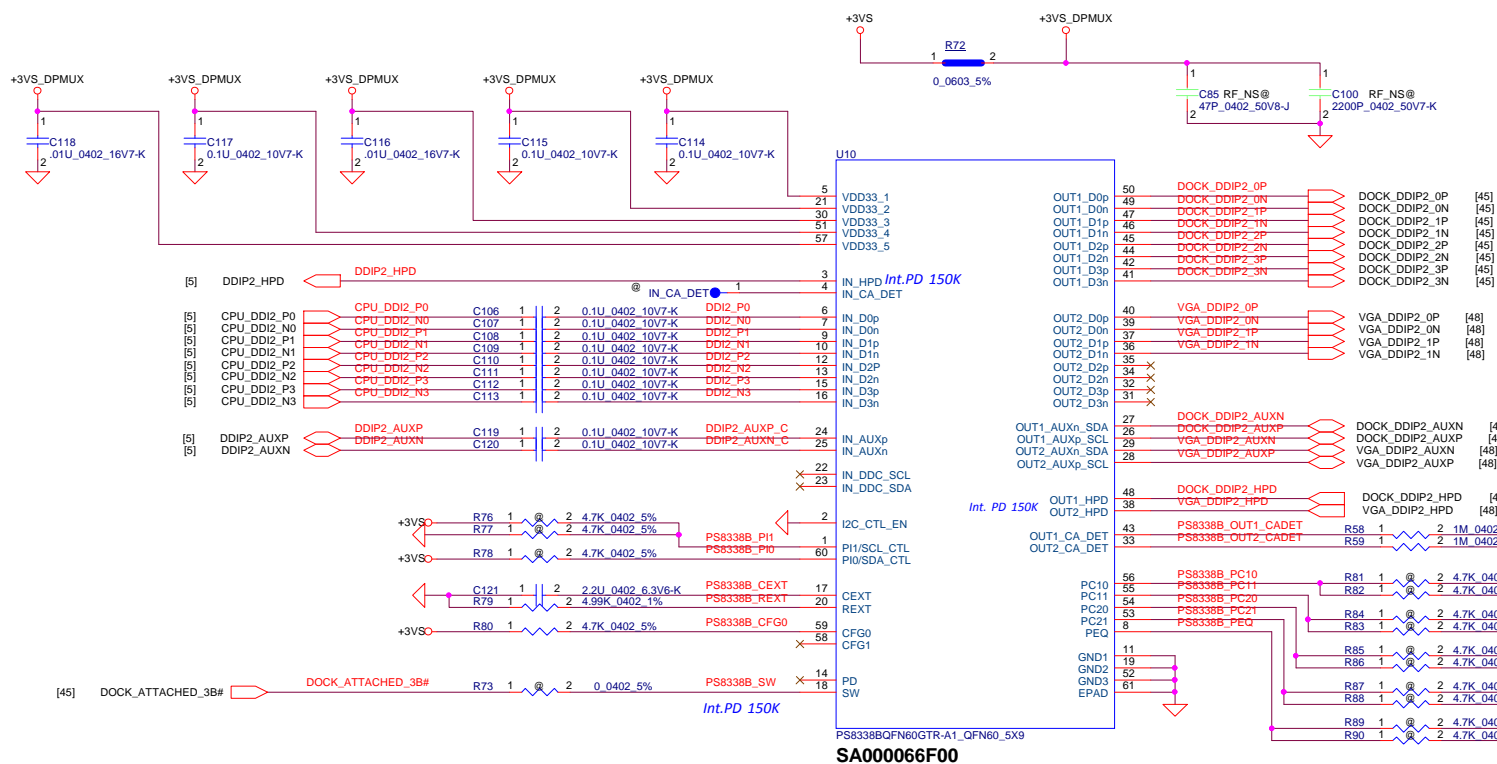
NEAR DP CONN



Security Classification				LC Future Center Secret Data				Title			
Issued Date				2015/01/12				2016/01/12			
Deciphered Date				2016/01/12				2016/01/12			
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.								MINI-DP CONN.			
Size				Document				Number			
Custom								BLA60_NW-A651			
Date:				Friday, October 23, 2015				Sheet 46 of 99			







#### PS8338B\_P11

Auto test enable; Internal pull down at ~150KOhm, 3.3V I/O.  
 \*L: Auto test disable & input of fset cancellation enable (default)  
 H: Auto test enable & input of fset cancellation enable  
 M: Auto test disable & input of fset cancellation disable

#### PS8338B\_P10

Automatic EQ disable; Internal pull down at ~150KOhm, 3.3V I/O  
 \*L: Automatic EQ enable (default)  
 H: Automatic EQ disable

#### PS8338B\_CFG0

Chip operation mode configuration; Internal pull down at ~150KOhm, 3.3V I/O  
 L: Control switching mode  
 \*H: Automatic switching mode (default)

#### PS8338B\_PC10/PC20

AUX intercept on disable; Port y (y = 1, 2). Internal pull down at ~150KOhm, 3.3V I/O  
 \*L: AUX intercept on enable; driver configuration is set by link training (default)  
 H: AUX intercept on disable; driver output with fixed 80 Ohm and 0 Ohm  
 M: AUX intercept on disable; driver output with fixed 40 Ohm and 0 Ohm

#### PS8338B\_PC11/PC21

Output swing adjustment for Port y (y = 1, 2). Internal pull down at ~150KOhm, 3.3V I/O;  
 \*L: default  
 H: +20%  
 M: -16.7%

#### PS8338B\_PEQ

Programmable input equalization; Internal pull down at ~150KOhm, 3.3V I/O  
 L: default, LEQ, compensate channel loss up to 11.5dB @ HBR2  
 H: HEQ, compensate channel loss up to 14.5dB @ HBR2  
 M: LLEQ, compensate channel loss up to 8.5dB @ HBR2

#### DOCK\_ATTACHED\_3B#

For Automatic Switching Mode (CFG0=H)  
 SW=L: Port1 has higher priority when both ports are plugged (docking side)  
 SW=H: Port2 has higher priority when both ports are plugged

#### CA\_DAT

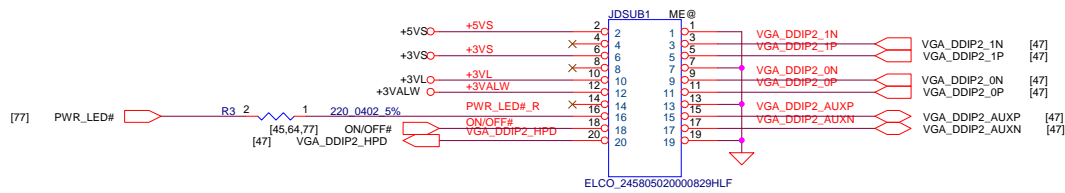
default CA\_DAT add 1M pull down (AUX enable), CA\_DAT check plug-in is DP or HDMI!! DP=L, HDMI dongle=H.

Security Classification		LC Future Center Secret Data	
Issued Date	2015/01/12	Deciphered Date	2016/01/12
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.			

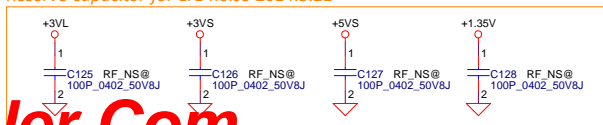
Title		<b>PS8338B DP SW</b>			
Size	Document Number	<b>BLA60_NW-A651</b>		Rev	
Custom				0.1	
Date:	Friday, October 23, 2015	Sheet	47	of	99



# M/B TO D-SUB/B BTB CONN.



Reserve capacitor for LTE noise 2014.5.21




Security Classification	LC Future Center Secret Data	
Issued Date	2015/01/12	Deciphered Date
		2016/01/12
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		Rev	
D-SUB BTB CONN.		0.1	
Size	Document Number	BL460_NM-A651	
Custom			
Date:	Friday, October 23, 2015	Sheet	48 of 99

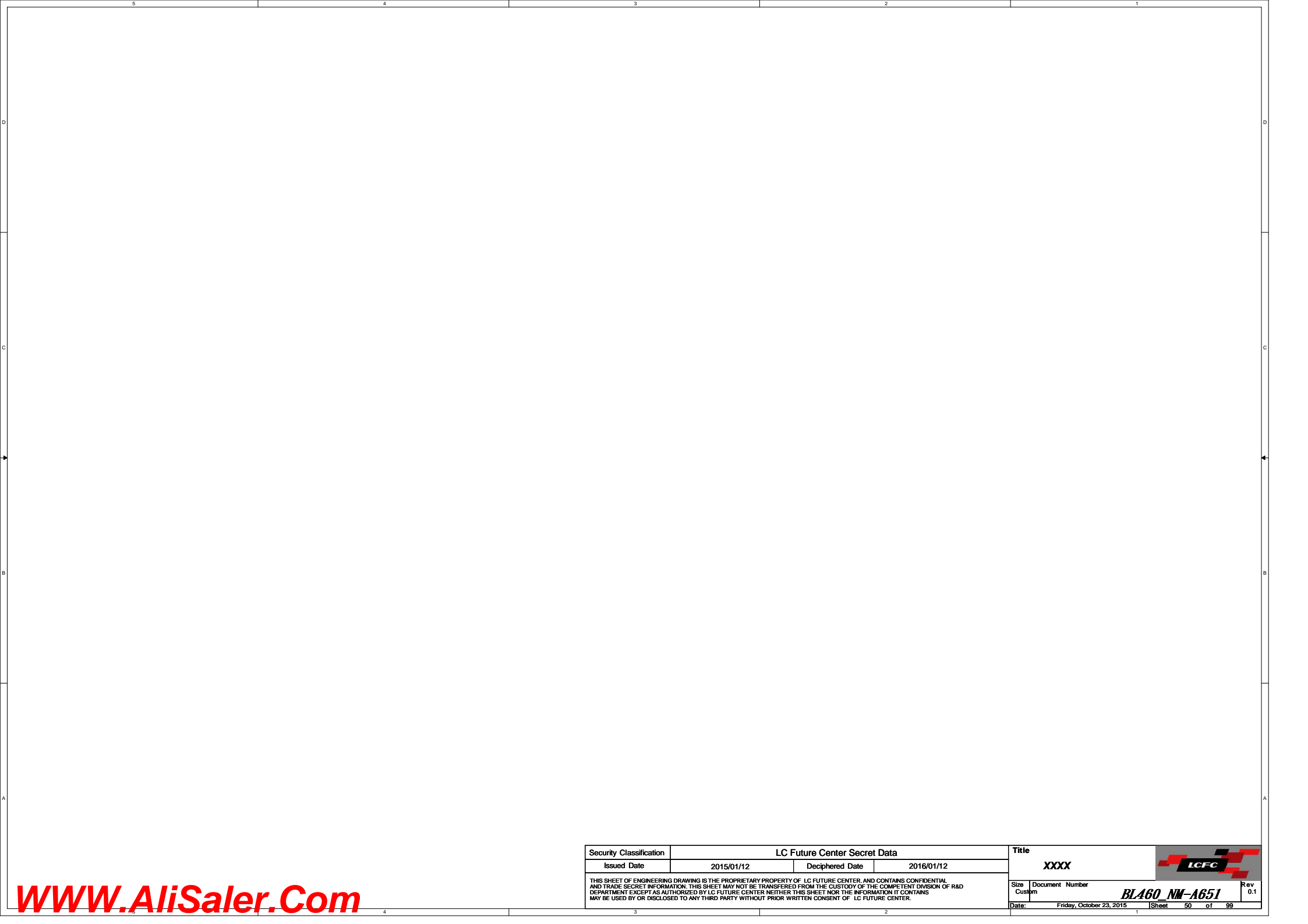





	A	B	C	D	E
1					
2					
3					
4					

Security Classification	LC Future Center Secret Data				Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12		XXXX		
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.					Size Custom	Document Number <b>BL460_NM-A651</b>	Rev 0.1
					Date:	Friday, October 23, 2015	Sheet 49 of 99



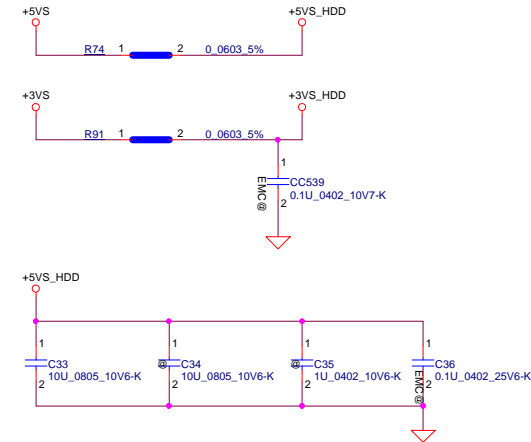
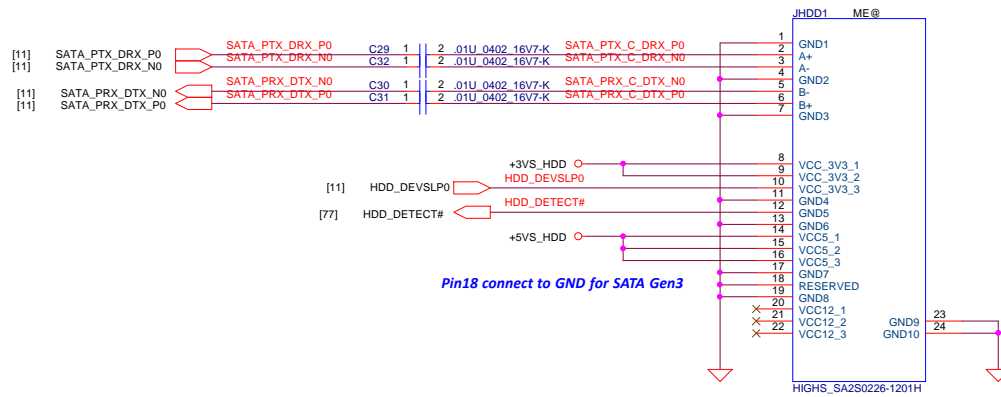


WWW.AliSaler.Com

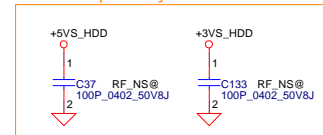
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	50 of 99



## SATA HDD CONN.



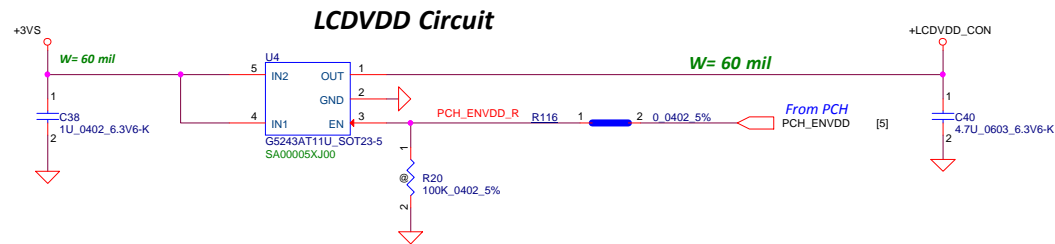
Reserve capacitor for LTE noise 2014.5.21



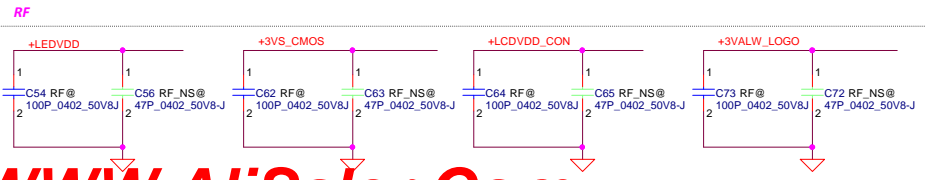
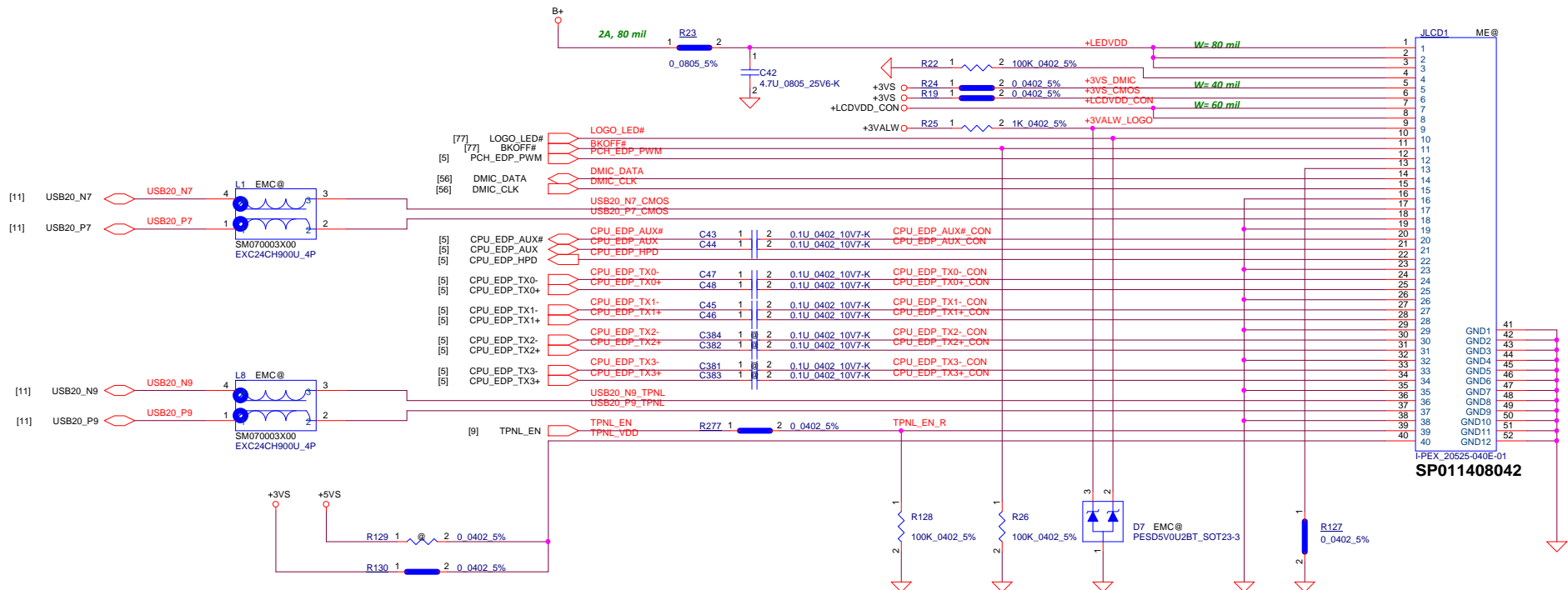
Security Classification			
LC Future Center Secret Data			
Issued Date	2015/01/12	Deciphered Date	2016/01/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF 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		Rev	
SATA HDD CONN.		0.1	
Size	Document Number	BLA60_NW-A651	
Date:	Friday, October 23, 2015	Sheet	51 of 99





### eDP/CMOS/LOGO-LED CONN.



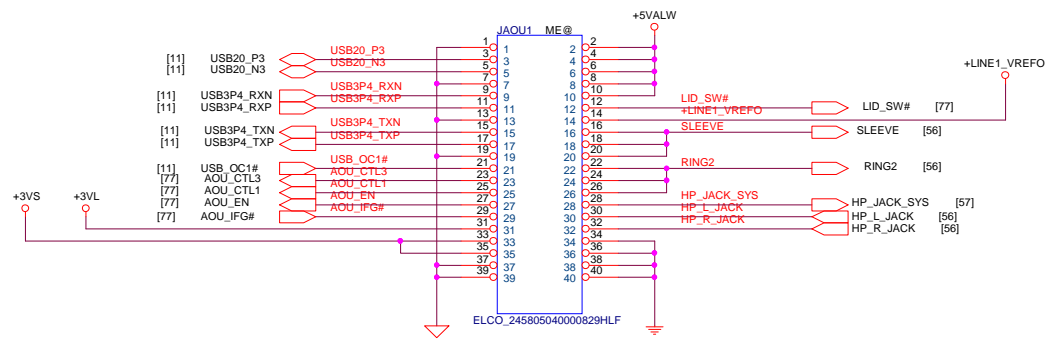
Security Classification			
LC Future Center Secret Data			
Issued Date	2015/01/12	Deciphered Date	2016/01/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF 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		
eDP CONN.		
Size	Document Number	Rev
Custom	BLA60_NW-A651	0.1
Date:	Friday, October 23, 2015	Sheet 52 of 99



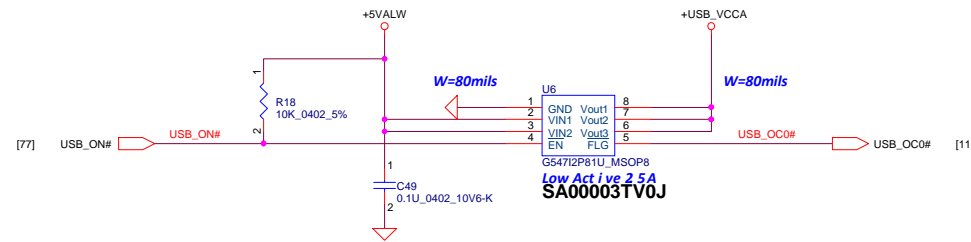


**AOU/JACK/LID-SW BTB CONN.**

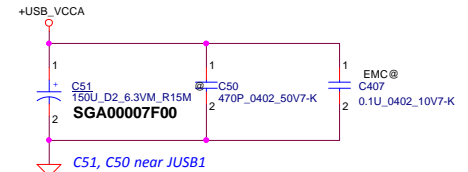
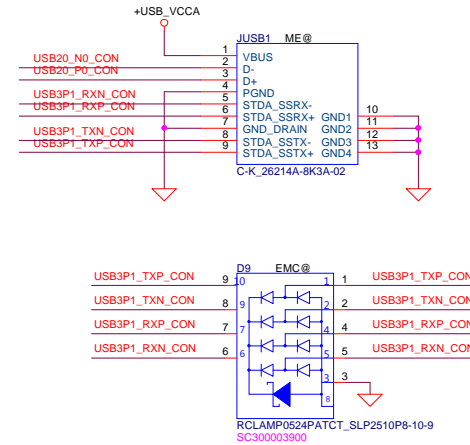
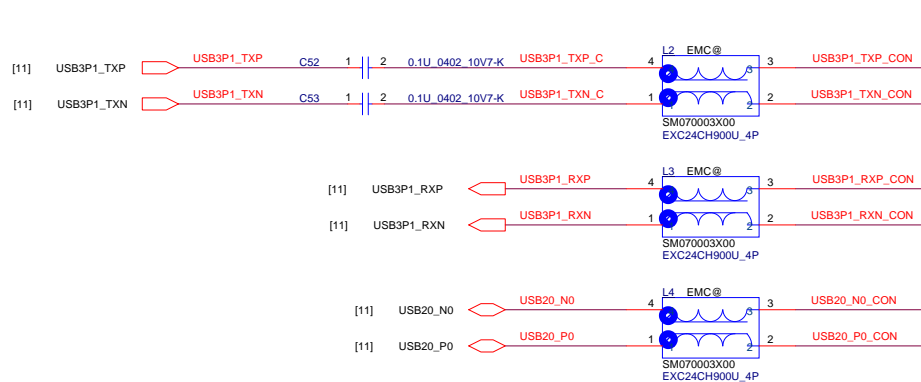




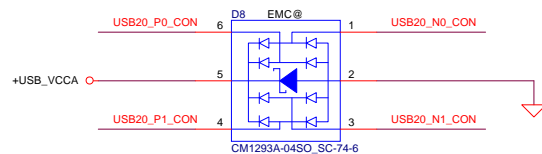
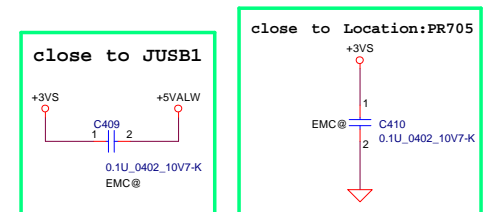
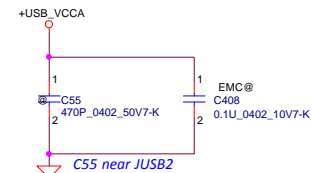
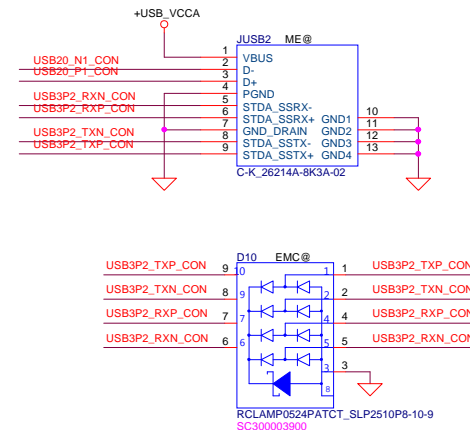
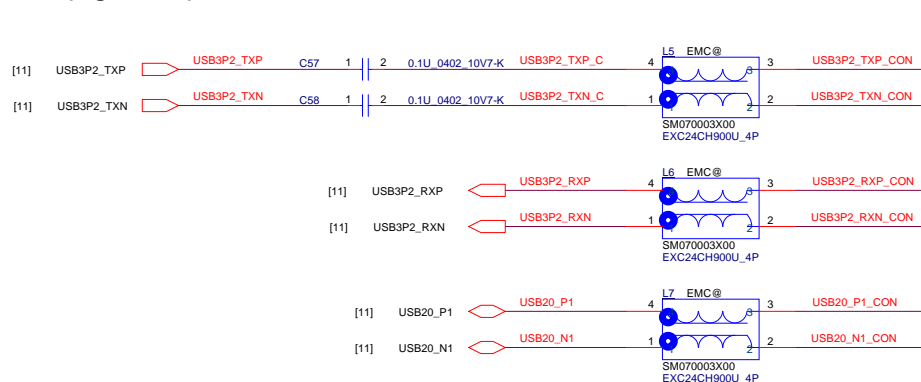
## USB POWER SWITCH




## On Board (Right-Front)



## On Board (Right-Back)



Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	USB3 P1/2 CONN.			
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.							
Size	Document	Number		BL460 NW-A651			Rev
Custom							0.1
Date:	Friday, October 23, 2015			Sheet	54	of	99




1

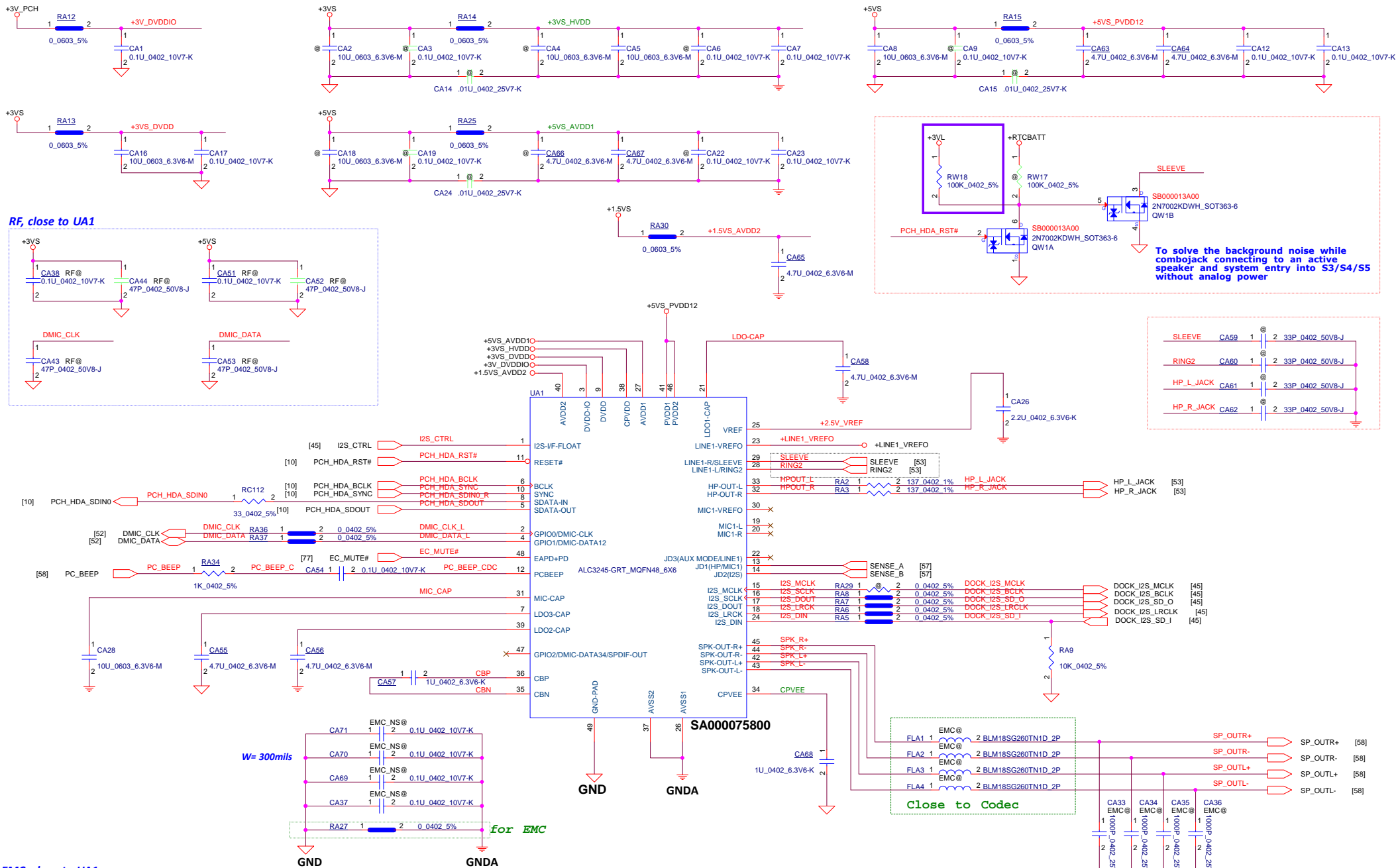
1

1

1

Security Classification				LC Future Center Secret Data				Title							
Issued Date		2015/01/12		Deciphered Date		2016/01/12		XXXX							
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 EQUIPMENT 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.										Size Custom		Document Number <b>BL460 NW-A651</b>		Rev. 0.	
Date: Friday, October 23, 2016, 11:17 AM										Sheet 55 of 99					

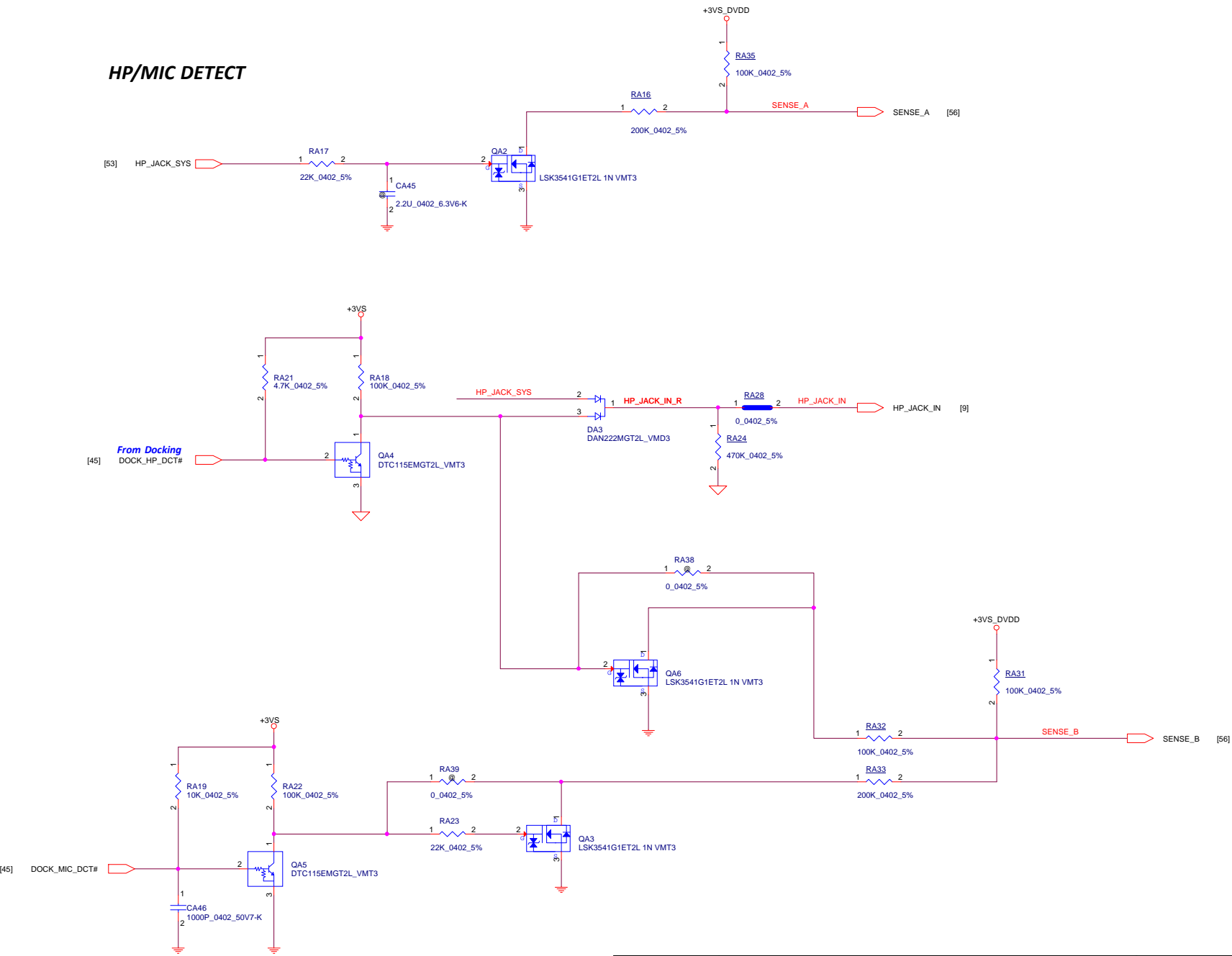




Security Classification				LC Future Center Secret Data		Title	
Issued Date	2015/01/27	Deciphered Date	2016/01/12	CODEC-ALC3245		BLA60_NW-A651	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT 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.				Size	Document Number	Rev	0.1
				Custom			
				Date:	Friday, October 23, 2015	Sheet	56 of 82

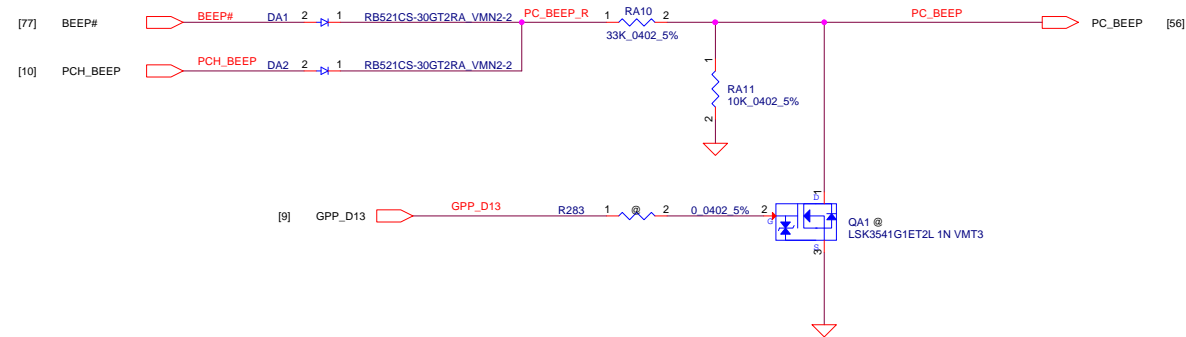


HP/MIC DETECT

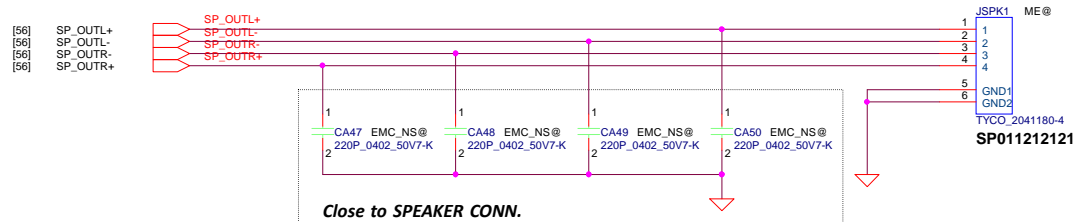




## PC-BEEP



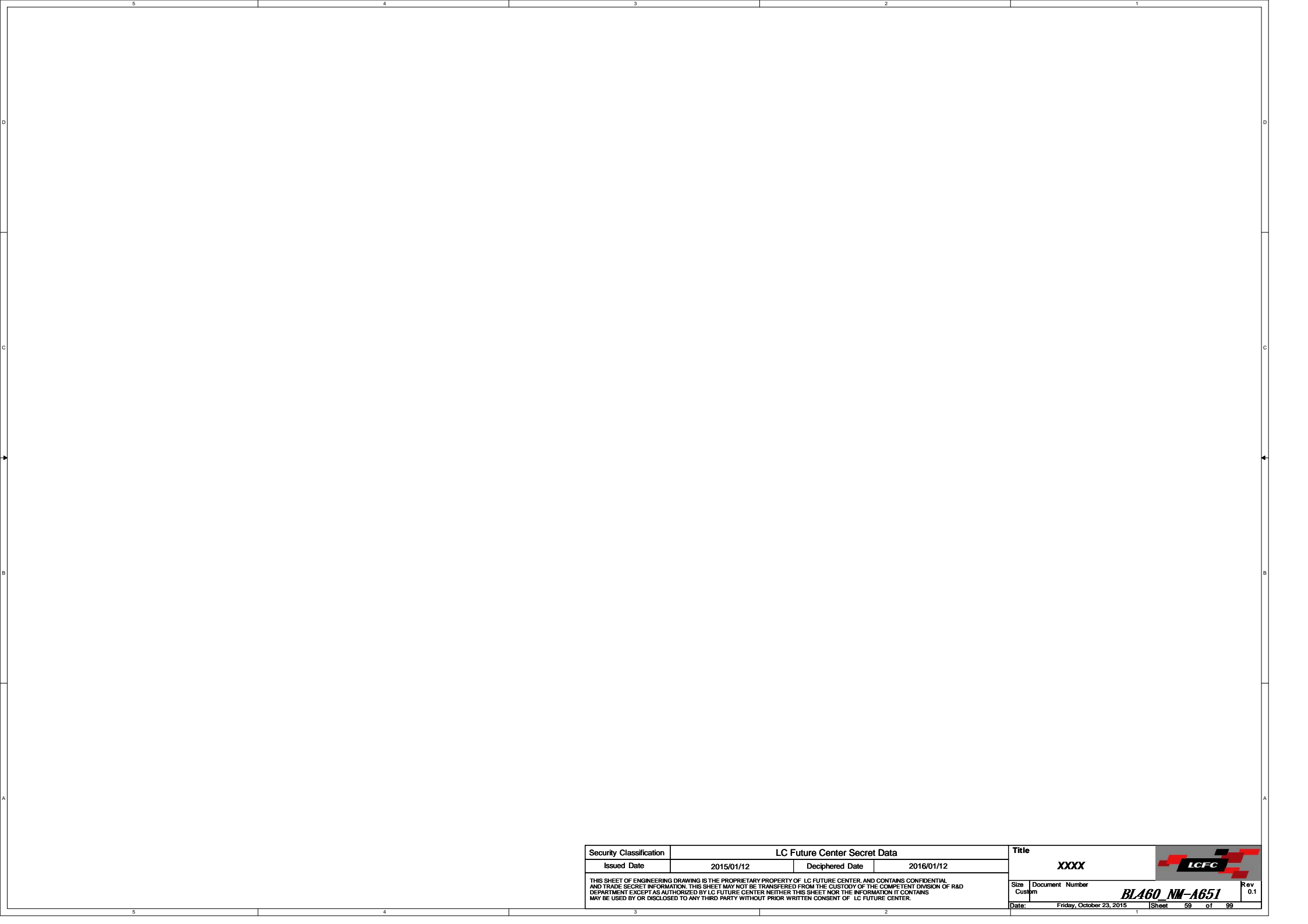
## SPEAKER CONN.




Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	PCBEEP/SPK CONN.	
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.				Size	Document Number
				Custom	BL460_NW-A651
				Date:	Friday, October 23, 2015
				Sheet	58 of 99
				Rev	0.1





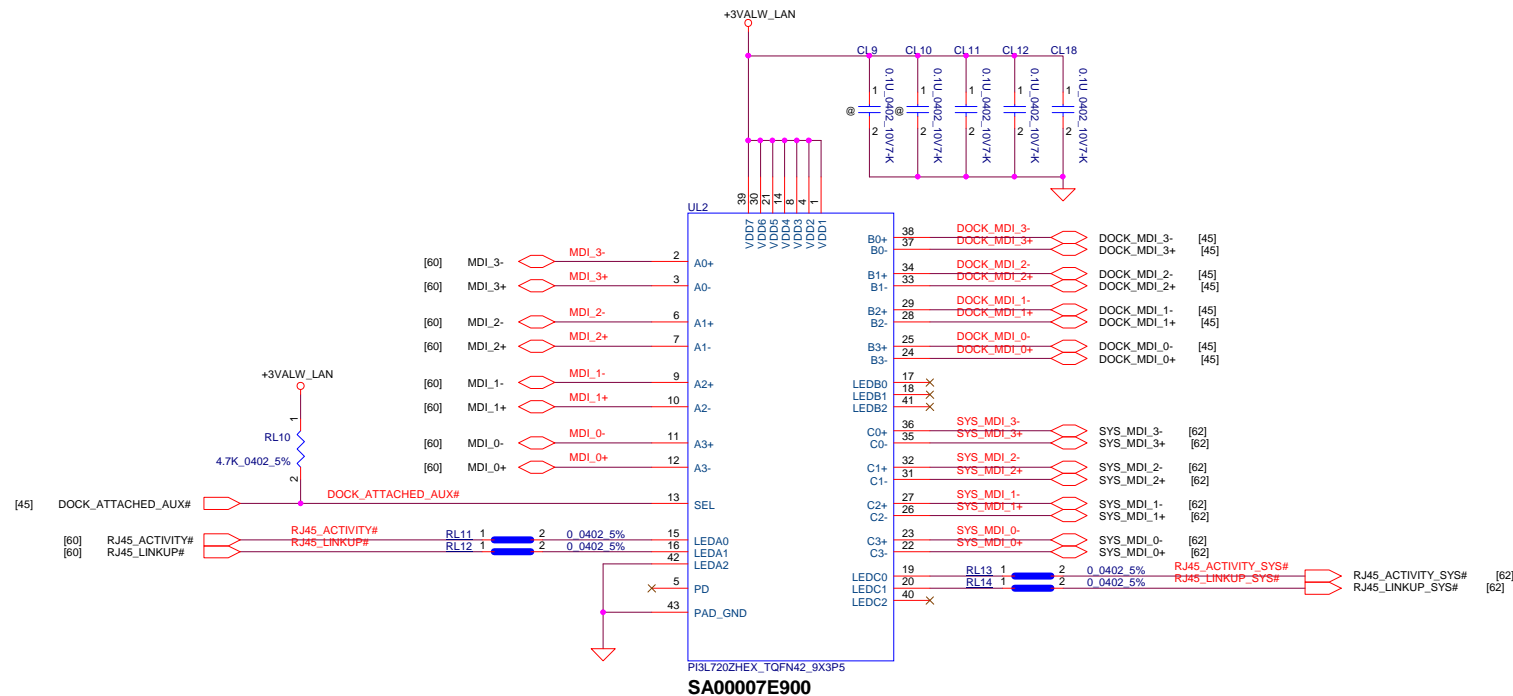


Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size Custom	Document Number	
				Date:	Friday, October 23, 2015	Sheet 59 of 99
				BL460_NW-A651		Rev 0.1



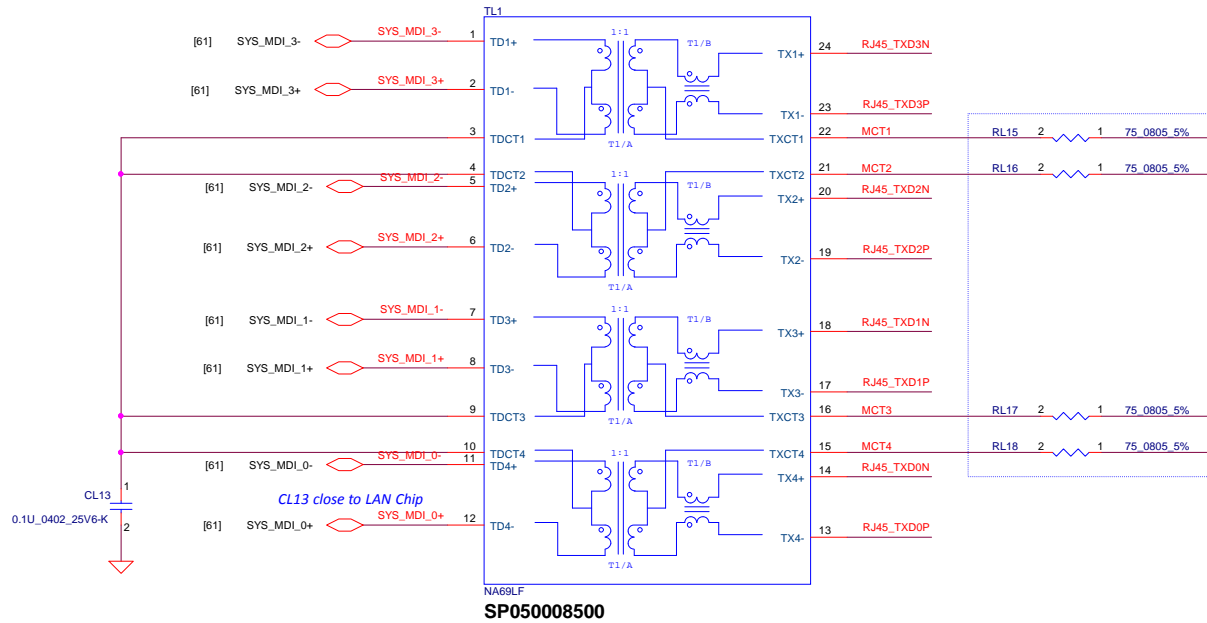




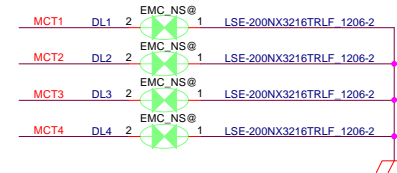
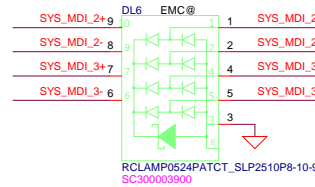
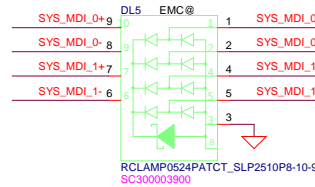
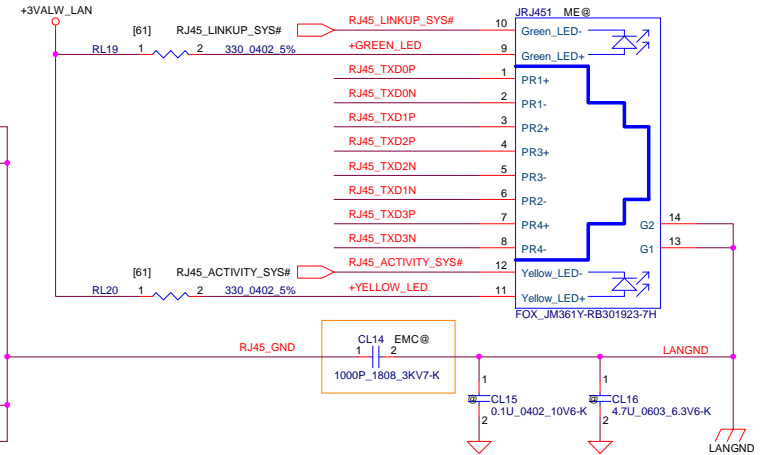




# LAN X' FORM



# RJ45 Conn.

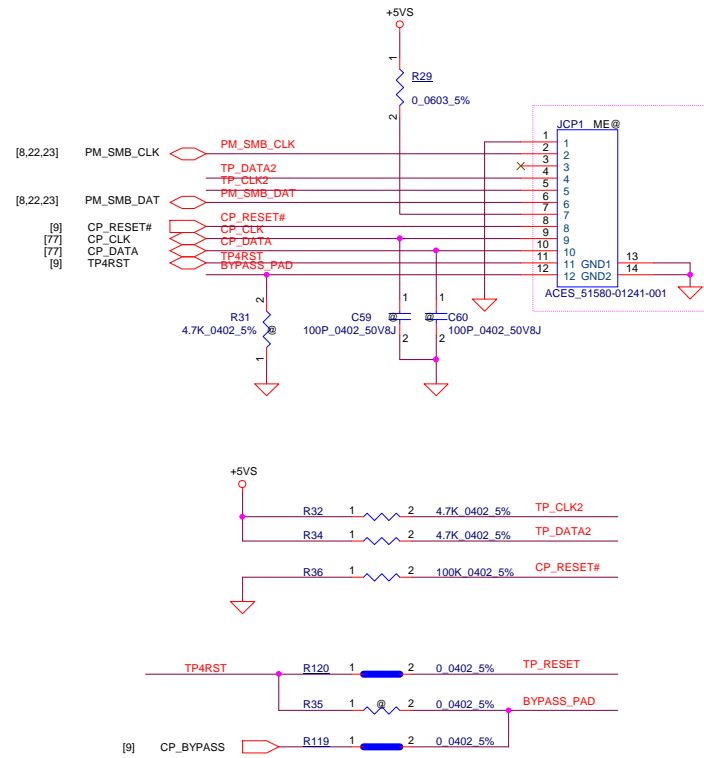


Security Classification			
LC Future Center Secret Data			
Issued Date	2015/01/12	Deciphered Date	2016/01/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF 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.			

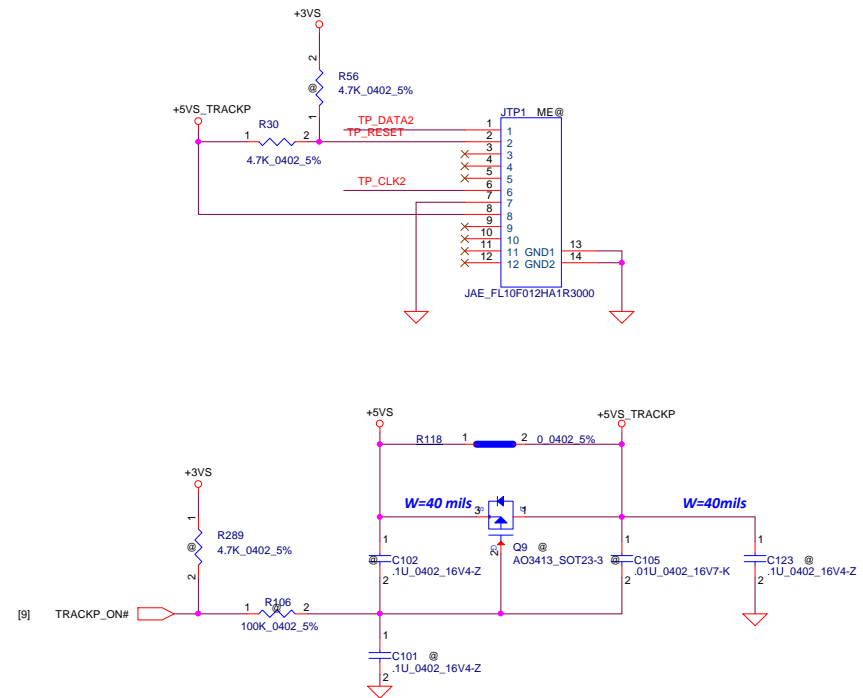
Title		
RJ45 CONN.		
Size	Document Number	Rev
Custom	BLA60_NW-A651	0.1
Date:	Friday, October 23, 2015	Sheet 62 of 99



## 5-Button Click Pad

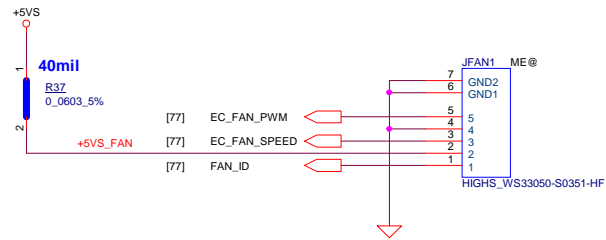


## Track Point

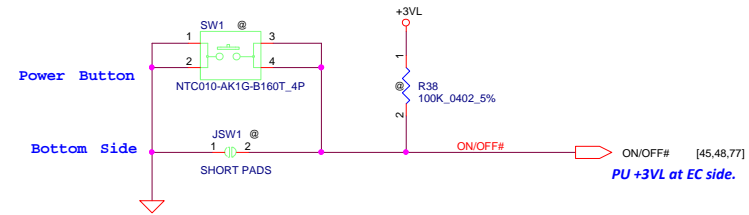





# FAN CONN.

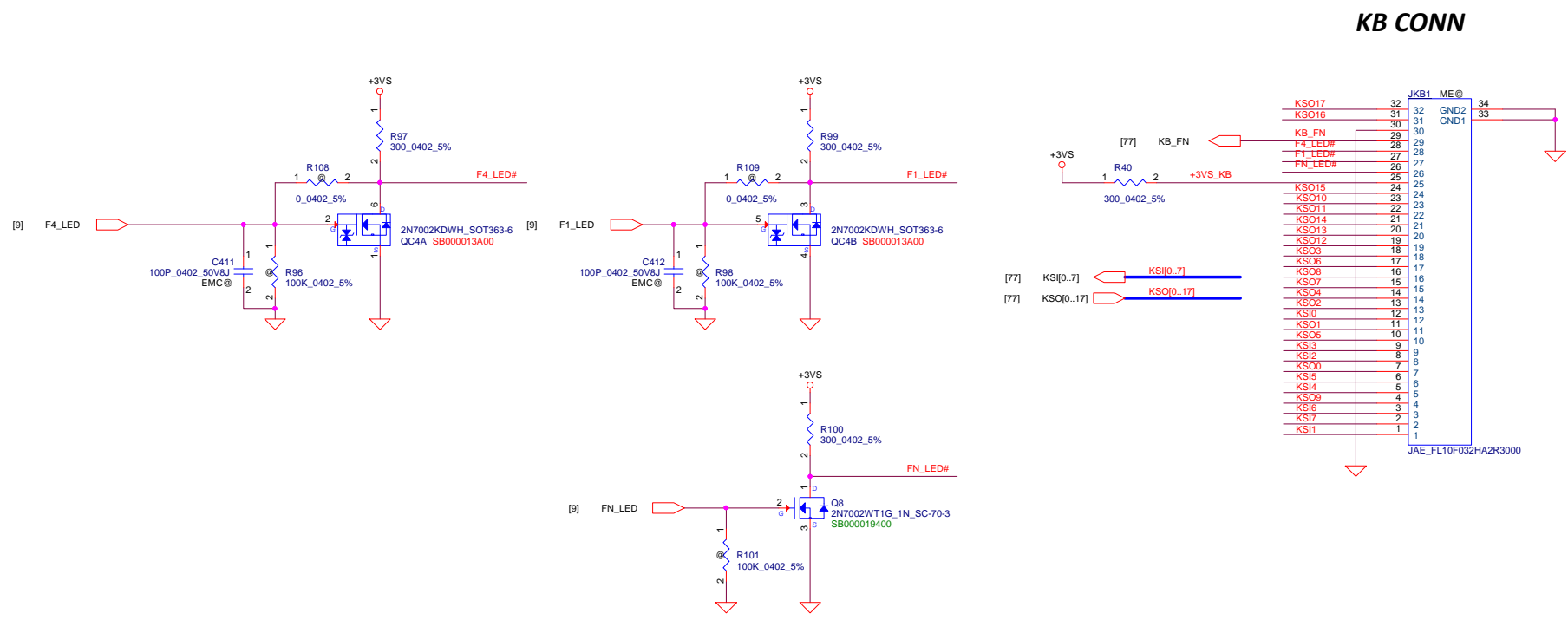


# PWRBTN FOR DENUG

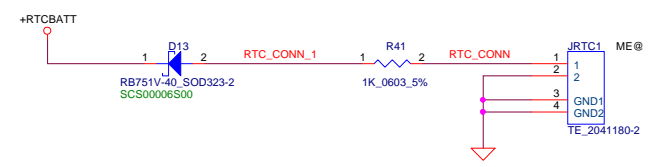


Security Classification	LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY 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.				Size Custom
				Document Number <b>BL460_NM-A651</b>
				Rev 0.1
				Date: Friday, October 23, 2015
				Sheet 64 of 99



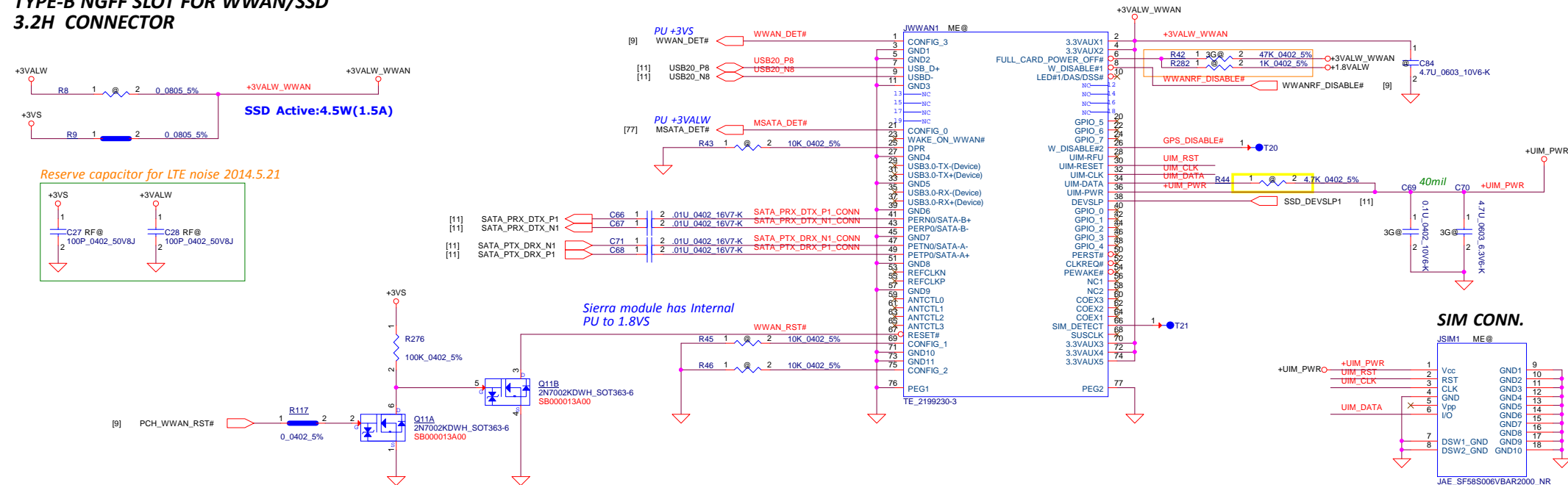


RTC CONN.

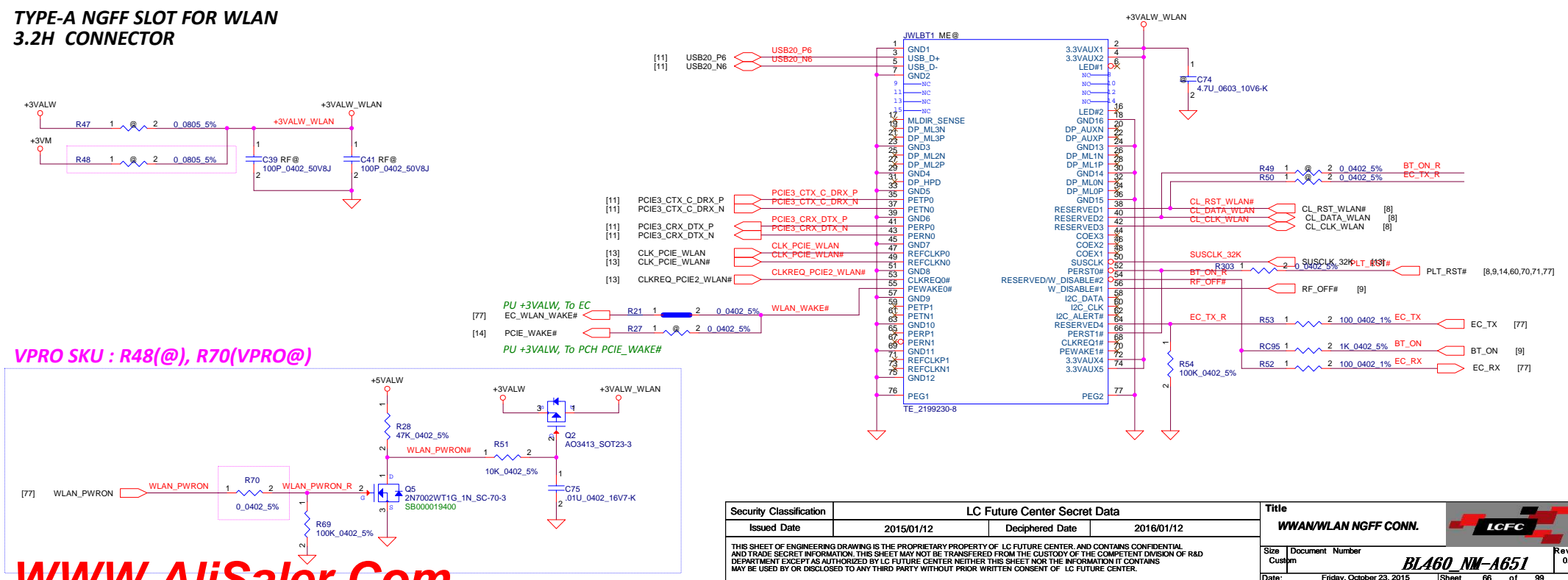




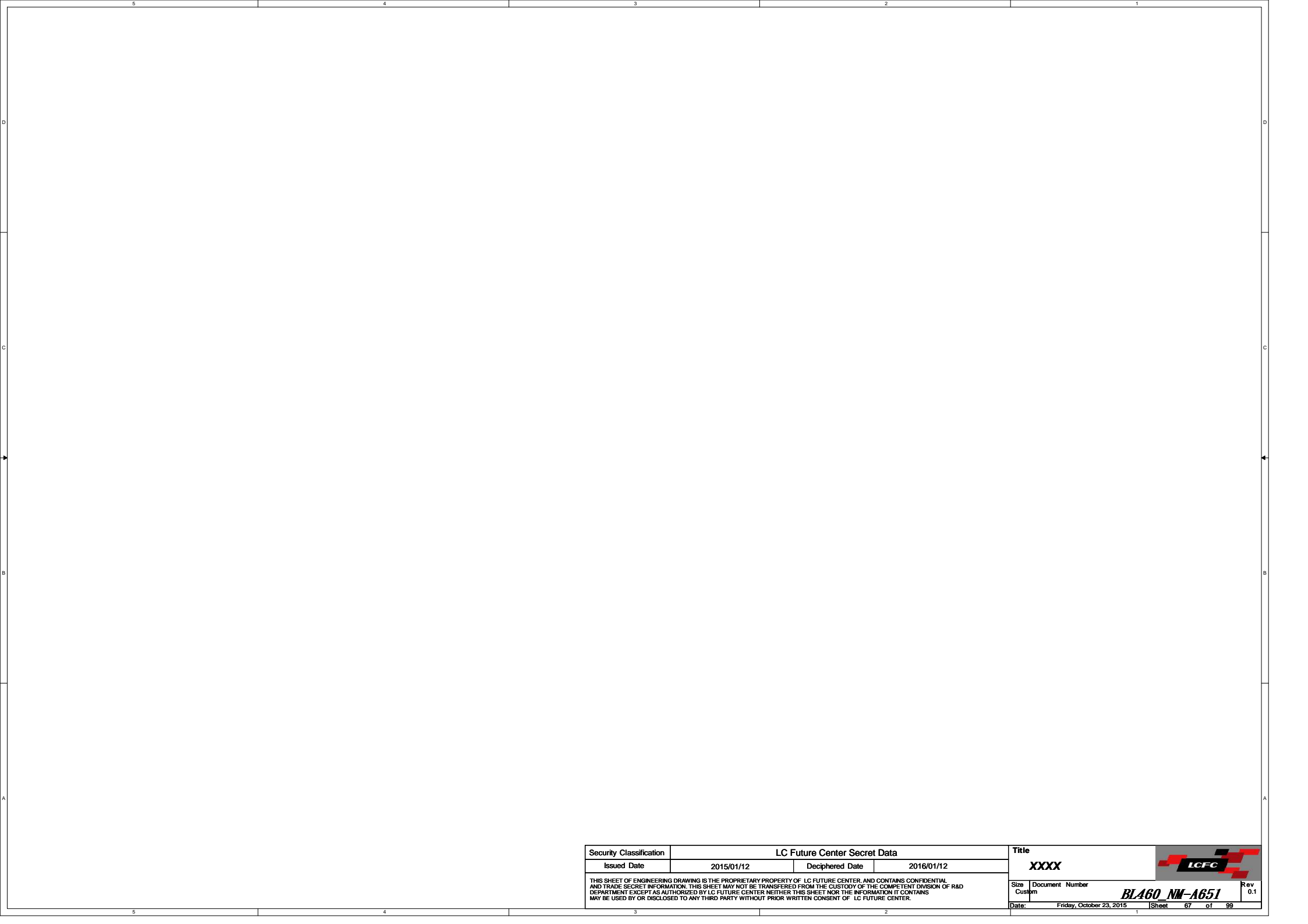
### TYPE-B NGFF SLOT FOR WWAN/SSD 3.2H CONNECTOR




### TYPE-A NGFF SLOT FOR WLAN 3.2H CONNECTOR

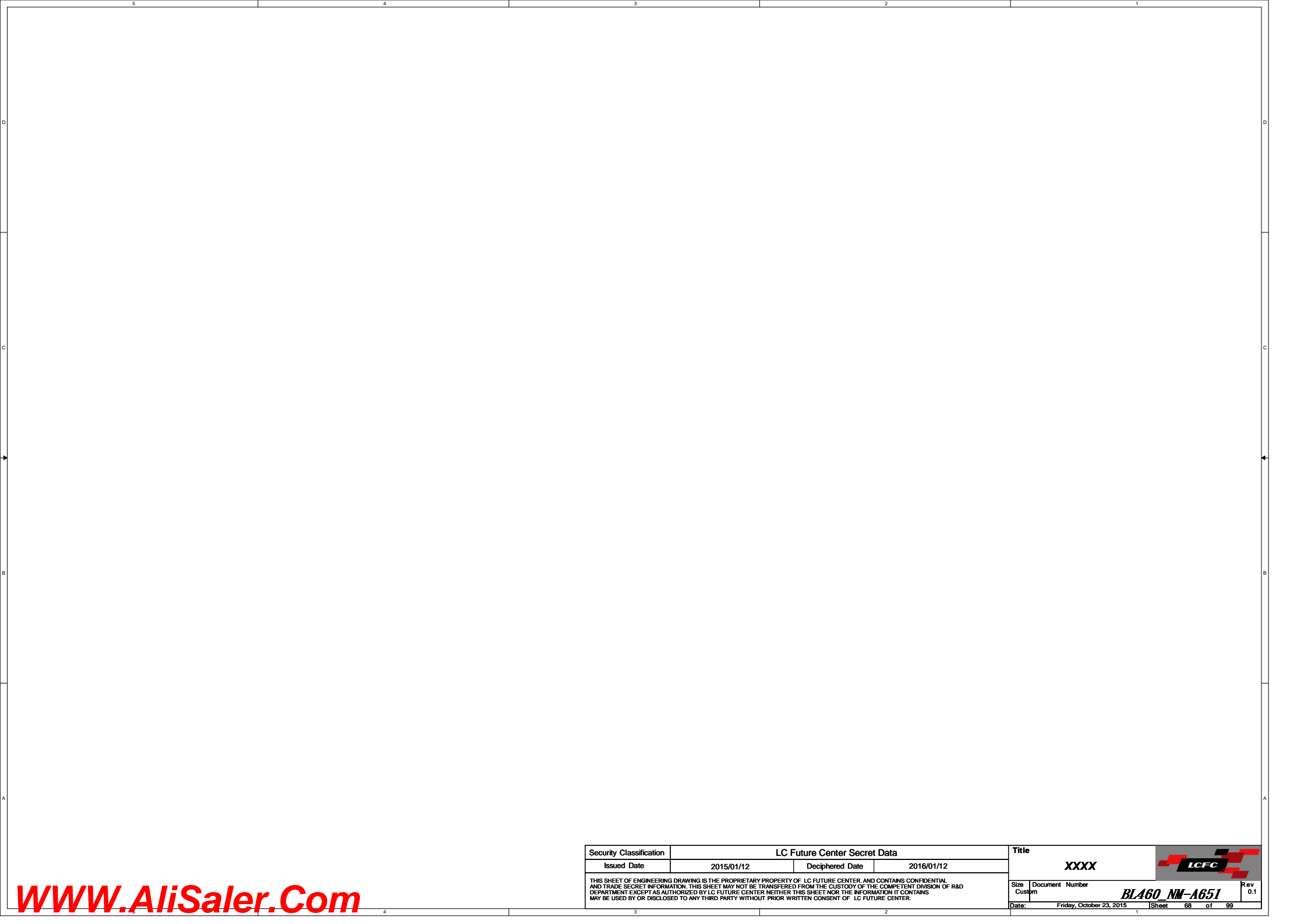







Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number	Rev 0.1	
				Custom			
				Date:	Friday, October 23, 2015	Sheet	67 of 99



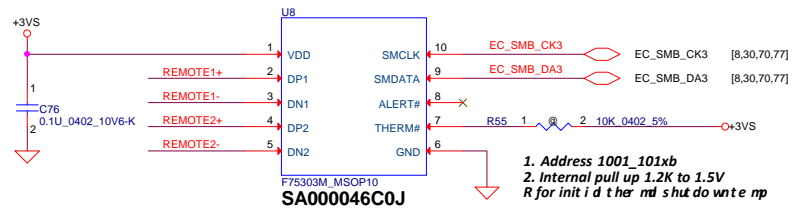


WWW.AliSaler.Com

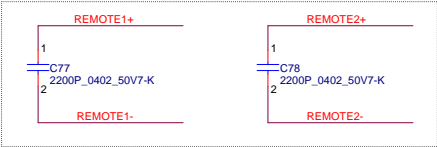
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	68 of 99



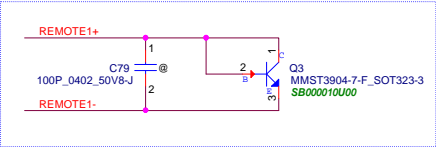
Thermal Sensor



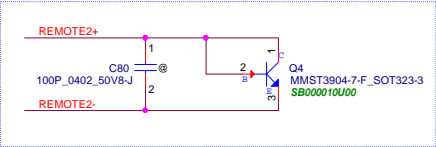
Close to U8



Close to +VCC\_CORE



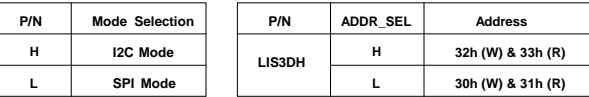
Close JDIMM1&JDIMM2



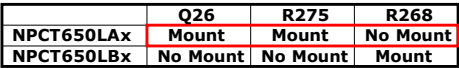
REMOTE2+/-:  
Trace width/space:10/10 mil  
Trace length:<8"




***WWW.AliSaler.Com***

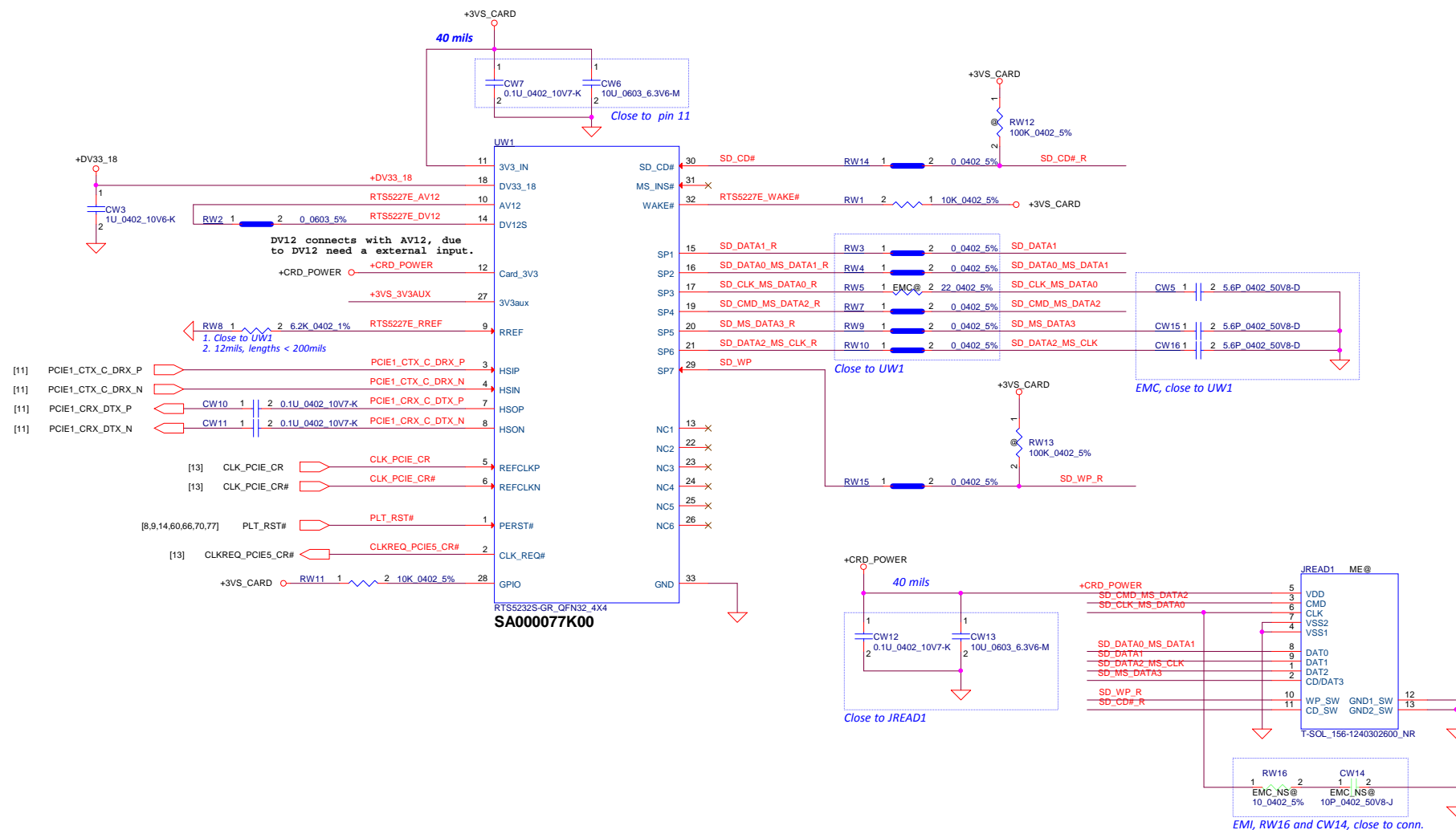
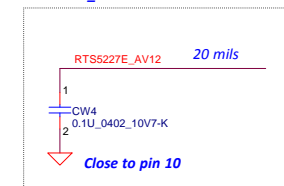
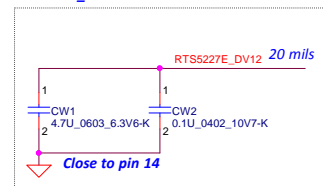
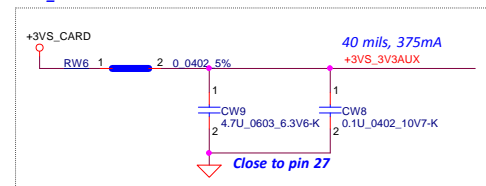
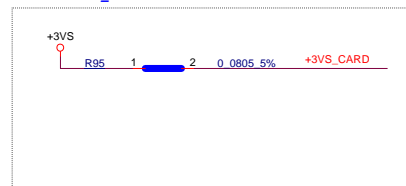


**FAC suggest for power consumption.**




Security Classification		LC Future Center Secret Data		Title					
Issued Date		2015/01/12		Deciphered Date			2016/01/12		G SENSOR / TPM
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 OR DISCLOSED TO ANY THRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.									
Size		Document Number		BL460 NW-A651		Rev		0.1	
Date:		Friday, October 23, 2015		Sheet		70		of 99	

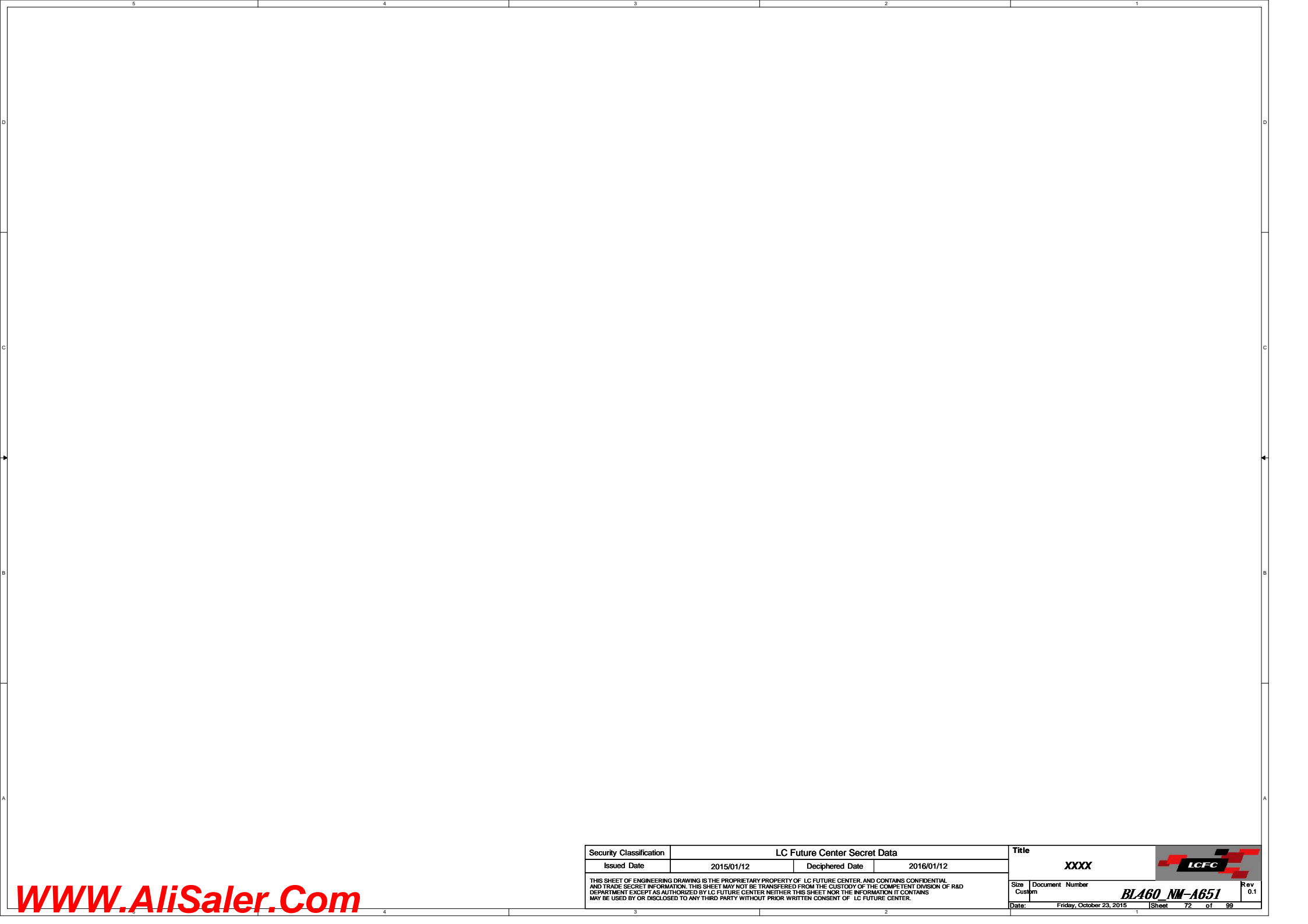





Connector side / IC side	WP		CD
	Lock	Unlock	
Card insertion	L	H	H
Card uninserction	L	L	L

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	RTS5232S CARDREADER/CO 	
<p>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&amp;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.</p>				<p>Size Document Number Custom BL460 NW-A651</p>	
Date:		Friday, October 23, 2015		<p>Sheet 71 of 99</p> <p>Rev. 0.</p>	



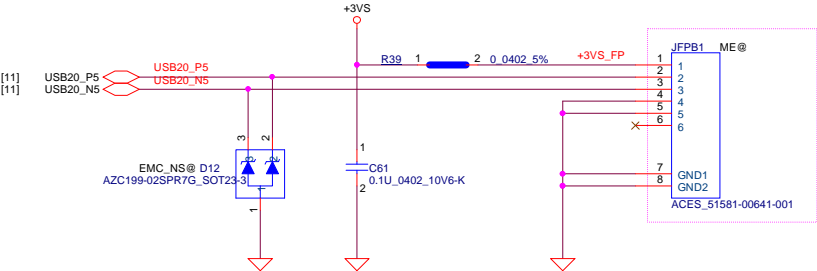


WWW.AliSaler.Com

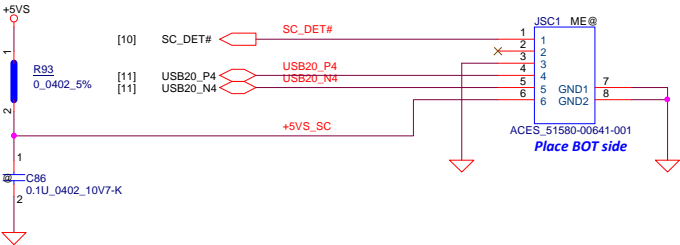
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	72 of 99



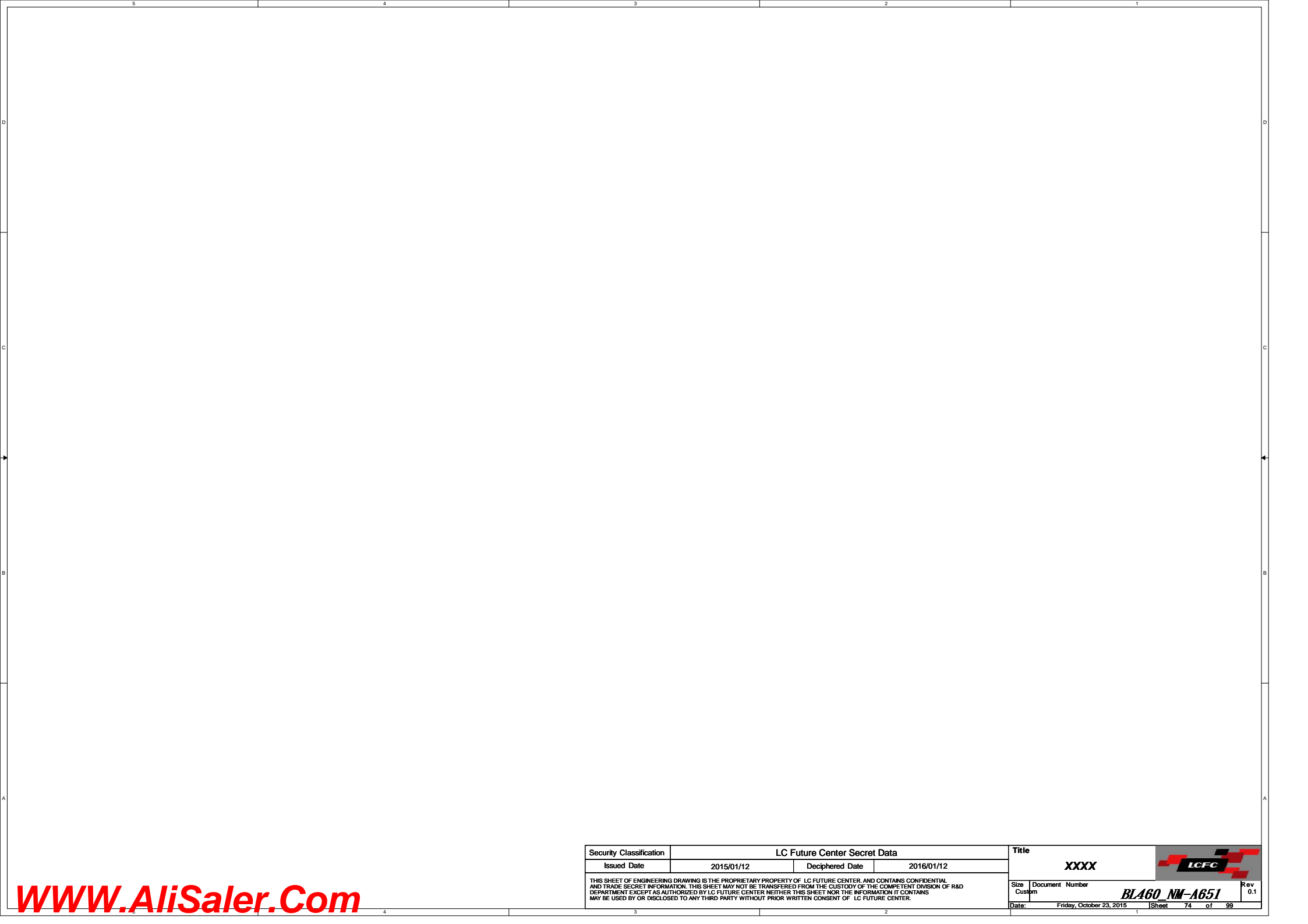
FingerPrint CONN.




SMART CARD CONN.





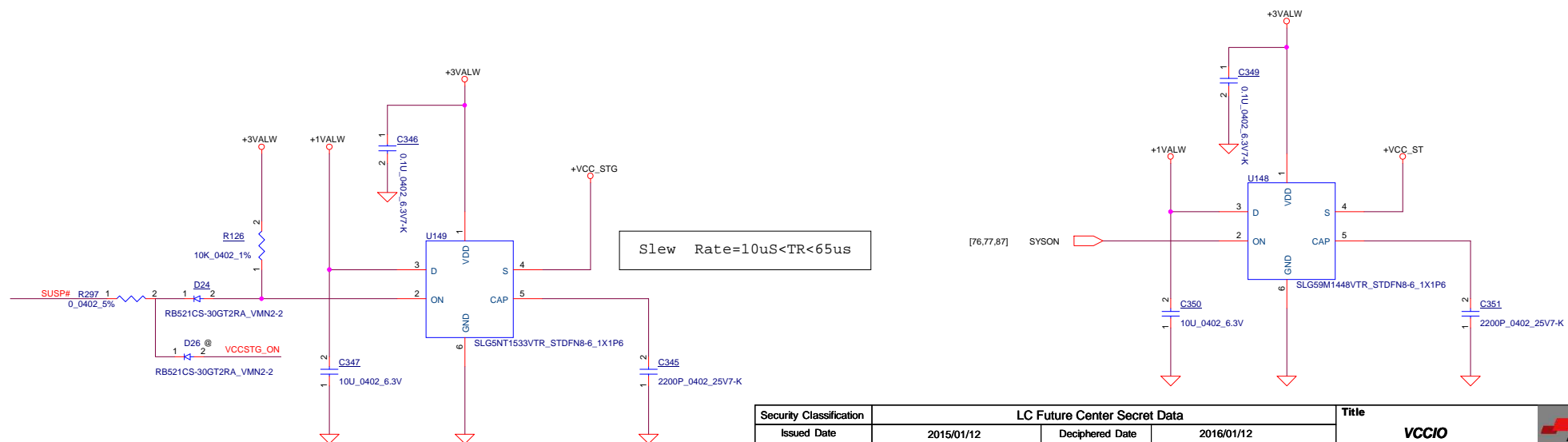
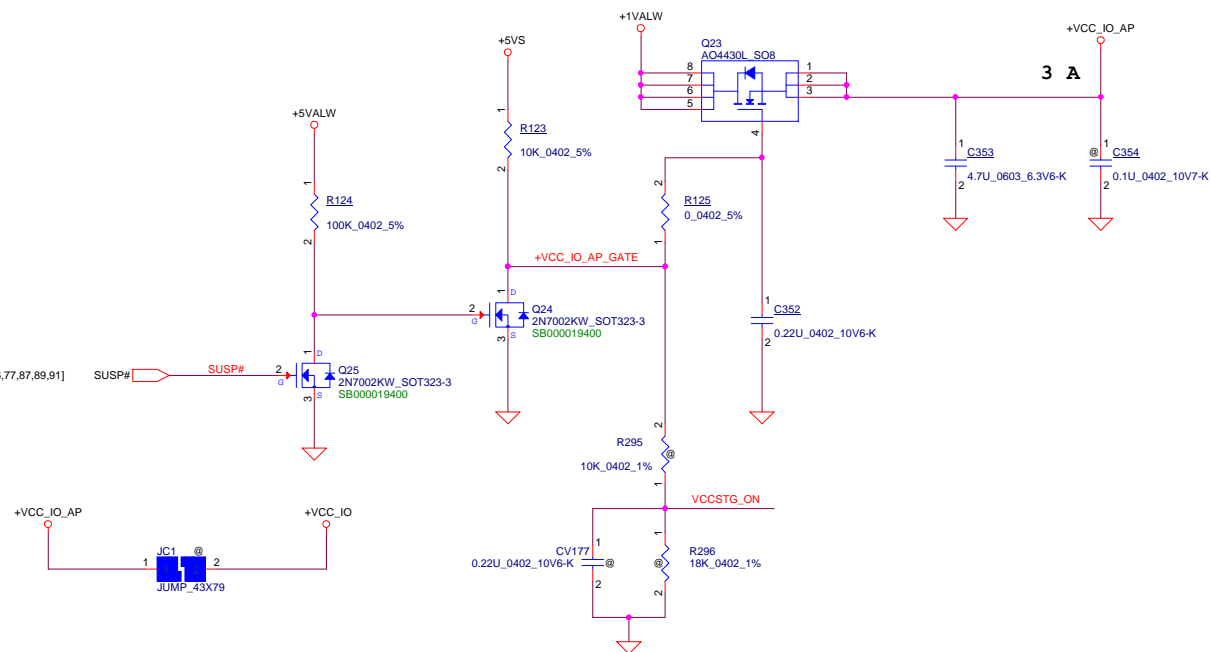


WWW.AliSaler.Com

Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	74 of 99



**+1VALW to +VCC\_IO\_AP**



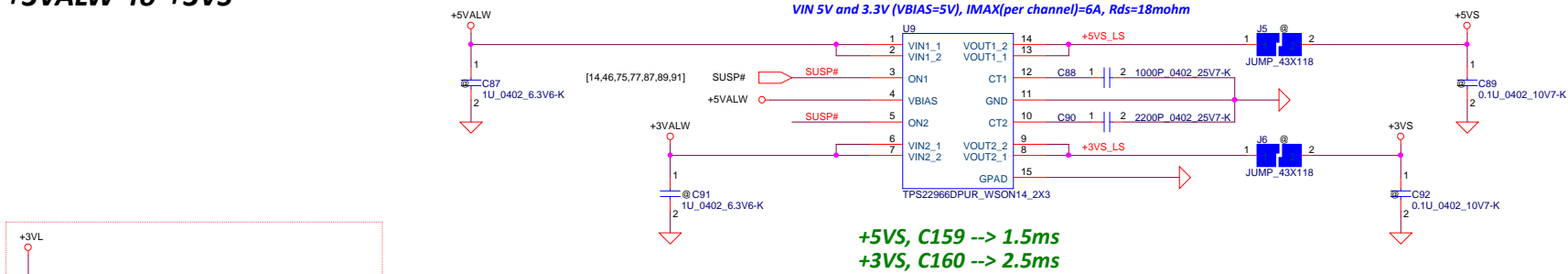
Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	VCCIO	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.				Size	Document Number
				Custom	BL460 NM-A651 <div>Rev 0.1</div>
Date:		Friday, October 23, 2015		Sheet	75 of 99



# Smart Switch

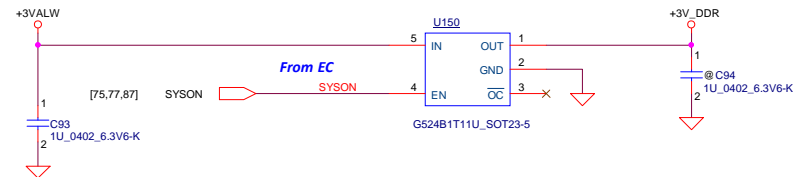
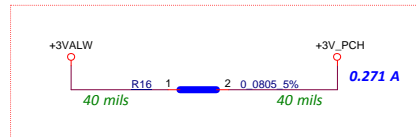
## +5VALW To +5VS

## +3VALW To +3VS

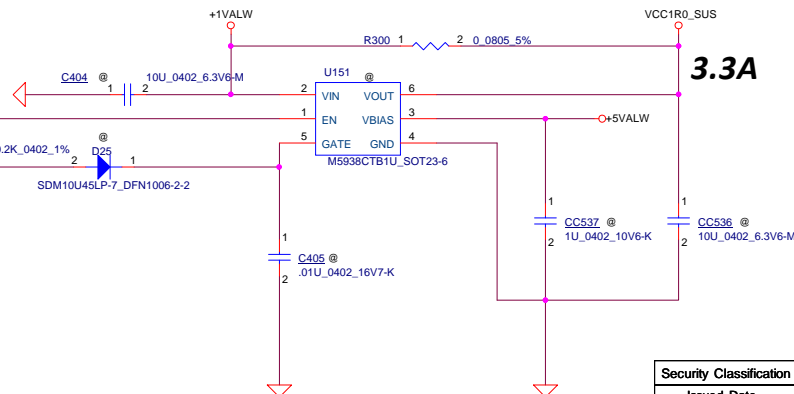


1. MIRROR code, is correct???
2. After reset EC, EC control "Low", not High or Disable.

## +3VALW To +3V\_PCH : Short, Don't support Deep Sx



## +1VALW to VCC1R0\_SUS

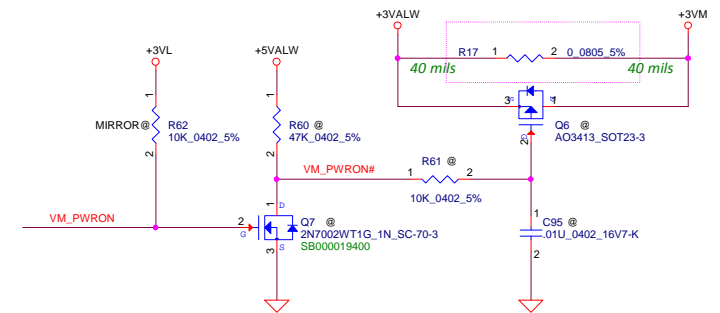



## +3VALW to +3VM

## VPRO : SPI ROM

## +3VM to SPI ROM.

## Reserve for LAN and WLAN.



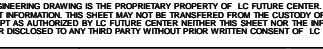
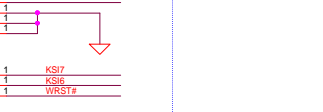
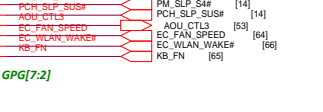
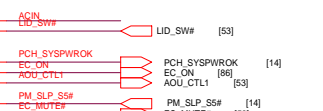
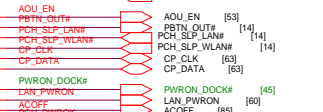
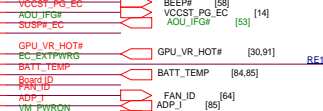
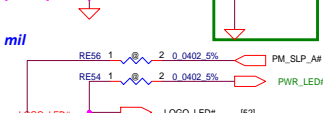
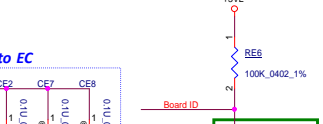
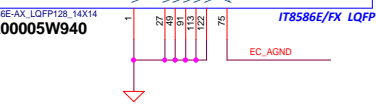
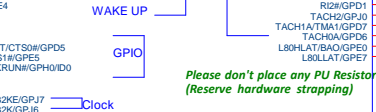
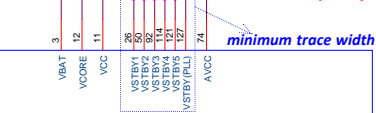
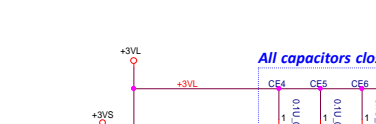
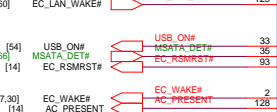
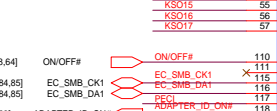
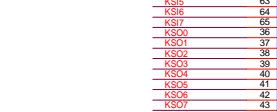
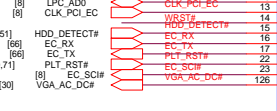
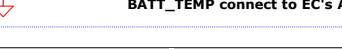
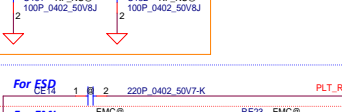
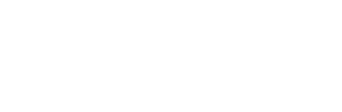
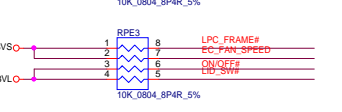
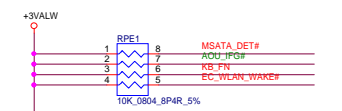
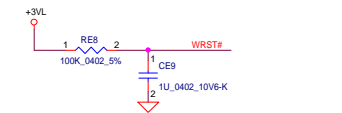
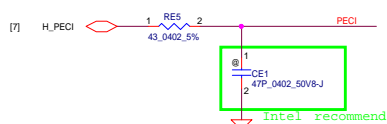
Security Classification		LC Future Center Secret Data				Title			
Issued Date		2015/01/12		Deciphered Date		2016/01/12			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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.									
Size		Document		Number		Rev			
Custom						0.1			
Date:		Friday, October 23, 2015		Sheet		76 of 99		BL460 NM-A651	



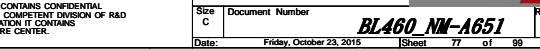
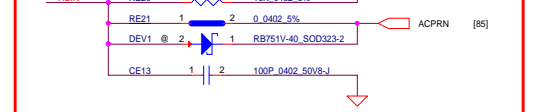
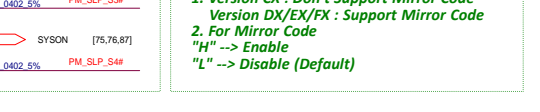
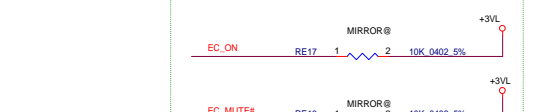
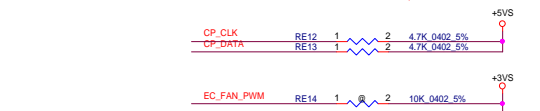
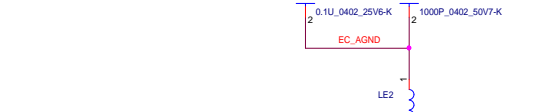
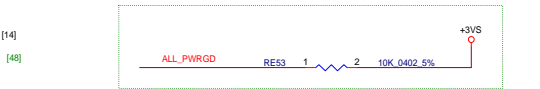
BL460\_NW-A651

Rev 0.1

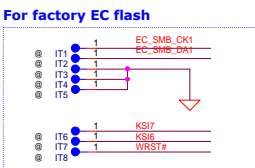
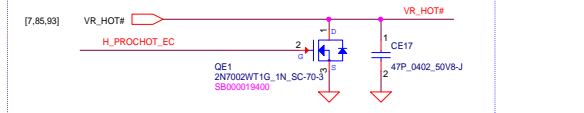




Vcc		3.3V +/- 5%					
RE6		100K +/- 1%					
Board ID	RE7	V <sub>AD_BID</sub> min	V <sub>AD_BID</sub> tYP	V <sub>AD_BID</sub> max	Phase		
0	0K +/- 5%	0 V	0 V	0 V	SDV		
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V	FVT		
2	18K +/- 5%	0.436 V	0.503 V	0.538 V	FVT2		
3	33K +/- 5%	0.712 V	0.819 V	0.875 V	SIT		
4	4.7K +/- 5%	0.141 V	0.148 V	0.155 V	SIT-R		
5	24K +/- 5%	0.612 V	0.638 V	0.664 V	SVT		



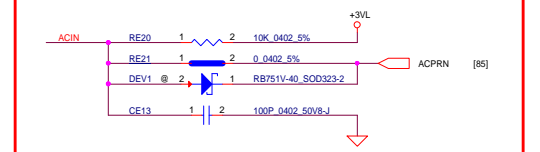
**PROCHOT#**  
(EC asserts PROCHOT# signal by driving high, the level shifter must invert it and drive the processor side PROCHOT# low.)



Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		EC_IT8586E/FX	
2015/01/12		2016/01/12		BL460-NW-A651	
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 REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PRIOR WRITTEN PERMISSION FROM LC FUTURE CENTER.				Rev 0.1	

1. Version CX : Don't Support Mirror Code
2. Version DX/EX/FX : Support Mirror Code
3. For Mirror Code "H" --> Enable
4. "L" --> Disable (Default)

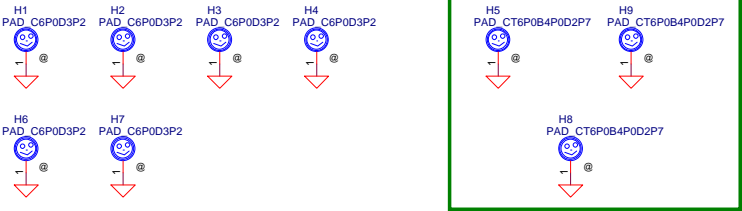
AC IN, need to confirm the pin is High or Low active while pulg ACIN



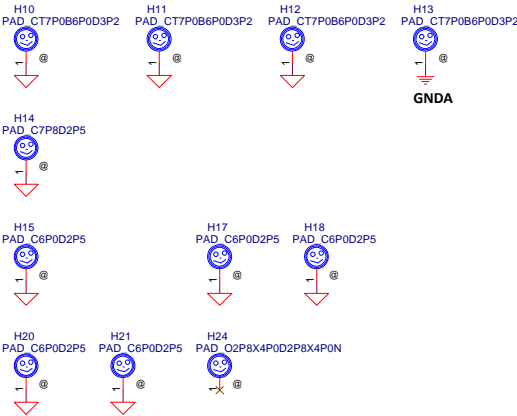


Screw Hole

For CPU and GPU



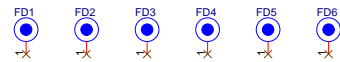
For ME GND hole



For ME hole




PCB Fedical Mark PAD

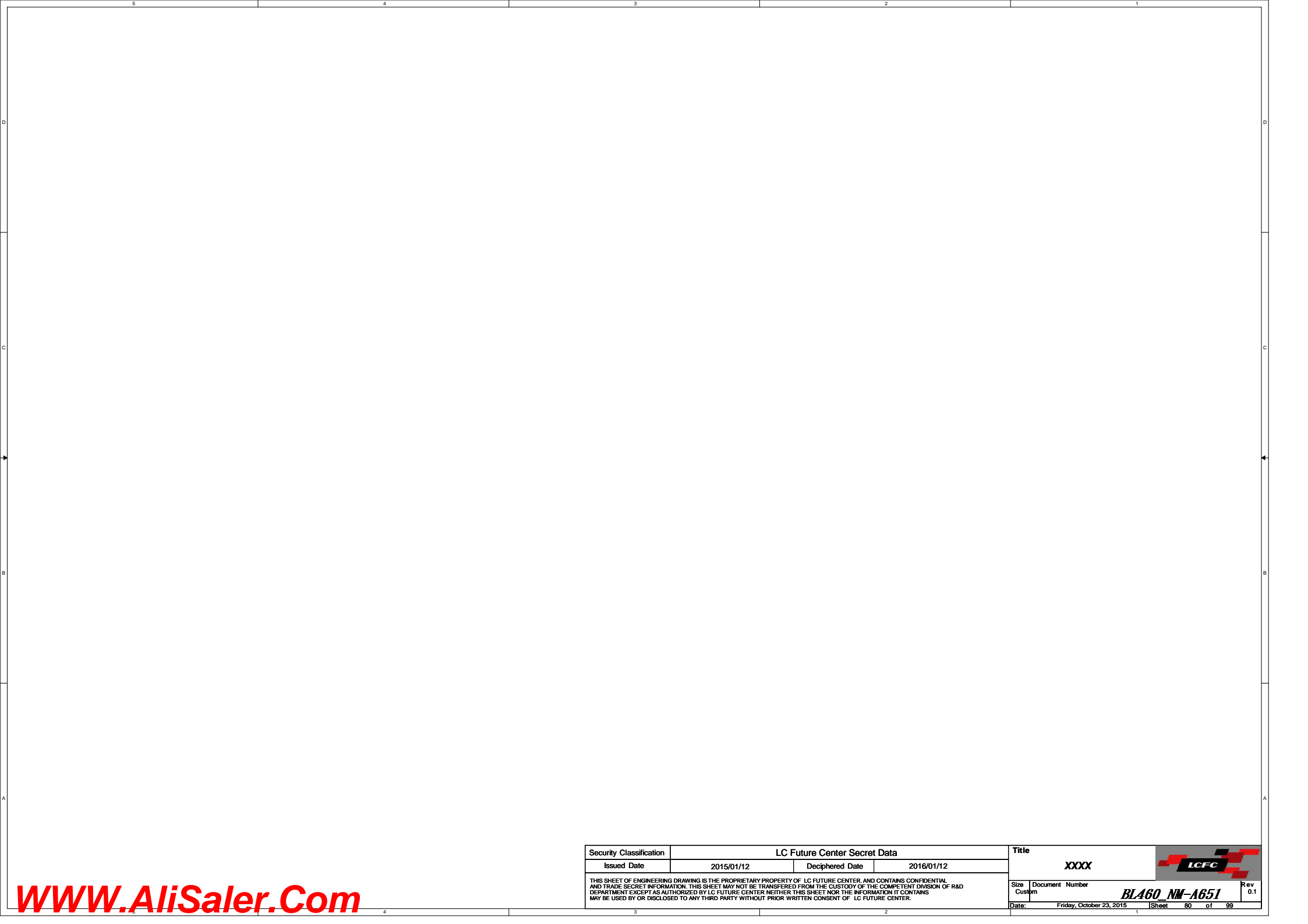





	5	4	3	2	1
D					
C					
B					
A					

Security Classification	LC Future Center Secret Data				Title		
Issued Date	2013/11/04	Deciphered Date	2014/12/31		PLM BOM		
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.					Size Custom	Document Number <b>BL460_NW-A651</b>	Rev 0.1
					Date:	Friday, October 23, 2015	Sheet 79 of 99



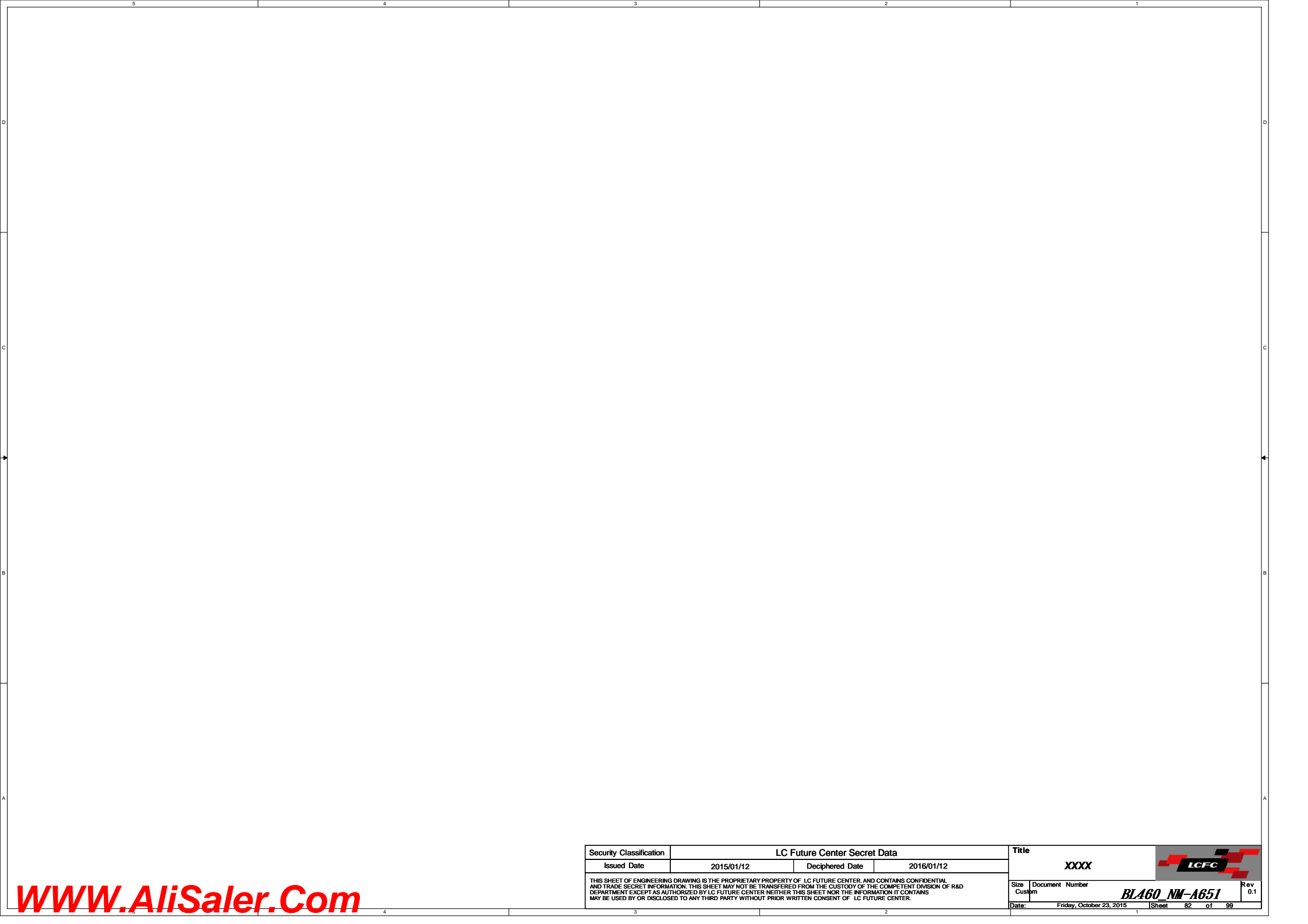


Security Classification		LC Future Center Secret Data		Title  XXXX			
Issued Date	2015/01/12	Deciphered Date	2016/01/12				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM 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.				Size Custom	Document Number  BL460_NW-A651	Rev 0.1	
				Date: Friday, October 23, 2015	Sheet 80 of 99		






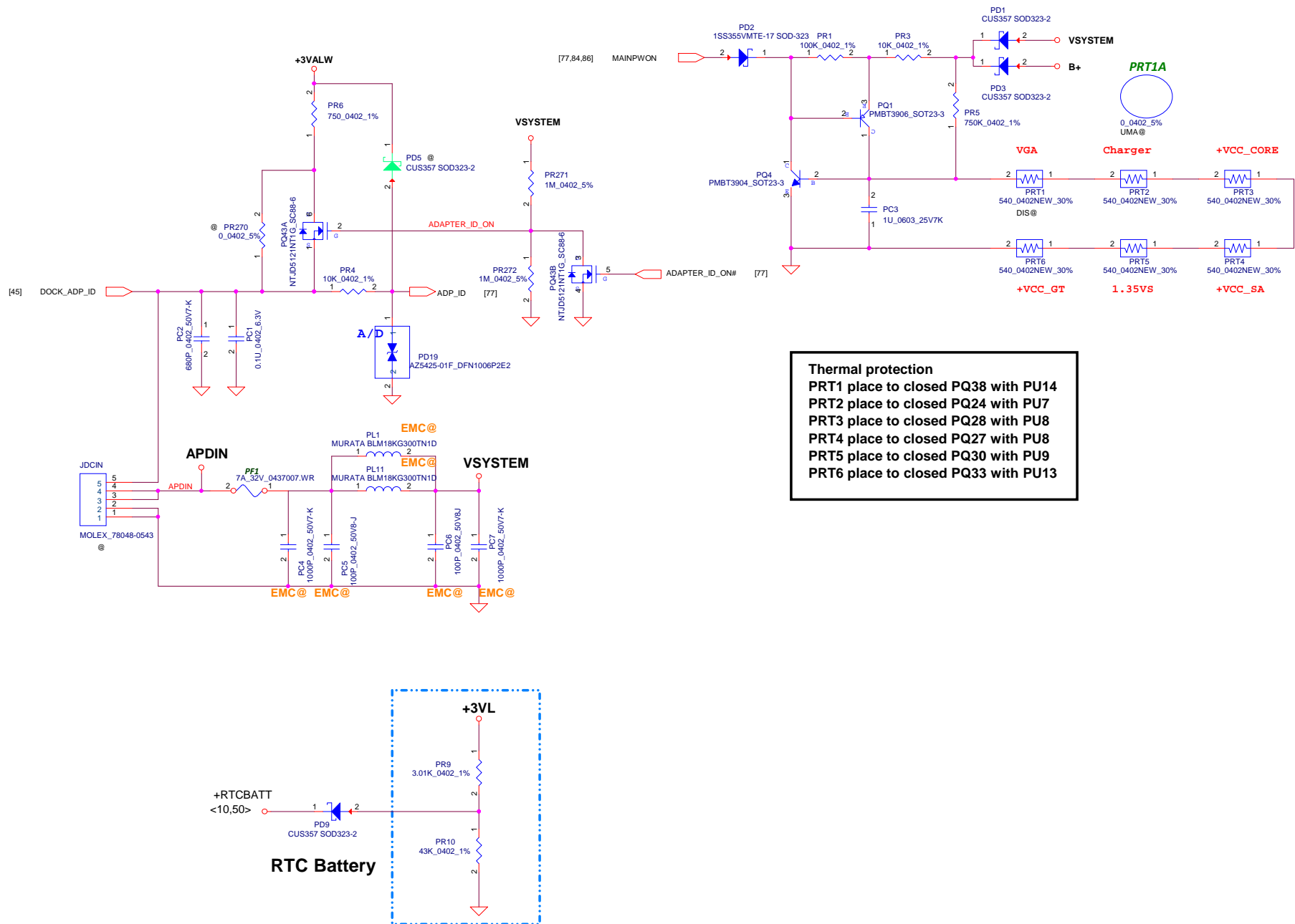





WWW.AliSaler.Com

Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	XXXX			
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.				Size	Document Number	Rev	
				Custom	BL460_NW-A651	0.1	
				Date:	Friday, October 23, 2015	Sheet	82 of 99

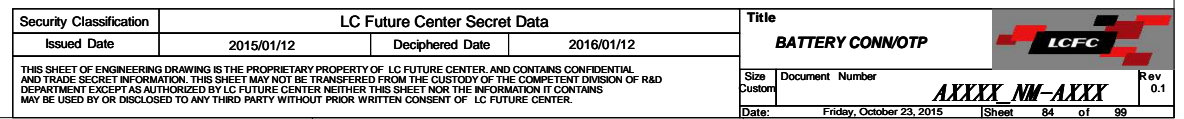
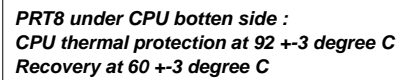




SDV@20150525  
 Follow EE suggestion to  
 modify RTC voltage circuit.

Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	DCIN / Vin Detector		
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.						Rev 0.1
Size Custom	Document Number  XXXX NW-XXXX		Date Friday, October 23, 2015		Sheet 83 of 99	









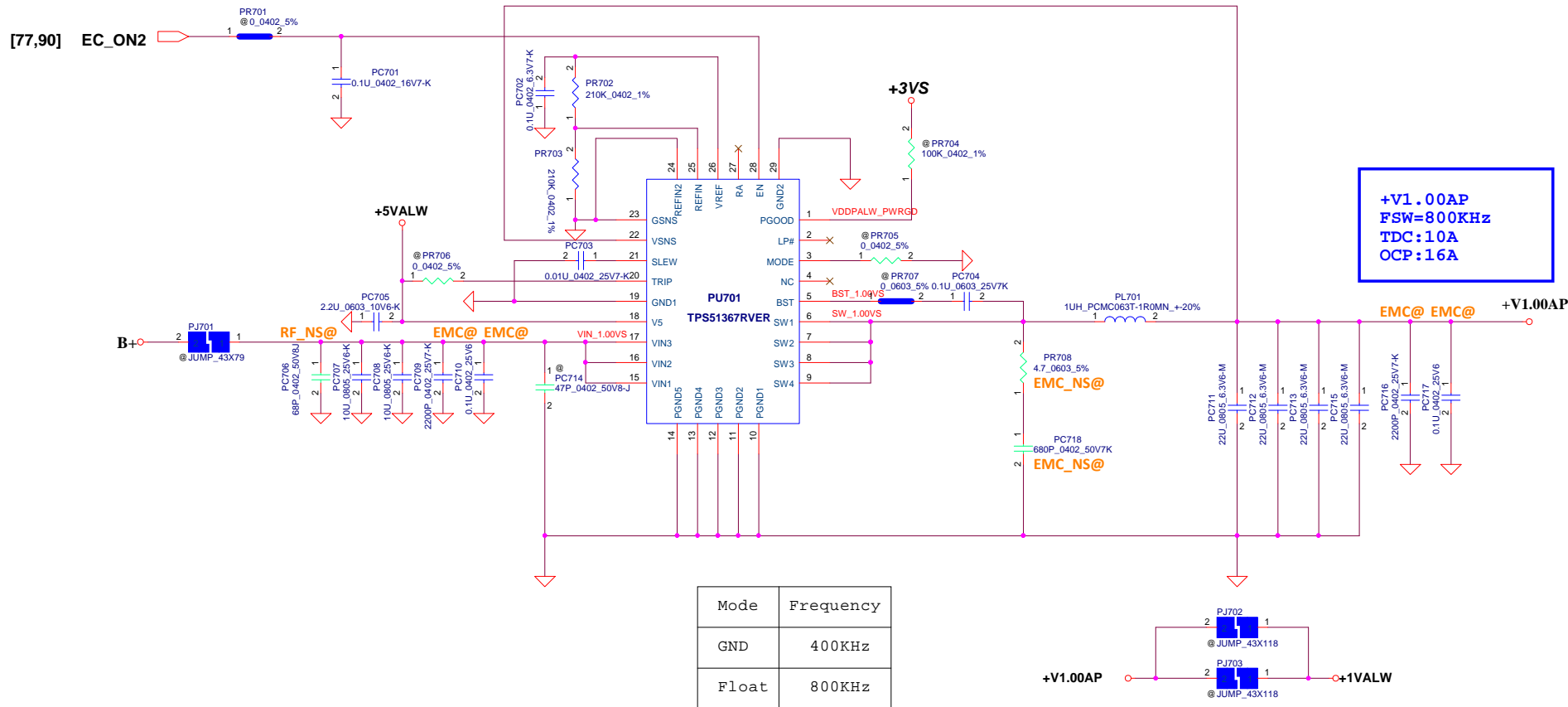







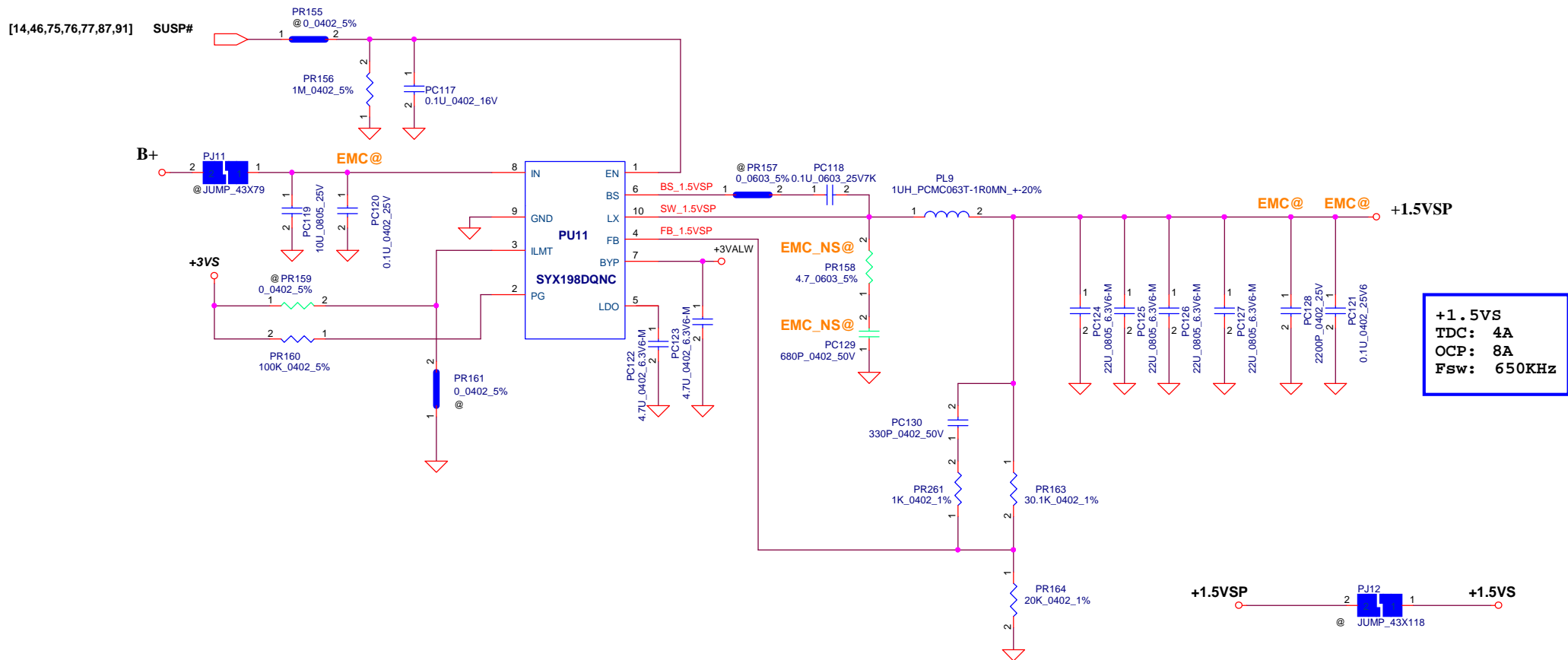







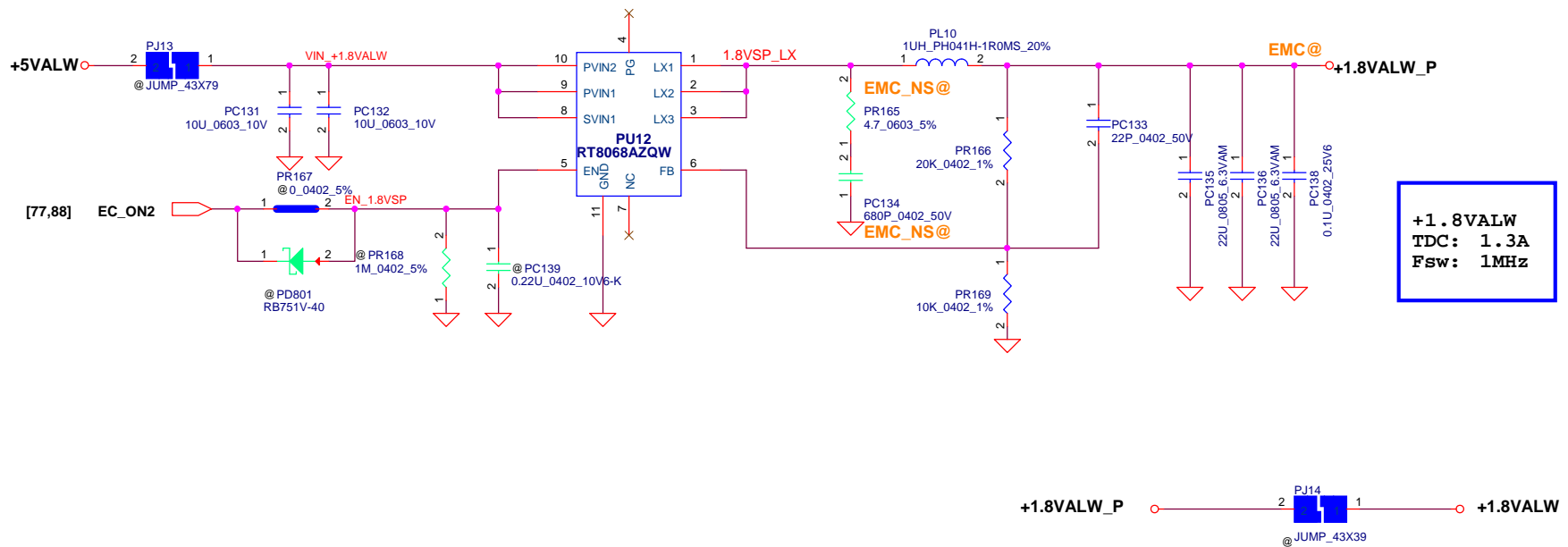
Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	+V1.00A			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM 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.				Size	Document Number	Rev	
				Custom	AXXXX NM-AXXX	0.1	
				Date:	Friday, October 23, 2015	Sheet	88 of 99






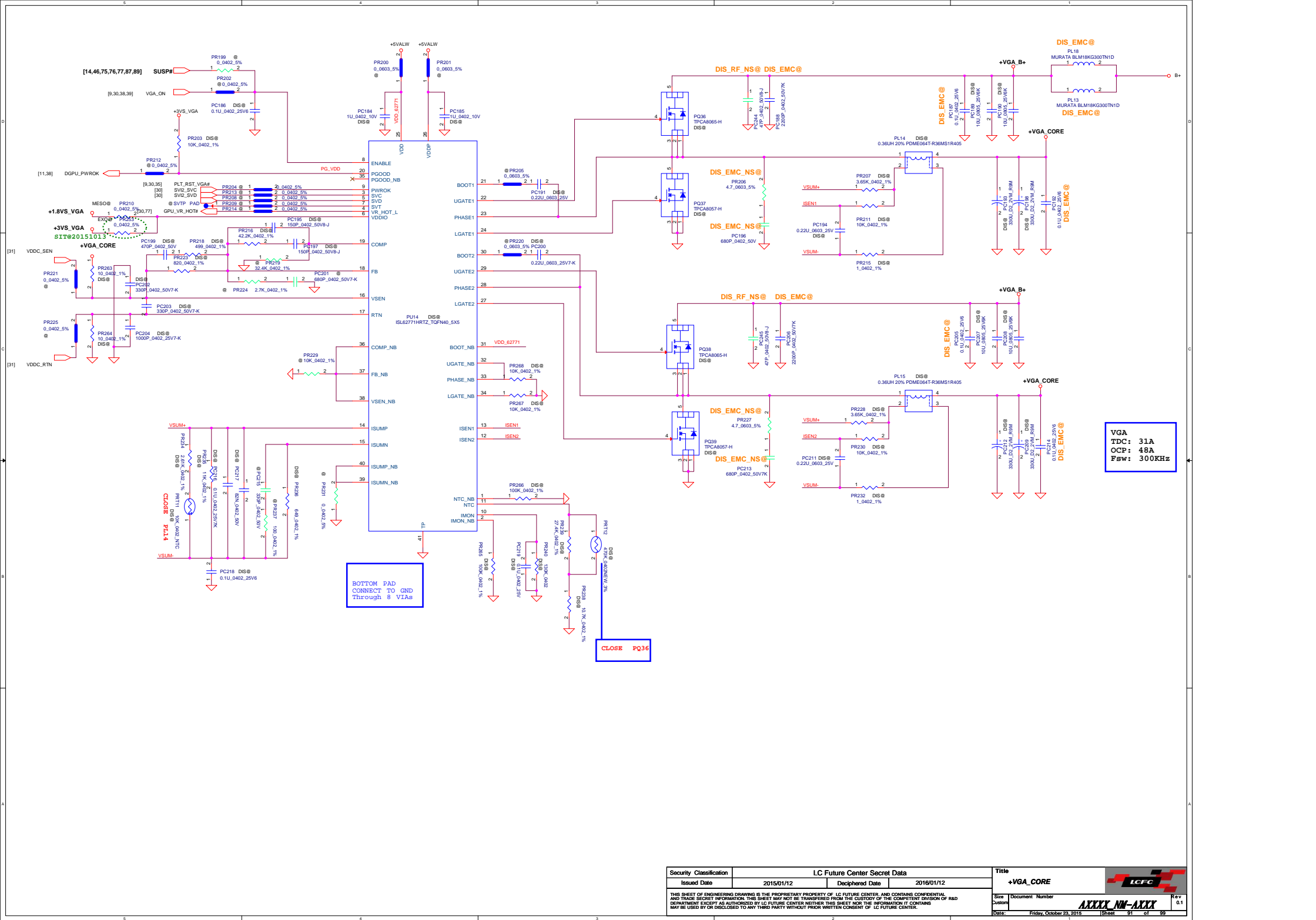
Security Classification		LC Future Center Secret Data		Title  <b>+1.5VS</b>			
Issued Date	2015/01/12	Deciphered Date	2016/01/12				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Size	Document Number	XXXXX NM-XXXX	Rev 0.1
				Date:	Friday, October 23, 2015		





Security Classification		LC Future Center Secret Data		Title  +1.8VS_VGA			
Issued Date	2015/01/12	Deciphered Date	2016/01/12				
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.				Size	Document Number	XXXXX NM-XXXX	Rev 0.1
				Date:	Friday, October 23, 2015		

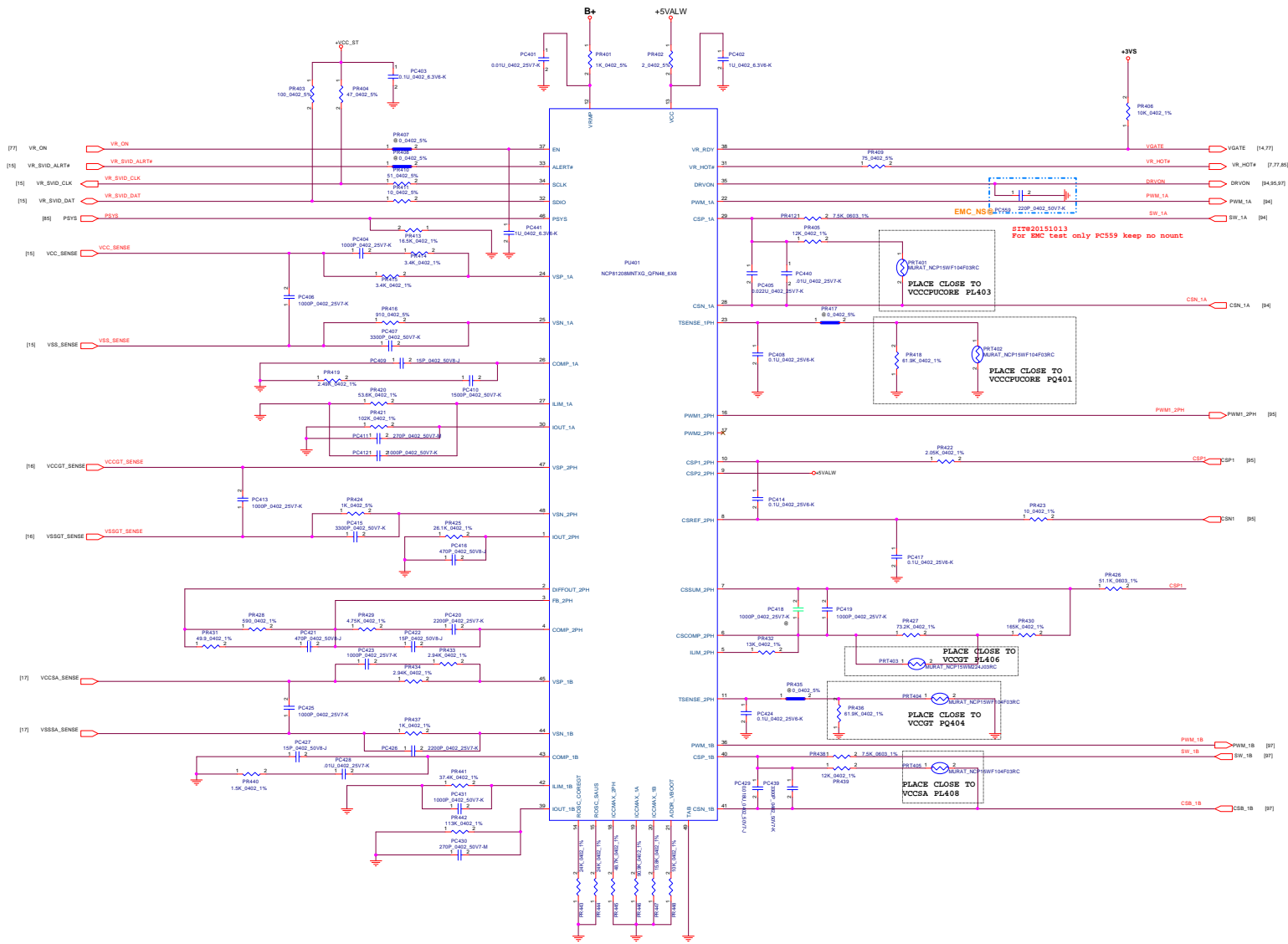




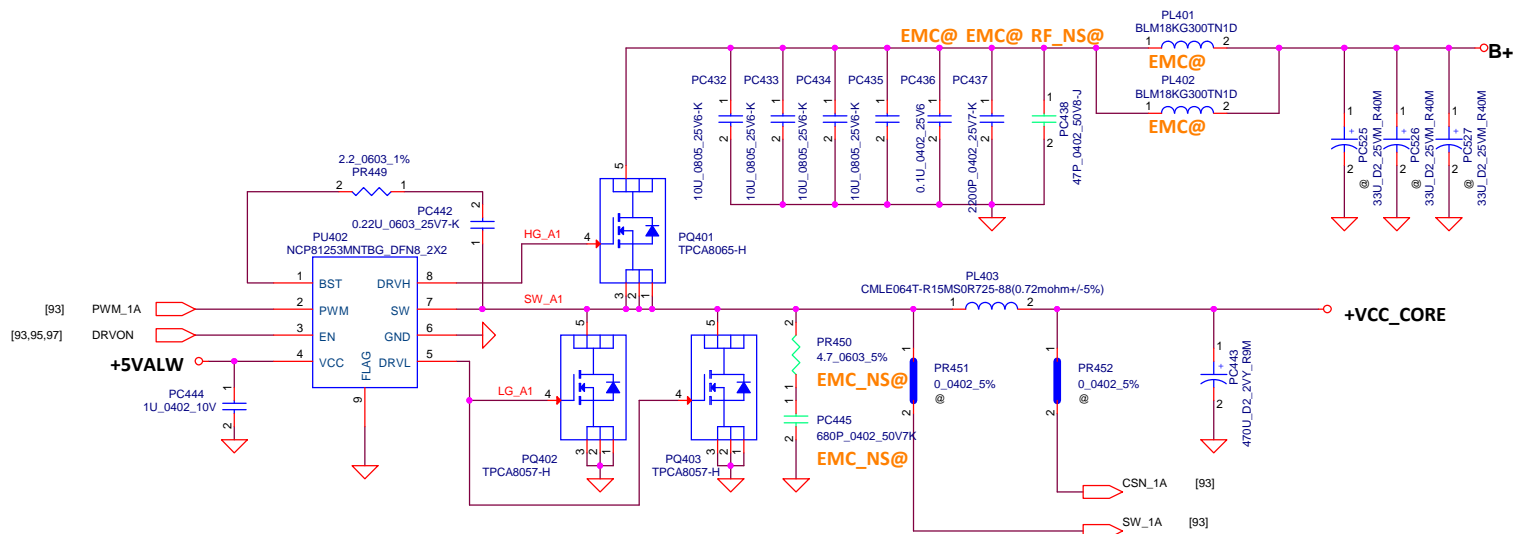













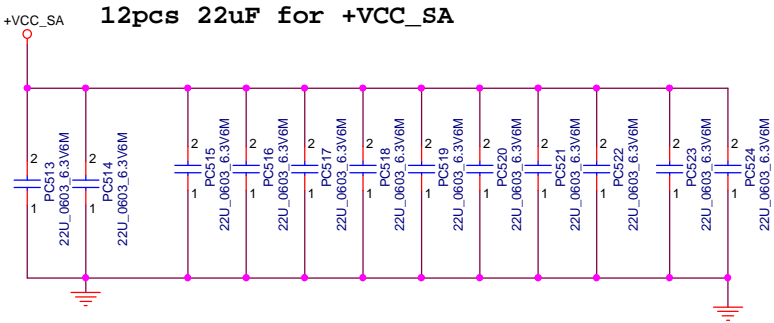
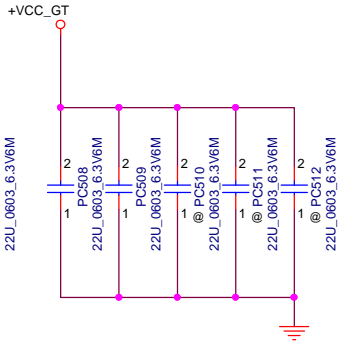
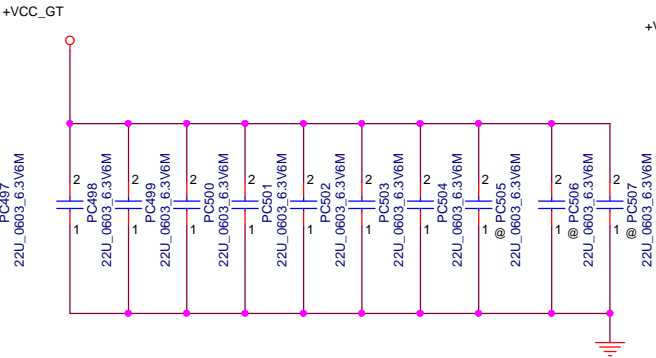
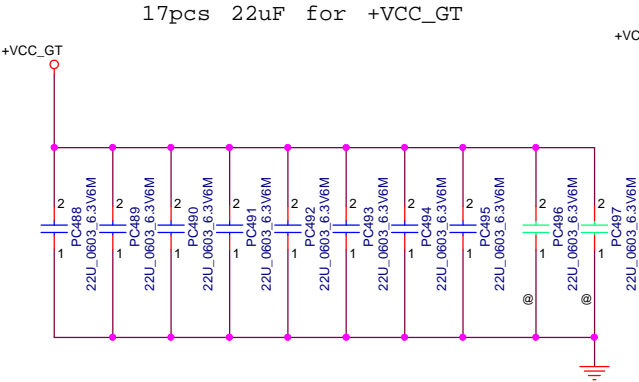
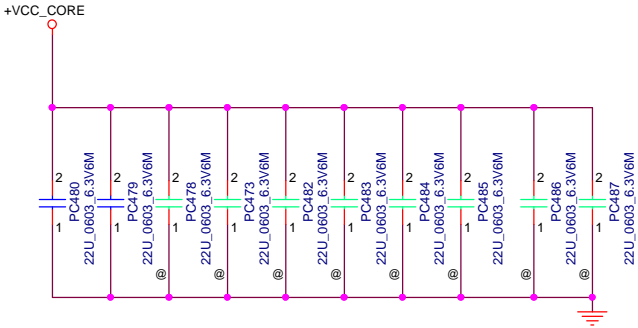
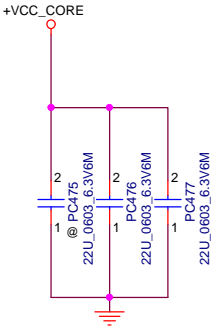
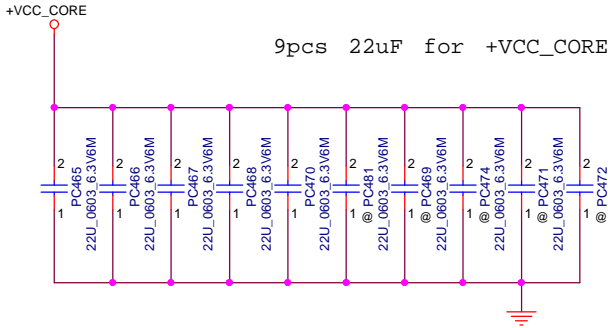
**+VCC\_CORE**  
**TDC= 21A**  
**IccMAX=28A**  
**OCP = 36A**

Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/01/12	Deciphered Date	2016/01/12	+VCC_CORE		
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.						Rev 0.
Size Custom Document Number						
Date: Friday, October 23, 2015						Sheet 94 of 99
XXXX NM-XXXX						









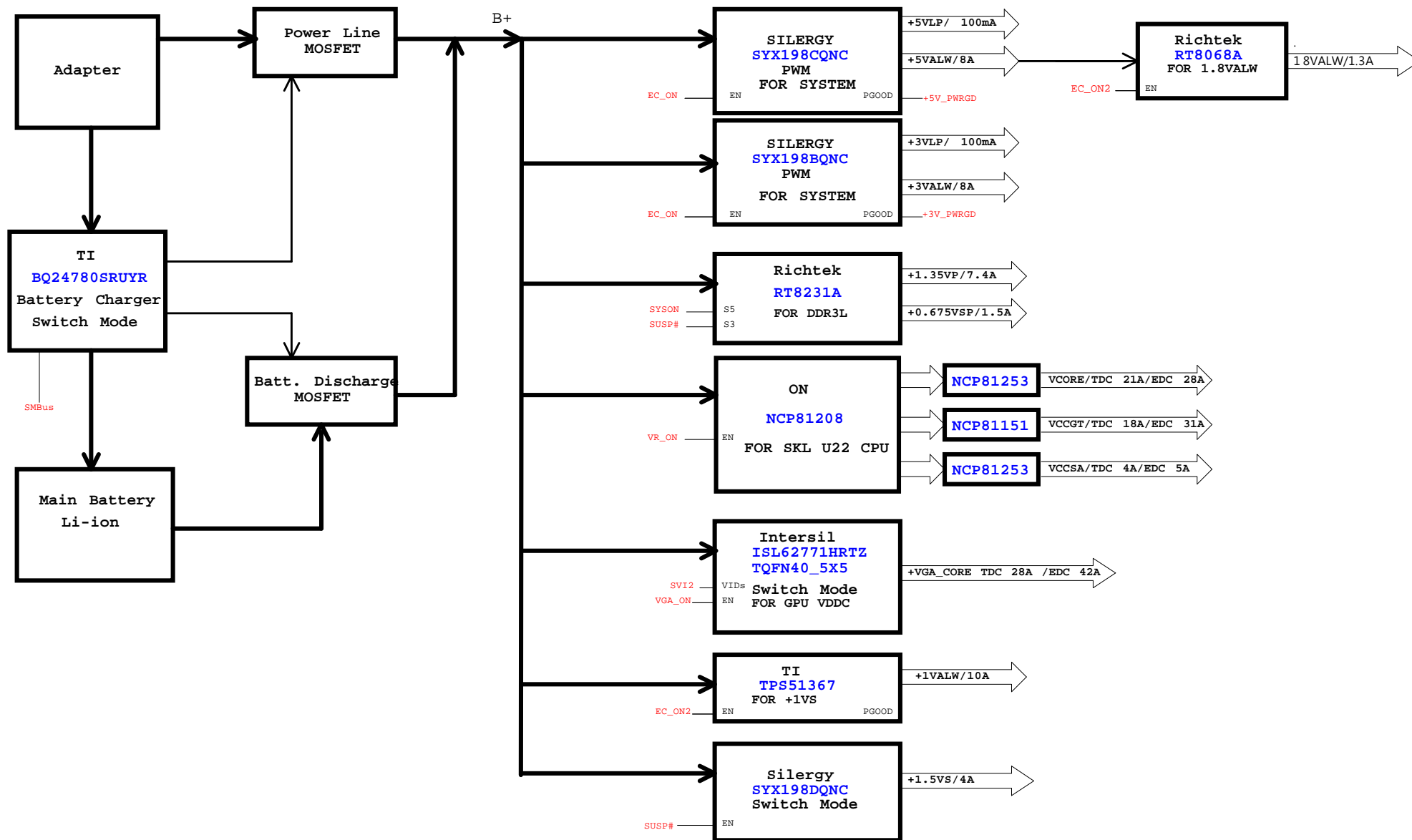
Security Classification		LC Future Center Secret Data	
Issued Date	2015/01/12	Deciphered Date	2016/01/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE 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		LCFC	
PROCESSOR DECOUPLING		XXXXX NM-XXXX	
Size	Document Number	Rev 0.1	
Date:	Friday, October 23, 2015	Sheet	96 of 99









Security Classification	LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	PWR-PIR
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.				Size C Document Number XXXX-NM-XXXX Rev 0.1
Date: Friday, October 23, 2016 Sheet 98 of 99				



