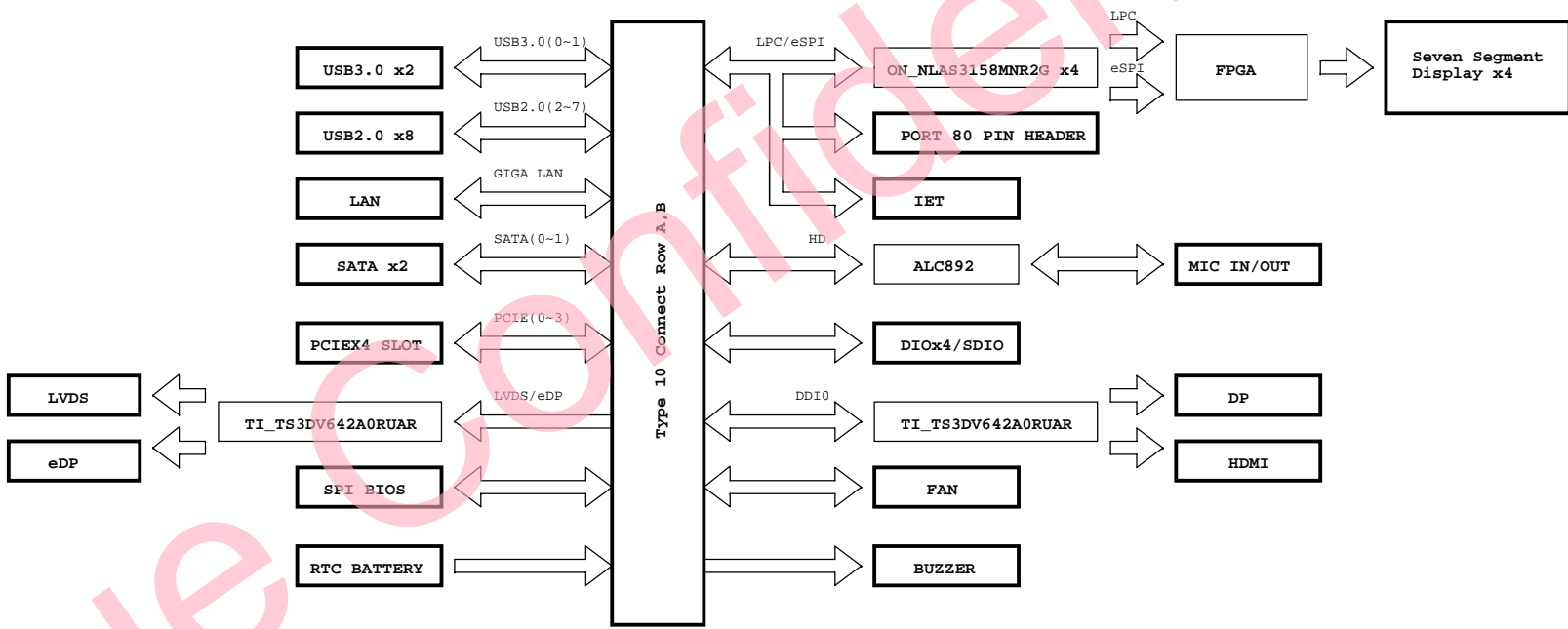


Block Diagram

Page	Function
01	BLOCK DIAGRAM
02	POWER DISTRIBUTION
03	CLOCK DISTRIBUTION
04	POWER SEQUENCE
05	BOARD INFORMATION
06	COM EXPRESS CONNECTOR
07	LVDS & EDP
08	DDIO SWITCH & DP PORT
09	HDMI
10	PCIEX4、SATA、LAN
11	USB
12	SPI、FAN、DIO/SDIO、RTC
13	AUDIO_2CH(ALC892)
14	IET & PORT 80(LPC/ESPI)
15	FPGA
16	CONTROL、SETTING、TEST
17	POWER IN & CONTROL
18	MODIFY HISTORY

BLOCK DIAGRAM



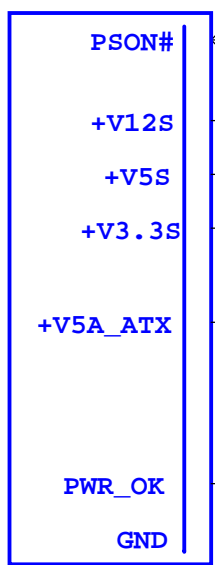
PCB p/n : E1907EX1501RO

文字標示:
EEV-EX15 A1
E1907EX1501RO
MADE IN TAIWAN

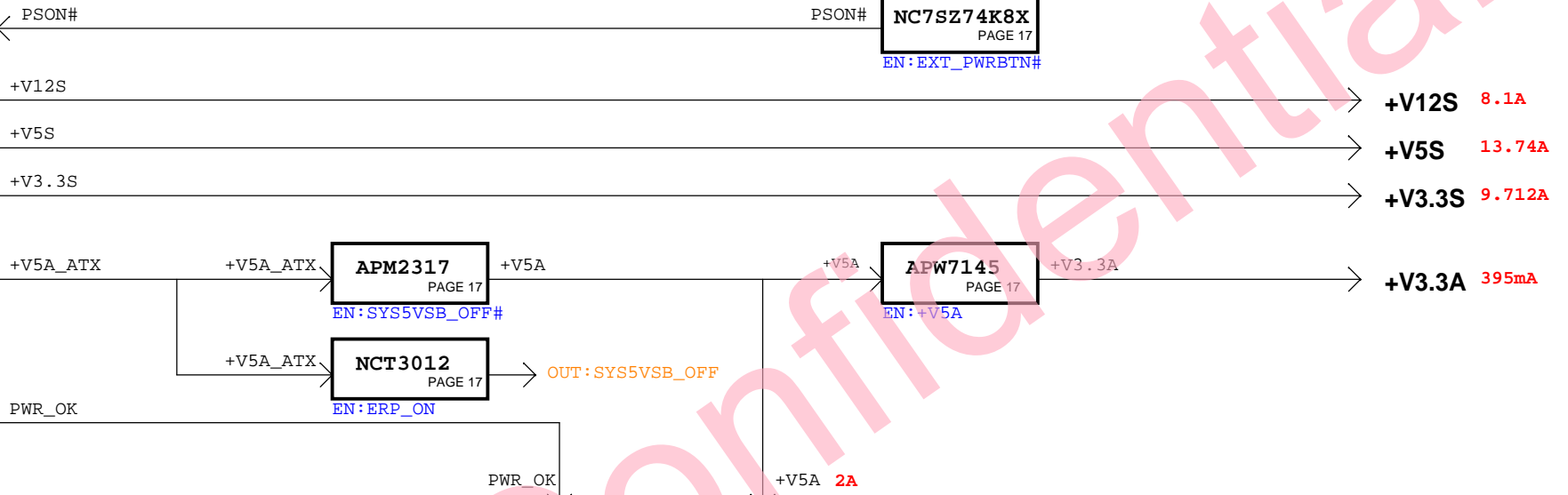
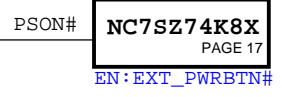
		Confidential	
Project Name	EEV-EX15	Module Number	<Module no.>
Size	A3	Title	BLOCK DIAGRAM
Date:	Wednesday, January 16, 2019	Sheet	1 of 18

Power Delivery Map

24PIN CONNECTOR Power Supply



SW1 PSON Control : ON



Type 10 Connector

4PIN CONNECTOR +VIN(+4.75V~+20V) AT Power



COM EXPRESS CONNECTOR
PIN(A97)
TYPE10#

NC	Pin-out R2.0
PD	Pin-out Type 10 pull down to ground with 4.7K resistor
12V	Pin-out R1.0

LAN
+V3.3A 20mA

FAN
+V12S 1A

USB 3.0 x2
+V5S 2A

HD
+V5S 46mA
+V3.3S 12mA

USB 2.0 x4
+V5S 4.5A

BUZZER
+V5S 44mA

PCIE x4
+V12S 2.1A
+V3.3S 3A
+V3.3A 375mA

DIO/SDIO
+V5S 1.1A
+V3.3S 1.2mA

LPC/eSPI : SWITCH
+V3.3S 800mA

PIN HANDER
+V3.3S 200mA

IET
+V12S 2A
+V5S 3A

FPGA
+V3.3S 1.5A

DDIO HDMI/DP : SWITCH
+V3.3S 50mA

HDMI
+V3.3S 100mA
+V5S 50mA

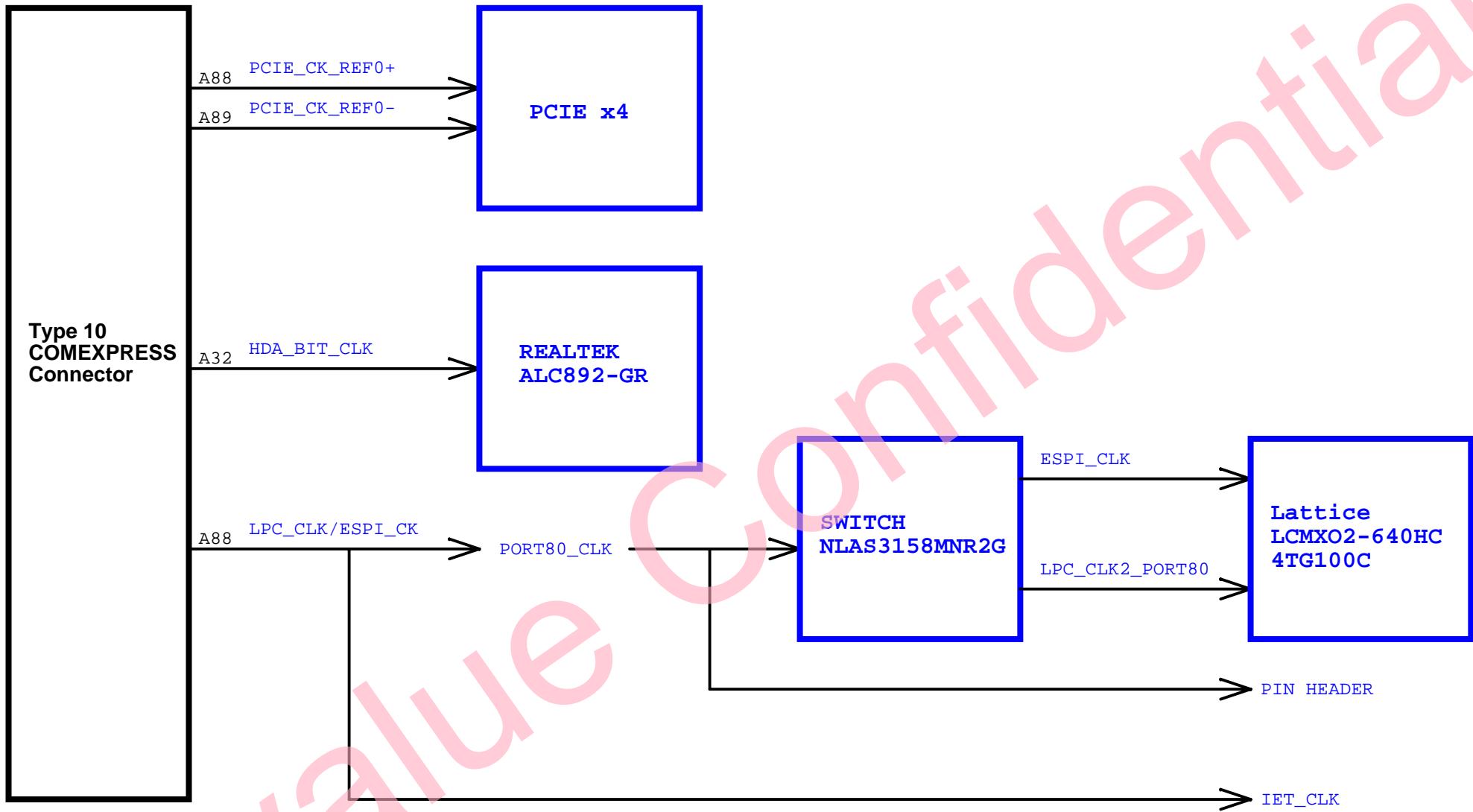
DP
+V3.3S 500mA

LVDS/eDP : SWITCH
+V3.3S 50mA

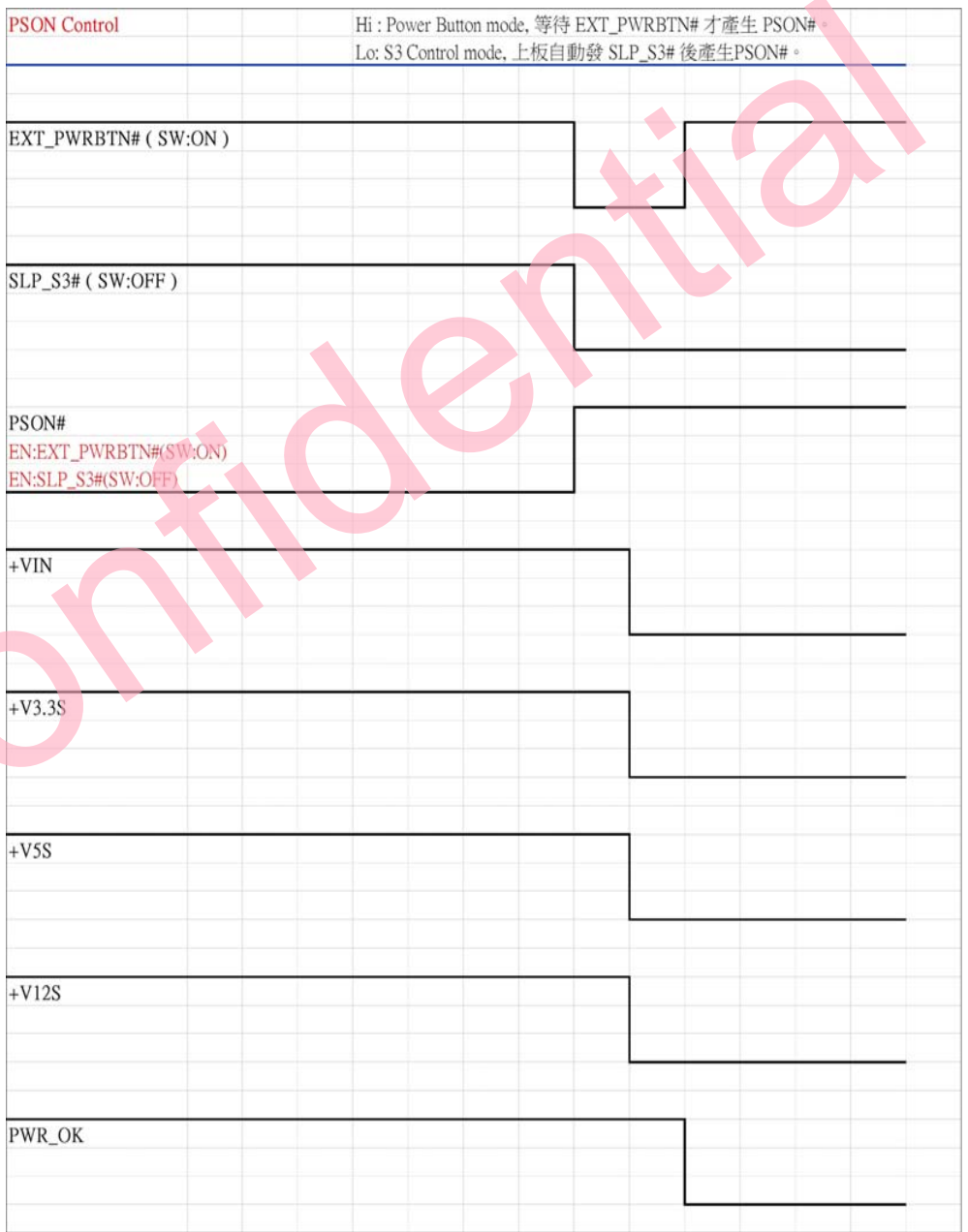
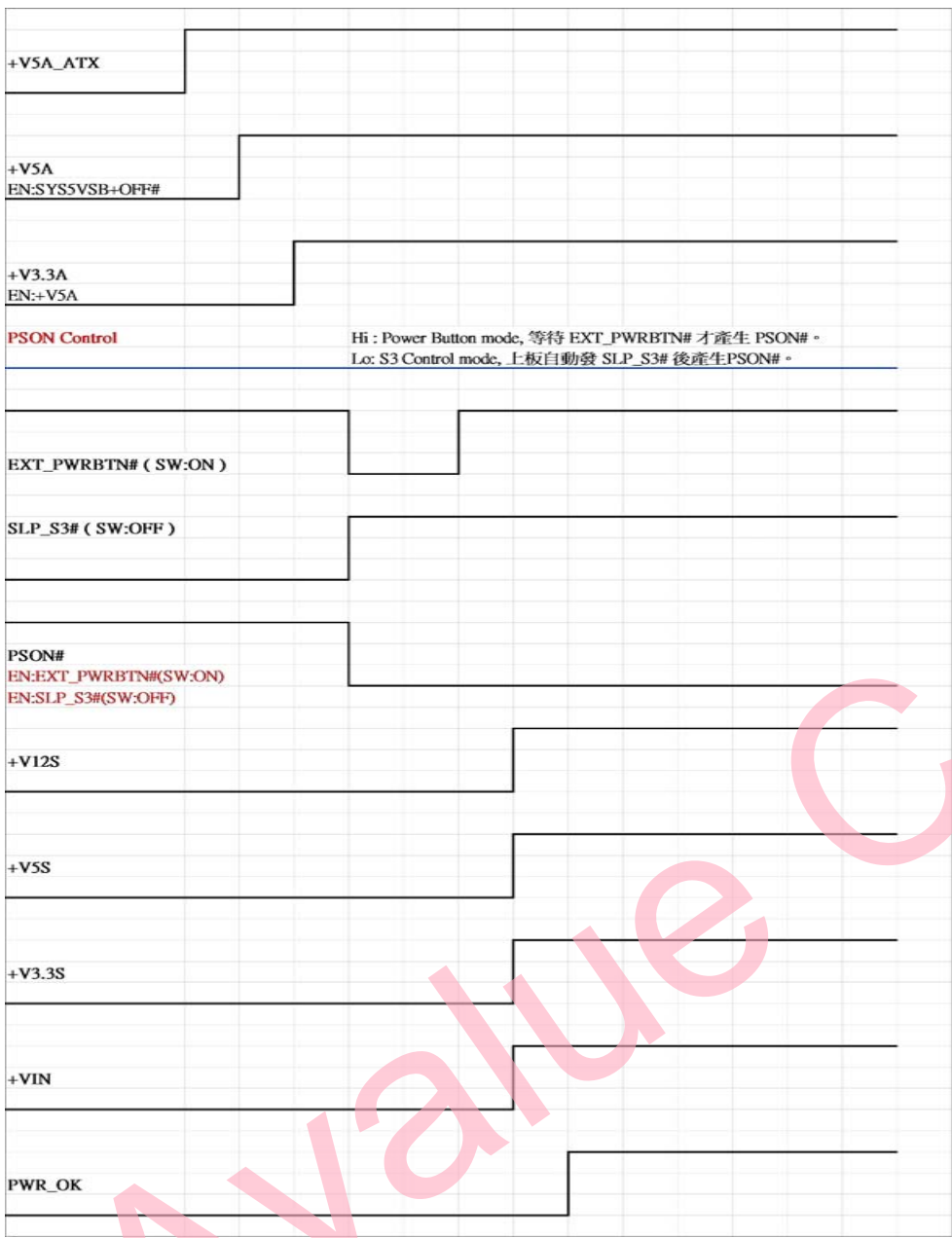
LVDS/eDP
+V12S 3A
+V5S 3A
+V3.3S 3A

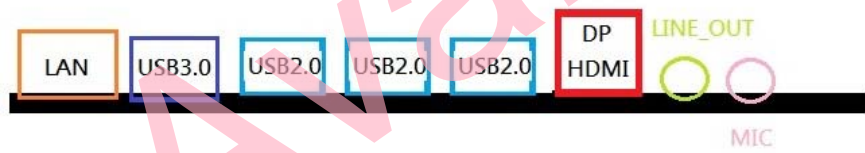
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Project Name EVE-EX15	Module Number <Module no.>	Rev ?
Size A3	Title Power Delivery Map	Rev A0
Date: Wednesday, January 16, 2019	Sheet 2	of 18

Clock Distribution



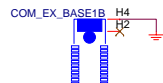
Power Sequence





Reference document	
SPEC.	Com ExpressR Module Base Specification PICMG COM.0 R3.0
Sch check list	COM Express Carrier Board Schematic Check List 20170914

		Confidential	
Project Name EEV-EX15		Module Number <Module no.>	Rev ?
Size A3	Title Board information		Rev A0
Date:	Wednesday, January 16, 2019	Sheet	5 of 18



X/COM_Ex/BaseBoard/Type10/REV3.0/84X55

COM_EX_BASE1C

X/COM_Ex/BaseBoard/Type10/REV3.0/84X55

COM_EX_BASE1D

X/COM_Ex/BaseBoard/Type10/REV3.0/84X55

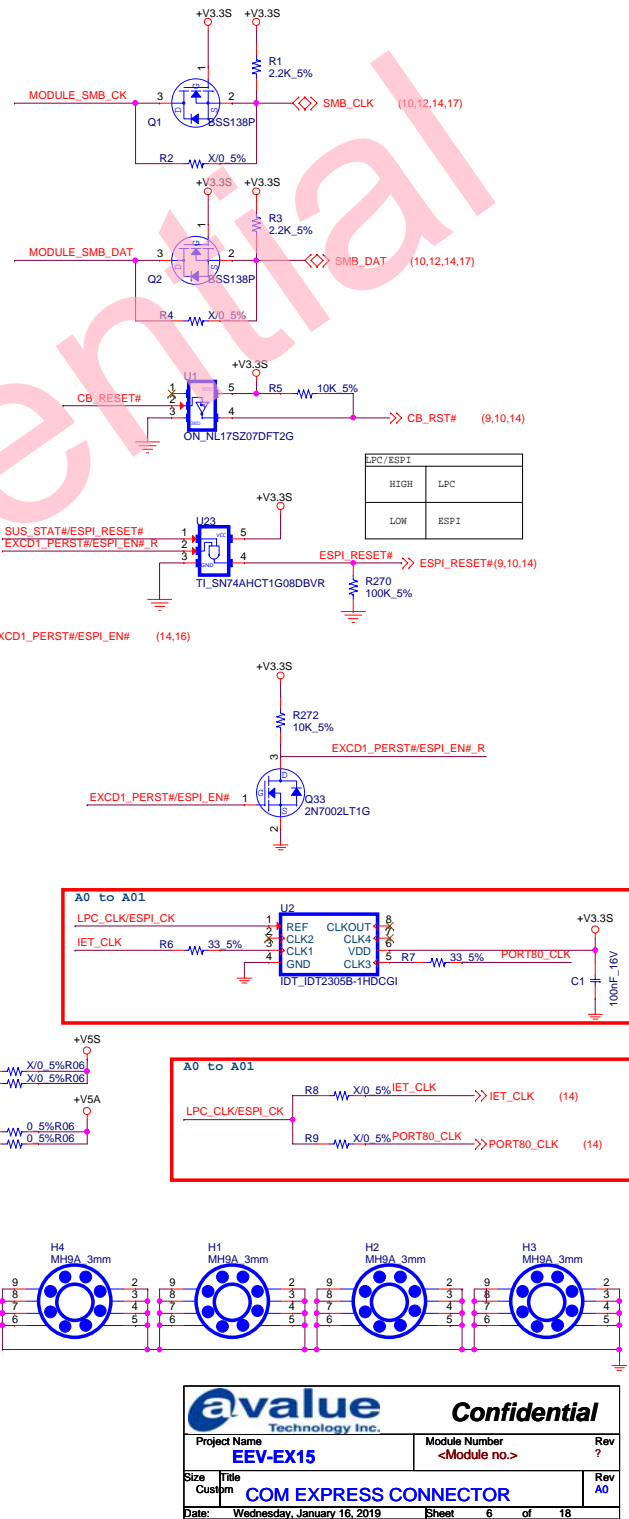
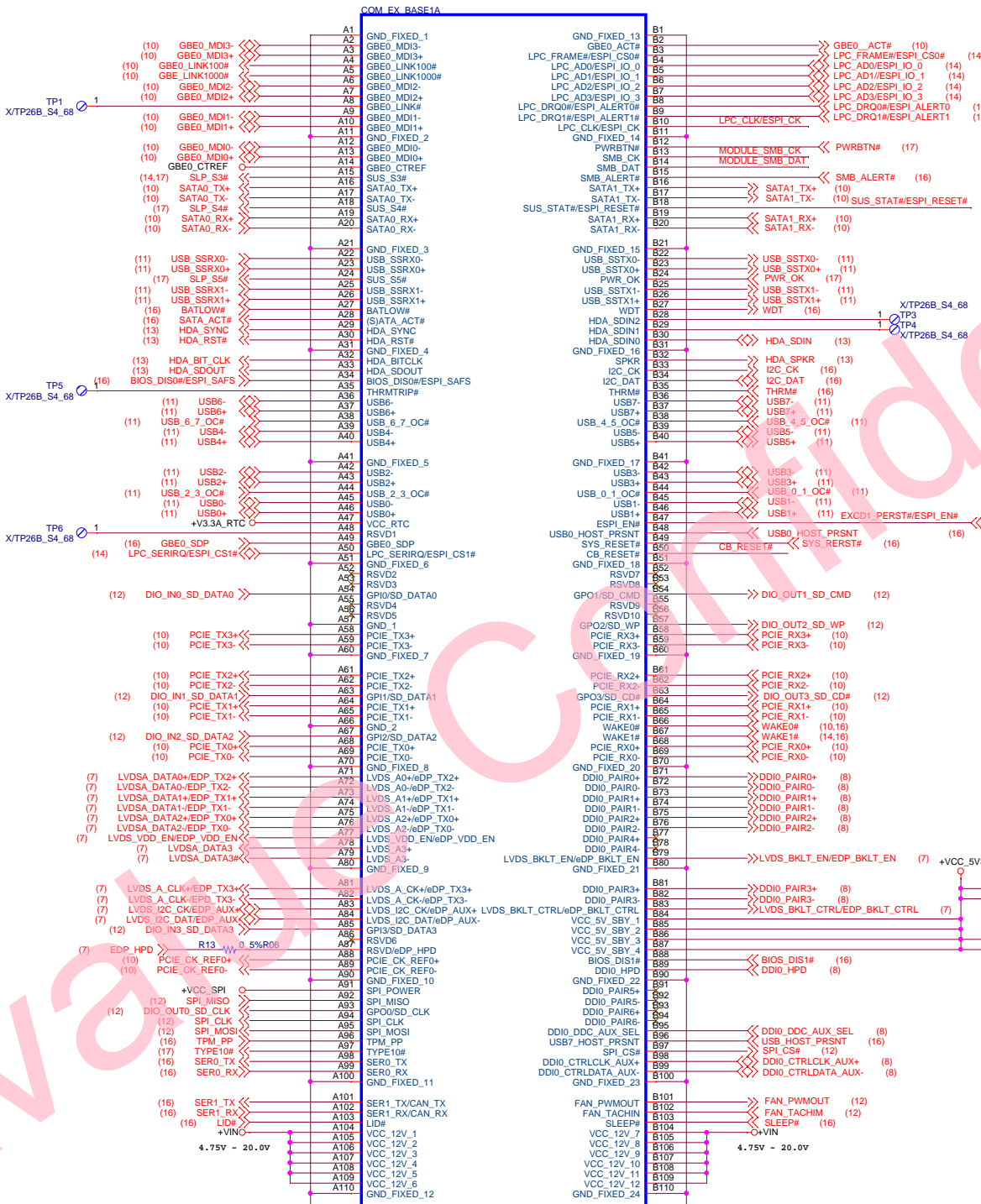
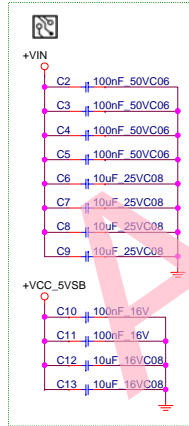
COM_EX_BASE1E

X/COM_Ex/BaseBoard/Type10/REV3.0/84X55

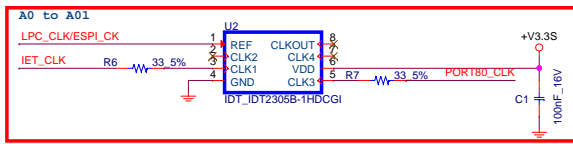
COM_EX_BASE1F

X/COM_Ex/BaseBoard/Type10/REV3.0/84X55

close to COM_EX_BASE1E



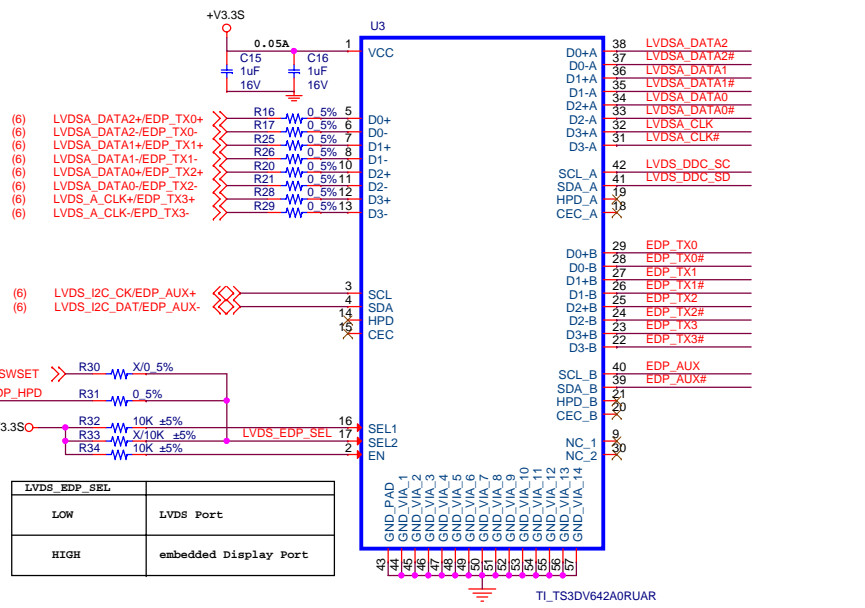
HIGH	LPC
LOW	ESPI



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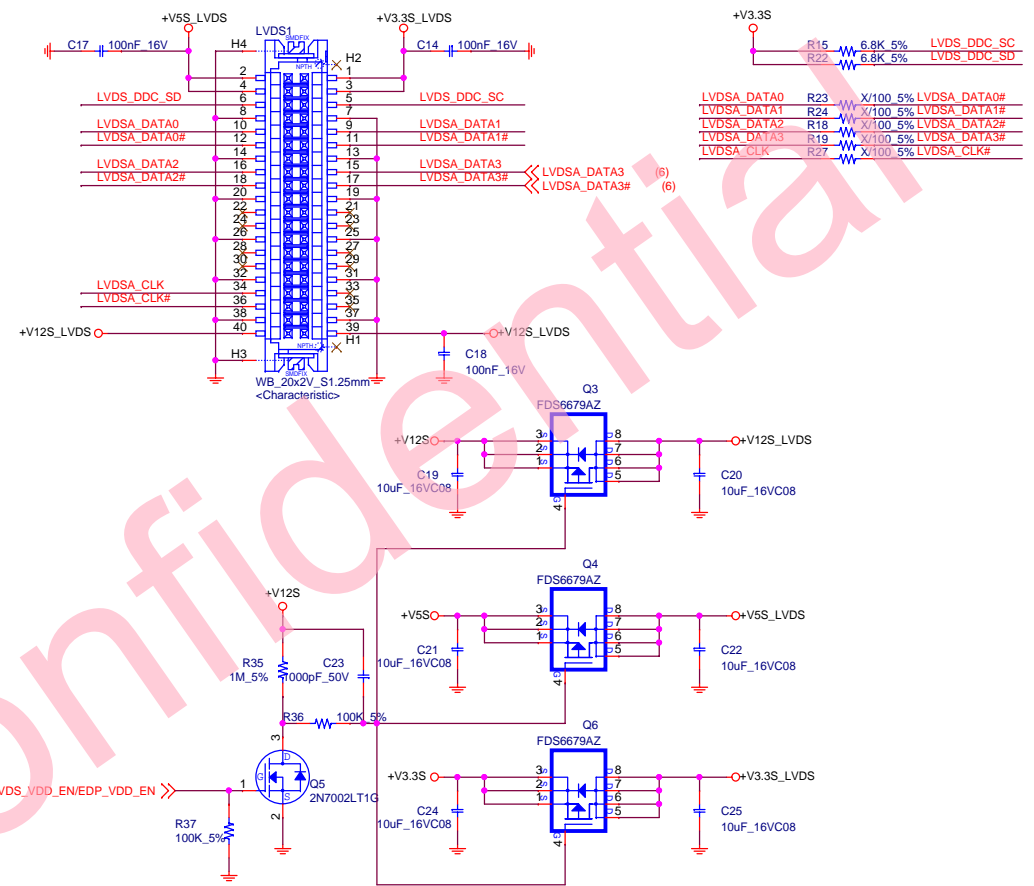
Confidential

Project Name EEV-EX15	Module Number <Module no.>	Rev ?
Size Custom	COM EXPRESS CONNECTOR	
Date: Wednesday, January 16, 2019	Sheet	6 of 18

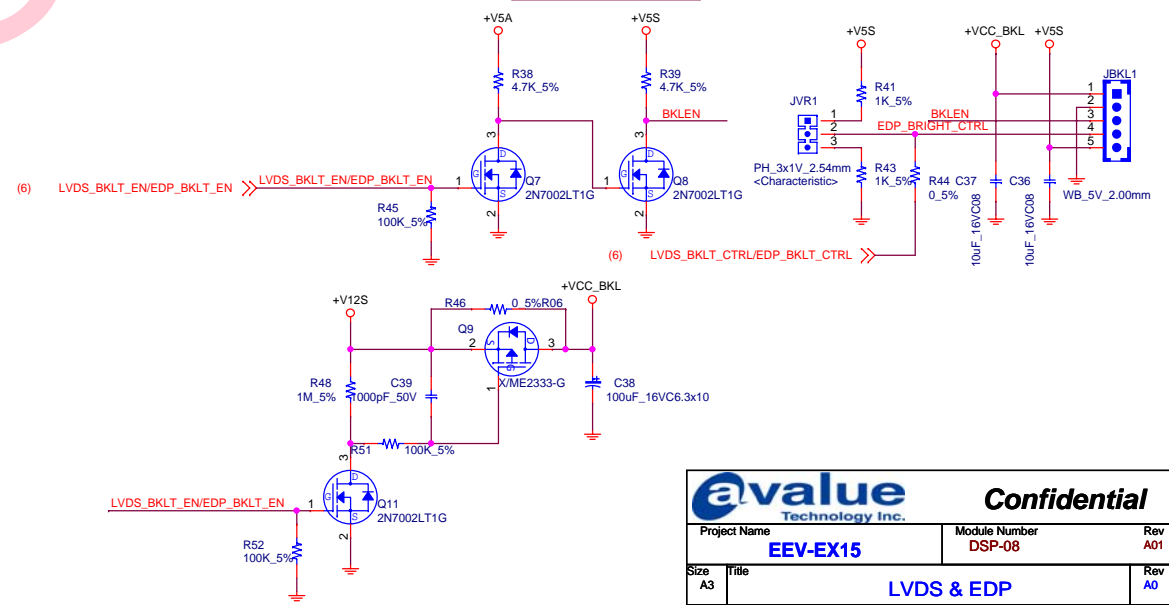
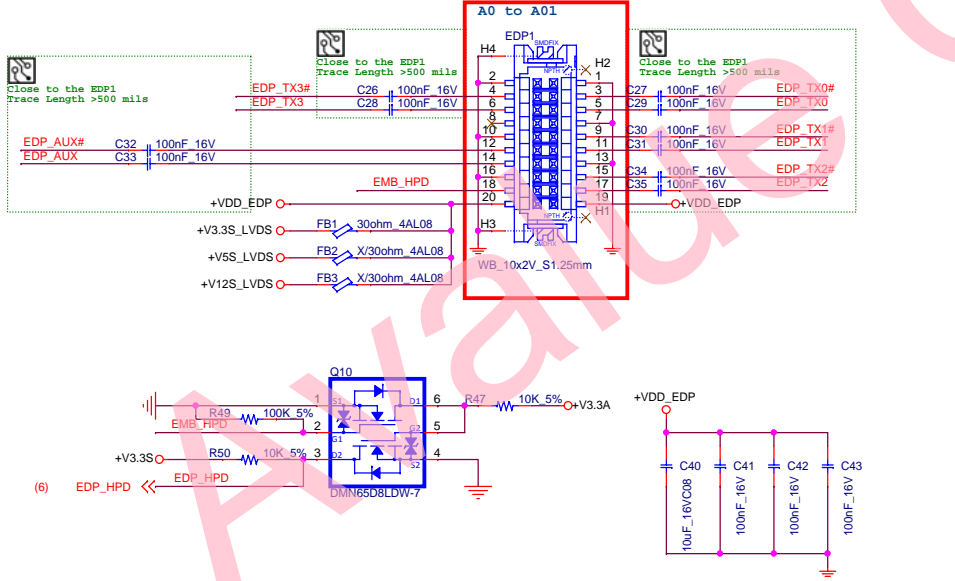


EN	SEL1	SEL2	FUNCTION
L	X	X	Switch Disabled. All Channel Hi-Z.
H	L	L	D0+/D0- to D0+A/D0-A ON. All the other channels Hi-Z.
H	L	H	D0+/D0- to D0+B/D0-B ON. All the other channels Hi-Z.
H	H	L	Channel A Enabled. Channel B Hi-Z.
H	H	H	Channel B Enabled. Channel A Hi-Z.

LVDS



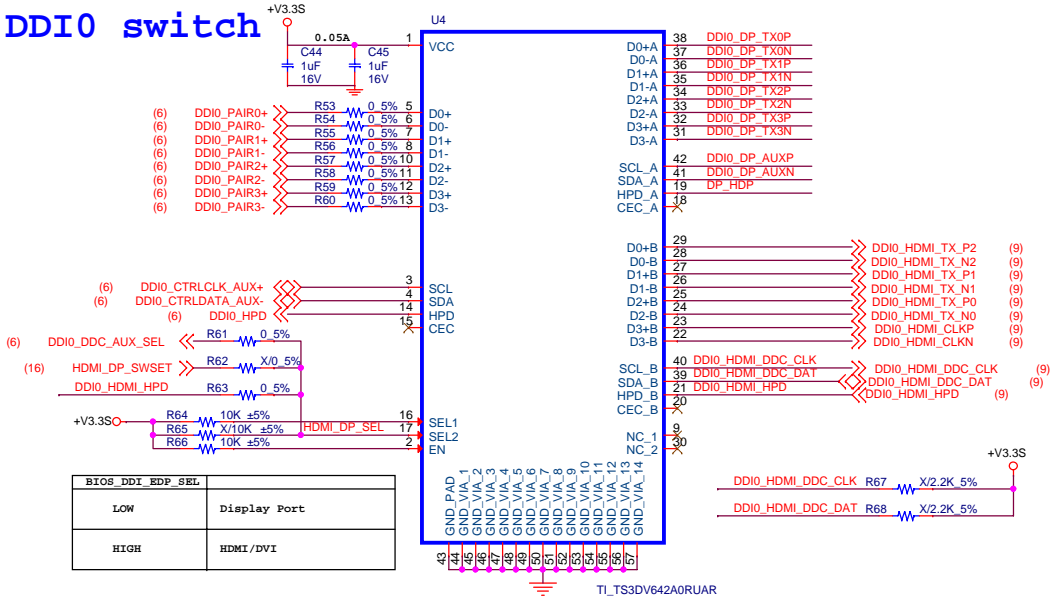
EDP



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Project Name	Module Number	Rev
EEV-EX15	DSP-08	A01
Size	Title	Rev
A3	LVDS & EDP	A0
Date:	Wednesday, January 16, 2019	Sheet 7 of 18

DDIO switch

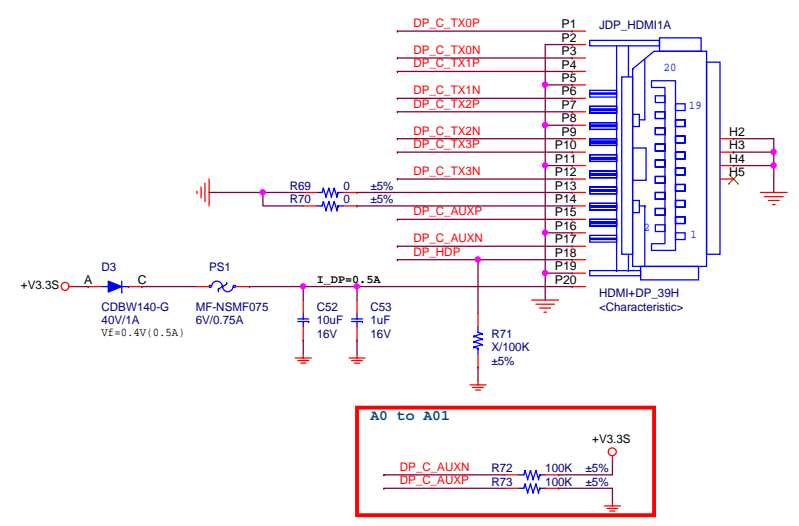
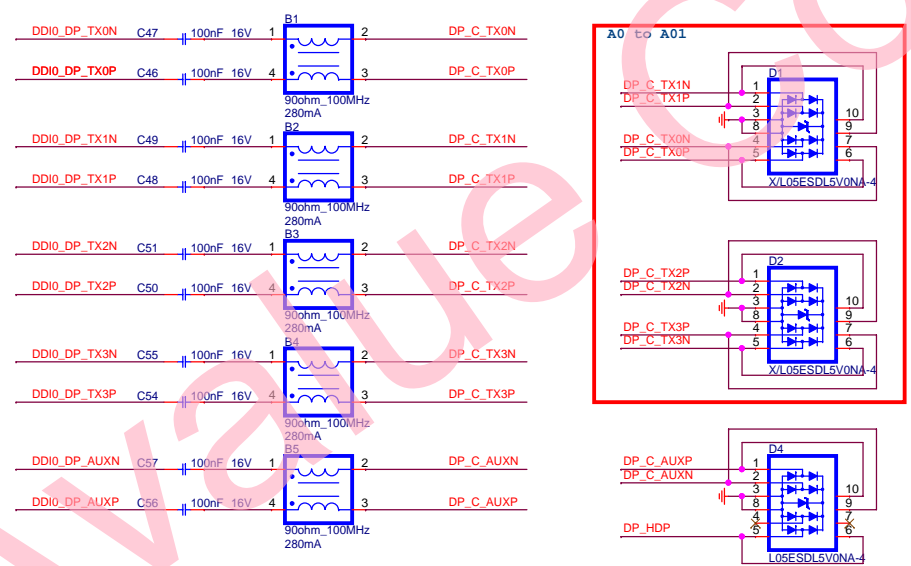


BIOS_DDI_EDP_SEL	
LOW	Display Port
HIGH	HDMI/DVI

EN	SEL1	SEL2	FUNCTION
L	X	X	Switch Disabled. All Channel Hi-Z.
H	L	L	D0+/D0- to D0+A/D0-A ON. All the other channels Hi-Z.
H	L	H	D0+/D0- to D0+B/D0-B ON. All the other channels Hi-Z.
H	H	L	Channel A Enabled. Channel B Hi-Z.
H	H	H	Channel B Enabled. Channel A Hi-Z.

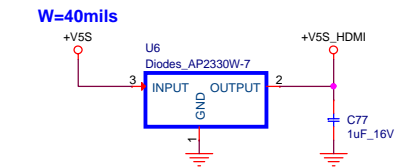
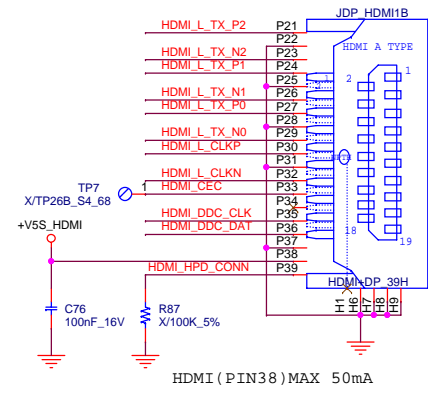
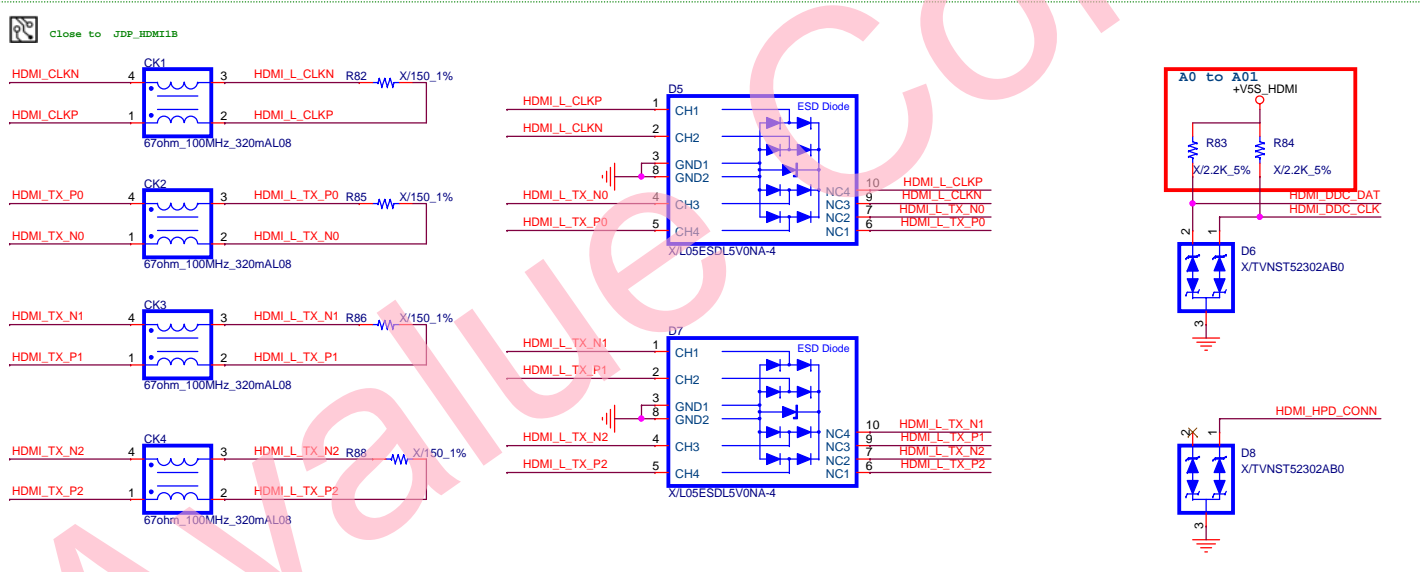
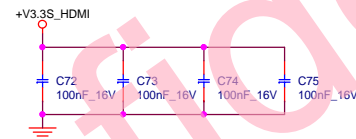
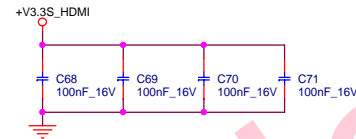
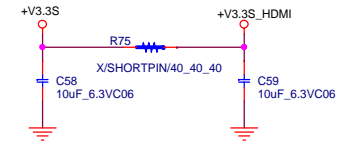
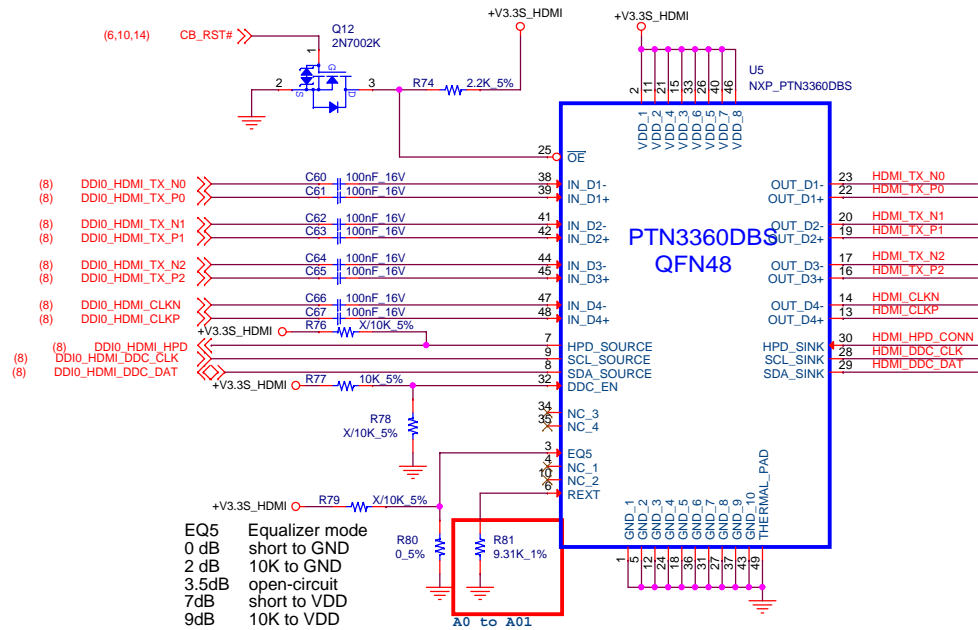
Pin Name	Type 10 Pin Number	DP	HDMI/DVI (TMDs Signaling)
DDIO_PAIR0+	B71	DP0_LANE0+	TMDS0_DATA2+
DDIO_PAIR0-	B72	DP0_LANE0-	TMDS0_DATA2-
DDIO_PAIR1+	B73	DP0_LANE1+	TMDS0_DATA1+
DDIO_PAIR1-	B74	DP0_LANE1-	TMDS0_DATA1-
DDIO_PAIR2+	B75	DP0_LANE2+	TMDS0_DATA0+
DDIO_PAIR2-	B76	DP0_LANE2-	TMDS0_DATA0-
DDIO_PAIR3+	B81	DP0_LANE3+	TMDS0_CLK+
DDIO_PAIR3-	B82	DP0_LANE3-	TMDS0_CLK-
DDIO_PAIR4+	B77		
DDIO_PAIR4-	B78		
DDIO_PAIR5+	B91		
DDIO_PAIR5-	B92		
DDIO_PAIR6+	B93		
DDIO_PAIR6-	B94		
DDIO_HPD	B89	DP0_HPD	HDMI0_HPD
DDIO_CTRLCLK_AUX+	B98	DP0_AUX+	HMDIO_CTRLCLK
DDIO_CTRLDATA_AUX-	B99	DP0_AUX-	HMDIO_CTRLDATA
DDIO_DDC_AUX_SEL	B95		

DP

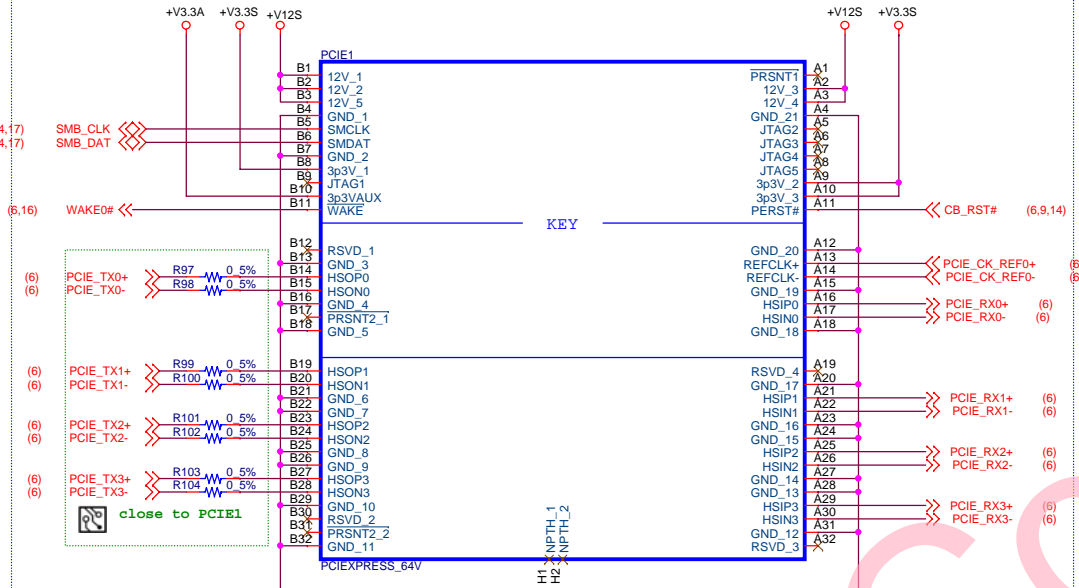


Confidential

Project Name EEV-EX15		Module Number <Module no.>	Rev ?
Size A3	Title DDIO switch & DP port		Rev A0
Date: Wednesday, January 16, 2019	Sheet 8	of 18	



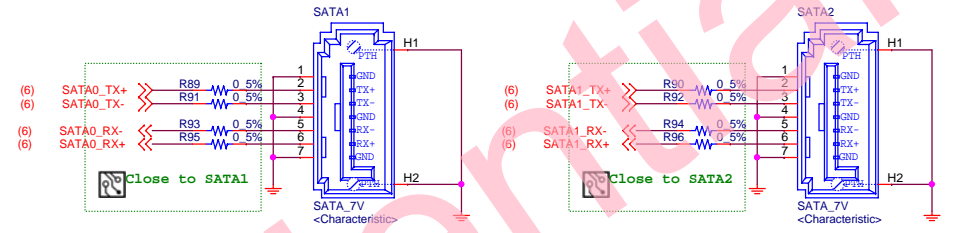
PCIeX4



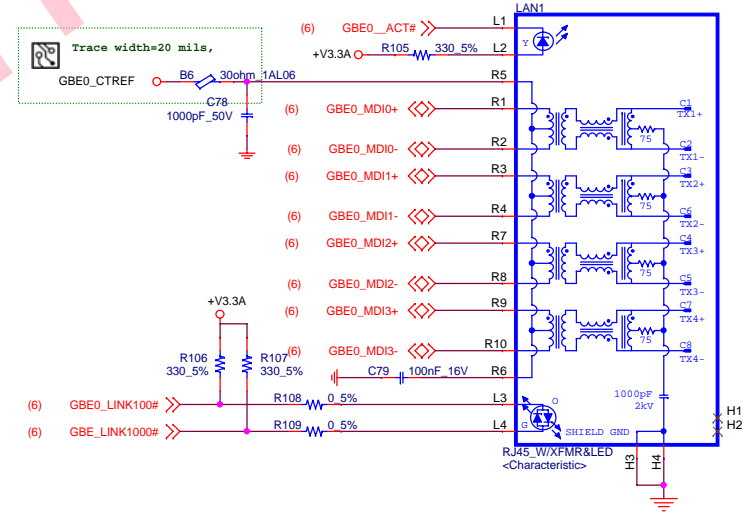
Please choose suitable cap. for individual design needed. and Capacitors next to the connector.

	15 W Slot	25 W Slot	75 W Slot
+3.3V			
Voltage Tolerance	± 9% (max)	± 9% (max)	± 9% (max)
Supply Current	3.0 A (max)	3.0 A (max)	3.0 A (max)
Capacitive Load	1000 µF (max)	1000 µF (max)	1000 µF (max)
+12V			
Voltage Tolerance	± 9%	± 9%	± 9%
Supply Current	0.3 A (max)	2.1 A (max)	5.5 A (max)
Capacitive Load	300 µF (max)	1000 µF (max)	2000 µF (max)
+3.3Vaux			
Voltage Tolerance	± 9% (max)	± 9% (max)	± 9% (max)
Supply Current	375 mA (max)	375 mA (max)	375 mA (max)
WakeUp Enabled	20 mA (max)	20 mA (max)	20 mA (max)
Non-wakeup Enabled	150 µF (max)	150 µF (max)	150 µF (max)

SATA



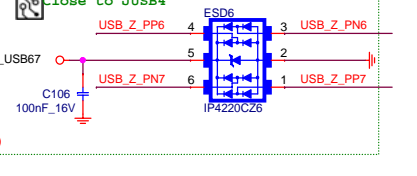
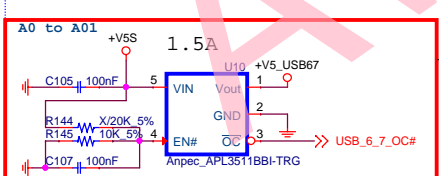
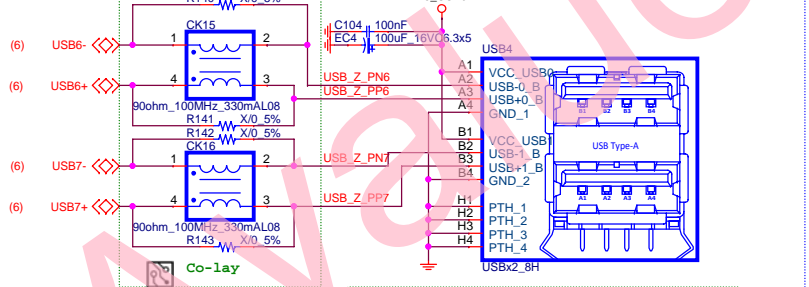
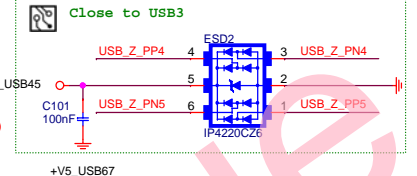
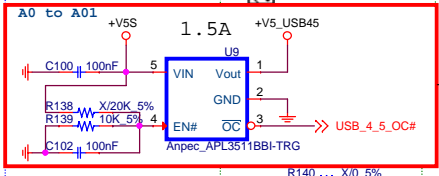
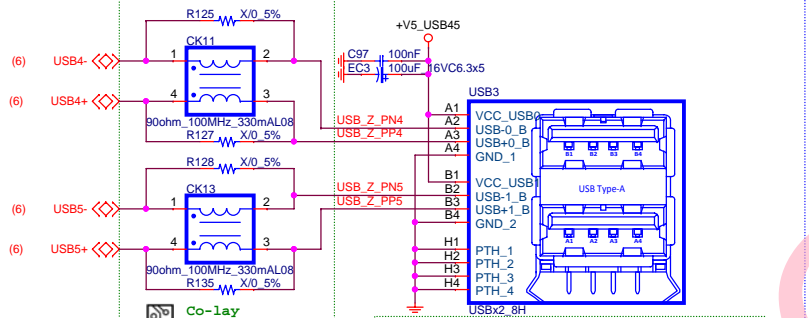
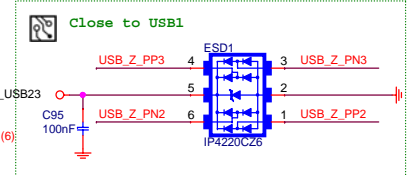
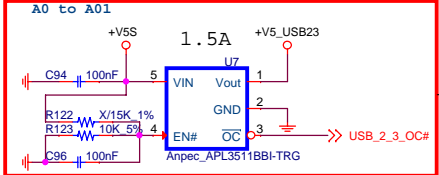
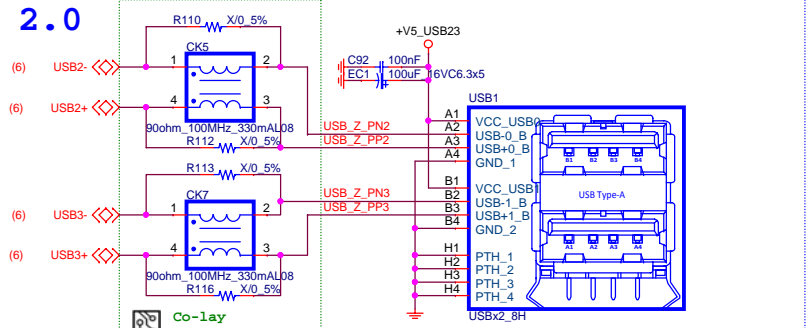
LAN



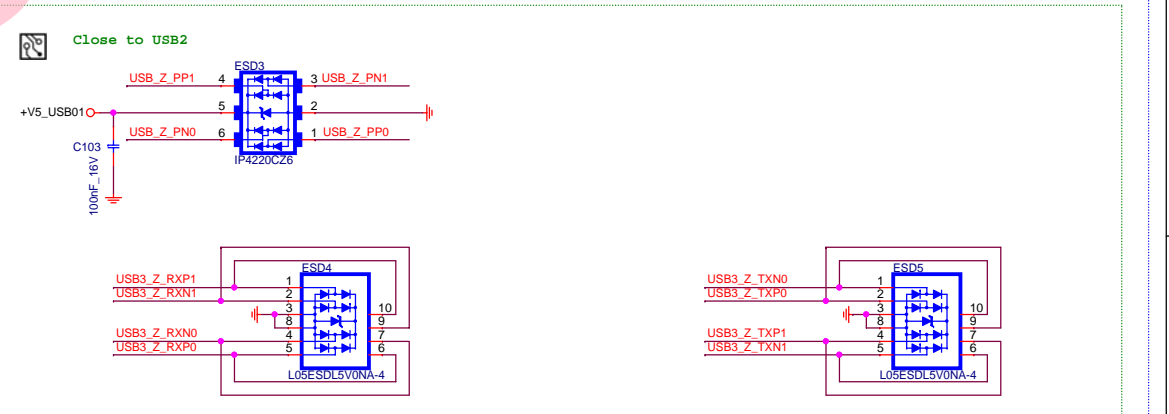
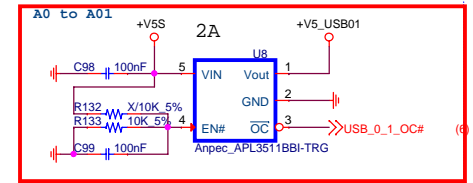
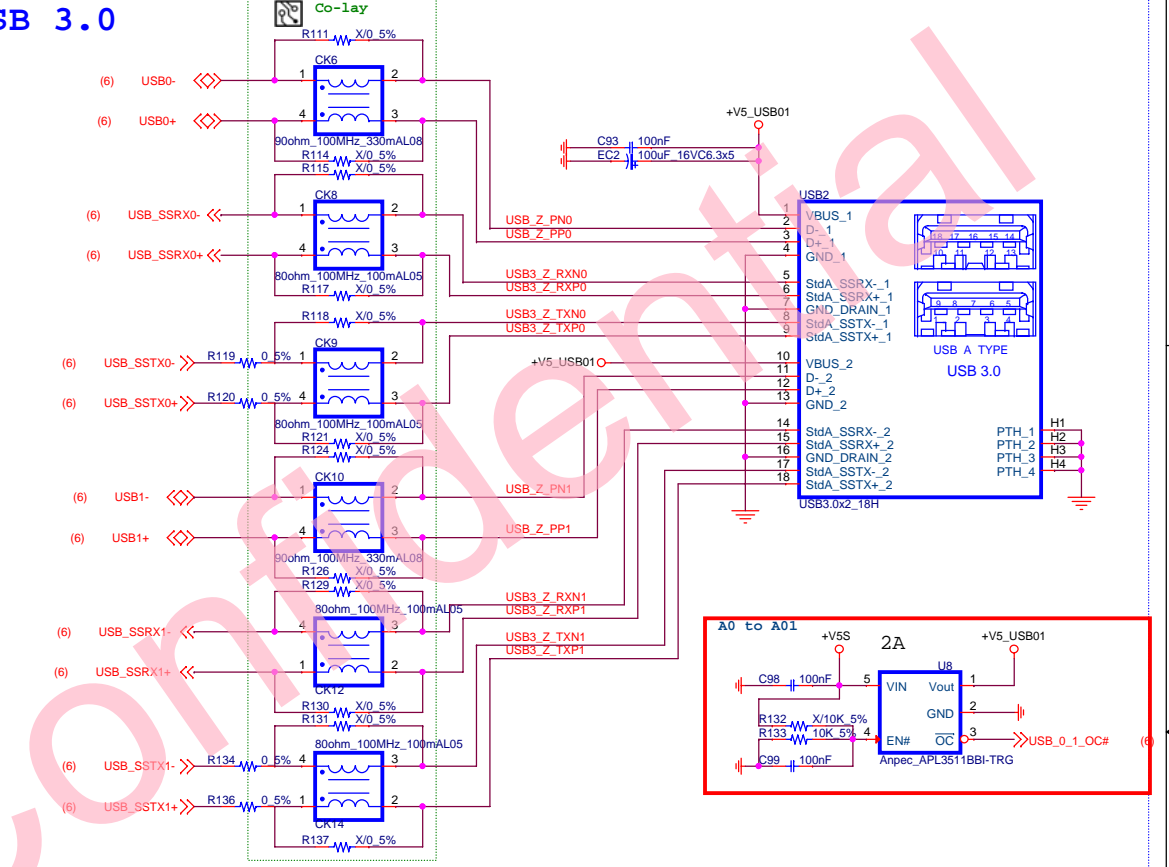
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Project Name EEV-EX15	Module Number SLT-03	Rev A0
Size A3	Title PCIeX4,SATA ,LAN	Rev A0
Date: Wednesday, January 16, 2019	Sheet 10 of 18	

USB 2.0

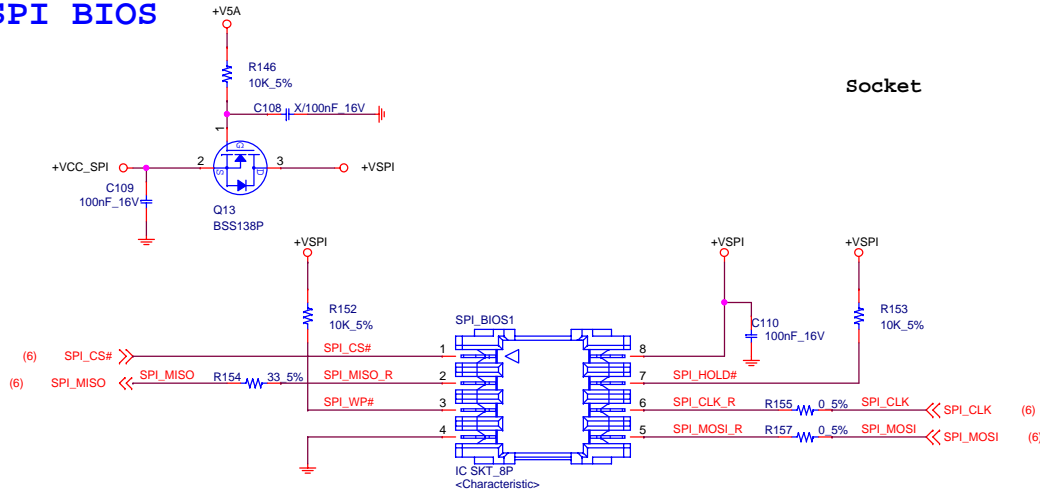


USB 3.0

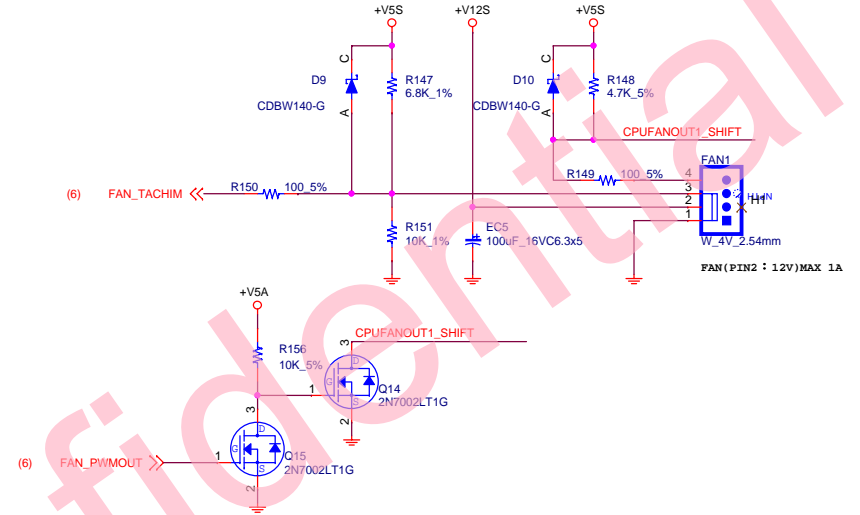


avalue Technology Inc.		Confidential	
Project Name	EEV-EX15	Module Number	?
Size	A3	Title	USB
Date:	Wednesday, January 16, 2019	Sheet	11 of 18

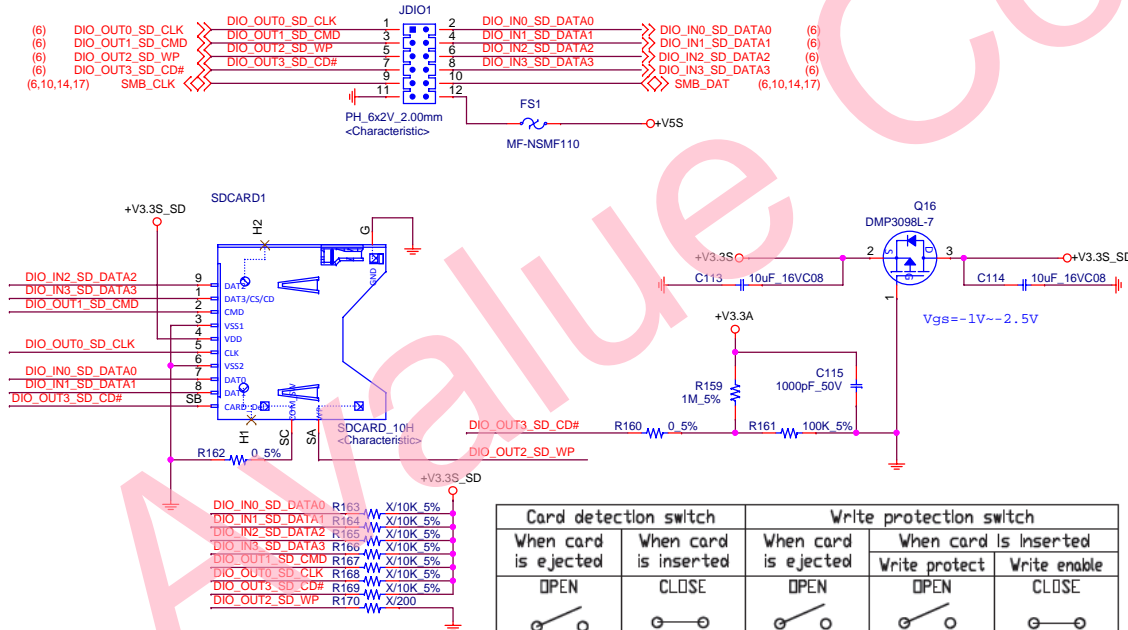
SPI BIOS



FAN

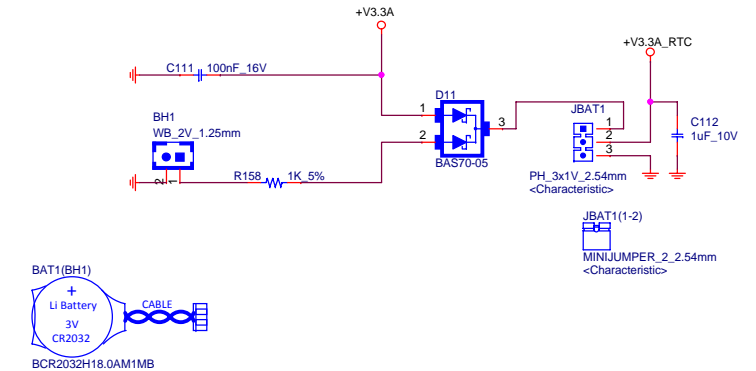


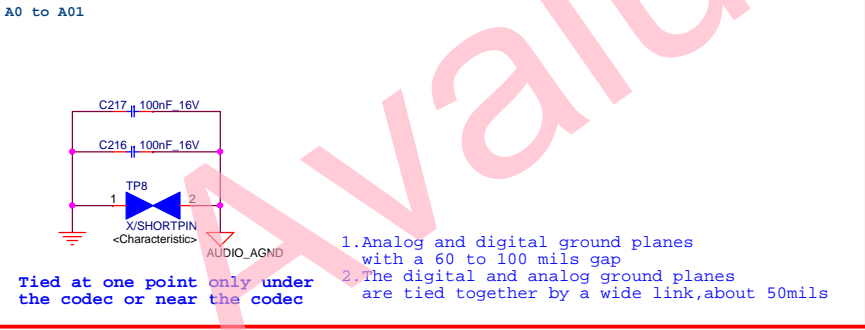
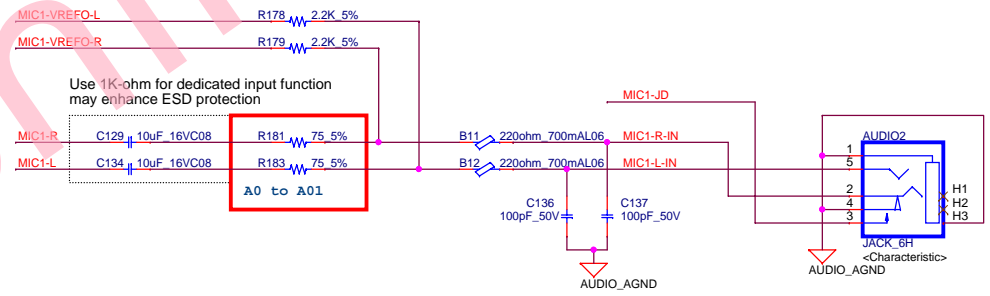
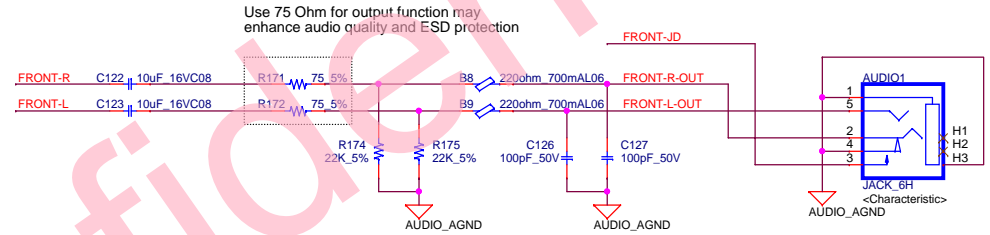
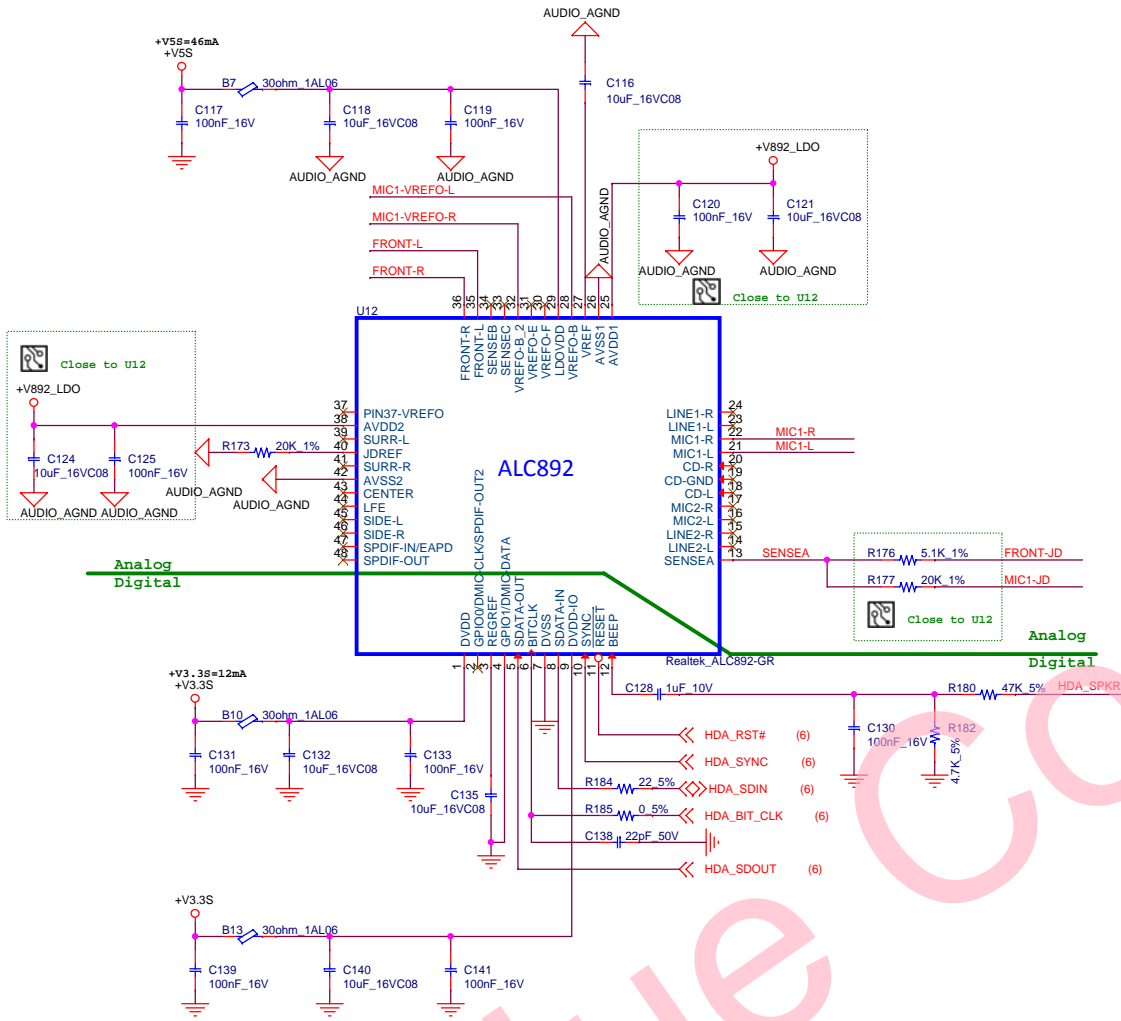
DIO/SDIO



Card detection switch		Write protection switch			
When card is ejected	When card is inserted	When card is ejected	When card is inserted		
OPEN	CLOSE	OPEN	Write protect	Write enable	
Sb Sc	Sb Sc	Sa Sc	Sa Sc	Sa Sc	

RTC BATTERY



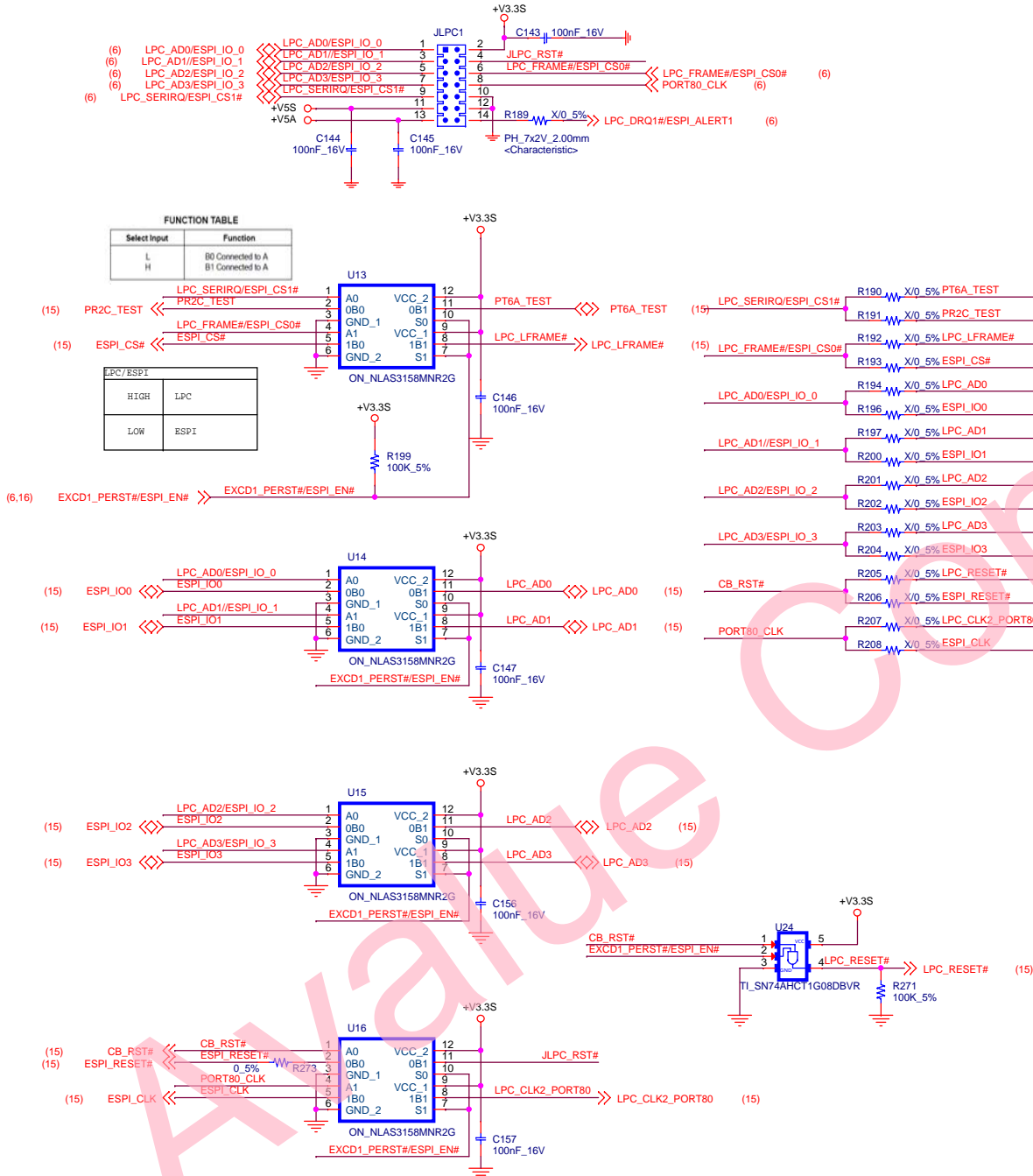


1. Analog and digital ground planes with a 60 to 100 mils gap
2. The digital and analog ground planes are tied together by a wide link, about 50mils

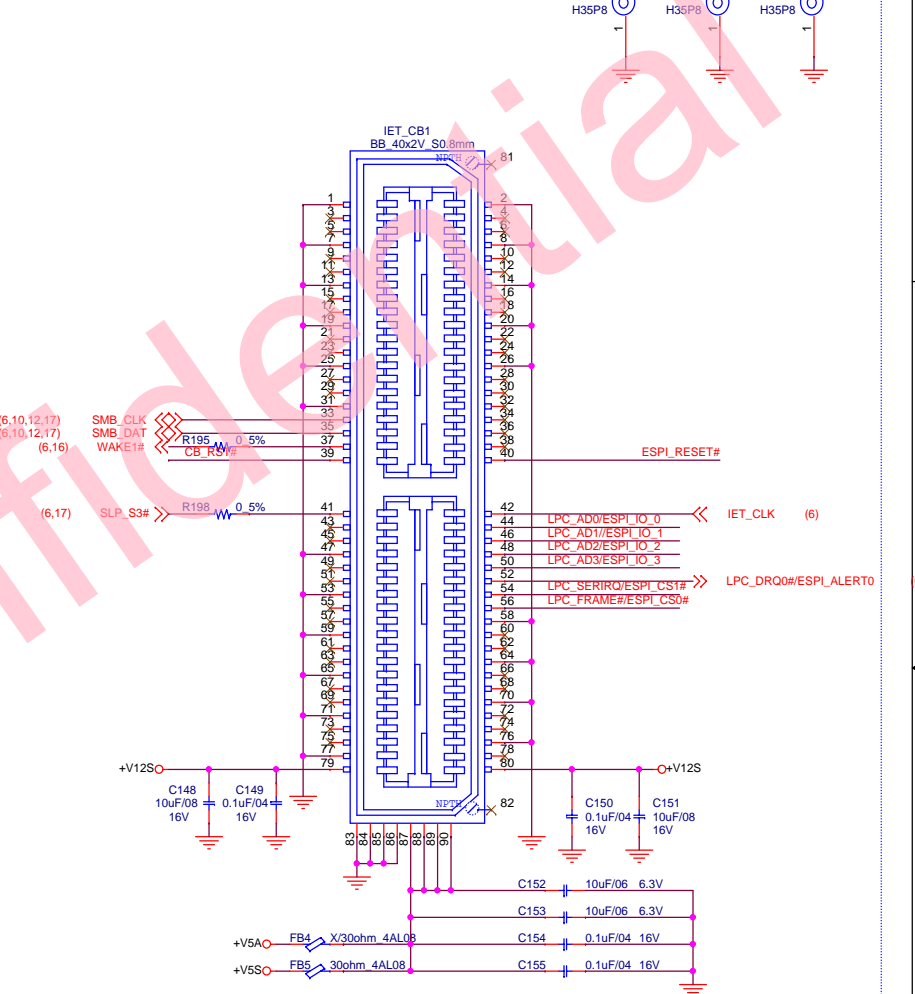
Tied at one point only under the codec or near the codec

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Project Name EEV-EX15		Module Number AUD-04	
Size A3	Title AUDIO_2CH(ALC892)	Rev A0	
Date: Wednesday, January 16, 2019		Sheet 13 of 18	

PORT 80

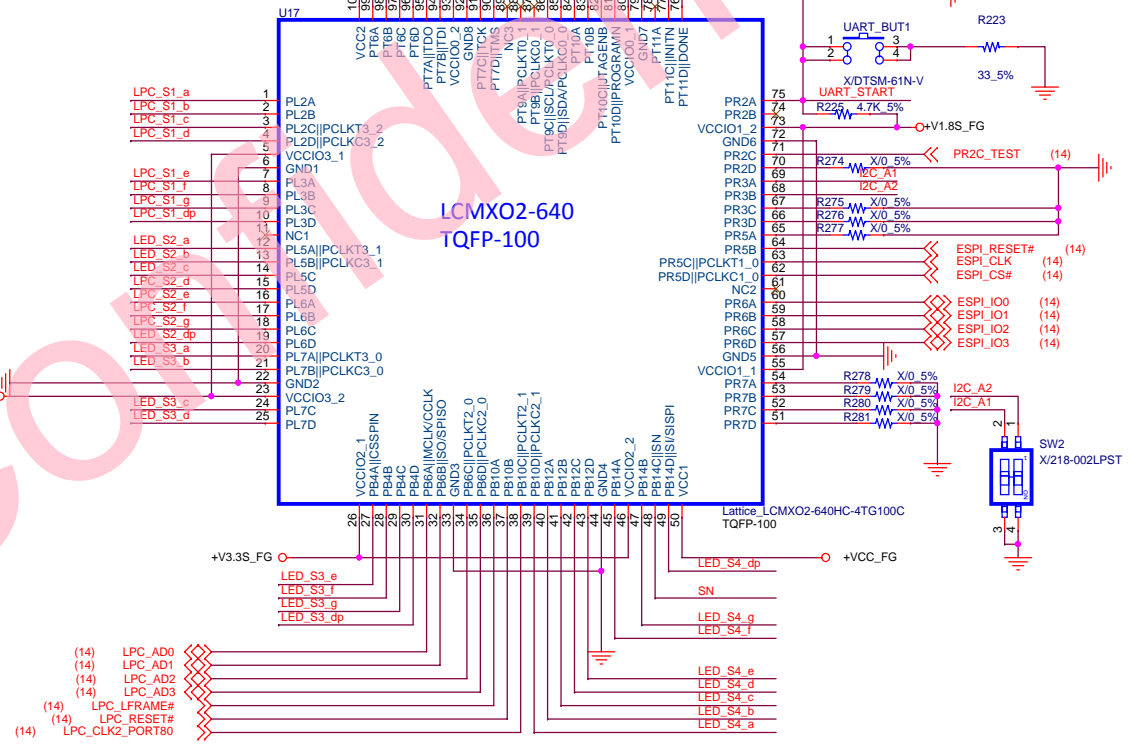
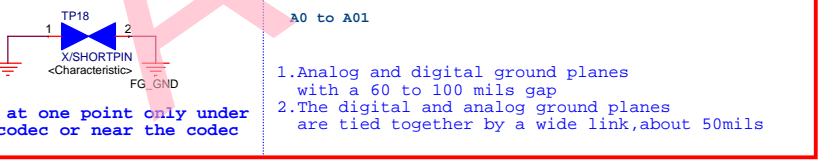
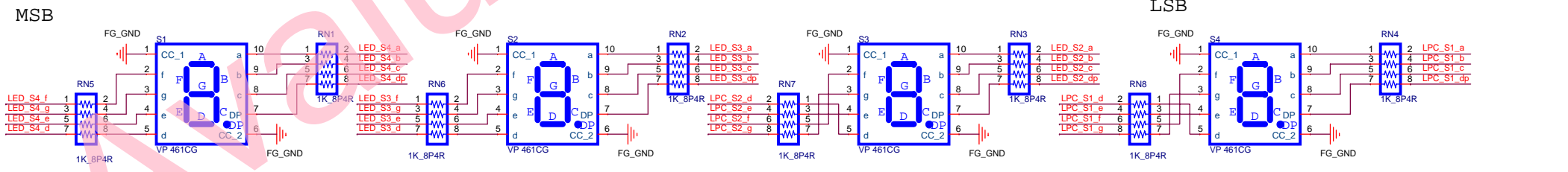
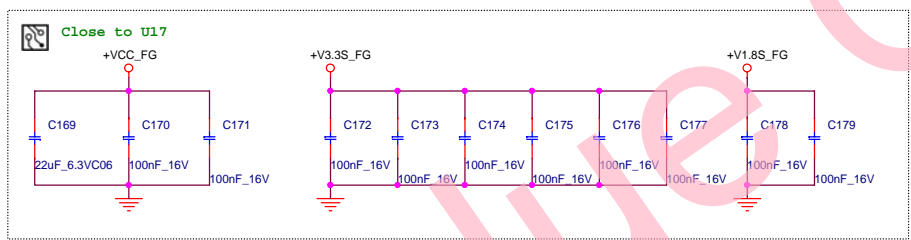
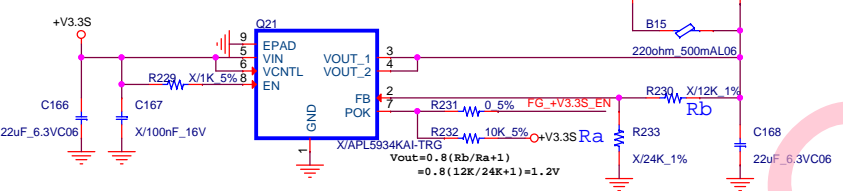
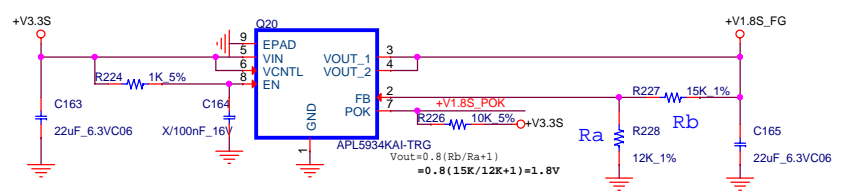
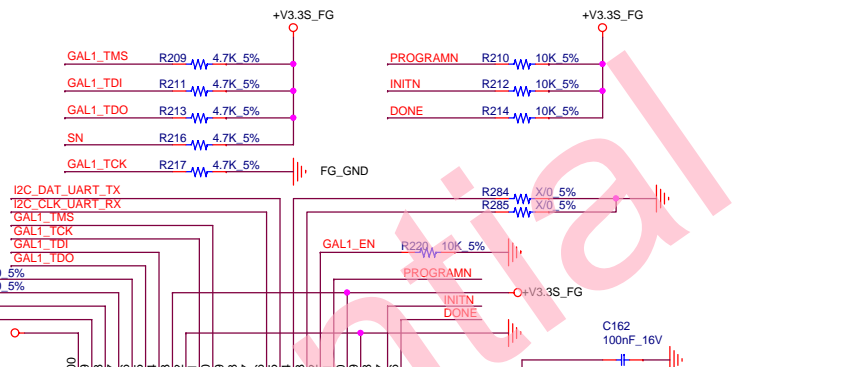
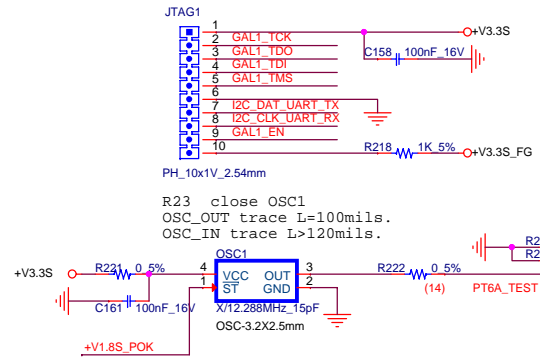
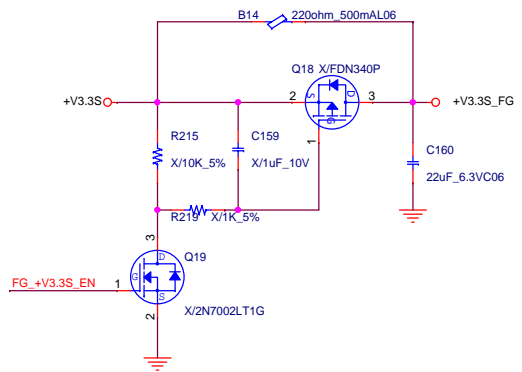


IET



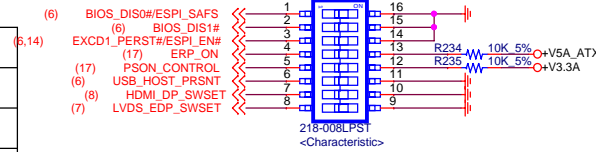
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Project Name	EEV-EX15	Module Number	<Module no.>	Rev	?
Size	A3	Title	IET & PORT 80(LPC/ESPI)	Rev	A0
Date:	Wednesday, January 16, 2019	Sheet	14	of	18



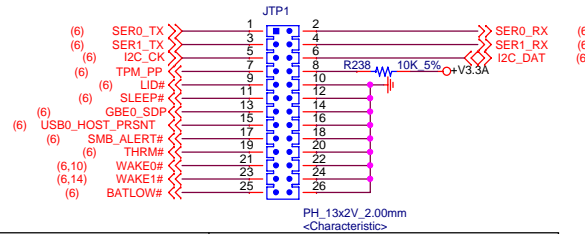
SW1 Setting

	Function	ON	OFF
1	BIOS ROM select		Default
2	BIOS ROM select		Default
3	ESPI/LPC select	ESPI	LPC
4	ERP setting	ERP ON	ERP OFF
5	PSON control	Power button	s3
6	USB_HOST_PRNT	SEL	NO Detect
7	DP/HDMI select (optional)	DP	HDMI
8	LVDB/eDP select (optional)	LVDB	eDP



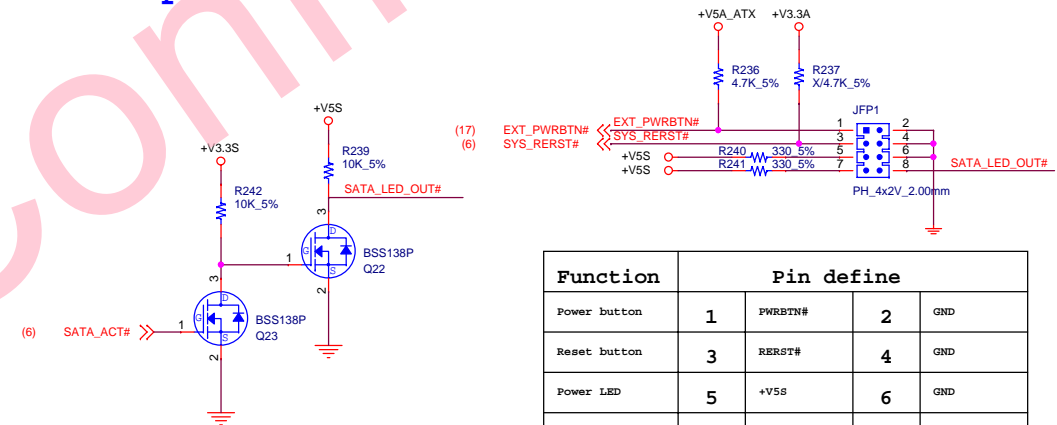
BIOS_DIS#	ESPI_EN#	ESPI_CS#	Carrier ESPI_CS# Pin	Chipset ESPI_CS# Destination	BBS	Boot Bus	BIOS_DIS0#	BIOS_DIS1#	ESPI_CS#	Carrier ESPI_CS# Pin	Chipset ESPI_CS# Destination	SPI_CS#	Carrier SPI_CS# Pin	SPI Descriptor	Ref to Images Above	Notes
1	0	0	SPI	0	-	-	-	-	-	Carrier	Module	SPI1	Module	A	MAFS on Module LPC bus enabled	
1	0	1	SPI	0	-	-	-	-	-	Module	Carrier	SPI0	Carrier	B	MAFS on Carrier LPC bus enabled	
1	1	0	-	0	-	-	-	-	-	-	-	High	-	-	Not used - was FWH	
1	1	1	SPI	0	-	-	-	-	-	Module	Module	High	Module	A	MAFS on Module LPC bus enabled	
0	0	0	SPI	0	-	-	-	-	-	Carrier	Module	SPI1	Module	C	MAFS on Module ESPI bus enabled	
0	0	1	SPI	0	-	-	-	-	-	Module	Carrier	SPI0	Carrier	D	MAFS on Carrier ESPI bus enabled	
0	1	0	eSPI	1	Module	-	-	-	-	-	-	SPI0	Module	E	SAFS and BMC on Module ESPI bus enabled	
0	1	1	eSPI	1	Carrier	Chipset ESPI_CS#	-	-	-	-	-	SPI0	Carrier	F	SAFS and BMC on Carrier ESPI bus enabled	

Test position



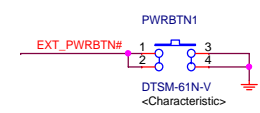
Function	Pin define			
Serial port0	1	SER0_TX	2	SER0_RX
Serial port1	3	SER1_TX	4	SER1_RX
I2C	5	I2C_CK	6	I2C_DAT
TPM_PP	7	TPM_PP	8	+V3.3A
LID switch	9	LID#	10	GND
sleep button	11	SLEEP#	12	GND
IEEE 1588 SDP	13	GBEO_SDP	14	GND
USB0_HOST_PRNT	15	USB0_HOST_PRNT	16	GND
SMB alert	17	SMB_ALERT#	18	GND
Over-temp	19	THR#	20	GND
PCI Express wake up	21	WAKE0#	22	GND
General wake up	23	WAKE1#	24	GND
Battery low	25	BATLOW#	26	GND

Front panel

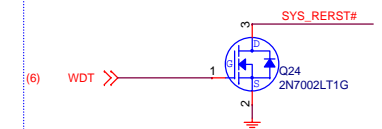


Function	Pin define			
Power button	1	PWRBTN#	2	GND
Reset button	3	RERST#	4	GND
Power LED	5	+V5S	6	GND
SATA LED	7	+V5S	8	SATA_LED#

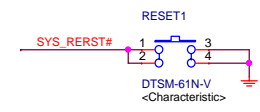
Power button



WDT



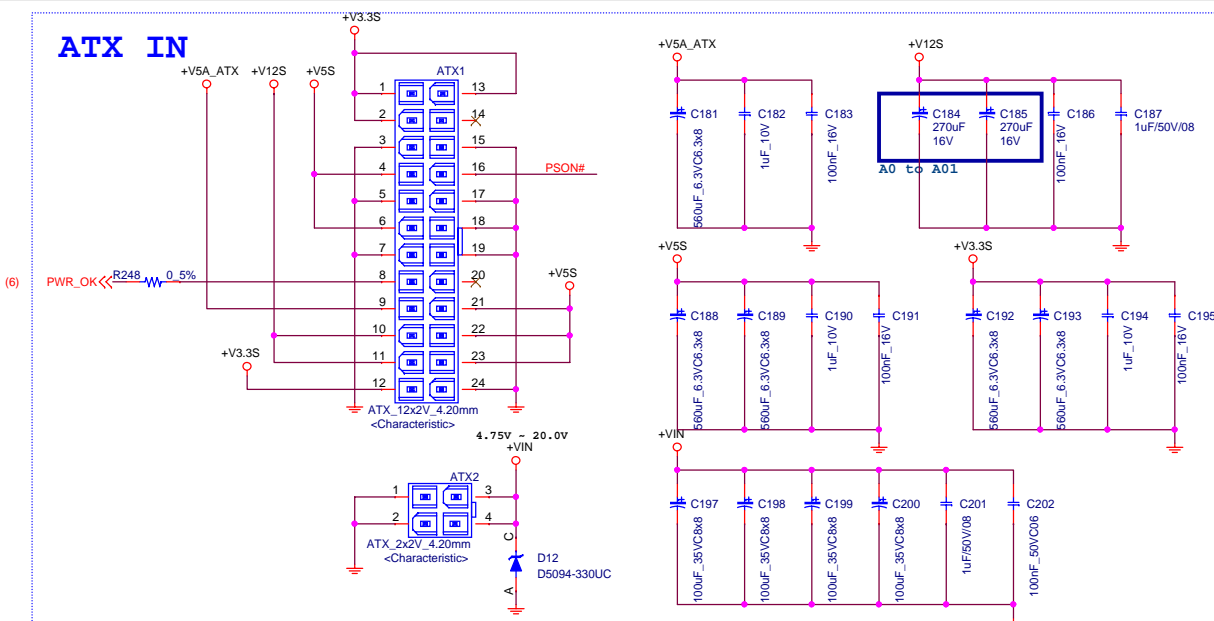
Reset button



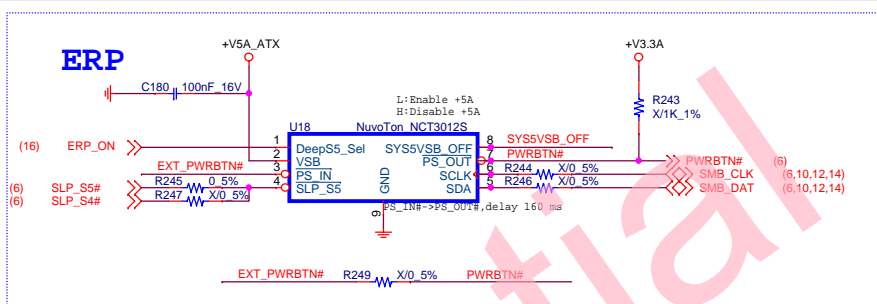
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Project Name EEV-EX15	Module Number <Module no.>	Rev ?
Size A3	Title CONTROL,SETTING,TEST	Rev A0
Date: Wednesday, January 16, 2019		
Sheet		16 of 18

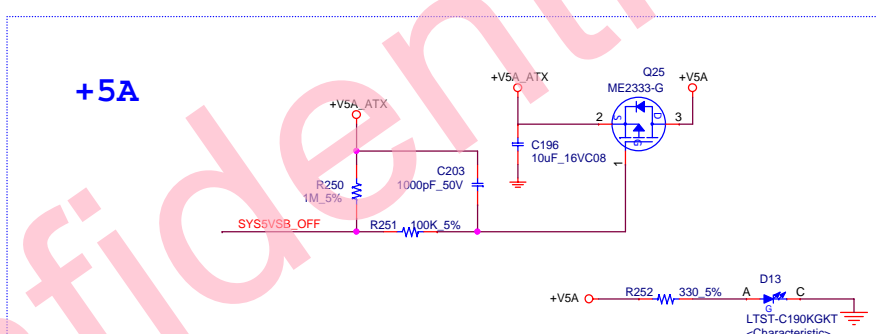
ATX IN



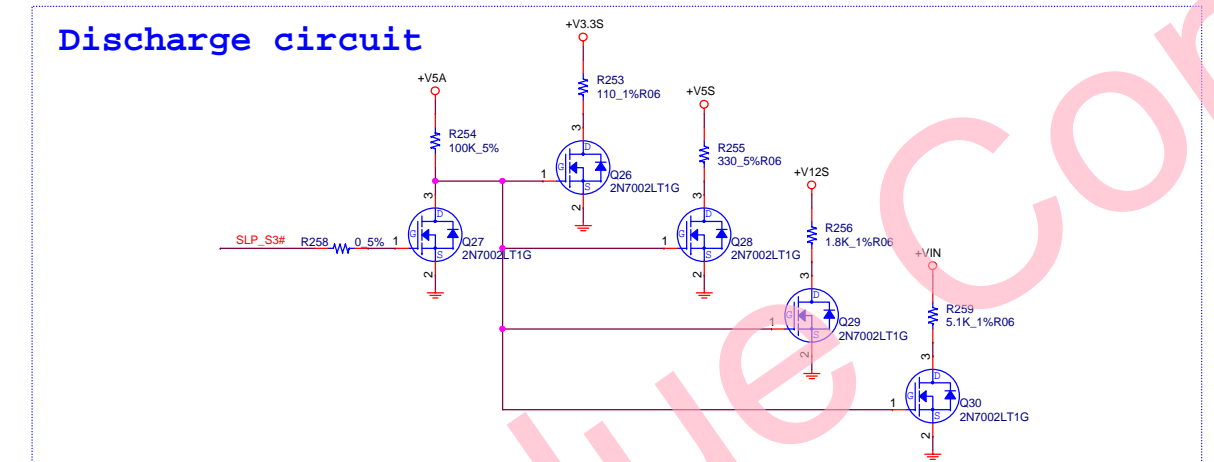
ERP



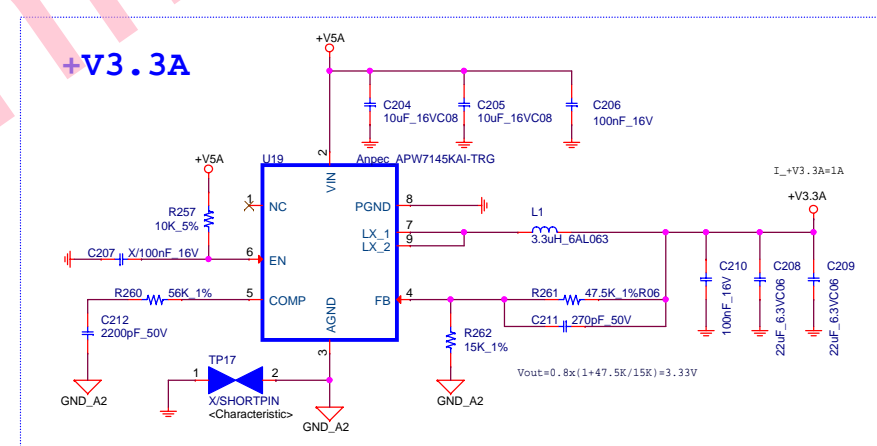
+5A



Discharge circuit

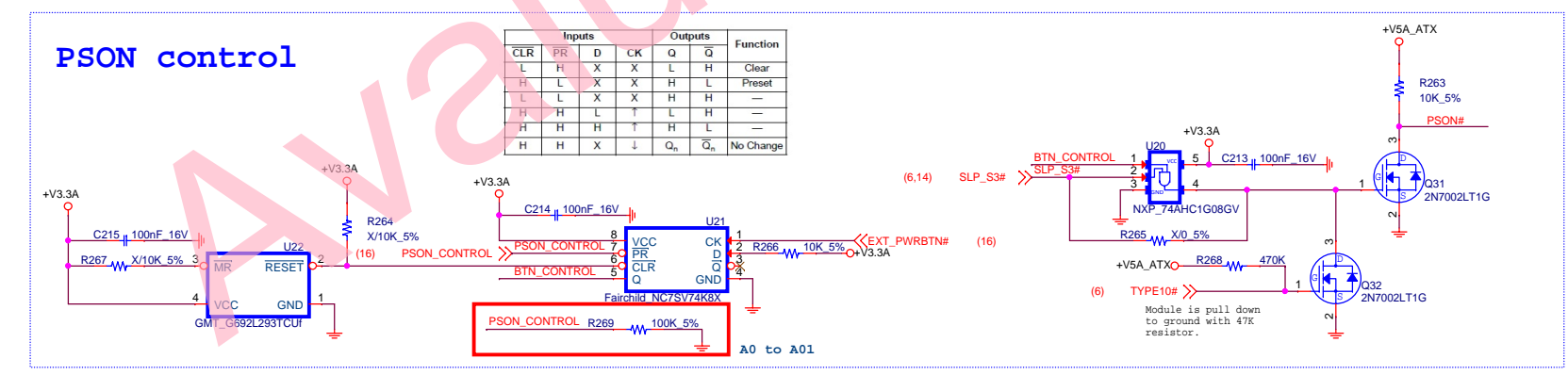


+V3.3A



PSON control

Inputs		Outputs		Function		
CLR	PR	D	CK		Q	Q̄
L	H	X	X	L	H	Clear
H	L	X	X	H	L	Preset
L	L	X	X	H	H	—
H	H	L	↑	L	H	—
H	H	H	↑	H	L	—
H	H	X	↓	Q _n	Q _n	No Change



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Project Name	Module Number	Rev
EEV-EX15	<Module no.>	?
Size	Title	Rev
A3	POWER IN & CONTROL	A0
Date:	Wednesday, January 16, 2019	Sheet 17 of 18


Modify History

EEV-EX15 Rev:A01

EE:Elmo Lu

Item	Description	Track or reason	Page	Date
0	PCB Part Number E1907EX1501RO	PCB Part Number.	01	2018/10/22
1	Add U2、R6、R7 Remove R8、R9	LPC CLK Quality.	06	2018/10/22
2	Change EDP1 to E1672610201R	Cost Down.	07	2018/10/22
3	Add R72、R73	DP Hot Plugging Problem.	08	2018/10/22
4	Remove D1、D2	DP Signal Quality.	08	2018/10/22
5	Remove R83、R84	HDMI Hot Plugging Problem.	09	2018/10/22
6	Change R81 To 9.31K_1%	HDMI Signal Quality.	09	2018/10/22
7	Change U7、U8、U9、U10 To E14S3351101H	USB Problem.	11	2018/10/22
8	Add R123、R139、R145 Remove R122、R138、R144	USB Problem.	11	2018/10/22
9	Change R181、R183 To 75_5% Add R216、R217	Audio Quality.	13	2018/10/22
10	Add TP18	Port80 Gnd Problem.	15	2018/10/22
11	Change C184、C185 To 270u_16V	Convergence Part.	17	2018/10/22
12	Change R269 To 100K_5%	Power Control.	17	2018/10/22

Avalue Confidential

		Confidential	
Project Name		Module Number	
EEV-EX15		<Module no.>	
Size	Title	Rev	
A3	MODIFY HISTORY	A0	
Date: Wednesday, January 16, 2019		Sheet 18 of 18	