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37	AUDIO CONNECTOR		
38	AUDIO HEADER		
39	Charging UP7551P		
40	LINEAR POWER		

IZ17C-AHT VER 5.0

CPU:
Intel Skylake S 42 in LGA1151 Package 95W

System Chipset:
SPT-H PCH

Main Memory:
Dual Channel/DDR-III*4(Max 16GB) 1066/1333/1600

Onboard Device:
Super I/O:IT8625E
LAN:Realtek 8111G
HD Codec:ALC892
PCI BRIDGE ASM1083

Power solution:
CPU Voltage Regulators:3phase by ISL95858
DDR Voltage Regulators:1Phase by UP1514

Expansion Slots:
PCI EXPRESS 16X SLOT *2
PCI EXPRESS 4X SLOT *1
PCI EXPRESS 1X SLOT *3
PCIE M2 SOLT *1

REAR IO:
PS/2 +2 layer USB3.0 Port
HDMI Port
DVI+VGA Port
USB3.0 PORT *2
Gb RJ-45 +2 layer USB3.0 Ports
Audio Jackets (5 PORT+SPDIF)

Front I/O:
SATA3 *6
SATA EXPRESS * 1
USB 2.0 Header * 2
USB 3.0 Header * 1
CPU FAN *2
System FAN *4
Serial header
CIR Header
Front Audio Header

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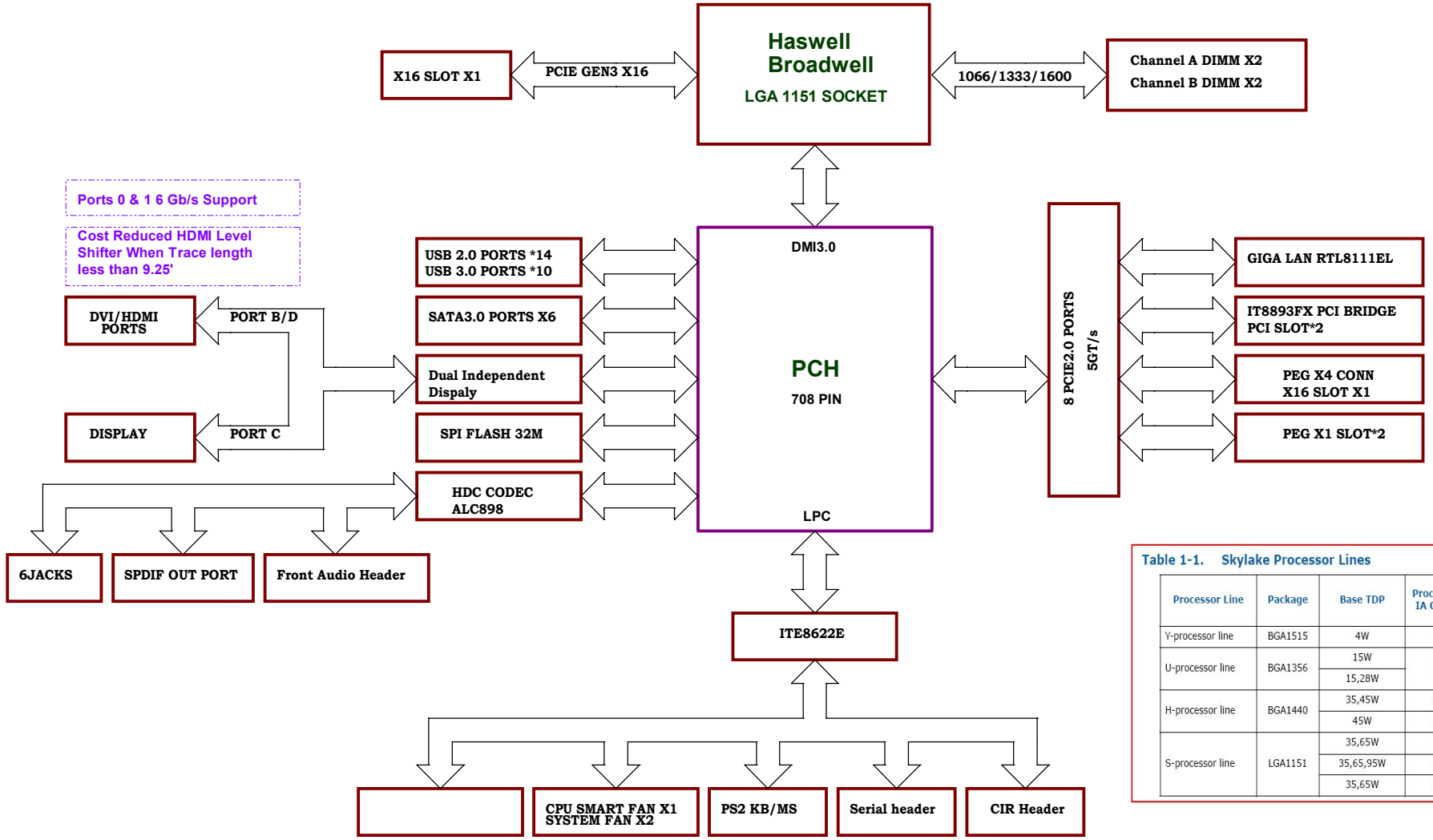


Table 1-1. Skylake Processor Lines

Processor Line	Package	Base TDP	Processor IA Cores	Maximum Graphics Configuration	On Package Cache	Platform Type
Y-processor line	BGA1515	4W	2	GT2	N/A	1-Chip
U-processor line	BGA1356	15W	2	GT2		1-Chip
		15,28W		GT3	64 MB	
H-processor line	BGA1440	35,45W	4	GT2	N/A	2-Chip
		45W	4	GT4	128 MB	
S-processor line	LGA1151	35,65W	2	GT2	N/A	2-Chip
		35,65,95W	4	GT2		
		35,65W	4	GT4	64 MB	

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Title: BLOCK DIAGRAM

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Title	POWER DELIVERY	
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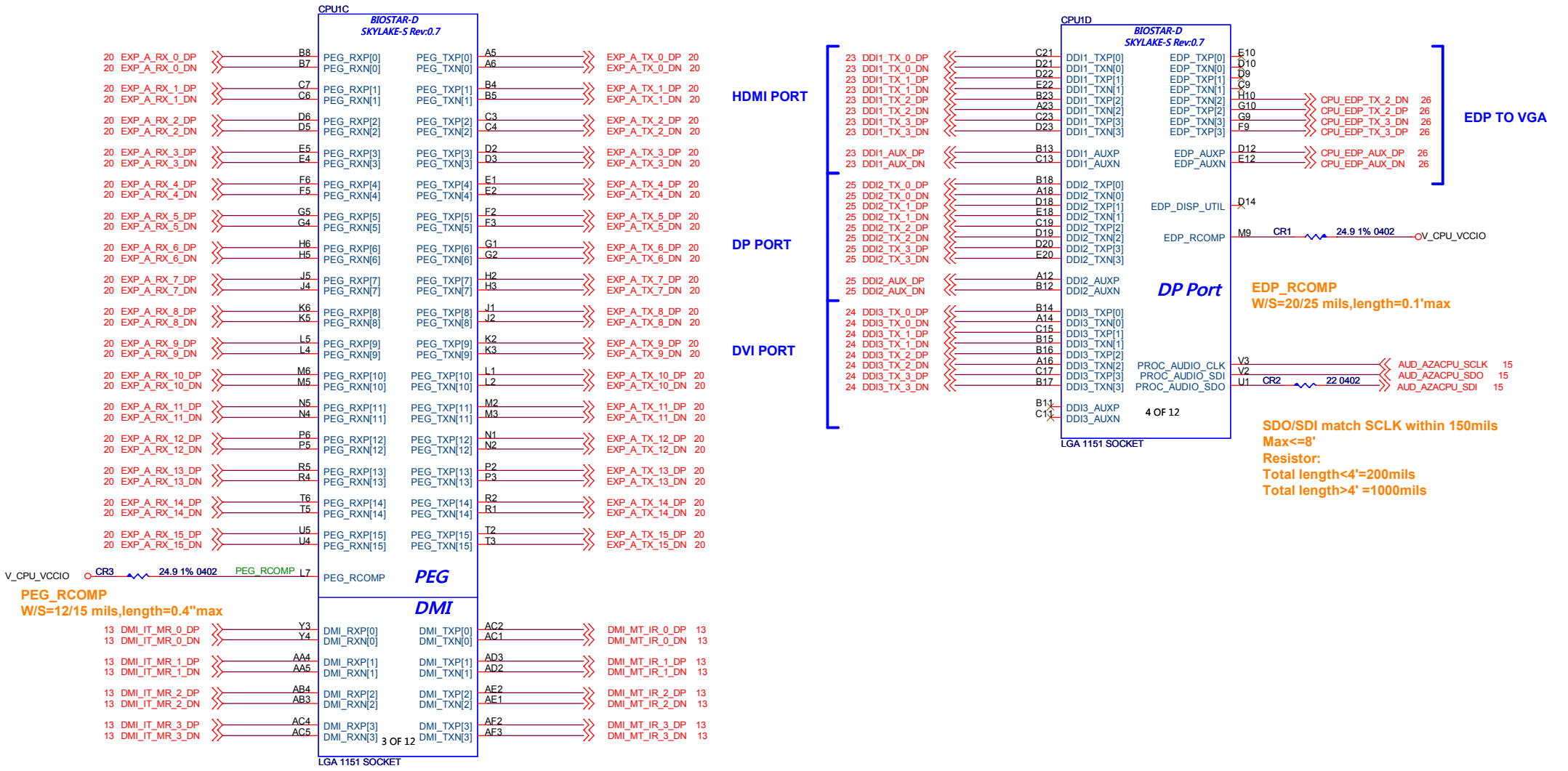
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Title: CHANGELIST

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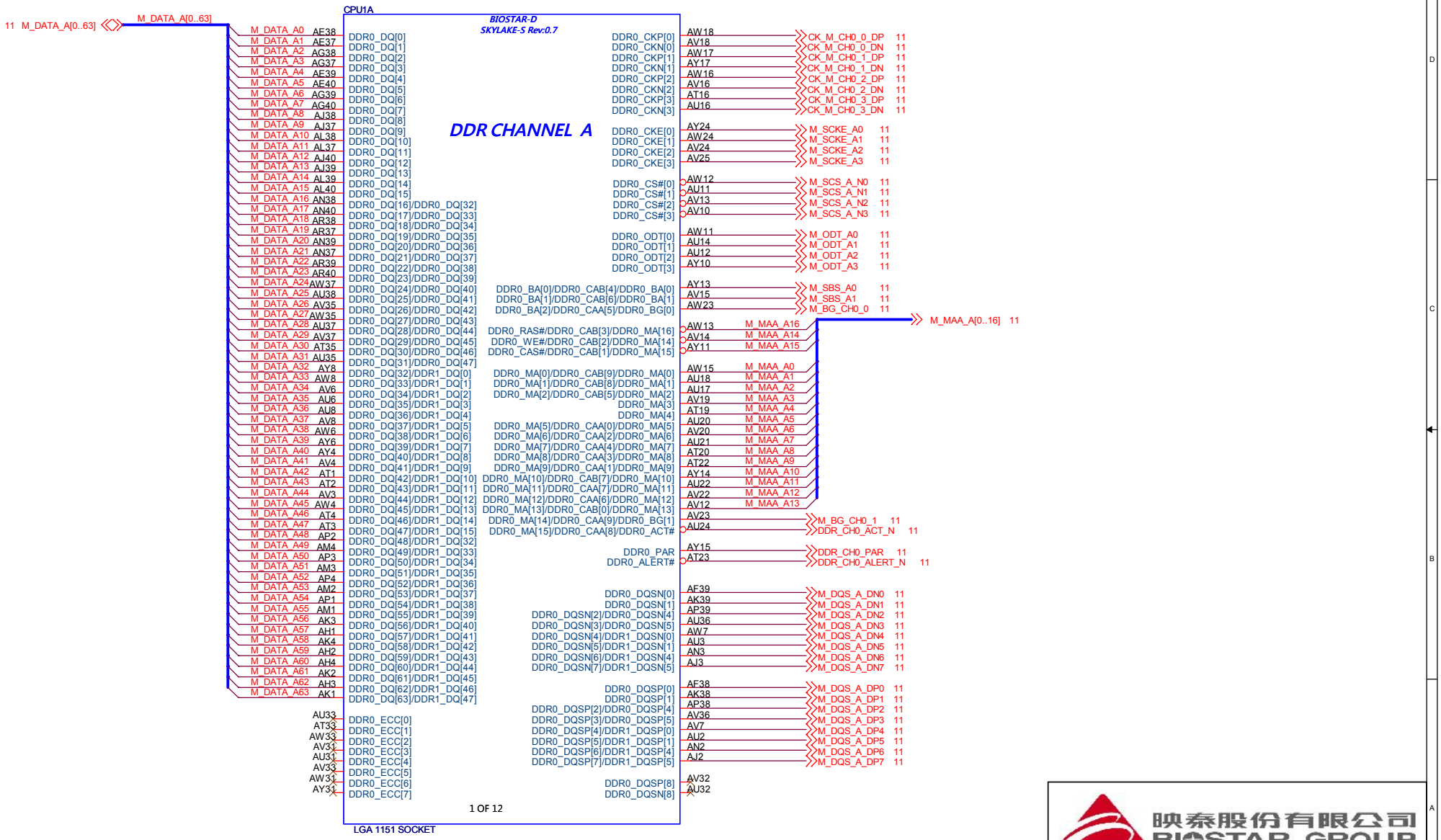


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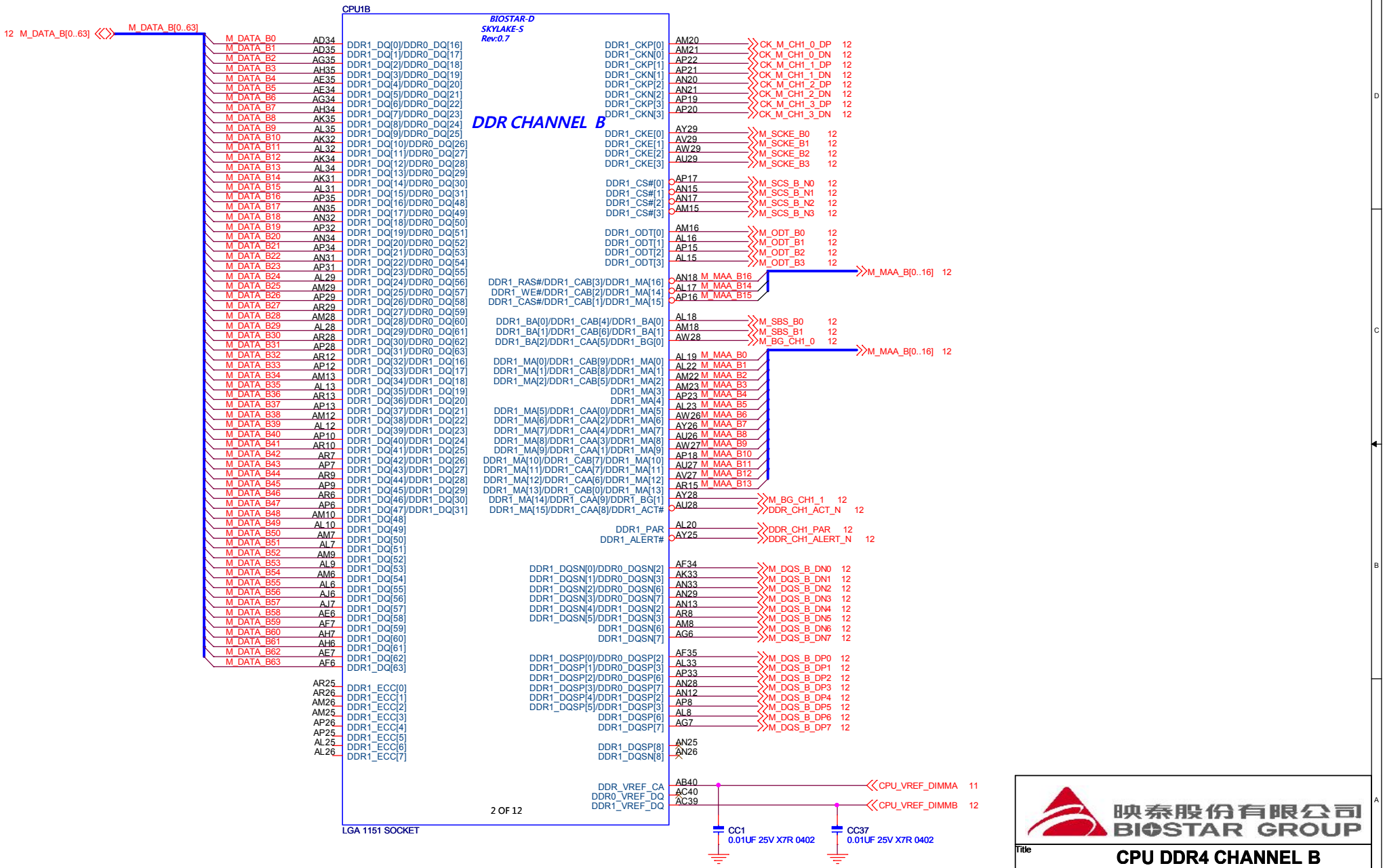
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Title	CPU PCIEX16/DMI/FDI		
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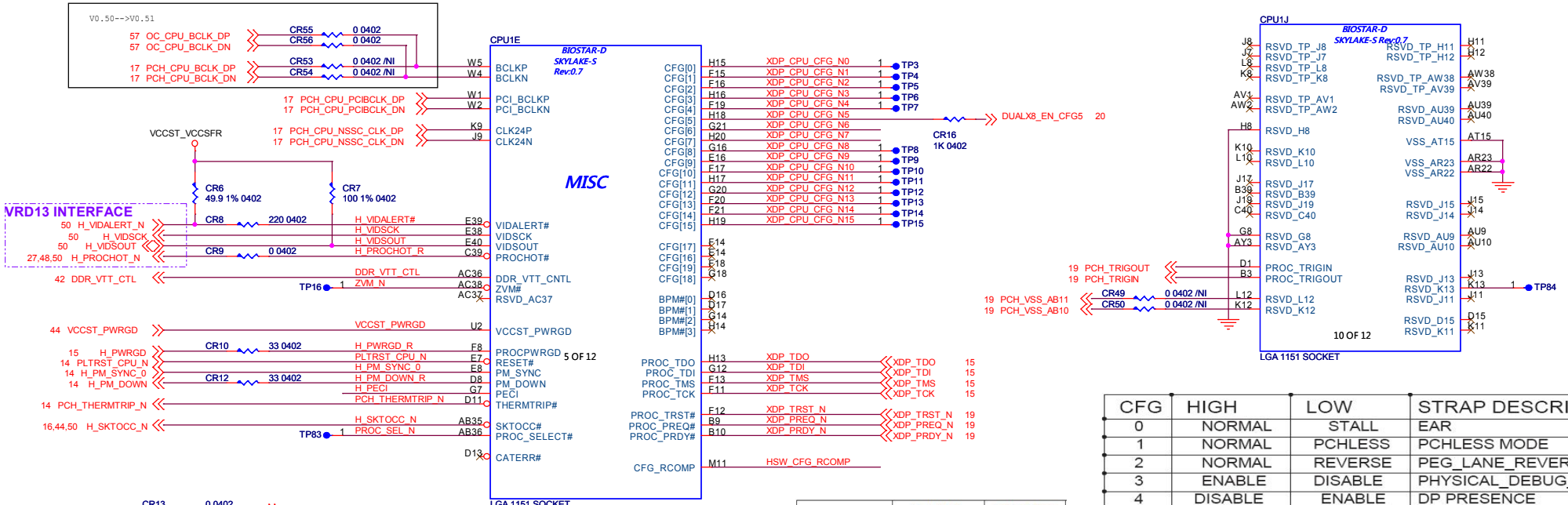
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Title	CPU DDR4 CHANNEL A		
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Title	CPU DDR4 CHANNEL B	
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Bifurcation	Link Width			Config. Signals		
	0:1:0	0:1:1	0:1:2	CFG [6]	CFG [5]	CFG [2]
1x16	x16	N/A	N/A	1	1	1
1x16 **Reversed**	x16	N/A	N/A	1	1	0
2x8	x8	x8	N/A	1	0	1
2x8 **Reversed**	x8	x8	N/A	1	0	0
1x8+2x4	x8	x4	x4	0	0	1
1x8+2x4 **Reversed**	x8	x4	x4	0	0	0

CFG	HIGH	LOW	STRAP DESCRIPTION
0	NORMAL	STALL	EAR
1	NORMAL	PCHLESS	PCHLESS MODE
2	NORMAL	REVERSE	PEG_LANE_REVERSAL
3	ENABLE	DISABLE	PHYSICAL_DEBUG_ENABLE
4	DISABLE	ENABLE	DP PRESENCE
5	DISABLE	ENABLE	PEG0CFGSEL[0]
6	DISABLE	ENABLE	PEG0CFGSEL[1]
7	RESET_N	BIOS REQ	PEG_DEFER_TRAINING
8	DISABLE	ENABLE	CFG UNLOCK
9	PRESENT	NOT PRESENT	SVID NOT PRESENT
10	ACTIVATE	DEACTIVATE	SAFE MODE BOOT
11	DC COUPLED	AC COUPLED	DMI_AC_COUPLED
12	PMSYNC 2.0	LEGACY	PMSYNC LEGACY
13	SYNC	ASYNC	PMSYNC ASYNC MODE
14	RESERVED		
15	RESERVED		

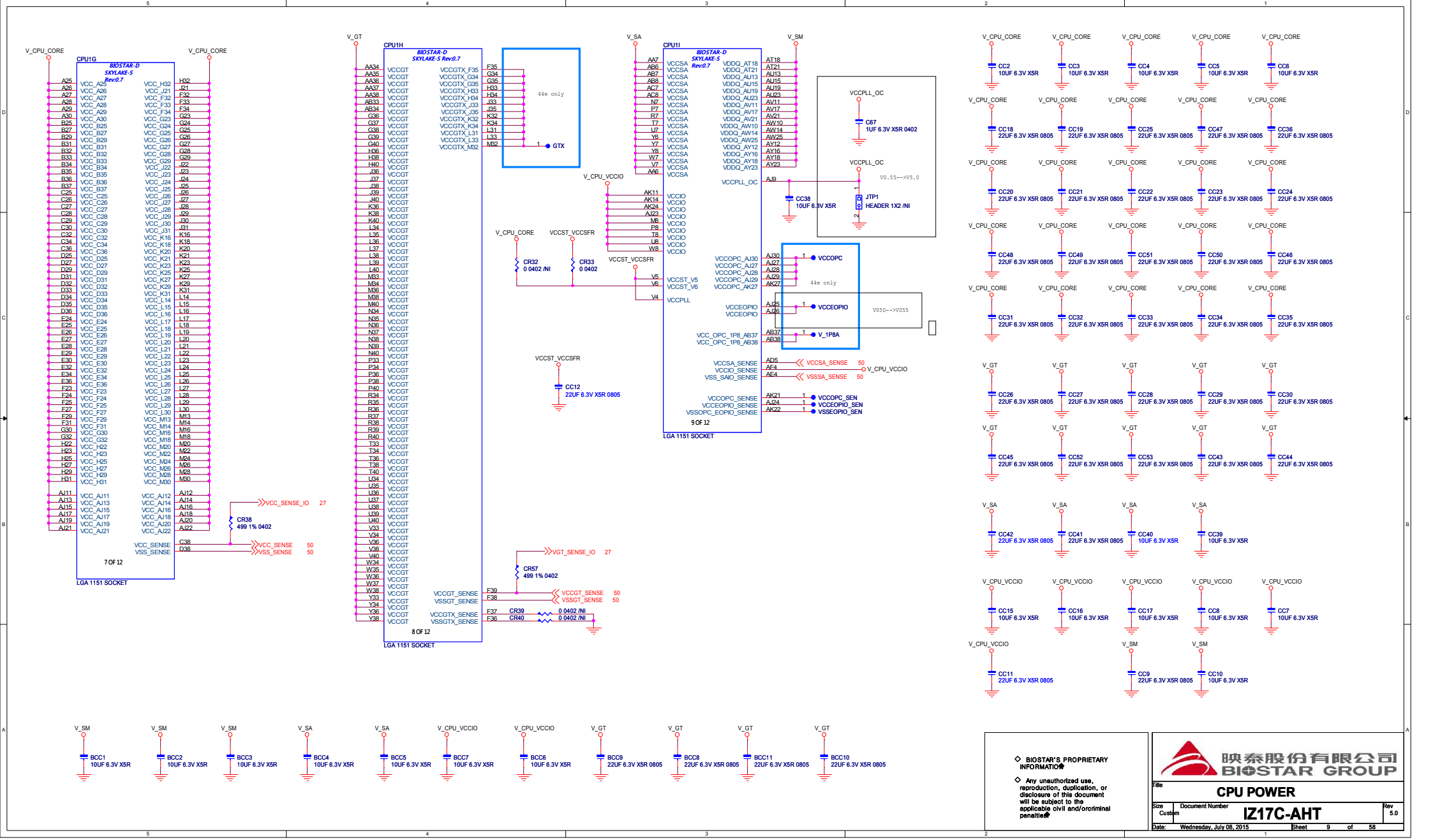
ALL PINS HAVE INTERNAL PULL-UPS

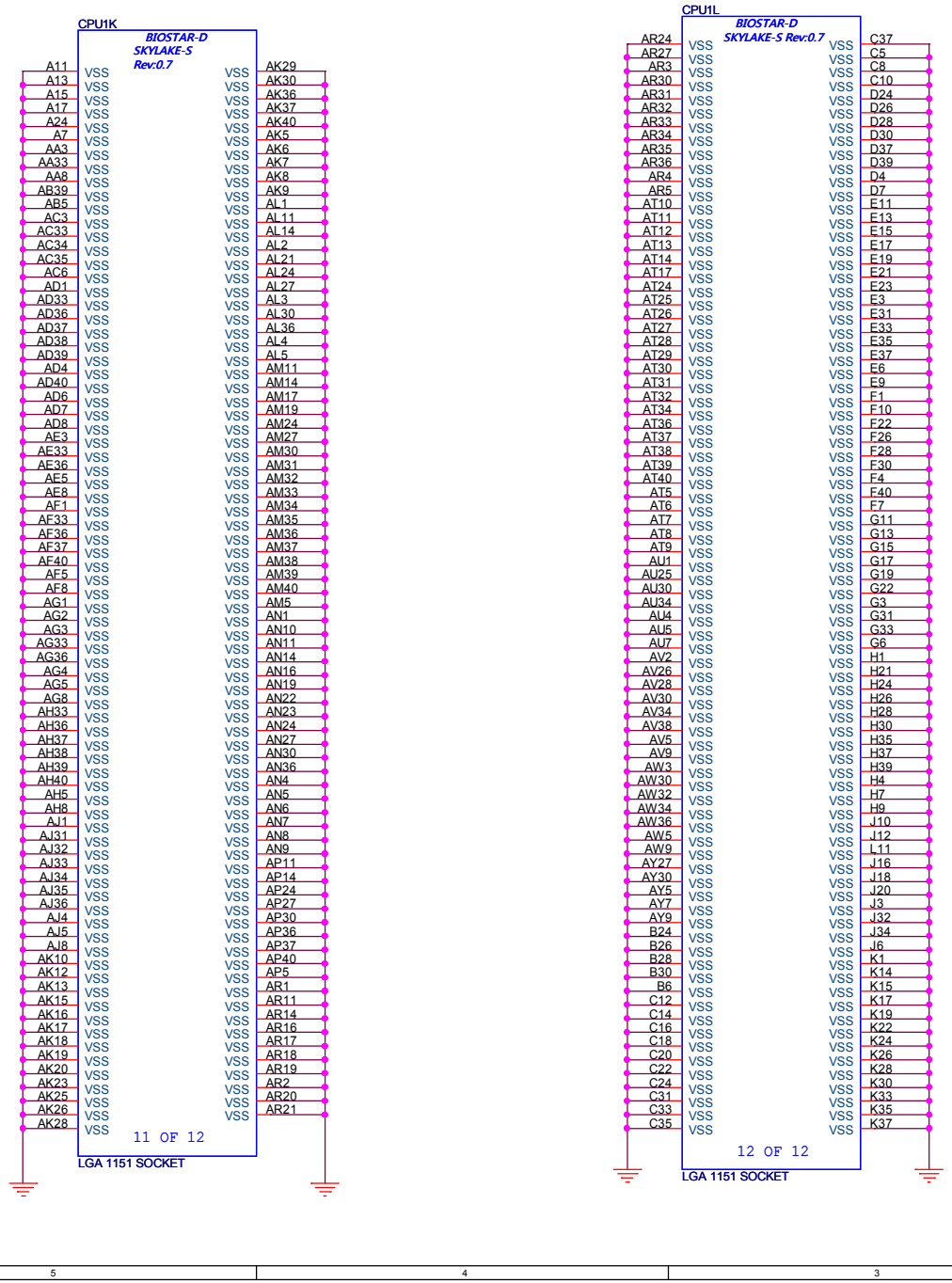
Configuration Signals: The CFG signals have a default value of '1' if not terminated on the board. Refer to the appropriate platform design guide for pull-down recommendations when a logic low is desired.
Intel recommends placing test points on the board for CFG pins.

- **CFG[0]:** Stall reset sequence after PCU PLL lock until de-asserted;
  - 1 = (Default) Normal Operation; No stall.
  - 0 = Stall.
- **CFG[1]:** Reserved configuration lane.
- **CFG[2]:** PCI Express* Static x16 Lane Numbering Reversal.
  - 1 = Normal operation
  - 0 = Lane numbers reversed.
- **CFG[3]:** Reserved configuration lane.
- **CFG[4]:** eDP enable:
  - 1 = Disabled.
  - 0 = Enabled.
- **CFG[6:5]:** PCI Express* Bifurcation
  - 00 = 1 x8, 2 x4 PCI Express*
  - 01 = reserved
  - 10 = 2 x8 PCI Express*
  - 11 = 1 x16 PCI Express*
- **CFG[7]:** PEG Training:
  - 1 = (default) PEG Train immediately following RESET# de assertion.
  - 0 = PEG Wait for BIOS for training.
- **CFG[19:8]:** Reserved configuration lanes.

CFG[19:0]

Title	CPU MISC		
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CPU1G
BIOSTAR-D SKYLAKE-S Rev:0.7
7 OF 12
LGA 1151 SOCKET
V_CPU_CORE
VCC_SENSE_IO
CR38 499 1% 0402
VCC_SENSE
VSS_SENSE
CPU1H
BIOSTAR-D SKYLAKE-S Rev:0.7
8 OF 12
LGA 1151 SOCKET
V_GT
VCCGTX_F35
VCCGTX_G34
VCCGTX_G35
VCCGTX_H33
VCCGTX_H34
VCCGTX_J33
VCCGTX_J35
VCCGTX_K32
VCCGTX_K34
VCCGTX_L31
VCCGTX_L33
VCCGTX_M32
44e only
GTX
VGT_SENSE_IO
CR57 499 1% 0402
VCCGT_SENSE
VSSGT_SENSE
VCCGTX_SENSE
VSSGTX_SENSE
CR39 0 0402 /NI
CR40 0 0402 /NI
V_CPU_VCCIO
CR32 0 0402 /NI
CR33 0 0402
VCCST_VCCSFR
CC12 22UF 6.3V X5R 0805
CPU1I
BIOSTAR-D SKYLAKE-S Rev:0.7
9 OF 12
LGA 1151 SOCKET
V_SA
V_SM
VCCPLL_OC
CC67 1UF 6.3V X5R 0402
CC38 10UF 6.3V X5R
JTP1 HEADER 1X2 /NI
V0.55-->V5.0
VCCOPC
VCCEOPIO
V_1P8A
V050-->V055
VCCSA_SENSE
VCCIO_SENSE
VSS_SAIO_SENSE
VCCOPC_SEN
VCCEOPIO_SEN
VSSEOPIO_SEN
BCC1 10UF 6.3V X5R
BCC2 10UF 6.3V X5R
BCC3 10UF 6.3V X5R
BCC4 10UF 6.3V X5R
BCC5 10UF 6.3V X5R
BCC7 10UF 6.3V X5R
BCC6 10UF 6.3V X5R
BCC9 22UF 6.3V X5R 0805
BCC8 22UF 6.3V X5R 0805
BCC11 22UF 6.3V X5R 0805
BCC10 22UF 6.3V X5R 0805
CC2 10UF 6.3V X5R
CC3 10UF 6.3V X5R
CC4 10UF 6.3V X5R
CC5 10UF 6.3V X5R
CC6 10UF 6.3V X5R
CC18 22UF 6.3V X5R 0805
CC19 22UF 6.3V X5R 0805
CC25 22UF 6.3V X5R 0805
CC47 22UF 6.3V X5R 0805
CC36 22UF 6.3V X5R 0805
CC20 22UF 6.3V X5R 0805
CC21 22UF 6.3V X5R 0805
CC22 22UF 6.3V X5R 0805
CC23 22UF 6.3V X5R 0805
CC24 22UF 6.3V X5R 0805
CC48 22UF 6.3V X5R 0805
CC49 22UF 6.3V X5R 0805
CC51 22UF 6.3V X5R 0805
CC50 22UF 6.3V X5R 0805
CC46 22UF 6.3V X5R 0805
CC31 22UF 6.3V X5R 0805
CC32 22UF 6.3V X5R 0805
CC33 22UF 6.3V X5R 0805
CC34 22UF 6.3V X5R 0805
CC35 22UF 6.3V X5R 0805
CC26 22UF 6.3V X5R 0805
CC27 22UF 6.3V X5R 0805
CC28 22UF 6.3V X5R 0805
CC29 22UF 6.3V X5R 0805
CC30 22UF 6.3V X5R 0805
CC45 22UF 6.3V X5R 0805
CC52 22UF 6.3V X5R 0805
CC53 22UF 6.3V X5R 0805
CC43 22UF 6.3V X5R 0805
CC44 22UF 6.3V X5R 0805
CC42 22UF 6.3V X5R 0805
CC41 22UF 6.3V X5R 0805
CC40 10UF 6.3V X5R
CC39 10UF 6.3V X5R
CC15 10UF 6.3V X5R
CC16 10UF 6.3V X5R
CC17 10UF 6.3V X5R
CC8 10UF 6.3V X5R
CC7 10UF 6.3V X5R
CC11 22UF 6.3V X5R 0805
CC9 22UF 6.3V X5R 0805
CC10 10UF 6.3V X5R
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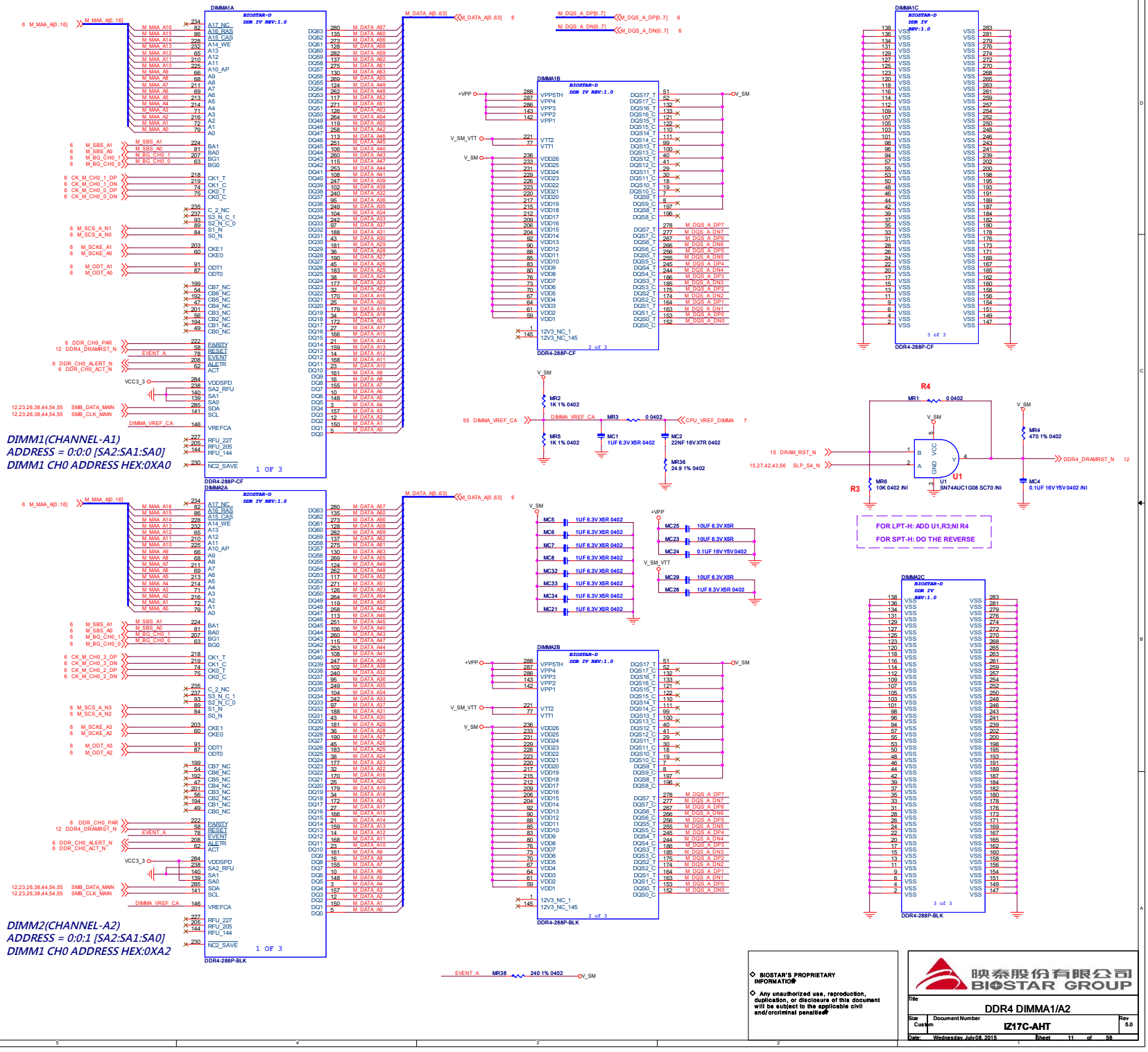
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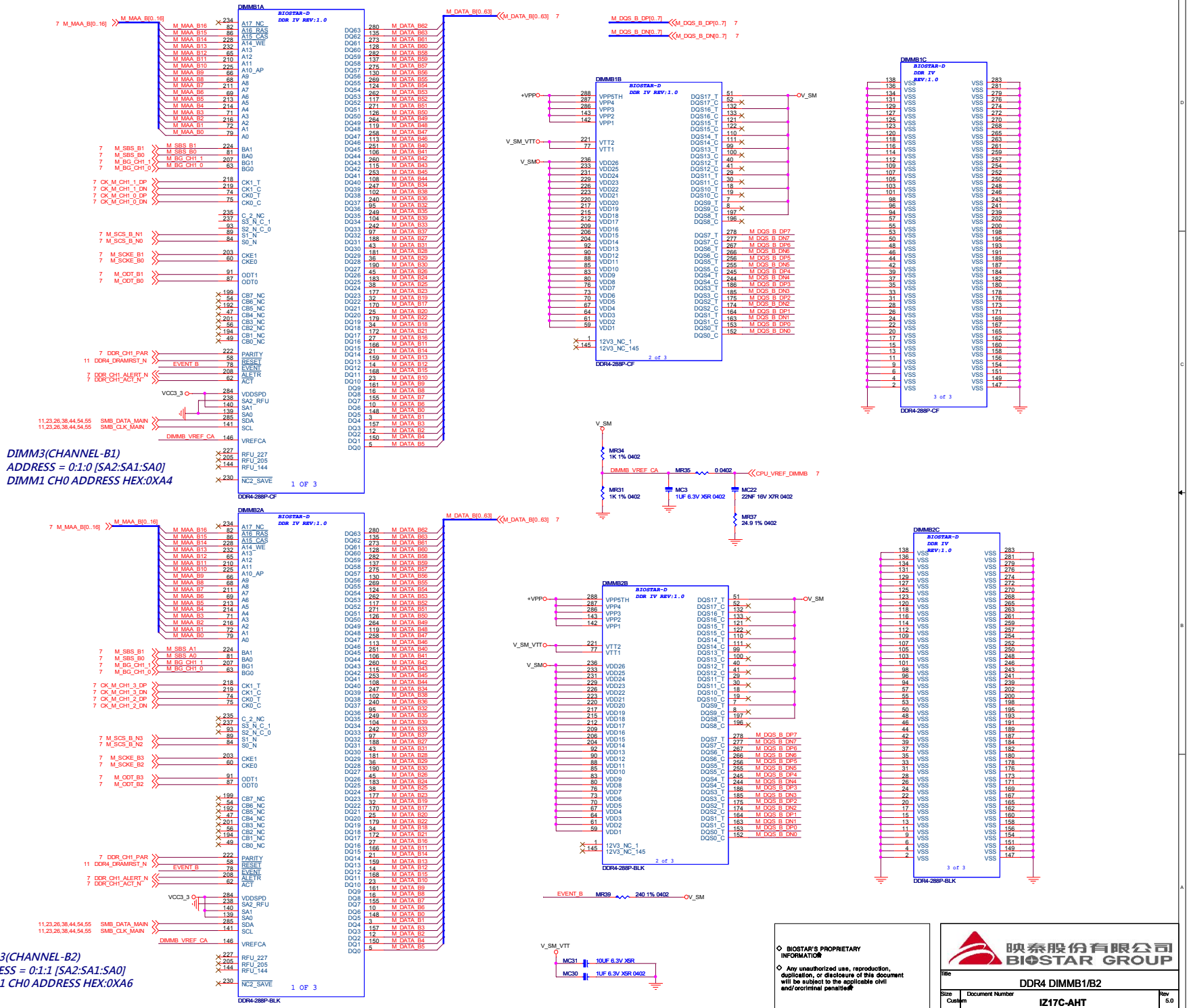
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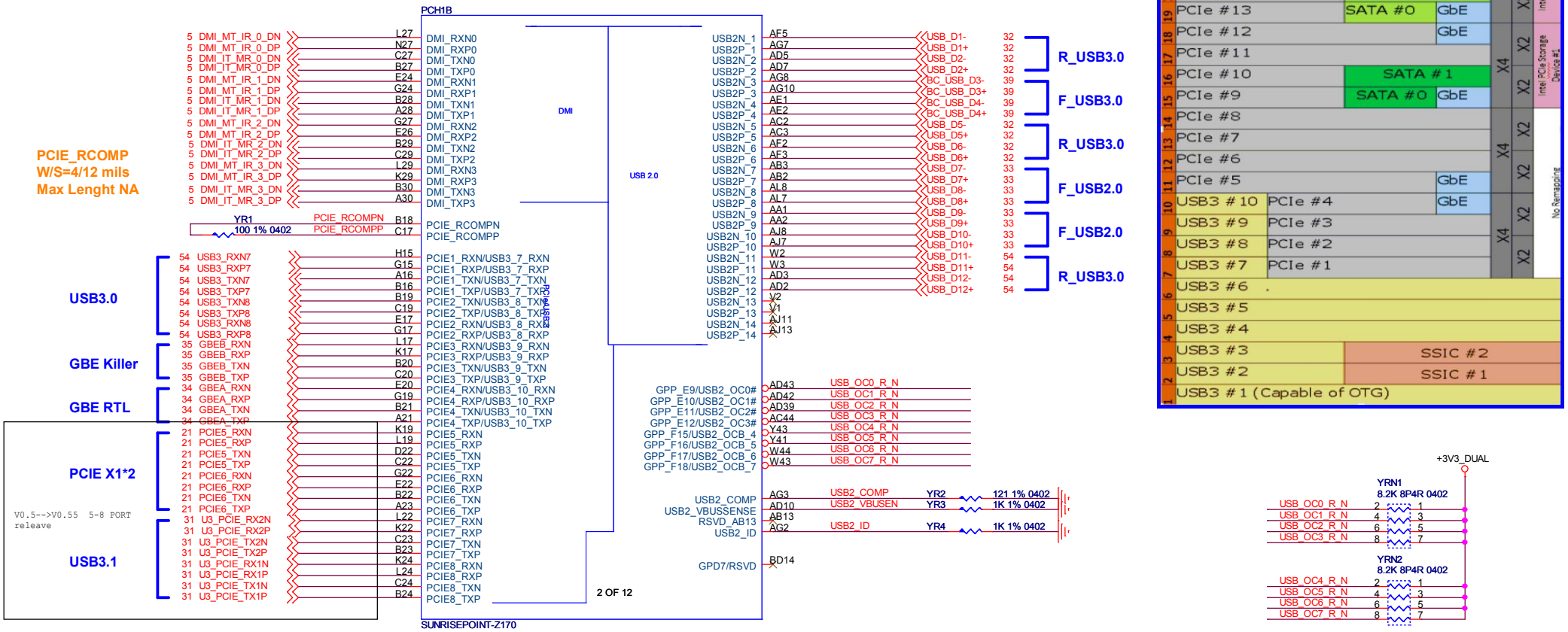
Title: DDR4 DIMMA1/A2

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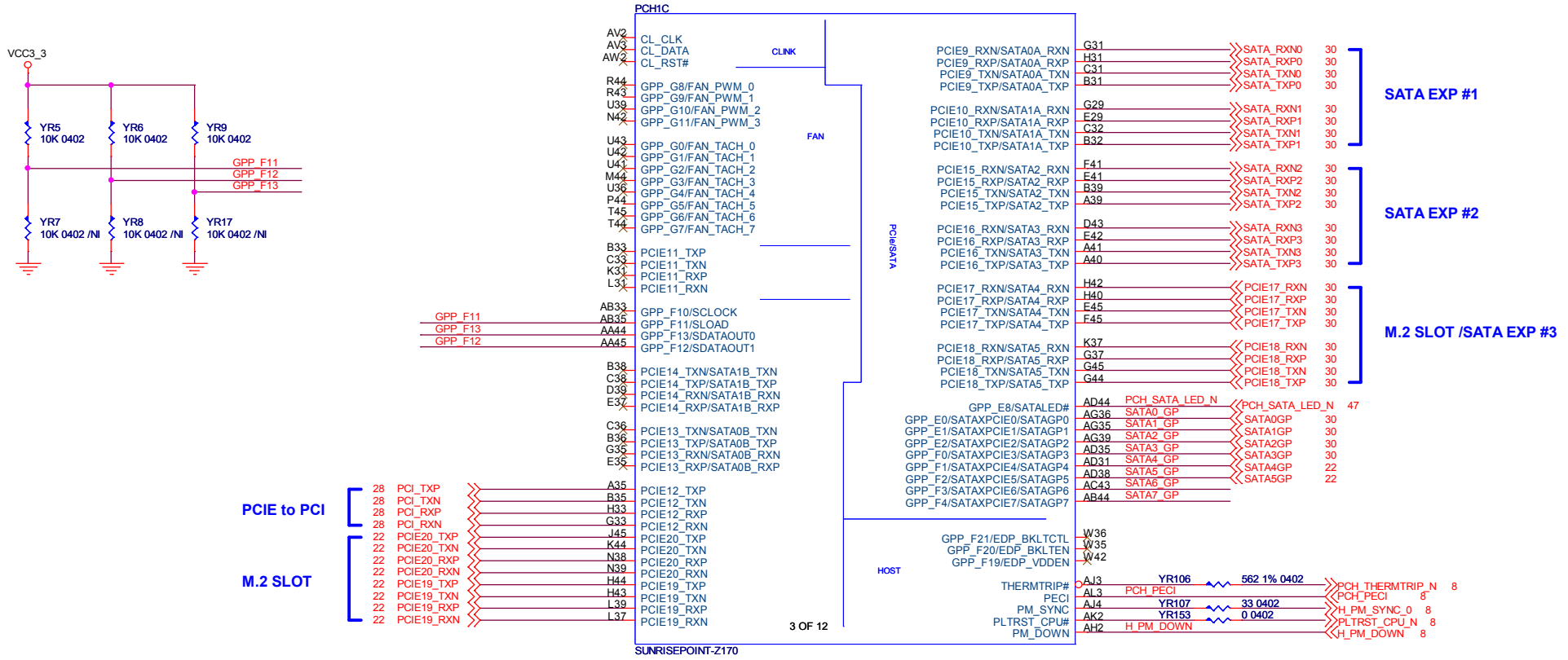

DIMM1A
DIMM1B
DIMM1C
DIMM2A
DIMM2B
DIMM2C
BIOSTAR-D DDR IV REV:1.0
DDR4-288P-CF
DDR4-288P-BLK
1 OF 3
2 of 3
3 of 3
M_DATA_B[0..63]
M_DQS_B_DP[0..7]
M_DQS_B_DN[0..7]
M_MAA_B[0..16]
DIMM3(CHANNEL-B1)
ADDRESS = 0:1:0 [SA2:SA1:SA0]
DIMM1 CH0 ADDRESS HEX:0XA4
DIMM3(CHANNEL-B2)
ADDRESS = 0:1:1 [SA2:SA1:SA0]
DIMM1 CH0 ADDRESS HEX:0XA6
MR34 1K 1% 0402
MR35 0 0402
MR31 1K 1% 0402
MC3 1UF 6.3V X5R 0402
MC22 22NF 16V X7R 0402
MR37 24.9 1% 0402
MR39 240 1% 0402
MC31 10UF 6.3V X5R
MC30 1UF 6.3V X5R 0402
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DDR4 DIMMB1/B2
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PCH PART: Y+Reference

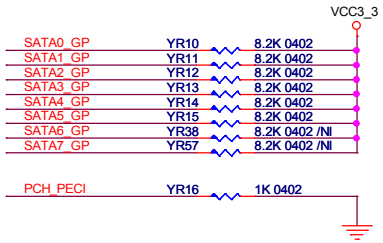


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Title: PCH DMI/PCIE/USB		
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PCH PART: Y+Reference



GbE can be mapped into one of the PCIe Ports 4-5, Port 9, and Ports 12-13.



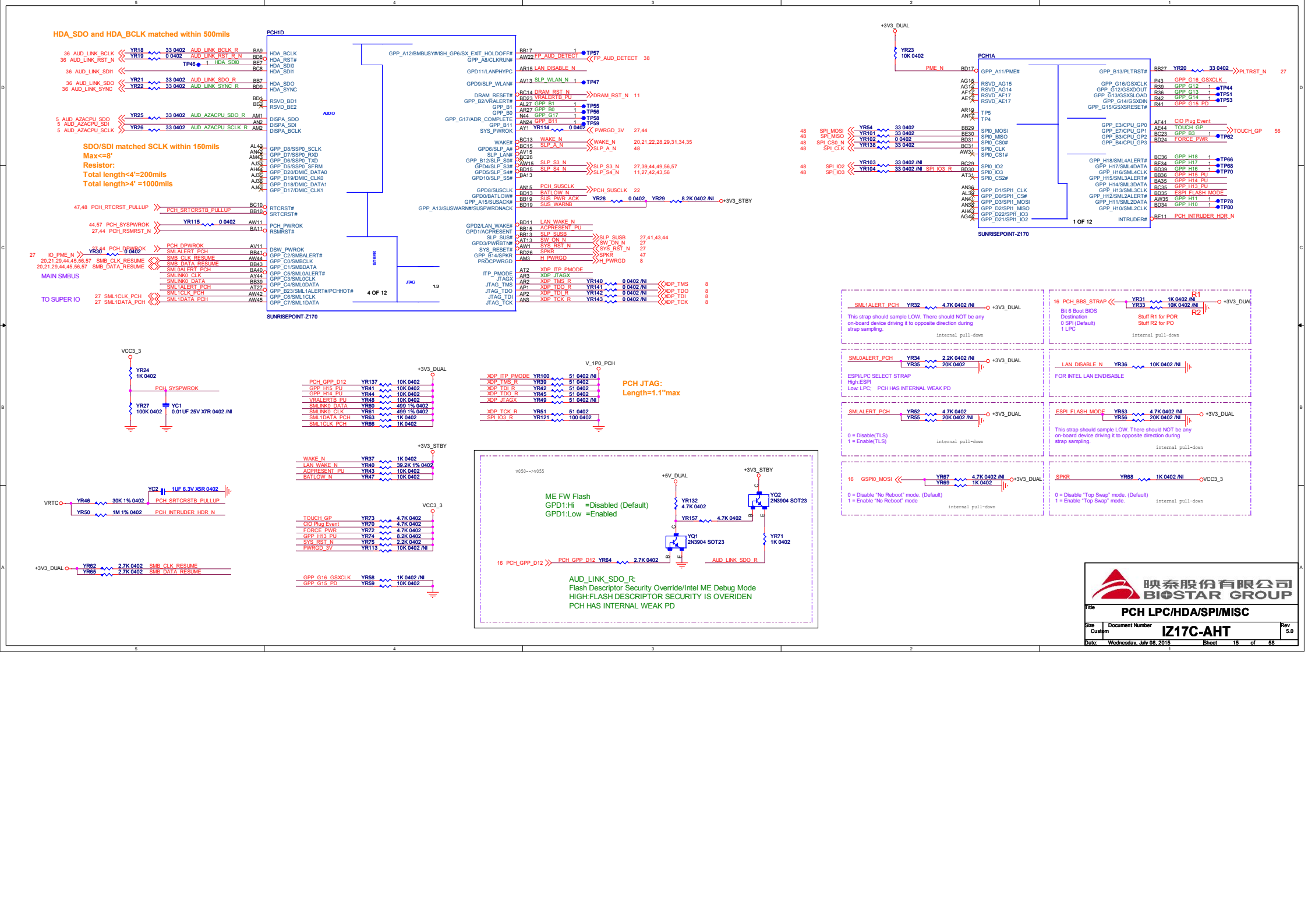
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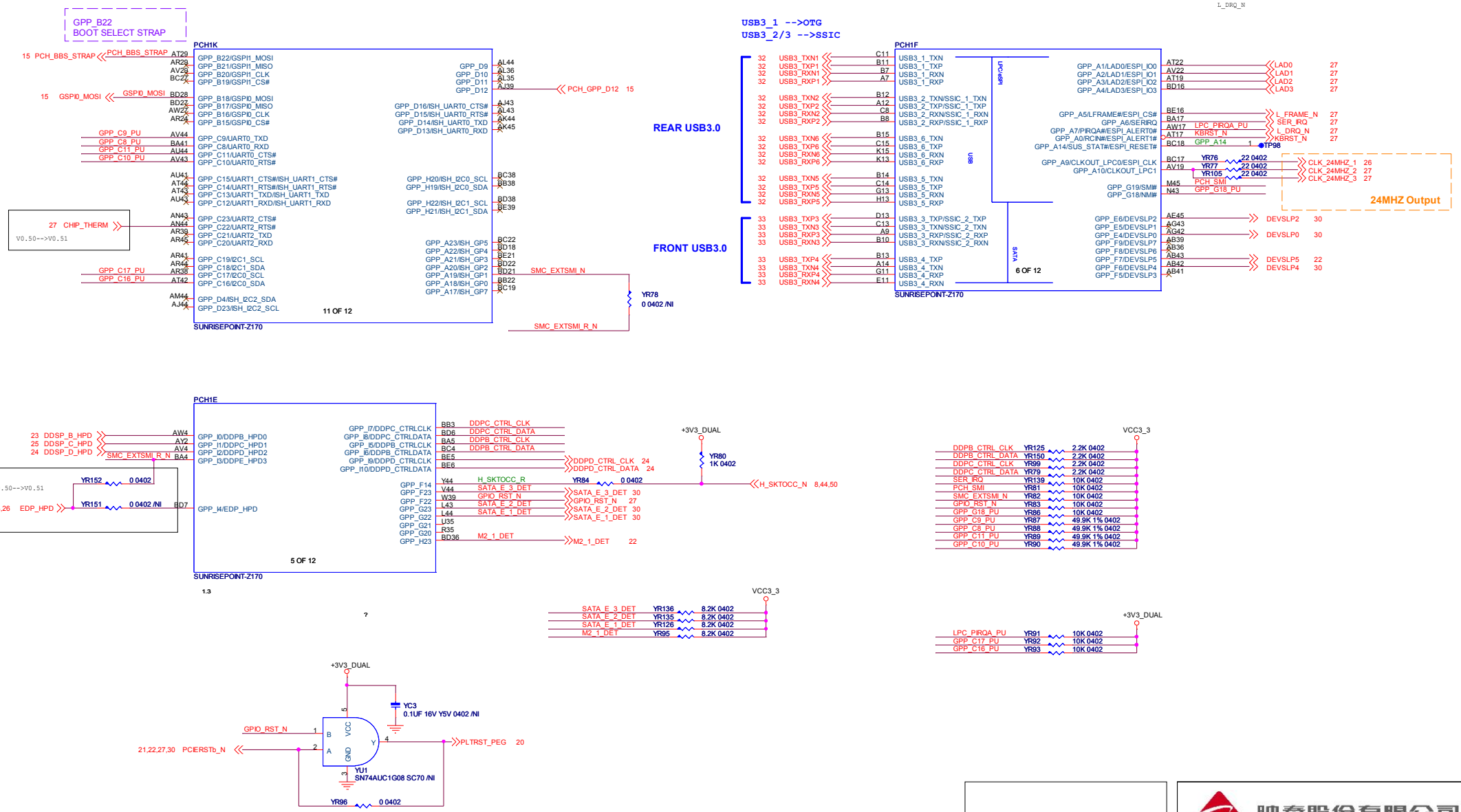
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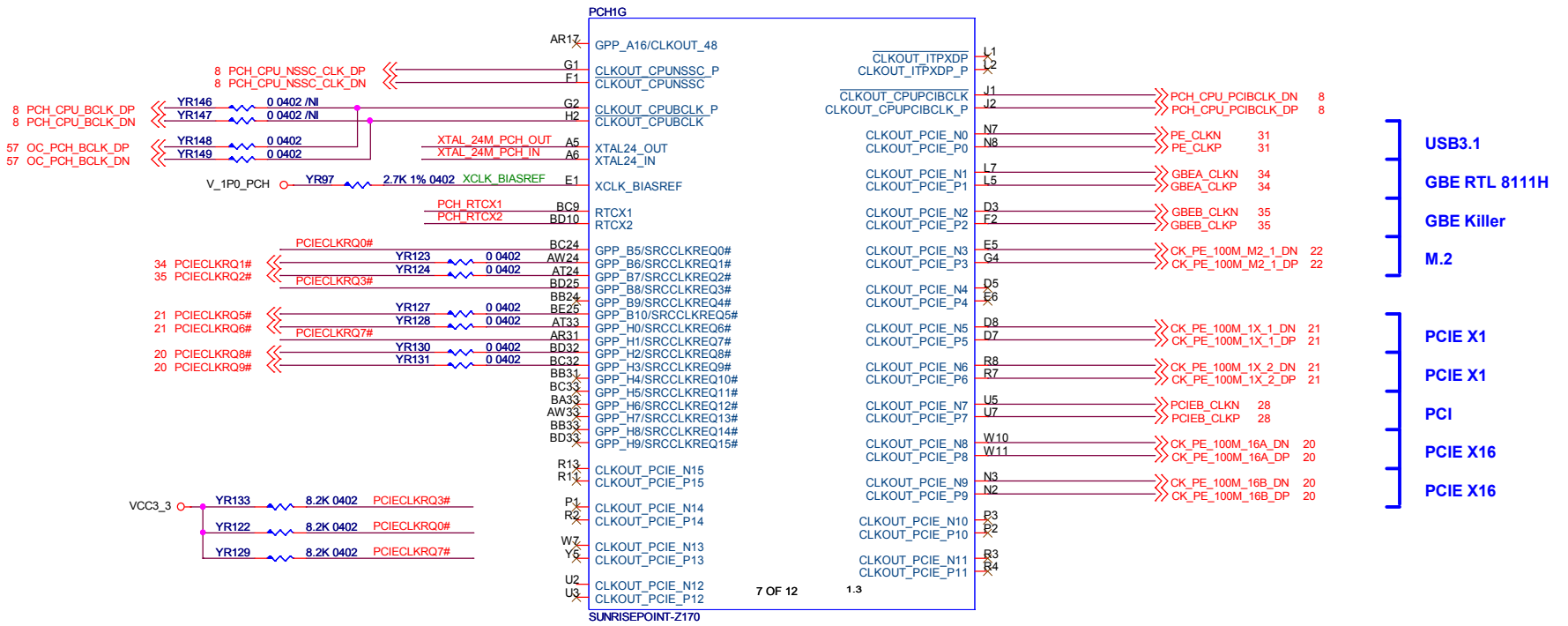
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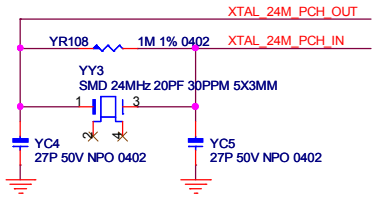

HDA_SDO and HDA_BCLK matched within 500mils
SDO/SDI matched SCLK within 150mils
Max<=8'
Resistor:
Total length<4'=200mils
Total length>4' =1000mils
MAIN SMBUS
TO SUPER IO
PCH1D
SUNRISEPOINT-Z170
4 OF 12
PCH1A
1 OF 12
PCH JTAG:
Length=1.1"max
ME FW Flash
GPD1:Hi =Disabled (Default)
GPD1:Low =Enabled
AUD_LINK_SDO_R:
Flash Descriptor Security Override/Intel ME Debug Mode
HIGH:FLASH DESCRIPTOR SECURITY IS OVERIDEN
PCH HAS INTERNAL WEAK PD
This strap should sample LOW. There should NOT be any on-board device driving it to opposite direction during strap sampling.
Bit 6 Boot BIOS Destination
0 SPI (Default)
1 LPC
Stuff R1 for POR
Stuff R2 for PO
FOR INTEL LAN ENDISABLE
ESPI/LPC SELECT STRAP
High:ESPI
Low: LPC; PCH HAS INTERNAL WEAK PD
0 = Disable(TLS)
1 = Enable(TLS)
0 = Disable "No Reboot" mode. (Default)
1 = Enable "No Reboot" mode
0 = Disable "Top Swap" mode. (Default)
1 = Enable "Top Swap" mode.
internal pull-down
Title
PCH LPC/HDA/SPI/MISC
Size
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PCH PART: Y+Reference

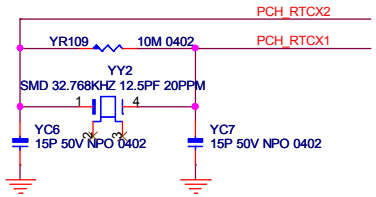




24MHZ CRYSTAL

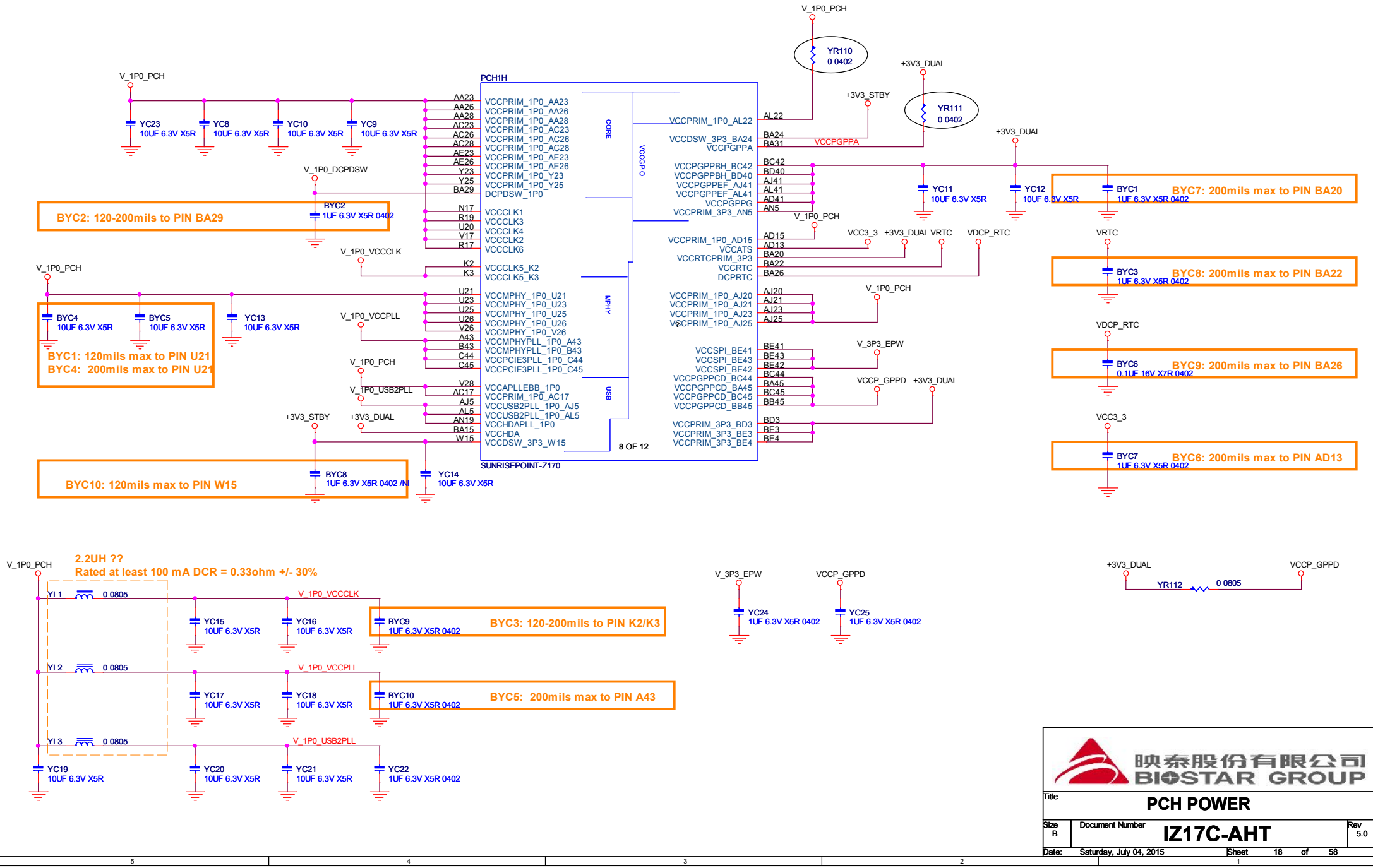


RTC CRYSTAL

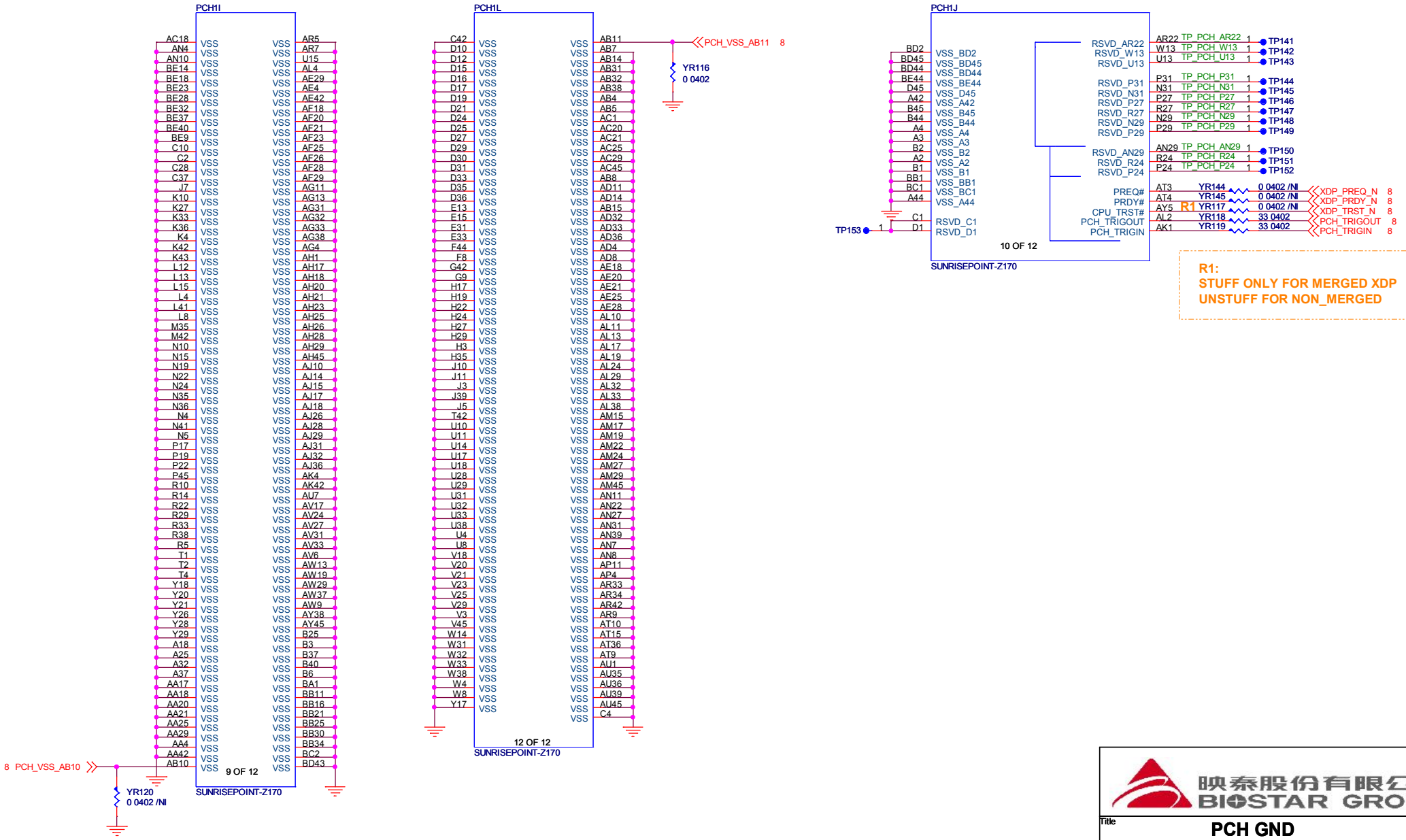


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Title	PCH CLOCK BUFFER		
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R1:
STUFF ONLY FOR MERGED XDP
UNSTUFF FOR NON_MERGED

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Title	PCH GND	
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SLOT PART: E+Reference

PCIE X16_1 PCIE3.0

PCIE X16_2 PCIE3.0

Value:180 nF - 265 nF

450 mils max to connector pin

PCIEX16-164P-CF-AIR SHORT

PCIEX16-164P-CF-AIR SHORT

ASM1480 TQFN42

ASM1480 TQFN42

ASM1480 TQFN42

ASM1480 TQFN42

CFG[6:5] PEX bifurcation
-00 1*8+2*4;
-01 RSVD;
-10 2*8;
-11 1*16

Notes:
IF 16C exist,
16C:4X,16B:4X,16A:8X,
IF 16B exist
16A exist, 2*8

H:PCI-E 1X16 Mode
L:PCI-E 2X8 Mode

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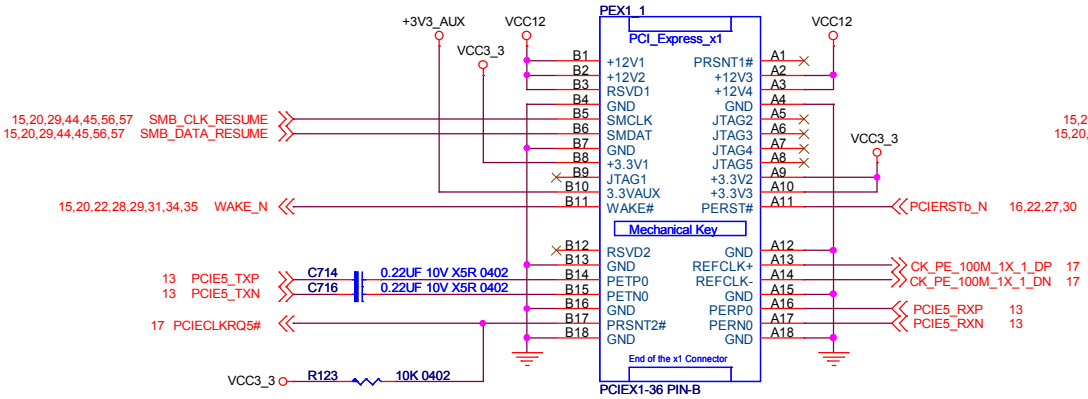
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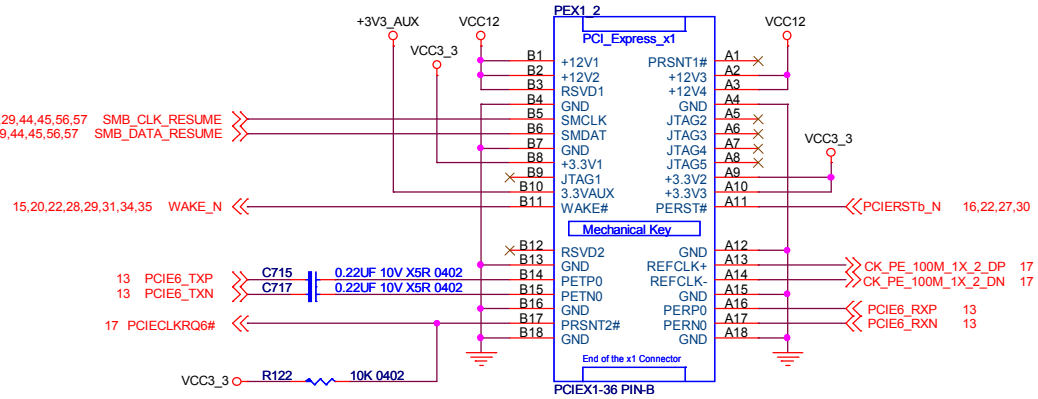
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Title: PCIEX16 SLOT 1 & 2

Size: Custom | Document Number: IZ17C-AHT | Rev: 5.0

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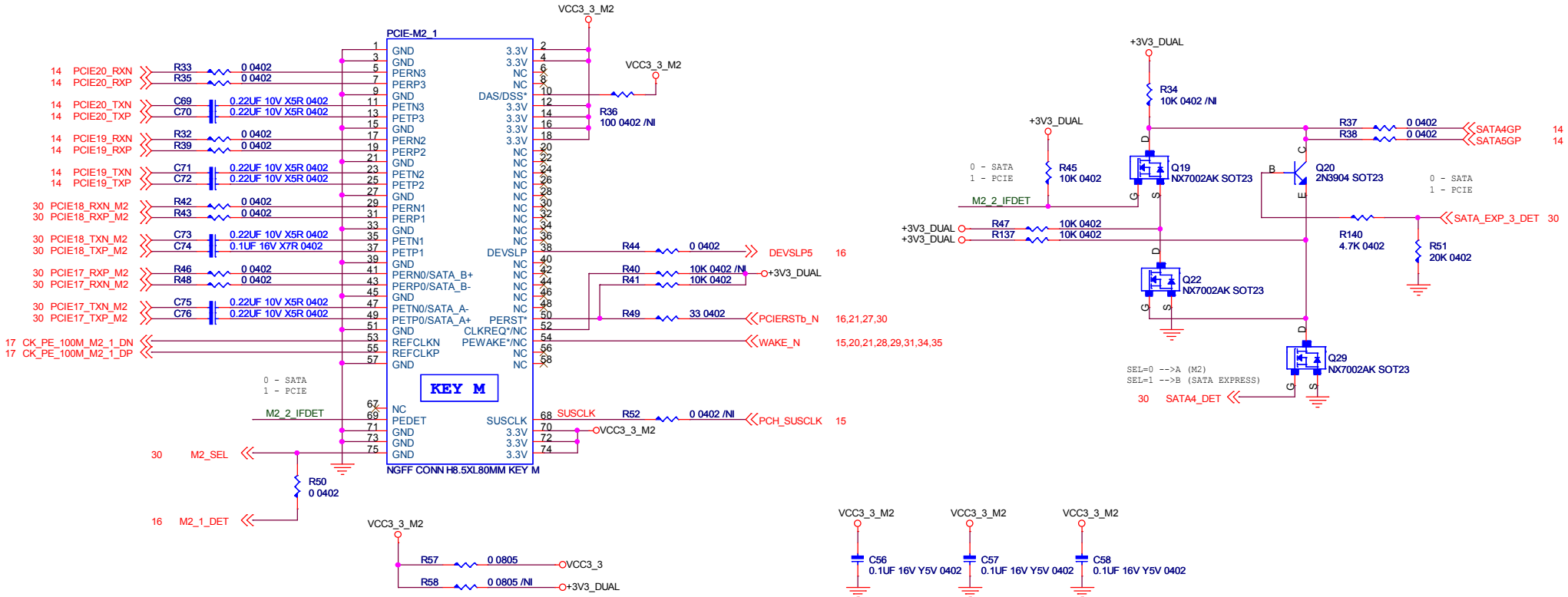
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Title: PCIEX1 SOLT1 & 2

Size: B | Document Number: IZ17C-AHT | Rev: 5.0

Date: Wednesday, July 08, 2015 | Sheet 21 of 58

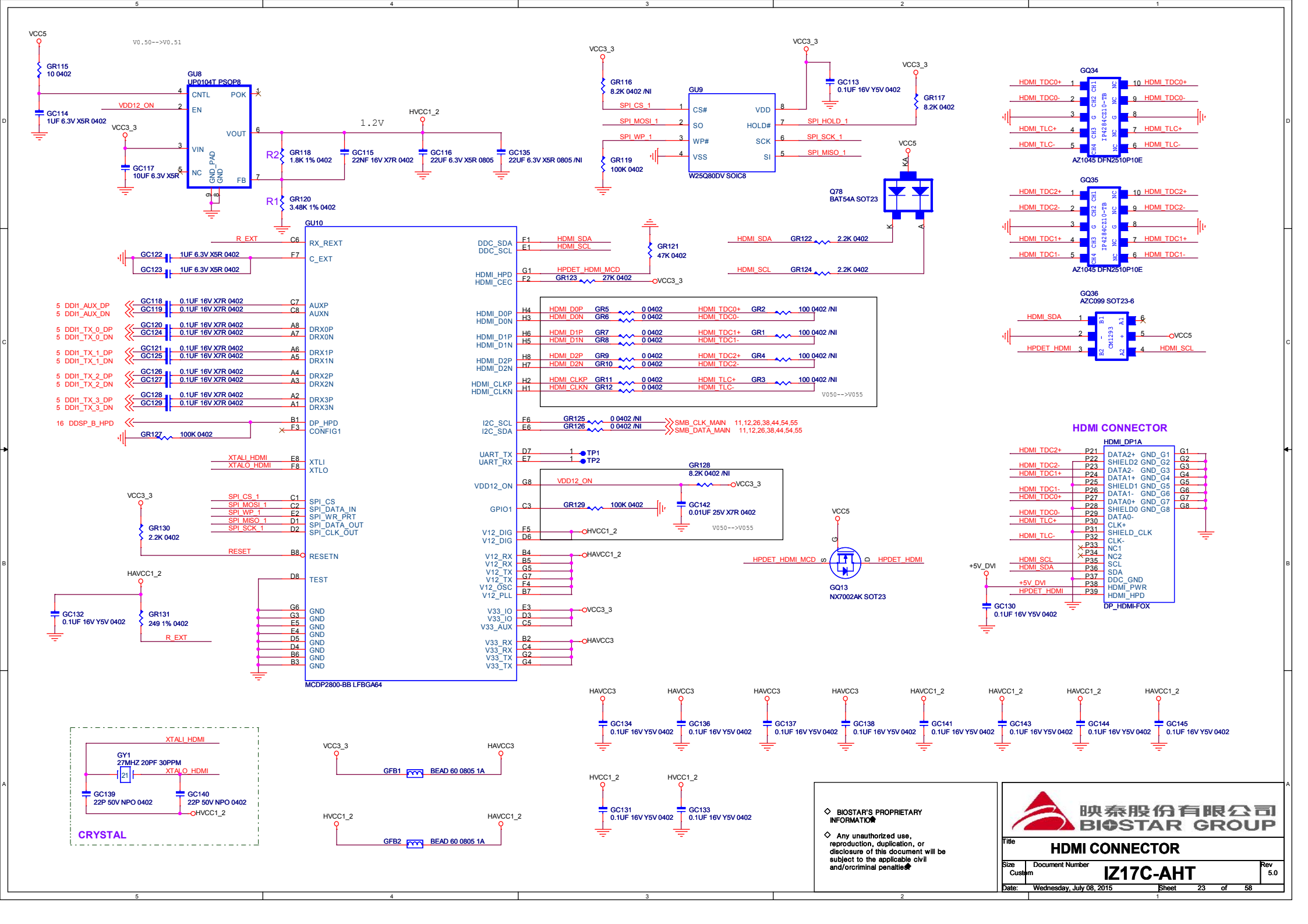


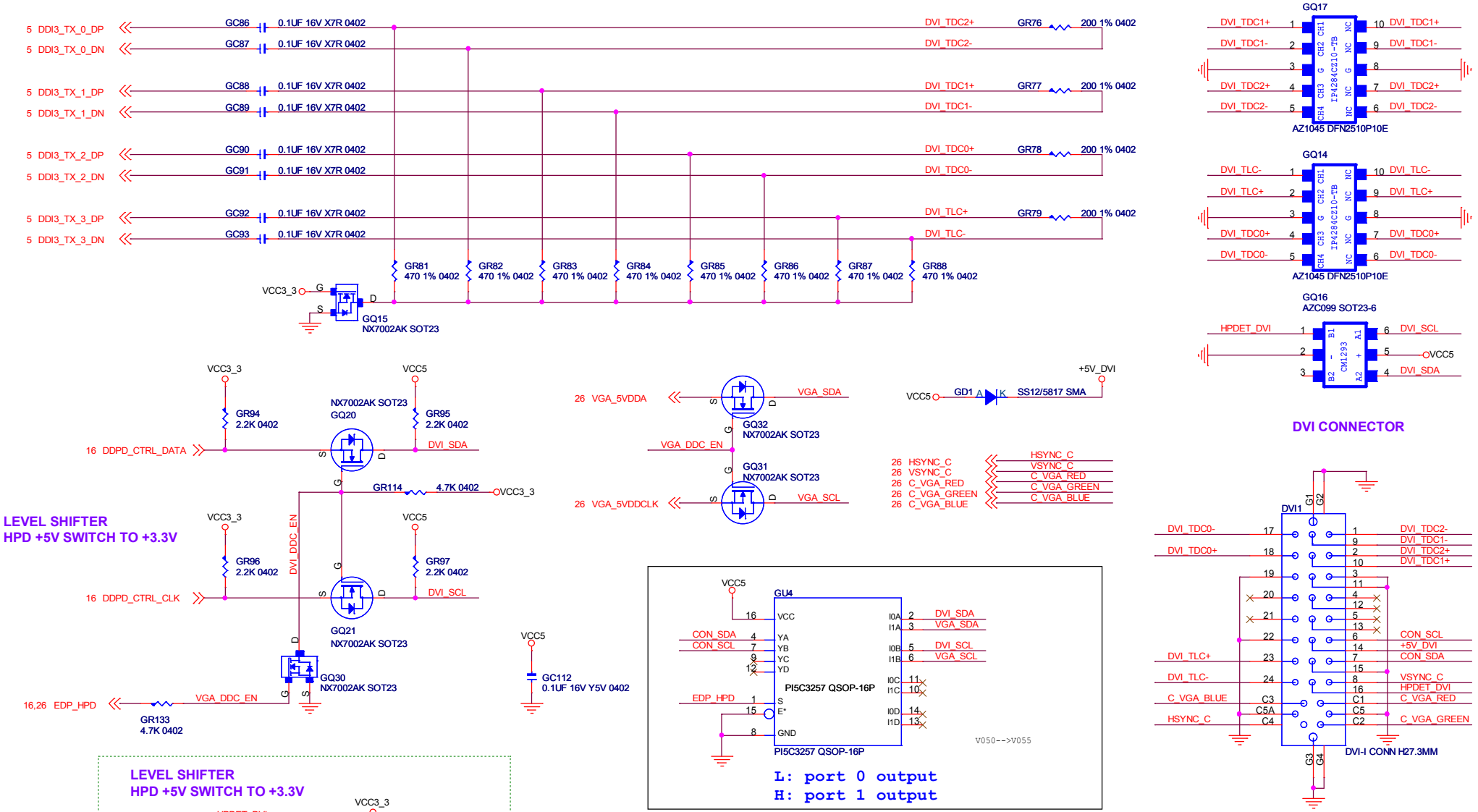
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Title	PCIE M2		
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V0.50-->V0.51
GU8
UP0104T PSOP8
GR115 10 0402
GC114 1UF 6.3V X5R 0402
GC117 10UF 6.3V X5R
GR118 1.8K 1% 0402
GC115 22NF 16V X7R 0402
GC116 22UF 6.3V X5R 0805
GC135 22UF 6.3V X5R 0805 /NI
GR120 3.48K 1% 0402
1.2V
GU10
MCDP2800-BB LFBGA64
GR116 8.2K 0402 /NI
GR119 100K 0402
GU9
W25Q80DV SOIC8
GC113 0.1UF 16V Y5V 0402
GR117 8.2K 0402
Q78 BAT54A SOT23
GR121 47K 0402
GR122 2.2K 0402
GR124 2.2K 0402
GQ34
AZ1045 DFN2510P10E
GQ35
AZ1045 DFN2510P10E
GQ36 AZC099 SOT23-6
HDMI CONNECTOR
DP_HDMI-FOX
GQ13 NX7002AK SOT23
GR128 8.2K 0402 /NI
GR129 100K 0402
GC142 0.01UF 25V X7R 0402
GR130 2.2K 0402
GR131 249 1% 0402
GC132 0.1UF 16V Y5V 0402
GC130 0.1UF 16V Y5V 0402
GY1 27MHZ 20PF 30PPM
GC139 22P 50V NPO 0402
GC140 22P 50V NPO 0402
CRYSTAL
GFB1 BEAD 60 0805 1A
GFB2 BEAD 60 0805 1A
GC134 0.1UF 16V Y5V 0402
GC136 0.1UF 16V Y5V 0402
GC137 0.1UF 16V Y5V 0402
GC138 0.1UF 16V Y5V 0402
GC141 0.1UF 16V Y5V 0402
GC143 0.1UF 16V Y5V 0402
GC144 0.1UF 16V Y5V 0402
GC145 0.1UF 16V Y5V 0402
GC131 0.1UF 16V Y5V 0402
GC133 0.1UF 16V Y5V 0402
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Title HDMI CONNECTOR
Size Custom
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Date: Wednesday, July 08, 2015
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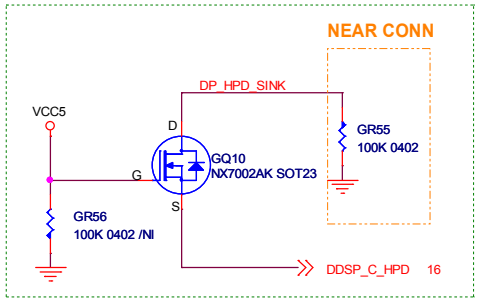
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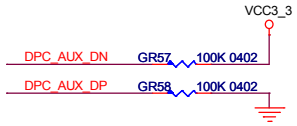
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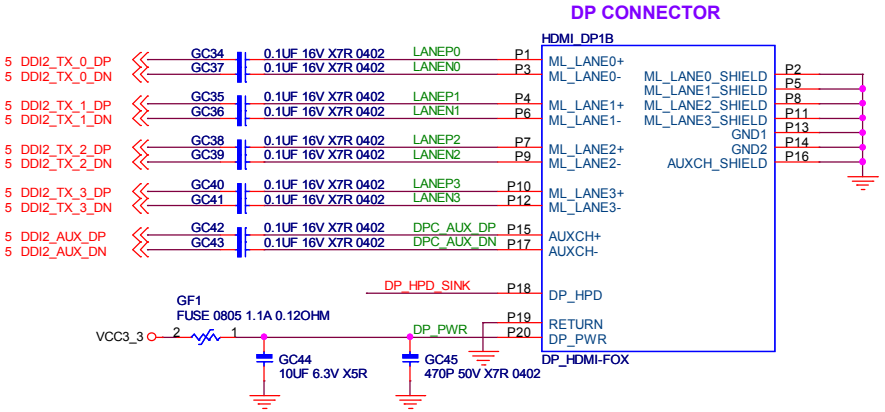
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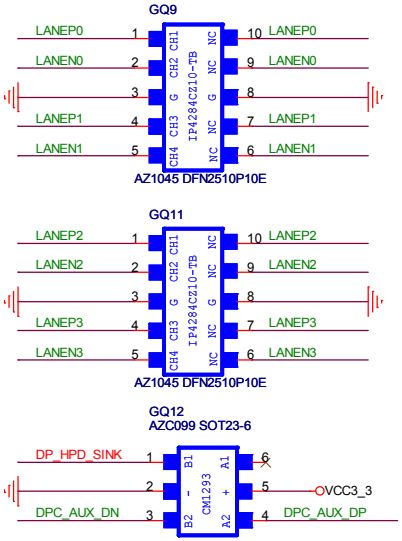
Title	DVI CONNECTOR		
Size B	Document Number	IZ17C-AHT	Rev 5.0
Date: Wednesday, July 08, 2015	Sheet 24 of 58		

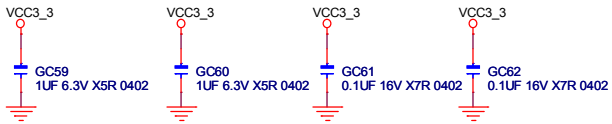
DP









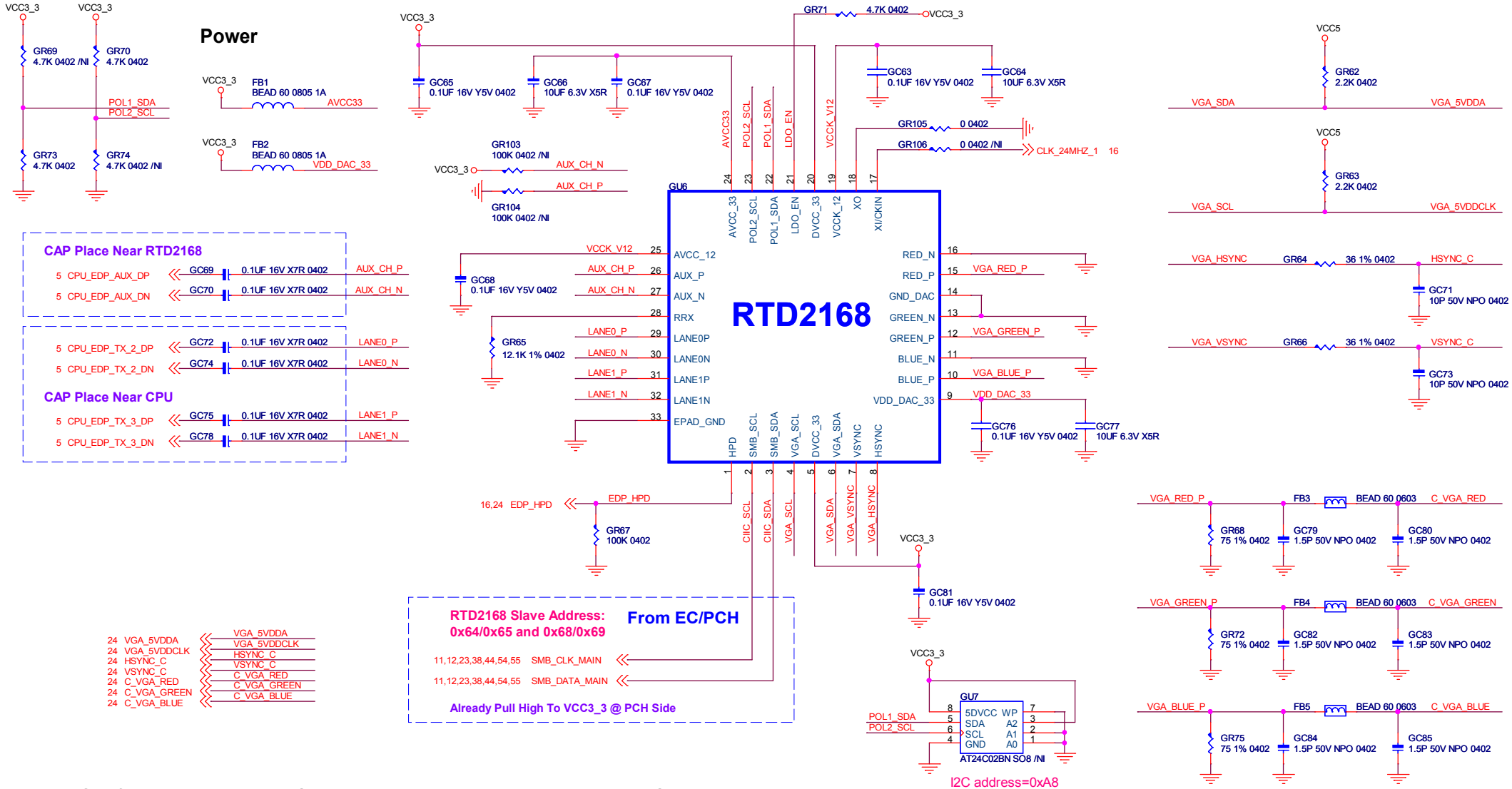


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Mode Configure Table(Power On Latch)

		POL1_SDA(PIN22)	
		0	1
POL2_SCL(PIN23)	0	X	EP MODE
	1	**ROM ONLY MODE**	EEPROM MODE

Embedded LDO

LDO_EN(PIN21)	
0	1
VCCK_V12 from External 1.2V	**VCCK_V12 from Embedded LDO**

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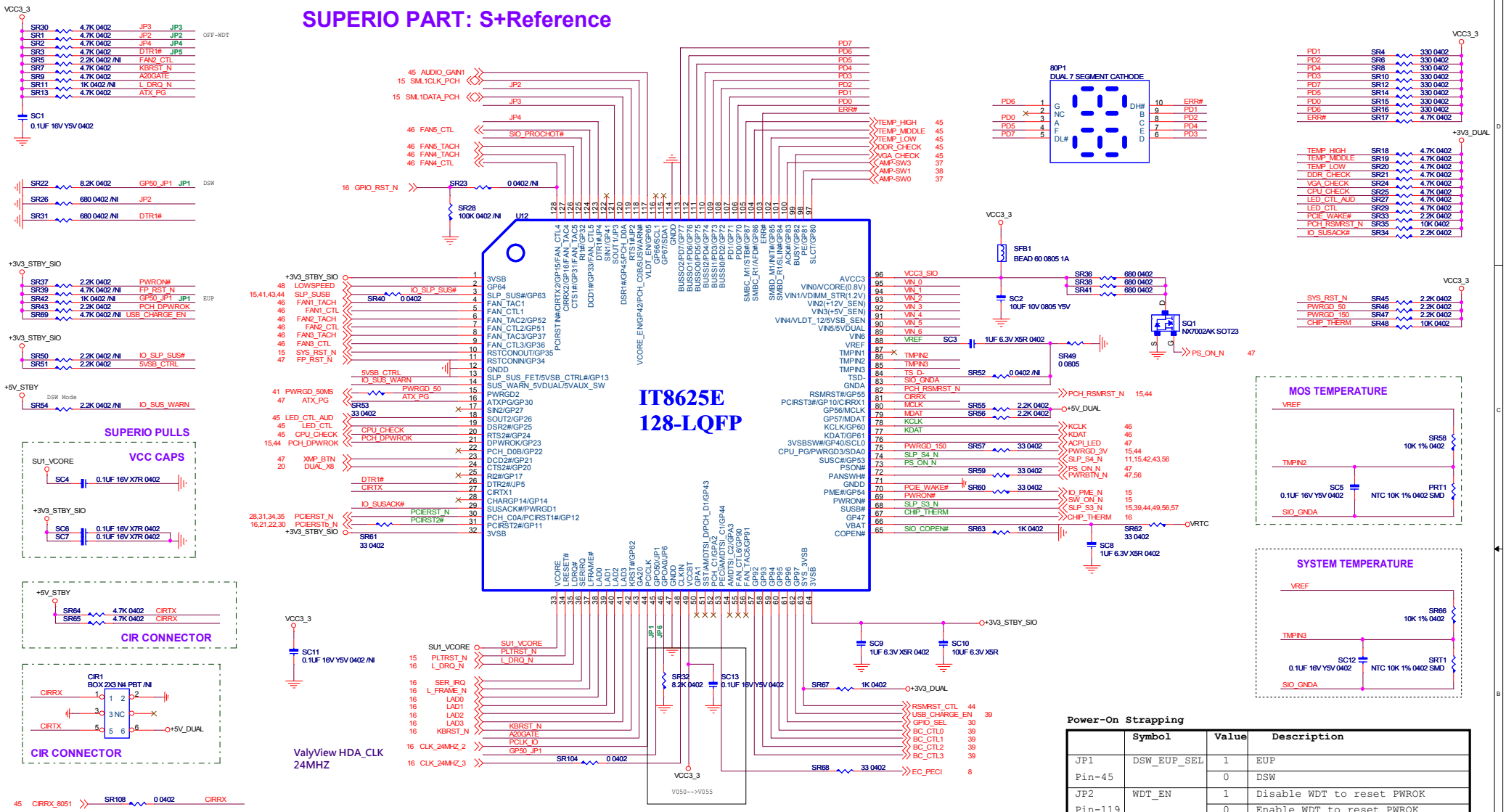
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Title: **RTD2168 EDP to VGA**

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SUPERIO PART: S+Reference

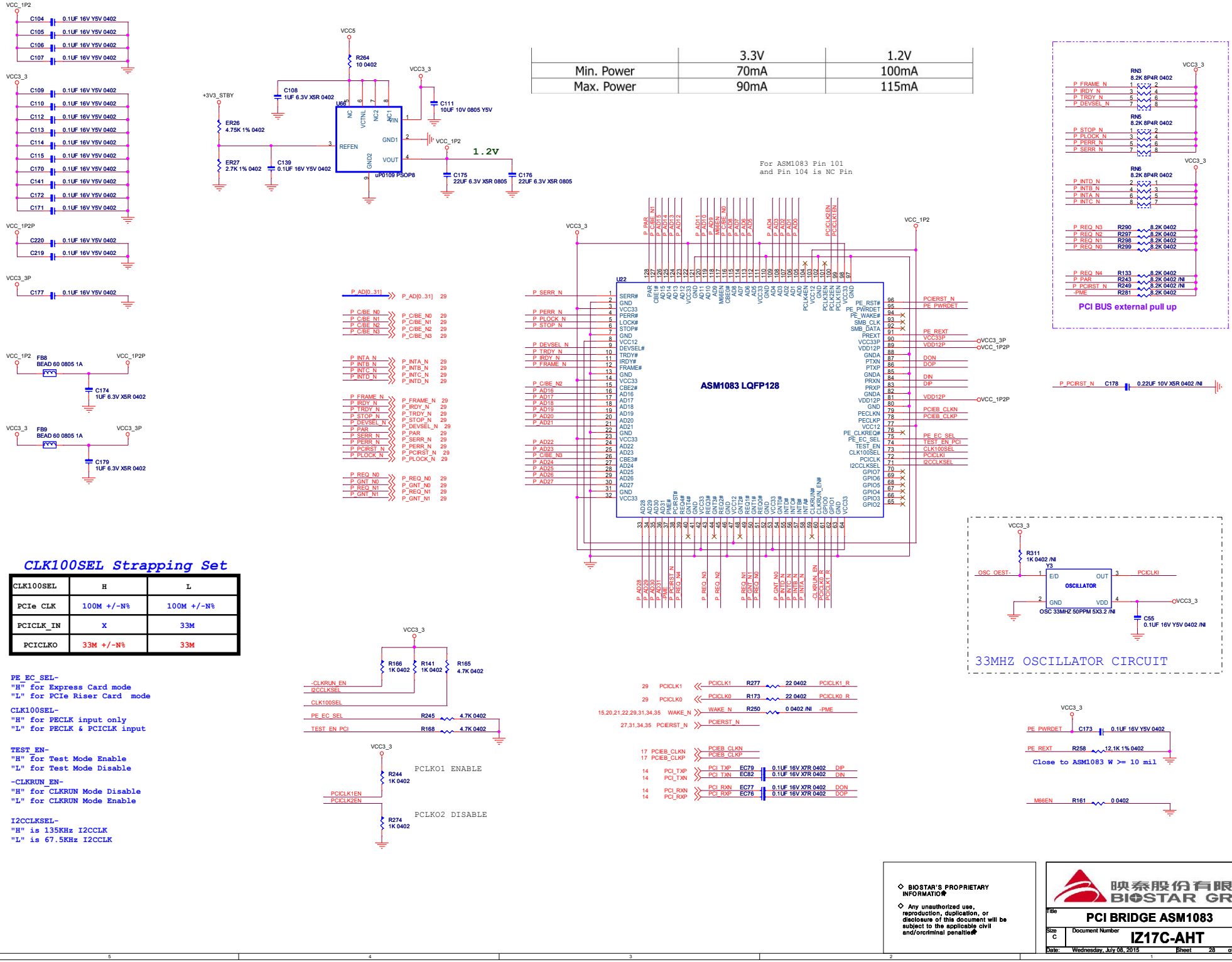


Power-On Strapping

	Symbol	Value	Description
JP1	DSW_EUP_SEL	1	EUP
Pin-45		0	DSW
JP2	WDT_EN	1	Disable WDT to reset PWROK
Pin-119		0	Enable WDT to reset PWROK
JP3	FAN_CTL_SEL	1	EC Index 63h/73h/7B/A3 is 80h
Pin-121		0	EC Index 63h/73h/7B/A3 is 00h
JP4	K8PWR_EN	1	Disable K8 Power Sequence
Pin-123		0	Enable K8 Power Sequence
JP5	UOVMODE_SEL	1	Notice Mode (Default)
Pin-26	OV/UV	0	Force Mode
JP6	Vih/Vil_SEL	1	Bay-Trail Platform (Default)
Pin-46		0	Not Bay-Trail Platform

FAN_CTRL2 not supported by JP3 FAN_CTL_SEL(EC index 6Bh default value always 80h)

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	3.3V	1.2V
Min. Power	70mA	100mA
Max. Power	90mA	115mA

CLK100SEL Strapping Set

CLK100SEL	H	L
PCIe CLK	100M +/-N%	100M +/-N%
PCICLK_IN	X	33M
PCICLKO	33M +/-N%	33M

PE_EC_SEL-
"H" for Express Card mode
"L" for PCIe Riser Card mode

CLK100SEL-
"H" for PECLK input only
"L" for PECLK & PCICLK input

TEST_EN-
"H" for Test Mode Enable
"L" for Test Mode Disable

-CLKRUN_EN-
"H" for CLKRUN Mode Disable
"L" for CLKRUN Mode Enable

I2CCLKSEL-
"H" is 135KHz I2CCLK
"L" is 67.5KHz I2CCLK

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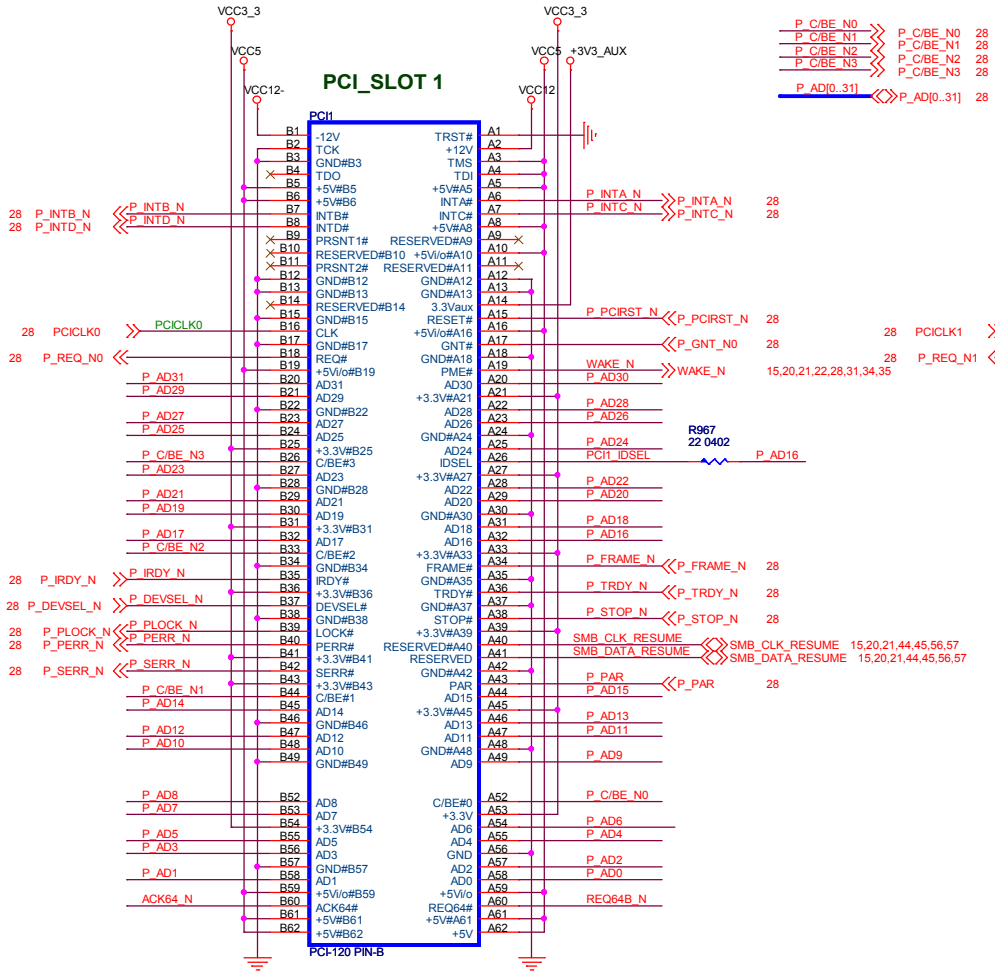
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Title: PCI BRIDGE ASM1083

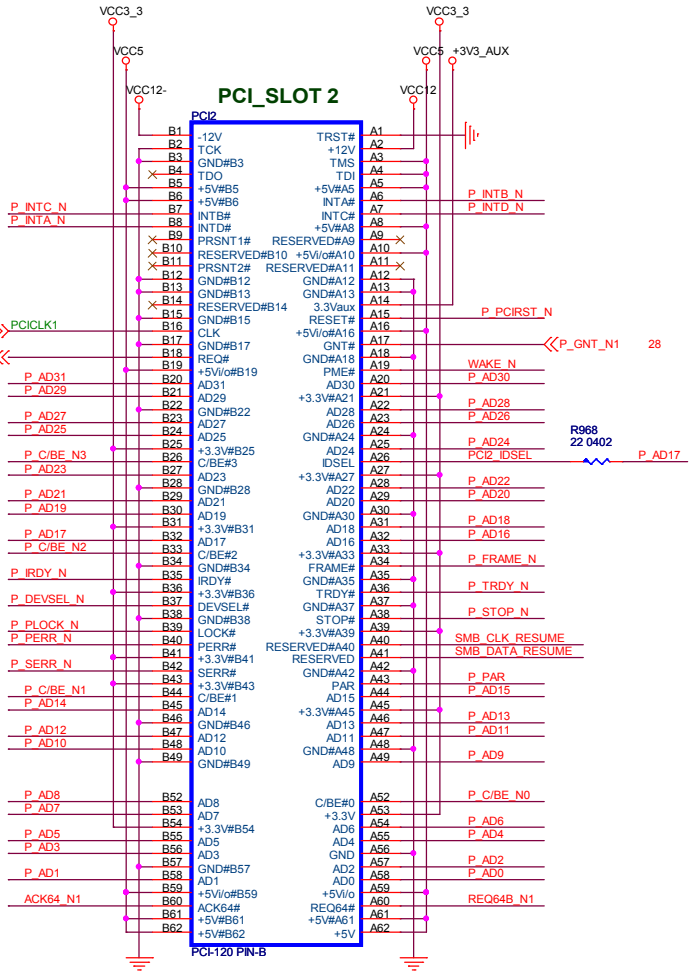
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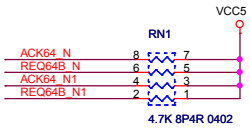
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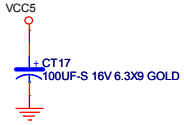
IDSEL:AD16 , INT:ABCD , REQ0 & GNT0 , PCICLK0

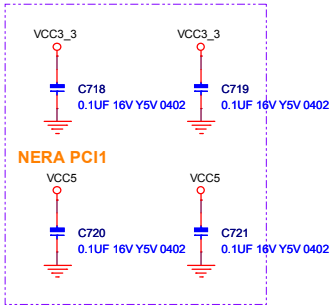


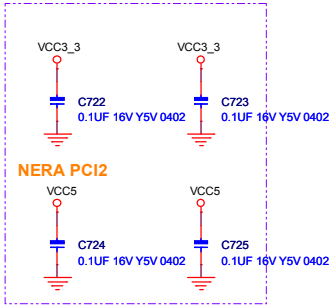
IDSEL:AD17 , INT:BCDA , REQ1 & GNT1 , PCICLK0











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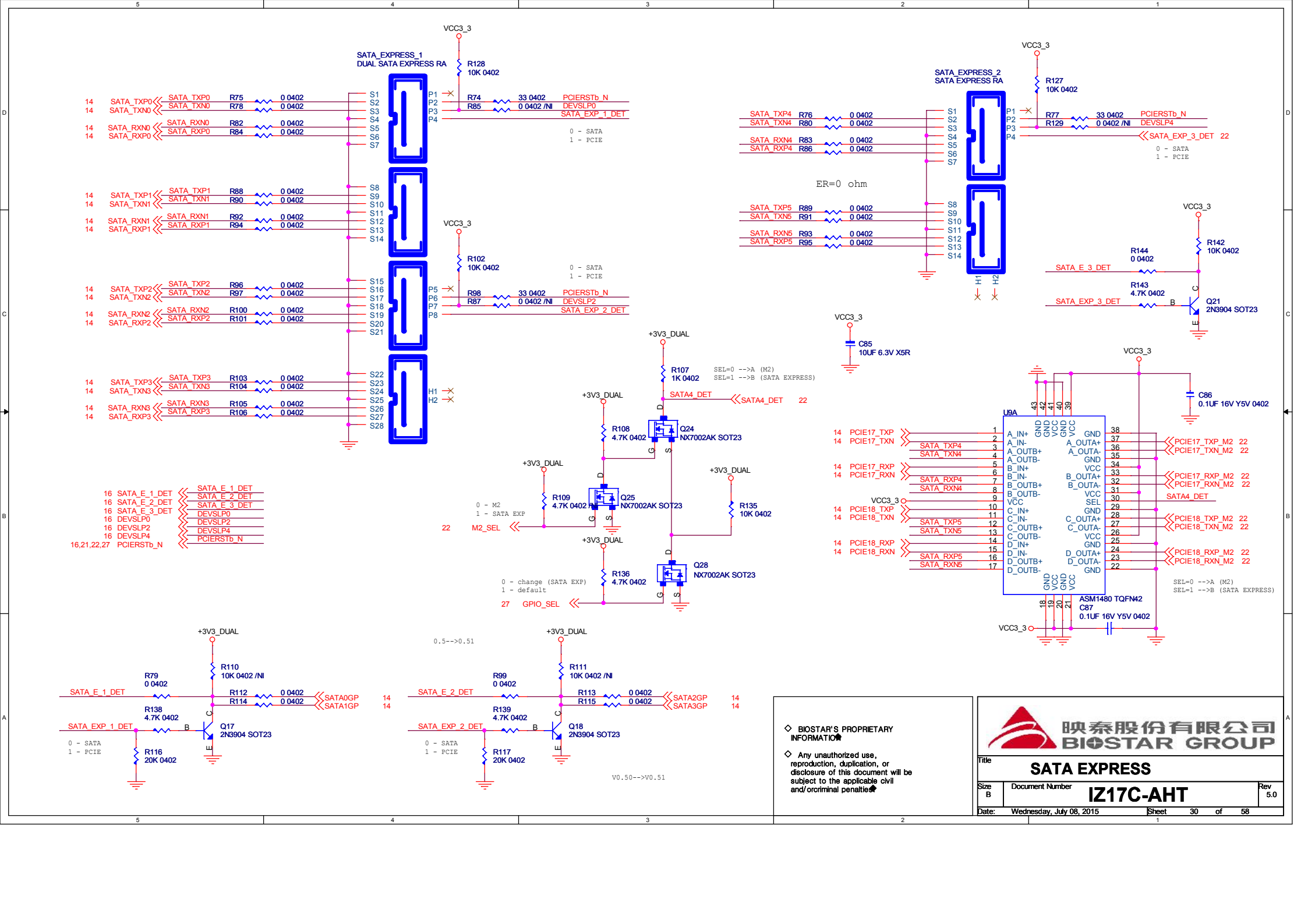
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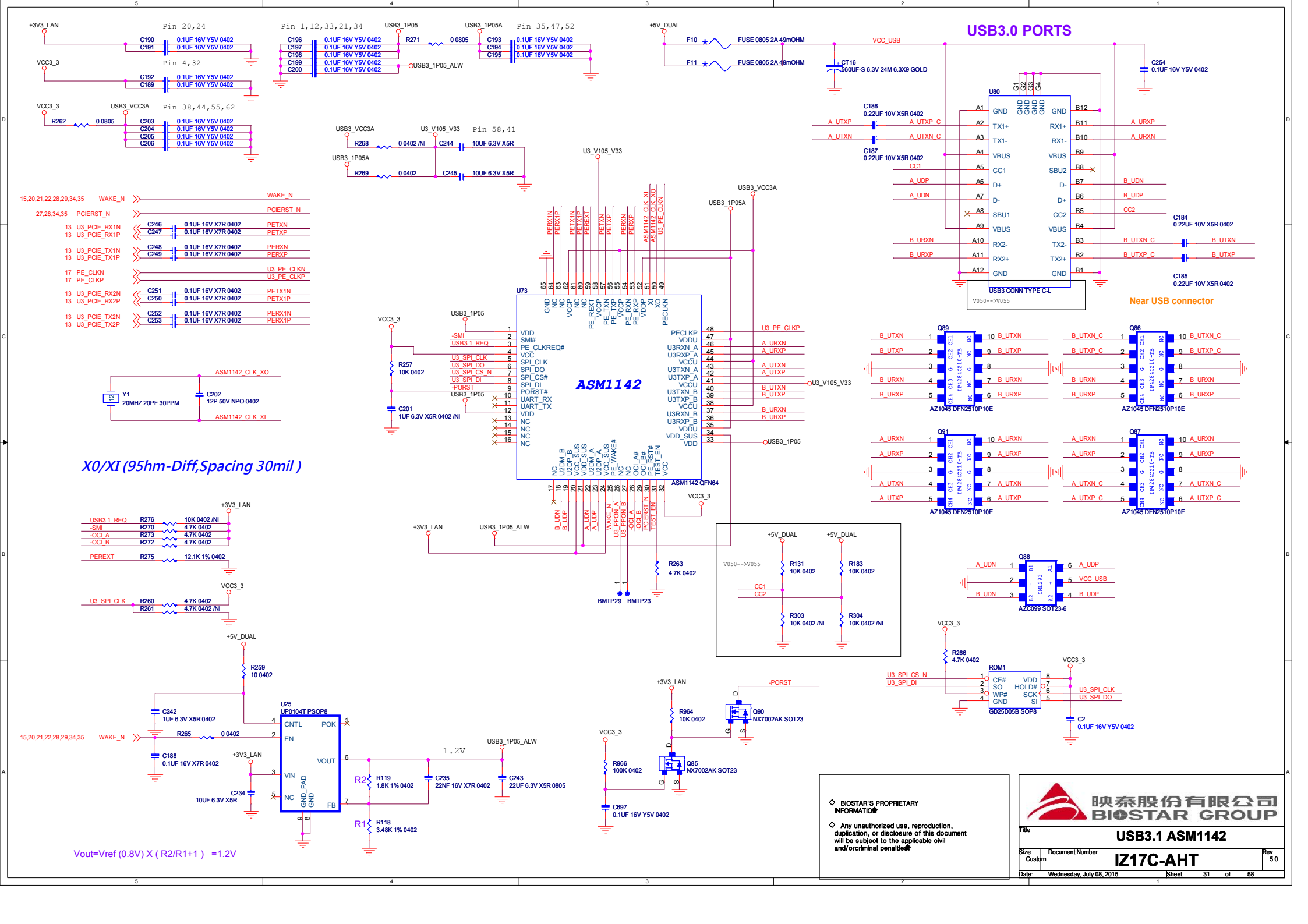
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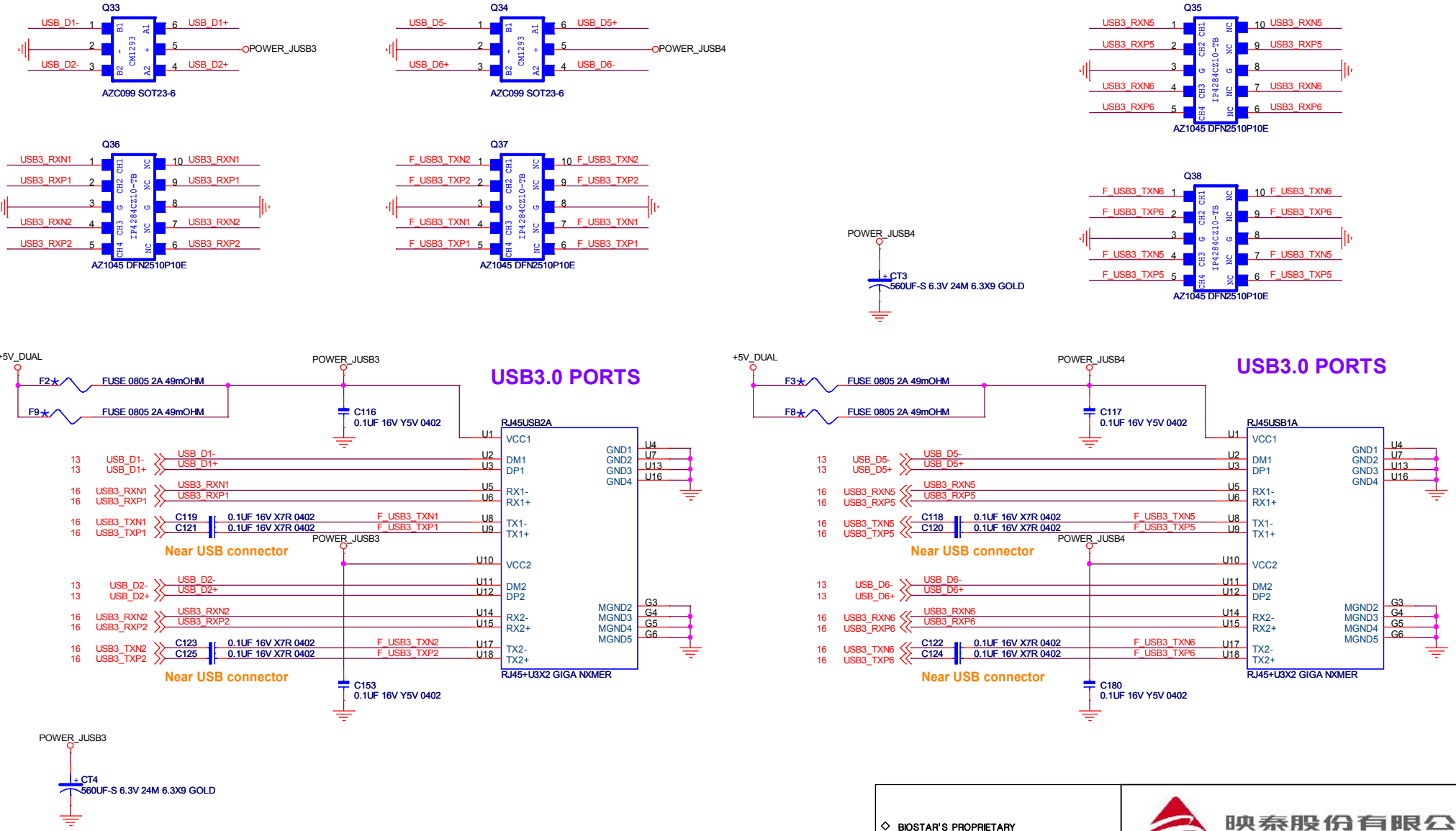
Title: PCI SOLT1&2

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SATA_EXPRESS_1
DUAL SATA EXPRESS RA
SATA_EXPRESS_2
SATA EXPRESS RA
ASM1480 TQFN42
Q17 2N3904 SOT23
Q18 2N3904 SOT23
Q21 2N3904 SOT23
Q24 NX7002AK SOT23
Q25 NX7002AK SOT23
Q28 NX7002AK SOT23
BIOSTAR GROUP
SATA EXPRESS
IZ17C-AHT


USB3.0 PORTS
ASM1142
X0/XI (95hm-Diff,Spacing 30mil)
Near USB connector
Vout=Vref (0.8V) X (R2/R1+1) =1.2V
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USB3.1 ASM1142
Size Custom
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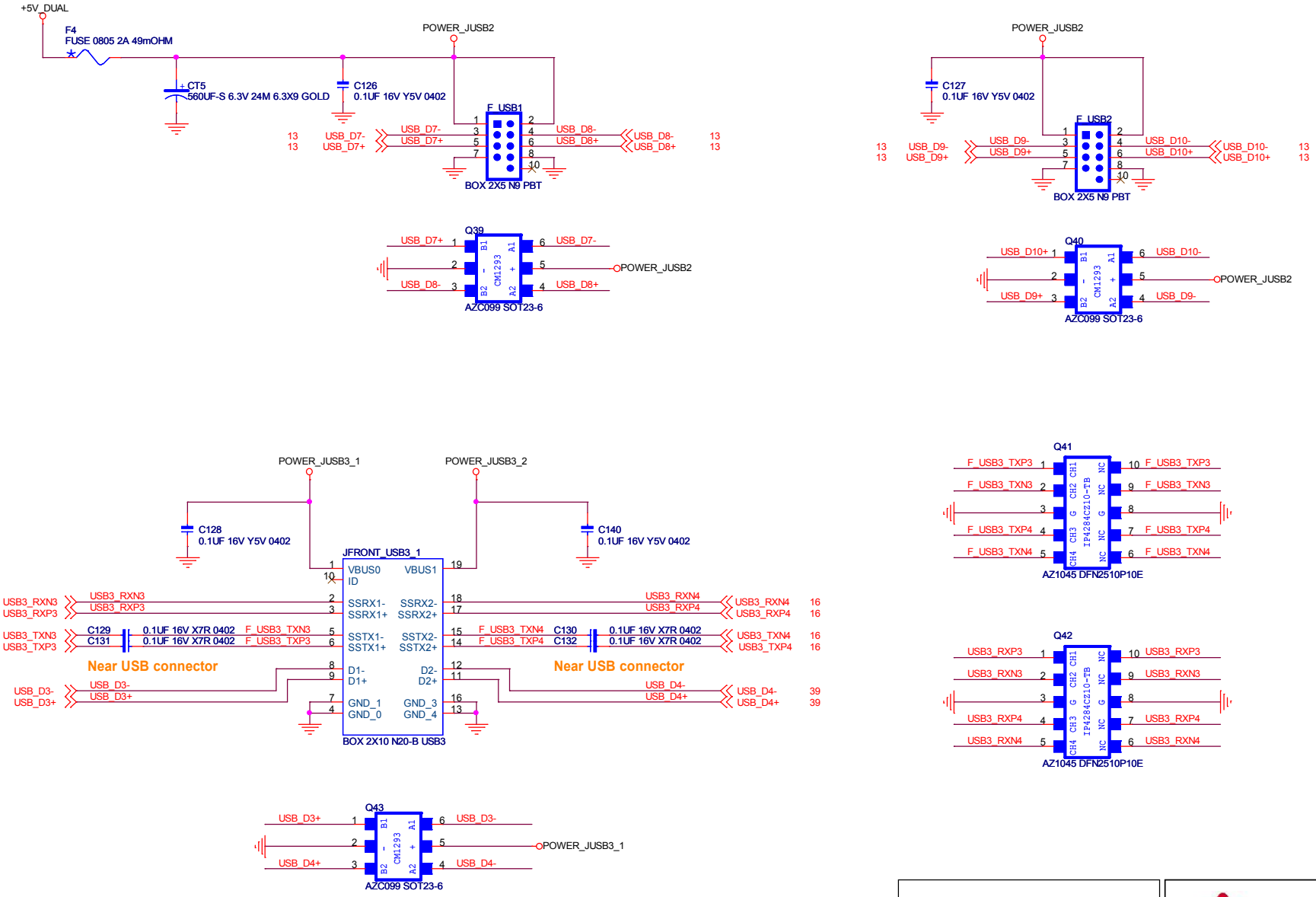


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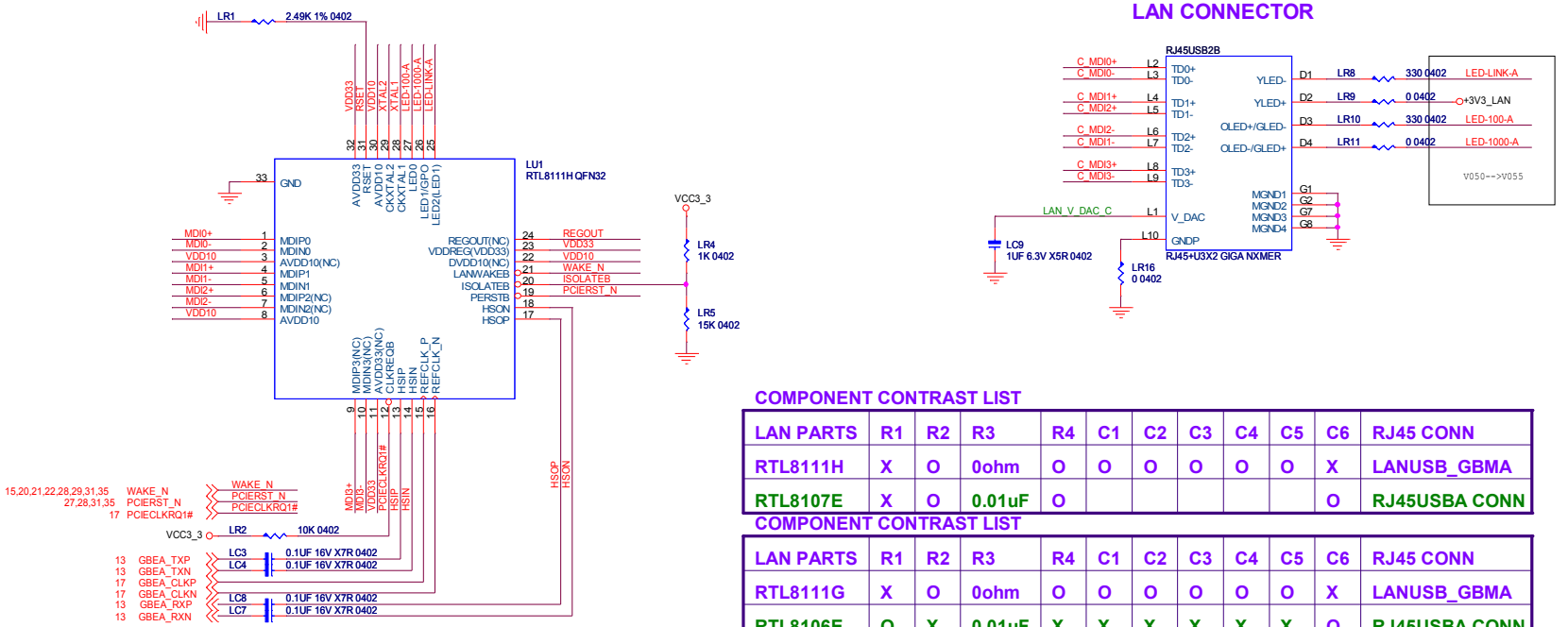
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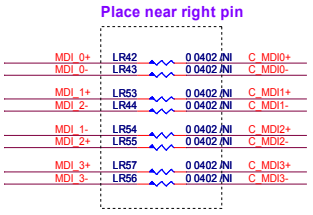
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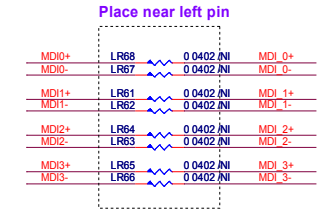
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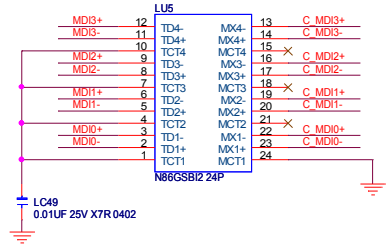
Title	FRONT USB		
Size B	Document Number IZ17C-AHT		Rev 5.0
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LAN CONNECTOR







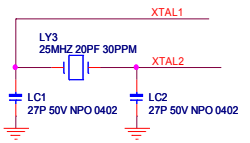


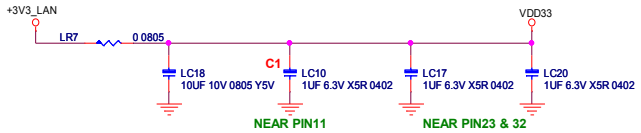
COMPONENT CONTRAST LIST

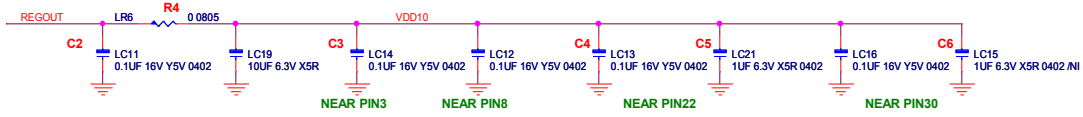
LAN PARTS	R1	R2	R3	R4	C1	C2	C3	C4	C5	C6	RJ45 CONN
RTL8111H	X	O	0ohm	O	O	O	O	O	O	X	LANUSB_GBMA
RTL8107E	X	O	0.01uF	O						O	RJ45USBA CONN

COMPONENT CONTRAST LIST

LAN PARTS	R1	R2	R3	R4	C1	C2	C3	C4	C5	C6	RJ45 CONN
RTL8111G	X	O	0ohm	O	O	O	O	O	O	X	LANUSB_GBMA
RTL8106E	O	X	0.01uF	X	X	X	X	X	X	O	RJ45USBA CONN







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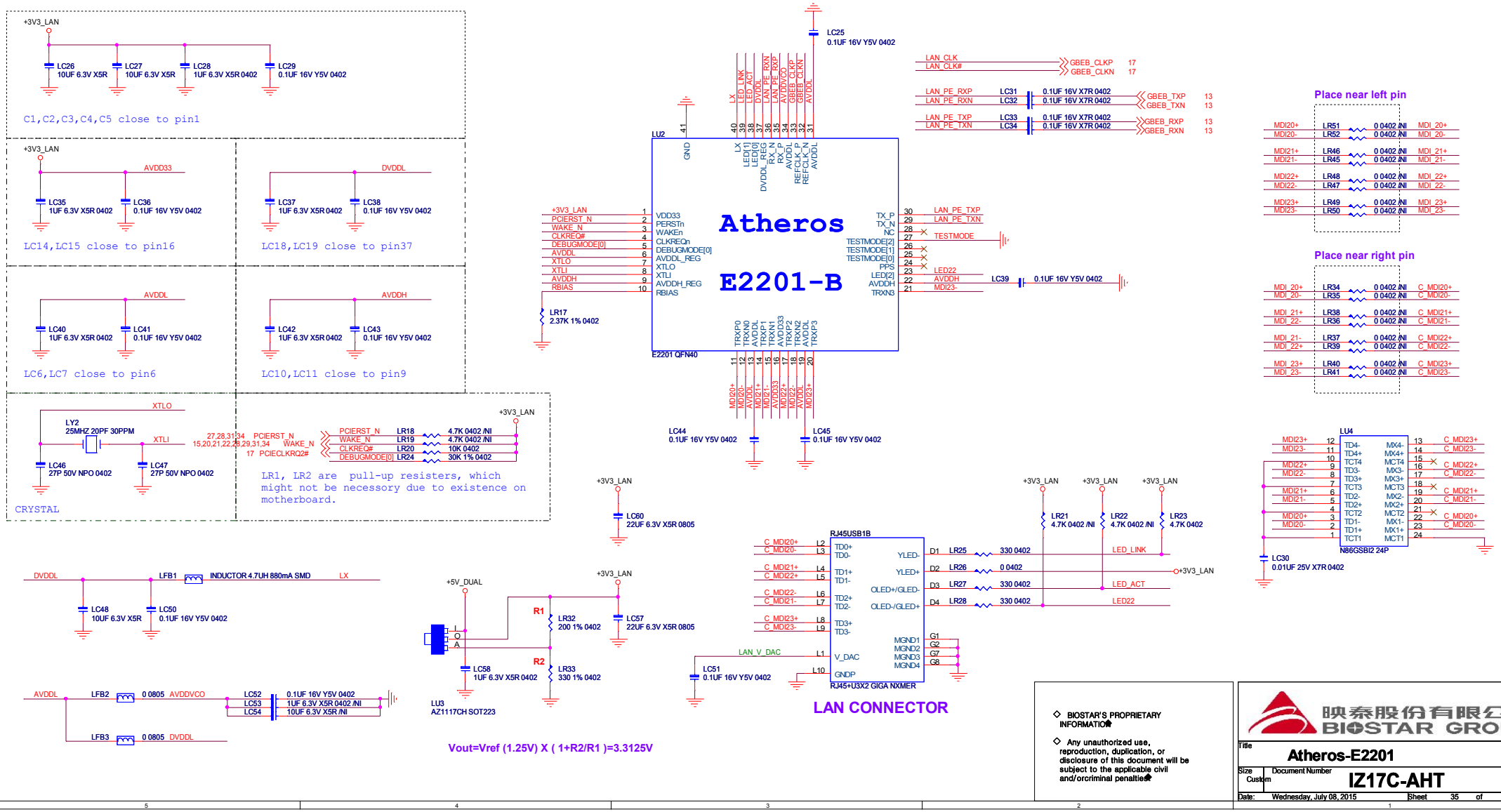
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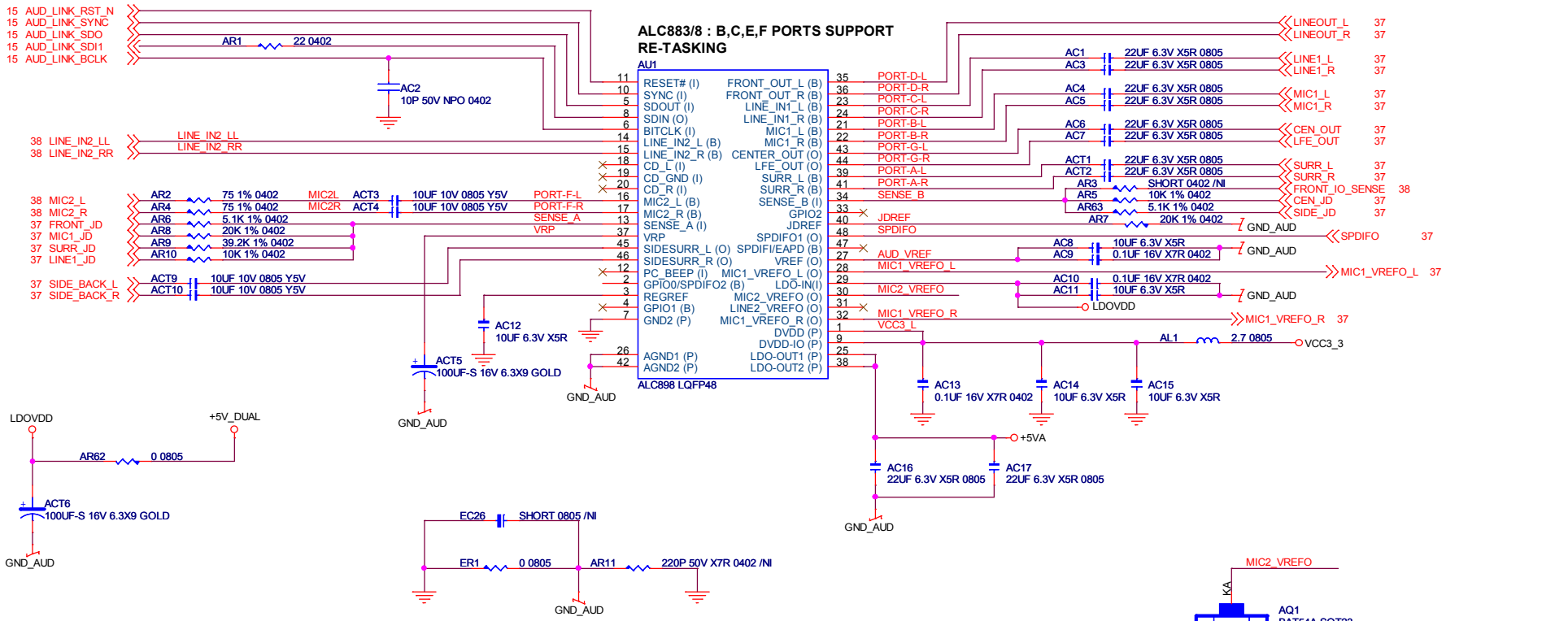
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Title: LAN RTL8111H

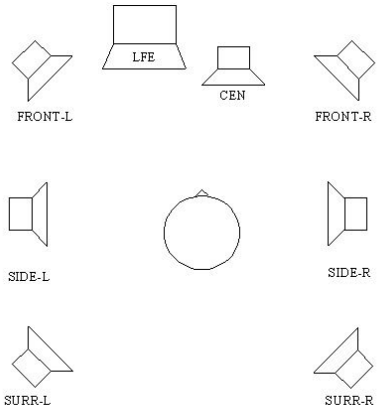
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+3V3_LAN
LC26 10UF 6.3V X5R
LC27 10UF 6.3V X5R
LC28 1UF 6.3V X5R 0402
LC29 0.1UF 16V Y5V 0402
C1,C2,C3,C4,C5 close to pin1
AVDD33
LC35 1UF 6.3V X5R 0402
LC36 0.1UF 16V Y5V 0402
LC14,LC15 close to pin16
DVDDL
LC37 1UF 6.3V X5R 0402
LC38 0.1UF 16V Y5V 0402
LC18,LC19 close to pin37
AVDDL
LC40 1UF 6.3V X5R 0402
LC41 0.1UF 16V Y5V 0402
LC6,LC7 close to pin6
AVDDH
LC42 1UF 6.3V X5R 0402
LC43 0.1UF 16V Y5V 0402
LC10,LC11 close to pin9
XTLO
LY2
25MHZ 20PF 30PPM
XTLI
LC46 27P 50V NPO 0402
LC47 27P 50V NPO 0402
CRYSTAL
27,28,31,34 PCIERST_N
15,20,21,22,28,29,31,34 WAKE_N
17 PCIECLKRQ2#
DEBUGMODE[0]
LR18 4.7K 0402 /NI
LR19 4.7K 0402 /NI
LR20 10K 0402
LR24 30K 1% 0402
LR1, LR2 are pull-up resisters, which might not be necessory due to existence on motherboard.
LC25 0.1UF 16V Y5V 0402
LU2
Atheros
E2201-B
E2201 QFN40
LR17 2.37K 1% 0402
LC44 0.1UF 16V Y5V 0402
LC45 0.1UF 16V Y5V 0402
LAN_CLK
LAN_CLK#
GBEB_CLKP 17
GBEB_CLKN 17
LAN_PE_RXP
LAN_PE_RXN
LC31 0.1UF 16V X7R 0402
LC32 0.1UF 16V X7R 0402
GBEB_TXP 13
GBEB_TXN 13
LAN_PE_TXP
LAN_PE_TXN
LC33 0.1UF 16V X7R 0402
LC34 0.1UF 16V X7R 0402
GBEB_RXP 13
GBEB_RXN 13
TESTMODE
LED22
LC39 0.1UF 16V Y5V 0402
Place near left pin
LR51 0 0402 /NI
LR52 0 0402 /NI
LR46 0 0402 /NI
LR45 0 0402 /NI
LR48 0 0402 /NI
LR47 0 0402 /NI
LR49 0 0402 /NI
LR50 0 0402 /NI
Place near right pin
LR34 0 0402 /NI
LR35 0 0402 /NI
LR38 0 0402 /NI
LR36 0 0402 /NI
LR37 0 0402 /NI
LR39 0 0402 /NI
LR40 0 0402 /NI
LR41 0 0402 /NI
LU4
N86GSBI2 24P
LC30 0.01UF 25V X7R 0402
LC60 22UF 6.3V X5R 0805
LR21 4.7K 0402 /NI
LR22 4.7K 0402 /NI
LR23 4.7K 0402
RJ45USB1B
RJ45+U3X2 GIGA NXMER
LAN CONNECTOR
LC51 0.1UF 16V Y5V 0402
LFB1 INDUCTOR 4.7UH 880mA SMD
LC48 10UF 6.3V X5R
LC50 0.1UF 16V Y5V 0402
LFB2 0 0805 AVDDVCO
LFB3 0 0805 DVDDL
LC52 0.1UF 16V Y5V 0402
LC53 1UF 6.3V X5R 0402 /NI
LC54 10UF 6.3V X5R /NI
LU3
AZ1117CH SOT223
R1 LR32 200 1% 0402
R2 LR33 330 1% 0402
LC57 22UF 6.3V X5R 0805
LC58 1UF 6.3V X5R 0402
Vout=Vref (1.25V) X (1+R2/R1)=3.3125V
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7.1 Speaker Configuration

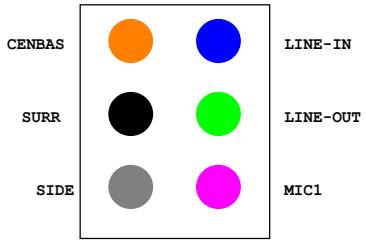


Configuration

	PORT-A	PORT-B	PORT-C	PORT-D	PORT-E	PORT-F	PORT-G	PORT-H
Function	SURR	MIC1	LINE1	LINEOUT	LINE2	MIC2	CEN/LFE	SIDE
Location	Rear	Rear	Rear	Rear	Front	Front	Rear	Rear

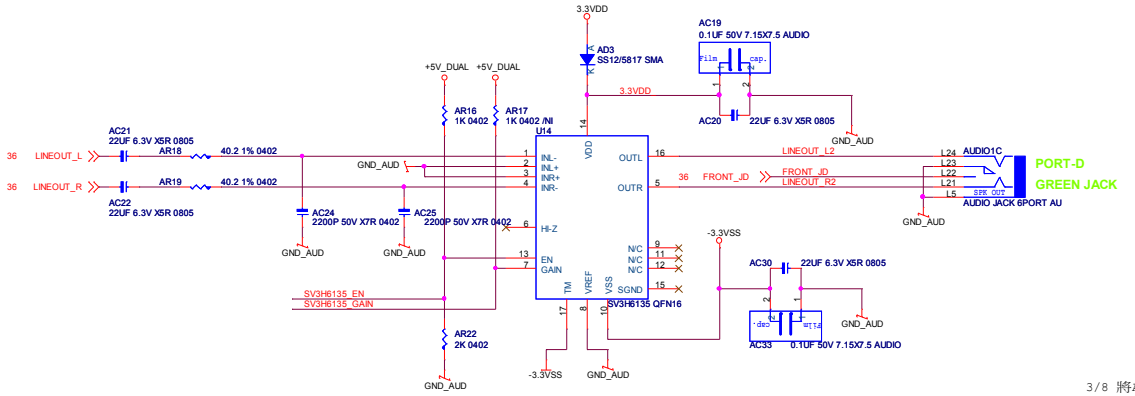


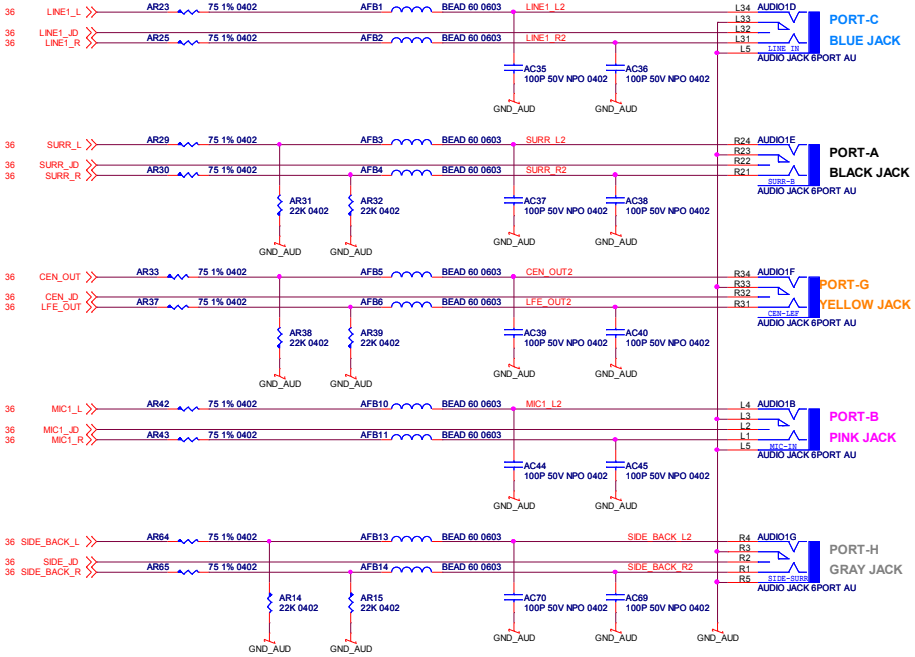
6/15 add Audio cover



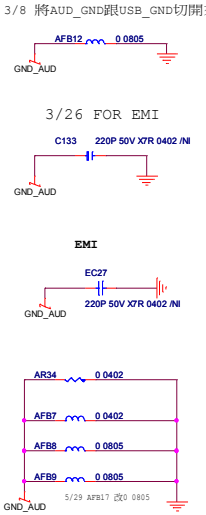
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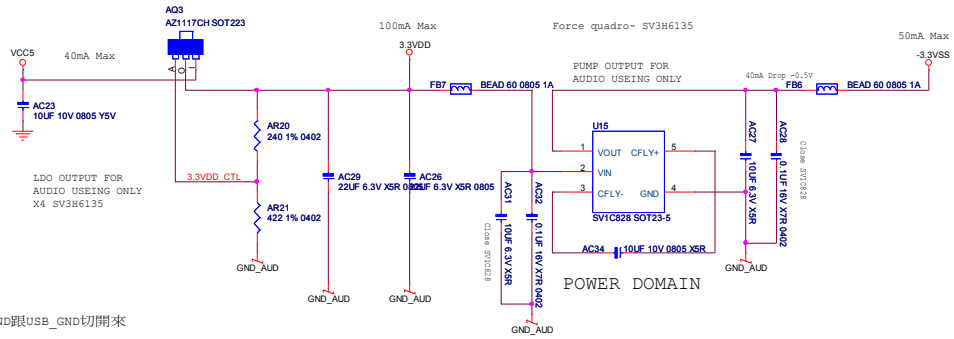
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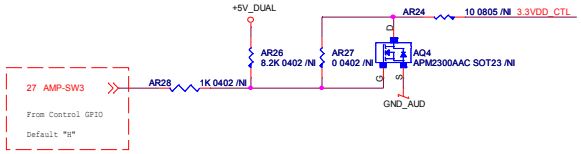


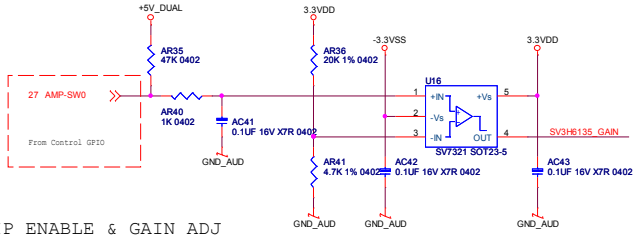


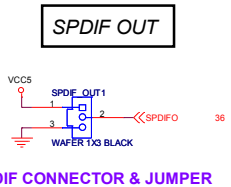
REAR AUDIO JACKS



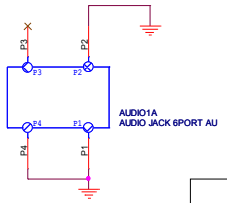


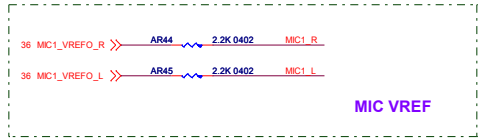






SPDIF CONNECTOR & JUMPER





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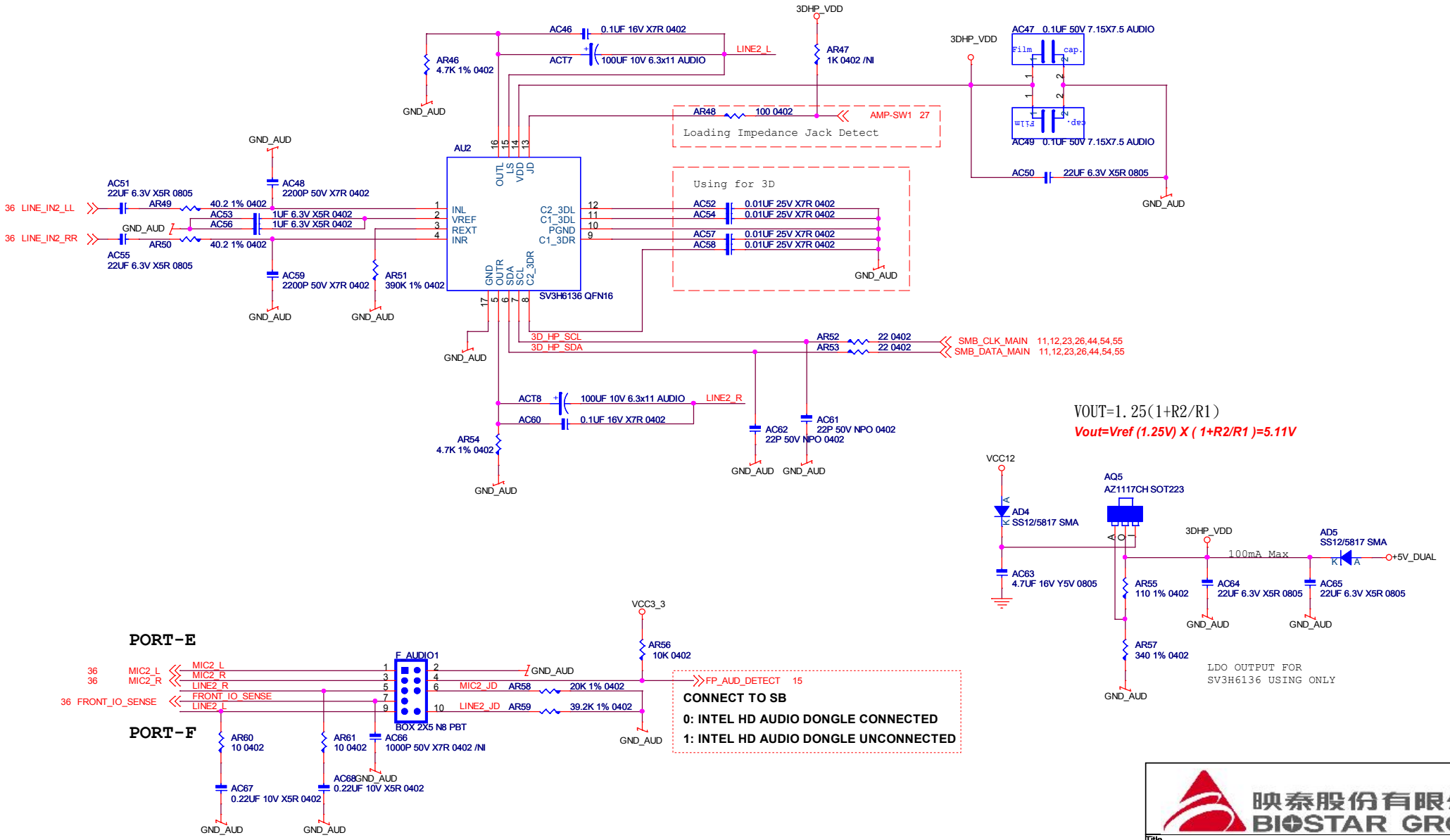
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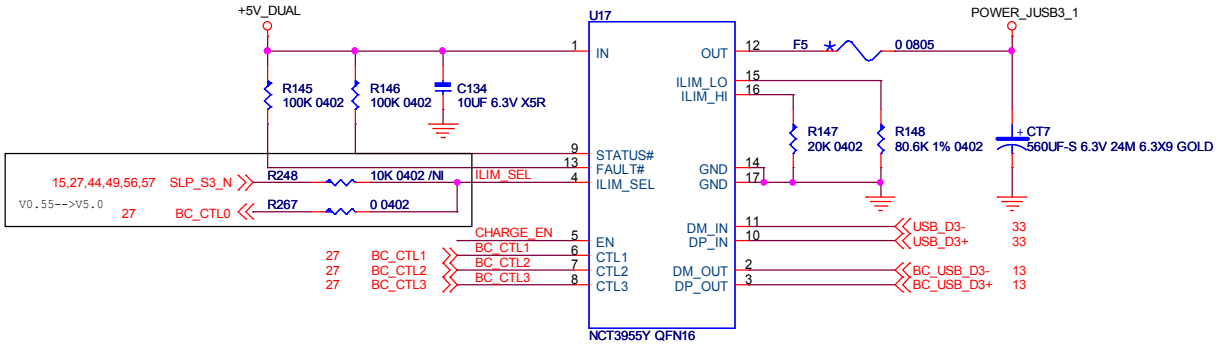
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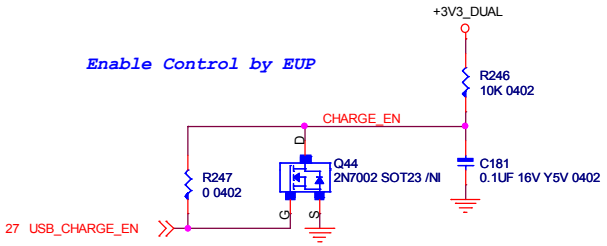
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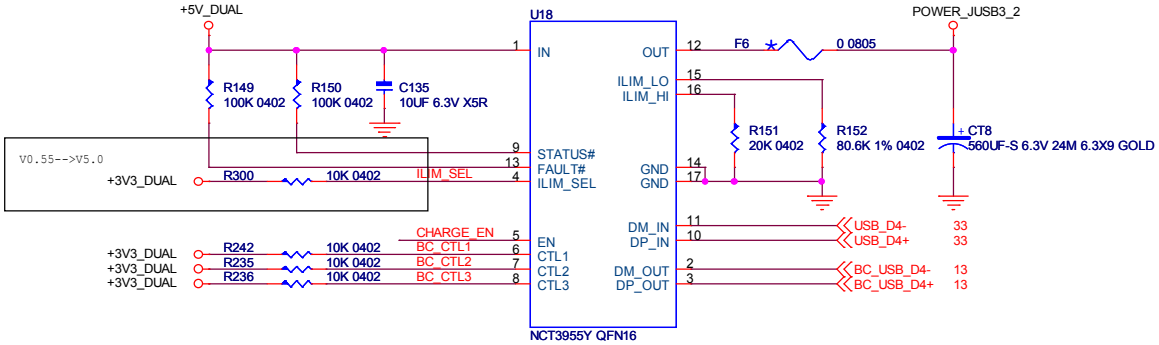


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co-lay NCT3955

CTL1	CTL2	CTL3	ILIM_SEL	Mode	Current Limit Setting	STATUS# Output (Active Low)	Comment
1	1	1	0 (S3/S5)	SDP	ILM_LO	OFF	
1	1	1	1 (S0)	CDP	ILM_HI	CDP load present	Data Lines Connected and Port Power Mgt. Function Active

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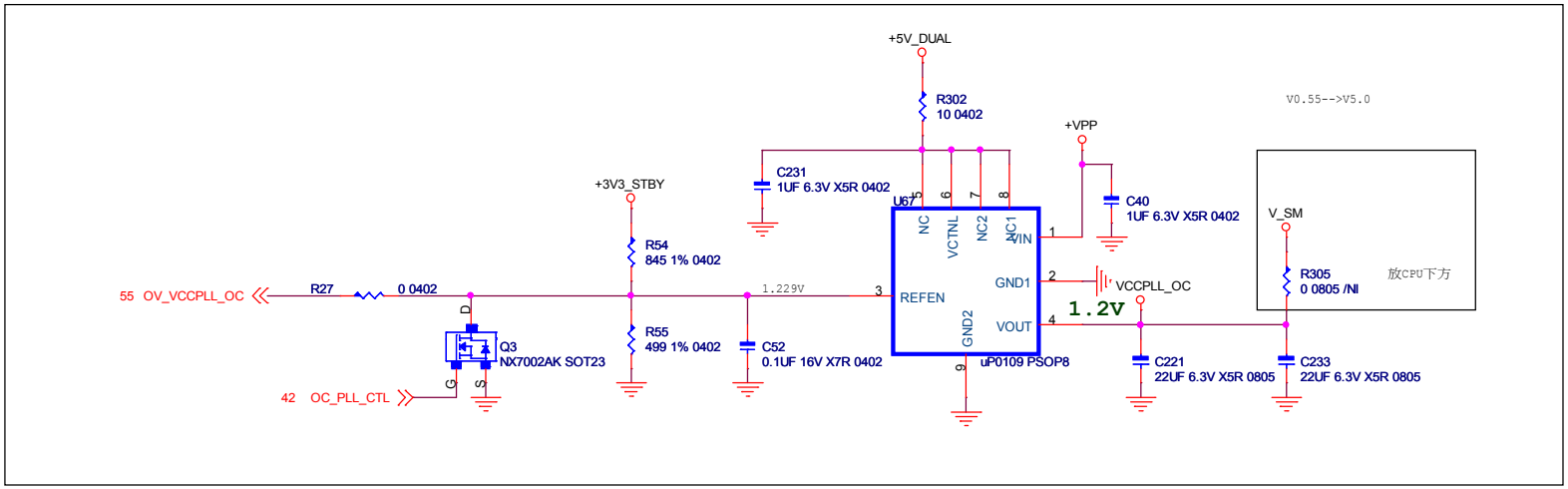
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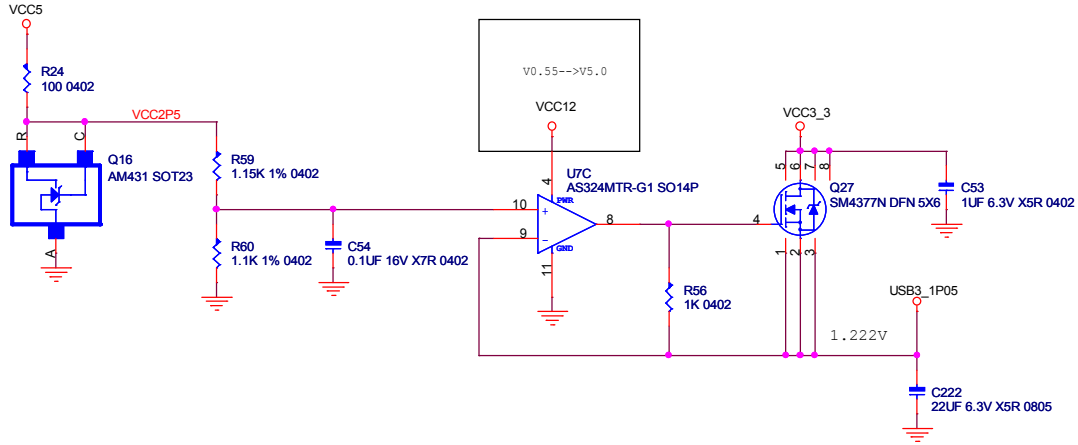
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Title: Charging NCT3955Y

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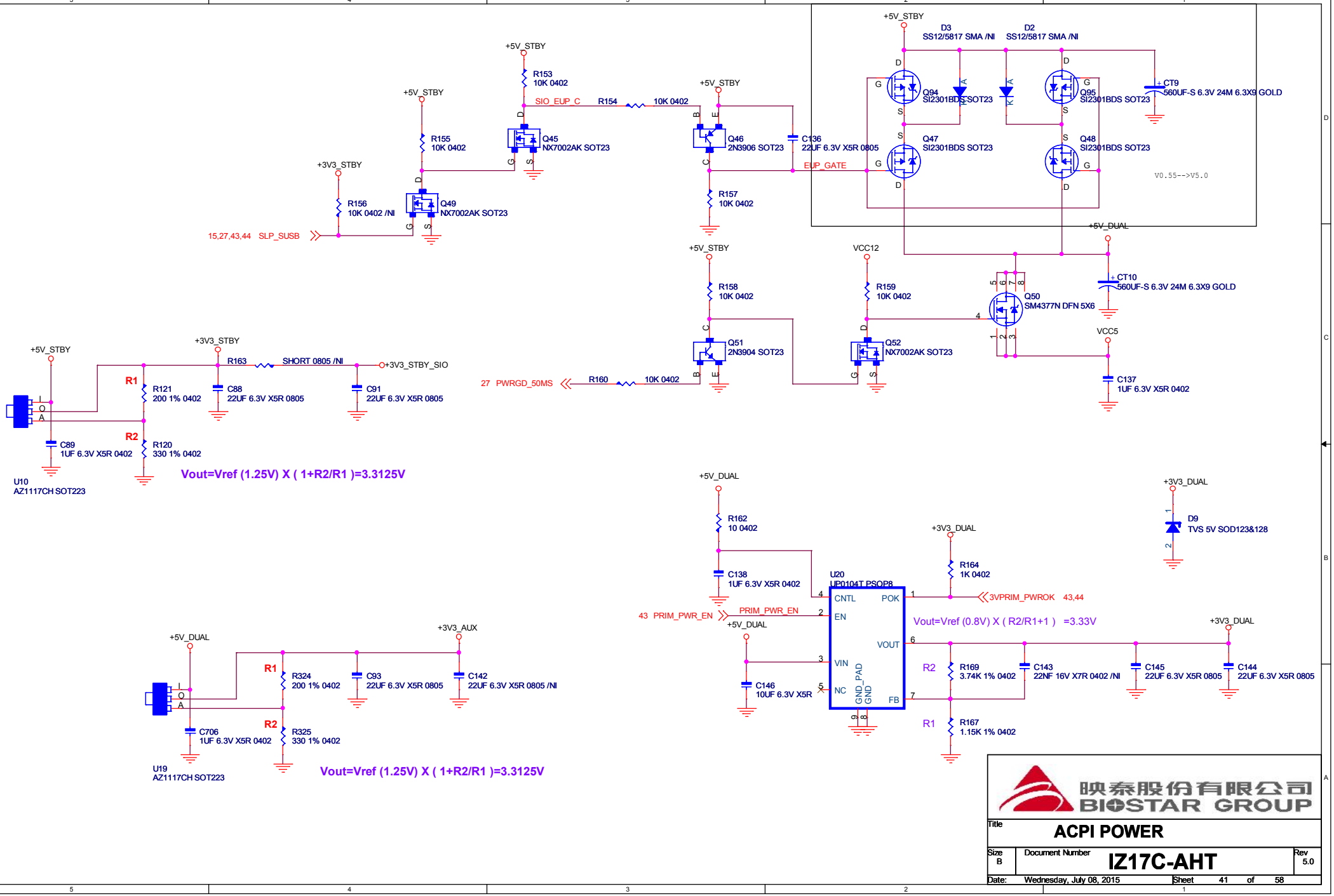


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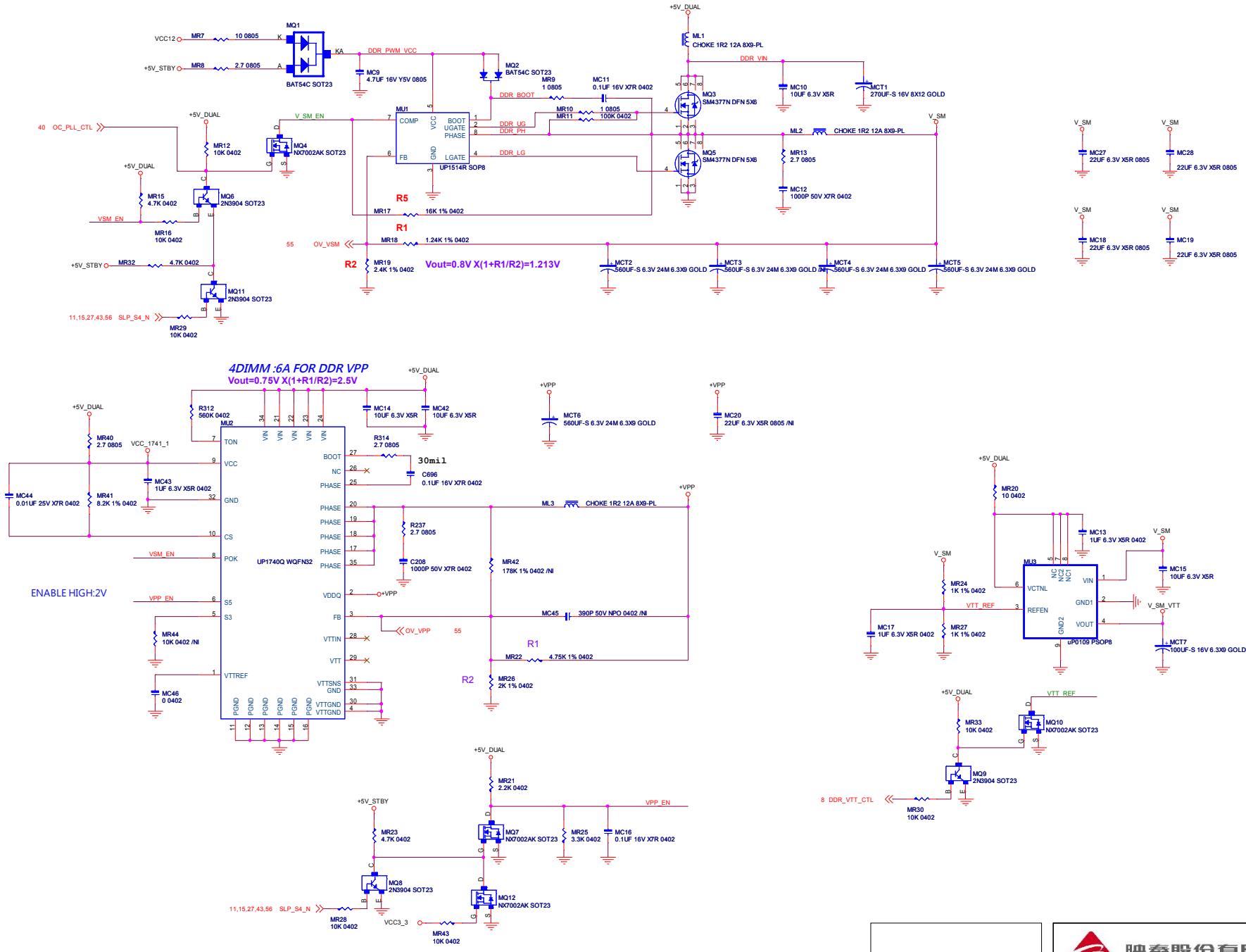
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Title	LINER POWER	
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+5V_STBY
D3
SS12/5817 SMA /NI
D2
SS12/5817 SMA /NI
Q94
SI2301BDS SOT23
Q95
SI2301BDS SOT23
CT9
560UF-S 6.3V 24M 6.3X9 GOLD
Q47
SI2301BDS SOT23
Q48
SI2301BDS SOT23
V0.55-->V5.0
+5V_STBY
R153
10K 0402
SIO_EUP_C
R154
10K 0402
Q45
NX7002AK SOT23
+5V_STBY
Q46
2N3906 SOT23
C136
22UF 6.3V X5R 0805
EUP_GATE
R157
10K 0402
+5V_STBY
R155
10K 0402
+3V3_STBY
R156
10K 0402 /NI
Q49
NX7002AK SOT23
15,27,43,44 SLP_SUSB
+5V_DUAL
CT10
560UF-S 6.3V 24M 6.3X9 GOLD
+5V_STBY
R158
10K 0402
VCC12
R159
10K 0402
Q50
SM4377N DFN 5X6
Q51
2N3904 SOT23
Q52
NX7002AK SOT23
27 PWRGD_50MS
R160
10K 0402
VCC5
C137
1UF 6.3V X5R 0402
+5V_STBY
+3V3_STBY
R163
SHORT 0805 /NI
+3V3_STBY_SIO
R1
R121
200 1% 0402
C88
22UF 6.3V X5R 0805
C91
22UF 6.3V X5R 0805
R2
R120
330 1% 0402
C89
1UF 6.3V X5R 0402
U10
AZ1117CH SOT223
Vout=Vref (1.25V) X (1+R2/R1)=3.3125V
+5V_DUAL
R162
10 0402
C138
1UF 6.3V X5R 0402
+3V3_DUAL
R164
1K 0402
U20
UP0104T PSOP8
CNTL
POK
3VPRIM_PWROK 43,44
43 PRIM_PWR_EN
PRIM_PWR_EN
EN
+5V_DUAL
Vout=Vref (0.8V) X (R2/R1+1) =3.33V
VOUT
VIN
NC
GND_PAD
GND
FB
C146
10UF 6.3V X5R
R2
R169
3.74K 1% 0402
C143
22NF 16V X7R 0402 /NI
C145
22UF 6.3V X5R 0805
C144
22UF 6.3V X5R 0805
R1
R167
1.15K 1% 0402
+3V3_DUAL
D9
TVS 5V SOD123&128
+5V_DUAL
+3V3_AUX
R1
R324
200 1% 0402
C93
22UF 6.3V X5R 0805
C142
22UF 6.3V X5R 0805 /NI
R2
R325
330 1% 0402
C706
1UF 6.3V X5R 0402
U19
AZ1117CH SOT223
Vout=Vref (1.25V) X (1+R2/R1)=3.3125V
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MEMORY PART:M+Reference



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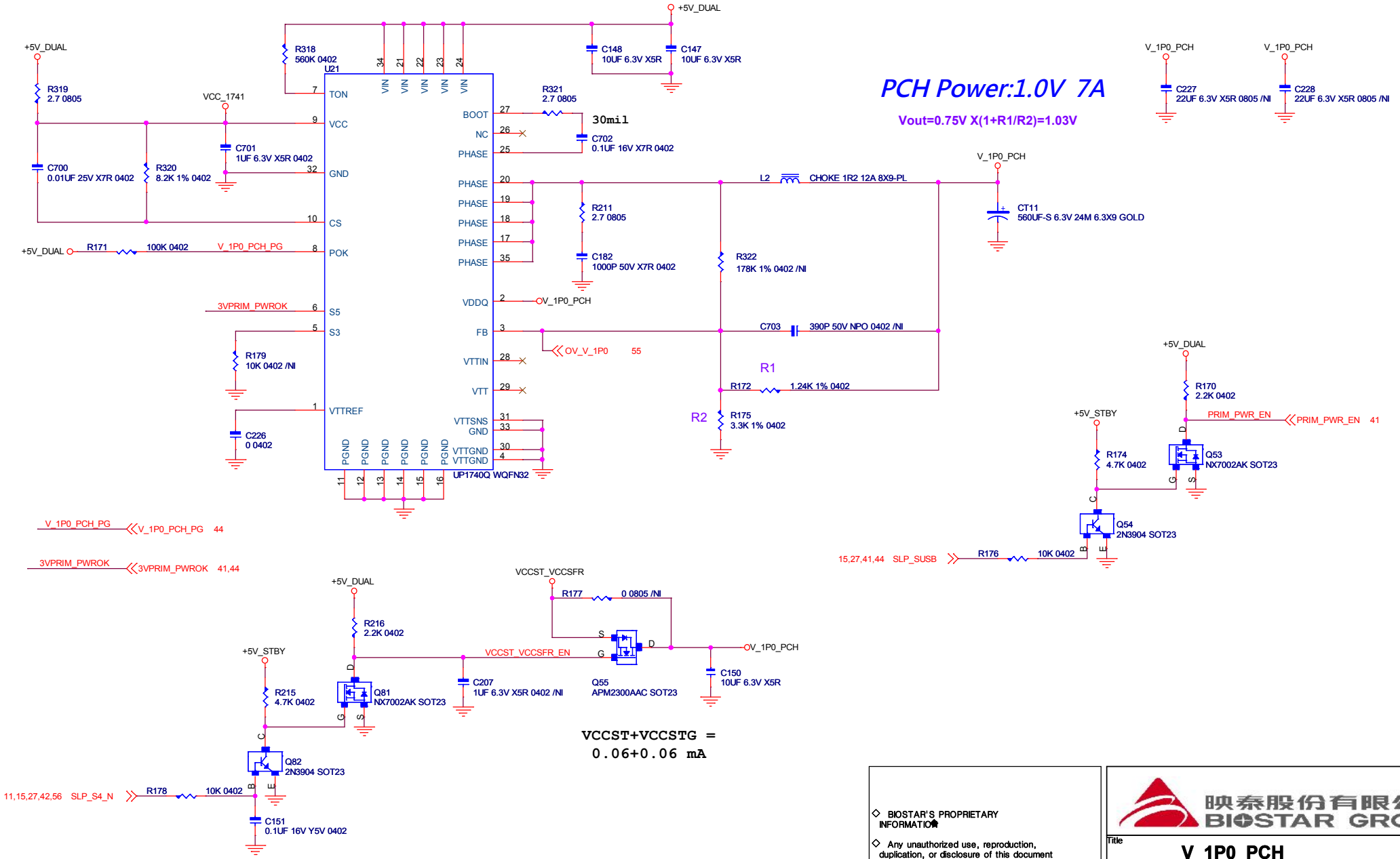
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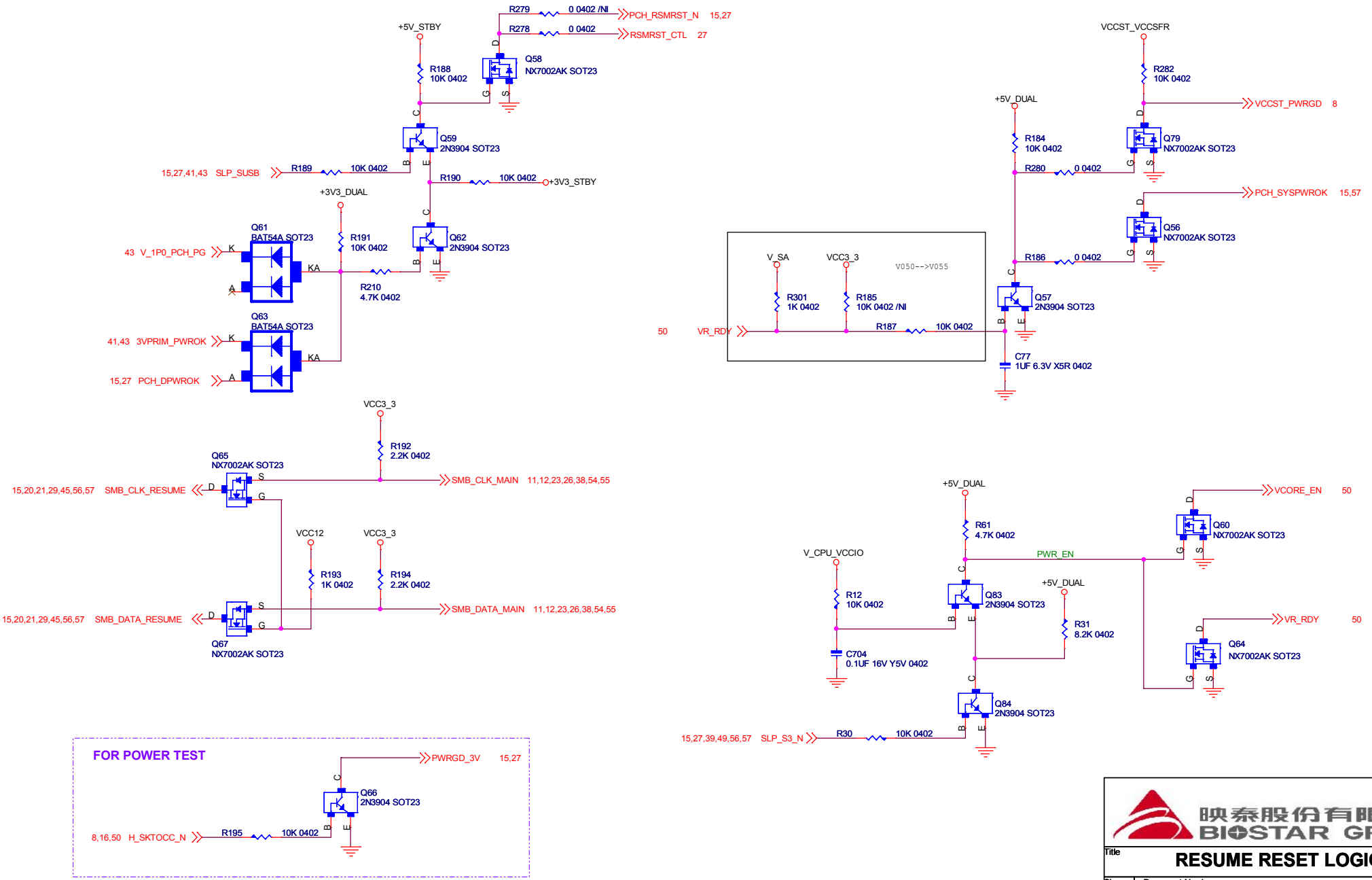
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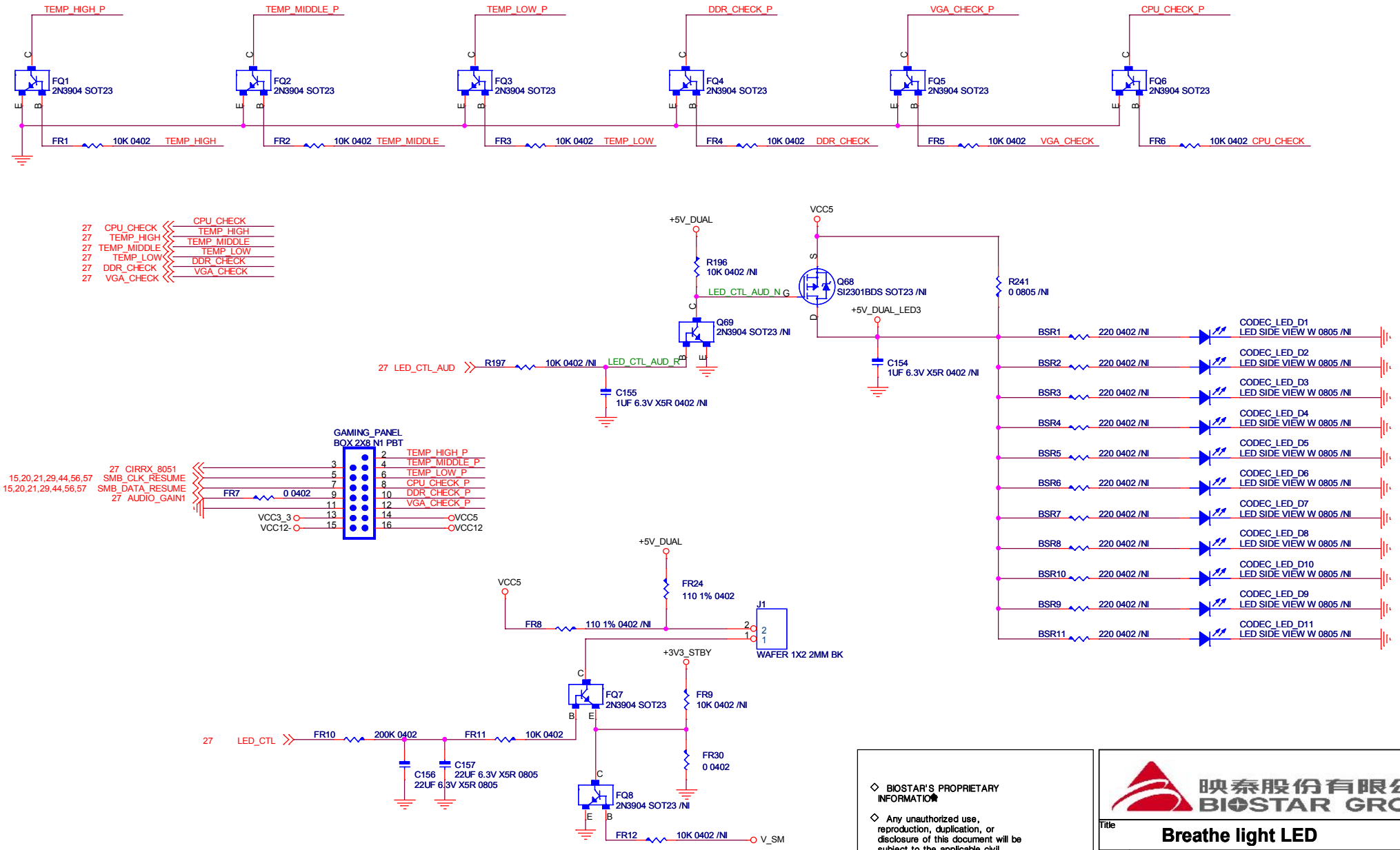
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PCH Power:1.0V 7A
Vout=0.75V X(1+R1/R2)=1.03V
U21
UP1740Q WQFN32
R318 560K 0402
R319 2.7 0805
R320 8.2K 1% 0402
R321 2.7 0805
30mil
R211 2.7 0805
R322 178K 1% 0402 /NI
R171 100K 0402
R179 10K 0402 /NI
R172 1.24K 1% 0402
R175 3.3K 1% 0402
R1
R2
C700 0.01UF 25V X7R 0402
C701 1UF 6.3V X5R 0402
C702 0.1UF 16V X7R 0402
C703 390P 50V NPO 0402 /NI
C147 10UF 6.3V X5R
C148 10UF 6.3V X5R
C182 1000P 50V X7R 0402
C226 0 0402
CT11 560UF-S 6.3V 24M 6.3X9 GOLD
L2 CHOKE 1R2 12A 8X9-PL
C227 22UF 6.3V X5R 0805 /NI
C228 22UF 6.3V X5R 0805 /NI
+5V_DUAL
VCC_1741
V_1P0_PCH
V_1P0_PCH_PG
3VPRIM_PWROK
OV_V_1P0 55
R170 2.2K 0402
R174 4.7K 0402
Q53 NX7002AK SOT23
Q54 2N3904 SOT23
PRIM_PWR_EN
PRIM_PWR_EN 41
+5V_STBY
15,27,41,44 SLP_SUSB
R176 10K 0402
R216 2.2K 0402
R215 4.7K 0402
R177 0 0805 /NI
Q81 NX7002AK SOT23
Q55 APM2300AAC SOT23
Q82 2N3904 SOT23
C207 1UF 6.3V X5R 0402 /NI
C150 10UF 6.3V X5R
C151 0.1UF 16V Y5V 0402
VCCST_VCCSFR
VCCST_VCCSFR_EN
11,15,27,42,56 SLP_S4_N
R178 10K 0402
VCCST+VCCSTG =
0.06+0.06 mA
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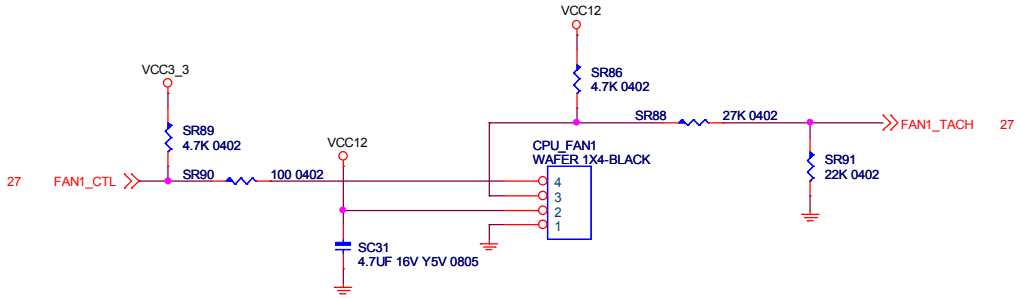
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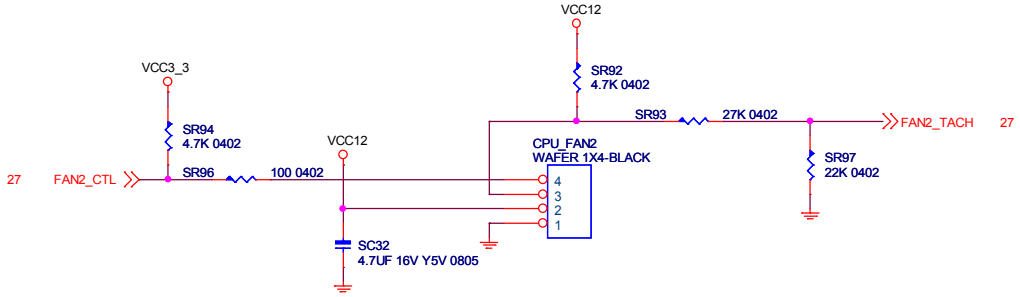
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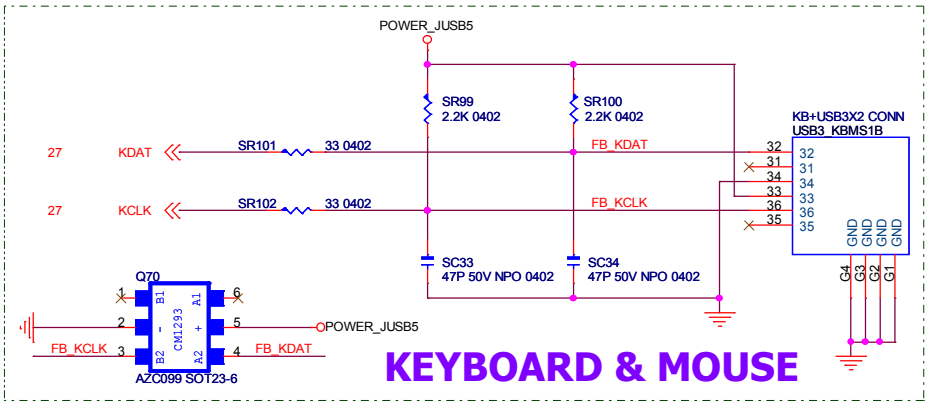
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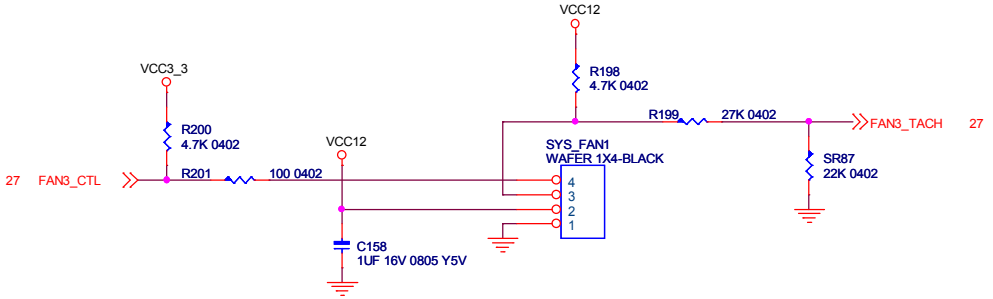
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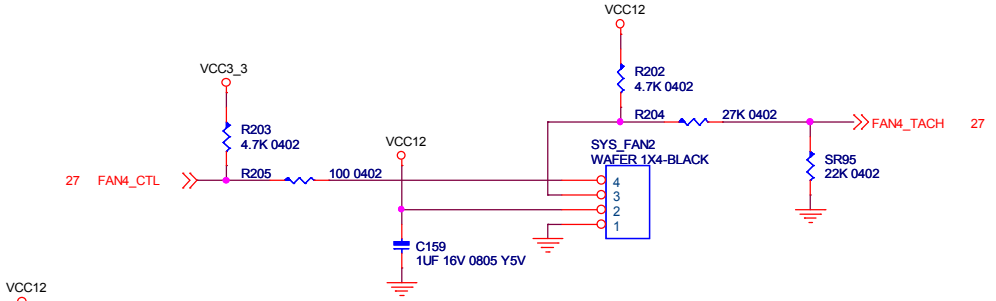
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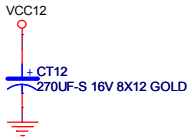


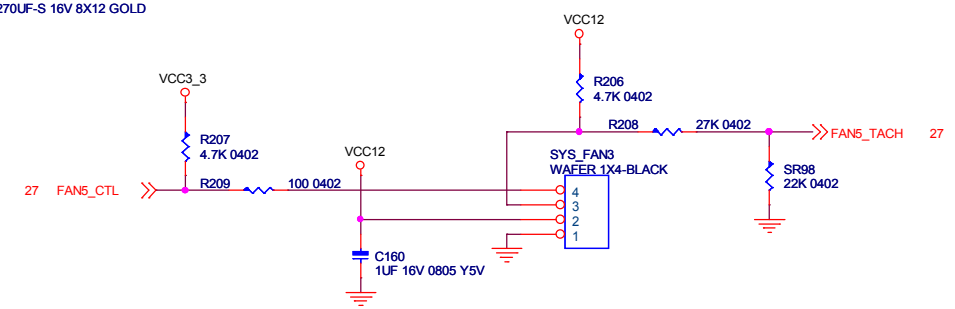












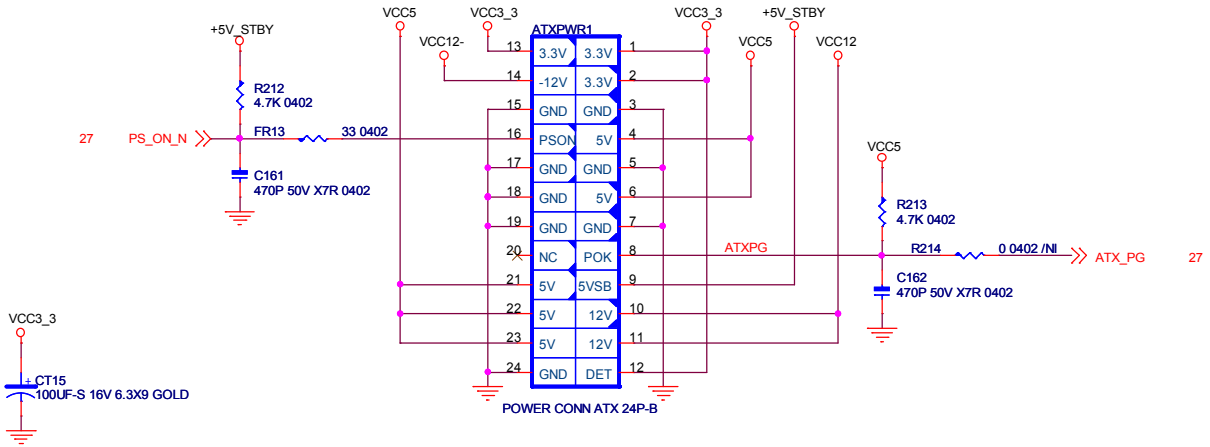
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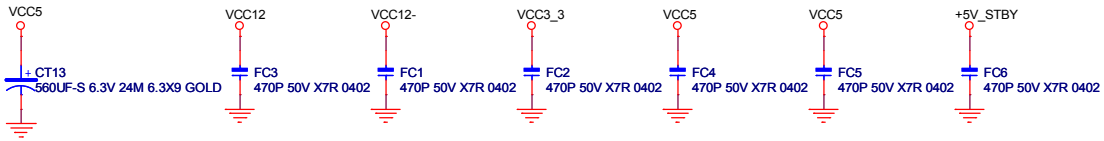
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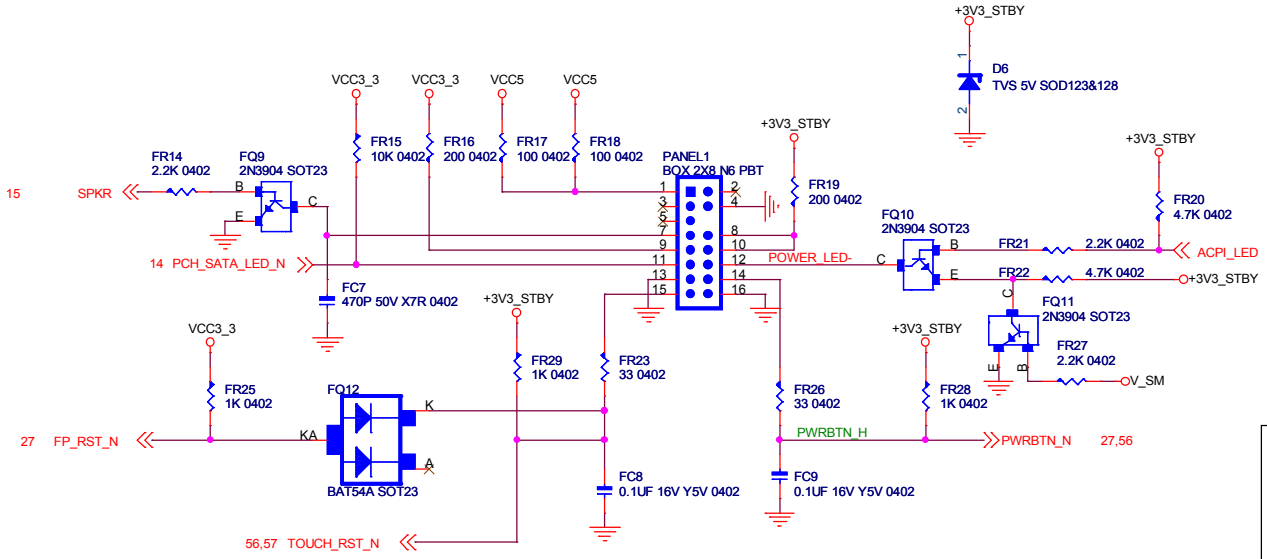
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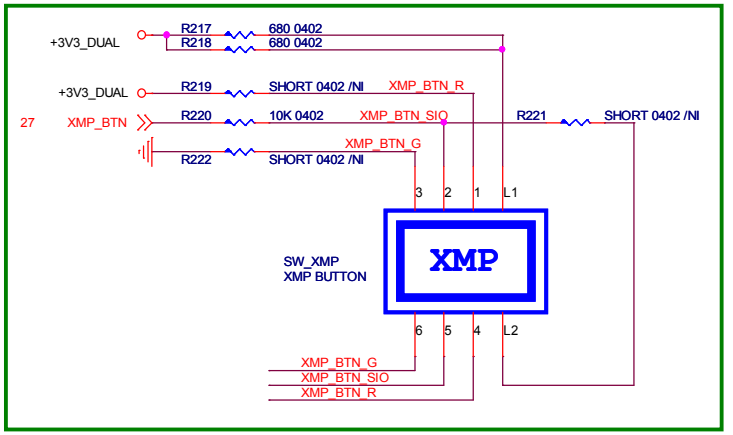
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Size B	Document Number IZ17C-AHT	Rev 5.0
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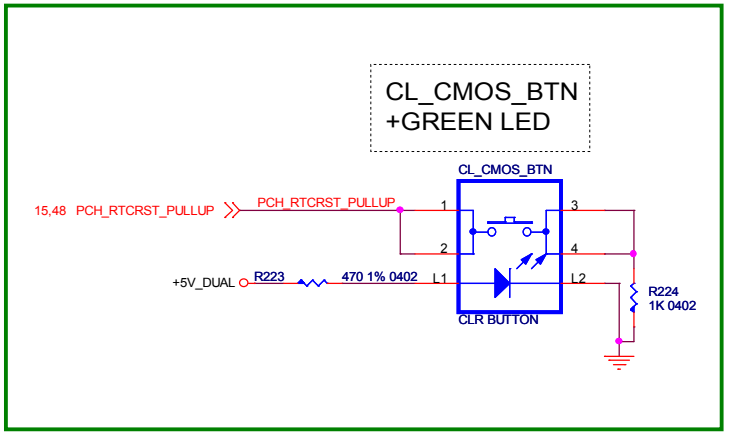
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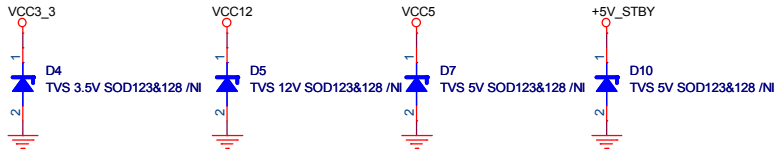










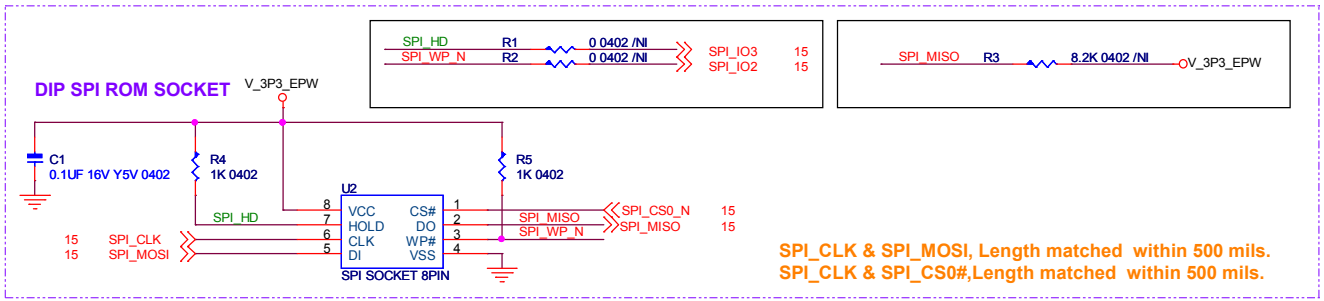


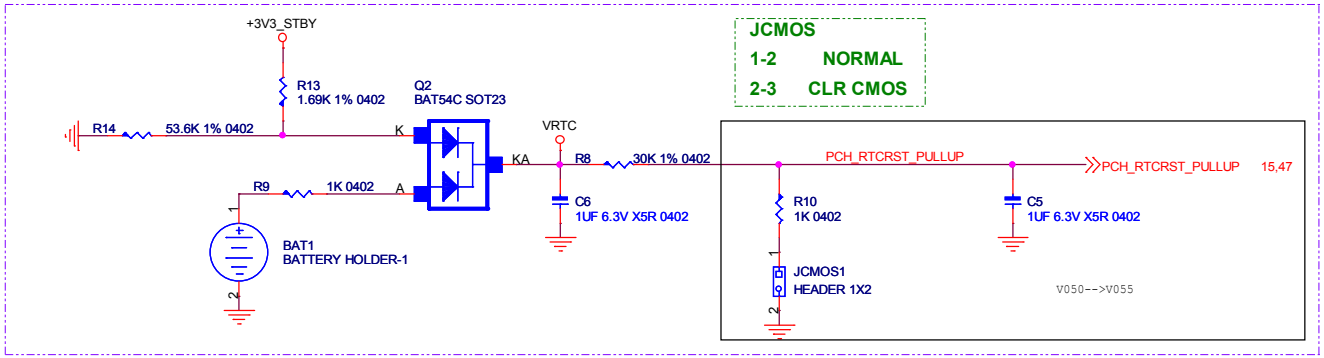
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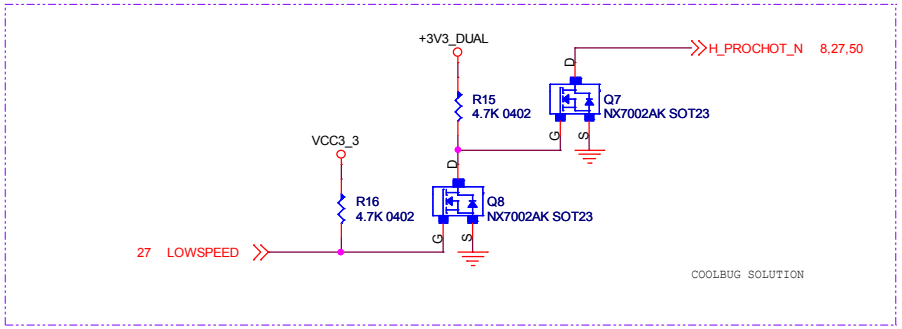
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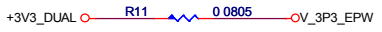
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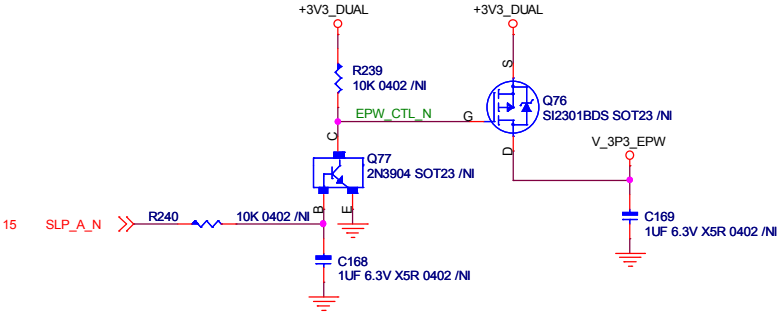
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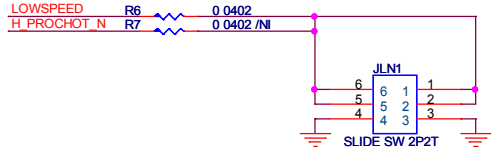












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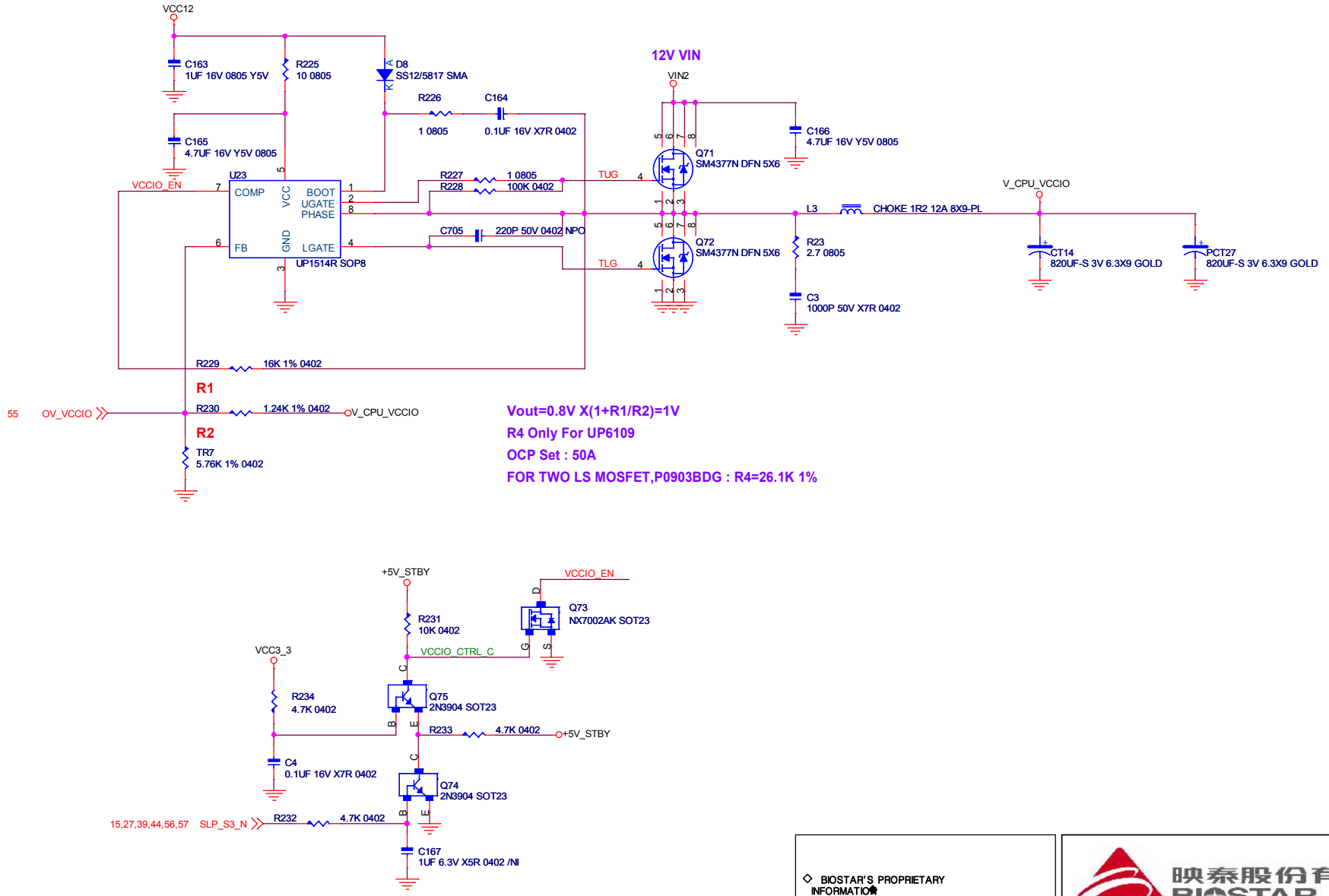
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Title	VCCIO DC-DC	
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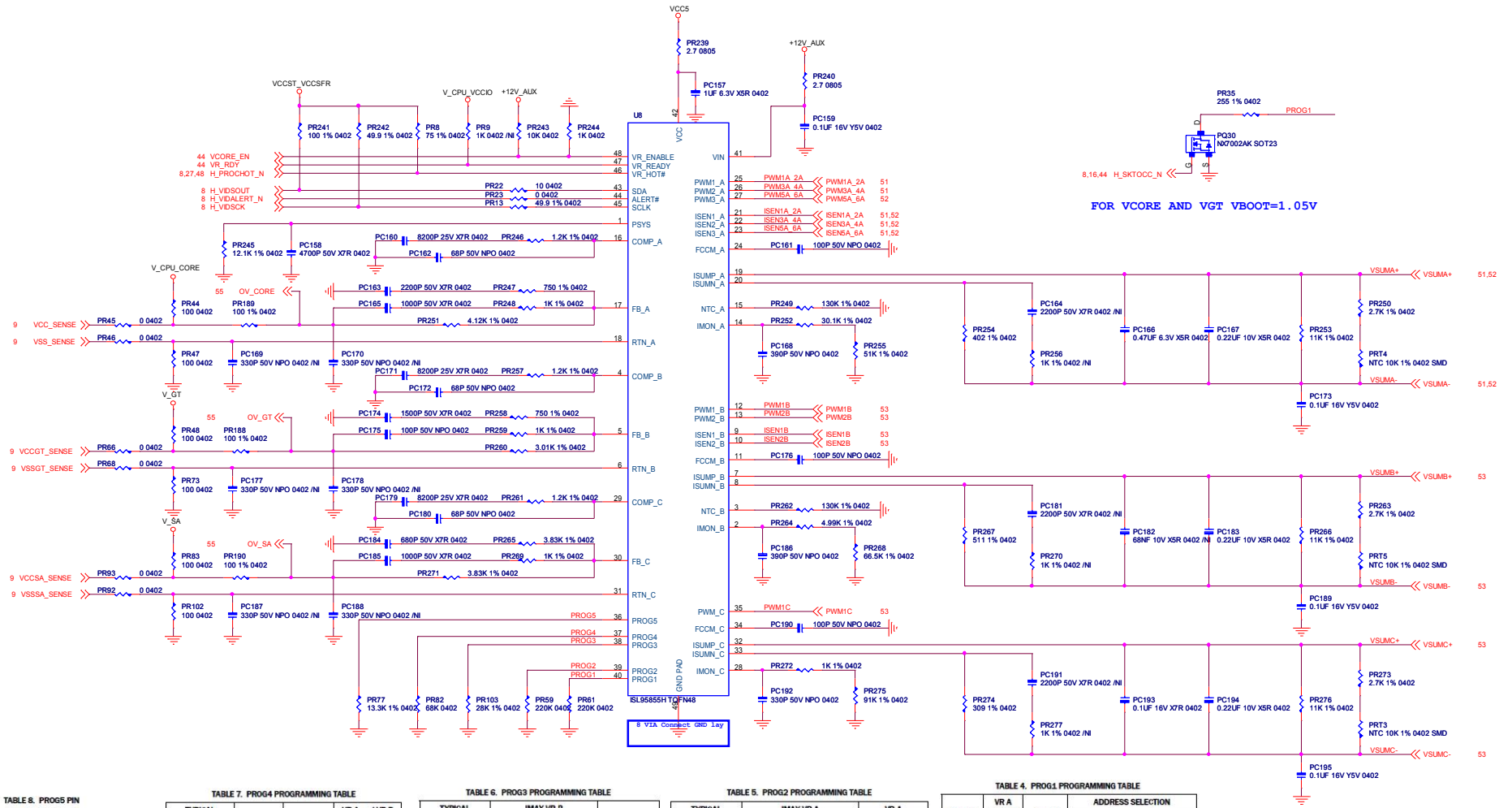


TABLE 8. PROG5 PIN

TYPICAL PROG5 RESISTOR (±1%, kΩ)	VR C IMAX (A)		VR C SWITCHING FREQUENCY (kHz)
	SA	GTUS	
1.87	7	17	300
5.62	9	20	300
9.31	12	25	300
13.3	15	27	300
16.9	7	17	350
20.5	9	20	350
24.3	12	25	350
28.0	15	27	350
34.0	7	17	450
41.2	9	20	450
48.7	12	25	450
56.2	15	27	450
63.4	7	17	583
71.5	9	20	583
78.7	12	25	583
88.7	15	27	583
100	7	17	750
110	9	20	750
121	12	25	750
137	15	27	750
150	7	17	1000
165	9	20	1000
182	12	25	1000
215	15	27	1000

TABLE 7. PROG4 PROGRAMMING TABLE

TYPICAL PROG4 RESISTOR (±1%, kΩ)	DROOP VR A	DROOP VR C	VR A and VR B SWITCHING FREQUENCY (kHz)
1.87	Disabled	Disabled	300
5.62	Disabled	Disabled	350
9.31	Disabled	Disabled	450
13.3	Disabled	Disabled	583
16.9	Disabled	Disabled	750
20.5	Disabled	Disabled	1000
24.3	Disabled	Active	300
28.0	Disabled	Active	350
34.0	Disabled	Active	450
41.2	Disabled	Active	583
48.7	Disabled	Active	750
56.2	Disabled	Active	1000
63.4	Active	Disabled	300
71.5	Active	Disabled	350
78.7	Active	Disabled	450
88.7	Active	Disabled	583
100	Active	Disabled	750
110	Active	Disabled	1000
121	Active	Active	300
137	Active	Active	350
150	Active	Active	450
165	Active	Active	583
182	Active	Active	750
215	Active	Active	1000

TABLE 6. PROG3 PROGRAMMING TABLE

TYPICAL PROG3 RESISTOR (±1%, kΩ)	IMAX VR B		DROOP VR B
	2-PH (A)	1-PH (A)	
1.87	35	7	Active
5.62	40	10	Active
9.31	45	15	Active
13.3	50	18	Active
16.9	55	20	Active
20.5	60	25	Active
24.3	65	27	Active
28.0	67	30	Active
34.0	70	33	Active
41.2	75	35	Active
48.7	80	40	Active
56.2	85	45	Active
63.4	35	7	Disabled
71.5	40	10	Disabled
78.7	45	15	Disabled
88.7	50	18	Disabled
100	55	20	Disabled
110	60	25	Disabled
121	65	27	Disabled
137	67	30	Disabled
150	70	33	Disabled
165	75	35	Disabled
182	80	40	Disabled
215	85	45	Disabled

TABLE 5. PROG2 PROGRAMMING TABLE

TYPICAL PROG2 RESISTOR (±1%, kΩ)	IMAX VR A			VR A PS1 PHASE REDUCTION
	3-PH (A)	2-PH (A)	1-PH (A)	
1.87	67	35	7	2-Phase
5.62	70	40	10	2-Phase
9.31	75	45	15	2-Phase
13.3	80	50	18	2-Phase
16.9	85	55	20	2-Phase
20.5	91	60	25	2-Phase
24.3	95	65	27	2-Phase
28.0	100	67	30	2-Phase
34.0	105	70	33	2-Phase
41.2	110	75	35	2-Phase
48.7	115	80	40	2-Phase
56.2	120	85	45	2-Phase
63.4	67	35	7	1-Phase
71.5	70	40	10	1-Phase
78.7	75	45	15	1-Phase
88.7	80	50	18	1-Phase
100	85	55	20	1-Phase
110	91	60	25	1-Phase
121	95	65	27	1-Phase
137	100	67	30	1-Phase
150	105	70	33	1-Phase
165	110	75	35	1-Phase
182	115	80	40	1-Phase
215	120	85	45	1-Phase

TABLE 4. PROG1 PROGRAMMING TABLE

TYPICAL PROG1 RESISTOR (±1%, kΩ)	VR A + VR B + VR C (GTUS) Vboot (V)	SLEW RATE ALL VRs (mV/µs)	ADDRESS SELECTION		
			VR A	VR B	VR C
1.87	1.05	30	GT[01h]	GTUS [03h]	SA [02h]
5.62	1.05	30	GT[01h]	IA [00h]	GTUS [03h]
9.31	1.05	30	GT[01h]	IA [00h]	SA [02h]
13.3	1.05	30	IA [00h]	GTUS [03h	SA [02h]
16.9	1.05	30	IA [00h]	GT[01h]	GTUS [03h]
20.5	1.05	30	IA [00h]	GT[01h]	SA [02h]
24.3	1.05	10	GT[01h]	GTUS [03h]	SA [02h]
28.0	1.05	10	GT[01h]	IA [00h]	GTUS [03h]
34.0	1.05	10	GT[01h]	IA [00h]	SA [02h]
41.2	1.05	10	IA [00h]	GTUS [03h	SA [02h]
48.7	1.05	10	IA [00h]	GT[01h]	GTUS [03h]
56.2	1.05	10	IA [00h]	GT[01h]	SA [02h]
63.4	0	30	GT[01h]	GTUS [03h]	SA [02h]
71.5	0	30	GT[01h]	IA [00h]	GTUS [03h]
78.7	0	30	GT[01h]	IA [00h]	SA [02h]
88.7	0	30	IA [00h]	GTUS [03h	SA [02h]
100	0	30	IA [00h]	GT[01h]	GTUS [03h]
110	0	30	IA [00h]	GT[01h]	SA [02h]
121	0	10	GT[01h]	GTUS [03h]	SA [02h]
137	0	10	GT[01h]	IA [00h]	GTUS [03h]
150	0	10	GT[01h]	IA [00h]	SA [02h]
165	0	10	IA [00h]	GTUS [03h	SA [02h]
182	0	10	IA [00h]	GT[01h]	GTUS [03h]
215	0	10	IA [00h]	GT[01h]	SA [02h]

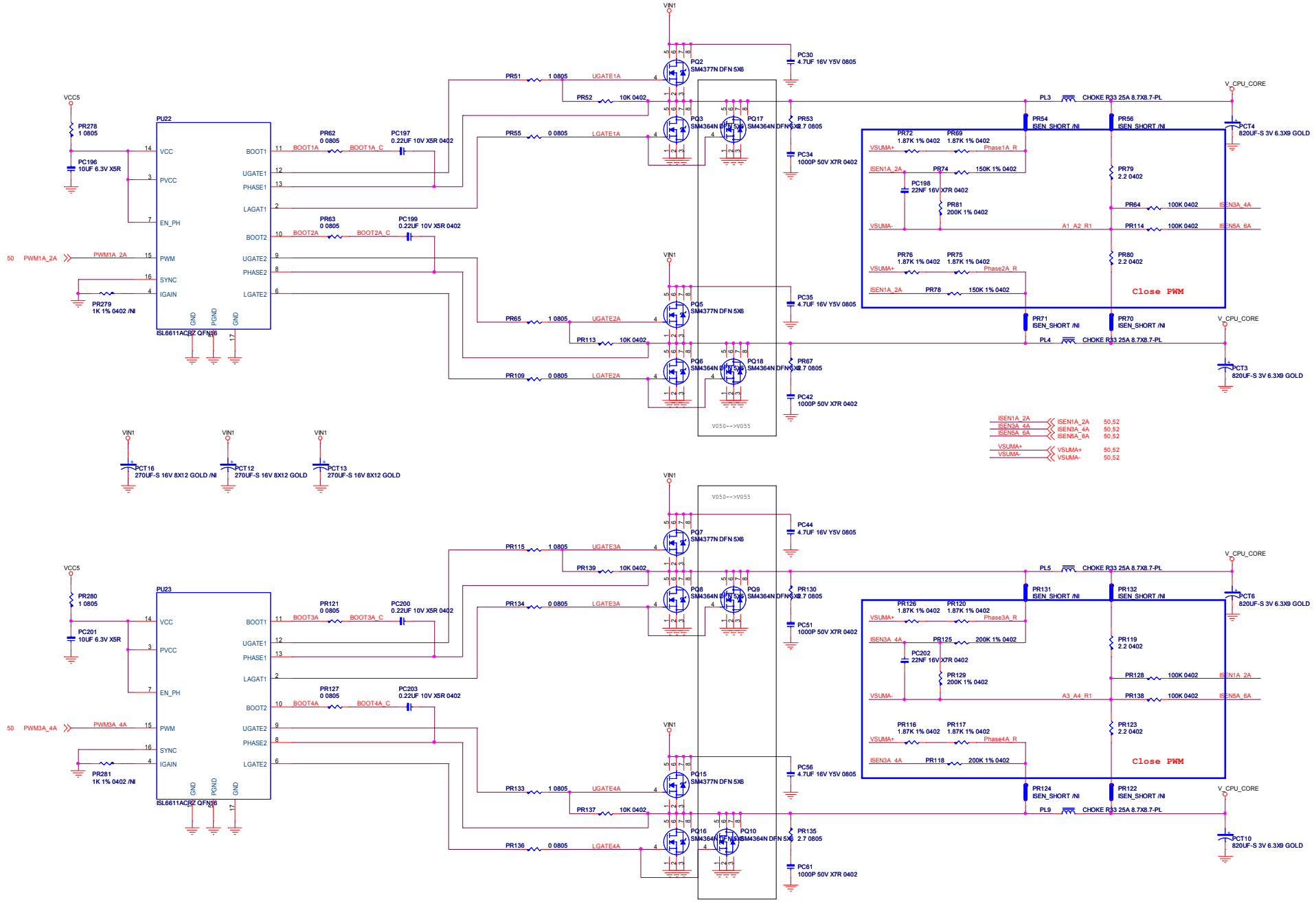
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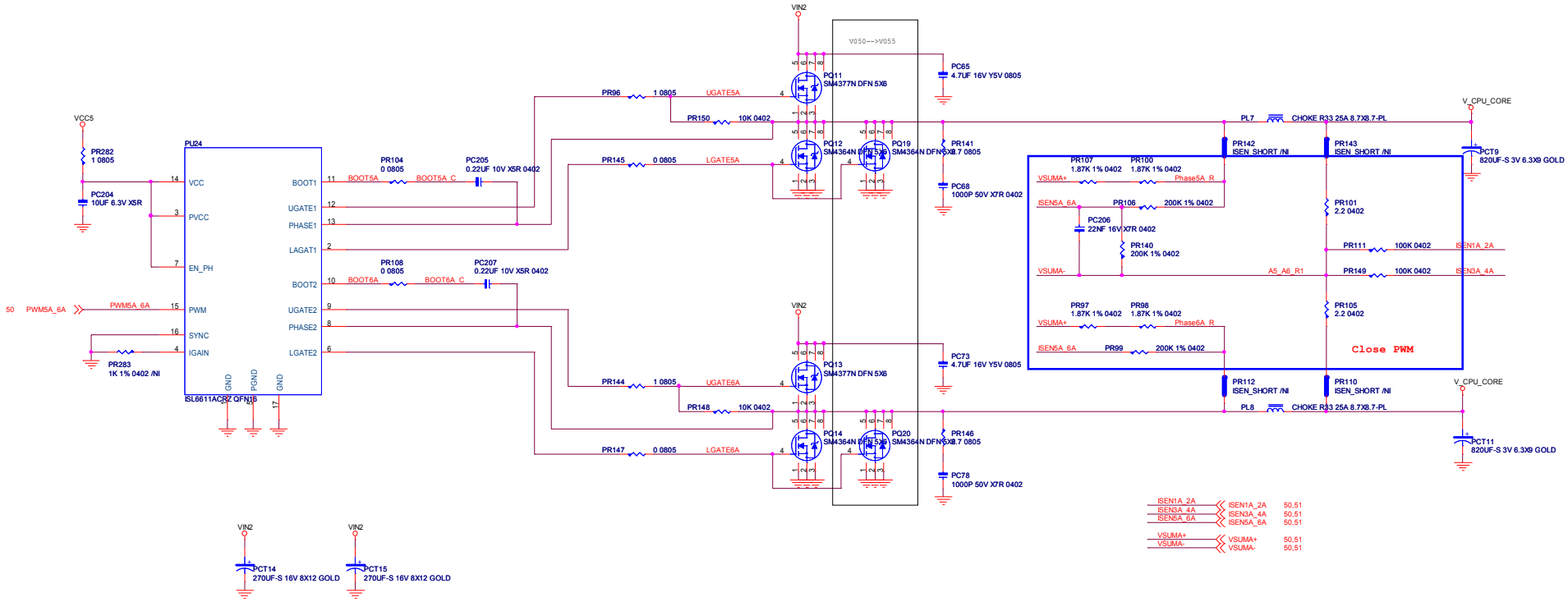
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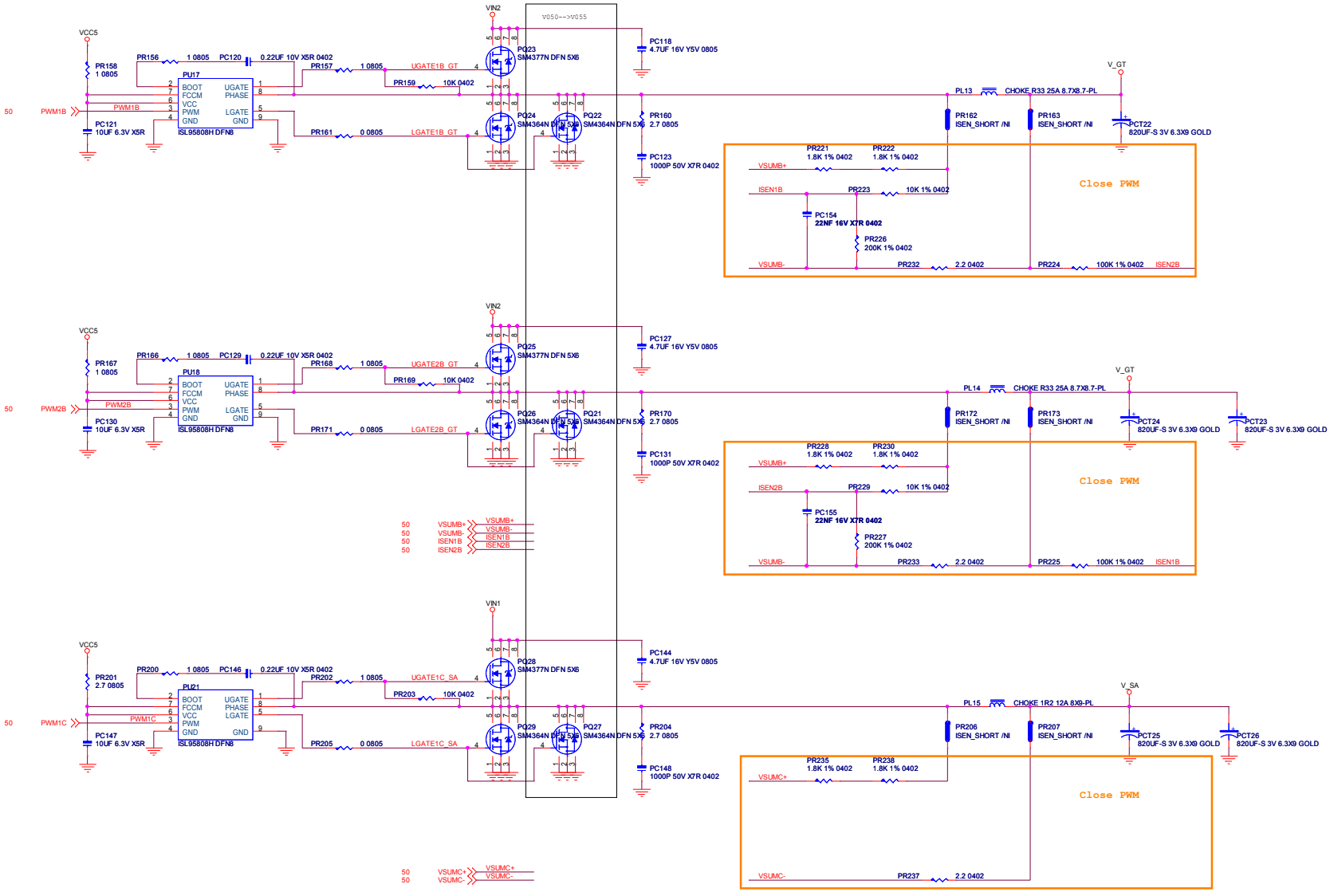


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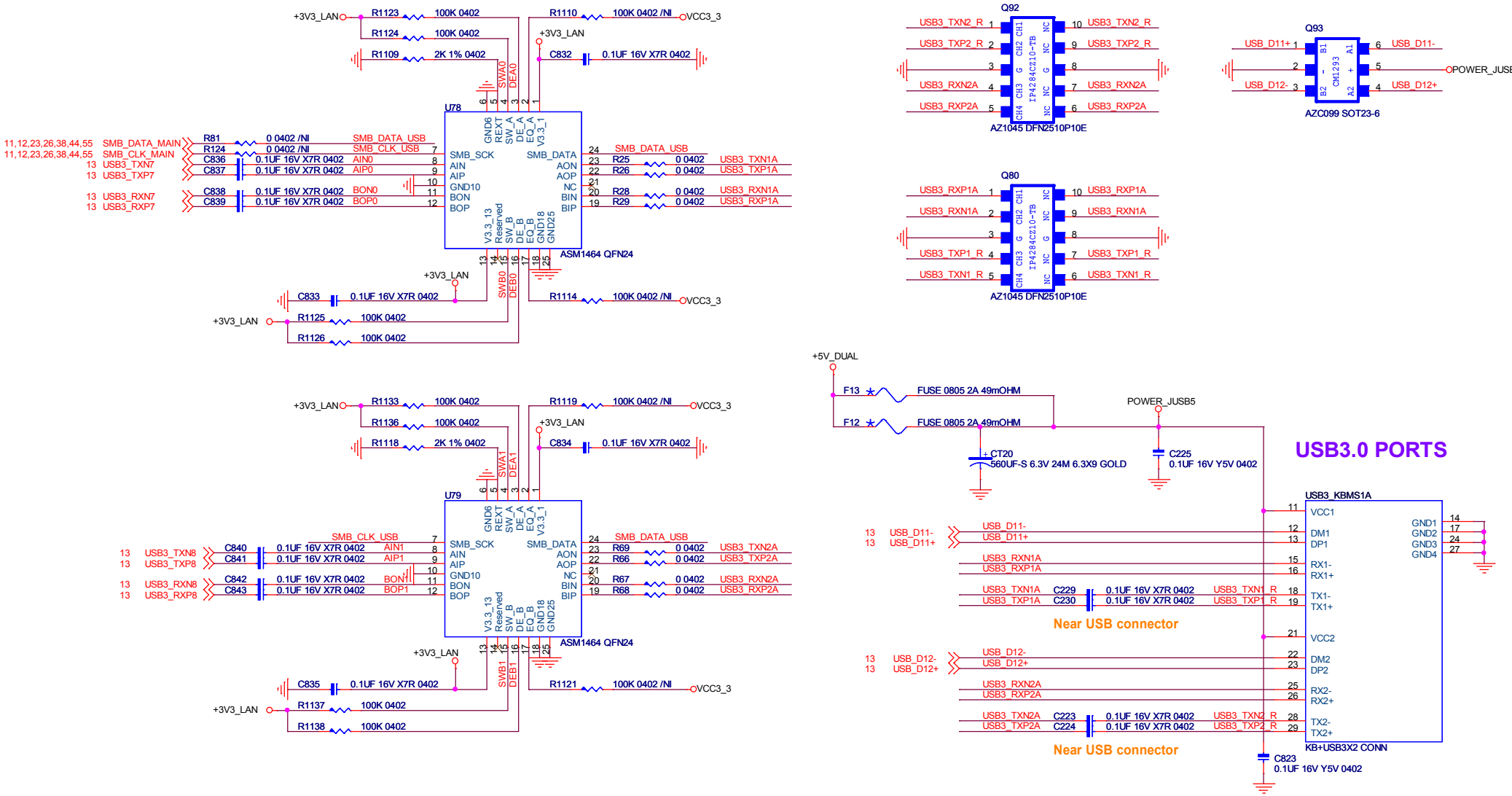
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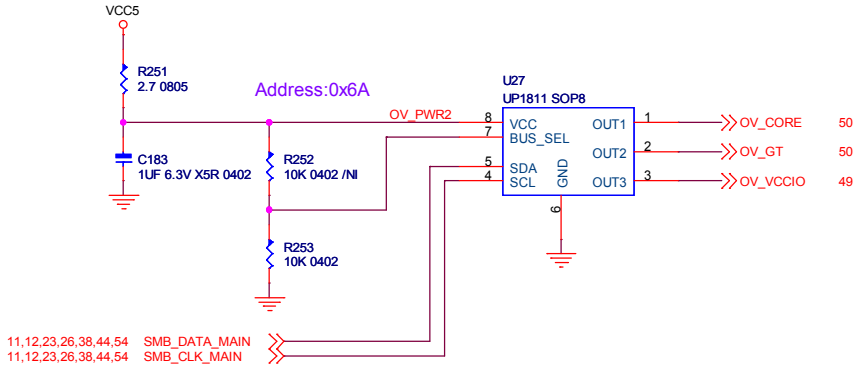
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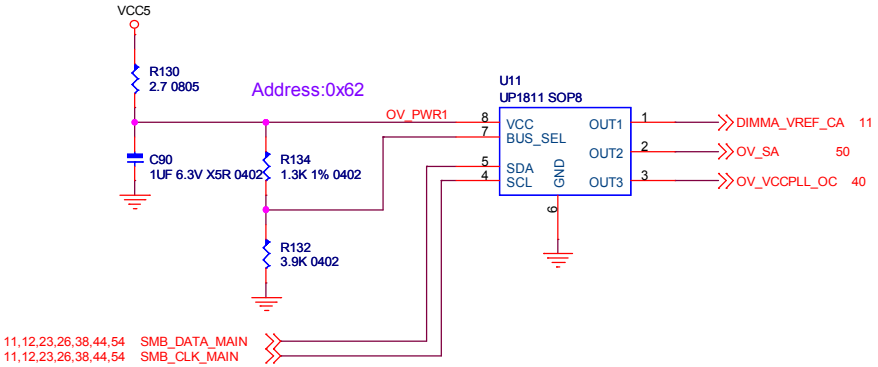
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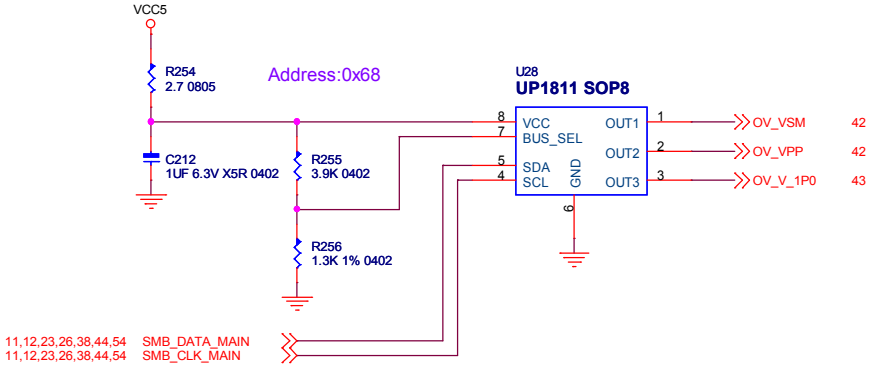


SW_X	DE_X	Descriptions
0	0	-1.5dB
0	1	0dB
1	0	+1.5dB
1	1	+1.5dB

Title	USB3.0 REDRIVER
Size	Custom
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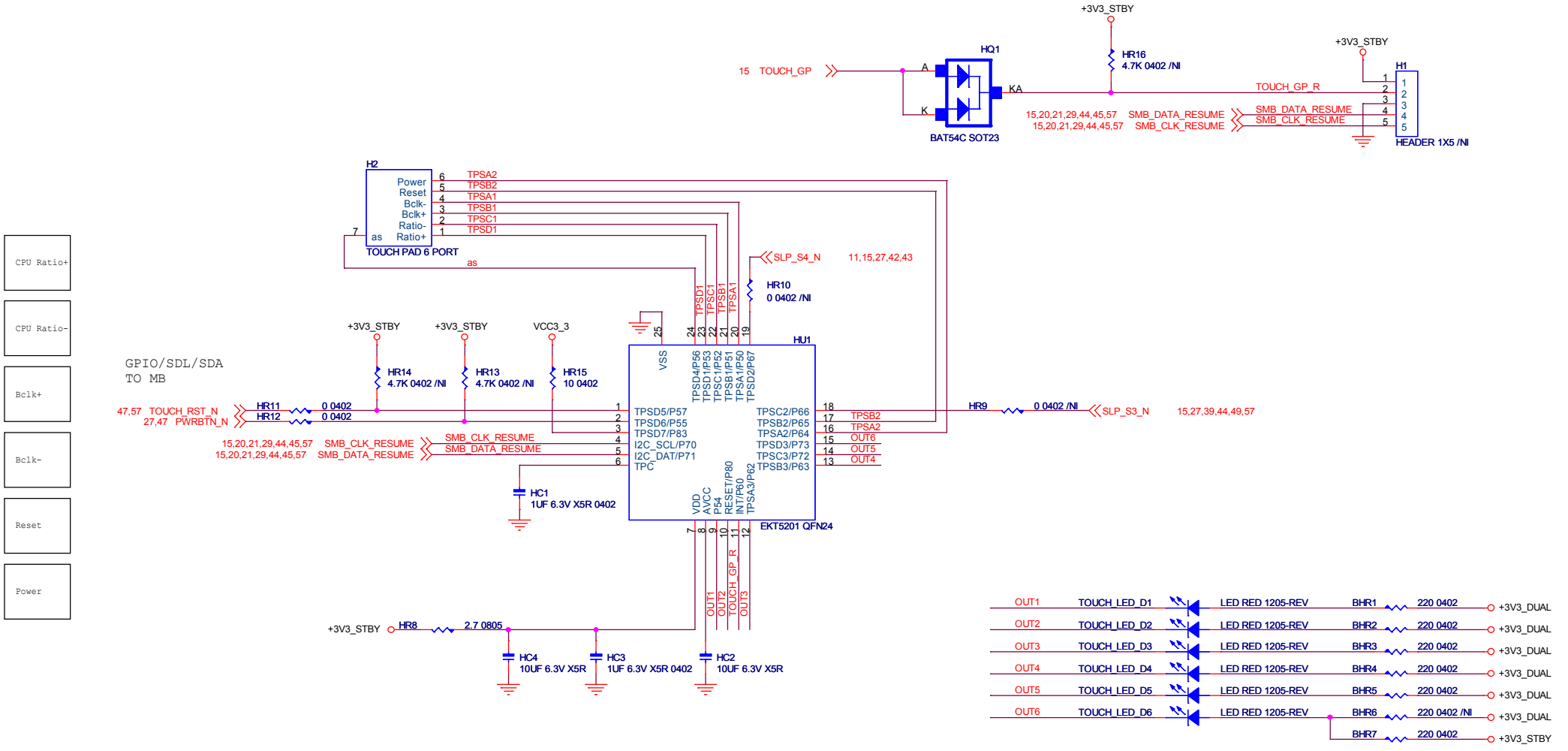






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Title	OVER VOLTAGE	
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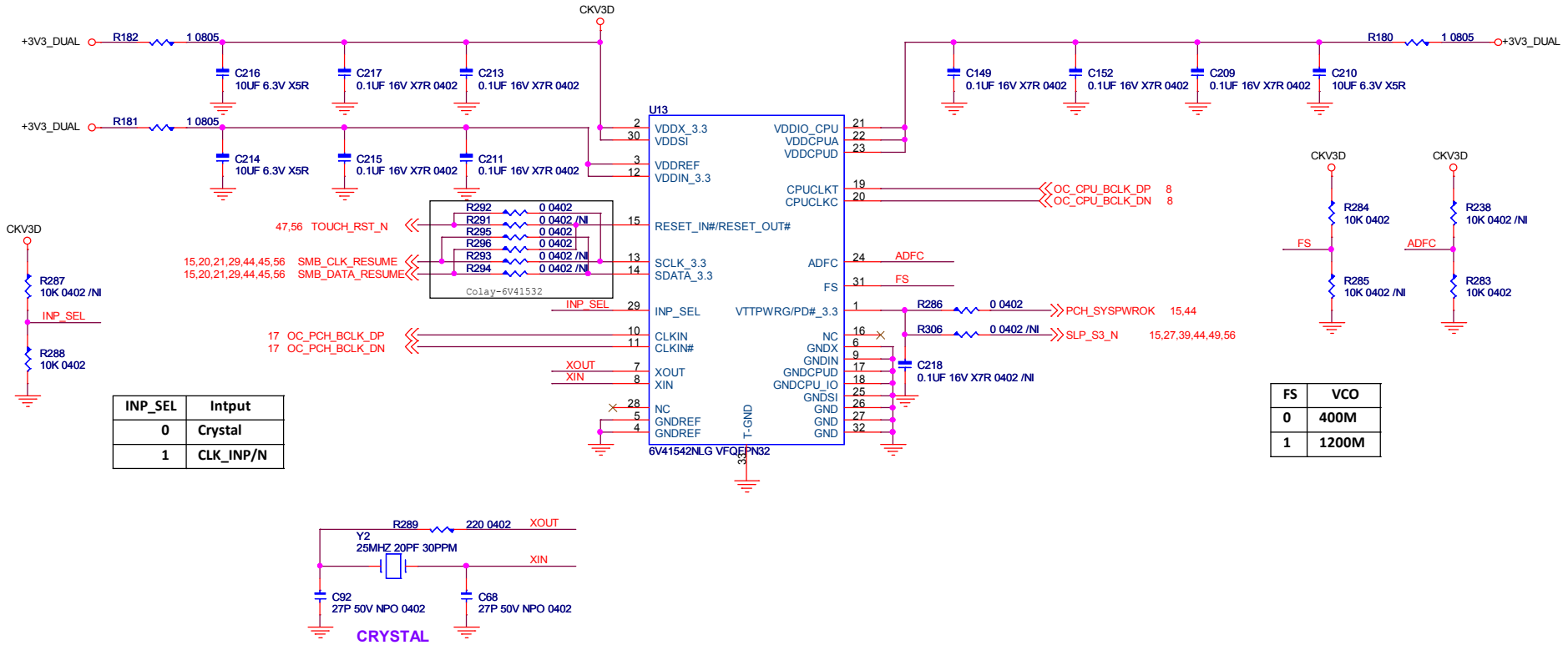


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INP_SEL	Intput
0	Crystal
1	CLK_INP/N

FS	VCO
0	400M
1	1200M

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MH1
PAD200-8 /NI

MH2
PAD200-8 /NI

MH5
PAD200-8 /NI

MH6
PAD200-8 /NI

MH7
PAD200-8 /NI

MH4
PAD200-8 /NI

MH9
PAD200-8 /NI

MH10
PAD200-8 /NI

MH3
PAD200-8 /NI

MH8
PAD200-8 /NI

MH13
7.1MM SMD BRASS SCREW /NI
H1

(MH13)
3.3MM SMD BRASS SCREW

MH12
7.1MM SMD BRASS SCREW /NI
H1

(MH12)
3.3MM SMD BRASS SCREW

MH11
7.1MM SMD BRASS SCREW /NI
H1

(MH11)
6.6MM SMD BRASS SCREW SEP

((MH11))
KNURLED SCREW M2X3

Impedance Testing Coupon

NC1
TUNE2
CP1
CP2
HEADER 1X2 D 150 /NI

NC2
TUNE1
CP1
CP2
HEADER 1X2 D 150 /NI

Impedance Testing Coupon

NC3
TUNE3
CP1
CP2
HEADER 1X2 D 150 /NI

NC4
TUNE4
CP1
CP2
HEADER 1X2 D 150 /NI

(CPU1)
LGA 1156 FRAME

PCB
PCB
IZ17C-AHT V5.0

(U2)
FLASH ROM
SPI W25Q64 DIP

(MOS1)
MOSHS-IZ17C-AHT

(MOS2)
MOSHS-IZ17C-AHT

(PCH1)
SBHS-IZ17C-AHT

(BAT1)
電池
3V BATTERY SONY

GAMING IO

(SCREW1) 39-600-000003R3	(SCREW2) 39-600-000003R3	(SCREW3) 39-600-000003R3	(SCREW4) 39-600-000003R3	(SCREW5) 39-600-000003R3	(SCREW6) 39-600-000003R3
(NUT1) 39-600-000004R3	(NUT2) 39-600-000004R3	(NUT3) 39-600-000004R3	(NUT4) 39-600-000004R3	(NUT5) 39-600-000004R3	(NUT6) 39-600-000004R3
(LB1) 58-600-000001R3	(LB2) 58-600-000002R3	(LB3) 58-600-000003R4	(LB4) 58-600-000004R4		
(MYLAR1) 71-MYLAR-0805	(MYLAR2) 71-MYLAR-0805	(MYLAR3) 71-MYLAR-0805	(MYLAR4) 71-MYLAR-0805	(MYLAR5) 71-MYLAR-0805	(MYLAR6) 71-MYLAR-0805
(COVER1) 90-700-000001R3	(COVER2) 90-700-000002R3	(COVER3) 90-700-000003R3	(COVER4) 90-700-000004R3	(COVER5) 90-700-000005R3	(COVER6) 90-600-000008R3	(COVER7) 90-600-000010R3

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