Viper2

PAGE	TITLE
01	BLOCK DIAGRAM
02	CLOCK DISTRIBUTION
03	CPU DDI/EDP
04	CPU DDR4 A
05	CPU DDR4 B
06	CPU DMI/PEG
07	CPU MISC
08	CPU VSS
09	CPU POWER1
10	CPU POWER2
11	Thunderbolt
12	TPS65982/TYPE-C
13	Thunderbolt_HDMI redriver
14	Thunderbolt_DP redriver
15	xxxThunderbolt
16	DDR4_SO-DIMM0
17.	DDR4_SO-DIMM1
18	DDR4 TERMINATION A&B
19	xxxxxxxxxxxxxxxxxxxxxxxxxxxx
20	PCH DMI_PCIE_USB_SATA 1-8
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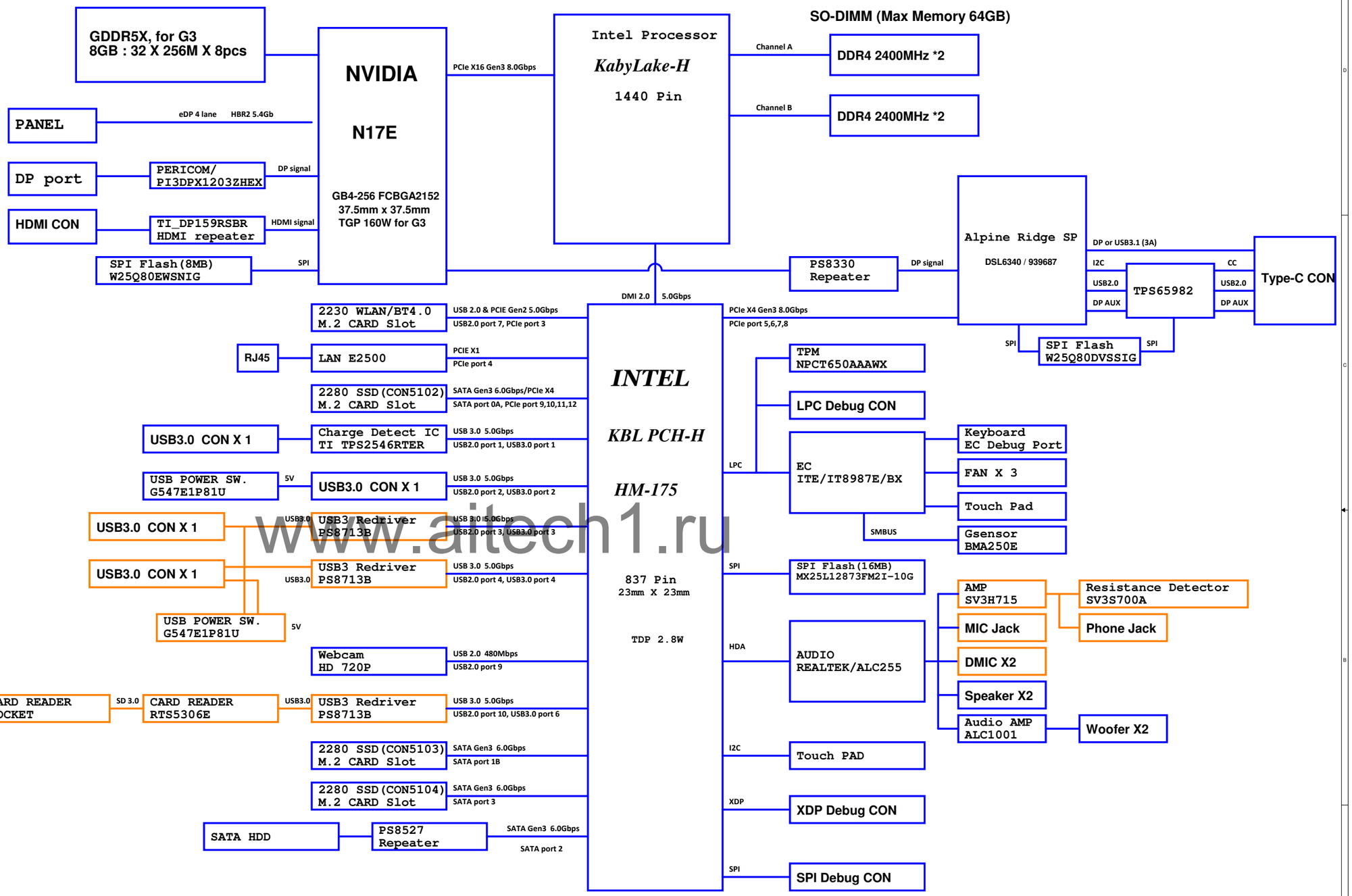
29	xxxCLK
30	EC_ITE8987
31	KB/TP/SPI ROM
32	xxxREST IC
33	LAN_E2400
34	RJ45 CONNECTOR
35	xxxLAN
36	AUDIO CODEC ALC255
37	AUDIO AMP ALC1001
38	xxxAUDIO
39	xxxAUDIO
40	xxxCB_/EXC
41	xxxCB_/EXC
42	xxxCB_/EXC
43	WEB CAM/3D CAM
44	DEBUG CON
45	EDP/DMIC/TS/LGF
46	DP Multiplexer
47	xxxDVI/DP_
48	HDMI OUT
49	xxxHDMI
50	FAN/THERMAL
51	SATA/ODD/SSD CONNECTOR
52	USB CHARGE IC
53	NGFF WLAN
54	xxxBAR
55	USB 3.0 CONNECTOR
56	PWR BOARD CON
57	GPU POWER Discharge
58	G-SENSOR
59	xxxGPS
60-63	BAT CON AC CON/ BOARD ID/ TMP
64	xxxxxxxxxxxxxxxxxxxxxxxxxxxx
65	xxxME_
66	xxxESA_
67	IO Board/USB SD AUDIO
68	xxxGHS
69	Screw hole
70	N17E-G3_PCIE
71	N17E-G3_Buffer A
72	N17E-G3_DACAand XTAL
73	N17E-G3_Multi-use IO(MIO)
74	N17E-G3_Misc-GPIO_I2C_ROM
75	GPU NVVDD, FBVDDQ, and GND
76	GDDR5/5X 256M x 16bit x 2pcs_TOP1
77	GDDR5/5X 256M x 16bit x 2pcs_TOP2
78	GDDR5/5X 256M x 16bit x 2pcs_BOT1
79	GDDR5/5X 256M x 16bit x 2pcs_BOT2
80	POWER_44e_45W_CORE_GT_SA
81	POWER_SYSTEM
82	POWER_+1.0VSUS
83	POWER_ DDR & VTT
84	POWER_+1.5VS
85	POWER_XXX
86	POWER_+1V8_AON
87	POWER_+NVDD (VGA_VCORE)
88	POWER_CHARGER
89	POWER_+FBVDDQ
90	POWER_DETECT
91	POWER_LOAD SWITCH
92	POWER_PROTECT
93	POWER_SIGNAL
94	POWER_VCCIO
95	POWER_+2.5V
96	POWER_PEX_VDD
97	POWER_+NVDDS
A01	DB_LED

Viper2 (KabyLake-H)

Revision_1.00_2016/05/23



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : BLOCK DIAGRAM

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
Custom	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 1 of 101

I2C_Port	Module	DEVICE	7-bit addr
I2C_0	TOUCH PAD		0X2C
I2C_1	TOUCH PANEL		
SMBUS	DDR Channel A(CON1600)		
	DDR Channel A(CON1601)		
	DDR Channel B(CON1700)		
	DDR Channel B(CON1701)		
	Resistance Detector	SV3S700A	0X73
SMBUS0 (EC)	BATTERY		0X0B
	CHARGE IC	BQ24735RGRR	0X09
SMBUS1 (EC)	G-SENSOR	BMA250E	0X18
	THERMAL-SENSOR	G781P8F	0X4C
	LED DRIVER	TLC59116IPWR	0X68
	GPU	N17E-G3	0X4F

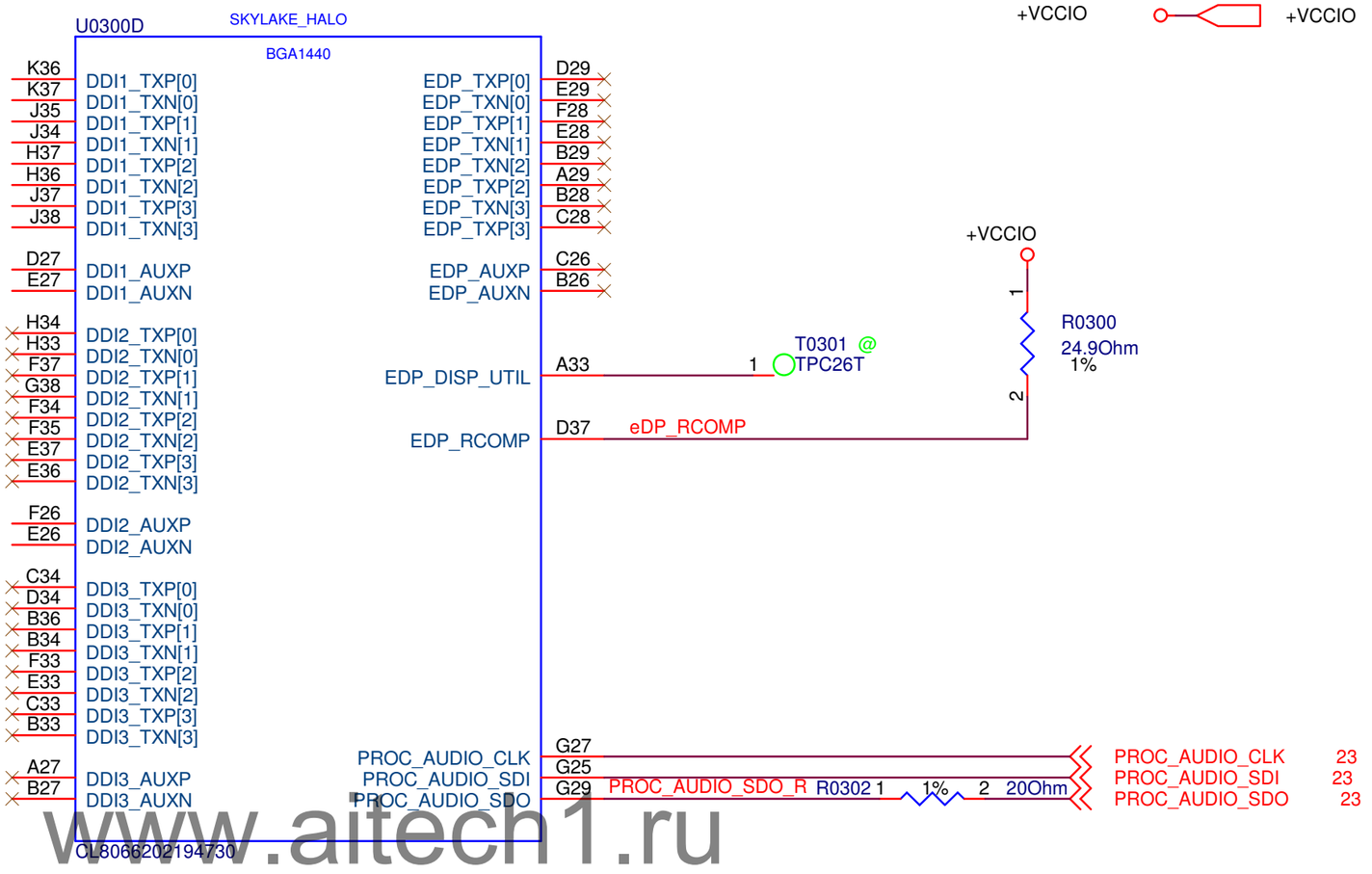
<Variant Name>

PEGATRON Title : I2C MAP

Pegatron Corp. Engineer: Kai_Shen

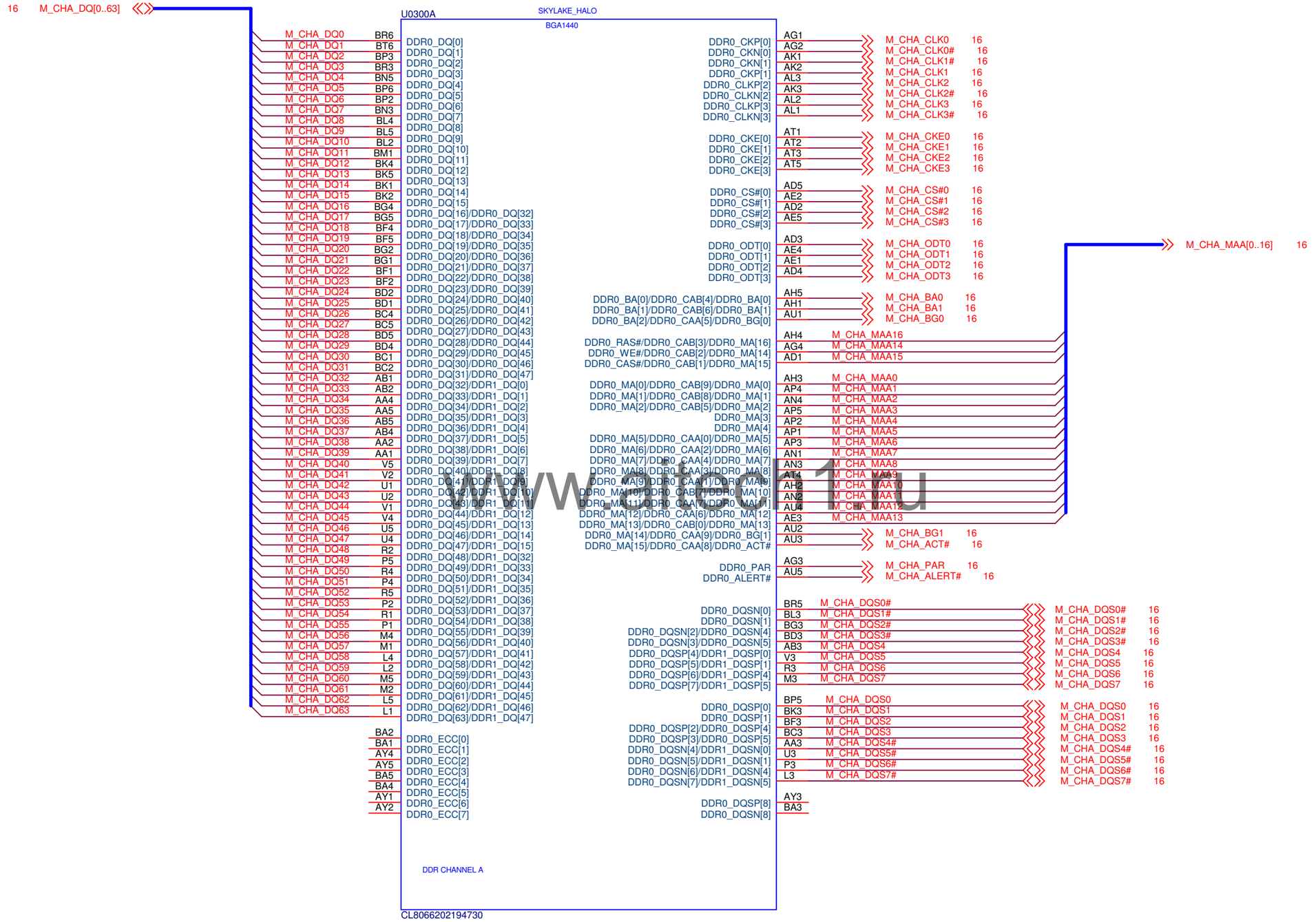
Size	Project Name	Rev
A3	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 2 of 101



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : CPU_DDI/EDP		
Pegatron Corp.	Engineer: Kai_Shen	
Size: A4	Project Name: P7RCR	Rev: R1.0
Date: Monday, October 17, 2016	Sheet 3 of 101	



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : CPU_DDR4_A

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A3	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 4 of 101

17 M_CHB_DQ[0..63]

U0300B SKYLAKE_HALO BGA1440

M_CHB_DQ0	BT11	DDR1_DQ[0]/DDR0_DQ[16]
M_CHB_DQ1	BR11	DDR1_DQ[1]/DDR0_DQ[17]
M_CHB_DQ2	BT8	DDR1_DQ[2]/DDR0_DQ[18]
M_CHB_DQ3	BR8	DDR1_DQ[3]/DDR0_DQ[19]
M_CHB_DQ4	BP11	DDR1_DQ[4]/DDR0_DQ[20]
M_CHB_DQ5	BN11	DDR1_DQ[5]/DDR0_DQ[21]
M_CHB_DQ6	BP8	DDR1_DQ[6]/DDR0_DQ[22]
M_CHB_DQ7	BN8	DDR1_DQ[7]/DDR0_DQ[23]
M_CHB_DQ8	BL12	DDR1_DQ[8]/DDR0_DQ[24]
M_CHB_DQ9	BL11	DDR1_DQ[9]/DDR0_DQ[25]
M_CHB_DQ10	BL8	DDR1_DQ[10]/DDR0_DQ[26]
M_CHB_DQ11	BJ8	DDR1_DQ[11]/DDR0_DQ[27]
M_CHB_DQ12	BJ11	DDR1_DQ[12]/DDR0_DQ[28]
M_CHB_DQ13	BJ10	DDR1_DQ[13]/DDR0_DQ[29]
M_CHB_DQ14	BL7	DDR1_DQ[14]/DDR0_DQ[30]
M_CHB_DQ15	BJ7	DDR1_DQ[15]/DDR0_DQ[31]
M_CHB_DQ16	BG11	DDR1_DQ[16]/DDR0_DQ[48]
M_CHB_DQ17	BG10	DDR1_DQ[17]/DDR0_DQ[49]
M_CHB_DQ18	BG8	DDR1_DQ[18]/DDR0_DQ[50]
M_CHB_DQ19	BF8	DDR1_DQ[19]/DDR0_DQ[51]
M_CHB_DQ20	BF11	DDR1_DQ[20]/DDR0_DQ[52]
M_CHB_DQ21	BF10	DDR1_DQ[21]/DDR0_DQ[53]
M_CHB_DQ22	BG7	DDR1_DQ[22]/DDR0_DQ[54]
M_CHB_DQ23	BF7	DDR1_DQ[23]/DDR0_DQ[55]
M_CHB_DQ24	BB11	DDR1_DQ[24]/DDR0_DQ[56]
M_CHB_DQ25	BC11	DDR1_DQ[25]/DDR0_DQ[57]
M_CHB_DQ26	BB8	DDR1_DQ[26]/DDR0_DQ[58]
M_CHB_DQ27	BC8	DDR1_DQ[27]/DDR0_DQ[59]
M_CHB_DQ28	BC10	DDR1_DQ[28]/DDR0_DQ[60]
M_CHB_DQ29	BB10	DDR1_DQ[29]/DDR0_DQ[61]
M_CHB_DQ30	BC7	DDR1_DQ[30]/DDR0_DQ[62]
M_CHB_DQ31	BB7	DDR1_DQ[31]/DDR0_DQ[63]
M_CHB_DQ32	AA11	DDR1_DQ[32]/DDR1_DQ[16]
M_CHB_DQ33	AA10	DDR1_DQ[33]/DDR1_DQ[17]
M_CHB_DQ34	AC11	DDR1_DQ[34]/DDR1_DQ[18]
M_CHB_DQ35	AC10	DDR1_DQ[35]/DDR1_DQ[19]
M_CHB_DQ36	AA7	DDR1_DQ[36]/DDR1_DQ[20]
M_CHB_DQ37	AA8	DDR1_DQ[37]/DDR1_DQ[21]
M_CHB_DQ38	AC8	DDR1_DQ[38]/DDR1_DQ[22]
M_CHB_DQ39	AC7	DDR1_DQ[39]/DDR1_DQ[23]
M_CHB_DQ40	W8	DDR1_DQ[40]/DDR1_DQ[24]
M_CHB_DQ41	W7	DDR1_DQ[41]/DDR1_DQ[25]
M_CHB_DQ42	V10	DDR1_DQ[42]/DDR1_DQ[26]
M_CHB_DQ43	V11	DDR1_DQ[43]/DDR1_DQ[27]
M_CHB_DQ44	W11	DDR1_DQ[44]/DDR1_DQ[28]
M_CHB_DQ45	W10	DDR1_DQ[45]/DDR1_DQ[29]
M_CHB_DQ46	V7	DDR1_DQ[46]/DDR1_DQ[30]
M_CHB_DQ47	V8	DDR1_DQ[47]/DDR1_DQ[31]
M_CHB_DQ48	R11	DDR1_DQ[48]
M_CHB_DQ49	P11	DDR1_DQ[49]
M_CHB_DQ50	P7	DDR1_DQ[50]
M_CHB_DQ51	R8	DDR1_DQ[51]
M_CHB_DQ52	R10	DDR1_DQ[52]
M_CHB_DQ53	P10	DDR1_DQ[53]
M_CHB_DQ54	R7	DDR1_DQ[54]
M_CHB_DQ55	P8	DDR1_DQ[55]
M_CHB_DQ56	L11	DDR1_DQ[56]
M_CHB_DQ57	M11	DDR1_DQ[57]
M_CHB_DQ58	L7	DDR1_DQ[58]
M_CHB_DQ59	M8	DDR1_DQ[59]
M_CHB_DQ60	L10	DDR1_DQ[60]
M_CHB_DQ61	M10	DDR1_DQ[61]
M_CHB_DQ62	M7	DDR1_DQ[62]
M_CHB_DQ63	L8	DDR1_DQ[63]

AW11		
AY11		DDR1_ECC[0]
AY8		DDR1_ECC[1]
AW8		DDR1_ECC[2]
AY10		DDR1_ECC[3]
AW10		DDR1_ECC[4]
AY7		DDR1_ECC[5]
AW7		DDR1_ECC[6]
		DDR1_ECC[7]

DDR CHANNEL B

		DDR_RCOMP[0]
		DDR_RCOMP[1]
		DDR_RCOMP[2]

CL8066202194730

AM9		DDR1_CKP[0]
AN9		DDR1_CKN[0]
AM8		DDR1_CKN[1]
AM7		DDR1_CKP[1]
AM11		DDR1_CLKP[2]
AM10		DDR1_CLKN[2]
AJ10		DDR1_CLKP[3]
AJ11		DDR1_CLKN[3]
AT8		DDR1_CKE[0]
AT10		DDR1_CKE[1]
AT7		DDR1_CKE[2]
AT11		DDR1_CKE[3]
AF11		DDR1_CS#[0]
AE7		DDR1_CS#[1]
AF10		DDR1_CS#[2]
AE10		DDR1_CS#[3]
AF7		DDR1_ODT[0]
AE8		DDR1_ODT[1]
AE9		DDR1_ODT[2]
AE11		DDR1_ODT[3]
AH10	M_CHB_MAA16	DDR1_RAS#/DDR1_CAB[3]/DDR1_MA[16]
AH11	M_CHB_MAA14	DDR1_WE#/DDR1_CAB[2]/DDR1_MA[14]
AF8	M_CHB_MAA15	DDR1_CAS#/DDR1_CAB[1]/DDR1_MA[15]
AH8		DDR1_BA[0]/DDR1_CAB[4]/DDR1_BA[0]
AH9		DDR1_BA[1]/DDR1_CAB[6]/DDR1_BA[1]
AR9		DDR1_BA[2]/DDR1_CAA[5]/DDR1_BG[0]
AJ9	M_CHB_MAA0	DDR1_MA[0]/DDR1_CAB[9]/DDR1_MA[0]
AK6	M_CHB_MAA1	DDR1_MA[1]/DDR1_CAB[8]/DDR1_MA[1]
AK5	M_CHB_MAA2	DDR1_MA[2]/DDR1_CAB[5]/DDR1_MA[2]
AL5	M_CHB_MAA3	DDR1_MA[3]
AL6	M_CHB_MAA4	DDR1_MA[4]
AM6	M_CHB_MAA5	DDR1_MA[5]/DDR1_CAA[0]/DDR1_MA[5]
AN7	M_CHB_MAA6	DDR1_MA[6]/DDR1_CAA[2]/DDR1_MA[6]
AN10	M_CHB_MAA7	DDR1_MA[7]/DDR1_CAA[4]/DDR1_MA[7]
AN8	M_CHB_MAA8	DDR1_MA[8]/DDR1_CAA[3]/DDR1_MA[8]
AR11	M_CHB_MAA9	DDR1_MA[9]/DDR1_CAA[1]/DDR1_MA[9]
AH7	M_CHB_MAA10	DDR1_MA[10]/DDR1_CAB[7]/DDR1_MA[10]
AN11	M_CHB_MAA11	DDR1_MA[11]/DDR1_CAA[7]/DDR1_MA[11]
AR10	M_CHB_MAA12	DDR1_MA[12]/DDR1_CAA[6]/DDR1_MA[12]
AF9	M_CHB_MAA13	DDR1_MA[13]/DDR1_CAB[0]/DDR1_MA[13]
AR7		DDR1_MA[14]/DDR1_CAA[9]/DDR1_BG[1]
AT9	M_CHB_ACT#	DDR1_MA[15]/DDR1_CAA[8]/DDR1_ACT#
AJ7	M_CHB_PAR	DDR1_PAR
AR8	M_CHB_ALERT#	DDR1_ALERT#

BP9	M_CHB_DQS0#	DDR1_DQSN[0]/DDR0_DQSN[2]
BL9	M_CHB_DQS1#	DDR1_DQSN[1]/DDR0_DQSN[3]
BG9	M_CHB_DQS2#	DDR1_DQSN[2]/DDR0_DQSN[6]
BC9	M_CHB_DQS3#	DDR1_DQSN[3]/DDR0_DQSN[7]
AC9	M_CHB_DQS4#	DDR1_DQSN[4]/DDR1_DQSN[2]
W9	M_CHB_DQS5#	DDR1_DQSN[5]/DDR1_DQSN[3]
R9	M_CHB_DQS6#	DDR1_DQSN[6]
M9	M_CHB_DQS7#	DDR1_DQSN[7]
BR9	M_CHB_DQS0	DDR1_DQSP[0]/DDR0_DQSP[2]
BJ9	M_CHB_DQS1	DDR1_DQSP[1]/DDR0_DQSP[3]
BF9	M_CHB_DQS2	DDR1_DQSP[2]/DDR0_DQSP[6]
BB9	M_CHB_DQS3	DDR1_DQSP[3]/DDR0_DQSP[7]
AA9	M_CHB_DQS4	DDR1_DQSP[4]/DDR1_DQSP[2]
V9	M_CHB_DQS5	DDR1_DQSP[5]/DDR1_DQSP[3]
P9	M_CHB_DQS6	DDR1_DQSP[6]
L9	M_CHB_DQS7	DDR1_DQSP[7]
AW9		
AY9		DDR1_DQSP[8]
		DDR1_DQSN[8]

M_CHB_MAA[0..16] 17

BN13	DDRA_VREF_CA_R_W10S12	DDR_VREF_CA
BP13		DDR0_VREF_DQ
BR13	DDRB_VREF_CA_R_W10S12	DDR1_VREF_DQ

R0504 1 2 121OHM 1% SM_RCOMP0 G1
R0506 1 2 75Ohm 1% SM_RCOMP1 H1
R0507 2 1 100Ohm 1% SM_RCOMP2 J2

GND

R0508 1 2 2Ohm 1%
C0502 0.022UF/16V
BVREF_CA_RC
R0511 24.9Ohm 1%
GND

R0505 1 2 2Ohm 1%
C0501 0.022UF/16V
VREF_CA_RC
R0510 24.9Ohm 1%
GND

DDRA_VREF_CA_W10S12 17
DDRB_VREF_CA_W10S12 17

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : CPU_DDR4_B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A3	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 5 of 101

U0300C SKYLAKE_HALO
BGA1440

+VCCIO — +VCCIO — 3,7,10,44,94

70	EXP_RXP15	C0607	1	2	0.22UF/16V	PEG_RXP_15	E25	PEG_RXP[0]	PEG_TXP[0]	B25	EXP_TXP15	70
70	EXP_RXN15	C0600	1	2	0.22UF/16V	PEG_RXN_15	D25	PEG_RXN[0]	PEG_TXN[0]	A25	EXP_TXN15	70
70	EXP_RXP14	C0601	1	2	0.22UF/16V	PEG_RXP_14	E24	PEG_RXP[1]	PEG_TXP[1]	B24	EXP_TXP14	70
70	EXP_RXN14	C0602	1	2	0.22UF/16V	PEG_RXN_14	F24	PEG_RXN[1]	PEG_TXN[1]	C24	EXP_TXN14	70
70	EXP_RXP13	C0603	1	2	0.22UF/16V	PEG_RXP_13	E23	PEG_RXP[2]	PEG_TXP[2]	B23	EXP_TXP13	70
70	EXP_RXN13	C0608	1	2	0.22UF/16V	PEG_RXN_13	D23	PEG_RXN[2]	PEG_TXN[2]	A23	EXP_TXN13	70
70	EXP_RXP12	C0604	1	2	0.22UF/16V	PEG_RXP_12	E22	PEG_RXP[3]	PEG_TXP[3]	B22	EXP_TXP12	70
70	EXP_RXN12	C0609	1	2	0.22UF/16V	PEG_RXN_12	F22	PEG_RXN[3]	PEG_TXN[3]	C22	EXP_TXN12	70
70	EXP_RXP11	C0610	1	2	0.22UF/16V	PEG_RXP_11	E21	PEG_RXP[4]	PEG_TXP[4]	B21	EXP_TXP11	70
70	EXP_RXN11	C0605	1	2	0.22UF/16V	PEG_RXN_11	D21	PEG_RXN[4]	PEG_TXN[4]	A21	EXP_TXN11	70
70	EXP_RXP10	C0606	1	2	0.22UF/16V	PEG_RXP_10	E20	PEG_RXP[5]	PEG_TXP[5]	B20	EXP_TXP10	70
70	EXP_RXN10	C0611	1	2	0.22UF/16V	PEG_RXN_10	F20	PEG_RXN[5]	PEG_TXN[5]	C20	EXP_TXN10	70
70	EXP_RXP9	C0612	1	2	0.22UF/16V	PEG_RXP_9	E19	PEG_RXP[6]	PEG_TXP[6]	B19	EXP_TXP9	70
70	EXP_RXN9	C0613	1	2	0.22UF/16V	PEG_RXN_9	D19	PEG_RXN[6]	PEG_TXN[6]	A19	EXP_TXN9	70
70	EXP_RXP8	C0614	1	2	0.22UF/16V	PEG_RXP_8	E18	PEG_RXP[7]	PEG_TXP[7]	B18	EXP_TXP8	70
70	EXP_RXN8	C0615	1	2	0.22UF/16V	PEG_RXN_8	F18	PEG_RXN[7]	PEG_TXN[7]	C18	EXP_TXN8	70
70	EXP_RXP7	C0616	1	2	0.22UF/16V	PEG_RXP_7	D17	PEG_RXP[8]	PEG_TXP[8]	A17	EXP_TXP7	70
70	EXP_RXN7	C0617	1	2	0.22UF/16V	PEG_RXN_7	E17	PEG_RXN[8]	PEG_TXN[8]	B17	EXP_TXN7	70
70	EXP_RXP6	C0618	1	2	0.22UF/16V	PEG_RXP_6	F16	PEG_RXP[9]	PEG_TXP[9]	C16	EXP_TXP6	70
70	EXP_RXN6	C0619	1	2	0.22UF/16V	PEG_RXN_6	E16	PEG_RXN[9]	PEG_TXN[9]	B16	EXP_TXN6	70
70	EXP_RXP5	C0620	1	2	0.22UF/16V	PEG_RXP_5	D15	PEG_RXP[10]	PEG_TXP[10]	A15	EXP_TXP5	70
70	EXP_RXN5	C0621	1	2	0.22UF/16V	PEG_RXN_5	E15	PEG_RXN[10]	PEG_TXN[10]	B15	EXP_TXN5	70
70	EXP_RXP4	C0622	1	2	0.22UF/16V	PEG_RXP_4	F14	PEG_RXP[11]	PEG_TXP[11]	C14	EXP_TXP4	70
70	EXP_RXN4	C0623	1	2	0.22UF/16V	PEG_RXN_4	E14	PEG_RXN[11]	PEG_TXN[11]	B14	EXP_TXN4	70
70	EXP_RXP3	C0624	1	2	0.22UF/16V	PEG_RXP_3	D13	PEG_RXP[12]	PEG_TXP[12]	A13	EXP_TXP3	70
70	EXP_RXN3	C0625	1	2	0.22UF/16V	PEG_RXN_3	E13	PEG_RXN[12]	PEG_TXN[12]	B13	EXP_TXN3	70
70	EXP_RXP2	C0626	1	2	0.22UF/16V	PEG_RXP_2	F12	PEG_RXP[13]	PEG_TXP[13]	C12	EXP_TXP2	70
70	EXP_RXN2	C0627	1	2	0.22UF/16V	PEG_RXN_2	E12	PEG_RXN[13]	PEG_TXN[13]	B12	EXP_TXN2	70
70	EXP_RXP1	C0628	1	2	0.22UF/16V	PEG_RXP_1	D11	PEG_RXP[14]	PEG_TXP[14]	A11	EXP_TXP1	70
70	EXP_RXN1	C0629	1	2	0.22UF/16V	PEG_RXN_1	E11	PEG_RXN[14]	PEG_TXN[14]	B11	EXP_TXN1	70
70	EXP_RXP0	C0630	1	2	0.22UF/16V	PEG_RXP_0	F10	PEG_RXP[15]	PEG_TXP[15]	C10	EXP_TXP0	70
70	EXP_RXN0	C0631	1	2	0.22UF/16V	PEG_RXN_0	E10	PEG_RXN[15]	PEG_TXN[15]	B10	EXP_TXN0	70

+VCCIO

R0600 24.9Ohm 1%

PEG_RCOMP — G2 — PEG_RCOMP

NOTE:

W/S=12/15 mil, length<400mil

20	DMI_RXP0	D8	DMI_RXP[0]	DMI_TXP[0]	B8	DMI_TXP0	20
20	DMI_RXN0	E8	DMI_RXN[0]	DMI_TXN[0]	A8	DMI_TXN0	20
20	DMI_RXP1	E6	DMI_RXP[1]	DMI_TXP[1]	C6	DMI_TXP1	20
20	DMI_RXN1	F6	DMI_RXN[1]	DMI_TXN[1]	B6	DMI_TXN1	20
20	DMI_RXP2	D5	DMI_RXP[2]	DMI_TXP[2]	B5	DMI_TXP2	20
20	DMI_RXN2	E5	DMI_RXN[2]	DMI_TXN[2]	A5	DMI_TXN2	20
20	DMI_RXP3	J8	DMI_RXP[3]	DMI_TXP[3]	D4	DMI_TXP3	20
20	DMI_RXN3	J9	DMI_RXN[3]	DMI_TXN[3]	B4	DMI_TXN3	20

CL8066202194730

PEGATRON Title : CPU_DMI

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A4	P7RCR	R1.0

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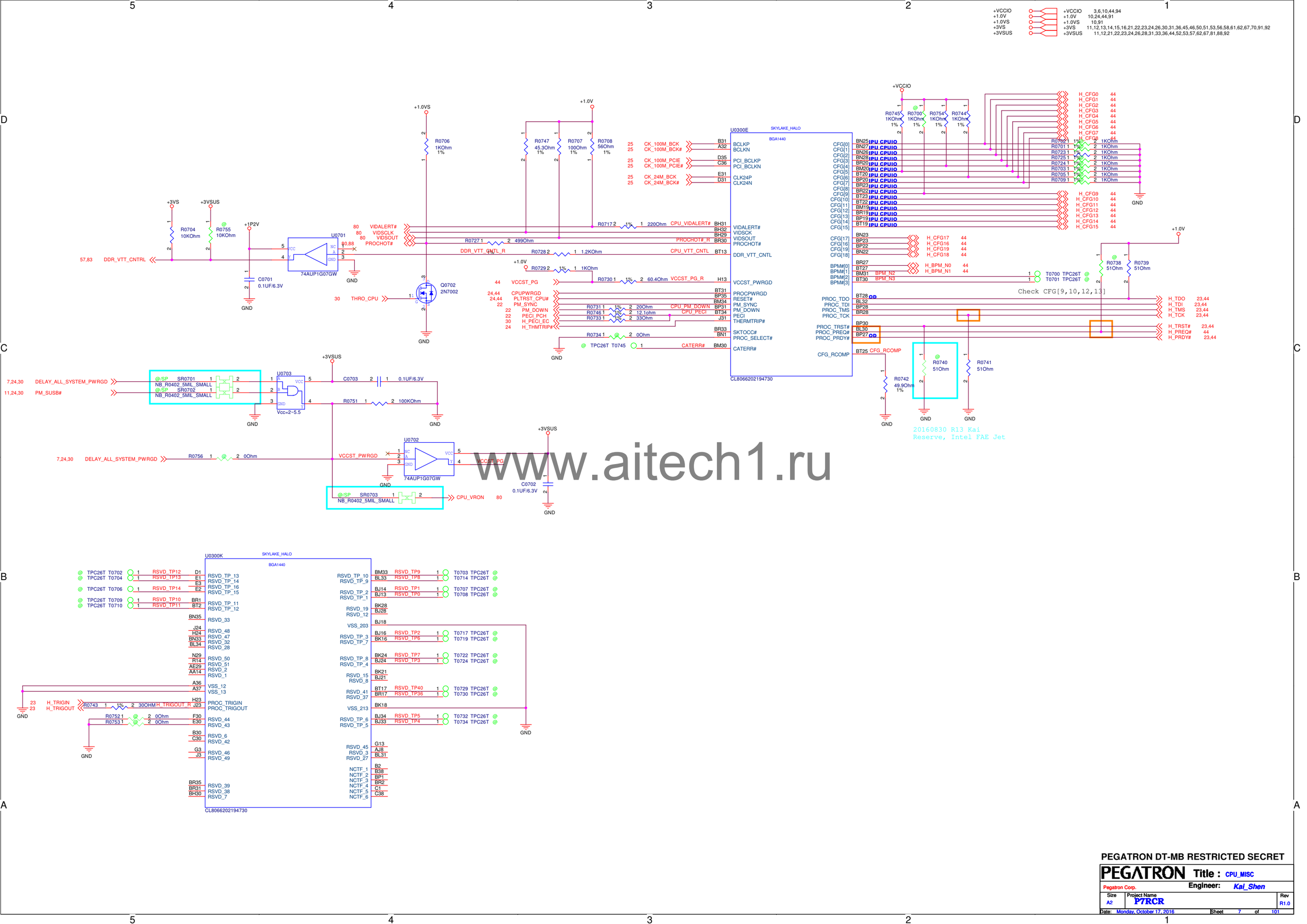
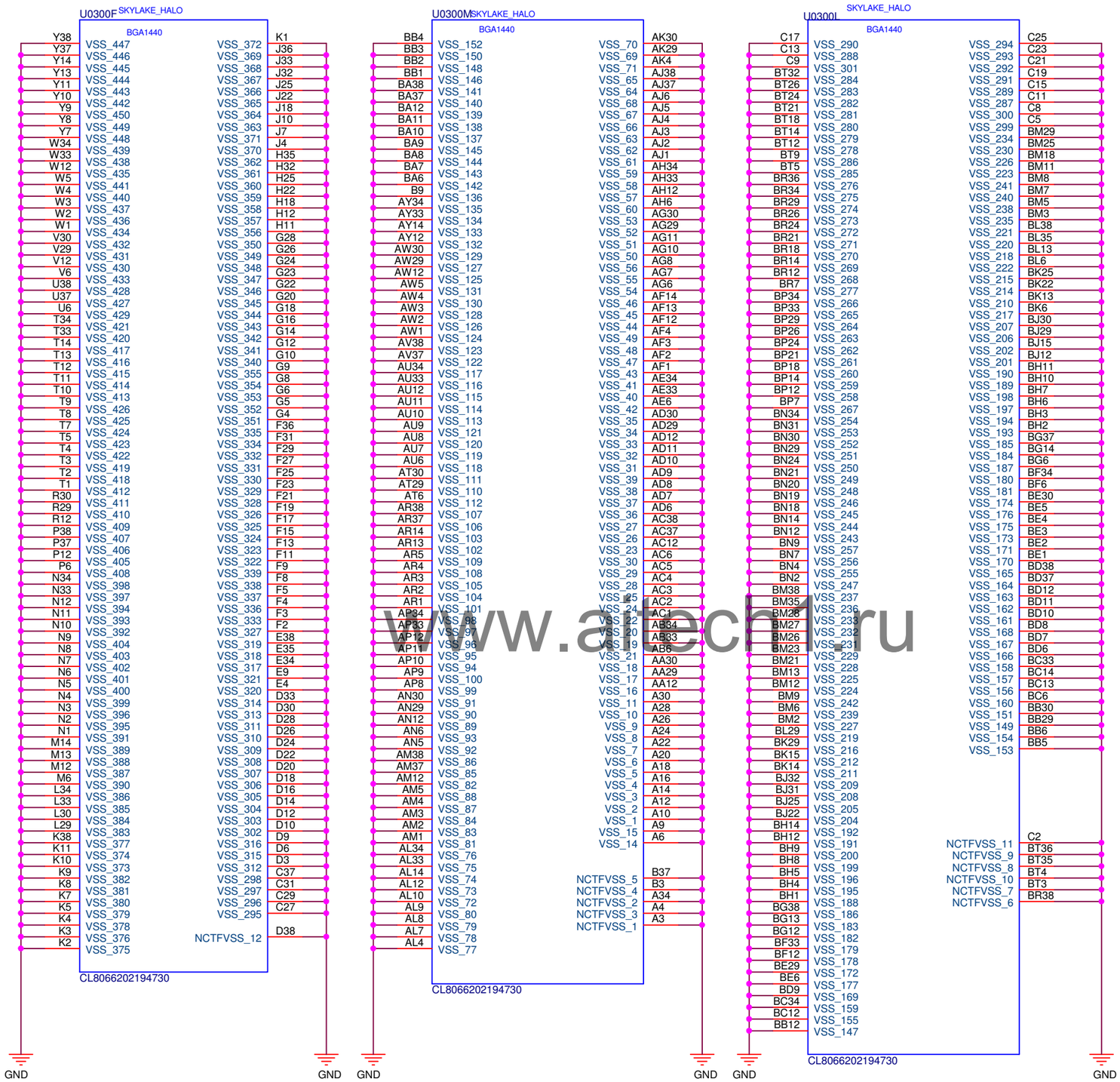


PEGATRON DT-MB RESTRICTED SECRET

PEGATRON	Title : CPU_MISC		
Pegatron Corp.	Engineer: Kai_Shen		
Size: A2	Project Name: P7RCR		Rev: R1.0
Date: Monday, October 17, 2016	Sheet 7 of 101		



PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : CPU_VSS

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A3	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 8 of 101

+VCORE: 68A
+VCCGT: 65A

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : CPU_POWER1

Pegatron Corp. Engineer: Kai_Shen

Size A2 | Project Name P7RCR | Rev R1.0

Date: Monday, October 17, 2016 | Sheet 9 of 101

+VCCIO
+VCCSA
+1P2V
+1.0V

+VCCIO 3,6,7,44,94
+VCCSA 80
+1P2V 7,13,16,17,24,57,83
+1.0V 7,24,44,91

+VCCSA: 11.1A
+VCCIO: 5.5A
+1P2V: 2.8A

U0300I SKYLAKE_HALO BGA1440

+VCCSA
J30 VCCSA_1
K29 VCCSA_2
K30 VCCSA_3
K31 VCCSA_4
K32 VCCSA_5
K33 VCCSA_6
K34 VCCSA_7
K35 VCCSA_8
L31 VCCSA_9
L32 VCCSA_10
L35 VCCSA_11
L36 VCCSA_12
L37 VCCSA_13
L38 VCCSA_14
M29 VCCSA_15
M30 VCCSA_16
M31 VCCSA_17
M32 VCCSA_18
M33 VCCSA_19
M34 VCCSA_20
M35 VCCSA_21
M36 VCCSA_22

+VCCIO
AG12 VCCIO_1
G15 VCCIO_2
G17 VCCIO_3
G19 VCCIO_4
G21 VCCIO_5
H15 VCCIO_6
H16 VCCIO_7
H17 VCCIO_8
H19 VCCIO_9
H20 VCCIO_10
H21 VCCIO_11
H26 VCCIO_12
H27 VCCIO_13
J15 VCCIO_14
J16 VCCIO_15
J17 VCCIO_16
J19 VCCIO_17
J20 VCCIO_18
J21 VCCIO_19
J26 VCCIO_20
J27 VCCIO_21

+1P2V_CPU
VDDQ_1 AA6
VDDQ_2 AE12
VDDQ_3 AF5
VDDQ_4 AF6
VDDQ_5 AG5
VDDQ_6 AG9
VDDQ_7 AJ12
VDDQ_8 AL11
VDDQ_9 AP6
VDDQ_10 AP7
VDDQ_11 AR12
VDDQ_12 AR6
VDDQ_13 AT12
VDDQ_14 AW6
VDDQ_15 AY6
VDDQ_16 J5
VDDQ_17 J6
VDDQ_18 K12
VDDQ_19 K6
VDDQ_20 L12
VDDQ_21 L6
VDDQ_22 R6
VDDQ_23 T6
VDDQ_24 W6
VDDQC Y12

VCCPLL_OC_1 BH13
VCCPLL_OC_2 G11

VCCST H30
VCCSTG_2 H29
VCCSTG_1 G30
VCCPLL_1 H28
VCCPLL_2 J28

VCCSA_SENSE M38
VSSSA_SENSE M37
VCCIO_SENSE H14
VSSIO_SENSE J14

CL8066202194730

+1P2V
@ JP1001 3MM_OPEN_5MIL
+1P2V_CPU

+1P2V
@SP SR1002 1 2 0Ohm
+VccPLL_OC

+1P2V_CPU
SR1001 0Ohm @/SP
C1000 22UF/6.3V
GND

0.26A
+VccPLL_OC
C1001 1UF/6.3V X5R/+/-10%
C1002 1UF/6.3V X5R/+/-10%
GND

+1.0V
0.12A
C1003 4.7UF/10V X5R/+/-10%
GND

+1.0VS
0.06A
C1004 1UF/6.3V X5R/+/-10%
C1005 1UF/6.3V X5R/+/-10%
GND

VCCSA_VCCSENSE 80
VCCSA_VSSSENSE 80
T1003 TPC26T @
T1002 TPC26T @

+1.0V
0.15A
C1006 4.7UF/10V X5R/+/-10%
GND

U0300J SKYLAKE_HALO BGA1440

BJ17 VCCOPC_1
BJ19 VCCOPC_2
BJ20 VCCOPC_3
BK17 VCCOPC_4
BK19 VCCOPC_5
BK20 VCCOPC_6
BL16 VCCOPC_7
BL17 VCCOPC_8
BL18 VCCOPC_9
BL19 VCCOPC_10
BL20 VCCOPC_11
BL21 VCCOPC_12
BM17 VCCOPC_13
BN17 VCCOPC_14

R1000 1 @ 2 0Ohm
GND

BJ23 RSVD_9
BJ26 RSVD_10
BJ27 RSVD_11
BK23 RSVD_16
BK26 RSVD_17
BK27 RSVD_18
BL23 RSVD_21
BL24 RSVD_22
BL25 RSVD_23
BL26 RSVD_24
BL27 RSVD_25
BL28 RSVD_26
BM24 RSVD_30

R1002 1 @ 2 0Ohm
R1003 1 @ 2 0Ohm
BL15 VCCOPC_SENSE
BM16 VSSOPC_SENSE

R1004 2 1 100Ohm RSVD19
R1005 1 1% 2 0Ohm RSVD28
BL22 RSVD_20
BM22 RSVD_29

R1006 1 @ 2 0Ohm
BP15 VCCEOPIO_1
BR15 VCCEOPIO_2
BT15 VCCEOPIO_3

R1007 1 @ 2 0Ohm
BP16 RSVD_34
BR16 RSVD_36
BT16 RSVD_40

R1008 1 @ 2 0Ohm
BN15 VCCEOPIO_SENSE
BM15 VSSEOPIO_SENSE

R1009 2 1 100Ohm RSVD34
R1010 1 1% 2 0Ohm RSVD30
BP17 RSVD_35
BN16 RSVD_31

R1011 1 @ 2 0Ohm
BM14 VCC_OPC_1P8_2
BL14 VCC_OPC_1P8_1

R1012 1 @ 2 0Ohm
BJ35 RSVD_13
BJ36 RSVD_14

@ TPC26T T1000 1 ZVM_TP AT13
@ TPC26T T1001 1 MSM_TP AW13
ZVM#
MSM#

AU13
R1013 2 1% 1 100Ohm AY13
RSVD_4
RSVD_5

R1014 2 1% @ 1 49.9Ohm OPC_RCOMP BT29
R1015 2 1% @ 1 49.9Ohm OPCE_RCOMP BR25
R1016 2 1% @ 1 49.9Ohm OPCE_RCOMP2 BP25
OPC_RCOMP
OPCE_RCOMP
OPCE_RCOMP2

GND
CL8066202194730

+VCCSA
@ C1023 220UF/6.3V
C1017 1UF/6.3V
C1018 1UF/6.3V
C1019 1UF/6.3V
GND

+VCCIO
C1020 10UF/6.3V
C1021 10UF/6.3V
C1022 10UF/6.3V
GND

+1P2V_CPU
C1007 10UF/6.3V
C1008 10UF/6.3V
C1009 10UF/6.3V
C1010 10UF/6.3V
C1011 10UF/6.3V
C1012 10UF/6.3V
C1013 10UF/6.3V
C1014 10UF/6.3V
C1015 10UF/6.3V
C1016 10UF/6.3V
GND

PEGATRON Title : CPU_POWER2
Pegatron Corp. Engineer: Kai_Shen
Size A3 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 Sheet 10 of 101

20160822 R12 Kai
Intel CRB #563553
Change X1101 from 07V080000049 to 0708-02XF000
Change C1130 / C1131 from 1AV200000082 to 1AV200000160

20161006 R14 Kai
Change C1130 / C1131, vendor recommended.

20161006 R20 Kai
Change C1130 / C1131 to small symbol

20160803 R20 Kai
add R119, unmount R111
follow CRB, PH at TBT side

20160822 R12 Kai
add R1136 / R1137
Intel KBL MOW 563377

U1101A
DSL6340
TYPE C CONN
PCIe GEN3
SINK PORT 0
SOURCE PORT 0
SINK PORT 1
LC GPIO
POC GPIO
Misc
MISC
TBT PORTS
Port A
POC
DEBUG

U1102 U1104 U1105
SN74AUP1G17DBVR

U1103
W25Q80DVSSIG

U1018
VCC

0.15A

PEGATRON Title : THUNDERBOLT
Pegatron Corp. Engineer: Kai_Shen
Size D | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 11 of 101

20160413 RFQ Kai
Modified net VBUS1 to +VBUS1
20160419 RFQ Kai
Change Con1201 to VX

+3VS +3VSUS +3V3_FLASH +5VSUS

+3VS 7,11,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+3VSUS 7,11,21,22,23,24,26,28,31,33,36,44,52,53,57,62,67,81,88,92
+3V3_FLASH 11
+5VSUS 36,37,45,52,55,56,57,67,81

0.15A

+3VSUS +3VS_TYPEC
@/SP SR1206 1 2 0Ohm

20160823 R1.1 Kai
3A

+5VSUS JP1201 +5VSUS_TYPEC
@ 2 2 1 1
3MM_OPEN_5MIL

C1209 22UF/6.3V C1210 22UF/6.3V C1211 22UF/6.3V C1212 0.1UF/6.3V

3A

+VBUS1
CE1225 100UF/6.3V
@ C1220 10PF/25V
D1209 AZ5725-01F /EMI
close connector
C1225 0.47UF/6.3V C1226 0.47UF/6.3V C1227 0.47UF/6.3V C1228 0.47UF/6.3V
C1222 10UF/6.3V

11 TBTA_CA2HD_1_P_CON
11 TBTA_CA2HD_1_N_CON
11 TBTA_HD2CA_0_N_CON
11 TBTA_HD2CA_0_P_CON

CON1201
SBU1 C_USB_TN_CON C_USB_TP_CON C_CC1 +VBUS1
GND1 SSRXP2 SSTXP2 SSTXN2 VBUS1 SBU1 DN1 DP1 CC1 VBUS2 SSTXN1 SSTXP1 GND2 SIDE1 SIDE2 P_GND1 P_GND2
GND3 SSTXP2 SSRXP2 SSRXN2 VBUS3 CC2 DP2 DN2 SBU2 VBUS4 SSRXN1 SSRXP1 GND4 NP_NC1 NP_NC2 P_GND3 P_GND4 P_GND5 P_GND6
+VBUS1 C_CC2 C_USB_TP_CON C_USB_TN_CON SBU2 +VBUS1
USB_CON_24P

TBTA_CA2HD_1_P_CON 11
TBTA_CA2HD_1_N_CON 11
TBTA_HD2CA_0_N_CON 11
TBTA_HD2CA_0_P_CON 11

U1201

TPC26T T1205 TPC26T T1206 +VCC_SYS_HV
+3VS_TYPEC +5VSUS_TYPEC
C1203 10UF/6.3V C1204 1UF/6.3V
+3V3_FLASH
C1205 1UF/6.3V C1206 10UF/6.3V C1208 2.2UF/6.3V C1207 2.2UF/6.3V
@/SP SR1203 1 2 0Ohm

PP_HV_3 PP_HV_2 PP_HV_1 PP_HV_4 PP_5V0_1 PP_5V0_2 PP_5V0_3 PP_5V0_4 PP_CABLE VDDIO VIN_3V3 +3V3_TBTA_SX VOUT_3V3 LDO_3V3 LDO_1V8D LDO_1V8A I2C_ADDR

TBT_I2C_SCL TBT_I2C_SDA TBTA_I2C_INT
I2C_SCL1 I2C_SDA1 I2C_IRQ1Z
I2C_SCL2 I2C_SDA2 I2C_IRQ2Z
30 I2C_IRQ2Z
R1225 10KOhm R1224 10KOhm
DEBUG_CTL1 DEBUG_CTL2

11 TBT_EE_CLK TBT_EE_DI TBT_EE_DO TBT_EE_CS_N
SPI_CLK SPI_MOSI SPI_MISO SPI_SSZ
TPC26T T1209 TPC26T T1210
SWD_DAT SWD_CLK
R1226 100KOhm
UART_TX UART_RX
11 TBTA_LSTX 11 TBTA_LSRX
LSX_R2P LSX_P2R
GPIO0 GPIO0 GPIO1
TBTA_USB2_D_P_CC TBTA_USB2_D_N_CC
USB_RP_P USB_RP_N
DEBUG1 DEBUG2
DEBUG1 DEBUG2
DEBUG3 DEBUG4
DEBUG3 DEBUG4
11 TBTA_DPSRC_AUX_P 11 TBTA_DPSRC_AUX_N
AUX_P AUX_N

SENSEP SENSEN HV_GATE1 HV_GATE2 VBUS_1 VBUS_2 VBUS_3 VBUS_4 RPD_G1 C_CC1 C_CC2 RPD_G2 LDO_BMC C_USB_TN C_USB_TP C_USB_BP C_USB_BN C_SBU2 C_SBU1 GND_1 GND_2 GND_4 HRESET/GND_3 GND_5 GND_6 GND_7 GND_8 GND_9 GND_10 GND_11 GND_12 GND_13 GND_14 GND_15 GND_16 GND_17 GND_18 SS GND_19 GND_20 NC

+VBUS1
C1217 4.7UF/6.3V X5R C1218 1UF/6.3V C1219 0.1UF/6.3V
RPD_G1 0Ohm SR1201 @/SP
C_CC1 C1223 220PF/50V 10% C_CC2 C1224 220PF/50V 10%
RPD_G2 0Ohm SR1202 @/SP
C1221 2.2UF/6.3V X5R/+/-10%
L6 C_USB_TN K6 C_USB_TP K7 C_USB_BP L7 C_USB_BN
L8 CSBU_2_R @/SP SR1205 NB_R0402_5MIL_SMALL SBU2
K8 CSBU_1_R @/SP SR1204 NB_R0402_5MIL_SMALL SBU1
R1240 @ 0Ohm TBT_HWRESET_R TBT_HWRESET 30
R1241 100KOhm R1244 @ 0Ohm TBT_HWRESET_PCH
C1229 0.22UF/6.3V

TPS65982ABZQZ
BUSPOWERZ GPIO2 RESETZ MRESET GPIO8 GPIO7 GPIO6 GPIO5 GPIO4 GPIO3 R_OSC
R1218 15KOhm 0.1%

+3V3_FLASH R1223 0Ohm 2 0Ohm
R1239 @ 2 0Ohm
@ T1208 TPC26T GPIO2
@ T1207 TPC26T GPIO3
11 TBT_RESET_N 30 TBT_MRESET 11 TBTA_HPD
R1222 100KOhm

+3VS_TYPEC
GPIO0 R1227 10KOhm
GPIO7 R1228 10KOhm
I2C_SCL2 R1231 3.3KOhm
I2C_SDA2 R1232 3.3KOhm
I2C_IRQ2Z R1230 10KOhm
GPIO6 R1229 10KOhm

DEBUG1 R1234 100KOhm
DEBUG2 R1233 100KOhm
DEBUG3 R1236 100KOhm
DEBUG4 R1235 100KOhm

+3VSUS +3VS
R1243 0Ohm 2 0Ohm
R1242 @ 2 0Ohm
Q1201 2N7002 Q1202 2N7002
I2C_SDA2 I2C_SCL2
SMB1_DAT SMB1_CLK 13,30,31,50,58,67,74
I2C_SDA2 30 I2C_SCL2 30

TBTA_CA2HD_0_N_CON TBTA_CA2HD_0_P_CON TBTA_HD2CA_0_P_CON TBTA_HD2CA_0_N_CON
D1201 D1202 D1203 D1204 ESD8011MUT5G /EMI 07V180000055

TBTA_CA2HD_1_N_CON TBTA_CA2HD_1_P_CON TBTA_HD2CA_1_P_CON TBTA_HD2CA_1_N_CON
D1205 D1206 D1207 D1208 ESD8011MUT5G /EMI 07V180000055

EMI moidification
2015/10/01

U1207
C_CC2 SBU2 C_USB_BP_CON C_USB_BN_CON
CH1 CH2 GND1 CH3 CH4 n.c.4 n.c.3 GND2 n.c.2 n.c.1
PUSB3F96 07V220000032 /EMI

U1208
C_CC1 SBU1 C_USB_TP_CON C_USB_TN_CON
PUSB3F96 07V220000032 /EMI

C_USB_BP RN1201A 0Ohm C_USB_BP_CON C_USB_BN_CON L1201 80ohm /EMI
C_USB_BN RN1201B 0Ohm
C_USB_TP RN1202B 0Ohm C_USB_TP_CON C_USB_TN_CON L1202 80ohm /EMI
C_USB_TN RN1202A 0Ohm

colay R1214 / R1213 / R1217
colay R1216 / R1215 / R1221

11 TBTA_USB2_D_P 11 TBTA_USB2_D_N
R12131 R12151 @/CHG 0Ohm TBTA_USB2_D_P_CC TBTA_USB2_D_N_CC R12171 R12221 @/CHG 0Ohm C_USB_TP_CON_CHG C_USB_TN_CON_CHG
R12141 R12161 @/CHG 0Ohm TBTA_USB2_D_P_CHG TBTA_USB2_D_N_CHG

20160824 R1.2 Kai
change optianl to @, reserved

+5VSUS_TYPEC
R1201 100KOhm @/CHG R1205 100KOhm @/CHG
C1201 0.1UF/6.3V @/CHG
TBTA_USB2_D_N_CHG TBTA_USB2_D_P_CHG ILIM_SEL_TBT
IN DM_OUT DP_OUT ILIM_SEL OUT DM_IN DP_IN NC EN CTL1 CTL2 CTL3
TPS2544RTER
@ TPC26T T9713
30,52 USB_CHG_EN 30,52 USB_CHG_CTL1 30,52 USB_CHG_CTL3 30,52 USB_CHG_CTL2_EC
R12381 R12091 R12101 R12121 R12481 @/CHG 0Ohm
USB_CHG_CTL2_TBT
R1203 100KOhm @ R1206 100KOhm @

GND1 GND2 ILIM_HI ILIM_LO GND1 FAULT# @/CHG U1202A
OC0# 21,52
R1208 22KOhm 1% R1207 80.6KOhm 1%
R12471 @ 0Ohm
R1245 300KOhm @
C1202 10PF/50V @
R1246 100KOhm @
C_USB_TN_CON_CHG C_USB_TP_CON_CHG
@/CHG U1202B GND3 GND4 TPS2544RTER

PEGATRON Title : TPS65982/TYPE-C
Pegatron Corp. Engineer: Kai_Shen
Size C | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 Sheet 12 of 101

[I2C_EN_PIN = 0] pin strap mode			
Net / Level	H	L	NC
PRE_SEL	Reserved	-2 dB	0 dB
EQ_SEL_A0	Fixed at 14 dB	Fixed at 7.5 dB	Adaptive EQ
SLEW_CTL	fastest data rate	5 ps slow	10 ps slow
HDMI_SEL#_TEST_A1	DVI	HDMI	N/A

+1P2V 7,10,16,17,24,57,83
+3V3_MAIN 14,57,72,74,87,91,97
+3VS 7,11,12,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+5VS_HDMI 48

[DP159 DDC on]
mount R1306 / R1307 / R1312 / R1313 / R7227 / R7228,
unmount R1308 / R1309 / R1310 / R1311 / R7225 / R7226 / Q7205 / Q7206.

[DP159 DDC snoop only] bypass I2C clock strength
unmount R1306 / R1307 / R1312 / R1313 / R7227 / R7228,
mount R1308 / R1309 / R1310 / R1311 / R7225 / R7226 / Q7205 / Q7206.

[I2C_EN_PIN = 1] I2C control mode
unmount R1320, mount R1319 / R1328 / R1329 / R1332 / R1333,

[I2C_EN_PIN = 0] pin strap mode
mount R1320, unmount R1319 / R1328 / R1329 / R1332 / R1333,
3-level setting (H / L / NC): PRE_SEL / EQ_SEL_A0 /SLEW_CTL
2-level setting (H / L): HDMI_SEL#_TEST_A1

+3VS +3V3_MAIN +3VS_HDMI

50mA

R1301 1 @ 2 0Ohm
R1304 1 /0-ohm 2 0Ohm
C1315 10UF/6.3V
C1314 0.1UF/6.3V
C1316 0.1UF/6.3V
GND

+1P2V VDD_1P2V

325mA

For DP159, VDD is 1V to 1.27V, normally use 1.1V.

20160818 R12 Kai reserve

R1302 1 @ 2 0Ohm
C1301 0.1UF/6.3V
C1303 0.1UF/6.3V
C1304 0.1UF/6.3V
C1302 10UF/6.3V
C1319 0.1UF/6.3V
C1317 0.01UF/16V
C1313 0.1UF/6.3V
C1322 @ 10UF/6.3V
GND

20160512 WS Kai
SWAP Port 0 / 2, follow NV HDMI output port

20160523 WS Kai
Recover R1303 to 1k-ohm

+3VS_HDMI

R1312 1 @1% 2 47KOhm HDMID_DDI2_AUXN
R1313 1 @1% 2 47KOhm HDMID_DDI2_AUXP
R1311 1 /0-ohm 2 0Ohm
R1310 1 /0-ohm 2 0Ohm
R1319 1 @1% 2 64.9KOhm I2C_EN_PIN
R1320 1 @1% 2 64.9KOhm
R1322 1 @1% 2 64.9KOhm PRE_SEL
R1323 1 @1% 2 64.9KOhm
R1324 1 @1% 2 64.9KOhm EQ_SEL_A0
R1325 1 @1% 2 64.9KOhm
R1330 1 @1% 2 64.9KOhm SLEW_CTL
R1331 1 @1% 2 64.9KOhm
R1326 1 @1% 2 64.9KOhm HDMI_SEL#_TEST_A1
R1327 1 @1% 2 64.9KOhm
GND

72 HDMID_IFPE_DATA0_P
72 HDMID_IFPE_DATA0_N
74 HPD_IFPE_HDMI
72 HDMID_IFPE_DATA1_P
72 HDMID_IFPE_DATA1_N
72 HDMID_IFPE_DATA2_P
72 HDMID_IFPE_DATA2_N
72 HDMID_IFPE_DATA3_P
72 HDMID_IFPE_DATA3_N

C1309 1 2 0.1UF/6.3V HDMID_DDI2_DATA2_P 1
C1305 1 2 0.1UF/6.3V HDMID_DDI2_DATA2_N 2
R1303 1 2 1KOhm 1% HPD_IFPE_HDMI_R 3
C1312 1 2 0.1UF/6.3V HDMID_DDI2_DATA1_P 4
C1307 1 2 0.1UF/6.3V HDMID_DDI2_DATA1_N 5
C1311 1 2 0.1UF/6.3V HDMID_DDI2_DATA0_P 6
C1306 1 2 0.1UF/6.3V HDMID_DDI2_DATA0_N 7
I2C_EN_PIN 8
C1308 1 2 0.1UF/6.3V HDMID_DDI2_DATA3_P 9
C1310 1 2 0.1UF/6.3V HDMID_DDI2_DATA3_N 10
11
12
13

12,30,31,50,58,67,74 SMB1_CLK
12,30,31,50,58,67,74 SMB1_DAT

R1332 1 @ 2 0Ohm SMB1_CLK_HDMI
R1333 1 @ 2 0Ohm SMB1_DAT_HDMI
14
15
PRE_SEL 16
EQ_SEL_A0 17
VSADJ 18
19
20

+3VS_HDMI
R1328 1 @1% 2 2KOhm
R1329 1 @1% 2 2KOhm
GND
R1321 1 1% 2 6.98KOhm

U1301A

IN_D2p	1	GND_3	41
IN_D2n	2	VDD_4	40
HPD_SRC	3	SDA_SRC	39
IN_D1p	4	SCL_SRC	38
IN_D1n	5	VCC_2	37
IN_D0p	6	OE	36
IN_D0n	7	GND_2	35
I2C_EN/PIN	8	SLEW_CTL	34
IN_CLKp	9	SDA_SNK	33
IN_CLKn	10	SCL_SNK	32
VCC_1	11	VDD_5	31
VDD_1	12	OUT_D2p	30
SCL_CTL	13	OUT_D2n	29
SDA_CTL	14	HPD_SNK	28
GND_1	15	OUT_D1p	27
PRE_SEL	16	OUT_D1n	26
EQ_SEL/A0	17	OUT_D0p	25
VSADJ	18	OUT_D0n	24
VDD_2	19	HDMI_SEL#/A1	23
VDD_3	20	OUT_CLKp	22
		OUT_CLKn	21

SN65DP159RSBR

VDD_1P2V
HDMID_DDI2_AUXN HDMID_DDI2_AUXP
R1306 1 @ 2 0Ohm
R1307 1 @ 2 0Ohm
OE +3VS_HDMI
C1318 1 2 0.1UF/6.3V GND
SLEW_CTL
R1308 1 /0-ohm 2 0Ohm
R1309 1 /0-ohm 2 0Ohm
HDMI_SEL#_TEST_A1

HDMI_IFPE_AUXN 72
HDMI_IFPE_AUXP 72
HDMI_CTRLDATA_C 48
HDMI_CTRCLK_C 48
HDMI_TMDSD_DATA2_P 48
HDMI_TMDSD_DATA2_N 48
HDMI_HOTPLUG_DET 48
HDMI_TMDSD_DATA1_P 48
HDMI_TMDSD_DATA1_N 48
HDMI_TMDSD_DATA0_P 48
HDMI_TMDSD_DATA0_N 48
HDMI_TMDSD_CLK_P 48
HDMI_TMDSD_CLK_N 48

GND

U1301B

42	GND_4	GND_12	50
43	GND_5	GND_11	49
44	GND_6	GND_10	48
45	GND_7	GND_9	47
		GND_8	46

SN65DP159RSBR

GND GND

+1P2V +3VS +5VS

C1320 1 2 0.1UF/6.3V GND

SR1301 1 2 0Ohm @/SP

U1302

EN	1	VOUT	6
VIN	2	GATE	5
VBIAS	3	GND	4

M5938CTB1U

VDD_1P2V

C1323 @ 10UF/6.3V
C1324 @ 10UF/6.3V
GND

R1305 1 @ 2 330Ohm
D1301 1 @ 2 RB751V-40
C1321 0.1UF/6.3V @
GND

20160818 R12 Kai reserve

PEGATRON Title : THUNDERBOLT_HDMI redriver
Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
B	P7RCR	R1.0

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20160516 WS Kai
Change for support NVSR / GC6

+3V3_MAIN
+3VS

+3V3_MAIN 13,57,72,74,87,91,97
+3VS 7,11,12,13,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92

+3VS +3V3_MAIN +3VS_DPSW
R1408 1 @ 2 0Ohm
R1409 1 /0-ohm 2 0Ohm
C1414 0.01UF/16V 10%
C1413 0.1UF/6.3V X7R/+/-10%
GND

PEQ: programmable input equalization levels; Internal pull down at ~150kΩ, 3.3V I/O.
L: default, LEQ, compensate channel loss up to 12dB @ HBR2
H: HEQ, compensate channel loss up to 15dB @ HBR2
M: LLEQ, compensate channel loss up to 5dB @ HBR2

CFG0: Configuration pin for automatic EQ and AUX interception; Internal pull down at ~150kΩ, 3.3V I/O.
L: default, automatic EQ enable & AUX interception enable
H: automatic EQ disable & AUX interception enable
M: automatic EQ disable & AUX interception disable, no pre-emphasis,

Configuration pin for auto test and input offset cancellation, 3.3V IO, internal pull up
at ~150K
In Pin Control Mode,
H: default, auto CTS test disable & input offset cancellation enable
L: auto CTS test enable & input offset cancellation enable
M: auto CTS test disable & input offset cancellation disable
In I2C Control Mode,
H: default, AUX/DDC path is on
M: reserved
L: reserved

+3VS_DPSW
R1405 1 @ 2 4.7KOhm DP_REQ
R1403 1 @ 2 4.7KOhm DP_CFG0
R1402 1 @ 2 4.7KOhm DP_CFG1
R1401 1 @ 2 4.7KOhm
R1406 1 @ 2 4.7KOhm
R1404 1 @ 2 4.7KOhm
GND

72 DP_IFPD_DATA0 C1405 1 2 0.1UF/6.3V DP2_TXP0_C
72 DP_IFPD_DATA0# C1401 1 2 0.1UF/6.3V DP2_TXN0_C
72 DP_IFPD_DATA1 C1410 1 2 0.1UF/6.3V DP2_TXP1_C
72 DP_IFPD_DATA1# C1402 1 2 0.1UF/6.3V DP2_TXN1_C
72 DP_IFPD_DATA2 C1409 1 2 0.1UF/6.3V DP2_TXP2_C
72 DP_IFPD_DATA2# C1403 1 2 0.1UF/6.3V DP2_TXN2_C
72 DP_IFPD_DATA3 C1404 1 2 0.1UF/6.3V DP2_TXP3_C
72 DP_IFPD_DATA3# C1406 1 2 0.1UF/6.3V DP2_TXN3_C

GND
DP_CFG1

U1401
PS8330BQFN48GTR-A0

49	48	47	46	45	44	43	42	41	40	39	38	37
EPAD	IN3N	IN3P	NC3	IN2N	IN2P	NC2	IN1N	IN1P	CFG1	IN0N	IN0P	NC1

1	VDD33_1	VDD33_6	36
2	CEXT	RST#	35
3	I2C_ADDR	SDA_DDC	34
4	SCL_CTL/PEQ	SCL_DDC	33
5	SDA_CTL/CFG0	VDD33_5	32
6	VDD33_2	GND3	31
7	REXT	AUX_SRCP	30
8	CAD_SRC	AUX_SRCN	29
9	HPD_SRC	AUX_SNKP	28
10	CAD_SNK	AUX_SNKN	27
11	HPD_SNK	PD#	26
12	VDD33_3	VDD33_4	25

13	14	15	16	17	18	19	20	21	22	23	24
OUT3N	OUT3P	NC4	OUT2N	OUT2P	GND1	OUT1N	OUT1P	NC5	OUT0N	OUT0P	GND2

C1411 2 1 2.2UF/6.3V X5R/+/-10% vx_c0603_small
+3VS_DPSW DP_CEXT
DP_REQ
DP_CFG0
+3VS_DPSW DP_REXT
R1411 2 1% 1 4.99KOhm
R1417 2 1 1MOhm
74 HPD_IFPD_DP
11 HPD_DDPD_DP_R
GND

+3VS_DPSW
RST#_DP
+3VS_DPSW
DP_DDI3_AUXP_C
DP_DDI3_AUXN_C
DP_PD#
+3VS_DPSW

+3VS_DPSW
R1414 100KOhm
R1415 100KOhm
R1407 10KOhm
R1416 100KOhm
C1412 2.2UF/6.3V X5R/+/-10% vx_c0603_small
GND

0.1UF/6.3V 2 1 C1407
0.1UF/6.3V 2 1 C1408
DP_IFPD_AUXP 72
DP_IFPD_AUXN 72
DP_AUXP 11
DP_AUXN 11

DP_DATA0 11
DP_DATA0# 11
DP_DATA1 11
DP_DATA1# 11
DP_DATA2 11
DP_DATA2# 11
DP_DATA3 11
DP_DATA3# 11

PEGATRON Title : THUNDERBOLT_DP redriver
Pegatron Corp. Engineer: Kai_Shen
Size B | Project Name P7RCR | Rev R1.0
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SATA HDD

21 SATA_TXP2 — 0Ohm 2 — 1 R1508 @/HDD — SATA_TXP2_PASS — 0.01UF/16V 2 — 1 C1514 @/HDD — SATA_TXP2_CON
21 SATA_TXN2 — 0Ohm 2 — 1 R1509 @/HDD — SATA_TXN2_PASS — 0.01UF/16V 2 — 1 C1515 @/HDD — SATA_TXN2_CON

21 SATA_RXN2 — 0.01UF/16V 2 — 1 C1501 @/HDD — SATA_RXN2_PASS — 0Ohm 2 — 1 R1518 @/HDD — SATA_RXN2_CON
21 SATA_RXP2 — 0.01UF/16V 2 — 1 C1502 @/HDD — SATA_RXP2_PASS — 0Ohm 2 — 1 R1510 @/HDD — SATA_RXP2_CON

+3VS
+5VS

+3VS 7,11,12,13,14,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+5VS 13,31,36,37,45,48,50,56,80,87,89,91,97

20160707 R1.1 Kai
mount R1512 / R1502, EA

+3VS

4.7KOhm 1 @ 2 R1506 SATA_A_EQ1 R1507 2 @ 1 4.7KOhm
4.7KOhm 1 2 R1502 SATA_A_EQ2 R1516 2 @ 1 4.7KOhm
4.7KOhm 1 @ 2 R1501 SATA_B_EQ1 R1517 2 1 4.7KOhm
4.7KOhm 1 @ 2 R1503 SATA_B_EQ2 R1511 2 1 4.7KOhm
4.7KOhm 1 @ 2 R1505 SATA_A_DE R1512 2 1 4.7KOhm
4.7KOhm 1 @ 2 R1504 SATA_B_DE R1513 2 @ 1 4.7KOhm
4.7KOhm 1 2 R1514 EN

GND

+3VS
C1516 2 — 1 0.1UF/6.3V
GND
GND

SATA_B_EQ1 21
SATA_A_EQ2 20
SATA_A_EQ1 19
SATA_B_EQ2 18
17
16

U1501A
PS8527BTQFN20GTR2-A2

GND3
B_EQ1
A_EQ2
A_EQ1
B_EQ2
VDD2

SATA_TXP2 0.01UF/16V 2 — 1 C1508 — SATA_TXP2_C — 1 A_INP
SATA_TXN2 0.01UF/16V 2 — 1 C1509 — SATA_TXN2_C — 2 A_INN
3 GND1
SATA_RXN2 0.01UF/16V 2 — 1 C1507 — SATA_RXN2_C — 4 B_OUTN
SATA_RXP2 0.01UF/16V 2 — 1 C1503 — SATA_RXP2_C — 5 B_OUTP

A_OUTP 15 — SATA_TXP2_CON_C — 0.01UF/16V 2 — 1 C1505 — SATA_TXP2_CON
A_OUTN 14 — SATA_TXN2_CON_C — 0.01UF/16V 2 — 1 C1506 — SATA_TXN2_CON
13 GND2
B_INN 12 — SATA_RXN2_CON_C — 0.01UF/16V 2 — 1 C1510 — SATA_RXN2_CON
B_INP 11 — SATA_RXP2_CON_C — 0.01UF/16V 2 — 1 C1511 — SATA_RXP2_CON

GND
GND

VDD1
EN
B_DE
A_DE
REXT

06V140000023

+3VS
C1513 1 — 2 0.1UF/6.3V
C1504 1 — 2 0.01UF/16V
GND

C1517 2 — 1 0.1UF/6.3V
GND

EN 7
SATA_B_DE 8
SATA_A_DE 9
10

+3VS
C1512 2 — 1 0.1UF/6.3V
GND

R1515 2 — 1 4.99KOhm 1%
GND

U1501B
22 GND4
23 GND5
PS8527BTQFN20GTR2-A2
06V140000023
GND

+5VS — @/SP — SR1501 1 — 2 0Ohm — +5VS_HDD

2A

C5160 2 — 1 22UF/6.3V X5R/+/-10%
C5107 2 — 1 10UF/6.3V
C5106 2 — 1 0.1UF/6.3V
C5147 2 — 1 1000PF/16V
@ C5167 2 — 1 10PF/50V
GND

+5VS_HDD_2 — R1519 1 — /0-ohm — 2 0Ohm

CON5100

SATA_TXP2_CON 20
SATA_TXN2_CON 19
18
SATA_RXN2_CON 17
SATA_RXP2_CON 16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

SIDE2 22
NP_NC2 26
SIDE4 24
SIDE1
NP_NC1
SIDE3

+5VS_HDD
+5VS_HDD_2

58 GSENSOR_INT2 — R5131 2 — @ — 1 0Ohm

WTOB_CON_20P
1217-018G000
21
25
23
GND

PEGATRON Title : HDD REPEATER

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
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+1P2V +1P2V 7,10,13,17,24,57,83
+1P2V_DUAL +1P2V_DUAL 17,18
+VTT_DDR +VTT_DDR 17,18,57,83
+3VS +3VS 7,11,12,13,14,15,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+2P5VPP +2P5VPP 17,18,57,95
+2P5_3VS_DIM +2P5_3VS_DIM 17,31

20160309 RFQ Kai
Correct VX
CON1600 from 12V022BSM002 to 12V02GBSM007
CON1601 from 12V02GBSM004 to 12V02GBSM005

20160509 WS Kai
for voltage drop
change 10m-ohm to open jump

20160516 WS Kai
Power pin VDDSPD connect change to +2P5_3VS_DIM
reserve +3VS

20160516 WS Kai
Remove extra circuit

NOTE: Black

CON1600A

M_CHA_MAA[0..16] 4,16
M_CHA_MAA16 152 RAS_n/A16
M_CHA_MAA15 156 CAS_n/A15
M_CHA_MAA14 151 WE_n/A14
M_CHA_MAA13 158 A13
M_CHA_MAA12 119 A12
M_CHA_MAA11 120 A11
M_CHA_MAA10 146 A10/AP
M_CHA_MAA9 121 A9
M_CHA_MAA8 125 A8
M_CHA_MAA7 122 A7
M_CHA_MAA6 127 A6
M_CHA_MAA5 126 A5
M_CHA_MAA4 128 A4
M_CHA_MAA3 131 A3
M_CHA_MAA2 132 A2
M_CHA_MAA1 133 A1
M_CHA_MAA0 144 A0
4,16 M_CHA_BA1 145 BA1
4,16 M_CHA_BA0 150 BA0
4,16 M_CHA_BG1 113 BG1
4,16 M_CHA_BG0 115 BG0
4 M_CHA_CLK1 138 CK1_t/NF
4 M_CHA_CLK1# 140 CK1_c/NF
4 M_CHA_CLK0 137 CK0_t
4 M_CHA_CLK0# 139 CK0_c
TPC26T T1600 TP_CHA_XMM3_S3 165 C1/CS3_n/NC
TPC26T T1600 TP_CHA_XMM3_S2 162 C0/CS2_n/NC
4 M_CHA_CS#1 157 CS1_n
4 M_CHA_CS#0 149 CS0_n
4 M_CHA_CKE1 110 CKE1
4 M_CHA_CKE0 109 CKE0
4 M_CHA_ODT1 161 ODT1
4 M_CHA_ODT0 155 ODT0
104 CB7/NC
100 CB6/NC
87 CB5/NC
88 CB4/NC
105 CB3/NC
101 CB2/NC
91 CB1/NC
92 CB0/NC
143 PARITY
108 RESET_n
134 EVENT_n/NF
116 ALERT_n
114 ACT_n
255 VDDSPD
166 SA2
260 SA1
256 SA0
254 SDA
253 SCL
164 VREFCA

DQ63 246 M_CHA_DQ63
DQ62 245 M_CHA_DQ62
DQ61 233 M_CHA_DQ57
DQ60 232 M_CHA_DQ56
DQ59 250 M_CHA_DQ59
DQ58 249 M_CHA_DQ58
DQ57 236 M_CHA_DQ60
DQ56 237 M_CHA_DQ61
DQ55 225 M_CHA_DQ52
DQ54 224 M_CHA_DQ53
DQ53 212 M_CHA_DQ50
DQ52 211 M_CHA_DQ51
DQ51 229 M_CHA_DQ48
DQ50 228 M_CHA_DQ49
DQ49 216 M_CHA_DQ43
DQ48 215 M_CHA_DQ42
DQ47 203 M_CHA_DQ47
DQ46 202 M_CHA_DQ46
DQ45 190 M_CHA_DQ40
DQ44 191 M_CHA_DQ41
DQ43 207 M_CHA_DQ45
DQ42 208 M_CHA_DQ44
DQ41 194 M_CHA_DQ42
DQ40 195 M_CHA_DQ38
DQ39 182 M_CHA_DQ36
DQ38 183 M_CHA_DQ37
DQ37 169 M_CHA_DQ34
DQ36 170 M_CHA_DQ39
DQ35 186 M_CHA_DQ33
DQ34 187 M_CHA_DQ35
DQ33 173 M_CHA_DQ32
DQ32 174 M_CHA_DQ27
DQ31 80 M_CHA_DQ30
DQ30 79 M_CHA_DQ24
DQ29 67 M_CHA_DQ25
DQ28 66 M_CHA_DQ28
DQ27 84 M_CHA_DQ26
DQ26 83 M_CHA_DQ31
DQ25 71 M_CHA_DQ29
DQ24 70 M_CHA_DQ22
DQ23 59 M_CHA_DQ20
DQ22 58 M_CHA_DQ21
DQ21 45 M_CHA_DQ18
DQ20 46 M_CHA_DQ19
DQ19 63 M_CHA_DQ23
DQ18 62 M_CHA_DQ17
DQ17 49 M_CHA_DQ16
DQ16 50 M_CHA_DQ17
DQ15 38 M_CHA_DQ10
DQ14 37 M_CHA_DQ15
DQ13 24 M_CHA_DQ8
DQ12 25 M_CHA_DQ14
DQ11 41 M_CHA_DQ11
DQ10 42 M_CHA_DQ12
DQ9 29 M_CHA_DQ9
DQ8 28 M_CHA_DQ13
DQ7 16 M_CHA_DQ7
DQ6 17 M_CHA_DQ4
DQ5 3 M_CHA_DQ5
DQ4 4 M_CHA_DQ6
DQ3 21 M_CHA_DQ0
DQ2 20 M_CHA_DQ3
DQ1 7 M_CHA_DQ1
DQ0 8 M_CHA_DQ2

M_CHA_DQ[0..63] 4,16

DM8_n/DBI_n/NC 96
DM7_n/DBI7_n 241
DM6_n/DBI6_n 220
DM5_n/DBI5_n 199
DM4_n/DBI4_n 178
DM3_n/DBI3_n 75
DM2_n/DBI2_n 54
DM1_n/DBI1_n 33
DM0_n/DBI0_n 12
DQS8_t 97
DQS8_c 95
DQS7_t 242
DQS7_c 240
DQS6_t 221
DQS6_c 219
DQS5_t 200
DQS5_c 198
DQS4_t 179
DQS4_c 177
DQS3_t 76
DQS3_c 74
DQS2_t 55
DQS2_c 53
DQS1_t 34
DQS1_c 32
DQS0_t 13
DQS0_c 11

M_CHA_DQS7 4,16
M_CHA_DQS7# 4,16
M_CHA_DQS6 4,16
M_CHA_DQS6# 4,16
M_CHA_DQS5 4,16
M_CHA_DQS5# 4,16
M_CHA_DQS4 4,16
M_CHA_DQS4# 4,16
M_CHA_DQS3 4,16
M_CHA_DQS3# 4,16
M_CHA_DQS2 4,16
M_CHA_DQS2# 4,16
M_CHA_DQS1 4,16
M_CHA_DQS1# 4,16
M_CHA_DQS0 4,16
M_CHA_DQS0# 4,16

DDR4_SO_260P
1202-00XA000

+1P2V_DUAL
R1600 240Ohm 1%
GND C1619 2 1 10PF/50V
+2P5_3VS_DIM
R1610 1KOhm 1%
R1612 1KOhm 1%
R1604 0Ohm
R1605 0Ohm
R1606 0Ohm
0.25A
C1602 0.1UF/6.3V
C1604 2.2UF/6.3V
C1605 0.1UF/6.3V
C1606 10PF/50V
C1618 10PF/50V
C1610 0.1UF/6.3V
R1613 /0-ohm
R1614 /0-ohm
R1615 /0-ohm
C1612 10UF/6.3V
C1613 0.1UF/6.3V
M_CHA_PAR 4,16 16,17,24 DRAMRST_R#
CHA_DIMM0_EVENT# 16,17,31
M_CHA_ALERT# 4,16
M_CHA_ACT# 4,16
SMB_DATA_MAIN 16,17,31
SMB_CLK_MAIN 16,17,31
V_SA0_DIMM0_CHA
V_SA1_DIMM0_CHA
V_SA0_DIMM0_CHA
DDRA_VREF_CA_R SR1601 1 2 0Ohm @SP
5,16 DDRA_VREF_CA_W10S12
C1617 10PF/50V

CON1600B

VDD1 111
VDD2 112
VDD3 117
VDD4 118
VDD5 123
VDD6 124
VDD7 129
VDD8 130
VDD9 135
VDD10 136
VDD11 141
VDD12 142
VDD13 147
VDD14 148
VDD15 153
VDD16 154
VDD17 159
VDD18 160
VDD19 163
VTT 258
VPP2 259
VPP1 257
2.5A +1P2V_DUAL
1A +2P5VPP
0.3A +VTT_DDR
C1600 10PF/50V
GND
JP1601 3MM_OPEN_5MIL
+1P2V +1P2V_DUAL
+2P5VPP +3VS +2P5_3VS_DIM
R1602 2 1 0Ohm
R1603 2 1 0Ohm

VSS1 1
VSS2 2
VSS3 5
VSS4 6
VSS5 9
VSS6 10
VSS7 14
VSS8 15
VSS9 18
VSS10 19
VSS11 22
VSS12 23
VSS13 26
VSS14 27
VSS15 30
VSS16 31
VSS17 34
VSS18 35
VSS19 39
VSS20 40
VSS21 43
VSS22 44
VSS23 47
VSS24 48
VSS25 51
VSS26 52
VSS27 56
VSS28 57
VSS29 60
VSS30 61
VSS31 64
VSS32 65
VSS33 68
VSS34 69
VSS35 72
VSS36 73
VSS37 77
VSS38 78
VSS39 81
VSS40 82
VSS41 85
VSS42 86
VSS43 89
VSS44 90
VSS45 93
VSS46 94
VSS47 98
VSS48 99
VSS49 102
VSS50 103
VSS51 106
VSS52 107
VSS53 167
VSS54 168
VSS55 171
VSS56 172
VSS57 175
VSS58 176
VSS59 179
VSS60 180
VSS61 183
VSS62 184
VSS63 187
VSS64 188
VSS65 191
VSS66 192
VSS67 195
VSS68 196
VSS69 199
VSS70 200
VSS71 203
VSS72 204
VSS73 207
VSS74 208
VSS75 211
VSS76 212
VSS77 215
VSS78 216
VSS79 219
VSS80 220
VSS81 223
VSS82 224
VSS83 227
VSS84 228
VSS85 231
VSS86 232
VSS87 235
VSS88 236
VSS89 239
VSS90 240
VSS91 243
VSS92 244
VSS93 247
VSS94 248
SIDE2 264
SIDE1 263
NP_NC2 262
NP_NC1 261

DDR4_SO_260P

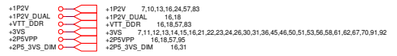
STATUS	SA2	SA1	SA0
CON1600	0	0	0
CON1601	0	0	1

CON1601A

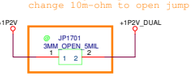
M_CHA_MAA[0..16] 4,16
M_CHA_BA1 4,16
M_CHA_BA0 4,16
M_CHA_BG1 4,16
M_CHA_BG0 4,16
M_CHA_CLK3 4
M_CHA_CLK3# 4
M_CHA_CLK2 4
M_CHA_CLK2# 4
TPC26T T1603 TP_CHA_XMM3_S3 165
TPC26T T1601 TP_CHA_XMM3_S2 162
M_CHA_CS#3 4
M_CHA_CS#2 4
M_CHA_CKE3 4
M_CHA_CKE2 4
M_CHA_ODT3 4
M_CHA_ODT2 4
M_CHA_DQ[0..63] 4,16
M_CHA_PAR 4,16 16,17,24 DRAMRST_R#
M_CHA_ALERT# 4,16
M_CHA_ACT# 4,16
CHA_DIMM1_EVENT# 16,17,31
SMB_DATA_MAIN 16,17,31
SMB_CLK_MAIN 16,17,31
V_SA0_DIMM1_CHA
V_SA1_DIMM1_CHA
V_SA0_DIMM1_CHA
DDRA_VREF_CA_R SR1602 1 2 0Ohm @SP
5,16 DDRA_VREF_CA_W10S12
R1607 /0-ohm
R1608 /0-ohm
R1609 /0-ohm
0.25A
C1603 0.1UF/6.3V
C1607 2.2UF/6.3V
C1608 0.1UF/6.3V
C1609 10PF/50V
R1617 /0-ohm
R1618 /0-ohm
R1619 /0-ohm
C1614 10UF/6.3V
C1615 0.1UF/6.3V
C1620 2 1 10PF/50V
R1601 240Ohm 1%
C1616 10PF/50V

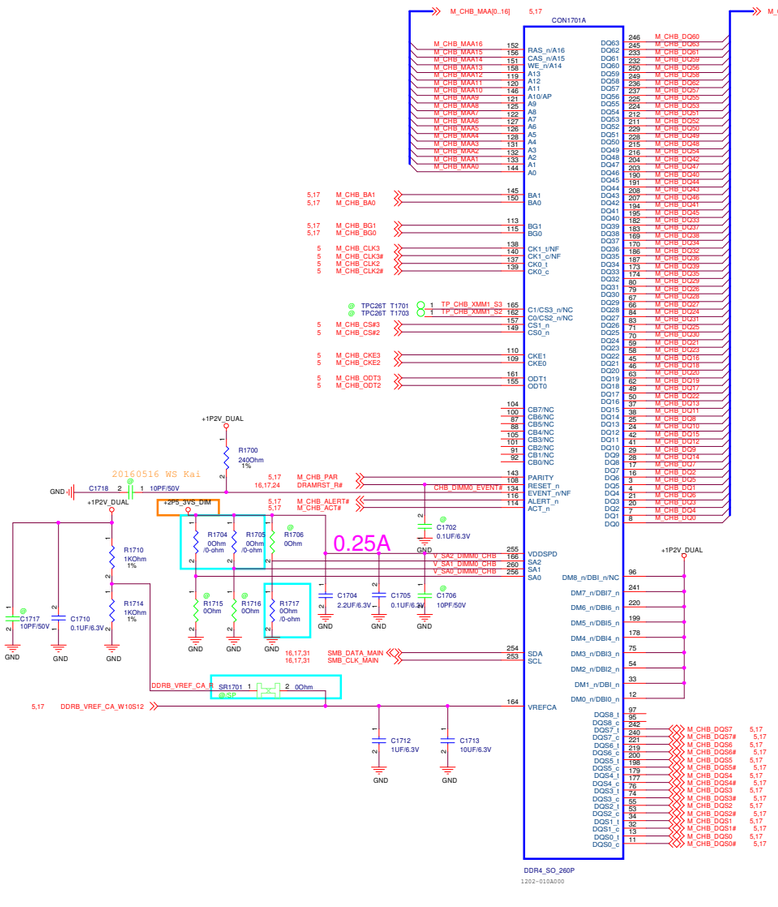
DDR4_SO_260P
1202-00W7000

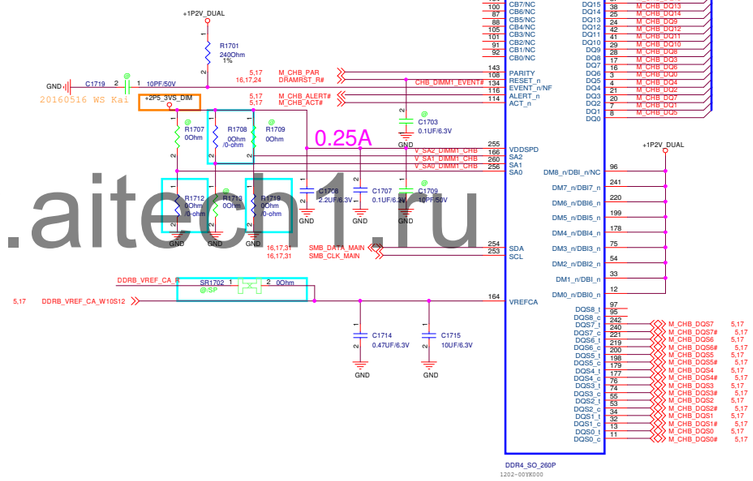
PEGATRON Title : DDR4(1) SO-DIMM0
Pegatron Corp. Engineer: Kai_Shen
Size A1 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 Sheet 16 of 101



20160509 WS Kai
for voltage drop
change 10m-ohm to open jump







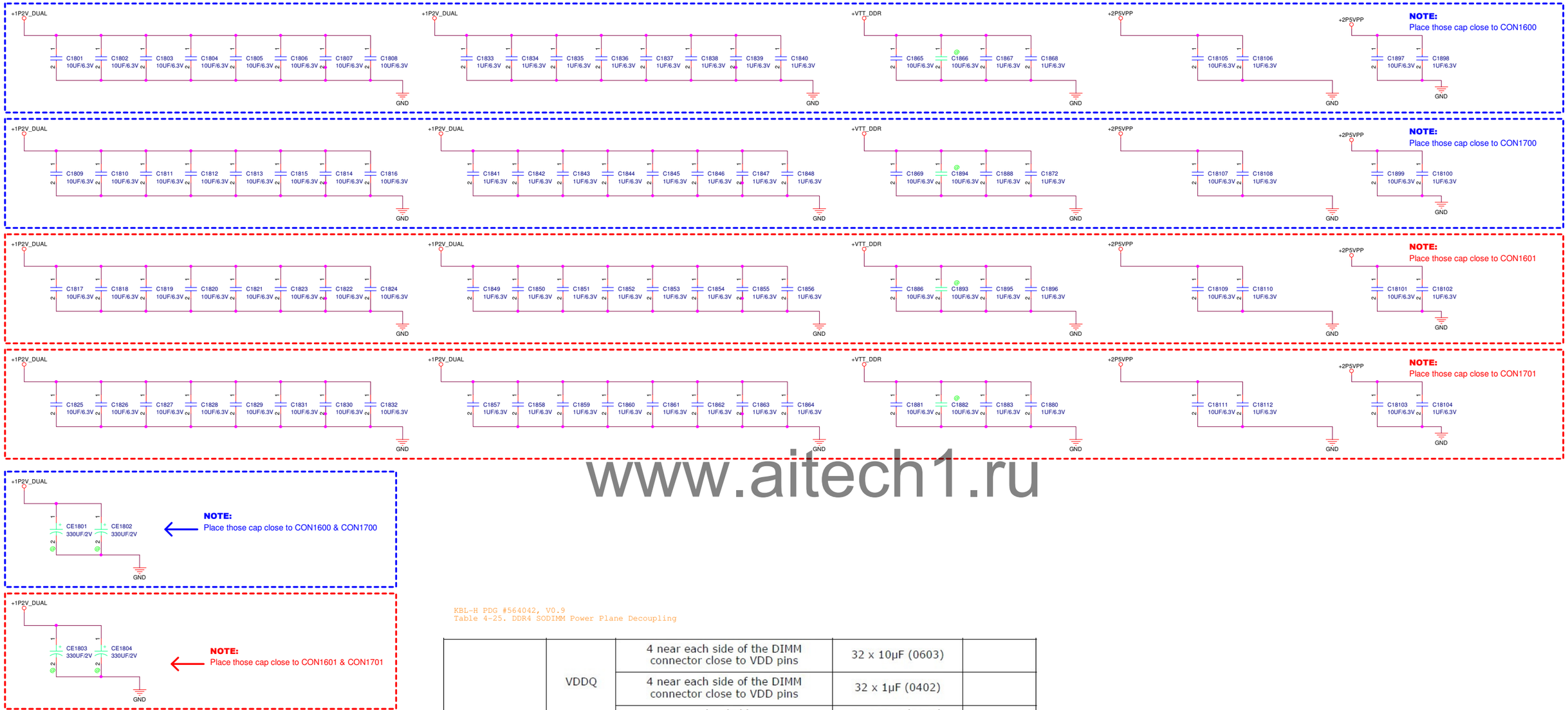
STATUS	SA2	SA1	SA0
CON1700	0	1	0
CON1701	0	1	1

PEGATRON Title : DDR4(2)_SO-DIMM1

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A1	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 17 of 101



KBL-H PDG #564042, V0.9
Table 4-25. DDR4 SODIMM Power Plane Decoupling

DDR4 2 Channels SODIMM **2DPC**	VDDQ	4 near each side of the DIMM connector close to VDD pins	32 x 10µF (0603)	
		4 near each side of the DIMM connector close to VDD pins	32 x 1µF (0402)	
		1 placeholder	2x 330µF (7343)	
	VTT	Place these caps on the VTT plane close to SODIMM	2x 10µF (0603)	
		Placeholder Place these caps on the VTT plane close to SODIMM	2x 10µF (0603)	
		Place these caps on the VTT plane close to SODIMM	8x 1µF (0402)	
	VPP	DRAM Side	4x 10µF (0603)	
		DRAM Side	4 x 1µF (0402)	
	VDDSPD	Place close to DIMM	2x 0.1µF (0402)	
		Place close to DIMM	2x 2.2µF (0603)	

PEGATRON Title : DDR3 TERMINATION A&B
Pegatron Corp. Engineer: Kal_Shen
Size: Custom | Project Name: P7RCR | Rev: R1.0
Date: Monday, October 17, 2016 Sheet 18 of 101

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : DDR3 TERMINATION A&B

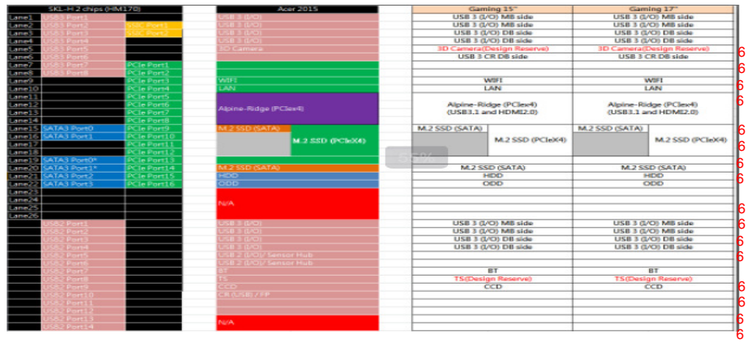
Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 19 of 101

NOTE:

PCH EDS 0.7



U2000A

DMI

DMI_TXP0	N27	DMI_RXP0
DMI_TXN0	L27	DMI_RXN0
DMI_RXP0	B27	DMI_TXP0
DMI_RXN0	C27	DMI_TXN0
DMI_TXP1	G24	DMI_RXP1
DMI_TXN1	E24	DMI_RXN1
DMI_RXP1	A28	DMI_TXP1
DMI_RXN1	B28	DMI_TXN1
DMI_TXP2	E26	DMI_RXP2
DMI_TXN2	G27	DMI_RXN2
DMI_RXP2	C29	DMI_TXP2
DMI_RXN2	B29	DMI_TXN2
DMI_TXP3	K29	DMI_RXP3
DMI_TXN3	L29	DMI_RXN3
DMI_RXP3	A30	DMI_TXP3
DMI_RXN3	B30	DMI_TXN3

PCIE/USB/SATA

	B16	PCIE1_TXP/USB3_7_TXP
	A16	PCIE1_TXN/USB3_7_TXN
	G15	PCIE1_RXP/USB3_7_RXP
	H15	PCIE1_RXN/USB3_7_RXN
PCIE_TXP8_WiGi_C	C19	PCIE2_TXP/USB3_8_TXP
PCIE_TXN8_WiGi_C	B19	PCIE2_TXN/USB3_8_TXN
	G17	PCIE2_RXP/USB3_8_RXP
	E17	PCIE2_RXN/USB3_8_RXN
PCIE_TXP7_WLAN_C	C20	PCIE3_TXP/USB3_9_TXP
PCIE_TXN7_WLAN_C	B20	PCIE3_TXN/USB3_9_TXN
	K17	PCIE3_RXP/USB3_9_RXP
	L17	PCIE3_RXN/USB3_9_RXN
PCIE_LAN_TXP	A21	PCIE4_TXP/USB3_10_TXP
PCIE_LAN_TXN	B21	PCIE4_TXN/USB3_10_TXN
	G19	PCIE4_RXP/USB3_10_RXP
	E20	PCIE4_RXN/USB3_10_RXN
TBT_PCIE_TX0_P_C	C22	PCIE5_TXP
TBT_PCIE_TX0_N_C	D22	PCIE5_TXN
	L19	PCIE5_RXP
	K19	PCIE5_RXN
TBT_PCIE_TX1_P_C	A23	PCIE6_TXP
TBT_PCIE_TX1_N_C	B22	PCIE6_TXN
	E22	PCIE6_RXP
	G22	PCIE6_RXN
TBT_PCIE_TX2_P_C	B23	PCIE7_TXP
TBT_PCIE_TX2_N_C	C23	PCIE7_TXN
	K22	PCIE7_RXP
	L22	PCIE7_RXN
TBT_PCIE_TX3_P_C	B24	PCIE8_TXP
TBT_PCIE_TX3_N_C	C24	PCIE8_TXN
	L24	PCIE8_RXP
	K24	PCIE8_RXN
	B31	PCIE9_TXP/SATA0A_TXP
	C31	PCIE9_TXN/SATA0A_TXN
	H31	PCIE9_RXP/SATA0A_RXP
	G31	PCIE9_RXN/SATA0A_RXN
	B32	PCIE10_TXP/SATA1A_TXP
	C32	PCIE10_TXN/SATA1A_TXN
	E29	PCIE10_RXP/SATA1A_RXP
	G29	PCIE10_RXN/SATA1A_RXN
	B33	PCIE11_TXP
	C33	PCIE11_TXN
	K31	PCIE11_RXP
	L31	PCIE11_RXN
	A35	PCIE12_TXP
	B35	PCIE12_TXN
	H33	PCIE12_RXP
	G33	PCIE12_RXN

USB2.0

USB2P_1	AG7	IPD 14~24KOHM
USB2N_1	AF5	IPD 14~24KOHM
USB2P_2	AD7	IPD 14~24KOHM
USB2N_2	AD5	IPD 14~24KOHM
USB2P_3	AG10	IPD 14~24KOHM
USB2N_3	AG8	IPD 14~24KOHM
USB2P_4	AE2	IPD 14~24KOHM
USB2N_4	AE1	IPD 14~24KOHM
USB2P_5	AC3	IPD 14~24KOHM
USB2N_5	AC2	IPD 14~24KOHM
USB2P_6	AF3	IPD 14~24KOHM
USB2N_6	AF2	IPD 14~24KOHM
USB2P_7	AB2	IPD 14~24KOHM
USB2N_7	AB3	IPD 14~24KOHM
USB2P_8	AL7	IPD 14~24KOHM
USB2N_8	AL8	IPD 14~24KOHM
USB2P_9	AA2	IPD 14~24KOHM
USB2N_9	AA1	IPD 14~24KOHM
USB2P_10	AJ7	IPD 14~24KOHM
USB2N_10	AJ8	IPD 14~24KOHM
USB2P_11	W3	IPD 14~24KOHM
USB2N_11	W2	IPD 14~24KOHM
USB2P_12	AD2	IPD 14~24KOHM
USB2N_12	AD3	IPD 14~24KOHM
USB2P_13	V1	IPD 14~24KOHM
USB2N_13	V2	IPD 14~24KOHM
USB2P_14	AJ13	IPD 14~24KOHM
USB2N_14	AJ11	IPD 14~24KOHM

USB3.0

USB3_1_TXP	B11	
USB3_1_TXN	C11	
USB3_1_RXP	A7	
USB3_1_RXN	B7	
USB3_2_TXP/SSIC_1_TXP	A12	
USB3_2_TXN/SSIC_1_TXN	B12	
USB3_2_RXP/SSIC_1_RXP	B8	
USB3_2_RXN/SSIC_1_RXN	C8	
USB3_3_TXP/SSIC_2_TXP	D13	
USB3_3_TXN/SSIC_2_TXN	C13	
USB3_3_RXP/SSIC_2_RXP	A9	
USB3_3_RXN/SSIC_2_RXN	B10	
USB3_4_TXP	B13	
USB3_4_TXN	A14	
USB3_4_RXP	G11	
USB3_4_RXN	E11	
USB3_5_TXP	C14	
USB3_5_TXN	B14	
USB3_5_RXP	H13	
USB3_5_RXN	G13	
USB3_6_TXP	C15	
USB3_6_TXN	B15	
USB3_6_RXP	K13	
USB3_6_RXN	K15	

NOTE:

Lynx Point: USB2[0:13]

Sunrise Point PCH-H: USB2[1:14]

USBP1	52	OC0		USB3.0 on-board
USBN1	52			
USBP2	55	OC2		
USBN2	55			
USBP3	67	OC1		USB3.0 IO-board
USBN3	67			
USBP4	67			
USBN4	67			
USBP7	53			M.2 BT
USBN7	53			
USBP9	45			WEBCAM
USBN9	45			
USBP10	67			CARD READER
USBN10	67			

USB3_TX_P2	55		USB3.0 on-board
USB3_TX_N2	55		
USB3_RX_P2	55		
USB3_RX_N2	55		
USB3_TX_P3	67		USB3.0 IO-board
USB3_TX_N3	67		
USB3_RX_P3	67		
USB3_RX_N3	67		
USB3_TX_P4	67		
USB3_TX_N4	67		
USB3_RX_P4	67		
USB3_RX_N4	67		
USB3_TX_P1	55		USB3.0 on-board
USB3_TX_N1	55		
USB3_RX_P1	55		
USB3_RX_N1	55		
USB3_TX_P6	67		USB3.0 CARD
USB3_TX_N6	67		
USB3_RX_P6	67		
USB3_RX_N6	67		

M.2 WiGi

53	PCIE_TXP8_WiGi	C2002 1	2 0.1UF/6.3V	PCIE_TXP8_WiGi_C	C19
53	PCIE_TXN8_WiGi	C2003 1	2 0.1UF/6.3V	PCIE_TXN8_WiGi_C	B19
53	PCIE_RXP8_WiGi				G17
53	PCIE_RXN8_WiGi				E17

M.2 WLAN

53	PCIE_TXP7_WLAN	C2020 1	2 0.1UF/6.3V	PCIE_TXP7_WLAN_C	C20
53	PCIE_TXN7_WLAN	C2021 1	2 0.1UF/6.3V	PCIE_TXN7_WLAN_C	B20
53	PCIE_RXP7_WLAN				K17
53	PCIE_RXN7_WLAN				L17

LAN E2400

33	LAN_TXP	C2012 1	2 0.1UF/6.3V	PCIE_LAN_TXP	A21
33	LAN_TXN	C2013 1	2 0.1UF/6.3V	PCIE_LAN_TXN	B21
33	LAN_RXP				G19
33	LAN_RXN				E20

Thunderbolt

11	TBT_PCIE_TX0_P	C2000 1	2 0.22UF/6.3V	TBT_PCIE_TX0_P_C	C22
11	TBT_PCIE_TX0_N	C2001 1	2 0.22UF/6.3V	TBT_PCIE_TX0_N_C	D22
11	TBT_PCIE_RX0_P				L19
11	TBT_PCIE_RX0_N				K19
11	TBT_PCIE_TX1_P	C2015 1	2 0.22UF/6.3V	TBT_PCIE_TX1_P_C	A23
11	TBT_PCIE_TX1_N	C2014 1	2 0.22UF/6.3V	TBT_PCIE_TX1_N_C	B22
11	TBT_PCIE_RX1_P				E22
11	TBT_PCIE_RX1_N				G22
11	TBT_PCIE_TX2_P	C2017 1	2 0.22UF/6.3V	TBT_PCIE_TX2_P_C	B23
11	TBT_PCIE_TX2_N	C2016 1	2 0.22UF/6.3V	TBT_PCIE_TX2_N_C	C23
11	TBT_PCIE_RX2_P				K22
11	TBT_PCIE_RX2_N				L22
11	TBT_PCIE_TX3_P	C2019 1	2 0.22UF/6.3V	TBT_PCIE_TX3_P_C	B24
11	TBT_PCIE_TX3_N	C2018 1	2 0.22UF/6.3V	TBT_PCIE_TX3_N_C	C24
11	TBT_PCIE_RX3_P				L24
11	TBT_PCIE_RX3_N				K24

20160503 RFQ Kai
Change from 0.1uF to 0.22uF
follow Intel PDG

SATA Port1 (SSD)

51	PCIE_SATA_TXP0		B31
51	PCIE_SATA_TXN0		C31
51	PCIE_SATA_RXP0		H31
51	PCIE_SATA_RXN0		G31

SATA Port1 (SSD)

51	PCIE_SATA_TXP1		B32
51	PCIE_SATA_TXN1		C32
51	PCIE_SATA_RXP1		E29
51	PCIE_SATA_RXN1		G29

SATA Port1 (SSD)

51	PCIE_SATA_TXP2		B33
51	PCIE_SATA_TXN2		C33
51	PCIE_SATA_RXP2		K31
51	PCIE_SATA_RXN2		L31

SATA Port1 (SSD)

51	PCIE_SATA_TXP3		A35
51	PCIE_SATA_TXN3		B35
51	PCIE_SATA_RXP3		H33
51	PCIE_SATA_RXN3		G33

USB2_ID	AG2	IWPU	USB2_ID
USB2_VBUSSENSE	AD10		USB2_VBUSSENSE

R2000 1KOhm 1%

SR2001 0Ohm @/SP

GND GND

SKYLAKE_PCH Rev 0.9

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : PCH_DMI/PCIE

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A3	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 20 of 101

+3VS +3VSUS

+3VS 7,11,12,13,14,15,16,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+3VSUS 7,11,12,22,23,24,26,28,31,33,36,44,52,53,57,62,67,81,88,92

NOTE:
Check PU/PD

U2000B

PCIE/SATA

SKYLAKE_PCH Rev 0.9

SATA Port2 (SSD)

51	SATA_TXP1	PCIE14_TXP/SATA1B_TXP
51	SATA_TXN1	PCIE14_TXN/SATA1B_TXN
51	SATA_RXP1	PCIE14_RXP/SATA1B_RXP
51	SATA_RXN1	PCIE14_RXN/SATA1B_RXN

HDD

15	SATA_TXP2	PCIE15_TXP/SATA2_TXP
15	SATA_TXN2	PCIE15_TXN/SATA2_TXN
15	SATA_RXP2	PCIE15_RXP/SATA2_RXP
15	SATA_RXN2	PCIE15_RXN/SATA2_RXN

SATA Port3 (SSD)

51	SATA_TXP3	PCIE16_TXP/SATA3_TXP
51	SATA_TXN3	PCIE16_TXN/SATA3_TXN
51	SATA_RXP3	PCIE16_RXP/SATA3_RXP
51	SATA_RXN3	PCIE16_RXN/SATA3_RXN

PCIE13_TXP/SATA0B_TXP
PCIE13_TXN/SATA0B_TXN
PCIE13_RXP/SATA0B_RXP
PCIE13_RXN/SATA0B_RXN
PCIE14_TXP/SATA1B_TXP
PCIE14_TXN/SATA1B_TXN
PCIE14_RXP/SATA1B_RXP
PCIE14_RXN/SATA1B_RXN
PCIE15_TXP/SATA2_TXP
PCIE15_TXN/SATA2_TXN
PCIE15_RXP/SATA2_RXP
PCIE15_RXN/SATA2_RXN
PCIE16_TXP/SATA3_TXP
PCIE16_TXN/SATA3_TXN
PCIE16_RXP/SATA3_RXP
PCIE16_RXN/SATA3_RXN
PCIE17_TXP/SATA4_TXP
PCIE17_TXN/SATA4_TXN
PCIE17_RXP/SATA4_RXP
PCIE17_RXN/SATA4_RXN
PCIE18_TXP/SATA5_TXP
PCIE18_TXN/SATA5_TXN
PCIE18_RXP/SATA5_RXP
PCIE18_RXN/SATA5_RXN
PCIE19_TXP/SATA6_TXP
PCIE19_TXN/SATA6_TXN
PCIE19_RXP/SATA6_RXP
PCIE19_RXN/SATA6_RXN
PCIE20_TXP/SATA7_TXP
PCIE20_TXN/SATA7_TXN
PCIE20_RXP/SATA7_RXP
PCIE20_RXN/SATA7_RXN

GPP_E0/SATAXPCIE0/SATAGP0 AG36
GPP_E1/SATAXPCIE1/SATAGP1 AG35 PCHXDP_OBSDATA_A0_R
GPP_E2/SATAXPCIE2/SATAGP2 AG39 PCHXDP_OBSDATA_A1_R
GPP_E3/CPU_GP0 AF41 GPI PCHXDP_OBSDATA_A2_R
GPP_E4/DEVSLP0 AG42 GPI
GPP_E5/DEVSLP1 AG43 GPI
GPP_E6/DEVSLP2 AE45 GPI PCHXDP_OBSDATA_B1_R
GPP_E7/CPU_GP1 AE44 GPI PCHXDP_OBSDATA_B2_R
GPP_E8/SATALED# AD44 GPI

M2_SSD_PEDET 51
SATA_DEVSLP0 51
PCH_DEVSLP1 51
PCH_SATALED# 56

GPP_E9/USB2_OC0# AD43 GPI IPD 20K
GPP_E10/USB2_OC1# AD42 GPI IPD 20K
GPP_E11/USB2_OC2# AD39 GPI IPD 20K
GPP_E12/USB2_OC3# AC44 GPI IPD 20K

OC0# 12,52
OC1# 67
OC2# 55

GPP_F15/USB2_OCB_4 Y43 GPI PCH_OCB4
GPP_F16/USB2_OCB_5 Y41 GPI PCH_OCB5
GPP_F17/USB2_OCB_6 W44 GPI PCH_OCB6
GPP_F18/USB2_OCB_7 W43 GPI PCH_OCB7

GPP_I0/DDPB_HPD0 AW4 GPI
GPP_I1/DDPC_HPD1 AY2 GPI
GPP_I2/DDPD_HPD2 AV4 GPI
GPP_I3/DDPE_HPD3 BA4 GPI
GPP_I4/EDP_HPD BD7 GPI

GPP_I5/DDPB_CTRLCLK BA5 GPI
GPP_I6/DDPB_CTRLDATA BC4 IPD 20K
GPP_I7/DDPC_CTRLCLK BB3 GPI
GPP_I8/DDPC_CTRLDATA BD6 IPD 20K
GPP_I9/DDPD_CTRLCLK BE5 GPI
GPP_I10/DDPD_CTRLDATA BE6 IPD 20K

51 PCH_DEVSLP3

GPP_F5/DEVSLP3 AB41 GPI
GPP_F6/DEVSLP4 AB42 GPI
GPP_F7/DEVSLP5 AB43 GPI
GPP_F8/DEVSLP6 AB36 GPI
GPP_F9/DEVSLP7 AB39 GPI

GPP_F10/SCLOCK AB33 GPI
GPP_F11/SLOAD AB35 GPI
GPP_F12/SDATAOUT1 AA45 GPI
GPP_F13/SDATAOUT0 AA44 GPI
GPP_F14 Y44 GPI

MB_ID6

GPP_F19/eDP_VDDEN W42 GPI
GPP_F20/eDP_BKLTEN W35 GPI
GPP_F21/eDP_BKLTCTL W36 GPI
GPP_F22 W39 GPI
GPP_F23 V44 GPI

45 DDI1_BKLT_CTL
28 RTC_IN#
@/SP SR2101 1 2 NB_R0402_5MIL_SMALL
PCH_GPP_F22

GPP_F0/SATAXPCIE3/SATAGP3 AD35
GPP_F1/SATAXPCIE4/SATAGP4 AD31
GPP_F2/SATAXPCIE5/SATAGP5 AD38
GPP_F3/SATAXPCIE6/SATAGP6 AC43 GPI
GPP_F4/SATAXPCIE7/SATAGP7 AB44 GPI

BT_DISABLE# 53
WLAN_DISABLE# 53

STATUS	CTL1	CTL2	CTL3	ILIM_SEL
S0(CDP)	1	1	1	1
S3(CDP)	1	1	1	1
S4(DCP)	0	0	1	0
S5(DCP)	0	0	1	0

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : PCH_SATA/PCIE
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 Sheet 21 of 101

NOTE:
eSPI operates at 1.8V

NOTE:
Check SERIRQ & PIRQA volt level

NOTE:
Be carful on LPC/eSPI layout routing
eSPI clock/data mismatch < 500mil

NOTE:
CLKOUT_LPC[0:1] are 24MHz(TBD) with Rs=22ohm
ESPI_CLK is xxHz with Rs=15ohm

NOTE:
Check PCA spec SIO_SMI# to GPIO or SMI#?

NOTE:
TBD; Check ISH GPIO[0:7]
PU/PD and power rail

NOTE:
SPI_CS2# is dedicated to support TPM on SPI
SPI interface supports either 3.3V or 1.8V.
Also, SLB9670VQ2.0 support 3.3V or 1.8V.
Check CLKRUN# power well
Check external PU on PME#

NOTE:
Check USB power rail to decide DSW handshaking

NOTE:
Check GPP_A0 power well

NOTE:
ESPI_ALERT[0:1]# & ESPI_CS1# are Server Only
ESPI interface are Primary Well

NOTE:
Check PCA spec for specific implementation

NOTE:
0 ohm on PDG0.7

NOTE:
TBD. No PD on PDG0.7

NOTE:
GPP_G14 => 0: DMI AC coupling full volt mode

20160830 R13 Kai reserved

+3VS 7,11,12,13,14,15,16,21,22,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+3VSUS 7,11,12,21,22,24,26,28,31,33,36,44,52,53,57,62,67,81,88,92
+3VS_TP 30,31

NOTE:
Check HDA_SDO or AZA_SDO_SSP0_TXD to support
Flash Descriptor Security Override/ME Debug Mode

NOTE:
M.2 Socket 1/ Key E; PCM 1.8V

NOTE: SML0ALERT# /GPP_C5 => 0=LPC; and 1=eSPI
SMBALERT# /GPP_C2 => 0=disable; and 1=enable TLS

NOTE:
DMIC is 3.3V, maybe level
shift to 1.8V usage

For key-E WLAN only

NOTE:
SPI1 for touch device connection when
PCH touch integration is utilized.

20160830 R13 Kai
mount R2325 / R4403, Intel FAE Jet

Delete TS_I2C_CLK and TS_I2C_DATA
20150914

20160830 R13 Kai
Reserve, Intel FAE Jet

20160803 R12 Kai
Reserve

C build

U2000E

AUDIO
CLINK
SPI1
I2C
DBG
SMB
UART
I2H_I2C
I2H_UART

SKYLAKE_PCH Rev 0.9

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : PCH_AUDIO/CLK/I2C/UART
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 23 of 101

+3VS 7,11,12,13,14,15,16,21,22,23,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+3VSUS 7,11,12,21,22,23,26,28,31,33,36,44,52,53,57,62,67,81,88,92
+VCC_RTC 26,28,60
+1.0V 7,10,44,91
+1P2V 7,10,13,16,17,57,83

Check power rail

NOTE:
GPP_B22/GSPI1_MOSI

Offset 3410h:Bit 10
0: SPI
1: LPC

NOTE:
GSPI0_MOSI/GPP_B18

0 = Disable "No Reboot" mode.
1 = Enable "No Reboot" mode
(PCH will disable the TCO Timer system reboot feature).

NOTE:
HP PCA spec request probe points

NOTE:
PCH_PWROK and VCCST_PWRGD have the same timing

NOTE:
SML[2:4] are Server Only

U2000D

GSPI
GPP_B18/GSPI0_MOSI
GPP_B17/GSPI0_MISO
GPP_B16/GSPI0_CLK
GPP_B15/GSPI0_CS#
GPP_B22/GSPI1_MOSI
GPP_B21/GSPI1_MISO
GPP_B20/GSPI1_CLK
GPP_B19/GSPI1_CS#

ISH_I2C
GPP_H20/ISH_I2C0_SCL
GPP_H19/ISH_I2C0_SDA
GPP_H22/ISH_I2C1_SCL
GPP_H21/ISH_I2C1_SDA

GPP_B12/SLP_S0#
GPD4/SLP_S3#
GPD5/SLP_S4#
GPD10/SLP_S5#
GPD6/SLP_A#
GPD9/SLP_WLAN#
SLP_LAN#
SLP_SUS#

DRAM_RESET#
PLTRST_PROC#
GPP_B13/PLTRST#
SYS_PWROK
SYS_RESET#
PROCPWRGD
PCH_PWROK
RSMRST#
DSW_PWROK
SRTCRST#

SKYLAKE_PCH Rev 0.9

GPP_B0
GPP_B1
GPP_B2/VRALERT#
GPP_B3/CPU_GP2
GPP_B4/CPU_GP3
GPP_B5/SRCCLKREQ0#
GPP_B6/SRCCLKREQ1#
GPP_B7/SRCCLKREQ2#
GPP_B8/SRCCLKREQ3#
GPP_B9/SRCCLKREQ4#
GPP_B10/SRCCLKREQ5#
GPP_B11
GPP_H0/SRCCLKREQ6#
GPP_H1/SRCCLKREQ7#
GPP_H2/SRCCLKREQ8#
GPP_H3/SRCCLKREQ9#
GPP_H4/SRCCLKREQ10#
GPP_H5/SRCCLKREQ11#
GPP_H6/SRCCLKREQ12#
GPP_H7/SRCCLKREQ13#
GPP_H8/SRCCLKREQ14#
GPP_H9/SRCCLKREQ15#
GPD11/LANPHYPC
GPD0/BATLOW#
GPD1/ACPRESENT
GPD2/LAN_WAKE#
GPD7/RSVD
WAKE#
INTRUDER#
GPP_B14/SPKR
GPD3/PWRBTN#
THERMTRIP#
GPD8/SUSCLK
GPP_H10/SML2CLK
GPP_H11/SML2DATA
GPP_H12/SML2ALERT#
GPP_H13/SML3CLK
GPP_H14/SML3DATA
GPP_H15/SML3ALERT#
GPP_H16/SML4CLK
GPP_H17/SML4DATA
GPP_H18/SML4ALERT#
GPP_H23

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : PCH_SML
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 24 of 101

+1.0VSUS — +1.0VSUS 26,44,80,82

U2000C

CLOCK

7	CK_100M_BCK	@/SP SR2501 1 2	NB_R0402_5MIL_SMALL	CK_100M_85OHM_BCK	G2	CLKOUT_CPUBCLK_P	
7	CK_100M_BCK#	@/SP SR2502 1 2	NB_R0402_5MIL_SMALL	CK_100M_85OHM_BCK#	H2	CLKOUT_CPUBCLK_N	
7	CK_24M_BCK	@/SP SR2504 1 2	NB_R0402_5MIL_SMALL	CK_24M_85OHM_BCK	G1	CLKOUT_CPUNSSC_P	
7	CK_24M_BCK#	@/SP SR2506 1 2	NB_R0402_5MIL_SMALL	CK_24M_85OHM_BCK#	F1	CLKOUT_CPUNSSC_N	
7	CK_100M_PCIE	@/SP SR2511 1 2	NB_R0402_5MIL_SMALL	CK_100M_85OHM_PCIE	J2	CLKOUT_CPUPCIBCLK_P	
7	CK_100M_PCIE#	@/SP SR2512 1 2	NB_R0402_5MIL_SMALL	CK_100M_85OHM_PCIE#	J1	CLKOUT_CPUPCIBCLK_N	
44	CK_100M_CPUXDP	@/SP SR2508 1 2	NB_R0402_5MIL_SMALL	CK_100M_85OHM_CPUXDP	L2	CLKOUT_ITPXDP_P	
44	CK_100M_CPUXDP#	@/SP SR2509 1 2	NB_R0402_5MIL_SMALL	CK_100M_85OHM_CPUXDP#	L1	CLKOUT_ITPXDP_N	

+1.0VSUS — R2512 2 2.71Kohm 0.5% 1

XCLK_BIASREF — E1 XCLK_BIASREF

R2516 2 1% 1 100Ohm PCIE_RCOMPP C17 PCIE_RCOMPP
PCIE_RCOMPN B18 PCIE_RCOMPN

N8	CK_100M_PE0_R	@/SP SR2510 1 2	NB_R0402_5MIL_SMALL	CK_100M_PE0	53	CLKOUT_PCIE_P0	
N7	CK_100M_PE0#_R	@/SP SR2503 1 2	NB_R0402_5MIL_SMALL	CK_100M_PE0#	53	CLKOUT_PCIE_N0	
L5	CK_100M_PE1_R	@/SP SR2505 1 2	NB_R0402_5MIL_SMALL	CK_100M_PE1	53	CLKOUT_PCIE_P1	
L7	CK_100M_PE1#_R	@/SP SR2507 1 2	NB_R0402_5MIL_SMALL	CK_100M_PE1#	53	CLKOUT_PCIE_N1	
						F2	CLKOUT_PCIE_P2
						D3	CLKOUT_PCIE_N2
G4	TBT_REFCLK_100_P_R	@/SP SR2519 1 2	NB_R0402_5MIL_SMALL	TBT_REFCLK_100_P	1	CLKOUT_PCIE_P3	
E5	TBT_REFCLK_100_N_R	@/SP SR2520 1 2	NB_R0402_5MIL_SMALL	TBT_REFCLK_100_N	1	CLKOUT_PCIE_N3	
						E6	CLKOUT_PCIE_P4
						D5	CLKOUT_PCIE_N4
						D7	CLKOUT_PCIE_P5
						D8	CLKOUT_PCIE_N5
						R7	CLKOUT_PCIE_P6
						R8	CLKOUT_PCIE_N6
						U7	CLKOUT_PCIE_P7
						U5	CLKOUT_PCIE_N7
W11	CK_100M_PE8_R	@/SP SR2513 1 2	NB_R0402_5MIL_SMALL	CK_100M_PE8	51	CLKOUT_PCIE_P8	
W10	CK_100M_PE8#_R	@/SP SR2514 1 2	NB_R0402_5MIL_SMALL	CK_100M_PE8#	51	CLKOUT_PCIE_N8	
N2	PCIE_CLK_P_GPU_R	@/SP SR2515 1 2	NB_R0402_5MIL_SMALL	PCIE_CLK_P_GPU	70	CLKOUT_PCIE_P9	
N3	PCIE_CLK_N_GPU_R	@/SP SR2516 1 2	NB_R0402_5MIL_SMALL	PCIE_CLK_N_GPU	70	CLKOUT_PCIE_N9	
P2	CK_100M_LAN_R	@/SP SR2517 1 2	NB_R0402_5MIL_SMALL	CK_100M_LAN	33	CLKOUT_PCIE_P10	
P3	CK_100M_LAN#_R	@/SP SR2518 1 2	NB_R0402_5MIL_SMALL	CK_100M_LAN#	33	CLKOUT_PCIE_N10	
						R4	CLKOUT_PCIE_P11
						R3	CLKOUT_PCIE_N11
						U3	CLKOUT_PCIE_P12
						U2	CLKOUT_PCIE_N12
						Y5	CLKOUT_PCIE_P13
						W7	CLKOUT_PCIE_N13
						R2	CLKOUT_PCIE_P14
						P1	CLKOUT_PCIE_N14
						R11	CLKOUT_PCIE_P15
						R13	CLKOUT_PCIE_N15

M2 WLAN
M2 WiGi
Thunderbolt
M2 SSD
GPU
LAN

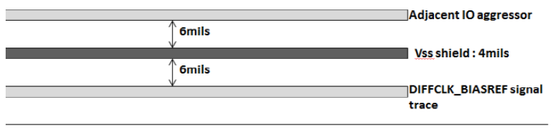
AN17			
AR19	TP1		
	TP2		
N29			
N31	RSVD3		
P24	RSVD4		
P27	RSVD5		
P29	RSVD6		
P31	RSVD7		
R24	RSVD8		
R27	RSVD9		
U13	RSVD10		
W13	RSVD11		
AB13	RSVD12		
AE17	RSVD13		
AF17	RSVD14		
AG14	RSVD15		
AG15	RSVD16		
AN29	RSVD17		
AR22	RSVD18		
BD1	RSVD19		
BE2	RSVD20		
	RSVD21		

@ TPC26T T2500 1 TP_PCH_RSVD_BD1
@ TPC26T T2501 1 TP_PCH_RSVD_BE2

BC10	RTCRST#		
BC9	RTCX1		
BD10	RTCX2		
A6	XTAL24_IN		
A5	XTAL24_OUT		
AG3	USB2_COMP		
C1	RSVD1		
D1	RSVD2		

SKYLAKE_PCH
0200-01260PB
Rev 0.9

NOTE:
CRB: 2.71Kohm
Refer to GND; NOT near switching noise; spacing 3x
Add a GND shield(Width>4 mils)
between XCLK_BIASREF and adjacent IO signals



20160803 R20 Kai
change for Intel spec
2.7k-ohm/1% to 2.71k-ohm/0.5%

NOTE:
RVP 10 CRB 0.5 use 30.1K ohm on RTCRST#

28 RTCRST# — RTCRST#

RTCX1_NO_IO — RTCX1
RTCX2_NO_IO — RTCX2

R2523 1 2 10MOhm
R2525 0Ohm /0-ohm
Y5_R
Y2500 32.768KHZ 1 4
C2500 18PF/50V
C2501 18PF/50V
GND

NOTE:
Check 24MHz crystal spec

XTAL24_IN_R — XTAL24_IN
XTAL24_OUT_NO_IO — XTAL24_OUT

R2522 1 /0-ohm 2 0Ohm — XTAL24_IN_NO_IO
R2529 1 /0-ohm 2 0Ohm
R2524 1 1% 2 1MOhm
R2526 113Ohm 1%
XTAL24_OUT_R
Y2501 24MHZ 1 3
C2502 27PF/50V
C2503 27PF/50V
GND

PCH_C1 — T2502 TPC26T @
PCH_D1 — T2503 TPC26T @

NOTE:
Be careful on RTC crystal(routing and test point) on AiO
Instead of DIP to SMD if possible
Reduce trace length mismatch between RTCX1 & RTCX2
Do NOT route High Speed or GPIO(tie to header/connector) near X'tal region

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : PCH_CLOCK
Pegatron Corp. Engineer: Kai_Shen
Size A3 | Project Name P7RCR | Rev R1.0
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NOTE:
Add 2x 22uF(instead of 47uF) 0603 caps
on 3.3V/1.8V/1.0V plane at PCH
Check 22uF qty on power CKT

U2000G

PRIMARY
VCCPRIM_1p0_17
AL22
VCCPRIM_1p0_13 AJ20
VCCPRIM_1p0_14 AJ21
VCCPRIM_1p0_15 AJ23
VCCPRIM_1p0_16 AJ25
VCCPRIM_1p0_6 AC17
VCCPRIM_1p0_10 AD15
VCCPRIM_1p0_2 Y25
VCCPRIM_1p0_1 Y23
VCCPRIM_1p0_4 AA26
VCCPRIM_1p0_3 AA23
VCCPRIM_1p0_5 AA28
VCCPRIM_1p0_9 AC28
VCCPRIM_1p0_12 AE26
VCCPRIM_1p0_11 AE23
VCCPRIM_1p0_8 AC26
VCCPRIM_1p0_7 AC23

+1.0VSUS — @ JP2601 2MM_OPEN_5MIL — +1V_PRIM_W12MIL — Icc(max):6.01A
@ JP2602 1MM_OPEN_M1M2
C2600 22UF/6.3V, C2601 22UF/6.3V → GND

CLOCK
VCCCLK5_1 K2
VCCCLK5_2 K3
VCCCLK1 N17
VCCCLK3 R19
VCCCLK4 U20
VCCCLK2_2 V17
VCCCLK2_1 R17

+1.0VSUS — @/SP SR2602 0Ohm — +V1P0A_VCCF24_W15MIL — Icc(max):0.006A
C2605 22UF/6.3V, @ C2606 22UF/6.3V, C2607 1UF/6.3V → GND

NOTE:
Reserve 0 ohm/0603 for 2.2uH Series Inductor

Icc(max):0.232A

MPHY
VCCMPHY_1p0_1 U21
VCCMPHY_1p0_2 U23
VCCMPHY_1p0_3 U25
VCCMPHY_1p0_4 U26
VCCMPHY_1p0_5 V26

+1.0VSUS — Icc(max):0.08A
C2608 22UF/6.3V, C2609 1UF/6.3V → GND

NOTE:
Place to U3.U21
PDG request 22uF 0805

+1.0VSUS — @/SP SR2604 0Ohm — +V1P0A_VCCAMPHYPLL_W25MIL — Icc(max):0.08A
C2613 22UF/6.3V, @ C2614 22UF/6.3V, C2615 1UF/6.3V → GND

NOTE:
Place to U3.A43

VCCAMPHYPLL_1p0_1 A43
VCCAMPHYPLL_1p0_2 B43
VCCPCIE3PLL_1p0_1 C44
VCCPCIE3PLL_1p0_2 C45

+1.0VSUS — R2611 /0-ohm 0Ohm — L2602 180Ohm/100Mhz @/WiFi5G — R2607 /0-ohm 0Ohm — L2603 180Ohm/100Mhz @/WiFi5G
Icc(max):0.045A — +V1P0A_VCCAPLL_W15MIL
C2628 @/WiFi5G 0.1UF/6.3V, C2627 @/WiFi5G 0.1UF/6.3V, C2618 22UF/6.3V, @ C2619 22UF/6.3V → GND

Icc(max):0.03A
VCCAPLLEBB_1p0 V28
VCCUSB2PLL_1p0_1 AJ5
VCCUSB2PLL_1p0_2 AL5
VCCHDAPLL_1P0 AN19

+1V_DCPDSW BA29
DCPRTC BA26
DCPDSW_1p0
DCPRTC
C2622 1UF/6.3V, C2623 0.1UF/6.3V → GND

SKYLAKE_PCH
0200-01260PB

VCCGPIO

NOTE:
Check real GPIO implementation to decide VccGPIO rail is 3.3V or 1.8V

+3VSUS_PGPPA — Icc(max):0.082A
VCCPGPPA BA31
SP2601 1 @ 2 — +3VSUS

Icc(max):0.408A
VCCPGPPBCH1 BC42
VCCPGPPBCH2 BD40
VCCPGPPEF1 AJ41
VCCPGPPEF2 AL41
VCCPGPPG AD41
C2630 0.1UF/6.3V, C2602 0.1UF/6.3V, C2603 0.1UF/6.3V, C2604 0.1UF/6.3V → GND
@/SP SR2606 0Ohm — +3VSUS

NOTE:
Place 0.1uF near U3.BC42/ AJ41/ AD41 pins

NOTE:
Add 2x 22uF(instead of 47uF) 0603 caps
on 3.3V/1.8V/1.0V plane at PCH
Check 22uF qty on power CKT

Icc(max):0.078A — +VCCPGPPCD_W15MIL
VCCPGPPD3 BC44
VCCPGPPD1 BA45
VCCPGPPD4 BC45
VCCPGPPD2 BB45
@/SP SR2601 0Ohm — +3VSUS

SPI
VCCSPI1 BE41
VCCSPI3 BE43
VCCSPI2 BE42
Icc(max):0.029A
R2616 1 /0-ohm 2 0Ohm — +3VSUS
R2619 1 @ 2 0Ohm — +3VA

NOTE:
1.8V SPI(with Quad IO) is expensive than 3.3V part.

PRIMARY
VCCPRIM_3p3_2 BD3
VCCPRIM_3p3_3 BE3
VCCPRIM_3p3_4 BE4
VCCPRIM_3p3_1 AN5
Icc(max):0.117A — +VCCPFUSE_W20MIL
@/SP SR2603 0Ohm — +3VSUS
@ C2610 0.1UF/6.3V, C2611 22UF/6.3V, C2612 22UF/6.3V → GND

VCCRTCPRIM_3p3 BA20
Icc(max):0.001A
C2616 0.1UF/6.3V, C2617 1UF/6.3V → GND

NOTE:
Place 0.1uF near U3.AN5

VCCATS AD13
Icc(max):0.007A
@/SP SR2607 0Ohm — +3VS
C2621 1UF/6.3V, C2620 1UF/6.3V → GND

VCCDSW_3p3_2 BA24
VCCDSW_3p3_1 W15
Icc(max):0.195A — +VCCDSW R2617 1 @ 2 0Ohm — +3VSUS

NOTE:
Place 1uF near U3.W15

VCCHDA BA15
Icc(max):0.06A — +DVDDIO_AUDIO_W10MIL
L2601 @/WiFi5G 180Ohm/100Mhz — R2608 2 /0-ohm 1 0Ohm — +3VSUS
@/WiFi5G C2626 0.1UF/6.3V → GND

VCCRTC BA22
Icc(max):0.001A — +VCCRTC_W8MIL
SR2605 0Ohm @/SP — +VCC_RTC
C2629 0.1UF/6.3V, @ C2624 0.1UF/6.3V, C2625 1UF/6.3V → GND

20160818 R12 Kai
mount circuit / unmount R26

R2601 1 @ 2 0Ohm
Q2601 SI2301CDS-T1-GE3 — +3VSUS — +VCCDSW
Q2602 BC856BS
R2602 100KOhm
R2610 100KOhm → GND

20160429 RFQ Kai
Add R2611
Reserve L2601 ~ L2603, C2626 ~ C2628
Intel Doc. #563842, ID 44638000

Rev 0.9

+3VS 7,11,12,13,14,15,16,21,22,23,24,30,31,36,45,46,50,51,53,56,58,61,62,67,70,
+3VSUS 7,11,12,21,22,23,24,28,31,33,36,44,52,53,57,62,67,81,88,92
+3VSUS_PGPPA 22
+3VA 30,44,45,56,57,60,81,88,93
+VCC_RTC 24,28,60
+1.0VSUS 25,44,80,82

GPIO Group	Power Pins	Voltage
Primary Well Group A(GPP_A)	VCCPGPPA	1.8V or 3.3V
Primary Well Group B(GPP_B) Primary Well Group C(GPP_C) Primary Well Group H(GPP_H)	VCCPGPPBCH	1.8V or 3.3V
Primary Well Group D(GPP_D)	VCCPGPPD	1.8V or 3.3V
Primary Well Group E(GPP_E) Primary Well Group F(GPP_F)	VCCPGPPEF	1.8V or 3.3V
Primary Well Group G(GPP_G)	VCCPGPPG	1.8V or 3.3V
Primary Well Group I(GPP_I)	VCCPRIM_3P3	3.3V
Deep Sleep Well Group(GPD)	VCCDSW_3P3	3.3V

PEGATRON Title : PCH_VCC
Pegatron Corp. Engineer: Kai_Shen
Size A3 | Project Name P7RCR | Rev R1.0
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U2000H

A4	VSS3	VSS104	U4
A3	VSS2	VSS117	U38
B2	VSS11	VSS116	U33
A2	VSS1	VSS115	U32
B1	VSS10	VSS114	U31
BB1	VSS280	VSS113	U29
BC1	VSS287	VSS112	U28
BD2	VSS289	VSS111	U18
BD45	VSS292	VSS110	U17
BD44	VSS291	VSS108	U14
BE44	VSS301	VSS107	U11
B45	VSS18	VSS106	U10
B44	VSS17	VSS103	T42
A44	VSS9	VSS102	T4
D45	VSS41	VSS101	T2
A42	VSS8	VSS100	T1
AB15	VSS155	VSS93	R5
AL4	VSS220	VSS99	R38
AN4	VSS239	VSS98	R33
AN10	VSS242	VSS97	R29
AR7	VSS251	VSS96	R22
AR5	VSS250	VSS95	R14
Y26	VSS137	VSS94	R10
Y28	VSS138	VSS92	P45
AC29	VSS164	VSS91	P22
U15	VSS109	VSS90	P19
AE29	VSS179	VSS89	P17
AF29	VSS188	VSS80	N5
BA1	VSS279	VSS88	N41
Y29	VSS139	VSS79	N4
Y21	VSS136	VSS87	N36
Y20	VSS135	VSS86	N35
Y18	VSS134	VSS85	N24
Y17	VSS133	VSS84	N22
W8	VSS127	VSS83	N19
W4	VSS126	VSS82	N15
W38	VSS132	VSS81	N10
W33	VSS131	VSS78	M42
W32	VSS130	VSS77	M35
W31	VSS129	VSS72	L8
W14	VSS128	VSS76	L41
V45	VSS125	VSS71	L4
V3	VSS118	VSS75	L15
V29	VSS124	VSS74	L13
AB7	VSS150	VSS73	L12
AC18	VSS160	VSS70	K43
V21	VSS121	VSS69	K42
V20	VSS120	VSS64	K4
V18	VSS119	VSS68	K36
U8	VSS105	VSS67	K33

SKYLAKE_PCH Rev 0.9

GND GND

U2000I

K27	VSS66	VSS298	BE32
K10	VSS65	VSS297	BE28
J7	VSS60	VSS296	BE23
J5	VSS59	VSS295	BE18
J39	VSS63	VSS294	BE14
J3	VSS58	VSS290	BD43
J11	VSS62	VSS288	BC2
J10	VSS61	VSS286	BB34
H35	VSS57	VSS285	BB30
H3	VSS50	VSS284	BB25
H29	VSS56	VSS283	BB21
H27	VSS55	VSS282	BB16
H24	VSS54	VSS281	BB11
H22	VSS53	VSS13	B6
H19	VSS52	VSS16	B40
H17	VSS51	VSS15	B37
G9	VSS48	VSS12	B3
G42	VSS49	VSS14	B25
F8	VSS46	VSS278	AY45
F44	VSS47	VSS277	AY38
E33	VSS45	VSS272	AW9
E31	VSS44	VSS276	AW37
E15	VSS43	VSS275	AW29
E13	VSS42	VSS274	AW19
D36	VSS40	VSS273	AW13
D35	VSS39	VSS266	AV6
D33	VSS38	VSS271	AV33
D31	VSS37	VSS270	AV31
D30	VSS36	VSS269	AV27
D29	VSS35	VSS268	AV24
D27	VSS34	VSS267	AV17
D25	VSS33	VSS261	AU7
D24	VSS32	VSS265	AU45
D21	VSS31	VSS264	AU39
D19	VSS30	VSS263	AU36
D17	VSS29	VSS262	AU35
D16	VSS28	VSS260	AU1
D15	VSS27	VSS256	AT9
D12	VSS26	VSS259	AT36
D10	VSS25	VSS258	AT15
AD11	VSS168	VSS257	AT10
C42	VSS24	VSS252	AR9
C4	VSS20	VSS255	AR42
C37	VSS23	VSS254	AR34
C28	VSS22	VSS253	AR33
C2	VSS19	VSS122	V23
C10	VSS21	VSS248	AP4
BE9	VSS293	VSS249	AP11
BE40	VSS300	VSS241	AN8
BE37	VSS299	VSS240	AN7

SKYLAKE_PCH Rev 0.9

GND GND

U2000J

AN39	VSS247	VSS187	AF28
AN31	VSS246	VSS186	AF26
V25	VSS123	VSS185	AF25
AN27	VSS245	VSS184	AF23
AN22	VSS244	VSS183	AF21
AN11	VSS243	VSS182	AF20
AM45	VSS238	VSS181	AF18
AM29	VSS237	VSS180	AE42
AM27	VSS236	VSS173	AE4
AM24	VSS235	VSS178	AE28
AM22	VSS234	VSS177	AE25
AM19	VSS233	VSS176	AE21
AM15	VSS231	VSS175	AE20
AL38	VSS230	VSS174	AE18
AL33	VSS229	VSS167	AD8
AL32	VSS228	VSS166	AD4
AL29	VSS227	VSS172	AD36
AL17	VSS224	VSS171	AD33
AL13	VSS223	VSS170	AD32
AK42	VSS219	VSS169	AD14
AK4	VSS218	VSS207	AJ10
AH17	VSS197	VSS151	AB8
AJ36	VSS217	VSS165	AC45
AJ32	VSS216	VSS210	AJ17
AJ31	VSS215	VSS163	AC25
AJ29	VSS214	VSS162	AC21
AJ28	VSS213	VSS161	AC20
AJ26	VSS212	VSS225	AL19
AJ18	VSS211	VSS159	AC1
AJ15	VSS209	VSS149	AB5
AJ14	VSS208	VSS148	AB4
AH45	VSS206	VSS158	AB38
AH29	VSS205	VSS157	AB32
AH28	VSS204	VSS156	AB31
AH26	VSS203	VSS226	AL24
AH25	VSS202	VSS154	AB14
AH23	VSS201	VSS147	AA42
AH21	VSS200	VSS140	AA4
AH20	VSS199	VSS146	AA29
AH18	VSS198	VSS232	AM17
AH1	VSS196	VSS145	AA25
AL11	VSS222	VSS144	AA21
AG4	VSS189	VSS143	AA20
AG38	VSS195	VSS142	AA18
AG33	VSS194	VSS141	AA17
AG32	VSS193	VSS7	A37
AG31	VSS192	VSS6	A32
AL10	VSS221	VSS5	A25
AG13	VSS191	VSS4	A18
AG11	VSS190		

SKYLAKE_PCH Rev 0.9

GND

VSS152 AB10 PCH_VSS_AB10
VSS153 AB11 PCH_VSS_AB11

SR2701 0Ohm @/SP
SR2702 0Ohm @/SP

GND GND

PEGATRON Title : PCH_VSS

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A4	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 27 of 101

+VCC_RTC
+RTC_POWER
+3VSUS

+VCC_RTC 24,26,60
+RTC_POWER 81
+3VSUS 7,11,12,21,22,23,24,26,31,33,36,44,52,53,57,62,67,81,88,92

RTCRST# R2801 1 @ 2 0Ohm
SRTCRST# R2802 1 @ 2 0Ohm
GND

RTC

20160328 RFQ Kai
Remove for DRC error, RTC battery no connect
BATT1, 0BV050000001

CON2800
BATT_HOLDER_2P
1220-0010000

BAT R2811 1 1% 2 1KOhm R303_D8 2
+RTC_POWER
D2801
0.8V/0.2mA

+VCC_RTC
R2810 1 1% 2 20KOhm
R2812 1 1% 2 20KOhm
SRTCRST# 24
RTCRST# 25

C2826 1UF/6.3V
C2827 1UF/6.3V
C2828 1UF/6.3V

+3VSUS
R2804 100KOhm @/RTC
RTC_IN# 21
Q2801 2N7002 @/RTC
BAT
R2803 10MOhm @/RTC

PEGATRON	Title : RTC		
Pegatron Corp.	Engineer: Kai_Shen		
Size: A	Project Name: P7RCR		Rev: R1.0
Date: Monday, October 17, 2016	Sheet 28 of 101		

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 29 of 101

20160512 WS Kai
Colay ITE_8987

20160520 WS Kai
Remove ITE_8587

+3VS +3VA +3VA_EC +3VS_TP

+3VS 7,11,12,13,14,15,16,21,22,23,24,26,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+3VA 26,44,45,56,57,60,81,88,93
+3VA_EC 50
+3VS_TP 23,31

+3VA +3VA_EC SR3001 1 @/SP 2 0Ohm 12.5mA
C3000 10UF/6.3V C3001 0.1UF/6.3V C3002 0.1UF/6.3V C3003 0.1UF/6.3V C3004 0.1UF/6.3V GND
+3VS C3009 0.1UF/6.3V GND

+3VA_EC C3019 10UF/6.3V C3020 0.1UF/6.3V GND
+3VACC SR3013 1 @/SP 2 0Ohm C3021 0.1UF/6.3V EC_AGND
SR3014 1 @/SP 2 0Ohm GND EC_AGND

+3VAPLL R3025 1 /EC_8987 2 0Ohm C3005 0.1UF/6.3V GND

20160512 WS Kai
Colay ITE_8987

+3VS +3VACC +3VA_EC
C3024 10PF/50V C3023 10PF/50V C3025 10PF/50V GND
/EC_8987
U3002
GPH7 3
VSTBY(PLL) 127
VSTBY5 121
VSTBY4 114
VSTBY3 92
VSTBY2 50
VSTBY1 26
AVCC 74
VCC 11

ESPI_ALERT0# R30131 @ 2 0Ohm INT_SERIRQ

LPC_AD0 @/SP SR3007 NB_R0402_5MIL_SMALL LPC_AD0_EC 10
LPC_AD1 @/SP SR3006 NB_R0402_5MIL_SMALL LPC_AD1_EC 9
LPC_AD2 @/SP SR3005 NB_R0402_5MIL_SMALL LPC_AD2_EC 8
LPC_AD3 @/SP SR3009 NB_R0402_5MIL_SMALL LPC_AD3_EC 7
CLK_KBCPCI_PCH 13
LPC_FRAME# @/SP SR3008 NB_R0402_5MIL_SMALL LPC_FRAME#_EC 6
PLTRST# 22
INT_SERIRQ @/SP SR3015 NB_R0402_5MIL_SMALL EXT_SMI#_EC 15
EXT_SMI# @/SP SR3017 NB_R0402_5MIL_SMALL EXT_SCI#_D 23
EXT_SCI# 126
HPOUT1_JD_EC 4
RCIN# 14
EC_RST# WRST#

LAD0/GPM0
LAD1/GPM1
LAD2/GPM2
LAD3/GPM3
LPCCLK/GPM4
LFRAME#/GPM5
LPCRST#/GPD2
SERIRQ/GPM6
ECSMI#/GPD4
ECSCI#/GPD3
GA20/GPB5
KBRST#/GPB6

KSI0 58
KSI1 59
KSI2 60
KSI3 61
KSI4 62
KSI5 63
KSI6 64
KSI7 65
KSO0/PD0 36
KSO1/PD1 37
KSO2/PD2 38
KSO3/PD3 39
KSO4/PD4 40
KSO5/PD5 41
KSO6/PD6 42
KSO7/PD7 43
KSO8/ACX# 44
KSO9/BUSY 45
KSO10/PE 46
KSO11/ERR# 51
KSO12/SLCT 52
KSO13 53
KSO14 54
KSO15 55

KSI0/STB#
KSI1/AFD#
KSI2/INIT#
KSI3/SLIN#

R30231 /EC_8987 2 15Ohm EC_PIN_119 119
DSR0#/GPG6 123
CTX0/TMA0/GPB2

BAT_LEARN 85
PS2CLK0/TMB0/CEC/GPF0 86
PS2DAT0/TMB1/GPF1 87
PS2CLK1/DTR0#/GPF2 88
PS2DAT1/RTS0#/GPF3 89
PS2CLK2/GPF4 90
PS2DAT2/GPF5

SMBCLK0/GPB3 110
SMDAT0/GPB4 111
SMCLK1/GPC1 115
SMDAT1/GPC2 116
117
SMCLK2/PECI/GPF6 118
SMDAT2/PECIRQT#/GPF7

81
DAC5/RIG0#/GPJ5 80
DAC4/DCD0#/GPJ4 79
DAC3/TACH1B/GPJ3 78
DAC2/TACH0B/GPJ2 77
GPJ1 76
TACH2/GPJ0

+3VS R3081 1 2 10KOhm
128
GPJ6 2
GPJ7

R3041 1 2 15Ohm F_CS#_EC 101
R3043 1 2 15Ohm F_SCK_EC 105
R3044 1 2 15Ohm F_SDI_EC 102
R3099 1 2 15Ohm SPI_MISO_EC 103
FSCE#/GPG3
FSCK/GPG7
FMOSI/GPG4
FMISO/GPG5

IT8987E/BX

R30341 @ 2 0Ohm SML1_CLK
R30351 @ 2 0Ohm SML1_DATA

ADC0/GPI0 66 AD_IINP 88
ADC1/GPI1 67 SUS_PWRGD 81,92
ADC2/GPI2 68 ALL_SYSTEM_PWRGD 92
ADC3/GPI3 69 BAT_IINP 88
ADC4/GPI4 70 MCK_LED1_EC @/SP SR3021 NB_R0402_5MIL_SMALL MCK_LED1 56
ADC5/DCD1#/GPI5 71 MCK_LED2_EC @/SP SR3022 NB_R0402_5MIL_SMALL MCK_LED2 56
ADC6/DSR1#/GPI6 72 MCK_LED3_EC @/SP SR3019 NB_R0402_5MIL_SMALL MCK_LED3 56
ADC7/CTS1#/GPI7 73 MCK_LED4_EC @/SP SR3020 NB_R0402_5MIL_SMALL MCK_LED4 56

PWM0/GPA0 24 PWR_LED 56
PWM1/GPA1 25 CHG_LED_RED 56
PWM2/GPA2 28 CHG_LED_YELLOW 56
PWM3/GPA3 29 FAN_REVERSE 50
PWM4/GPA4 30 FAN0_PWM 50
PWM5/GPA5 31 FAN1_PWM 50
PWM6/SSCK/GPA6 32 FAN2_PWM 50
PWM7/RIG1#/GPA7 34 PCBEEP 24,36

RXD/SIN0/GPB0 108 MCK_BUTTON1# 56
TXD/SOUT0/GPB1 109 MCK_BUTTON2# 56
RING#/PWRFAIL#/CK32KOUT/LPCRST#/GPB7 112 PM_RSMRST# 24,44

KSO16/SMOSI/GPC3 56 KSO16 31
TMRI0/GPC4 120 AC_IN_OC 88
KSO17/SMISO/GPC5 57 KSO17 31
TMRI1/GPC6 124 BAT1_IN_OC# BAT1_IN_OC# 90
PWUREQ#/BBO/SMCLK2ALT/GPC7 16 ACPRESENT_EC @/SP SR3012 NB_R0402_5MIL_SMALL ME_AC_PRESENT 24
R30741 0 ohm 2 0Ohm SUSB_EC#
R30751 0 ohm 2 0Ohm SUSC_EC#

RI1#/GPD0 18
RI2#/GPD1 21 PM_SUSB# 7,11,24
GINT/CTS0#/GPD5 33 SYS_PWROK_R SR3016 @/SP PM_SUSC# 24,31
TACH0A/GPD6 47 NB_R0402_5MIL_SMALL SYS_PWROK 24
TACH1A/TMA1/GPD7 48 FAN0_TACH 50
FAN1_TACH 50
R30921 0 ohm 2 0Ohm TBT_MRESET 12
R30771 0 ohm 2 0Ohm I2C_IRQ2Z 12

19
L80HLAT/BAO/GPE0 82 TBT_MRESET_EC R30801 @ 2 0Ohm VSUS_ON 57,81,82,93
EGAD/GPE1 83 I2C_IRQ2Z_EC R30791 @ 2 0Ohm SUSC_EC# 91
EGCS#/GPE2 84 SUSB_EC# 24,91,92
EGCLK/GPE3 125 EC_PIN_125 R30191 /EC_8987 2 15Ohm DELAY_ALL_SYSTEM_PWRGD 7,24
SSCE1#/GPG0 35 USB_CHG_CTL1 12,30,52
RTS1#/GPE5 17 MCK_BUTTON3# 56
LPCPD#/GPE6 20 LID_SW# 45,56
L80LLAT/GPE7 MCK_BUTTON4# 56

+3VAPLL
VSTBY_FSPI 106
PWRSW/GPE4 107 EC_PIN_107 R30281 /EC_8987 2 15Ohm PWRBTN# 30,56
SSCE0#/GPG2 100 GPG2_EC SR3018 @/SP NB_R0402_5MIL_SMALL
VSS5 104 EC_PIN_104 R30381 /EC_8987 2 0Ohm LGF_LED_ON 45
GND
PM_CLKRUN# 22,62
AMP_G0 67
AMP_G1 67
CLKRUN#/GPH0/ID0 93
94
USB_CHG_CTL2_EC 12,52
GPH3/ID3 97 WLAN_RST#_EC @/SP
GPH4/ID4 98 WLAN_WAKE#_R SR3002 NB_R0402_5MIL_SMALL WLAN_RST# 53
GPH5/ID5 99 MCK_LED5_EC TBT_HWRESET 12
GPH6/ID6 R30361 @ 2 0Ohm WLAN_WAKE# 53
@/SP
SR3026 NB_R0402_5MIL_SMALL MCK_LED5 56

CRX1/SIN1/SMCLK3/GPH1/ID1 95
GTX1/SOUT1/SMDAT3/GPH2/ID2 96

VSS1 1
VCORE 12 VCORE_EC
VSS2 27
VSS3 49
VSS4 91
CRX0/GPC0 113 EC_PIN_113 R30111 @ 2 0Ohm SUSWARN# 22,30
DTR1#/SBUSY/GPG1/ID7 122 EC_PIN_122 R30211 /EC_8987 2 15Ohm USB_CHG_EN 12,30,52
AVSS 75
C3015 0.1UF/6.3V
EC_AGND GND

20160510 WS Kai
add R3003 / R3004, follow Design IP

20160516 WS Kai
add R3010, follow Design IP

202160518 WS Kai
Reserve R3026 / R3027

20160523 WS Kai
change optional /EC_8587 to @/EC_8587

+3VA_EC +3VS_TP
R30721 2 10KOhm TP_PS2_DAT
R30731 2 10KOhm TP_PS2_CLK
R30101 @ 2 10KOhm SUSWARN#
R30051 2 10KOhm HPOUT1_JD_EC
R30011 2 10KOhm GPG2_EC
R30531 2 10KOhm PWRBTN#
R30701 2 10KOhm SMB0_DAT
R30711 2 10KOhm SMB0_CLK
R30651 @ 2 47Kohm 1% BAT1_IN_OC#
R30611 2 100KOhm VSUS_ON
R30101 @ 2 10KOhm AC_IN_OC
R30271 @/EC_8987 2 10KOhm GPH7
R30421 @ 2 10KOhm WLAN_WAKE#_R

EC_RST# C3011 to 2 100PF/50V 22,44,62
CLK_KBCPCI_PCH C3022 to 2 10PF/50V 24,31,51,62
SUSB_EC# R3029 1 @ 2 4.7KOhm 22
SUSC_EC# R3030 1 @ 2 4.7KOhm 67
PM_SUSB# 100KOhm 2 @ 1 R3062 22
PM_SUSC# 100KOhm 2 @ 1 R3063 50
VSUS_ON 100KOhm 2 @ 1 R3064
PM_RSMRST# 47KOhm 2 1% 1 R3066
SYS_PWROK_R 100KOhm 2 @ 1 R3006
PCH_FLASH_DESCRIPTOR 100KOhm 2 @ 1 R3007

MCK_LED5 R30109 1 2 10KOhm
MCK_LED_B R30102 1 2 10KOhm
MCK_LED_G R30103 1 2 10KOhm
MCK_LED_R R30104 1 2 10KOhm
MCK_LED4 R30105 1 2 10KOhm
MCK_LED3 R30106 1 2 10KOhm
MCK_LED2 R30107 1 2 10KOhm
MCK_LED1 R30108 1 2 10KOhm

DELAY_ALL_SYSTEM_PWRGD R3003 1 2 100KOhm
SPI_MOSI R3004 1 @ 2 10KOhm
GPH7 R3026 to/EC_8987 2 10KOhm

WLAN_WAKE#_R R3045 1 @ 2 10KOhm

+3VA_EC +3VS_TP
R3031 1 2 0Ohm @/EC_8587 GPH7
30,67 AMP_EN R3022 2 1 15Ohm @/EC_8587 EC_PIN_104
12,30,52 USB_CHG_CTL1 R3017 2 1 15Ohm @/EC_8587 +3VAPLL
12,30,52 USB_CHG_EN R3012 2 1 15Ohm @/EC_8587 EC_PIN_107
GND R3040 2 1 0Ohm @/EC_8587 EC_PIN_113
22,30 SUSWARN# R3098 2 1 0Ohm @ EC_PIN_119
GND R3039 2 1 0Ohm @/EC_8587 EC_PIN_122
30,56 PWRBTN# R3024 1 2 15Ohm @/EC_8587 EC_PIN_125

60,88 SMB0_CLK
60,88 SMB0_DAT
12 I2C_SCL2
12 I2C_SDA2
7 H_PECI_EC
45 LCD_BKLTEN_EC
56 MCK_LED_B
56 MCK_LED_G
56 MCK_LED_R

12,13,31,50,58,67,74 SMB1_CLK
12,13,31,50,58,67,74 SMB1_DAT

Pin	ITE8587	ITE8987	Note
3	VBAT	GPH7	VBAT → +3VA_EC
104	DSR0#/GPG6	VSS5	VSS → Gnd.
106	SSCE1#/VCEN/GPG0	VSTBY_FSPI	VSTBY_FSPI → +3VAPLL
107	DTR1#/SBUSY/GPG1/ID7	PWRSW/GPE4	N/A
113	VSS5	CRX0/GPC0	VSS → Gnd.
119	CRX0/GPC0	DSR0#/GPG6	N/A
122	VSS6	DTR1#/SBUSY/GPG1/ID7	VSS → Gnd.
125	PWRSW/GPE4	SSCE1#/GPG0	N/A

PEGATRON Title : EC_ITE8987
Pegatron Corp. Engineer: Kai_Shen
Size C | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 30 of 101

TOUCH PAD

MB Connector side(14pin)	
1	GND
2	+5VS
3	+3VSUS
4	TP_BTN#
5	TP_LED_WITHE
6	TP_LED_RED
7	TP_PS2_CLK
8	TP_PS2_DAT
9	SMB_DATA_RESUME
10	SMB_CLK_RESUME
11	TP_ATTN#
12	TP_SENSOR
13	TP_BL_EN
14	GND

+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,36,45,46,50,51,53,56,58,61,62,67,70,91,92
+3VSUS 7,11,12,21,22,23,24,26,28,33,36,44,52,53,57,62,67,81,88,92
+3VSUS_SPI 44
+3VS_TP 23,30
+5VS 13,15,36,37,45,48,50,56,80,87,89,91,97
+2P5_3VS_DIM 16,17

+3VS_TP +5VS SR3107 0Ohm @/SP
CON3104 FPC_CON_14P 1218-01AS000
TP_LED_BLUE 24 TP_LED_RED 24 TP_BTN# 30
TP_DATA_I2C_CON TP_CLK_I2C_CON @/SP SR3105 SR3106 NB_R0402_5MIL_SMALL
TP_DATA_I2C 23 TP_CLK_I2C 23 TP_ATTN# 23 TP_SENSOR 24
TP_PS2_CLK 30 TP_PS2_DAT 30
@/EMI D3102 AZ5725-01F @/EMI D3101 AZ5725-01F
@ C3103 39PF/50V @ C3102 39PF/50V
Q3107 IRFML8244TRPBF TP_BL_EN TP_BL_EN 24
GND
+3VSUS @/SP SR3109 0Ohm C3105 0.1UF/6.3V
@ R3167 10KOhm @/SP SR3108 NB_R0402_5MIL_SMALL 24,30 PM_SUSC# R3168 100KOhm
U3103 G5244T11U @/SP SR3110 0Ohm R3169 330Ohm
+3VS_TP R3170 0Ohm C3104 10UF/6.3V +3VS

Keyboard Connector(debug)

30 KSO0 KSO1 KSO2 KSO3 KSO4 KSO5 KSO6 KSO7 KSO8 KSO9 KSO10 KSO11 KSO12 KSO13 KSO14 KSO15 KSO16 KSO17
30 KSI0 KSI1 KSI2 KSI3 KSI4 KSI5 KSI6 KSI7

CN1B CN1A CN1C CN1D CN2B CN2A CN2C CN2D CN3B CN3A CN3C CN3D CN4B CN4A CN4C CN4D CN7B CN7A CN7C CN7D CN5B CN5A CN5C CN5D CN6B CN6A CN6C CN6D
33PF/50V

CON3100 GND1 GND2 FPC_CON_26P 12V18GWSM009

+3VS +2P5_3VS_DIM R3103 0Ohm R3102 0Ohm
R3114 15KOhm R3112 1KOhm 1% GND GATE_SQ14
R3104 2.7KOhm 1% R3105 2.7KOhm 1%
23 SMB_DATA_RESUME Q3101A UM6K1NG1DTN R3108 0Ohm SMB_DATA_MAIN 16,17
23 SMB_CLK_RESUME Q3101B UM6K1NG1DTN R3110 0Ohm SMB_CLK_MAIN 16,17
R3106 15KOhm R3107 1KOhm 1% +3VS
R3109 2.7KOhm 1% R3111 2.7KOhm 1%
Q3102A UM6K1NG1DTN R3113 0Ohm SMB_DATA_DEBUG 44
Q3102B UM6K1NG1DTN R3115 0Ohm SMB_CLK_DEBUG 44

KB(Backlight)

CON3110 FPC_CON_14P 1218-02HR000
KBL_R_1 KBL_G_1 KBL_B_1 KBL_R_2 KBL_G_2 KBL_B_2 KBL_R_3 KBL_G_3 KBL_B_3 KBL_R_4 KBL_G_4 KBL_B_4

R3141 R3143 R3145 R3147 R3142 R3144 R3146 R3148 10KOhm
KBL_A_0 KBL_A_1 KBL_A_2 KBL_A_3
SR3104 0Ohm @/SP R3172 10KOhm
R3140 169OHM
U3102 TLC59116IPWR
SMB1_DAT 12,13,30,50,58,67,74 SMB1_CLK 12,13,30,50,58,67,74
@/SP SR3103 @/SP SR3102 NB_R0402_5MIL_SMALL
R3137 0Ohm PLTRST# 24,30,51,62

SPI ROM (Quad I/O Supported)

+3VSUS_SPI R3116 1KOhm 1% @ R3117 3.3KOhm
22,30,44 SPI_CS0# 22,30,44 SPI_MISO 22,44 SPI_IO2 R3160 R3159 33Ohm SPI_MISO_R SPI_IO2_R
U3101 W25Q128FVSIQ 05V000000031
R3124 1KOhm 1% @ R3101 3.01KOHM 1% SPI_IO3_R SPI_CLK_R SPI_MOSI_R R3158 R3157 R3156 33Ohm
SPI_IO3 22,44 SPI_CLK 22,30,44 SPI_MOSI 22,30,44
C3100 0.1UF/6.3V C3101 1UF/6.3V @/SP SR3101 0Ohm +3VSUS

PEGATRON Title : KB/TP/SPI
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 31 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 32 of 101

0.2A

+3VSUS +3VSUS 7,11,12,21,22,23,24,26,28,31,36,44,52,53,57,62,67,81,88,92

L3300,C3300,C3301,C3302
Close to pin40

L3300 4.7uH
C3300 0.1UF/6.3V X7R/+/-10%
C3301 1UF/6.3V
C3302 10UF/6.3V
+LX +DVDDL GND

L3301 600Ohm/100Mhz
L3302 600Ohm/100Mhz
+AVDDVCO +AVDDL +DVDDL

If AVDDL/DVDDL comes from internal SWR: mount L3302;
If AVDDL/DVDDL comes from internal LDO: no mout L3302

+3VSUS +3VSUS_LAN
SR3305 @/SP 0Ohm

GND GND
C3306 0.1UF/6.3V X7R/+/-10%
C3307 1UF/6.3V
C3308 0.1UF/6.3V X7R/+/-10%
+DVDDL +AVDDL
T3301@ T3302@
LAN_TXN LAN_TXP
CK_100M_LAN CK_100M_LAN#
+AVDDVCO
+LX
C3303 0.1UF/6.3V X7R/+/-10%
C3304 1UF/6.3V
C3305 4.7UF/6.3V

+3VSUS_LAN +3VSUS_LAN +3VSUS_LAN
R3301 30KOhm 1%
@ R3307 4.7KOhm
C3309 10UF/6.3V
C3310 10UF/6.3V
C3311 10UF/6.3V
C3312 10UF/6.3V

U3300A
GND LX LED[1] LED[0] DVDDL_REG RX_N RX_P AVDDL4 REFCLK_P REFCLK_N AVDDL3
VDD33 PERSTn WAKEn CLKREQn DEBUGMODE[0] AVDDL_REG XTLO XTLI AVDDH_REG RBIAS
TX_P TX_N NC TESTMODE[2] TESTMODE[1] TESTMODE[0] PPS LED[2] AVDDH TRXN3

11,24,50,53,70 PLTRST#_BUF
24,53 WAKE_PCIE#
24 LAN_CLKREQ#
@/SP SR3304 1 2 NB_R0402_5MIL_SMALL
@/SP SR3301 1 2 NB_R0402_5MIL_SMALL
@/SP SR3302 1 2 NB_R0402_5MIL_SMALL
RST# WAKE# CLKREQ# DEBUGMODE +AVDDL RL_XTAL1 RL_XTAL2 +AVDDH

LAN_RXP_C LAN_RXN_C
C3313 0.1UF/6.3V X7R/+/-10%
C3314 0.1UF/6.3V X7R/+/-10%
LAN_RXP 20
LAN_RXN 20

NB_R0402_5MIL_SMALL
SR3303 1 2 T3303 @
@/SP 1 T3300 @

+AVDDL +AVDDH
C3315 0.1UF/6.3V X7R/+/-10%
C3316 1UF/6.3V
C3317 0.1UF/6.3V X7R/+/-10%
C3318 1UF/6.3V
R3306 2.37KOhm 1%
C3319 0.1UF/6.3V X7R/+/-10%

E2400-RIV1
TRXP0 TRXN0 AVDDL TRXP1 TRXN1 AVDD33 TRXP2 TRXN2 AVDDL2 TRXP3

20160817 R12 Kai
change E2400 to E2500
change 02V3T0000010 to 02V3T0000012

20161006 R14 Kai
change LAN back to E2400

Y330025MHZ
Y10_XTAL1 RL_XTAL1 RL_XTAL2
C3324 15PF/50V
C3325 15PF/50V

LAN_MDI0_P LAN_MDI0_N LAN_MDI1_P LAN_MDI1_N
LAN_MDI3_N LAN_MDI3_P LAN_MDI2_N LAN_MDI2_P

U3300B
GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9
E2400-RIV1-RL

+AVDDL +AVDDL
C3320 0.1UF/6.3V X7R/+/-10%
C3321 0.1UF/6.3V X7R/+/-10%
+3VSUS_LAN
C3322 0.1UF/6.3V X7R/+/-10%
C3323 1UF/6.3V

PEGATRON	Title : LAN_E2400		
Pegatron Corp.	Engineer: Kai_Shen		
Size A3	Project Name P7RCR		Rev R1.0
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SURGE

U3401
GST5009

33 LAN_MDI3_N
33 LAN_MDI3_P
33 LAN_MDI2_N
33 LAN_MDI2_P
33 LAN_MDI1_N
33 LAN_MDI1_P
33 LAN_MDI0_N
33 LAN_MDI0_P

12 TD4-
10 TCT4
11 TD4+
9 TD3-
7 TCT3
8 TD3+
6 TD2-
4 TCT2
5 TD2+
3 TD1-
1 TCT1
2 TD1+

13 MX4-
15 MCT4
14 MX4+
16 MX3-
18 MCT3
17 MX3+
19 MX2-
21 MCT2
20 MX2+
22 MX1-
24 MCT1
23 MX1+

LAN_MDI3_N_L
MCT3
LAN_MDI3_P_L
LAN_MDI2_N_L
MCT2
LAN_MDI2_P_L
LAN_MDI1_N_L
MCT1
LAN_MDI1_P_L
LAN_MDI0_N_L
MCT0
LAN_MDI0_P_L

RN3400A1 2 0Ohm LAN_MDI3_N_C
L3400 @/EMI 90OHM/100MHz
RN3400B 0Ohm LAN_MDI3_P_C
RN3401A1 2 0Ohm LAN_MDI2_N_C
L3401 @/EMI 90OHM/100MHz
RN3401B 0Ohm LAN_MDI2_P_C
RN3402A1 2 0Ohm LAN_MDI1_N_C
L3402 @/EMI 90OHM/100MHz
RN3402B 0Ohm LAN_MDI1_P_C
RN3403A1 2 0Ohm LAN_MDI0_N_C
L3403 @/EMI 90OHM/100MHz
RN3403B 0Ohm LAN_MDI0_P_C

R3400 75Ohm 1%
R3401 75Ohm 1%
R3402 75Ohm 1%
R3403 75Ohm 1%
SURGE_OUT_C
C3401 1000PF/2KV
LAN_GND

SURGE_IN_C
C3400 0.01UF/25V 10%
GND

/EMI
D3400 AZ5725-01F
R3404 0Ohm
C3404 10PF/50V
C3403 10PF/50V
C3402 10PF/50V
GND
LAN_GND

CON3400
LAN_MDI3_N_C 8
LAN_MDI3_P_C 7
LAN_MDI1_N_C 6
LAN_MDI2_N_C 5
LAN_MDI2_P_C 4
LAN_MDI1_P_C 3
LAN_MDI0_N_C 2
LAN_MDI0_P_C 1
P_GND1 10
P_GND2 9
LAN_JACK_8P
LAN_GND

<Variant Name>

PEGATRON Title : RJ45 CONN.

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A4	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 35 of 101

ALC255 CODEC

+1.5VS 84
+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,45,46,50,51,53,56,58,61,62,67,70,91,92
+5VS 13,15,31,37,45,48,50,56,80,87,89,91,97
+5VSUS 12,37,45,52,55,56,57,67,81

Analog
Digital

0.03A

2A

0.05A

Place close to pin 1

Woofer

Headphone

MIC

Speaker x2

WOOFER CONN.

Trace width for HDA_SPKR_LP/HDA_SPKR_LN/HDA_SPKR_RN/HDA_SPKR_RP
Speaker 4 ohm : 40mil
Speaker 8 ohm : 20mil

PCB trace width of MIC2_R & MIC2_L are required at least 40 mil and its length should be as short as possible.

U3600A ALC255-CGT

U3600B ALC255-CGT 02V0J0000076

CON3600 WTOB_CON_4P 1217-01AW000

<Variant Name>

PEGATRON Title : ALC255 CODEC
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
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AUDIO AMPLIFIER

+5VS
+5VSUS

+5VS 13,15,31,36,45,48,50,56,80,87,89,91,97
+5VSUS 12,36,45,52,55,56,57,67,81

2.36A

+5VS
R3714 1 @ 2 0Ohm
+5VSUS
R3713 1 /0-ohm 2 0Ohm
+5VSUS_PVDD

C3700 1UF/6.3V
C3701 10UF/6.3V
@ C3711 10PF/50V
GND

+5VSUS_PVDD
@ R3707 0Ohm
@ R3708 0Ohm
G1
G2
SR3702 NB_R0402_5MIL_SMALL @/SP
SR3703 NB_R0402_5MIL_SMALL @/SP
GND

U3700A
PVDD1
PVDD2
INPUT-R/DIFF+
PD#
INPUT-L/DIFF-
BYPASS
OUT-RN
OUT-RP
OUT-LN
OUT-LP
G1
G2
GND
ALC1001-VB-CGT

36 ANALOG_INR
R3700 1 1% 2 6.98KOhm
ANALOG_INR_CR
C3702 0.047UF/16V
ANALOG_INR_CR_C

36 PDB
@/SP SR3701 1 2 NB_R0402_5MIL_SMALL

36 ANALOG_INL
R3704 1 1% 2 6.98KOhm
ANALOG_INL_CR
C3703 0.047UF/16V
ANALOG_INL_CR_C

R3711 12KOhm 1%
R3712 12KOhm 1%
AGND

C3709 2.2UF/6.3V
AGND
Very Close Amp

AMP_WOF_RN_R L3701 1 2 120Ohm/100Mhz
AMP_WOF_RP_R L3702 1 2 120Ohm/100Mhz
AMP_WOF_LN_R L3703 1 2 120Ohm/100Mhz
AMP_WOF_LP_R L3704 1 2 120Ohm/100Mhz

AMP_WOF_RN
AMP_WOF_RP
AMP_WOF_LN
AMP_WOF_LP

C3705 100PF/50V
C3706 100PF/50V
C3707 100PF/50V
C3708 100PF/50V
GND

SPEAKER CONN.

CON3700
1 SIDE2
2
3
4 SIDE1
WtoB_CON_4P
1217-0186000
GND

U3700B
GND_2
GND_3
GND_4
GND_8
GND_7
GND_6
GND_5
ALC1001-VB-CGT
GND

<Variant Name>

PEGATRON Title : SPEAKER & SIDE MIC1

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A3	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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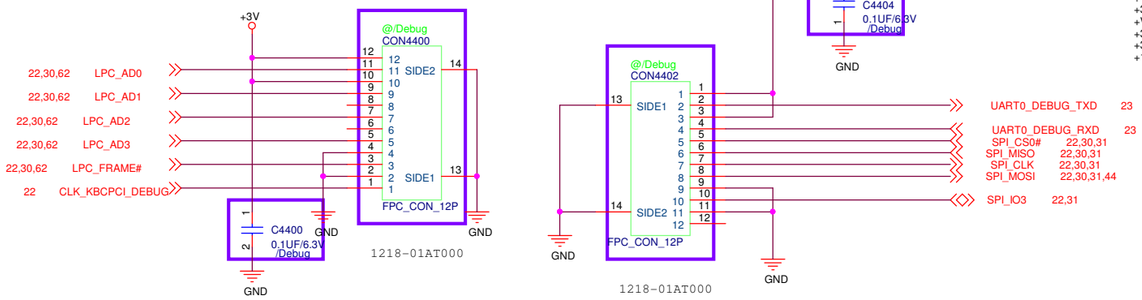
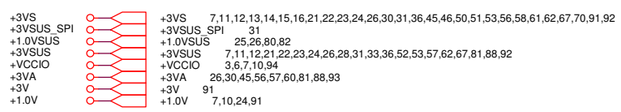
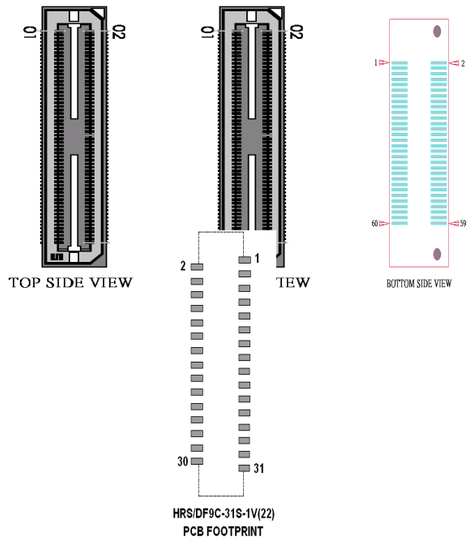
PEGATRON	Title : DDR3 TERMINATION A&B		
Pegatron Corp.	Engineer: Kai_Shen		
Size: A	Project Name: P7RCR		Rev: R1.0
Date: Monday, October 17, 2016	Sheet 43 of 101		

LPC DEBUG SMD

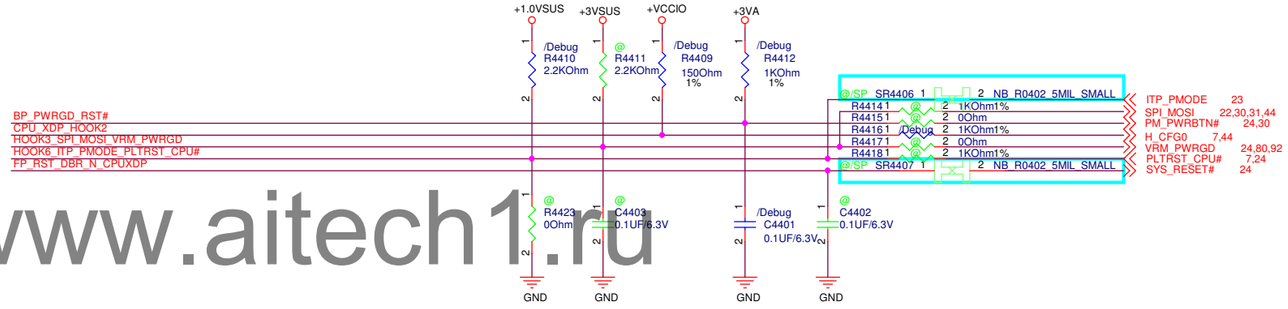


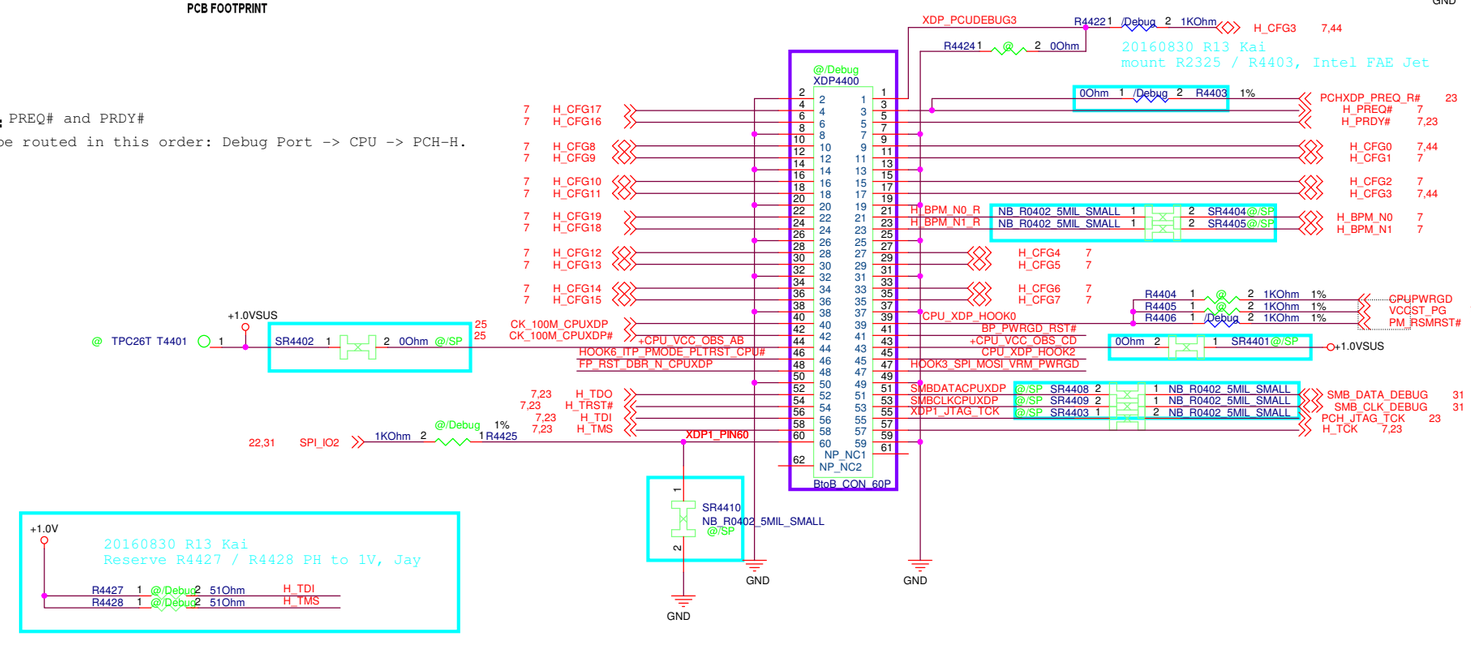


20161006 R20 Kai
change optional from /Debug to @/Debug, CON4400 / CON4402 / XDP4400.
change optional from N/A to /Debug, C4400 / C4404.

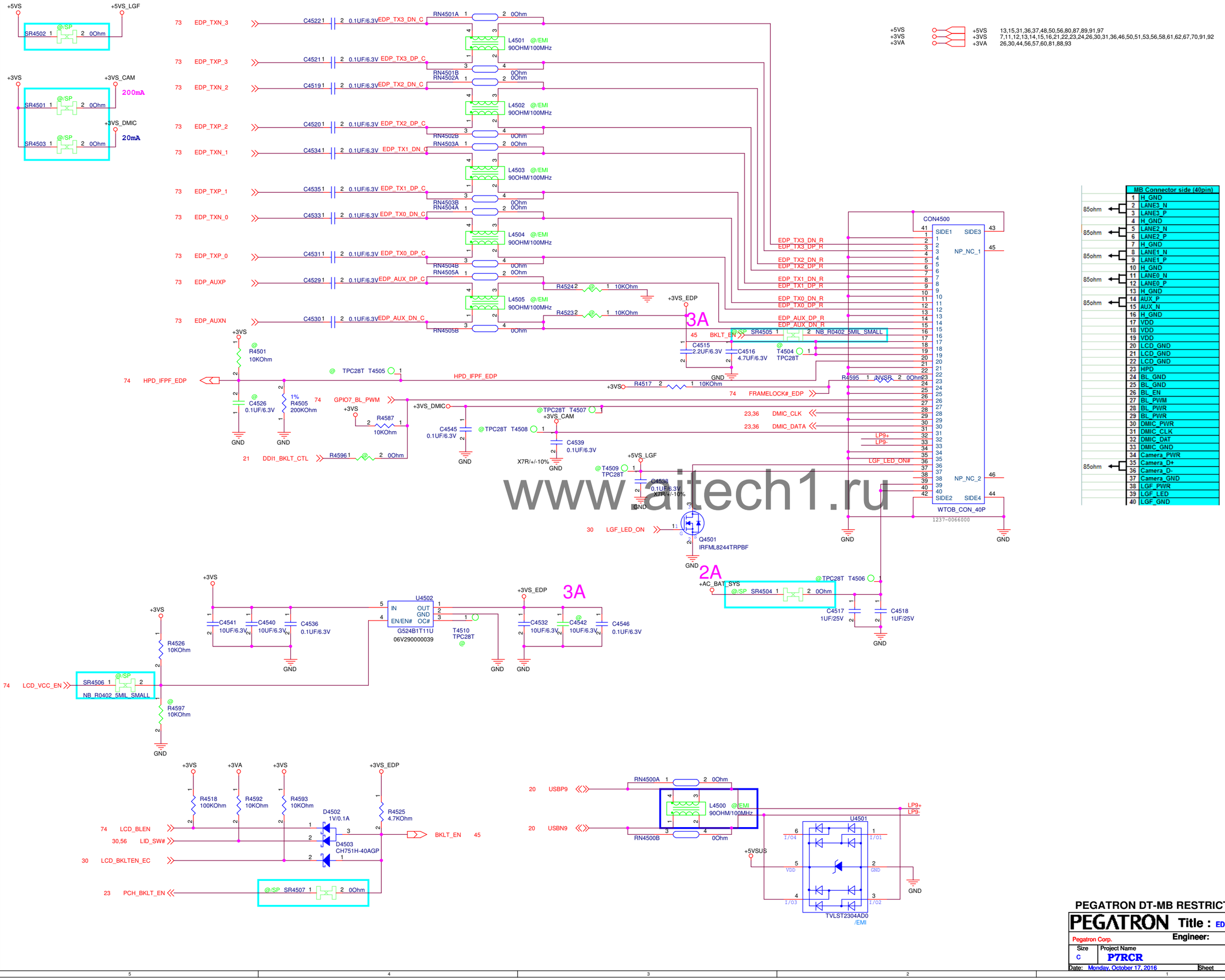


INTEL CPU XDP DEBUG PORT





NOTE: PREQ# and PRDY#
MUST be routed in this order: Debug Port -> CPU -> PCH-H.



20160616 R1.1 Kai
change solution

20160621 R1.1 Kai
change U4601 to VX

+3VS_VGA
C4613 0.1UF/6.3V
C4601 0.1UF/6.3V
C4602 0.1UF/6.3V
C4603 0.1UF/6.3V
C4604 0.1UF/6.3V
GND

+3VS_VGA
C4605 0.1UF/6.3V
C4606 0.1UF/6.3V
C4607 0.1UF/6.3V
C4608 0.1UF/6.3V
C4612 0.1UF/6.3V
C4636 0.01UF/25V
GND

+3VS
SR4601 1 @/SP 2 0Ohm
+3VS_VGA
C4637 10UF/6.3V
GND

72 DP_IFPC_DATA0 — C4622 0.1UF/6.3V — DP_IFPC_DATA0_C
72 DP_IFPC_DATA0# — C4623 0.1UF/6.3V — DP_IFPC_DATA0#_C
72 DP_IFPC_DATA1 — C4624 0.1UF/6.3V — DP_IFPC_DATA1_C
72 DP_IFPC_DATA1# — C4625 0.1UF/6.3V — DP_IFPC_DATA1#_C
72 DP_IFPC_DATA2 — C4618 0.1UF/6.3V — DP_IFPC_DATA2_C
72 DP_IFPC_DATA2# — C4620 0.1UF/6.3V — DP_IFPC_DATA2#_C
72 DP_IFPC_DATA3 — C4619 0.1UF/6.3V — DP_IFPC_DATA3_C
72 DP_IFPC_DATA3# — C4621 0.1UF/6.3V — DP_IFPC_DATA3#_C
72 DP_IFRC_AUXN — C4627 0.1UF/6.3V — OUT_AUXN
72 DP_IFRC_AUXP — C4626 0.1UF/6.3V — OUT_AUXP

U4601A
SW1 1
SW0 2
VDD_1 3
IN0P 4
IN0N 5
VDD_2 6
IN1P 7
IN1N 8
VDD_3 9
IN2P 10
IN2N 11
VDD_4 12
IN3P 13
IN3N 14
VDD_5 15
NC_1 16
NC_2 17
SDA 18
SCL 19
PRSNT# 20
ENI2C 21
GND 43
EQ3/AD3 42 — EQ3
EQ2/AD2 41 — EQ2
EQ1/AD1 40 — EQ1
EQ0/AD0 39 — EQ0
FG1/I2C_RESET# 38 — FG1
FG0 37 — FG0
VDD_6 36
OUT0P 35 — DP_OUT_DATA0
OUT0N 34 — DP_OUT_DATA0#
VDD_7 33
OUT1P 32 — DP_OUT_DATA1
OUT1N 31 — DP_OUT_DATA1#
VDD_8 30
OUT2P 29 — DP_OUT_DATA2
OUT2N 28 — DP_OUT_DATA2#
VDD_9 27
OUT3P 26 — DP_OUT_DATA3
OUT3N 25 — DP_OUT_DATA3#
VDD_10 24
NC_3 23
I2C_DONE 22
PI3DPX1203ZHEX

OUT_AUXN
OUT_AUXP
PRSNT#
R4604 4.7KOhm
GND

U4601B
GND_1 44
GND_2 45
GND_3 46
GND_4 47
GND_5 48
GND_6 49
GND_7 50
GND_8 51
GND_9 52
GND_10 53
GND_11 54
GND_12 55
PI3DPX1203ZHEX
GND

SW1 R4626 4.7KOhm
SW0 R4624 4.7KOhm
EQ3 R4627 4.7KOhm
EQ2 R4602 4.7KOhm
EQ1 R4606 4.7KOhm
EQ0 R4601 4.7KOhm
FG1 R4625 4.7KOhm
FG0 R4623 4.7KOhm
PRSNT# R4611 4.7KOhm
GND

DP_OUT_DATA0 — C4629 0.1UF/6.3V — DP_OUT_DATA0_CON
DP_OUT_DATA0# — C4631 0.1UF/6.3V — DP_OUT_DATA0#_CON
DP_OUT_DATA1 — C4628 0.1UF/6.3V — DP_OUT_DATA1_CON
DP_OUT_DATA1# — C4630 0.1UF/6.3V — DP_OUT_DATA1#_CON
DP_OUT_DATA2 — C4632 0.1UF/6.3V — DP_OUT_DATA2_CON
DP_OUT_DATA2# — C4633 0.1UF/6.3V — DP_OUT_DATA2#_CON
DP_OUT_DATA3 — C4634 0.1UF/6.3V — DP_OUT_DATA3_CON
DP_OUT_DATA3# — C4635 0.1UF/6.3V — DP_OUT_DATA3#_CON

20160622 R1.1 Kai
add DP++ circuit

72 DDC_GATE_G
DP_IFRC_AUXN
DP_IFRC_AUXP
Q4601B UM6K1NG1DTN 07V040000035
Q4601A UM6K1NG1DTN 07V040000035
OUT_AUXN
OUT_AUXP

+3VS_DPOUT
+3VS
U4602 AP2171WG-7 06V290000082
IN 5 / EN 4 / OUT 1 / GND 2 / FLG 3
C4639 10UF/6.3V
C4638 0.1UF/6.3V
R4629 10KOhm
C4640 0.1UF/6.3V
C4641 47UF/6.3V
GND

CON4601 DISPLAY_CON_20P
DP_OUT_DATA0_CON
DP_OUT_DATA0#_CON
DP_OUT_DATA1_CON
DP_OUT_DATA1#_CON
DP_OUT_DATA2_CON
DP_OUT_DATA2#_CON
DP_OUT_DATA3_CON
DP_OUT_DATA3#_CON
P_GND1 21
P_GND3 23
P_GND4 24
P_GND2 22

72 CA_DET
R4609 2 1 1MOhm
R4610 2 1 1MOhm
R4608 1 2 100KOhm
OUT_AUXP
GND
+3VS_VGA
R4607 1 2 100KOhm
OUT_AUXN

74 HPD_IFPC_DP2
R4605 1% 200KOhm
GND

1247-005B000

PEGATRON Title : DP Multiplexer
Pegatron Corp. Engineer: Leon_Lu
Size A3 | Project Name P7RCR | Rev 200
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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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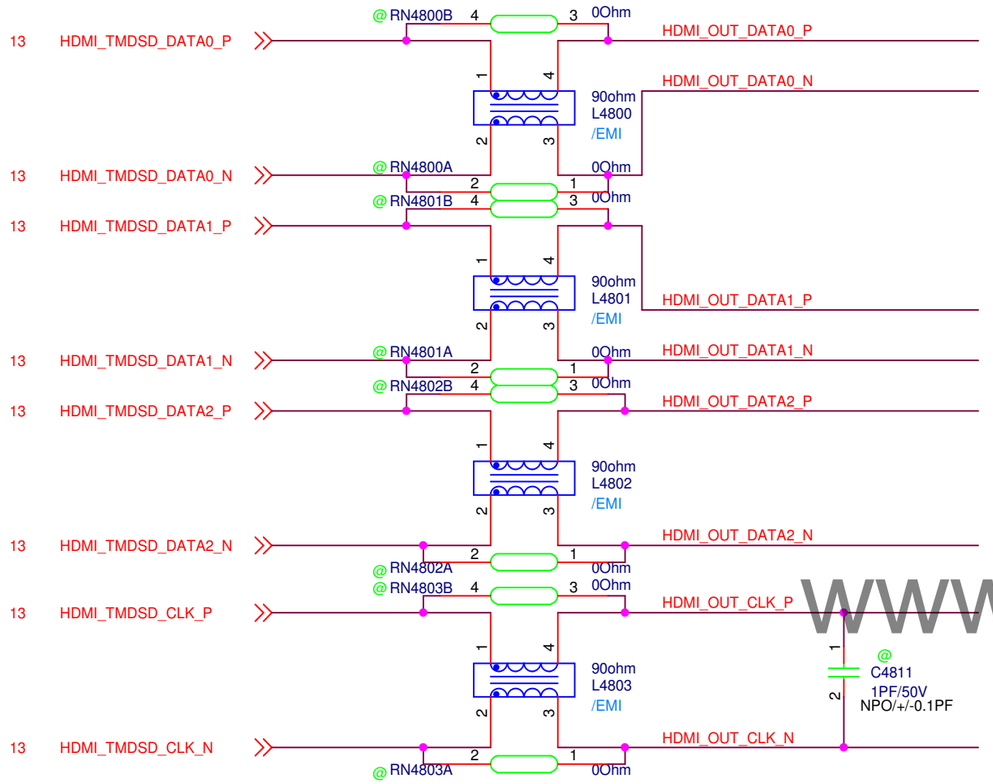

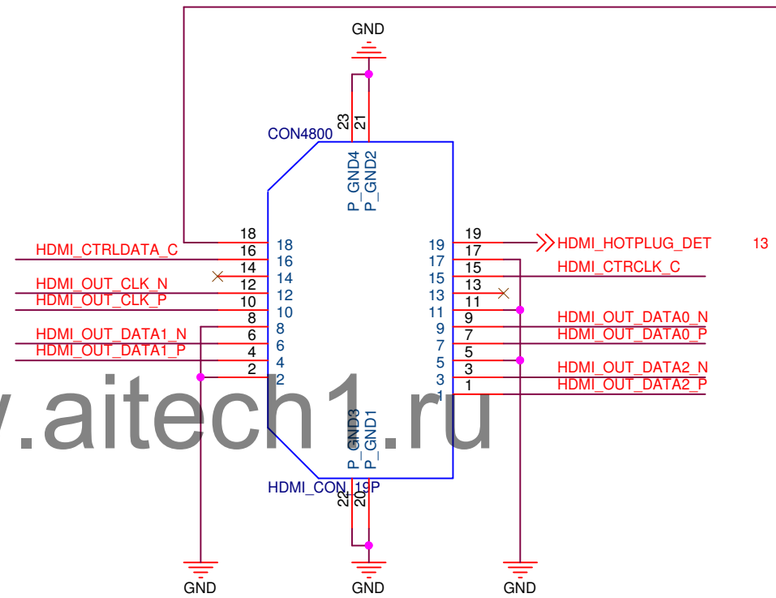

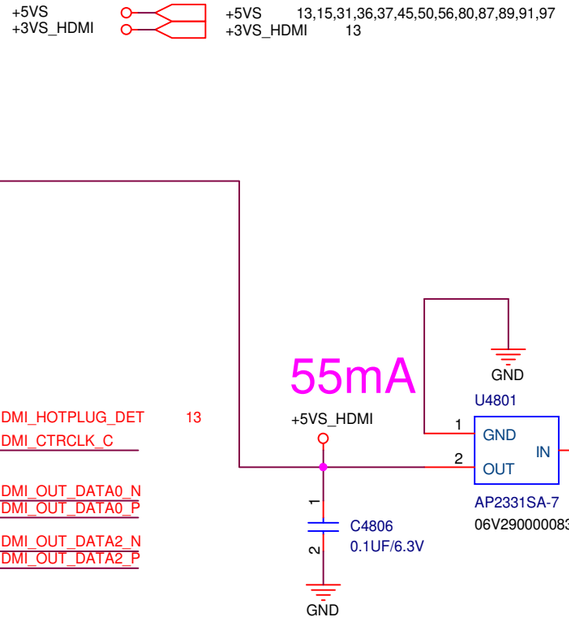

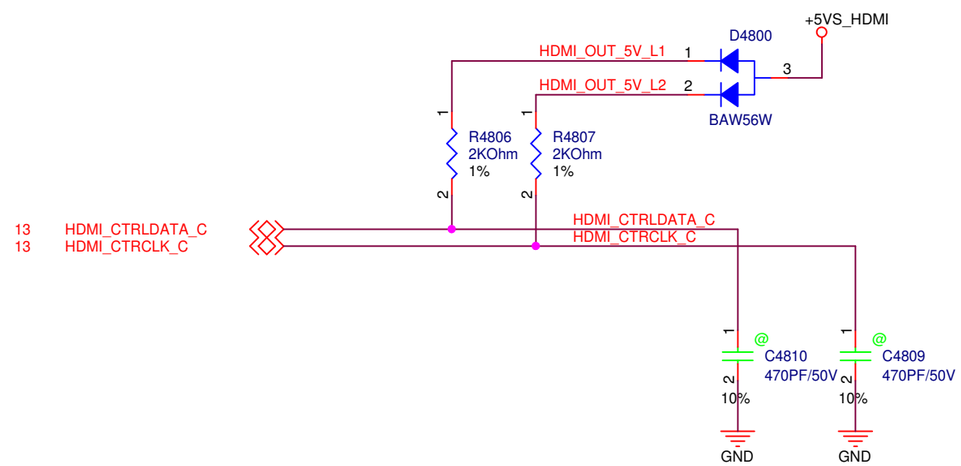

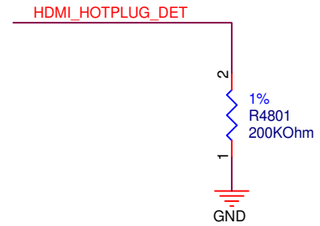

NOTE: HPDET status

High	Plugged
Low	Unplugged

PEGATRON **Title : HDMI OUT**

Pegatron Corp. **Engineer:** *Kai_Shen*

Size	Project Name	Rev
B	P7RCR	R1.0

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PEGATRON

Title : DDR3 TERMINATION A&B

Pegatron Corp.

Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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+3VS
+3VA_EC
+5VS

+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,51,53,56,58,61,62,67,70,91,92
+3VA_EC 30
+5VS 13,15,31,36,37,45,48,56,80,87,89,91,97

+3VS
GND
C5000 1 2 0.1UF/6.3V
R5011 10KOhm
Q5001 PMBS3904
C5004 2200PF/50V 10%
DXP
DXN
U5000
VCC SMBCLK
DXP SMBDATA
DXN ALERT#
THERM# GND
G781P8F
06V220000004
R5001 5.1KOhm 1%
R5002 5.1KOhm 1%
SMB1_CLK 12,13,30,31,58,67,74
SMB1_DAT 12,13,30,31,58,67,74
50,92 CPU_THERM#
CPU_THERM#
C5004: GMT / NXP both 2200PF

20160711 R11 Kai
add for leason learn
20161006 R14 Kai
unmount R5022
(the same with R5011)
R5022 10KOhm @
@/SP
SR5001 1 2
NB_R0402_5MIL_SMALL
Q5002A
UM6K1NG1DTN
07V040000035
50,92 CPU_THERM#
11,24,33,53,70 PLTRST#_BUF
92 FORCE_OFF#
JRST5001 2 @ 1 0Ohm
@ R5014 100KOhm
R5004 1 2 100KOhm
D5004 1V/0.1A
EC_RST# 30
C5002 1UF/6.3V

@ R5018 10KOhm
C5007 1 2 0.1UF/6.3V
10V220000040 1%
R5017 1 @ 2 22KOhm
U5003 @
G709T1UF
SET VCC
GND
OT# HYST
50,92 CPU_THERM#
CPU_THERM#
Q5002B
UM6K1NG1DTN
07V040000035

R5000 4.7KOhm
R5003 4.7KOhm
R5005 1 1% 2 1.5KOhm
D5001 @BAW56W
30 FAN0_TACH
30 FAN0_PWM
CPUFAN_TACH_C_L
CPUFAN_PWM_C_L
R5006 1 1% 2 150Ohm
D5000 0.8V/0.2mA
0.5A
CON5000
WTOB_CON_4P
SIDE1
SIDE2
1217-014A000
C5003 0.1UF/6.3V
+5V_FAN0

@ R5012 10KOhm
U5001
FSM# GND4
VIN GND3
VOUT GND2
VSET GND1
APL5606AKI-TRG
30,50 FAN_REVERSE
R5015 1 1% 2 1KOhm
C5005 1UF/6.3V

R5007 4.7KOhm
R5008 4.7KOhm
R5009 1 1% 2 1.5KOhm
D5003 @BAW56W
30 FAN1_TACH
30 FAN1_PWM
CPUFAN_TACH_C_R
CPUFAN_PWM_C_R
R5010 1 1% 2 150Ohm
D5002 0.8V/0.2mA
0.5A
CON5001
WTOB_CON_4P
1217-014A000
C5001 0.1UF/6.3V
+5V_FAN1

@ R5013 10KOhm
U5002
APL5606AKI-TRG
30,50 FAN_REVERSE
R5016 1 1% 2 1KOhm
C5006 1UF/6.3V

R5021 4.7KOhm
30 FAN2_TACH
0.5A
CON5002
WTOB_CON_3P
12V17GBSM062
C5009 0.1UF/6.3V
+5VS_FAN2

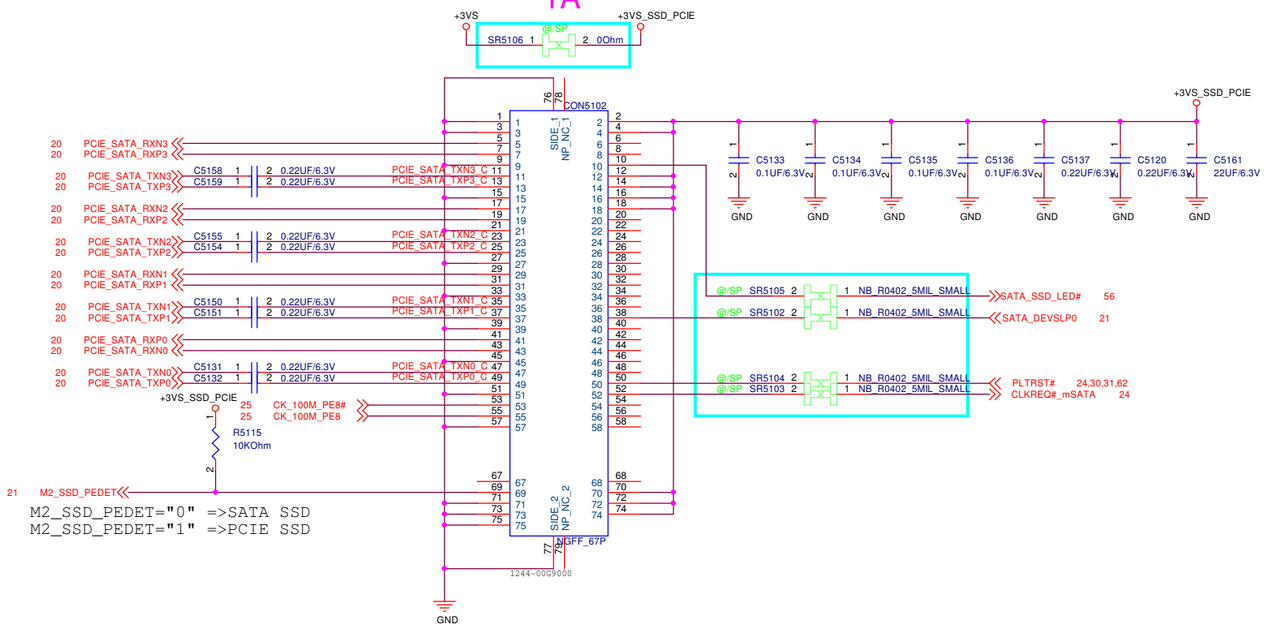
@ R5019 10KOhm
U5004
APL5606AKI-TRG
30 FAN2_PWM
R5020 1 1% 2 100KOhm
C5008 0.1UF/6.3V

PEGATRON DT-MB RESTRICTED SECRET

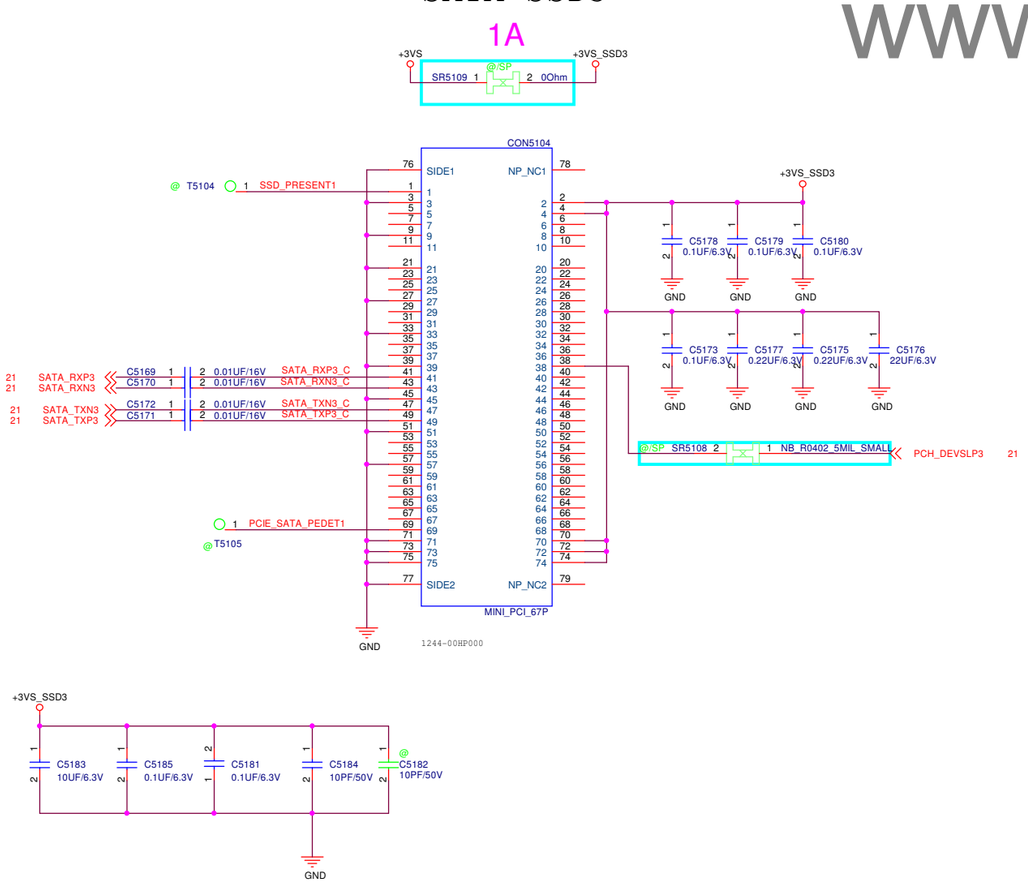
PEGATRON	Title : FAN/THERMAL	
Pegatron Corp.	Engineer: Kai_Shen	
Size: Custom	Project Name: P7RCR	Rev: R1.0
Date: Monday, October 17, 2016	Sheet 50 of 101	

+3VS +3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,53,56,58,61,62,67,70,91,92

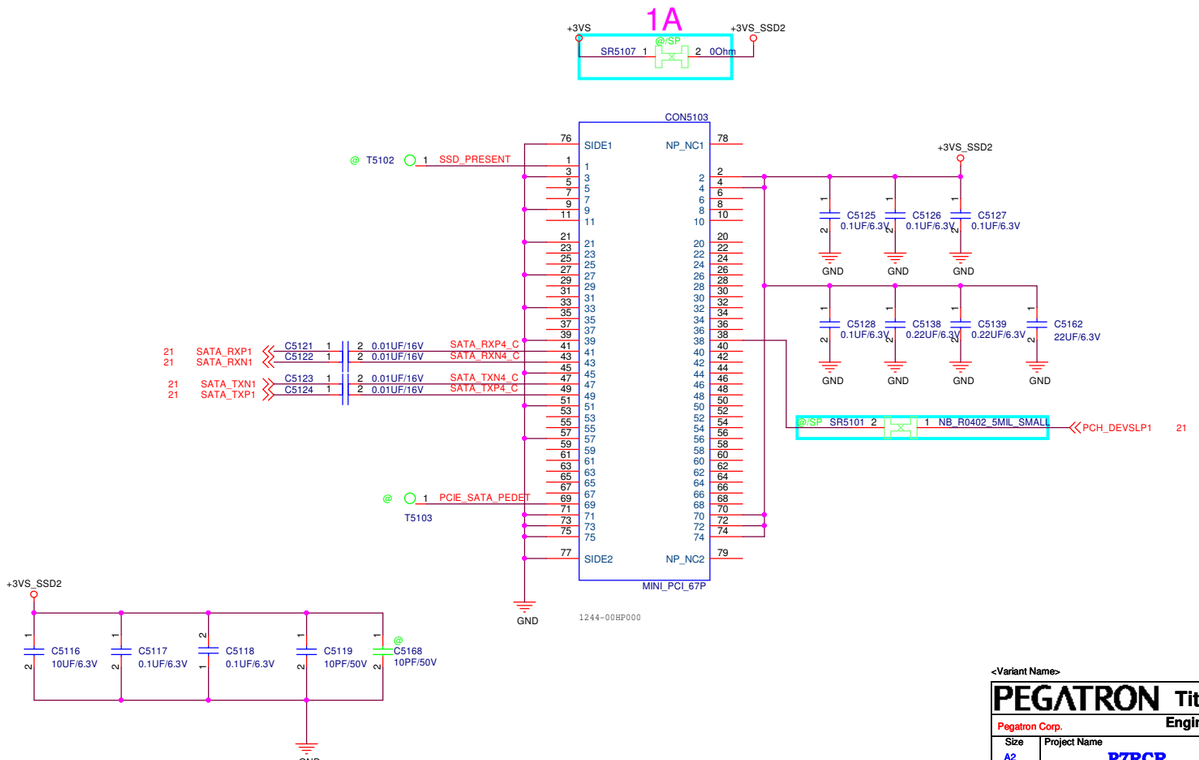
PCIE & SATA SSD1



SATA SSD3



SATA SSD2



<Variant Name>

PEGATRON Title : SATA/ODD/SSD

Pegatron Corp. Engineer: Kai_Shen

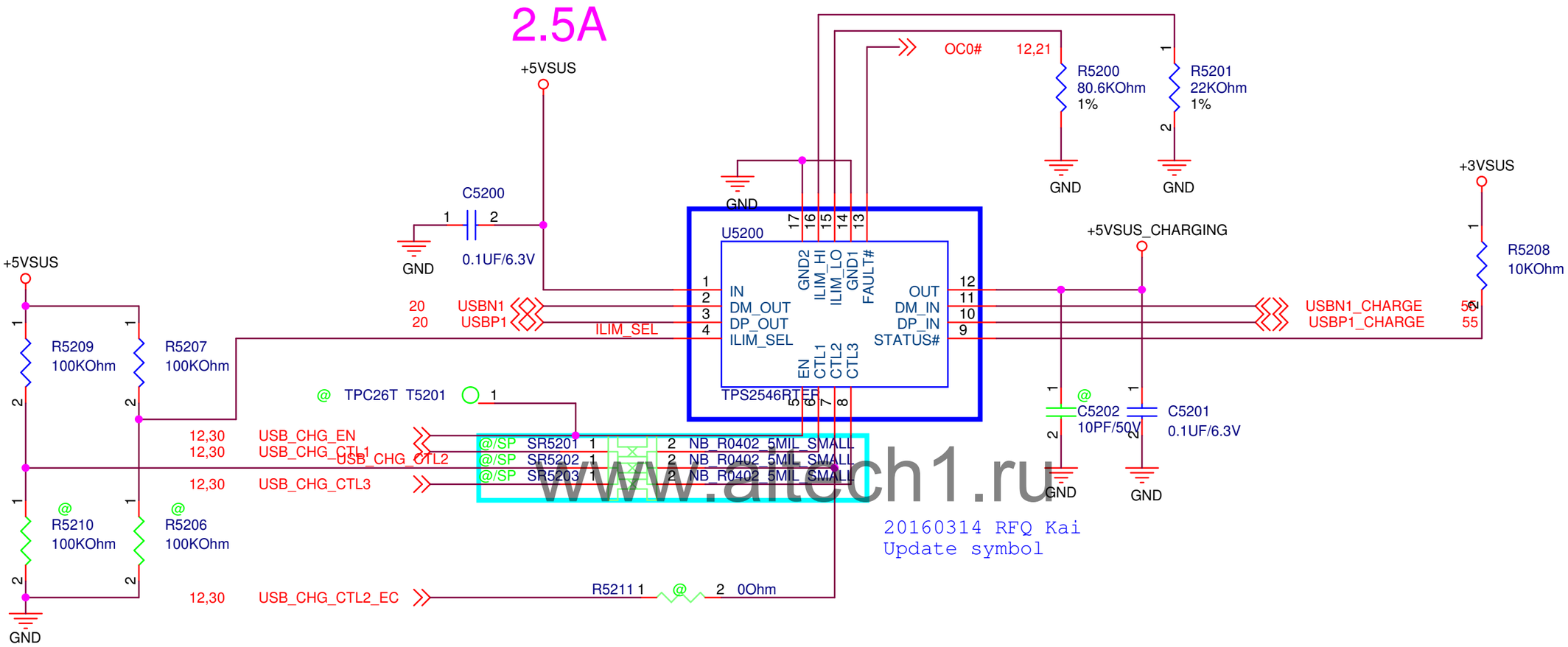
Size	Project Name	Rev
A2	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 51 of 101

+3VSUS
+5VSUS
+5VSUS_CHARGING

+3VSUS 7,11,12,21,22,23,24,26,28,31,33,36,44,53,57,62,67,81,88,92
+5VSUS 12,36,37,45,55,56,57,67,81
+5VSUS_CHARGING 55

STATUS#, FAULT#, ILIM_LO, ILIM_HI Voltage: -0.3 to 7v.
STATUS#, FAULT# Continuous output sink current:25mA.
ILIM_LO, ILIM_HI Continuous output source current: Internally limited.



20160314 RFQ Kai
Update symbol

Table 2. Truth Table

CTL1	CTL2	CTL3	ILIM_ SEL	MODE	Current Limit Setting	Status Output	Notice
0	1	0	0	SDP1	ILIM_LO	OFF	Data lines connected
0	1	0	1	SDP1	ILIM_HI	OFF	
0	1	1	0	DCP_Auto	ILIM_LO	OFF	Data lines disconnected
0	1	1	1	DCP_Auto	ILIM_HI	DCP	Data lines disconnected Load Detect function active

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : USB CHARGE IC

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A4	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 52 of 101

WLAN

+3P3V_MINI1
Imax=2A /TDC=1.4A
Vdroop: 1.4A*65mohm=91mV >3.3*0.95

+5VA
+3VSUS
+3VS

+5VA 56,81
+3VSUS 7,11,12,21,22,23,24,26,28,31,33,36,44,52,57,62,67,81,88,92
+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,56,58,61,62,67,70,91,92

+5VA
R5302 10KOhm
R53011 @/IOAC 2 20KOhm 1%
Q5302 2N7002 @/IOAC
Q5301 2N7002 @/IOAC
24 SLP_WLAN#
SLP_S5# 24
C5302 1UF/6.3V @/IOAC
+3VSUS
Q5300 PMV33UPE @/IOAC
C5301 0.1UF/6.3V @/IOAC
+3VS
/NON_IOAC L5302 70Ohm/100Mhz
+3V_WLAN
L5300 70Ohm/100Mhz @/IOAC
GND

0.85A

+3V_WLAN
C5300 10UF/6.3V
C5307 0.1UF/6.3V
C5306 0.01UF/16V
C5303 10PF/50V
GND

20160429 RFQ Kai
add T5306, T5308, T5309, T5310, R5303

CON5300
MINI_PCI_67P
NP_NC1 NP_NC2 SIDE1 SIDE2

@ TPC26T T5303 1 WLAN/WiGig_LED
@ TPC26T T5301 1 BT_LED

20160615 R1.1 Kai
Add R5313 for colay KP WiGi

GND
R53132 @/WiGi 1 0Ohm

+3V_WLAN
R5300 4.7KOhm
R5308 4.7KOhm

23 CL_RST#
23 CL_DATA
23 CL_CLK
R53102 @ 1 0Ohm CL_RST#_R
R53112 @ 1 0Ohm CL_DATA_R
R53122 @ 1 0Ohm CL_CLK_R
@ TPC26T T5306 1 COEX3_1.8V
@ TPC26T T5308 1 COEX2_1.8V
@ TPC26T T5309 1 COEX1_1.8V
24 WLAN_SUSCLK
SR5301 1 2 WLAN_SUSCLK_R
@/SP
NB_R0402_5MIL_SMALL
BUF_PLT_RST#_WLAN

21 BT_DISABLE#
21 WLAN_DISABLE#

@ TPC26T T5310 1 RESERVED_PIN64
BUF_PLT_RST#_WiGig
CLKREQ1_WiGi#
WAKE_WiGi
@ TPC26T T5307 1

USBP7_C
USBN7_C
RN5301A 0Ohm
RN5301B 0Ohm
L5301 @/EMI 90OHM/100MHz
USBP7 20
USBN7 20
USB2.0 Port7
1 @ T5304 TPC26T
1 @ T5305 TPC26T

PCIE_TXP7_WLAN 20
PCIE_TXN7_WLAN 20
PCIE_RXP7_WLAN 20
PCIE_RXN7_WLAN 20
PCIE Port3
CK_100M_PE0 25
CK_100M_PE0# 25
CLKOUT_PCIE Port0
CLKREQ0_WLAN#
WAKE_WLAN 1 T5302 TPC26T @

PCIE_TXN8_WiGi 20
PCIE_TXP8_WiGi 20
PCIE_RXN8_WiGi 20
PCIE_RXP8_WiGi 20
PCIE Port2
CK_100M_PE1# 25
CK_100M_PE1 25
CLKOUT_PCIE Port1

1244-00E5000

+3VS_WLAN
Q5303 2N7002
R5307 100KOhm
@/WiGi R5309 100KOhm
24,33 WAKE_PCIE#
D5301 CH751H-40AGP
WAKE_WLAN
D5302 @/WiGi CH751H-40AGP
@/WiGi Q5304 2N7002
WAKE_WiGi
30 WLAN_WAKE#
R53142 @/IOAC 1 0Ohm

+3V_WLAN
@ R5305 10KOhm
@ R5306 10KOhm
CLKREQ1_WiGi#
CLKREQ0_WLAN#
CLKREQ1_WiGi# 24
CLKREQ0_WLAN# 24
SR5302 1 2 CL_RST#_R
@/SP
NB_R0402_5MIL_SMALL
GND

+3V_WLAN
R5349 @ 10KOhm
R5319 1 /0 ohm 2 0Ohm
BUF_PLT_RST#_WLAN
vx_r0402_small
D5303 @ 1SS355AGP
PLTRST#_BUF 11,24,33,56,70
R5341 1 @ 2 0Ohm
WLAN_RST# 30

+3V_WLAN
R5354 @ 10KOhm
R5355 1 @/WiGi 2 0Ohm
BUF_PLT_RST#_WiGig
vx_r0402_small
D5308 @ 1SS355AGP
PLTRST#_BUF
R5356 1 @ 2 0Ohm
WiGi_RST# 22

BUF_PLT_RST#_WiGig
BUF_PLT_RST#_WLAN
BT_DISABLE#
WLAN_DISABLE#
C5342 100PF/25V vx_c0201 /EMI
C5347 100PF/25V vx_c0201 /EMI
C5348 100PF/25V vx_c0201 /EMI
C5349 100PF/25V vx_c0201 @/EMI
GND GND GND GND

2015.04.15 YenPin

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : NGFF_WLAN
Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
C	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 53 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 54 of 101

+5VSUS_CHARGING

+5VSUS 12,36,37,45,52,56,57,67,81
+5VSUS_CHARGING 52

D5505 AZ5725-01F 07V180000049 /EMI

RN5500A1 2 0Ohm
20 USB3_RX_N1
L5500 @/EMI 90OHM/100MHz
20 USB3_RX_P1
RN5500B 3 4 0Ohm

USB3_RX_H_N1
USB3_RX_H_P1

U5500 /EMI
PUSB3F96
CH1 n.c.4
CH2 n.c.3
GND1 GND2
CH3 n.c.2
CH4 n.c.1
52 USBP1_CHARGE
52 USBN1_CHARGE

RN5501B 3 4 0Ohm
@/EMI L5501 90OHM/100MHz
RN5501A 1 2 0Ohm

CON5500
USB_CON_9P
StdA_SSRX-
GND
StdA_SSRX+
D+
GND_DRAIN
D-
StdA_SSTX-
VBUS
StdA_SSTX+
P_GND1 P_GND2 P_GND3 P_GND4
L1+
L1-
1213-0210000

C5509 0.1UF/6.3V
20 USB3_TX_N1
USB3_TX_N1_C
RN5502A1 2 0Ohm
L5502 @/EMI 90OHM/100MHz
C5508 0.1UF/6.3V
20 USB3_TX_P1
USB3_TX_P1_C
RN5502B 3 4 0Ohm

USB3_TX_H_N1
USB3_TX_H_P1

D5501 AZ5725-01F 07V180000049 /EMI
D5502 AZ5725-01F 07V180000049 /EMI

@ C5502 10UF/6.3V
CE5502 100UF/6.3V
C5503 0.1UF/6.3V
C5506 22UF/6.3V

RN5503A1 2 0Ohm
20 USB3_RX_N2
L5503 @/EMI 90OHM/100MHz
20 USB3_RX_P2
RN5503B 3 4 0Ohm

USB3_RX_H_N2
USB3_RX_H_P2

U5502 /EMI
PUSB3F96
CH1 n.c.4
CH2 n.c.3
GND1 GND2
CH3 n.c.2
CH4 n.c.1

RN5504B 3 4 0Ohm
20 USBP2
@/EMI L5504 90OHM/100MHz
20 USBN2
RN5504A 1 2 0Ohm

L2+
L2-

CON5501
USB_CON_9P
StdA_SSRX-
GND
StdA_SSRX+
D+
GND_DRAIN
D-
StdA_SSTX-
VBUS
StdA_SSTX+
P_GND1 P_GND2 P_GND3 P_GND4
1213-0210000

C5511 0.1UF/6.3V
20 USB3_TX_N2
USB3_TX_N2_C
RN5505A1 2 0Ohm
L5505 @/EMI 90OHM/100MHz
C5510 0.1UF/6.3V
20 USB3_TX_P2
USB3_TX_P2_C
RN5505B 3 4 0Ohm

USB3_TX_H_N2
USB3_TX_H_P2

+5V_USB

D5503 AZ5725-01F 07V180000049 /EMI
D5504 AZ5725-01F 07V180000049 /EMI
D5506 AZ5725-01F 07V180000049 /EMI

+5VSUS 1.5A
C5507 1UF/6.3V

+5V_USB 1.5A
C5505 22UF/6.3V
C5501 0.1UF/6.3V
CE5503 100UF/6.3V

30,67 USB_PWEN
U5501
APL3518ABI-TRG
VIN VOUT GND EN OCB
OC2# 21

@ R5501 220KOhm 1%

GND

PEGATRON DT-MB RESTRICTED SECRET

PEGATRON Title : LEFT USB3 CONN.
Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A3	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 55 of 101

+5VA: 0.48A
+5VSUS: 0.225A
+5VS: 0.3A
+3VS: 0.02A

+3VS	+3VS	7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,58,61,62,67,70,91,92
+3VA	+3VA	26,30,44,45,57,60,81,88,93
+5VA	+5VA	53,81
+5VSUS	+5VSUS	12,36,37,45,52,55,57,67,81
+5VS	+5VS	13,15,31,36,37,45,48,50,80,87,89,91,97

MB Connector side(26Pin)	
1	GND
2	MCK_BUTTON6
3	MCK_LED_B
4	MCK_LED_G
5	MCK_LED_R
6	MCK_BUTTON5
7	MCK_LED5
8	MCK_BUTTON4
9	MCK_LED4
10	MCK_BUTTON3
11	MCK_LED3
12	MCK_BUTTON2
13	MCK_LED2
14	MCK_BUTTON1
15	MCK_LED1
16	PWRBTN#
17	PWR_LED
18	+3V3_PWR Board
19	+5V_PWR Board
20	+3VA_PWR Board
21	GND
22	CHG_LED_RED
23	CHG_LED_YELLOW
24	PCH_SATALED#
25	LID_SW#
26	GND

CON5602
SIDE1
SIDE2
FPC_CON_28P
1218-01XU000

+3VS +5VSUS +3VA +5VA +5VS

MCK_BUTTON6# 30
MCK_LED_B 30
MCK_LED_G 30
MCK_LED_R 30
MCK_BUTTON5# 30
MCK_LED5 30
MCK_BUTTON4# 30
MCK_LED4 30
MCK_BUTTON3# 30
MCK_LED3 30
MCK_BUTTON2# 30
MCK_LED2 30
MCK_BUTTON1# 30
MCK_LED1 30
PWRBTN# 30
PWR_LED 30
CHG_LED_RED 30
CHG_LED_YELLOW 30
SATA_LED#
LID_SW# 30,45
15_17_ID 23

C5600
0.1UF/6.3V

R5601
10KOhm

R5602
10KOhm

R5603
10KOhm

D5601
1V/0.1A
PCH_SATALED# 21
SATA_SSD_LED# 51

@JP5601
SGL_JUMP
PWRBTN#

GND

<Variant Name>

PEGATRON Title : PWR BOARD CON

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 56 of 101

NV GPU POWER DISCHARGE

+3VA
+3VSUS
+5VSUS
+1P2V
+2P5VPP
+VTT_DDR
+NVVDDS
PEX_VDD
+FBVDDQ

+3VA 26,30,44,45,56,60,81,88,93
+3VSUS 7,11,12,21,22,23,24,26,28,31,33,36,44,52,53,62,67,81,88,92
+5VSUS 12,36,37,45,52,55,56,67,81
+1P2V 7,10,13,16,17,24,83
+2P5VPP 16,17,18,95
+VTT_DDR 16,17,18,83
+NVVDDS 75,97
PEX_VDD 70,72,96
+FBVDDQ 71,75,76,77,78,79,89

+3VA +NVVDDS
R5704 100KOhm
R5701 5.1OHM 1%
R5702 5.1OHM 1%
R5703 5.1OHM 1%
R5705 5.1OHM 1%
R5731 5.1OHM 1%
57,74,96,97 NVVDDS_EN
SR5701 NB_R0402_5MIL_SMALL @/SP
Q5701 2N7002
U5701B UM6K1NG1DTN
GND GND

+3VA PEX_VDD
R5707 100KOhm
R5720 5.1OHM 1%
R5721 5.1OHM 1%
R5722 5.1OHM 1%
R5732 5.1OHM 1%
R5733 5.1OHM 1%
74,91 +3V3_MAIN_EN
57,74,96,97 NVVDDS_EN
SR5705 NB_R0402_5MIL_SMALL @/SP
Q5702 2N7002
U5701E UM6K1NG1DTN
GND GND

+3VA +3V3_MAIN
R5723 100KOhm
R5719 51Ohm
SR5706 NB_R0402_5MIL_SMALL @/SP
Q5703 2N7002
U5702A UM6K1NG1DTN
GND GND

+3VA +FBVDDQ
R5727 100KOhm
R5728 5.1OHM 1%
R5729 5.1OHM 1%
R5730 5.1OHM 1%
57,74,96,97 NVVDDS_EN
SR5707 NB_R0402_5MIL_SMALL @/SP
Q5704 2N7002
U5702B UM6K1NG1DTN
GND GND

+3VA +1V8_AON
R5736 100KOhm
R5734 5.1OHM 1%
R5735 5.1OHM 1%
57,74,96,97 NVVDDS_EN
R5737 0Ohm
Q5705 2N7002
U5703A UM6K1NG1DTN
GND GND

+3VA +1V8_MAIN
R5740 100KOhm
R5739 5.1OHM 1%
R5738 5.1OHM 1%
R5741 0Ohm
Q5714 2N7002
U5703B UM6K1NG1DTN
GND GND

+3VA +NVVDD
R5744 100KOhm
R5743 5.1OHM 1%
R5742 5.1OHM 1%
R5745 0Ohm
Q5715 2N7002
U5704A UM6K1NG1DTN
GND GND

U5704B UM6K1NG1DTN

+3VA +3VSUS +5VSUS
R5715 100KOhm
R5717 330Ohm
R5718 330Ohm @
VSUS_ON_T
Q5711 2N7002
Q5713 2N7002 @
Q5712 2N7002
30,81,82,93 VSUS_ON
@/SP SR5704 NB_R0402_5MIL_SMALL
GND GND GND

20161006 R14 Kai
unmount R5718 / Q5713,
for power consumption.

+3VA +1P2V +2P5VPP
R5709 100KOhm
R5710 330Ohm
R5714 330Ohm
SUSC_PWR
Q5707 2N7002
Q5710 2N7002
Q5706 2N7002
83,91,93,95 SUSC#_PWR
@/SP SR5702 NB_R0402_5MIL_SMALL
GND GND GND

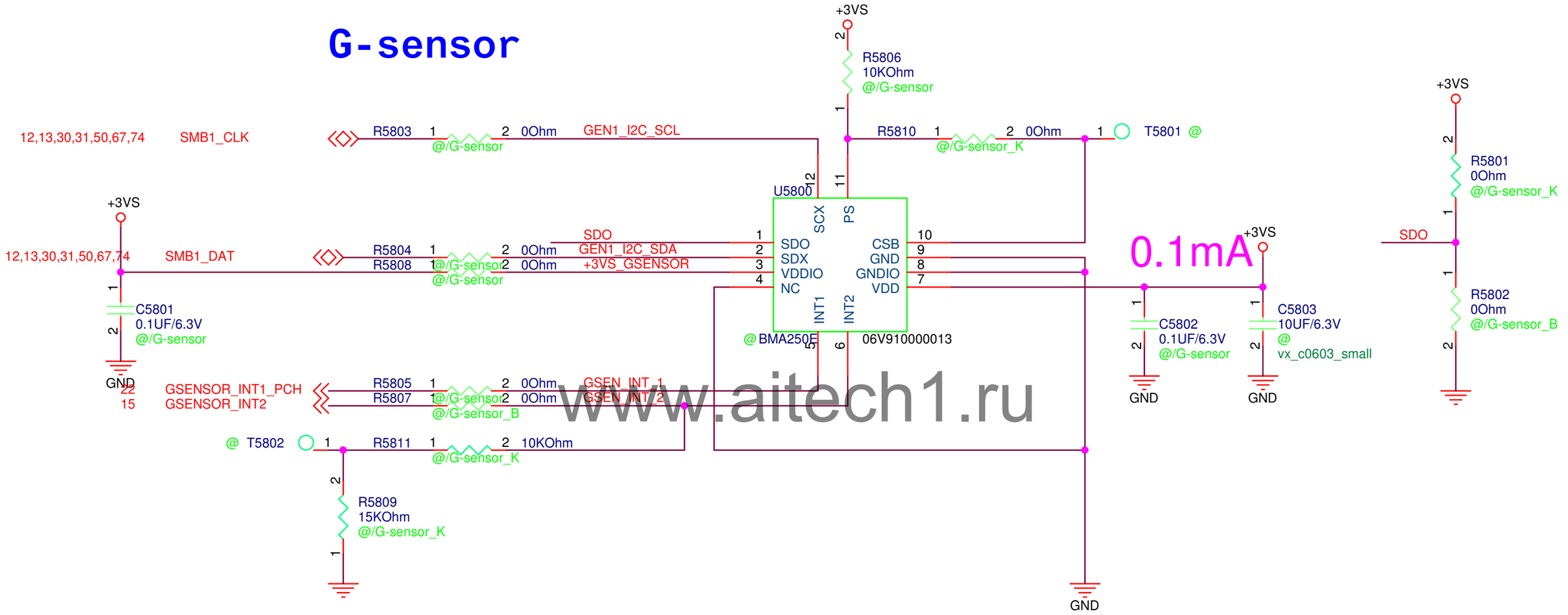
+3VA +VTT_DDR
R5712 100KOhm
R5713 330Ohm
DDR_VTT_CNTRL#
Q5709 2N7002
Q5708 2N7002
7,83 DDR_VTT_CNTRL
@/SP SR5703 NB_R0402_5MIL_SMALL
GND GND

<Variant Name>

PEGATRON	Title : GPU PWR discharge	
Pegatron Corp.	Engineer: Kai_Shen	
Size: Custom	Project Name: P7RCR	Rev: R1.0
Date: Monday, October 17, 2016	Sheet 57 of 101	

G-sensor

+3VS — +3VS — 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,61,62,67,70,91,92



<Variant Name>

PEGATRON	Title : G-sensor	
Pegatron Corp.	Engineer: Kai_Shen	
Size: A4	Project Name: P7RCR	Rev: R1.0
Date: Monday, October 17, 2016	Sheet 58 of 101	

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 59 of 101

BATTERY CONNECTOR

+3VA
+BAT_CON
+A/D_DOCK_IN
+VCC_RTC

+3VA 26,30,44,45,56,57,81,88,93
+BAT_CON 88
+A/D_DOCK_IN 88
+VCC_RTC 24,26,28

+BAT_CON

@ T6001 1 TPC26T
@ T6002 1 TPC26T

CON6000
SIDE1
SIDE2
WTOB_CON_10P
1217-01V6000

BATT_IN
SMB0_CLK_BATT
SMB0_DAT_BATT

@/SP SR6001 1 2 0Ohm
@/SP SR6002 1 2 0Ohm

TS1# 90
SMB0_CLK 30,88
SMB0_DAT 30,88

+3VA
R6001
100KOhm

+3VA
D6005
1.25V/0.15A

+3VA
D6006
1.25V/0.15A

@/EMI
D6002
AZ5725-01F

@/EMI
D6003
AZ5725-01F

+VCC_RTC
R6006
100KOhm

BATT_IN
Q6001
2N7002

20160412 RFQ Kai
change to VX

@
C6001
0.1UF/6.3V

CON6002
GND1
GND2
TACT_SWITCH_4P

GND

CON6003
SWITCH_4P

R6005 1 @ 2 0Ohm

AC_IN CONNECTOR

+A/D_DOCK_IN_CON

R6002 @ 0Ohm
R6007 /0-ohm 0Ohm
R6008 @ 0Ohm
R6009 1 /0-ohm 2 0Ohm

20160711 R11 Kai
for cable

20160715 R11 Kai

CON6001
SIDE2
SIDE4
SIDE3
SIDE1
WTOB_CON_10P
12V17GBSM145

ADP_ID 60,88

+A/D_DOCK_IN

L6003 1 2 33ohm
L6002 1 2 33ohm
L6001 1 2 33ohm

@ C6005 0.1UF/25V
C6002 0.1UF/25V
C6003 0.1UF/25V
@ C6004 0.1UF/25V

GND

@
CON6004
SIDE1
SIDE2
WTOB_CON_2P

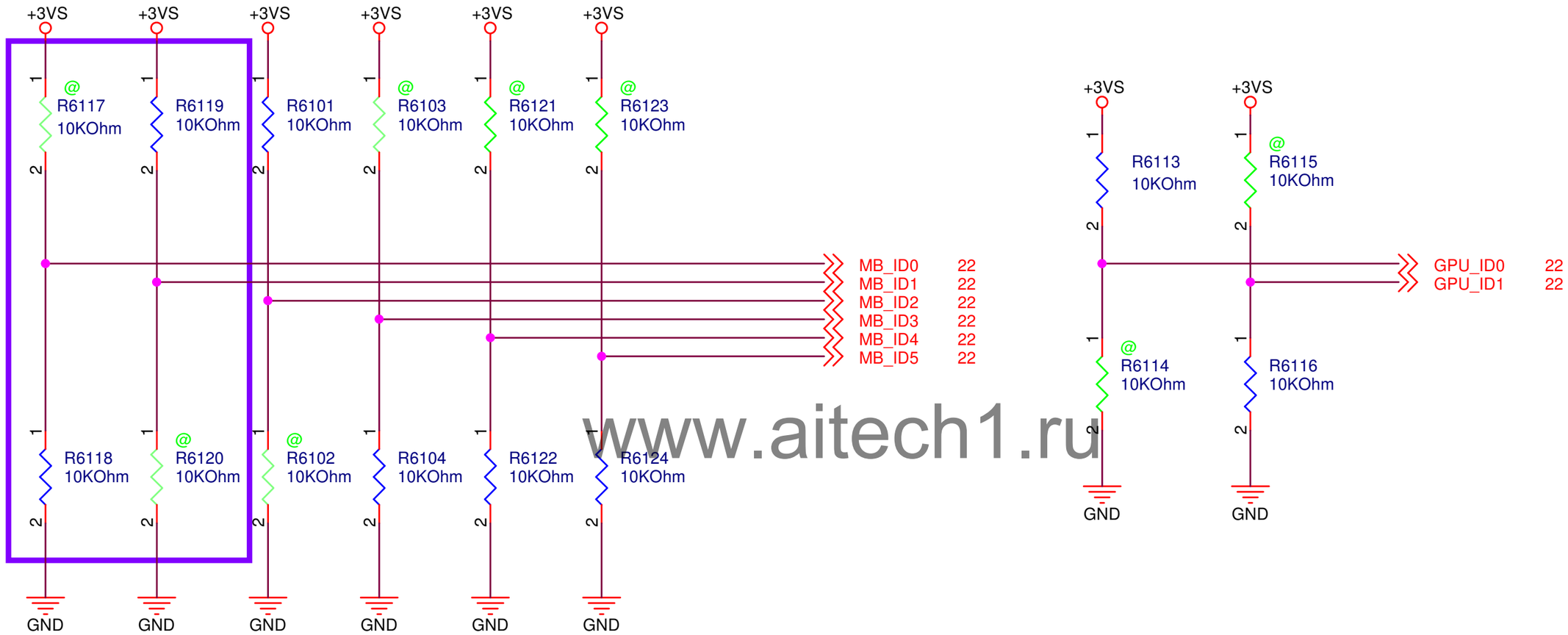
ADP_ID 60,88

20160718 R1.1 Kai, add CON6004
20160719 R1.1 Kai, unmount CON6004

PEGATRON Title : BATT CON/AC IN
Pegatron Corp. Engineer: Kai_Shen
Size A4 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 60 of 101

+3VS +3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,62,67,70,91,92

20161013 R20 Kai
Change for R20 PCB ID setting



MB_ID2 (GPP_G6)	MB_ID1 (GPP_G5)	MB_ID0 (GPP_G4)	
0	0	0	R1.0
0	0	1	R1.1
0	1	0	R1.2
1	0	0	R1.3
1	0	1	R1.4
1	1	0	R2.0
1	1	1	R2.1
0	0	0	R2.2

	QLM4, 2.9G 0101-03FG0PB	QLM5, 2.8G 0101-03EY0PB
GPP_G10 (ID0)	1	0
GPP_G11 (ID1)	0	0

PEGATRON Title : BOARD ID

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 61 of 101

NPCT650

+3VS
+3VSUS

+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53
+3VSUS 7,11,12,21,22,23,24,26,28,31,33,36,44,52,53,57,67,81,88

1mA

+3VS
@ISP SR6202 1 2 0Ohm
C6206 10UF/6.3V
GND

+3VS_TPM
C6202 0.1UF/6.3V
C6203 0.1UF/6.3V
C6204 0.1UF/6.3V
C6205 0.1UF/6.3V

U6200 @

28	LPCPD#	XOR_OUT/SDA/GPIO0	1
27	SERIRQ	GPIO1/SCL	2
26	LAD0/MISO	NC1	3
25	GND4	GND1	4
24	VDD3	VSB	5
23	LAD1/MOSI	GPX/GPIO2	6
22	LFRAME#/SCS#	PP	7
21	LCLK/SCLK	TEST	8
20	LAD2/SPI_IRQ#	GPIO3/BADD	9
19	VDD2	VDD1	10
18	GND3	GND2	11
17	LAD3	NC2	12
16	LRESET#/SPI_RST#/SRESET#	NC3	13
15	CLKRUN#/GPIO4/SINT#	RESERVED	14

NPCT650AAAWX

22 LPCPD#
22,30 INT_SERIRQ
22,30,44 LPC_AD0
22,30,44 LPC_AD1
22,30,44 LPC_FRAME#
22 CLKOUT_LPC1_CLK
22,30,44 LPC_AD2
22,30,44 LPC_AD3
24,30,31,51 PLTRST#
22,30 PM_CLKRUN#

GND
GND

0.5A

+3VSUS_TPM
@ISP SR6201 1 2 0Ohm
+3VSUS
C6200 0.1UF/6.3V
C6201 10UF/6.3V
GND

<Variant Name>

PEGATRON Title : TPM

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
Custom	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 62 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 63 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 64 of 101

PEGATRON

Title : DDR3 TERMINATION A&B

Pegatron Corp.

Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 65 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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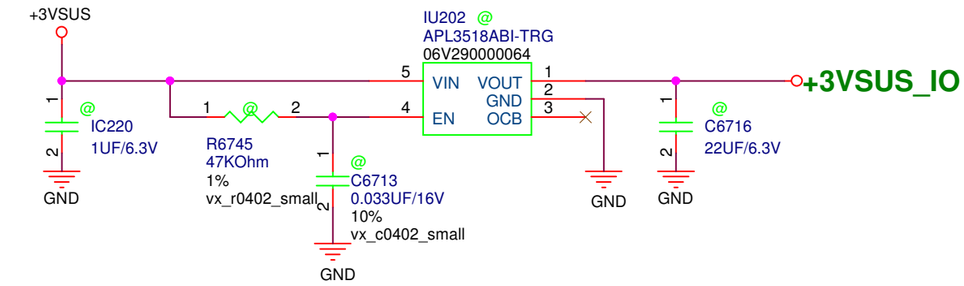
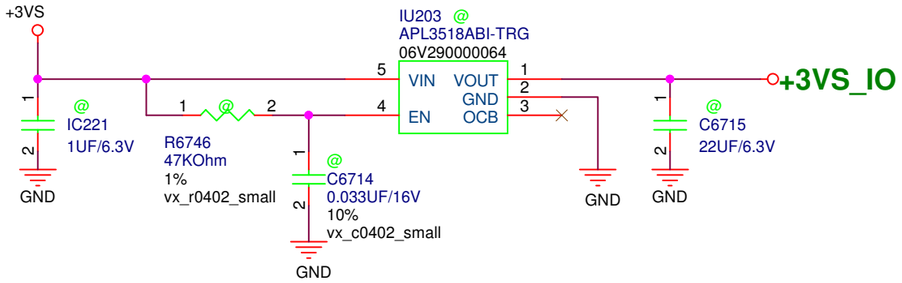
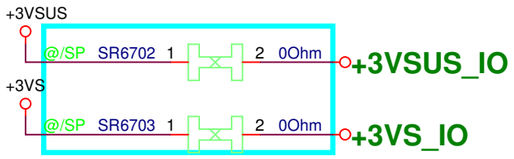
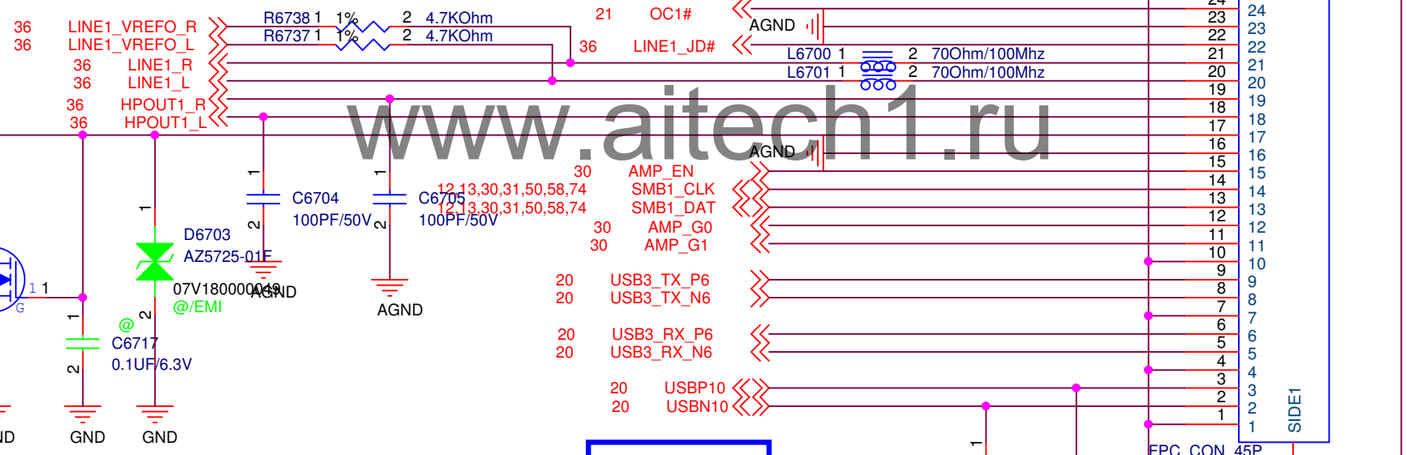


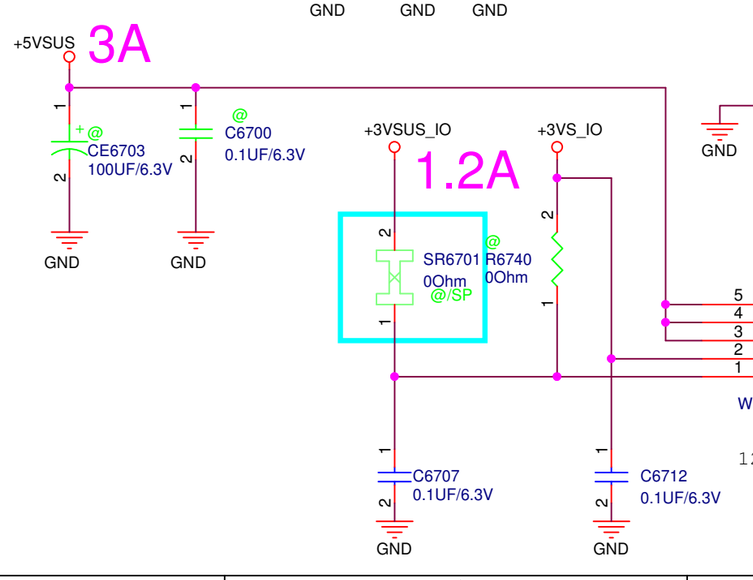
+3VSUS 7,11,12,21,22,23,24,26,28,31,33,36,44,52,53,57,62,81,88,92
+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,70,91,92
+5VSUS 12,36,37,45,52,55,56,57,81







MB Connector side(40pin)	
40	GND
39	GND
38	USB3_DB_TXP1
37	USB3_DB_TXN1
36	GND
35	USB3_DB_RXP1
34	USB3_DB_RXN1
33	GND
32	USB_DB_PN1_R
31	USB_DB_PP1_R
30	GND
29	USB3_DB_TXP2
28	USB3_DB_TXN2
27	GND
26	USB3_DB_RXP2
25	USB3_DB_RXN2
24	GND
23	USB_DB_PN2_R
22	USB_DB_PP2_R
21	GND
20	USB_EN#/EN
19	USB_OC#
18	HPOUT1_JD_MIC
17	LINE1_R
16	LINE1_L
15	AGND
14	HPOUT1_R_JACK
13	HPOUT1_L_JACK
12	HPOUT1_JD_AUDIO
11	GND
10	SD_SS_RX+
9	SD_SS_RX-
8	GND
7	SD_SS_TX+
6	SD_SS_TX-
5	GND
4	SD_DP
3	SD_DM
2	GND
1	GND



20160329 RFQ Kai
Change U5500, U5502, U6701
from 07V220000008 to 07V220000032

MB Connector side(5pin)	
1	+3VS_DB
2	+3VS_DB
3	+5V_POWER
4	+5V_POWER
5	+5V_POWER

PEGATRON Title : IO BOARD CON
Pegatron Corp. Engineer: Kai_Shen
Size: Custom | Project Name: P7RCR | Rev: R1.0
Date: Monday, October 17, 2016 | Sheet 67 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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H33 @
ST335CB315D118
S1V4YRSCSZ00
GND

H34 @
ST335CB315D118
S1V4YRSCSZ00
GND

H36 @
ST335CB315D118
S1V4YRSCSZ00
GND

H31 @
CT276B315D118
S1V2YHCCMZ00
GND

H54 @
CT276B315D118
S1V2YHCCMZ00
GND

H53 @
CT276B315D118
S1V2YHCCMZ00
GND

H56 @
CT276B315D118
S1V2YHCCMZ00
GND

H70 @
CT276B315D118
S1V2YHCCMZ00
GND

H71 @
CT276B315D118
S1V2YHCCMZ00
GND

H11 @
C138D118
GND

H21 @
RT335X350CBD118
GND

H32 @
RT335X315B315D118
GND

H35 @
RT335X315B315D118
GND

H51 @
CT276B315D118
S1V2YHCCMZ00
GND

H52 @
CT276B315D118
S1V2YHCCMZ00
GND

H55 @
CT276B315D118
S1V2YHCCMZ00
GND

20160517 WS Kai
unomunt for ME request
retimate for remove parts after B-build

CPU NUT

H61
CT256BD146

H64
CT256BD146

H66
CT256BD146

GND

GPU NUT

H68
CT256B256D130

H69
CT256B256D130

H60
CT256B256D130

H63
CT256B256D130

GND

CLIP

@/ME
U6901
ANT_CLIP_PAD
GND

@/ME
U6902
ANT_CLIP_PAD
GND

H6901 @
O122X102DO122X102N

H6902 @
C102D102N

H6903 @
O122X102DO122X102N

WIFI NUT

H62
CT256BD146
GND

SSD NUT

H65
CT256BD146
GND

<Variant Name>

PEGATRON Title : Screw hole

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A4	P7RCR	R1.0

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PCI-Express Gen3 x 16 Interface

R1.01-2012/09/26:add C9972 220pf "NI" for GPU "PCIE_RST#"
R1.01-2012/09/28: For GPU PCIE_WAKE#,Add NR132 0ohm for switch.

+1V8_AON
+1V8_MAIN
PEX_VDD
+3VS

+1V8_AON 57,72,74,75,76,77,78,79,86,89,97
+1V8_MAIN 57,71,72,74,75,91
PEX_VDD 57,72,96
+3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,91,92

24 N17_REST_BACKUP#
11,24,33,50,53 PLTRST#_BUF
@/SP SR7001 1 2 NB_R0402_5MIL_SMALL
GND
U7002 SN74LVC1G08DCKR
PEX_RST#_R
R70051 /0 ohm 2 0Ohm
R7004 0Ohm
R7006 100KOhm
U7001B UM6K1NG1DTN
74 SYS_PEX_RST_MON#
74 GPIO23_GPU_PEX_RST_HOLD
U7003 @ SN74LVC1G08DCKR
+3VS
+1V8_MAIN
+1V8_AON
R7007 100KOhm
U7001A UM6K1NG1DTN
R7001 10KOhm
74 PEX_RST#
PEX_RST#
24 PEX_CLKREQ#
PEX_CLKREQ#_Q
25 PCIE_CLK_P_GPU
25 PCIE_CLK_N_GPU

U7000A
1/23 PCI_EXPRESS

6	EXP_RXP0							BK26	PEX_RX0
6	EXP_RXN0							BL26	PEX_RX0_N
6	EXP_TXP0	X7R/+/-10%	C7004	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP0_C	BM26 PEX_REFCLK
6	EXP_TXN0	X7R/+/-10%	C7014	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN0_C	BM27 PEX_REFCLK_N
6	EXP_RXP1							BG26	PEX_TX0
6	EXP_RXN1							BH26	PEX_TX0_N
6	EXP_TXP1	X7R/+/-10%	C7015	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP1_C	BK29 PEX_RX1
6	EXP_TXN1	X7R/+/-10%	C7005	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN1_C	BL29 PEX_RX1_N
6	EXP_RXP2							BF27	PEX_TX2
6	EXP_RXN2							BG27	PEX_TX2_N
6	EXP_TXP2	X7R/+/-10%	C7009	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP2_C	BM29 PEX_RX2
6	EXP_TXN2	X7R/+/-10%	C7010	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN2_C	BM30 PEX_RX2_N
6	EXP_RXP3							BG29	PEX_TX3
6	EXP_RXN3							BH29	PEX_TX3_N
6	EXP_TXP3	X7R/+/-10%	C7020	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP3_C	BL30 PEX_RX3
6	EXP_TXN3	X7R/+/-10%	C7021	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN3_C	BK30 PEX_RX3_N
6	EXP_RXP4							BF29	PEX_TX4
6	EXP_RXN4							BE29	PEX_TX4_N
6	EXP_TXP4	X7R/+/-10%	C7022	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP4_C	BK32 PEX_RX4
6	EXP_TXN4	X7R/+/-10%	C7023	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN4_C	BL32 PEX_RX4_N
6	EXP_RXP5							BF30	PEX_TX5
6	EXP_RXN5							BG30	PEX_TX5_N
6	EXP_TXP5	X7R/+/-10%	C7024	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP5_C	BM32 PEX_RX5
6	EXP_TXN5	X7R/+/-10%	C7025	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN5_C	BM33 PEX_RX5_N
6	EXP_RXP6							BG32	PEX_TX6
6	EXP_RXN6							BH32	PEX_TX6_N
6	EXP_TXP6	X7R/+/-10%	C7029	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP6_C	BL33 PEX_RX6
6	EXP_TXN6	X7R/+/-10%	C7030	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN6_C	BK33 PEX_RX6_N
6	EXP_RXP7							BF32	PEX_TX7
6	EXP_RXN7							BE32	PEX_TX7_N
6	EXP_TXP7	X7R/+/-10%	C7031	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP7_C	BK35 PEX_RX7
6	EXP_TXN7	X7R/+/-10%	C7032	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN7_C	BL35 PEX_RX7_N
6	EXP_RXP8							BF33	PEX_TX8
6	EXP_RXN8							BG33	PEX_TX8_N
6	EXP_TXP8	X7R/+/-10%	C7033	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP8_C	BM35 PEX_RX8
6	EXP_TXN8	X7R/+/-10%	C7034	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN8_C	BM36 PEX_RX8_N
6	EXP_RXP9							BG35	PEX_TX9
6	EXP_RXN9							BH35	PEX_TX9_N
6	EXP_TXP9	X7R/+/-10%	C7035	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP9_C	BL36 PEX_RX9
6	EXP_TXN9	X7R/+/-10%	C7036	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN9_C	BK36 PEX_RX9_N
6	EXP_RXP10							BF35	PEX_TX10
6	EXP_RXN10							BE35	PEX_TX10_N
6	EXP_TXP10	X7R/+/-10%	C7037	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP10_C	BK38 PEX_RX10
6	EXP_TXN10	X7R/+/-10%	C7038	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN10_C	BL38 PEX_RX10_N
6	EXP_RXP11							BF36	PEX_TX11
6	EXP_RXN11							BG36	PEX_TX11_N
6	EXP_TXP11	X7R/+/-10%	C7039	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP11_C	BM38 PEX_RX11
6	EXP_TXN11	X7R/+/-10%	C7040	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN11_C	BM39 PEX_RX11_N
6	EXP_RXP12							BG38	PEX_TX12
6	EXP_RXN12							BH38	PEX_TX12_N
6	EXP_TXP12	X7R/+/-10%	C7041	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP12_C	BL39 PEX_RX12
6	EXP_TXN12	X7R/+/-10%	C7042	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN12_C	BK39 PEX_RX12_N
6	EXP_RXP13							BF38	PEX_TX13
6	EXP_RXN13							BE38	PEX_TX13_N
6	EXP_TXP13	X7R/+/-10%	C7043	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP13_C	BK41 PEX_RX13
6	EXP_TXN13	X7R/+/-10%	C7044	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN13_C	BL41 PEX_RX13_N
6	EXP_RXP14							BF39	PEX_TX14
6	EXP_RXN14							BG39	PEX_TX14_N
6	EXP_TXP14	X7R/+/-10%	C7049	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP14_C	BM41 PEX_RX14
6	EXP_TXN14	X7R/+/-10%	C7050	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN14_C	BM42 PEX_RX14_N
6	EXP_RXP15							BH41	PEX_TX15
6	EXP_RXN15							BG41	PEX_TX15_N
6	EXP_TXP15	X7R/+/-10%	C7051	2	1	0.22UF/16V	vx_c0402_small	EXP_TXP15_C	BL42 PEX_RX15
6	EXP_TXN15	X7R/+/-10%	C7052	2	1	0.22UF/16V	vx_c0402_small	EXP_TXN15_C	BK42 PEX_RX15_N

N17E-G3

PEX_DVDD_1 BB33
PEX_DVDD_2 BB35
PEX_DVDD_3 BB36
PEX_DVDD_4 BC33
PEX_DVDD_5 BC35
PEX_DVDD_6 BC36
PEX_DVDD_7 BD33
PEX_DVDD_8 BD36
PEX_DVDD

1uFx4, 4.7uFx2, 10uFx1, 22uFx2
PLACE UNDER GPU
285mA
C7011 1uF/6.3V X7R/+/-10% vx_c0402_small
C7000 1uF/6.3V X7R/+/-10% vx_c0402_small
C7003 1uF/6.3V X7R/+/-10% vx_c0402_small
C7007 1uF/6.3V X7R/+/-10% vx_c0402_small
PLACE NEAR GPU
C7001 4.7uF/16V X6S/+/-10% vx_c0603_small
C7019 4.7uF/16V X6S/+/-10% vx_c0603_small
PLACE between PS and GPU
C7002 10uF/25V X6S/+/-10% vx_c0805_h57_small_t02
C7012 10uF/25V X6S/+/-10% vx_c0805_h57_small_t02
C7054 22UF/6.3V X6S/+/-20% vx_c0805_h55_small
PEX_VDD
+1V8_MAIN
GND

PEX_HVDD_1 BB26
PEX_HVDD_2 BB27
PEX_HVDD_3 BB29
PEX_HVDD_4 BB32
PEX_HVDD_5 BC26
PEX_HVDD_6 BC27
PEX_HVDD_7 BC29
PEX_HVDD_8 BC30
PEX_HVDD_9 BC32
PEX_HVDD_10 BD27
PEX_HVDD_11 BD30
PEX_HVDD

1uFx4, 4.7uFx2, 10uFx2, 22uFx2
750mA
C7016 1uF/6.3V X7R/+/-10% vx_c0402_small
C7017 1uF/6.3V X7R/+/-10% vx_c0402_small
C7008 1uF/6.3V X7R/+/-10% vx_c0402_small
C7013 1uF/6.3V X7R/+/-10% vx_c0402_small
C7006 4.7uF/16V X6S/+/-10% vx_c0603_small
C7053 4.7uF/16V X6S/+/-10% vx_c0603_small
C7018 10uF/25V X6S/+/-10% vx_c0805_h57_small_t02
C7055 22UF/6.3V X6S/+/-20% vx_c0805_h55_small
GND

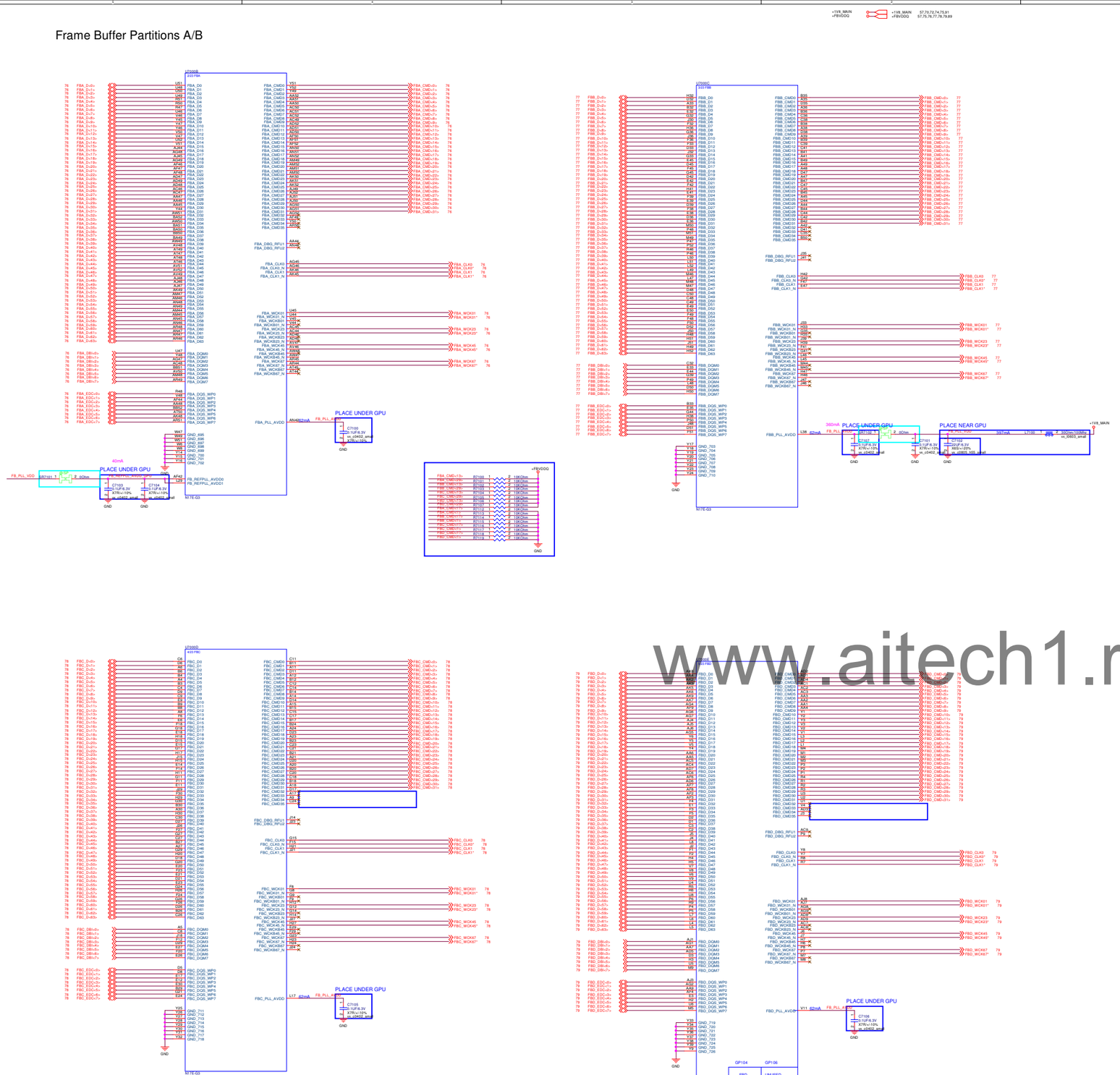
PLACE UNDER GPU
+1V8_MAIN
BB30 PEX_PLL_HVDD_SVDD
PEX_PLL_HVDD
35mA
@/SP SR7002 1 2 0Ohm
C7026 0.1UF/6.3V X7R/+/-10% vx_c0402_small
GND

BL44 PEX_TERMP
R7009 2.49KOhm 1%
PEX_TERMP
GND

<Variant Name>

PEGATRON Title : NVDIA/PCIE
Pegatron Corp. Engineer: Kai_Shen
Size C | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 70 of 101

Frame Buffer Partitions A/B



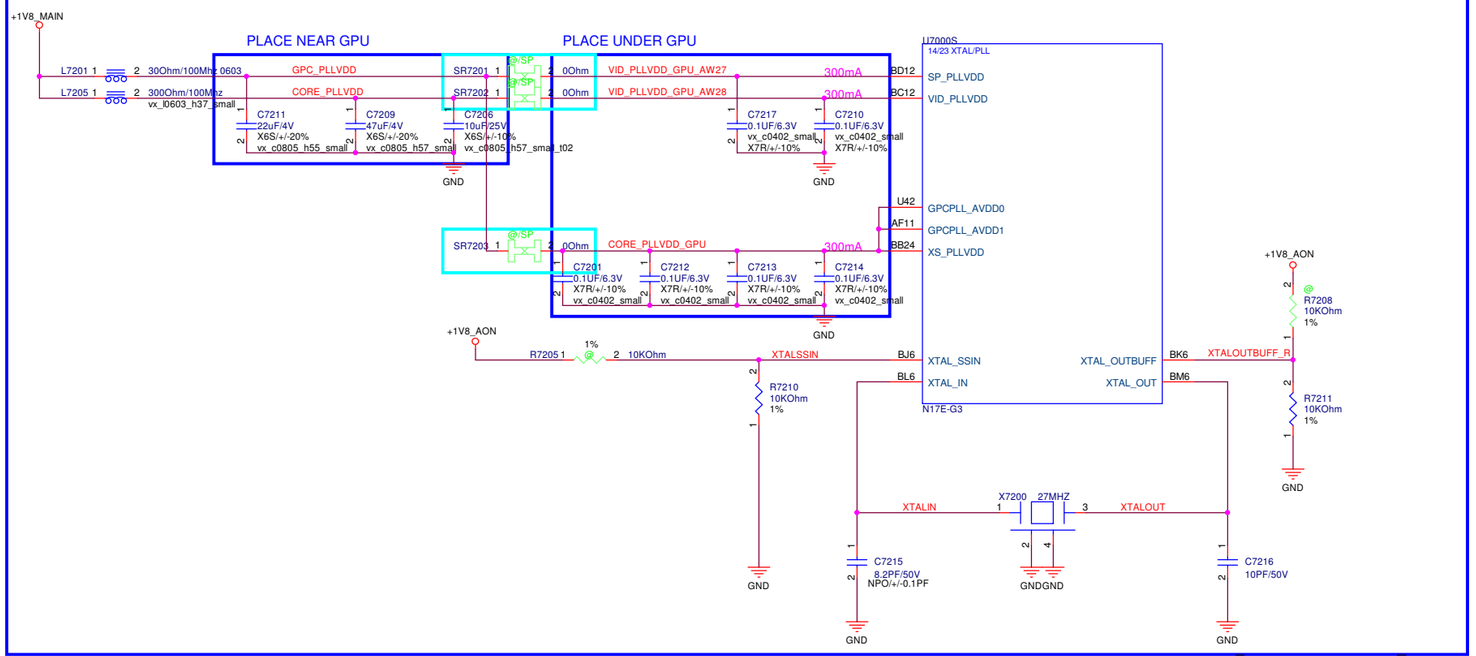
IFP_IOVDD: 1.22A

+1V8_MAIN
+1V8_AON
+3V3_MAIN
PEX_VDD
IFP_IOVDD

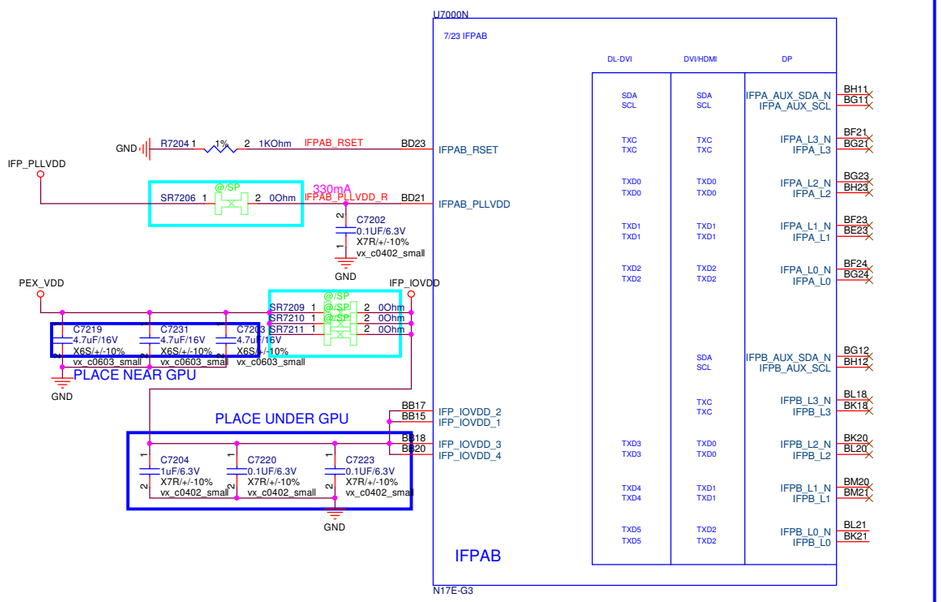
+1V8_MAIN 57,70,71,74,75,91
+1V8_AON 57,70,74,75,76,77,78,79,86,89,97
+3V3_MAIN 13,14,57,74,87,91,97
PEX_VDD 57,70,96
IFP_IOVDD 73

20160419 RFQ Kai
Follor CRB
Add R7202, R7203, R7206, R7207, R7209, R7215, R7222, R7223, R7224

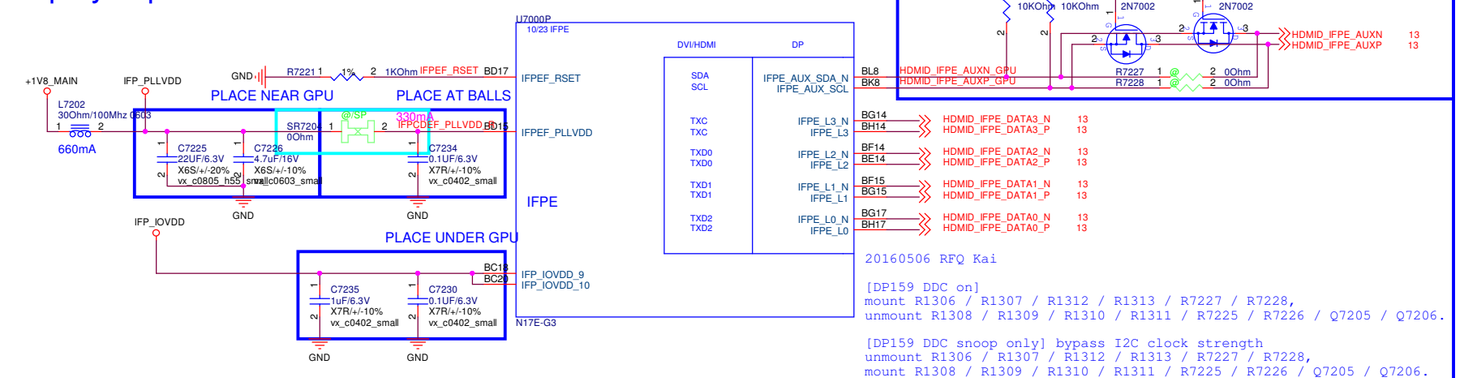
GPU Xtal



Display export - N/A



Display export - HDMI connector

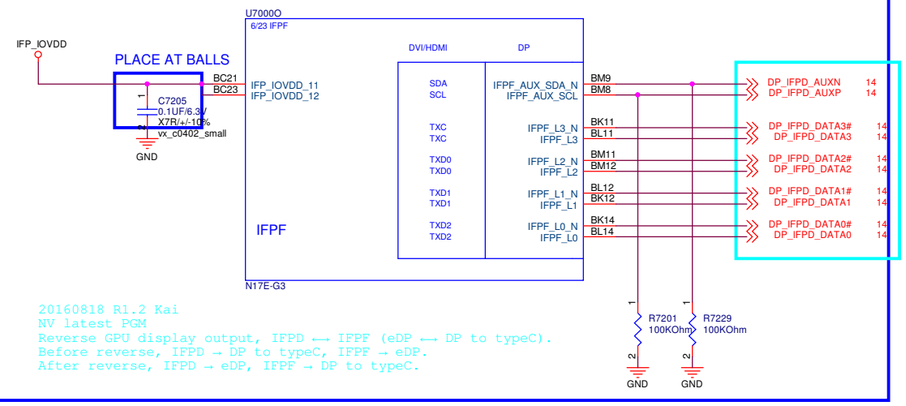


20160506 RFQ Kai

[DP159 DDC on]
mount R1306 / R1307 / R1312 / R1313 / R7227 / R7228,
unmount R1308 / R1309 / R1310 / R1311 / R7225 / R7226 / Q7205 / Q7206.

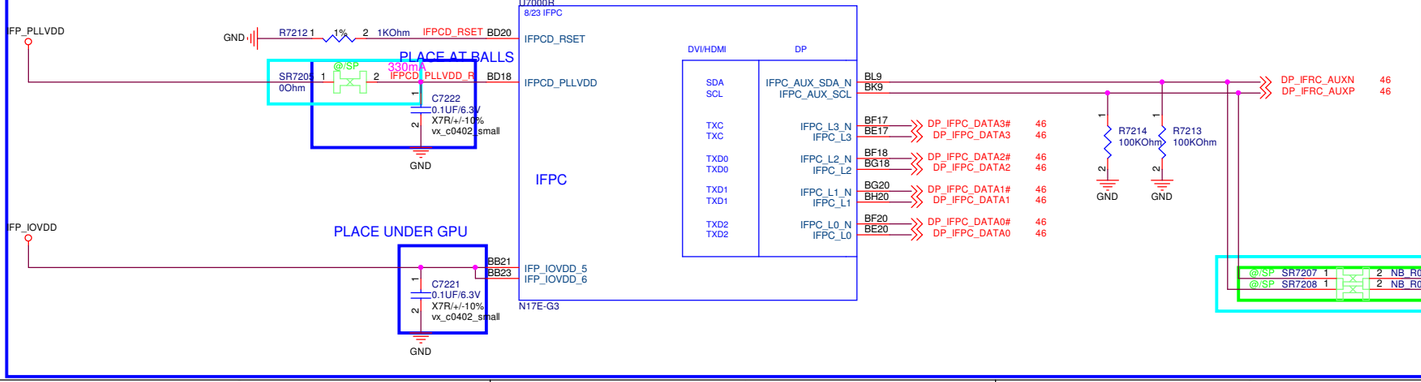
[DP159 DDC snoop only] bypass I2C clock strength
unmount R1306 / R1307 / R1312 / R1313 / R7227 / R7228,
mount R1308 / R1309 / R1310 / R1311 / R7225 / R7226 / Q7205 / Q7206.

Display export - DP to Type C connector



20160818 R1.2 Kai
NV latest PGM
Reverse GPU display output, IFPD ⟷ IFPF (eDP ⟷ DP to typeC).
Before reverse, IFPD → DP to typeC, IFPF → eDP.
After reverse, IFPD → eDP, IFPF → DP to typeC.

Display export - DP connector

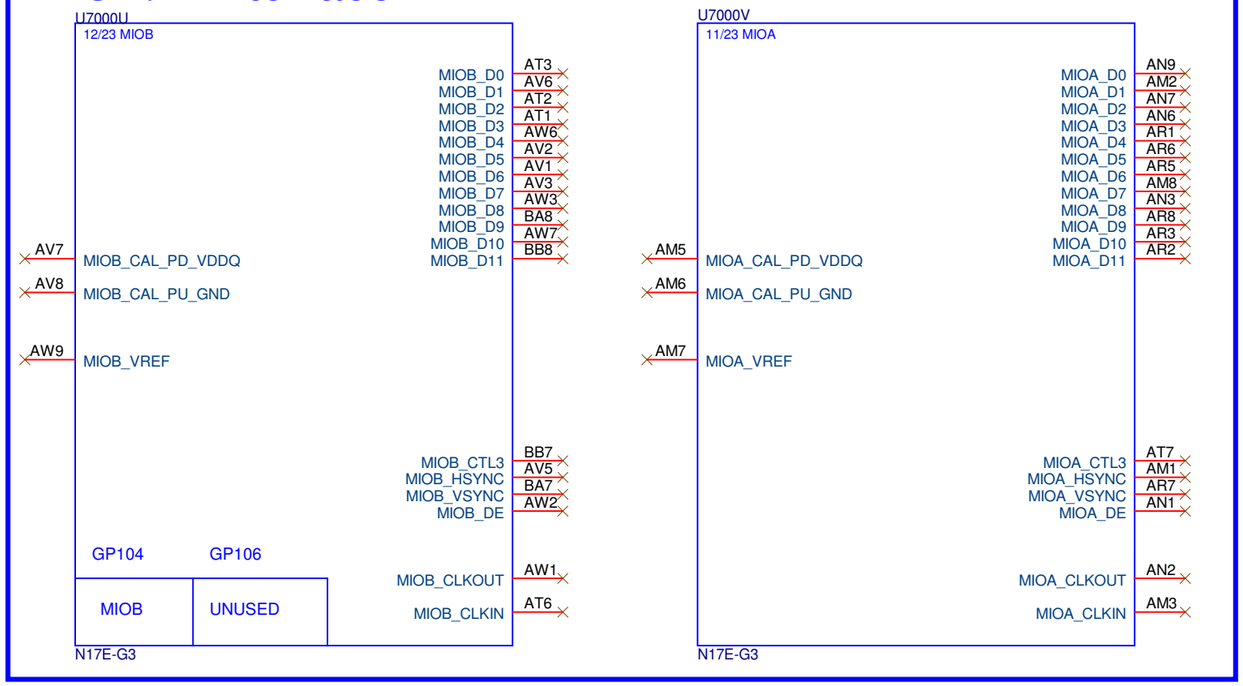


20160616 R1.1 Kai
Unmount for change DP repeater solutioon
20160622 R1.1 Kai
Mount/add circuit for DP++, change Q7201 from 07V040000001 to 07V040000035

<Variant Name>

PEGATRON Title : NVDIA/DACA/XTAL
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 72 of 101

MIOA/B interface

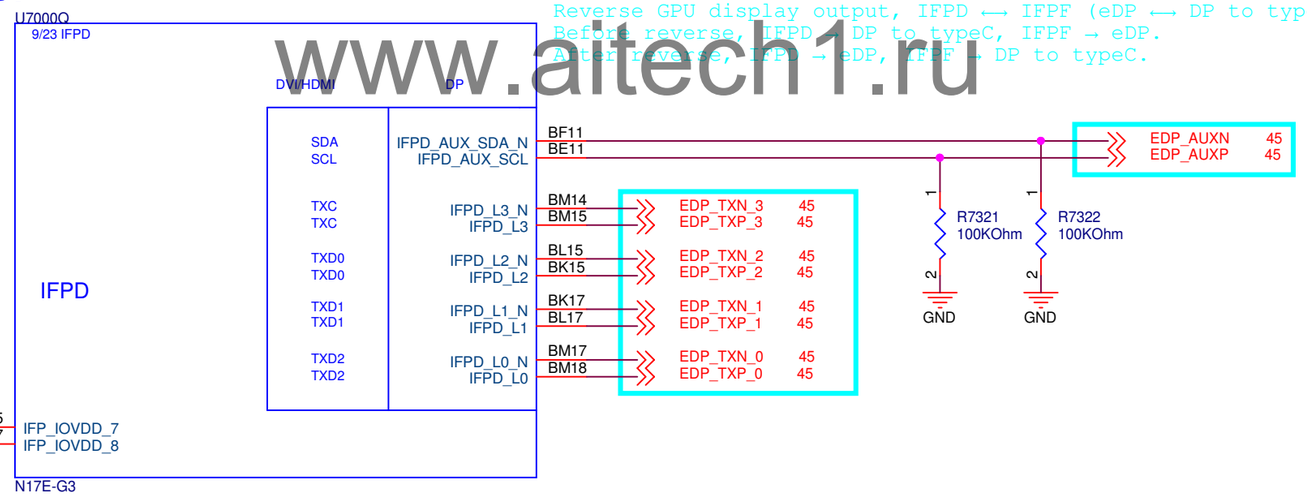


PEX_VDD
IFP_IOVDD

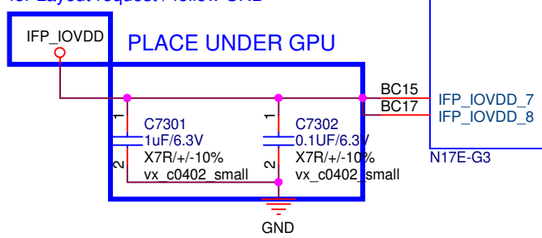
PEX_VDD 57,70,72,96
IFP_IOVDD 72

Display export - eDP to panel

20160818 R1.2 Kai
NV latest PGM
Reverse GPU display output, IFPD ⟷ IFPF (eDP ⟷ DP to typeC).
Before reverse, IFPD → DP to typeC, IFPF → eDP.
After reverse, IFPD → eDP, IFPF → DP to typeC.



20160329 RFQ Kai
Combine power PLLVDD, IOVDD
for Layout request / follow CRB



<Variant Name>

PEGATRON	Title : NVDIA/Multi-use IO	
Pegatron Corp.	Engineer: Kai_Shen	
Size: B	Project Name: P7RCR	Rev: R1.0
Date: Monday, October 17, 2016	Sheet 73 of 101	

VBIOS ROM / Straping

20160315 RFQ Kai
DG 5.2.2 Strap Definitions
VRAM Micron GDDR5X / eDP at IFPF with total 4 display links / ...

20160627 R11 Kai
Modify staping net

20160318 RFQ Kai
DG 6.2.1

GPIO

20160516 WS Kai

20160520 WS Kai
Sync with Enzo_20160519

GPIO PU/PD (1V8)

20160315 RFQ Kai
DG 16.2.1 JTAG support

20160420 RFQ Kai
Reserve GPIO29

20160316 RFQ Kai
Add level shift for 1.8V

GPIO1_GC6FBEN

20160520 WS Kai
Sync with Enzo_20160519

GPIO2_GPU_EVENT#

GPIO7_BL_PWM_GPU
Output pull high at eDP connector side

GPIO11_PPEN_PWRBRK
Output pull high at eDP connector side

20160627 R11 Kai
change from +3V3_MAIN to +3VO
for GC6

20160408 RFQ Kai
Replaced VX from 07V040000156 to 07V040000186
20160511 WS Kai
Change optional to /G-SYNC, R7452 / Q7406.
Change optional to /NVSS, R7452 / Q7406.
20160627 R11 Kai
Correct Q7406 direction

GPIO13_BLEN_FAN_TACH
Output pull high at eDP connector side

GPIO17_IFPD_HPD

GPIO18_IFPE_HPD

GPIO24_IFPF_HPD

GPIO27_IFPC_HPD

[Power On Sequence]
1. 1V8_AON
2. 1V8_MAIN
3. NV_3V3
4. NVVDD
5. NVVDDS
6. PEX_VDD
7. FBVDDQ
8. DGPU_PWRGD

[Power Off Sequence]
1. NVVDDS
2. PEX_VDD
3. NVVDD
4. FBVDDQ
5. NV_3V3
6. 1V8_MAIN
7. 1V8_AON

[NV power sequence modify note]
20160323 RFQ Kai
Add power off sequence, follow FAE request
20160520 WS Kai
Sync with Enzo_20160519
20160621 R11 Kai
Modify for GC6
20160629 R11 Kai
mount R74109, unmount R74110

GPIO8
MEM_VDD_CTL

20160503 RFQ kai
Install R7460 for 1.5V Vboot
Install R7459 for 1.35V Vboot

+FBVDDQ	MEM_VDD_CTL
1.55V (GDDR5)	H
1.35V (GDDR5X)	L

1.1V8_AON

2. 1V8_MAIN

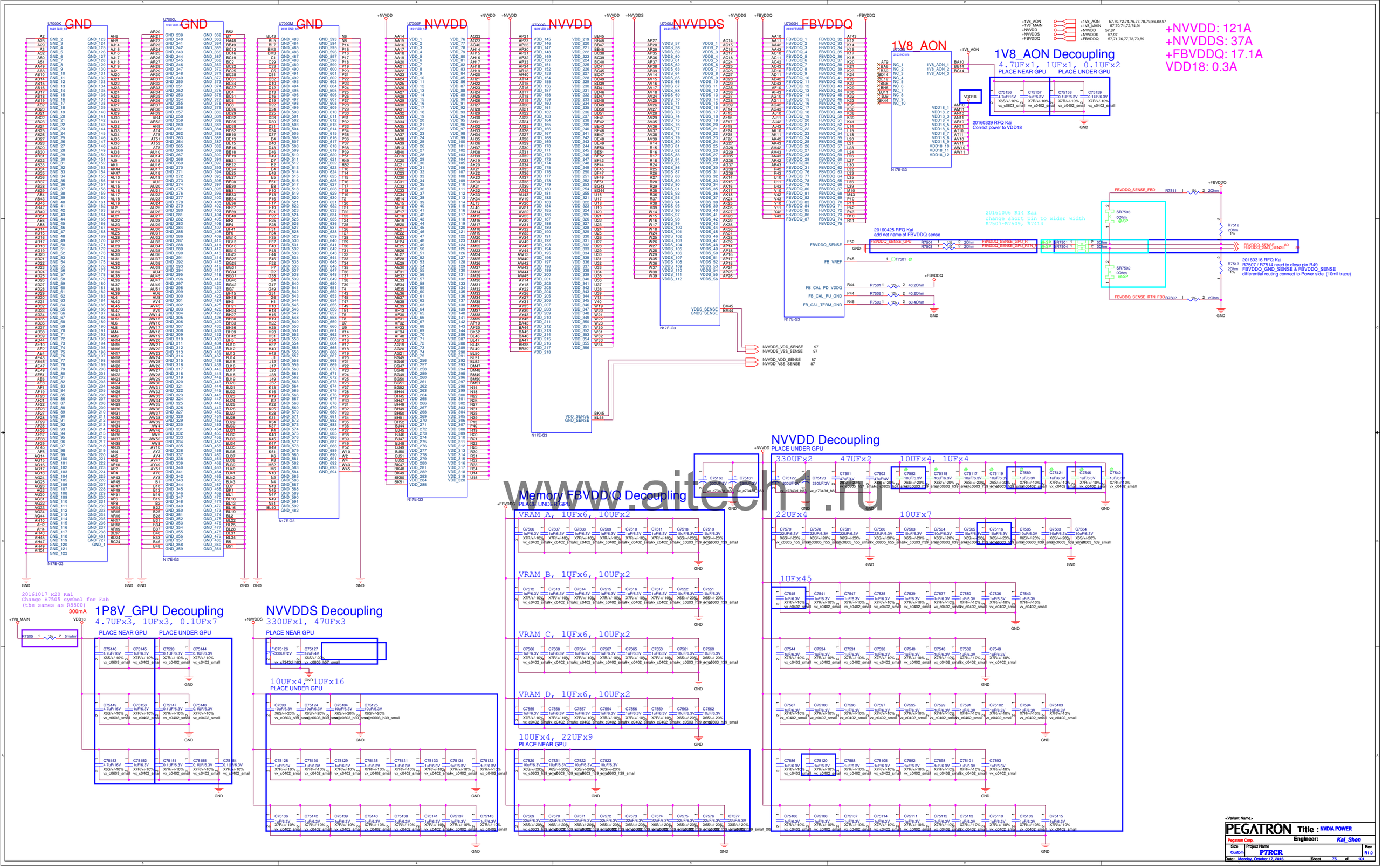
3. 3V3_MAIN

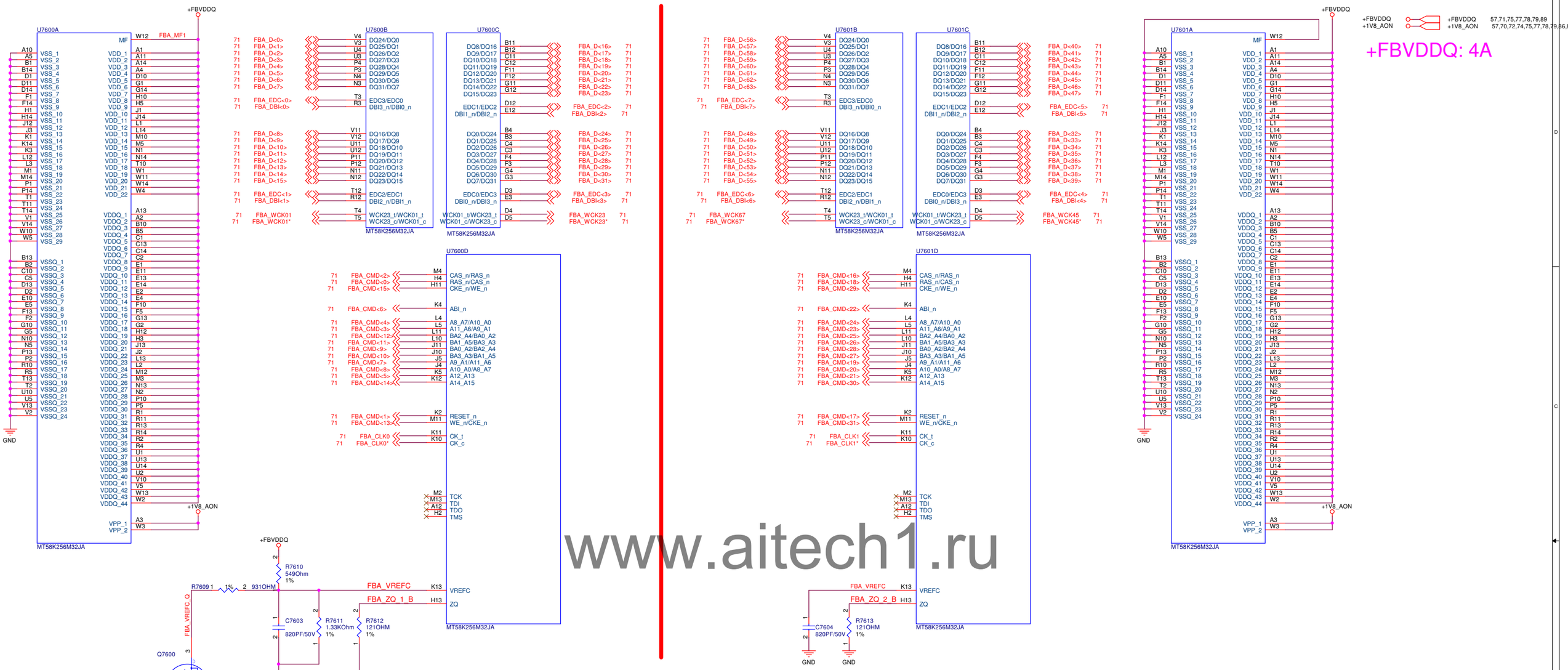
4. NVVDD

5. NVVDDS

PEGATRON DT-MB RESTRICTED SECRET
<Variant Name>

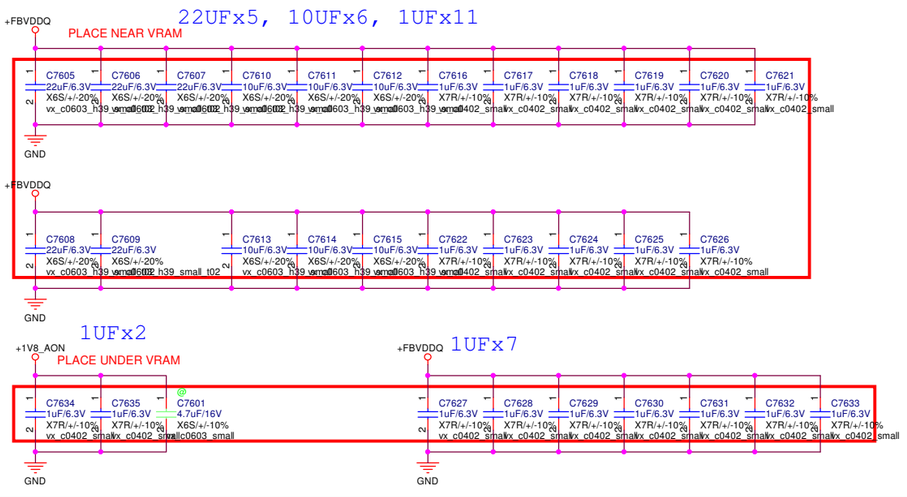
PEGATRON Title : NVIDIA MISC/GPIO
Pegatron Corp. Engineer: Kai_Shen
Size D | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 Sheet 74 of 101

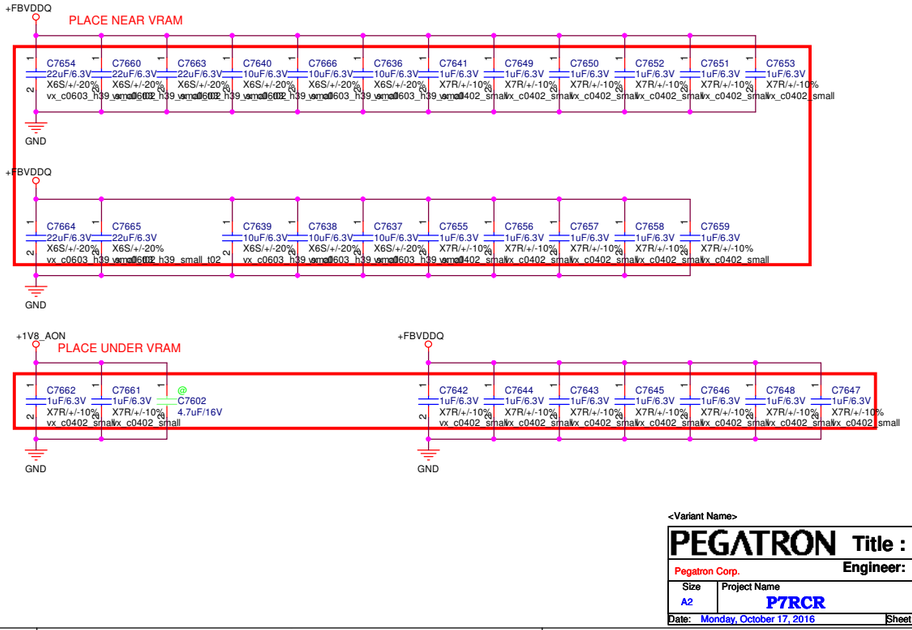

GND
GND
GND
+NVVDD
NVVDD
+NVVDD
+NVVDD
+NVVDDS
NVVDDS
+NVVDDS
+FBVDDQ
FBVDDQ
+FBVDDQ
1V8 AON
+1V8_AON
1V8_AON Decoupling
4.7UFx1, 1UFx1, 0.1UFx2
PLACE NEAR GPU
PLACE UNDER GPU
+1V8_AON 57,70,72,74,76,77,78,79,86,89,97
+1V8_MAIN 57,70,71,72,74,91
+NVVDD 57,87
+NVVDDS 57,97
+FBVDDQ 57,71,76,77,78,79,89
+NVVDD: 121A
+NVVDDS: 37A
+FBVDDQ: 17.1A
VDD18: 0.3A
20160329 RFQ Kai
Correct power to VDD18
20161006 R14 Kai
change schematic pin to wider width
R7507~R7509, R7414
20160425 RFQ Kai
add net name of FBVDDQ sense
FBVDDQ_SENSE_FBD
FBVDDQ_SENSE_RTN_FBD
FBVDDQ_SENSE
FBVDDQ_GND_SENSE
20160316 RFQ Kai
R7507 / R7514 need to close pin R49
FBVDDQ_SENSE & FBVDDQ_SENSE
differential routing connect to Power side. (10mil trace)
NVVDD Decoupling
PLACE UNDER GPU
330UFx2
47UFx2
10UFx4, 1UFx4
22UFx4
10UFx7
1UFx45
Memory FBVDD/Q Decoupling
+FBVDDQ
PLACE UNDER GPU
VRAM_A, 1UFx6, 10UFx2
VRAM_B, 1UFx6, 10UFx2
VRAM_C, 1UFx6, 10UFx2
VRAM_D, 1UFx6, 10UFx2
10UFx4, 22UFx9
PLACE NEAR GPU
20161017 R20 Kai
Change R7505 symbol for Fab
(the sames as R8800)
300mA
1P8V_GPU Decoupling
4.7UFx3, 1UFx3, 0.1UFx7
PLACE NEAR GPU
PLACE UNDER GPU
NVVDDS Decoupling
330UFx1, 47UFx3
PLACE NEAR GPU
10UFx4, 1UFx16
PLACE UNDER GPU
www.aitech1.ru
<Variant Name>
PEGATRON
Title : NVDIA POWER
Pegatron Corp.
Engineer: Kai_Shen
Size: Custom
Project Name: P7RCR
Rev: R1.0
Date: Monday, October 17, 2016
Sheet 75 of 101



Memory Upper Partition A

	LOWER 0..31	UPPER 32..63
CMD30	RAS*	RAS*
CMD15	CAS*	CAS*
CMD13	WE*	WE*
CMD0	CS0*	N/A
CMD1	N/A	N/A
CMD16	N/A	CS0*
CMD17	N/A	N/A
CMD9	A0	A0
CMD11	A1	A1
CMD8	A2	A2
CMD25	A3	A3
CMD10	A4	A4
CMD24	A5	A5
CMD22	A6	A6
CMD7	A7	A7
CMD21	A8	A8
CMD6	A9	A9
CMD29	A10	A10
CMD23	A11	A11
CMD28	A12	A12
CMD20	A13	A13
CMD4	A14	A14
CMD14	A15	A15
CMD12	BA0	BA0
CMD27	BA1	BA1
CMD26	BA2	BA2
CMD3	CKE	N/A
CMD19	N/A	CKE
CMD2	ODT	N/A
CMD18	N/A	ODT
CMD5	RST	RST





<Variant Name>

PEGATRON Corp. Title : GDDR5 X16 XCELL1_TOP

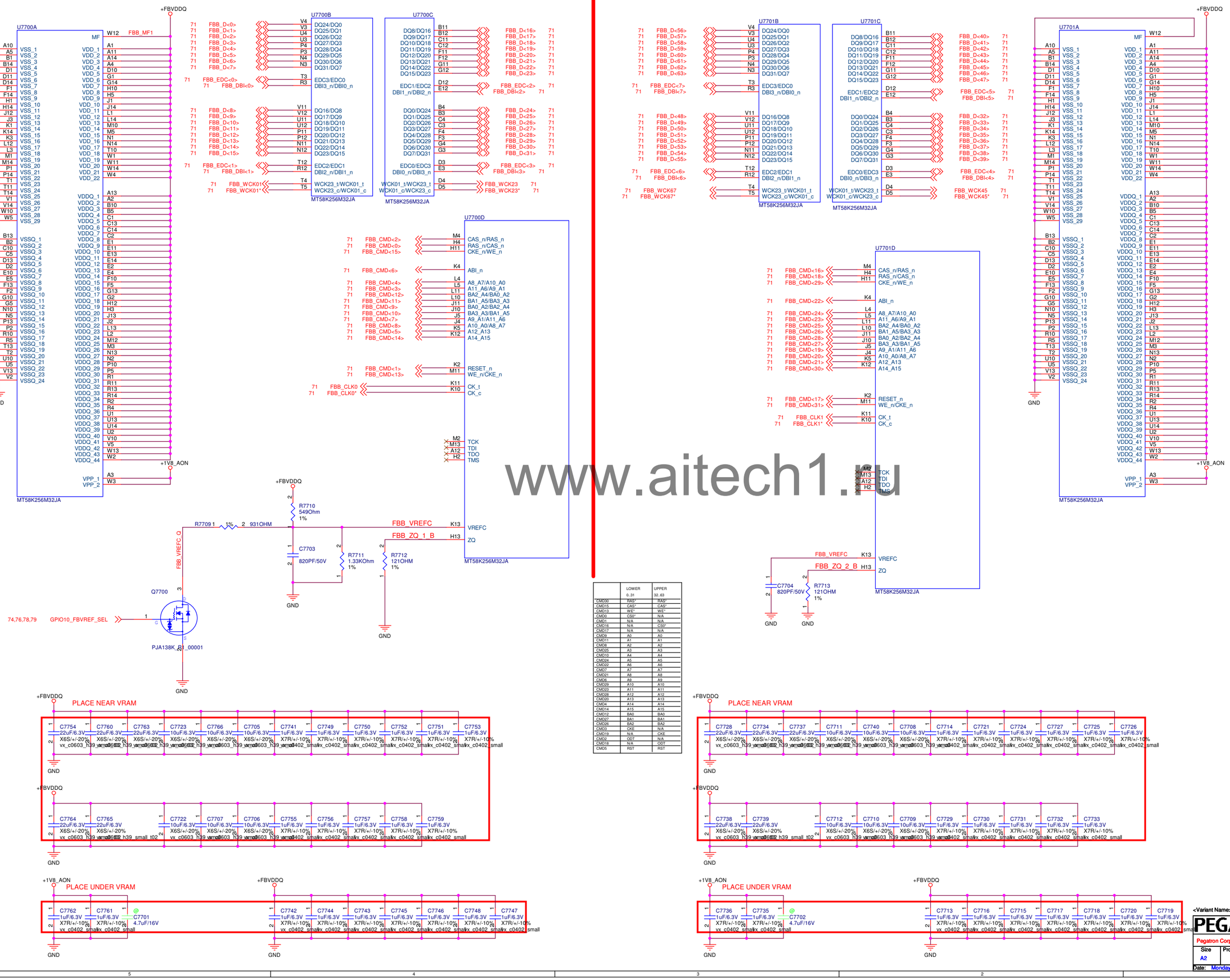
Engineer: Kai_Shen

Size	Project Name	Rev
A2	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 76 of 101

+FBVDDQ: 4A

+FBVDDQ +1V8_AON 57,71,75,76,78,79,89 57,70,72,74,75,76,78,79,86,89,



	LOWER 0..31	UPPER 32..63
CMD00	RAS*	RAS*
CMD15	CAS*	CAS*
CMD13	WE*	WE*
CMD0	CS0*	N/A
CMD1	N/A	N/A
CMD16	N/A	CS0*
CMD17	N/A	N/A
CMD9	A0	A0
CMD11	A1	A1
CMD8	A2	A2
CMD25	A3	A3
CMD10	A4	A4
CMD24	A5	A5
CMD22	A6	A6
CMD7	A7	A7
CMD21	A8	A8
CMD6	A9	A9
CMD29	A10	A10
CMD23	A11	A11
CMD28	A12	A12
CMD20	A13	A13
CMD4	A14	A14
CMD14	A15	A15
CMD12	BA0	BA0
CMD27	BA1	BA1
CMD26	BA2	BA2
CMD3	CKE	N/A
CMD19	N/A	CKE
CMD2	ODT	N/A
CMD18	N/A	ODT
CMD5	RST	RST

<Variant Name>

PEGATRON Title : GDDR5 X16 XCELL2_TOP

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A2	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 77 of 101

20160321 RFQ Kai
Correct VRAM SWAP to follow CRB

+FBVDDQ
+1V8_AON
+FBVDDQ 57,71,75,76,77,79,89
+1V8_AON 57,70,72,74,75,76,77,79,86,85,97

+FBVDDQ: 4A

U7800A
MT58K256M32JA

U7800B
MT58K256M32JA

U7800C
MT58K256M32JA

U7800D
MT58K256M32JA

U7801A
MT58K256M32JA

U7801B
MT58K256M32JA

U7801C
MT58K256M32JA

U7801D
MT58K256M32JA

R7809 1% 2 931OHM FBC_VREFC
R7810 549Ohm
C7803 820PF/50V
R7811 1.33KOhm 1%
R7812 121OHM 1%
FBC_VREFC K13 VREFC
FBC_ZQ_1_B H13 ZQ

Q7800
74,76,77,79 GPIO10_FBVREF_SEL
PJA138K_R1_00001

FBC_VREFC K13 VREFC
FBC_ZQ_2_B H13 ZQ
C7804 820PF/50V
R7813 121OHM 1%

	LOWER 0..31	UPPER 32..63
CMD30	RAS*	RAS*
CMD15	CAS*	CAS*
CMD13	WE*	WE*
CMD0	CS0*	N/A
CMD1	N/A	N/A
CMD16	N/A	CS0*
CMD17	N/A	N/A
CMD9	A0	A0
CMD11	A1	A1
CMD8	A2	A2
CMD25	A3	A3
CMD10	A4	A4
CMD24	A5	A5
CMD22	A6	A6
CMD7	A7	A7
CMD21	A8	A8
CMD6	A9	A9
CMD29	A10	A10
CMD23	A11	A11
CMD28	A12	A12
CMD20	A13	A13
CMD4	A14	A14
CMD14	A15	A15
CMD12	BA0	BA0
CMD27	BA1	BA1
CMD26	BA2	BA2
CMD3	CKE	N/A
CMD19	N/A	CKE
CMD2	ODT	N/A
CMD18	N/A	ODT
CMD5	RST	RST

PLACE NEAR VRAM
PLACE UNDER VRAM

<Variant Name>

PEGATRON Title : GDDR5 X16 XCELL1_BOT
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 78 of 101

20160321 RFQ Kai
Correct VRAM SWAP to follow CRB

+FBVDDQ: 4A

+FBVDDQ +1V8_AON +FBVDDQ +1V8_AON 57,71,75,76,77,78,89 57,70,72,74,75,76,77,78,86,89,97

	LOWER 0..31	UPPER 32..63
CMD00	RAS*	RAS*
CMD15	CAS*	CAS*
CMD13	WE*	WE*
CMD0	CS0*	N/A
CMD1	N/A	N/A
CMD16	N/A	CS0*
CMD17	N/A	N/A
CMD9	A0	A0
CMD11	A1	A1
CMD8	A2	A2
CMD35	A3	A3
CMD10	A4	A4
CMD24	A5	A5
CMD22	A6	A6
CMD7	A7	A7
CMD21	A8	A8
CMD6	A9	A9
CMD29	A10	A10
CMD23	A11	A11
CMD28	A12	A12
CMD20	A13	A13
CMD4	A14	A14
CMD14	A15	A15
CMD12	BA0	BA0
CMD27	BA1	BA1
CMD26	BA2	BA2
CMD3	CKE	N/A
CMD19	N/A	CKE
CMD2	ODT	N/A
CMD18	N/A	ODT
CMD5	RST	RST

PEGATRON Title : GDDR5 X16 XCELL2_BOT
Pegatron Corp. Engineer: Kai_Shen
Size A2 | Project Name P7RCR | Rev R1.0
Date: Monday, October 17, 2016 | Sheet 79 of 101

+1.0VSUS

+5VS

+AC_BAT_SYS

+VCCGT

+VCCSA

+VCORE

U8000A ISL95829AHRTZ

U8000B ISL95829AHRTZ 06V9500000057

U8001A SIC631CD-T1-GE3

U8001B SIC631CD-T1-GE3

U8002A SIC631CD-T1-GE3

U8002B SIC631CD-T1-GE3

U8003A SIC631CD-T1-GE3

U8003B SIC631CD-T1-GE3

U8004A SIC631CD-T1-GE3

U8004B SIC631CD-T1-GE3

U8005 ISL9538HRI2 06Y520000016

U8006A SIC631CD-T1-GE3

U8006B SIC631CD-T1-GE3

Q8000 SISA14DN-T1-GE3

Q8001 SISA10DN-T1-GE3

2.5A

3.1A

68A

55A

1.22A

11.1A

PEGATRON Title : USB CHARGE IC

Engineer: Shrek_Tseng

Size: E | Project Name: IPPSL-CD | Rev: A00

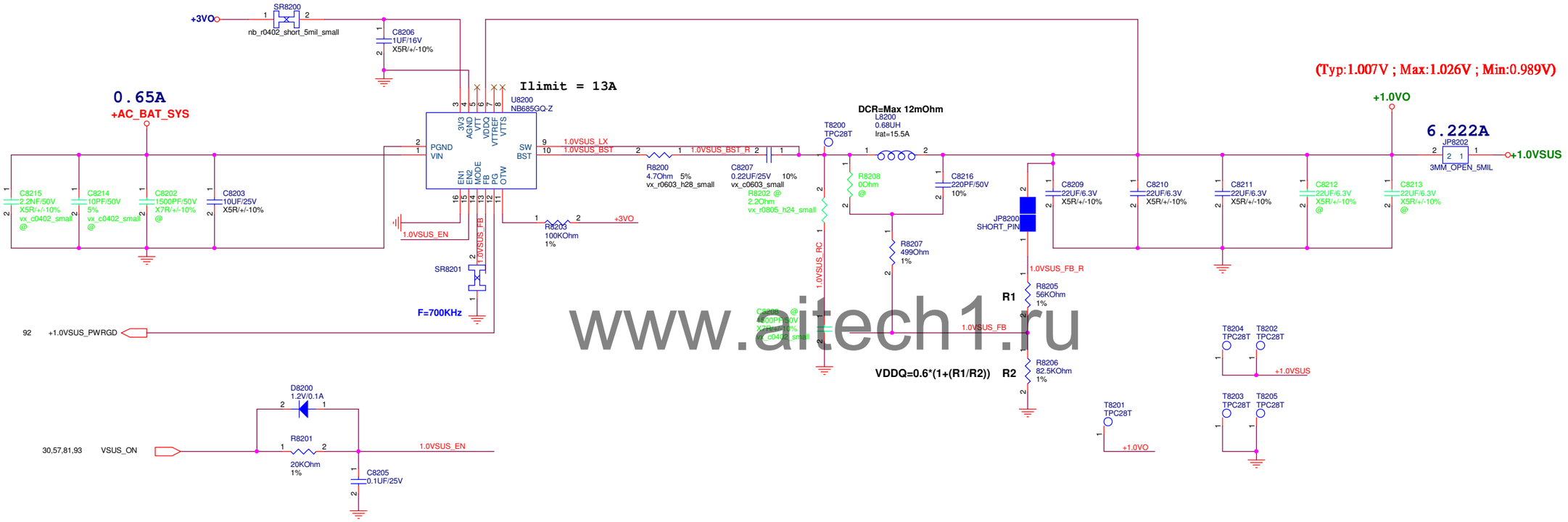
Date: Monday, October 17, 2016 | Sheet 83 of 136

+5VO & +3VO POWER SUPPLY

TPS51225C			
EN1	EN2	LDO5	LDO3
OFF	OFF	ON	ON
ON	OFF	ON	ON
OFF	ON	ON	ON
ON	ON	ON	ON

EE still need a charge pump circuit for control usage

PEGATRON	Title :	USB CHARGE IC	
Pegatron Corp.	Engineer:	Shrek_Tseng	
Size: Custom	Project Name: IPPSL-CD		Rev: A00
Date: Monday, October 17, 2016	Sheet 81 of 108		



PEGATRON	Title :	USB CHARGE IC	
Pegatron Corp.	Engineer:	Shrek_Tseng	
Size: Custom	Project Name: IPPSL-CD		Rev: A00
Date: Monday, October 17, 2016	Sheet 82 of 108		

DDR & VTT POWER SUPPLY

1.2A

+VTT_DDR

JP8301 1 2 1MM_OPEN_M1M2

+0.6VO

JP8300 SHORT_PIN 1 2

C8328 2.2NF/50V X5R/+/-10% vx_c0402_small @

C8327 10PF/50V 5% vx_c0402_small @

C8300 10UF/6.3V 20% vx_c0603_small

C8301 @ 10UF/6.3V 20% vx_c0603_small

C8302 @ 0.1UF/10V vx_c0402_small X5R/+/-20%

+V_SM_VREF_R

C8303 0.033UF/16V vx_c0402_small

DDR_VDDQ

DDR_VTTSNS

U8300A RT8231BGQW 06V950000033

VDDQ VTTREF VTTGND VTTSNS VTTGND GND2 VTT VLDOIN BOOT UGATE PHASE

VID VDD VSS PGND LGATE

SR8300 nb_r0603_short_32mil_small +1.2VO_DDR

C8308 @ 10UF/6.3V 20% vx_c0603_small

SR8301 nb_r0603_short_32mil_small DDR_BST_R

C8309 0.1UF/25V vx_c0603_small 10%

R8300 499KOhm 1% vx_r0402_small

+AC_BAT_SYS

T8300 TPC28T

92 DDR_PWRGD

DDR_FB

S3 S5 TON PGOOD

C8310 0.1UF/25V X7R/+/-10% @

F=500KHz

DDR_BST DDR_HG DDR_LX

DDR_VID DDR_VDDQ DDR_CS DDR_LG

SR8302 nb_R0402_short_20mil_small +5VO

C8318 0.1UF/10V vx_c0402_small X5R/+/-20% 1AV200000125

SR8303 nb_R0402_short_20mil_small

R8302 243KOhm 1% vx_r0402_small

R8303 @ 0Ohm vx_r0402_0ohm_small

U8300B RT8231BGQW 06V950000033

GND6 GND5 GND4 GND3

1.75A

+AC_BAT_SYS

C8304 @ 1500PF/50V vx_c0402_small X7R/+/-10%

C8305 0.1UF/25V 1AV200000045

C8306 10UF/25V X5R/+/-10%

C8307 10UF/25V X5R/+/-10%

C8324 2.2NF/50V X5R/+/-10% vx_c0402_small @

C8323 10PF/50V 5% vx_c0402_small @

Q8300 SIRA14DP-T1-GE3

Q8301 SIRA10DP-T1-GE3

DCR=2.55 mOhm

T8301 TPC28T

L8300 0.36uH Irat=25A

R8301 @ 2.2Ohm 5% vx_r0805_h24_small

DDR_RC

C8314 @ 1500PF/50V X7R/+/-10% vx_c0402_small

JP8303 SHORT_PIN

JP8304 SHORT_PIN

DDR_VDDQ

+1.2VO_DDR

C8311 22UF/6.3V X5R/+/-10%

C8312 22UF/6.3V X5R/+/-10%

C8313 22UF/6.3V X5R/+/-10%

CE8301 470UF/2V

14A

+1P2V

JP8302 3MM_OPEN_5MIL

JP8305 3MM_OPEN_5MIL

JP8306 3MM_OPEN_5MIL

JP8307 1MM_OPEN_M1M2

C8326 2.2NF/50V X5R/+/-10% @

C8325 10PF/50V 5% @

C8315 22UF/6.3V X5R/+/-10%

C8316 22UF/6.3V X5R/+/-10%

C8317 22UF/6.3V X5R/+/-10%

DDR_FB_R

R1 R8306 10KOhm 1% vx_r0402_small

C8320 @ 0.01UF/50V 10% vx_c0402_small

DDR_FB

R2 R8308 12.7KOhm 1%

C8321 @ 0.01UF/50V 10% vx_c0402_small

VDDQ=VREF*(1+(R1/R2))

7,57 DDR_VTT_CNTRL

D8300 @ 1.2V/0.1A

84,91,93,94 SUSB#_PWR

R8305 8.2KOhm 1%

R8304 @ 0Ohm vx_r0402_0ohm_small

S3

C8319 0.01UF/16V vx_c0402_small 10% @

D8301 1.2V/0.1A

57,91,93,95 SUSC#_PWR

R8307 680KOhm 1%

S5

C8322 1500PF/50V

VID	Reference Voltage (V)
High	0.675
Low	0.75

+1.2VO_DDR

+0.6VO

T8302 T8303 T8304 T8305 T8306 T8307 T8308 T8309 T8310 T8311 T8312 T8313 TPC28T

SKU	Load current (A)	Low-side MOSFET (pcs)	Output 22uF/6.3V MLCC (pcs)
UMA	0 ~ 5	1	4
DSC	0 ~ 8	2	5

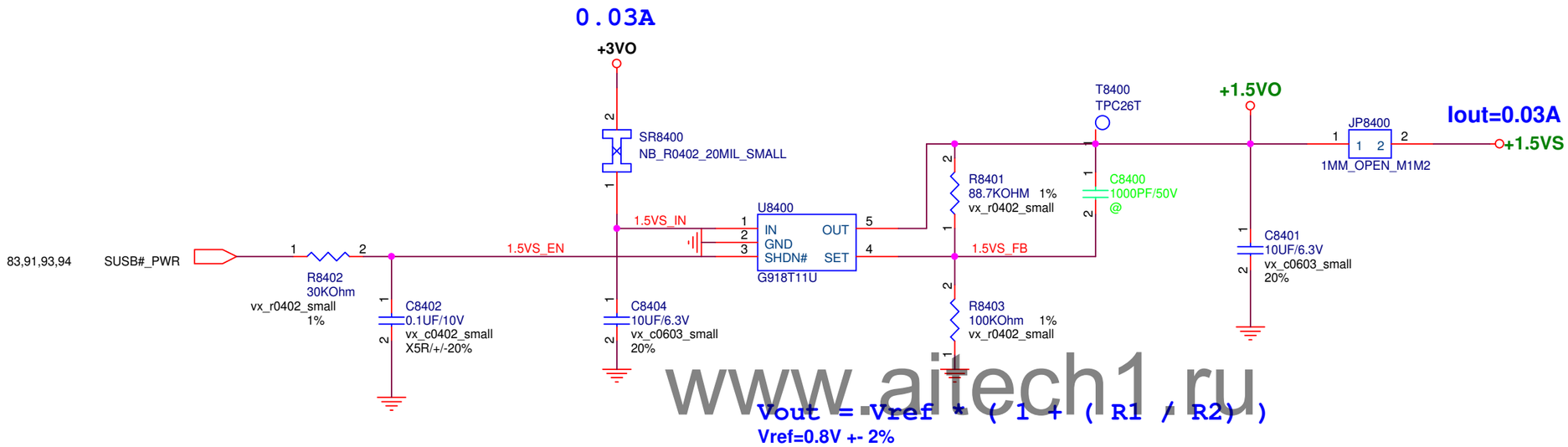
PEGATRON Title : USB CHARGE IC

Pegatron Corp. Engineer: Shrek_Tseng

Size	Project Name	Rev
Custom	IPPSL-CD	A00

Date: Monday, October 17, 2016 Sheet 83 of 108

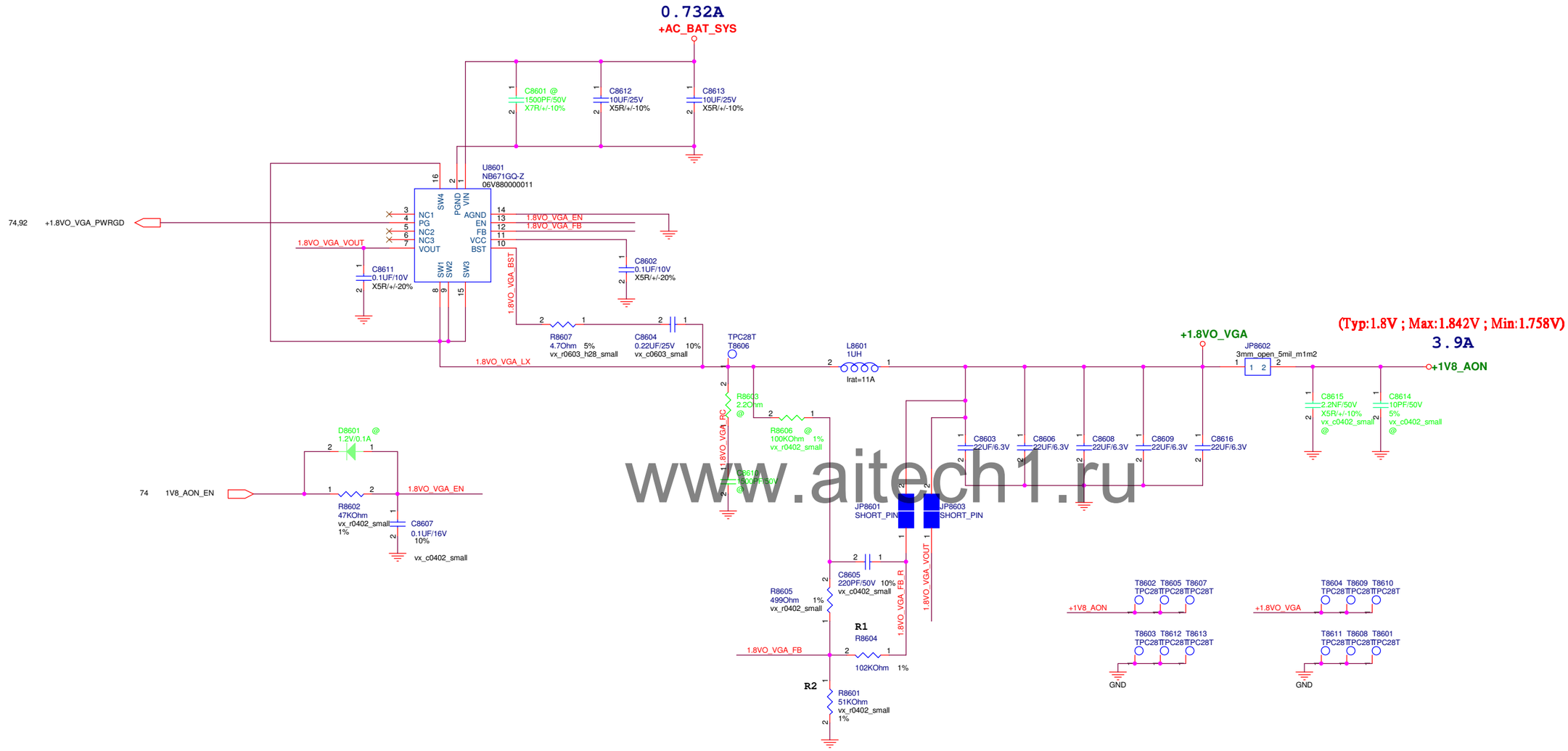
1.5V POWER SUPPLY



PEGATRON	Title : USB CHARGE IC	
Pegatron Corp.	Engineer: Shrek_Tseng	
Size: B	Project Name: IPPSL-CD	Rev: A00
Date: Monday, October 17, 2016	Sheet 84 of 108	

PEGATRON	Title :	USB CHARGE IC	
Pegatron Corp.	Engineer:	*Shrek_Tseng*	
Size: Custom	Project Name: IPPSL-CD		Rev: A00
Date: Monday, October 17, 2016	Sheet 85 of 108		

1V8_VGA POWER SUPPLY



R1 = ((Vout - Vref) / Vref) * R2

VRef = 0.6V +/- 1%

PEGATRON	Title :	USB CHARGE IC
Pegatron Corp.	Engineer:	Shrek_Tseng
Size: Custom	Project Name: IPPSL-CD	Rev: A00
Date: Monday, October 17, 2016	Sheet 86 of 108	

+NVVDD POWER SUPPLY

	N17-G3	
R1	R8705	6.19K
R2	R8706	20.5K
R3	R8707	4.32K
R4	R8708	16.5K
R5	R8709	309
C	C8701	4700PF
	Vmin	0.3V
	Vmax	1.3V
	Vboot	0.8V
	VSTB	6.25mV

PWMVID CIRCUIT

+NVVDD_VREF

R8706 20.5KOhm 1% R2

R1 R8705 6.19KOhm 1%

+NVVDD_REFADJ

R8707 4.32KOhm 1% R3

T8700 TPC28T

+NVVDD_REFIN

C8703 0.01UF/25V 10%

C C8701 4700PF/50V X7R/+-10%

C8702 1500PF/50V X7R/+-10%

R8708 16.5KOhm 1% R4

R8709 309Ohm 1% R5

+3V3_MAIN+3V3_MAIN+5VS

R8701 4.7KOhm 1%

R8702 4.7KOhm 1%

R8749 2Ohm 1%

74 NVVDD_EN

D8701 1.2V/0.1A

T8702 TPC28T

+NVVDD_VRON

+3V3_MAIN

C8768 0.1UF/25V 1AV300000007

R8700 13KOhm 1%

R8703 10KOhm 5% @

74 NVVDD_SDA

74 NVVDD_SCL

SR8701

SR8706

C8721 1UF/10V X7R/+-10%

Place close to Power IC U8700

74 NVVDD_PSI

SR8702

R8704 10KOhm 5% @

92 NVVDD_PWROK

74 NVVDD_VID

SR8704

SR8703

R8747 1000hm

SR8707

NVVDD_VSS_SENSE 75

C8720 1000PF/50V 5%

R8748 1000hm

SR8708

NVVDD_VDD_SENSE 75

+NVVDD

+AC_BAT_SYS_NVVDD

R8710 1 1KOhm

C8704 10%

0.01UF/25V

U8700A NCP81274MNTXG

	AGND	41	
	VID_BUFF	40	+NVVDD_REFADJ
REFIN	PWM_VID	39	+NVVDD_PWM_VID
VREF	PGOOD	38	+NVVDD_PGOOD
VRMP	PSI	37	+NVVDD_PSI
PWM8/SS	EN	36	+NVVDD_VRON
PWM7/OCP	SCL	35	+NVVDD_SCL
PWM6/LPC1	SDA	34	+NVVDD_SDA
PWM5/LPC2	VCC	33	+NVVDD_VCC
PWM4/PHTH1	VSN	32	+NVVDD_VSN
PWM3/PHTH2	VSP	31	+NVVDD_VSP
PWM2/PHTH3	COMP	30	+NVVDD_COMP
PWM1/PHTH4	FB	29	+NVVDD_FB
DRON	DIFF	28	+NVVDD_DIFF
CSP8	FSW	27	+NVVDD_FSW
CSP7	LLTH/I2C_ADD	26	+NVVDD_ADD
CSP6	IOUT	25	+NVVDD_IOUT
CSP5	ILIM	24	+NVVDD_ILIM
CSP4	CSCOMP	23	+NVVDD_CSCOMP
CSP3	CSSUM	22	+NVVDD_CSSUM
CSP2	CSREF	21	+NVVDD_CSREF
CSP1		20	+NVVDD_CSP1

R8711 1 10KOhm 1%

R8712 1 10KOhm 1%

+NVVDD_VRMP

+NVVDD_PWM8

+NVVDD_PWM7

+NVVDD_PWM6

+NVVDD_PWM5

+NVVDD_PWM4

+NVVDD_PWM3

+NVVDD_PWM2

+NVVDD_PWM1

+NVVDD_DRON

+NVVDD_CSP8

+NVVDD_CSP7

+NVVDD_CSP6

+NVVDD_CSP5

+NVVDD_CSP4

+NVVDD_CSP3

+NVVDD_CSP2

+NVVDD_CSP1

R8743 1 60.4KOhm 1%

R8742 1 23.2KOhm 1%

R8740 1 32.4KOhm 1%

C8716 1 1000PF/50V 10%

R8741 1 54.9KOhm 1%

C8718 5% 47PF/50V

C8719 10% 330PF/50V 49.9Ohm

C8717 10% 2200PF/50V

R8744 3.3KOHM 1%

R8745 1KOhm 1%

R8713 10KOhm 1% @

R8714 10KOhm 1% @

R8715 10KOhm 1% @

R8716 10KOhm 1% @

R8764 1 100KOhm 1%

C8705 2 0.068UF/10V 10%

R8765 1 100KOhm 1%

C8706 2 0.068UF/10V 10%

R8766 1 100KOhm 1%

C8707 2 0.068UF/10V 10%

R8767 1 100KOhm 1%

C8708 2 0.068UF/10V 10%

0.33UF/10V C8713 X5R/+-10%

R8738 75KOhm 1%

R8739 100KOHM

Place close to L8701

R8737 165KOHM 1%

C8714 C8715 X7R/+-10%

1000PF/50V 820PF/50V

+5VS

R8719 1 2.2KOhm

R8720 1 2.2KOhm

R8717 1 2.2KOhm

R8718 1 2.2KOhm

C8709 0.068UF/10V 10% @

C8710 0.068UF/10V 10% @

C8711 0.068UF/10V 10% @

C8712 0.068UF/10V 10% @

U8700B NCP81274MNTXG

43	AGND1
43	AGND2
44	AGND3
45	AGND4
46	AGND5

R8731 1 127KOhm 1% +NVVDD_SWN1

R8732 1 127KOhm 1% +NVVDD_SWN2

R8733 1 127KOhm 1% +NVVDD_SWN3

R8734 1 127KOhm 1% +NVVDD_SWN4

1.5.49KOhm R8721

1.5.49KOhm R8722

1.5.49KOhm R8723

1.5.49KOhm R8724

+NVVDD_SWN4

+NVVDD_SWN3

+NVVDD_SWN2

+NVVDD_SWN1

100hm R8725

100hm R8726

100hm R8727

100hm R8728

+NVVDD_CSN4

+NVVDD_CSN3

+NVVDD_CSN2

+NVVDD_CSN1

12.6A

EDPc=121A

+AC_BAT_SYS_NVVDD

R8750 2Ohm 1%

C8723 0.22UF/25V 10%

U8702 NCP81151MNTBG

+NVVDD_PWM1

+NVVDD_DRON

+5VS

C8722 2.2UF/6.3V X5R/+-10%

Q8702 SIRA14DP-T1-GE3

Q8710 SIRA14DP-T1-GE3

C8724 10UF/25V X5R/+-10%

C8725 10UF/25V X5R/+-10%

C8769 10UF/25V X5R/+-10%

C8770 10UF/25V X5R/+-10%

CE8716 100UF/25V

Q8701 SIRA02DP-T1-GE3

Q8713 SIRA02DP-T1-GE3

PS_NVVDD_PHASE1

L8701 0.22uH Irat=50A

R8751 2.2Ohm @ vx_r0603_h28_small 5%

C8726 @ 1500PF/50V vx_c0603_small 10%

JP8701 SHORT-PIN

JP8702 SHORT-PIN

+NVVDD_SWN1

+NVVDD_CSN1

+NVVDD

CE8700 470UF/2V

CE8701 470UF/2V

CE8702 470UF/2V

CE8703 470UF/2V

CE8704 470UF/2V

CE8705 470UF/2V

CE8706 470UF/2V

CE8707 470UF/2V

CE8708 470UF/2V

CE8709 470UF/2V

CE8710 470UF/2V

CE8711 470UF/2V

C8763 22UF/6.3V

C8766 22UF/6.3V

C8758 22UF/6.3V

C8754 22UF/6.3V

C8765 22UF/6.3V

C8761 22UF/6.3V

C8762 22UF/6.3V

C8764 22UF/6.3V

C8757 22UF/6.3V

C8755 22UF/6.3V

C8752 22UF/6.3V

C8760 22UF/6.3V

C8753 22UF/6.3V

C8759 22UF/6.3V

C8767 22UF/6.3V

C8756 22UF/6.3V

C8784 22UF/6.3V

C8783 22UF/6.3V

C8781 22UF/6.3V

C8787 22UF/6.3V

C8782 22UF/6.3V

C8786 22UF/6.3V

C8788 22UF/6.3V

C8785 22UF/6.3V

+AC_BAT_SYS_NVVDD

R8752 2Ohm 1%

C8728 0.22UF/25V 10%

U8703 NCP81151MNTBG

+NVVDD_PWM2

+NVVDD_DRON

+5VS

C8727 2.2UF/6.3V X5R/+-10%

Q8704 SIRA14DP-T1-GE3

Q8712 SIRA14DP-T1-GE3

C8729 10UF/25V X5R/+-10%

C8730 10UF/25V X5R/+-10%

C8771 10UF/25V X5R/+-10%

C8772 10UF/25V X5R/+-10%

CE8717 100UF/25V

Q8703 SIRA02DP-T1-GE3

Q8714 SIRA02DP-T1-GE3

PS_NVVDD_PHASE2

L8702 0.22uH Irat=50A

R8753 2.2Ohm @ vx_r0603_h28_small 5%

C8731 @ 1500PF/50V vx_c0603_small 10%

JP8703 SHORT-PIN

JP8704 SHORT-PIN

+NVVDD_SWN2

+NVVDD_CSN2

+NVVDD

+AC_BAT_SYS_NVVDD

R8754 2Ohm 1%

C8733 0.22UF/25V 10%

U8704 NCP81151MNTBG

+NVVDD_PWM3

+NVVDD_DRON

+5VS

C8732 2.2UF/6.3V X5R/+-10%

Q8706 SIRA14DP-T1-GE3

Q8709 SIRA14DP-T1-GE3

C8734 10UF/25V X5R/+-10%

C8735 10UF/25V X5R/+-10%

C8773 10UF/25V X5R/+-10%

C8774 10UF/25V X5R/+-10%

CE8718 100UF/25V

Q8705 SIRA02DP-T1-GE3

Q8715 SIRA02DP-T1-GE3

PS_NVVDD_PHASE3

L8703 0.22uH Irat=50A

R8755 2.2Ohm @ vx_r0603_h28_small 5%

C8736 @ 1500PF/50V vx_c0603_small 10%

JP8705 SHORT-PIN

JP8706 SHORT-PIN

+NVVDD_SWN3

+NVVDD_CSN3

+NVVDD

+AC_BAT_SYS_NVVDD

R8756 2Ohm 1%

C8738 0.22UF/25V 10%

U8705 NCP81151MNTBG

+NVVDD_PWM4

+NVVDD_DRON

+5VS

C8737 2.2UF/6.3V X5R/+-10%

Q8708 SIRA14DP-T1-GE3

Q8711 SIRA14DP-T1-GE3

C8739 10UF/25V X5R/+-10%

C8740 10UF/25V X5R/+-10%

C8775 10UF/25V X5R/+-10%

C8776 10UF/25V X5R/+-10%

CE8719 100UF/25V

Q8707 SIRA02DP-T1-GE3

Q8716 SIRA02DP-T1-GE3

PS_NVVDD_PHASE4

L8704 0.22uH Irat=50A

R8757 2.2Ohm @ vx_r0603_h28_small 5%

C8741 @ 1500PF/50V vx_c0603_small 10%

JP8707 SHORT-PIN

JP8708 SHORT-PIN

+NVVDD_SWN4

+NVVDD_CSN4

+NVVDD

PEGATRON Title : USB CHARGE IC

Pegatron Corp. Engineer: Shrek_Tseng

Size	Project Name	Rev
D	IPPSL-CD	A00

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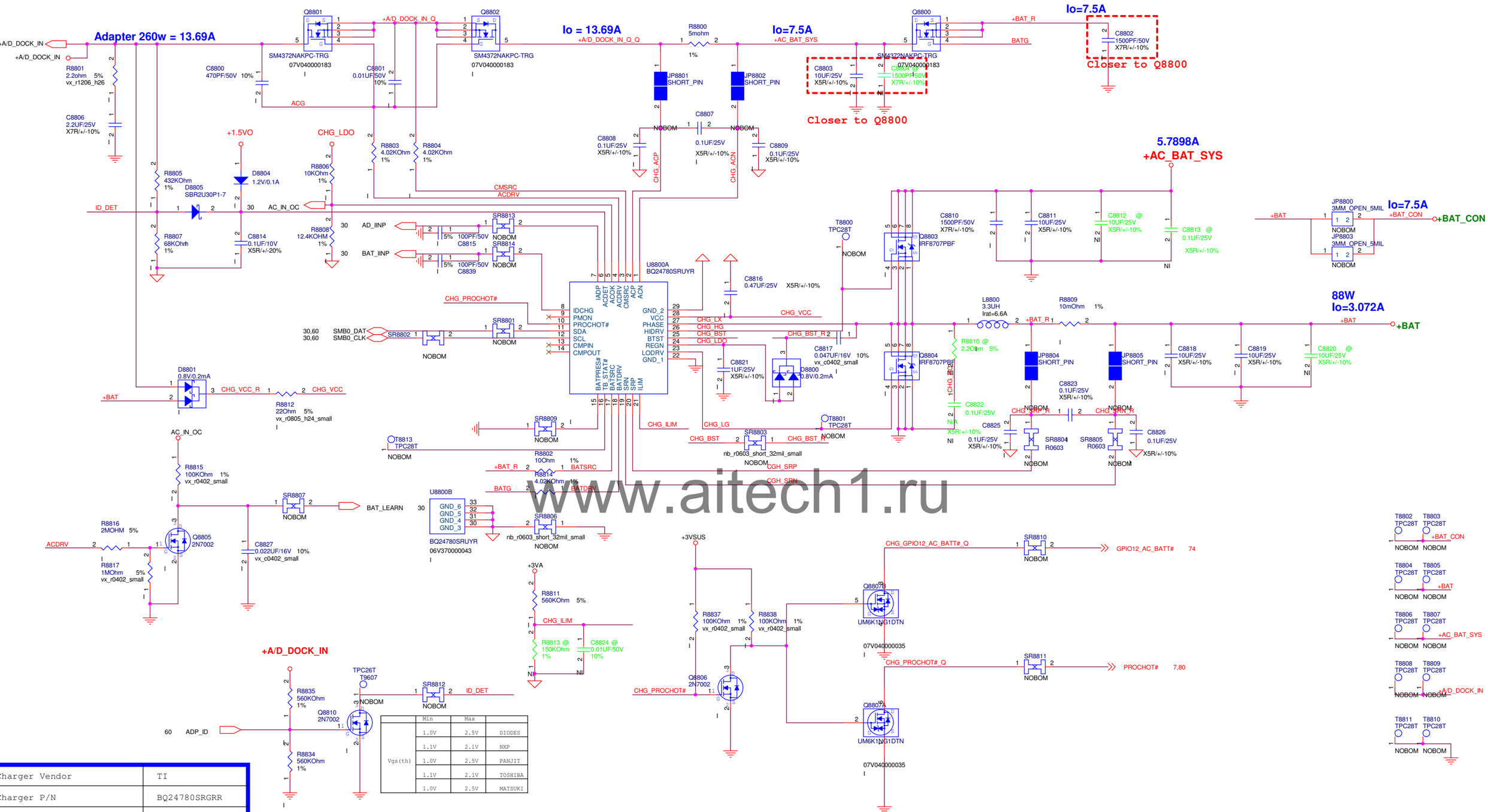
BATTERY CHARGER



Charger Vendor	TI
Charger P/N	BQ24780SRGRR
Support Hybrid Boost?	YES
Adapter capacity	260W
Active/Release Point (Hybrid Boost)	Active - 250.38W Release - 217.62W
Enable condition Disable condition	RSOC>40% RSOC<30%

PEGATRON Title : USB CHARGE IC

Pegatron Corp. Engineer: Shrek_Tseng

Size: Custom | Project Name: IPPSL-CD | Rev: A00

Date: Monday, October 17, 2016 | Sheet 88 of 108

+FBVDDQ POWER SUPPLY

VGA_DDR_PSI	VO_action
~ 0.4V	1 Phase DEM
0.7 ~ 0.88V	1 Phase FCCM
1.08 ~ 1.35V	2 Phase DEM
1.6 ~ PVCC	2 Phase FCCM

VID：DC High(>=2V) 1.55V，DC Low(<=1V) 1.35V

Vout = Vref (2V) * (R8901/(R8900+R8901))

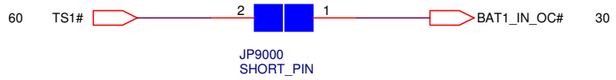
Input current=4.6125A

2 PHASE
EDPc=32.8A

(1 Phase)
TDC :20A
Frequency :305KHz
PWR Cap. :940uF
EE Cap. :139.5uF
Total Cap. :1079.5uF
ESR :3mOHM

PEGATRON Title : USB CHARGE IC
Pegatron Corp. Engineer: Shrek_Tseng
Size: Custom | Project Name: IPPSL-CD | Rev: A00
Date: Monday, October 17, 2016 Sheet 89 of 108

BATTERY IN DETECT



PEGATRON	Title : USB CHARGE IC	
Pegatron Corp.	Engineer: Shrek_Tseng	
Size: Custom	Project Name: IPPSL-CD	Rev: A00
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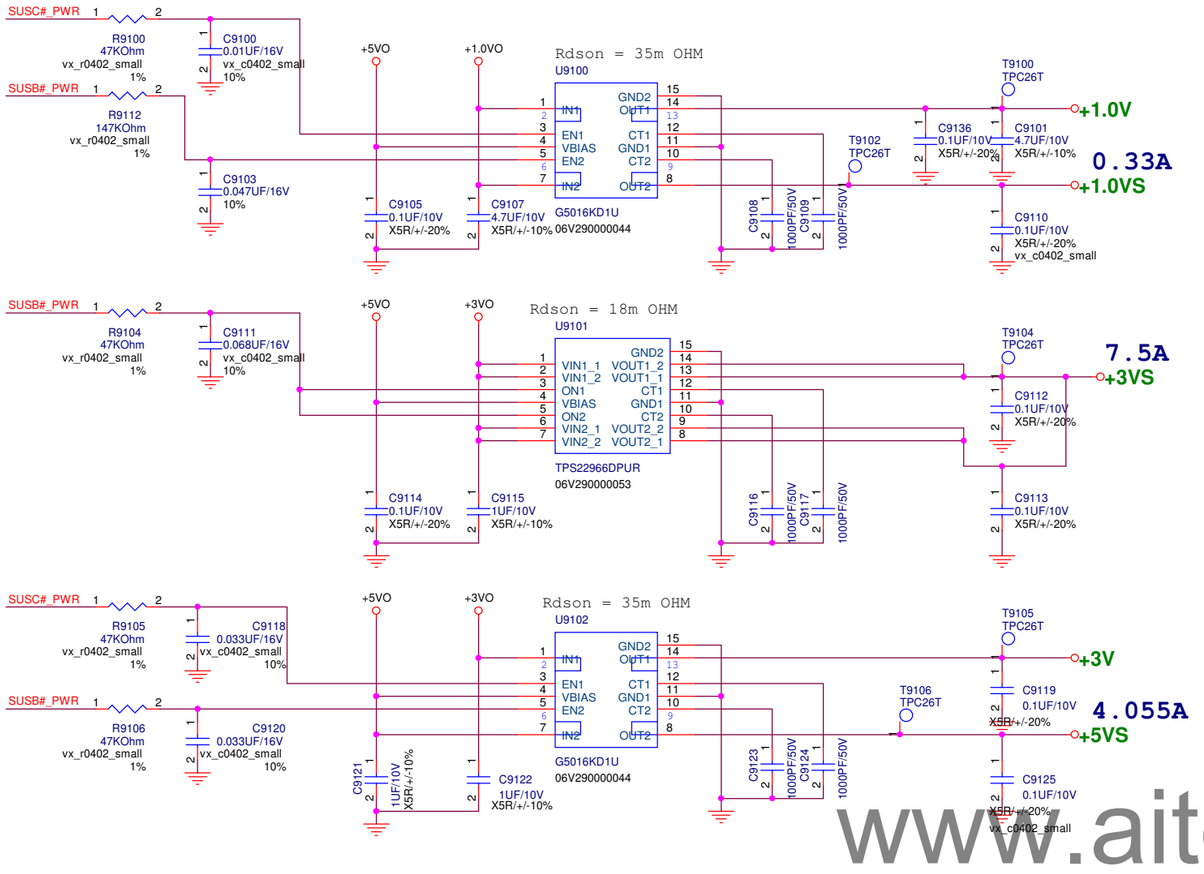
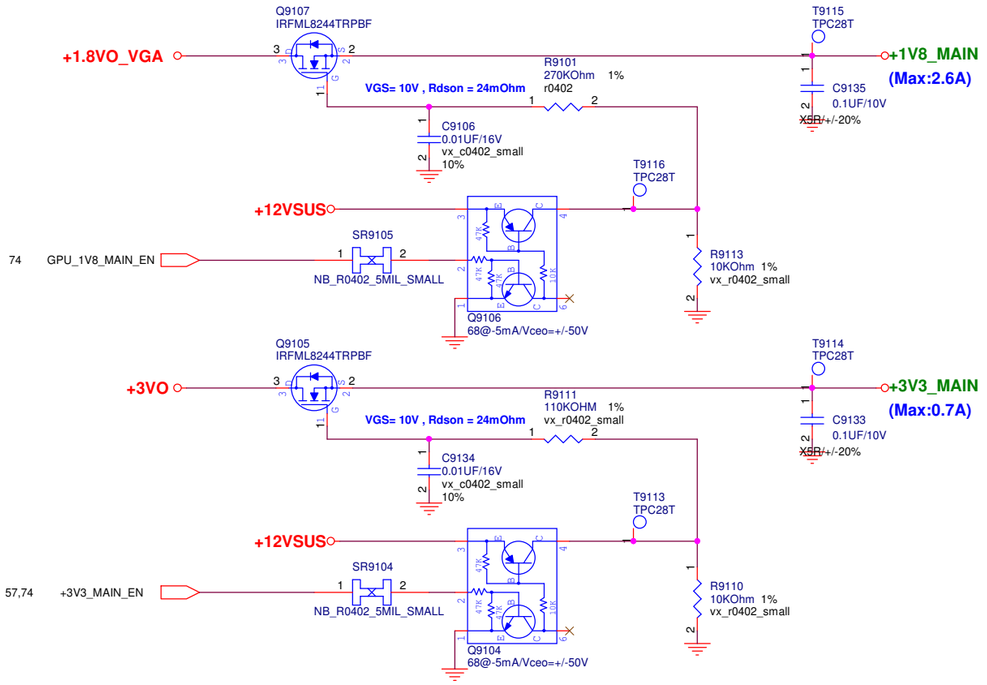
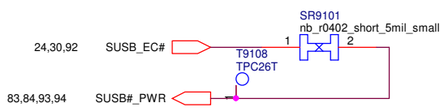
SUSB#_PWR POWER



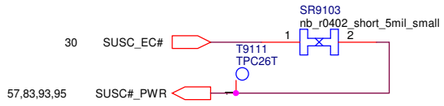
SUSC#_PWR POWER



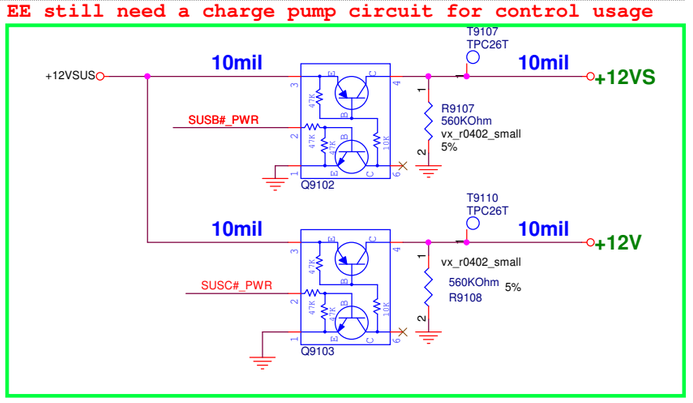
SUSB#_PWR POWER Control



SUSC#_PWR POWER Control

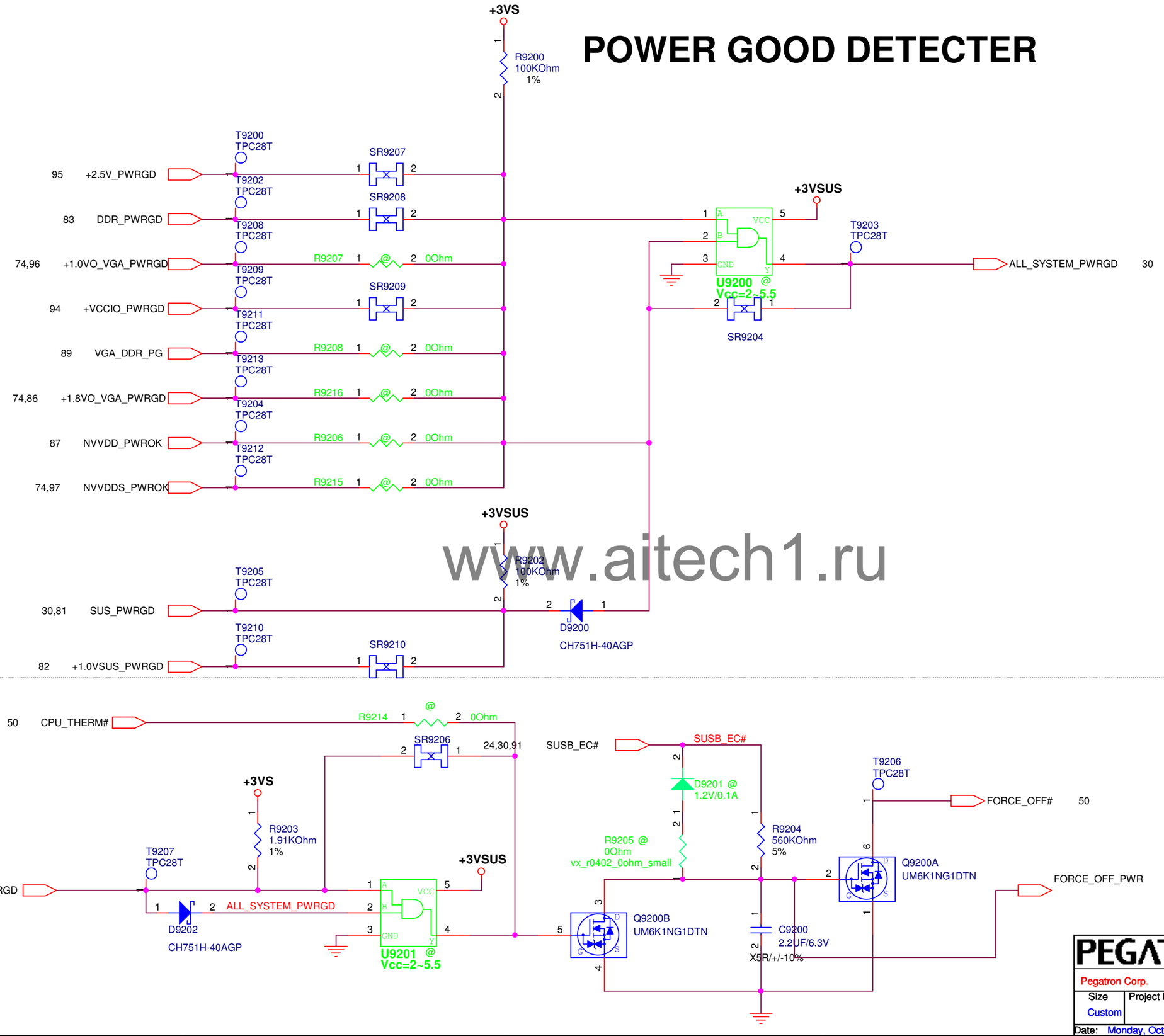


EE still need a charge pump circuit for control usage



PEGATRON	Title :	USB CHARGE IC	
Pegatron Corp.	Engineer:	Shrek_Tseng	
Size: Custom	Project Name: IPPSL-CD		Rev: A00
Date: Monday, October 17, 2016	Sheet 91 of 108		

POWER GOOD DETECTER



PEGATRON	Title :	USB CHARGE IC	
Pegatron Corp.	Engineer:	Shrek_Tseng	
Size: Custom	Project Name: IPPSL-CD		Rev: A00
Date: Monday, October 17, 2016	Sheet 92 of 108		

+AC_BAT_SYS — +AC_BAT_SYS 45,80,81,82,83,86,88,94,95,96,97

+BAT_CON — +BAT_CON 60,88

+5VA — +5VA 53,56,81

+3VA — +3VA 26,30,44,45,56,57,60,81,88

+5VO — +5VO 81,83,91

+3VO — +3VO 74,81,82,84,91,94

+1.5VO — +1.5VO 84,88

+5VSUS — +5VSUS 12,36,37,45,52,55,56,57,67,81

+3VSUS — +3VSUS 7,11,12,21,22,23,24,26,28,31,33,36,44,52,53,57,62,67,81,88,92

+3V — +3V 44,91

+5VS — +5VS 13,15,31,36,37,45,48,50,56,80,87,89,91,97

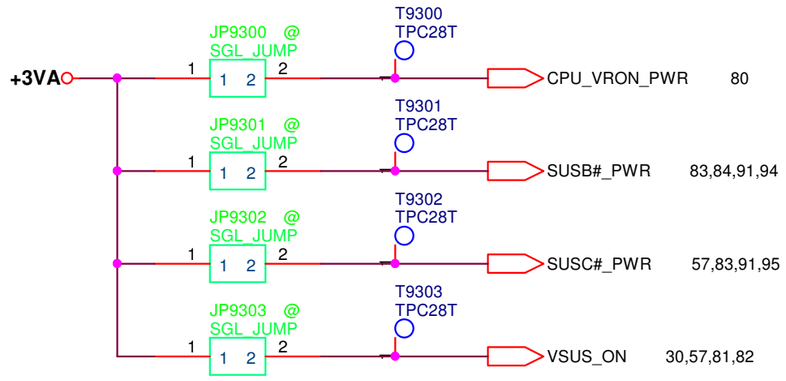
+3VS — +3VS 7,11,12,13,14,15,16,21,22,23,24,26,30,31,36,45,46,50,51,53,56,58,61,62,67,70,91,92

+1.5VS — +1.5VS 36,84

+VCORE — +VCORE 9,80

+VCCIO — +VCCIO 3,6,7,10,44,94

FOR POWER TEST

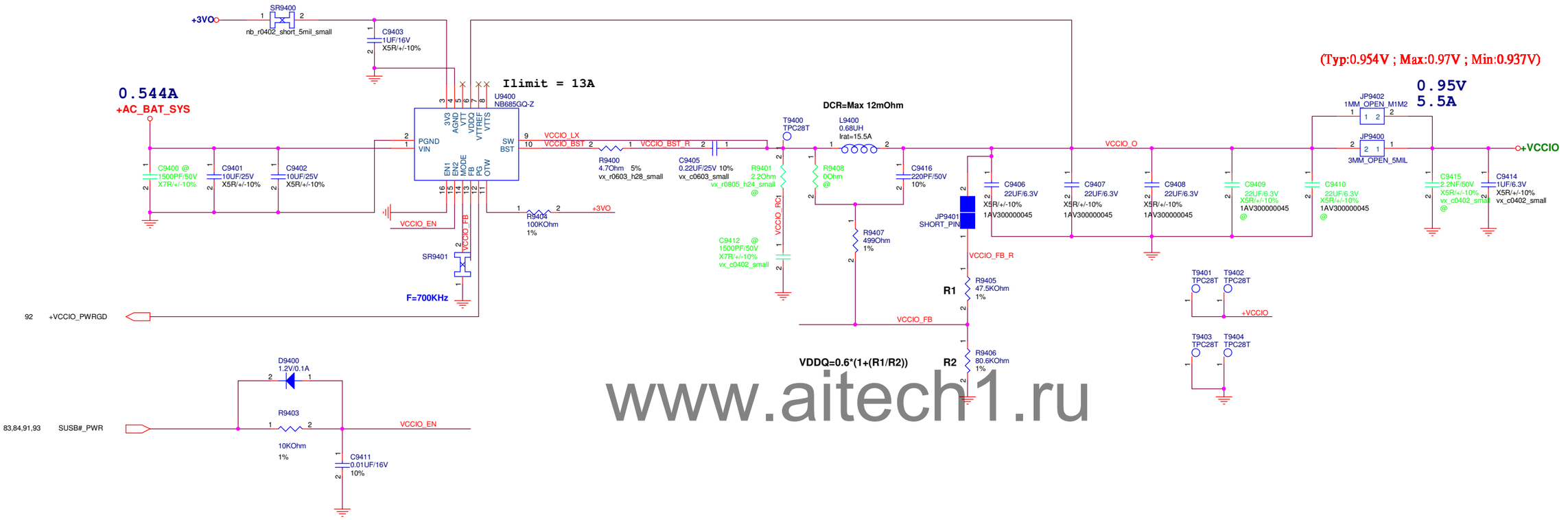


PEGATRON Title : USB CHARGE IC

Pegatron Corp. Engineer: Shrek_Tseng

Size	Project Name	Rev
Custom	IPPSL-CD	A00

Date: Monday, October 17, 2016 Sheet 93 of 108



PEGATRON Title : USB CHARGE IC

Pegatron Corp. Engineer: Shrek_Tseng

Size	Project Name	Rev
Custom	IPPSL-CD	A00

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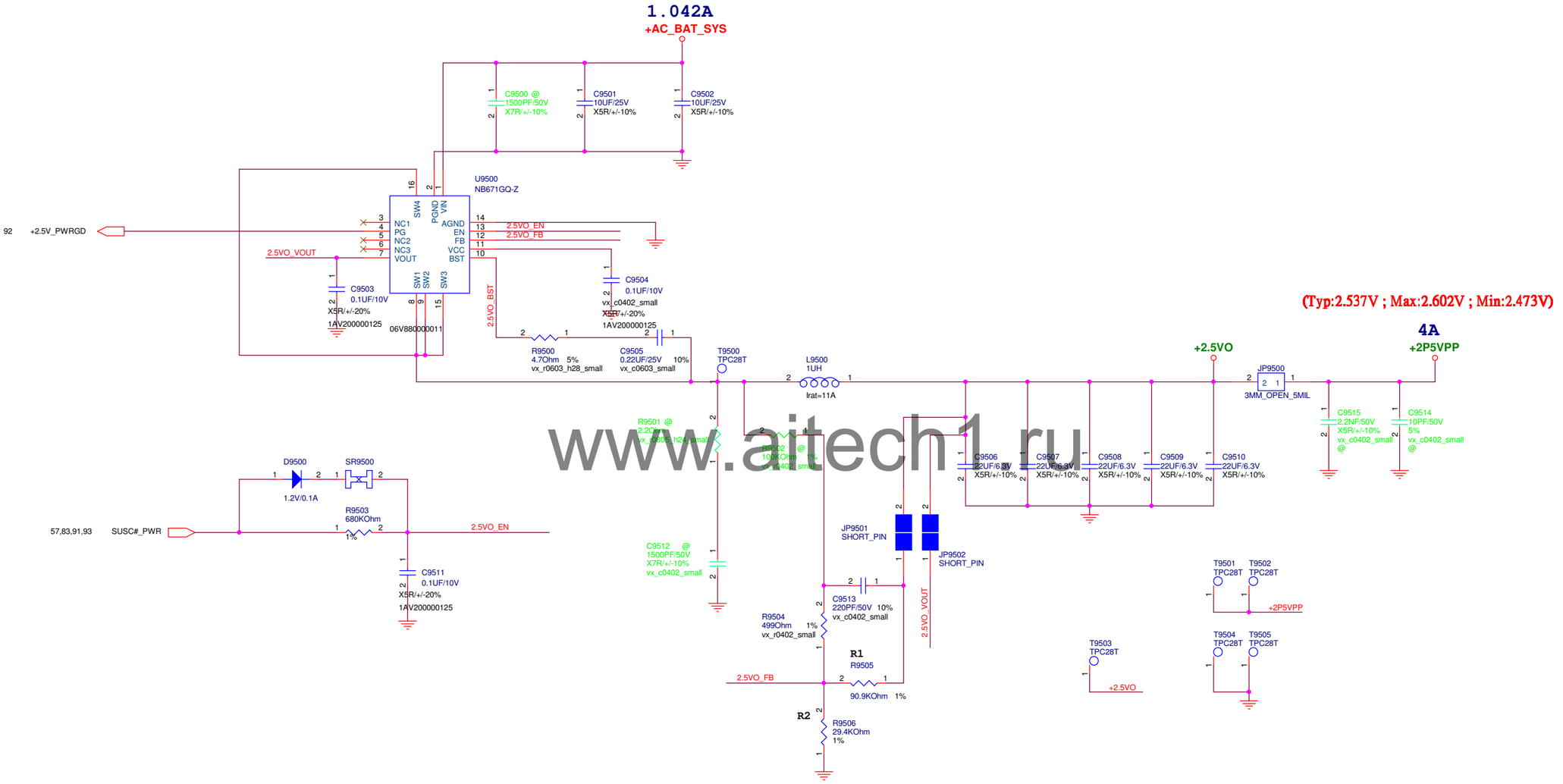
+2.5V POWER SUPPLY



R1 = ((Vout - Vref) / Vref) * R2

VRef = 0.6V +/- 1%

PEGATRON	Title :	USB CHARGE IC	
Pegatron Corp.	Engineer:	Shrek_Tseng	
Size: Custom	Project Name: IPPSL-CD		Rev: A00
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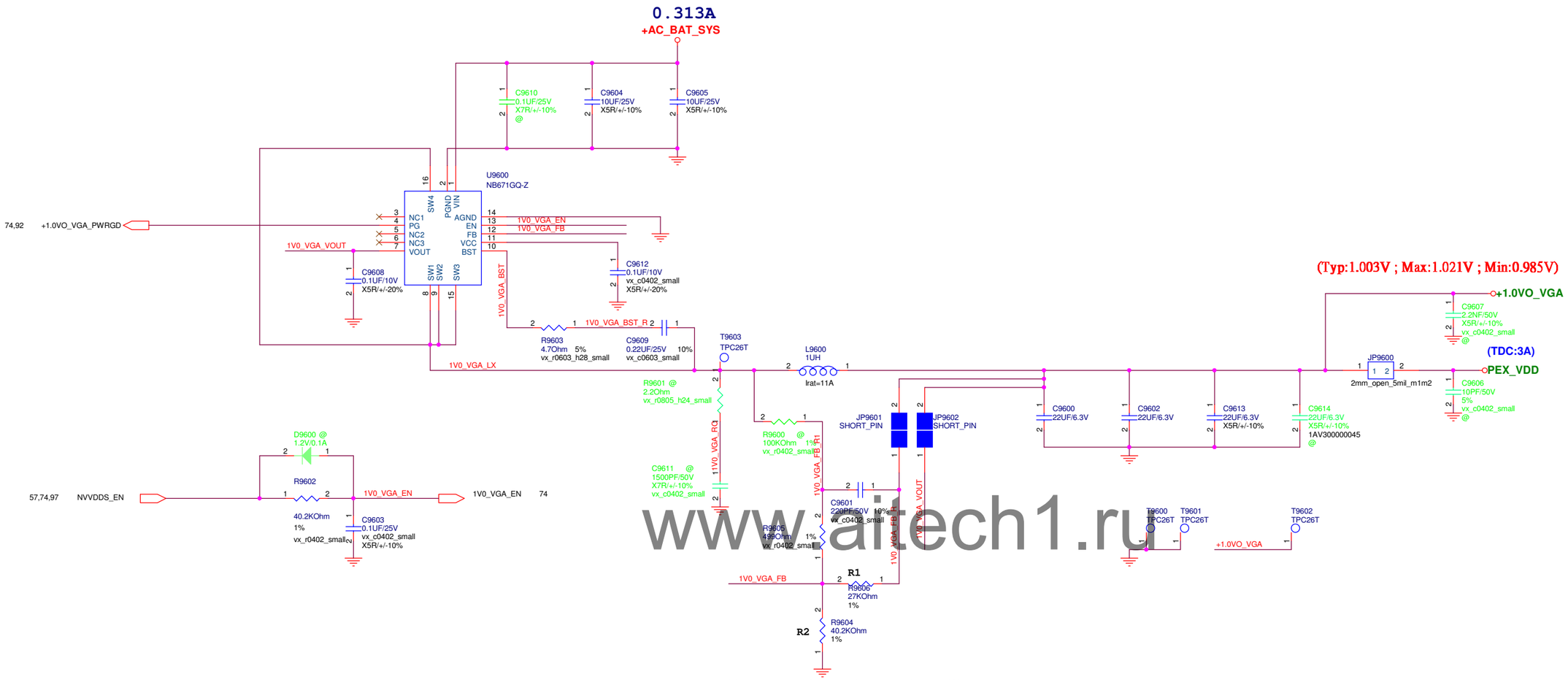
PEX_VDD POWER SUPPLY



R1 = ((Vout - Vref) / Vref) * R2

VRef = 0.6V +/- 1%

PEGATRON	Title :	USB CHARGE IC
Pegatron Corp.	Engineer:	Shrek_Tseng
Size: Custom	Project Name: IPPSL-CD	Rev: A00
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+NVVDDS POWER SUPPLY

VGA_DDR_PSI	VO_action
~ 0.4V	1 Phase DEM
0.7 ~ 0.88V	1 Phase FCCM
1.08 ~ 1.35V	2 Phase DEM
1.6 ~ PVCC	2 Phase FCCM

R9723	6.19K
R9721	20.5K
R9716	4.32K
R9713	16.5K
R9736	309
C9720	4700PF
Vmin	0.3V
Vmax	1.3V
Vboot	0.8V
optional naming	

Address Pins and Slave Addresses	
A0	SLAVE ADDRESS
GND	1000000
VS+	1000001
SDA	1000010
SCL	1000011

VGA Input current=3.855A

EDPc=37A
OCP:84A

PEGATRON Corp.	Title : USB CHARGE IC		
	Engineer: Shrek_Tseng		
Size: D	Project Name: IPPSL-CD		Rev: A00
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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

Date: Monday, October 17, 2016 Sheet 99 of 101

PEGATRON Title : DDR3 TERMINATION A&B

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
A	P7RCR	R1.0

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20160509 WS Kai
Change LR800, LR803, LR802 to 1.2K-ohm
follow Viper1

+5V_LED
LR800
1.2KOhm
RES 1.2K OHM 1/10W(0603)1%
10V320000093
LLED800
RED
07V130000098
+5V_RLED1
+5V_RLED1_Q
LQ800
2N7002K-T1-GE3
07V040000060
PWR_LED_LED
LC800
0.1UF/6.3V
1AV200000120
GND_LED

+5VA_LED
+5VA_LED
LR803
1.2KOhm
RES 1.2K OHM 1/10W (0603) 1%
10V320000093
LR801
220Ohm
10V340000008
RES 220 OHM 1/10W (0603) 5%
LLED803
YELLOW
07V130000107
+5V_RYLED_Y1
+5V_RYLED_Y
LLED801
RED
07V130000098
+5V_RYLED_R1
+5V_RYLED_R
LQ801
2N7002K-T1-GE3
07V040000060
CHG_LED_RED_LED
LC801
0.1UF/6.3V
1AV200000120
LQ802
2N7002K-T1-GE3
07V040000060
CHG_LED_YELLOW_LED
LC802
0.1UF/6.3V
1AV200000120

+5VS_LED
LR802
1.2KOhm
RES 1.2K OHM 1/10W(0603)1%
10V320000093
LLED802
RED
07V130000098
+5V_LED_RLED2
+5V_LED_RLED1_Q2
+5VS_LED
LR804
10KOhm
LQ803B
UM6K1NG1DTN
07V040000035
SATA_LED_LED
LQ803A
UM6K1NG1DTN
07V040000035
SATA_LED#_LED
LC803
0.1UF/6.3V
1AV200000120
GND_LED

CON1
FPC_CON_8P
12V18GBSM051
+5VS_LED
+5VA_LED
+5V_LED
PWR_LED_LED
CHG_LED_RED_LED
CHG_LED_YELLOW_LED
SATA_LED#_LED
SIDE2
SIDE1
GND_LED

H800
C102D102N
H803
O134X102DO134X102N
H804
ST335CB315D118
S1V4YRSCSZ00
H805
ST335CB315D118
S1V4YRSCSZ00

<Variant Name>

PEGATRON Title : LED BOARD.

Pegatron Corp. Engineer: Kai_Shen

Size	Project Name	Rev
B	P7RCR	R1.0

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