

PAGE	TITLE
01	SCH INDEX
02	BLOCK DIAGRAM
03	CLOCKS DIAGRAM
04	POWER DISTRIBUTION DIAGRAM
05	POWER FLOW DIAGRAM
06	Interrupt & PME diagram
07	POWER SEQUENCE DIAGRAM
08	(C) TPM
09	(C) XDP
10	(C) MCP - CLK/CTRL/MISC/DBG
11	(C) MCP - DDR4 CHANNEL A&B
12	(E) MCP - PCIE/ DMI/ DDI
13	(C) MCP - VCC/VDDDQ
14	(C) MCP - VSS
15	(C) DDR4 CHA D0 XIMM2
16	(C) DDR4 CHB D0 XIMM1
17	---BLANK---
18	---BLANK---
19	---BLANK---
20	(E) PCH - DMI/ PCIE/ USB2/3
21	(C) PCH - SMBUS/HDA/GPIO
22	(C) PCH - SATA/SPI/GPIO
23	(C) PCH - GPIO/MISC
24	(C) PCH - CLOCK
25	(C) PCH - POWER & STRAP
26	(C) PCH - FILTER & DECOUPLE
27	(E) TP for PREMIUM
28	(C) SIO15 (1)
29	(C) SIO15 (2)
30	(C) SIO15 (3)
31	(C) SIO15 (4)
32	---BLANK---
33	(C) FAN
34	(C) SATA
35	(C) AUDIO Codec
36	(E) AUDIO Conn
37	(C) SPI ROM
38	---BLANK---
39	(C) LAN_Jacksonville
40	(C) USB Charger
41	(E) USB POWER
42	(E) STACK RJ45/USB3
43	(C) INT Header
44	(C) Power BTN
45	(C) Platform Debug Header
46	(E) DisplayPort - 1
47	(E) DisplayPort - 2
48	(E) DisplayPort - 3
49	---BLANK---
50	---BLANK---
51	(C) COM PORT HEADER
52	(E) M2 2230_WLAN
53	(C) M2.2280_SSD
54	(C) EMI CAP
55	(C) Debug LEDs
56	(C) HEADER/MECHANICAL PART
57	(E) HEADER/MECHANICAL PART
58	---BLANK---

PAGE	TITLE
59	---DC POWER---
60	+Adapter IN
61	+3P3V_LPS
62	+12V
63	+3V3_AUX & +5V_AUX
64	+1P8V_3P3V_PCH_GPPA
65	+1V_PCH
66	---BLANK---
67	+VPP
68	+VDDQ
69	+5V & +3.3V
70	+VCCIO
71	+VCCSA
72	+VTT
73	+VCORE +VCCGT CONTROLLER
74	+VCORE PHASE 1 & 2
75	+VCORE PHASE 3
76	+VCCGT PHASE 1 & 2
77	---BLANK---
78	---DC Change List---
79	---EE Change List---

Intel Greenlow Platform

Skylake-S CPU / PCH - H

SVID : 103C
SSID : 82BF


www.aitech1.ru

PCA P/N	863114-001
---------	------------

BOM Definition	
I	Installed
NI	Not Installed
CCL	Critical Components List
PROTO	Not For Production Part
MP	Production Part ONLY

PCB AND SILKSCREEN COLOR		
Program Phase	Color of PCB	Silkscreen
DB1	RED	YELLOW
DB2	RED	WHITE
DB3	RED	WHITE
SI1	GREEN	YELLOW
SI2+, Pre-PV	GREEN	WHITE
PV1	DARK BLUE	YELLOW
PV2+	DARK BLUE	WHITE
SP/MVB / PRODUCTION	DARK BLUE	WHITE

HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY
FOXCONN

File
01. SCH INDEX

Size
Custom

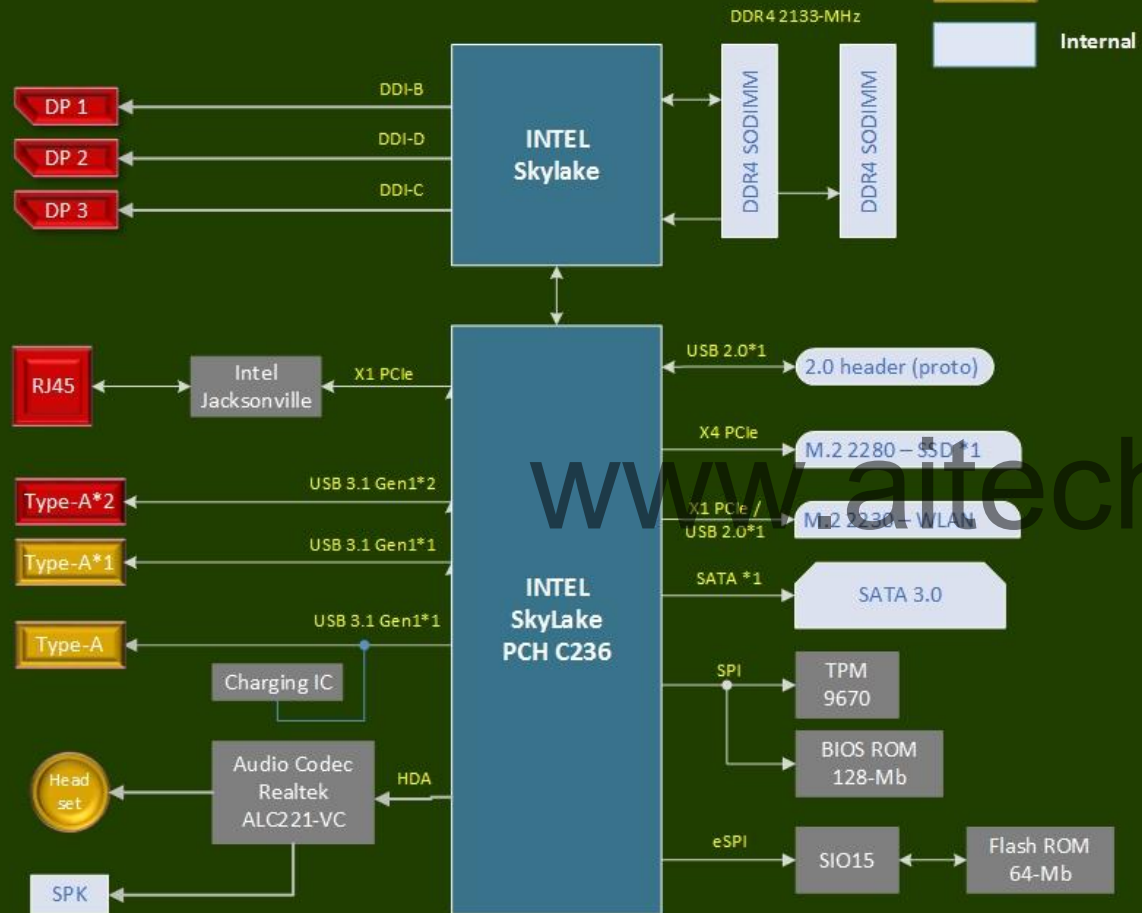
Document Number
Ant Man - Entry

Rev
A01

Date: **Tuesday, September 13, 2016**

Sheet **1** of **79**

Ant Man - Entry



HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY **FOXCONN**

Title **02. BLOCK DIAGRAM**

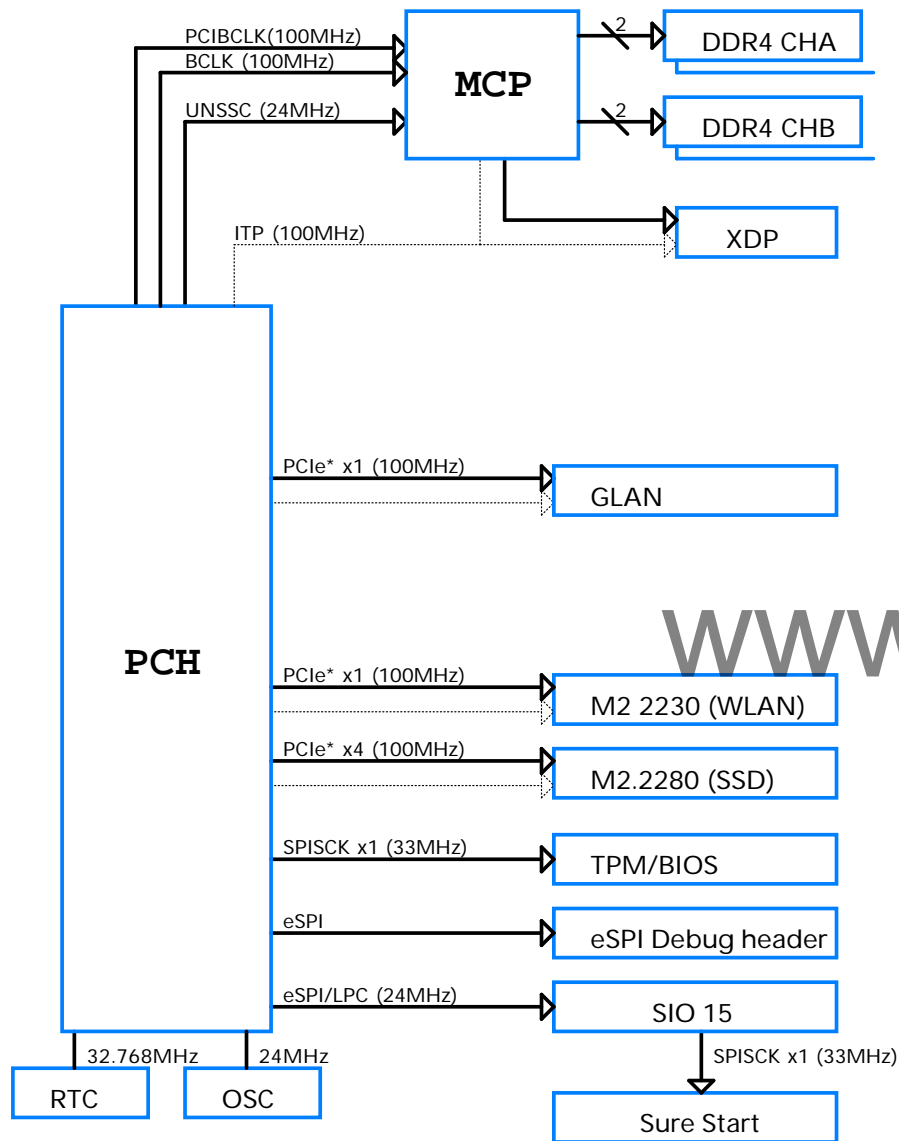
Size Document Number
Custom Ant Man - Entry

Date: Tuesday, September 13, 2016

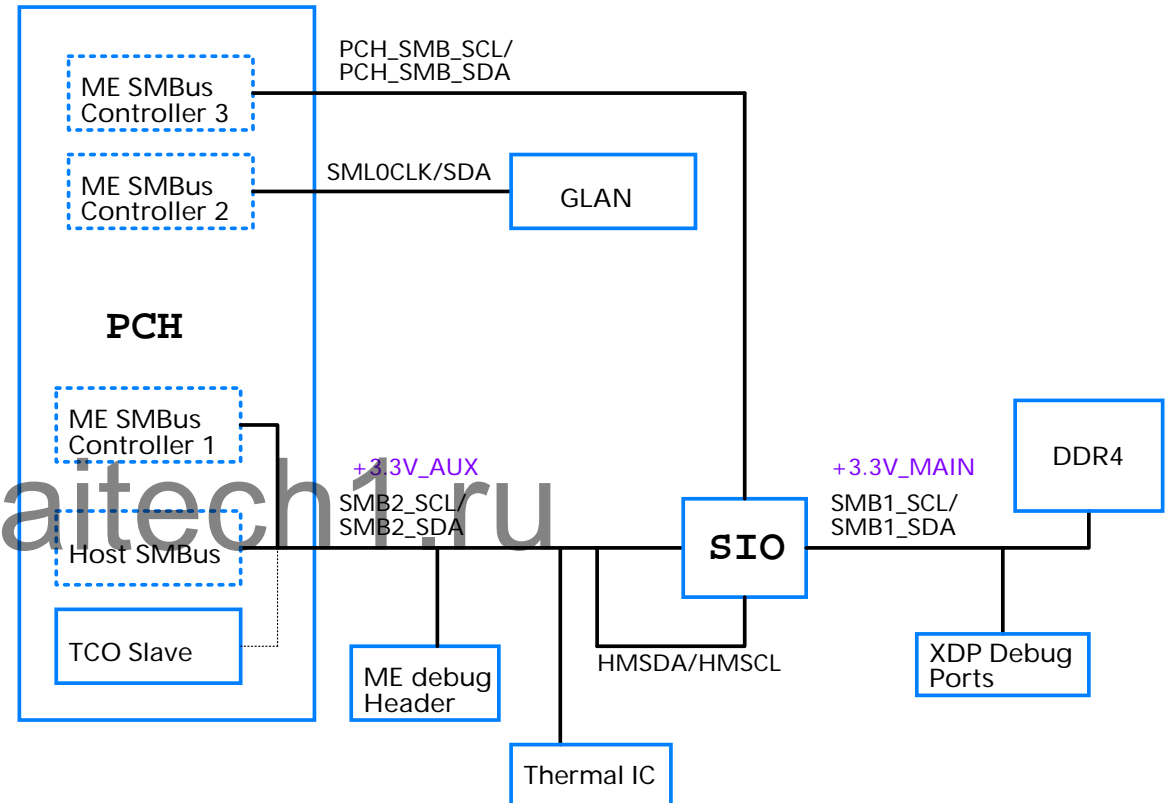
Sheet 2 of 79

Rev **A01**

Clock Diagram

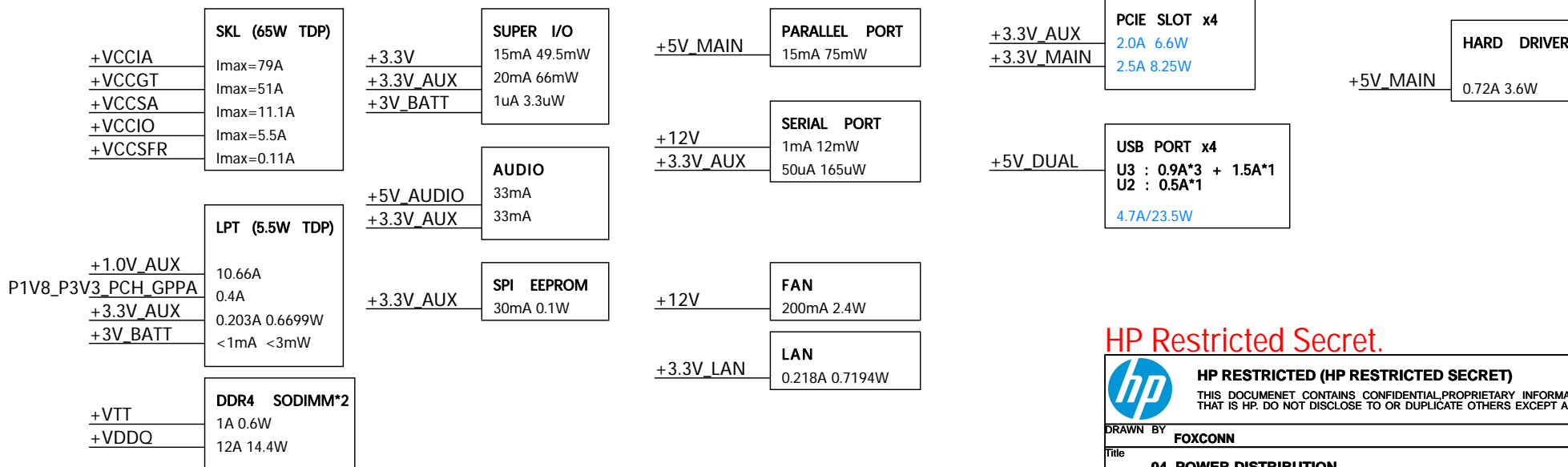
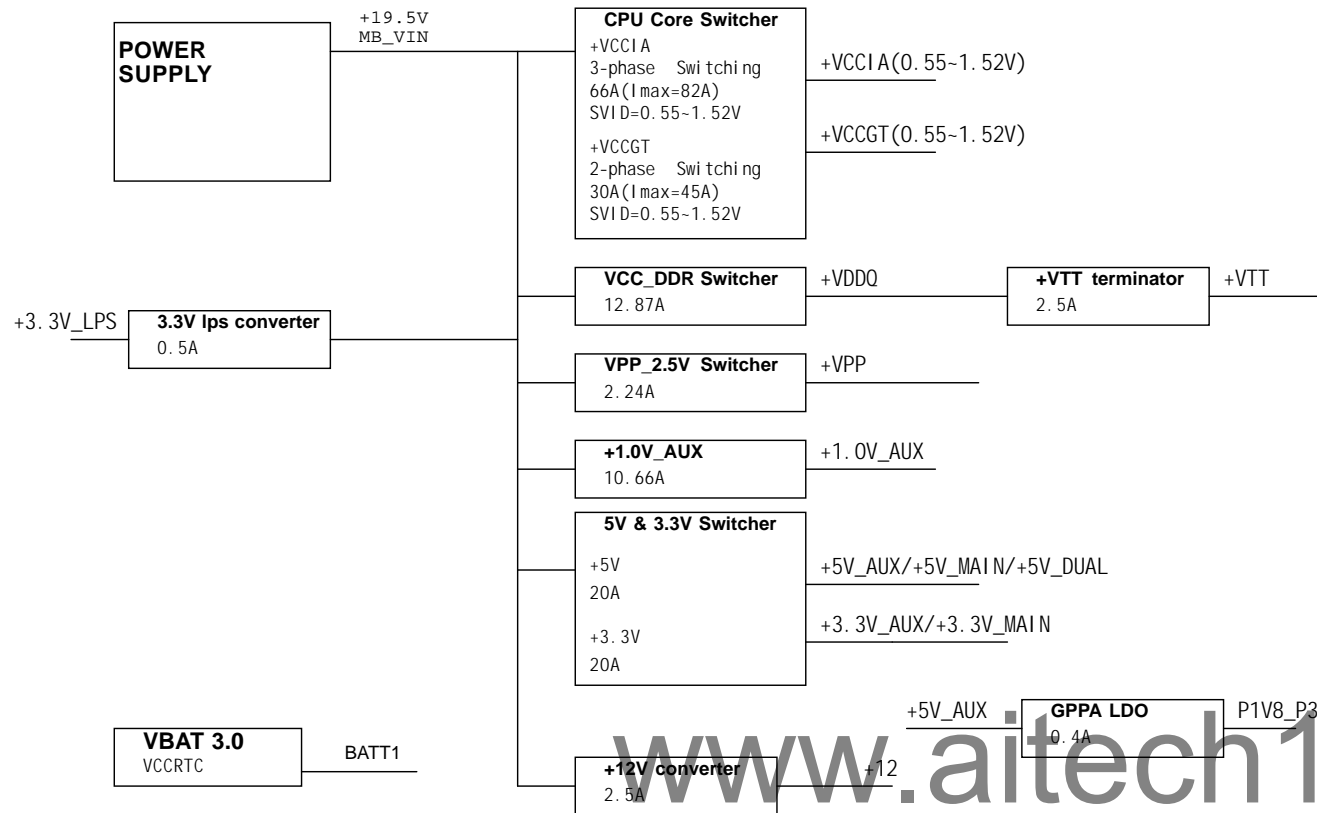


SMBus Block Diagram




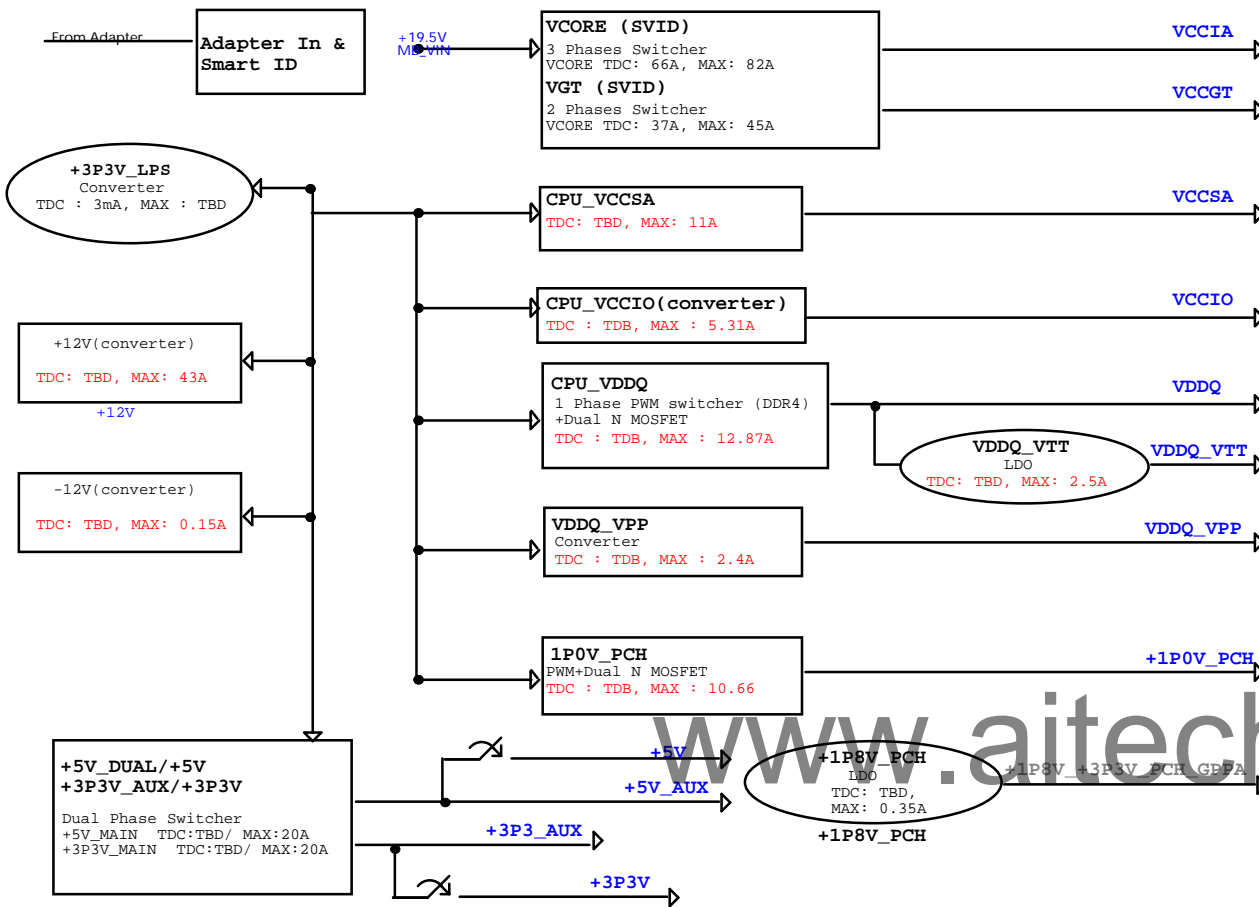
HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY: FOXCONN			
Title: 03. CLOCK DIAGRAM			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	3 of 79



HP Restricted Secret.

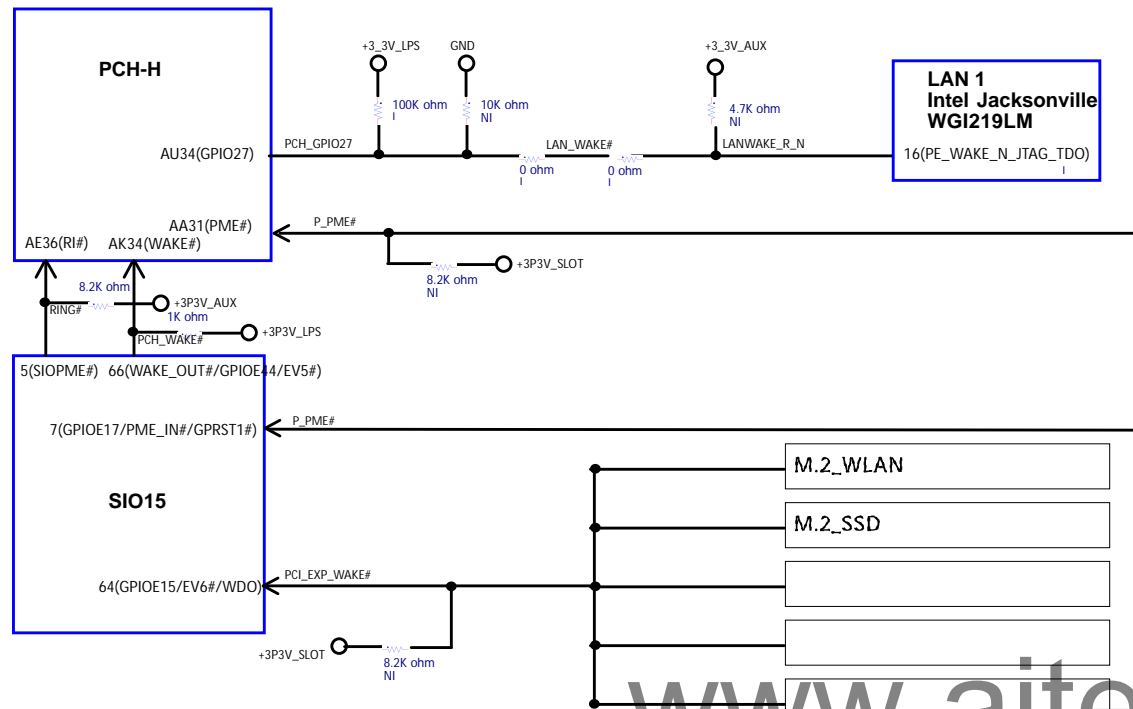
		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		04. POWER DISTRIBUTION	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	4 of 79



HP Restricted Secret.

HEWLETT PACKARD		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HEWLETT-PACKARD (HP) DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP	
DRAWN BY: FOXCONN			
POWER FLOW			
Size	Document Number	Rev	
Custom	Antman	A01	
Date:	Tuesday, September 13, 2016	Sheet	6 of 78

Interrupt & PME diagram



www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY: FOXCONN			
Title: 06. Interrupt & PME diagram			
Size	Document	Number	Rev
Custom	Ant Man - Entry		A01
Date:	Tuesday, September 13, 2016	Sheet	6 of 79


POWER SEQUENCE DIAGRAM

POWER SEQUENCE DIAGRAM

1. MB_VIN ---> +5V_ALW
2. MB_VIN ---> +3P3V_LPS
3. PCH_DPWR0K (SIO) ---> PCH
4. PWRBTN_IN# ---> SIO
5. PWRBTN_OUT# (SIO) ---> PCH
6. SLP_SUS# (PCH) ---> SIO
7. LPS_ON# (SIO) ---> +3.3V_AUX
8. LPS_ON# (SIO) ---> +5V_AUX
9. +5V_AUX ---> P1V8_P3V3_PCH_GPPA
10. +1P8V_AUX_PG ---> +1.0V_AUX
11. SIO_RSMRST# (SIO) ---> PCH
12. SUS_WARN# (PCH) ---> SIO
13. SUSACK# (SIO) ---> PCH
14. SLP_A# (PCH) ---> SIO
15. SLP_LAN# (PCH) ---> LAN
16. SLP_WLAN# (PCH) ---> WLAN
17. SLP_S5# (PCH) ---> SIO
18. SLP_S4# (PCH) ---> SIO
19. SLP_S4# (PCH) ---> +VDDQ
20. SLP_S4# (PCH) ---> +VPP
21. SLP_S4# (PCH) ---> +1P0V_VCCST
22. 5V_DUAL_EN (SIO) ---> +5V_DUAL
23. SLP_S3# (PCH) ---> SIO
24. SLP_S3# (PCH) ---> +VCCIO
25. SLP_S3# (PCH) ---> +VTT
26. VCCIO_PGOOD ---> +VCCSA
27. PS0N# (SIO) ---> EN +12V_MAIN
28. +12V_PGOOD ---> EN +5V_MAIN
29. +5V_MAIN ---> +3.3V_MAIN
30. PWRGD_30MS ---> VCORE_EN
31. VCORE_EN ---> +VCCIA
32. VCORE_PG ---> VCCST_PWRGD_1V
33. VCORE_PG ---> PCH_PWR0K
34. H_PWRGOOD (PCH) ---> CPU
35. PWRGD_170MS (SIO) ---> PCH
36. PLTRST_N (PCH) ---> SIO

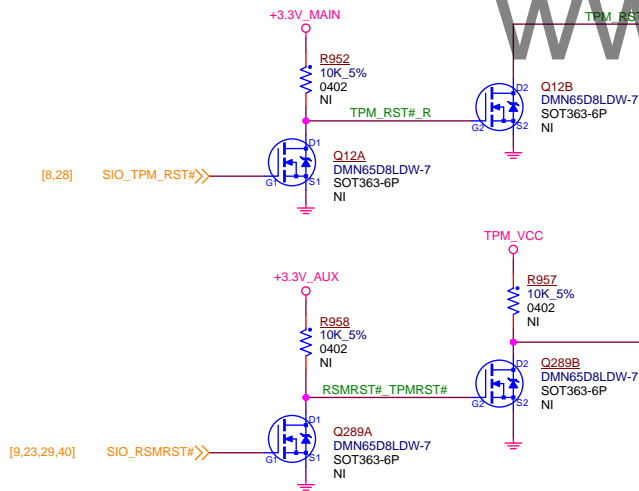
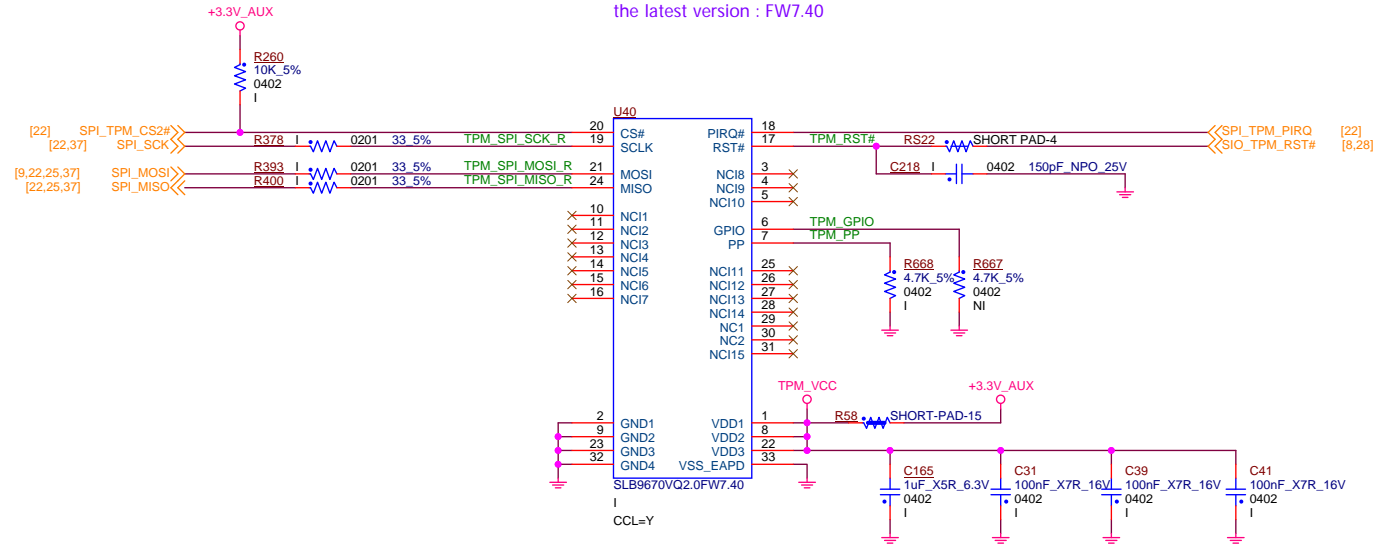
www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 07. POWER SEQUENCE DIAGRAM			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet 7	of 79


TPM

SLB9670VQ2.0
the latest version : FW7.40

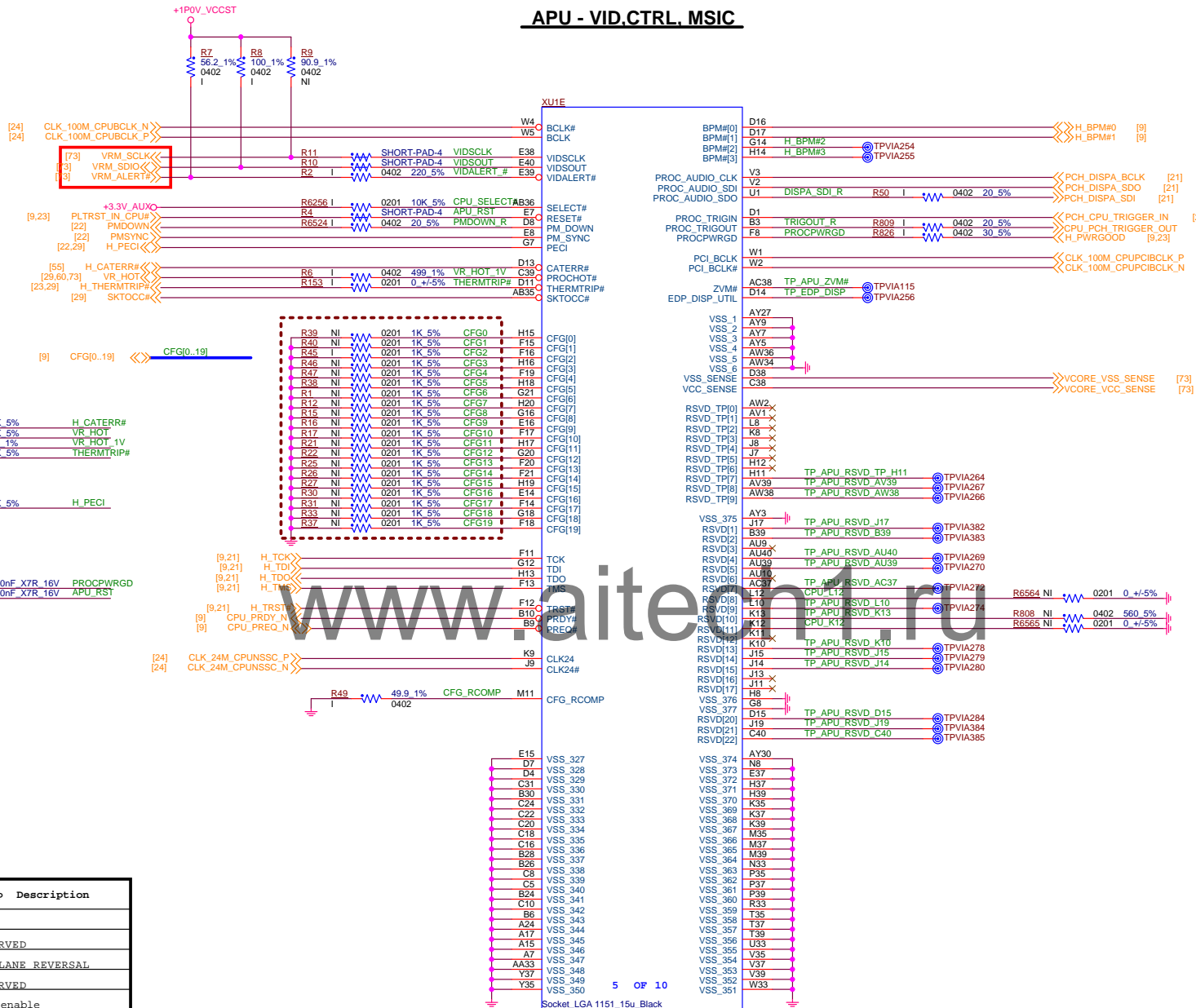


www.aitech1.ru

HP Restricted Secret.

 HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.		DRAWN BY FOXCONN	
		Title 08. (C) TPM	
Size Custom	Document Number Ant Man - Entry	Rev A01	
Date: Tuesday, September 13, 2016		Sheet 8	of 79

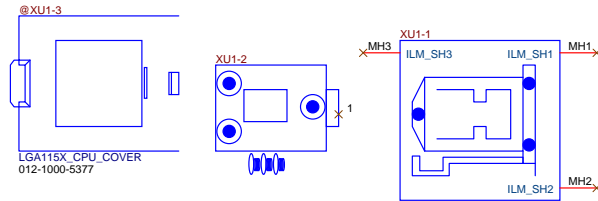
APU - VID.CTRL. MSIC



PEI-E CONFIG TABLE			
CFG5	CFG6	PCI-E CONFIG	
0	0	X8 X4 X4	
0	1	RESERVED	
1	0	X8 X8	
1	1	X16	

ALL PINS HAVE INTERNAL PULL-UPS

CFG	High	Low	Strap Description
0	NORMAL	STALL	EAR
1			RESERVED
2	NORMAL	REVERSE	PEG LANE REVERSAL
3			RESERVED
4	DISABLE	ENABLE "0"	eDP enable
5	DISABLE "1"	DISABLE "1"	PEG0CFGSEL[0] x16
6	DISABLE "1"	DISABLE "1"	PEG0CFGSEL[1] x16
7	RESET N	BIOS REO	PEG DEFER TRAINING
8-19			RESERVED



HP Restricted Secret.

HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY: FOXCONN

Title: 10. (C) MCP - CLK/CTRL/MISC/DBG

Size: Document Number

Custom: Ant Man - Entry

Date: Tuesday, September 13, 2016

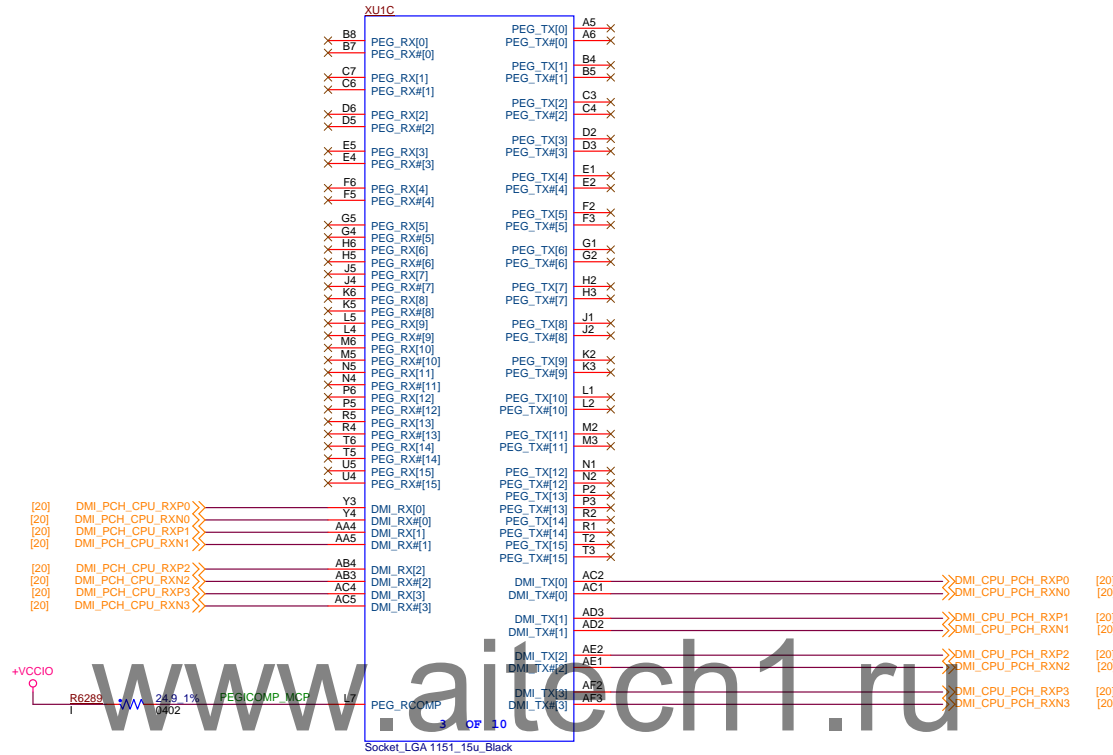
Sheet: 10 of 79

Rev: A01

MCP - PCIE,DMI,FDI,DDI

PEG X# Cap Value	
Gen1/Gen2	75nf-265nf
Gen3	180nf-365nf

PEG x16 & DMI - Refer to PDG page45
Breakout
MS = 10/4/4/4/10
DSL = 10/3/3.5/3/10
Main
12/3.5/4.5/3.5/12 (Group)
15/3.5/4.5/3.5/15 (Other)

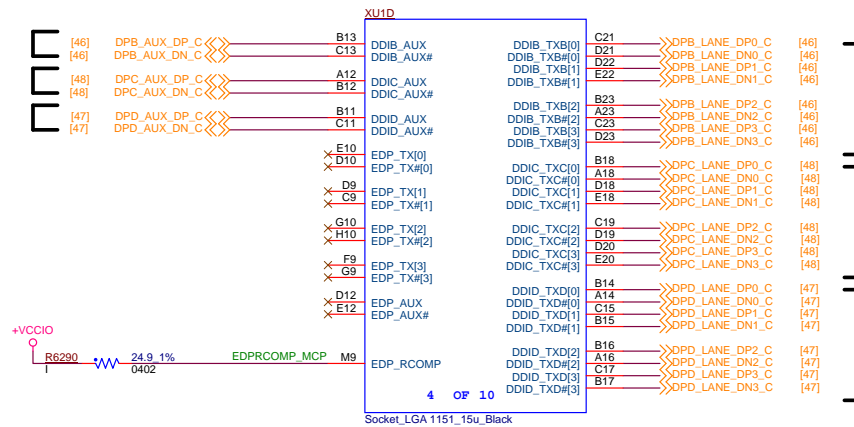


PEG_RCOMP:
Trace Width = 12 mils
Spacing = 15 mils
Length = 400mils

DP#1_J63 (TOP)

DP#3_J64

DP#2_J63 (BOT)



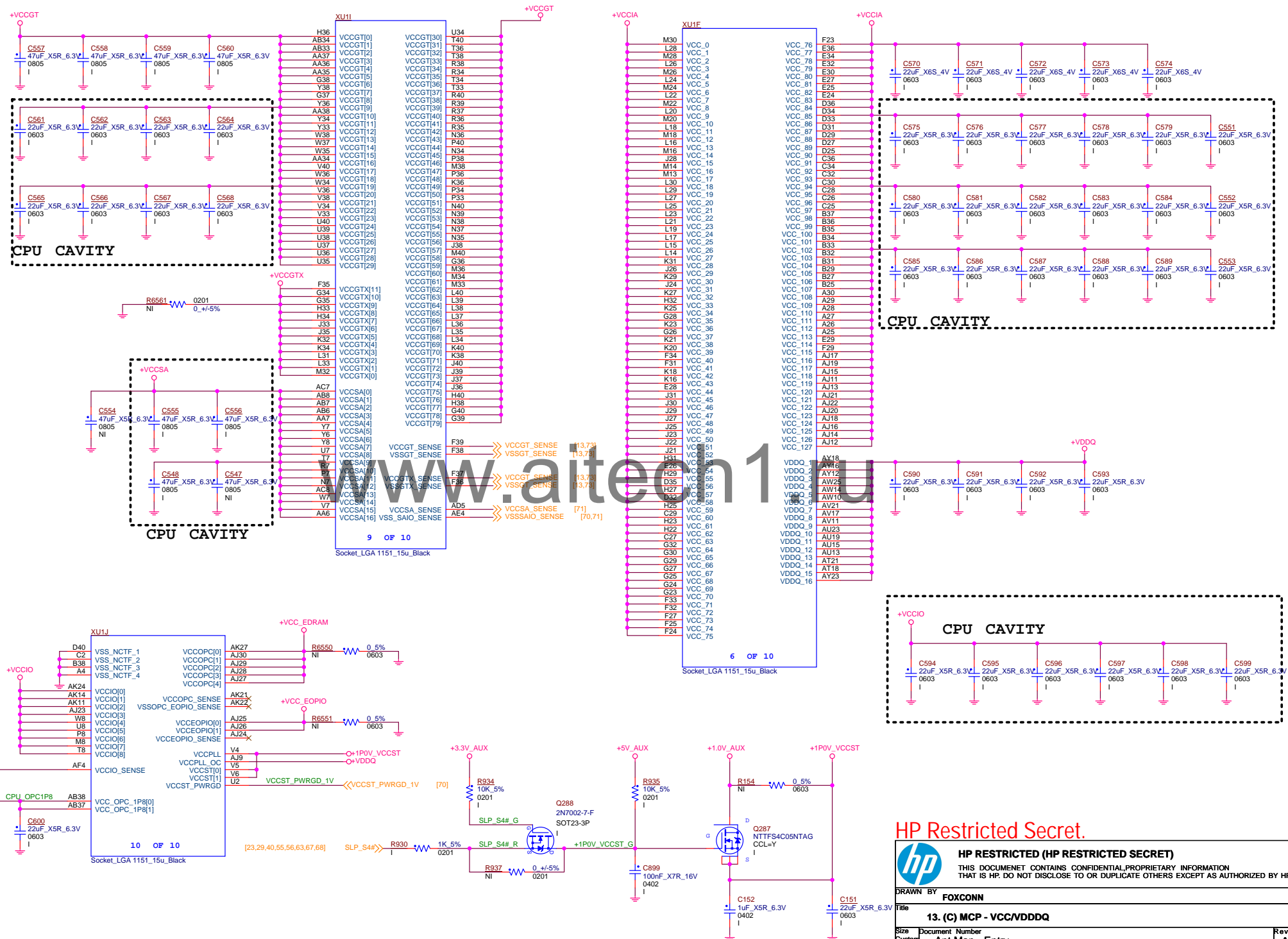
DP#1_J63 (TOP)

DP#3_J64

DP#2_J63 (BOT)

HP Restricted Secret.

HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN	
Title 12. (E) MCP - PCIE/ DMI/ DDI	
Size Ant Man - Entry	Rev A01
Date: Tuesday, September 13, 2016	
Sheet 12 of 79	



HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION
THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY **FOXCONN**

13. (C) MCP - VCC/VDDQ

Size	Document Number
------	-----------------

Size	Document Number
Custom	Ant Man - Entry


Rev

Date: Tuesday, September 13, 2016

Sheet 13 of 79




HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 14. (C) MCP - VSS			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	14 of 79

BLANK
www.aitech1.ru


HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 17. --BLANK--			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date:	Tuesday, September 13, 2016	Sheet	17 of 79

BLANK


www.aitech1.ru

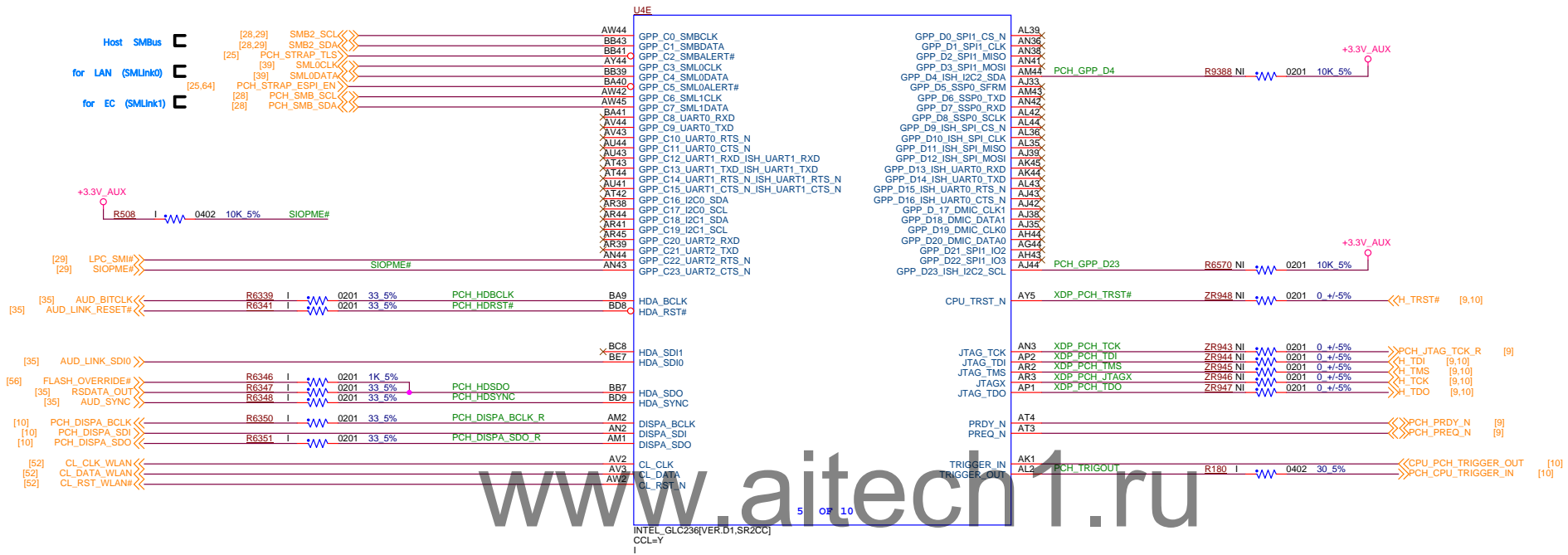
HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title			
18. --BLANK--			
Size Custom	Document Number		Rev
	Ant Man - Entry		A01
Date:	Tuesday, September 13, 2016	Sheet	18 of 79

BLANK
www.aitech1.ru


HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 19. --BLANK--			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date: Tuesday, September 13, 2016	Sheet	19	of 79



www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 21. (C) PCH - SMBUS/HDA/GPIO			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	21 of 79

U4C

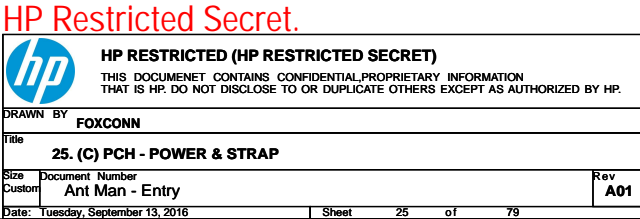


THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION
THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

--	--

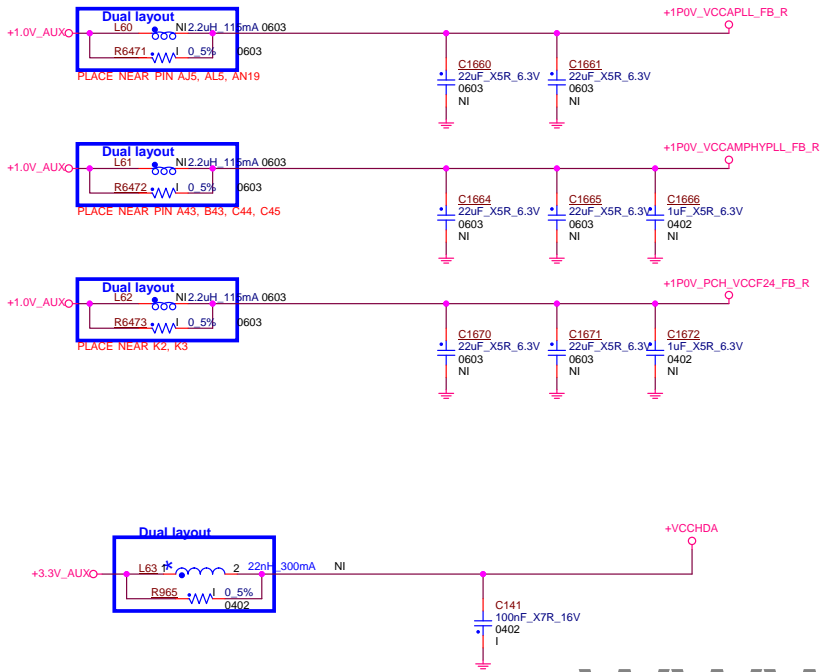
A01

	7	8
--	---	---



SKYLAKE Decoupling & filter

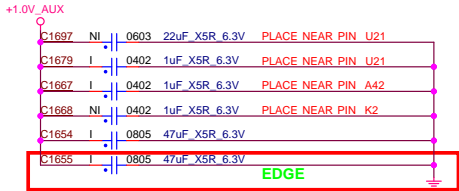
FILTER



Power Plane Isolation

Voltage	Interface	PCH Pins sharing power rail
VCC_PCH 1.05V	Core	U26, U25, U23, U21, V26,
	PCIe/SATA/ USB3	T19, T20, P22, P23, P25, P26, P28, P14, P16, P17
	GPIO/LPC	AC12
	FDI	M14
	DIFFCLK	U12, V14
		W14
		AB2
	SSC	T16, V16
PCH 3.3V Standby		AA16, W16
	USB2	AF19, AF20, AF22, AF23, AP22
	SUS	AM33, AN33
	USB2	AH18, AH20, AH22, AJ20, AK20
	AZALIA	AW26
PCH 3.3V	USB3	P20
	RTC	AP35
	CLK	AM7, AM9, AP5, AP7, AR4, AT5, AV4, AW4, AW9, AG12, AK11,
	HVC MOS	AG1
	PCIe	AV3, AW3
	Core	U30, W30
	Fuse	AF26

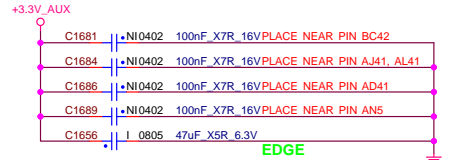
V1.0A



V3.3 DSW



V1.8A / V3.3A



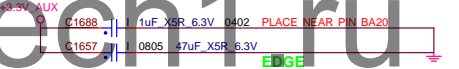
VccPGPPA



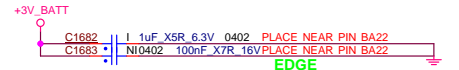
V1.8A / V1.8S / V3.3S



V3.3A



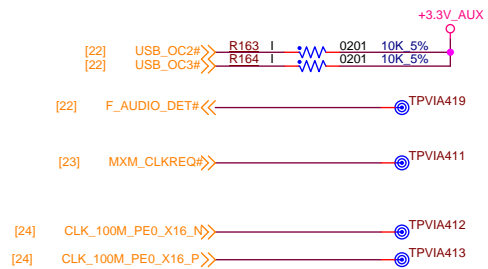
VCCRTC



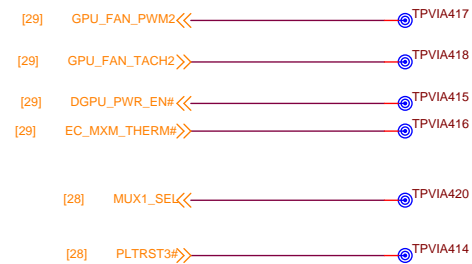
HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 26. (C) PCH - FILTER & DECOUPLE			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	26 of 79

PCH



SIO



www.aitech1.ru

HP Restricted Secret.



		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 27. (E) TP for PREMIUM			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date:	Tuesday, September 13, 2016	Sheet	27 of 79

Figure 10 shows two I2C bus configurations. The top configuration is for the EC (SMLink1) and includes connections to Intel ME (PCH_SMB_SCL, PCH_SMB_SDA, R299, R308), Memory / XDP (SMB1_SDA, SMB1_SCL, R527, R529), and an External Thermal Sensor (PCH_SMB_LINK / SIO_HMSMB, R526, R528). The bottom configuration is for the Host SMIbus and includes connections to SMB2_SDA, SMB2_SCL, R526, R528, and an External Thermal Sensor (PCH_SMB_LINK / SIO_HMSMB, R526, R528). Both configurations show a 4.0kΩ pull-up resistor connected to +3.3V_AUX and a 2.2kΩ resistor connected to +3.3V_MAIN.

[0] SIO_TPM_RST# <<< R690 I 0201 33 5% PLTRST2#
 [50] SIO_LAN_RST# <<< R689 I 0201 33 5%
 [52] SIO_M2230_RST# <<< R517 I 0201 33 5%
 [53] SIO_M2280_RST# <<< R518 I 0201 33 5%

+3.3V_MAIN
 R401 1.2K 5%
 0402 NI
 5V_EN_SIO15 R
 R306 1.2K 5%
 0402
 5V_EN_SIO15 [69]
 Q68 3P23-3P
 SOT23-3P
 PROTO
 PWM SS2# SIO15
 +12V_MAIN
 R6510 1.2K 5%
 0402 NI
 3P3V_EN_SIO15 R
 R327 1.2K 5%
 0402 NI
 3P3V_EN_SIO15 [69]
 Q67 3P23-3P
 SOT23-3P
 PROTO
 PWM SS1# SIO15

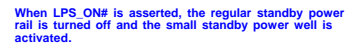
[illegible]

	HP RESTRICTED (HP RESTRICTED SECRET)		
	THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.		
DRAWN BY	FOXCONN		
Title	2B. (C) SIO15 (1)		
Size Custom	Document Number	Rev	
Ant Man - Entry		A01	
Date:	Tuesday, September 13, 2016	Sheet	28 of 79

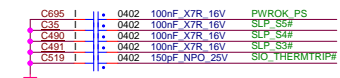
PN update



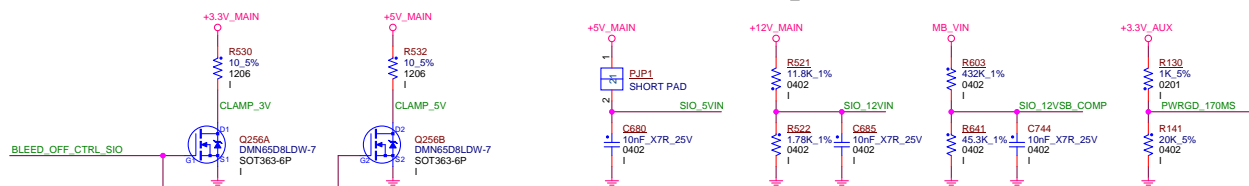
LPS_ON# / LPS_ON



LPS: L
Normal: H



COMP2_+12V



HP Restricted Secret.



THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION
THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

Date: Tuesday, September 13, 2016

Date: Tuesday, September 13, 2016 Sheet 29 of 79

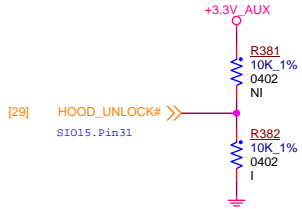
ev
A01

Board ID

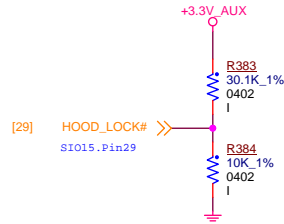
UNLOCK = ML_STR2
R108/R107 control PCA_ID_STS0[5:3]

LOCK = ML_STR1
R105/R106 control PCA_ID_STS0[2:0]

ML_STR2



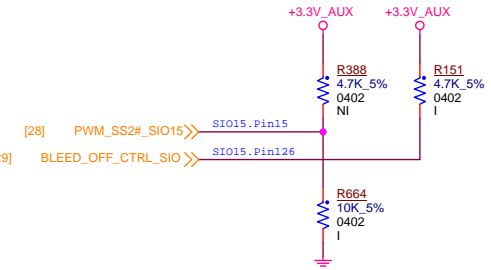
ML_STR1



Chassis ID

CID_STR1

CID_STR0



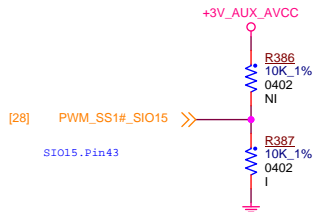
PCA_BRD ID Resistor values

		ML_STR2		ML_STR1	
Assignments	BRD_ID[1:0]	R381	R382	R383	R384
Premium	00	NI	10K	NI	10K
Reserved	01	NI	10K	69.8K	10K
Entry	10	NI	10K	30.1K	10K
Reserved	11	NI	10K	16.5K	10K

Rev ID

PWM_SS1# = ML_STR3
R436/R504 control PCA_REV_ID[2:0]

ML_STR3



PCA_REV_ID Resistor values

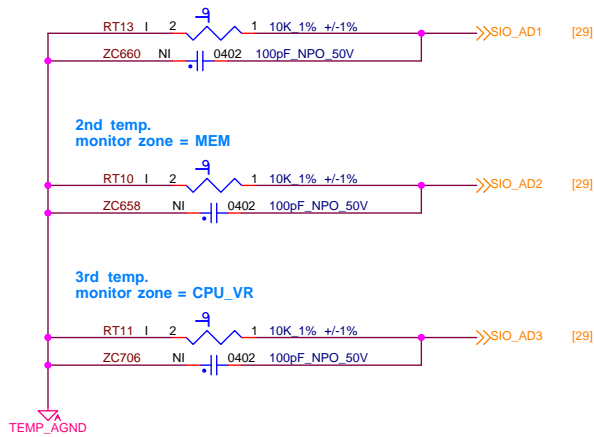
REV_ID	NPI	MP	ML_STR3		ML_STR3[2:0]b Register Value
			R386	R387	
0	DB-1	MVB,A	NI	10K	000
1	DB-2	1stECN	69.8K	10K	001
2	DB-3	2ndECN	30.1K	10K	010
3	SI-1	3rdECN	16.5K	10K	011
4	SI-2	4thECN	16.5K	16.5K	100
5	SI-3	5thECN	10K	16.5K	101
6	PV-1	6thECN	10K	30.1K	110
7	PV-2	7thECN	10K	69.8K	111

HP Restricted Secret.

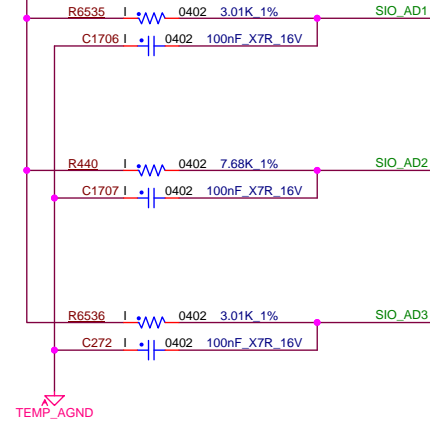
		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 30. (C) SIO15 (3)			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date: Tuesday, September 13, 2016		Sheet 30 of 79	

THERMAL SENSORS (SIO15)

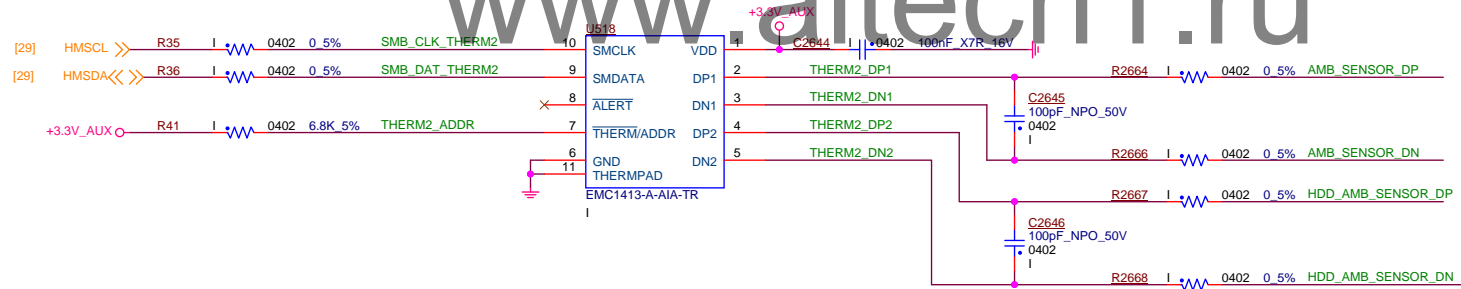
1st temp.
monitor zone = M2_SSD



+3V_AUX_AVCC

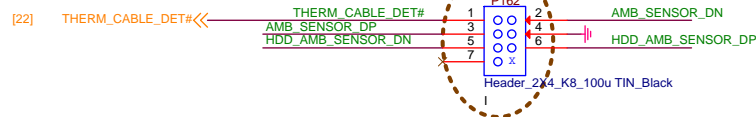


4th temp.
monitor zone = GPU



Via Cable, 5th temp.
monitor zone = System Ambient

Via Cable, 6th thmp.
monitor zone = HDD Ambient




HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		31. (C) SIO15 (4)	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 20, 2016	Sheet	31 of 79

BLANK

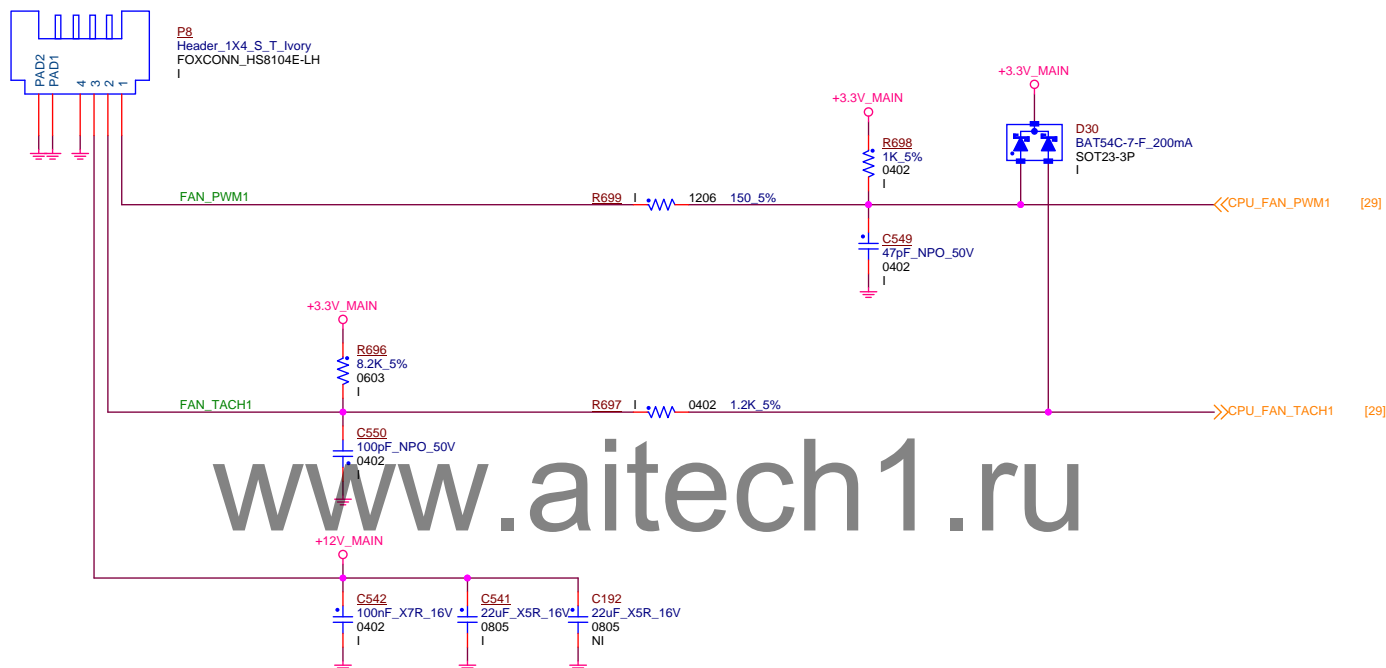
www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 32. -- BLANK --			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date: Tuesday, September 13, 2016	Sheet	32	of 79

CPU Fan

1	FAN PWM INPUT
2	FAN TACH
3	+12V
4	GND



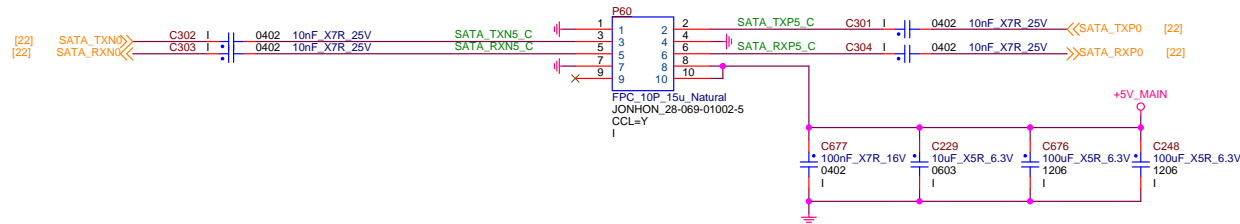
www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 33. (C) FAN			
Size Custom	Document Number		Rev
Ant Man - Entry		A01	
Date:	Tuesday, September 13, 2016	Sheet	33 of 79

Combo SATA Header


Rear HDD LED header

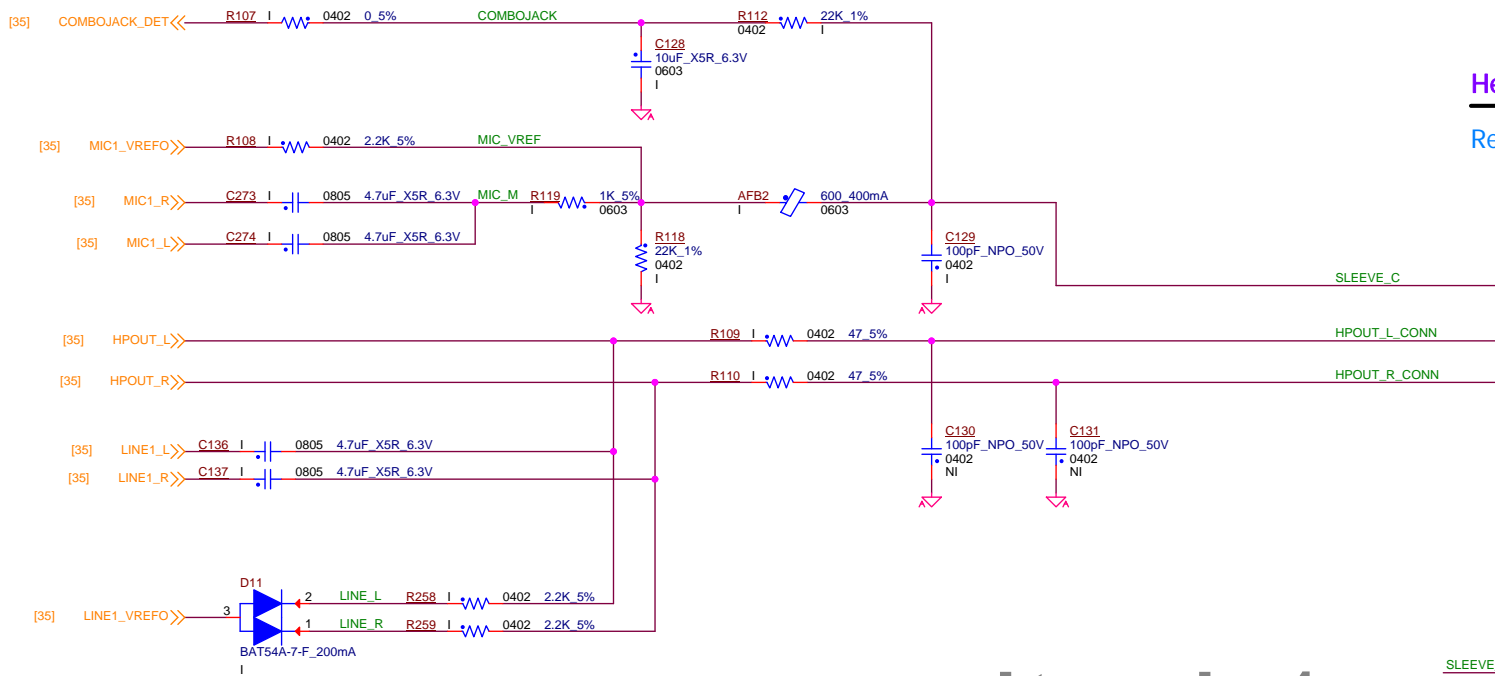


Remove P210

www.aitech1.ru

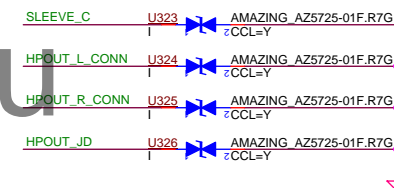
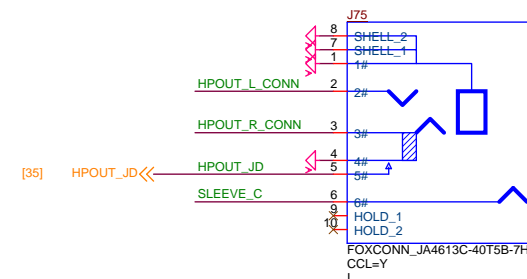
HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 34. (C) SATA			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	34 of 79

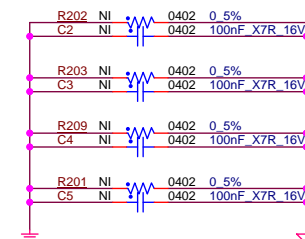
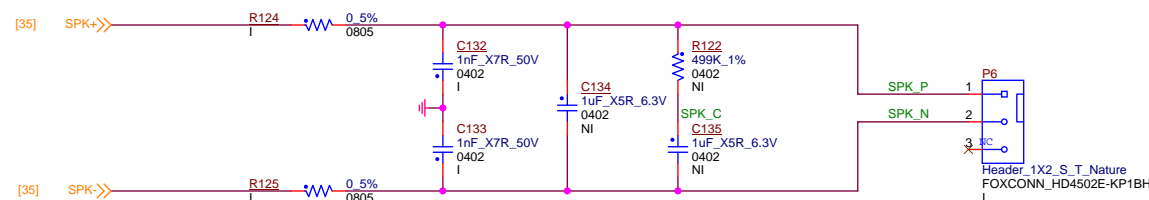


Headset (CTIA)

Retasking HP /MIC /Line-Out



Speaker




HP Restricted Secret.

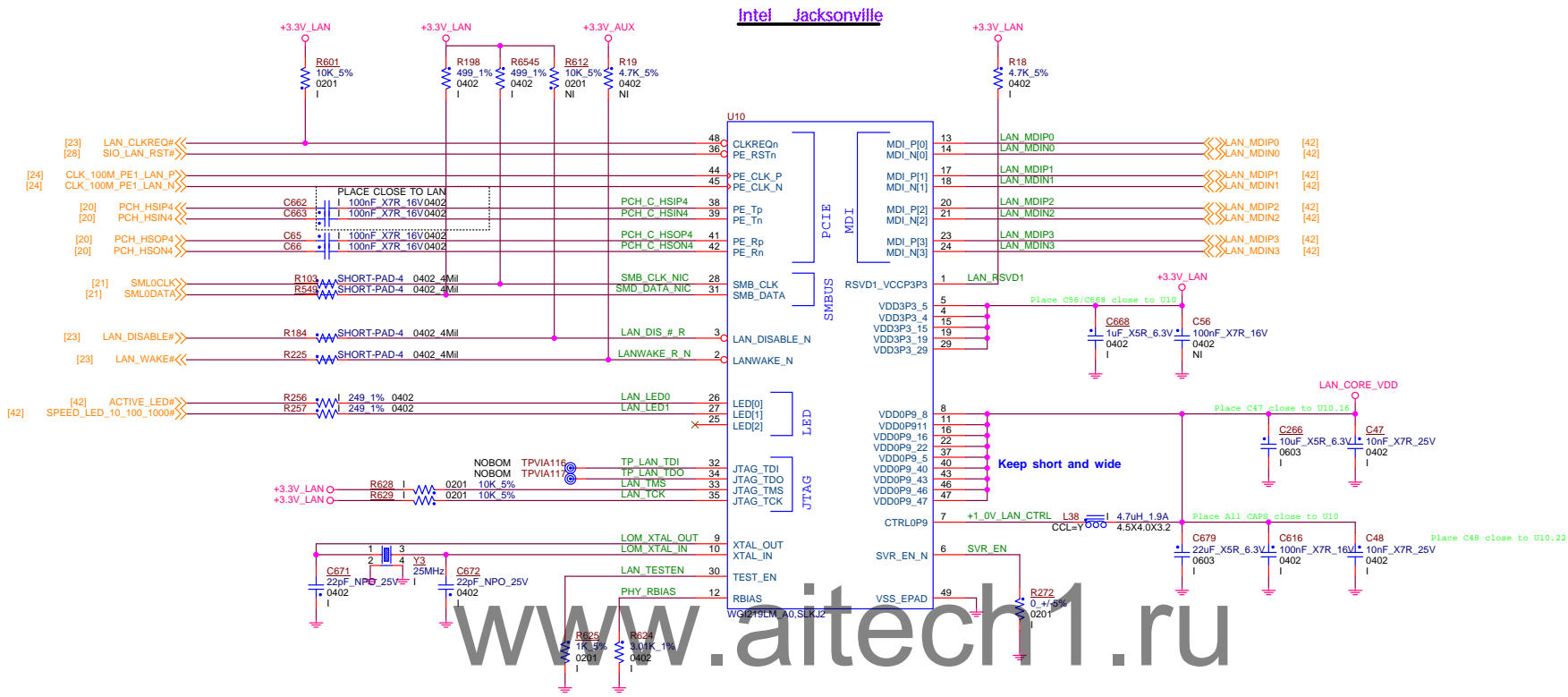
		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		36. (E) AUDIO Conn	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 13, 2016	Sheet	36 of 79

BLANK

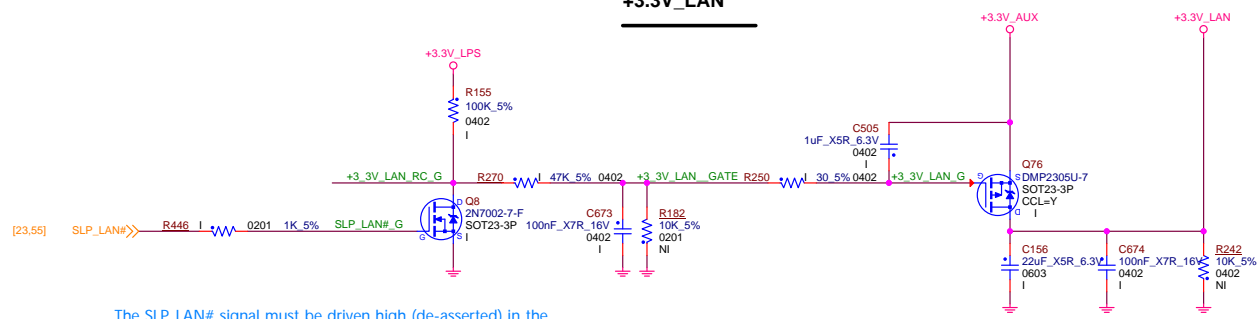
www.aitech1.ru

HP Restricted Secret.

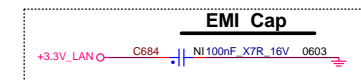
		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 38. -- BLANK --			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date: Tuesday, September 13, 2016		Sheet 38 of 79	



+3.3V_LAN



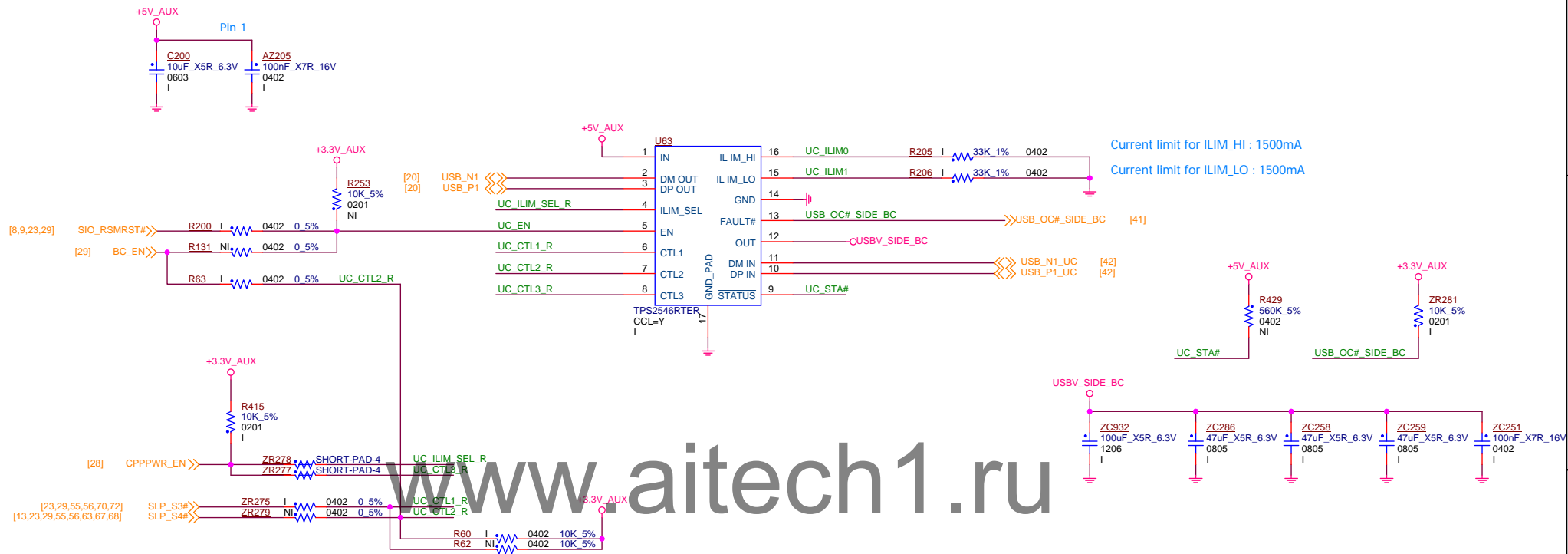
The SLP_LAN# signal must be driven high (de-asserted) in the Deep Sx state to maintain power to the Platform LAN Connect Device.



HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 39. (C) LAN_Jacksonville			
Size Custom	Document Number Ant Man - Entry	Rev A01	
Date: Tuesday, September 13, 2016		Sheet 39	of 79

USB Charging IC



USB Charging mode selection in System Status

Charging Port Function (Port Options in BIOS)	System State	CTL1 SLP_S3#	CTL2 BC_EN	CTL3 CPPPWR	ILIM_SEL CPPPWR	Charging Mode	ILIM	USB DATA	USB Wakeup
Enabled (Default)	S0	1	1	1	1	CDP	ILIM-Hi =1500mA	YES	N/A
Enabled (Default)	S3	0	1	1	1	DCP_Auto	ILIM-Hi =1500mA	NO	YES
Enabled (Default)	S4/S5	0	1	1	1	DCP_Auto	ILIM-Hi =1500mA	NO	YES
Disabled	S0	1	1	0	0	SDP	ILIM-Lo =1500mA	YES	N/A
Disabled	S3	0	1	0	0	SDP	ILIM-Lo =1500mA	YES	YES
Disabled	S4/S5	0	0	0	0	Discharge	N/A	NO	N/A

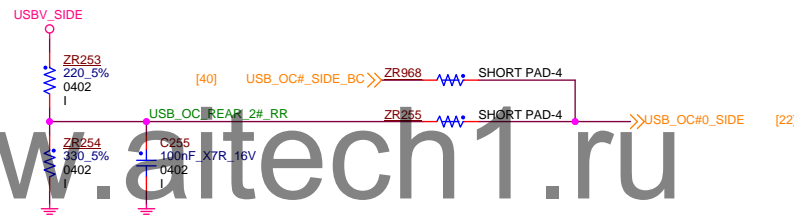
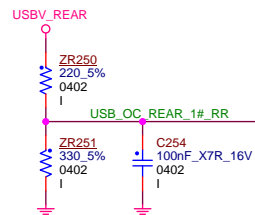
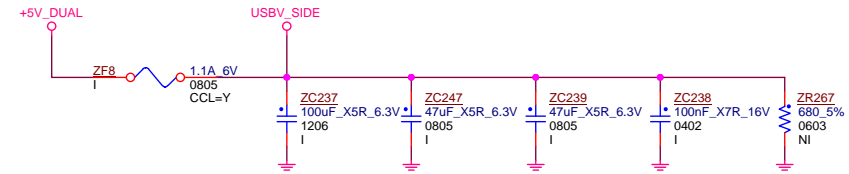
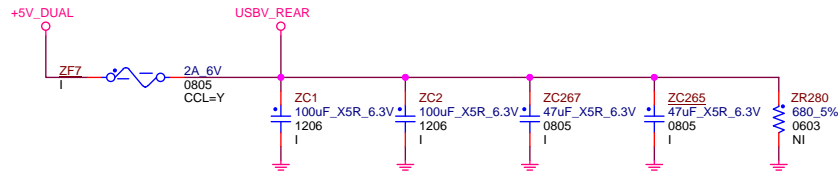
SDP : Standard Downstream Port
CDP : Charging Downstream Port
DCP : Dedicated Charging Port

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN		Title 40. (C) USB Charger	
Size Custom	Document Number Ant Man - Entry	Rev A01	
Date: Tuesday, September 13, 2016		Sheet 40 of 79	Rev


Rear : USB3*2

SIDE : USB3*1 + USB3 BC



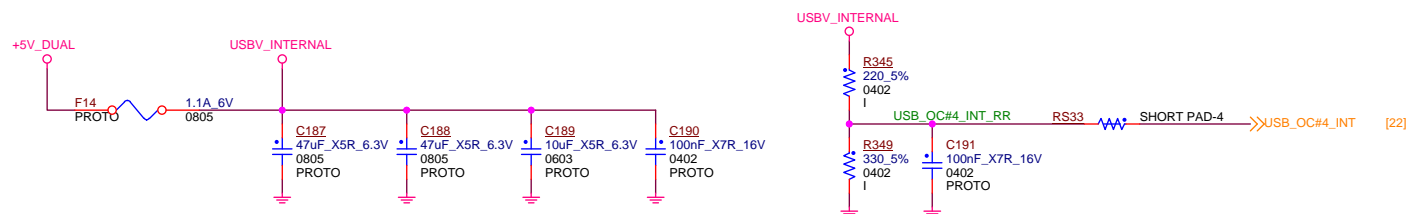
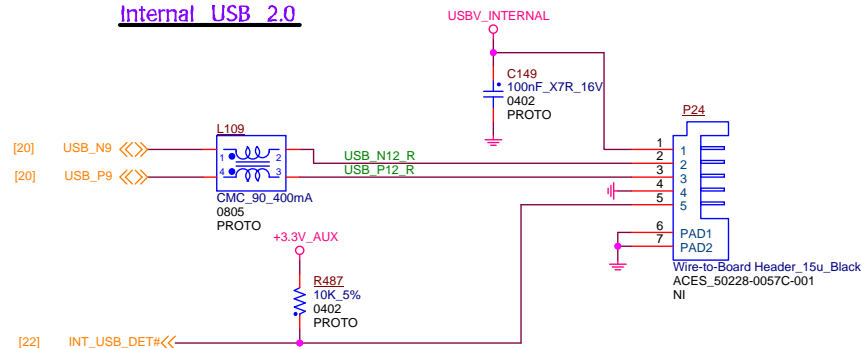
www.aitech1.ru

HP Restricted Secret.

 HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.		DRAWN BY	
		FOXCONN	
Title		41. (E) USB POWER	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 13, 2016	Sheet	41 of 79

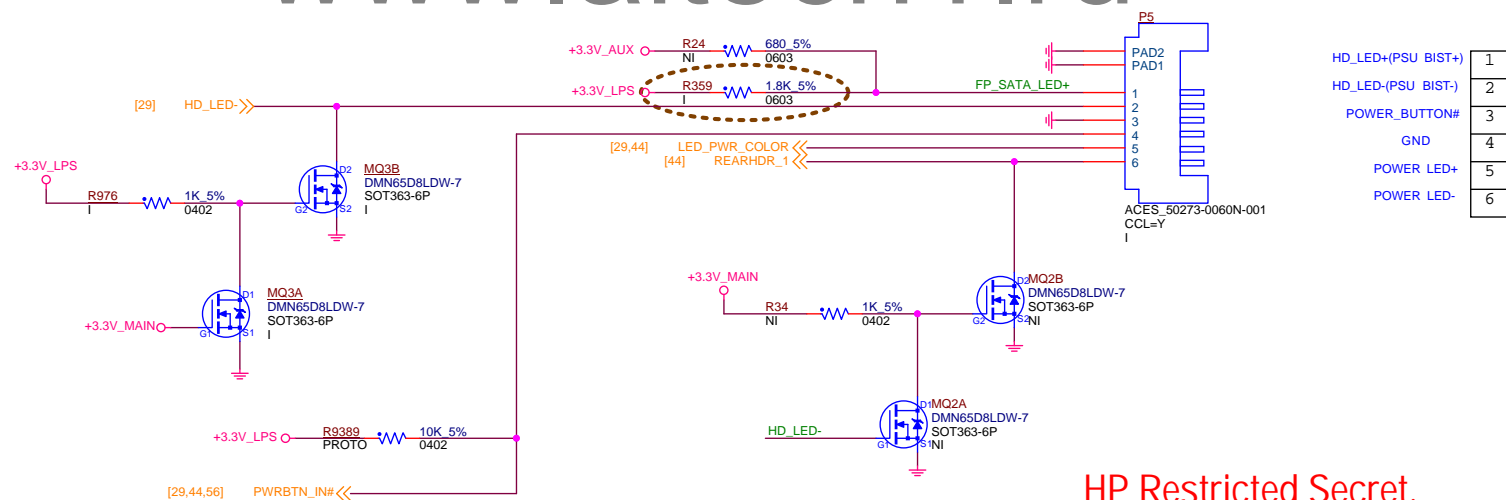
Rev
A01

Internal USB 2.0



Front Panel PWR BTN

www.aitech1.ru



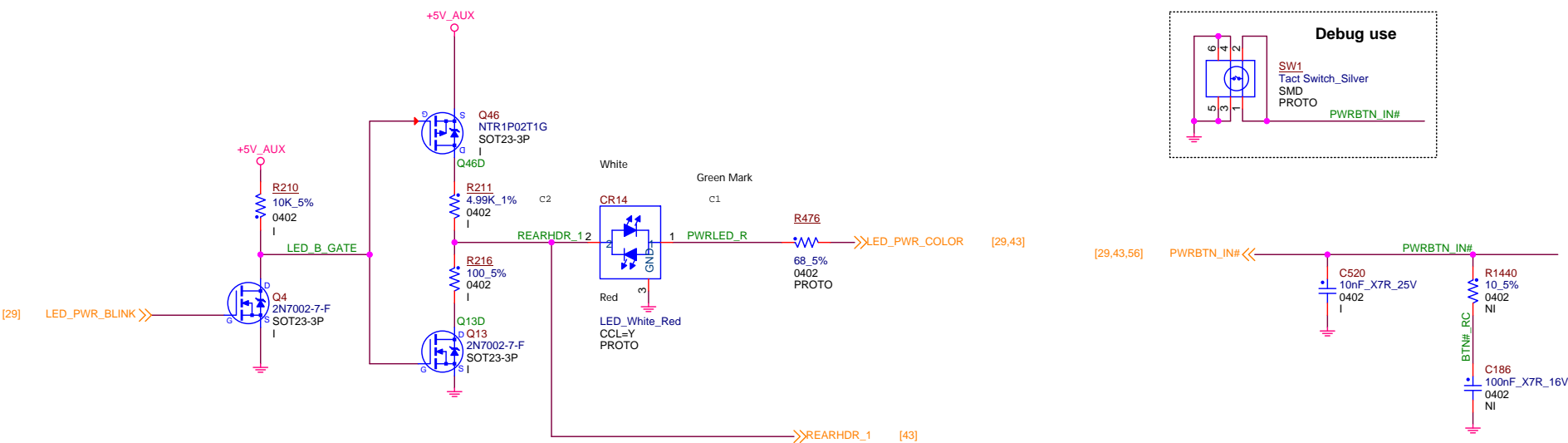
	REARHDR_1	HD_LED-	PWRLED_R	LED Status
S0 with HDD Loading	High	Blink	Low	Blink White
S0 without HDD Loading	High	High	Low	Always White
S3-S5	Blink	Low	HIGH	Blink Red
Failure found	Blink	High	Blink	Blink for Failure LED

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		43. (C) INT Header	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 20, 2016	Sheet	43 of 79

Power Status LED

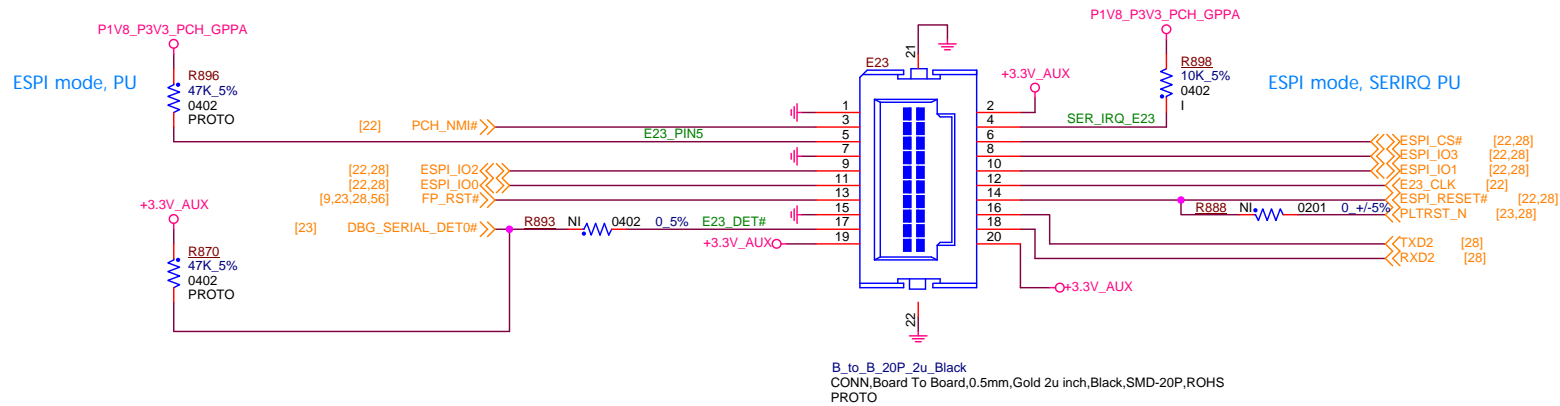
Power BUTTON



HP Restricted Secret.


		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY		FOXCONN	
Title		44. (C) Power BTN	
Size	Document Number	Rev	
B	Ant Man - Entry	A01	
Date: Tuesday, September 20, 2016		Sheet	44 of 79

PLATFORM DEBUG HEADER

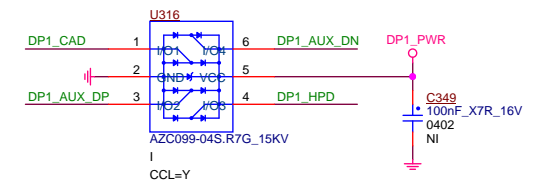
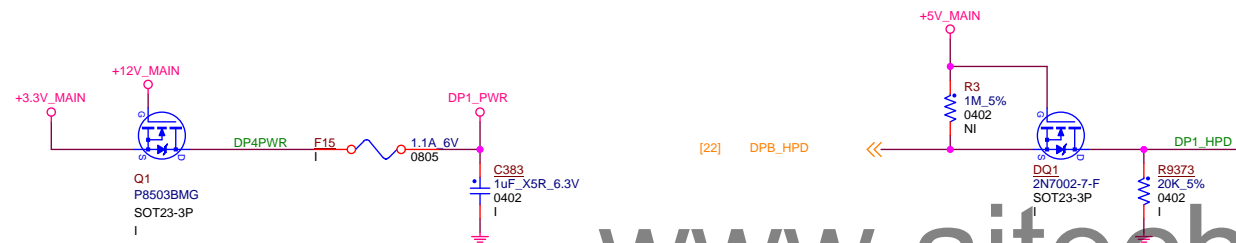


www.aitech1.ru

HP Restricted Secret.

 HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN	
Title 45. (C) Platform Debug Header	
Size B	Document Number Ant Man - Entry
Date: Tuesday, September 13, 2016	Rev A01
Date: Tuesday, September 13, 2016 Sheet 45 of 79	

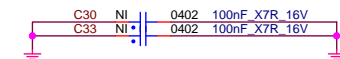
[TOP](#)



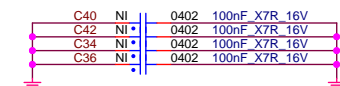
www.aitech1.ru

EMC CAP

[TOP](#)



Bottom



HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION
THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY **FOXCONN**

Title	46. (E) DisplayPort - 1
-------	--------------------------------

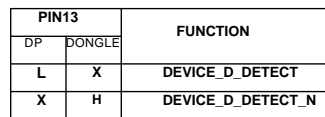
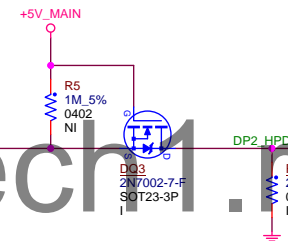
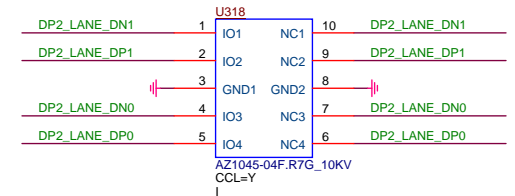
Size	Document Number
Custom	Ant Man - Entry


Date: Tuesday, September 13, 2016

Sheet	46	of	79
-------	----	----	----

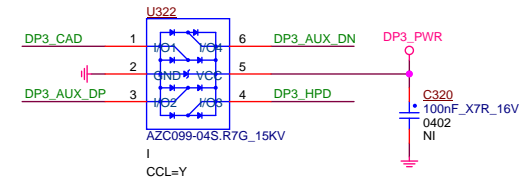
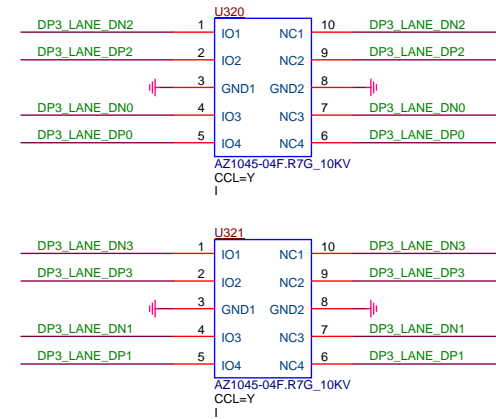
Rev
A01

Bottom



	HP RESTRICTED (HP RESTRICTED SECRET)
	THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.
DRAWN BY FOXCONN	
Title 47. (E) DisplayPort - 2	
Size Custom	Document Number Ant Man - Entry
Rev A01	
Date: Tuesday, September 13, 2016	
Sheet 47 of 79	

DisplayPort #3



PIN13		FUNCTION
DP	DONGLE	
L	X	DEVICE_D_DETECT
X	H	DEVICE_D_DETECT_N

HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION
THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY **FOXCONN**

Title	48. (E) DisplayPort - 3
-------	--------------------------------

Size	Document Number
Custom	Ant Man - Entry

Rev
A01


Date: Tuesday, September 13, 2016

Sheet	48	of	79
-------	----	----	----

BLANK


www.aitech1.ru

HP Restricted Secret.

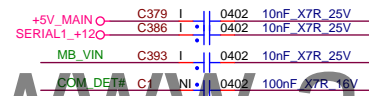
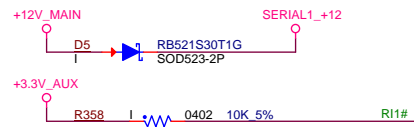
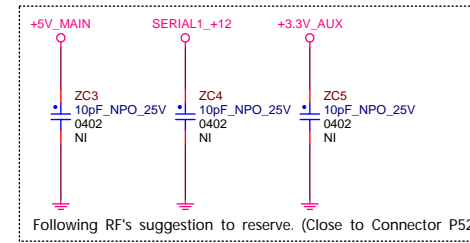
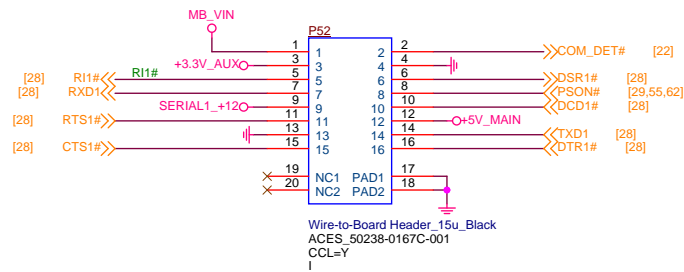
		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title			
49. -- BLANK --			
Size	Document Number		Rev
Custom	Ant Man - Entry		A01
Date:	Tuesday, September 13, 2016	Sheet	49 of 79
	4		5

BLANK
www.aitech1.ru

HP Restricted Secret.


		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 50. -- BLANK --			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date:	Tuesday, September 13, 2016	Sheet	50 of 79

SERIAL Port-A Header

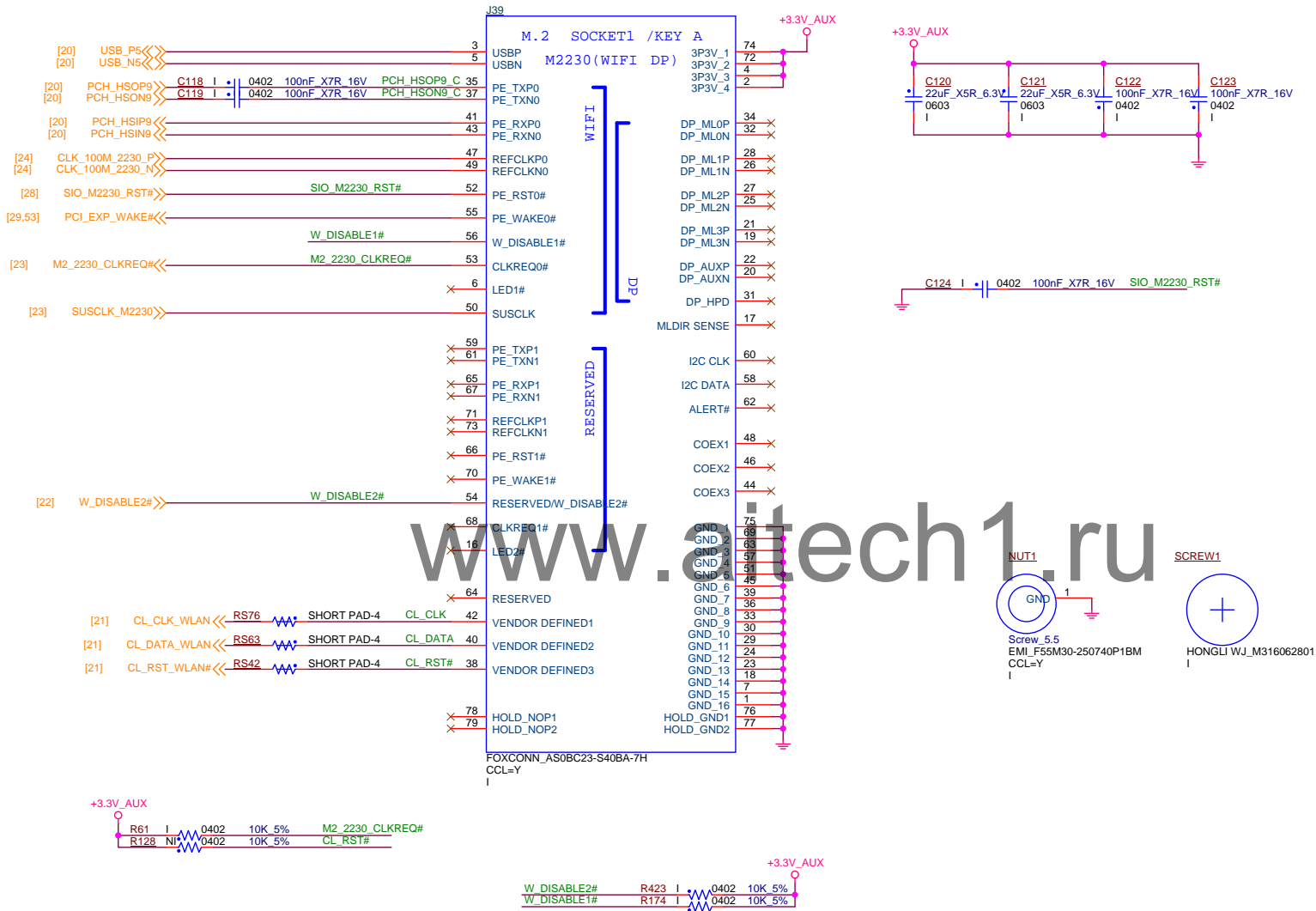


www.aitech1.ru

HP Restricted Secret.

 HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.		DRAWN BY	
		FOXCONN	
Title		51. (C) COM PORT HEADER	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 13, 2016	Sheet	51 of 79

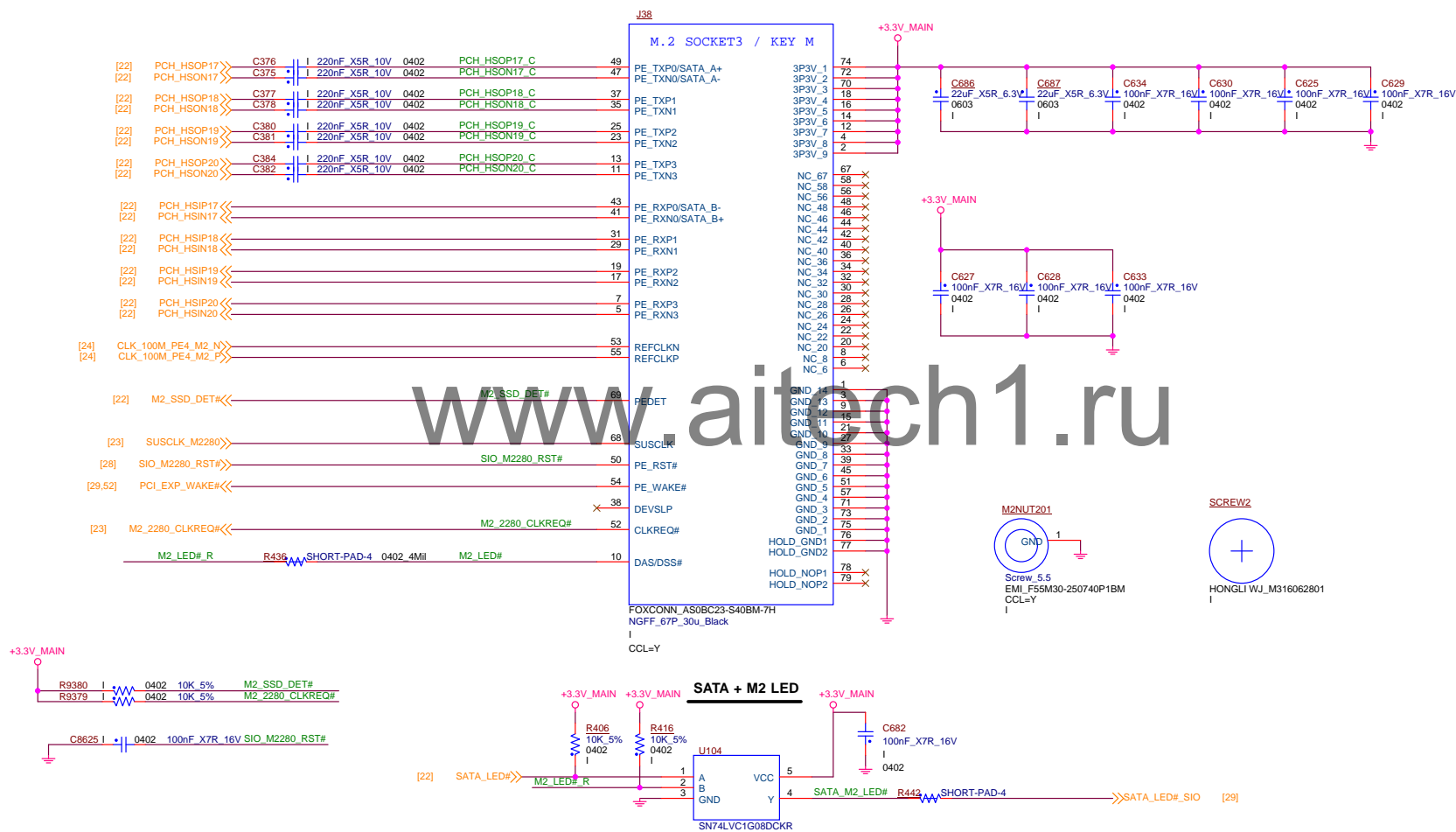
M2. 2230 Key A - WLAN



HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		52. (E) M2 2230 WLAN	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 13, 2016	Sheet	52 of 79

M2. 2280 - STORAGE



HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION
THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

DRAWN BY **FOXCONN**

53. (C) M2.2280_SSD

Size	Document Number
Custom	Ant Man -

Ant Man - Entry

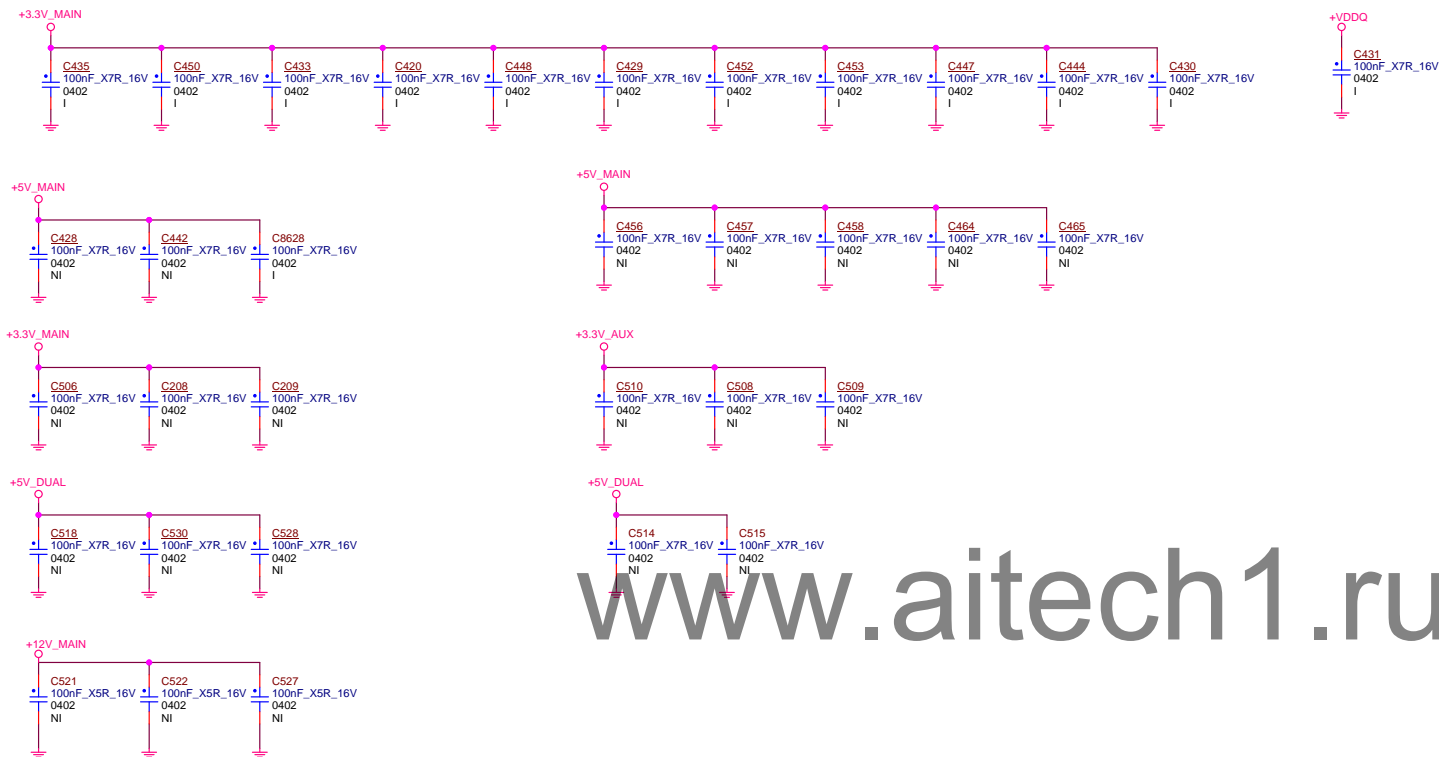
Date: Tuesday, September 13, 2016

Sheet 53 of 79

Rev	A01
-----	-----


A01

EMI CAP

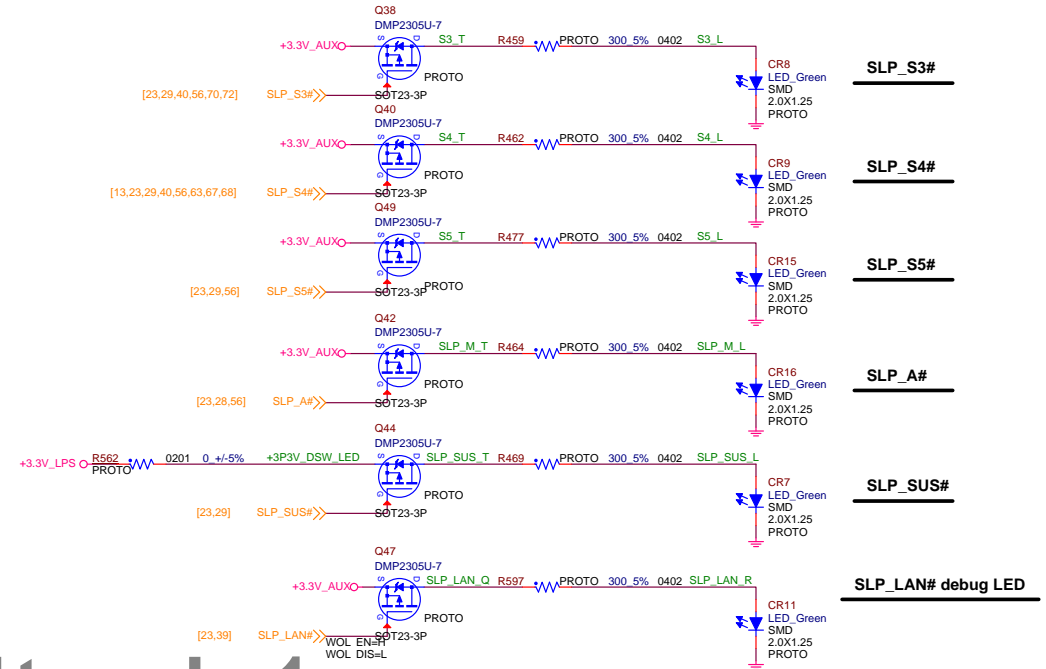
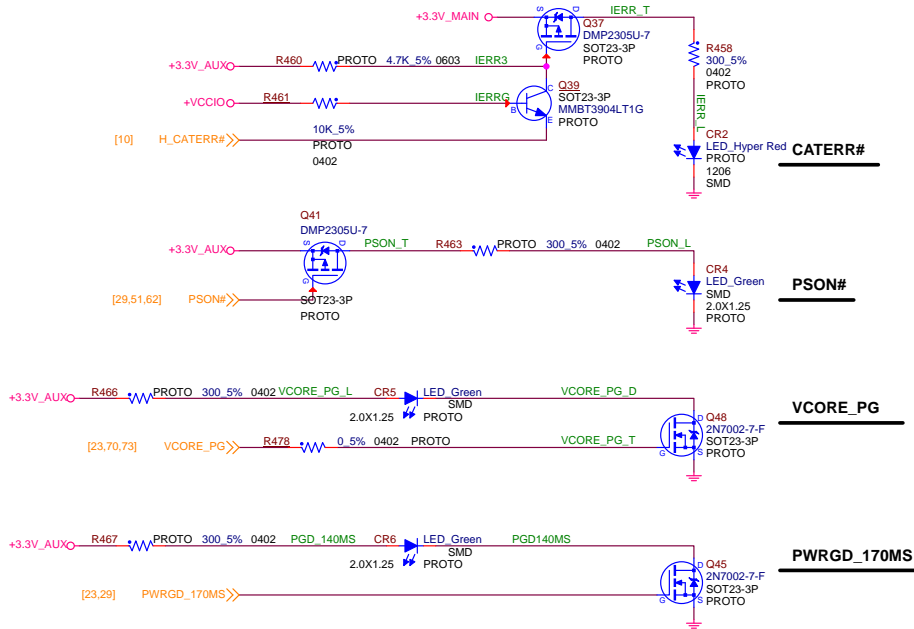


www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 54. (C) EMI CAP			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Tuesday, September 13, 2016		Sheet	54 of 79

PCA LEDs

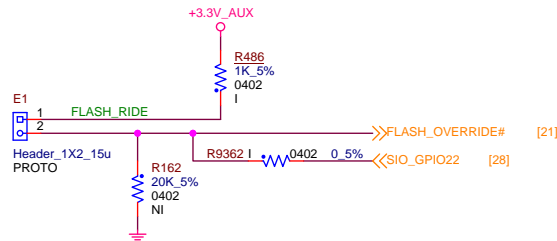


www.aitech1.ru

HP Restricted Secret.

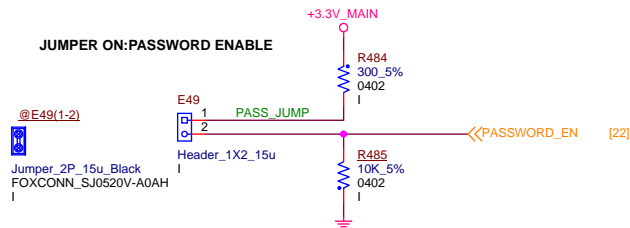
		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
		DRAWN BY: FOXCONN	
Title: 55. (C) Debug LEDs		Size: Document Number Custom: Ant Man - Entry	
Date: Tuesday, September 13, 2016		Sheet: 55 of 79	
Rev: A01			

FLASH OVERRIDE

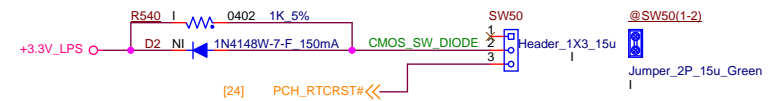


PASSWORD JUMPER

JUMPER ON:PASSWORD ENABLE



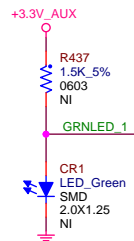
CLEAR CMOS



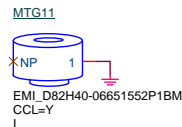
CAD NOTE:
The PCB must have this
silkscreen for HPQ
This circuit disables the clear CMOS
function when system is powered



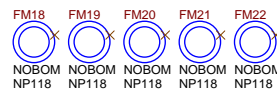
+3V_AUX LED



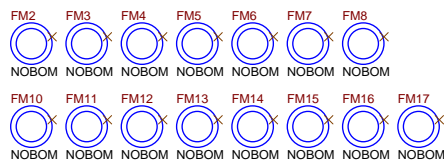
CPU FAN Standoff



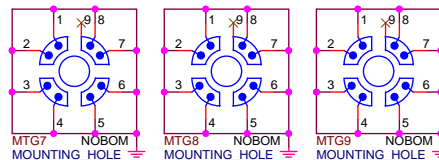
Aligning



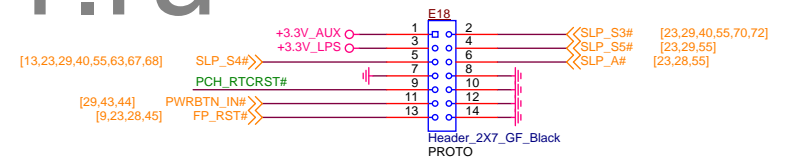
Fiducial Mark



CPU Heatsink

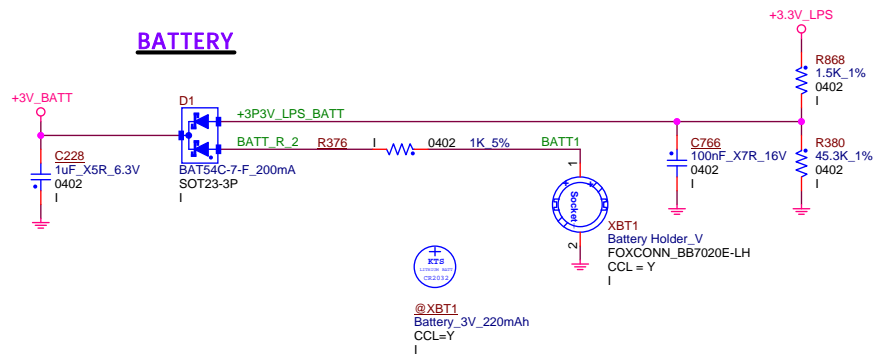


METS/APS TEST HEADER

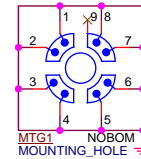


HP Restricted Secret.

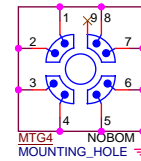
		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		56. (C) HEADER/MECHANICAL PART	
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date:	Tuesday, September 13, 2016	Sheet	56 of 79



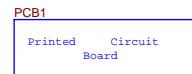
Screw hole for Entry (left-down corner)



Screw hole for Entry (left-upper corner)



PCB



PCB_REV:1.01

6-Layer PCB,Color With Dark Blue Soldermask,White Silkscreen,EM-285,ML1,7.9x7.9 inch,Rev:1.01,ROHS,HF
0101DCT05-35K-H
CCL=Y

www.aitech1.ru


HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 57. (E) HEADER/MECHANICAL PART			
Size	Document Number	Rev	
Custom	Ant Man - Entry	A01	
Date: Wednesday, October 05, 2016		Sheet	57 of 79

BLANK

www.aitech1.ru


HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 58. -- BLANK --			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date: Tuesday, September 13, 2016	Sheet 58	of 79	

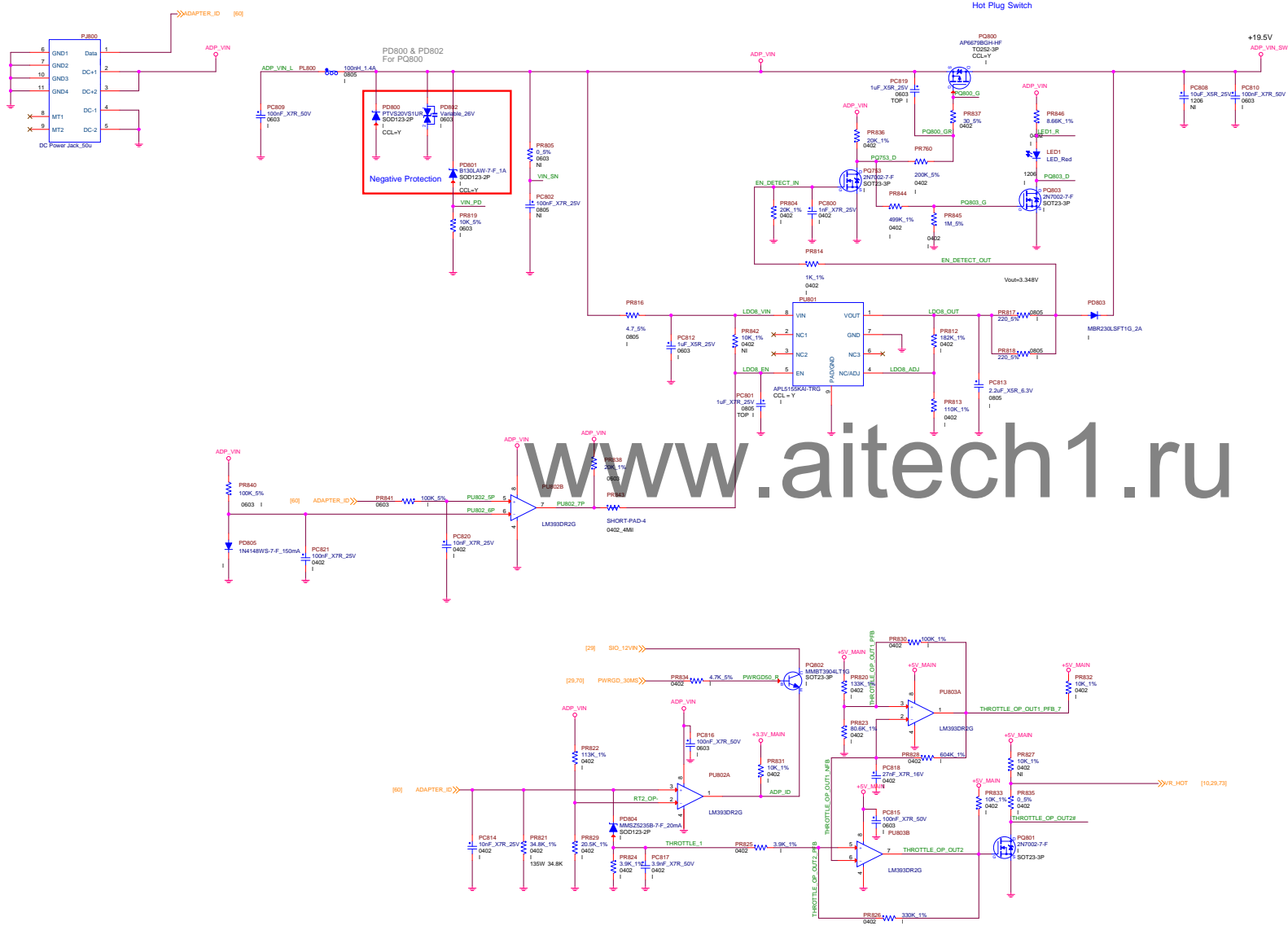
DC Power

www.aitech1.ru

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 59. === DC POWER ===			
Size Custom	Document Number Ant Man - Entry		Rev A01
Date:	Tuesday, September 13, 2016	Sheet	59 of 79

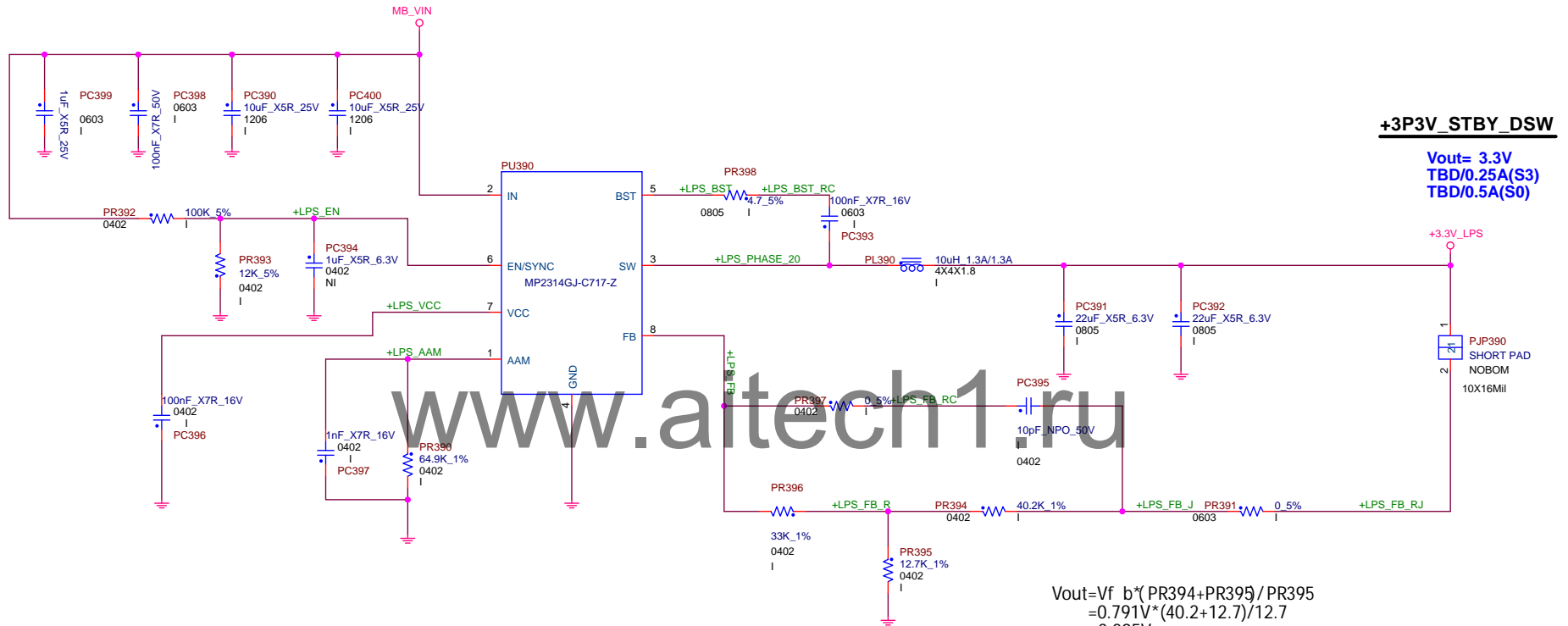
19V DC Power Adapter-in




HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN	FILE 60-4 Adapter IN		
DATE Ant Man - Entry	DOCUMENT NUMBER 0.90		
DATE Tuesday, September 20, 2016	SHEET 60 of 79		

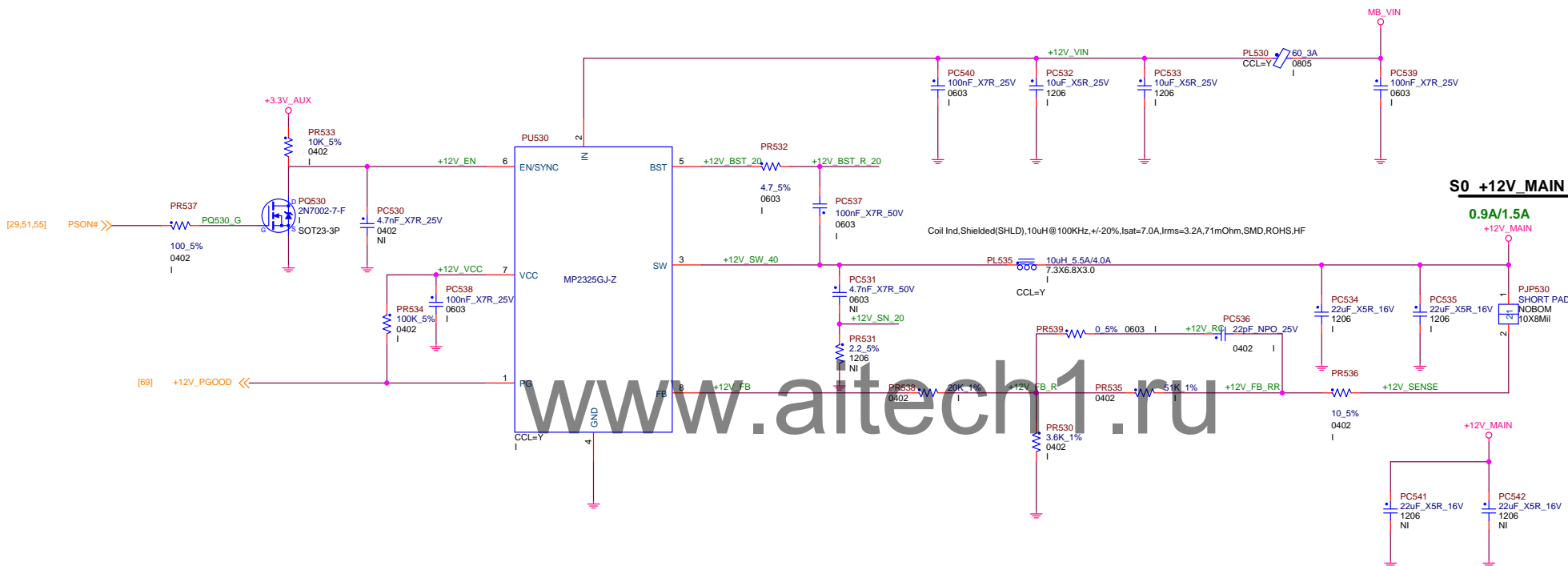
+3P3V LPS




HP Restricted Secret.

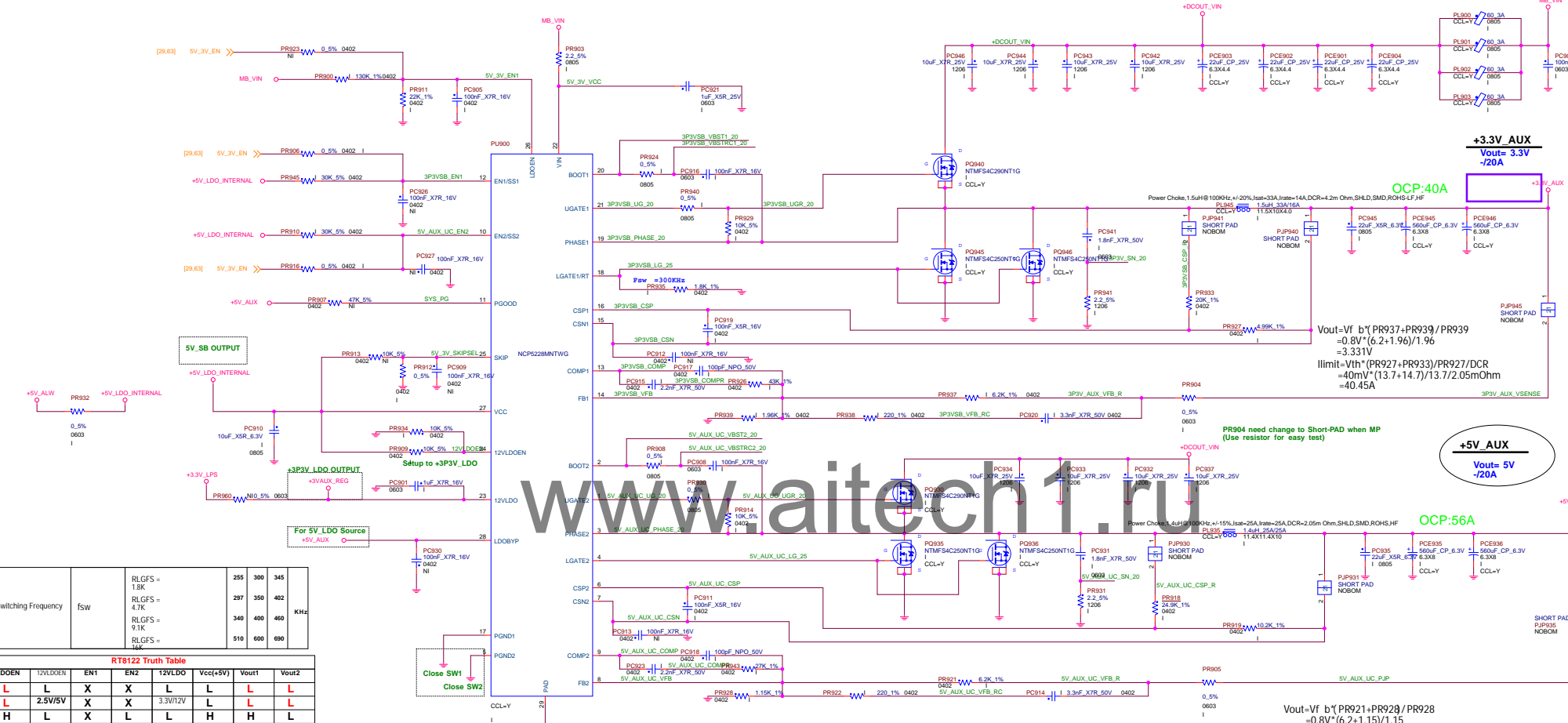
		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY		FOXCONN	
Title		61. +3P3V_LPS	
Size	Document Number	Rev	
Custom	Ant Man - Entry	0.90	
Date:	Tuesday, September 20, 2016	Sheet	61 of 79

Note: net-name:Switch1



HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 62.+12V			
Size	Document Number	Rev	
Custom	Ant Man - Entry	0.90	
Date:	Tuesday, September 20, 2016	Sheet	62 of 79



Switching Frequency	fsw	RLGFS = 1.8K	255	300	345
		RLGFS = 4.7K	297	350	402
		RLGFS = 9.1K	340	400	460
		RLGFS = 16K	510	600	690

RT8122 Truth Table							
LDOEN	12VLD0EN	EN1	EN2	12VLD0	Vcc(+5V)	Vout1	Vout2
L	L	X	X	L	L	L	L
L	L	2.5V/5V	X	X	3.3V/12V	L	L
H	L	X	L	L	H	H	L
H	L	L	L	L	H	L	L
H	L	2.5V/5V	H/L	H/L	3.3V/12V	H	H/L

NCP5228 Truth Table							
LDOEN	12VLD0EN	EN1	EN2	12VLD0	Vcc(+5V)	Vout1	Vout2
L	X	X	X	L	L	L	L
L	2.5V/5V	X	X	L	L	L	L
H	2.5V/5V	H/L	H/L	3.3V/12V	H	H/L	H/L
H	2.5V/5V	H/L	H/L	3.3V/12V	H	H/L	H/L

System Power Control Signal Truth Table					
	LPS	S5	S3	S0	
5V_3V_EN	L	X	X	X	
3P3VSB_EN	L	H	H	H	
5V_DUAL_EN	X	L	H	H	

X:floating				
System Power On Pyramid (RT8122)				
Expected Behavior	LPS	S5	S3/S0	
+5V_LDO	5V	5V	5V	
+3V_LDO	3.3V	3.3V	3.3V	
+5V_SW	0V	5V	5V	
+3V_SW	0V	3.3V	3.3V	

$V_{out} = V_f \cdot b \cdot (PR918 + PR919) / PR919 / DCR$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR937 + PR939) / PR939$
 $= 0.8V \cdot (6.2 + 1.96) / 1.96$
 $= 3.331V$
 $I_{limit} = V_{th} \cdot (PR927 + PR933) / PR927 / DCR$
 $= 40mV \cdot (13.7 + 14.7) / 13.7 / 2.05m\Omega$
 $= 40.45A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

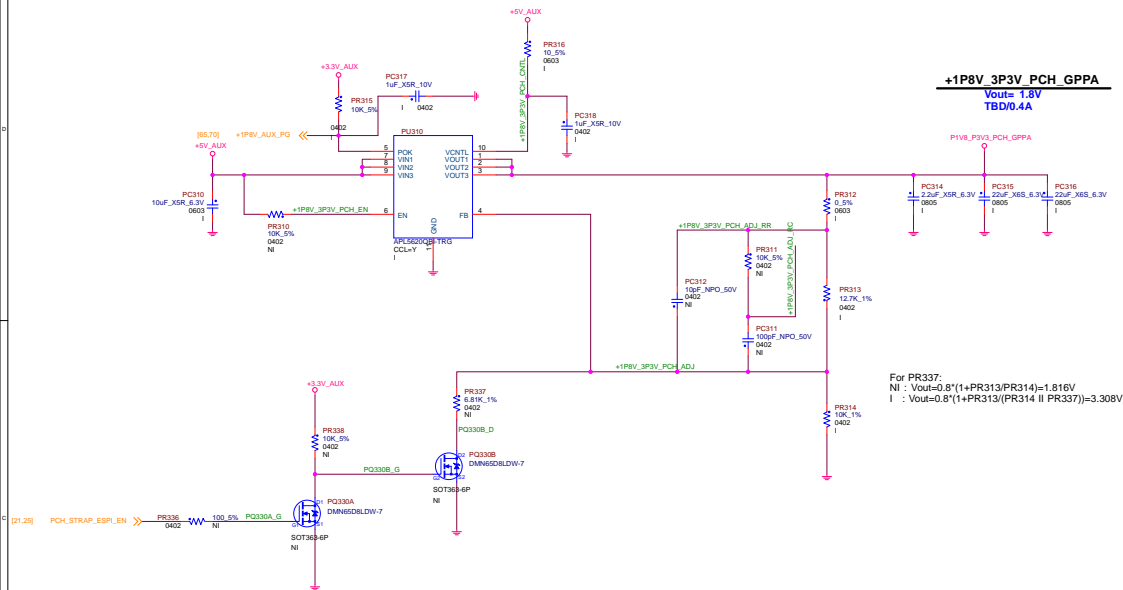
$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

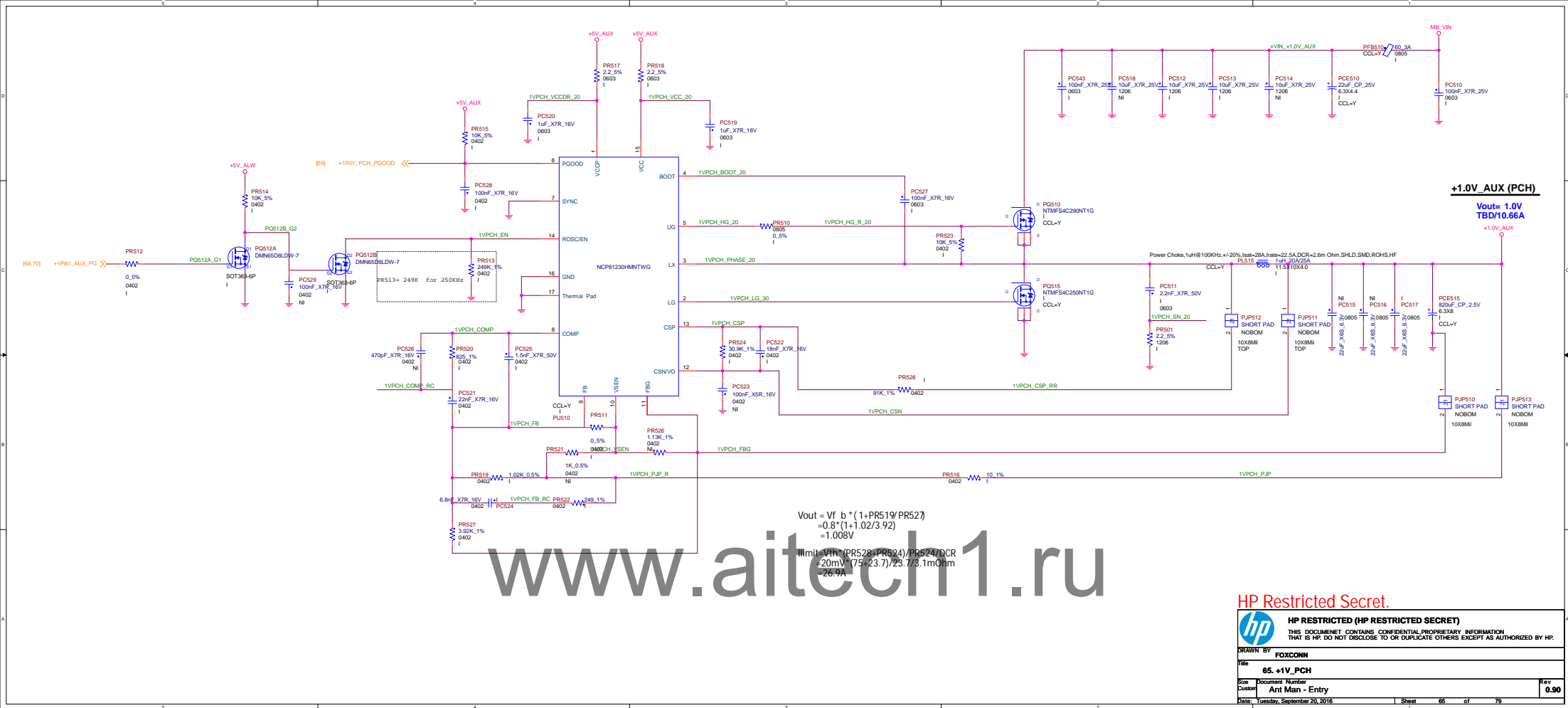
$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

$V_{out} = V_f \cdot b \cdot (PR921 + PR929) / PR928$
 $= 0.8V \cdot (6.2 + 1.15) / 1.15$
 $= 5.113V$
 $I_{limit} = V_{th} \cdot (PR918 + PR919) / PR919 / DCR$
 $= 40mV \cdot (24.9 + 10.2) / 10.2 / 2.05m\Omega$
 $= 67.14A$

+1P8V_3P3V_PCH



www.aitech1.ru




HP Restricted Secret.

HP RESTRICTED (HP RESTRICTED SECRET)			
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY: FOXCONN			
File: 65. +1V_PCH			
Size	Document Number	Rev	
Created	Ant Man - Entry	0.90	
Date:	Tuesday, September 20, 2018	Sheet	65 of 79

www.aitech1.ru

HP Restricted Secret.


		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 66. BLANK			
Site	Document Number	Rev	
Custom	Ant Man - Entry	0.90	
Date: Tuesday, September 20, 2016		Sheet	66 of 79



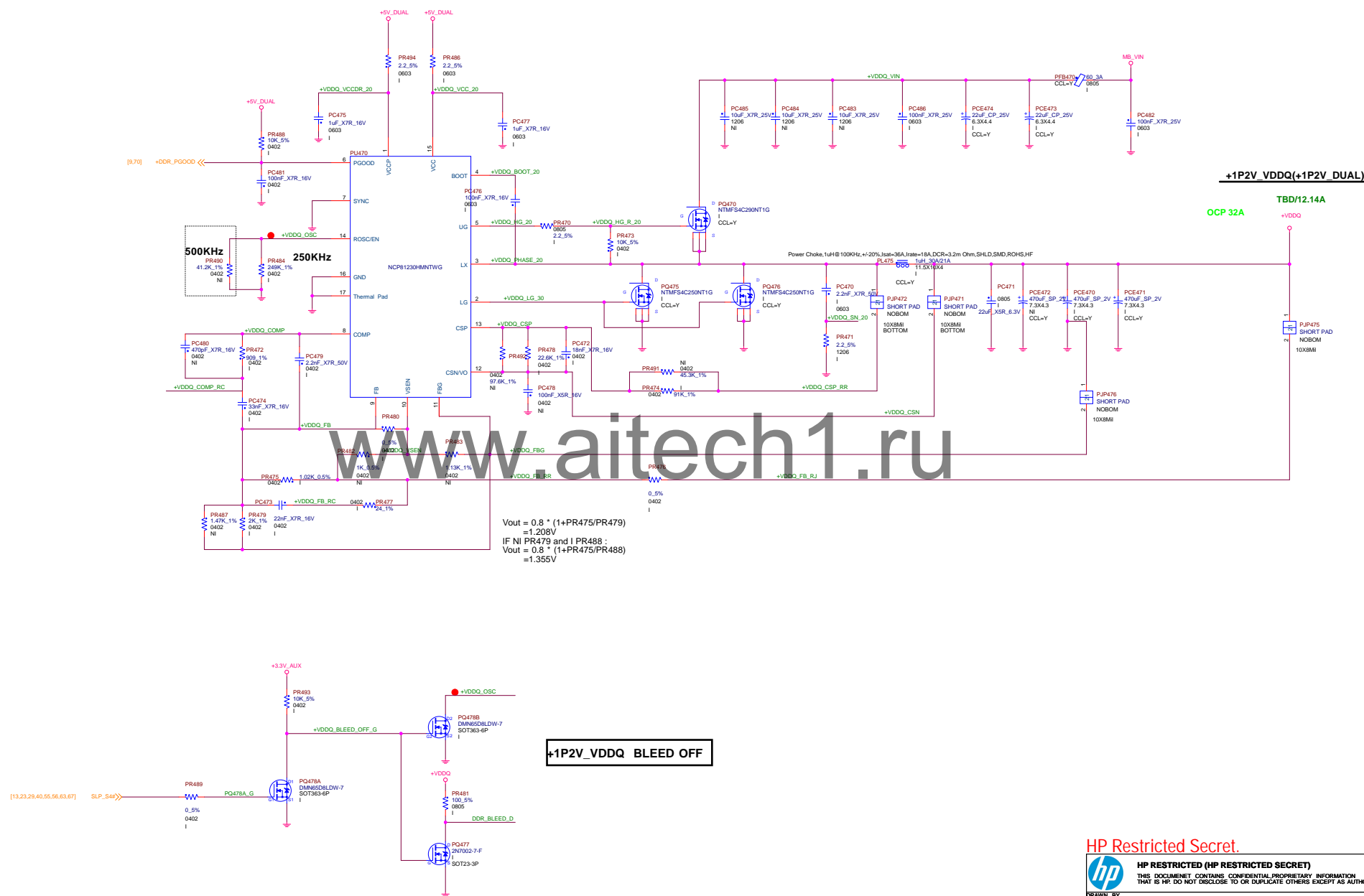
Vout = 0.604 * (1 + PR627/PR628)
= 2.5V

Current Limit: Type Value = 8.5A

HP Restricted Secret.

	HP RESTRICTED (HP RESTRICTED SECRET)		
	THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.		
DRAWN BY	FOXCONN		
Title	67. +VPP		
Size	Document Number	Rev	
Customer	Ant Man - Entry	0.90	
Date: Tuesday, September 20, 2016	Sheet	67	of 79

+1P2V_VDDQ



HP Restricted Secret.



HP RESTRICTED (HP RESTRICTED SECRET)

THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.

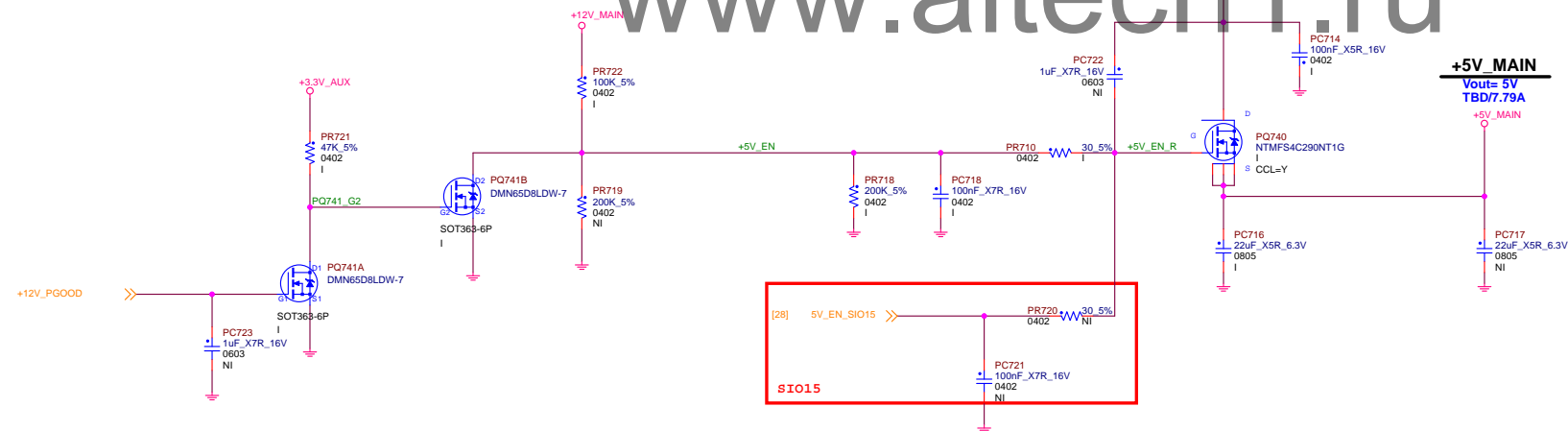
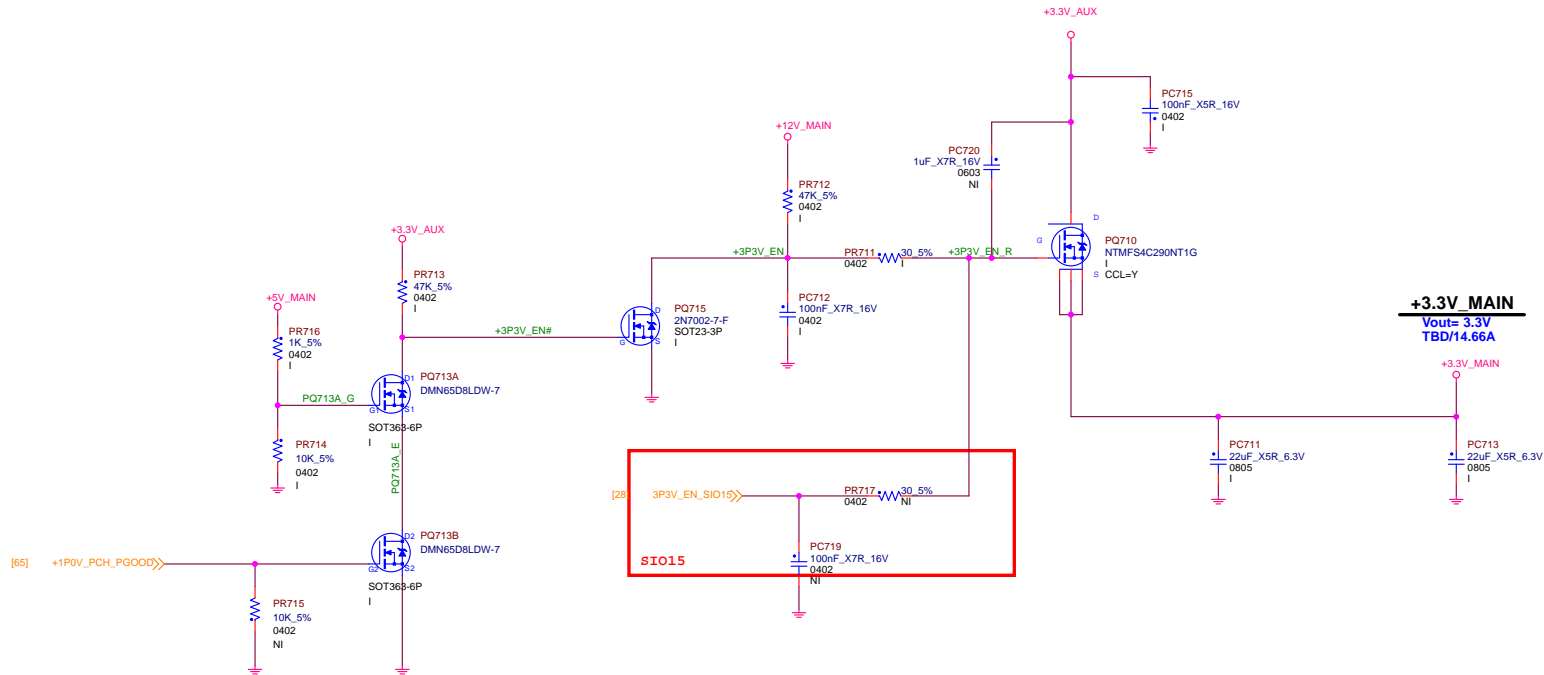
DRAWN BY **FOXCONN**

Title **22 - MDDO**


68. +VDDQ	
Size	Document Number
Custom	Ant Man - Entry

Rev	0.90
-----	------

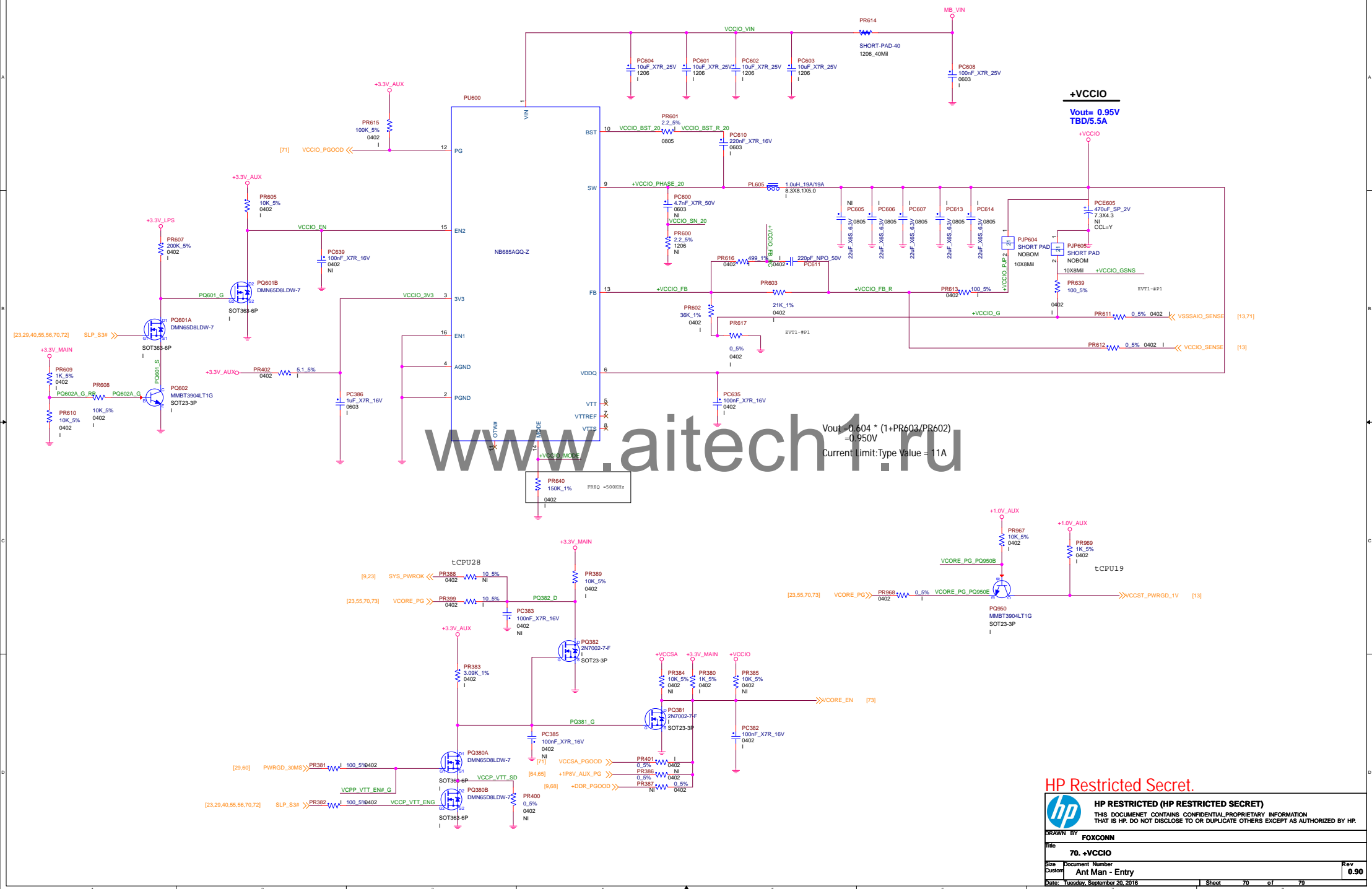
www.aitech1.ru

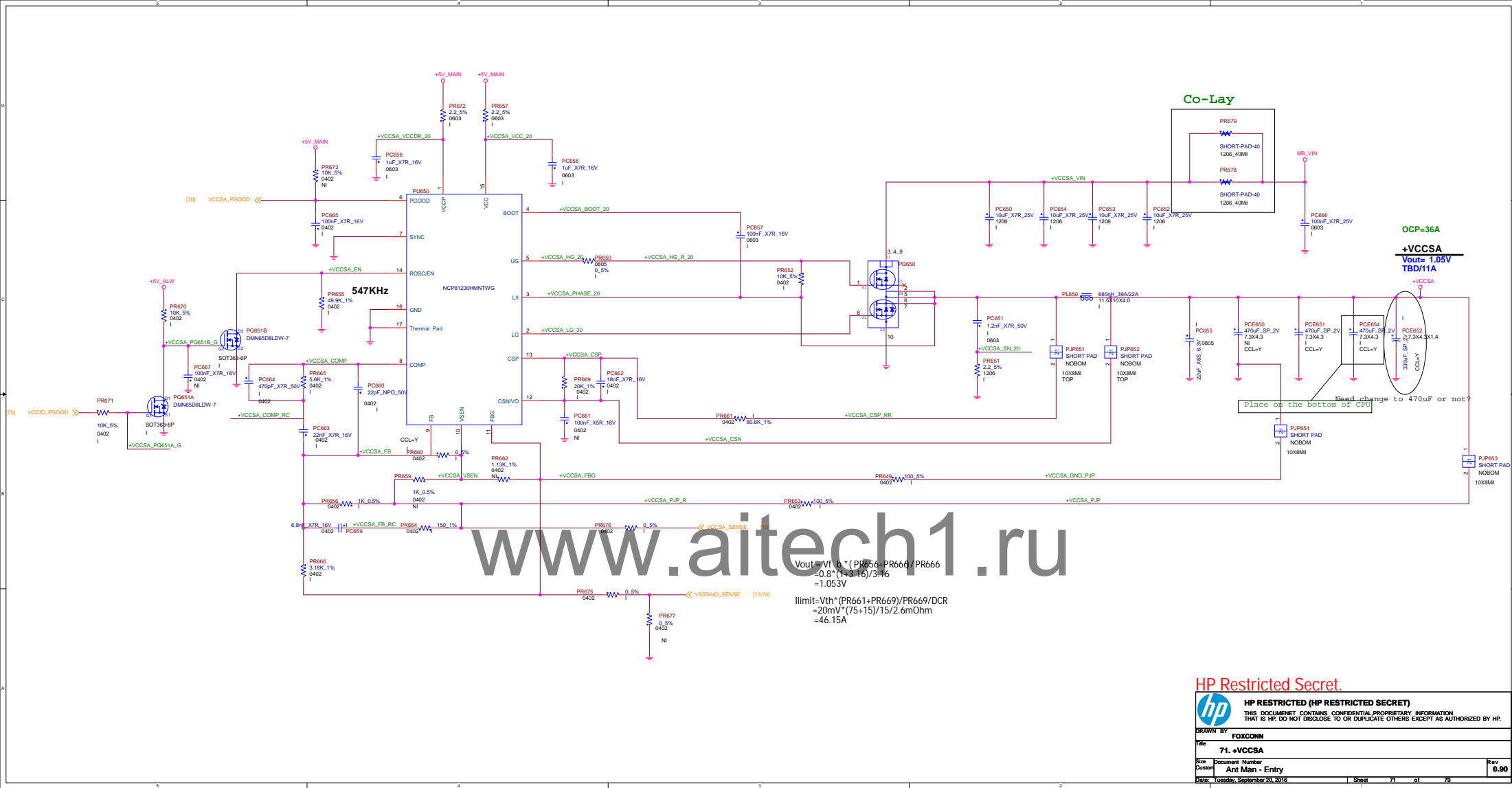


HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
Title 69.+5V & +3.3V			
Size	Document Number	Rev	
Custom	Ant Man - Entry	0.90	
Date: Tuesday, September 20, 2016		Sheet 69 of 79	

Note: net-name:Convertor 3






www.aitech1.ru

$$V_{out} = V_{FB} * (PR656 + PR666) / PR666$$
$$= 0.8 * (143.16) / 344$$
$$= 1.053V$$
$$I_{limit} = V_{th} * (PR661 + PR669) / PR669 / DCR$$
$$= 20mV * (75 + 15) / 15 / 2.6mOhm$$
$$= 46.15A$$

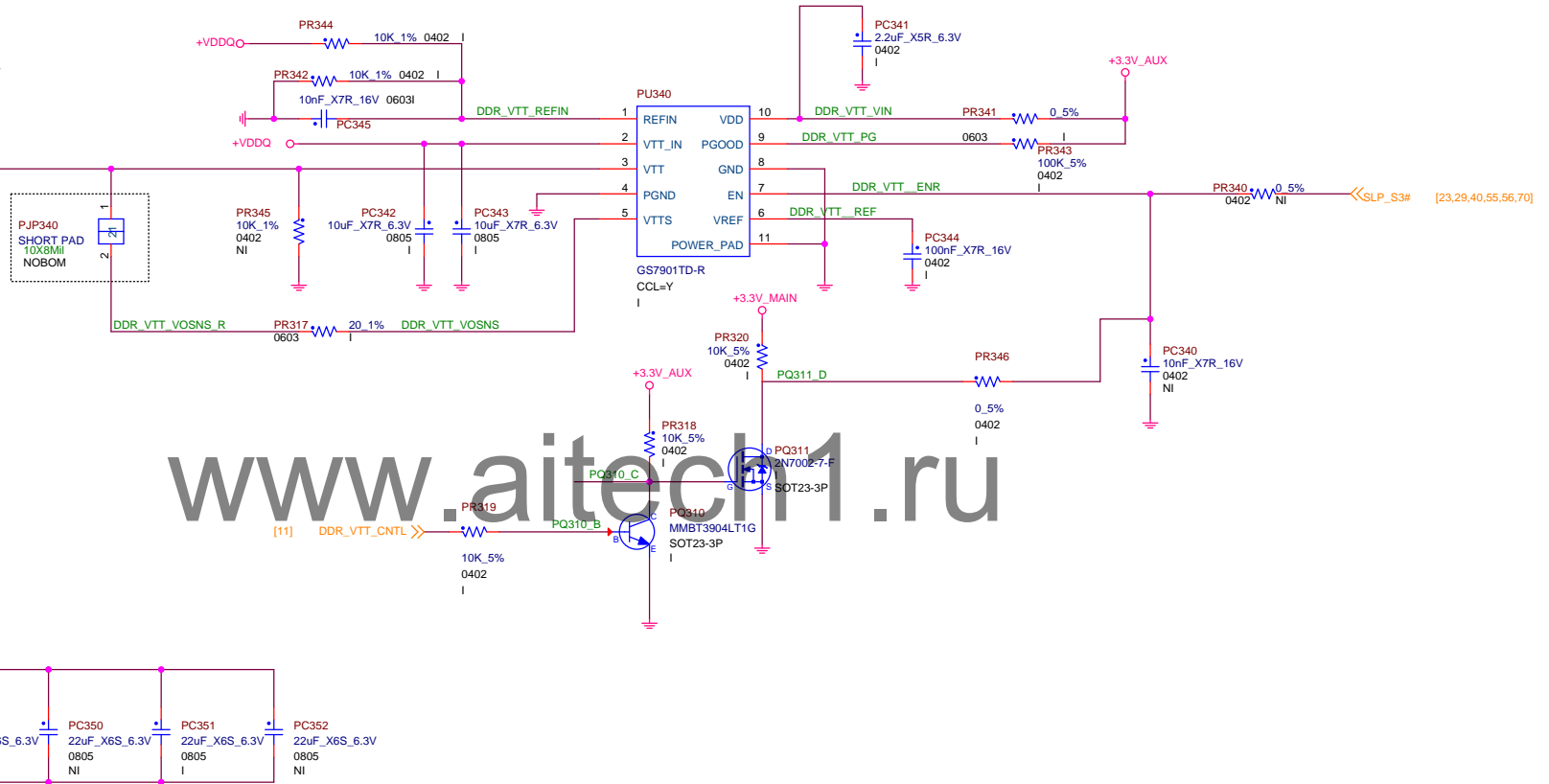
HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY: FOXCONN			
File: 71. +VCCSA			
Size Custom		Document Number Ant Man - Entry	Rev 0.90
Date: Tuesday, September 20, 2016		Sheet 71 of 79	

DDR_VTT

PVTT_DIMM
Vout= 0.6V
0.75A/2.5A

Note:PJP340 close to XMM0.



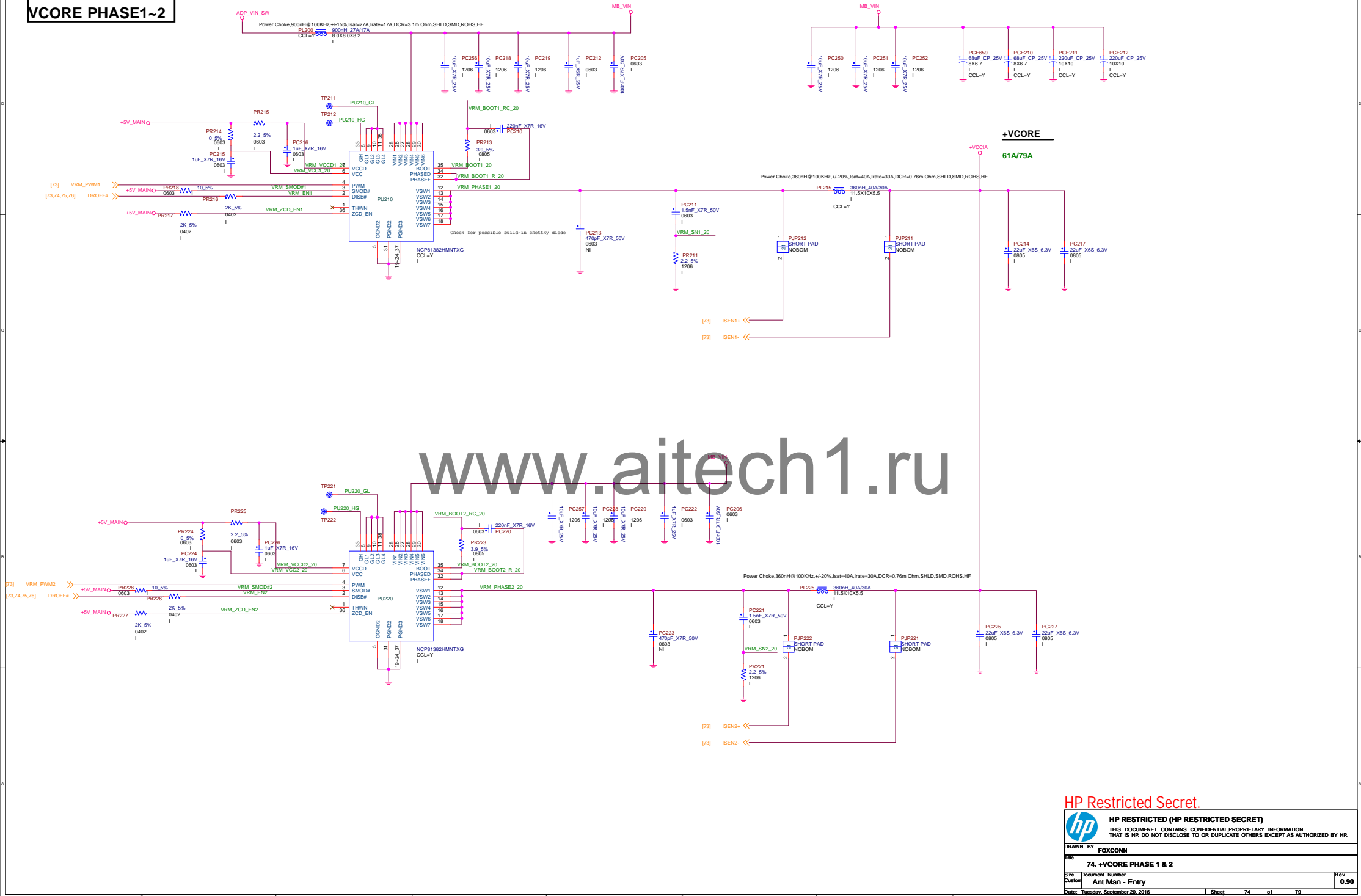
www.aitech1.ru

The Qty output cap should be careful
INTEL: the latest modeling shows step load size 6-9x higher than it's shown in PDG
1.0 for Aztec City CRB

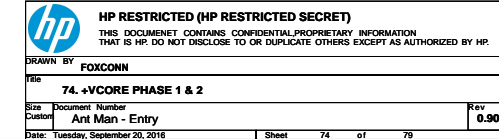
HP Restricted Secret.

HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN	
Title 72. +VTT	
Size	Document Number
Custom	Ant Man - Entry
Date: Tuesday, September 20, 2016	Sheet 72 of 79
Rev	0.90

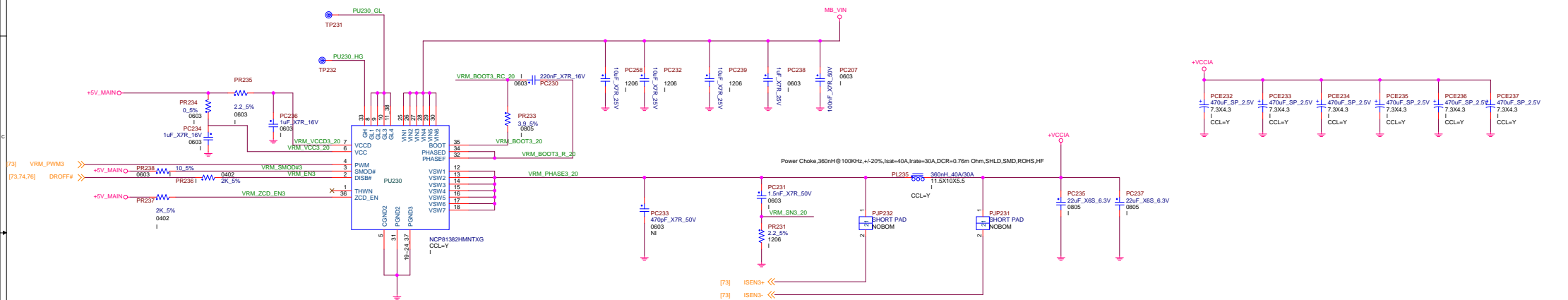
VCORE PHASE1~2




HP Restricted Secret.

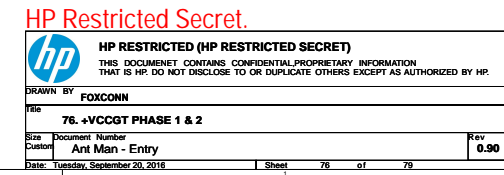


www.aitech1.ru




	HP RESTRICTED (HP RESTRICTED SECRET) THIS DOCUMENT CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.		
	DRAWN BY FOXCONN		
Title 75. +VCCORE PHASE 3			
BOM Customer Number Ant Man - Entry		Price 0.90	
Date: Tuesday, September 20, 2016		1 Sheet 75 of 79	

www.aitech1.ru



BLANK
www.aitech1.ru

HP Restricted Secret.


		HP RESTRICTED (HP RESTRICTED SECRET)	
		THIS DOCUMENT CONTAINS CONFIDENTIAL, PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.	
DRAWN BY FOXCONN			
Title 77. --BLANK--			
Size Custom	Document Number Ant Man - Entry		Rev 0.90
Date: Tuesday, September 20, 2016		Sheet	77 of 79

ITEM	DATE	PAGE	CHANGE DESCRIPTION
			For DB
20160321		71	Add Shortpad PR678;
		61	Change PR393 to 12K. MP2314 EN voltage divider;
		60	Change PC310 to 10uF_X7R_6.3V, Design improvement Change PC812 to 1uF, Design Improvement
20160322		71	Change footprint of PJP651, PJP652, PJP653, PJP654, PJP211 to Shortpad_R10. For sense loop width 10mil improvement.
20160323		73	Change PR124 from 66.5K_1% 0402 to 63.4K_1% 0402. Set VCCIA Iccmax 79A; Change PR103 from 34K_1% 0402 to 35.7K_1% 0402, Set VCCGT Iccmax 45A;
		68	Change PL475 to molding choke MAGLAYERS_MMD-10DZ-1R0M-M1-C3 due to HMD's poor manufacture ability.
20160324		63	Remove SYS_PGOOD net.
		67	Remove VPP_PDOOD net, Change PR619 to NI;
20160325			1. Page 74, 75, 76 Change: PL215, PL225, PL235, PL275, PL295 to MAGLAYERS_MMD-10EE-R36MJN4-C3; 2. Page 65 Updated PC519, PC520 - MFG
20160326			Page 71 Add short pad PR679, footprint R1206_S40MIL_MVB;
20160330			1. Updated VCCIA and VCCGT I max & I tdc value;
20160411			1. Page 69 Change PC720, PC722 to NI; 2. Page 62 Updated PU530 infro;
20160413			1. Updated the RES to total lead free chip;

ITEM	DATE	PAGE	CHANGE DESCRIPTION
			For SI
20160415			1. Page 60 Change PR821 from 14.3K_1% to 34.8K_1%, due to the entry adpater is 135W; SI01286785 2. Change PR673 From I to NI, It double pull high SI01286785
20160520			1. Page 75 Change PCE232-PCE237 change from EEFSX0D471E4 to EEFH0E471R4; SI01290564
20160524			1. Page 73 Changes is below: PR132 to 215K_1%, PC122 to 1.2nF, PC123 to 680pF, PR103 to 33.2K_1%, PR135 to 2.26K_1%, PR151/PR152 to 102K_1%, PR109 to 34K_1%, PR164 to 2.26K_1%, this solution for VRTT test; SI01300332 2. Page 74, 75 change PC211, PC221, PC231 to 3.3nF_X7R_50V, to fix snubber RES thermal issue; SI01296327 3. Page 65 change PR520 to 825_1%, PR522 to 249ohm_1%, PC525 to 1.5nF; SI01297532 4. Page 68 change PC474 to 33nF, PR472 to 909ohm_1%; SI01294178 5. Page 71 change PR655 to 49.9K_1%; SI01297533 6. Page 75 change PC222, PC238 to X7R; SI01290563
20160527			1. Page 68 updated PL475 footprint from L4540 to L4540_TEST to fix DFM issue;
			For PV
20160725			1. Page 63 Change PC941, PC931 from 4.7nF to 2.2nF; SI01296327 2. Page 65 Change PC511 from 4.7nF to 2.2nF; SI01296327 3. Page 71 Change PC651 from 4.7nF to 1.2nF; SI01296327 4. Page 74, 75 Change PC211, PC221, PC231 1 from 3.3nF to 1.8nF; SI01296327 5. Page 76 Change PC271, PC291 from 4.7nF to 1.8nF; SI01296327
			1. Page 65 Adding PC543. NI. SI01298401 2. Page 67 Adding PC638, PCE601. NI. SI01298401 3. Page 65 Adding PC486, PCE474. NI. SI01298401

ITEM	DATE	PAGE	CHANGE DESCRIPTION
20160808			1. Page 74, 75, 76 Change PC211, PC221, PC231, PC271, PC291 to 1.5nF; SI01296327 2. Page 71 Change P0650 to Fairchild FDP5018SG;
20160809			1. Page 65. PC514 set to NI, PCE510 set to I, PC543 set to I. Page 67. PC624, PC625, PC626, PC627 set to NI. PCE601, PC638 set to I Page 68. PC483, PC484, PC485 set to NI PC484, PCE474 set to I, SI01326317
20160826			For PV2 1. Page 62 PL215, PL225, PL235, PL275, PL295 change to CYNTEC_PCE104T-R36MSOR765; Page 63 PL945 change to CYNTEC_CMMS104T-1R5MS; Page 65 change PL515 to CYNTEC_CMME104T-1R0MS; Page 68 PL475 change to CYNTEC_CMMS104T-1R0MS; Page 70 PL605 change to CYNTEC_CMME085T-1R0MS; Page 71 PL650 change to CYNTEC_CMMS104T-R68MS; SI01328799
			For EEP/MVB
20160913			Layout : Inductor silk is modified with glue area adding at the center. SI01347431
20160920			1. Page 74 Change PC250, PC251, PC252 to I; Page 76 Change PC270 to I; Page 61 Change PC400 to I; Page 71 Change PC650 to I; Page 70 change PC604 to I Page 63 change PC946 to I Page 63 change PC937 to I for MVB. SI01335899;

HP Restricted Secret.

		HP RESTRICTED (HP RESTRICTED SECRET)	
THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS HP. DO NOT DISCLOSE TO OR DUPLICATE OTHERS EXCEPT AS AUTHORIZED BY HP.			
DRAWN BY FOXCONN			
File			
78. —DC Change List—			
Size	Document Number	Rev	
Small	Ant Man - Entry	0.90	
Date	Thursday, September 22, 2016	Sheet	78 of 79

