
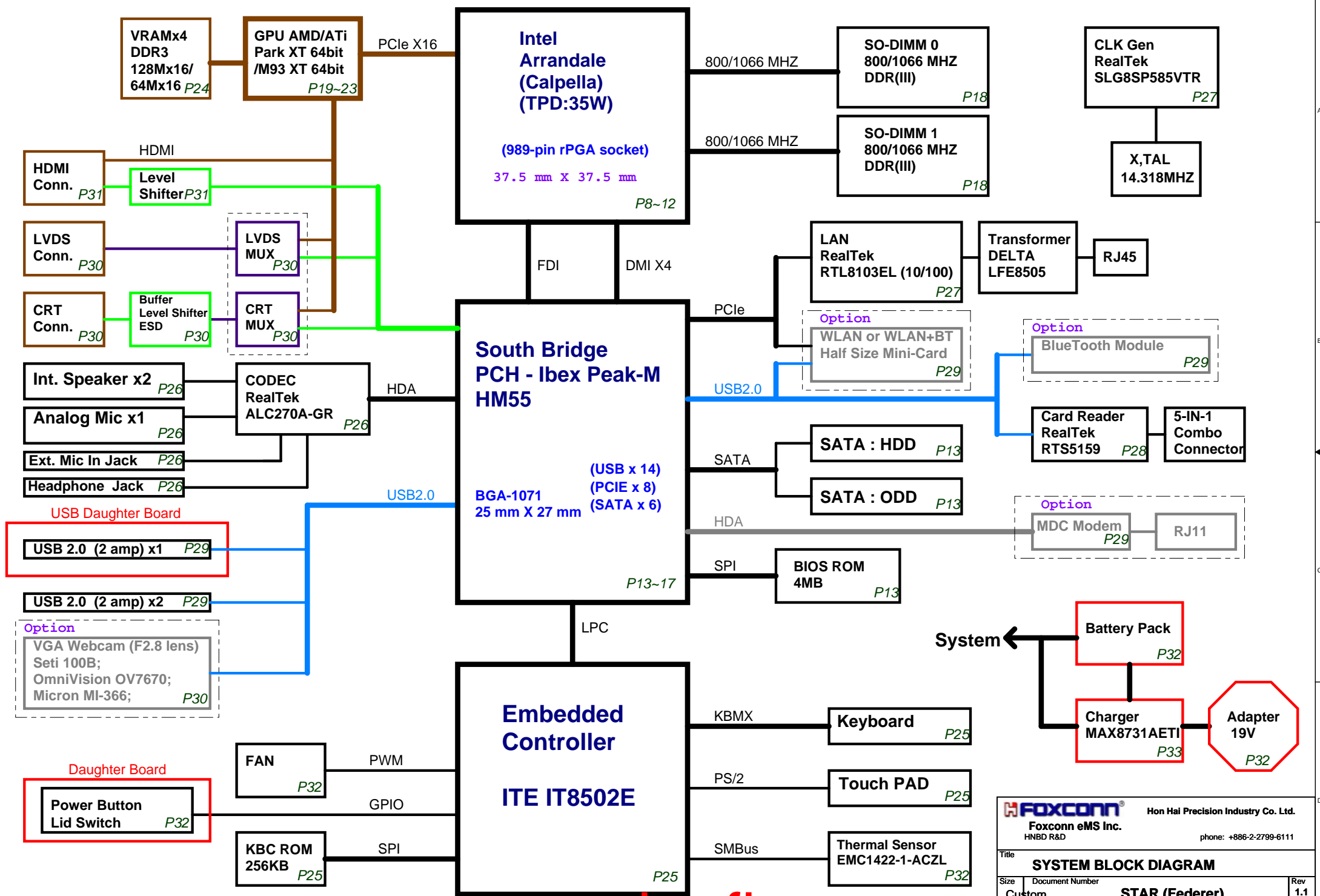
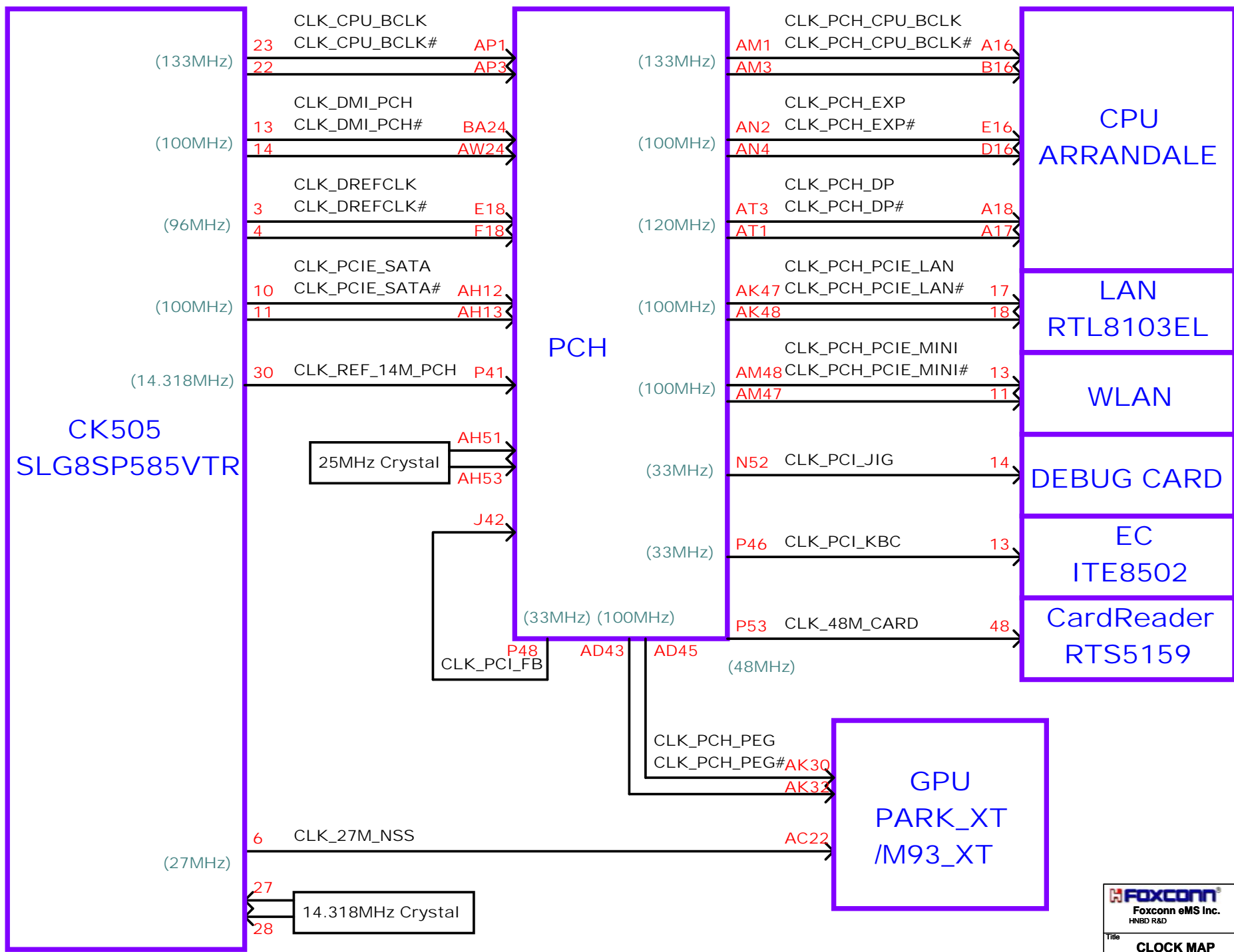


01 -- COVER SHEET	21 -- VGA_S3 (DDR3) 3/5
02 -- SYSTEM BLOCK DIAGRAM	22 -- VGA_S3 (DP) 4/5
03 -- CLOCK MAP	23 -- VGA_S3 (POWER) 5/5
04 -- POWER MAP	24 -- VRAM (DDR3)
05 -- POWER SEQUENCY DIAGRAM	25 -- EC+KBC (IT8502E)
06 -- POWER SEQUENCY TIMING	26 -- CODEC/JACK/SPEAKER/MIC
07 -- SMBUS MAP	27 -- LAN (RTL8103EL)/CLOCK GEN
08 -- Calpella (DMI,PEG,FDI)	28 -- Card Reader
09 -- Calpella (CLK,MISC,JTAG)	29 -- WLAN/BT/MDC/USB/MOUNTING
10 -- Calpella (DDR3)	30 -- LVDS/CRT/Webcam
11 -- Calpella (POWER/GND)	31 -- HDMI
12 -- Calpella (GRAPHIC POWER)	32 -- DCIN/Battery/OCP/FAN
13 -- PCH (HDA,JTAG,SATA)	33 -- PWR Charger MAX8731AETI
14 -- PCH (PCI-E,SMBUS,CLK)	34 -- 5V/3.3V SN0608098RHBT
15 -- PCH (DMI,FDI,GPIO,LVDS)	35 -- Vcore MAX17030
16 -- PCH (PCI,USB,NVRAM,GPIO)	36 -- 1.1V VTT/+V1.05RUN
17 -- PCH (POWER)	37 -- 1.5VDDR3+0.75V+V1.8RUN
18 -- DDR3(SO-DIMM_0&1)	38 -- PWR_Others power plane
19 -- VGA (PCI-E/STRAP) 1/5	39 -- CPU_VREG & Decoupling
20 -- VGA_S3 (IO) 2/5	40 -- ATVDD/+VPCIE


P. Leader	Check by	Design by

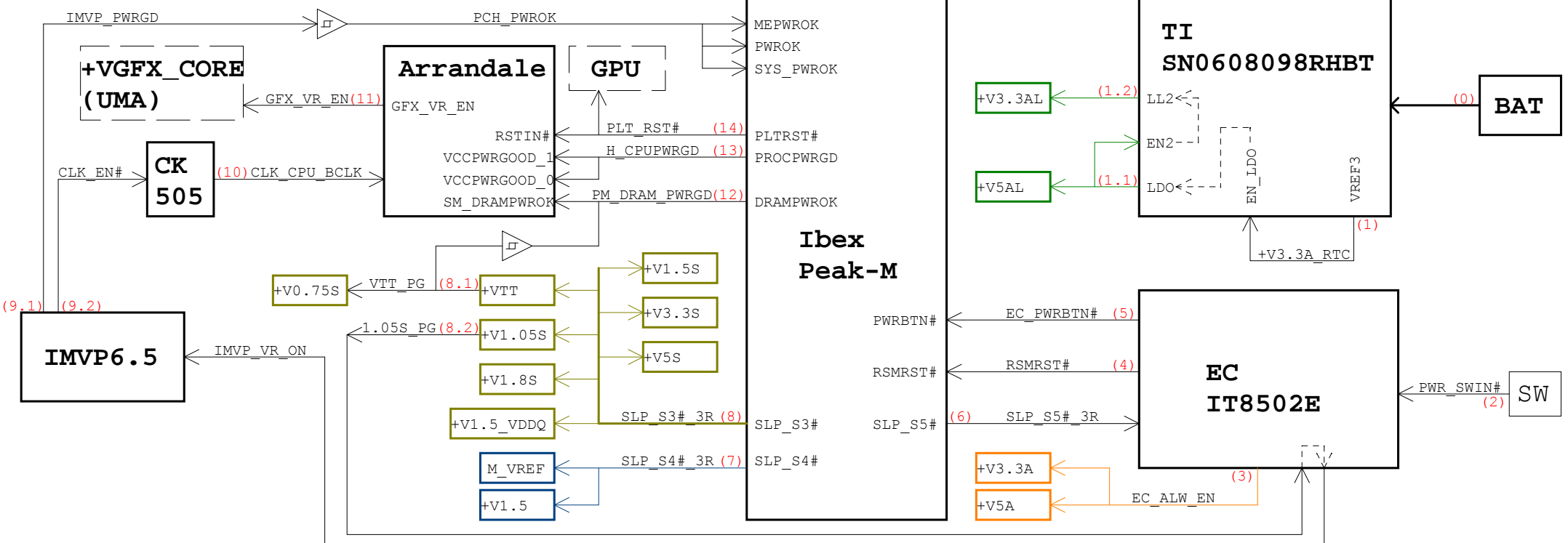
 Hon Hai Precision Industry Co. Ltd.	
Foxconn eMS Inc. HNBD R&D	
phone: +886-2-2799-6111	
Title Index Page	
Size Custom	Document Number STAR (Federer)
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SCH Page	Change Request Description from MV to MP phase	Notes
40	Modify PR912 to 80.6K	GPU power issue
37	Modify PR504 to 71.5K	1.5V power tolerance issue
40	Add PC885 for M93 SKU	GPU power issue
38	Del PC333	System shutdown issue

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Title			
History			
Size	Document Number		Rev
Custom	STAR (Federer)		1.1
Page Modified: Monday, May 03, 2010 13:59:28 (UTC+8GMT) Sheet 4 of 40			

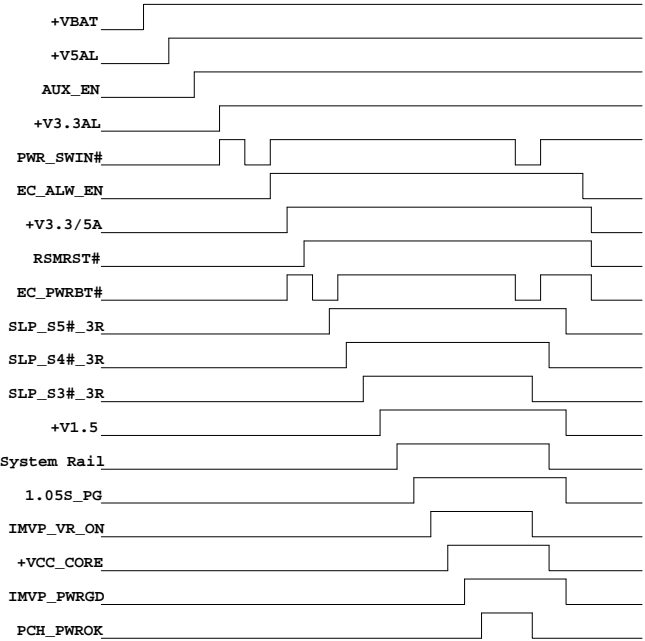


	Source Rail	EN	PG	Power Status				Remark
				S0	S3	AC S4/S5	DC S4/S5	
+VBAT	+VBAT	+V3.3A_RTC		V	V	V	V	
+V5AL	+VBAT	+V5AL		V	V	V	V	
+V3.3AL	+VBAT	+V5AL		V	V	V	V	
+V5A	+VBAT	EC_ALW_EN		V	V	V		
+V3.3A	+VBAT	EC_ALW_EN		V	V	V		
+V1.5	+VBAT	SLP_S4#_3R		V	V			
+V0.75S	+V1.5	VTT_PG		V				
+V1.5S	+V1.5	RUN_ON_LOAD		V				
+V1.5_VDDQ	+V1.5	RUN_ON_LOAD		V				
+VCC_CORE	+VBAT	IMVP_VR_ON	IMVP_PWRGD	V				
+VTT	+VBAT	SLP_S3#_3R	VTT_PG	V				
+VGFX_CORE	+VBAT	GFX_VR_EN		V				
+V1.8S	+VBAT	SLP_S3#_3R		V				
+V1.05S	+VBAT	SLP_S3#_3R	1.05S_PG	V				
+V5S	+V5A	RUN_ON_LOAD		V				
+V3.3S	+V3.3A	RUN_ON_LOAD		V				
+VDD_CORE	+VBAT	SLP_S3#_3R		V				
+V3.3S_Delay	+V3.3S	+V1.8S		V				
+VPCIE	+V1.5S	SLP_S3#_3R		V				

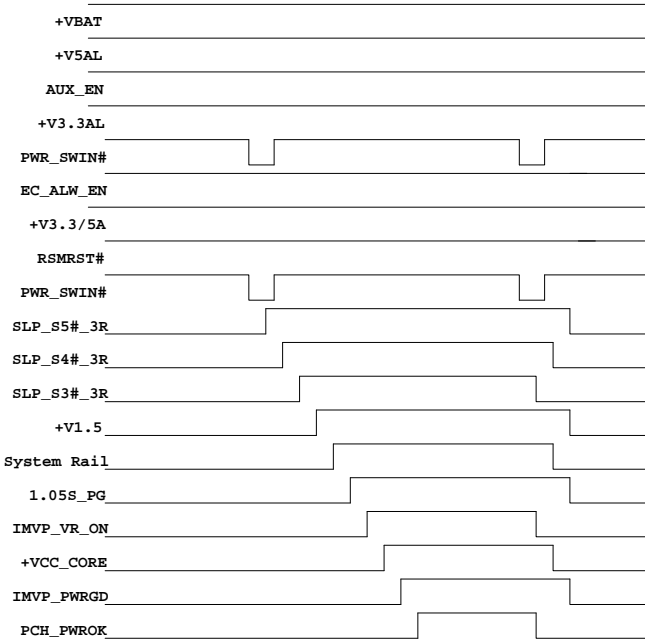
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POWER SEQUENCE TIMING

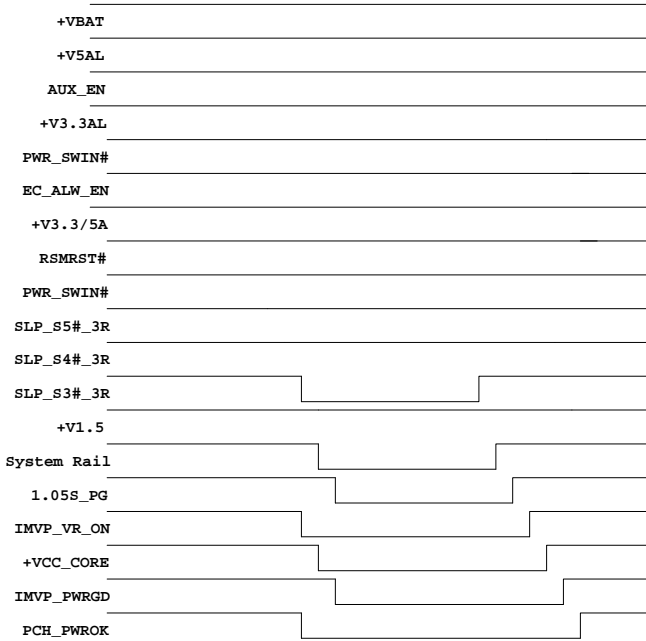
G3(OFF)->S0->S5



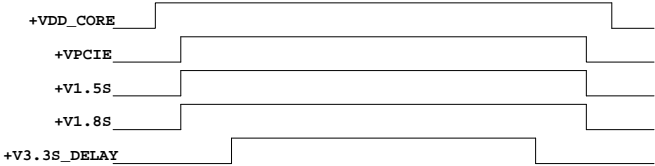
S5->S0->S5



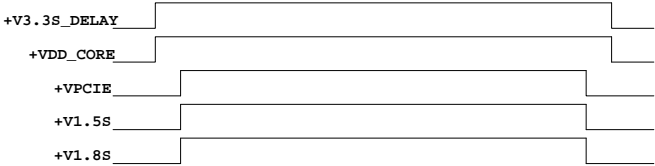
S0->S3->S0



GPU_M93 Sequence



GPU_Park Sequence



Switchable GPU

GPU
Park_XT

PCH

EC
ITE8502

DIMM0

DIMM1

CLOCK
GEN

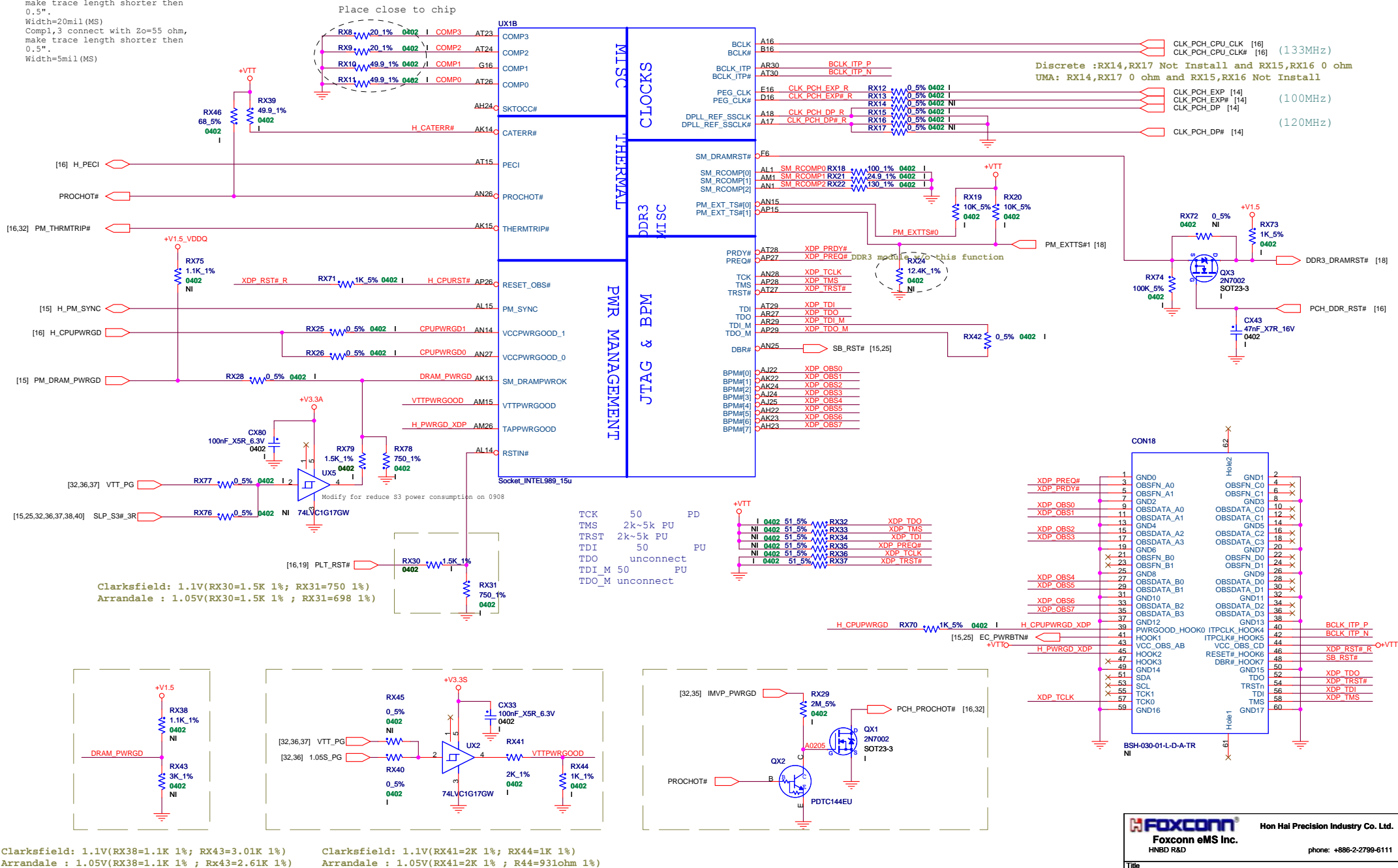
WLAN

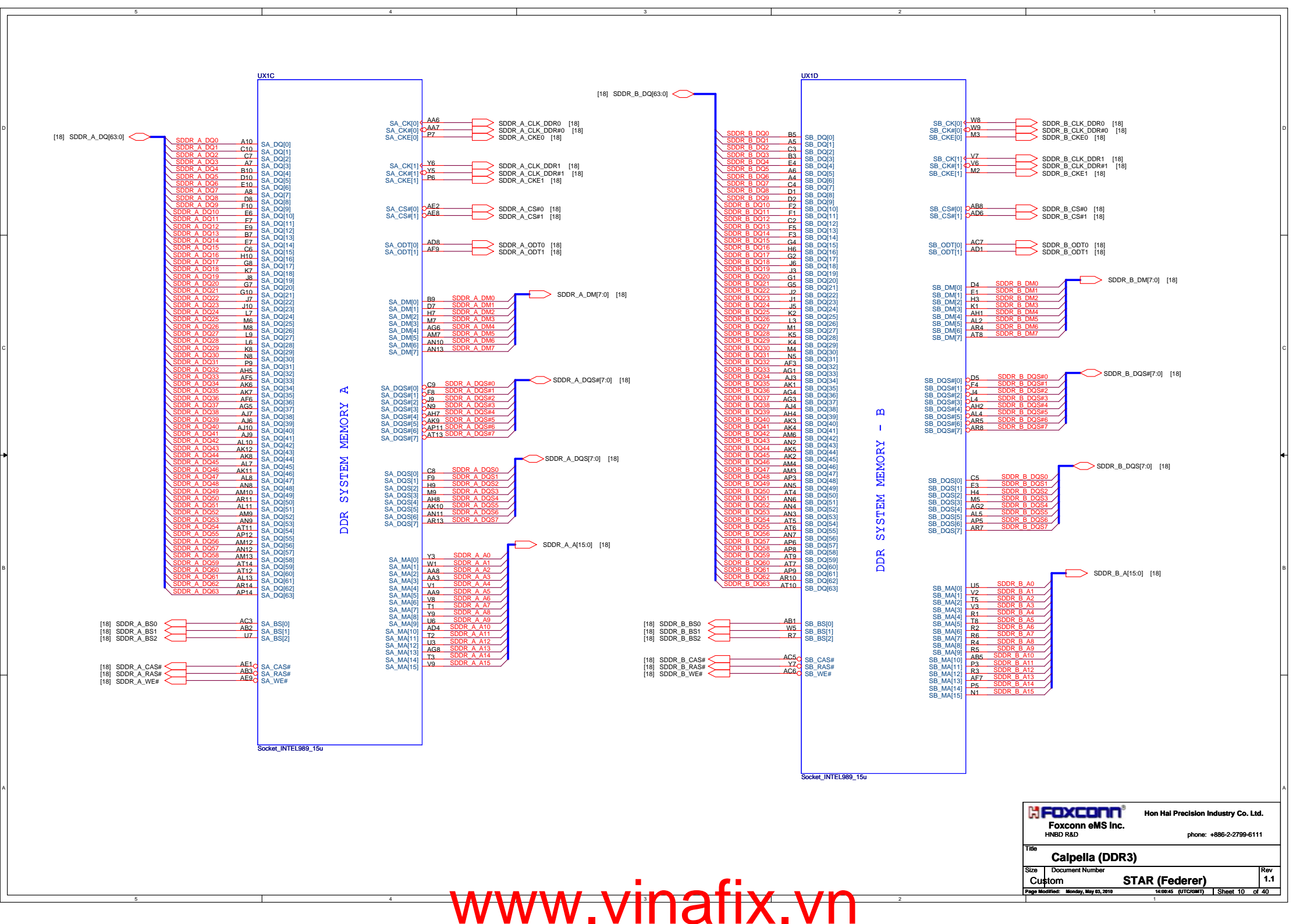
Temp
Sensor

Charger

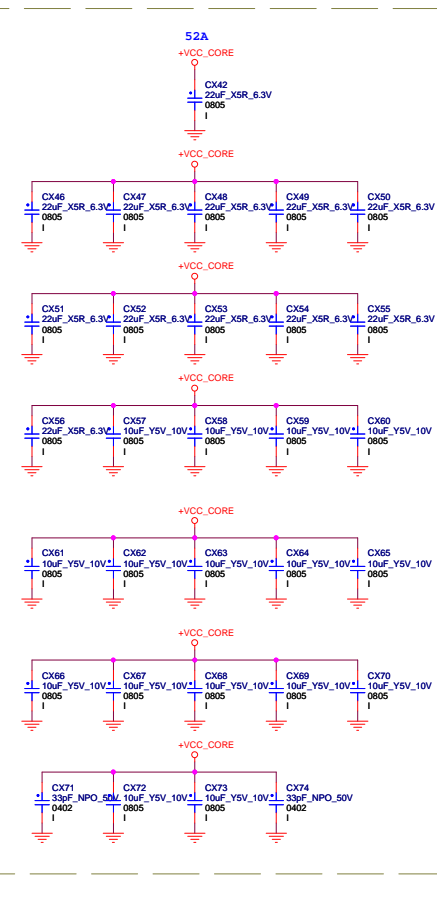
Battery

Layout Note:
Comp0,2 connect with Zo=27.4 ohm,
make trace length shorter then
0.5".
Width=20mil(MS)
Comp1,3 connect with Zo=55 ohm,
make trace length shorter then
0.5".
Width=5mil(MS)





FOR VCC:
12x 0805 22 μ F inside cavity,
7x 0805 10 μ F under cavity and 9 x 0805 10
 μ F
between inductor and socket on top layer



Socket_INTEL989_15u

POWER
CPU VIDS

SENSE LINES

PSI#

PROC_DPRSPLVPR

VTT_SELECT

ISENSE

VCC_SENSE

VSS_SENSE

VTT_SENSE

VSS_SENSE_VTT

VTT_SENSE

VSS_SENSE

VTT_SENSE

VSS_SENSE

VTT_SENSE

VSS_SENSE

VTT_SENSE

VSS_SENSE

VTT_SENSE

VSS_SENSE

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VSS_SENSE

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VSS_SENSE

VTT_SENSE

VSS_SENSE

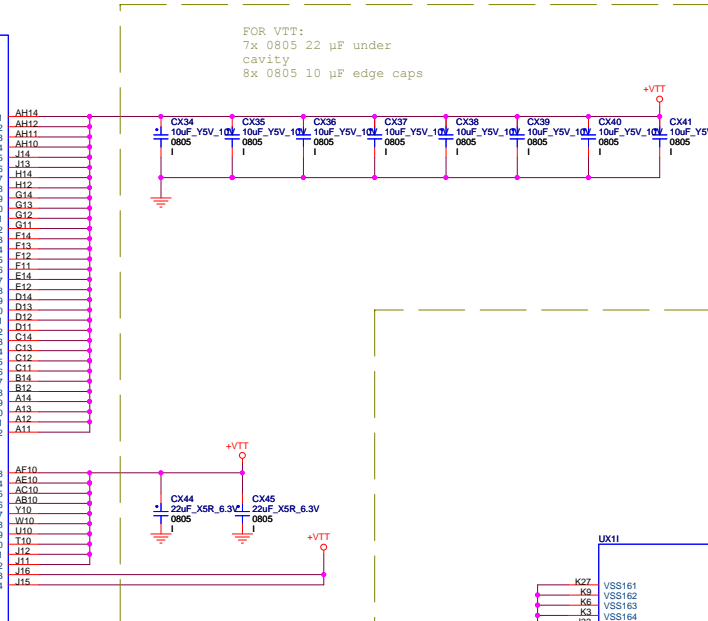
VTT_SENSE

VSS_SENSE

VTT_SENSE

VSS_SENSE

FOR VTT:
7x 0805 22 μ F under
cavity
6x 0805 10 μ F edge caps



UX11

K27

K9

K6

K3

J32

J30

J21

J19

H35

H32

H28

H26

H24

H22

H18

H15

H13

H8

H5

G34

G31

G20

G9

G8

G3

F30

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

VSS178

VSS179

VSS180

VSS181

VSS182

VSS183

VSS184

VSS185

VSS186

VSS187

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

VSS178

VSS179

VSS180

VSS181

VSS182

VSS183

VSS184

VSS185

VSS186

VSS187

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

VSS178

VSS179

VSS180

VSS181

VSS182

VSS183

VSS184

VSS185

VSS186

VSS187

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

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VSS184

VSS185

VSS186

VSS187

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

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VSS172

VSS173

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VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

VSS178

VSS179

VSS180

VSS181

VSS182

VSS183

VSS184

VSS185

VSS186

VSS187

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

VSS168

VSS169

VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

VSS178

VSS179

VSS180

VSS181

VSS182

VSS183

VSS184

VSS185

VSS186

VSS187

VSS161

VSS162

VSS163

VSS164

VSS165

VSS166

VSS167

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VSS170

VSS171

VSS172

VSS173

VSS174

VSS175

VSS176

VSS177

VSS178

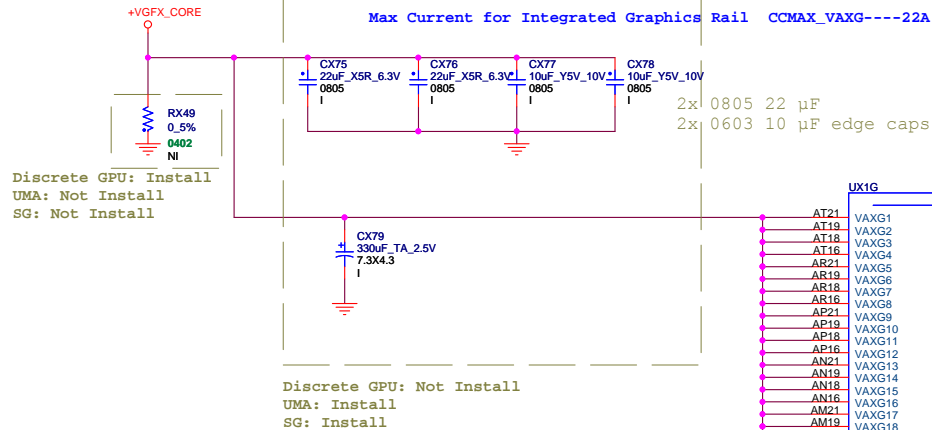
VSS179

VSS180

VSS181

VSS182

VSS183



GRAPHICS

POWER

PDI

PBG & DMI

Socket_INTEL989_15u

SENSE LINES

DDR3 - 1.5V RAILS

1.1V
1.8V

+VTTQ [9,11,16,17,27,35,36,39]
+VGFX_COREQ [39]
+V1.5_VDDQ [9,17,27,29,38]
+V1.8S [17,37,38]

Discrete GPU: Not Install
UMA: Install
SG: Install

Discrete GPU: Install
UMA: Not Install
SG: Not Install

Discrete GPU: Not Install
UMA: Install
SG: Install

GFX_VID[0]
GFX_VID[1]
GFX_VID[2]
GFX_VID[3]
GFX_VID[4]
GFX_VID[5]
GFX_VID[6]
GFX_VR_EN
GFX_DPRSLPVR
GFX_IMON

GFX_VID0 [39]
GFX_VID1 [39]
GFX_VID2 [39]
GFX_VID3 [39]
GFX_VID4 [39]
GFX_VID5 [39]
GFX_VID6 [39]
GFX_VR_EN [39]
GFX_DPRSLPVR [39]
GFX_IMON [39]

RX50 0.5% 0402
RX51 0.5% 0402

GFX_VOC_SENSE [39]
GFX_VSS_SENSE [39]

RX63 4.7K_5%
0402

GFX_VR_EN [39]

VDDQ1
VDDQ2
VDDQ3
VDDQ4
VDDQ5
VDDQ6
VDDQ7
VDDQ8
VDDQ9
VDDQ10
VDDQ11
VDDQ12
VDDQ13
VDDQ14
VDDQ15
VDDQ16
VDDQ17
VDDQ18

AJ1
AE1
AE7
AE4
AC1
AB7
AB4
Y1
W7
W4
U1
T4
P1
N7
N4
L1
H1

CX81 1uF_Y5V_6.3V
0402
CX82 1uF_Y5V_6.3V
0402
CX83 1uF_Y5V_6.3V
0402
CX84 1uF_Y5V_6.3V
0402
CX85 1uF_Y5V_6.3V
0402
CX86 22uF_X5R_6.3V
0805
CX87 22uF_X5R_6.3V
0805
CX88 330uF_TA_2.5V
7.3X4.3
CX89 33pF_NPO_50V
0402

FOR_DDR3:
5x 0402 1 μ F
2x 0805 22 μ F

VTT0_59
VTT0_60
VTT0_61
VTT0_62

P10
N10
L10
K10

VTT1_63
VTT1_64
VTT1_65
VTT1_66
VTT1_67
VTT1_68

J22
J20
J18
H21
H20
H19

VTT1_46
VTT1_46
VTT1_47

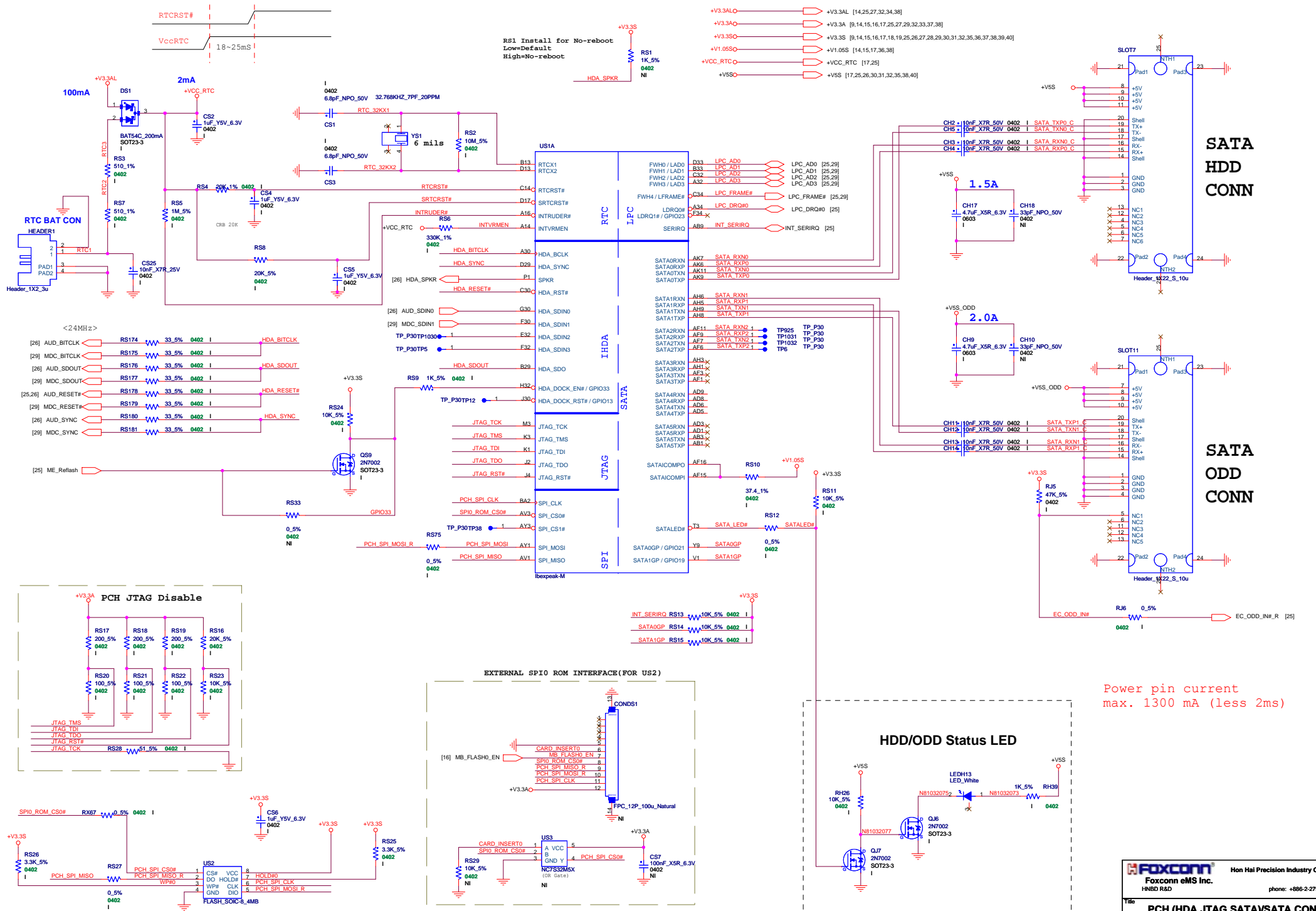
J24
J23
H25

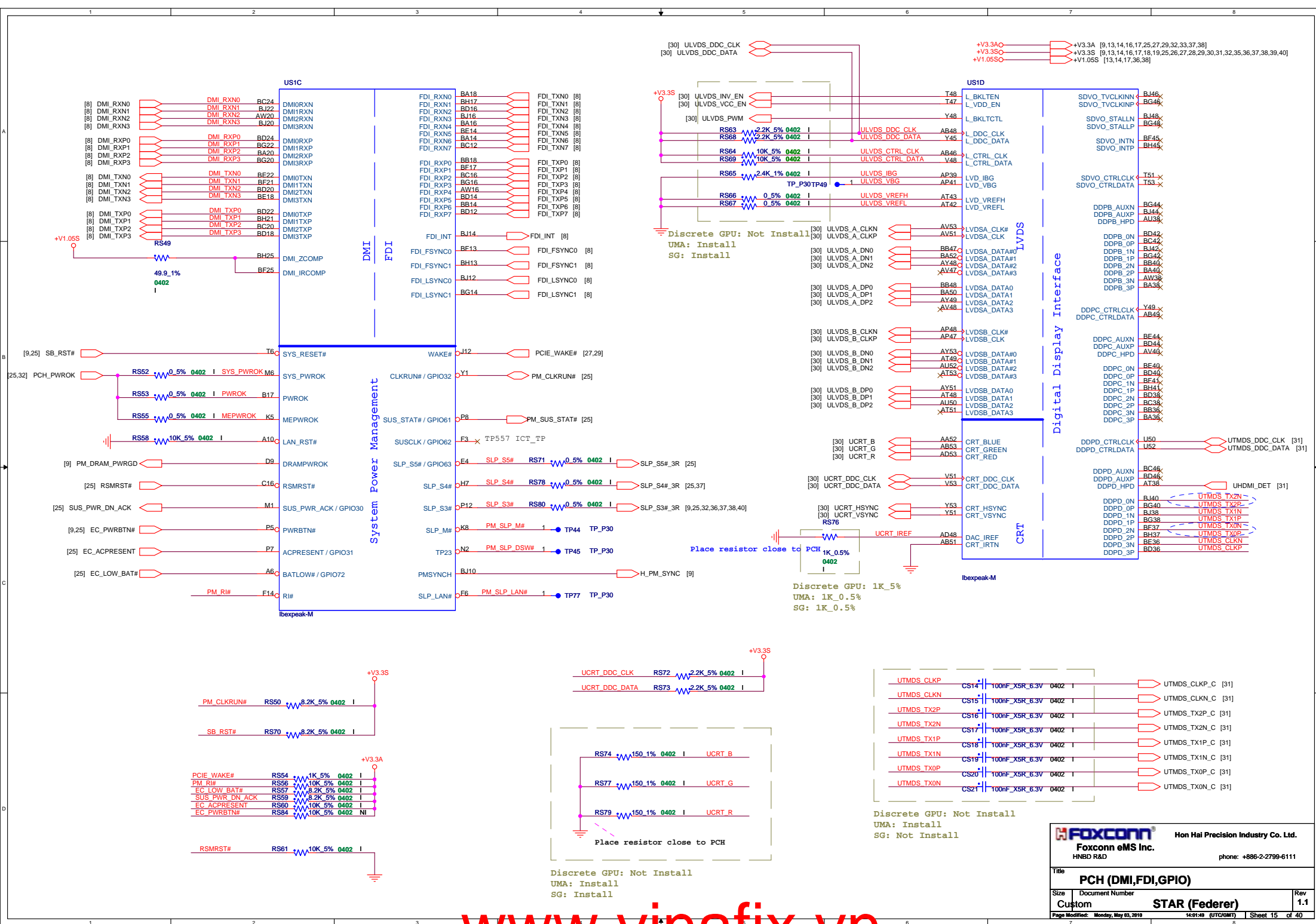
CX91 22uF_X5R_6.3V
0805
CX92 22uF_X5R_6.3V
0805

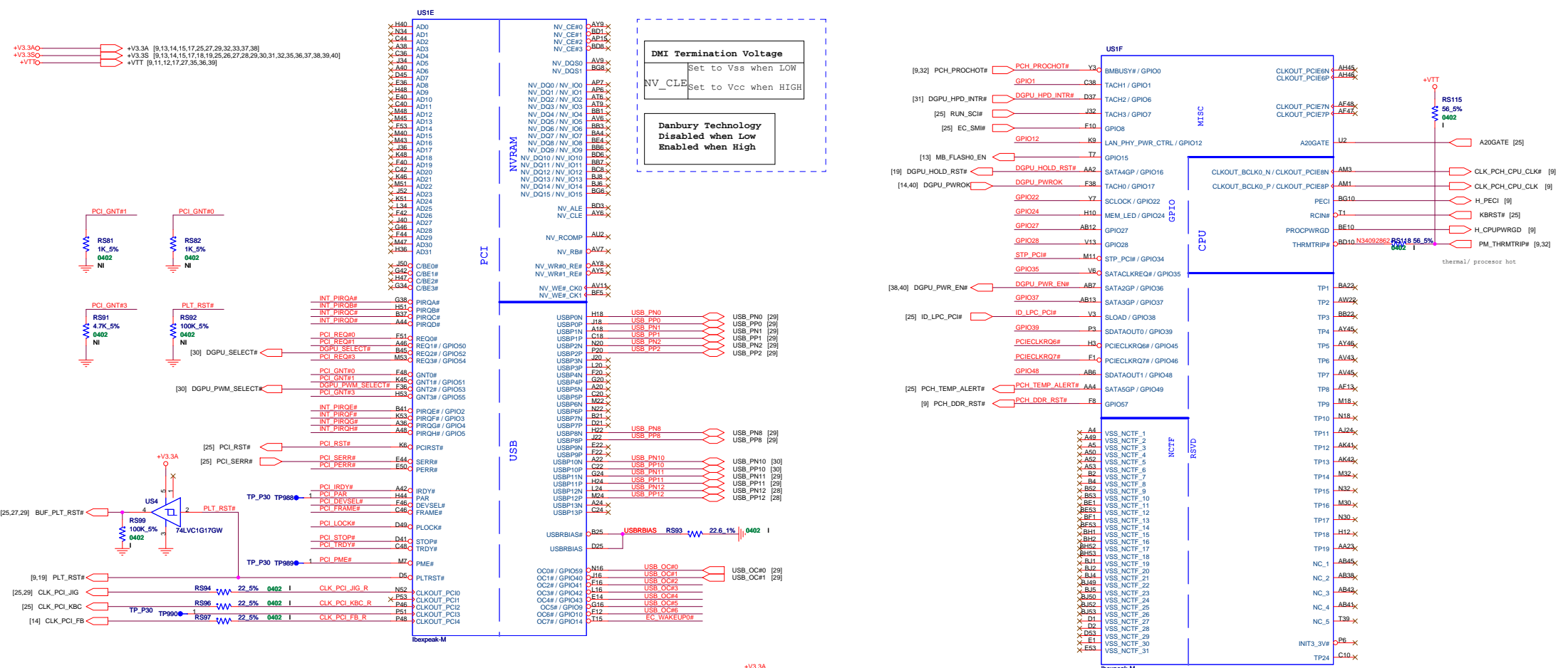
Max Current for VCCPLL Rail 1.35A

FOR_VCCPLL:
1x 0805 2.2 μ F
2x 0805 1 μ F
1x 0805 22 μ F
1x 0603 4.7 μ F

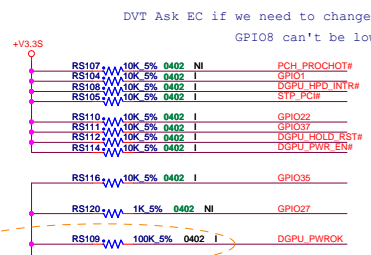
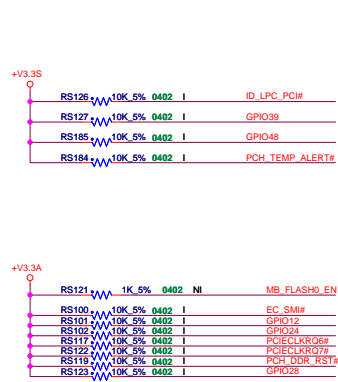
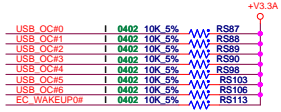
CX96 1uF_Y5V_6.3V
0402
CX97 1uF_Y5V_6.3V
0402
CX98 2.2uF_X5R_10V
0603
CX99 4.7uF_X5R_6.3V
0603
CX100 22uF_X5R_6.3V
0805
CX101 33pF_NPO_50V
0402








USB PORT	Function	OC pin
PORT-0	Ext. USB 0	
PORT-1	Ext. USB 1	
PORT-2	Ext. USB 2	
PORT-3		
PORT-4		
PORT-5		
PORT-6		
PORT-7		
PORT-8	Bluetooth	
PORT-9		
PORT-10	Camera	
PORT-11	WLAN/WiMAX	
PORT-12	Card reader	
PORT-13		



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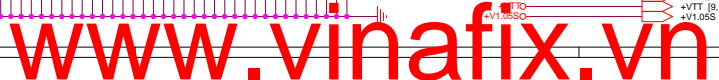
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phone: +886-2-2799-6111

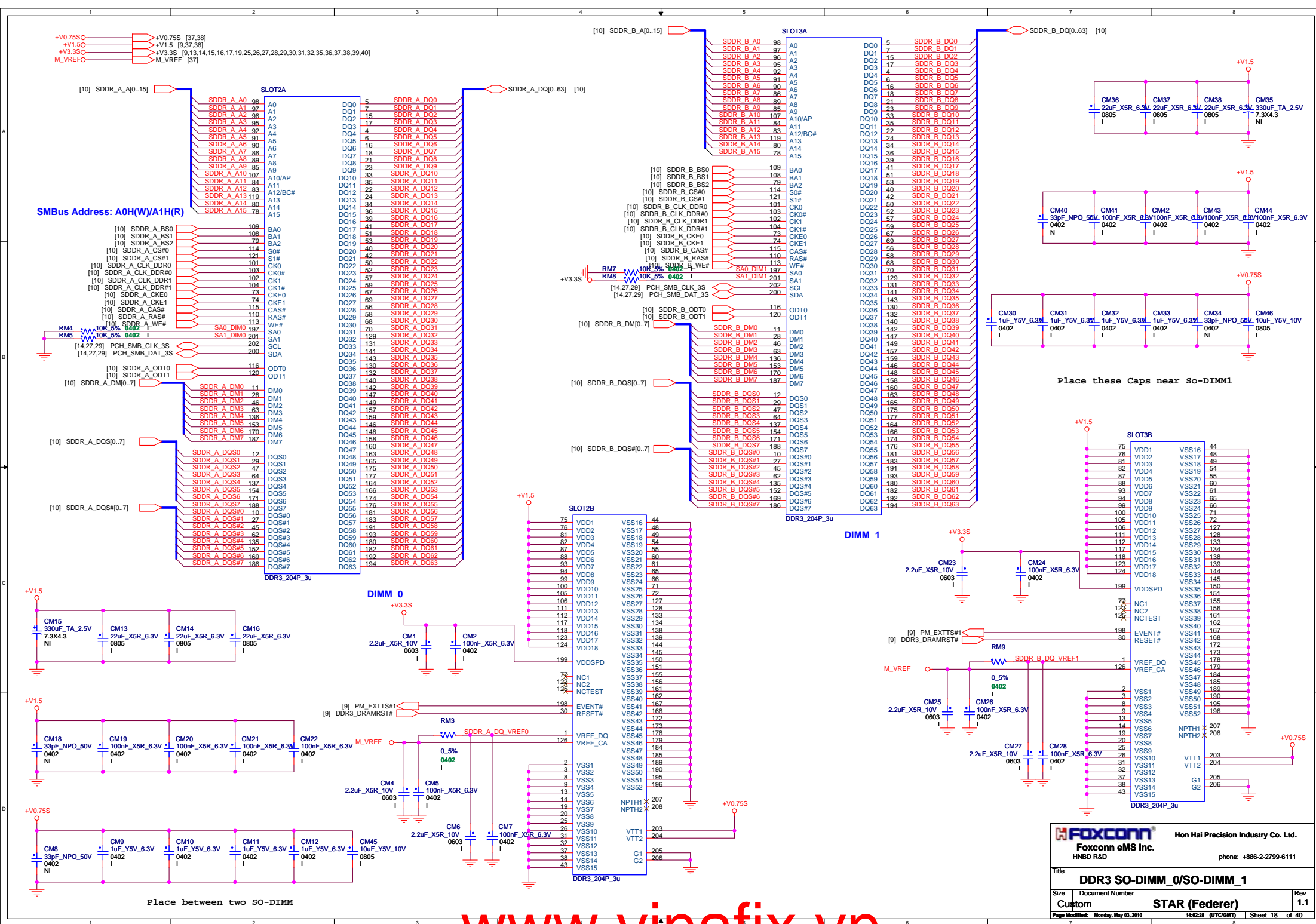
Title
PCH (PCI,USB,NVRAM,GPIO)

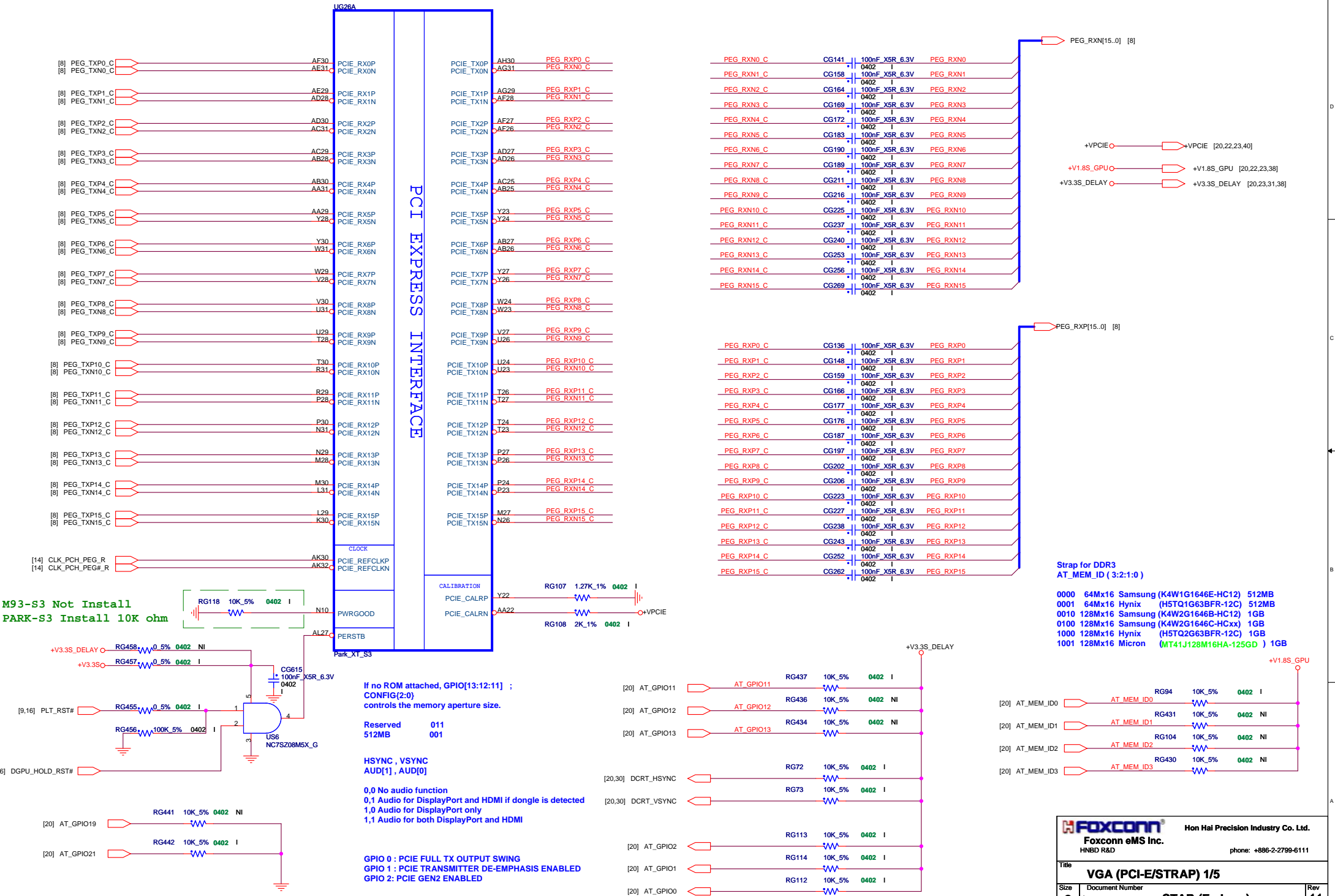
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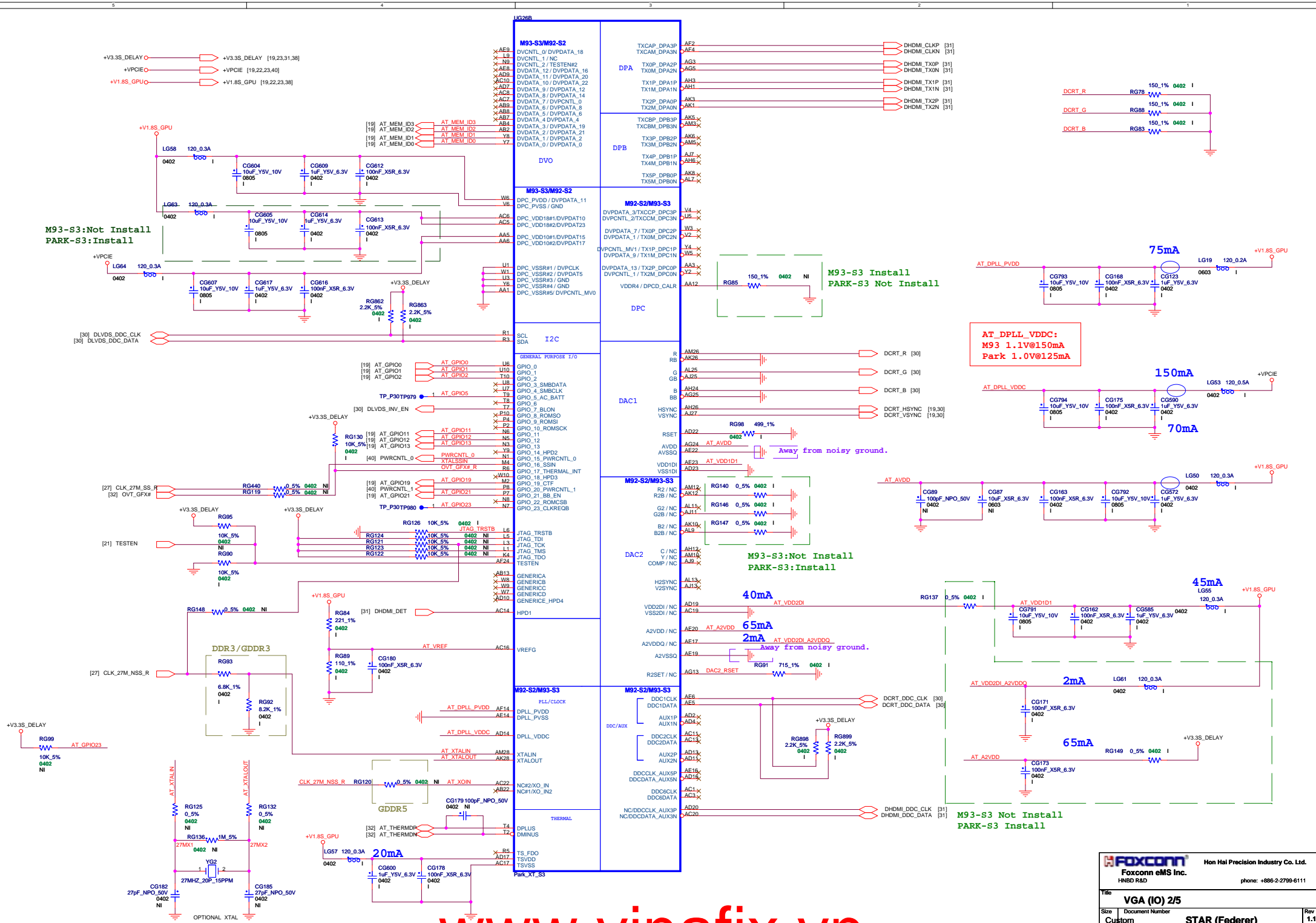
Rev
1.1

Page Modified: Monday, May 03, 2010 14:02:34 (UTC/GMT) 1 Sheet 16 of 40

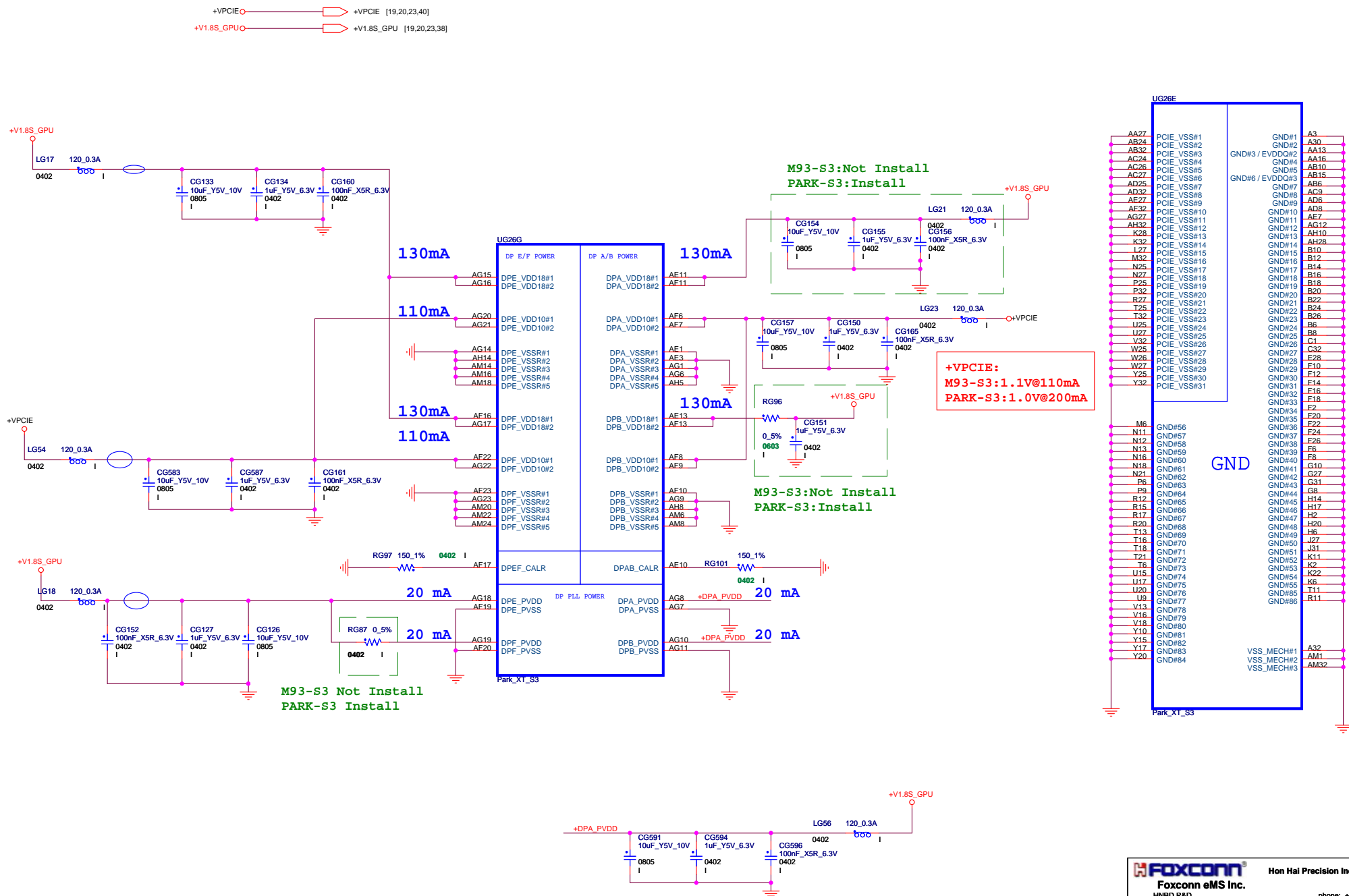


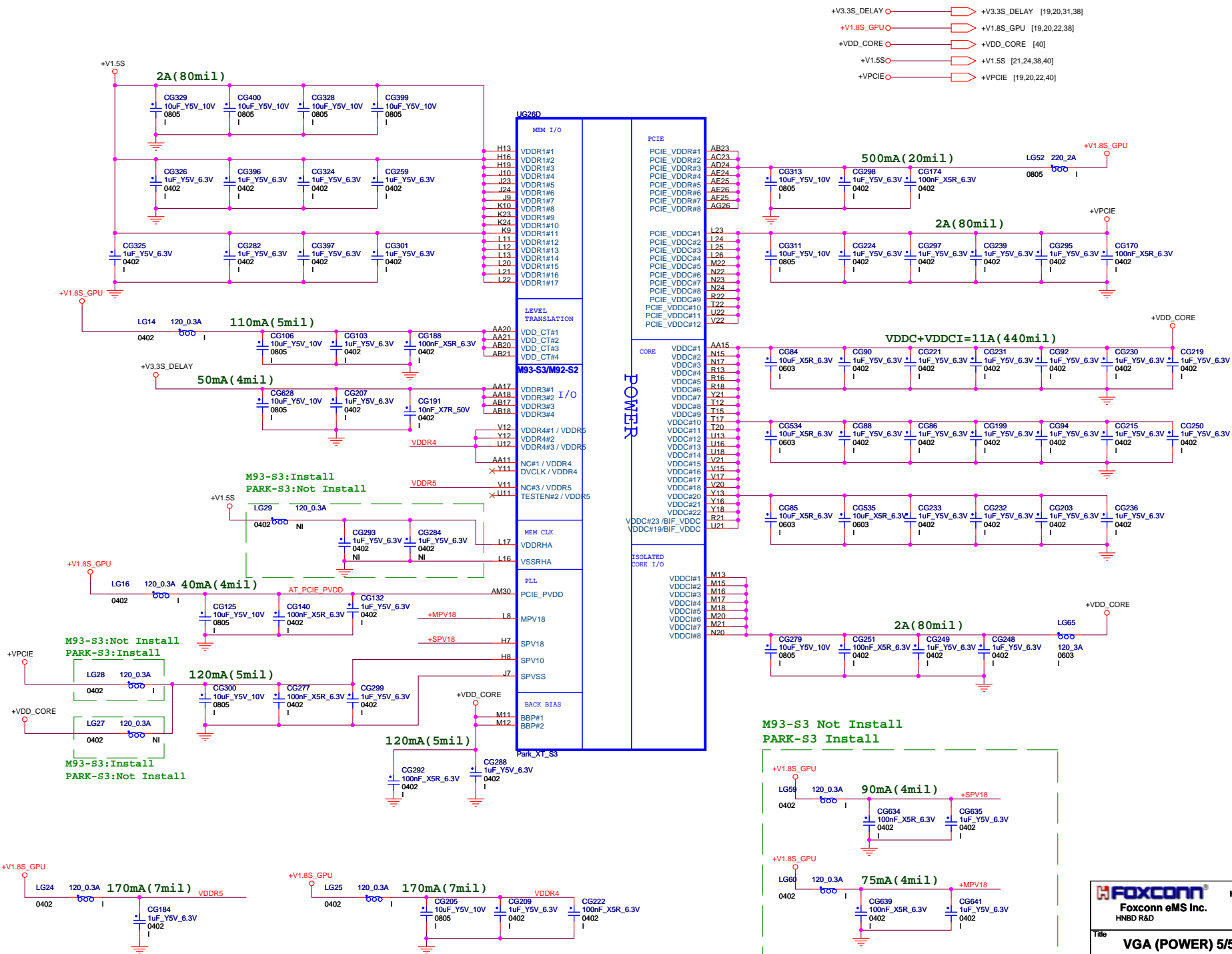




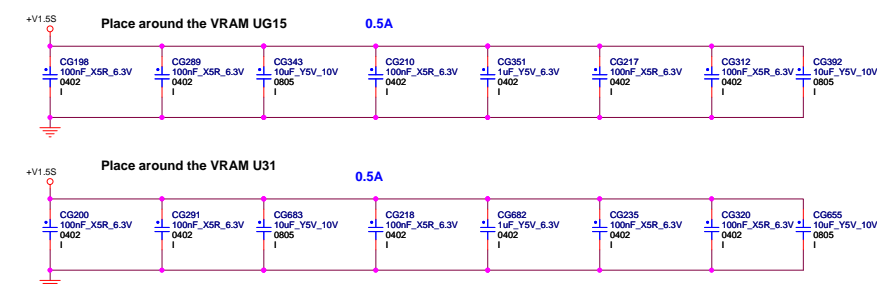
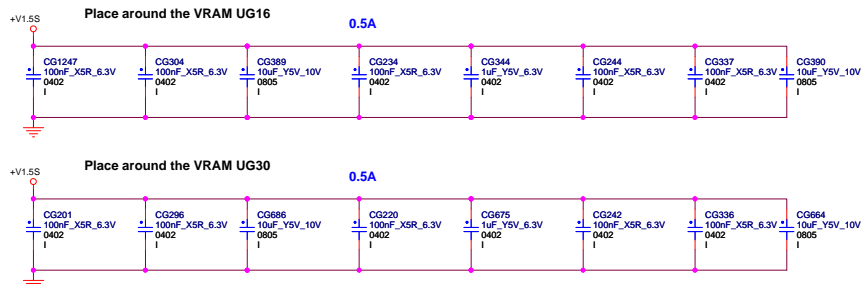
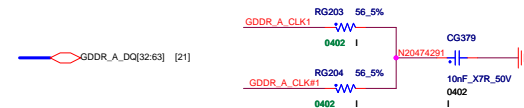
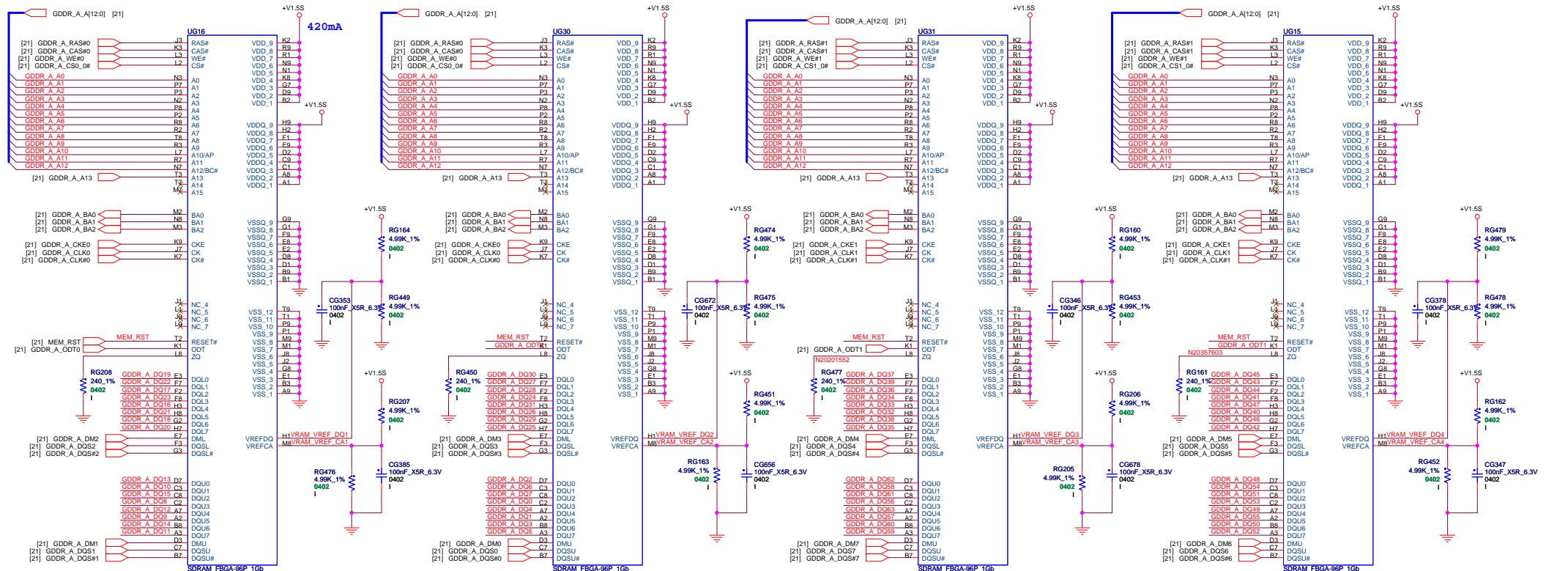


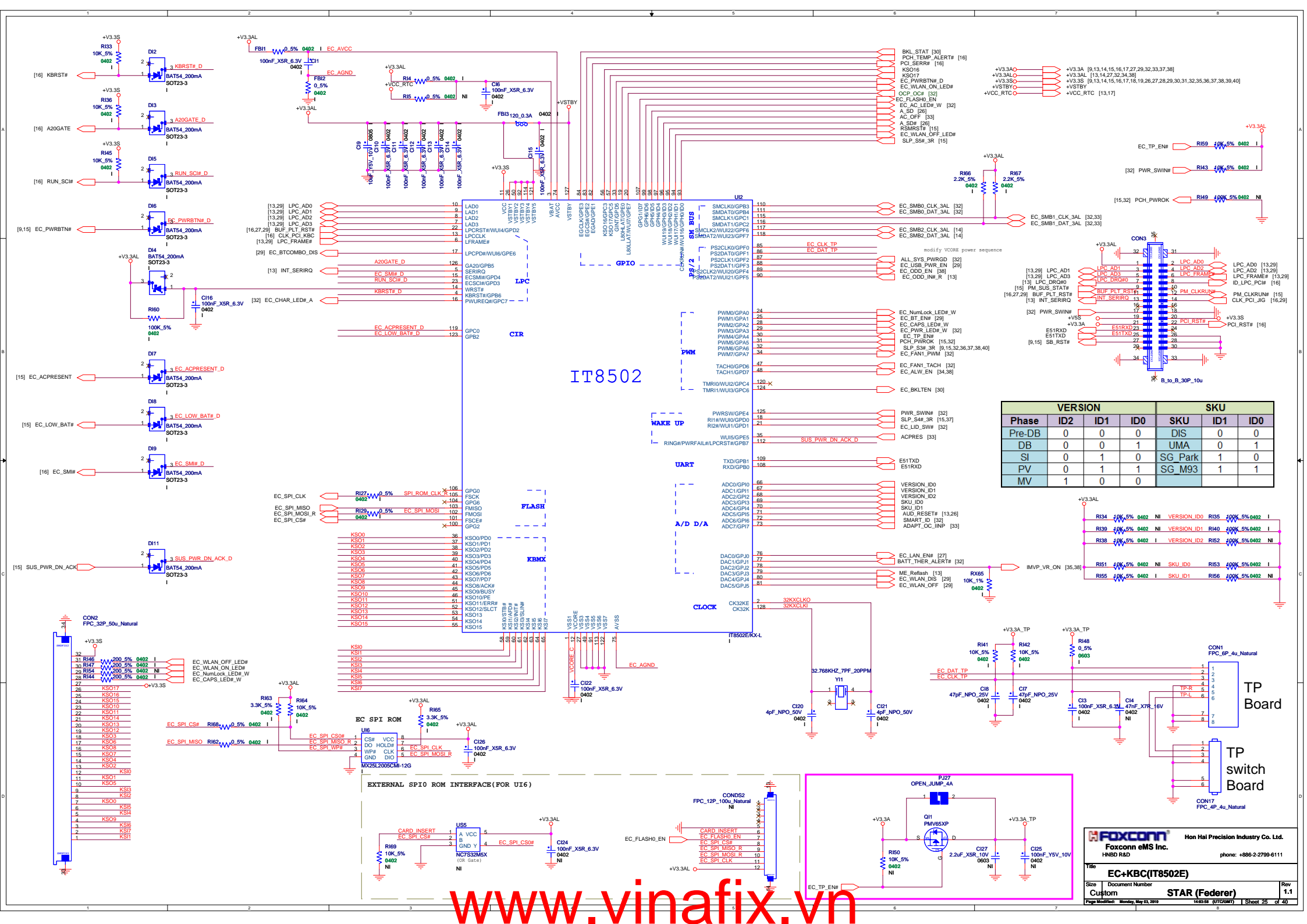






+V1.5S [21,23,38,40]





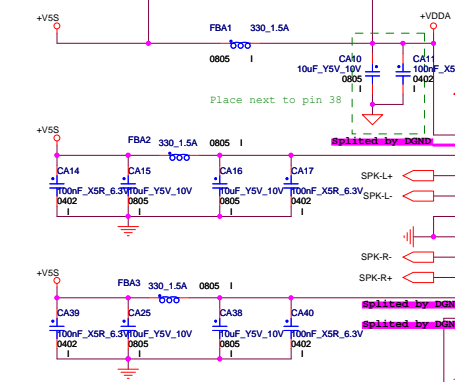
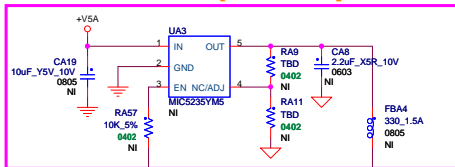
		VERSION			SKU		
Phase	ID2	ID1	ID0	SKU	ID1	ID0	
Pre-DB	0	0	0	DIS	0	0	
DB	0	0	1	UMA	0	1	
SI	0	1	0	SG Park	1	0	
PV	0	1	1	SG M93	1	1	
MV	1	0	0				

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phone: +886-2-2799-6111

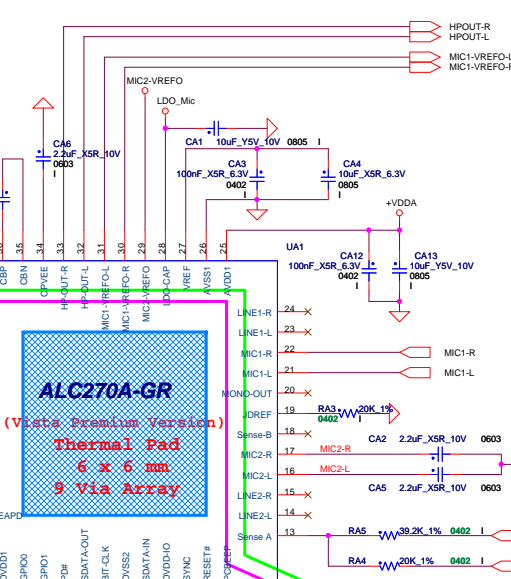
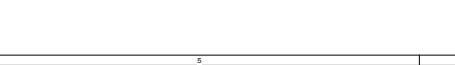
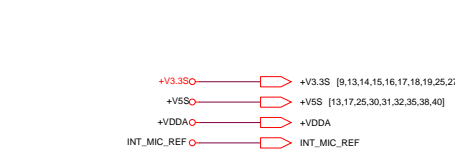
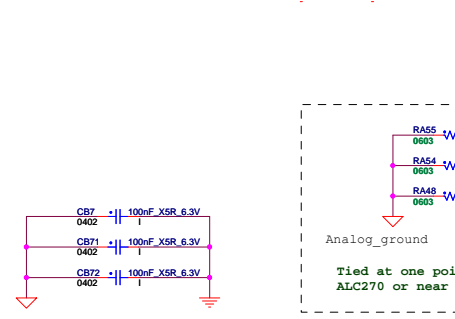
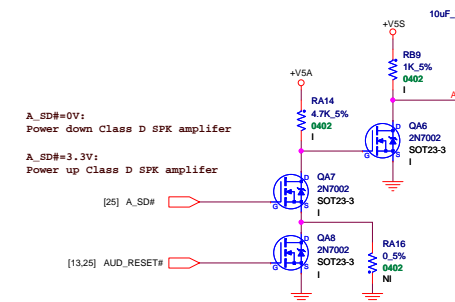
EC+KBC(IT8502E)
Size: Custom
Document Number: STAR (Federer)
Page Modified: Monday, May 03, 2010 14:55:59 (UTC+08:00) Sheet 25 of 40

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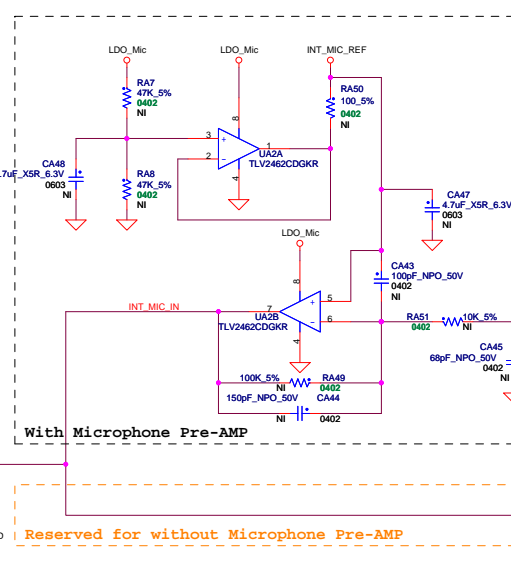
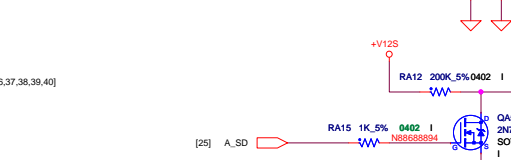
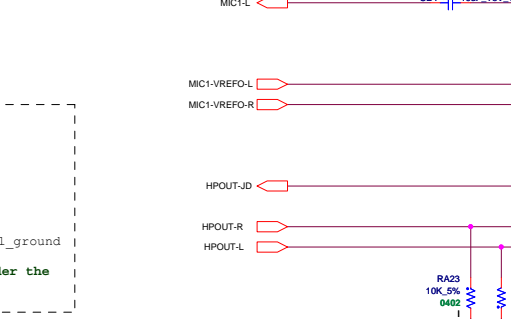
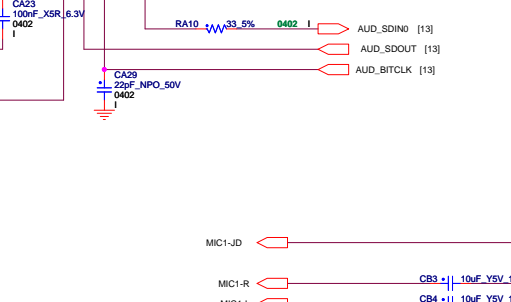
Reserved LDO circuitry for +VDDA power source



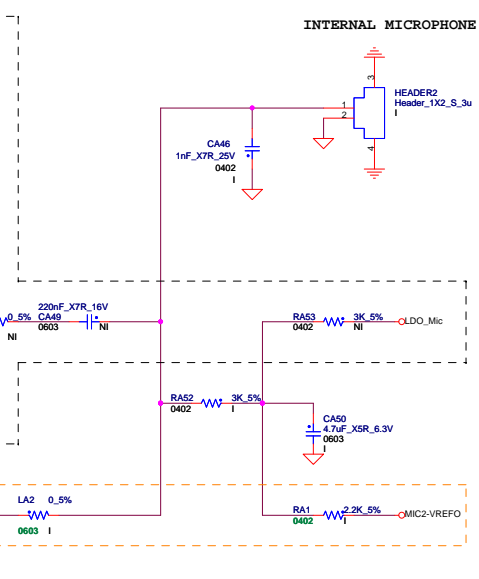
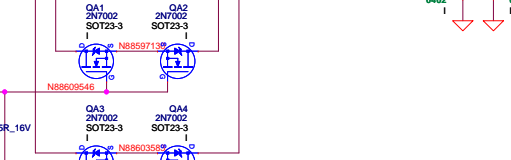
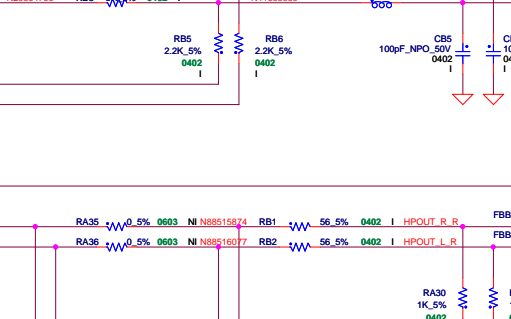
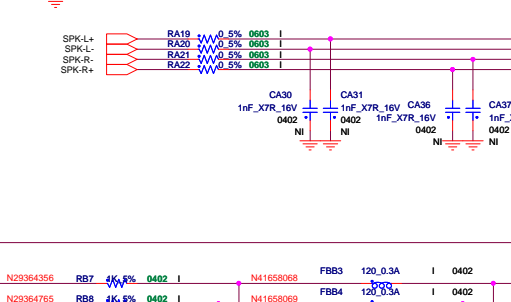
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Surges of PVDD >7V duration 0.1ms when class D amplifier is working may damage the amplifier, 10uF tantalum capacitors are required at PVDD1 and PVDD2 to suppress the surge



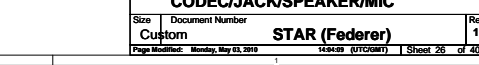
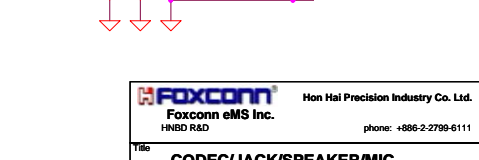
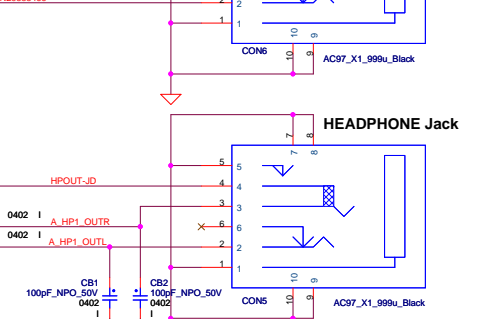
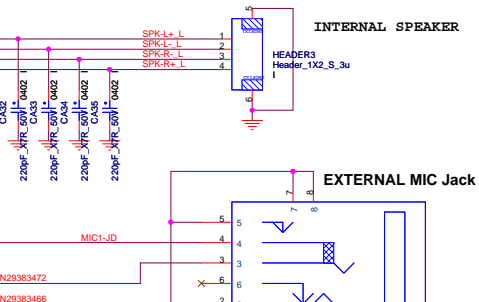
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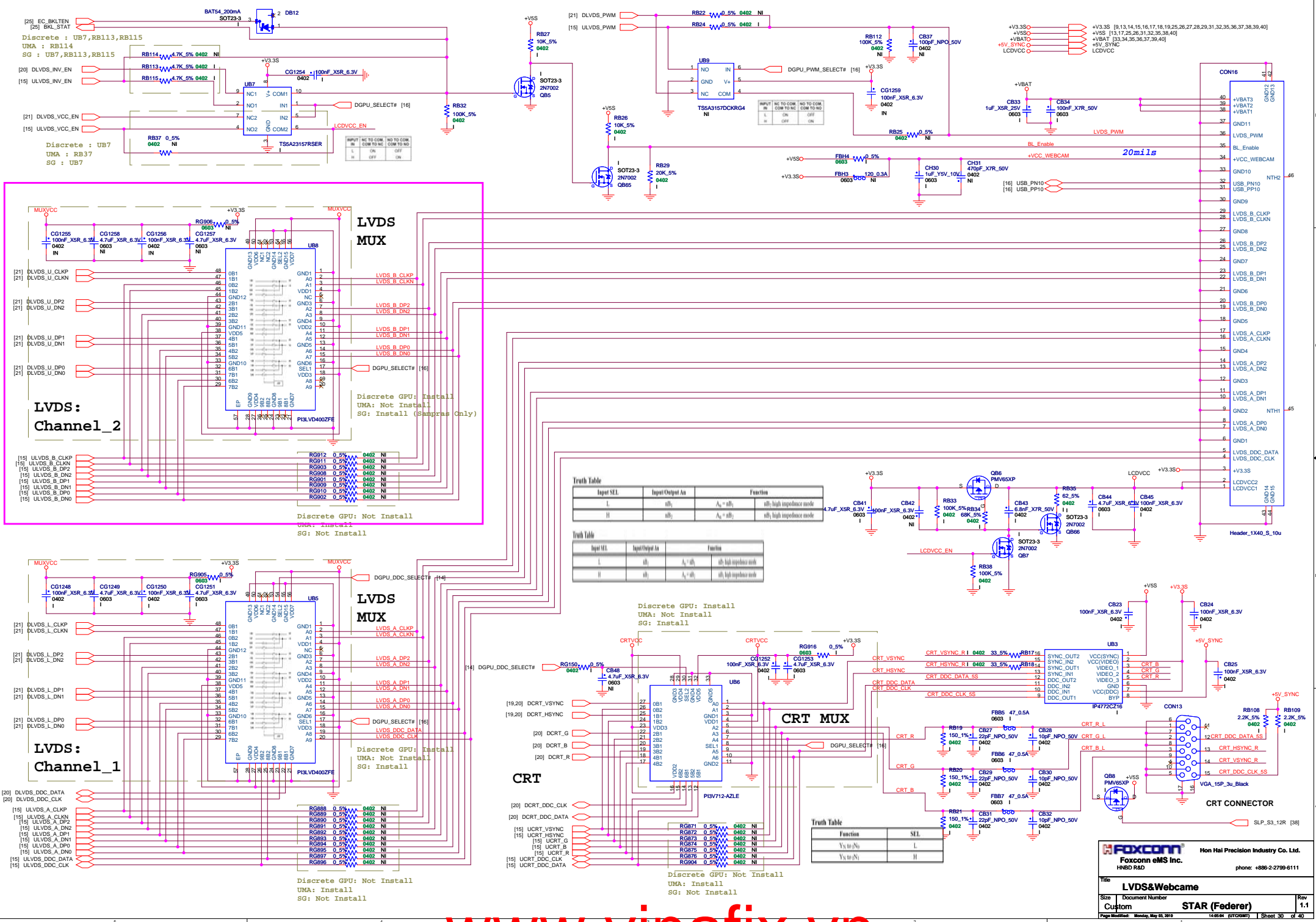
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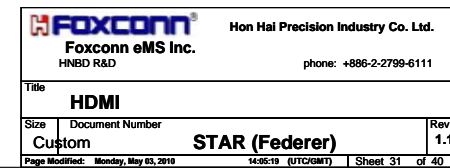
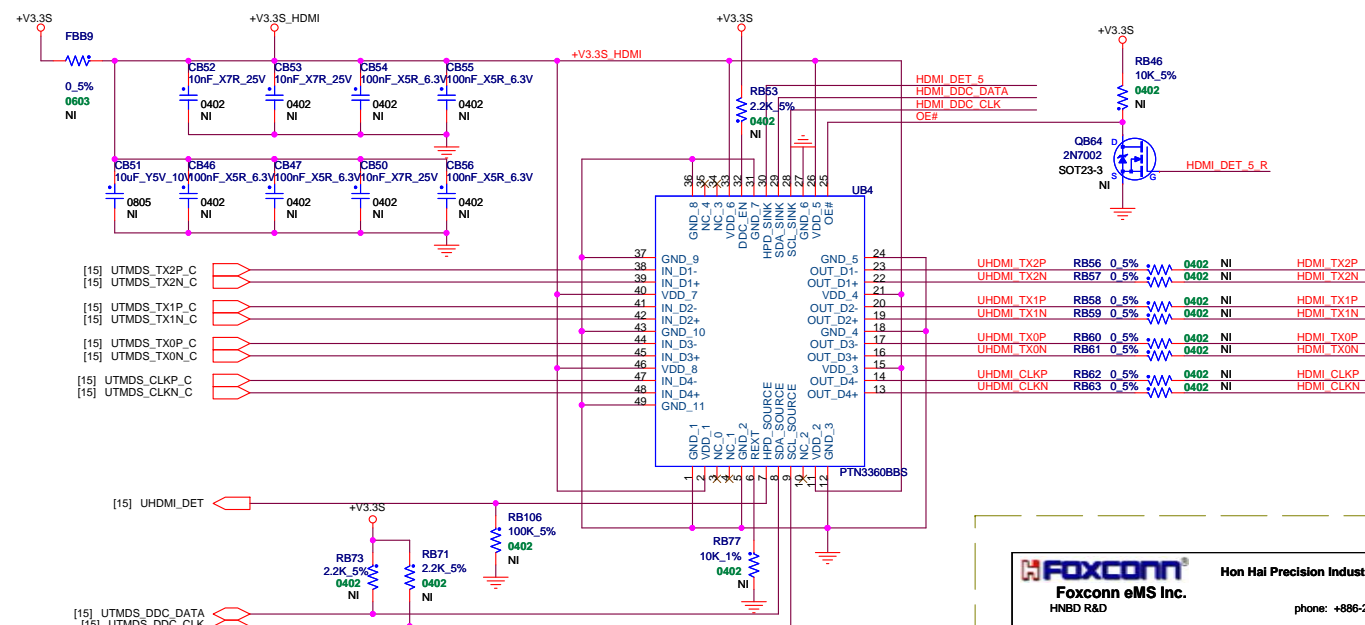
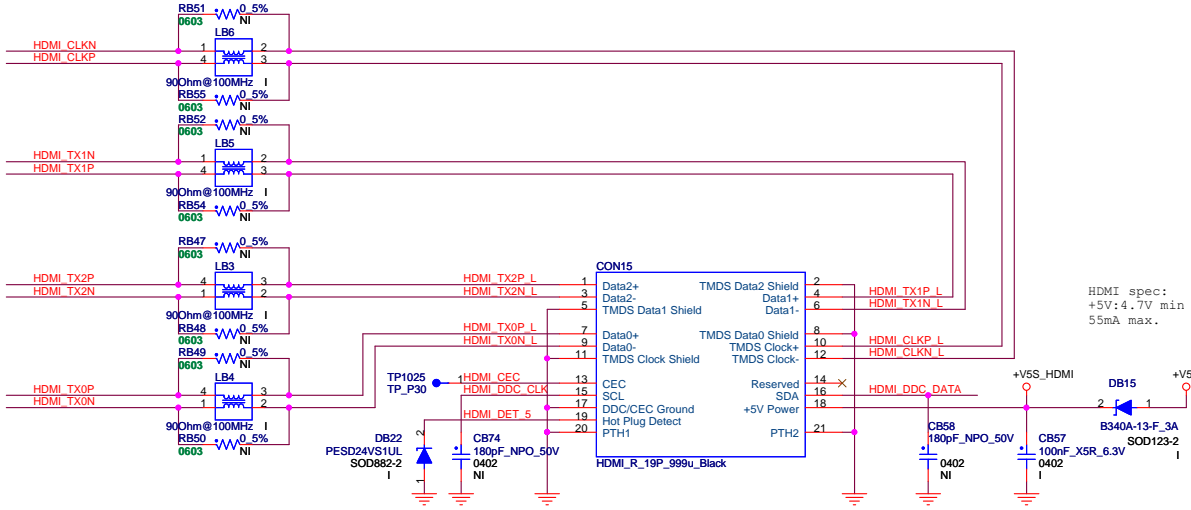


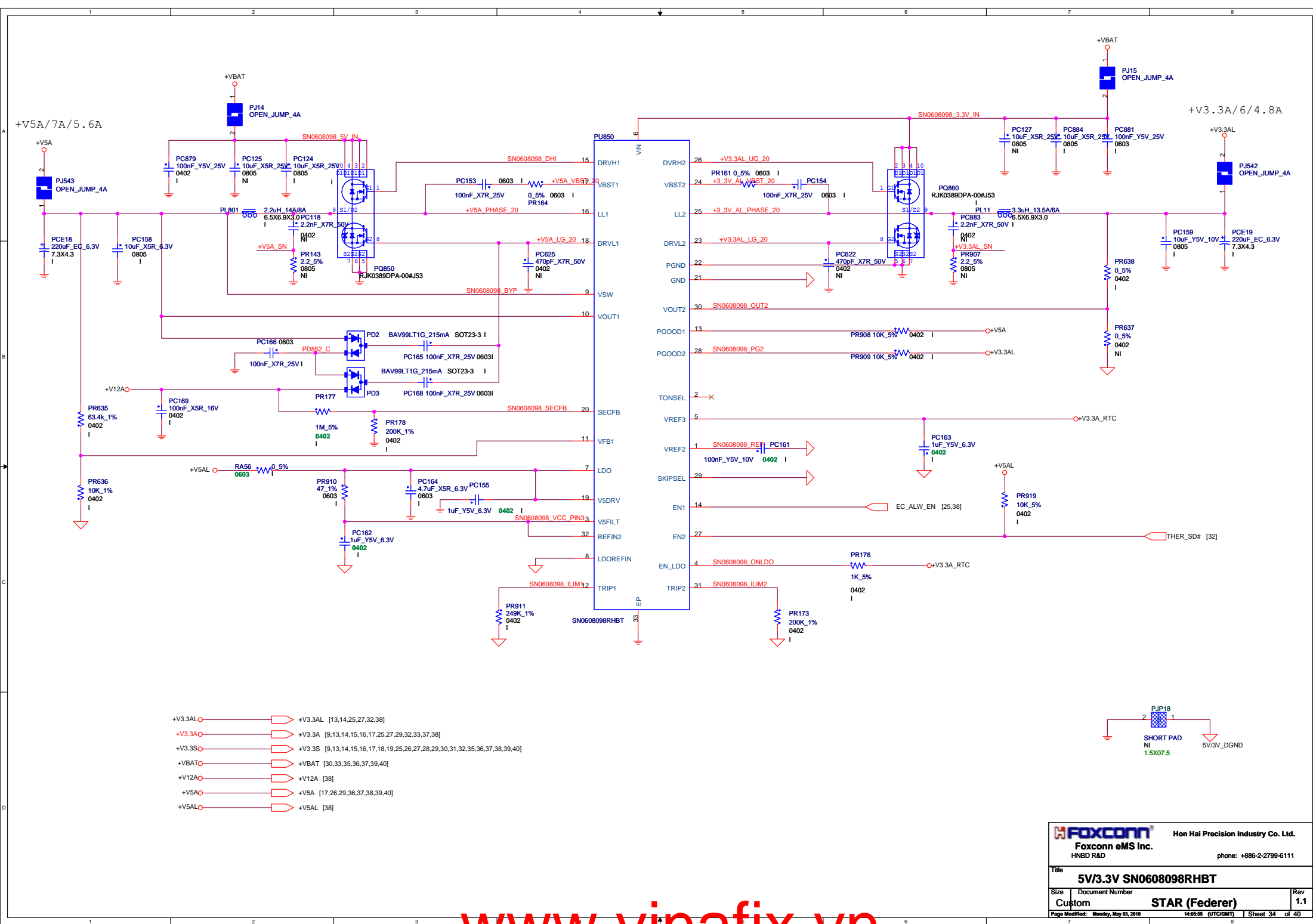
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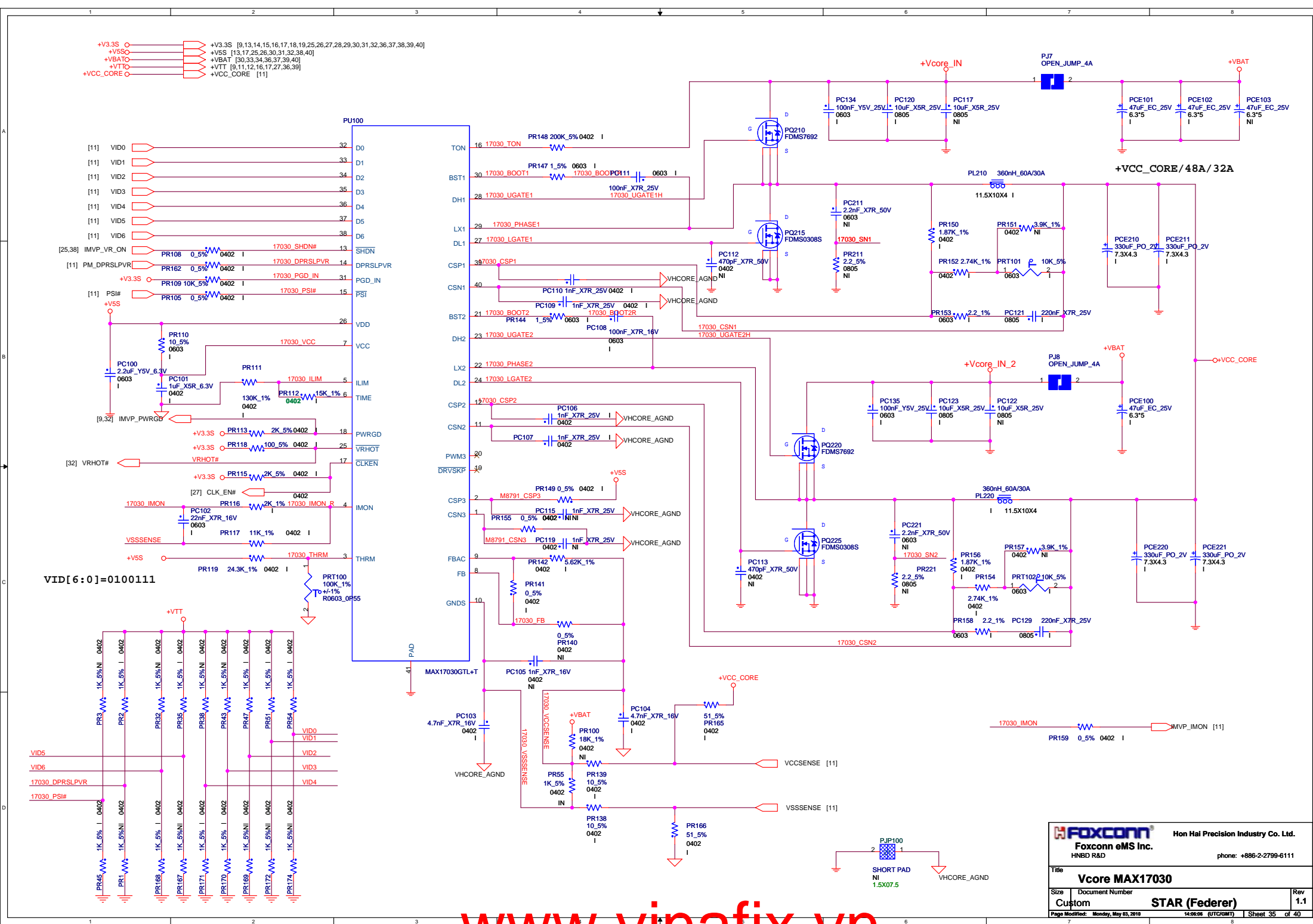









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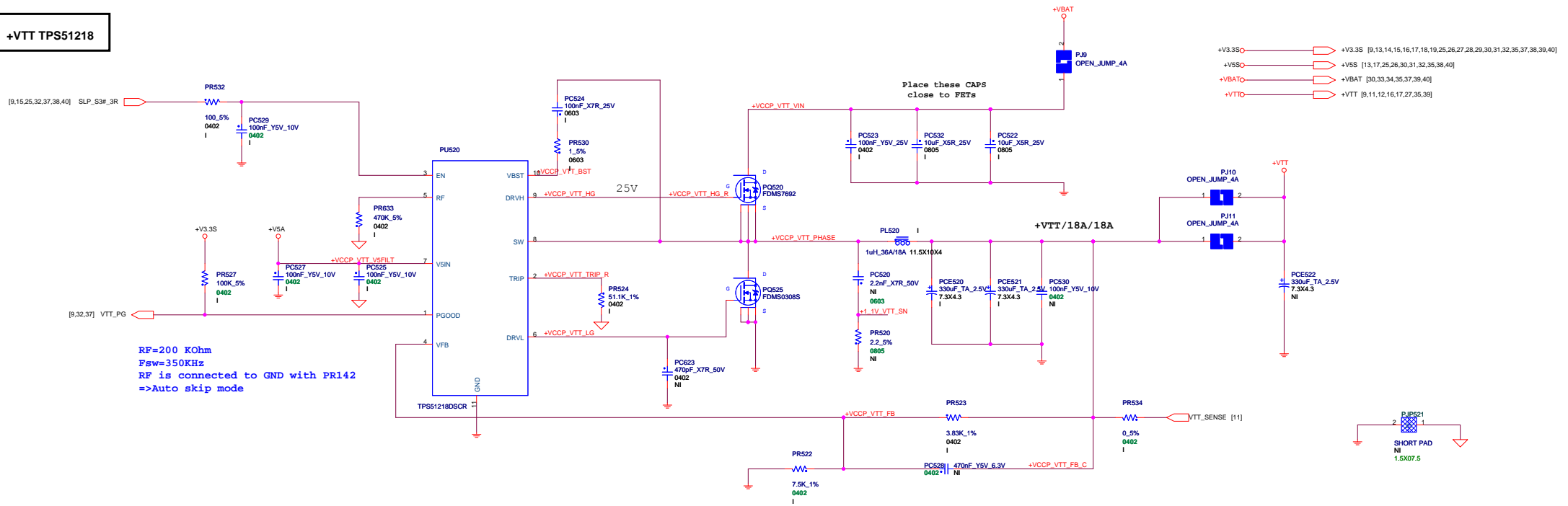


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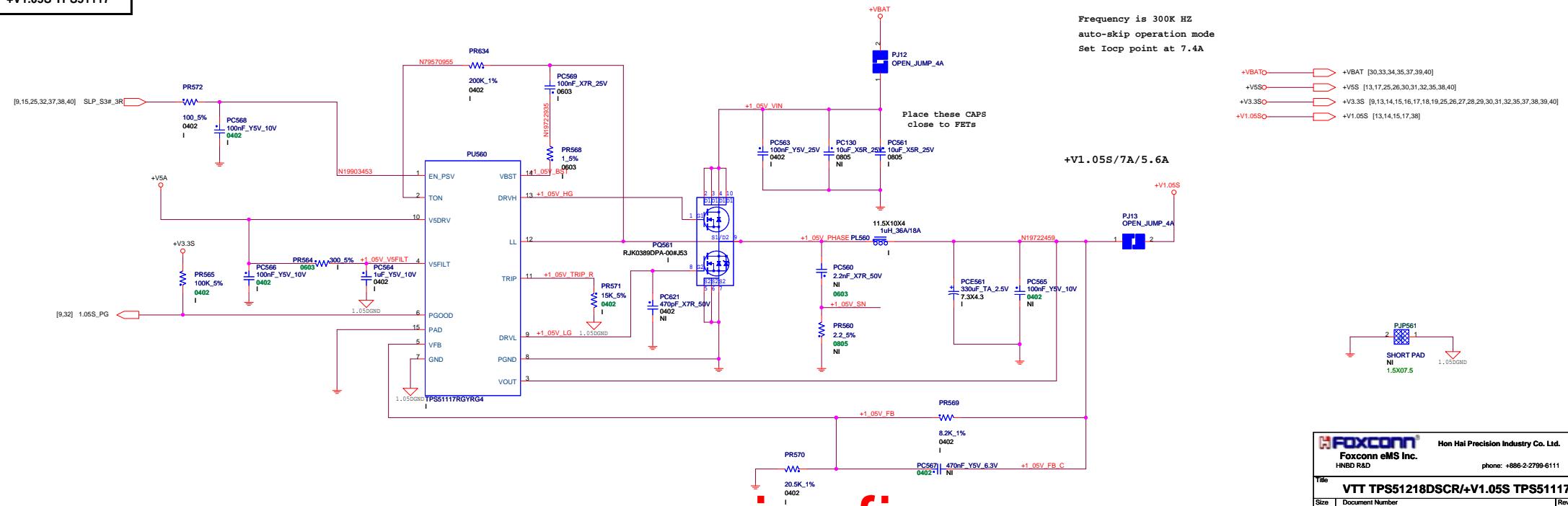
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+VTT TPS51218

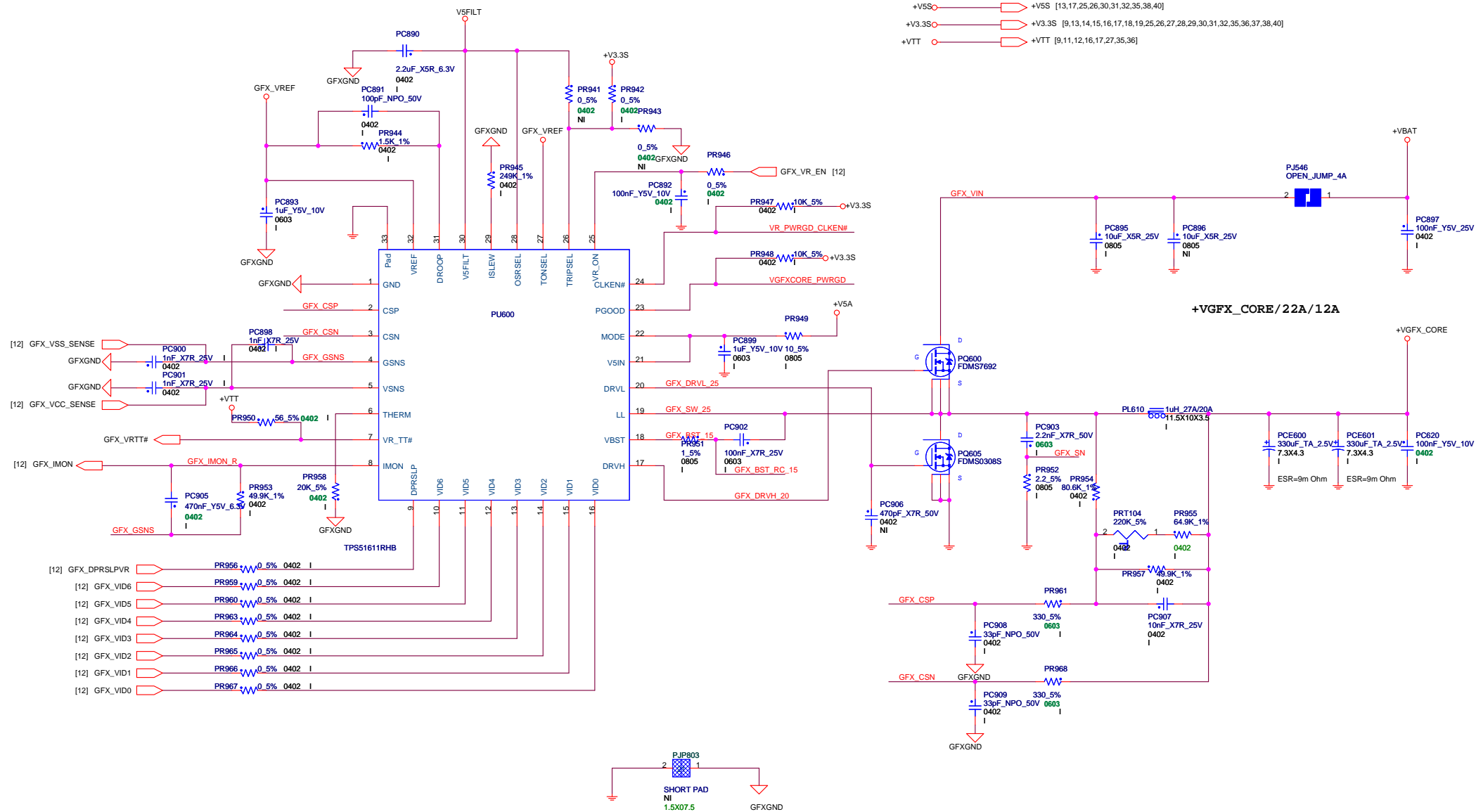


+V1.05S TPS51117





+VGFXCORE



```
Discrete GPU: Not Install
UMA: Install
SG: Install
```

