
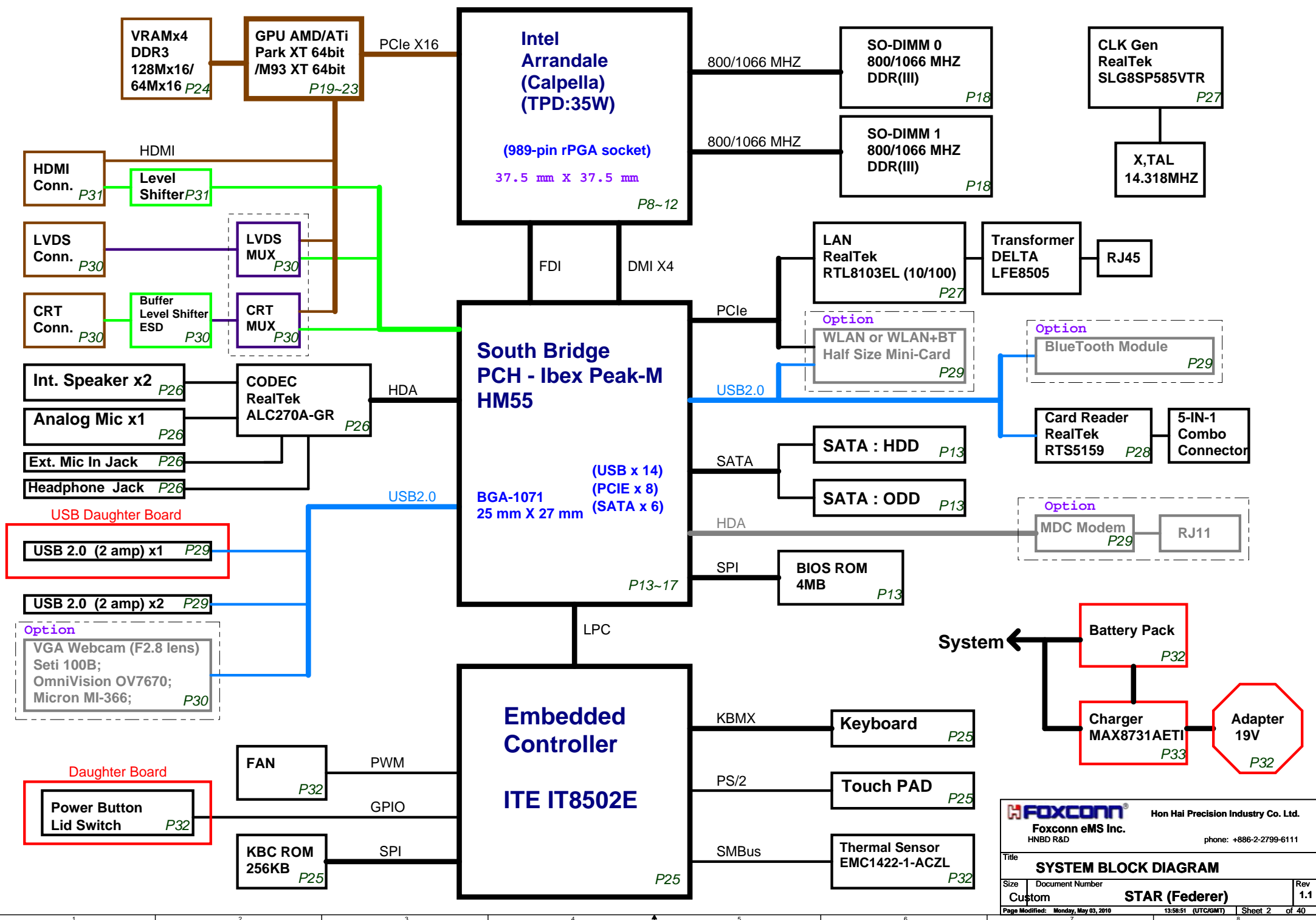


01 -- COVER SHEET	21 -- VGA_S3 (DDR3) 3/5
02 -- SYSTEM BLOCK DIAGRAM	22 -- VGA_S3 (DP) 4/5
03 -- CLOCK MAP	23 -- VGA_S3 (POWER) 5/5
04 -- POWER MAP	24 -- VRAM (DDR3)
05 -- POWER SEQUENCY DIAGRAM	25 -- EC+KBC (IT8502E)
06 -- POWER SEQUENCY TIMING	26 -- CODEC/JACK/SPEAKER/MIC
07 -- SMBUS MAP	27 -- LAN (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

 <b>Hon Hai Precision Industry Co. Ltd.</b> <b>Foxconn eMS Inc.</b> HNBD R&D		phone: +886-2-2799-6111
Title <b>Index Page</b>		
Size Custom	Document Number <b>STAR (Federer)</b>	Rev 1.1
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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

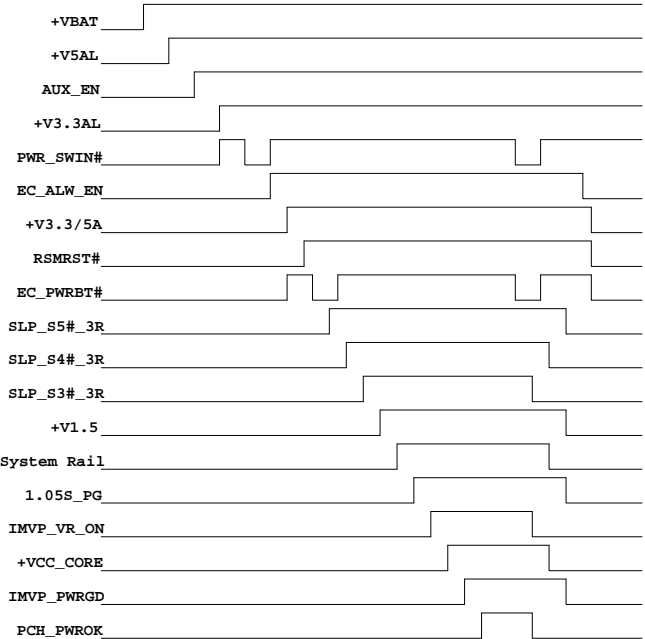
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Custom	<b>STAR (Federer)</b>	1.1

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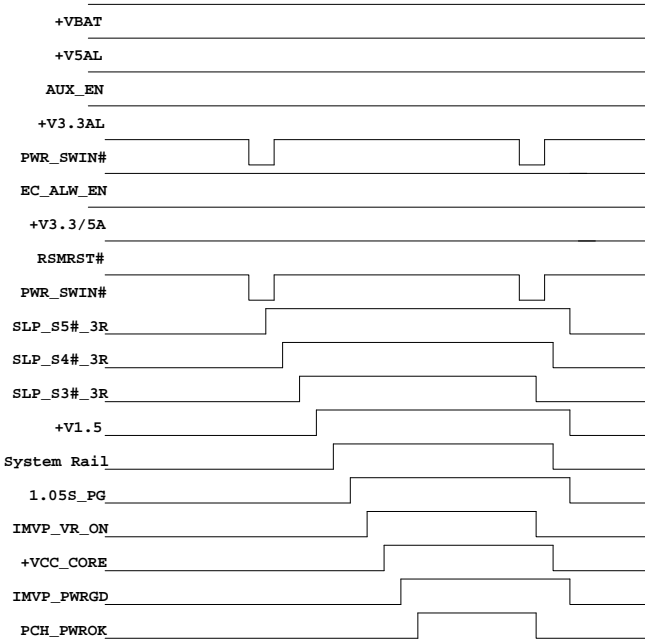


POWER SEQUENCE TIMING

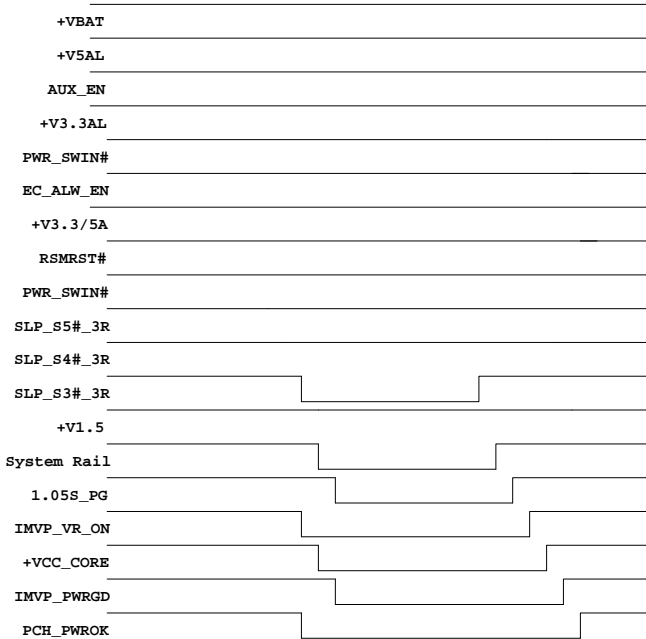
G3(OFF)->S0->S5



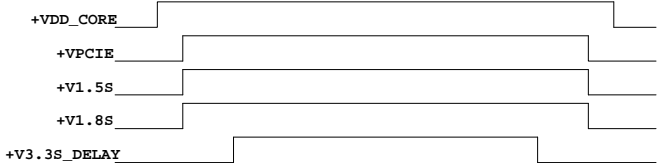
S5->S0->S5



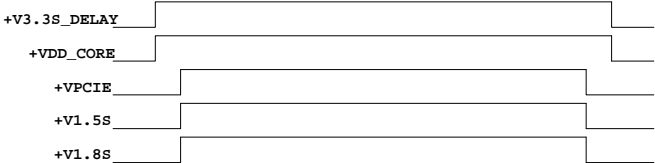
S0->S3->S0



GPU\_M93 Sequence



GPU\_Park Sequence



# Switchable GPU

GPU  
Park\_XT

PCH

EC  
ITE8502

CRT

LVDS

HDMI

Temp  
Sensor

Charger

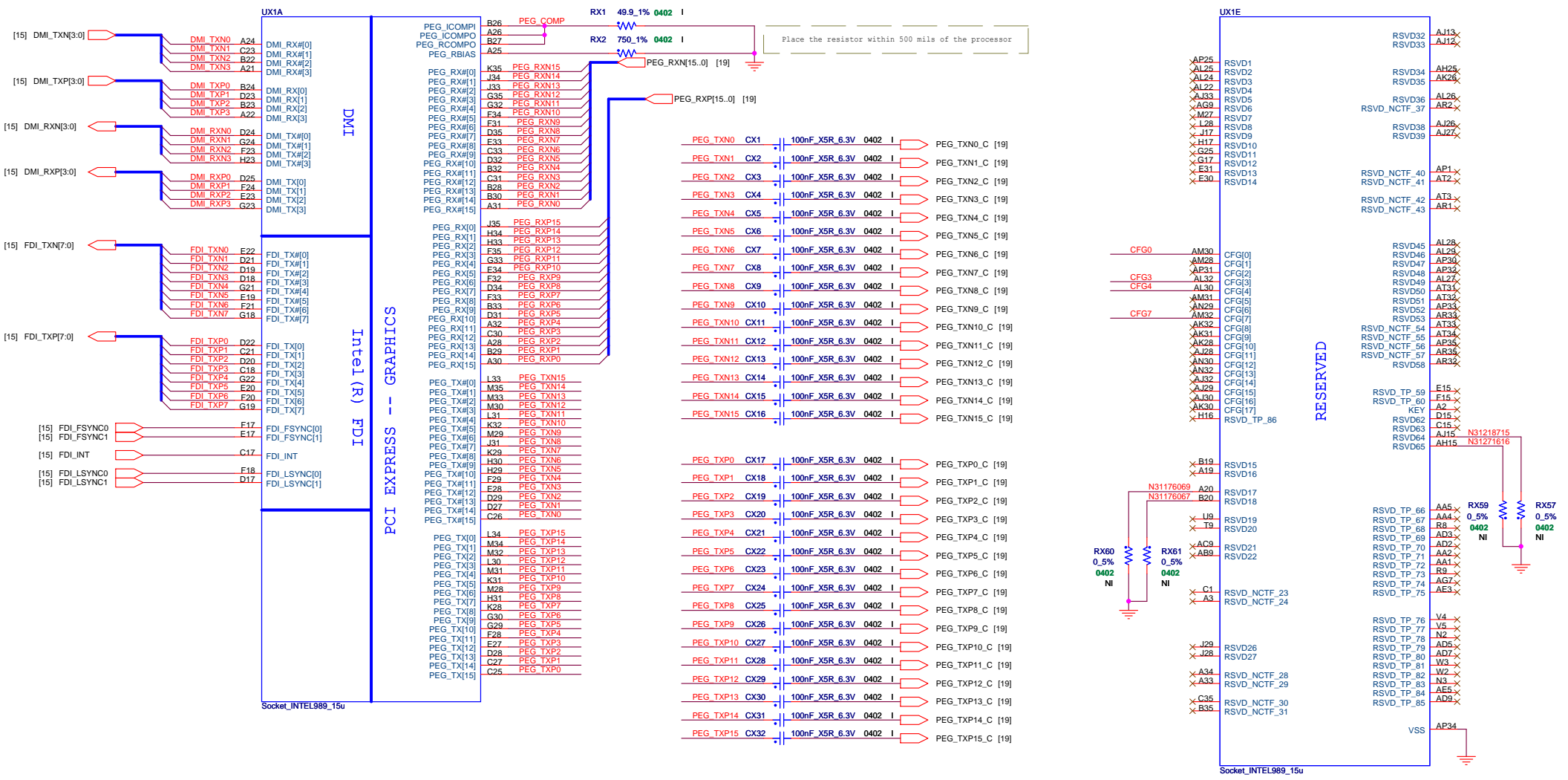
Battery

DIMM0

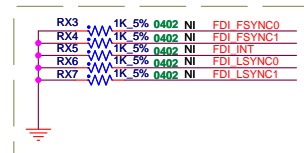
DIMM1

CLOCK  
GEN

WLAN



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




CFG4 Display Port Presence  
1 : Disabled ; No Physical Display Port  
attached to Embedded Display Port  
0 : Enable ; An external Display Port device  
is connected to the Embedded Display Port

CFG7 Reserved - Temporarily used for early Clarksfield samples.  
Clarksfield (only for early samples pre-E51) -  
Connect to GND with 3.01K Ohm/5% resistor

PCI Express Configuration Select  
CFG0 1 : Single PEG  
0 : Bifurcation enabled

CFG3 PCI Express Static Lane Reversal  
1 : Normal Operation  
0 : Lane Numbers Reversed  
15 -> 0, 14 -> 1, ...



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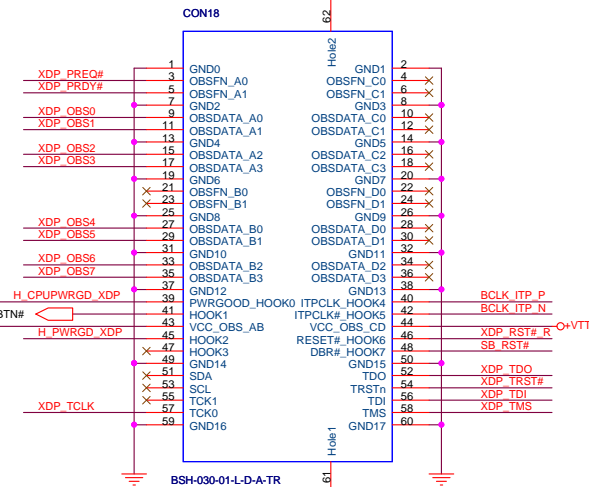
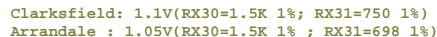
phone: +886-2-2799-6111

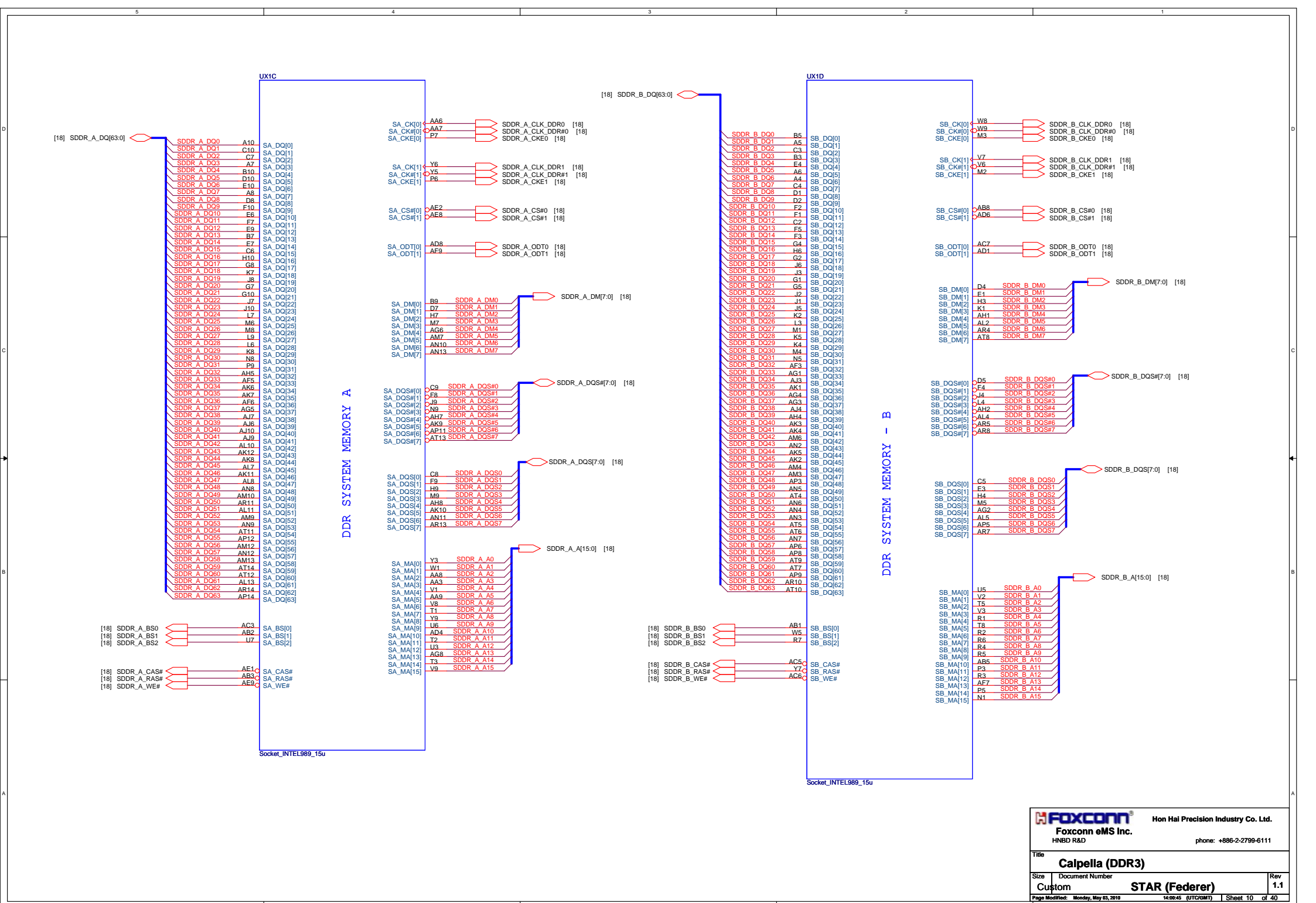
Calpella (DMI,PEG,FDI)

Size	Document Number	Rev
Custom	STAR (Federer)	1.1
Page Modified: Monday, May 03, 2010 14:00:26 (UTC+08MT)		Sheet 8 of 40

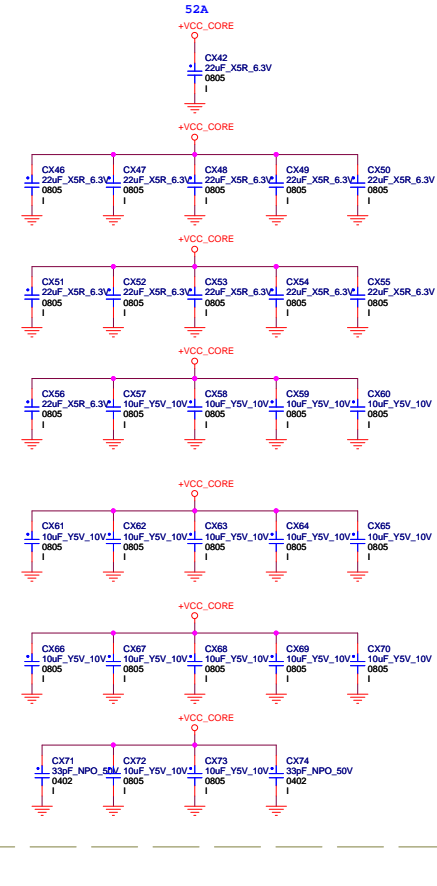


Place close to chip

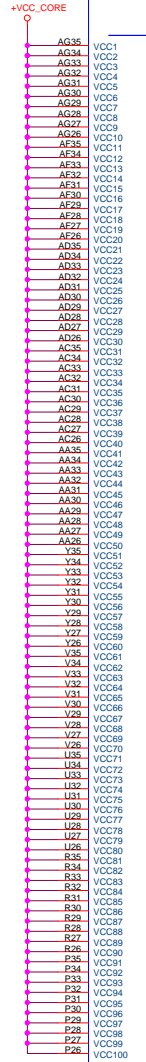




FOR VCC:  
12x 0805 22  $\mu$ F inside cavity,  
7x 0805 10  $\mu$ F under cavity and 9 x 0805 10  
 $\mu$ F  
between inductor and socket on top layer



UX1F



Socket\_INTEL989\_15u

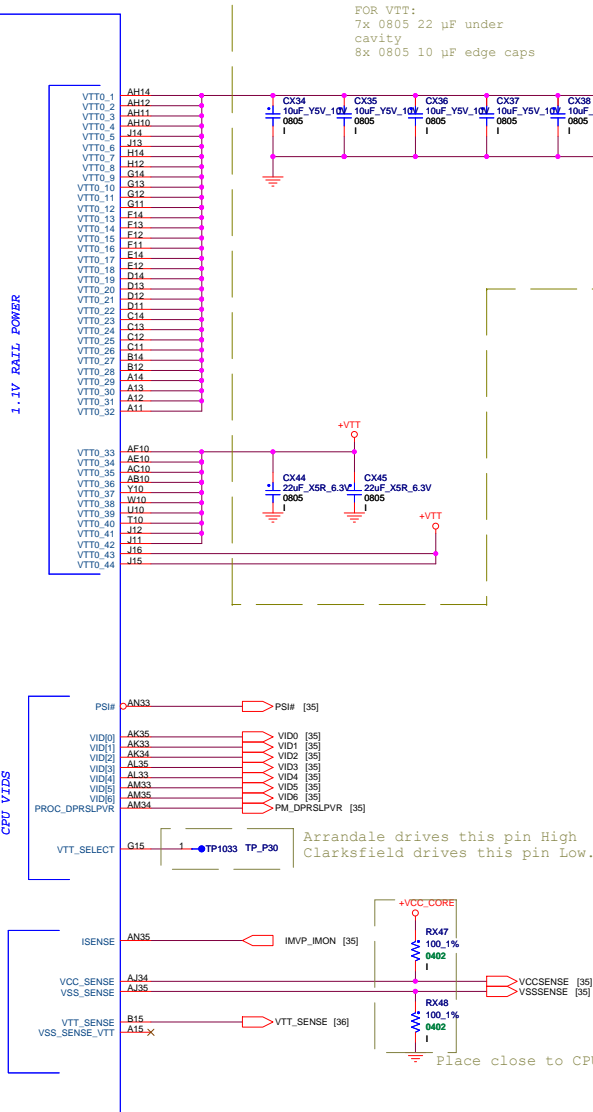
1.1V RAIL POWER

CPU CORE SUPPLY

POWER

CPU VIDS

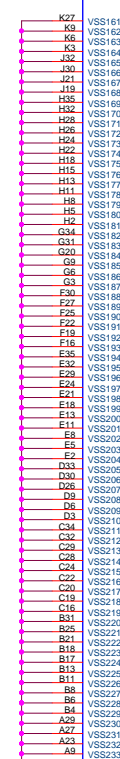
SENSE LINES



FOR VTT:  
7x 0805 22  $\mu$ F under  
cavity  
8x 0805 10  $\mu$ F edge caps

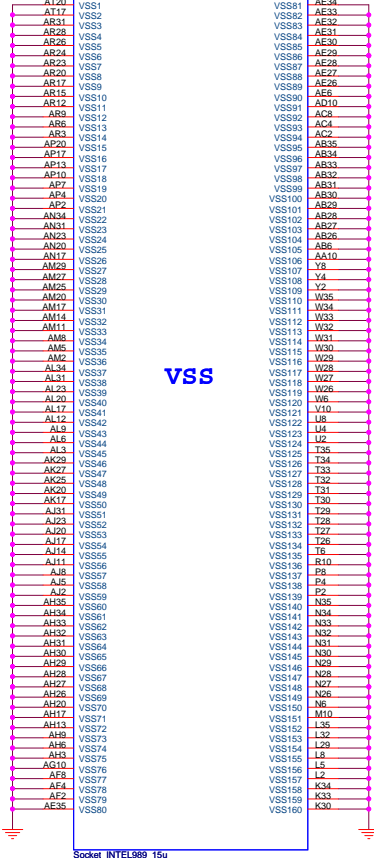
Arrandale drives this pin High  
Clarkfield drives this pin Low.

Place close to CPU

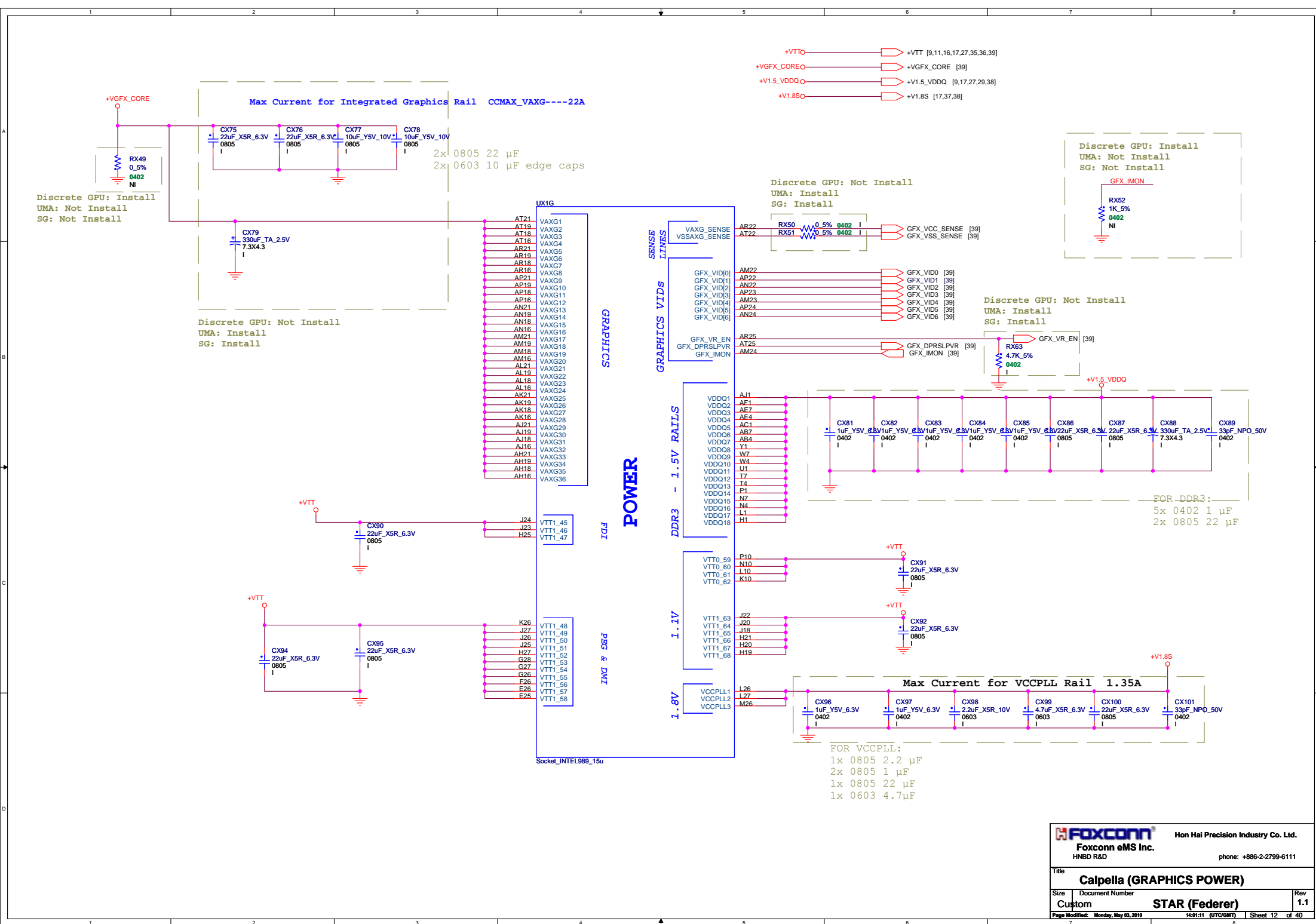


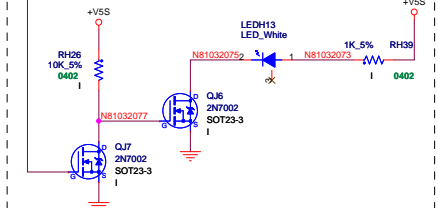
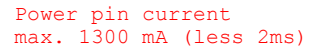
Socket\_INTEL989\_15u

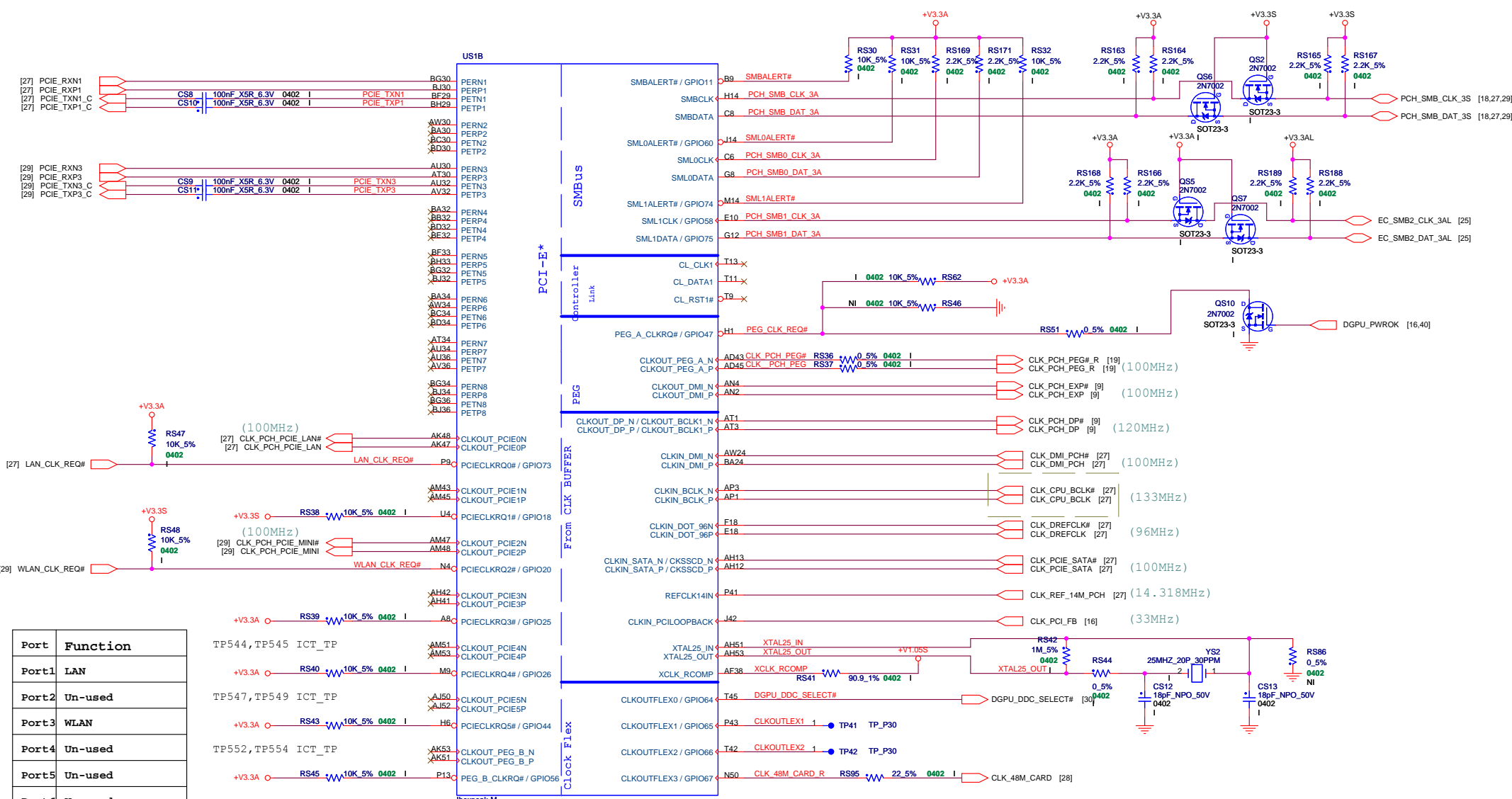
UX1H



Socket\_INTEL989\_15u



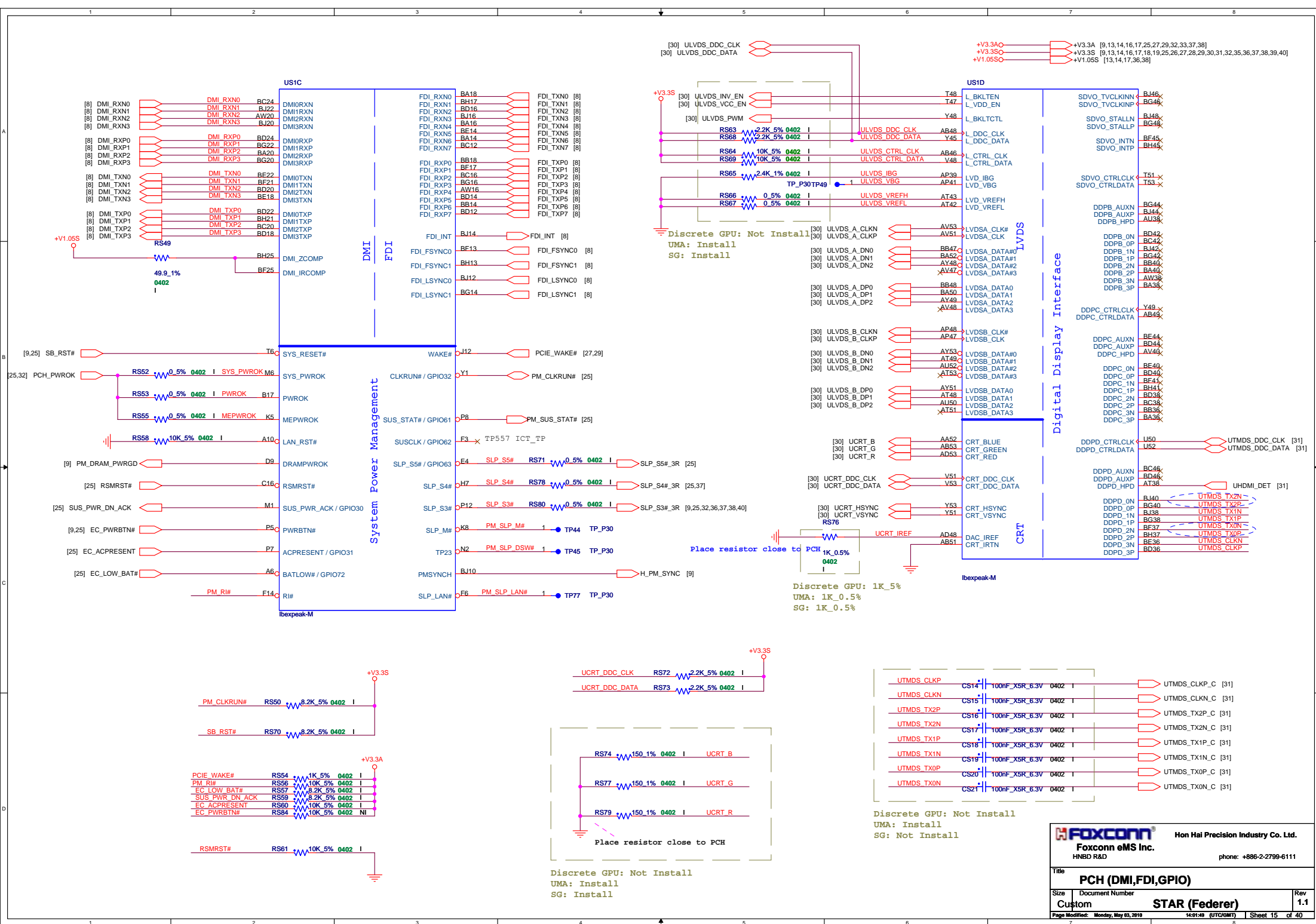


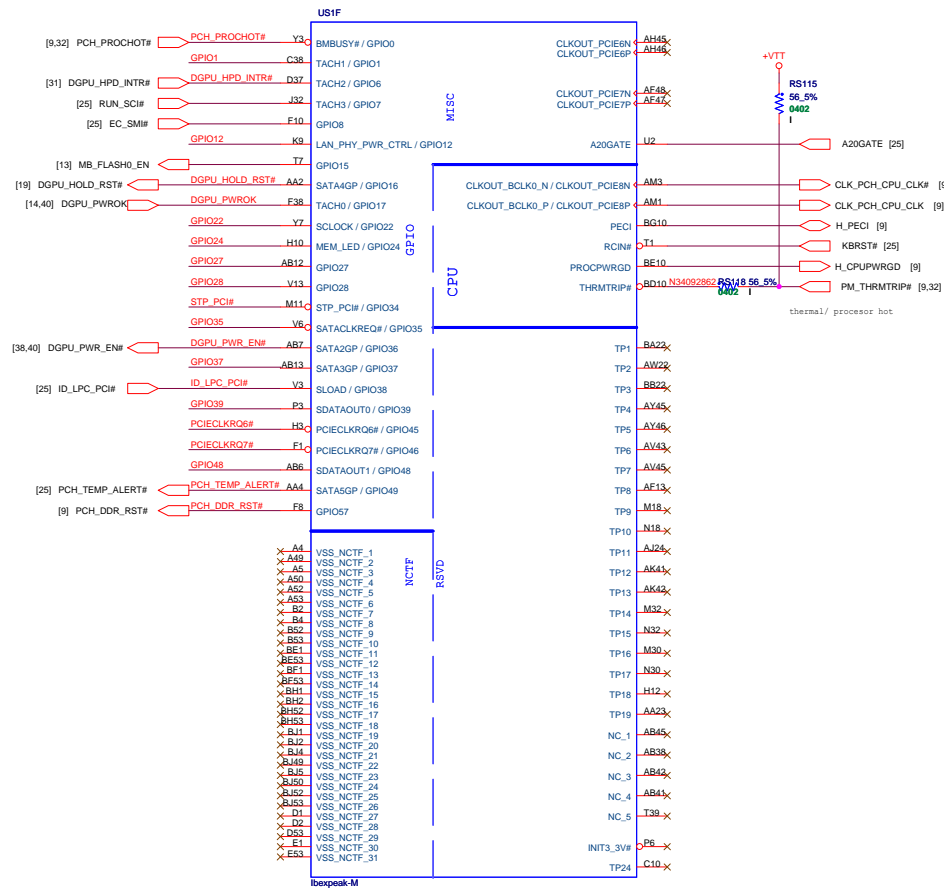


Port	Function
Port1	LAN
Port2	Un-used
Port3	WLAN
Port4	Un-used
Port5	Un-used
Port6	Un-used
Port7	Un-used
Port8	Un-used

### PCI-E Port Table

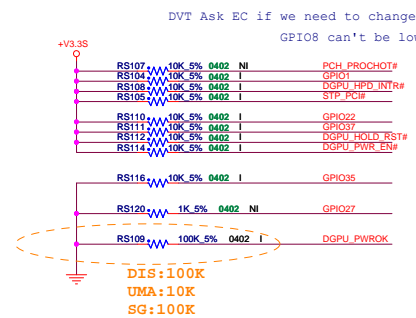
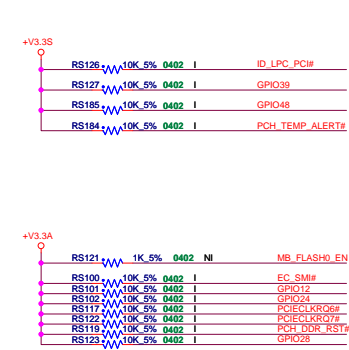




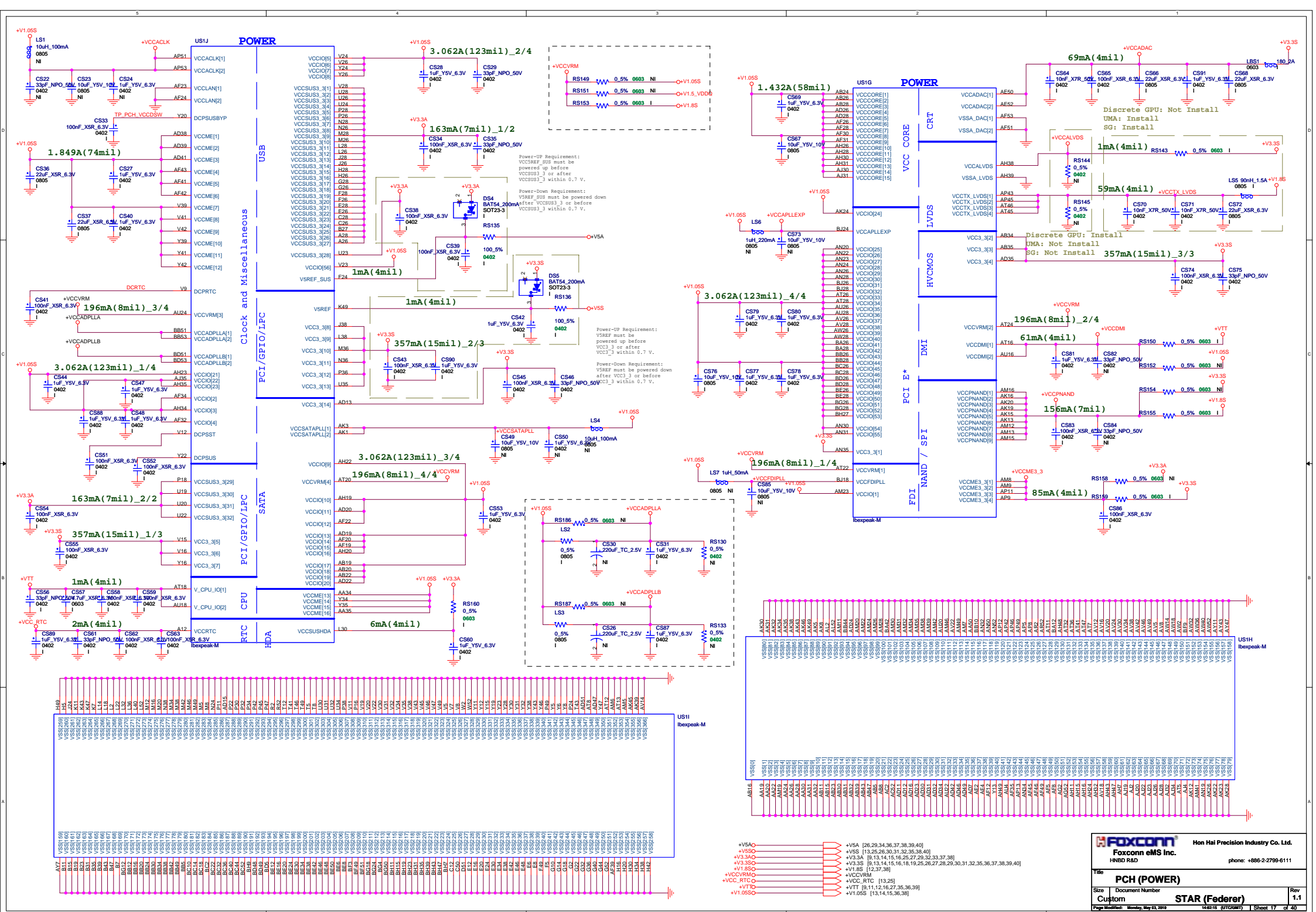


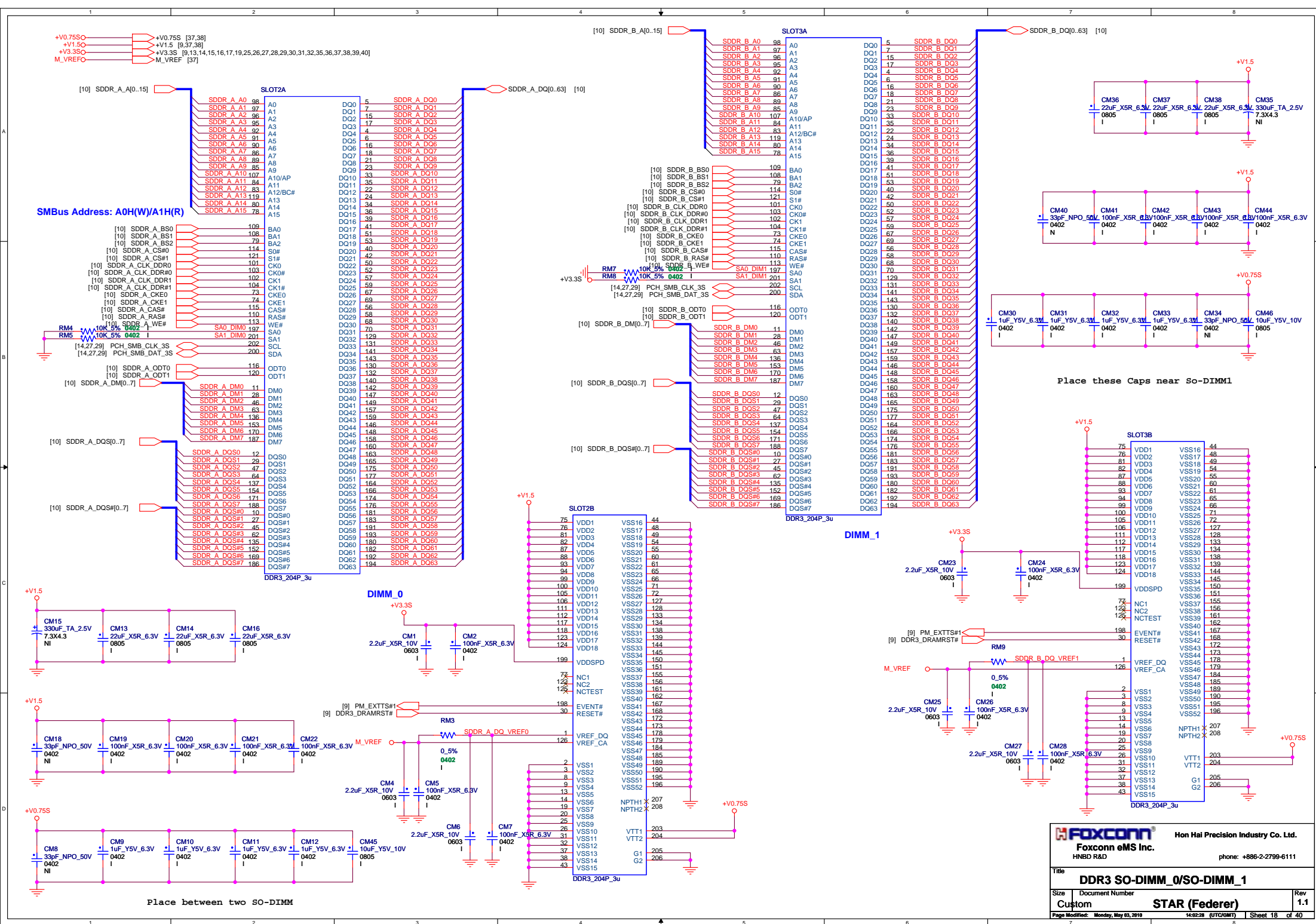
USB_OC#0	I	0402	10K	5%	RS87
USB_OC#1	I	0402	10K	5%	RS88
USB_OC#2	I	0402	10K	5%	RS89
USB_OC#3	I	0402	10K	5%	RS90
USB_OC#4	I	0402	10K	5%	RS98
USB_OC#5	I	0402	10K	5%	RS103
USB_OC#6	I	0402	10K	5%	RS106
EC_WAKEUP#	I	0402	10K	5%	RS113

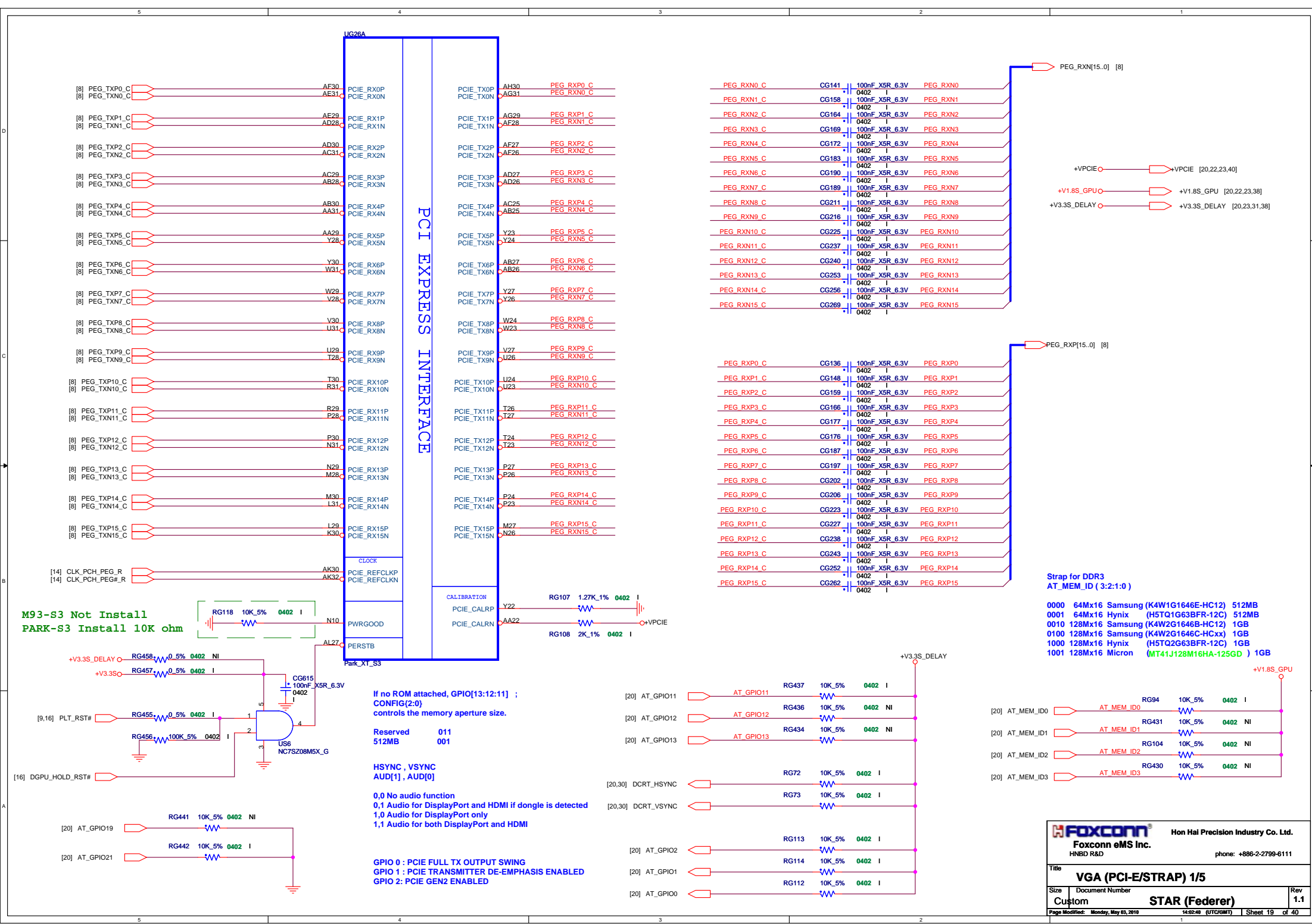
+V3.3A

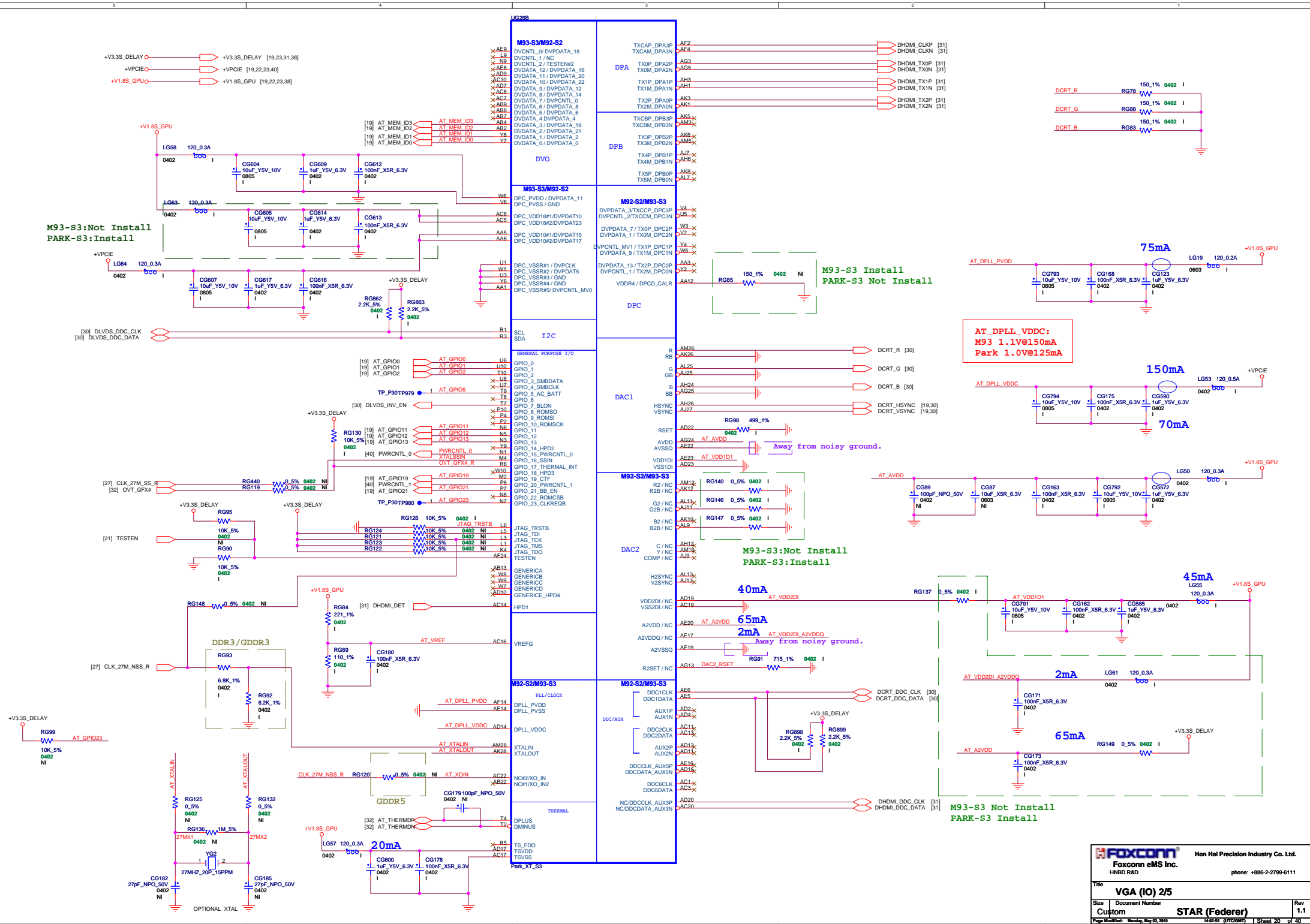






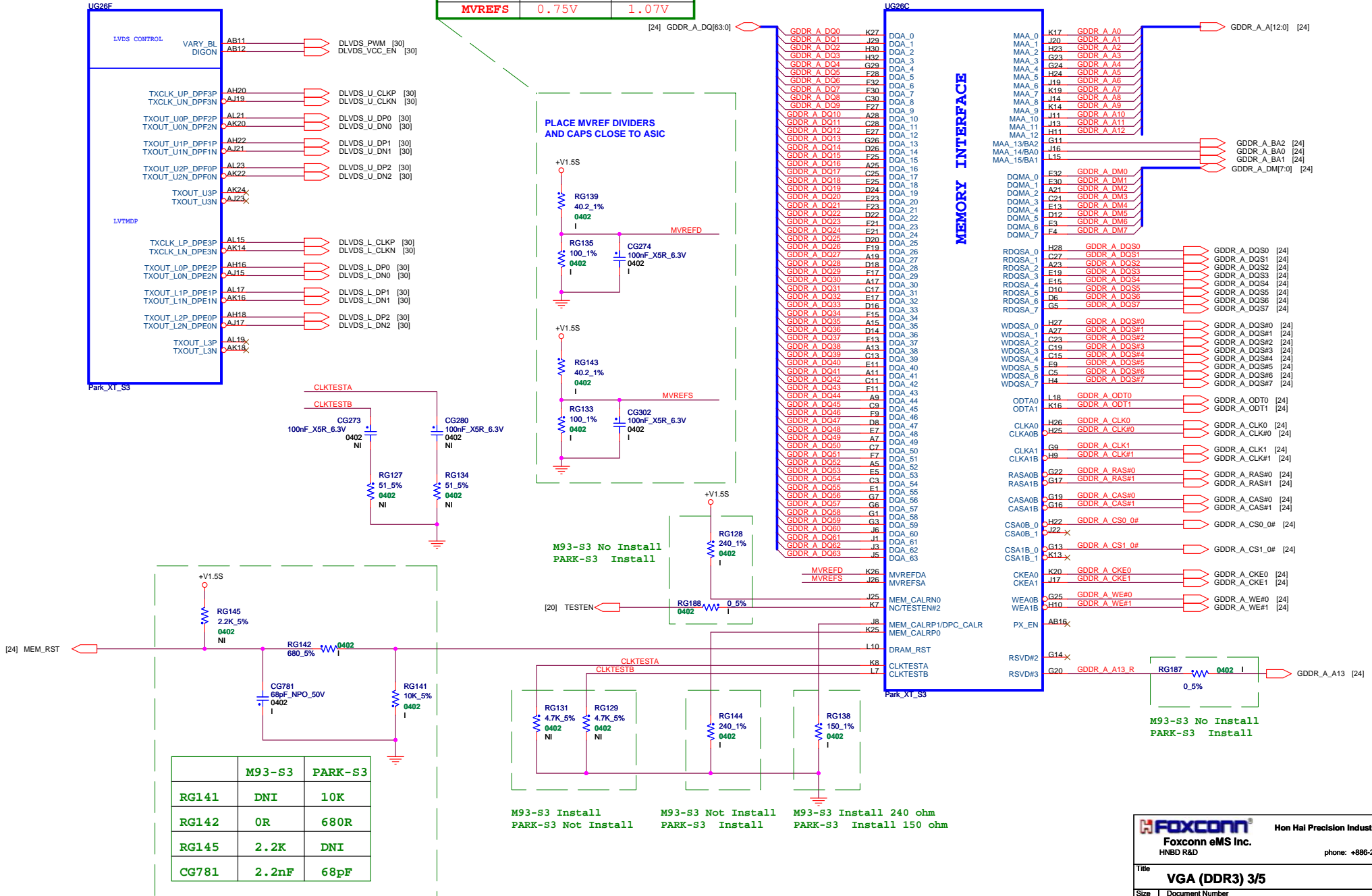




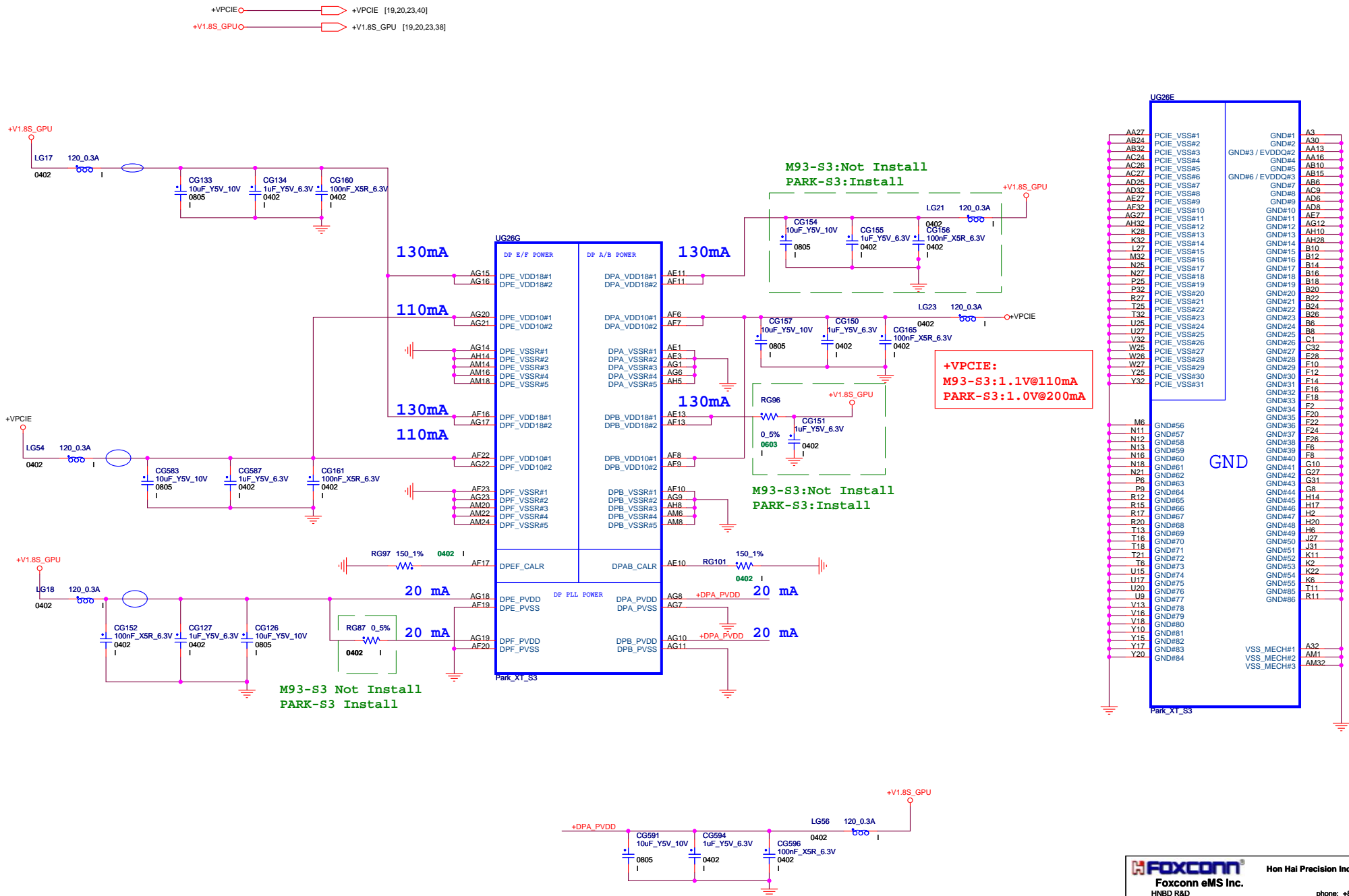


+V1.5S

	M93_XT_S3	Park_XT_S3
RG139	100_1%	40.2_1%
MVREFD	0.75V	1.07V
RG143	100_1%	40.2_1%
MVREFS	0.75V	1.07V

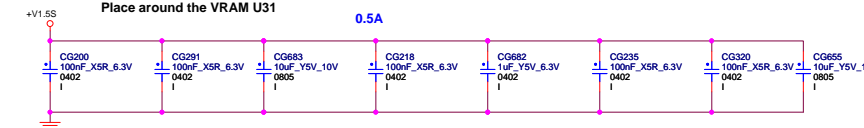
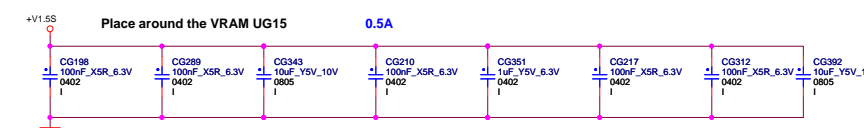
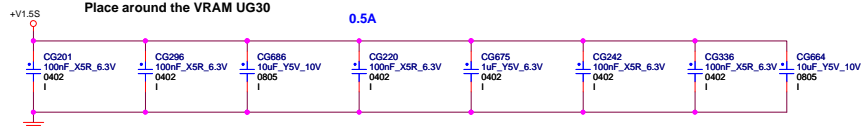
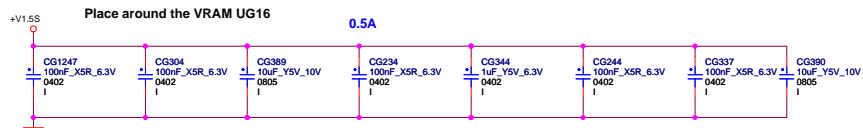
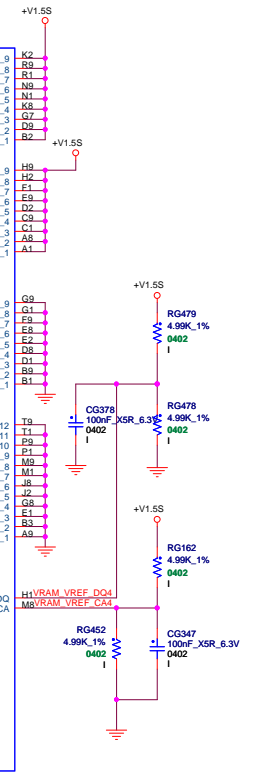
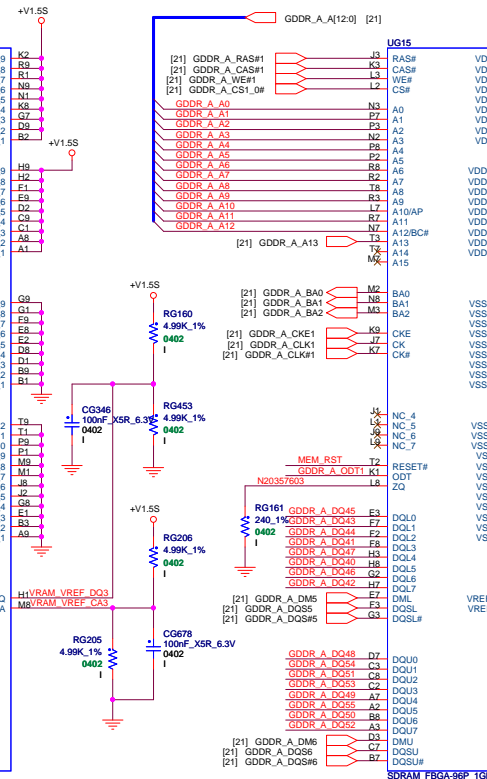
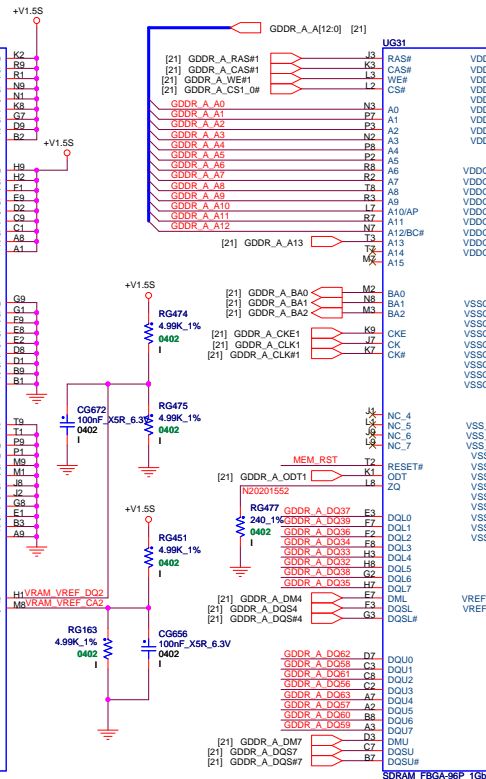
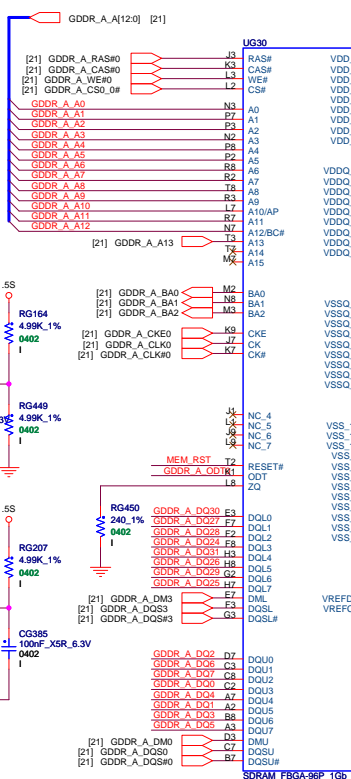
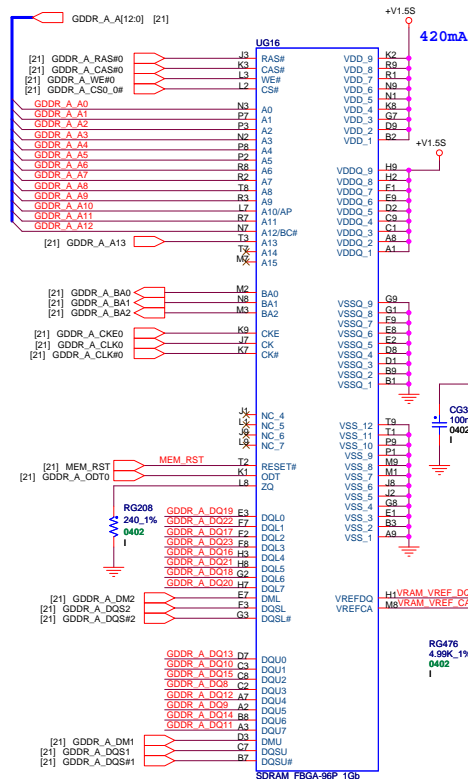




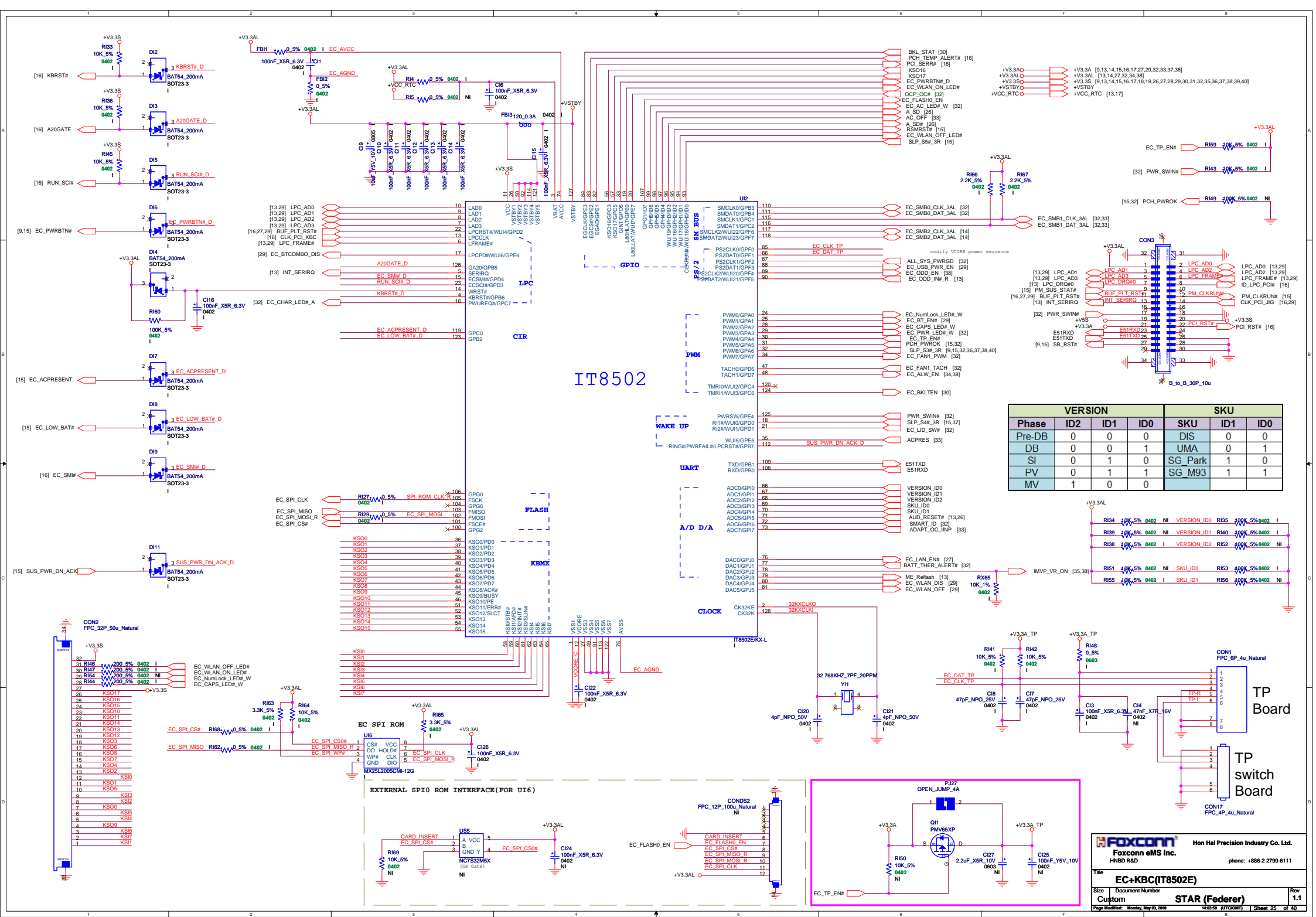




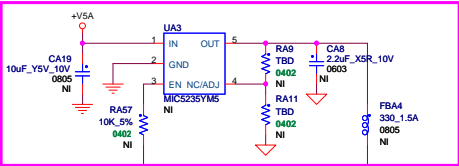
+V1.5S [21,23,38,40]







Reserved LDO circuitry for +VDDA power source



Place next to pin 38

Split by DGND

Split by DGND

Split by DGND

Split by DGND

Split by DGND

Split by DGND

Split by DGND

Split by DGND

Split by DGND

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Split by DGND

ALC270A-GR  
(Viate Premium Version)  
Thermal Pad  
6 x 6 mm  
9 Via Array

ANALOG

DIGITAL

(Include Thermal Pad)

AUD\_RESET# [13,25]

AUD\_SYNC [13]

AUD\_SDO [13]

AUD\_SDO [13]

AUD\_BITCLK [13]

MIC1-JD

MIC1-R

MIC1-L

MIC1-VREFO-L

MIC1-VREFO-R

HPOUT-JD

HPOUT-R

HPOUT-L

QA1 2N7002 SOT23-3

QA2 2N7002 SOT23-3

QA3 2N7002 SOT23-3

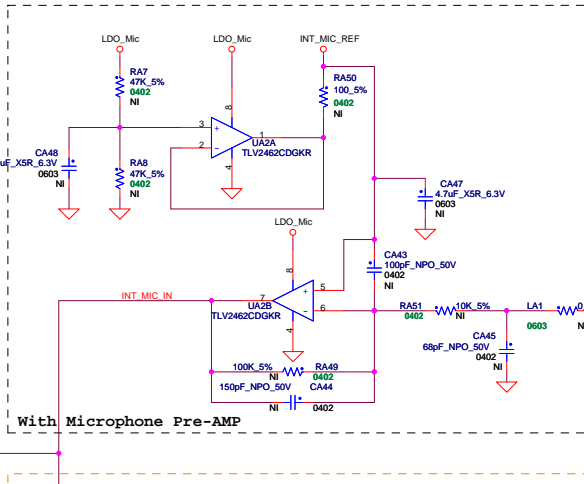
QA4 2N7002 SOT23-3

QA5 2N7002 SOT23-3

QA6 2N7002 SOT23-3

QA7 2N7002 SOT23-3

QA8 2N7002 SOT23-3



Reserved for without Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

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With Microphone Pre-AMP

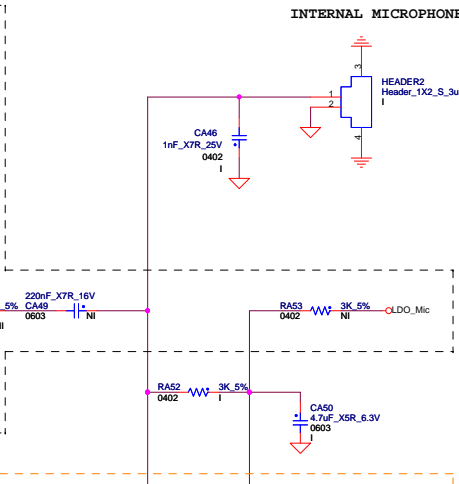
With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP

With Microphone Pre-AMP



INTERNAL MICROPHONE

INTERNAL MICROPHONE

INTERNAL MICROPHONE

INTERNAL MICROPHONE

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INTERNAL MICROPHONE

<<Attention>>  
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

A\_SD# = 0V:  
Power down Class D SPK amplifier

A\_SD# = 3.3V:  
Power up Class D SPK amplifier

[25] A\_SD#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

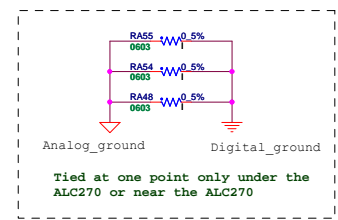
[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#

[13,25] AUD\_RESET#



Analog ground

Digital ground

Tied at one point only under the

ALC270 or near the ALC270

Tied at one point only under the

ALC270 or near the ALC270

Tied at one point only under the

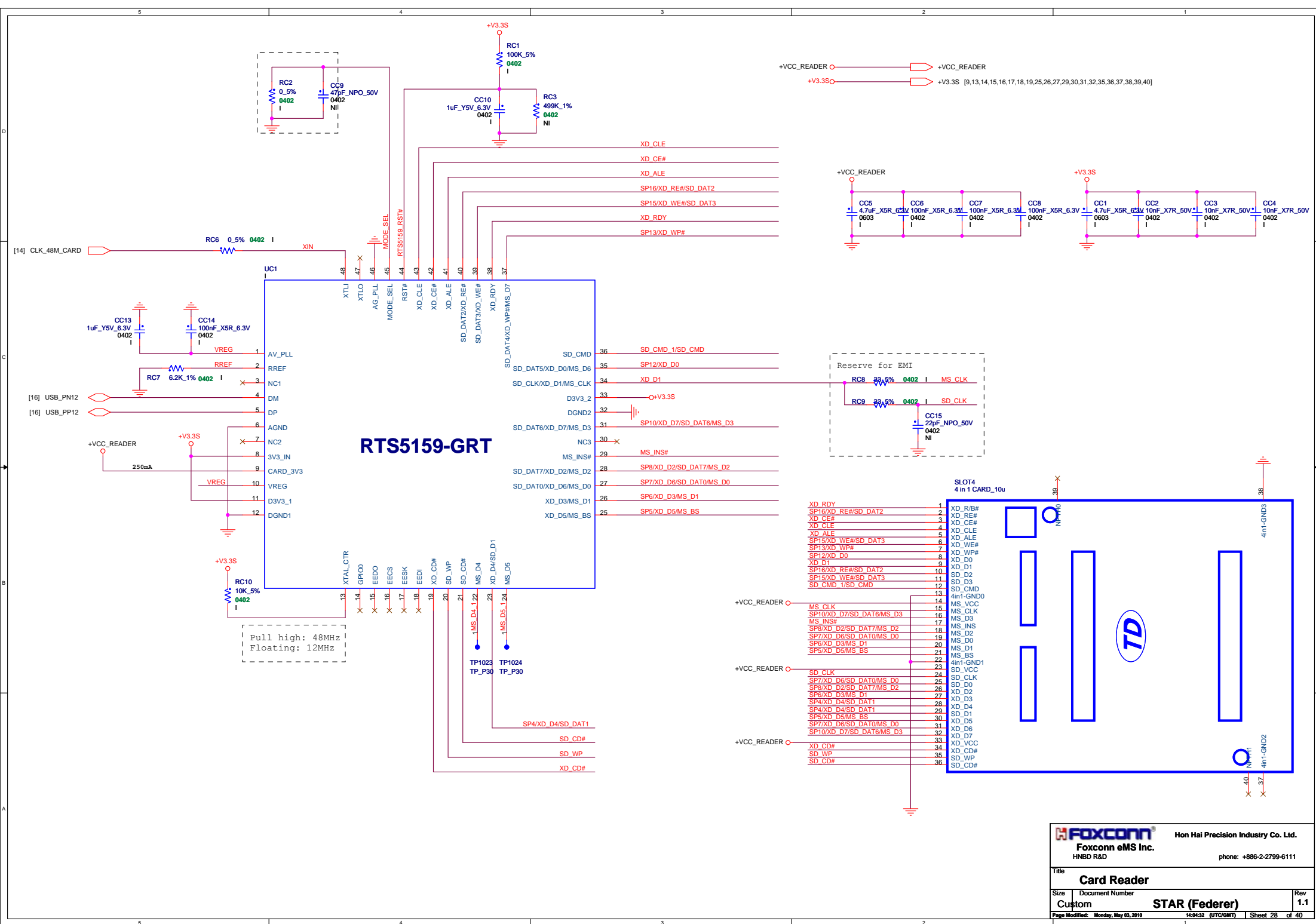
ALC270 or near the ALC270

Tied at one point only under the

FOXCONN  
Foxconn eMS Inc.  
HNBD R&D  
Hon Hai Precision Industry Co. Ltd.  
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CODEC/JACK/SPEAKER/MIC  
Size Document Number  
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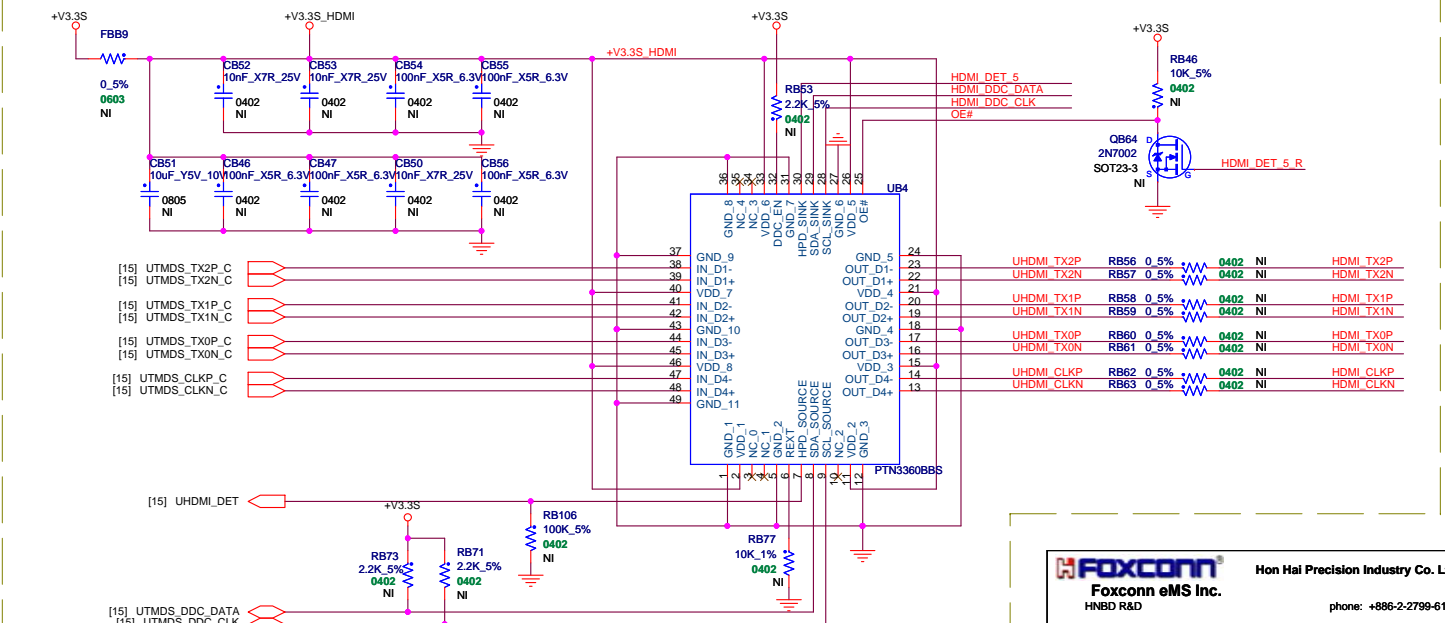
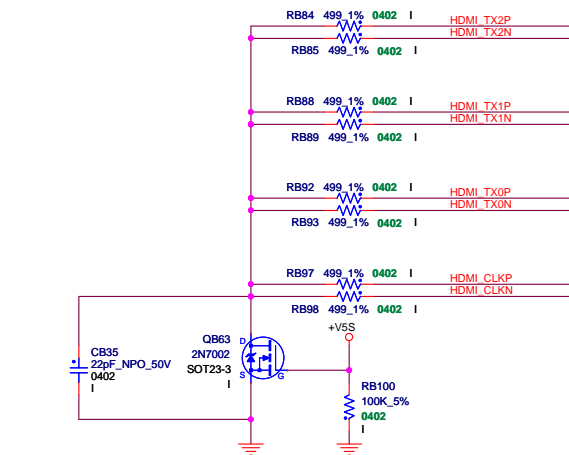
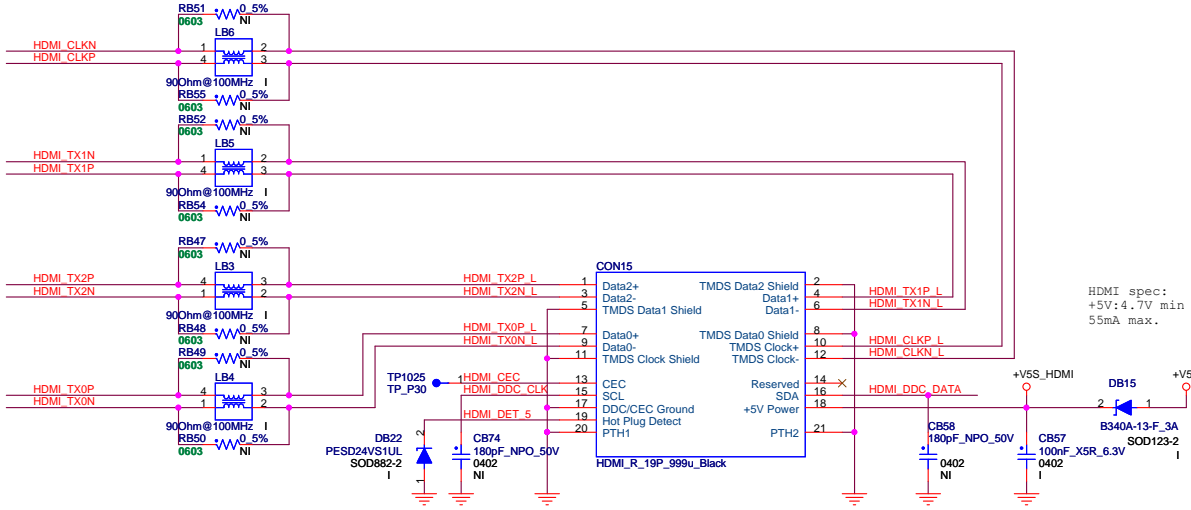




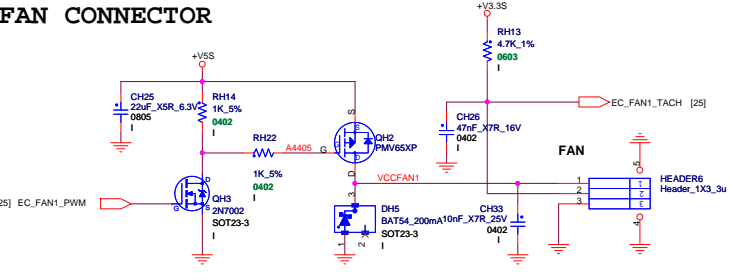




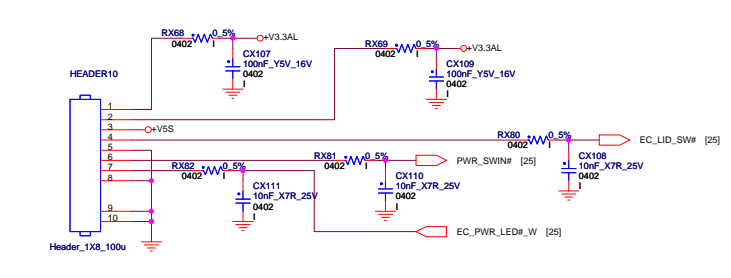




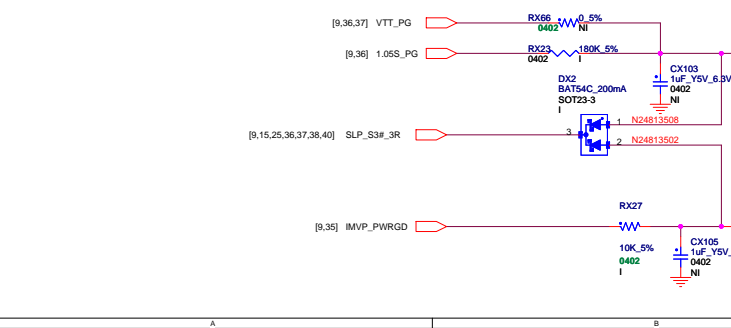
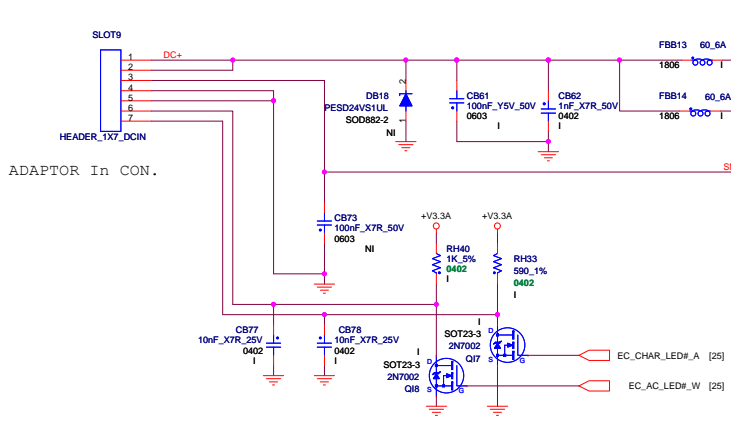
FAN CONNECTOR



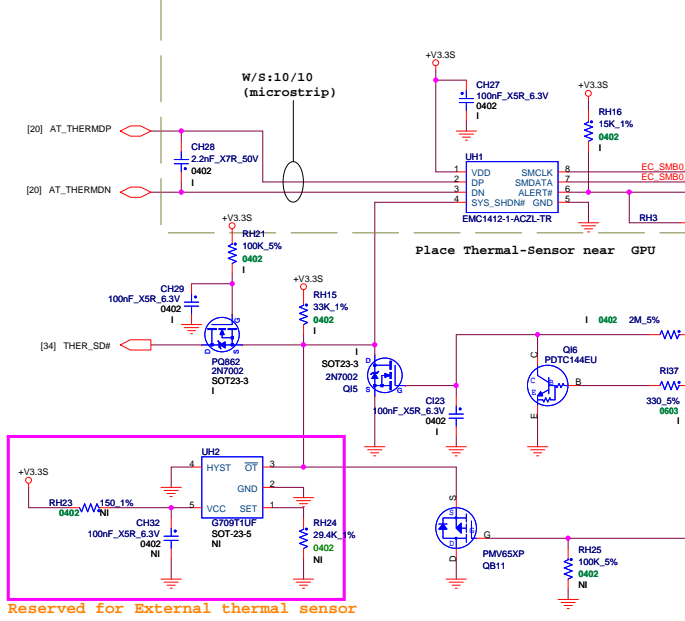
POWER BUTTON BOARD CONNECTOR



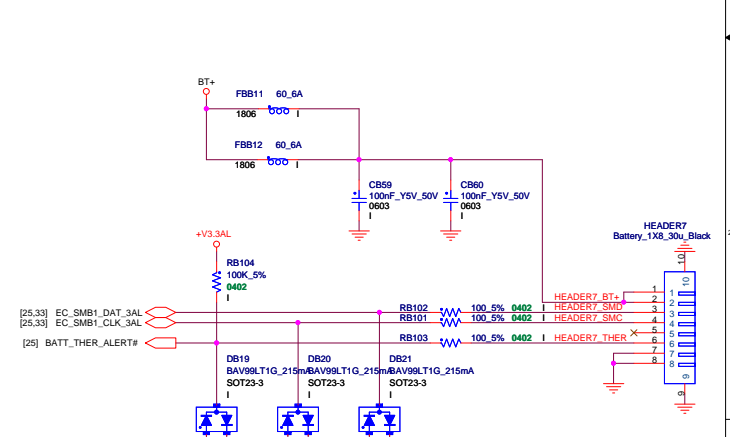
DC\_JACK Wire to Board Connector



THERMAL SENSOR



BATTERY CONNECTOR



Pin No.	Symbol	Comments
1	BATT+	Batt+, Battery Positive Terminal
2	BATT+	Batt+, Battery Positive Terminal
3	SMD	SMBus data interface I/O pin.
4	SMC	SMBus clock interface I/O pin
5	ID	Open
6	B/I	Connect to Blemar (103A72 equivalent)
7	GND	Batt-, Battery Negative Terminal
8	GND	Batt-, Battery Negative Terminal

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HNB R&D  
phone: +886-2-2799-6111

Title

DCIN/Battery/OCF/FAN

Size

Document Number

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14:03:31 (UTC+0800)

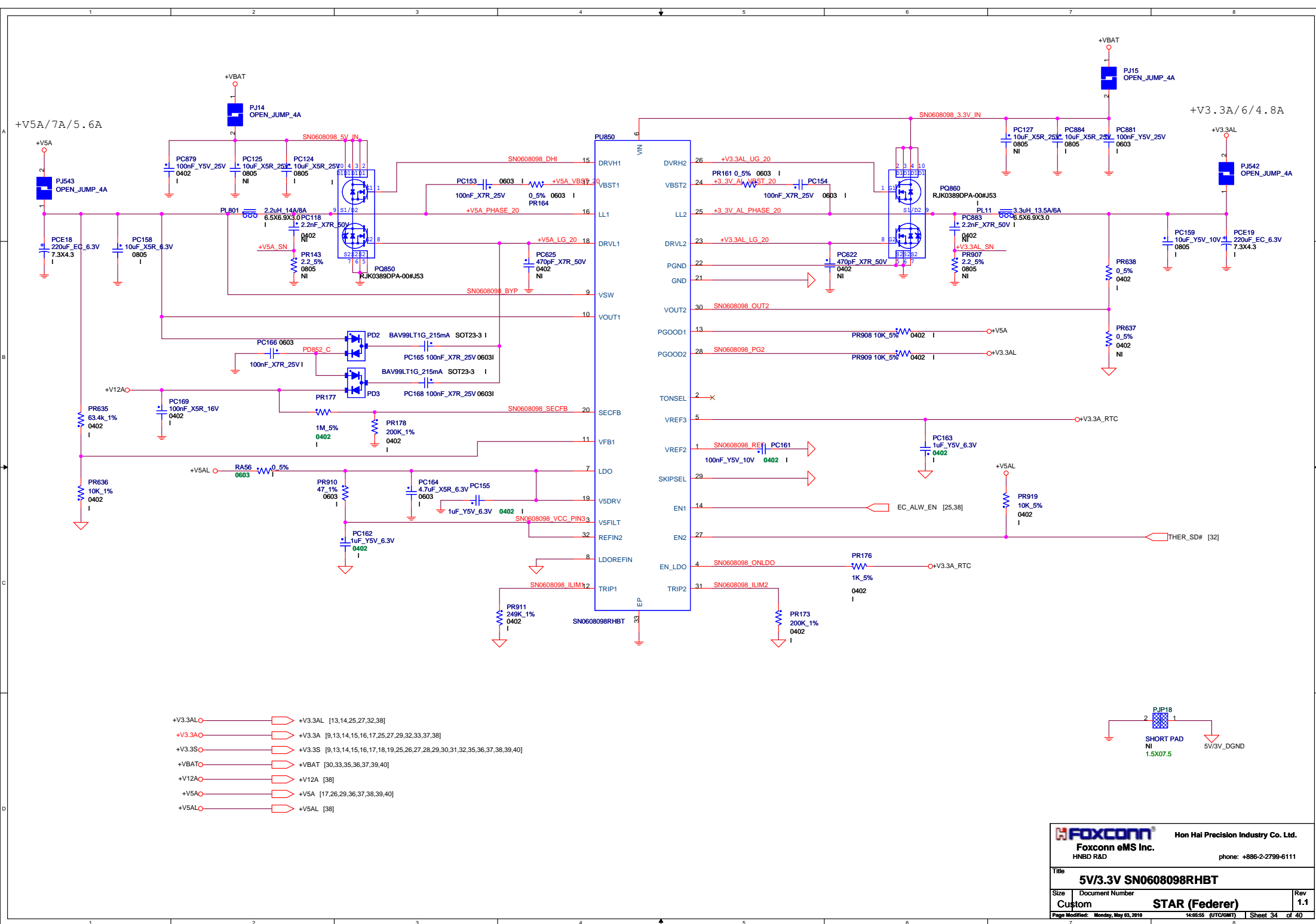
Sheet 32 of 40

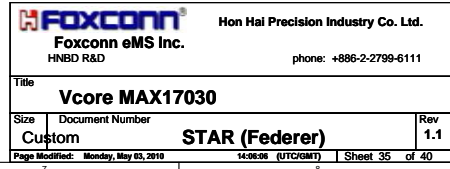
Rev

1.1

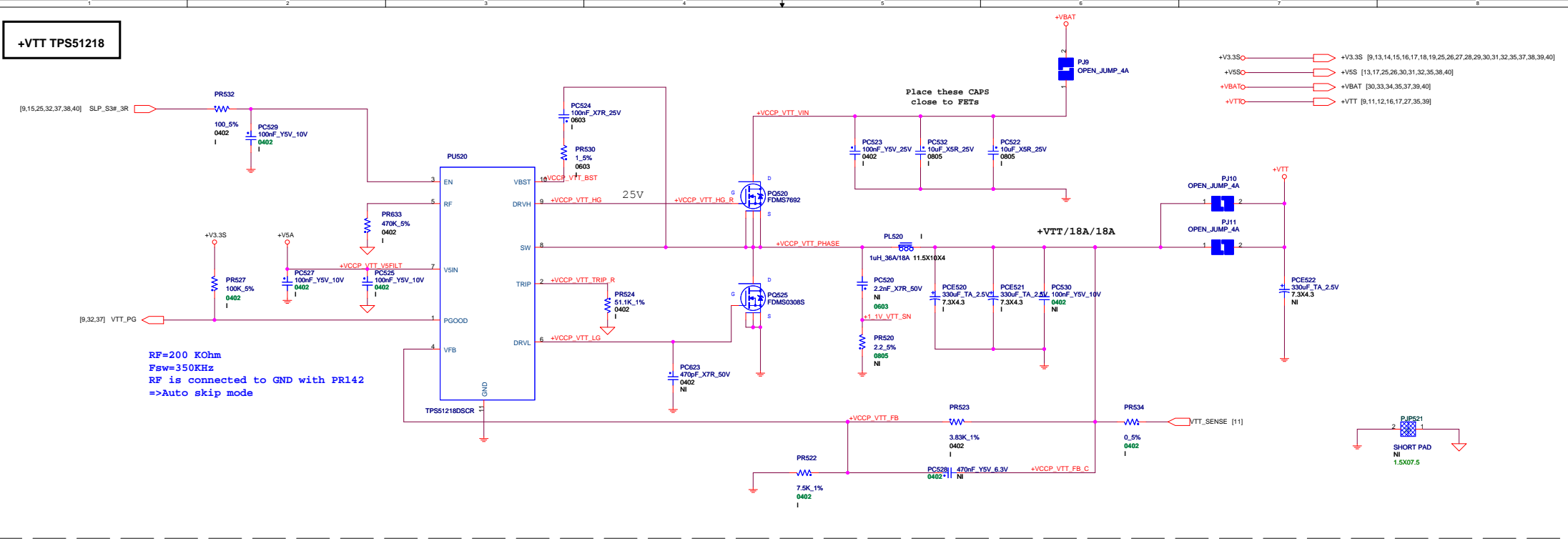




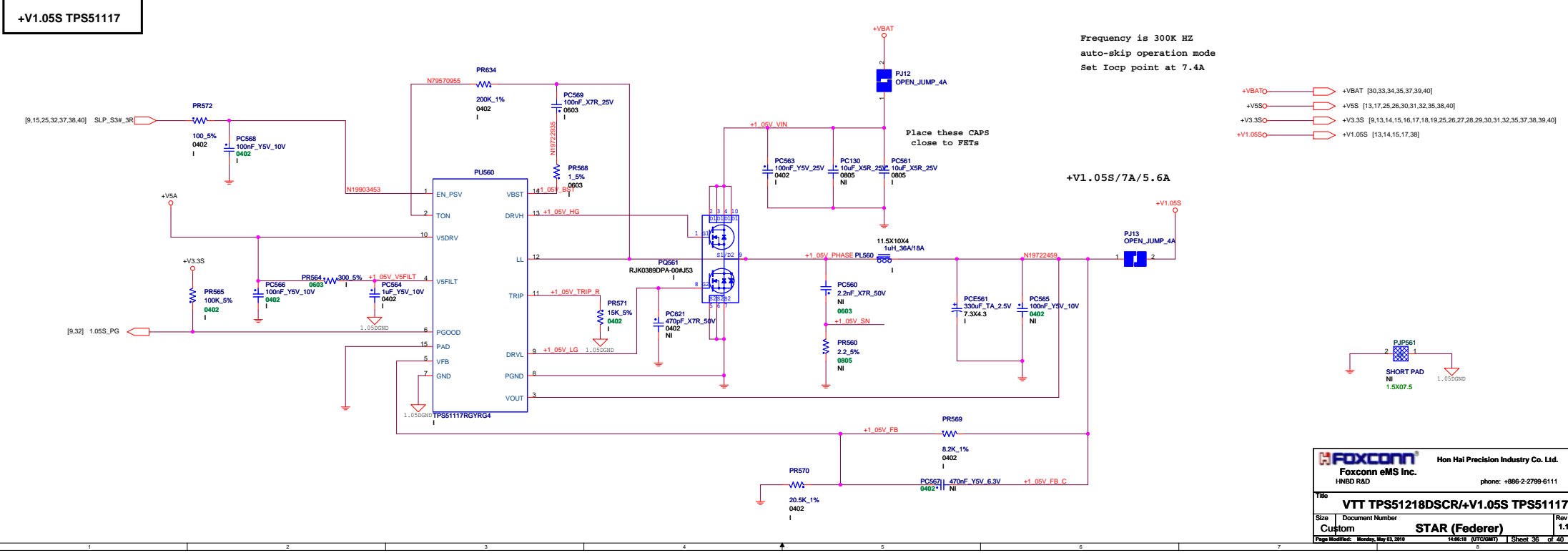


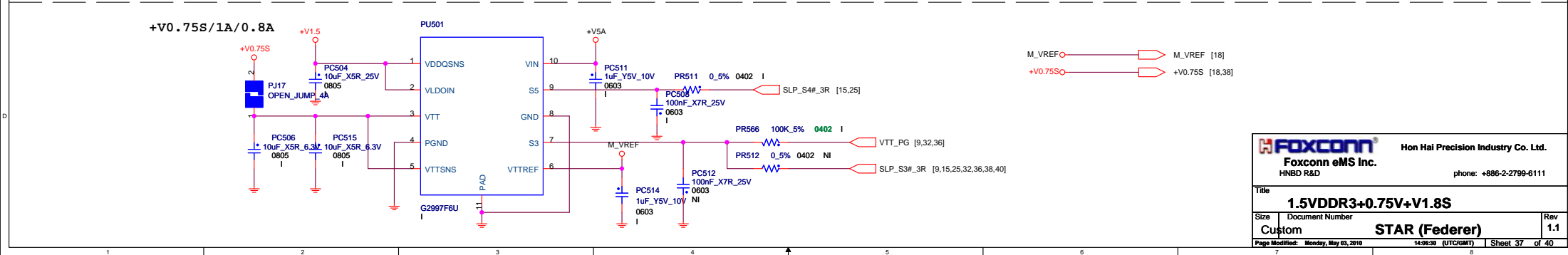
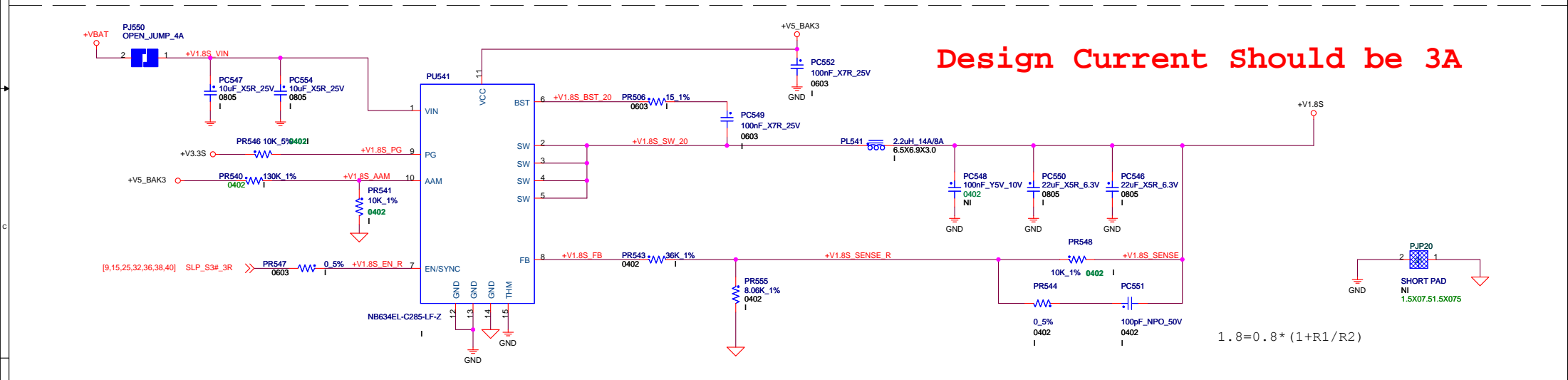
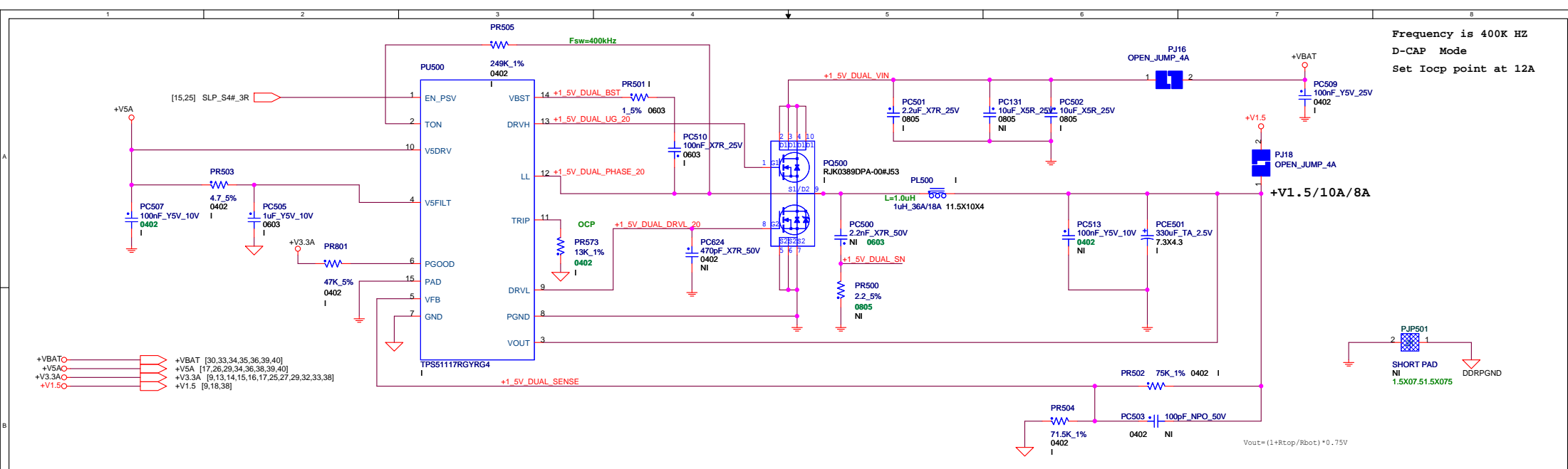


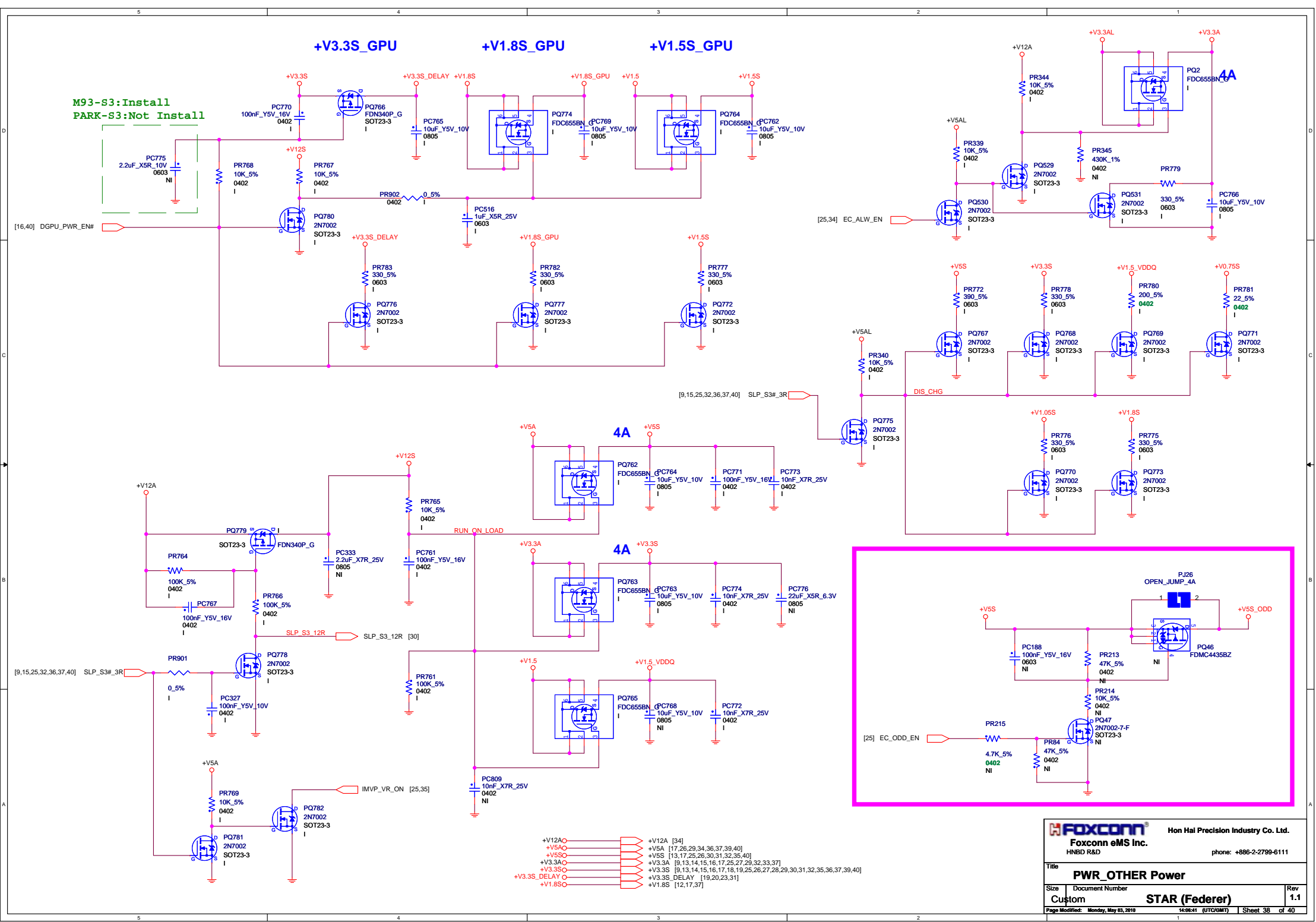
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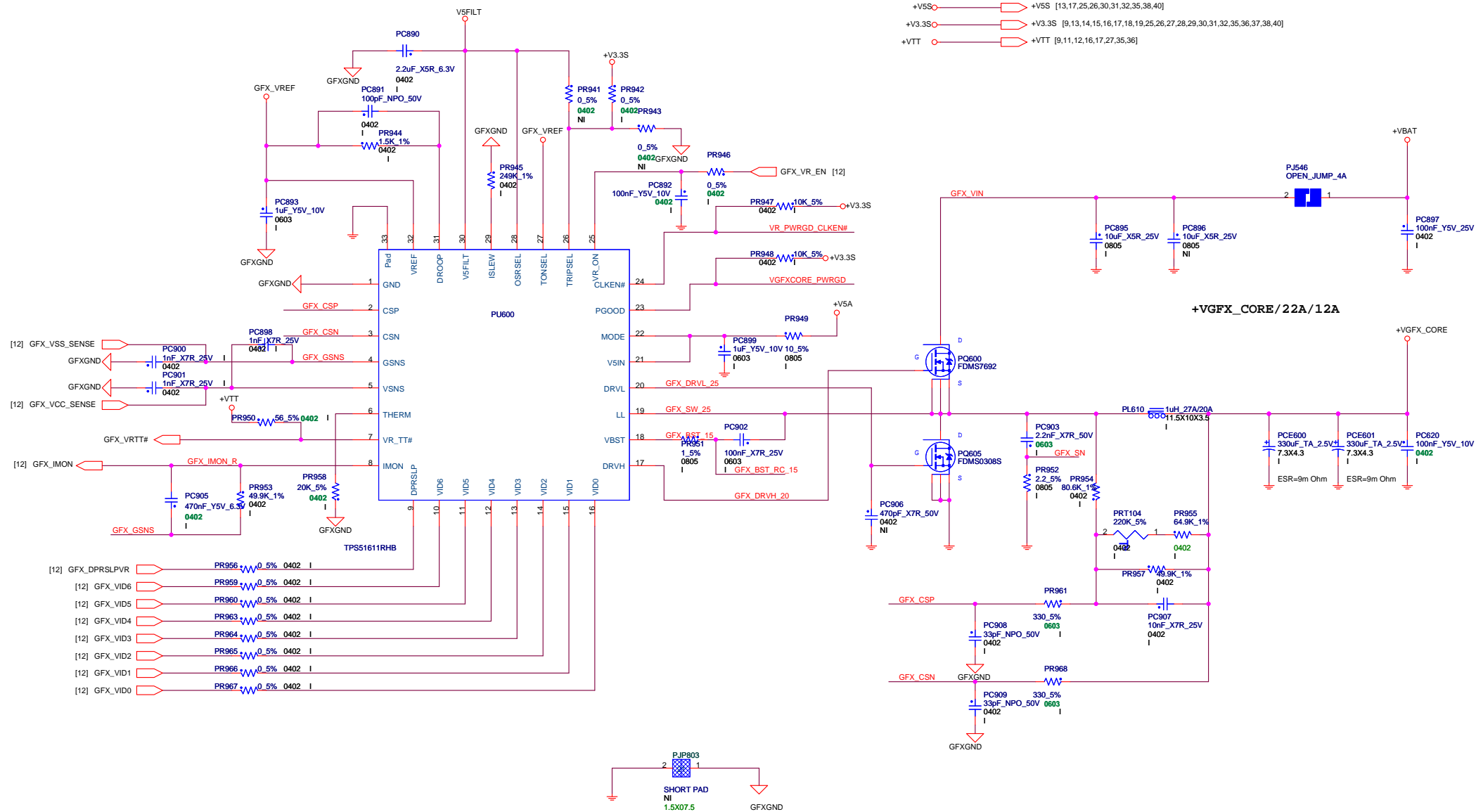


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## +VGFXCORE



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

