P. Leader	Check by	Design by

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Title: **Index Page**

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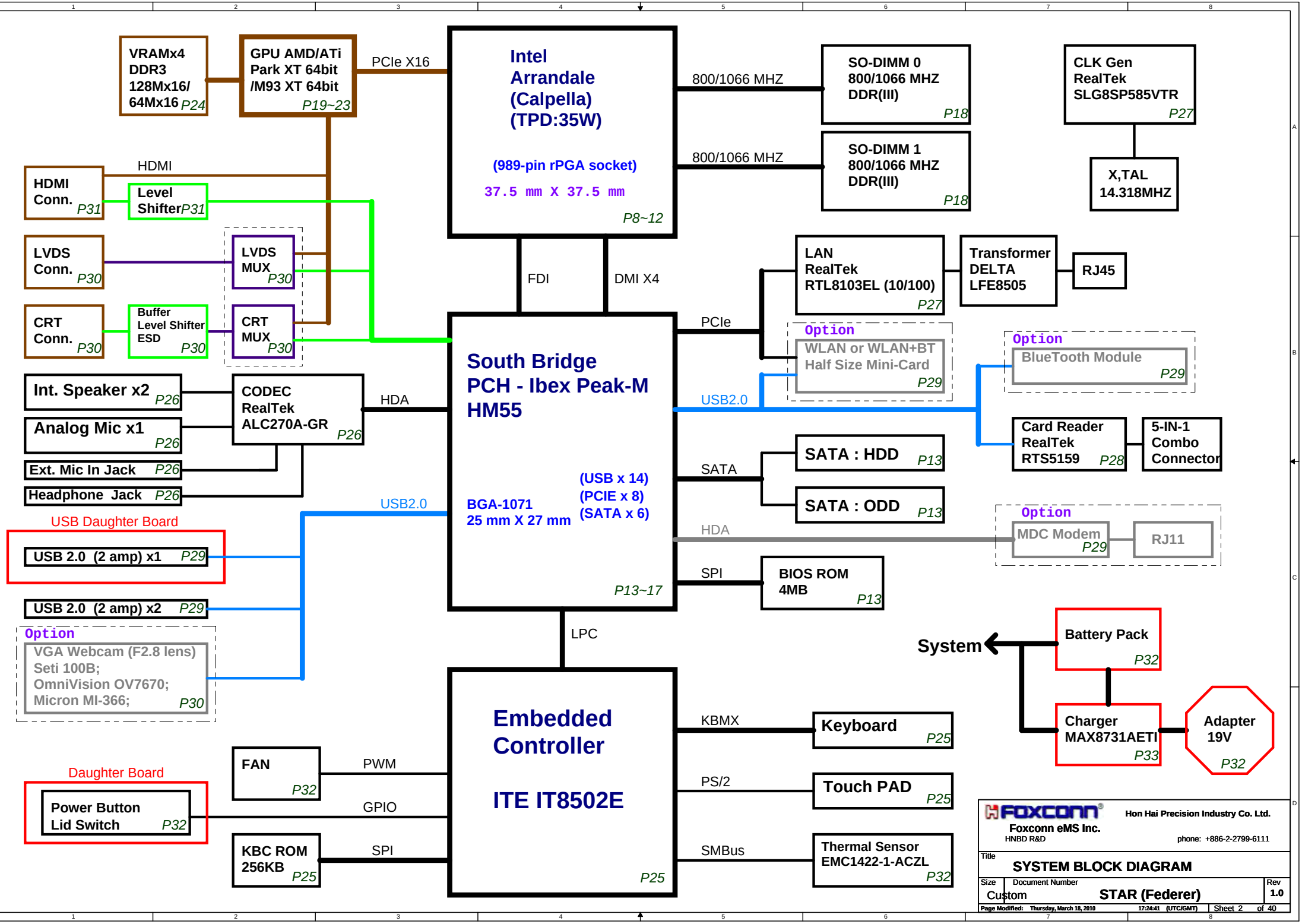
VRAMx4 DDR3 128Mx16/ 64Mx16 P24
GPU AMD/ATi Park XT 64bit /M93 XT 64bit P19~23
PCIe X16
Intel Arrandale (Calpella) (TPD:35W)
(989-pin rPGA socket)
37.5 mm X 37.5 mm
P8~12
800/1066 MHZ
SO-DIMM 0 800/1066 MHZ DDR(III) P18
800/1066 MHZ
SO-DIMM 1 800/1066 MHZ DDR(III) P18
CLK Gen RealTek SLG8SP585VTR P27
X,TAL 14.318MHZ
HDMI
HDMI Conn. P31
Level Shifter P31
LVDS Conn. P30
LVDS MUX P30
CRT Conn. P30
Buffer Level Shifter ESD P30
CRT MUX P30
FDI
DMI X4
LAN RealTek RTL8103EL (10/100) P27
Transformer DELTA LFE8505
RJ45
PCIe
Option
WLAN or WLAN+BT Half Size Mini-Card P29
Option
BlueTooth Module P29
South Bridge PCH - Ibex Peak-M HM55
BGA-1071 25 mm X 27 mm
(USB x 14) (PCIE x 8) (SATA x 6)
P13~17
USB2.0
Int. Speaker x2 P26
Analog Mic x1 P26
Ext. Mic In Jack P26
Headphone Jack P26
CODEC RealTek ALC270A-GR P26
HDA
SATA
SATA : HDD P13
SATA : ODD P13
Card Reader RealTek RTS5159 P28
5-IN-1 Combo Connector
HDA
Option
MDC Modem P29
RJ11
SPI
BIOS ROM 4MB P13
USB Daughter Board
USB 2.0 (2 amp) x1 P29
USB 2.0 (2 amp) x2 P29
USB2.0
Option
VGA Webcam (F2.8 lens) Seti 100B; OmniVision OV7670; Micron MI-366; P30
LPC
System
Battery Pack P32
Charger MAX8731AETI P33
Adapter 19V P32
Embedded Controller
ITE IT8502E
P25
KBMX
Keyboard P25
PS/2
Touch PAD P25
SMBus
Thermal Sensor EMC1422-1-ACZL P32
FAN P32
PWM
GPIO
KBC ROM 256KB P25
SPI
Daughter Board
Power Button Lid Switch P32
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SYSTEM BLOCK DIAGRAM
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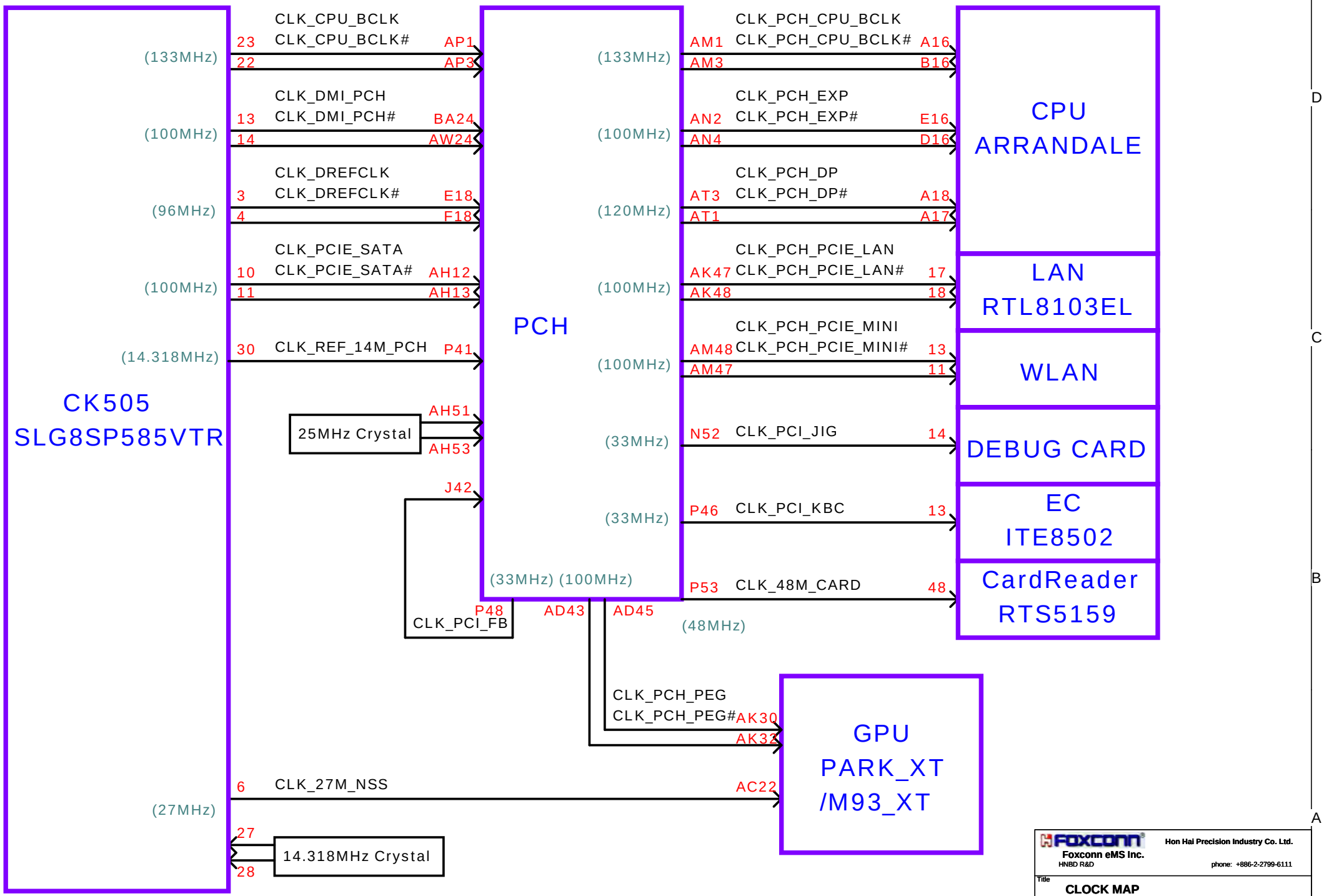

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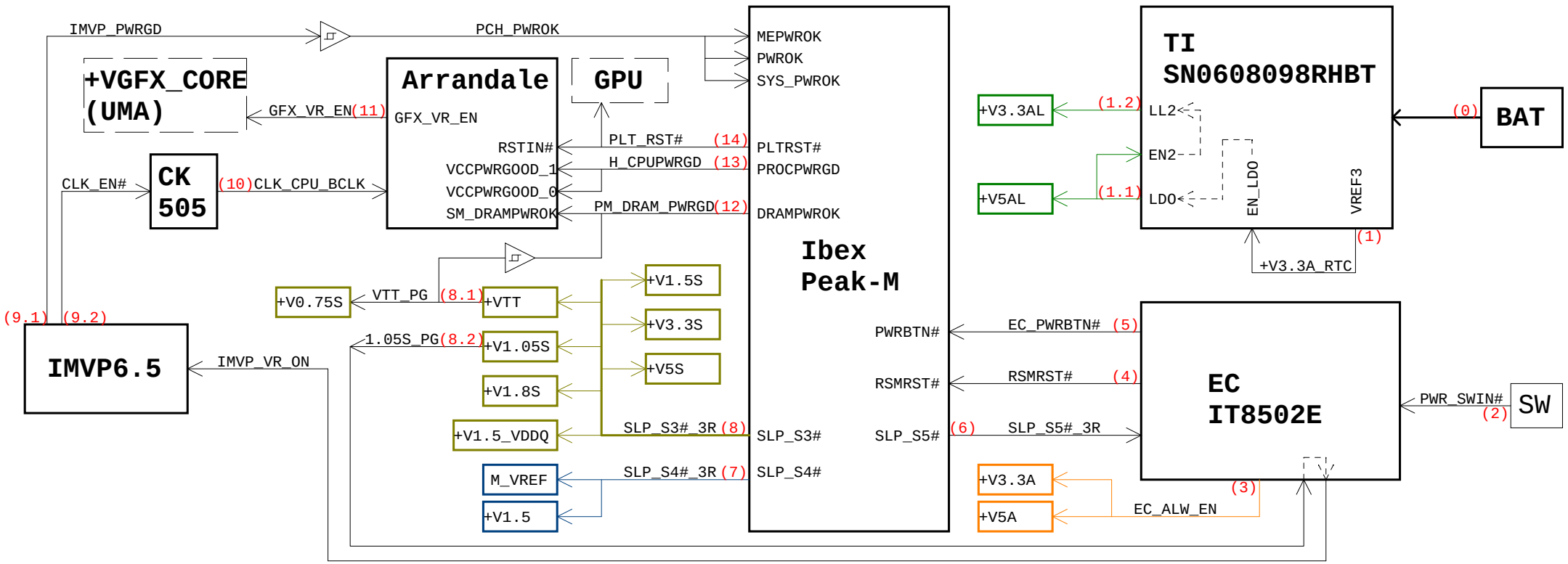
SCH Page	Change Request Description	Notes
25,33~40	modify the power short pad to "POWER_OPENPAD_1P9X2P4"	SMD performance issue
15	Add RS74,RS77,RS79 for all SG sku	Fix VGA port auto detect function
39	Change PR944 from 1K to 1.5K	Fix power load line test issue
13	Del PCH SPI ROM connector circuitry	Del unnecessary functon parts
25	Del EC SPI ROM connector circuitry	Del unnecessary functon parts
25	Del debug connector	Del unnecessary functon part
25	SKU ID modify to MV phase	MV Phase ID
13	32.768KHZ crystal change to CL:7PF	RTC Clock tuning
25	32.768KHZ crystal change to CL:7PF	RTC Clock tuning
30	VGA connector change part number to halide free type	ROHS issue
29	MDC connector change part number to halide free type	ROHS issue
29	Mini-PCIE connector change part number to halide free type	ROHS issue
30	LVDS connector change part number to halide free type	ROHS issue
13	SATA connector change part number to halide free type	ROHS issue
30	Modify backlight PWM control path	Del unnecessary parts
18	Modify the DDR3 footprint	Co-lay for DDR3 connector
25	Del DI10	Del unnecessary functon parts
25,30	Del RB28 and Add RI54	For 17" keyboard num lock LED
38	add PC775	Add for GPU M93 platform
38	add PC776	Add for VGA wave issue
35	Change VCORE VDD power source from +V5A to +V5S	Modify for V-BOOT
38	Change PR769 pull high power source from +12A to +V5A	Modify for GPU power sequence
29	Modify the HOLE1006 footprint	update footprint
40	modify all VDDCORE circuity	modify VDDCORE circuity
26	modify UA3 pin2 Analogy GND to Digital GND	Analogy GND change to Digital GND
32	add 2 pcs 2N7002 and swap EC_CHAR_LED#_A & EC_AC_LED#_A	Modify LED control and brightness
32	modify HEADER10 pin1 power source from +V5A to +V3.3AL	modify LED control and brightness
33~37	PC547 22uF_X5R_25V to 10uF_X5R_25V*2 PC504 4.7uF_X5R_25V to 10uF_X5R_25V PC813 4.7uF_X5R_25V to 10uF_X5R_25V PC825, PC812 to 10uF_X5R_25V (NI) PC826 to 10uF_X5R_25V (NI) PC824, PC828, PC829 4.7uF_X5R_25V to 10uF_X5R_25V"	modify for acoustic
32	RH1002 change to 1.3Kohm	modify LED control and brightness
27	RL13 change to 2.7Kohm"	modify LED control and brightness
32	ADD QB11	Thermal shutdown
19	ADD RG457,RG458	Add for power leakage issue
35	Del DB14	Thermal shutdown issue



	Source Rail	EN	PG	Power Status				Remark
				S0	S3	AC S4/S5	DC S4/S5	
+VBAT				V	V	V	V	
+V5AL	+VBAT	+V3.3A_RTC		V	V	V	V	
+V3.3AL	+VBAT	+V5AL		V	V	V	V	
+V5A	+VBAT	EC_ALW_EN		V	V	V		
+V3.3A	+V3.3AL	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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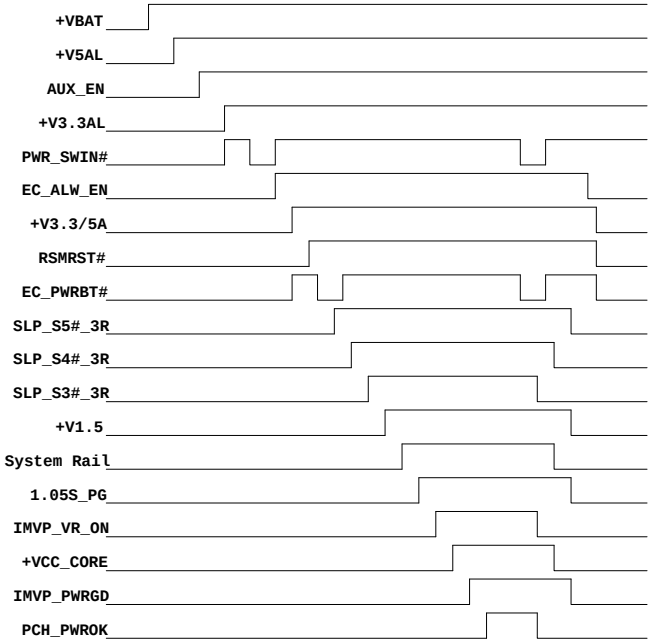
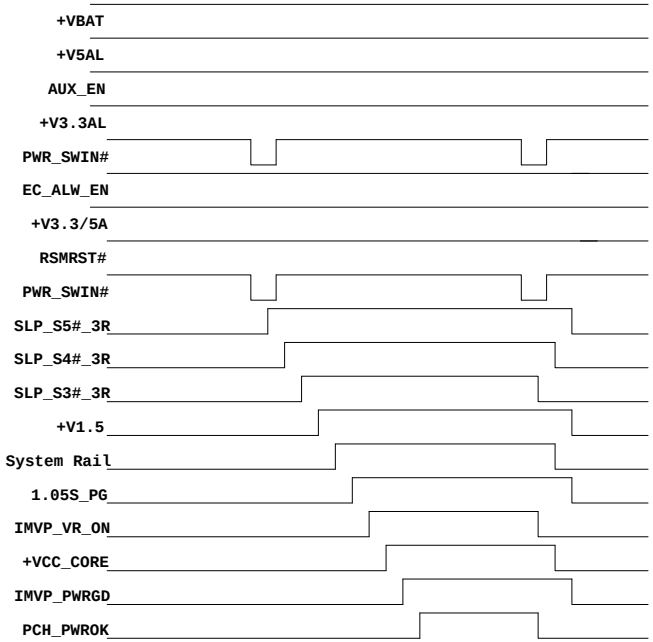
POWER SEQUENCE TIMING

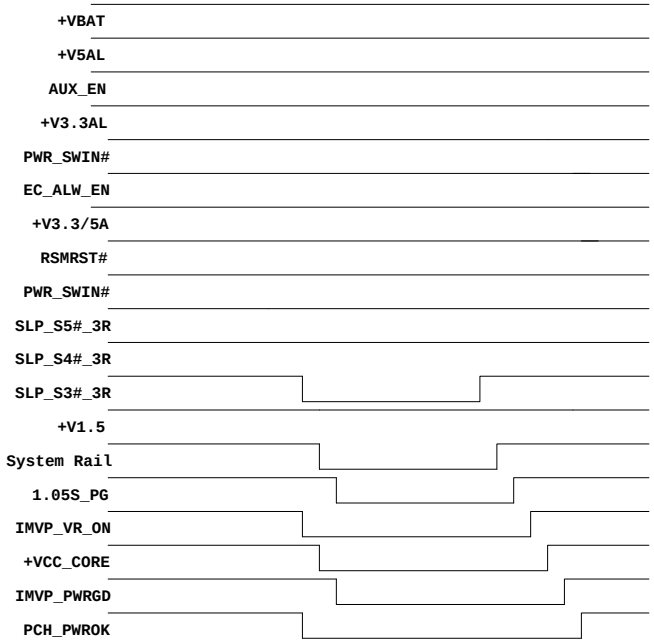
G3(OFF)->S0->S5



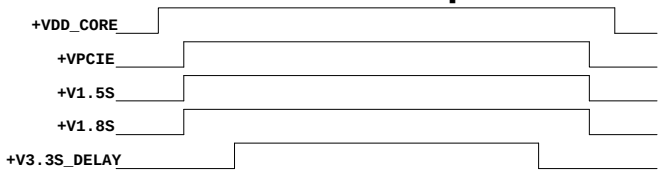
S5->S0->S5



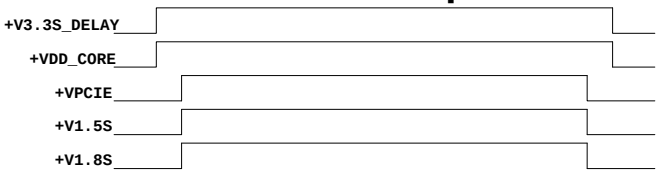
S0->S3->S0



GPU_M93 Sequence



GPU_Park Sequence



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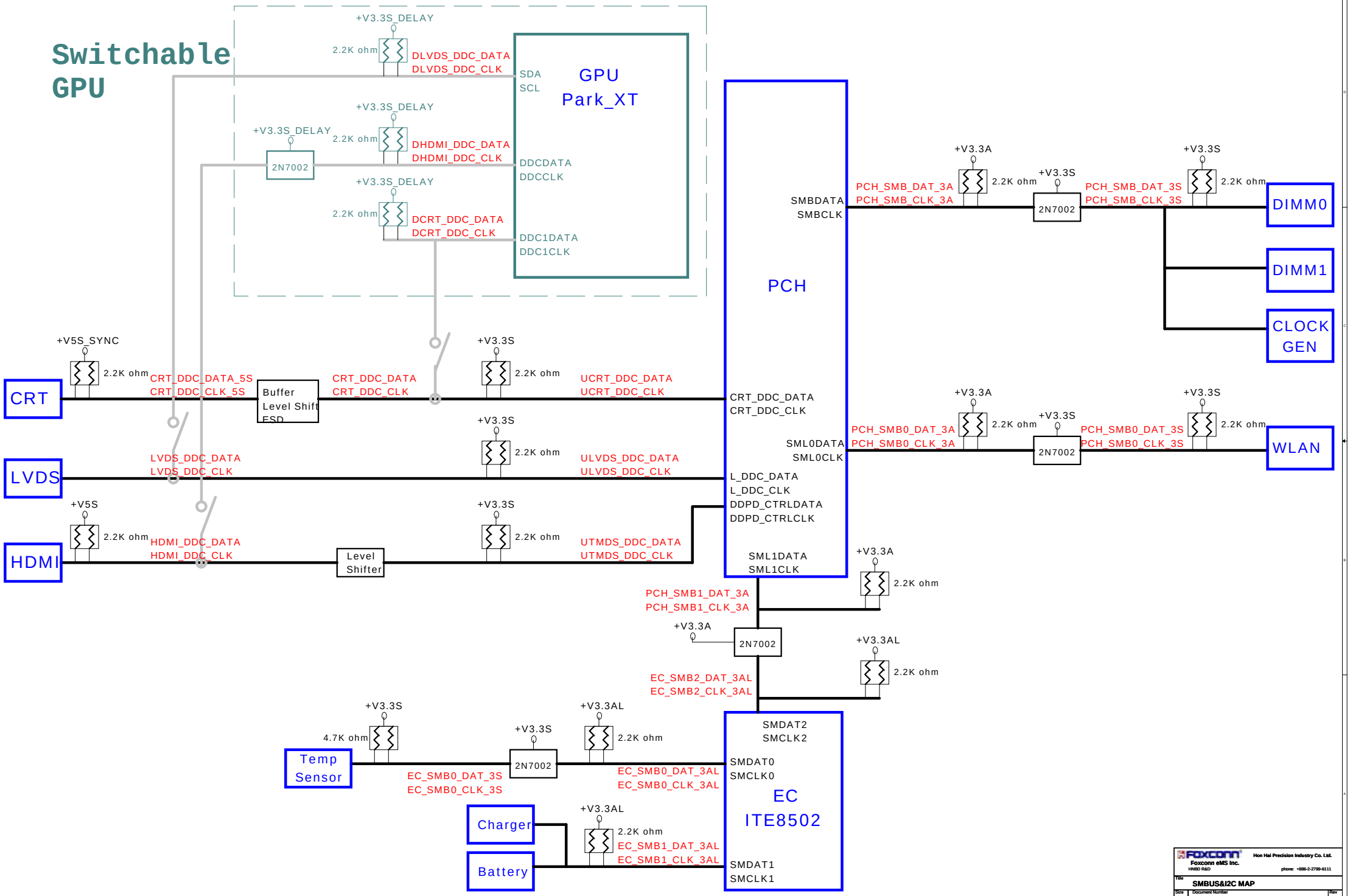
Switchable GPU
+V3.3S_DELAY
2.2K ohm
DLVDS_DDC_DATA
DLVDS_DDC_CLK
SDA
SCL
GPU
Park_XT
+V3.3S_DELAY
2.2K ohm
DHDMI_DDC_DATA
DHDMI_DDC_CLK
DDCDATA
DDCCLK
+V3.3S_DELAY
2N7002
+V3.3S_DELAY
2.2K ohm
DCRT_DDC_DATA
DCRT_DDC_CLK
DDC1DATA
DDC1CLK
PCH
SMBDATA
SMBCLK
+V3.3A
PCH_SMB_DAT_3A
PCH_SMB_CLK_3A
2.2K ohm
+V3.3S
2N7002
PCH_SMB_DAT_3S
PCH_SMB_CLK_3S
2.2K ohm
DIMM0
DIMM1
CLOCK GEN
+V5S_SYNC
2.2K ohm
CRT
CRT_DDC_DATA_5S
CRT_DDC_CLK_5S
Buffer
Level Shift
ESD
CRT_DDC_DATA
CRT_DDC_CLK
+V3.3S
2.2K ohm
UCRT_DDC_DATA
UCRT_DDC_CLK
CRT_DDC_DATA
CRT_DDC_CLK
+V3.3S
2.2K ohm
LVDS
LVDS_DDC_DATA
LVDS_DDC_CLK
ULVDS_DDC_DATA
ULVDS_DDC_CLK
L_DDC_DATA
L_DDC_CLK
DDPD_CTRLDATA
DDPD_CTRLCLK
+V5S
2.2K ohm
HDMI
HDMI_DDC_DATA
HDMI_DDC_CLK
Level Shifter
+V3.3S
2.2K ohm
UTMDS_DDC_DATA
UTMDS_DDC_CLK
SML1DATA
SML1CLK
+V3.3A
2.2K ohm
PCH_SMB1_DAT_3A
PCH_SMB1_CLK_3A
+V3.3A
2N7002
+V3.3AL
2.2K ohm
EC_SMB2_DAT_3AL
EC_SMB2_CLK_3AL
SMDAT2
SMCLK2
+V3.3S
4.7K ohm
Temp Sensor
+V3.3S
2N7002
+V3.3AL
2.2K ohm
EC_SMB0_DAT_3S
EC_SMB0_CLK_3S
EC_SMB0_DAT_3AL
EC_SMB0_CLK_3AL
SMDAT0
SMCLK0
EC
ITE8502
Charger
Battery
+V3.3AL
2.2K ohm
EC_SMB1_DAT_3AL
EC_SMB1_CLK_3AL
SMDAT1
SMCLK1
SMLODATA
SMLOCLK
+V3.3A
PCH_SMB0_DAT_3A
PCH_SMB0_CLK_3A
2.2K ohm
+V3.3S
2N7002
PCH_SMB0_DAT_3S
PCH_SMB0_CLK_3S
2.2K ohm
WLAN
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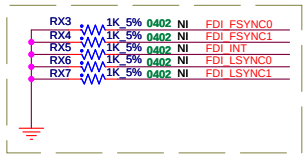
Discrete GPU: Install
UMA: Not Install



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

RX58 3.01K_1% 0402 NI

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

RX54 3.01K_1% 0402 NI

CFG7 Reserved - Temporarily used for early Clarksfield samples.
CFG7 Clarksfield (only for early samples pre-ES1) - Connect to GND with 3.01K Ohm/5% resistor

RX62 3.01K_1% 0402 NI

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

RX56 3.01K_1% 0402 I

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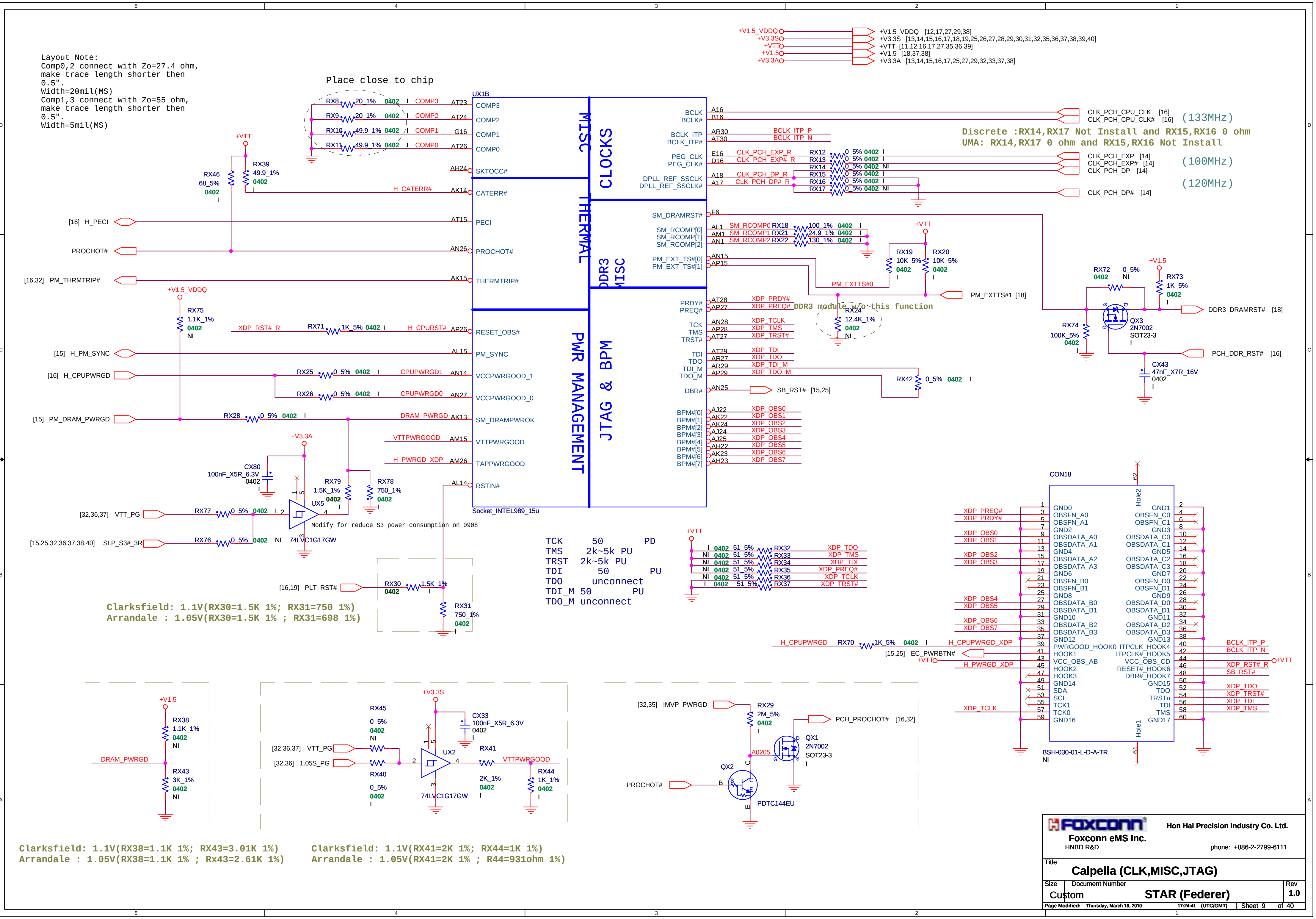
Layout Note:
Comp0,2 connect with Zo=27.4 ohm, make trace length shorter then 0.5".
Width=20mil(MS)
Comp1,3 connect with Zo=55 ohm, make trace length shorter then 0.5".
Width=5mil(MS)
Place close to chip
UX1B
MISC
CLOCKS
THERMAL
DDR3 MISC
PWR MANAGEMENT
JTAG & BPM
Socket_INTEL989_15u
Discrete :RX14,RX17 Not Install and RX15,RX16 0 ohm
UMA: RX14,RX17 0 ohm and RX15,RX16 Not Install
(133MHz)
(100MHz)
(120MHz)
+V1.5_VDDQ [12,17,27,29,38]
+V3.3S [13,14,15,16,17,18,19,25,26,27,28,29,30,31,32,35,36,37,38,39,40]
+VTT [11,12,16,17,27,35,36,39]
+V1.5 [18,37,38]
+V3.3A [13,14,15,16,17,25,27,29,32,33,37,38]
DDR3 module w/o this function
Modify for reduce S3 power consumption on 0908
TCK 50 PD
TMS 2k~5k PU
TRST 2k~5k PU
TDI 50 PU
TDO unconnect
TDI_M 50 PU
TDO_M unconnect
Clarksfield: 1.1V(RX30=1.5K 1%; RX31=750 1%)
Arrandale : 1.05V(RX30=1.5K 1% ; RX31=698 1%)
CON18
BSH-030-01-L-D-A-TR
Clarksfield: 1.1V(RX38=1.1K 1%; RX43=3.01K 1%)
Arrandale : 1.05V(RX38=1.1K 1% ; Rx43=2.61K 1%)
Clarksfield: 1.1V(RX41=2K 1%; RX44=1K 1%)
Arrandale : 1.05V(RX41=2K 1% ; R44=931ohm 1%)
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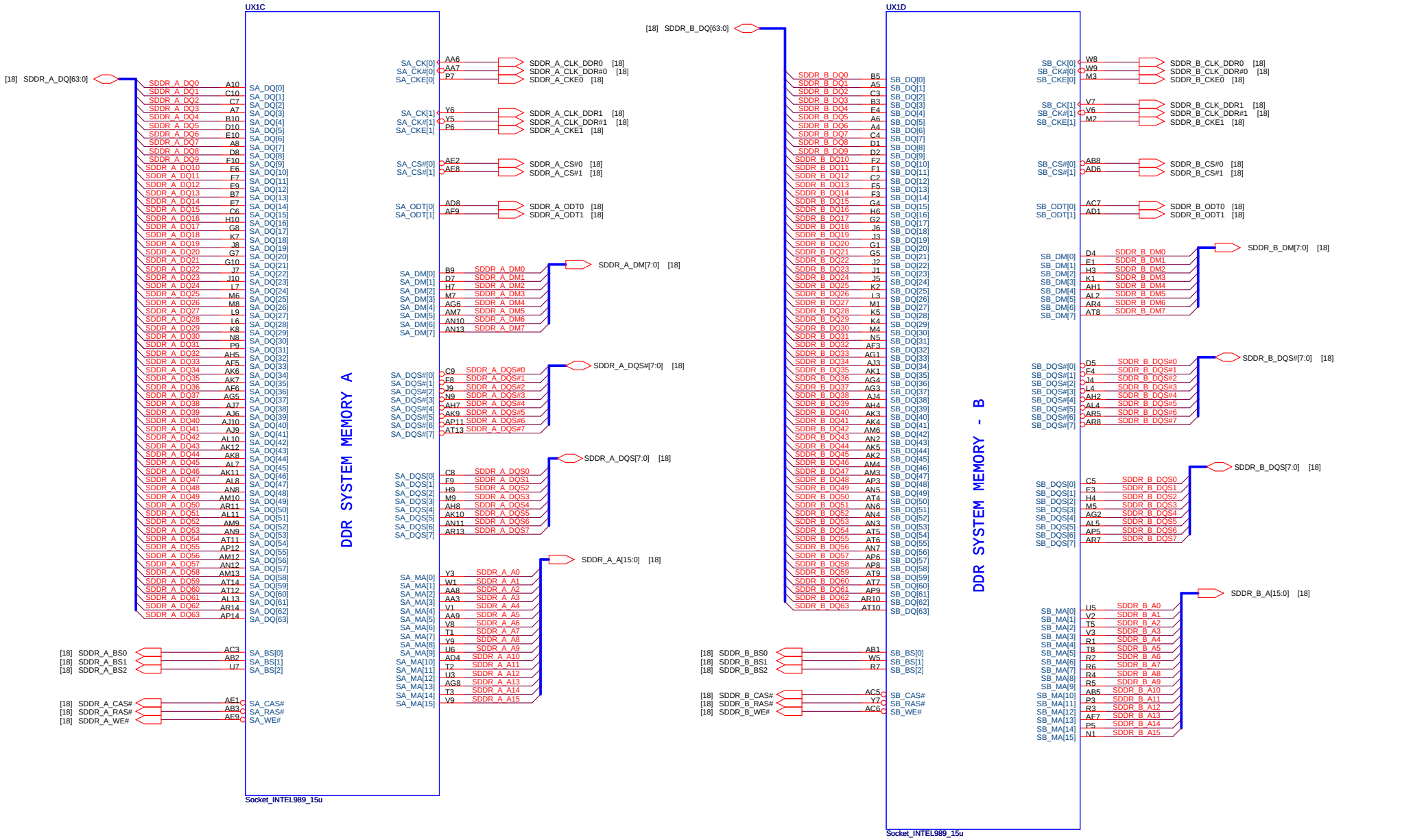

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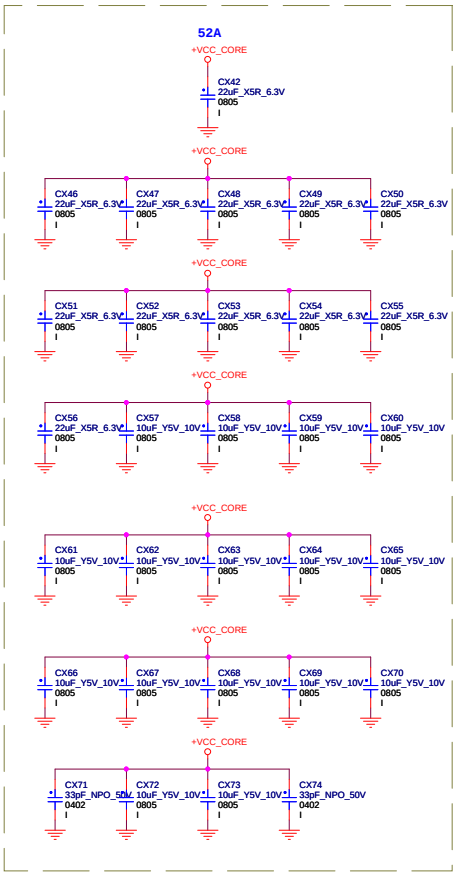
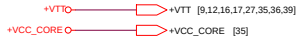
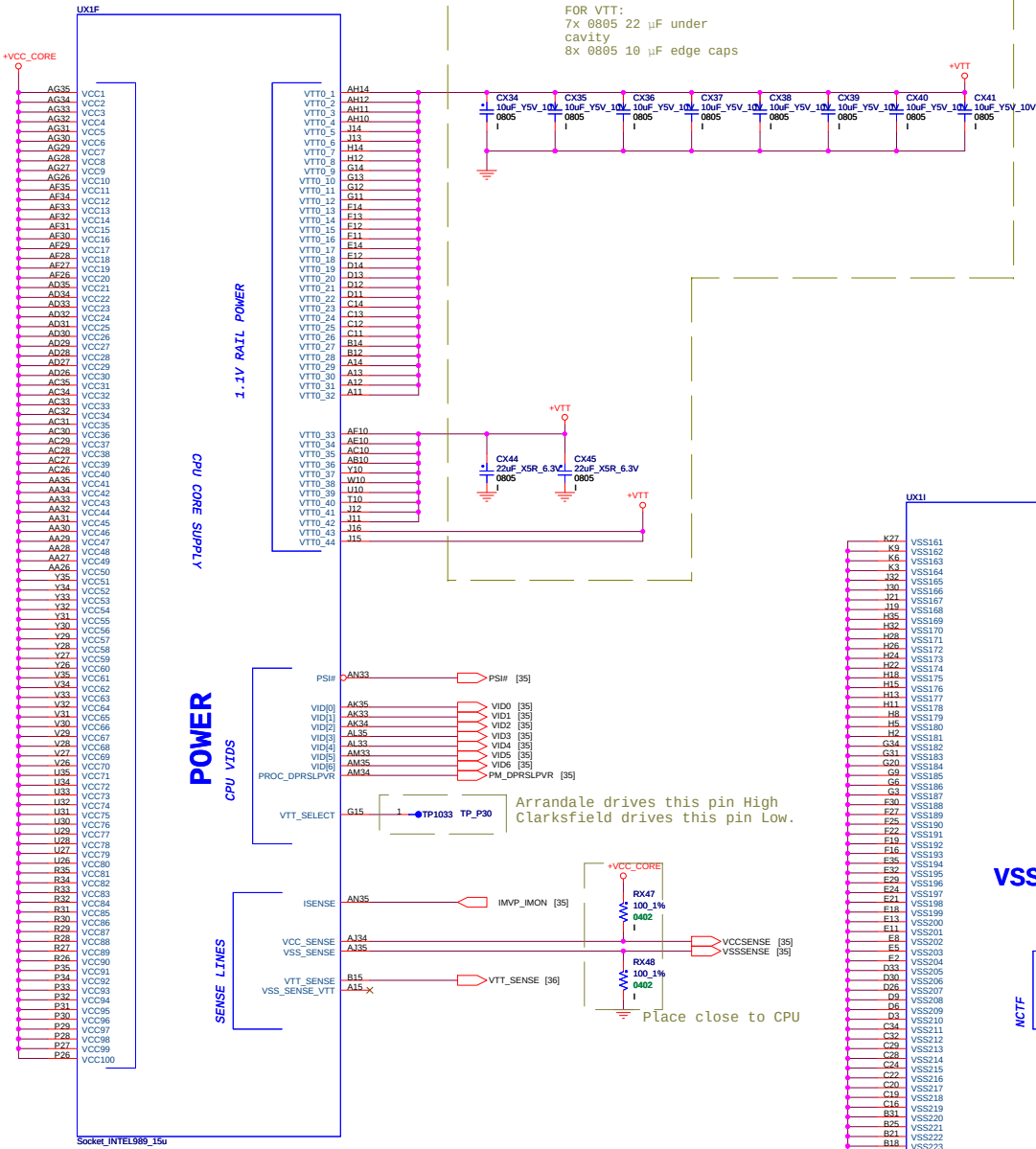
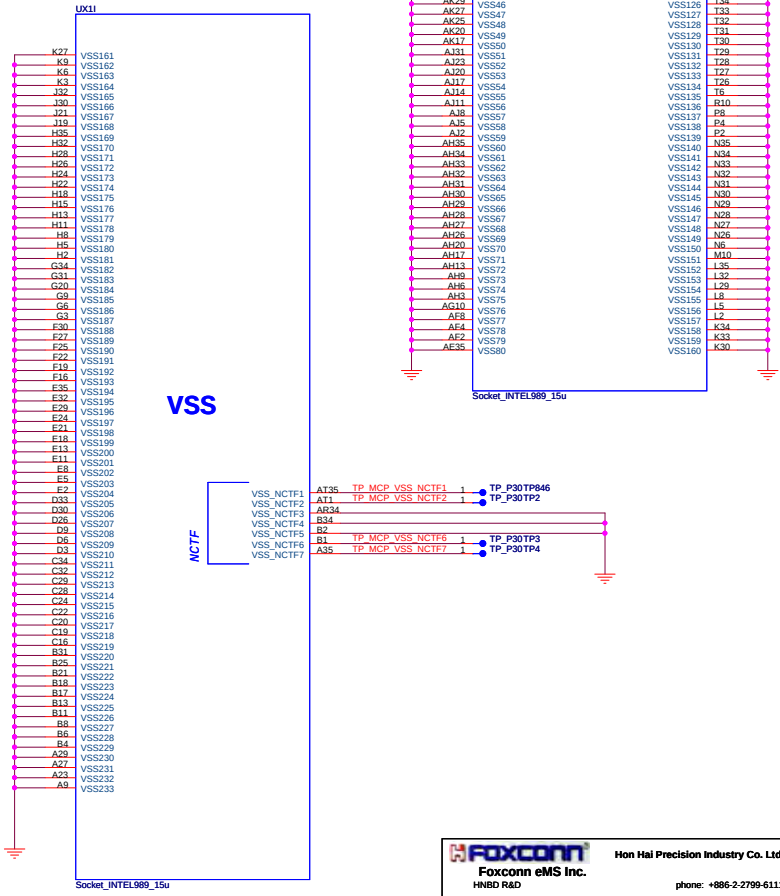
FOR VCC:
12x 0805 22 µF inside cavity,
7x 0805 10 µF under cavity and 9 x 0805 10 µF
between inductor and socket on top layer

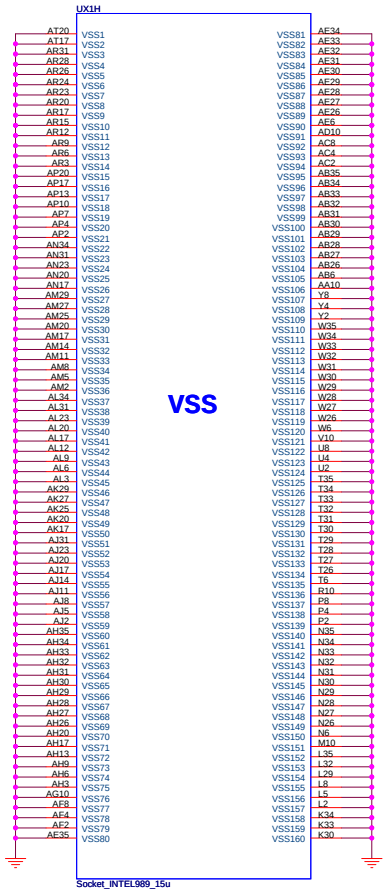
FOR VTT:
7x 0805 22 µF under cavity
8x 0805 10 µF edge caps











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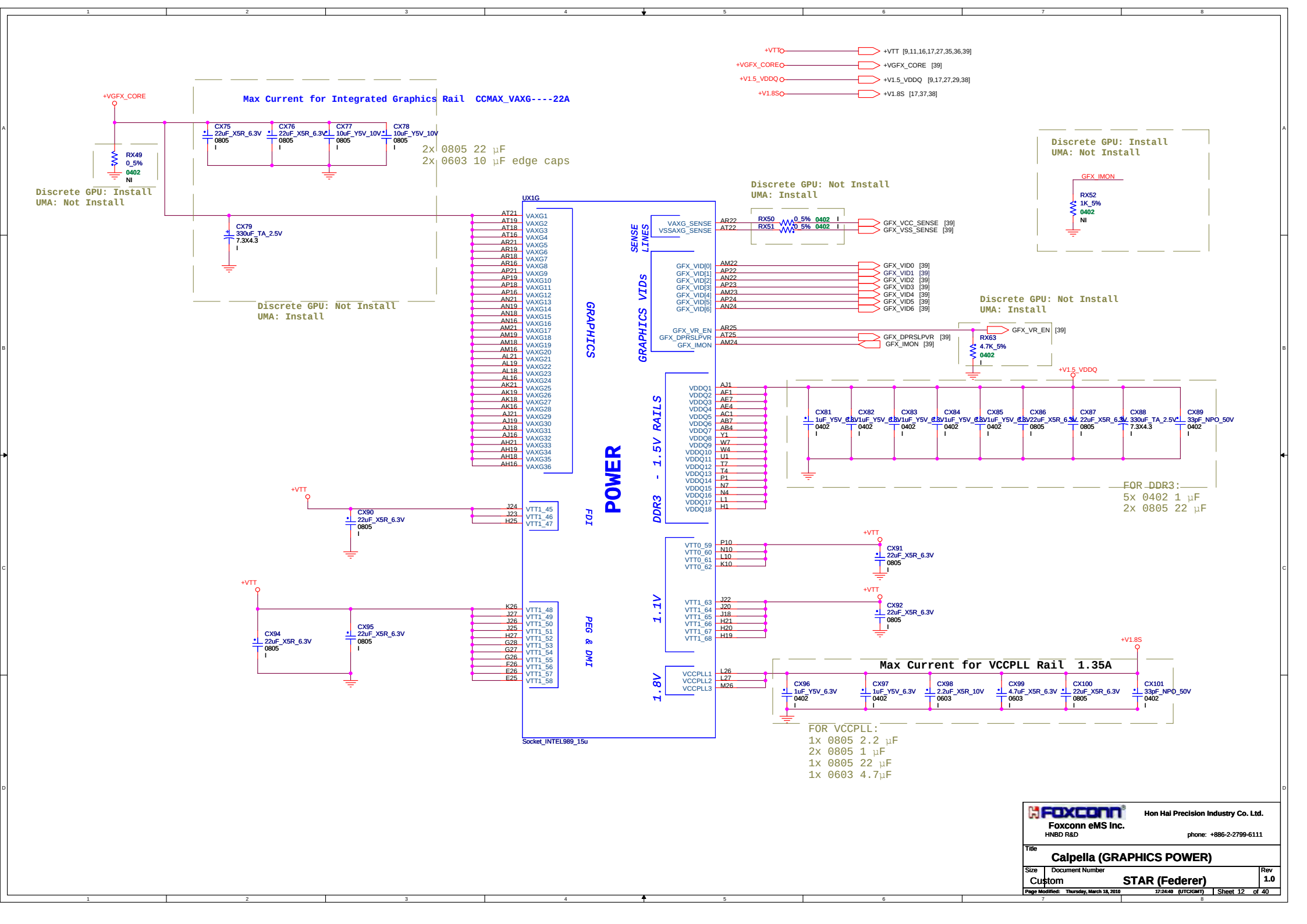
+VTT
+VTT [9,11,16,17,27,35,36,39]
+VGFX_CORE
+VGFX_CORE [39]
+V1.5_VDDQ
+V1.5_VDDQ [9,17,27,29,38]
+V1.8S
+V1.8S [17,37,38]
+VGFX_CORE
Max Current for Integrated Graphics Rail CCMAX_VAXG----22A
CX75 22uF_X5R_6.3V 0805
CX76 22uF_X5R_6.3V 0805
CX77 10uF_Y5V_10V 0805
CX78 10uF_Y5V_10V 0805
2x 0805 22 µF
2x 0603 10 µF edge caps
RX49 0_5% 0402 NI
Discrete GPU: Install
UMA: Not Install
CX79 330uF_TA_2.5V 7.3X4.3
Discrete GPU: Not Install
UMA: Install
UX1G
AT21 AT19 AT18 AT16 AR21 AR19 AR18 AR16 AP21 AP19 AP18 AP16 AN21 AN19 AN18 AN16 AM21 AM19 AM18 AM16 AL21 AL19 AL18 AL16 AK21 AK19 AK18 AK16 AJ21 AJ19 AJ18 AJ16 AH21 AH19 AH18 AH16
VAXG1 VAXG2 VAXG3 VAXG4 VAXG5 VAXG6 VAXG7 VAXG8 VAXG9 VAXG10 VAXG11 VAXG12 VAXG13 VAXG14 VAXG15 VAXG16 VAXG17 VAXG18 VAXG19 VAXG20 VAXG21 VAXG22 VAXG23 VAXG24 VAXG25 VAXG26 VAXG27 VAXG28 VAXG29 VAXG30 VAXG31 VAXG32 VAXG33 VAXG34 VAXG35 VAXG36
GRAPHICS
SENSE LINES
VAXG_SENSE
VSSAXG_SENSE
AR22
AT22
RX50 0_5% 0402
RX51 0_5% 0402
GFX_VCC_SENSE [39]
GFX_VSS_SENSE [39]
Discrete GPU: Not Install
UMA: Install
GRAPHICS VIDS
GFX_VID[0] GFX_VID[1] GFX_VID[2] GFX_VID[3] GFX_VID[4] GFX_VID[5] GFX_VID[6]
AM22 AP22 AN22 AP23 AM23 AP24 AN24
GFX_VID0 [39] GFX_VID1 [39] GFX_VID2 [39] GFX_VID3 [39] GFX_VID4 [39] GFX_VID5 [39] GFX_VID6 [39]
Discrete GPU: Install
UMA: Not Install
GFX_IMON
RX52 1K_5%
0402
NI
GFX_VR_EN
GFX_DPRSLPVR
GFX_IMON
AR25
AT25
AM24
GFX_DPRSLPVR [39]
GFX_IMON [39]
GFX_VR_EN [39]
RX63 4.7K_5%
0402
Discrete GPU: Not Install
UMA: Install
+V1.5_VDDQ
VDDQ1 VDDQ2 VDDQ3 VDDQ4 VDDQ5 VDDQ6 VDDQ7 VDDQ8 VDDQ9 VDDQ10 VDDQ11 VDDQ12 VDDQ13 VDDQ14 VDDQ15 VDDQ16 VDDQ17 VDDQ18
AJ1 AF1 AE7 AE4 AC1 AB7 AB4 Y1 W7 W4 U1 T7 T4 P1 N7 N4 L1 H1
DDR3 - 1.5V RAILS
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 µF
2x 0805 22 µF
+VTT
CX90 22uF_X5R_6.3V 0805
J24 J23 H25
VTT1_45 VTT1_46 VTT1_47
FDI
POWER
+VTT
VTT0_59 VTT0_60 VTT0_61 VTT0_62
P10 N10 L10 K10
CX91 22uF_X5R_6.3V 0805
+VTT
CX92 22uF_X5R_6.3V 0805
J22 J20 J18 H21 H20 H19
VTT1_63 VTT1_64 VTT1_65 VTT1_66 VTT1_67 VTT1_68
1.1V
+VTT
CX94 22uF_X5R_6.3V 0805
CX95 22uF_X5R_6.3V 0805
K26 J27 J26 J25 H27 G28 G27 G26 F26 E26 E25
VTT1_48 VTT1_49 VTT1_50 VTT1_51 VTT1_52 VTT1_53 VTT1_54 VTT1_55 VTT1_56 VTT1_57 VTT1_58
PEG & DMI
+V1.8S
Max Current for VCCPLL Rail 1.35A
VCCPLL1 VCCPLL2 VCCPLL3
L26 L27 M26
1.8V
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
FOR VCCPLL:
1x 0805 2.2 µF
2x 0805 1 µF
1x 0805 22 µF
1x 0603 4.7µF
Socket_INTEL989_15u
Foxconn
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Foxconn eMS Inc.
HNBD R&D
phone: +886-2-2799-6111
Title
Calpella (GRAPHICS POWER)
Size
Custom
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Rev
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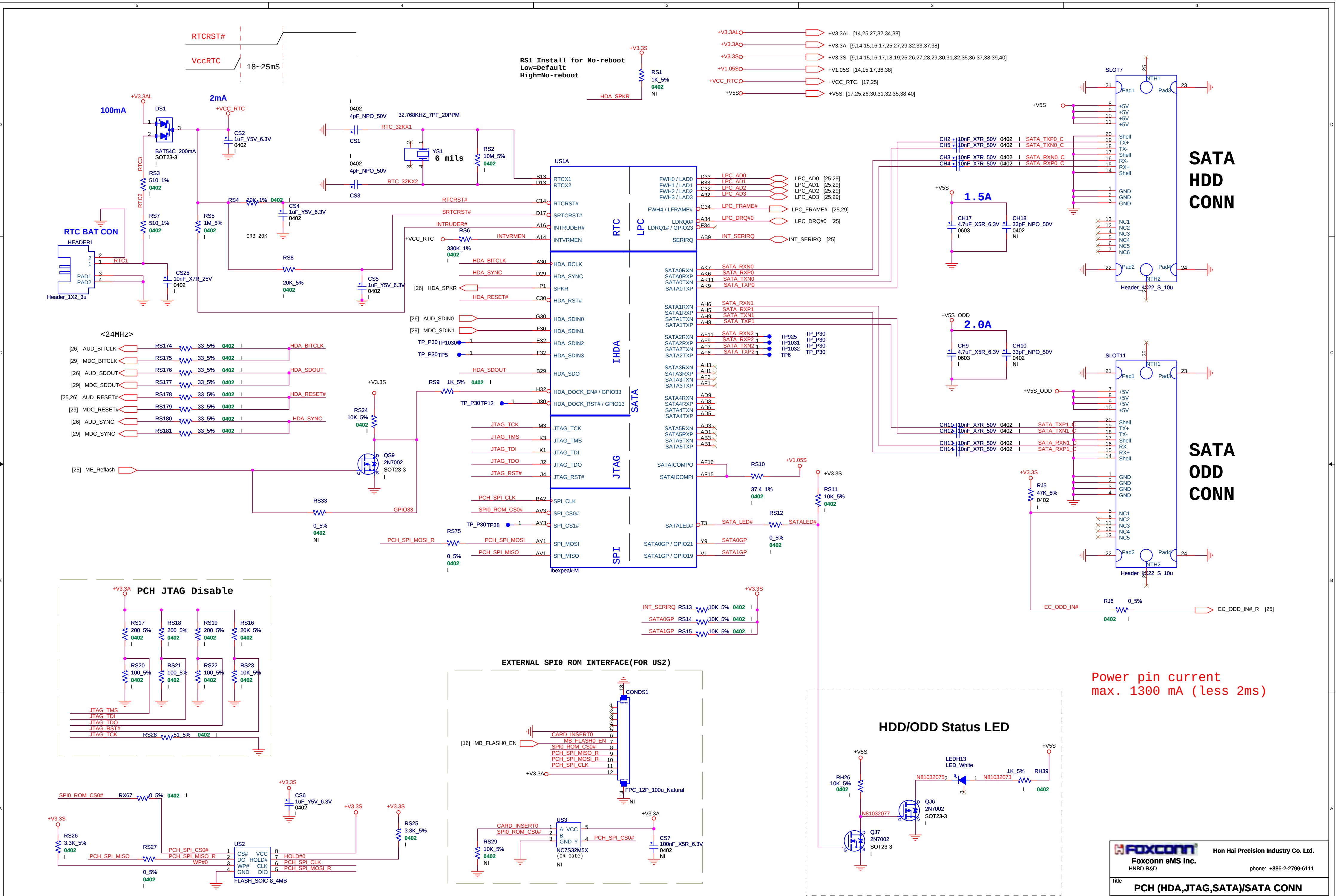
Sheet 12 of 40



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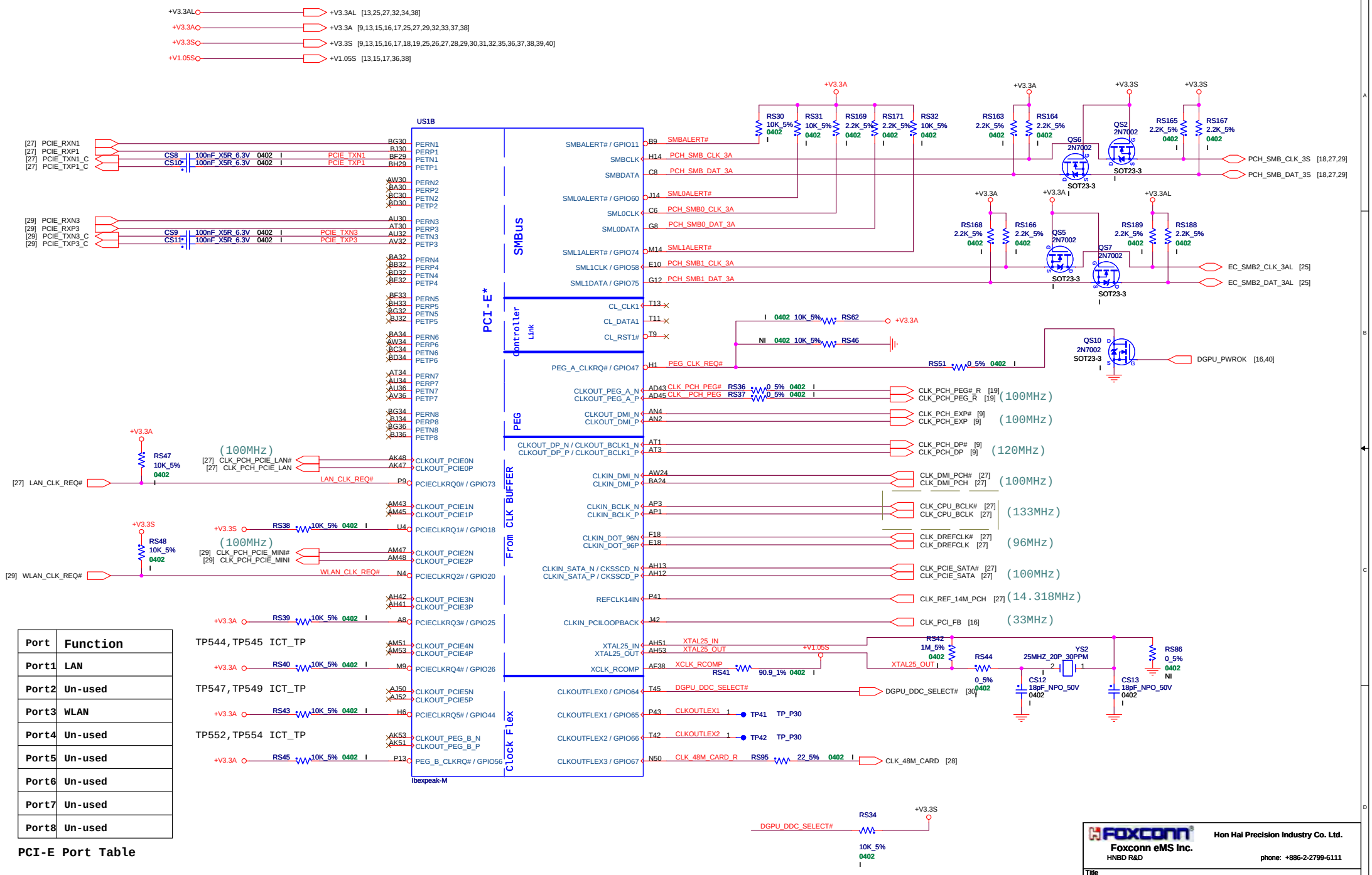

Port	Function
Port1	LAN
Port2	Un-used
Port3	WLAN
Port4	Un-used
Port5	Un-used
Port6	Un-used
Port7	Un-used
Port8	Un-used

PCI-E Port Table

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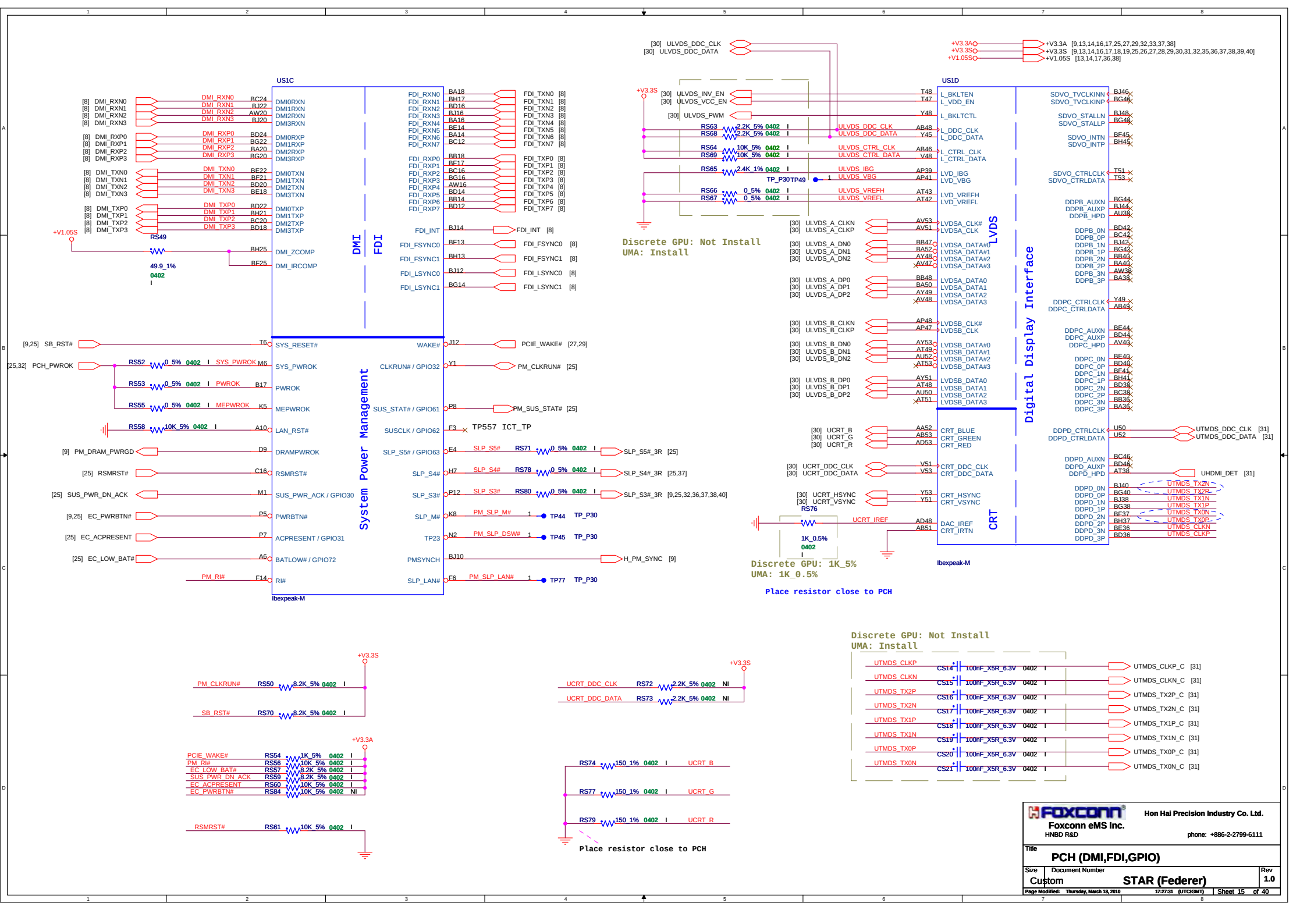
US1C
DMI
FDI
System Power Management
lbexpeak-M
US1D
LVDS
Digital Display Interface
CRT
Discrete GPU: Not Install
UMA: Install
Discrete GPU: 1K_5%
UMA: 1K_0.5%
Place resistor close to PCH
Discrete GPU: Not Install
UMA: Install
Place resistor close to PCH
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PCH (DMI,FDI,GPIO)
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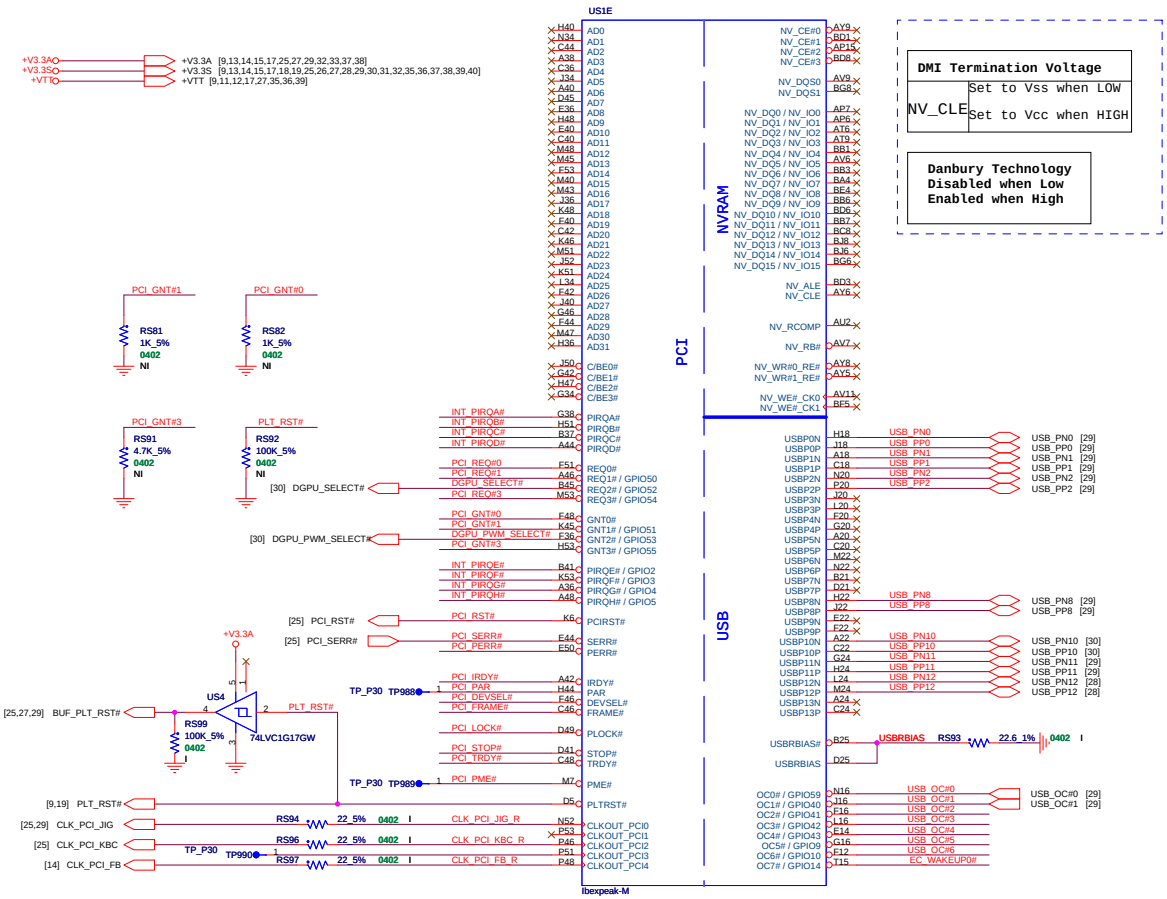
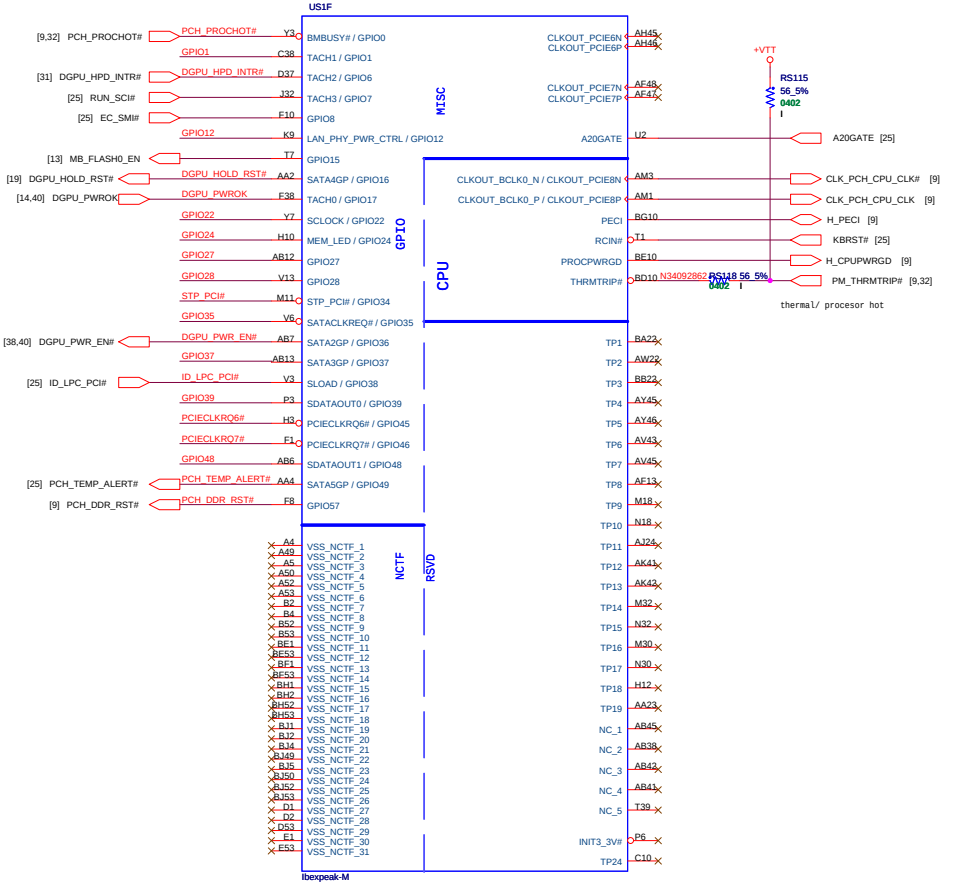
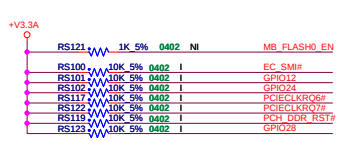
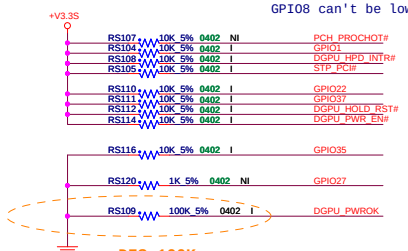


USB PORT	Function	OC pin
PORT-0	Ext. USB 0	
PORT-1	Ext. USB 1	
PORT-2	Ext. USB 2	
PORT-3		
PORT-4		
PORT-5		
PORT-6		
PORT-7		
PORT-8	Bluetooth	
PORT-9		
PORT-10	Camera	
PORT-11	WLAN/WiMAX	
PORT-12	Card reader	
PORT-13		





DVT Ask EC if we need to change GPIO pin.
GPIO8 can't be low.



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Title: PCH (PCI,USB,NVRAM,GPIO)		
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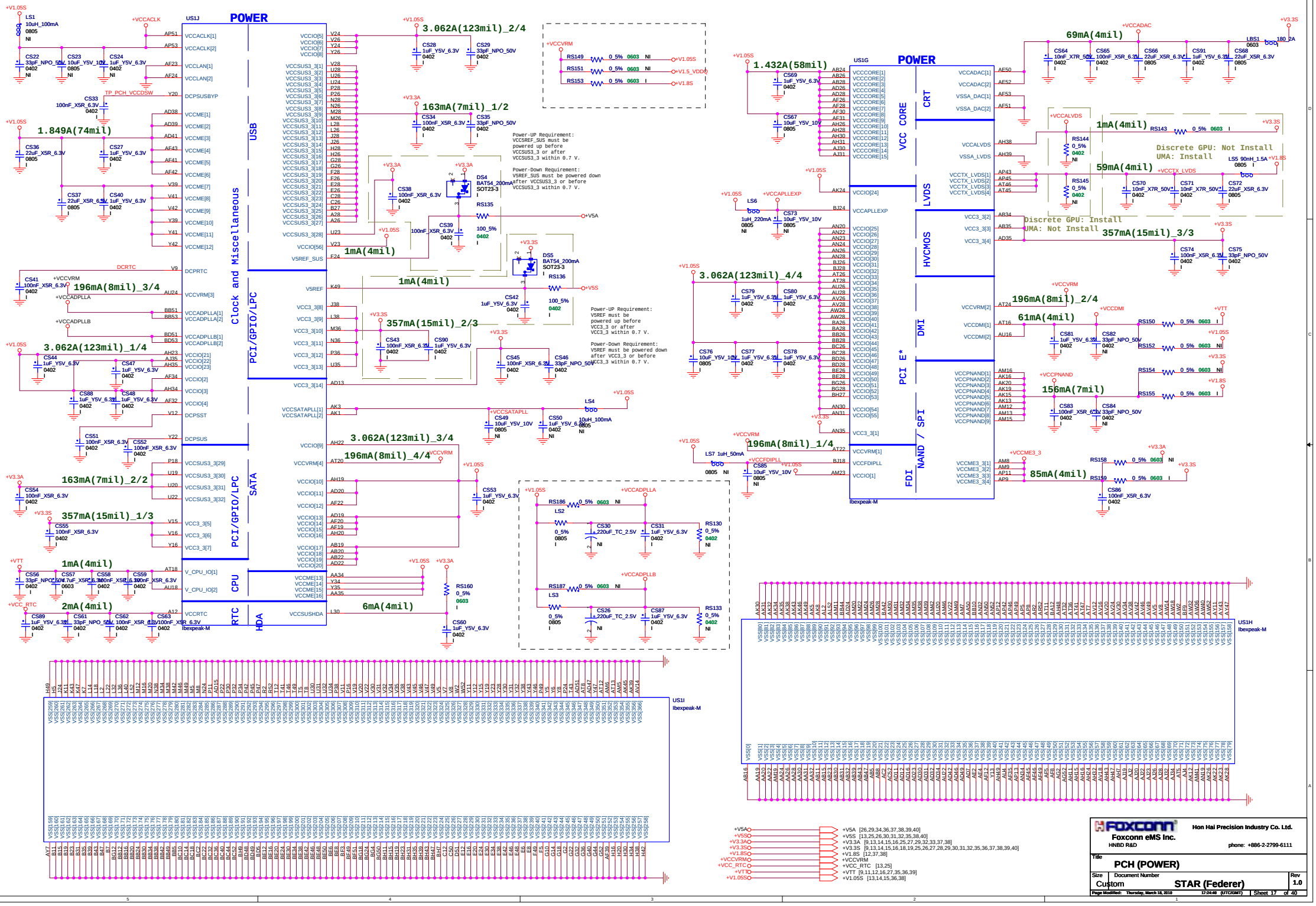
POWER
US1J
USB
Clock and Miscellaneous
PCI/GPIO/LPC
SATA
CPU
RTC
HDA
1.849A(74mil)
3.062A(123mil)_1/4
163mA(7mil)_2/2
357mA(15mil)_1/3
1mA(4mil)
2mA(4mil)
196mA(8mil)_3/4
3.062A(123mil)_2/4
163mA(7mil)_1/2
1mA(4mil)
357mA(15mil)_2/3
1mA(4mil)
3.062A(123mil)_3/4
196mA(8mil)_4/4
6mA(4mil)
US1G
VCC CORE
CRT
LVDS
HVCMOS
DMI
PCI E*
FDI
NAND / SPI
1.432A(58mil)
3.062A(123mil)_4/4
196mA(8mil)_1/4
69mA(4mil)
1mA(4mil)
59mA(4mil)
357mA(15mil)_3/3
196mA(8mil)_2/4
61mA(4mil)
156mA(7mil)
85mA(4mil)
Discrete GPU: Not Install
UMA: Install
Discrete GPU: Install
UMA: Not Install
US1H
US1I
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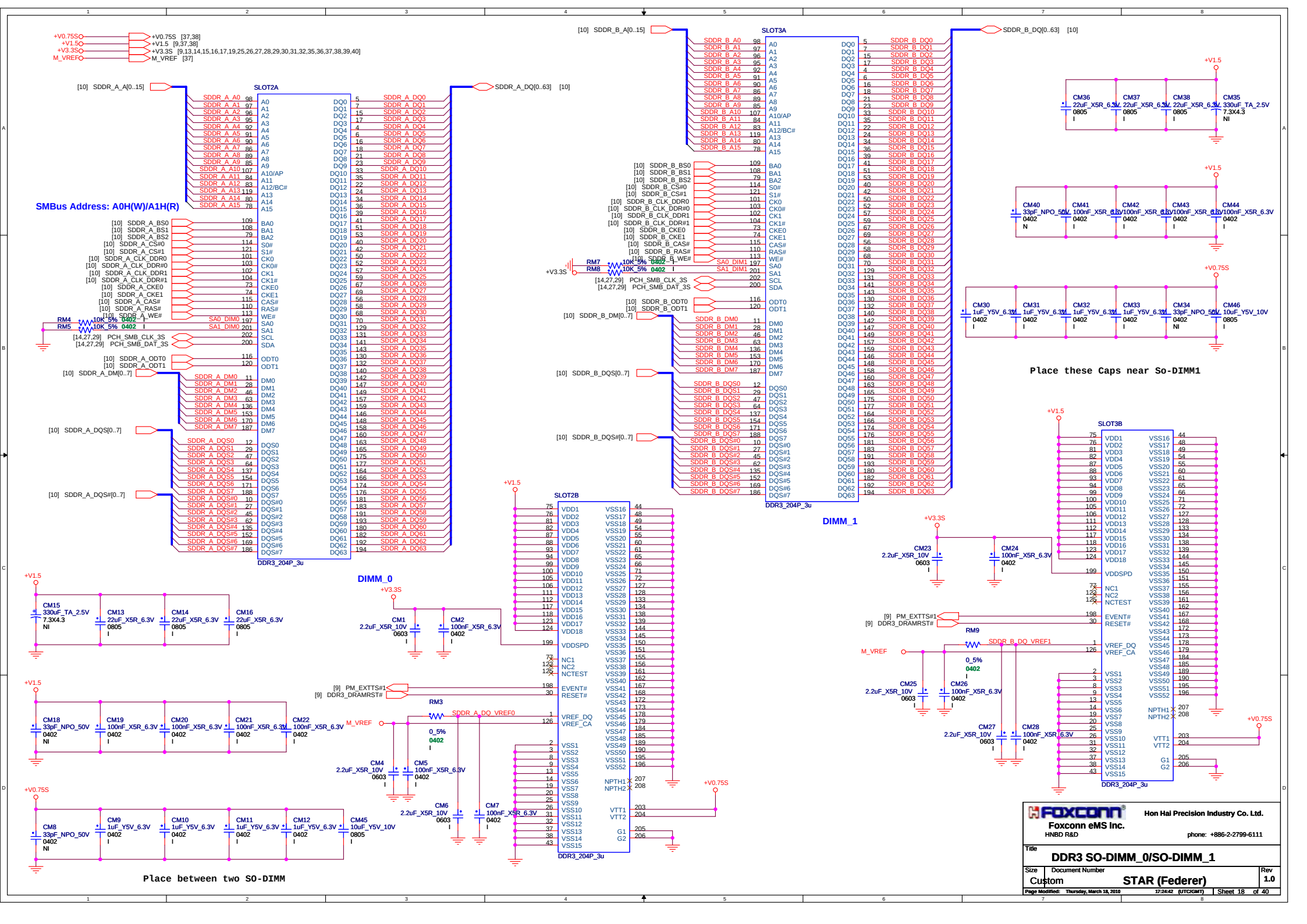
+V0.75S [37,38]
+V1.5 [9,37,38]
+V3.3S [9,13,14,15,16,17,19,25,26,27,28,29,30,31,32,35,36,37,38,39,40]
M_VREF [37]
SLOT2A
SLOT3A
SLOT2B
SLOT3B
DDR3_204P_3u
SMBus Address: A0H(W)/A1H(R)
DIMM_0
DIMM_1
Place these Caps near So-DIMM1
Place between two SO-DIMM
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DDR3 SO-DIMM_0/SO-DIMM_1
Custom
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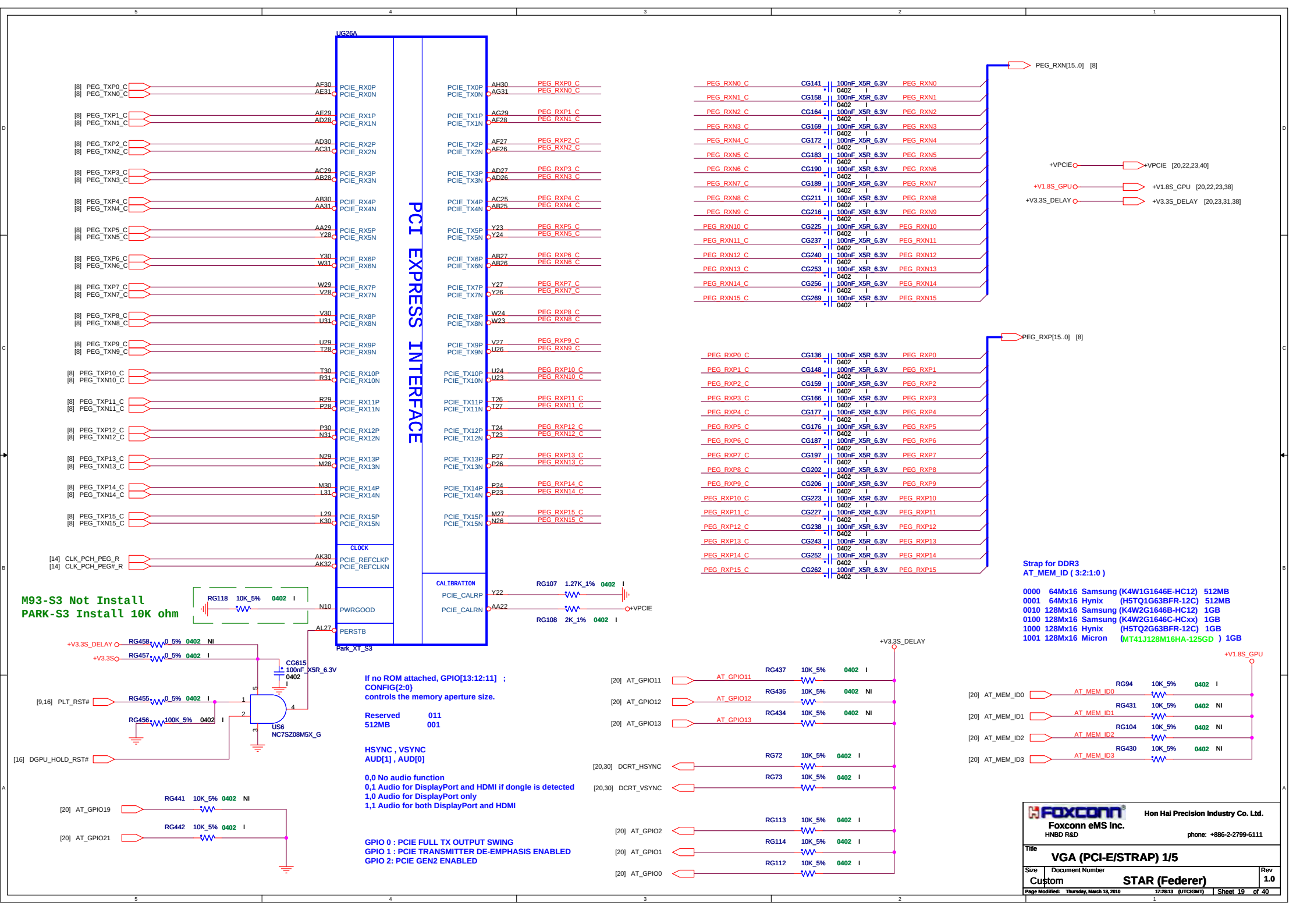
UG26A
PCI EXPRESS INTERFACE
[8] PEG_TXP0_C
[8] PEG_TXN0_C
AF30
AE31
PCIE_RX0P
PCIE_RX0N
PCIE_TX0P
PCIE_TX0N
AH30
AG31
PEG_RXP0_C
PEG_RXN0_C
[8] PEG_TXP1_C
[8] PEG_TXN1_C
AE29
AD28
PCIE_RX1P
PCIE_RX1N
PCIE_TX1P
PCIE_TX1N
AG29
AF28
PEG_RXP1_C
PEG_RXN1_C
[8] PEG_TXP2_C
[8] PEG_TXN2_C
AD30
AC31
PCIE_RX2P
PCIE_RX2N
PCIE_TX2P
PCIE_TX2N
AF27
AF26
PEG_RXP2_C
PEG_RXN2_C
[8] PEG_TXP3_C
[8] PEG_TXN3_C
AC29
AB28
PCIE_RX3P
PCIE_RX3N
PCIE_TX3P
PCIE_TX3N
AD27
AD26
PEG_RXP3_C
PEG_RXN3_C
[8] PEG_TXP4_C
[8] PEG_TXN4_C
AB30
AA31
PCIE_RX4P
PCIE_RX4N
PCIE_TX4P
PCIE_TX4N
AC25
AB25
PEG_RXP4_C
PEG_RXN4_C
[8] PEG_TXP5_C
[8] PEG_TXN5_C
AA29
Y28
PCIE_RX5P
PCIE_RX5N
PCIE_TX5P
PCIE_TX5N
Y23
Y24
PEG_RXP5_C
PEG_RXN5_C
[8] PEG_TXP6_C
[8] PEG_TXN6_C
Y30
W31
PCIE_RX6P
PCIE_RX6N
PCIE_TX6P
PCIE_TX6N
AB27
AB26
PEG_RXP6_C
PEG_RXN6_C
[8] PEG_TXP7_C
[8] PEG_TXN7_C
W29
V28
PCIE_RX7P
PCIE_RX7N
PCIE_TX7P
PCIE_TX7N
Y27
Y26
PEG_RXP7_C
PEG_RXN7_C
[8] PEG_TXP8_C
[8] PEG_TXN8_C
V30
U31
PCIE_RX8P
PCIE_RX8N
PCIE_TX8P
PCIE_TX8N
W24
W23
PEG_RXP8_C
PEG_RXN8_C
[8] PEG_TXP9_C
[8] PEG_TXN9_C
U29
T28
PCIE_RX9P
PCIE_RX9N
PCIE_TX9P
PCIE_TX9N
V27
U26
PEG_RXP9_C
PEG_RXN9_C
[8] PEG_TXP10_C
[8] PEG_TXN10_C
T30
R31
PCIE_RX10P
PCIE_RX10N
PCIE_TX10P
PCIE_TX10N
U24
U23
PEG_RXP10_C
PEG_RXN10_C
[8] PEG_TXP11_C
[8] PEG_TXN11_C
R29
P28
PCIE_RX11P
PCIE_RX11N
PCIE_TX11P
PCIE_TX11N
T26
T27
PEG_RXP11_C
PEG_RXN11_C
[8] PEG_TXP12_C
[8] PEG_TXN12_C
P30
N31
PCIE_RX12P
PCIE_RX12N
PCIE_TX12P
PCIE_TX12N
T24
T23
PEG_RXP12_C
PEG_RXN12_C
[8] PEG_TXP13_C
[8] PEG_TXN13_C
N29
M28
PCIE_RX13P
PCIE_RX13N
PCIE_TX13P
PCIE_TX13N
P27
P26
PEG_RXP13_C
PEG_RXN13_C
[8] PEG_TXP14_C
[8] PEG_TXN14_C
M30
L31
PCIE_RX14P
PCIE_RX14N
PCIE_TX14P
PCIE_TX14N
P24
P23
PEG_RXP14_C
PEG_RXN14_C
[8] PEG_TXP15_C
[8] PEG_TXN15_C
L29
K30
PCIE_RX15P
PCIE_RX15N
PCIE_TX15P
PCIE_TX15N
M27
N26
PEG_RXP15_C
PEG_RXN15_C
CLOCK
[14] CLK_PCH_PEG_R
[14] CLK_PCH_PEG#_R
AK30
AK32
PCIE_REFCLKP
PCIE_REFCLKN
CALIBRATION
PCIE_CALRP
PCIE_CALRN
Y22
AA22
RG107 1.27K_1% 0402
RG108 2K_1% 0402
+VPCIE
RG118 10K_5% 0402
N10
PWRGOOD
AL27
PERSTB
Park_XT_S3
PEG_RXN[15..0] [8]
PEG_RXP[15..0] [8]
CG141 100nF_X5R_6.3V 0402
CG158 100nF_X5R_6.3V 0402
CG164 100nF_X5R_6.3V 0402
CG169 100nF_X5R_6.3V 0402
CG172 100nF_X5R_6.3V 0402
CG183 100nF_X5R_6.3V 0402
CG190 100nF_X5R_6.3V 0402
CG189 100nF_X5R_6.3V 0402
CG211 100nF_X5R_6.3V 0402
CG216 100nF_X5R_6.3V 0402
CG225 100nF_X5R_6.3V 0402
CG237 100nF_X5R_6.3V 0402
CG240 100nF_X5R_6.3V 0402
CG253 100nF_X5R_6.3V 0402
CG256 100nF_X5R_6.3V 0402
CG269 100nF_X5R_6.3V 0402
CG136 100nF_X5R_6.3V 0402
CG148 100nF_X5R_6.3V 0402
CG159 100nF_X5R_6.3V 0402
CG166 100nF_X5R_6.3V 0402
CG177 100nF_X5R_6.3V 0402
CG176 100nF_X5R_6.3V 0402
CG187 100nF_X5R_6.3V 0402
CG197 100nF_X5R_6.3V 0402
CG202 100nF_X5R_6.3V 0402
CG206 100nF_X5R_6.3V 0402
CG223 100nF_X5R_6.3V 0402
CG227 100nF_X5R_6.3V 0402
CG238 100nF_X5R_6.3V 0402
CG243 100nF_X5R_6.3V 0402
CG252 100nF_X5R_6.3V 0402
CG262 100nF_X5R_6.3V 0402
+VPCIE
+V1.8S_GPU
+V3.3S_DELAY
+VPCIE [20,22,23,40]
+V1.8S_GPU [20,22,23,38]
+V3.3S_DELAY [20,23,31,38]
M93-S3 Not Install
PARK-S3 Install 10K ohm
+V3.3S_DELAY
+V3.3S
RG458 0_5% 0402 NI
RG457 0_5% 0402
CG615 100nF_X5R_6.3V 0402
[9,16] PLT_RST#
RG455 0_5% 0402
RG456 100K_5% 0402
US6 NC7SZ08M5X_G
[16] DGPU_HOLD_RST#
RG441 10K_5% 0402 NI
[20] AT_GPIO19
RG442 10K_5% 0402
[20] AT_GPIO21
If no ROM attached, GPIO[13:12:11] ;
CONFIG{2:0}
controls the memory aperture size.
Reserved 011
512MB 001
HSYNC , VSYNC
AUD[1] , AUD[0]
0,0 No audio function
0,1 Audio for DisplayPort and HDMI if dongle is detected
1,0 Audio for DisplayPort only
1,1 Audio for both DisplayPort and HDMI
GPIO 0 : PCIE FULL TX OUTPUT SWING
GPIO 1 : PCIE TRANSMITTER DE-EMPHASIS ENABLED
GPIO 2: PCIE GEN2 ENABLED
+V3.3S_DELAY
[20] AT_GPIO11
[20] AT_GPIO12
[20] AT_GPIO13
RG437 10K_5% 0402
RG436 10K_5% 0402 NI
RG434 10K_5% 0402 NI
[20,30] DCRT_HSYNC
[20,30] DCRT_VSYNC
RG72 10K_5% 0402
RG73 10K_5% 0402
[20] AT_GPIO2
[20] AT_GPIO1
[20] AT_GPIO0
RG113 10K_5% 0402
RG114 10K_5% 0402
RG112 10K_5% 0402
Strap for DDR3
AT_MEM_ID (3:2:1:0)
0000 64Mx16 Samsung (K4W1G1646E-HC12) 512MB
0001 64Mx16 Hynix (H5TQ1G63BFR-12C) 512MB
0010 128Mx16 Samsung (K4W2G1646B-HC12) 1GB
0100 128Mx16 Samsung (K4W2G1646C-HCxx) 1GB
1000 128Mx16 Hynix (H5TQ2G63BFR-12C) 1GB
1001 128Mx16 Micron (MT41J128M16HA-125GD) 1GB
+V1.8S_GPU
[20] AT_MEM_ID0
[20] AT_MEM_ID1
[20] AT_MEM_ID2
[20] AT_MEM_ID3
RG94 10K_5% 0402
RG431 10K_5% 0402 NI
RG104 10K_5% 0402 NI
RG430 10K_5% 0402 NI
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Title
VGA (PCI-E/STRAP) 1/5
Size
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Document Number
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Rev
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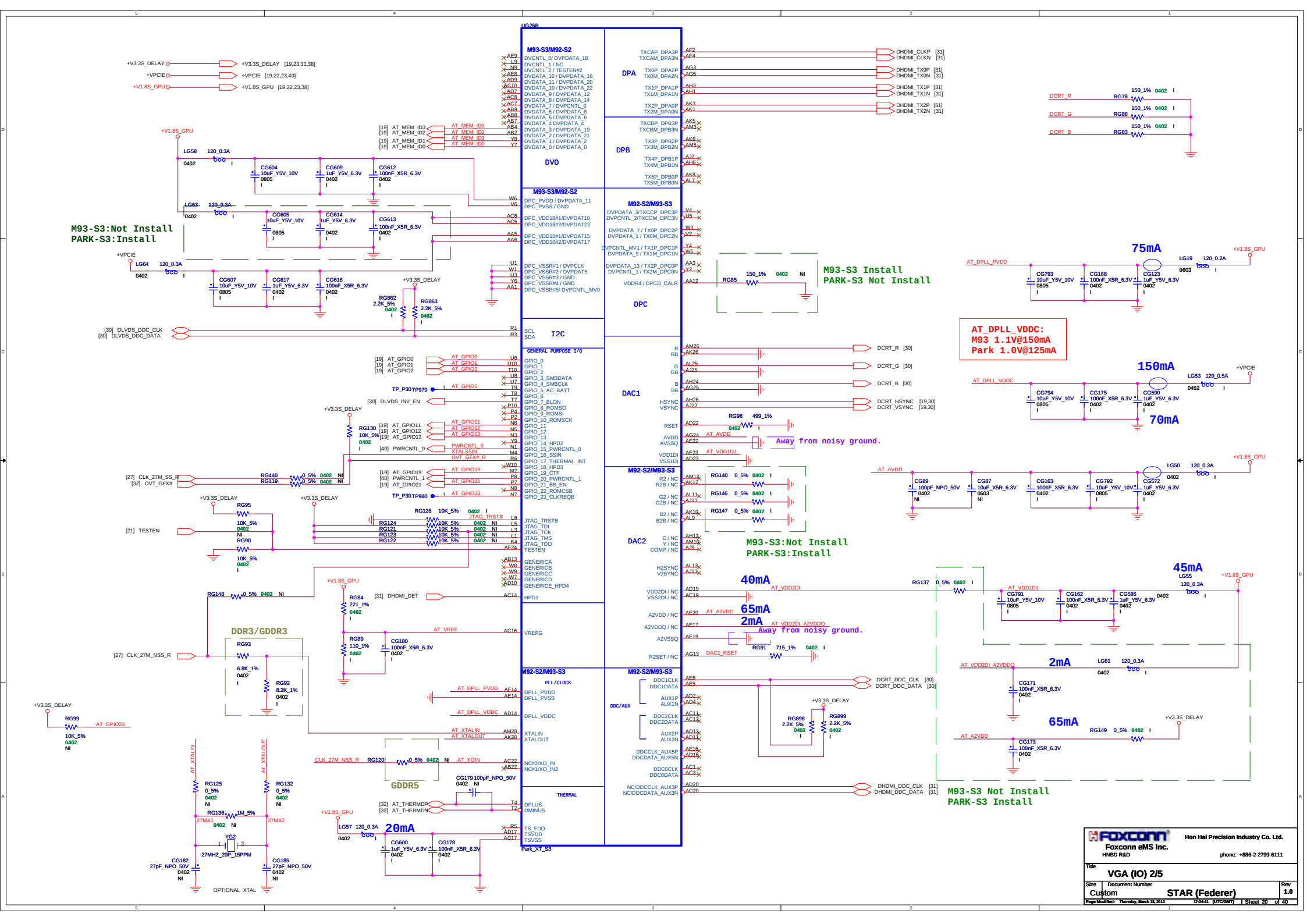
UG26B
M93-S3/M92-S2
DVCNTL_0/ DVPDATA_18
DVCNTL_1 / NC
DVCNTL_2 / TESTEN#2
DVDATA_12 / DVPDATA_16
DVDATA_11 / DVPDATA_20
DVDATA_10 / DVPDATA_22
DVDATA_9 / DVPDATA_12
DVDATA_8 / DVPDATA_14
DVDATA_7 / DVPCNTL_0
DVDATA_6 / DVPDATA_8
DVDATA_5 / DVPDATA_6
DVDATA_4 DVPDATA_4
DVDATA_3 / DVPDATA_19
DVDATA_2 / DVPDATA_21
DVDATA_1 / DVPDATA_2
DVDATA_0 / DVPDATA_0
DVO
DPA
DPB
DPC
I2C
GENERAL PURPOSE I/O
DAC1
DAC2
PLL/CLOCK
THERMAL
DDC/AUX
M93-S3/M92-S2
M92-S2/M93-S3
Park_XT_S3
+V3.3S_DELAY
+VPCIE
+V1.8S_GPU
M93-S3:Not Install
PARK-S3:Install
M93-S3 Install
PARK-S3 Not Install
DDR3/GDDR3
GDDR5
OPTIONAL XTAL
20mA
40mA
65mA
2mA
75mA
150mA
70mA
45mA
AT_DPLL_VDDC:
M93 1.1V@150mA
Park 1.0V@125mA
Away from noisy ground.
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VGA (IO) 2/5
Custom
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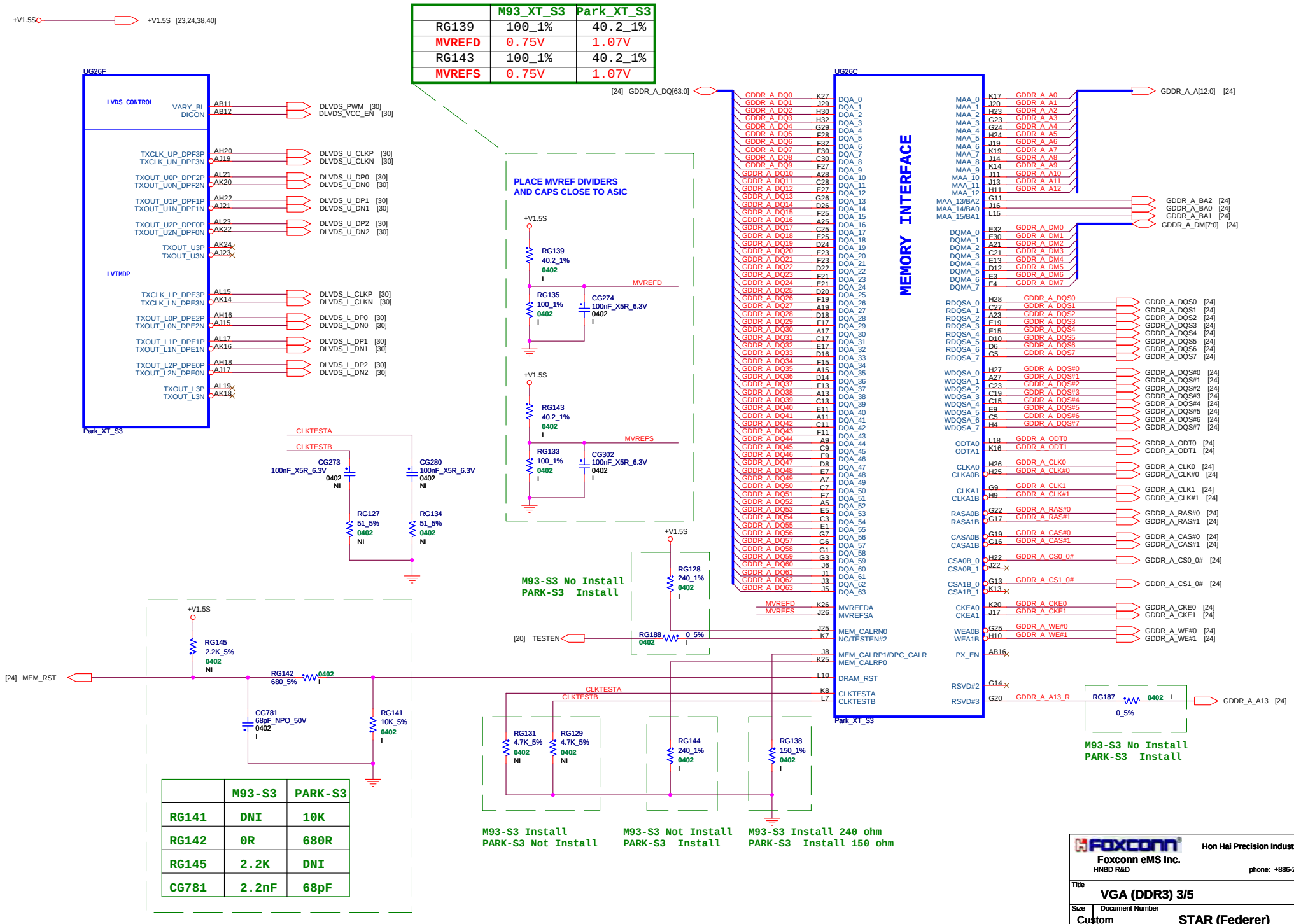
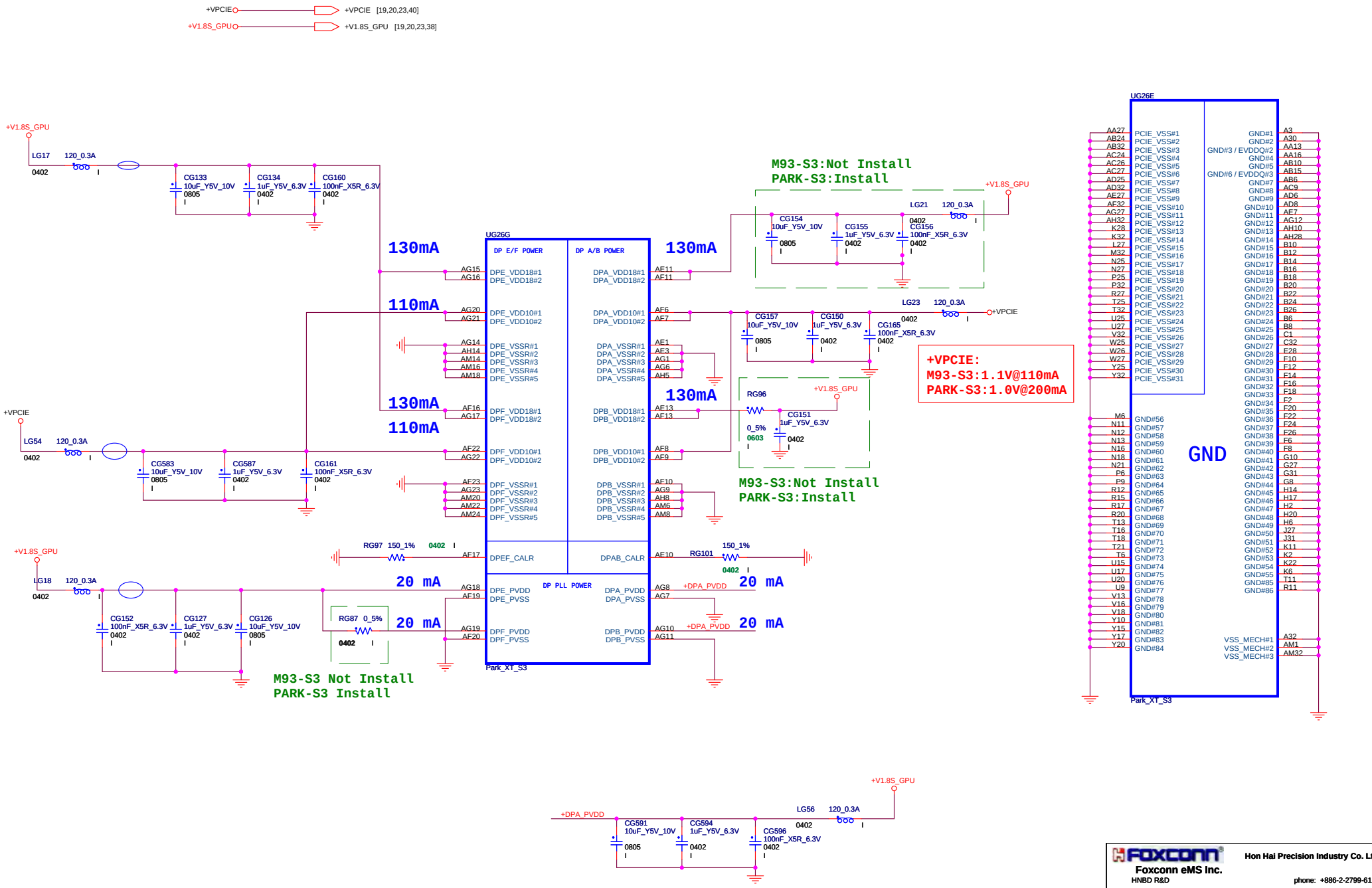


	M93_XT_S3	Park_XT_S3
RG139	100_1%	40.2_1%
MVREFD	0.75V	1.07V
RG143	100_1%	40.2_1%
MVREFS	0.75V	1.07V



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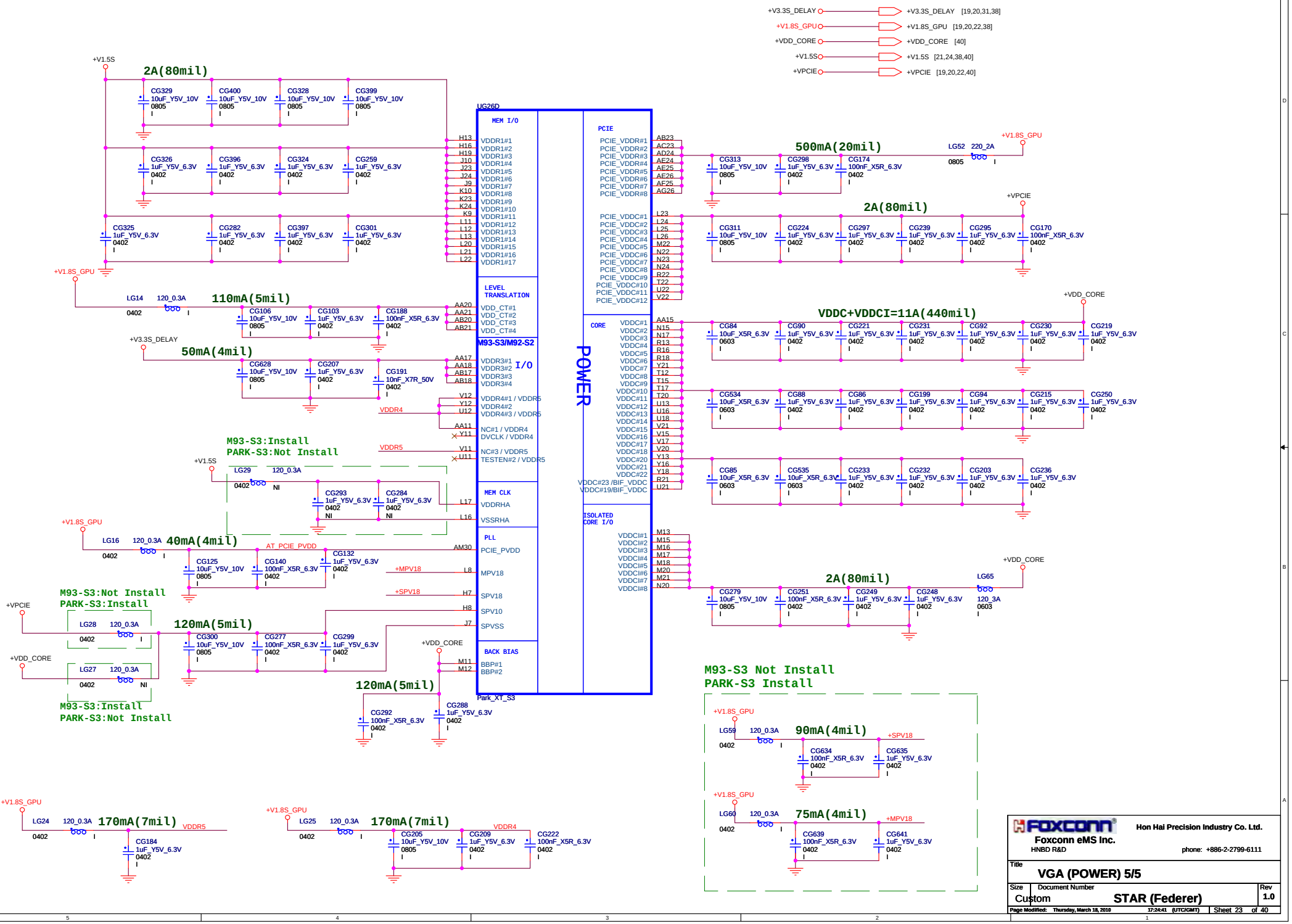
+V3.3S_DELAY [19,20,31,38]
+V1.8S_GPU [19,20,22,38]
+VDD_CORE [40]
+V1.5S [21,24,38,40]
+VPCIE [19,20,22,40]
UG26D
MEM I/O
PCIE
LEVEL TRANSLATION
M93-S3/M92-S2 I/O
MEM CLK
PLL
BACK BIAS
CORE
ISOLATED CORE I/O
POWER
Park_XT_S3
2A(80mil)
500mA(20mil)
VDDC+VDDCI=11A(440mil)
110mA(5mil)
50mA(4mil)
40mA(4mil)
120mA(5mil)
90mA(4mil)
75mA(4mil)
170mA(7mil)
M93-S3:Install
PARK-S3:Not Install
M93-S3:Not Install
PARK-S3:Install
M93-S3 Not Install
PARK-S3 Install
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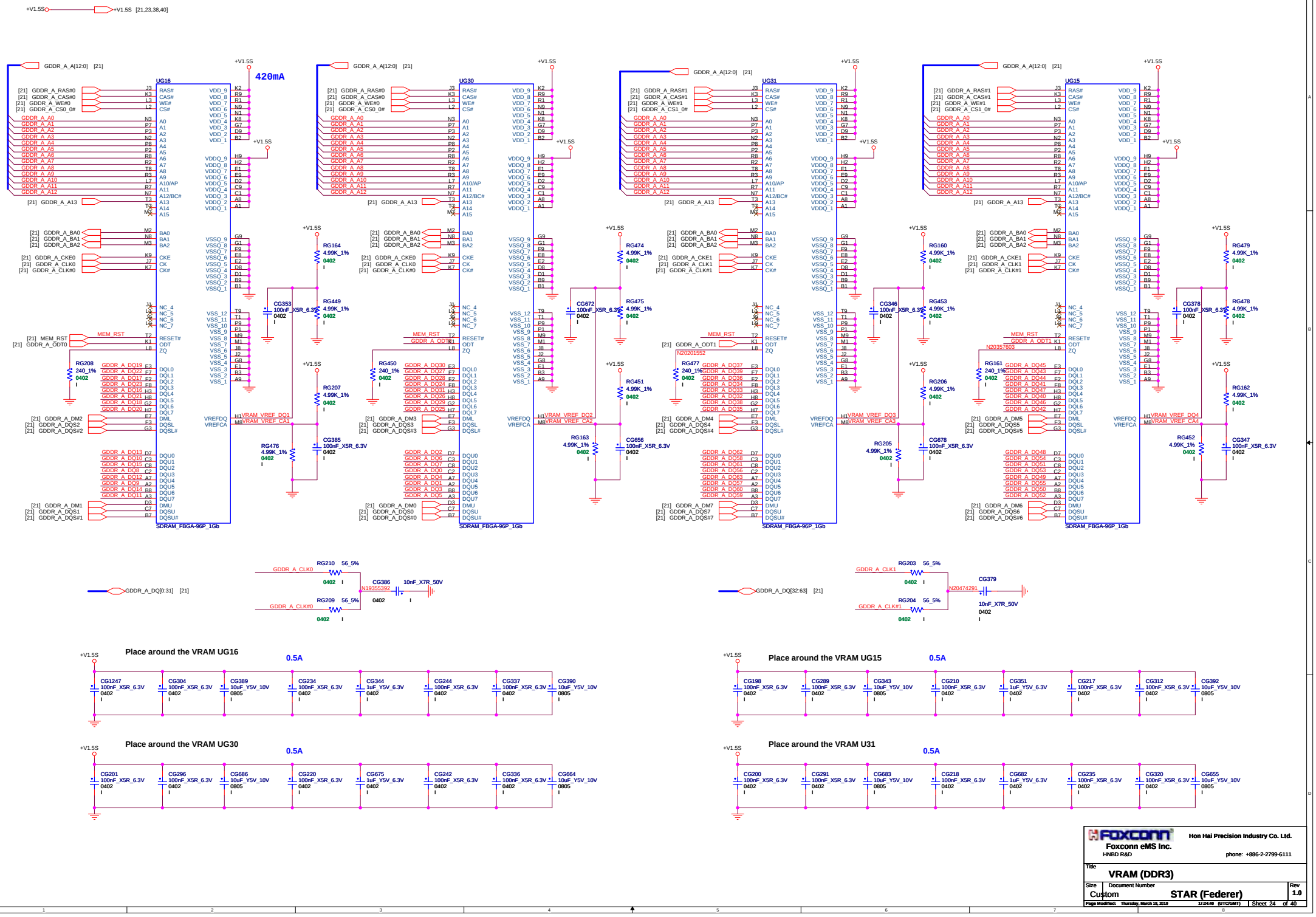
VGA (POWER) 5/5
Custom
STAR (Federer)
Rev 1.0
Sheet 23 of 40


+V1.5S [21,23,38,40]
UG16
UG30
UG31
UG15
420mA
SDRAM_FBGA-96P_1Gb
GDDR_A_A[12:0] [21]
GDDR_A_DQ[0:31] [21]
GDDR_A_DQ[32:63] [21]
MEM_RST
RG164 4.99K_1% 0402
RG474 4.99K_1% 0402
RG160 4.99K_1% 0402
RG479 4.99K_1% 0402
RG449 4.99K_1% 0402
RG475 4.99K_1% 0402
RG453 4.99K_1% 0402
RG478 4.99K_1% 0402
RG207 4.99K_1% 0402
RG451 4.99K_1% 0402
RG206 4.99K_1% 0402
RG162 4.99K_1% 0402
RG208 240_1% 0402
RG450 240_1% 0402
RG477 240_1% 0402
RG161 240_1% 0402
CG353 100nF_X5R_6.3V 0402
CG672 100nF_X5R_6.3V 0402
CG346 100nF_X5R_6.3V 0402
CG378 100nF_X5R_6.3V 0402
CG385 100nF_X5R_6.3V 0402
CG656 100nF_X5R_6.3V 0402
CG678 100nF_X5R_6.3V 0402
CG347 100nF_X5R_6.3V 0402
RG476 4.99K_1% 0402
RG163 4.99K_1% 0402
RG205 4.99K_1% 0402
RG452 4.99K_1% 0402
RG210 56_5% 0402
RG209 56_5% 0402
CG386 10nF_X7R_50V 0402
N19355392
RG203 56_5% 0402
RG204 56_5% 0402
CG379 10nF_X7R_50V 0402
N20074291
N20201552
N20357603
Place around the VRAM UG16 0.5A
CG1247 100nF_X5R_6.3V 0402
CG304 100nF_X5R_6.3V 0402
CG389 10uF_Y5V_10V 0805
CG234 100nF_X5R_6.3V 0402
CG344 1uF_Y5V_6.3V 0402
CG244 100nF_X5R_6.3V 0402
CG337 100nF_X5R_6.3V 0402
CG390 10uF_Y5V_10V 0805
Place around the VRAM UG15 0.5A
CG198 100nF_X5R_6.3V 0402
CG289 100nF_X5R_6.3V 0402
CG343 10uF_Y5V_10V 0805
CG210 100nF_X5R_6.3V 0402
CG351 1uF_Y5V_6.3V 0402
CG217 100nF_X5R_6.3V 0402
CG312 100nF_X5R_6.3V 0402
CG392 10uF_Y5V_10V 0805
Place around the VRAM UG30 0.5A
CG201 100nF_X5R_6.3V 0402
CG296 100nF_X5R_6.3V 0402
CG686 10uF_Y5V_10V 0805
CG220 100nF_X5R_6.3V 0402
CG675 1uF_Y5V_6.3V 0402
CG242 100nF_X5R_6.3V 0402
CG336 100nF_X5R_6.3V 0402
CG664 10uF_Y5V_10V 0805
Place around the VRAM U31 0.5A
CG200 100nF_X5R_6.3V 0402
CG291 100nF_X5R_6.3V 0402
CG683 10uF_Y5V_10V 0805
CG218 100nF_X5R_6.3V 0402
CG682 1uF_Y5V_6.3V 0402
CG235 100nF_X5R_6.3V 0402
CG320 100nF_X5R_6.3V 0402
CG655 10uF_Y5V_10V 0805
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Title
VRAM (DDR3)
Size Custom
Document Number STAR (Federer)
Rev 1.0
Page Modified: Thursday, March 18, 2010 17:24:40 (UTC/GMT)
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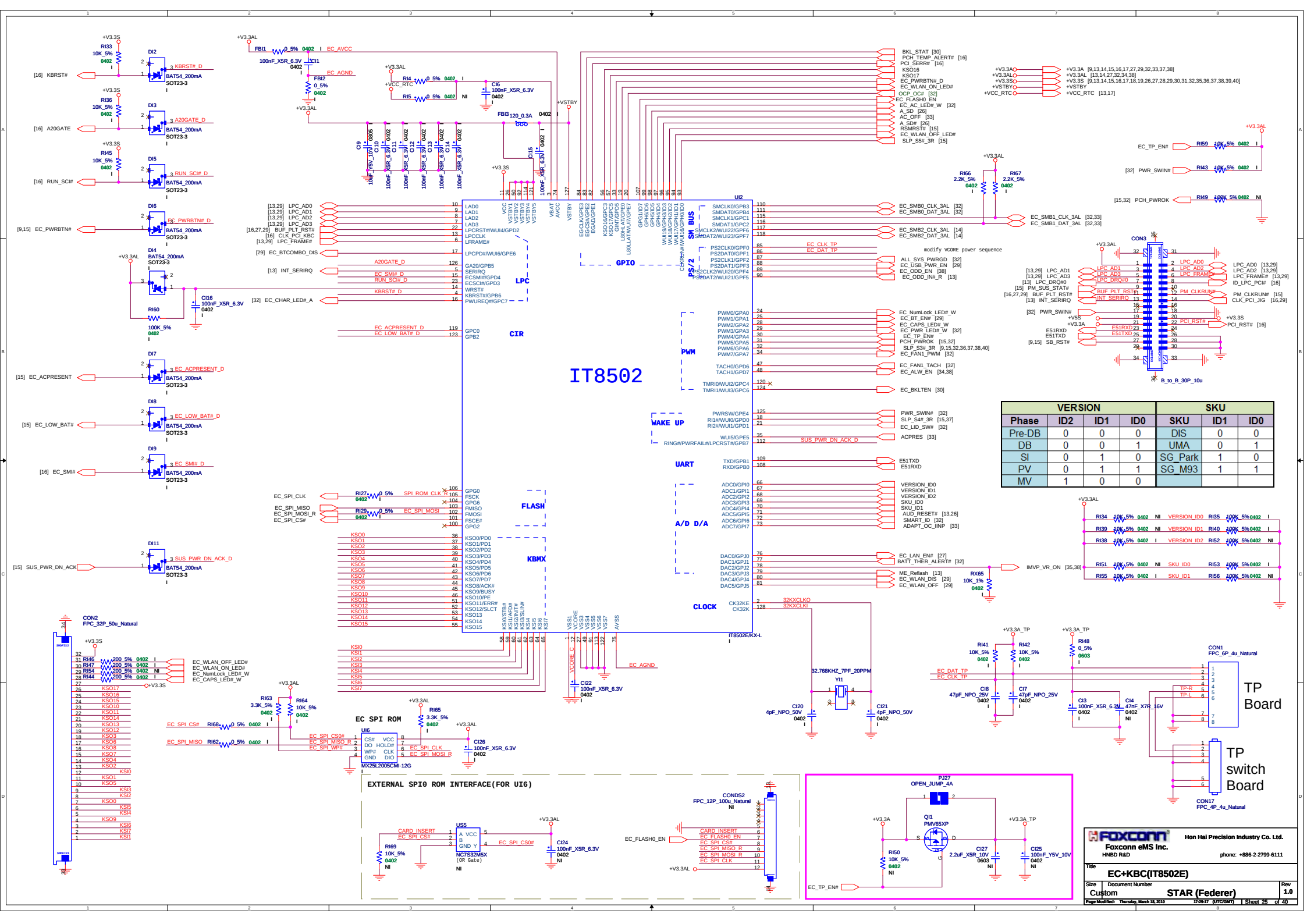
IT8502
LPC
CIR
GPIO
SM BUS
PS/2
PWM
WAKE UP
UART
A/D D/A
FLASH
KBMX
CLOCK
IT8502E/KX-L
EC SPI ROM
EXTERNAL SPI0 ROM INTERFACE(FOR UI6)
MX25L2005CMI-12G
TP Board
TP switch Board
VERSION
SKU
Phase | ID2 | ID1 | ID0 | SKU | ID1 | ID0
Pre-DB | 0 | 0 | 0 | DIS | 0 | 0
DB | 0 | 0 | 1 | UMA | 0 | 1
SI | 0 | 1 | 0 | SG_Park | 1 | 0
PV | 0 | 1 | 1 | SG_M93 | 1 | 1
MV | 1 | 0 | 0
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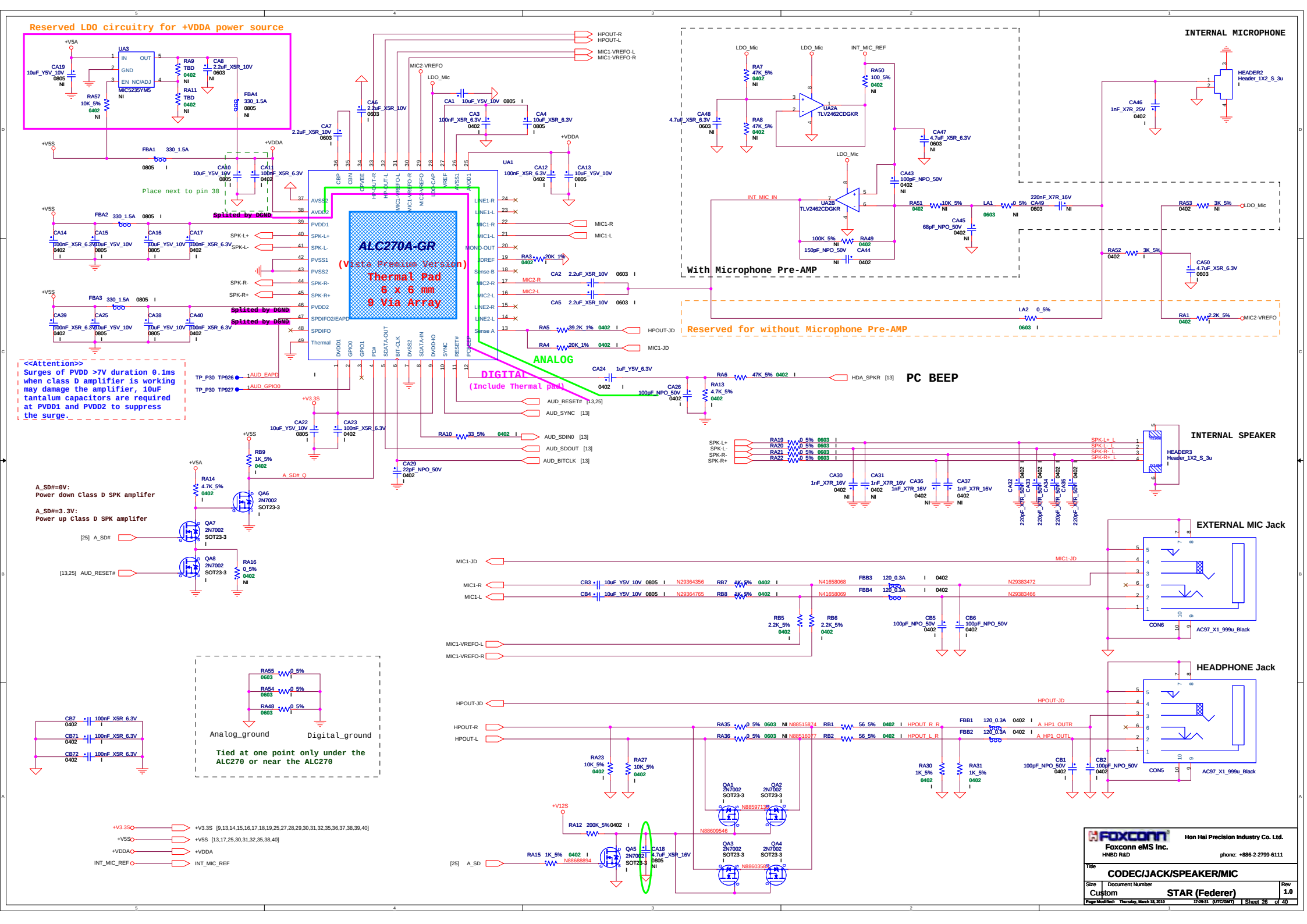
Title
EC+KBC(IT8502E)
Size
Custom
Document Number
STAR (Federer)
Rev
1.0
Page Modified: Thursday, March 18, 2010
17:29:17 (UTC/GMT)
Sheet 25 of 40


Reserved LDO circuitry for +VDDA power source
INTERNAL MICROPHONE
With Microphone Pre-AMP
Reserved for without Microphone Pre-AMP
ALC270A-GR
(Vista Premium Version)
Thermal Pad
6 x 6 mm
9 Via Array
Place next to pin 38
Splited by DGND
ANALOG
DIGITAL
(Include Thermal pad)
PC BEEP
INTERNAL SPEAKER
EXTERNAL MIC Jack
HEADPHONE Jack
<<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 amplifer
A_SD#=3.3V:
Power up Class D SPK amplifer
Analog_ground
Digital_ground
Tied at one point only under the ALC270 or near the ALC270
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Title
CODEC/JACK/SPEAKER/MIC
Size
Custom
Document Number
STAR (Federer)
Rev
1.0
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17:29:31 (UTC/GMT)
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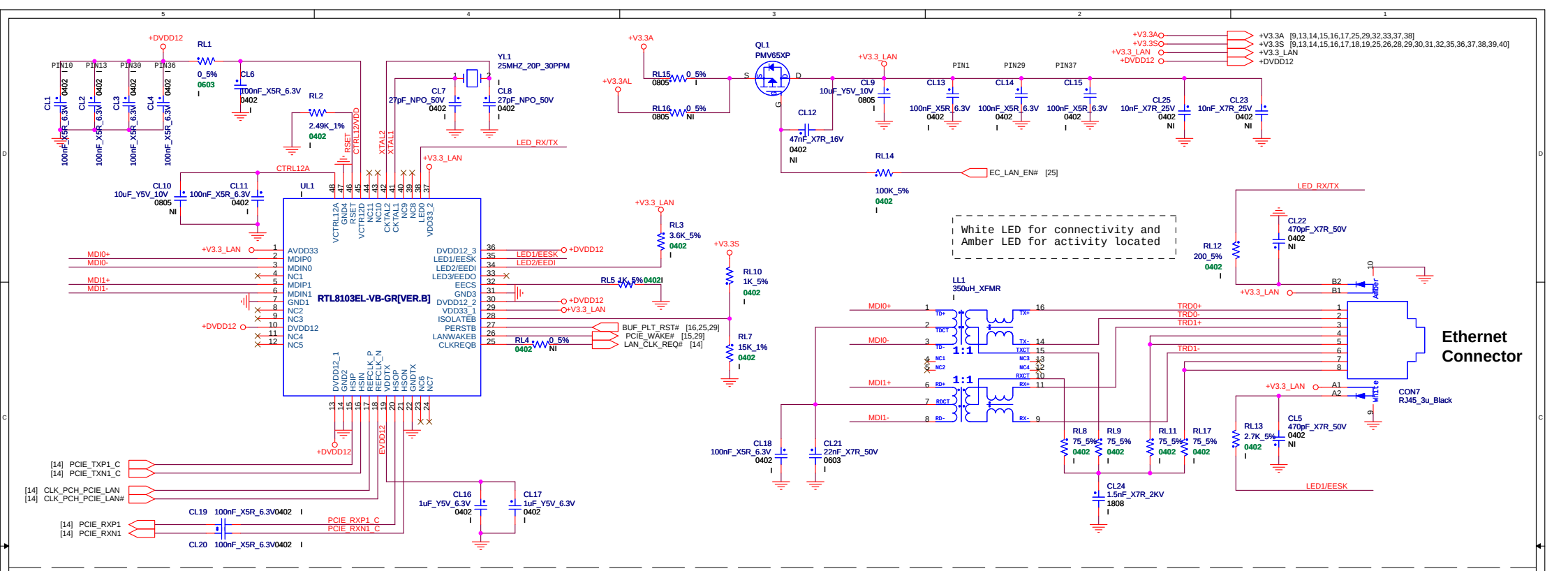

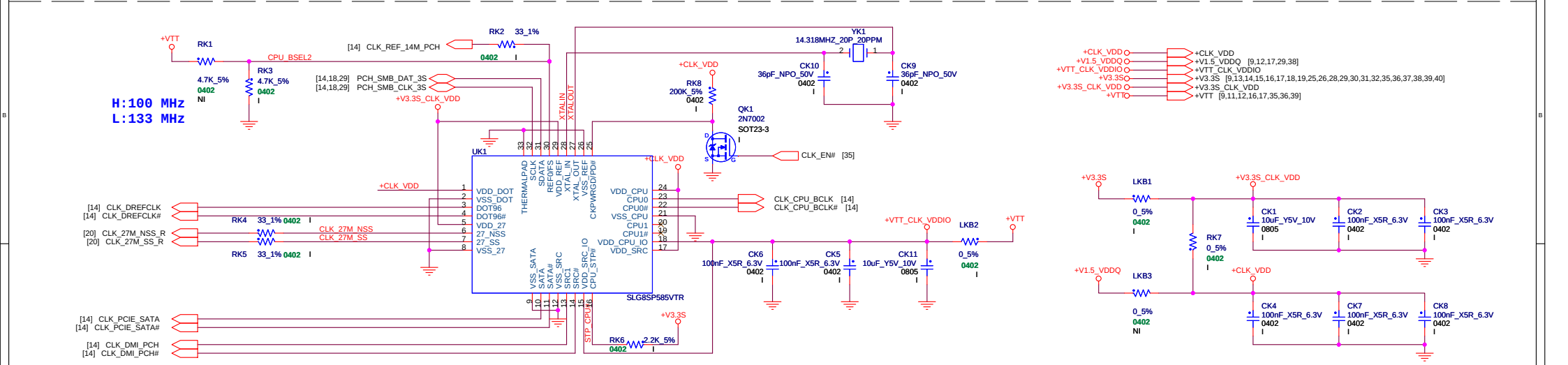

FSP Table

FS	CPU (PCH-->CPU)	Power On	SRC(DMI) (PCH-->CPU)	SATA (PCH)	DOT96 (PCH)	27MHz (GPU)	REF
0	133MHz	Default	100MHz	100MHz	96MHz	27MHz	14.318MHz
1	100MHz						

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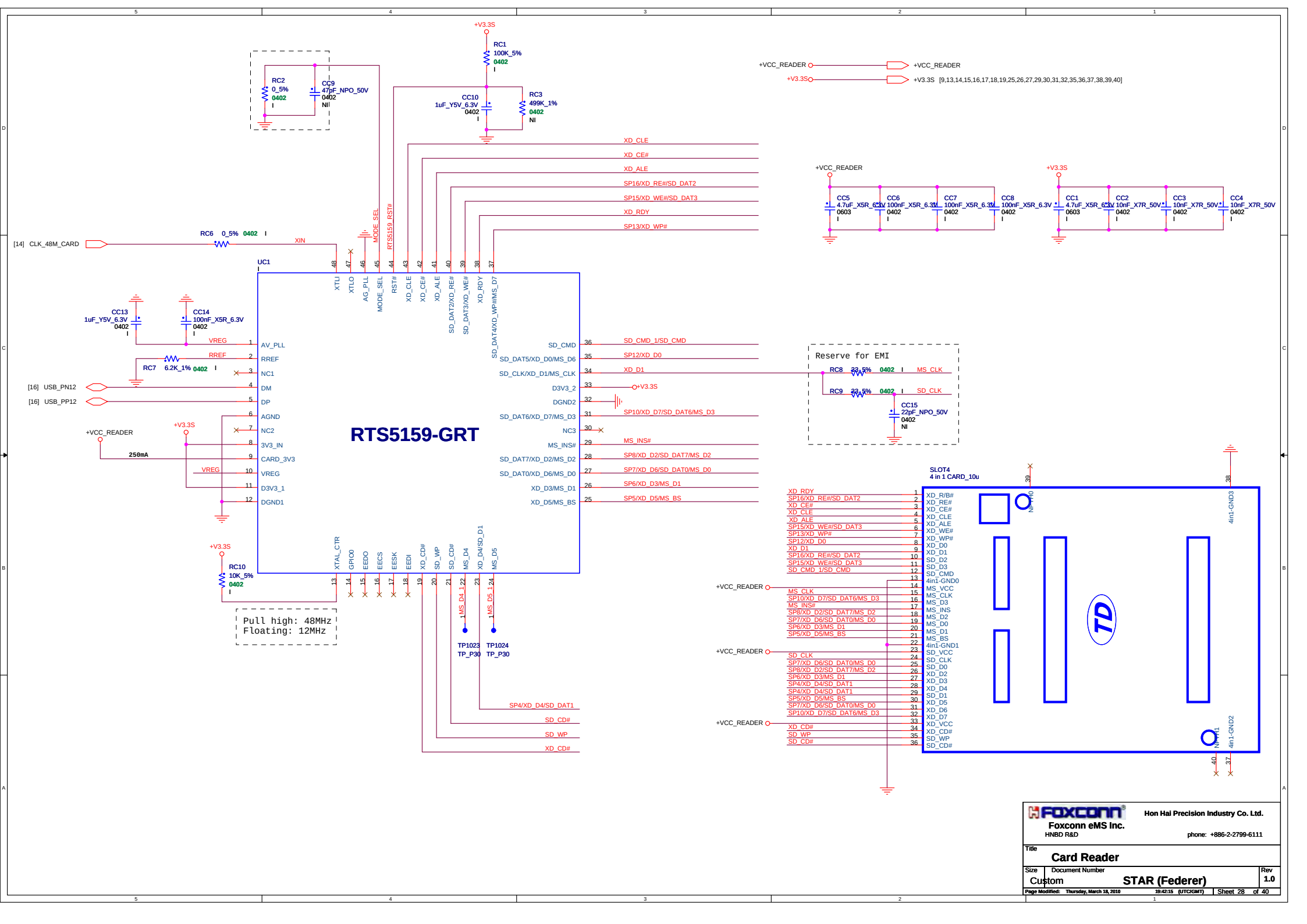
RTS5159-GRT
UC1
RC1 100K_5% 0402 I
RC2 0_5% 0402 I
CC9 47pF_NPO_50V 0402 NI
CC10 1uF_Y5V_6.3V 0402 I
RC3 499K_1% 0402 NI
RC6 0_5% 0402 I
CC13 1uF_Y5V_6.3V 0402 I
CC14 100nF_X5R_6.3V 0402 I
RC7 6.2K_1% 0402 I
RC10 10K_5% 0402 I
CC5 4.7uF_X5R_6.3V 0603 I
CC6 100nF_X5R_6.3V 0402 I
CC7 100nF_X5R_6.3V 0402 I
CC8 100nF_X5R_6.3V 0402 I
CC1 4.7uF_X5R_6.3V 0603 I
CC2 10nF_X7R_50V 0402 I
CC3 10nF_X7R_50V 0402 I
CC4 10nF_X7R_50V 0402 I
RC8 33_5% 0402 I
RC9 33_5% 0402 I
CC15 22pF_NPO_50V 0402 NI
Reserve for EMI
SLOT4
4 in 1 CARD_10u
+V3.3S
+VCC_READER
[14] CLK_48M_CARD
[16] USB_PN12
[16] USB_PP12
250mA
Pull high: 48MHz
Floating: 12MHz
TP1023 TP_P30
TP1024 TP_P30
XD_CLE
XD_CE#
XD_ALE
SP16/XD_RE#/SD_DAT2
SP15/XD_WE#/SD_DAT3
XD_RDY
SP13/XD_WP#
SD_CMD_1/SD_CMD
SP12/XD_D0
XD_D1
SP10/XD_D7/SD_DAT6/MS_D3
MS_INS#
SP8/XD_D2/SD_DAT7/MS_D2
SP7/XD_D6/SD_DAT0/MS_D0
SP6/XD_D3/MS_D1
SP5/XD_D5/MS_BS
SP4/XD_D4/SD_DAT1
SD_CD#
SD_WP
XD_CD#
MS_CLK
SD_CLK
4in1-GND3
4in1-GND2
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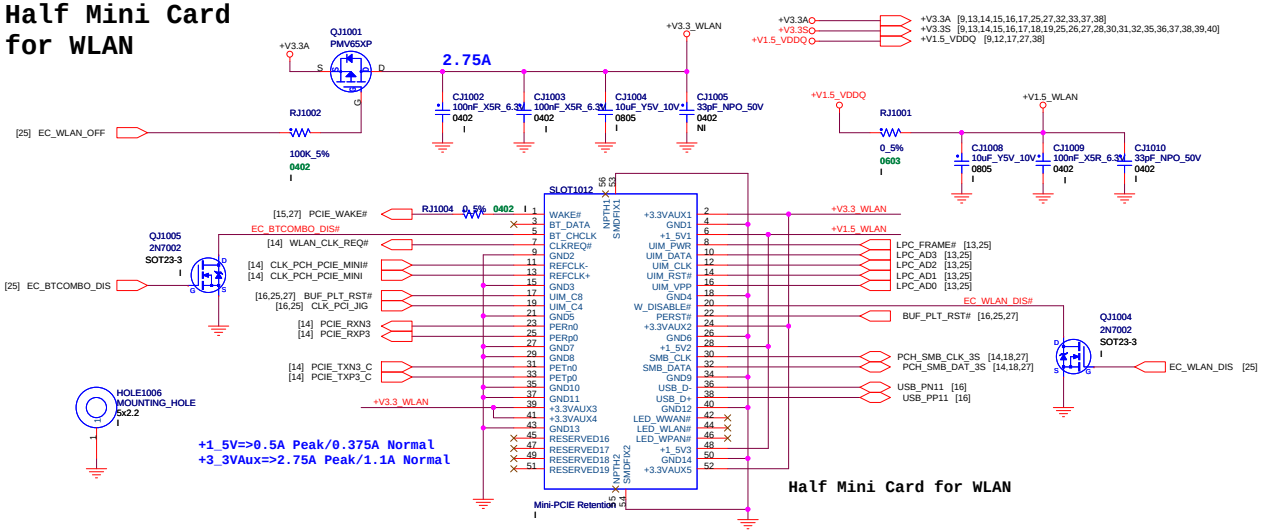
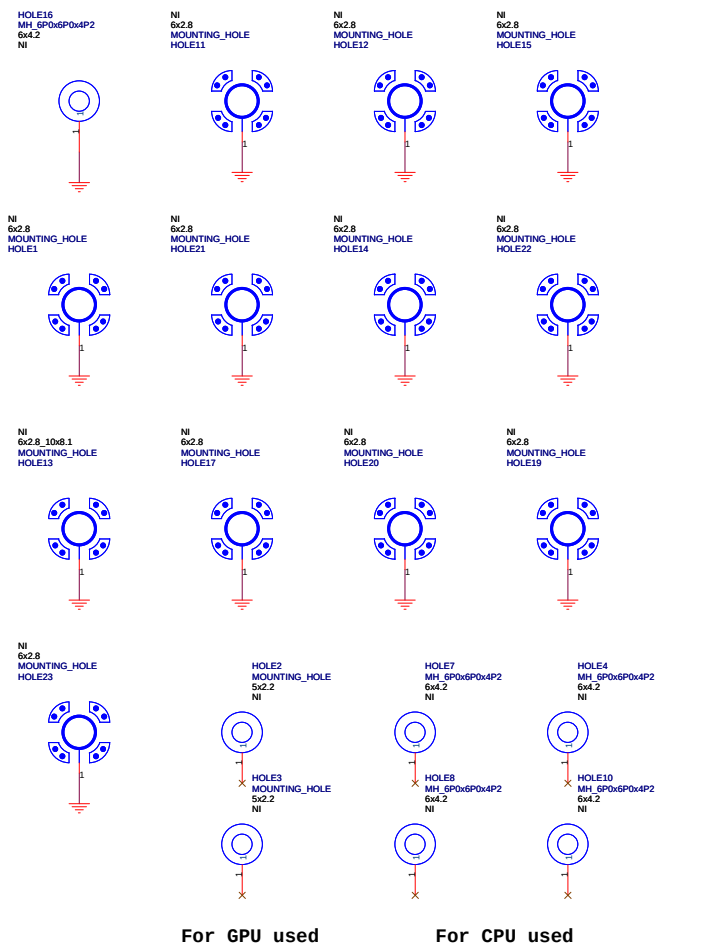
Half Mini Card for WLAN



Half Mini Card for WLAN

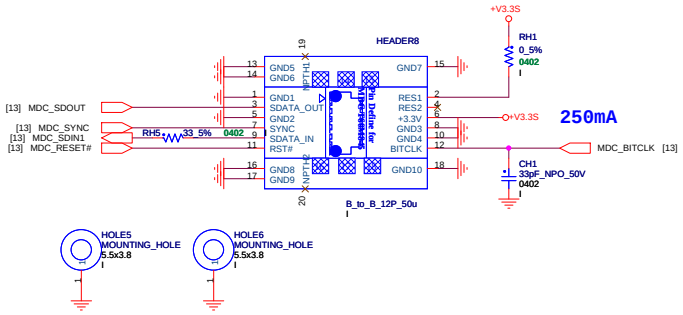
MOUNTING HOLE



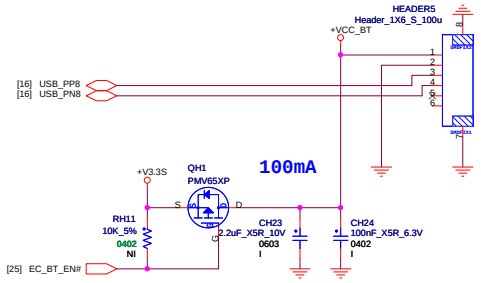
For GPU used

For CPU used

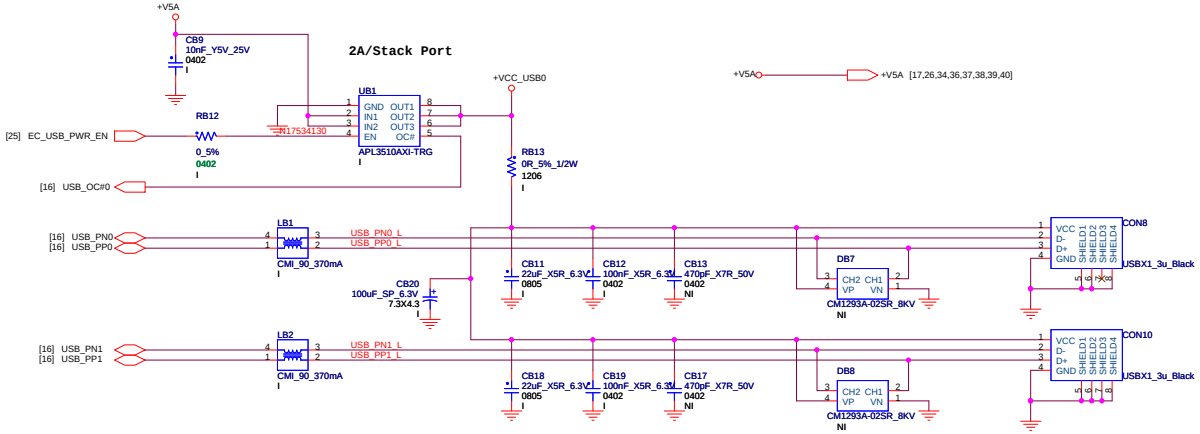
MDC CONN.



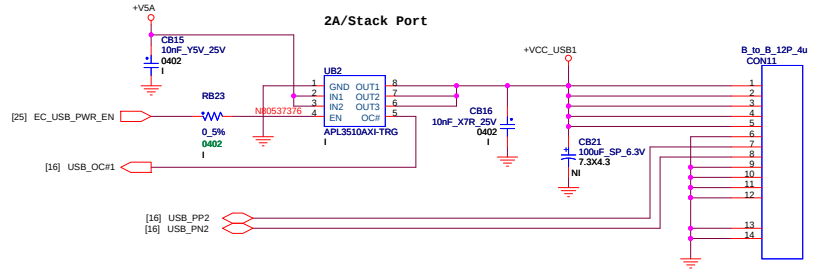
Bluetooth CONN.



USBX2 CONN.



USBX1 CONN.



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Title: WLAN/BT/MDC/USB/MOUNTING HOLE

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Custom	STAR (Federer)	1.0

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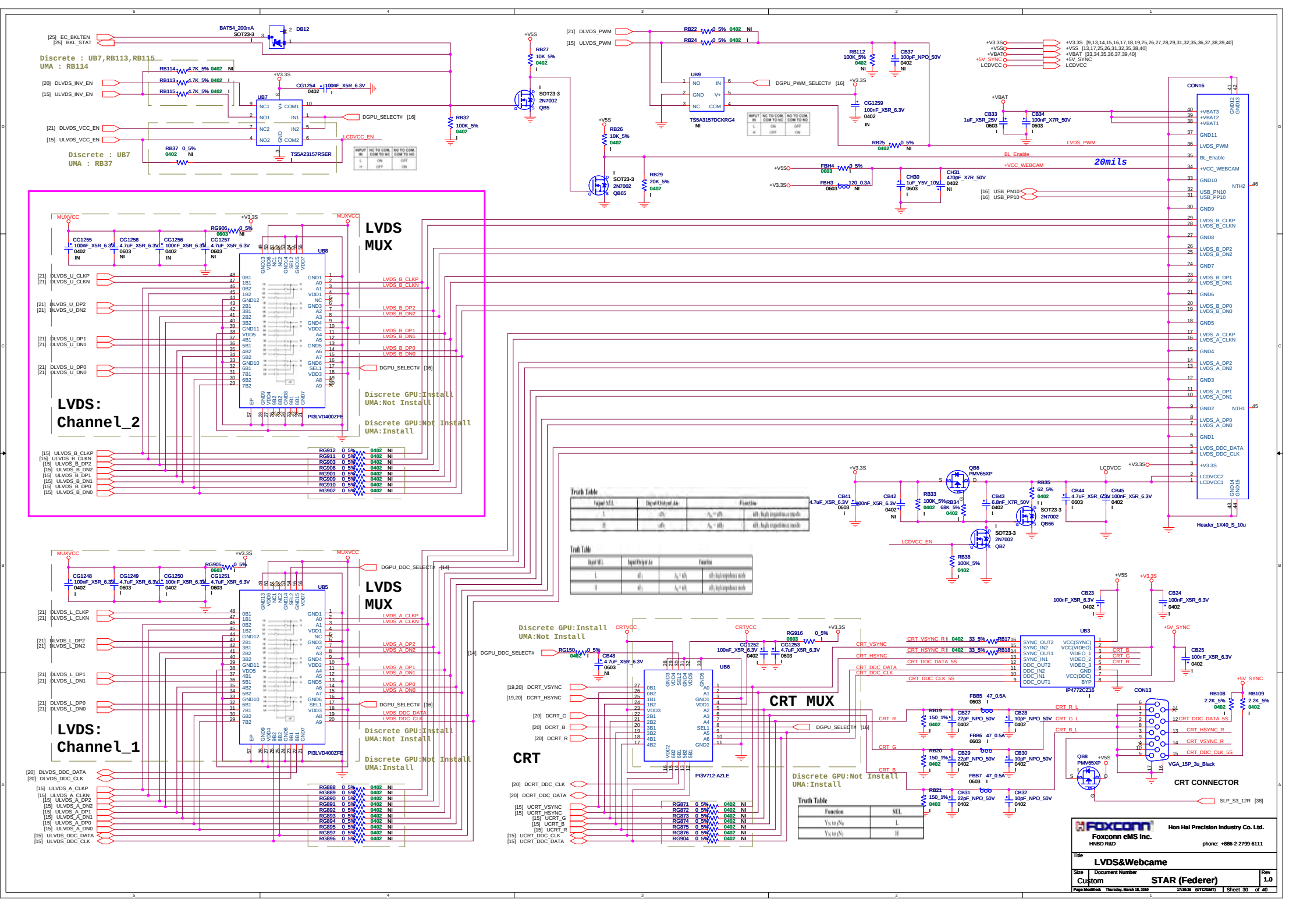
LVDS MUX
LVDS: Channel_2
LVDS MUX
LVDS: Channel_1
CRT MUX
CRT
CRT CONNECTOR
Discrete : UB7,RB113,RB115
UMA : RB114
Discrete : UB7
UMA : RB37
Discrete GPU:Install
UMA:Not Install
Discrete GPU:Not Install
UMA:Install
20mils
Truth Table
Truth Table
Truth Table
Function
SEL
L
H
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Title
LVDS&Webcame
Size
Custom
Document Number
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Discrete GPU: Install
UMA: Not Install

+V5S
DB13 BAT54_200mA SOT23-3
CB75 10nF_X7R_25V 0402 NI
CB76 10nF_X7R_25V 0402 NI
+V3.3S_DELAY
RB41 2.2K_5% 0402
RB42 2.2K_5% 0402
RB43 2.2K_5% 0402
RB44 2.2K_5% 0402
[20] DHDMI_DDC_DATA
[20] DHDMI_DDC_CLK
HDMI_DDC_DATA
HDMI_DDC_CLK
QB67 2N7002 SOT23-3
QB9 2N7002 SOT23-3
[16] DGPU_HPD_INTR#
QB10 2N7002 SOT23-3
QB2 MMBT3904_G SOT23-3
HDMI_DET_5_R
RB45 200K_1% 0402
HDMI_DET_5
[20] DHDMI_DET
RB83 0_5% 0402
RB39 10K_5% 0402

+V5S [13,17,25,26,30,32,35,38,40]
+V3.3S [9,13,14,15,16,17,18,19,25,26,27,28,29,30,32,35,36,37,38,39,40]
+V3.3S_DELAY [19,20,23,38]
+V5S_HDMI
+V3.3S_HDMI

RB51 0_5% 0603 NI
LB6 90Ohm@100MHz
RB55 0_5% 0603 NI
RB52 0_5% 0603 NI
LB5 90Ohm@100MHz
RB54 0_5% 0603 NI
RB47 0_5% 0603 NI
LB3 90Ohm@100MHz
RB48 0_5% 0603 NI
RB49 0_5% 0603 NI
LB4 90Ohm@100MHz
RB50 0_5% 0603 NI
HDMI_CLKN
HDMI_CLKP
HDMI_TX1N
HDMI_TX1P
HDMI_TX2P
HDMI_TX2N
HDMI_TX0P
HDMI_TX0N
HDMI_TX2P_L
HDMI_TX2N_L
HDMI_TX0P_L
HDMI_TX0N_L
HDMI_CEC
HDMI_DDC_CLK
HDMI_DET_5
TP1025 TP_P30
DB22 PESD24VS1UL SOD882-2
CB74 180pF_NPO_50V 0402 NI

CON15
Data2+ Data2- TMDS Data1 Shield
Data0+ Data0- TMDS Clock Shield
CEC SCL DDC/CEC Ground Hot Plug Detect PTH1
TMDS Data2 Shield Data1+ Data1-
TMDS Data0 Shield TMDS Clock+ TMDS Clock-
Reserved SDA +5V Power PTH2
HDMI_R_19P_999u_Black

HDMI_TX1P_L
HDMI_TX1N_L
HDMI_CLKP_L
HDMI_CLKN_L
HDMI_DDC_DATA

CB58 180pF_NPO_50V 0402 NI
CB57 100nF_X5R_6.3V 0402 NI
DB15 B340A-13-F_3A SOD123-2

HDMI spec:
+5V:4.7V min ,
55mA max.

[20] DHDMI_TX2P
[20] DHDMI_TX2N
CB63 0402 100nF_X5R_6.3V
CB64 0402 100nF_X5R_6.3V
[20] DHDMI_TX1P
[20] DHDMI_TX1N
CB65 0402 100nF_X5R_6.3V
CB66 0402 100nF_X5R_6.3V
[20] DHDMI_TX0P
[20] DHDMI_TX0N
CB67 0402 100nF_X5R_6.3V
CB68 0402 100nF_X5R_6.3V
[20] DHDMI_CLKP
[20] DHDMI_CLKN
CB69 0402 100nF_X5R_6.3V
CB70 0402 100nF_X5R_6.3V

RB84 499_1% 0402
RB85 499_1% 0402
RB88 499_1% 0402
RB89 499_1% 0402
RB92 499_1% 0402
RB93 499_1% 0402
RB97 499_1% 0402
RB98 499_1% 0402
CB35 22pF_NPO_50V 0402
QB63 2N7002 SOT23-3
RB100 100K_5% 0402

Discrete GPU:Not Install
UMA:Install

+V3.3S
FBB9 0_5% 0603 NI
+V3.3S_HDMI
CB52 10nF_X7R_25V 0402 NI
CB53 10nF_X7R_25V 0402 NI
CB54 100nF_X5R_6.3V 0402 NI
CB55 100nF_X5R_6.3V 0402 NI
CB51 10uF_Y5V_10V 0805 NI
CB46 100nF_X5R_6.3V 0402 NI
CB47 100nF_X5R_6.3V 0402 NI
CB50 100nF_X7R_25V 0402 NI
CB56 100nF_X5R_6.3V 0402 NI

[15] UTMDS_TX2P_C
[15] UTMDS_TX2N_C
[15] UTMDS_TX1P_C
[15] UTMDS_TX1N_C
[15] UTMDS_TX0P_C
[15] UTMDS_TX0N_C
[15] UTMDS_CLKP_C
[15] UTMDS_CLKN_C

RB53 2.2K_5% 0402 NI
HDMI_DET_5
HDMI_DDC_DATA
HDMI_DDC_CLK
OE#

UB4
GND_8 NC_4 NC_3 VDD_6 DDC_EN GND_7 HPD_SINK SCL_SINK SDA_SINK GND_6 VDD_5 OE#
GND_9 IN_D1- IN_D1+ VDD_7 IN_D2- IN_D2+ GND_10 IN_D3- IN_D3+ VDD_8 IN_D4- IN_D4+ GND_11
GND_5 OUT_D1- OUT_D1+ VDD_4 OUT_D2- OUT_D2+ GND_4 OUT_D3- OUT_D3+ VDD_3 OUT_D4- OUT_D4+
GND_1 VDD_1 NC_0 NC_1 GND_2 REXT HPD_SOURCE SDA_SOURCE SCL_SOURCE NC_2 VDD_2 GND_3
PTN3360BBS

+V3.3S
RB46 10K_5% 0402 NI
QB64 2N7002 SOT23-3 NI
HDMI_DET_5_R

UHDMI_TX2P RB56 0_5% 0402 NI HDMI_TX2P
UHDMI_TX2N RB57 0_5% 0402 NI HDMI_TX2N
UHDMI_TX1P RB58 0_5% 0402 NI HDMI_TX1P
UHDMI_TX1N RB59 0_5% 0402 NI HDMI_TX1N
UHDMI_TX0P RB60 0_5% 0402 NI HDMI_TX0P
UHDMI_TX0N RB61 0_5% 0402 NI HDMI_TX0N
UHDMI_CLKP RB62 0_5% 0402 NI HDMI_CLKP
UHDMI_CLKN RB63 0_5% 0402 NI HDMI_CLKN

[15] UHDMI_DET
RB106 100K_5% 0402 NI
RB77 10K_1% 0402 NI
RB73 2.2K_5% 0402 NI
RB71 2.2K_5% 0402 NI
[15] UTMDS_DDC_DATA
[15] UTMDS_DDC_CLK

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Title: HDMI
Size: Custom
Document Number: STAR (Federer)
Rev: 1.0
Page Modified: Thursday, March 18, 2010 17:30:49 (UTC/GMT)
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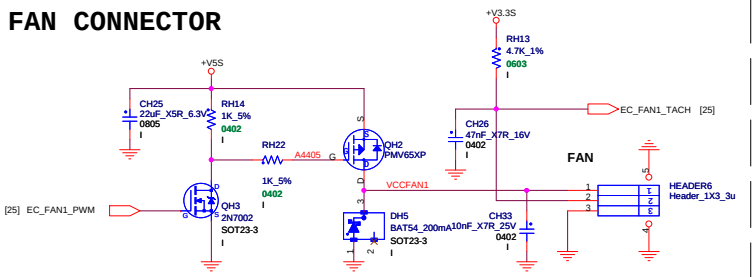
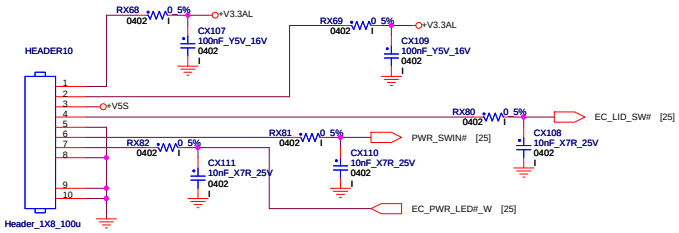
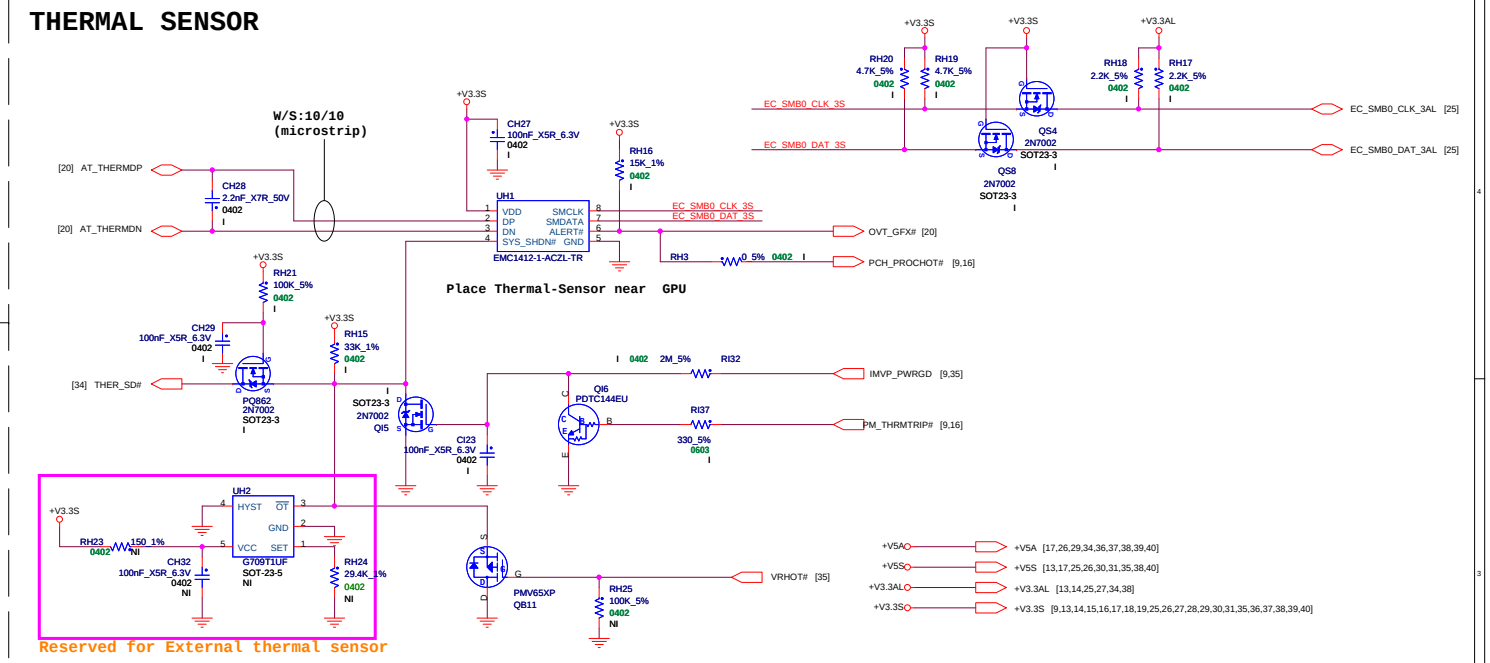
FAN CONNECTOR



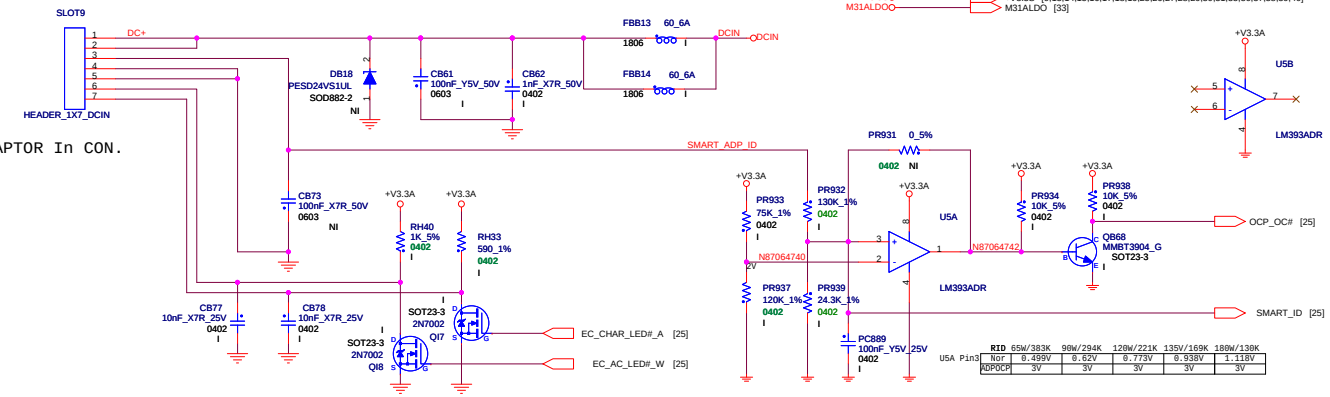
POWER BUTTON BOARD CONNECTOR

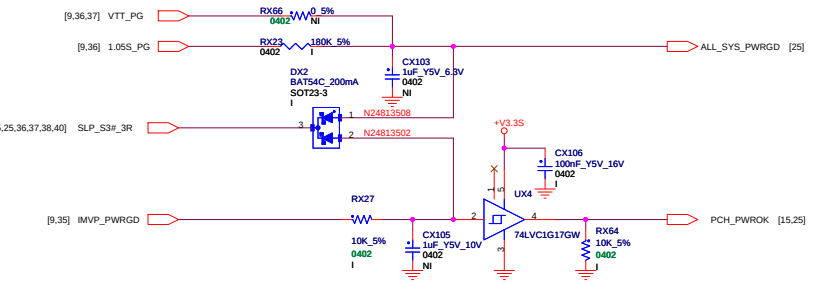


THERMAL SENSOR

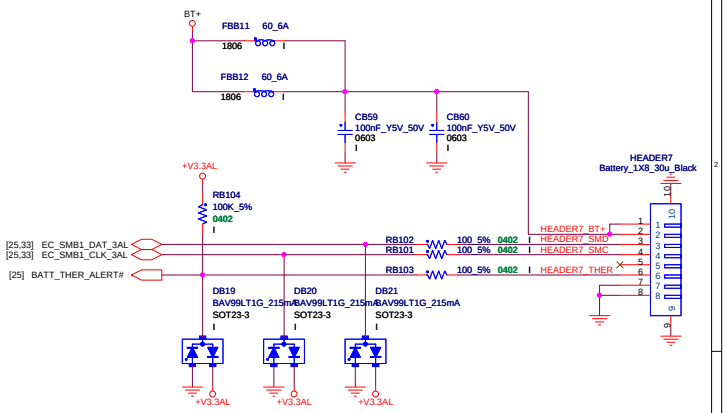


DC_JACK Wire to Board Connector





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 thermistor (103AT2 equivalent)
7	GND	Batt-, Battery Negative Terminal
8	GND	Batt-, Battery Negative Terminal

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Title: DCIN/Battery/OCP/FAN

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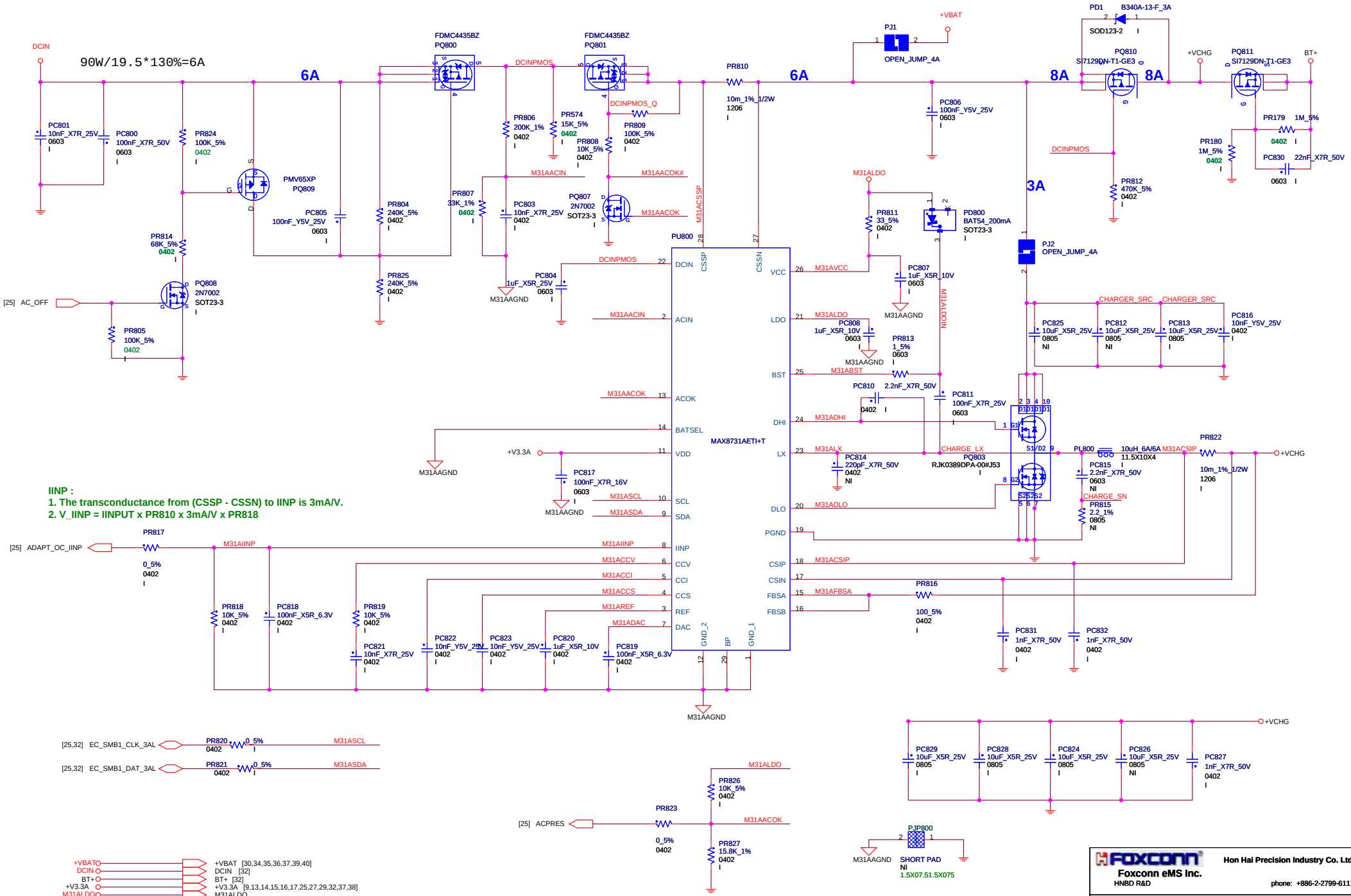
90W/19.5*130%=6A
DCIN
6A
FDMC4435BZ
PQ800
FDMC4435BZ
PQ801
DCINPMOS
DCINPMOS_Q
PR810
10m_1%_1/2W
1206
PJ1
OPEN_JUMP_4A
+VBAT
PD1
B340A-13-F_3A
SOD123-2
PQ810
SI7129DN-T1-GE3
8A
+VCHG
PQ811
SI7129DN-T1-GE3
BT+
PC801
10nF_X7R_25V
0603
PC800
100nF_X7R_50V
0603
PR824
100K_5%
0402
PMV65XP
PQ809
PR806
200K_1%
0402
PR574
15K_5%
0402
PR808
10K_5%
0402
PR809
100K_5%
0402
PC806
100nF_Y5V_25V
0603
PR179
1M_5%
0402
PR180
1M_5%
0402
PC830
22nF_X7R_50V
0603
PR812
470K_5%
0402
PC805
100nF_Y5V_25V
0603
PR804
240K_5%
0402
PR807
33K_1%
0402
PC803
10nF_X7R_25V
0402
PQ807
2N7002
SOT23-3
M31AACIN
M31AACOK#
M31AACOK
M31ACSSP
PR814
68K_5%
0402
PQ808
2N7002
SOT23-3
[25] AC_OFF
PR805
100K_5%
0402
PR825
240K_5%
0402
PC804
1uF_X5R_25V
0603
M31AAGND
PU800
MAX8731AETI+T
DCINPMOS
M31AACIN
M31AACOK
M31AIINP
M31ACCV
M31ACCI
M31ACCS
M31AREF
M31ADAC
M31ASCL
M31ASDA
M31ALDO
M31AVCC
M31ALDOIN
M31ABST
M31ADHI
M31ALX
M31ADLO
M31AFBSA
M31ACSIP
CHARGE_LX
CHARGE_SN
CHARGER_SRC
DCIN
CSSP
CSSN
VCC
ACIN
LDO
BST
ACOK
DHI
BATSEL
LX
VDD
DLO
SCL
PGND
SDA
CSIP
IINP
CSIN
CCV
FBSA
CCI
FBSB
CCS
REF
DAC
GND_2
BP
GND_1
3A
PJ2
OPEN_JUMP_4A
PD800
BAT54_200mA
SOT23-3
PR811
33_5%
0402
PC807
1uF_X5R_10V
0603
PC808
1uF_X5R_10V
0603
PR813
1_5%
0603
PC810
2.2nF_X7R_50V
0402
PC811
100nF_X7R_25V
0603
PQ803
RJK0389DPA-00#J53
PL800
10uH_6A/6A
11.5X10X4
PR822
10m_1%_1/2W
1206
PC825
10uF_X5R_25V
0805
NI
PC812
10uF_X5R_25V
0805
NI
PC813
10uF_X5R_25V
0805
PC816
10nF_Y5V_25V
0402
PR814
220pF_X7R_50V
0402
NI
PC815
2.2nF_X7R_50V
0603
NI
PR815
2.2_1%
0805
NI
PR816
100_5%
0402
PC831
1nF_X7R_50V
0402
PC832
1nF_X7R_50V
0402
+V3.3A
PC817
100nF_X7R_16V
0603
IINP :
1. The transconductance from (CSSP - CSSN) to IINP is 3mA/V.
2. V_IINP = IINPUT x PR810 x 3mA/V x PR818
[25] ADAPT_OC_IINP
PR817
0_5%
0402
PR818
10K_5%
0402
PC818
100nF_X5R_6.3V
0402
PR819
10K_5%
0402
PC821
10nF_X7R_25V
0402
PC822
10nF_Y5V_25V
0402
PC823
10nF_Y5V_25V
0402
PC820
1uF_X5R_10V
0402
PC819
100nF_X5R_6.3V
0402
[25,32] EC_SMB1_CLK_3AL
PR820
0_5%
0402
[25,32] EC_SMB1_DAT_3AL
PR821
0_5%
0402
[25] ACPRES
PR823
0_5%
0402
PR826
10K_5%
0402
PR827
15.8K_1%
0402
PC829
10uF_X5R_25V
0805
PC828
10uF_X5R_25V
0805
PC824
10uF_X5R_25V
0805
PC826
10uF_X5R_25V
0805
NI
PC827
1nF_X7R_50V
0402
PJP800
SHORT PAD
NI
1.5X07.51.5X075
+VBAT [30,34,35,36,37,39,40]
DCIN [32]
BT+ [32]
+V3.3A [9,13,14,15,16,17,25,27,29,32,37,38]
M31ALDO
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PWR_Charger
Custom
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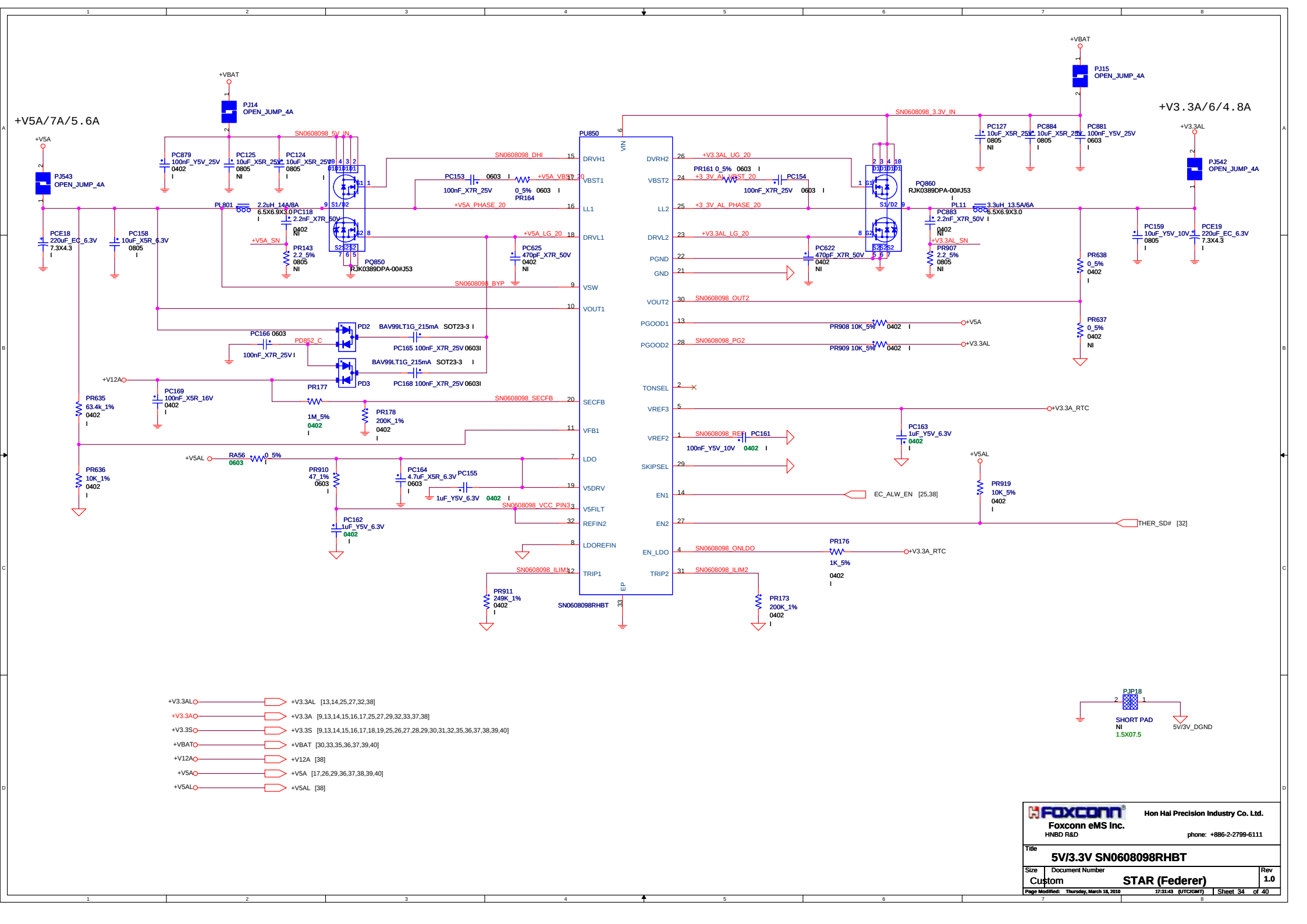
+V5A/7A/5.6A
+V3.3A/6/4.8A
+VBAT
PJ14 OPEN_JUMP_4A
PJ15 OPEN_JUMP_4A
PJ543 OPEN_JUMP_4A
PJ542 OPEN_JUMP_4A
+V5A
+V3.3AL
SN0608098_5V_IN
SN0608098_3.3V_IN
PU850
SN0608098RHBT
DRVH1
VBST1
LL1
DRVL1
VSW
VOUT1
SECFB
VFB1
LDO
V5DRV
V5FILT
REFIN2
LDOREFIN
TRIP1
VIN
EP
DRVH2
VBST2
LL2
DRVL2
PGND
GND
VOUT2
PGOOD1
PGOOD2
TONSEL
VREF3
VREF2
SKIPSEL
EN1
EN2
EN_LDO
TRIP2
SN0608098_DHI
SN0608098_BYP
SN0608098_SECFB
SN0608098_VCC_PIN3
SN0608098_ILIM1
SN0608098_ILIM2
SN0608098_OUT2
SN0608098_PG2
SN0608098_REF
SN0608098_ONLDO
+V3.3AL_UG_20
+3_3V_AL_VBST_20
+3_3V_AL_PHASE_20
+V3.3AL_LG_20
+V5A_PHASE_20
+V5A_LG_20
+V5A_SN
+V3.3AL_SN
+V5A_VBST_20
PL801 2.2uH_14A/8A 6.5X6.9X3.0
PL11 3.3uH_13.5A/6A 6.5X6.9X3.0
PQ850 RJK0389DPA-00#J53
PQ860 RJK0389DPA-00#J53
PD2 BAV99LT1G_215mA SOT23-3
PD3 BAV99LT1G_215mA SOT23-3
PD852_C
PR908 10K_5% 0402 +V5A
PR909 10K_5% 0402 +V3.3AL
PR907 2.2_5% 0805 NI
PR919 10K_5% 0402
PR176 1K_5% 0402 +V3.3A_RTC
PR911 249K_1% 0402
PR173 200K_1% 0402
PR635 63.4k_1% 0402
PR636 10K_1% 0402
PR637 0_5% 0402 NI
PR638 0_5% 0402
PR143 2.2_5% 0805 NI
PR177 1M_5% 0402
PR178 200K_1% 0402
PR910 47_1% 0603
RA56 0_5% 0603
PR161 0_5% 0603
PR164 0_5% 0603
EC_ALW_EN [25,38]
THER_SD# [32]
+V3.3A_RTC
+V5AL
+V12A
PJP18
SHORT PAD NI 1.5X07.5
5V/3V_DGND
+V3.3AL [13,14,25,27,32,38]
+V3.3A [9,13,14,15,16,17,25,27,29,32,33,37,38]
+V3.3S [9,13,14,15,16,17,18,19,25,26,27,28,29,30,31,32,35,36,37,38,39,40]
+VBAT [30,33,35,36,37,39,40]
+V12A [38]
+V5A [17,26,29,36,37,38,39,40]
+V5AL [38]
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5V/3.3V SN0608098RHBT
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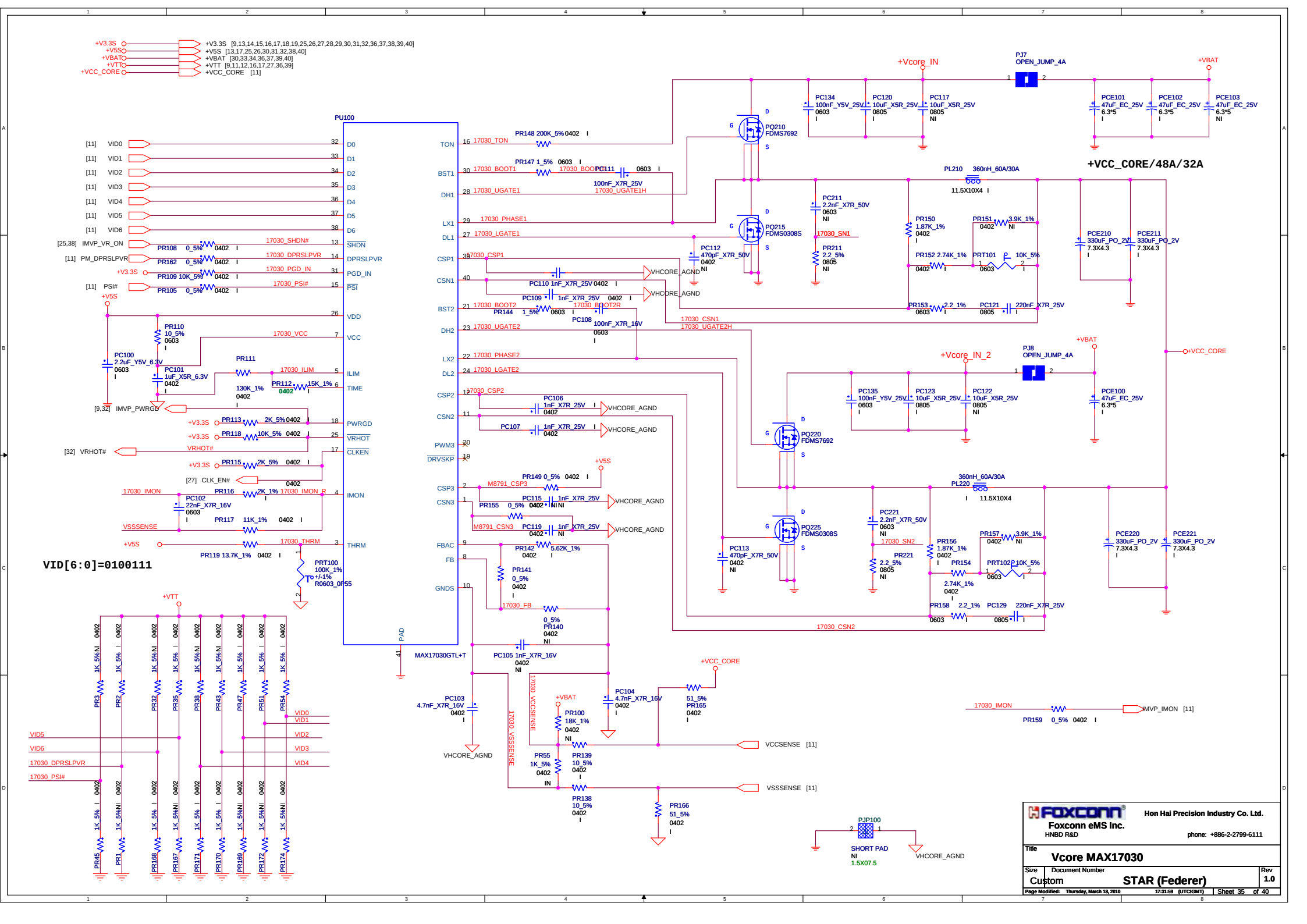
+V3.3S [9,13,14,15,16,17,18,19,25,26,27,28,29,30,31,32,36,37,38,39,40]
+V5S [13,17,25,26,30,31,32,38,40]
+VBAT [30,33,34,36,37,39,40]
+VTT [9,11,12,16,17,27,36,39]
+VCC_CORE [11]
PU100
MAX17030GTL+T
VID[6:0]=0100111
+Vcore_IN
+Vcore_IN_2
+VCC_CORE/48A/32A
+VCC_CORE
+VBAT
PJ7 OPEN_JUMP_4A
PJ8 OPEN_JUMP_4A
PJP100 SHORT PAD
PQ210 FDMS7692
PQ215 FDMS0308S
PQ220 FDMS7692
PQ225 FDMS0308S
PL210 360nH_60A/30A
PL220 360nH_60A/30A
VHCORE_AGND
VCCSENSE [11]
VSSSENSE [11]
IMVP_IMON [11]
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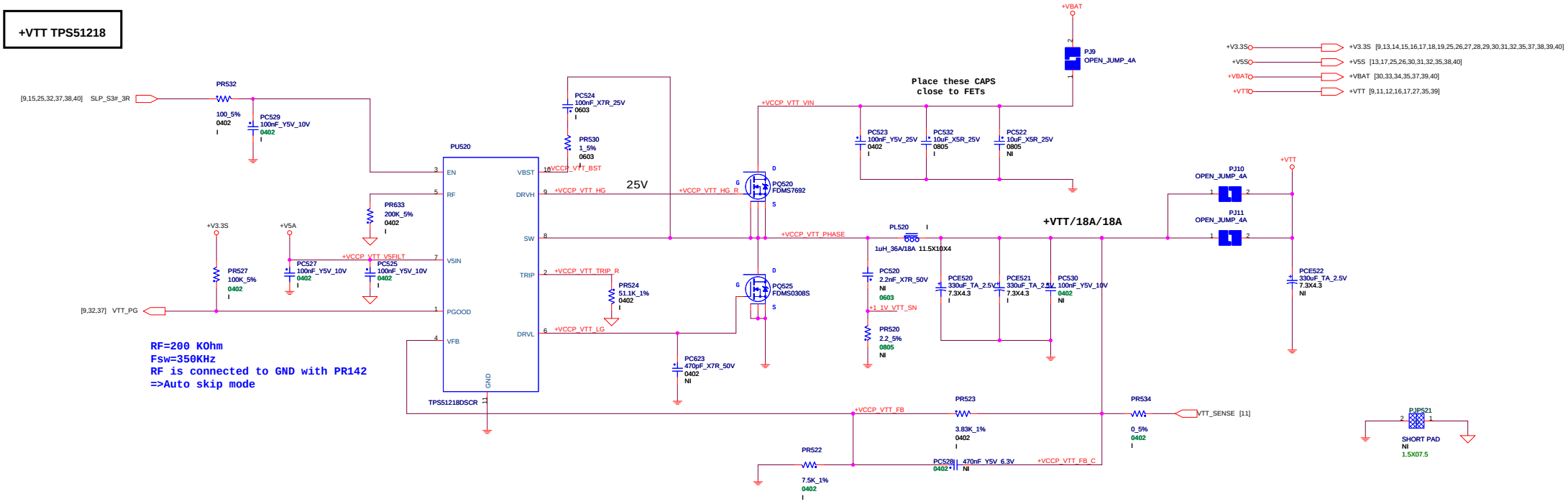
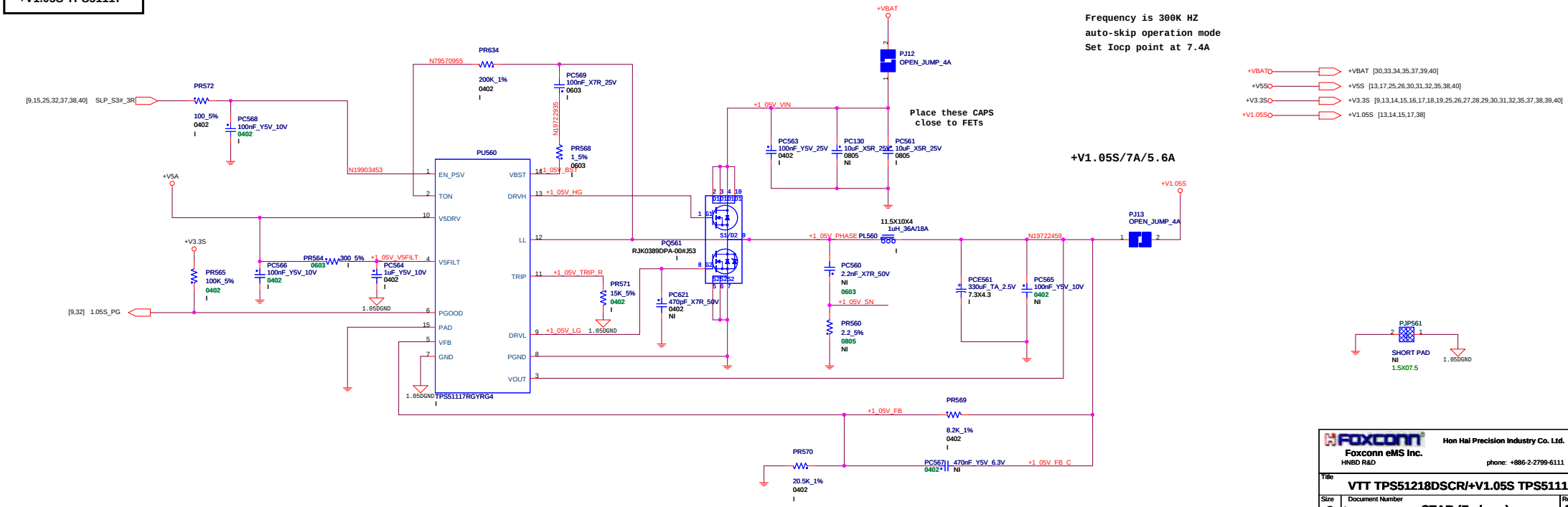
+VTT TPS51218



+V1.05S TPS51117



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Title: VTT TPS51218DSCR/+V1.05S TPS51117			
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Frequency is 400K HZ
D-CAP Mode
Set Iocp point at 12A

PR505 Fsw=400kHz
PU500
249K_1% 0402
[15,25] SLP_S4#_3R
+V5A
EN_PSV
TON
V5DRV
V5FILT
TRIP
PGOOD
PAD
VFB
GND
VBST
DRVH
LL
DRVL
PGND
VOUT
TPS51117RGYRG4
PR501 1_5% 0603
+1_5V_DUAL_BST
+1_5V_DUAL_UG_20
+1_5V_DUAL_PHASE_20
+1_5V_DUAL_DRVL_20
+1_5V_DUAL_SENSE
PR503 4.7_5% 0402
PC507 100nF_Y5V_10V 0402
PC505 1uF_Y5V_10V 0603
+V3.3A
PR801 47K_5% 0402
OCP
PR573 13K_1% 0402
PC624 470pF_X7R_50V 0402 NI
PC510 100nF_X7R_25V 0603
PQ500 RJK0389DPA-00#J53
PL500 L=1.0uH 1uH_36A/18A 11.5X10X4
PC500 2.2nF_X7R_50V NI 0603
PR500 2.2_5% 0805 NI
+1_5V_DUAL_SN
+1_5V_DUAL_VIN
PC501 2.2uF_X7R_25V 0805
PC131 10uF_X5R_25V 0805 NI
PC502 10uF_X5R_25V 0805
PJ16 OPEN_JUMP_4A
+VBAT
PC509 100nF_Y5V_25V 0402
+V1.5
PJ18 OPEN_JUMP_4A
+V1.5/10A/8A
PC513 100nF_Y5V_10V 0402 NI
PCE501 330uF_TA_2.5V 7.3X4.3
PJP501 SHORT PAD NI 1.5X07.51.5X075
DDRPGND
PR502 75K_1% 0402
PR504 75K_1% 0402
PC503 100pF_NPO_50V 0402 NI
Vout=(1+Rtop/Rbot)*0.75V
+VBAT [30,33,34,35,36,39,40]
+V5A [17,26,29,34,36,38,39,40]
+V3.3A [9,13,14,15,16,17,25,27,29,32,33,38]
+V1.5 [9,18,38]

Design Current Should be 3A

PJ550 OPEN_JUMP_4A
+VBAT
+V1.8S_VIN
PC547 10uF_X5R_25V 0805
PC554 10uF_X5R_25V 0805
PU541
VIN
VCC
BST
SW
PG
AAM
EN/SYNC
FB
GND
THM
NB634EL-C285-LF-Z
+V5_BAK3
PC552 100nF_X7R_25V 0603
PR546 10K_5% 0402
+V3.3S
+V1.8S_PG
PR540 130K_1% 0402
+V1.8S_AAM
PR541 10K_1% 0402
[9,15,25,32,36,38,40] SLP_S3#_3R
PR547 0_5% 0603
+V1.8S_EN_R
+V1.8S_BST_20
PR506 15_1% 0603
PC549 100nF_X7R_25V 0603
+V1.8S_SW_20
PL541 2.2uH_14A/8A 6.5X6.9X3.0
+V1.8S
PC548 100nF_Y5V_10V 0402 NI
PC550 22uF_X5R_6.3V 0805
PC546 22uF_X5R_6.3V 0805
+V1.8S_FB
PR543 36K_1% 0402
PR555 8.06K_1% 0402
+V1.8S_SENSE_R
PR548 10K_1% 0402
PR544 0_5% 0402
PC551 100pF_NPO_50V 0402
+V1.8S_SENSE
PJP20 SHORT PAD NI 1.5X07.51.5X075
1.8=0.8*(1+R1/R2)

+V0.75S/1A/0.8A
PU501
+V1.5
+V0.75S
PJ17 OPEN_JUMP_4A
VDDQSNS
VLDOIN
VTT
PGND
VTTSNS
VIN
S5
GND
S3
VTTREF
PAD
G2997F6U
PC504 10uF_X5R_25V 0805
PC506 10uF_X5R_6.3V 0805
PC515 10uF_X5R_6.3V 0805
+V5A
PC511 1uF_Y5V_10V 0603
PR511 0_5% 0402
SLP_S4#_3R [15,25]
PC508 100nF_X7R_25V 0603
PR566 100K_5% 0402
VTT_PG [9,32,36]
PR512 0_5% 0402 NI
SLP_S3#_3R [9,15,25,32,36,38,40]
M_VREF
PC512 100nF_X7R_25V 0603 NI
PC514 1uF_Y5V_10V 0603
M_VREF [18]
+V0.75S [18,38]

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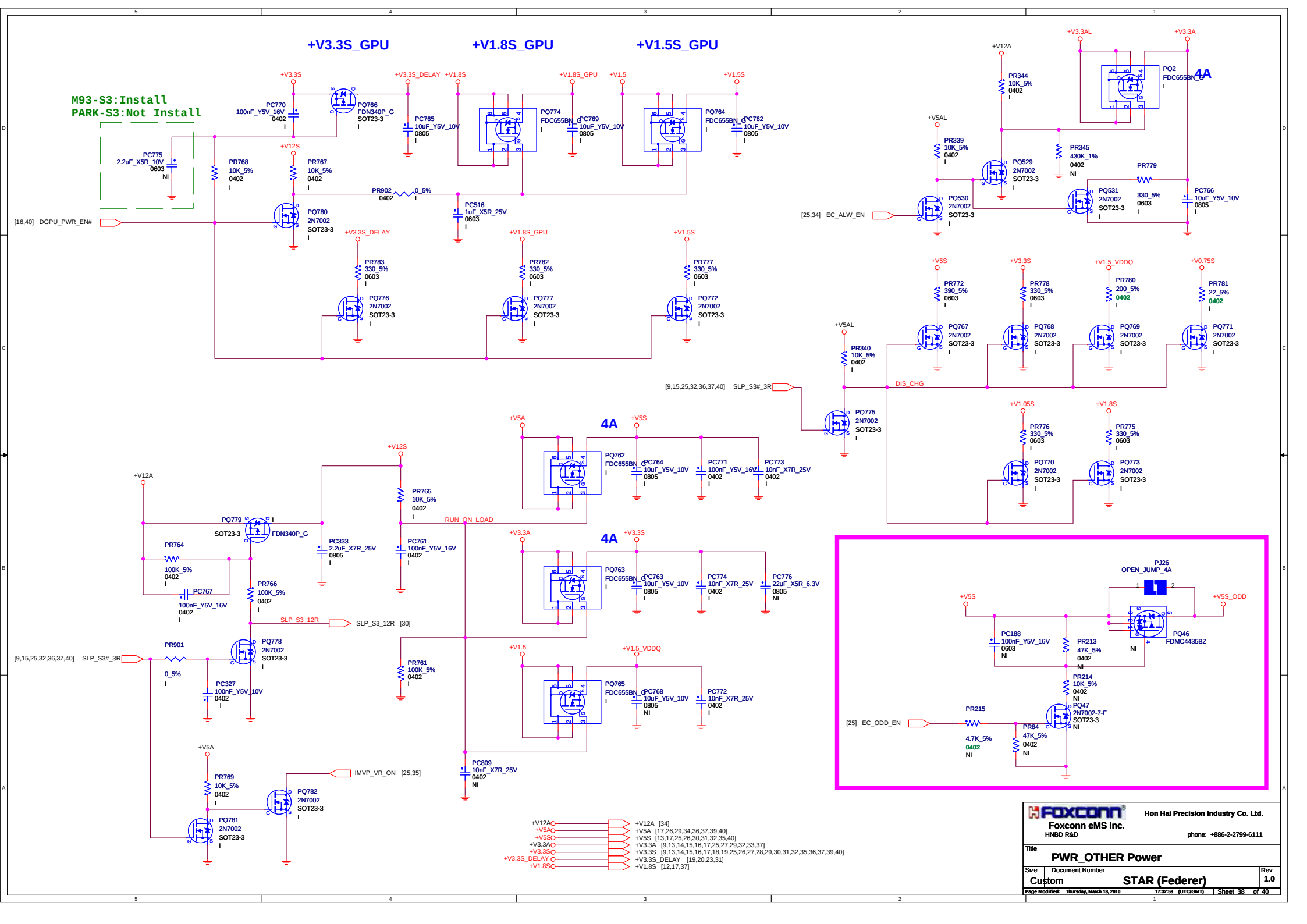
+V3.3S_GPU
+V1.8S_GPU
+V1.5S_GPU
M93-S3:Install
PARK-S3:Not Install
[16,40] DGPU_PWR_EN#
[25,34] EC_ALW_EN
[9,15,25,32,36,37,40] SLP_S3#_3R
[25] EC_ODD_EN
SLP_S3_12R [30]
IMVP_VR_ON [25,35]
RUN_ON_LOAD
DIS_CHG
4A
PJ26
OPEN_JUMP_4A
+V12A [34]
+V5A [17,26,29,34,36,37,39,40]
+V5S [13,17,25,26,30,31,32,35,40]
+V3.3A [9,13,14,15,16,17,25,27,29,32,33,37]
+V3.3S [9,13,14,15,16,17,18,19,25,26,27,28,29,30,31,32,35,36,37,39,40]
+V3.3S_DELAY [19,20,23,31]
+V1.8S [12,17,37]
Foxconn
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HNBD R&D
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PWR_OTHER Power
Custom
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17:32:59 (UTC/GMT)
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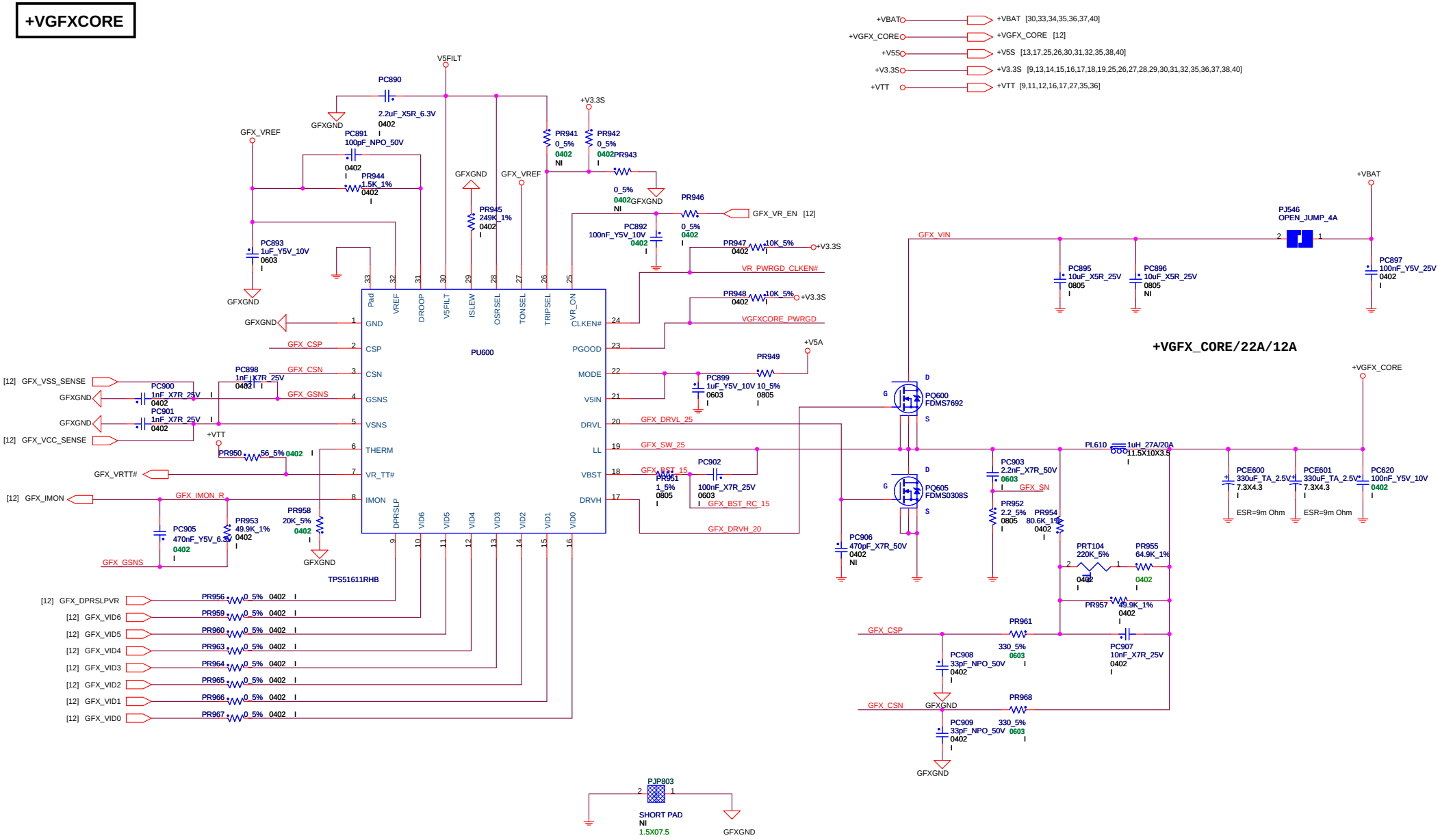
+VGFXCORE



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Title	CPU VREG & Decoupling
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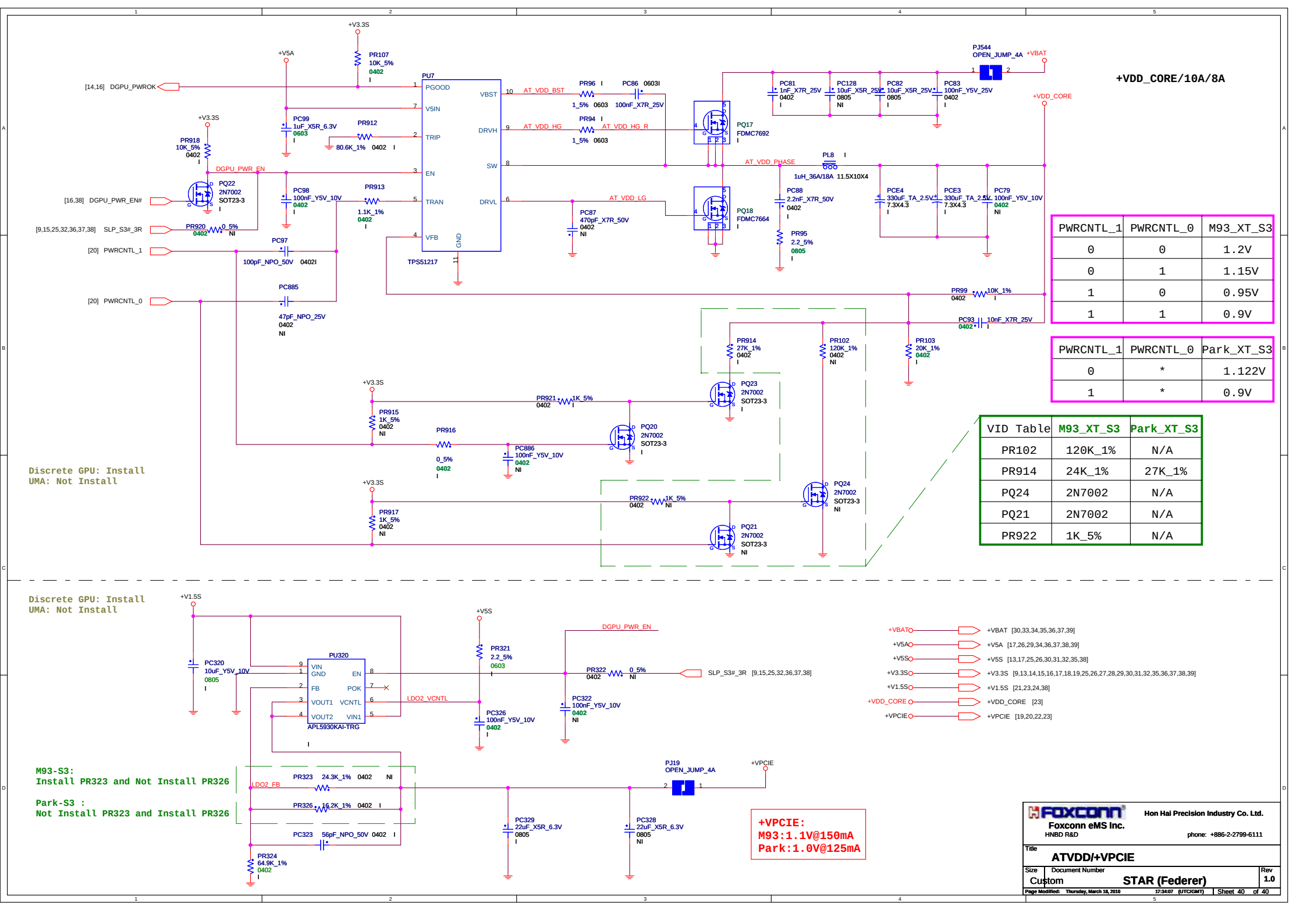
Rev: 1.0	
Page Modified: Thursday, March 18, 2010 17:34:07 (UTC/GMT)	Sheet 39 of 40



PWRCNTL_1	PWRCNTL_0	M93_XT_S3
0	0	1.2V
0	1	1.15V
1	0	0.95V
1	1	0.9V

PWRCNTL_1	PWRCNTL_0	Park_XT_S3
0	*	1.122V
1	*	0.9V

VID Table	M93_XT_S3	Park_XT_S3
PR102	120K_1%	N/A
PR914	24K_1%	27K_1%
PQ24	2N7002	N/A
PQ21	2N7002	N/A
PR922	1K_5%	N/A