

LCFC Confidential

330 CFL-H +N17P MB Schematics Document

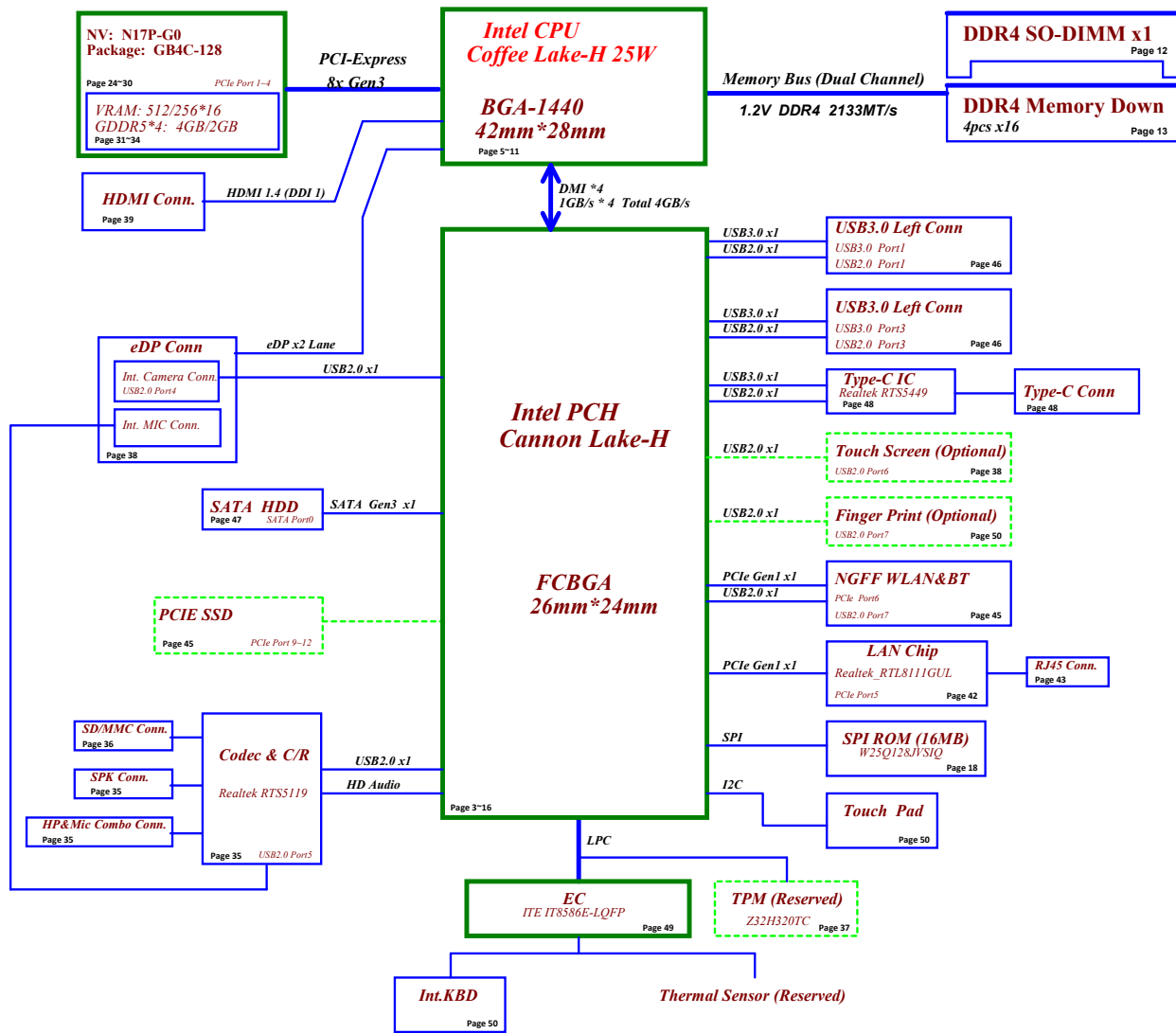
Coffee Lake-H with DDR4 + Nvidia N17P-G0

2018-03-20

REV: 1.0

Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/08/20	Deciphered Date	2016/08/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED IN OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			Cover Page
Size	Document Number	Rev	
Custom	EG530	1.0	
Date	Thursday, March 29, 2018	Sheet	1 of 68

<https://vk.com/servicenotebook>



Security Classification		LC Future Center Secret Data		Title	
Issued Date		2015/08/20		Deciphered Date	
				2016/08/20	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED FROM THE CATEGORY OF THE COMPETITOR DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				Block Diagram	
Size		Document Number		Rev	
Custom		EG530		1.0	
Date		Thursday, March 29, 2018		Sheet	
				2 of 68	

<https://vk.com/servicenotebook>

Voltage Rails (O --> Means ON , X --> Means OFF)

Power Plane	State	V20B+	+3VALW +5VALW +3VALW_PCH +1.8VALW +1.0VALW	+1.2V +2.5V_DDR +VCCST	+5VS +3VS +VCCIO +VCCSTG +VCCSA +VCC_GT +CPU_CORE +0.6VS
S0		O	O	O	O
S3		O	O	O	X
S3 Battery only		O	O	O	X
S5 S4 AC Only		O	O	X	X
S5 S4 Battery only		O	X	X	X
S5 S4 AC & Battery don't exist		X	X	X	X

SMBUS Control Table

	SOURCE	BATT	Charger	DGPU	IT8586B	Memory Down	PCH	PMIC	SODIMM	Thermal Sensor	WLAN WINAX
EC_SMB_CK1	IT8586B	V	V	X	V	X	X	X	X	X	X
EC_SMB_DA1	+3VL_EC				+3VL_EC						
EC_SMB_CK2	IT8586B	X	X	V	V	X	V	X	X	V	X
EC_SMB_DA2	+3VS			+3VG_AON	+3VS		+3VALW_PCH				
EC_SMB_CK3	IT8586B	X	X	X	V	X	X	V	X	X	X
EC_SMB_DA3	+3VL_EC				+3VL_EC						
PCH_SMB_CLK	PCH	X	X	X	X	X	V	X	V	X	V
PCH_SMB_DATA	+3VALW_PCH						+3VALW_PCH				

EC SMBus1 address EC SMBus2 address EC SMBus3 address PCH SM Bus address

Device	Address	Device	Address	Device	Address	Device	Address
Smart Battery	need to update	Thermal Sensor(NCT7718W)	1001_100xb	PMIC	need to update	DDR4 SODIMM	need to update
Charger	0001 0010 b	PCH	need to update	Wlan	Reserved		
		DGPU	need to update				

STATE	SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON		HIGH	HIGH	HIGH	ON	ON	ON	ON
S3 (Suspend to RAM)		LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)		LOW	LOW	LOW	ON	OFF	OFF	OFF
S5 (Soft OFF)		LOW	LOW	LOW	ON	OFF	OFF	OFF

HSIO PORT	Function
USB3.0	1 USB3.0 Conn Left 2 USB Type-C 3 USB3.0 Conn Left 4 NC 5 NC 6 NC
USB2.0	1 USB3.0 Conn Left 2 USB Type-C 3 USB3.0 Conn Left 4 Finger Print 5 Cardreader 6 Touch Panel 7 Bluetooth 8 Camera 9 NC 10 NC
PCIE	1-4 DGPU 4 PCIE 5 LAN 6 WLAN 7 SATA HDD 8 SATA ODD 9-12 Optane Memory 14 PCIE
SATA	0 HDD 1A ODD 1B used as PCIE 2 used as PCIE

BOM Structure	BTO Item
@	Not stuff
14@	For 14" part
15@	For 15" part
17@	For 17" part
15or17@	For 15" or 17" part
Cannonlake@	For Cannonlake part
CD@	For C cost down
DUALMIC@	For Dual MIC part
EMC@	For EMC part
EMC_15@	For EMC 15" part
EMC_NS@	For EMC nu-stuff part
EMC_PX@	For EMC PX part
EMC_PXNS@	For EMC PX nu-stuff part
ES@	For ES CPU
EKO@	For EKO GPU
ME@	For ME part
TS@	For touch screen part
TS_NS@	For nu-touch part
DIS@	For GPU part
OPT@	For NV GPU part
PX@	For AMD GPU part
RANKA@	For VRAM rank A part
RANKB@	For VRAM rank B part
Realtek SD@	For Realtek SD part
SINGLERMIC@	For single MIC part
SINGLERANK@	For single VRAM rank part
DUALRANK@	For dual VRAM rank part
TPM@	For TPM part
UMA@	For UMA part

Security Classification

LC Future Center Secret Data

Issued Date

2015/08/20

Deciphered Date

2016/08/20

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Notes List

Rev

1.0

EC530

Thursday, March 28, 2018

Sheet

3

of

88

https://vk.com/servicenotebook

The diagram illustrates the connection of various components to the EC_SMB bus, which is divided into two main sections: EC (IT8226) and PCH.

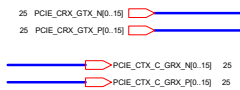
EC (IT8226) Section:

- RTS5400:** Connected to the EC_SMB_CK0/EC_SMB_DAO bus. It is powered by +3V_LDO_RTS5400 through a 2.2K resistor. It has a bidirectional connection to the RTS5400_SM_SCL and RTS5400_SM_SDA lines, which are controlled by +3V_ALW through a 2.2K resistor.
- Dual MOS:** Connected to the EC_SMB_CK0/EC_SMB_DAO bus.
- Battery JBATT2:** Connected to the EC_SMB_CK1/EC_SMB_DAI bus.
- Change IC PU102 BQ24780SRUYR:** Connected to the EC_SMB_CK1/EC_SMB_DAI bus.
- NV GPU(UVI):** Connected to the EC_SMB_CK2/EC_SMB_DAZ bus. It is powered by +3VS_AON through a 2.2K resistor. It has a bidirectional connection to the VGA_SMB_CK2 and VGA_SMB_DAZ lines, which are controlled by +3VS_AON through a 2.2K resistor.
- PCH(UH1):** Connected to the EC_SMB_CK2/EC_SMB_DAZ bus. It is powered by +3VALW_PCH through a 2.2K resistor. It has a bidirectional connection to the SML1CLK and SML1DATA lines, which are controlled by +3VS through a 2.2K resistor.
- Dual MOS:** Connected to the EC_SMB_CK2/EC_SMB_DAZ bus.
- Thermal sensor U1 F75303M:** Connected to the EC_SMB_CK2/EC_SMB_DAZ bus.

PCH Section:

- DDR1, DDR2, WLAN, TP:** These components are connected to the PCH_SMBCLK/PCH_SMBDATA bus. They are powered by +3VS through 2.2K resistors. The PCH_SMBCLK/PCH_SMBDATA bus is controlled by +3VALW_PCH through a 2.2K resistor.
- Dual MOS:** Connected to the PCH_SMBCLK/PCH_SMBDATA bus.

<https://vk.com/servicenotebook>




CAD Note:
Place R_comp inside CPU cavity
Trace width=12 mils, Spacing=15mil
Max length= 400 mils.

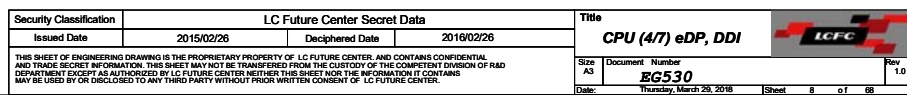
UC1C									
POE_CTX_GTX_P15	E25	PEG_TXP_0	PEG_TXP_0	B25	POE_CTX_GTX_P15	OPTB	CC32	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N15	E25	PEG_RXN_0	PEG_TAN_0	A25	POE_CTX_GTX_N15	OPTB	CC19	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P14	E24	PEG_TXP_1	PEG_TAN_1	B24	POE_CTX_GTX_P14	OPTB	CC31	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N14	E24	PEG_RXN_1	PEG_TAN_1	A24	POE_CTX_GTX_N14	OPTB	CC19	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P13	E23	PEG_TXP_2	PEG_TAN_2	B23	POE_CTX_GTX_P13	OPTB	CC30	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N13	E23	PEG_RXN_2	PEG_TAN_2	A23	POE_CTX_GTX_N13	OPTB	CC14	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P12	E22	PEG_TXP_3	PEG_TAN_3	B22	POE_CTX_GTX_P12	OPTB	CC29	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N12	E22	PEG_RXN_3	PEG_TAN_3	A22	POE_CTX_GTX_N12	OPTB	CC19	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P11	E21	PEG_TXP_4	PEG_TAN_4	B21	POE_CTX_GTX_P11	OPTB	CC28	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N11	E21	PEG_RXN_4	PEG_TAN_4	A21	POE_CTX_GTX_N11	OPTB	CC12	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P10	E20	PEG_TXP_5	PEG_TAN_5	B20	POE_CTX_GTX_P10	OPTB	CC27	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N10	E20	PEG_RXN_5	PEG_TAN_5	A20	POE_CTX_GTX_N10	OPTB	CC11	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P9	E19	PEG_TXP_6	PEG_TAN_6	B19	POE_CTX_GTX_P9	OPTB	CC26	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N9	E19	PEG_RXN_6	PEG_TAN_6	A19	POE_CTX_GTX_N9	OPTB	CC10	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P8	E18	PEG_TXP_7	PEG_TAN_7	B18	POE_CTX_GTX_P8	OPTB	CC25	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N8	E18	PEG_RXN_7	PEG_TAN_7	A18	POE_CTX_GTX_N8	OPTB	CC9	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P7	E17	PEG_TXP_8	PEG_TAN_8	B17	POE_CTX_GTX_P7	OPTB	CC24	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N7	E17	PEG_RXN_8	PEG_TAN_8	A17	POE_CTX_GTX_N7	OPTB	CC8	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P6	E16	PEG_TXP_9	PEG_TAN_9	B16	POE_CTX_GTX_P6	OPTB	CC23	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N6	E16	PEG_RXN_9	PEG_TAN_9	A16	POE_CTX_GTX_N6	OPTB	CC7	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P5	E15	PEG_TXP_10	PEG_TAN_10	B15	POE_CTX_GTX_P5	OPTB	CC22	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N5	E15	PEG_RXN_10	PEG_TAN_10	A15	POE_CTX_GTX_N5	OPTB	CC6	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P4	E14	PEG_TXP_11	PEG_TAN_11	B14	POE_CTX_GTX_P4	OPTB	CC21	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N4	E14	PEG_RXN_11	PEG_TAN_11	A14	POE_CTX_GTX_N4	OPTB	CC5	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P3	E13	PEG_TXP_12	PEG_TAN_12	B13	POE_CTX_GTX_P3	OPTB	CC20	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N3	E13	PEG_RXN_12	PEG_TAN_12	A13	POE_CTX_GTX_N3	OPTB	CC4	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P2	E12	PEG_TXP_13	PEG_TAN_13	B12	POE_CTX_GTX_P2	OPTB	CC19	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N2	E12	PEG_RXN_13	PEG_TAN_13	A12	POE_CTX_GTX_N2	OPTB	CC3	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P1	E11	PEG_TXP_14	PEG_TAN_14	B11	POE_CTX_GTX_P1	OPTB	CC18	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N1	E11	PEG_RXN_14	PEG_TAN_14	A11	POE_CTX_GTX_N1	OPTB	CC2	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_P0	E10	PEG_TXP_15	PEG_TAN_15	B10	POE_CTX_GTX_P0	OPTB	CC17	1	2 0.220 0001 6.3V5K
POE_CTX_GTX_N0	E10	PEG_RXN_15	PEG_TAN_15	A10	POE_CTX_GTX_N0	OPTB	CC1	1	2 0.220 0001 6.3V5K



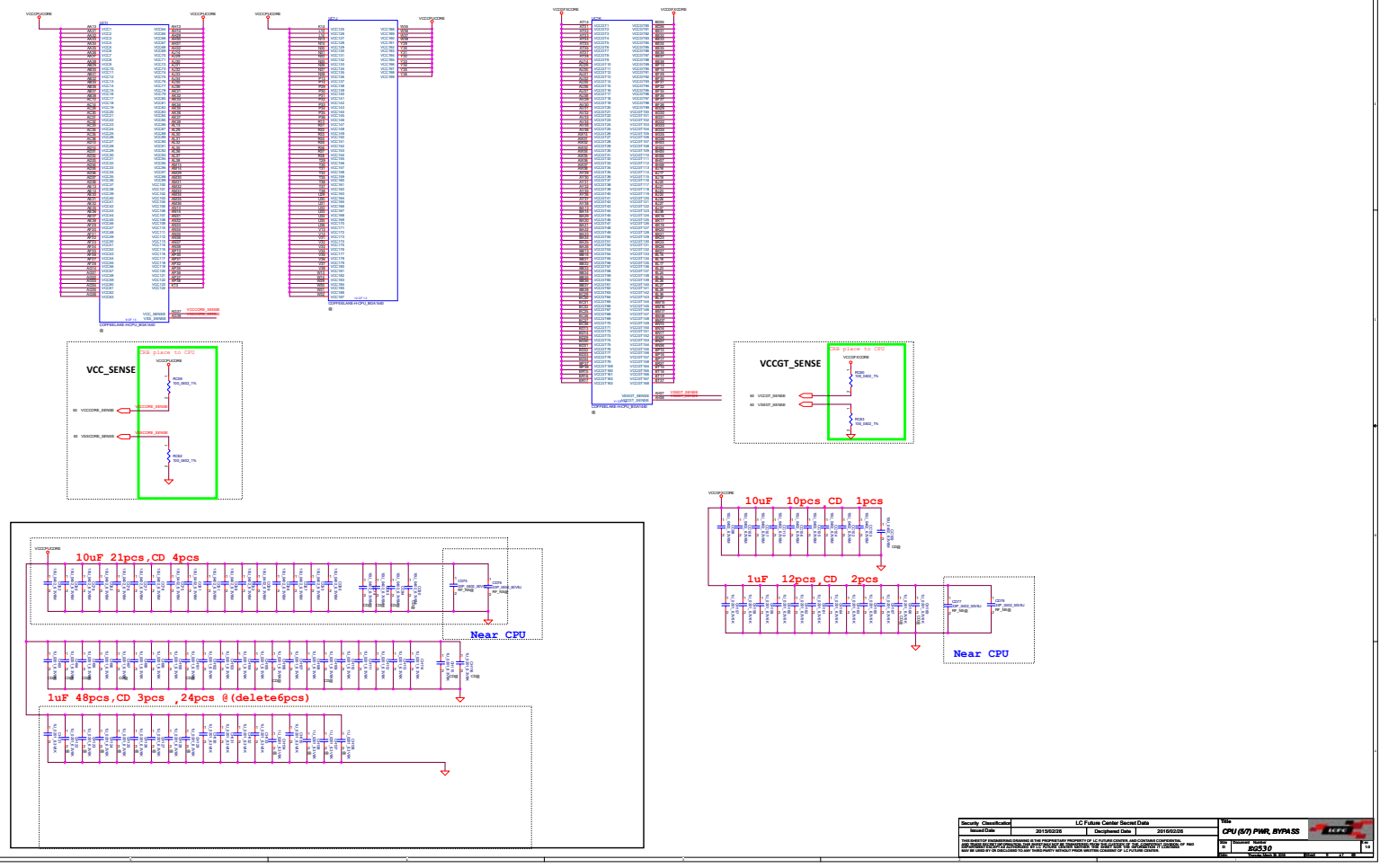
19 DMI_CTX_PTX_P0	D8	DMI_RXP_0	DMI_TXP_0	B8	DMI_CTX_PTX_P0	DMI_CTX_PTX_P0	19
19 DMI_CTX_PTX_N0	D8	DMI_RXN_0	DMI_TAN_0	A8	DMI_CTX_PTX_N0	DMI_CTX_PTX_N0	19
19 DMI_CTX_PTX_P1	D9	DMI_RXP_1	DMI_TXP_1	C9	DMI_CTX_PTX_P1	DMI_CTX_PTX_P1	19
19 DMI_CTX_PTX_N1	D9	DMI_RXN_1	DMI_TAN_1	B9	DMI_CTX_PTX_N1	DMI_CTX_PTX_N1	19
19 DMI_CTX_PTX_P2	D5	DMI_RXP_2	DMI_TXP_2	B5	DMI_CTX_PTX_P2	DMI_CTX_PTX_P2	19
19 DMI_CTX_PTX_N2	D5	DMI_RXN_2	DMI_TAN_2	A5	DMI_CTX_PTX_N2	DMI_CTX_PTX_N2	19
19 DMI_CTX_PTX_P3	D6	DMI_RXP_3	DMI_TXP_3	D4	DMI_CTX_PTX_P3	DMI_CTX_PTX_P3	19
19 DMI_CTX_PTX_N3	D6	DMI_RXN_3	DMI_TAN_3	B4	DMI_CTX_PTX_N3	DMI_CTX_PTX_N3	19

Security Classification		LC Future Center Secret Data		Title				
Issued Date	2015/02/26	Deciphered Date	2016/02/26	CPU (1/7) DMI,PEG				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED IN OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.						Size	Rev	
						Doc Number	1.0	
						EG530		
						Date	Thursday, March 29, 2018	Sheet

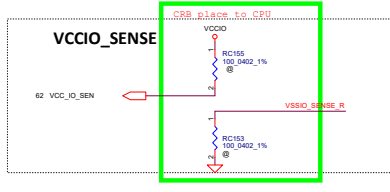
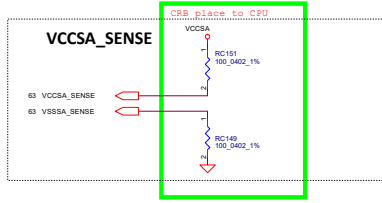
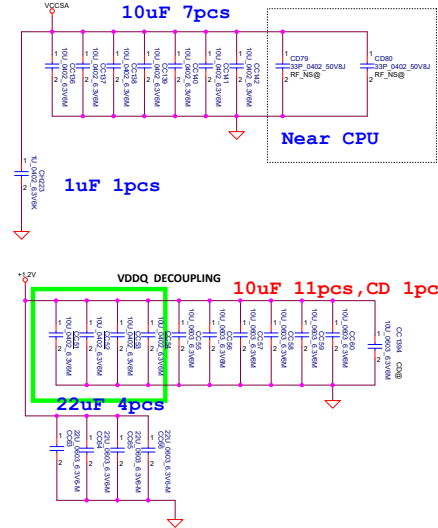
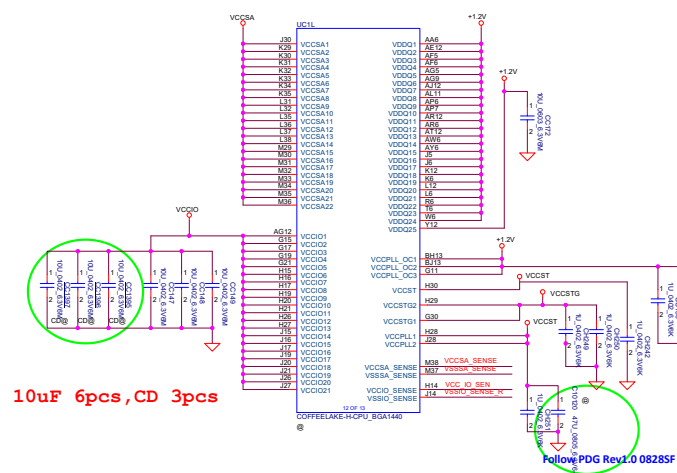
<https://vk.com/servicenotebook>



<https://vk.com/servicenotebook>



<https://vk.com/servicenotebook>



Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	CPU (67) PWR, BYPASS	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.					
Rev	C	Document Number	EC530		Rev
Date		Tuesday, March 24, 2015		Sheet	10 of 88

<https://vk.com/servicenotebook>

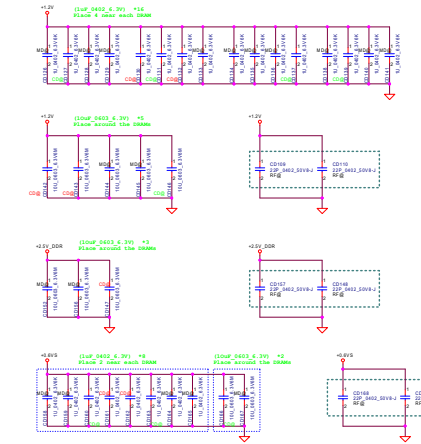
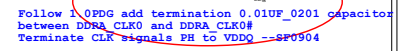
LCFC		
AVS-1	VSS-82	AVS-82
AVS-2	VSS-83	AVS-83
AVS-3	VSS-84	AVS-84
AVS-4	VSS-85	AVS-85
AVS-5	VSS-86	AVS-86
AVS-6	VSS-87	AVS-87
AVS-7	VSS-88	AVS-88
AVS-8	VSS-89	AVS-89
AVS-9	VSS-90	AVS-90
AVS-10	VSS-91	AVS-91
AVS-11	VSS-92	AVS-92
AVS-12	VSS-93	AVS-93
AVS-13	VSS-94	AVS-94
AVS-14	VSS-95	AVS-95
AVS-15	VSS-96	AVS-96
AVS-16	VSS-97	AVS-97
AVS-17	VSS-98	AVS-98
AVS-18	VSS-99	AVS-99
AVS-19	VSS-100	AVS-100
AVS-20	VSS-101	AVS-101
AVS-21	VSS-102	AVS-102
AVS-22	VSS-103	AVS-103
AVS-23	VSS-104	AVS-104
AVS-24	VSS-105	AVS-105
AVS-25	VSS-106	AVS-106
AVS-26	VSS-107	AVS-107
AVS-27	VSS-108	AVS-108
AVS-28	VSS-109	AVS-109
AVS-29	VSS-110	AVS-110
AVS-30	VSS-111	AVS-111
AVS-31	VSS-112	AVS-112
AVS-32	VSS-113	AVS-113
AVS-33	VSS-114	AVS-114
AVS-34	VSS-115	AVS-115
AVS-35	VSS-116	AVS-116
AVS-36	VSS-117	AVS-117
AVS-37	VSS-118	AVS-118
AVS-38	VSS-119	AVS-119
AVS-39	VSS-120	AVS-120
AVS-40	VSS-121	AVS-121
AVS-41	VSS-122	AVS-122
AVS-42	VSS-123	AVS-123
AVS-43	VSS-124	AVS-124
AVS-44	VSS-125	AVS-125
AVS-45	VSS-126	AVS-126
AVS-46	VSS-127	AVS-127
AVS-47	VSS-128	AVS-128
AVS-48	VSS-129	AVS-129
AVS-49	VSS-130	AVS-130
AVS-50	VSS-131	AVS-131
AVS-51	VSS-132	AVS-132
AVS-52	VSS-133	AVS-133
AVS-53	VSS-134	AVS-134
AVS-54	VSS-135	AVS-135
AVS-55	VSS-136	AVS-136
AVS-56	VSS-137	AVS-137
AVS-57	VSS-138	AVS-138
AVS-58	VSS-139	AVS-139
AVS-59	VSS-140	AVS-140
AVS-60	VSS-141	AVS-141
AVS-61	VSS-142	AVS-142
AVS-62	VSS-143	AVS-143
AVS-63	VSS-144	AVS-144
AVS-64	VSS-145	AVS-145
AVS-65	VSS-146	AVS-146
AVS-66	VSS-147	AVS-147
AVS-67	VSS-148	AVS-148
AVS-68	VSS-149	AVS-149
AVS-69	VSS-150	AVS-150
AVS-70	VSS-151	AVS-151
AVS-71	VSS-152	AVS-152
AVS-72	VSS-153	AVS-153
AVS-73	VSS-154	AVS-154
AVS-74	VSS-155	AVS-155
AVS-75	VSS-156	AVS-156
AVS-76	VSS-157	AVS-157
AVS-77	VSS-158	AVS-158
AVS-78	VSS-159	AVS-159
AVS-79	VSS-160	AVS-160
AVS-80	VSS-161	AVS-161
AVS-81	VSS-162	AVS-162

COFFEE LAKE-H-CPU_BGA1440


LCFC		
AVS-163	VSS-244	AVS-163
AVS-164	VSS-245	AVS-164
AVS-165	VSS-246	AVS-165
AVS-166	VSS-247	AVS-166
AVS-167	VSS-248	AVS-167
AVS-168	VSS-249	AVS-168
AVS-169	VSS-250	AVS-169
AVS-170	VSS-251	AVS-170
AVS-171	VSS-252	AVS-171
AVS-172	VSS-253	AVS-172
AVS-173	VSS-254	AVS-173
AVS-174	VSS-255	AVS-174
AVS-175	VSS-256	AVS-175
AVS-176	VSS-257	AVS-176
AVS-177	VSS-258	AVS-177
AVS-178	VSS-259	AVS-178
AVS-179	VSS-260	AVS-179
AVS-180	VSS-261	AVS-180
AVS-181	VSS-262	AVS-181
AVS-182	VSS-263	AVS-182
AVS-183	VSS-264	AVS-183
AVS-184	VSS-265	AVS-184
AVS-185	VSS-266	AVS-185
AVS-186	VSS-267	AVS-186
AVS-187	VSS-268	AVS-187
AVS-188	VSS-269	AVS-188
AVS-189	VSS-270	AVS-189
AVS-190	VSS-271	AVS-190
AVS-191	VSS-272	AVS-191
AVS-192	VSS-273	AVS-192
AVS-193	VSS-274	AVS-193
AVS-194	VSS-275	AVS-194
AVS-195	VSS-276	AVS-195
AVS-196	VSS-277	AVS-196
AVS-197	VSS-278	AVS-197
AVS-198	VSS-279	AVS-198
AVS-199	VSS-280	AVS-199
AVS-200	VSS-281	AVS-200
AVS-201	VSS-282	AVS-201
AVS-202	VSS-283	AVS-202
AVS-203	VSS-284	AVS-203
AVS-204	VSS-285	AVS-204
AVS-205	VSS-286	AVS-205
AVS-206	VSS-287	AVS-206
AVS-207	VSS-288	AVS-207
AVS-208	VSS-289	AVS-208
AVS-209	VSS-290	AVS-209
AVS-210	VSS-291	AVS-210
AVS-211	VSS-292	AVS-211
AVS-212	VSS-293	AVS-212
AVS-213	VSS-294	AVS-213
AVS-214	VSS-295	AVS-214
AVS-215	VSS-296	AVS-215
AVS-216	VSS-297	AVS-216
AVS-217	VSS-298	AVS-217
AVS-218	VSS-299	AVS-218
AVS-219	VSS-300	AVS-219
AVS-220	VSS-301	AVS-220
AVS-221	VSS-302	AVS-221
AVS-222	VSS-303	AVS-222
AVS-223	VSS-304	AVS-223
AVS-224	VSS-305	AVS-224
AVS-225	VSS-306	AVS-225
AVS-226	VSS-307	AVS-226
AVS-227	VSS-308	AVS-227
AVS-228	VSS-309	AVS-228
AVS-229	VSS-310	AVS-229
AVS-230	VSS-311	AVS-230
AVS-231	VSS-312	AVS-231
AVS-232	VSS-313	AVS-232
AVS-233	VSS-314	AVS-233
AVS-234	VSS-315	AVS-234
AVS-235	VSS-316	AVS-235
AVS-236	VSS-317	AVS-236
AVS-237	VSS-318	AVS-237
AVS-238	VSS-319	AVS-238
AVS-239	VSS-320	AVS-239
AVS-240	VSS-321	AVS-240
AVS-241	VSS-322	AVS-241
AVS-242	VSS-323	AVS-242
AVS-243	VSS-324	AVS-243

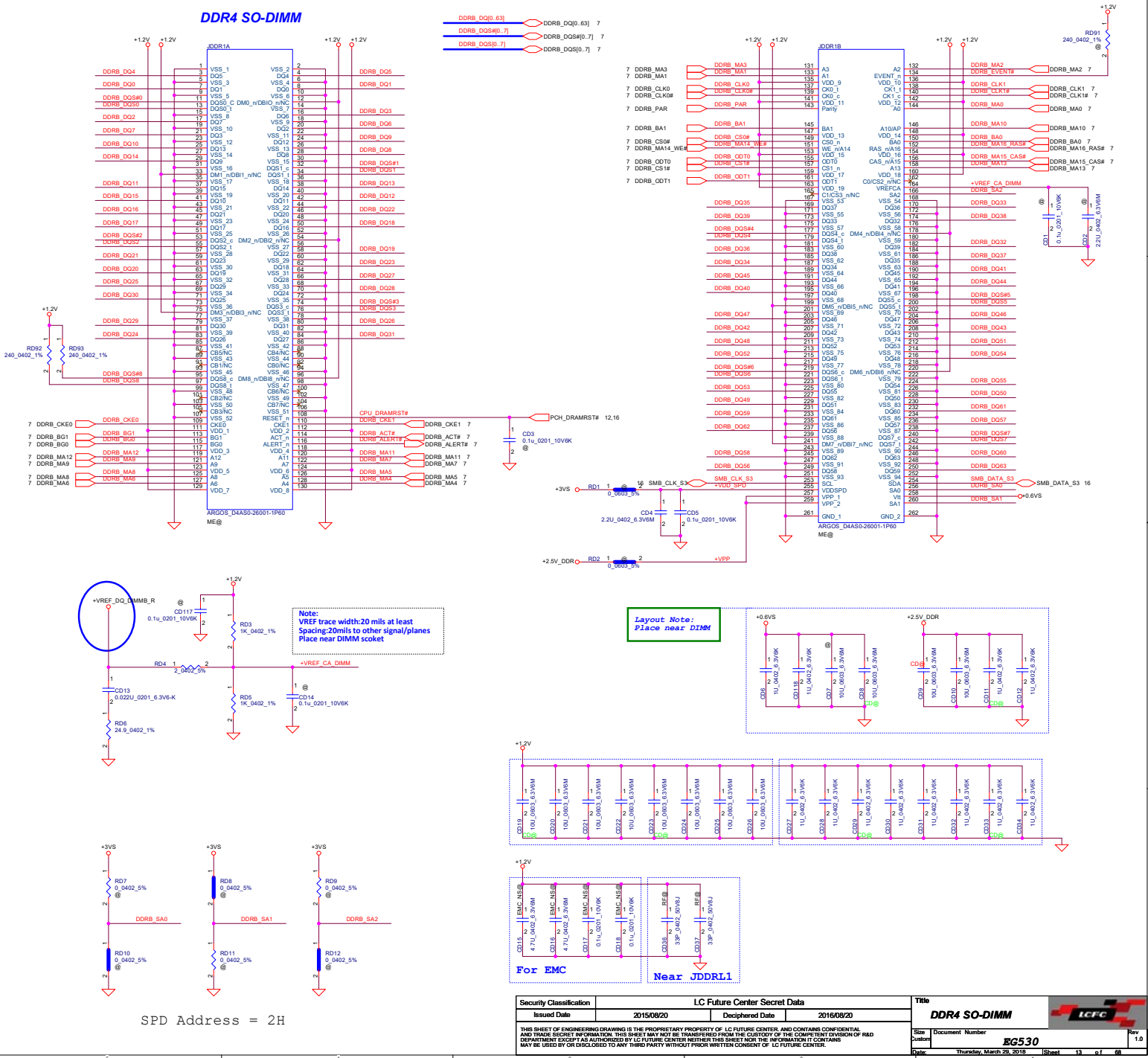
COFFEE LAKE-H-CPU_BGA1440

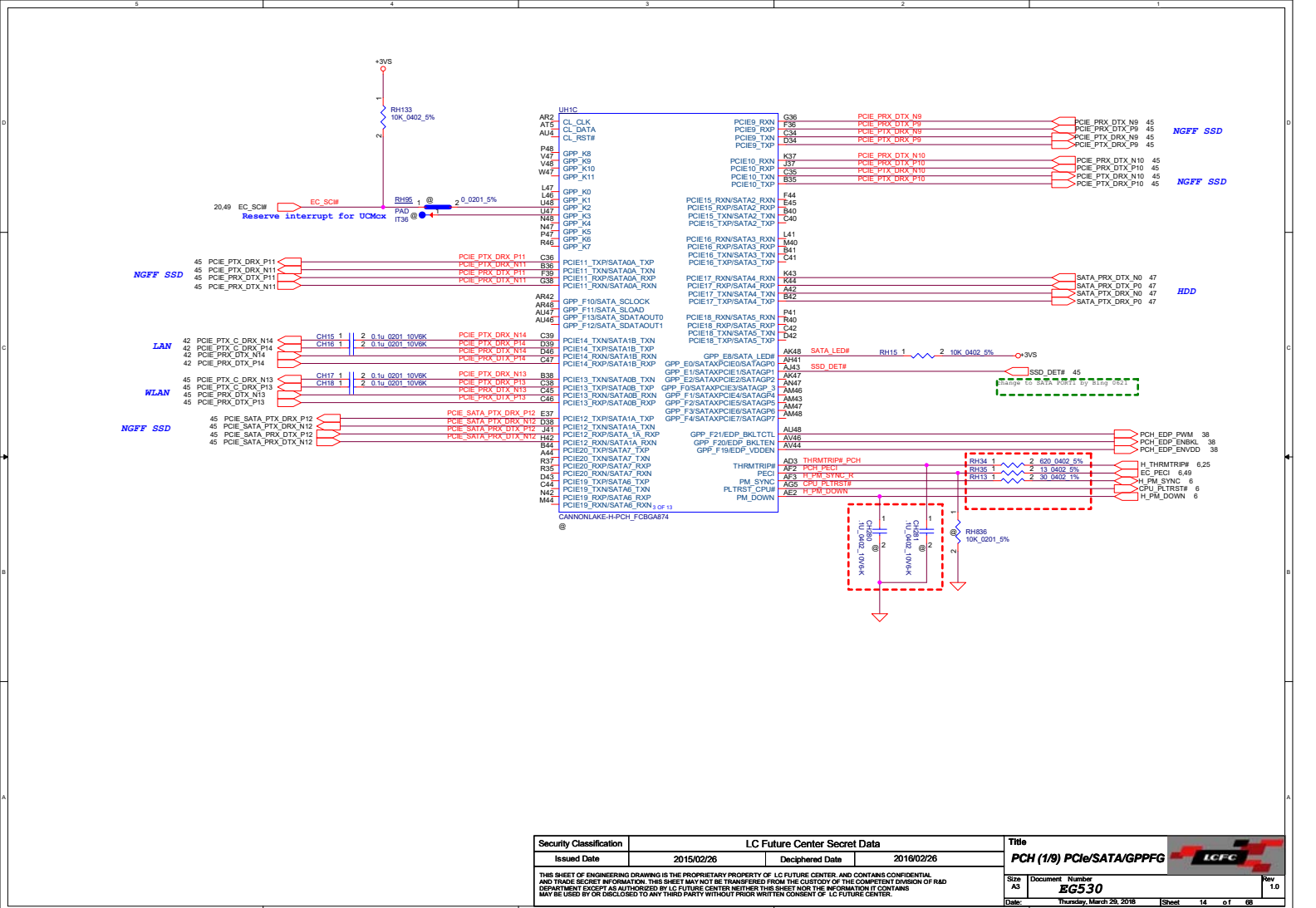
LCFC		
AVS-325	VSS-409	AVS-325
AVS-330	VSS-414	AVS-330
AVS-335	VSS-419	AVS-335
AVS-340	VSS-424	AVS-340
AVS-345	VSS-429	AVS-345
AVS-350	VSS-434	AVS-350
AVS-355	VSS-439	AVS-355
AVS-360	VSS-444	AVS-360
AVS-365	VSS-449	AVS-365
AVS-370	VSS-454	AVS-370
AVS-375	VSS-459	AVS-375
AVS-380	VSS-464	AVS-380
AVS-385	VSS-469	AVS-385
AVS-390	VSS-474	AVS-390
AVS-395	VSS-479	AVS-395
AVS-400	VSS-484	AVS-400
AVS-405	VSS-489	AVS-405
AVS-410	VSS-494	AVS-410
AVS-415	VSS-499	AVS-415
AVS-420	VSS-504	AVS-420
AVS-425	VSS-509	AVS-425
AVS-430	VSS-514	AVS-430
AVS-435	VSS-519	AVS-435
AVS-440	VSS-524	AVS-440
AVS-445	VSS-529	AVS-445
AVS-450	VSS-534	AVS-450
AVS-455	VSS-539	AVS-455
AVS-460	VSS-544	AVS-460
AVS-465	VSS-549	AVS-465
AVS-470	VSS-554	AVS-470
AVS-475	VSS-559	AVS-475
AVS-480	VSS-564	AVS-480
AVS-485	VSS-569	AVS-485
AVS-490	VSS-574	AVS-490
AVS-495	VSS-579	AVS-495
AVS-500	VSS-584	AVS-500
AVS-505	VSS-589	AVS-505
AVS-510	VSS-594	AVS-510
AVS-515	VSS-599	AVS-515
AVS-520	VSS-604	AVS-520
AVS-525	VSS-609	AVS-525
AVS-530	VSS-614	AVS-530
AVS-535	VSS-619	AVS-535
AVS-540	VSS-624	AVS-540
AVS-545	VSS-629	AVS-545
AVS-550	VSS-634	AVS-550
AVS-555	VSS-639	AVS-555
AVS-560	VSS-644	AVS-560
AVS-565	VSS-649	AVS-565
AVS-570	VSS-654	AVS-570
AVS-575	VSS-659	AVS-575
AVS-580	VSS-664	AVS-580
AVS-585	VSS-669	AVS-585
AVS-590	VSS-674	AVS-590
AVS-595	VSS-679	AVS-595
AVS-600	VSS-684	AVS-600
AVS-605	VSS-689	AVS-605
AVS-610	VSS-694	AVS-610
AVS-615	VSS-699	AVS-615
AVS-620	VSS-704	AVS-620
AVS-625	VSS-709	AVS-625
AVS-630	VSS-714	AVS-630
AVS-635	VSS-719	AVS-635
AVS-640	VSS-724	AVS-640
AVS-645	VSS-729	AVS-645
AVS-650	VSS-734	AVS-650
AVS-655	VSS-739	AVS-655
AVS-660	VSS-744	AVS-660
AVS-665	VSS-749	AVS-665
AVS-670	VSS-754	AVS-670
AVS-675	VSS-759	AVS-675
AVS-680	VSS-764	AVS-680
AVS-685	VSS-769	AVS-685
AVS-690	VSS-774	AVS-690
AVS-695	VSS-779	AVS-695
AVS-700	VSS-784	AVS-700
AVS-705	VSS-789	AVS-705
AVS-710	VSS-794	AVS-710
AVS-715	VSS-799	AVS-715
AVS-720	VSS-804	AVS-720
AVS-725	VSS-809	AVS-725
AVS-730	VSS-814	AVS-730
AVS-735	VSS-819	AVS-735
AVS-740	VSS-824	AVS-740
AVS-745	VSS-829	AVS-745
AVS-750	VSS-834	AVS-750
AVS-755	VSS-839	AVS-755
AVS-760	VSS-844	AVS-760
AVS-765	VSS-849	AVS-765
AVS-770	VSS-854	AVS-770
AVS-775	VSS-859	AVS-775
AVS-780	VSS-864	AVS-780
AVS-785	VSS-869	AVS-785
AVS-790	VSS-874	AVS-790
AVS-795	VSS-879	AVS-795
AVS-800	VSS-884	AVS-800
AVS-805	VSS-889	AVS-805
AVS-810	VSS-894	AVS-810
AVS-815	VSS-899	AVS-815
AVS-820	VSS-904	AVS-820
AVS-825	VSS-909	AVS-825
AVS-830	VSS-914	AVS-830
AVS-835	VSS-919	AVS-835
AVS-840	VSS-924	AVS-840
AVS-845	VSS-929	AVS-845
AVS-850	VSS-934	AVS-850
AVS-855	VSS-939	AVS-855
AVS-860	VSS-944	AVS-860
AVS-865	VSS-949	AVS-865
AVS-870	VSS-954	AVS-870
AVS-875	VSS-959	AVS-875
AVS-880	VSS-964	AVS-880
AVS-885	VSS-969	AVS-885
AVS-890	VSS-974	AVS-890
AVS-895	VSS-979	AVS-895
AVS-900	VSS-984	AVS-900
AVS-905	VSS-989	AVS-905
AVS-910	VSS-994	AVS-910
AVS-915	VSS-999	AVS-915
AVS-920	VSS-1004	AVS-920
AVS-925	VSS-1009	AVS-925
AVS-930	VSS-1014	AVS-930
AVS-935	VSS-1019	AVS-935
AVS-940	VSS-1024	AVS-940
AVS-945	VSS-1029	AVS-945
AVS-950	VSS-1034	AVS-950
AVS-955	VSS-1039	AVS-955
AVS-960	VSS-1044	AVS-960
AVS-965	VSS-1049	AVS-965
AVS-970	VSS-1054	AVS-970
AVS-975	VSS-1059	AVS-975
AVS-980	VSS-1064	AVS-980
AVS-985	VSS-1069	AVS-985
AVS-990	VSS-1074	AVS-990
AVS-995	VSS-1079	AVS-995
AVS-1000	VSS-1084	AVS-1000
AVS-1005	VSS-1089	AVS-1005
AVS-1010	VSS-1094	AVS-1010
AVS-1015	VSS-1099	AVS-1015
AVS-1020	VSS-1104	AVS-1020
AVS-1025	VSS-1109	AVS-1025
AVS-1030	VSS-1114	AVS-1030
AVS-1035	VSS-1119	AVS-1035
AVS-1040	VSS-1124	AVS-1040
AVS-1045	VSS-1129	AVS-1045
AVS-1050	VSS-1134	AVS-1050
AVS-1055	VSS-1139	AVS-1055
AVS-1060	VSS-1144	AVS-1060
AVS-1065	VSS-1149	AVS-1065
AVS-1070	VSS-1154	AVS-1070
AVS-1075	VSS-1159	AVS-1075
AVS-1080	VSS-1164	AVS-1080
AVS-1085	VSS-1169	AVS-1085
AVS-1090	VSS-1174	AVS-1090
AVS-1095	VSS-1179	AVS-1095
AVS-1100	VSS-1184	AVS-1100
AVS-1105	VSS-1189	AVS-1105
AVS-1110	VSS-1194	AVS-1110
AVS-1115	VSS-1199	AVS-1115
AVS-1120	VSS-1204	AVS-1120
AVS-1125	VSS-1209	AVS-1125
AVS-1130	VSS-1214	AVS-1130
AVS-1135	VSS-1219	AVS-1135
AVS-1140	VSS-1224	AVS-1140
AVS-1145	VSS-1229	AVS-1145
AVS-1150	VSS-1234	AVS-1150
AVS-1155	VSS-1239	AVS-1155
AVS-1160	VSS-1244	AVS-1160
AVS-1165	VSS-1249	AVS-1165
AVS-1170	VSS-1254	AVS-1170
AVS-1175	VSS-1259	AVS-1175
AVS-1180	VSS-1264	AVS-1180
AVS-1185	VSS-1269	AVS-1185
AVS-1190	VSS-1274	AVS-1190
AVS-1195	VSS-1279	AVS-1195
AVS-1200	VSS-1284	AVS-1200
AVS-1205	VSS-1289	AVS-1205
AVS-1210	VSS-1294	AVS-1210
AVS-1215	VSS-1299	AVS-1215
AVS-1220	VSS-1304	AVS-1220
AVS-1225	VSS-1309	AVS-1225
AVS-1230	VSS-1314	AVS-1230
AVS-1235	VSS-1319	AVS-1235
AVS-1240	VSS-1324	AVS-1240
AVS-1245	VSS-1329	AVS-1245
AVS-1250	VSS-1334	AVS-1250
AVS-1255	VSS-1339	AVS-1255
AVS-1260	VSS-1344	AVS-1260
AVS-1265	VSS-1349	AVS-1265
AVS-1270	VSS-1354	AVS-1270
AVS-1275	VSS-1359	AVS-1275
AVS-1280	VSS-1364	AVS-1280
AVS-1285	VSS-1369	AVS-1285
AVS-1290	VSS-1374	AVS-1290
AVS-1295	VSS-1379	AVS-1295
AVS-1300	VSS-1384	AVS-1300
AVS-1305	VSS-1389	AVS-1305
AVS-1310	VSS-1394	AVS-1310
AVS-1315	VSS-1399	AVS-1315
AVS-1320	VSS-1404	AVS-1320
AVS-1325	VSS-1409	AVS-1325
AVS-1330	VSS-1414	AVS-1330
AVS-1335	VSS-1419	AVS-1335
AVS-1340	VSS-1424	AVS-1340
AVS-1345	VSS-1429	AVS-1345
AVS-1350	VSS-1434	AVS-1350
AVS-1355	VSS-1439	AVS-1355
AVS-1360	VSS-1444	AVS-1360
AVS-1365	VSS-1449	AVS-1365
AVS-1370	VSS-1454	AVS-1370
AVS-1375	VSS-1459	AVS-1375
AVS-1380	VSS-1464	AVS-1380
AVS-1385	VSS-1469	AVS-1385
AVS-1390	VSS-1474	AVS-1390
AVS-1395	VSS-1479	AVS-1395
AVS-1400	VSS-1484	AVS-1400
AVS-1405	VSS-1489	AVS-1405
AVS-1410	VSS-1494	AVS-1410
AVS-1415	VSS-1499	AVS-1415
AVS-1420	VSS-1504	AVS-1420
AVS-1425	VSS-1509	AVS-1425
AVS-1430	VSS-1514	AVS-1430
AVS-1435	VSS-1519	AVS-1435
AVS-1440	VSS-1524	AVS-1440
AVS-1445	VSS-1529	AVS-1445
AVS-1450	VSS-1534	AVS-1450
AVS-1455	VSS-1539	AVS-1455
AVS-1460	VSS-1544	AVS-1460
AVS-1465	VSS-1549	AVS-1465
AVS-1470	VSS-1554	AVS-1470
AVS-1475	VSS-1559	AVS-1475
AVS-1480	VSS-1564	AVS-1480
AVS-1485	VSS-1569	AVS-1485
AVS-1490	VSS-1574	AVS-1490
AVS-1495	VSS-1579	AVS-1495
AVS-1500	VSS-1584	AVS-1500
AVS-1505	VSS-1589	AVS-1505
AVS-1510	VSS-1594	AVS-1510
AVS-1515	VSS-1599	AVS-1515
AVS-1520	VSS-1604	AVS-1520
AVS-1525	VSS-1609	AVS-1525
AVS-1530	VSS-1614	AVS-1530
AVS-1535	VSS-1619	AVS-1535
AVS-1540	VSS-1624	AVS-1540
AVS-1545	VSS-1629	AVS-1545
AVS-1550	VSS-1634	AVS-1550
AVS-1555	VSS-1639	AVS-1555
AVS-1560	VSS-1644	AVS-1560
AVS-1565	VSS-1649	AVS-1565
AVS-1570	VSS-1654	AVS-1570
AVS-1575	VSS-1659	AVS-1575
AVS-1580	VSS-1664	AVS-1580
AVS-1585	VSS-1669	AVS-1585
AVS-1590	VSS-1674	AVS-1590
AVS-1595	VSS-1679	AVS-1595
AVS-1600	VSS-1684	AVS-1600
AVS-1605	VSS-1689	AVS-1605
AVS-1610	VSS-1694	AVS-1610
AVS-1615	VSS-1699	AVS-1615
AVS-1620	VSS-1704	AVS-1620
AVS-1625	VSS-1709	AVS-1625
AVS-1630	VSS-1714	AVS-1630
AVS-1635	VSS-1719	AVS-1635
AVS-1640	VSS-1724	AVS-1640
AVS-1645	VSS-1729	AVS-1645
AVS-1650	VSS-1734	AVS-1650
AVS-1655	VSS-1739	AVS-1655
AVS-1660	VSS-1744	AVS-1660
AVS-1665	VSS-1749	AVS-1665
AVS-1670	VSS-1754	AVS-1670
AVS-1675	VSS-1759	AVS-1675
AVS-1680	VSS-1764	AVS-1680
AVS-1685	VSS-1769	AVS-1685
AVS-1690	VSS-1774	AVS-1690
AVS-1695	VSS-1779	AVS-1695
AVS-1700	VSS-1784	AVS-1700
AVS-1705	VSS-1789	AVS-1705
AVS-1710	VSS-1794	AVS-1710
AVS-1715	VSS-1799	AVS-1715
AVS-1720	VSS-1804	AVS-1720
AVS-1725	VSS-1809	AVS-1725
AVS-1730	VSS-1814	AVS-1730
AVS-1735	VSS-1819	AVS-1735
AVS-1740	VSS-1824	AVS-1740
AVS-1745	VSS-1829	AVS-1745
AVS-1750	VSS-1834	AVS-1750
AVS-1755	VSS-1839	AVS-1755
AVS-1760	VSS-1844	AVS-1760
AVS-1765	VSS-1849	AVS-1765
AVS-1770	VSS-1854	AVS-1770
AVS-1775	VSS-1859	AVS-1775
AVS-1780	VSS-1864	AVS-1780
AVS-1785	VSS-1869	AVS-1785
AVS-1790	VSS-1874	AVS-1790
AVS-1795	VSS-1879	AVS-1795
AVS-1800	VSS-1884	AVS-1800
AVS-1805	VSS-1889	AVS-1805
AVS-1810	VSS-1894	AVS-1810
AVS-1815	VSS-1899	AVS-1815
AVS-1820	VSS-1904	AVS-1820
AVS-1825	VSS-1909	AVS-1825
AVS-1830	VSS-1914	AVS-1830
AVS-1835	VSS-1919	AVS-1835
AVS-1840	VSS-1924	AVS-1840
AVS-1845	VSS-1929	AVS-1845
AVS-1850	VSS-1934	AVS-1850
AVS-1855	VSS-1939	AVS-1855
AVS-1860	VSS-1944	AVS-1860
AVS-1865	VSS-1949	AVS-1865
AVS-1870	VSS-1954	AVS-1870
AVS-1875	VSS-1959	AVS-1875
AVS-1880	VSS-1964	AVS-1880
AVS-1885	VSS-1969	AVS-1885
AVS-1890	VSS-1974	AVS-1890
AVS-1895	VSS-1979	AVS-1895
AVS-1900	VSS-1984	AVS-1900
AVS-1905	VSS-1989	AVS-1905
AVS-1910	VSS-1994	AVS-1910
AVS-1915	VSS-1999	AVS-1915
AVS-1920	VSS-2004	AVS-1920
AVS-1925	VSS-2009	AVS-1925
AVS-1930	VSS-2014	AVS-1930
AVS-1935	VSS-2019	AVS-1935
AVS-1940	VSS-2024	AVS-1940
AVS-1945	VSS-2029	AVS-1945
AVS-1950	VSS-2034	AVS-1950
AVS-1955	VSS-2039	AVS-1955



<https://vk.com/servicenotebook>

Security Classification	LC Future Center Secret Data		Title	
Serial Date	2010/12/14	Declassified Date	2017/12/13	
THIS SHEET OF ENGINEERING DRAWINGS IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MUST NOT BE TRANSMITTED FROM THE CUSTODY OF THIS COMPANY/ DIVISION OF R&D TO ANY EMPLOYEES OR CONTRACTORS OF LC FUTURE CENTER WITHOUT THE WRITTEN CONSENT OF LC FUTURE CENTER. THIS SHEET MAY BE USED BY UNAUTHORIZED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			Doc# Document Number Sub# RGS 30 Version: 1.0 Date: 12/14/10	Rev. 1.0 12/14/10



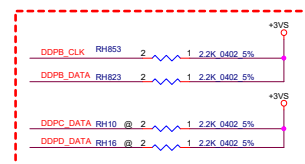
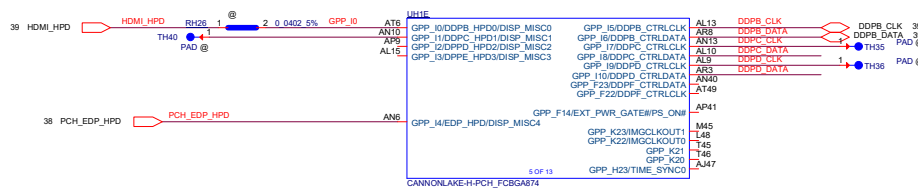


<https://vk.com/servicenotebook>

The diagram illustrates the internal architecture of the USB3.0 and Type-C PHYs. It is divided into several main sections:

- LEFT USB3.0:** Shows the USB3.0 TX and RX paths. The TX path includes blocks like USB30_TX_N1, USB30_TX_N2, USB30_RX_N1, and USB30_RX_N2. The RX path includes blocks like USB30_RX_N1, USB30_RX_N2, USB30_TX_N1, and USB30_TX_N2.
- Type-C:** Shows the Type-C RX and TX paths. The RX path includes blocks like C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100. The TX path includes blocks like C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100.
- LEFT USB3.0:** Shows the USB3.0 TX and RX paths. The TX path includes blocks like USB30_TX_N1, USB30_TX_N2, USB30_RX_N1, and USB30_RX_N2. The RX path includes blocks like USB30_RX_N1, USB30_RX_N2, USB30_TX_N1, and USB30_TX_N2.
- RIGHT:** Shows the various blocks and components involved in the signal processing, such as the USB3.0 TX and RX paths, the Type-C RX and TX paths, and the USB3.0 RX and TX paths. It details the various blocks and components involved in the signal processing, such as the USB3.0 TX and RX paths, the Type-C RX and TX paths, and the USB3.0 RX and TX paths.


The diagram also shows the various blocks and components involved in the signal processing, such as the USB3.0 TX and RX paths, the Type-C RX and TX paths, and the USB3.0 RX and TX paths. It details the various blocks and components involved in the signal processing, such as the USB3.0 TX and RX paths, the Type-C RX and TX paths, and the USB3.0 RX and TX paths.



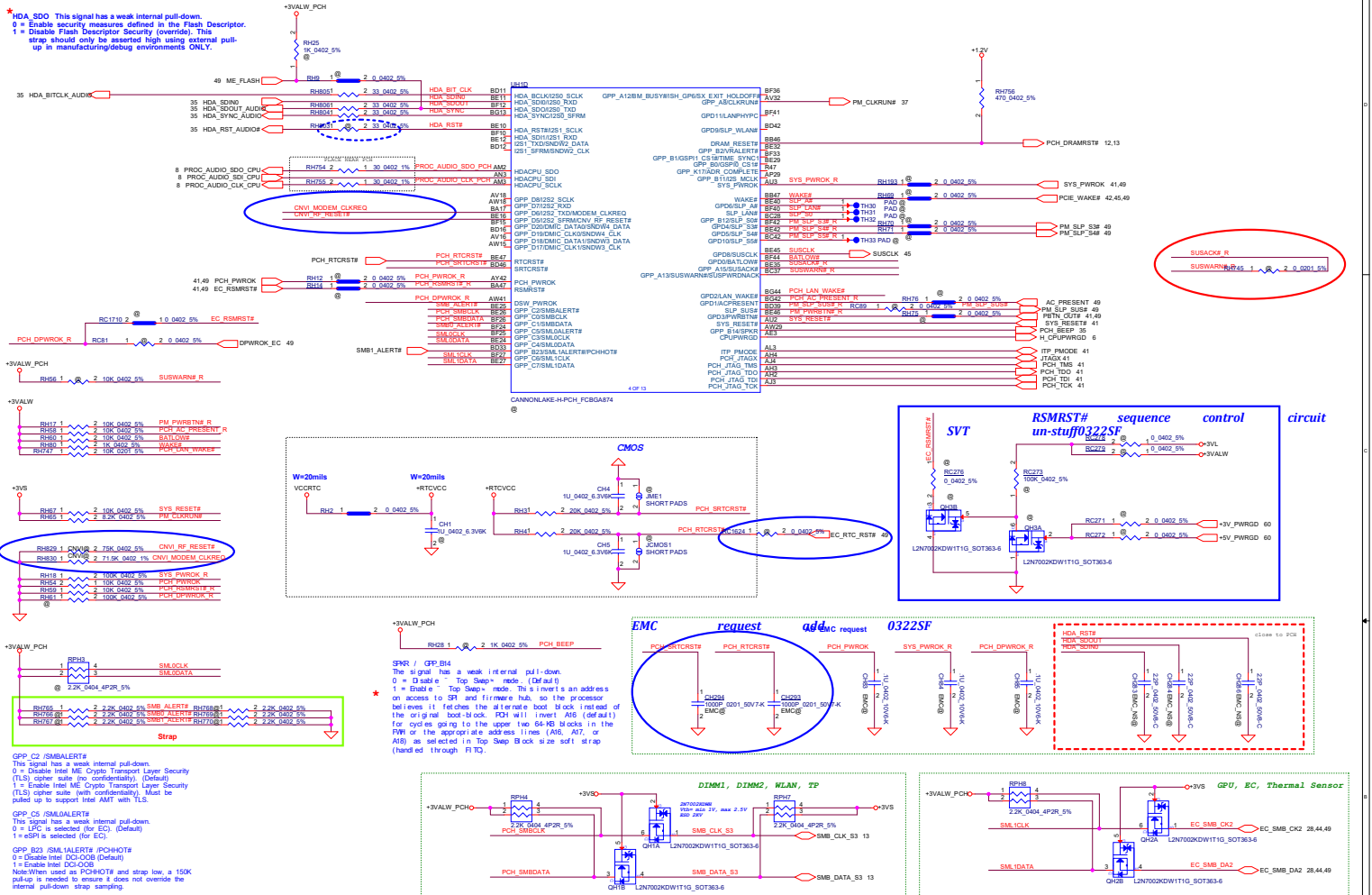
★ **DDPB_CTRLDATA**
The signal has a weak internal pull-down.
H Port B is detected.
L Port B is not detected.

DDPC_CTRLDATA
The signal has a weak internal pull-down.
H Port C is detected.
★ L Port C is not detected. (Default)

DDPD_CTRLDATA
The signal has a weak internal pull-down.
H Port D is detected.
★ L Port D is not detected. (Default)


Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	PCH (2/9) USB3/GPPAEFGHI	
<p>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D MANAGEMENT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR ITS CONTENTS ARE TO BE RELEASED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</p>					
Doc A3	Document Number EG530	<div> <div>Rev</div> <div>1</div> </div>			
Date	2015/02/26	Sheet	15	of	68

<https://vk.com/servicenotebook>



For	CNVI	function update:change	GPIO	Group	D	to	1.8V	and	delete	level
-----	------	------------------------	------	-------	---	----	------	-----	--------	-------

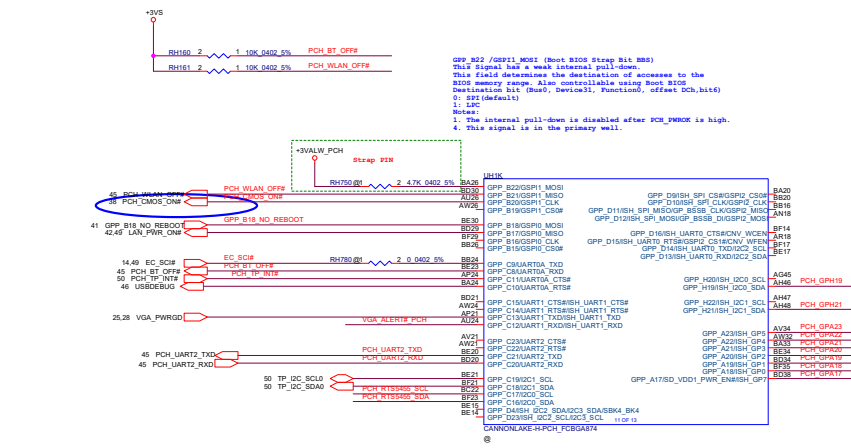
<https://vk.com/servicenotebook>

Security Classification	LC Future Center Secret Data	Title	PCH (3/9) HDA,RTC,SMBUS,PI		
Issued Date	2015/02/26	Dephched Date	2016/02/26		
<p>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE CONFIDENT DOWNGRADER OR RATED DECLASSIFICATION AUTHORITY TO ANY OTHER PERSON OR ENTITY WITHOUT THE WRITTEN PERMISSION OF LC FUTURE CENTER. THIS INFORMATION IS CONTAINED HEREIN MAY BE USED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</p>					
Sheet	1	Documet Number	ECS30	Rev	1.0
Date	2015-07-28-2015	Sheet	1	of	1

<https://vk.com/servicenotebook>

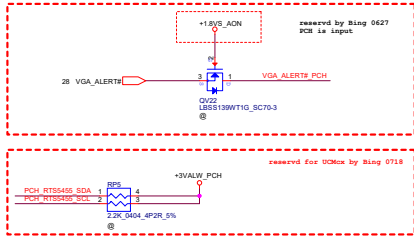
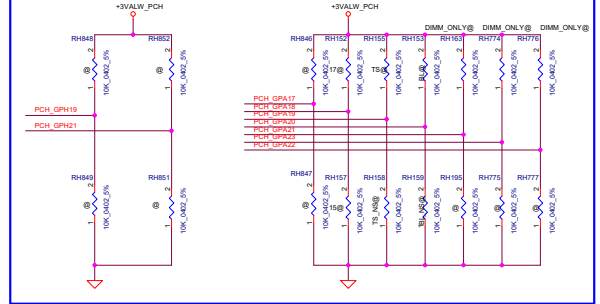


<https://vk.com/servicenotebook>



Bit 6	Boot BIOS Destination
0	SPI (Default)
1	LPC

Add Board ID reserve 1130SF



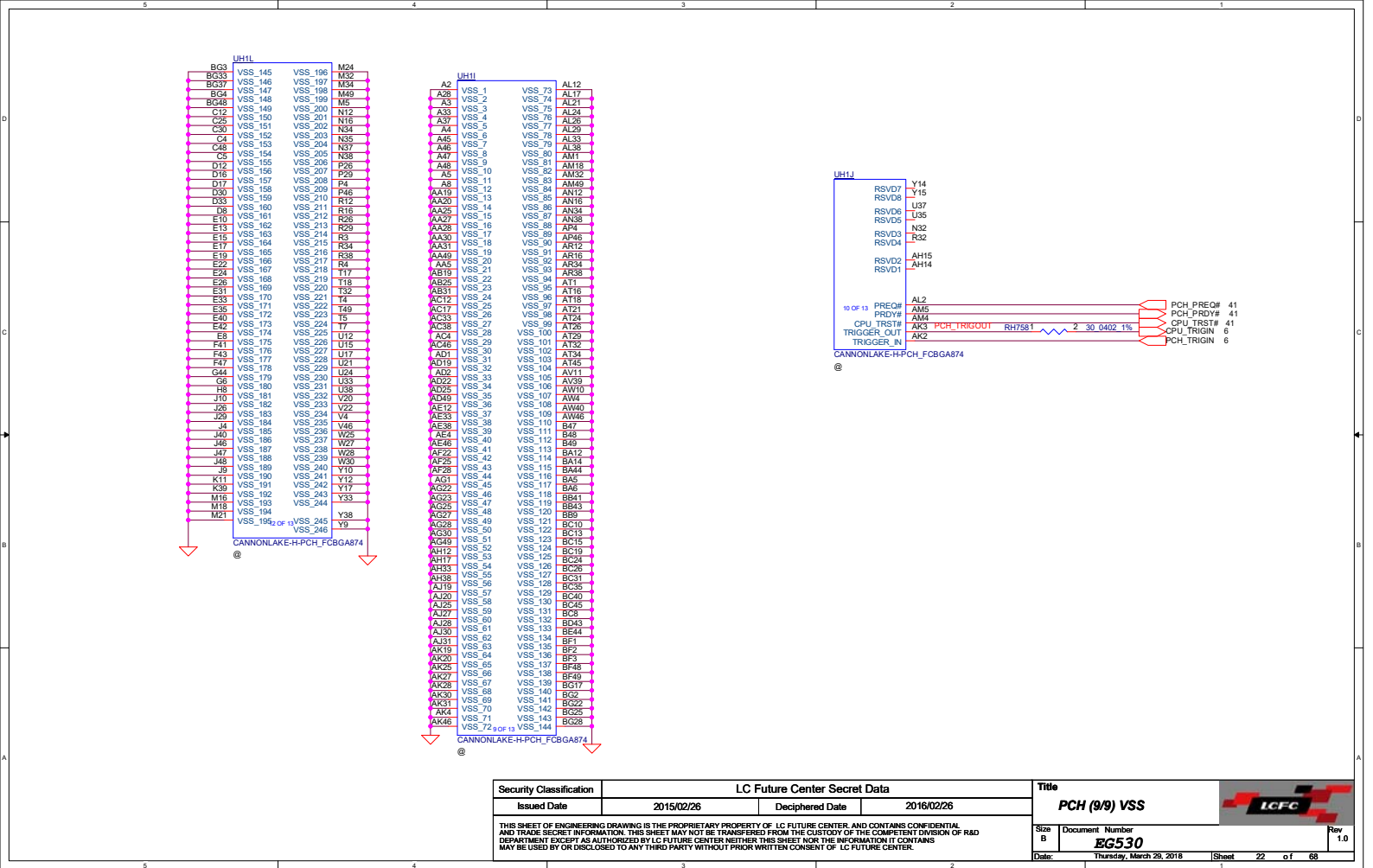
SKU ID

Board ID	Description	Stuff R
PCH_GPA18	0 15" EG530 RH157	
PCH_GPA19	1 17" EG730 RH152	
PCH_GPA20	0 non-touch RH158	
PCH_GPA21	1 touch RH155	
PCH_GPA22	0 non-FB SL RH159	
PCH_GPA23	1 XB BL RH153	
PCH_GPA17	0 Reserved R0847	
PCH_GPA18	1 Reserved R0846	
PCH_GPA19	0 Reserved R0849	
PCH_GPA20	1 Reserved R0848	
PCH_GPA21	0 Reserved R0851	
PCH_GPA22	1 Reserved R0852	


DRAM	Memory	Down (DDR4)	DRAMCFG	PCH_GPA23	PCH_GPA22	PCH_GPA21
	Samsung 8Gb	2666 MT/s	0(0x000)	L/RH775	L/RH777	L/RH195
	Hynix 8Gb	2666 MT/s	1(0x001)	L/RH775	L/RH777	L/RH163
	Micron 8Gb	2666 MT/s	2(0x010)	L/RH775	H/RH776	L/RH195
	Samsung 4Gb	2400 MT/s	3(0x011)	L/RH775	H/RH776	L/RH163
	Hynix 4Gb	2400 MT/s	4(0x100)	H/RH774	L/RH777	L/RH195
	Micron 4Gb	2400 MT/s	5(0x101)	H/RH774	L/RH777	H/RH163
	X		6(0x110)	H/RH774	H/RH776	L/RH195
	SO-DIMM		7(0x111)	H/RH774	H/RH776	H/RH163

Security Classification	LC Future Center Secret Data	Title
Issued Date	2015/02/26	Deciphered Date
Deciphered Date	2016/02/26	
This sheet of engineering drawing is the proprietary property of LC Future Center, and contains confidential and trade secret information. This sheet may not be transferred from the custody of the competent division of R&D.		
Reproduction or copying of this sheet without the written consent of LC Future Center is strictly prohibited.		
Doc No	EC530	Rev
Rev	1.0	
Date	Monday, March 28, 2016	Sheet
of	1	88

<https://vk.com/servicenotebook>



<https://vk.com/servicenotebook>

Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/08/20	Deciphered Date	2016/08/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			<div>Cover Page</div> <div></div>
Size	Document Number	Rev	
C	EG530	1.0	
Date	Monday, March 28, 2016	Sheet	28 of 88

<https://vk.com/servicenotebook>

N17P-G1 GPIO

GPIO	I/O	ACTIVE	Function Description	I/O Termination
GPIO0	OUT	-	PWM Output to control NVVDD	
GPIO1	OUT	-	FB Enable for GC6 2.1	
GPIO2	IN	-	GPU wake signal for GC6 2.1	
GPIO3	OUT	-	PWM Output to control the SRAM power supply	
GPIO4	OUT	-	GPU power sequencing for GC6 2.1 --- 1V8_MAIN_EN	
GPIO5	IN	N/A	Active low Frame Lock	
GPIO6	OUT	-	Phase Shedding, NVVDD_PSI	
GPIO7	OUT	N/A	Panel Backlight enable	
GPIO8	OUT	-	Memory voltage Control	
GPIO9	I/O	-	Active Low Thermal Alert	
GPIO10	OUT	-	Memory VREF Control (100K pull Down)	
GPIO11	OUT	-	Panel Power enable	
GPIO12	IN	-	AC power detect or power supply overdraw input (10K pull High)	
GPIO13	OUT	N/A	LCD Panel Backlight Enable	
GPIO14	IN	N/A	Hot Plug Detect for IFPA	
GPIO15	IN	N/A	Hot Plug Detect for IFPB	
GPIO16	OUT	-	System side PCIe reset monitor	
GPIO17	IN	N/A	Hot Plug Detect for IFPD	
GPIO18	IN	N/A	Hot Plug Detect for IFPE	
GPIO19	OUT	N/A	3D Vision L/R Signal	
GPIO20		N/A	GC6_MODE	
GPIO21	I/O	N/A	UNUSED	
GPIO22	I/O	N/A	UNUSED	
GPIO23	OUT	-	GPU PCIe self-reset control	
GPIO24	IN	N/A	Hot Plug Detect for IFPF	
GPIO25		N/A	UNUSED	
GPIO26		N/A	UNUSED	
GPIO27	IN	N/A	Hot Plug Detect for IFPC	

N17P-G1 Power Sequence



1. All power rail ramp up time should be larger than 40us and is recommended to be less than 2ms.

2. T (from 1V8_MAIN_EN to PEX_DVDD/NVVDD_good) must NOT exceed 4ms.

3. All 3.3V devices that connect to the GPU must be powered after 1V8_AON. GPU can NOT have any 3.3V leakage path before 1V8_AON present.

4. The previous power rail must ramp up to 90% before the next power rail can start ramping up.
1. NVVDD/PEX_DVDD must ramp down before NVVDD, all other power falls can ramp down together with NVVDD.

2. All 3.3V devices that connect to the GPU must be ramp down before 1V8_AON. GPU can NOT have any 3.3V leakage path after 1V8_AON and 1.8V_MAIN power down.

3. The previous power rail must ramp down to 10% before the next power rail can start ramping down.

STRAP2	STRAP1	STRAP0	RAMCFG[4-0]
L	L	L	00000
L	H	L	00010
L	H	H	00011
H	H	L	00110
H	H	H	00111

H=High: Tied to 1.8V
M=Middle: Tied to 0.9V
L=Low: Tied to 0V

ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3-0]
L	L	L	1111 DEFAULT
L	L	H	1110
L	H	L	1101
L	H	H	1100
H	L	L	1011
H	L	H	1010
H	H	L	1001
H	H	H	1000
L	L	M	0111
L	M	L	0110
L	M	H	0101
L	H	M	0100
H	L	M	0011
H	M	L	0010
H	M	H	0001
H	H	M	0000

1:ENABLE 0:DISABLE
SOR0/12/3 ENABLE

STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1 DEFAULT
L	L	L	0	0	0	0

1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

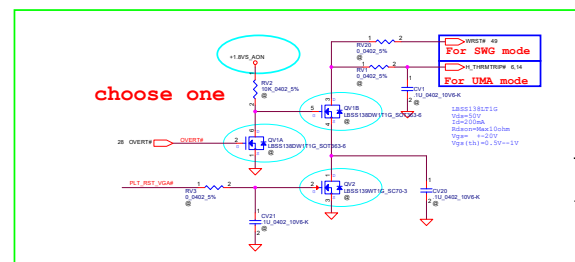
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGINAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER


1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

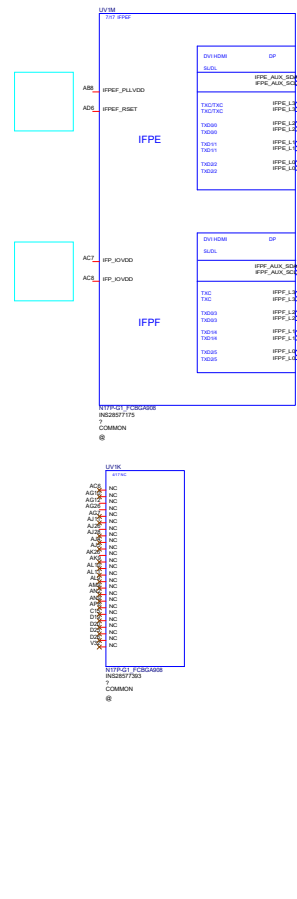
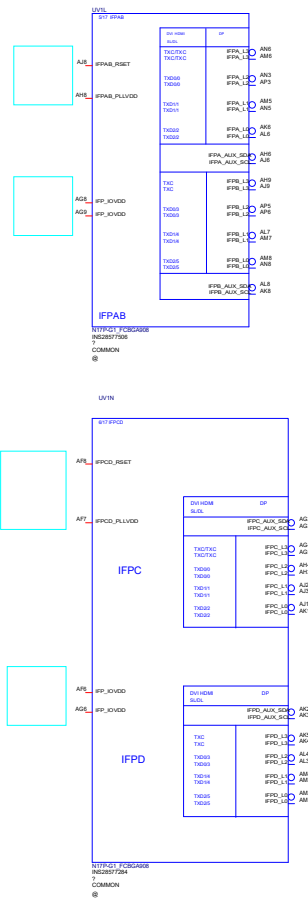
Security Classification	LC Future Center Secret Data		Title	
Issued Date	2015/08/20	Deciphered Date	2016/08/20	VGA Notes List
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE DISSEMINATED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT WITHOUT PRIOR AUTHORIZATION BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				Rev 1.0
Doc ID	Document Number	EC530	Date	Monday, March 28, 2016
Sheet	36	of	36	

https://vk.com/servicenotebook



<https://vk.com/servicenotebook>

Security Classification	LC Future Center Secret Data			Title	N17P (1/8)-PEG IF		
Issued Date	2015/09/20	Deauthorized Date	2016/09/20	Doc No	EG530		
<p>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED FROM THE CUSTODY OF THE COMPETENT DEPARTMENT OR SUB-DEPARTMENT OR ADMINISTRATIVE OR LEGAL DEPARTMENT OF LC FUTURE CENTER TO ANY OTHER PERSON OR ENTITY WITHOUT BEING AUTHORIZED BY OR DERIVED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</p>				Doc Name			
				Doc Number	Rev 1.0		

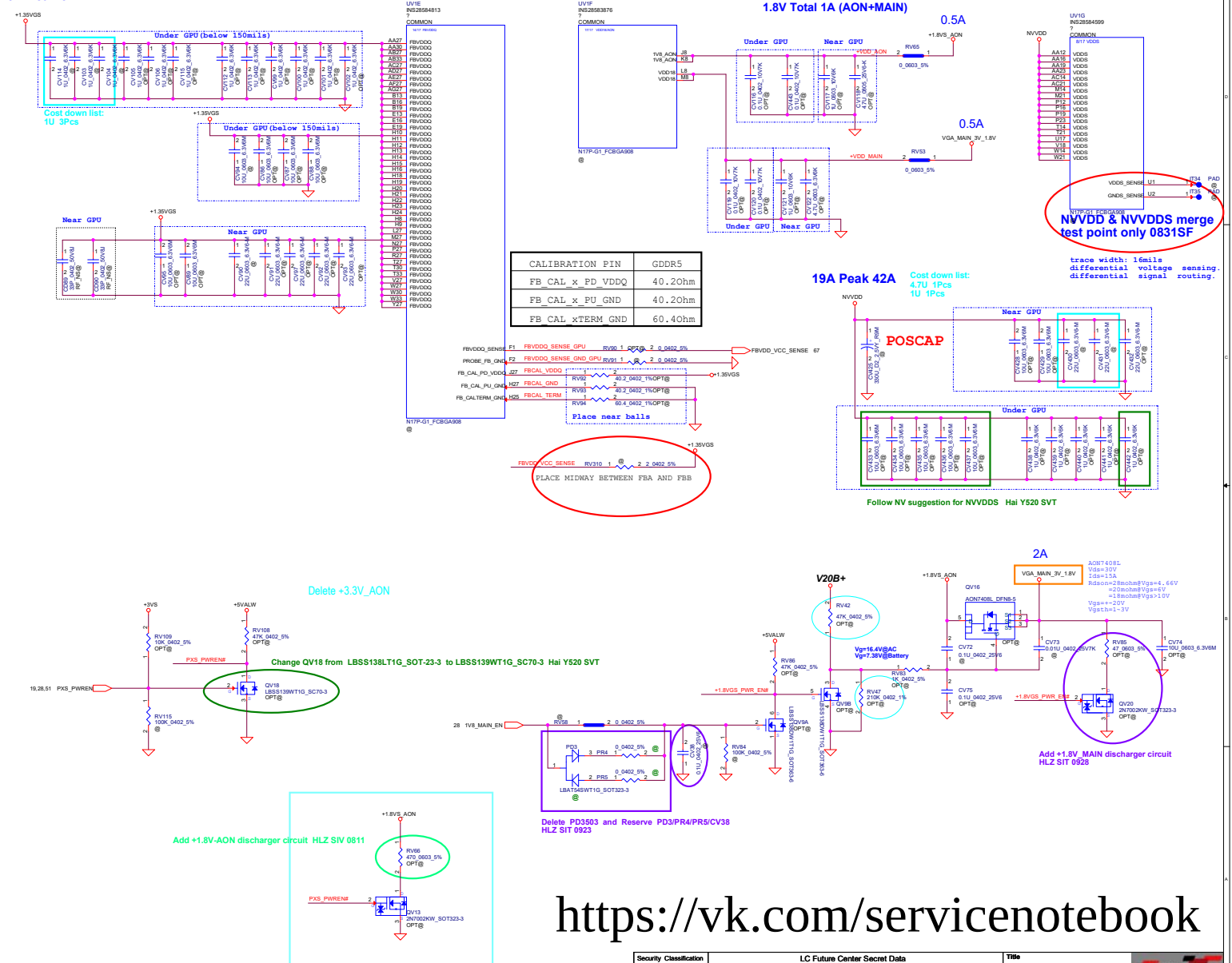


Security Classification		LC Future Center Secret Data		Title	
Issued Date	2019/08/20	Declassified Date	2019/08/20	N17P_(2/6):DIGITAL OUT -LCFC	
<small>THIS SHEET OF INFORMATION CONTAINS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND SECRET INFORMATION. THIS SHEET MAY BE DECLASSIFIED FROM THE CUSTODY OF THE COMPTON DIVISION OF AED SERVICES TO EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. THIS SHEET IS THE PROPERTY OF LC FUTURE CENTER. IT MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small>				Doc. Number	20530
				Rev.	1
				Date	Monday, March 26, 2018
				Printed	28 11 18


<https://vk.com/servicenotebook>

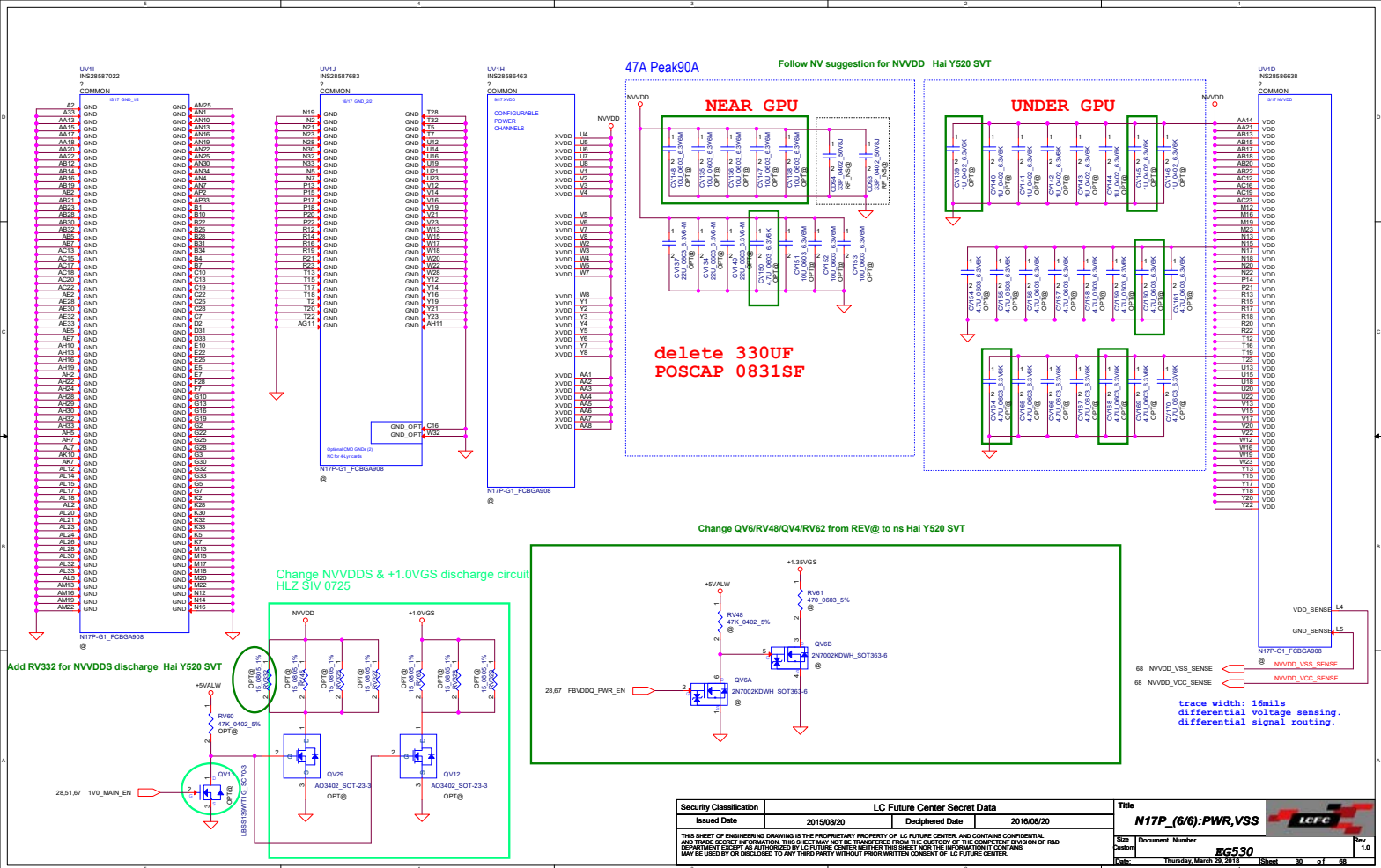


5A Peak 8A

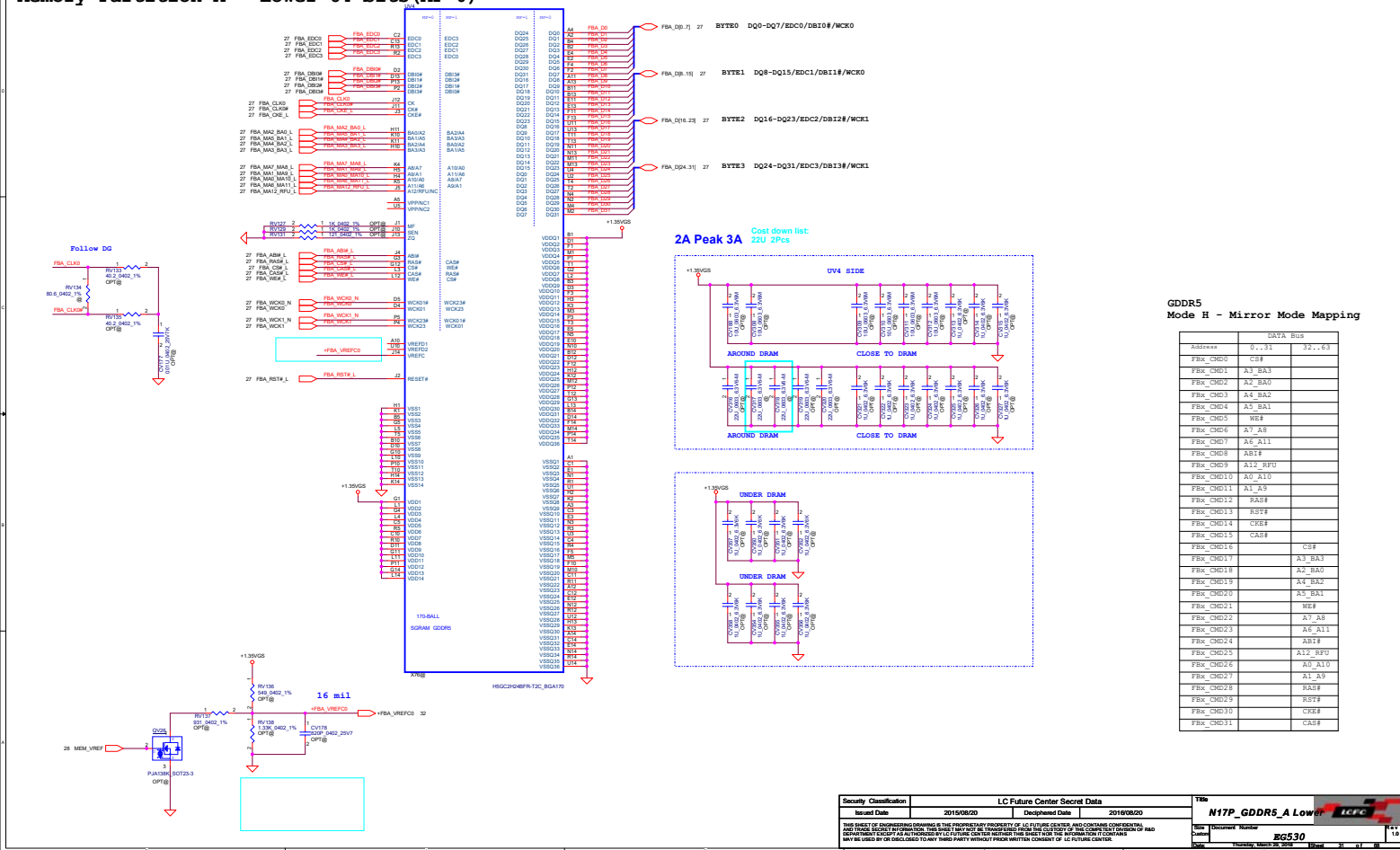


<https://vk.com/servicenotebook>

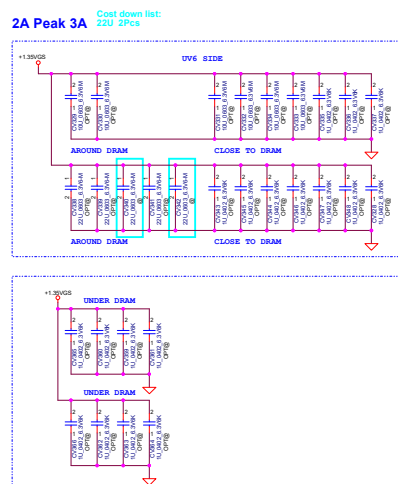
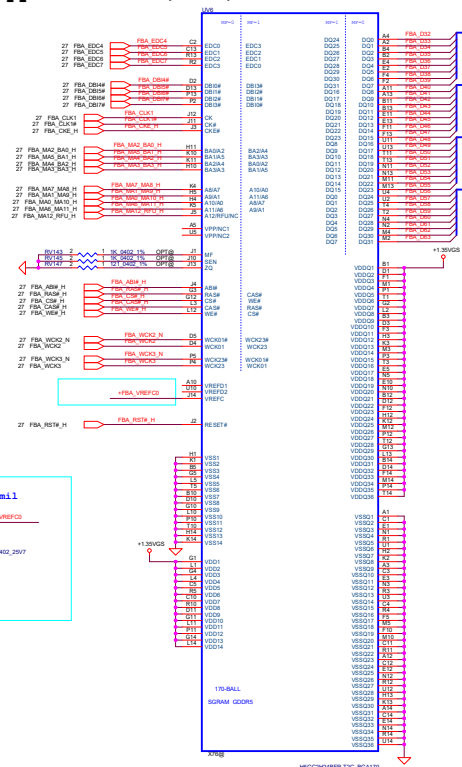
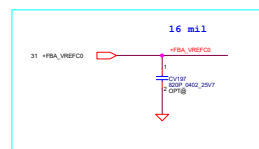
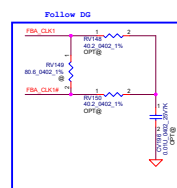
Security Classification		LC Future Center Secret Data		Title			
Issued Date		2015/08/20	Declassified Date		2016/08/20		N17P (/S):PWR
THIS SHEET OF ENGINEERING DRAWINGS IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE DEPARTMENT OFFICE AUTHORIZED BY ANY THIRD PARTY WITHIN THE UNITED STATES NOR SHALL IT BE DISCLOSED TO ANY OTHER PERSON OR ENTITY WITHOUT THE WRITTEN CONSENT OF LC FUTURE CENTER.							Rev
Date			Revision				Document Number
							EG530
							Thru Date
						Sheet	
						25 of 01	
						08	



<https://vk.com/servicenotebook>



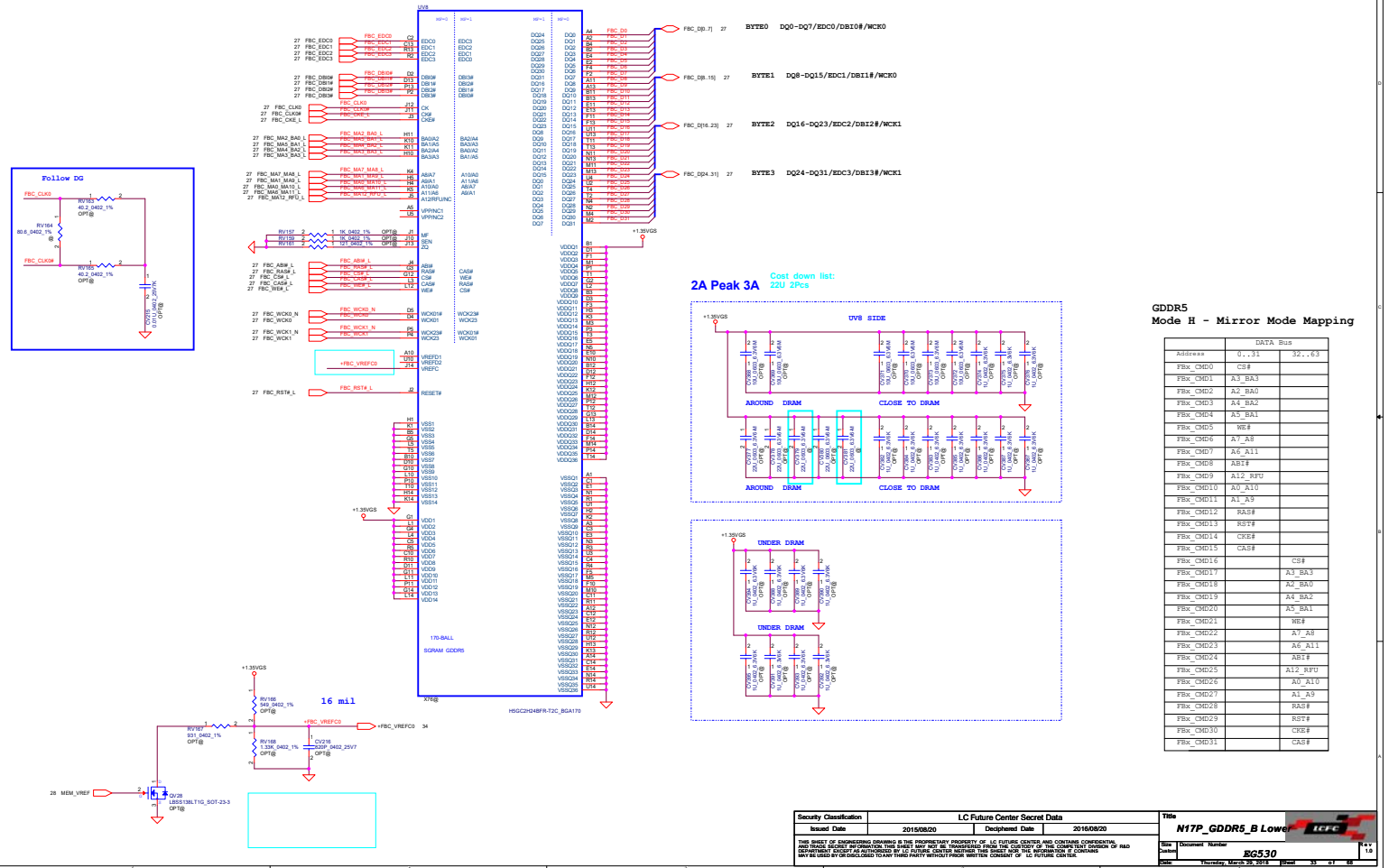
<https://vk.com/servicenotebook>



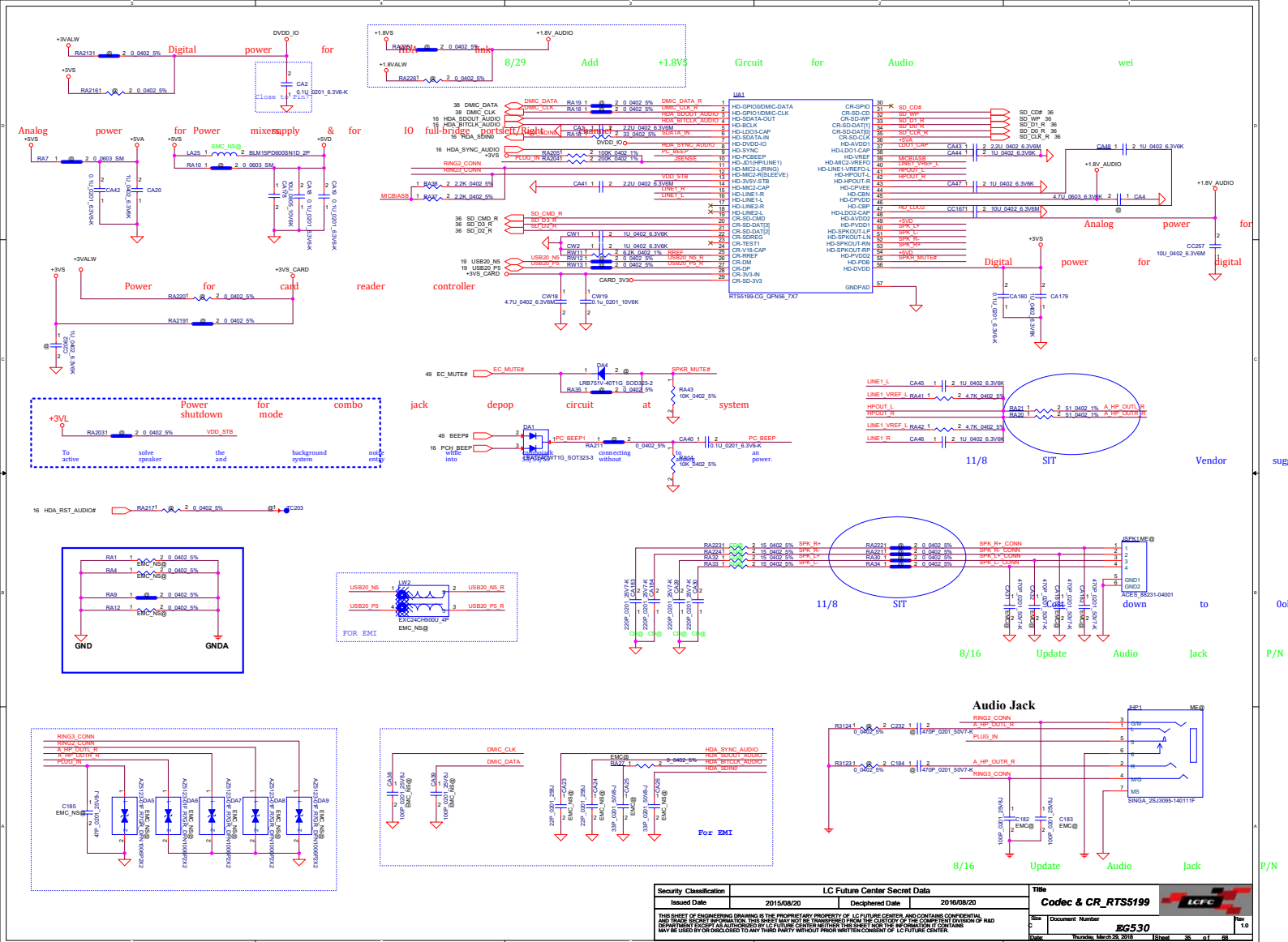
GDDR5
Mode H - Mirror Mode Mapping

O2CA Rule		
Address	0...31	32...63
Fibx_O2C0	CS#	
Fibx_O2C1	A3 BA3	
Fibx_O2C2	A2 BA0	
Fibx_O2C3	A4 BA2	
Fibx_O2C4	A2 BA1	
Fibx_O2C5	HE#	
Fibx_O2C6	A1 A3	
Fibx_O2C7	AE A11	
Fibx_O2C8	RA1#	
Fibx_O2C9	A11# SFP	
Fibx_O2C10	A0 A10	
Fibx_O2C11	A1 A3	
Fibx_O2C12	RA0#	
Fibx_O2C13	RSF#	
Fibx_O2C14	CS#	
Fibx_O2C15	CS#	
Fibx_O2C16	CS#	
Fibx_O2C17	A3 BA3	
Fibx_O2C18	A2 BA0	
Fibx_O2C19	A4 BA2	
Fibx_O2C20	A2 BA1	
Fibx_O2C21	HE#	
Fibx_O2C22	A7 A8	
Fibx_O2C23	AE A11	
Fibx_O2C24	A11#	
Fibx_O2C25	RA1#	
Fibx_O2C26	A1 A3	
Fibx_O2C28	RA0#	
Fibx_O2C29	RSF#	
Fibx_O2C30	CS#	

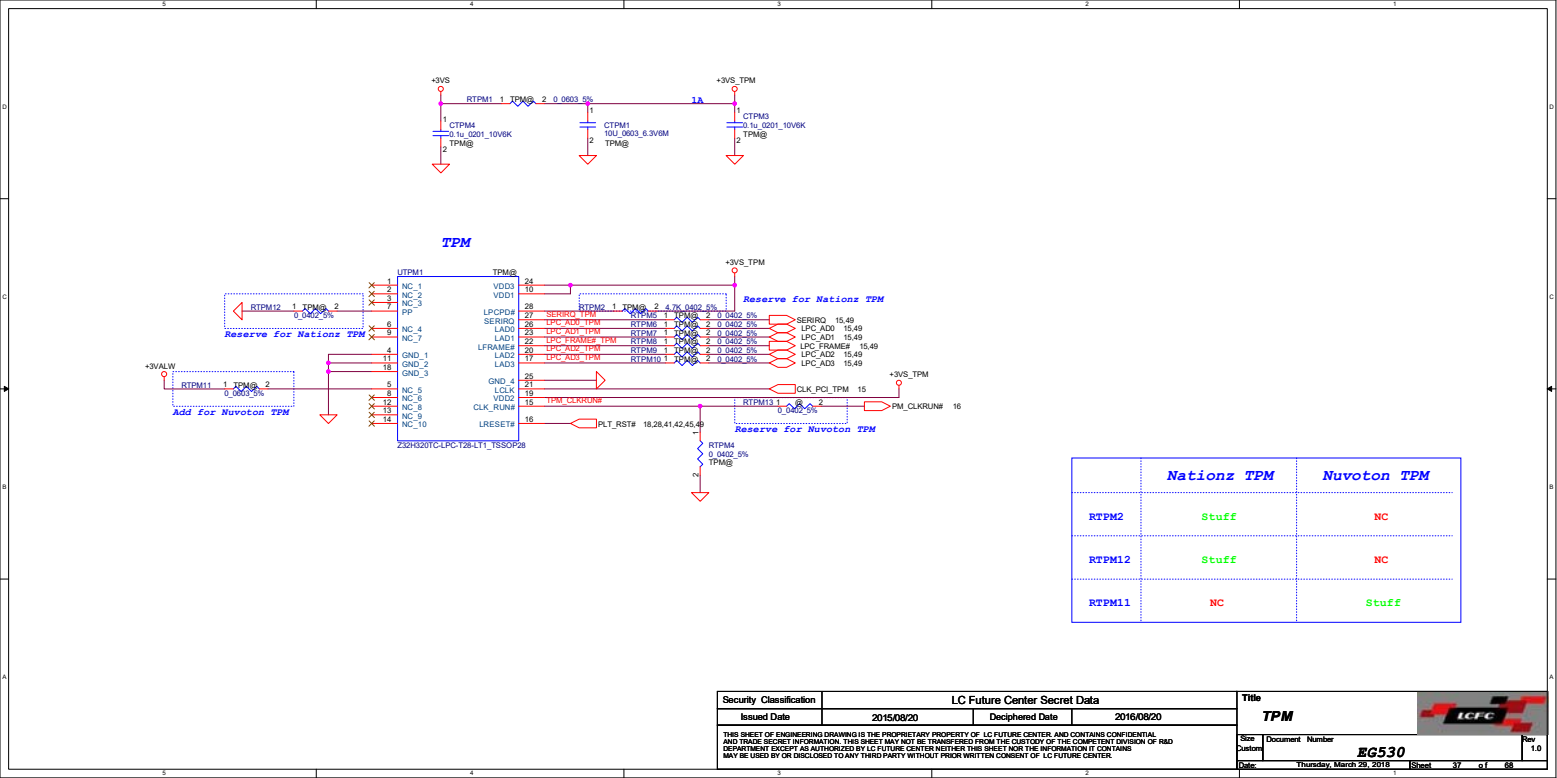
Memory Partition B - Lower 32 bits (MF=3)



<https://vk.com/servicenotebook>



<https://vk.com/servicenotebook>



<https://vk.com/servicenotebook>

<https://vk.com/servicenotebook>

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/08/20	Deciphered Date	2016/08/20	P35-Blank	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPTON DIVISION OF ROAD DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				Size	Document Number
				Custom	EG530
				Date	Thursday, March 29, 2018
				Sheet	40 of 68

<https://vk.com/servicenotebook>



TABLE : CPU ITP DEBUG REPORT

	No use	Individual Port	DCI 2.0 w/o connector
R591	NO ASM	NO ASM	ASM
R593	NO ASM	NO ASM	ASM
R594	NO ASM	NO ASM	ASM
R595	NO ASM	NO ASM	ASM
R596	NO ASM	NO ASM	ASM
R657	NO ASM	NO ASM	ASM
R658	NO ASM	NO ASM	ASM
R102	NO ASM	ASM	NO ASM
R597	NO ASM	ASM	NO ASM
R9907	NO ASM	ASM	ASM
JXDP1	NO ASM	ASM	NO ASM
C70	NO ASM	ASM	NO ASM
R96	NO ASM	ASM	NO ASM
R101	NO ASM	ASM	NO ASM
R9909	NO ASM	ASM	ASM
R9910	NO ASM	ASM	ASM
R9916	NO ASM	ASM	ASM
R99	NO ASM	ASM	ASM
R9912	NO ASM	ASM	ASM
R9934	NO ASM	ASM	ASM
R9930	NO ASM	ASM	ASM
R9931	NO ASM	ASM	ASM
R9932	NO ASM	ASM	ASM
R9933	NO ASM	ASM	ASM

LOGIC

TABLE : PCH ITP DEBUG REPORT

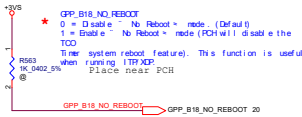
	No use	Individual Port	DCI 2.0 w/o connector
R93	NO ASM	ASM	NO ASM
JXDP1	NO ASM	ASM	NO ASM
R9917	NO ASM	ASM	NO ASM
R101	NO ASM	ASM	NO ASM
R9908	NO ASM	ASM	NO ASM
R9911	NO ASM	ASM	NO ASM
R9913	NO ASM	ASM	NO ASM
R9915	NO ASM	ASM	NO ASM

LOGIC

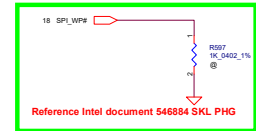
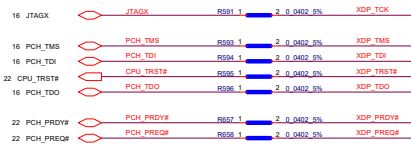
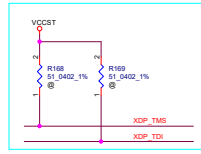
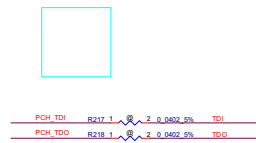
TABLE : Functional Strap

GPP_B18/GSPI0_MOSI (No Reboot)	R563
HIGH Enable "No Reboot" Mode	ASM
LOW Disable "No Reboot" Mode (Default)	NO ASM

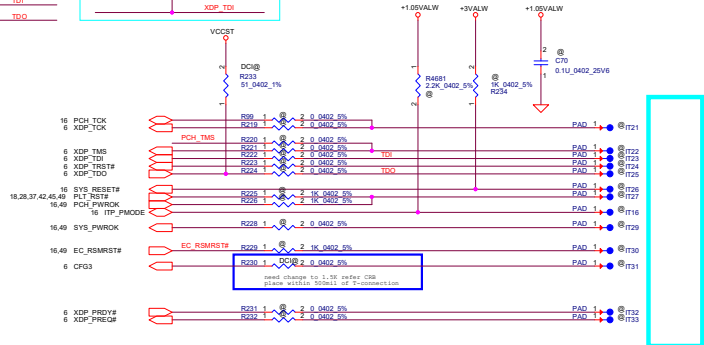
LOGIC



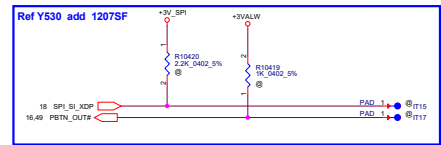
Delete R93



Mount RC176 to enable DCI function

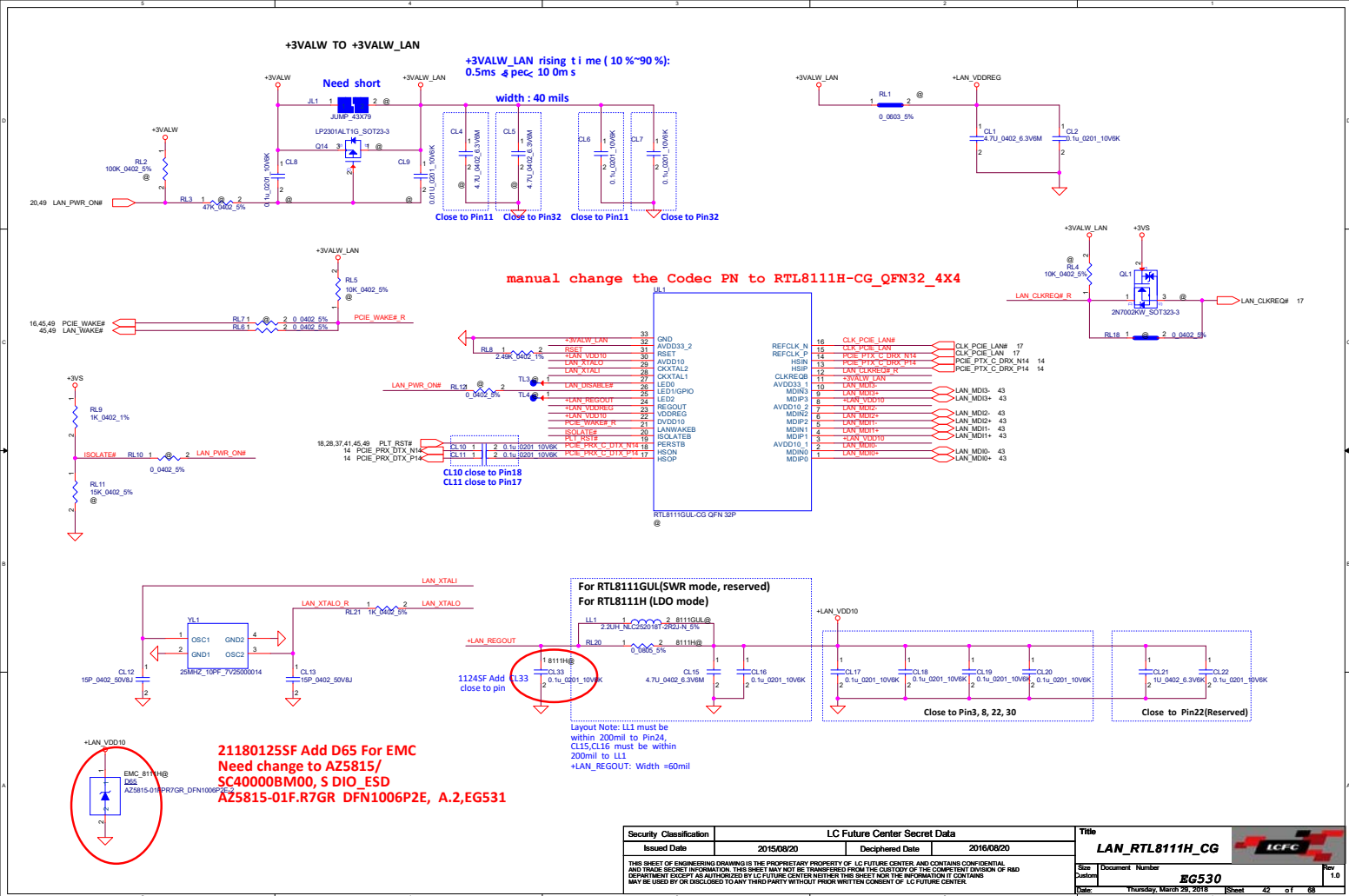


Change XDP CONN to Test Point HLZ SVD 0527



Security Classification	LC Future Center Secret Data	Title	Blank
Issued Date	2015/08/20	Deciphered Date	2016/08/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS SHEET IS STRICTLY PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.		Doc Number	EC530
		Rev	1.0
		Date	Monday, March 29, 2016
		Sheet	21 of 28

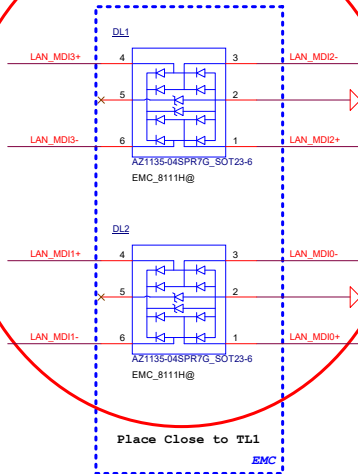
<https://vk.com/servicenotebook>



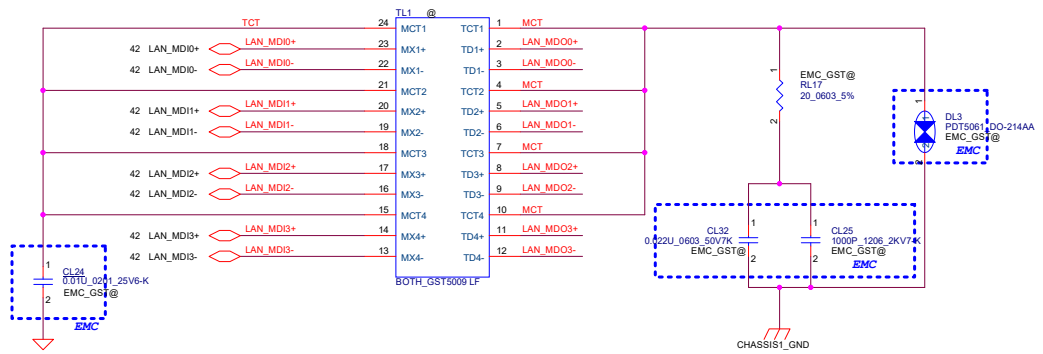
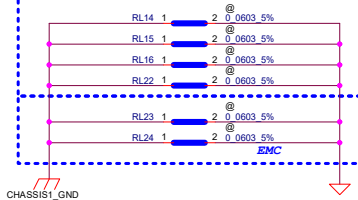
<https://vk.com/servicenotebook>

0907SF change DL1/DL2 to
S DIO(BR) AZ1215-04S.R7G SOT23-6L
PN:SC300005900 for 8111H

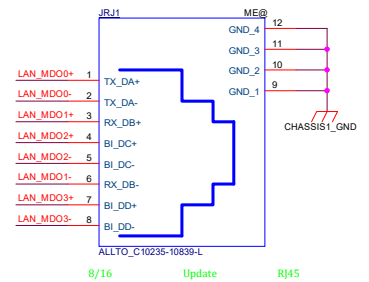
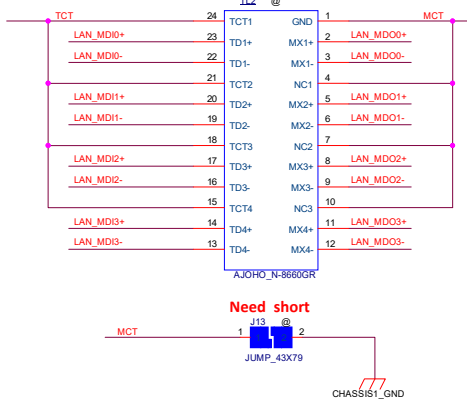
20180125SF For EMC debug DL1 & DL2
Need change to SC300006100.
S DIO(BR) AZ1135-04S.R7G SOT23, A.1,EG531



1204SF update,
4 R-Short place on DC-IN CONN & LAN CONN,
2 R-Short place on LAN CONN & HDMI CONN

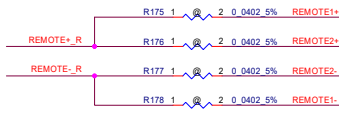
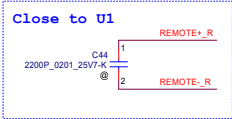


Add TL2 co-lay TL1 1009SF



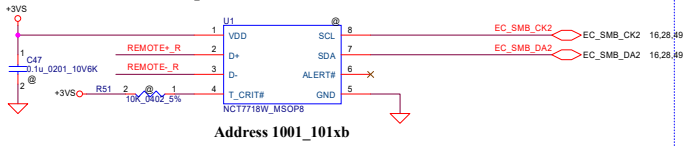
Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/08/20	Deciphered Date	2016/08/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			
Size	3	Document Number	EG530
Date	Thursday, March 29, 2016	Sheet	43 of 68

<https://vk.com/servicenotebook>

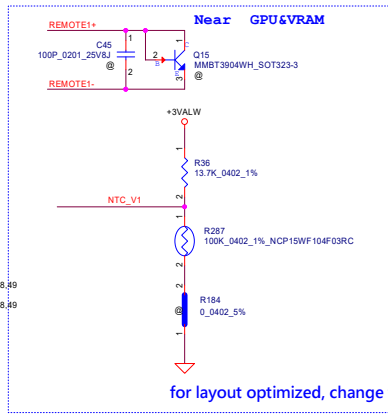


REMOTE+/- R, REMOTE1+/-, REMOTE2+/-:
Trace width/space:10/10 mil
Trace length:<8"

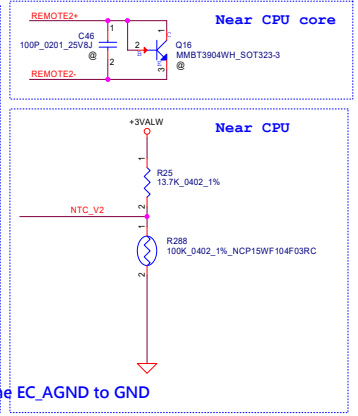
SMSC thermal sensor placed near DIMM



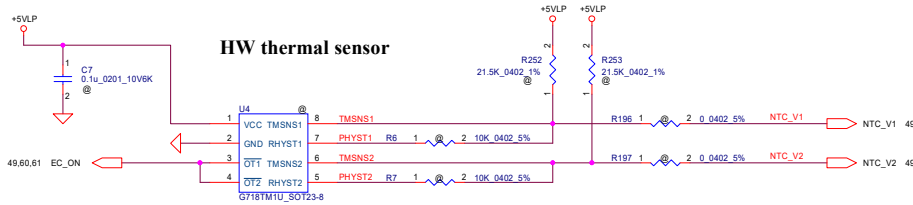
Address 1001_101xb



for layout optimized, change the EC_AGND to GND



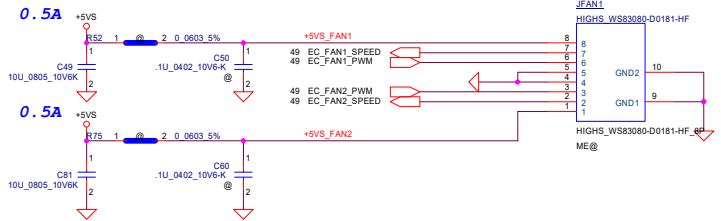
HW thermal sensor




over temperature threshold:
 $RSET = 3 \cdot RTMH$
 $92 \pm 30^\circ C$
Hysteresis temperature threshold.
 $RHYST = (RSET \cdot RTML) / (3 \cdot RTML - RSET)$
 $56 \pm 30^\circ C$

FAN Conn

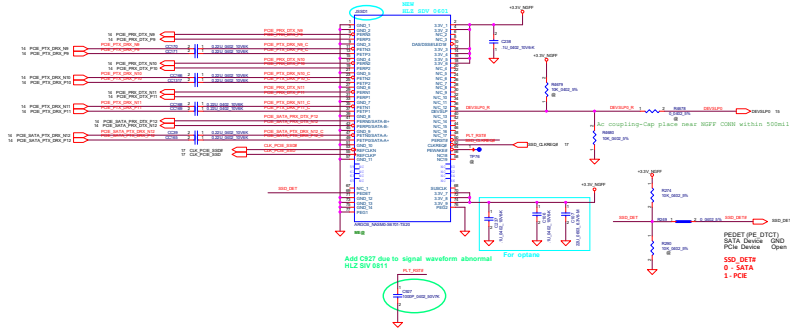
need check ME SDV CONN list
0829ME Change to SP020010000, need update footprint



Security Classification		LC Future Center Secret Data		Title	
Issued Date	2016/08/16	Deciphered Date	2017/08/15	Thermal sensor/FAN CONN 	
<p>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</p>				Size	Rev
				Custom	1.0
				EG530	
				Date:	Thursday, March 29, 2018
				Sheet	44 of 68

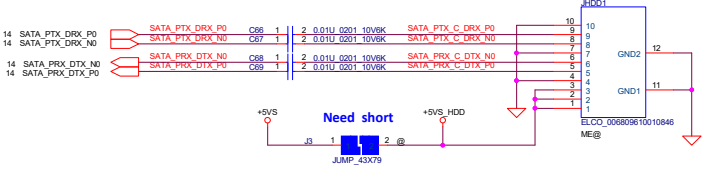
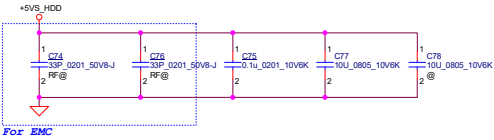
<https://vk.com/servicenotebook>

change WLAN CLKREQ# PH power source 0329SF




<https://vk.com/servicenotebook>

SATA HDD Conn.



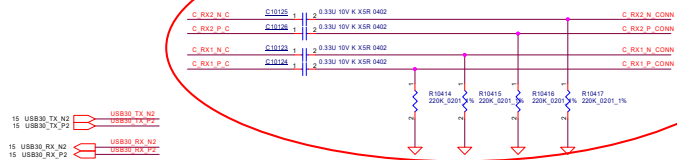
Delete SATA ODD

8/14 Update SF

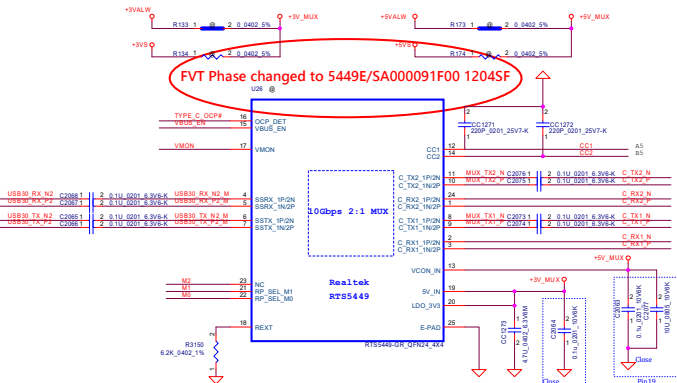
Security Classification		LC Future Center Secret Data				Title					
Issued Date		2015/08/20		Deciphered Date		2016/08/20				HDD/ODD CONN	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.										Size Document Number	
						EG530		Rev 1.0			
Date:		Thursday, March 29, 2018				Sheet 47 of 68					

<https://vk.com/servicenotebook>

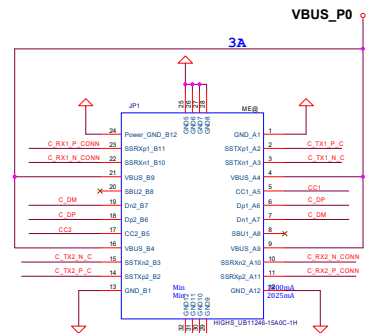
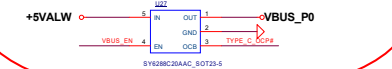
0.33uF change to SE00000700/0402,220K PD stuff 0323SF
For intel MOW(575549) ww46 USB3.1 Type-C USB-IF ENC update 11275F



<https://vk.com/servicenotebook>



optimize design, and serach low cost power switch 0906SF
change to SY6288C20AAC_SOT23-5 12075F



RP configuration

RP:1.5A (now)

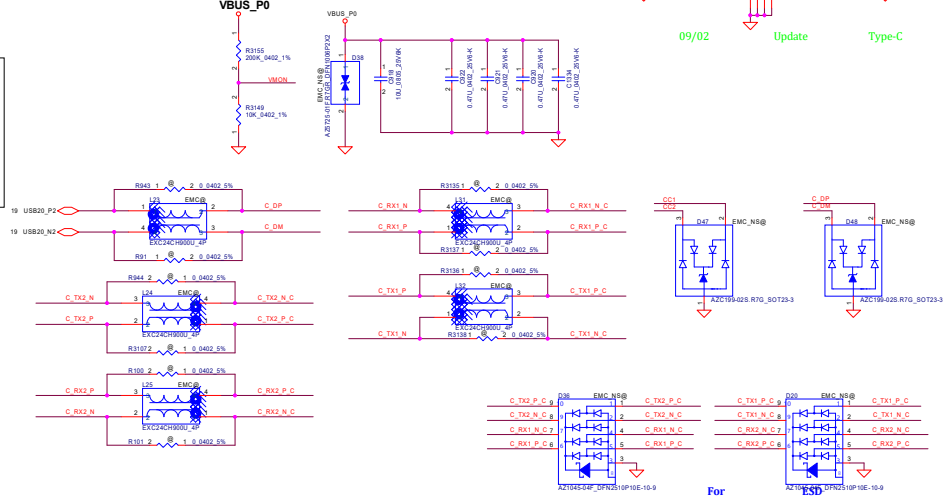
RP	M1	M0	M2	Note
RP:900mA	0	1		R3144/R3142 mount
RP:1.5A	1	0		R3139/R3143 mount
RP:3.0A	1	1		R3139/R3142 mount
RP:NA				R10410 mount for RT55449E

For C_VBUS power switch enable pin

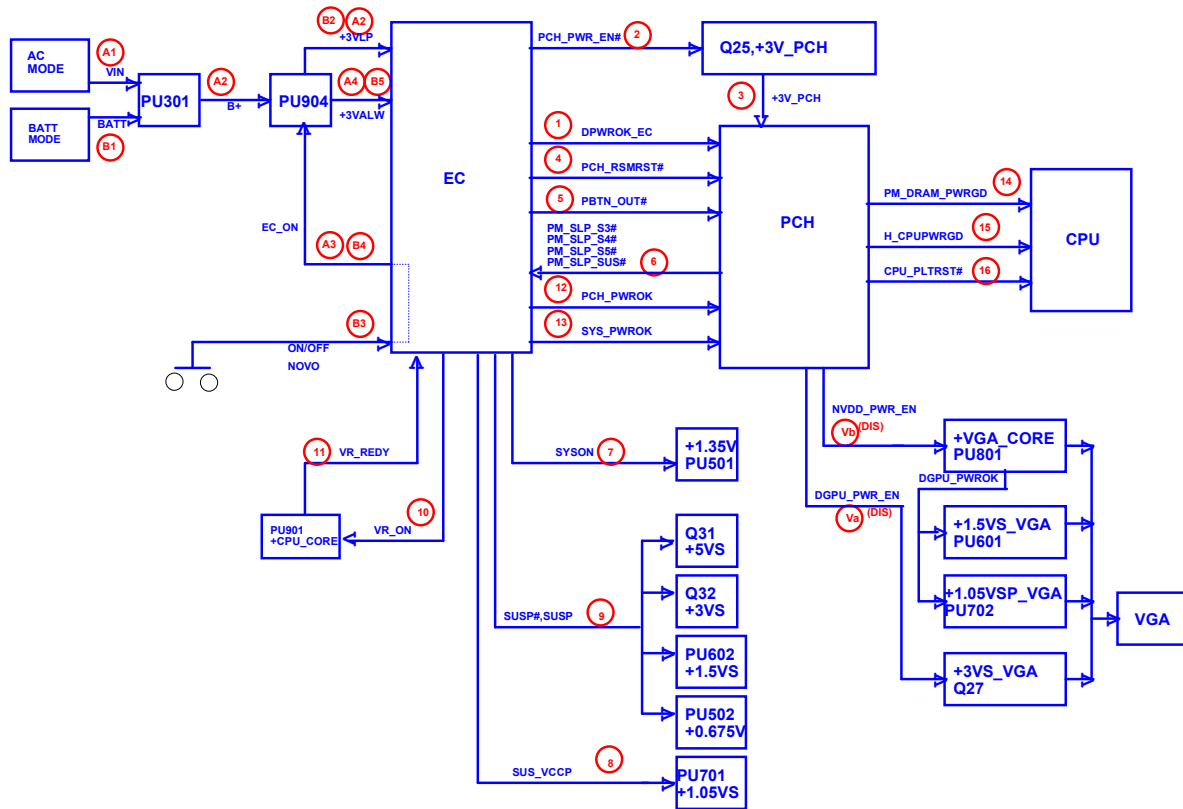
Power switch enable pin	Note
Low Active	R3146 mount
High Active	R3141 mount

For C_VBUS power switch OCP pin

Power switch OCP pin	Note
Low Active	R3147 mount
High Active	R3140 mount




Security Classification	LC Future Center Secret Data	Title
Issued Date	2015/08/20	Deciphered Date
3D Camera		
Doc Number	85530	Rev
Doc Name	85530	Rev



Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/08/20	Deciphered Date	2016/08/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED IN OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			Power sequence block
Size	Document Number	Rev	1.0
Custom	EG530		
Date	Thursday, March 29, 2018	Sheet	52 of 68

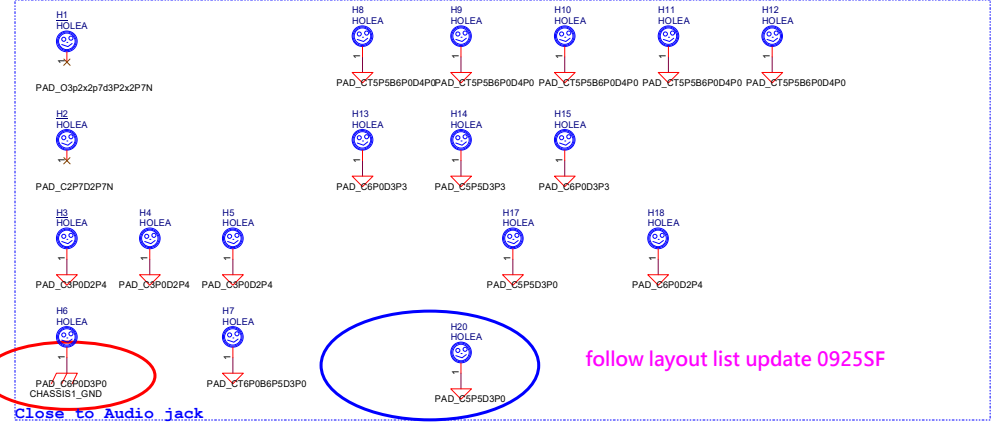
<https://vk.com/servicenotebook>



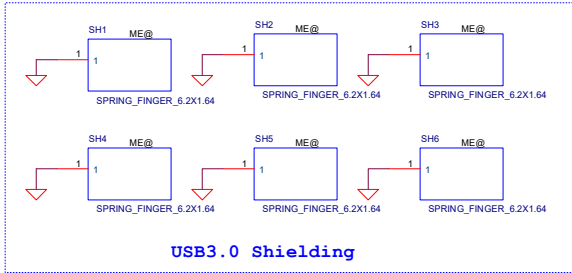
Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		Virtual symbol	
2015/08/20		2016/08/20			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT WITHOUT THE AUTHORIZATION OF LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR FOR ANY OTHER PARTY WITHOUT THE WRITTEN CONSENT OF LC FUTURE CENTER.					
Doc	Document Number			Rev	
EC521	EC521			0.1	
File	File			Sheet	
File	File			Sheet	

<https://vk.com/servicenotebook>

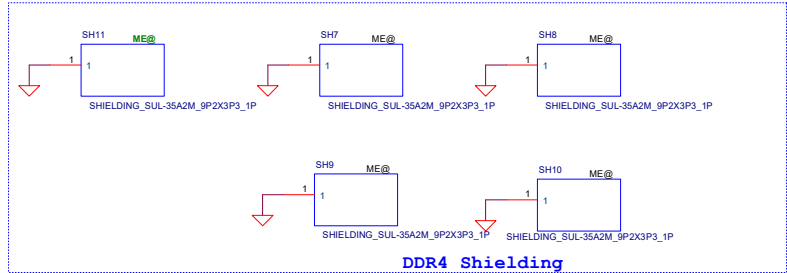
PCB Federal Mark PAD




USB3.0 Shielding

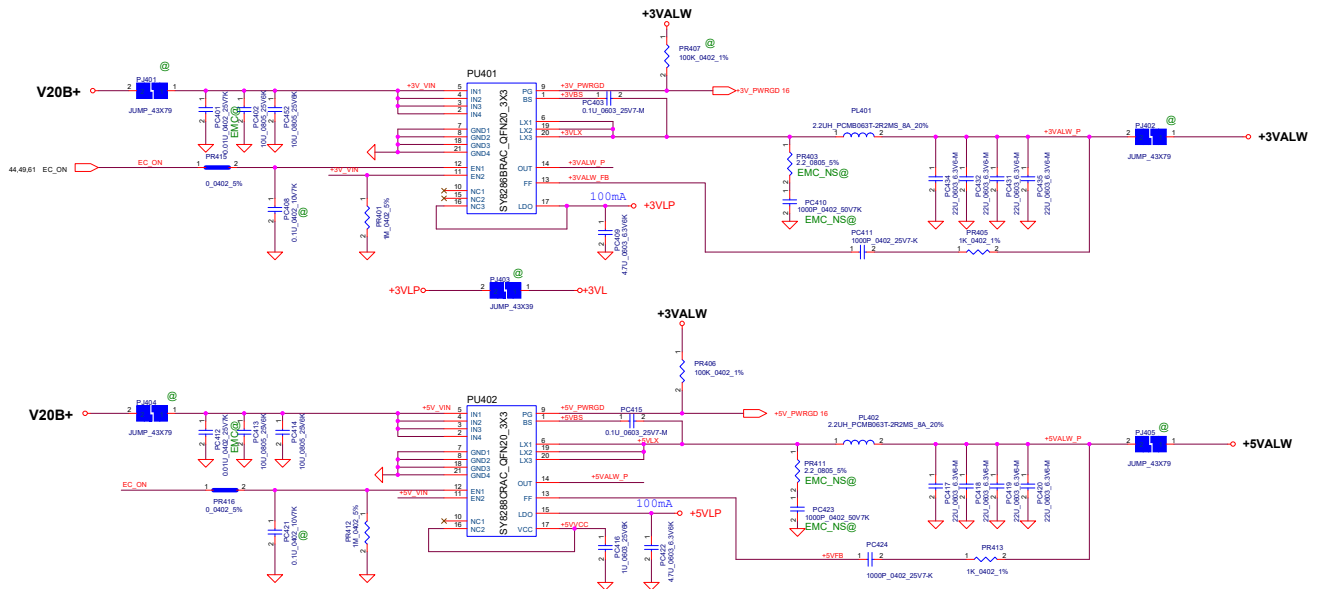


DDR4 Shielding



Security Classification		LC Future Center Secret Data		Title		
Issued Date		Deciphered Date		Hole		
2015/08/20		2016/08/20				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.						
Size		Document Number		Rev		1.0
		EG530				
Date:		Thursday, March 29, 2018		Sheet		54 of 68


<https://vk.com/servicenotebook>




VOUT=3.07V
TDC=6A
OCP=10A
Fsw=600Khz


VOUT=5.01V
TDC=8A
OCP=12A
Fsw=600Khz

Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		2015/08/20	
2015/08/20		2016/08/20		Cover Page	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF LC FUTURE CENTER.					
Size		Document Number		Rev	
A		EG530		1.0	
Date		Thursday, March 26, 2015		Sheet 54 of 88	

Security Classification		LC Future Center Secret Data		Title			
Issued Date		Deciphered Date		2015/08/20			
2015/08/20		2016/08/20					
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF LC FUTURE CENTER.							
Rev		Document Number		EG530		Rev	
1.0						1.0	
Date		Thursday, March 26, 2015		Sheet		54 of 88	

Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		Cover Page	
2015/08/20		2016/08/20			
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small>				Size	Document Number
				C	EG530
				Date	Revision
				Monday, March 28, 2016	1.0

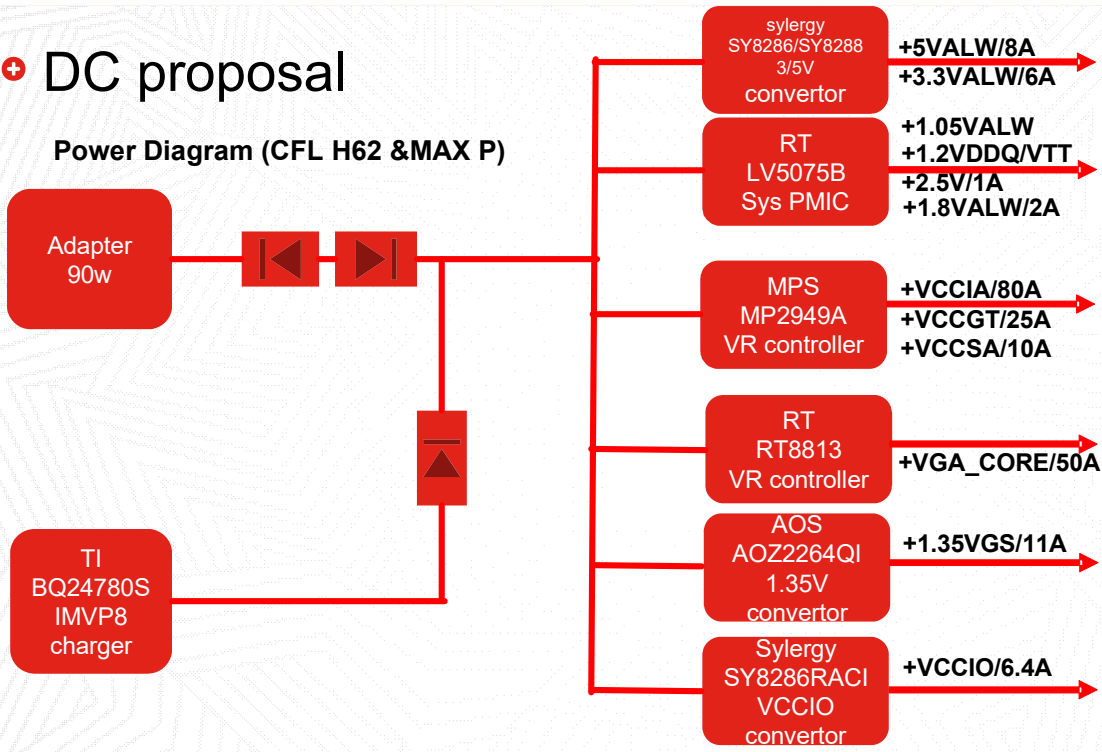
<https://vk.com/servicenotebook>

Security Classification		LC Future Center Secret Data		Title			
Issued Date		2015/08/20		Deciphered Date		2016/08/20	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.		Size		Document Number		Rev	
		3		EG530		1.0	
Date:		Thursday, March 29, 2016		Sheet		56 of 68	

<https://vk.com/servicenotebook>

+ DC proposal

Power Diagram (CFL H62 & MAX P)

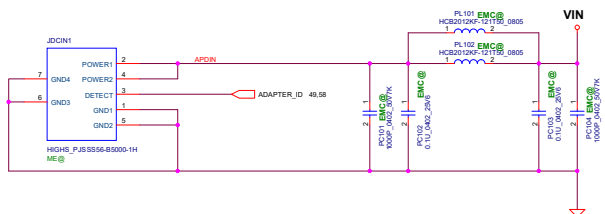


2016 LCFC Internal. All rights reserved.

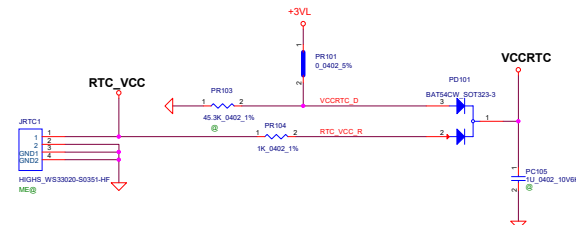
LCFC
1

Security Classification	LC Future Center Secret Data			Title	Cover Page	
Issued Date	2015/08/20	Deciphered Date	2016/08/20	Size	Document Number	Rev
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				EG530		
				Date:	Thursday, March 29, 2016	Sheet 57 of 68

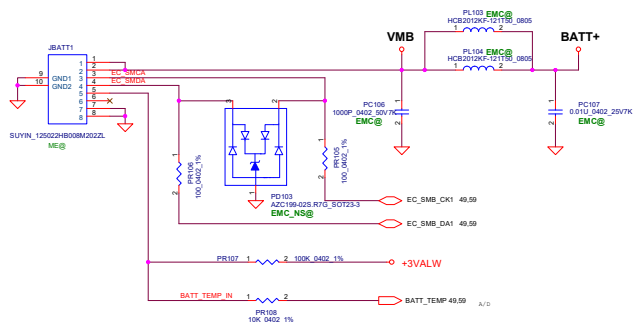
<https://vk.com/servicenotebook>



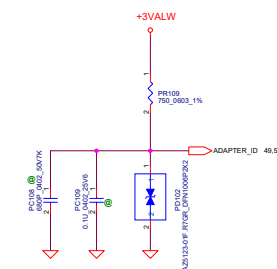
DC IN:1.DC IN connect apply for PN HIGHS_PJSSS56-B5000-1H_5P-T ,need replace connector rate current 7A



RTC:1. 0ohm delete
2.the max VCCRTC < 3.2V specification
3.RTC cable 35mm



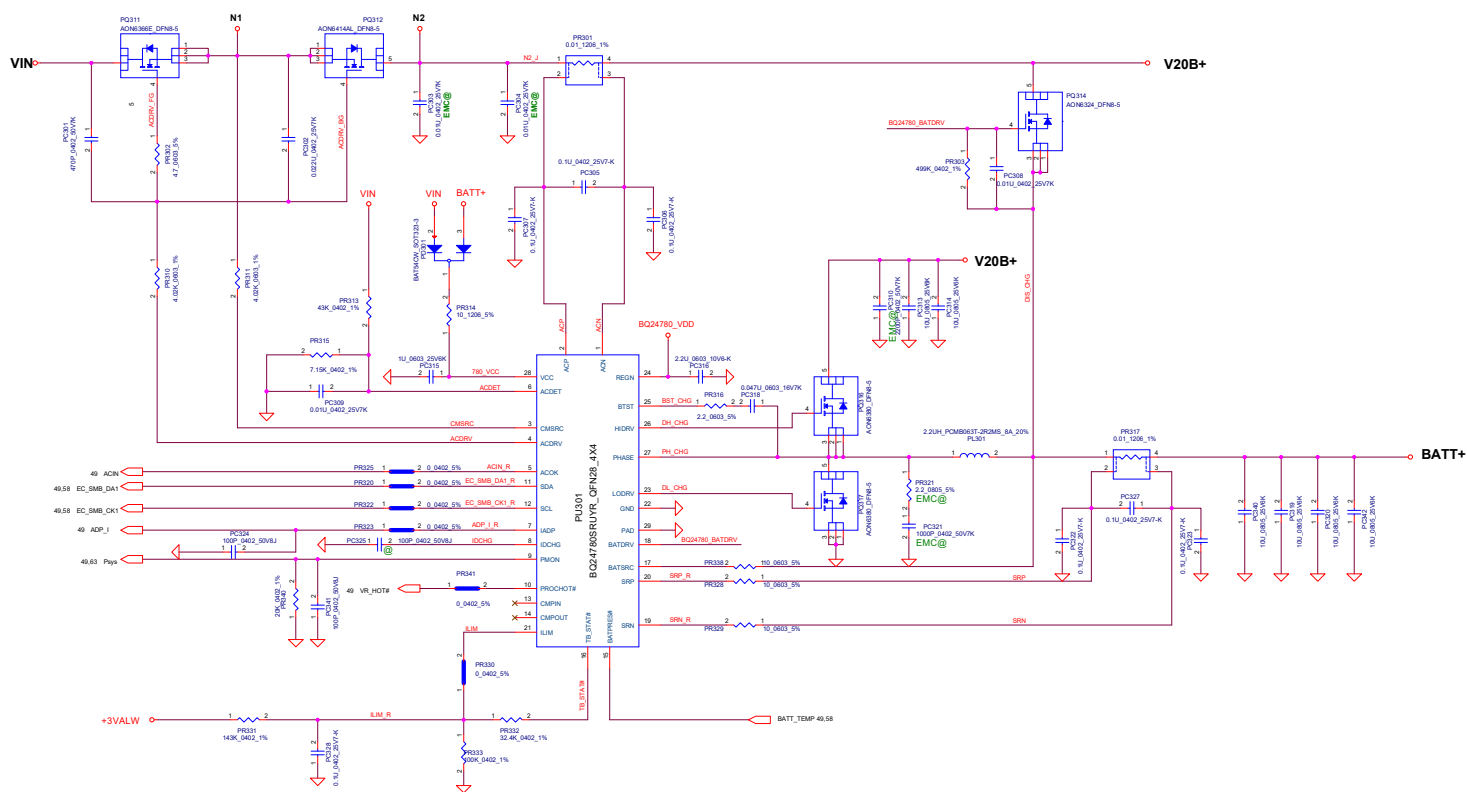
battery IN:
1.battery connector 8pin per pin 4.5A



ADP ID:1. cost down solution
2.EC initial ID function

Security Classification				LC Future Center Secret Data				Title			
Issued Date				Deciphered Date				Cover Page			
2015/08/20				2016/08/20				2016/08/20			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				Rev				1.0			
Date				2016/08/20				Sheet			
2016/08/20				2016/08/20				1 of 1			

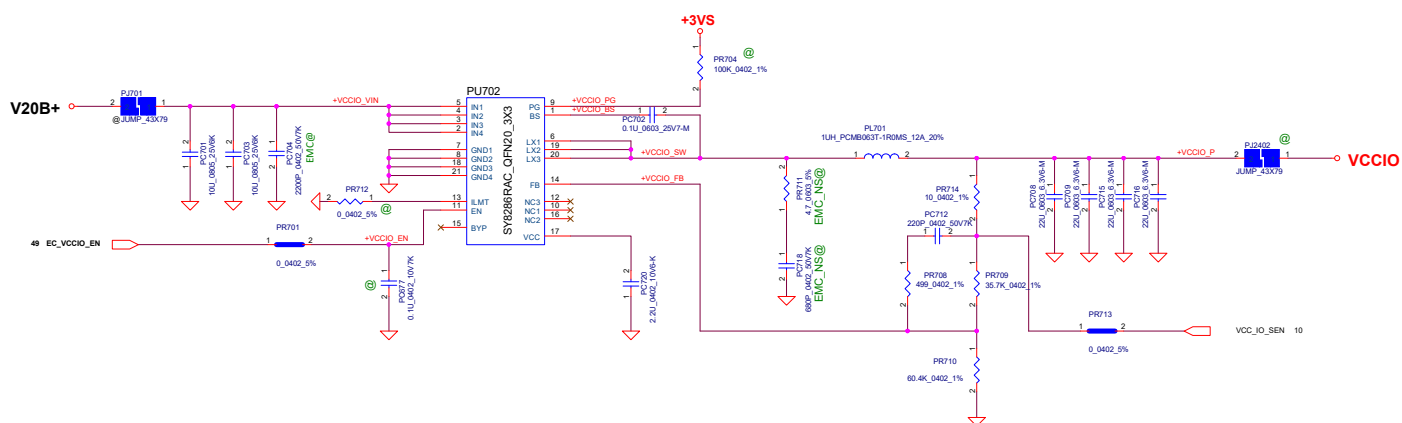
<https://vk.com/servicenotebook>



charge current:1C 5A
charge voltage:12.6V
charge frequency:800K
ILIM pin:charge7A, turbo-discharge-10A

Security Classification	LC Future Center Secret Data		Title	
Issued Date	2015/08/20	Designed Date	2016/08/20	Cover Page
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT WITHOUT THE AUTHORIZATION OF LC FUTURE CENTER. WITHOUT THE WRITTEN CONSENT OF LC FUTURE CENTER, THIS SHEET MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				
Rev	Document Number	EG530		A4
Date	Issued	March 28, 2016	Revised	09 41 06

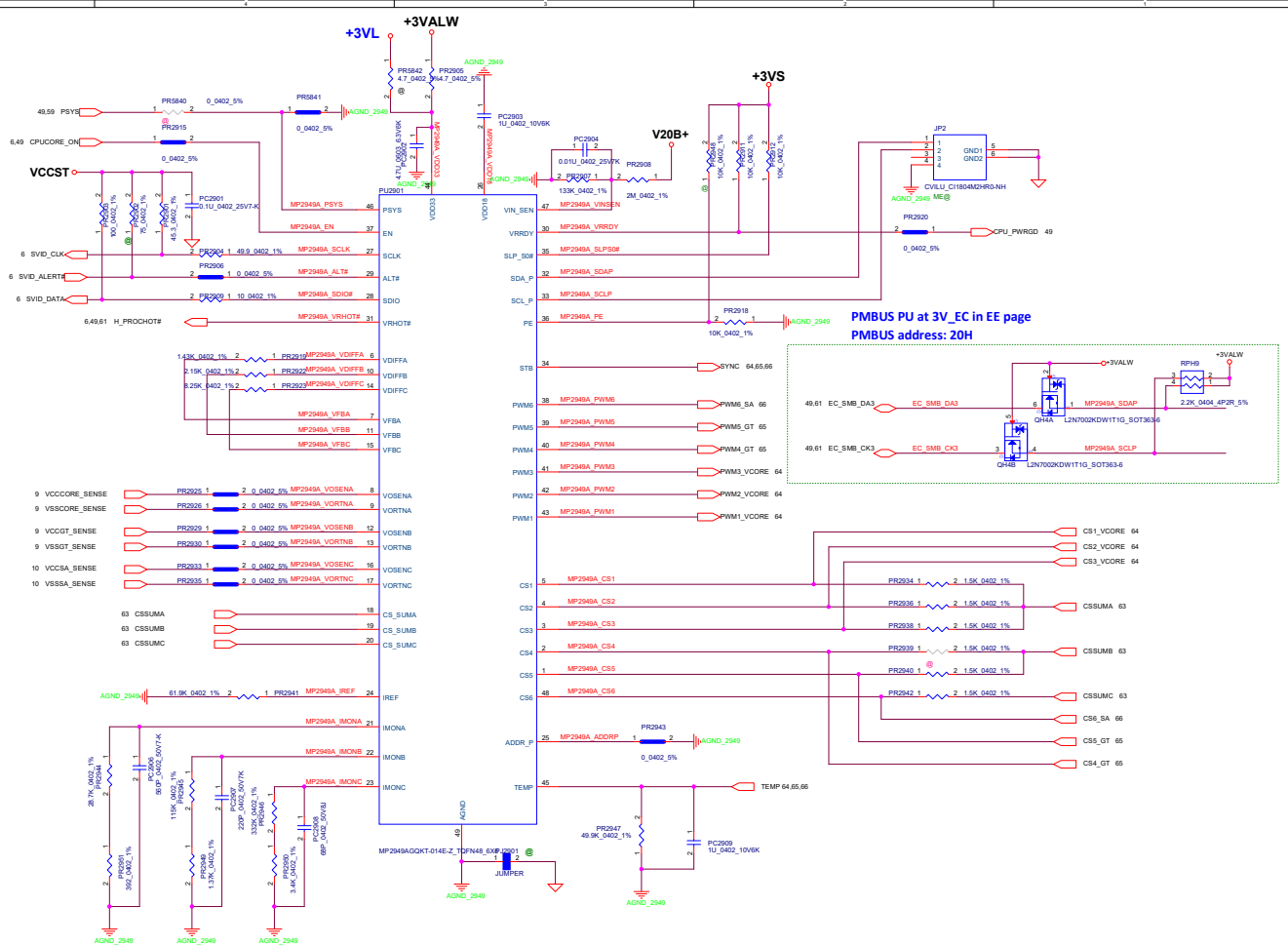
<https://vk.com/servicenotebook>



VCCIO:FB=0.6V/0.954V
TDC=6A
OCP:10A
OVP:120%
frequency:500Khz
remove sense pull high in power side

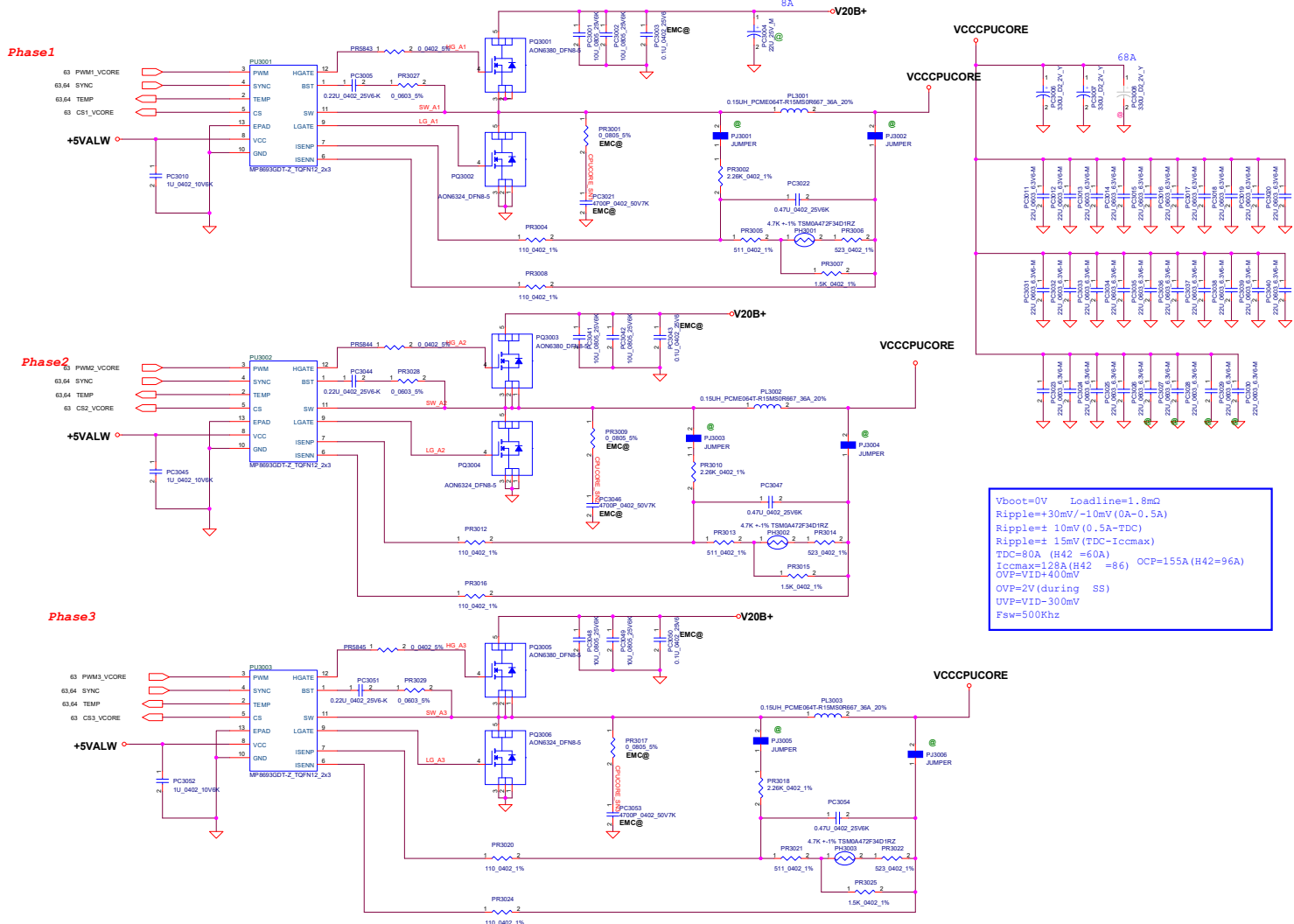
Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		Cover Page	
2015/08/20		2016/08/20		EG530	
This is a draft of engineering drawings. It is the property of LC Future Center and contains confidential and trade secret information. This information is to be used for the development of the LC Future Center and may be used by or disclosed to any third party without prior written consent of LC Future Center.		Date		Thursday, March 29, 2018	Sheet 62 of 68

<https://vk.com/servicenotebook>




Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/08/20	Deciphered Date	2016/08/20	Cover Page	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT WITHOUT THE AUTHORIZATION OF LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.				Doc Number	EG530
				Date	Monday, March 28, 2016
				Sheet	66 of 66

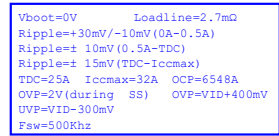
<https://vk.com/servicenotebook>



Vboot=0V Loadline=1.8mΩ
 Ripple=+30mV/-10mV (0A-0.5A)
 Ripple=± 10mV (0.5A-TDC)
 Ripple=± 15mV (TDC-Iccmax)
 TDC=80A (H42 =60A)
 Iccmax=128A (H42 =86) OCP=155A (H42=96A)
 OVP=VID+40mV
 OVP=2V (during SS)
 UVP=VID-30mV
 Fsw=500Khz

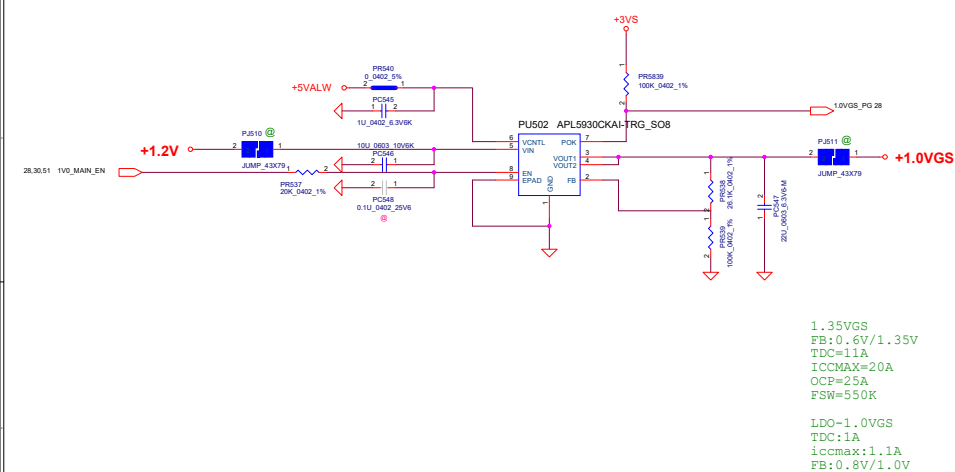
Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		Cover Page	
2015/08/20		2016/08/20			
<p>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF LC FUTURE CENTER.</p>					
Doc Number		2G530		Rev	
Date		Monday, March 28, 2016		1.0	
Sheet		64 of 68			

<https://vk.com/servicenotebook>




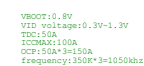
<https://vk.com/servicenotebook>

VER1.10



```
LDO-1.0VGS
TDC:1A
iccmx:1.1A
FB:0.8V/1.0V
```

Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/08/20	Deciphered Date	2016/08/20
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT OF DEFENSE TO ANY OTHER AUTHORIZED BY LC FUTURE CENTER WITHIN THE DEPARTMENT OF DEFENSE. IT CONTAINS INFORMATION THAT IS UNCLASSIFIED, BUT MAY BE USED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.			
Revision Title Document Number EC530			Rev Date Description 01 1 1 00



Security Classification		LC Future Center Secret Data		Title	
Issued Date	20160620	Deciphered Date	20160620	Cover Page	
THIS DOCUMENT OR INFORMATION CONTAINED HEREIN IS PROPRIETARY AND UNCLASSIFIED AND CONTAINS CONFIDENTIAL AND SECRETARY INFORMATION. IT IS NOT TO BE RELEASED, DISCLOSED, OR DISTRIBUTED TO THE PUBLIC OR TO ANY OTHER PERSON OR ENTITY WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE JAGC/USCJ. IT IS TO BE USED ONLY BY THE PERSONS TO WHOM IT HAS BEEN ISSUED BY THE JAGC/USCJ. IT IS TO BE KEPT IN THE ORIGINAL FORM AND NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.				ECD ECD30	

<https://vk.com/servicenotebook>