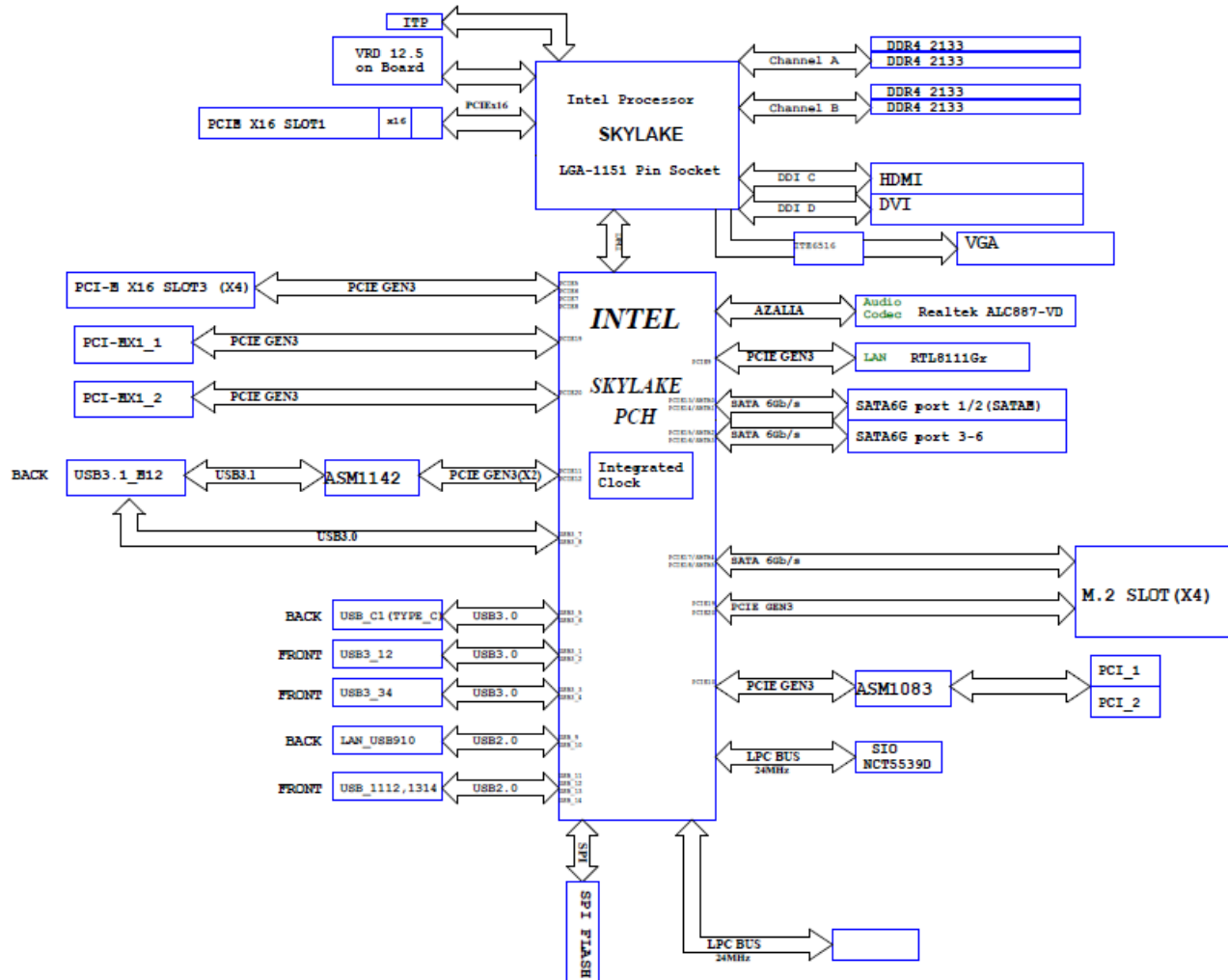




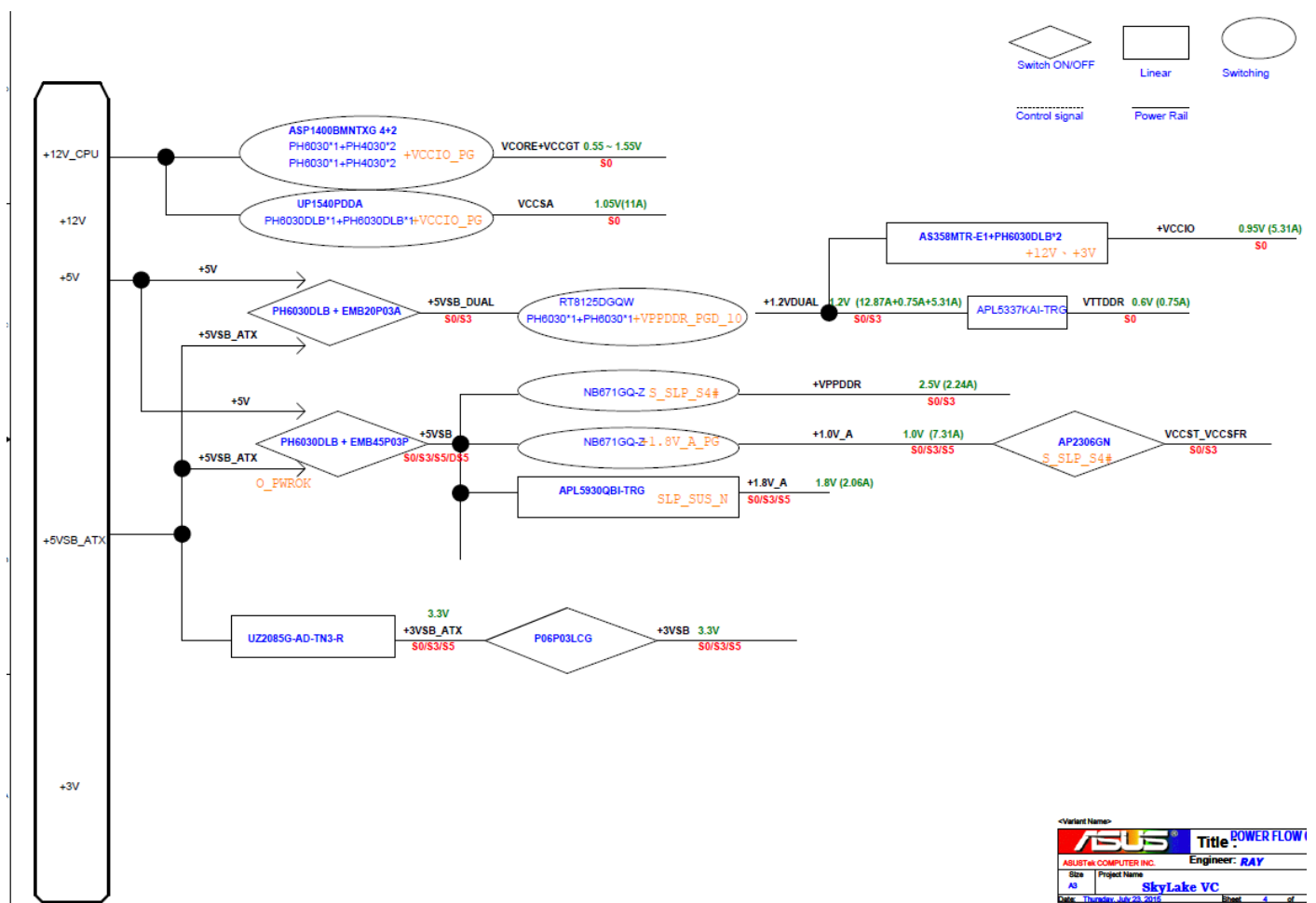
1. BLOCK DIAGRAM

Z170-K

Rev 1.04 2015

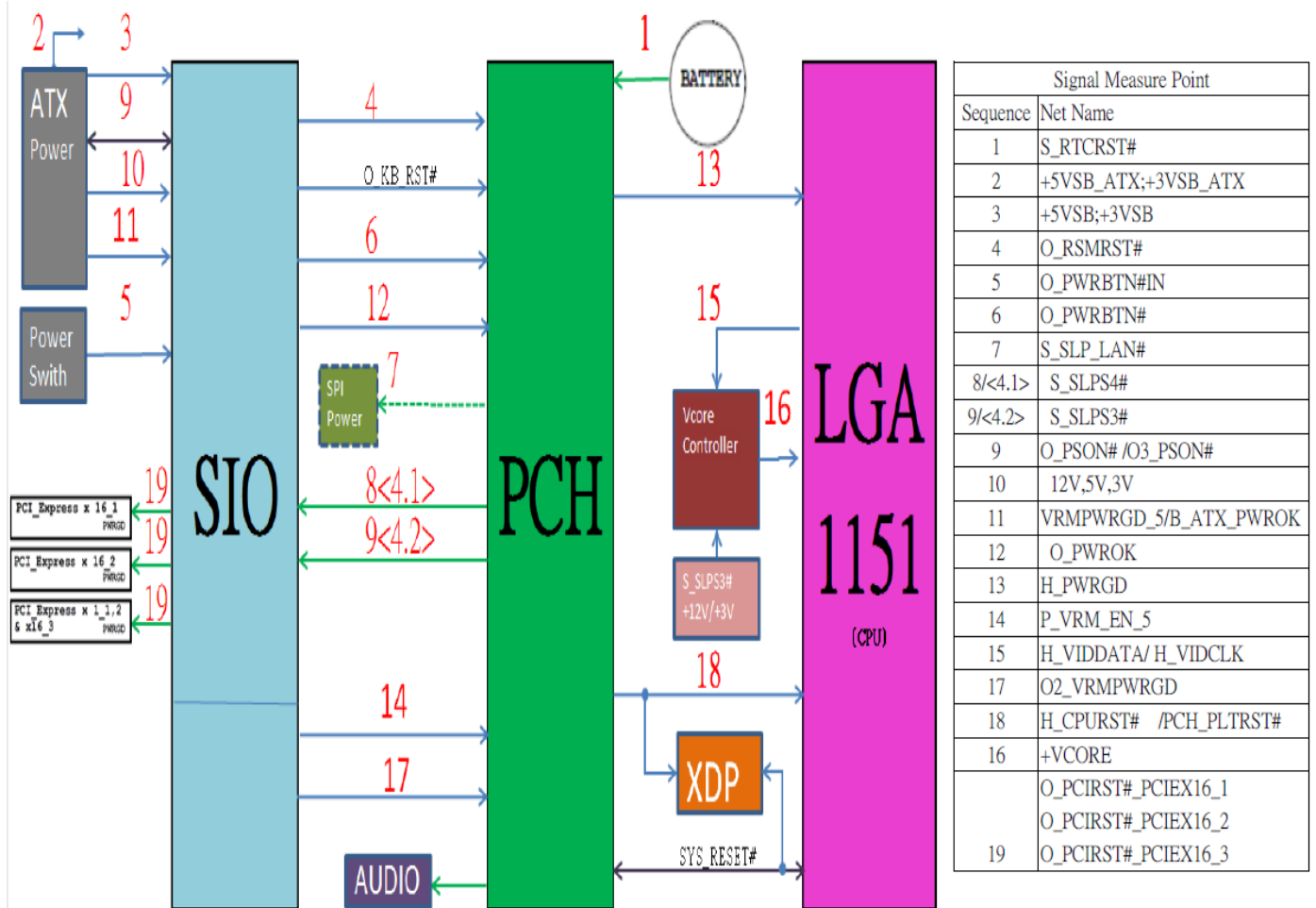


2. POWER FLOW



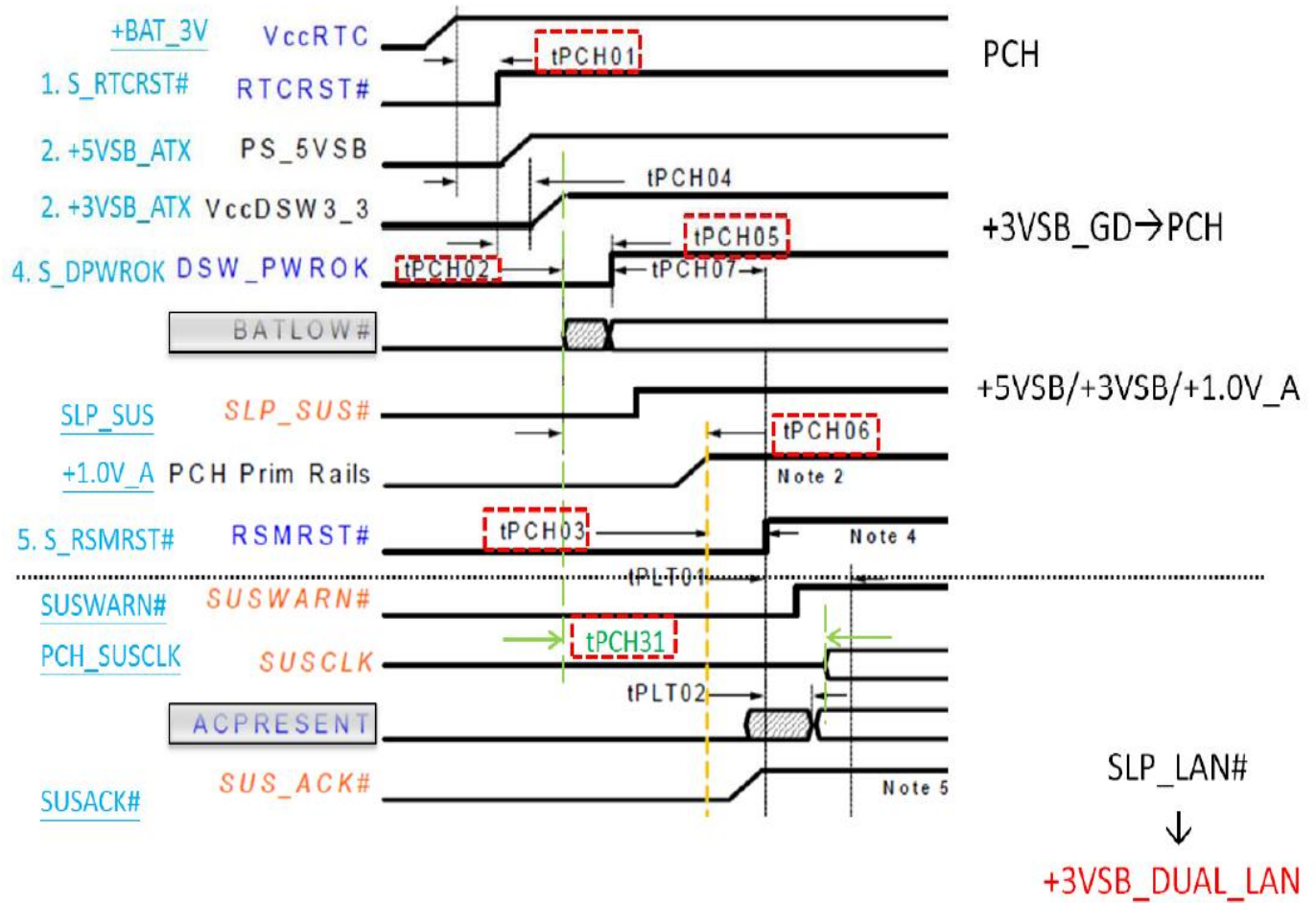
ASUS		Title: POWER FLOW1	
ASUSTek COMPUTER INC.		Engineer: RAY	
Size	Project Name	SkyLake VC	
AS		Date: Thursday, July 23, 2015	
		Sheet: 4 of 4	

3. POWER ON SEQUENCE



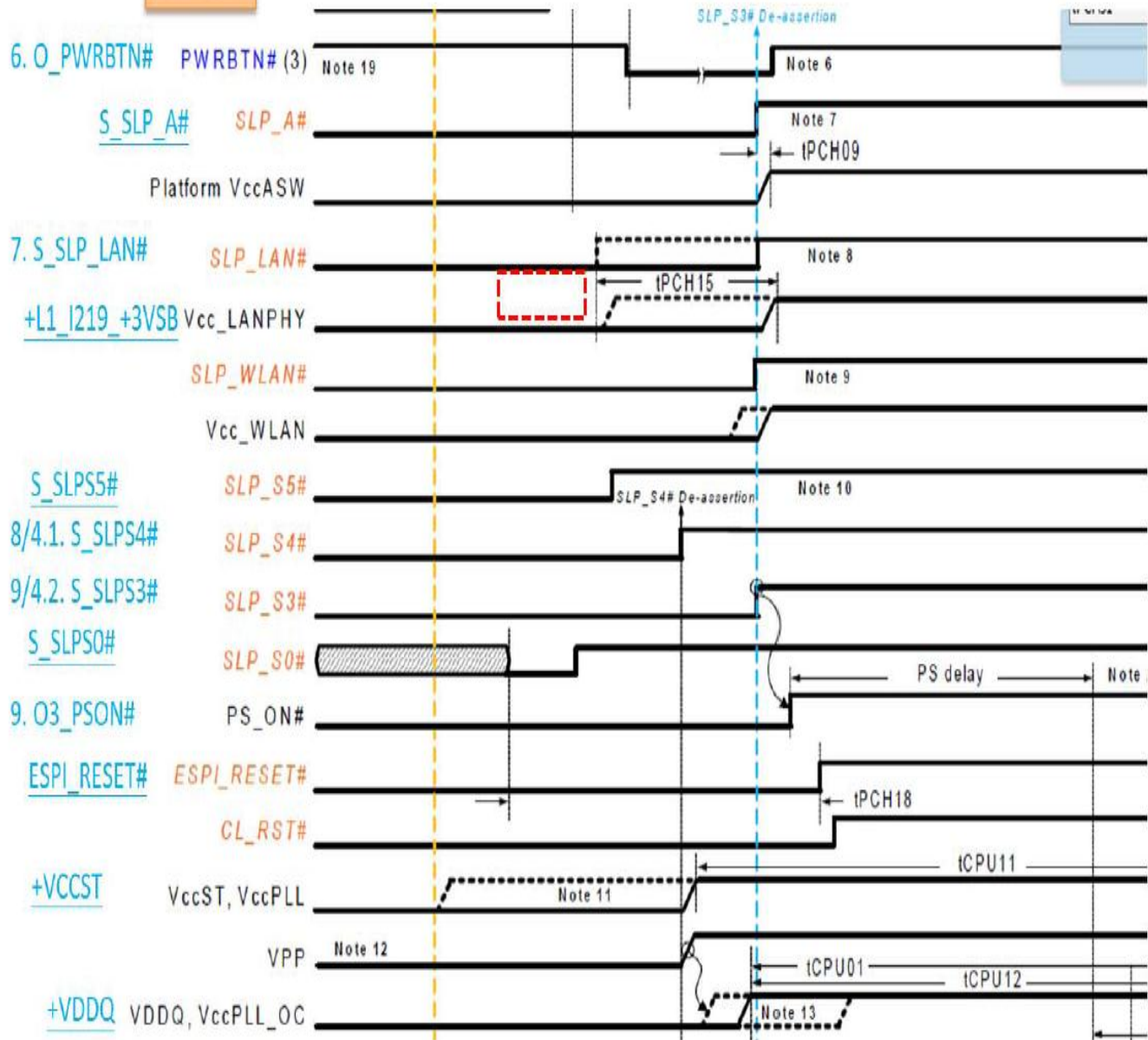
4. Timing Diagram for G3 to S5

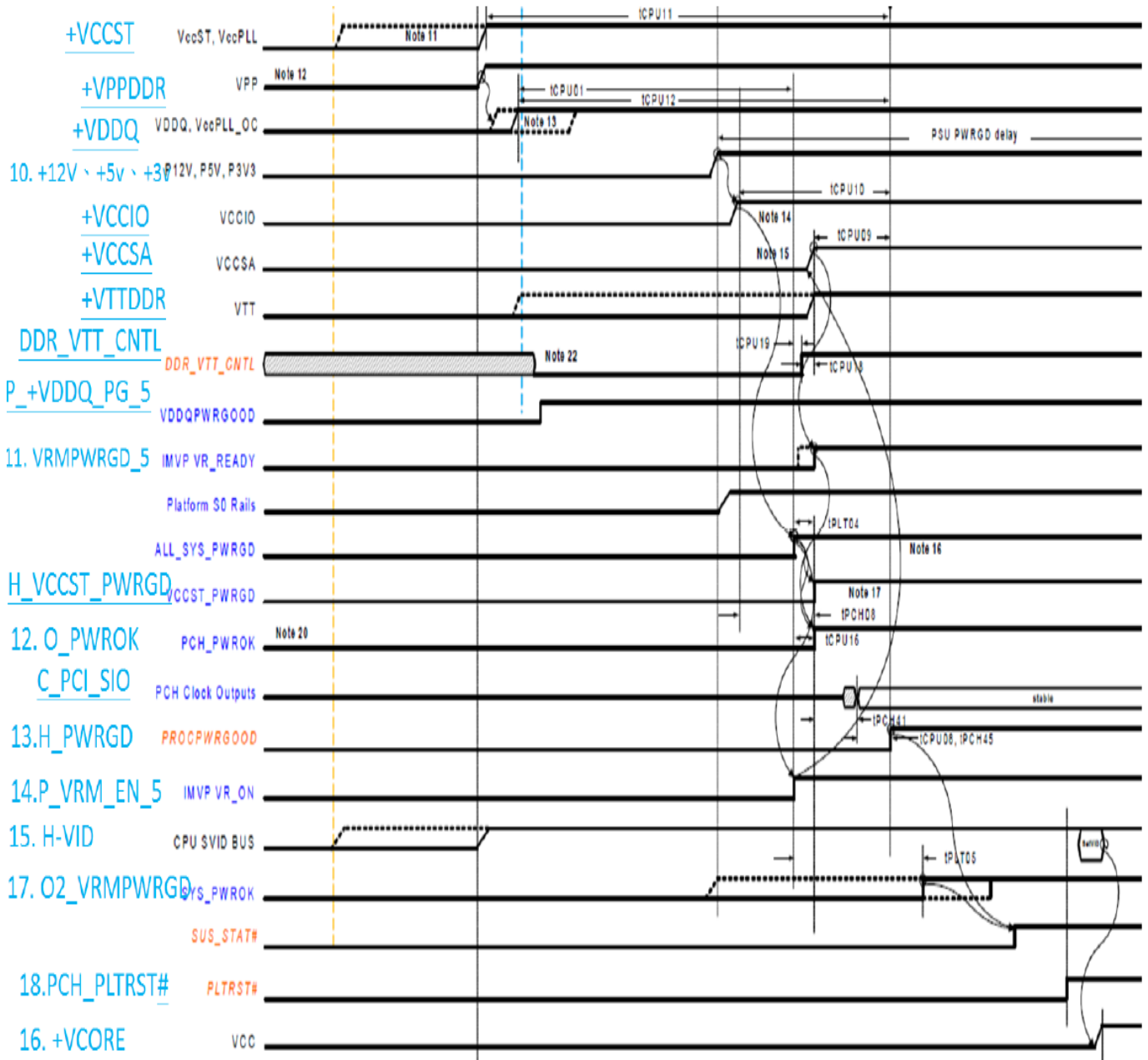
G3→S5



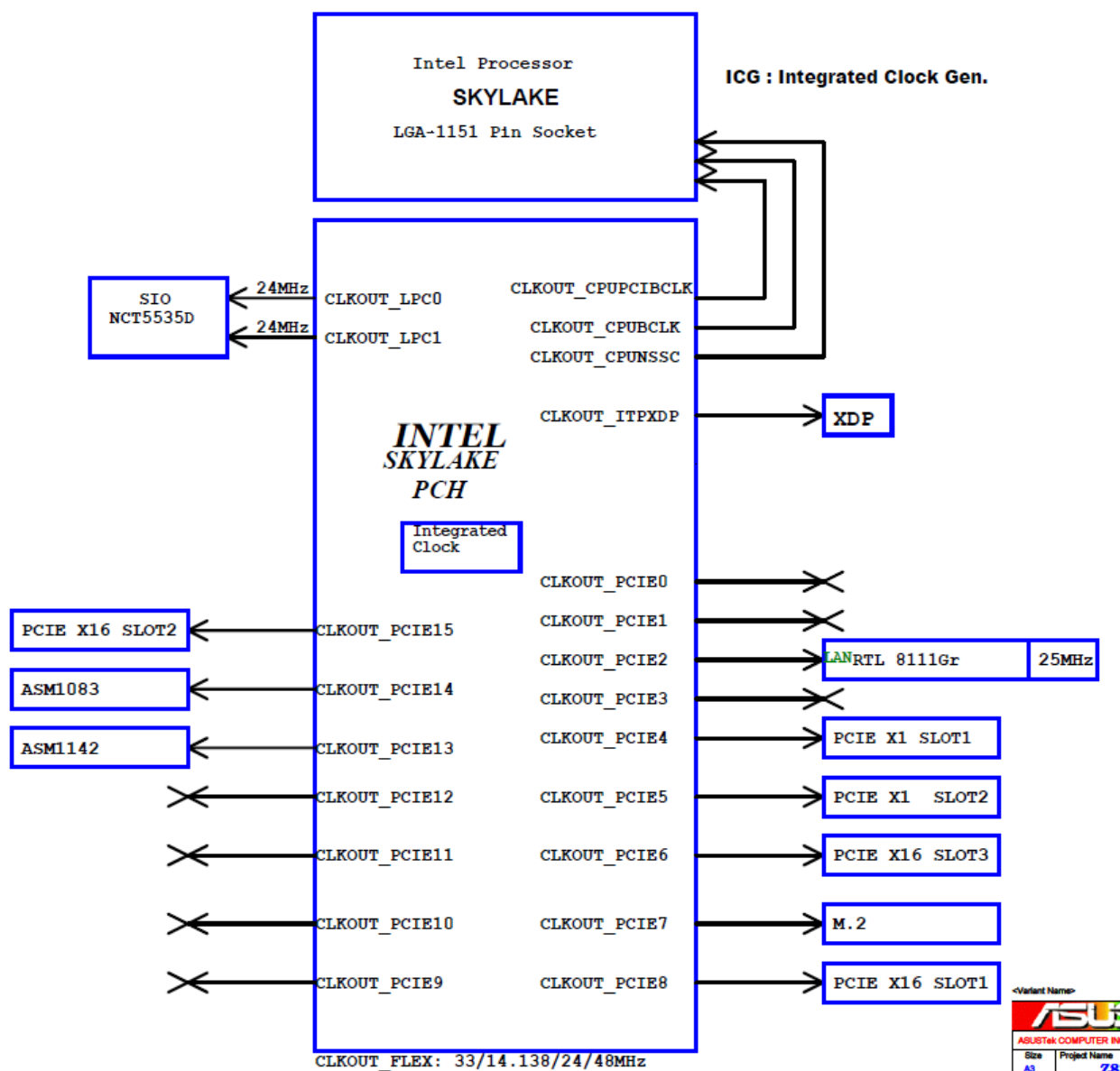
Timing Diagram for S5 to S0/M0

S5→S0





5. Frequency Flow



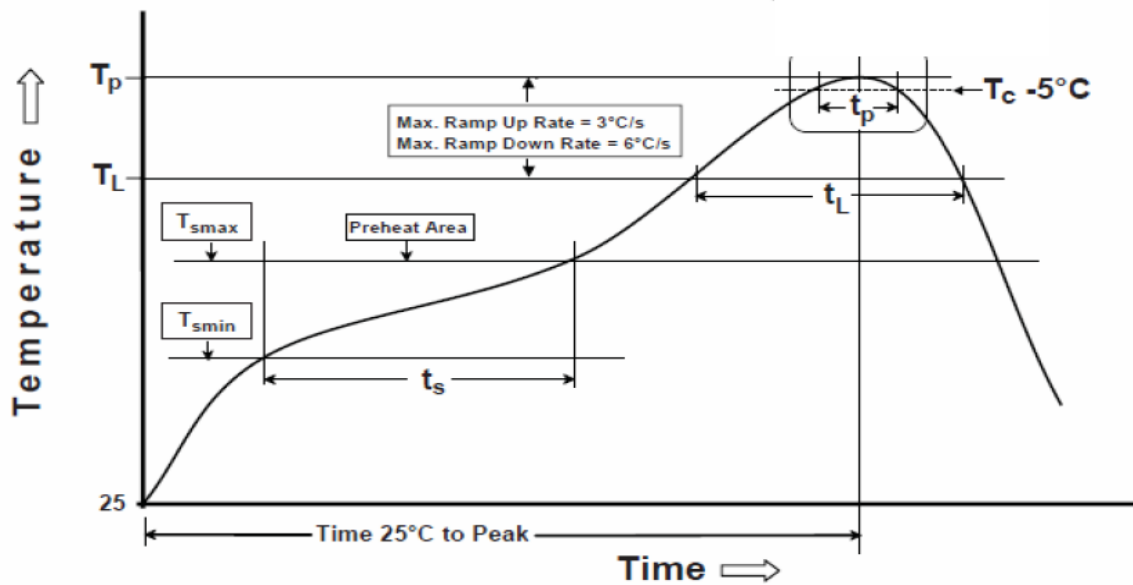
6. Socket reflow profile

Profile Feature	SMD Pb-Free Assembly	DIP Pb-Free Assembly	SMT Component Vendor Spec	DIP Component Vendor Spec
Preheat/Soak	150 °C	80 °C	150 °C	135 °C
Temperature Min (T _{smin})	200 °C	135 °C	200 °C	need endure 80 seconds
Temperature Max (T _{smax})	120 seconds	120 seconds	need endure 120 seconds	
Time (t _s) from (T _{smin} to T _{smax})				
Ramp-up rate (TL to Tp)	3 °C/second max.	3 °C/second max.	need endure 3 °C/second max.	need endure 3 °C/second max.
Liquidous temperature (TL)	217 °C	NA	217 °C	NA
Time (t _L) maintained above TL	90 seconds		need endure 90 seconds	
Peak package body temperature (Tp)	260 °C	270 °C	260 °C	270 °C
Time (t _p)* within 5 °C of the specified classification temperature (Tc), see Figure 1-1.	10* seconds	6* seconds	need endure 10* seconds	need endure 6* seconds
Ramp-down rate (Tp to TL)	6 °C/second max.	6 °C/second max.	need endure 6 °C/second max.	need endure 6 °C/second max.
Time 25 °C to peak temperature	8 minutes max.	8 minutes max.	8 minutes max.	8 minutes max.

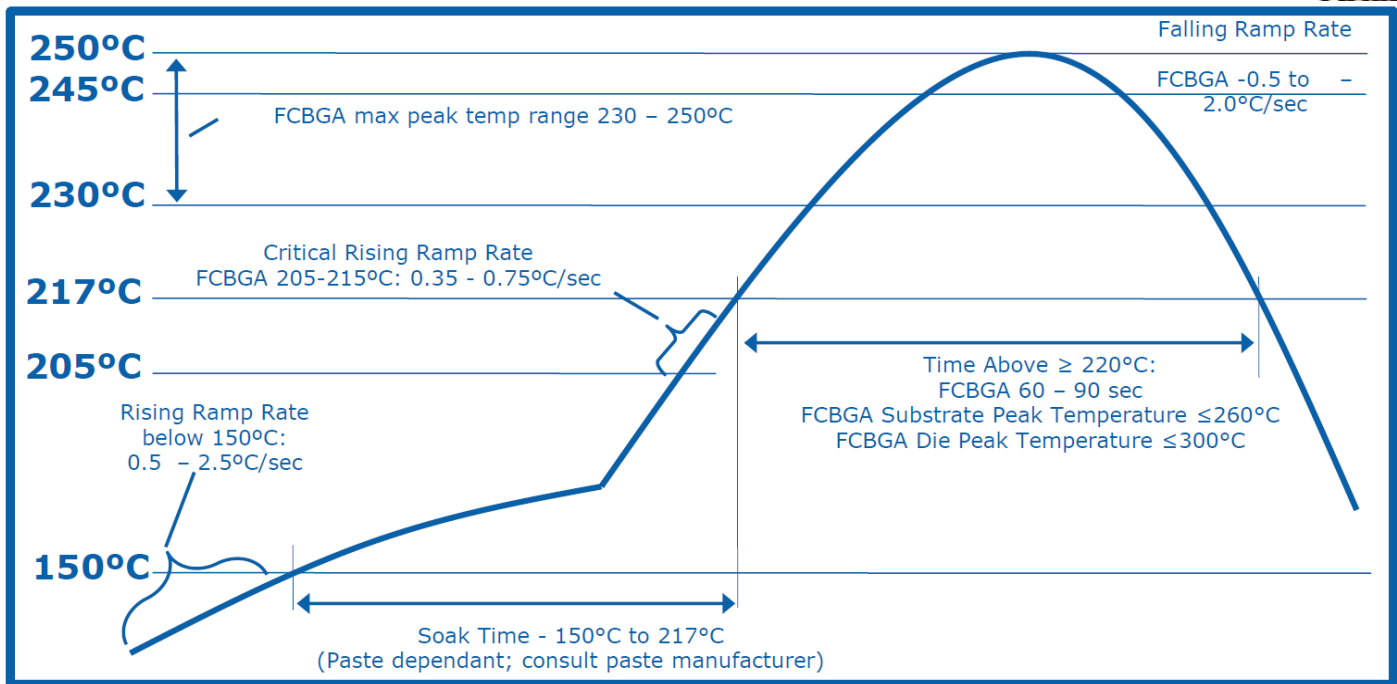
Note 1: All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow (e.g., live-bug). If parts are reflowed in other than the normal live-bug assembly reflow orientation (i.e., dead-bug), Tp shall be within ± 2 °C of the live-bug Tp and still meet the Tc requirements, otherwise, the profile shall be adjusted to achieve the latter. To accurately measure actual peak package body temperatures refer to JEP140 for recommended thermocouple use.

2. DIP Plastic heat resistance capability :

- (1) Direct contact 270°C, 6 seconds
- (2) In-direct contact 230°C, 5 seconds
- (3) no contact 130°C, 5 seconds



7. Lead-Free Rework Thermo profile Graphic for BGA & Chipset



Except for body temp, all temperatures are measured with thermo couples inside solder joints, for better accuracy

Primary Factors for Successful Rework:

- Flux formulation and solder paste formulation and volume
- A capable thermal reflow profile
- Proper PCB pad solder preparation/wicking (clean-up of the residual solder from the PCB pads)

Caution: Always remove batteries and thermal solutions following the system design disassembly process steps prior to BGA rework to avoid damaging the BGA.

View this Intel® BGA / Socket Rework Video (10 minutes in length):

<http://link.brightcove.com/services/player/bcpid1409165005001?bckey=AQ~~,AAAQwZd9wk~,X1Exj3sUi-03b71FGkEmVWbi4T4yGcor&bctid=1519232885001>

8. MB Baking Time: 120 °C, 8 hours

BGA Baking Time:

5.2 Floor Life The floor life of SMDs per Table 5-1 will be modified by environmental conditions other than 30 °C/60% RH. Refer to Clause 7 to determine maximum allowable time before rebake would be necessary. If partial lots are used, the remaining SMD packages must be resealed or placed in safe storage within one hour of bag opening (see 5.3). If one hour exposure is exceeded, refer to 4.1.

Table 5-1 Moisture Classification Level and Floor Life per J-STD-020

Level	Floor Life (out of bag) at factory ambient $\pm 30^{\circ}\text{C}/60\%$ RH or as stated
1	Unlimited at $\pm 30^{\circ}\text{C}/85\%$ RH
2	1 year
2a	4 weeks
3	168 hours
4	72 hours
5	48 hours
5a	24 hours
6	Mandatory bake before use. After bake, must be reflowed within the time limit specified on the label

Supplier Bake: Default Baking Times Used Prior to Dry-Pack that were Exposed to Conditions $\pm 60\%$ RH (“MET” = 24 h)

Package Body Thickness	Level	Bake @ $125^{\circ}\text{C} +10/-0^{\circ}\text{C}$	Bake @ $150^{\circ}\text{C} +10/-0^{\circ}\text{C}$
$\leq 1.4\text{ mm}$	2	7 hours	3 hours
	2a	8 hours	4 hours
	3	16 hours	8 hours
	4	21 hours	10 hours
	5	24 hours	12 hours
	5a	28 hours	14 hours
$> 1.4\text{ mm}$ $\leq 2.0\text{ mm}$	2	18 hours	9 hours
	2a	23 hours	11 hours
	3	43 hours	21 hours
	4	48 hours	24 hours
	5	48 hours	24 hours
$> 2.0\text{ mm}$ $\leq 4.5\text{ mm}$	5a	48 hours	24 hours
	2	48 hours	24 hours
	2a	48 hours	24 hours
	3	48 hours	24 hours
	4	48 hours	24 hours
	5	48 hours	24 hours
	5a	48 hours	24 hours

Note 1: If baking of packages $> 4.5\text{ mm}$ thick is required see appendix B.

Note 2: The bake times specified are conservative for packages without blocking planes or stacked die. For a stacked die or BGA package with internal planes that impede moisture diffusion the actual bake time may be longer than that required in Table 4-2 if packages have had extended exposure to factory ambient before bake. Also the actual bake time may be reduced if technically justified. The increase or decrease in bake time **shall** be determined using the procedure in JEDEC JESD22-A120 (i.e., $< 0.002\%$ weight loss between successive readouts) or per critical interface concentration calculations.

9. Voltage Measure Point

Voltage Measure Point		
Station	Net Name	Diode resistance
PU702	+3VSB_ATX	358
PL201	VCCGT	461
PQ605	+5VSB	493
PL704	VCCSA	488
EATX12V	+12V_CPU	555
PL301	VCCIO	450
TPM	+3VSB	319
PC550	VTT_DDR	425
EATXPWR	+5VSB_ATX	680
PR750	+5VDUAL	530
EATXPWR	+12V	503
EATXPWR	+5V	441
PQ403	+3V	343

10.Signal Measure Point

		Signal Measure Point	
Station	Sequence	Net Name	Diode resistance
SR120	1	S_RTCRST#	779
SR121		S_SRTCST#	779
NA	2	AC Power Switch ON	NA
PQ605	3	+5VSB	493
TPM		+3VSB	319
SR80	3.1	S_DPWROK	28
SR80	4	O_RSMRST#	28
O1R10	4.1/8	S_SLP_S4#	570
O1R11	4.2/9	S_SLP_S3#	549
O1R18	5	O_IOPWRBTN#	570
O1R14	6	O_PWRBTN#_R	590
O1R11	7/4.2	S_SLP_S3#	549
NA	7	S_SLP_A#	NA
NA	7.1	S_SLP_LAN#	NA
O1R10	8/4.1	S_SLP_S4#	570
O1R98	9	O_PSON#_O1	543
EATXPWR	10	12V	503
EATXPWR		5V	441
PQ403		3V	343
NA	11	P_PWROK_PS	NA
SR1640	12	O_PWROK	56
SR75	13	H_CPUPWRGD	442
HR210	14	H_SVID_DATA	519
PR109		H_SVID_CLK	520
PC168	15	VCORE	420
SQ6	16	P_VR_READY_10	498
TPM	17	S_PLTRST#	477
ESDC3	18	H_CPURST#	420
XC75	19	O_X1_RST#	605
XC71		O_X16_RST#	623