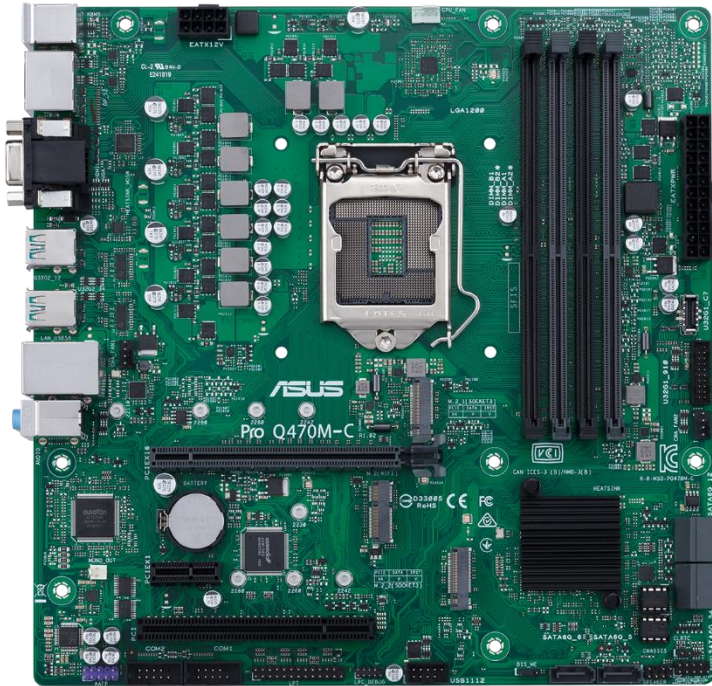
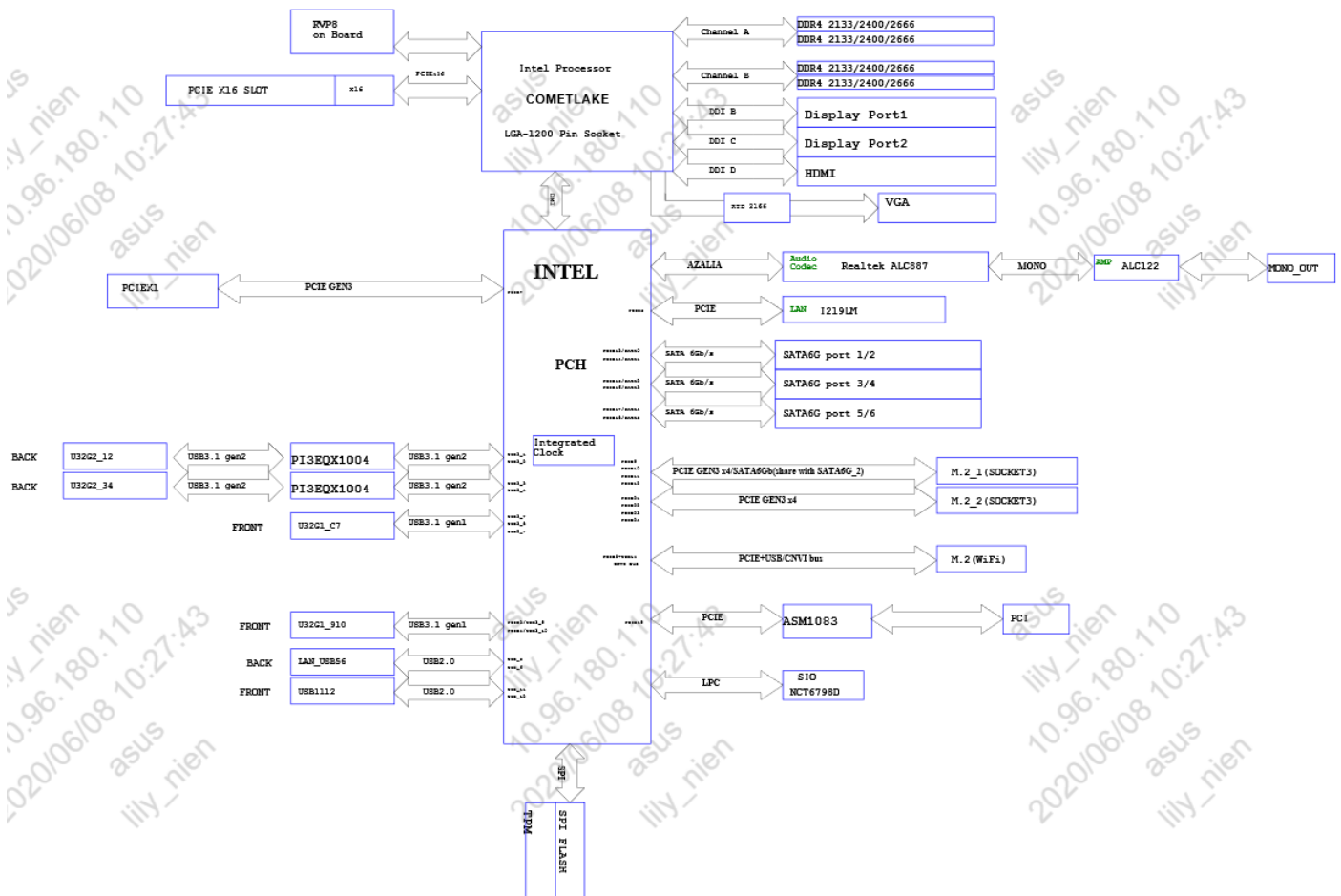


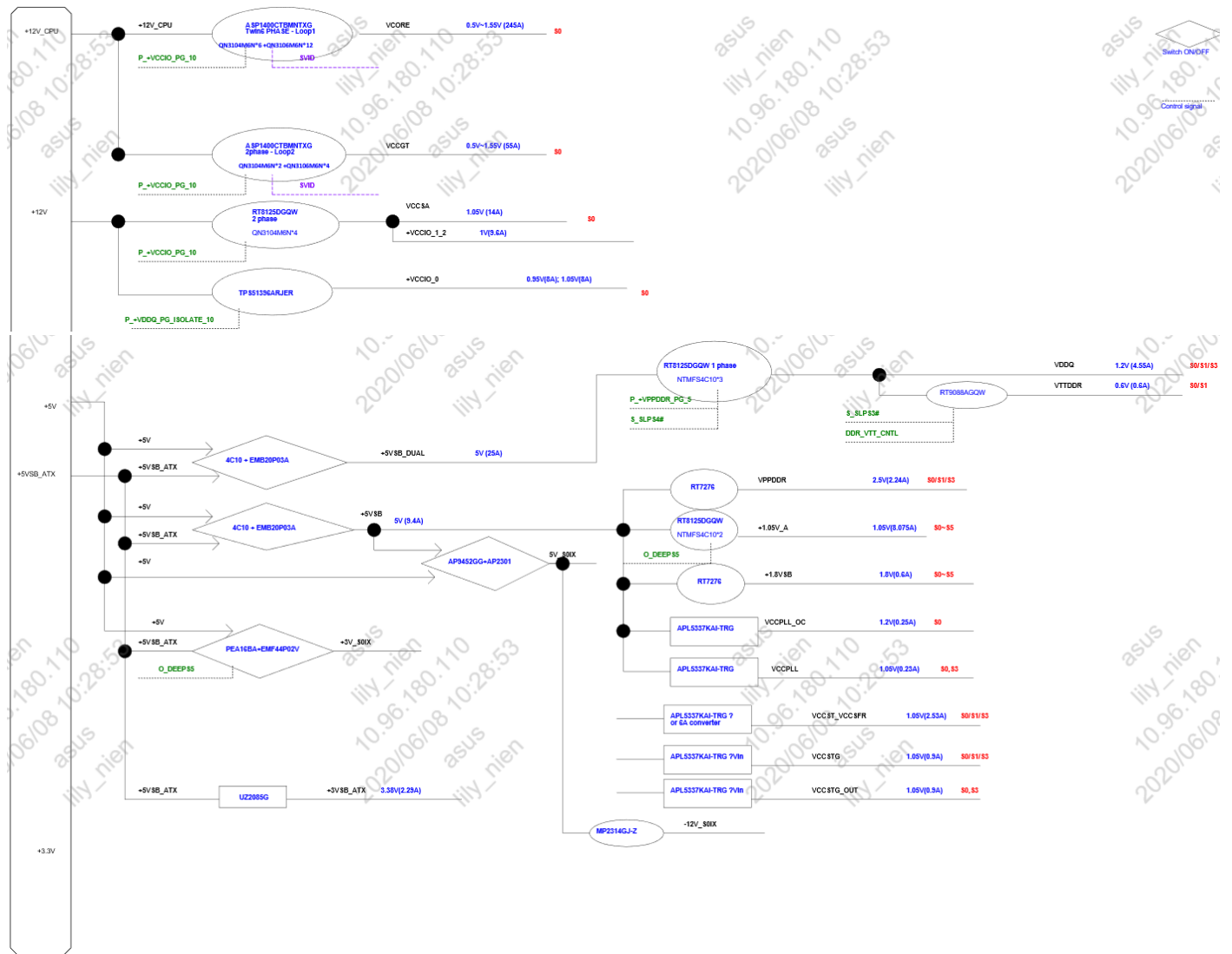
1. STANDARD APPEARANCE



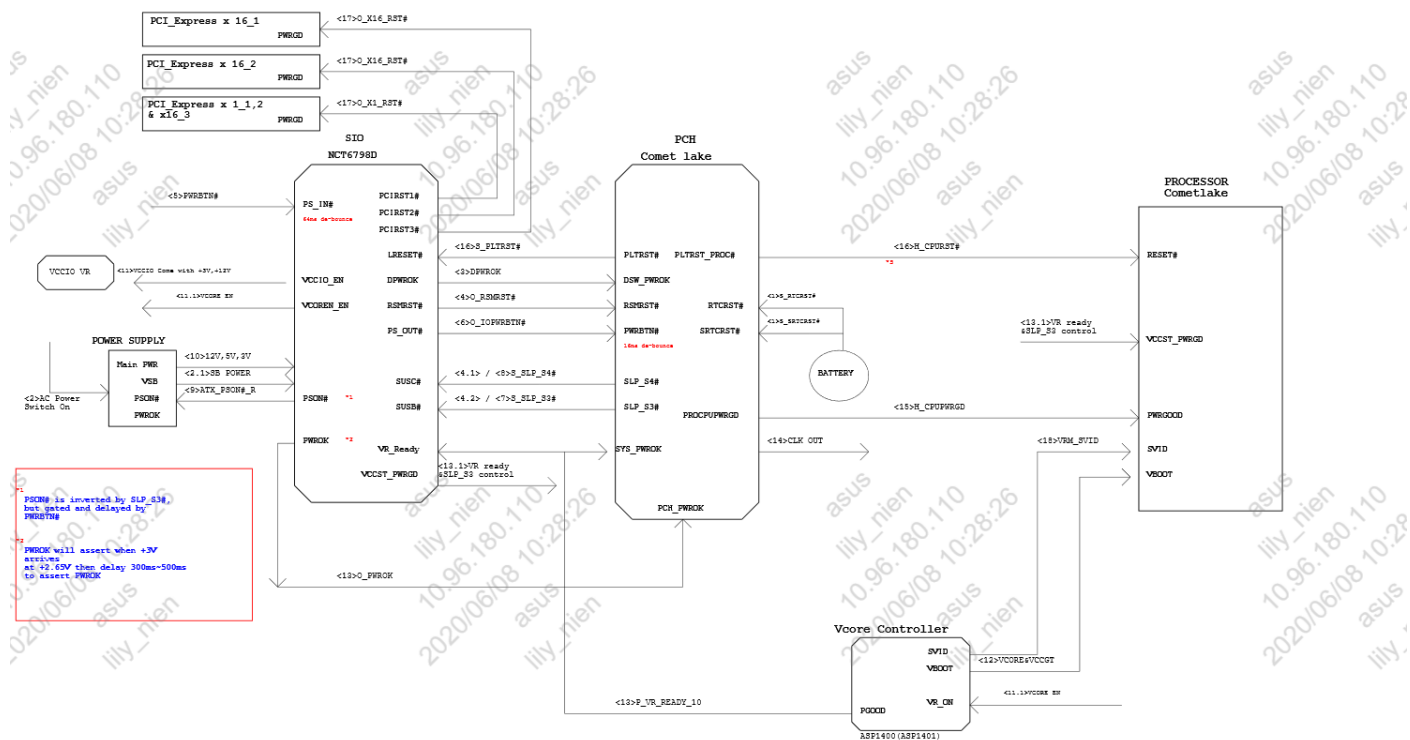
2. BLOCK DIAGRAM



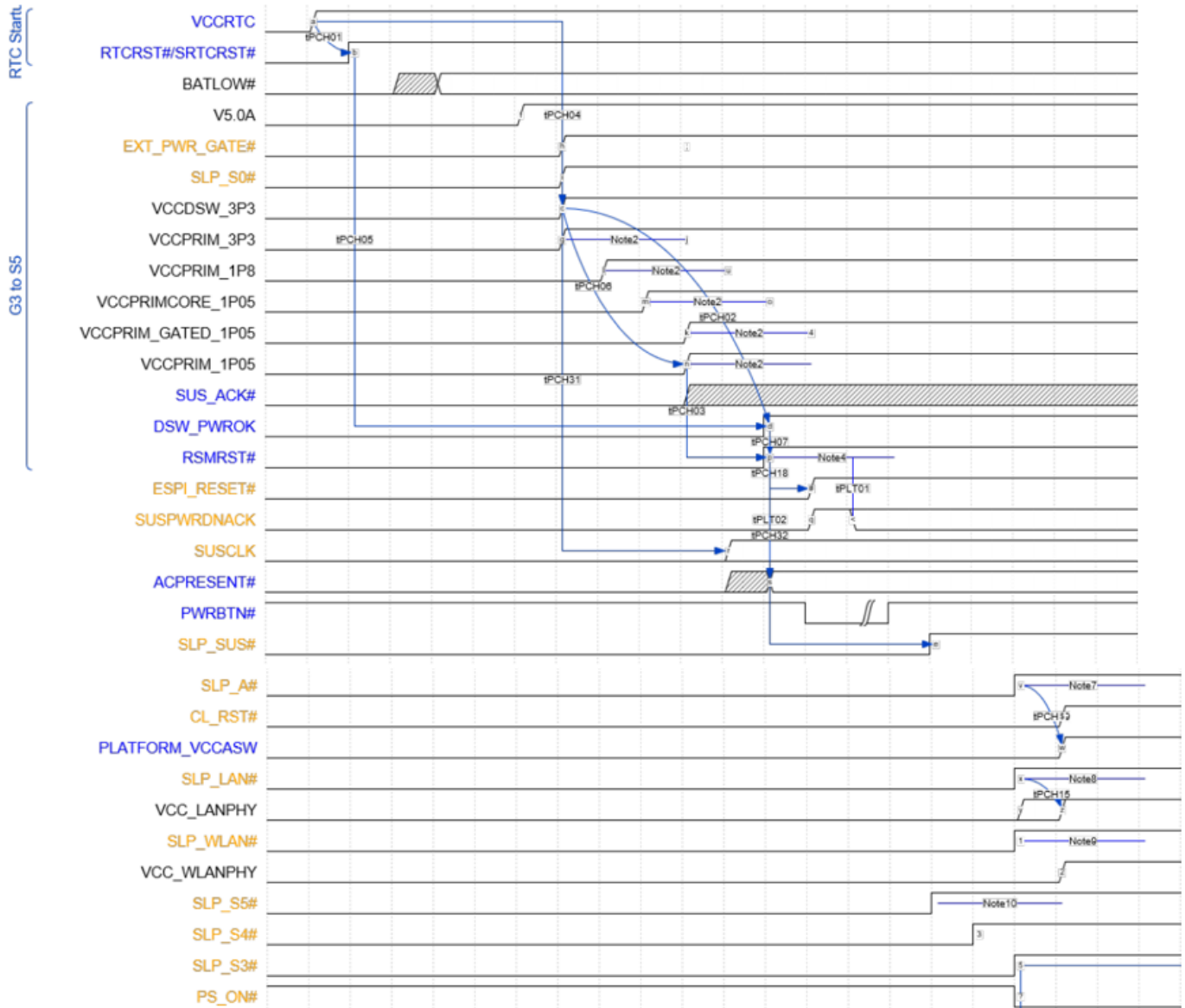
3. POWER FLOW



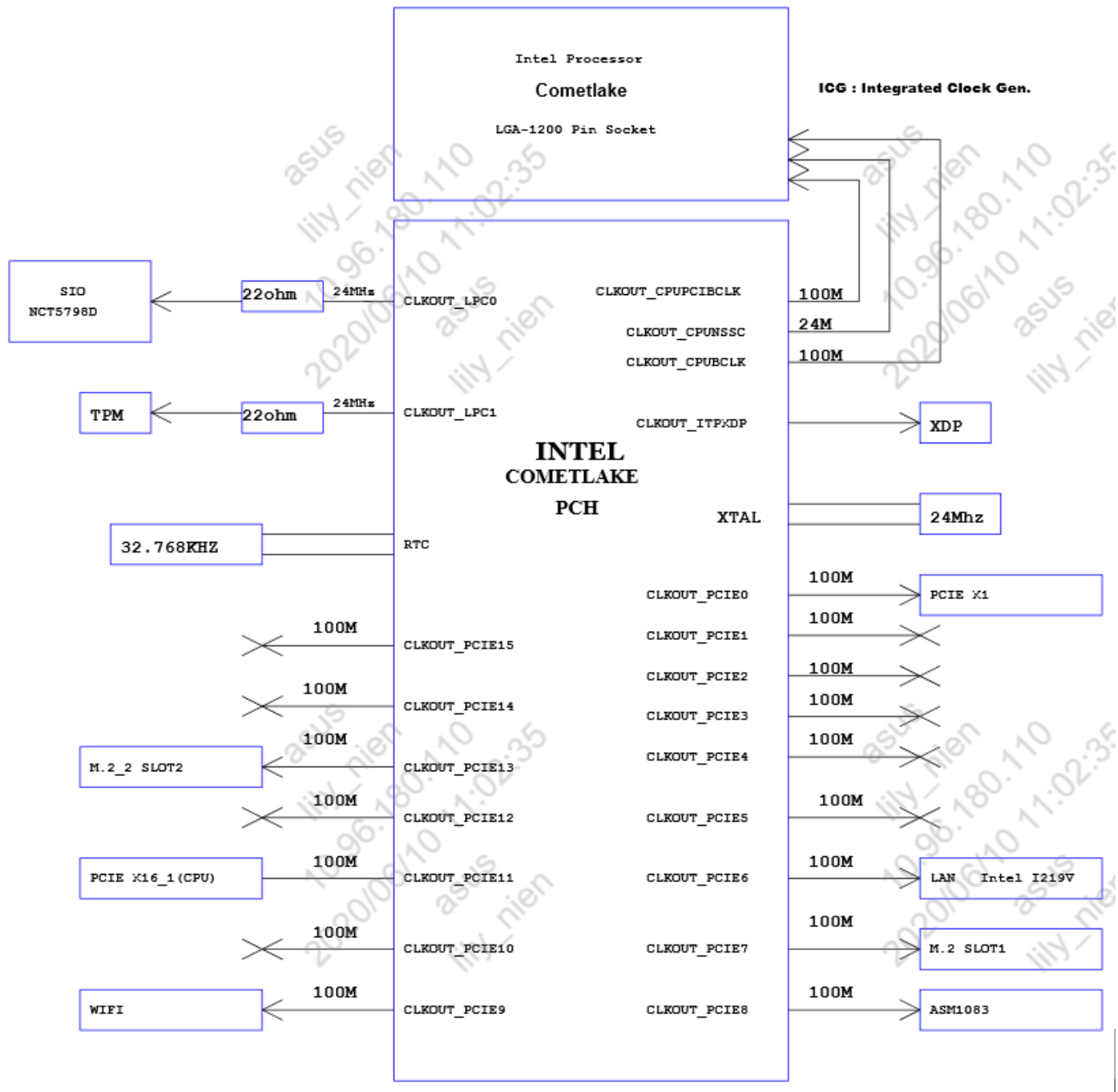
4. POWER ON SEQUENCE



5. Timing Diagram for G3 to S0



6. Frequency Flow



7. Socket reflow profile

Package & Socket Rework

Intel® Lead-Free Rework Thermo Profile Table (for FCBGA & LGA Socket)

Step 1 Board Preheat	Step 2 Soak Time	Step 3 Peak Reflow & Time Above 220 °C	Step 4 Cool Down
Start with solder joint temp $\leq 40^{\circ}\text{C}$	After nozzle is lowered prior to peak reflow (Soak Time: Paste dependant; consult paste manufacturer)	FCBGA Solder Joint Temp $230 - 250^{\circ}\text{C}$ Socket Solder Joint Temp $230 - 250^{\circ}\text{C}$ FCBGA Time Above $\geq 220^{\circ}\text{C}$ 60 – 120 sec Socket Time Above $\geq 220^{\circ}\text{C}$ 60 – 120 sec (preferred) Max delta-t of solder joint temperature for FCBGA at peak reflow $\leq 10^{\circ}\text{C}$ Max delta-t of solder joint temperature for Socket at peak reflow $\leq 15^{\circ}\text{C}$	FCBGA Body MAX Temperature $\leq 250^{\circ}\text{C}$ FCBGA Die Peak Temperature $\leq 300^{\circ}\text{C}$ LGA Socket Body Max Temperature $\leq 260^{\circ}\text{C}/40$ sec.
Rising Ramp Rate $0.5 - 2.5^{\circ}\text{C/Sec.}$	FCBGA Solder Joint Temp: 200 to 220°C Socket Solder Joint Temp: 190 to 215°C		Cooling Ramp Rate FCBGA & Sockets -0.5 to -2.0°C/sec
Board Preheat Solder Joint Temp: $125 - 150^{\circ}\text{C}$	FCBGA Critical Ramp Rate (205 to 215°C): $0.35 - 0.75^{\circ}\text{C/sec}$. Socket Critical Ramp Rate (205 to 215°C): $0.35 - 0.75^{\circ}\text{C/sec}$	Peak Temp Range, and Time Above $\geq 220^{\circ}\text{C}$ spec's met.	PCB land/pad temperature needs to be at $100 - 130^{\circ}\text{C} \pm 5^{\circ}\text{C}$ when removing board from rework machine bottom heater at end of component removal operation or $\leq 80^{\circ}\text{C}$ when using stand alone PCB Pre-Heater for PCB land/pad site dress operation.
Preheat with bottom heater, before nozzle is lowered	Nozzle has lowered to reflow component	Nozzle is down during peak reflow	Socket – Nozzle raises to home position when solder joint reaches peak temp range

Reflow Recommendations

	LGA1150 Socket	PCH
Solder Joint Peak Temperature	235°C to 250°C	
SMT Solder Paste	Needs sufficient flux activity to remove oxides from solder balls. SAC305 (LF) or SAC405(LF), Type 3 or Type 4	
Component Placement	100% ball recognition	
Stencil Design	See stencil modifications slides	
Stencil thickness	0.127mm (5 mil)	
Paste height range	0.127mm to 0.173mm (5.0 to 6.8 mil)	
Time Above 220°C	60 to 120 sec	
Soak Time, sec (over $150^{\circ}\text{C} - 200^{\circ}\text{C}$)	Solder paste / flux dependent. Consult manufacturer for recommendations	
Rising Ramp Rate	$< 3^{\circ}\text{C/sec}$	
Falling Ramp Rate	$< 3^{\circ}\text{C/sec}$	
Package Moisture Sensitivity Level (MSL)	N/A	3
Component Body Max. Reflow Temperature	260°C for 40 sec	260°C
Reflow Environment	N_2 ($\text{O}_2 < 3000$ PPM) is recommended. Air is acceptable.	
Additional Comments	Soak and Time Above 220°C should not be at low end of recommendation to avoid head and pillow defect. Delta T < 10 deg C across Socket recommended to reduce warp and for better ball collapse. Do not bake the socket at any time. Delta-T $< 12^{\circ}\text{C}$ across the board is just a recommendation and not a hard requirement.	

The reflow profile is applicable for LGA115X and LGA1200 platform.