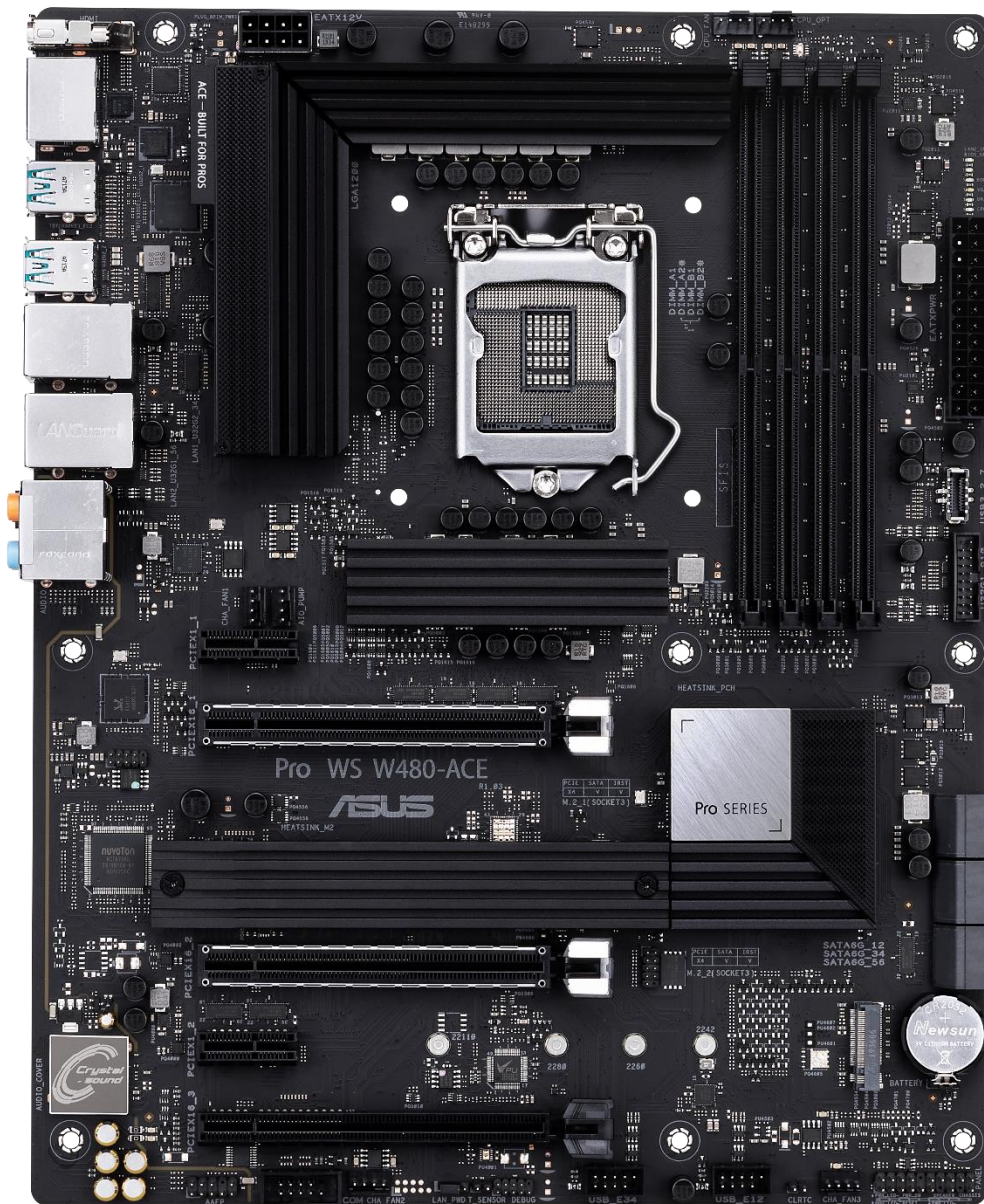
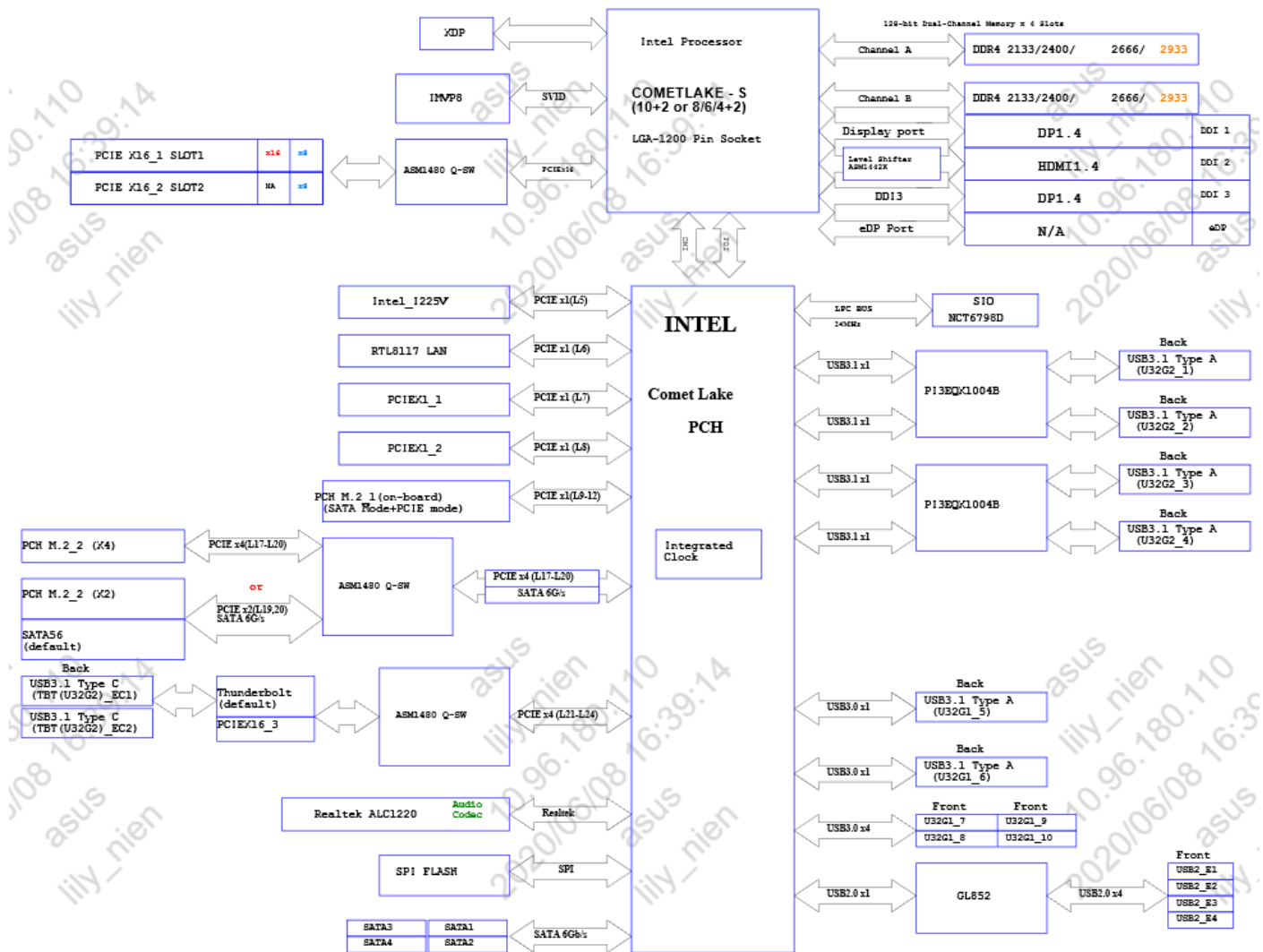


1. STANDARD APPEARANCE



2. BLOCK DIAGRAM



[illegible]

Figure 1-10: Power Sequences

The diagram illustrates the power-up sequence for the motherboard. It shows the relationship between the Power Switch, Power Supply, and the Main PWR, VSB, PSB, and SWBK pins.

Power Switch: The Power Switch is connected to the Power Supply. When the Power Switch is pressed, it triggers the Power Supply to output +5V, +5VSB, +5VPSB, and +5VSWBK.

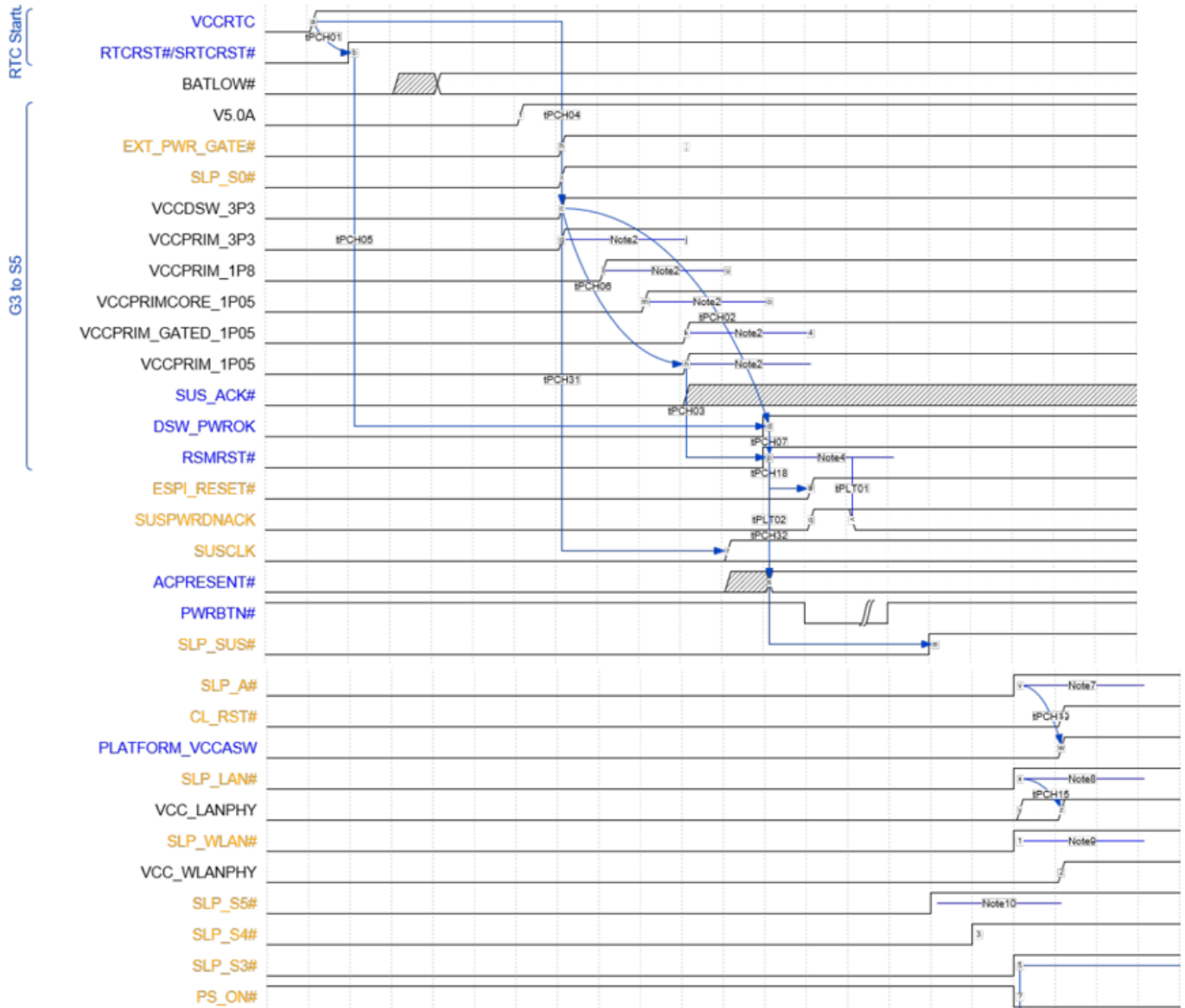
Power Supply: The Power Supply outputs +5V, +5VSB, +5VPSB, and +5VSWBK. It also provides the Main PWR, VSB, PSB, and SWBK pins.

Main PWR, VSB, PSB, and SWBK: These pins are connected to the motherboard. The Main PWR pin is asserted first, followed by the VSB pin. The PSB pin is then asserted, followed by the SWBK pin.

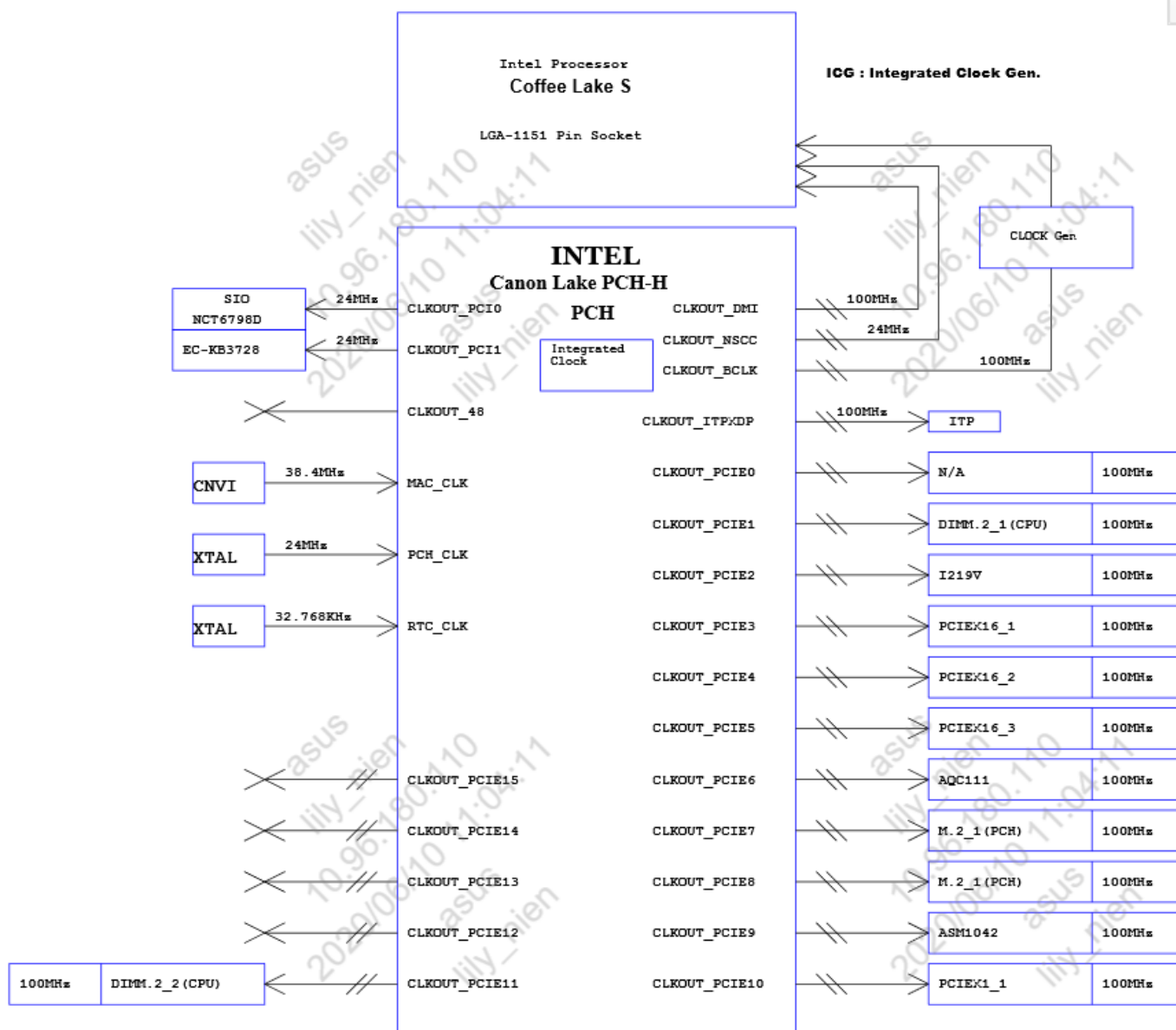
Sequence: The sequence starts with the Power Switch being pressed, which triggers the Power Supply to output +5V, +5VSB, +5VPSB, and +5VSWBK. The Main PWR pin is then asserted, followed by the VSB pin. The PSB pin is then asserted, followed by the SWBK pin. The sequence ends with the Power Switch being pressed again.



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° 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°C	FCBGA Critical Ramp Rate (205 to 215°C): 0.35 – 0.75°C/sec. Socket Critical Ramp Rate (205 to 215°C): 0.35 – 0.75°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 °C – 200 °C)	Solder paste / flux dependent. Consult manufacturer for recommendations	
Rising Ramp Rate	< 3 °C/sec	
Falling Ramp Rate	< 3 °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 (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°C across the board is just a recommendation and not a hard requirement.	