

NB3N3020DTGEVB – Basic Build Verification Test Procedure

1. Purpose

This procedure verifies correct assembly and basic functionality of the NB3N3020DTGEVB evaluation board by confirming:

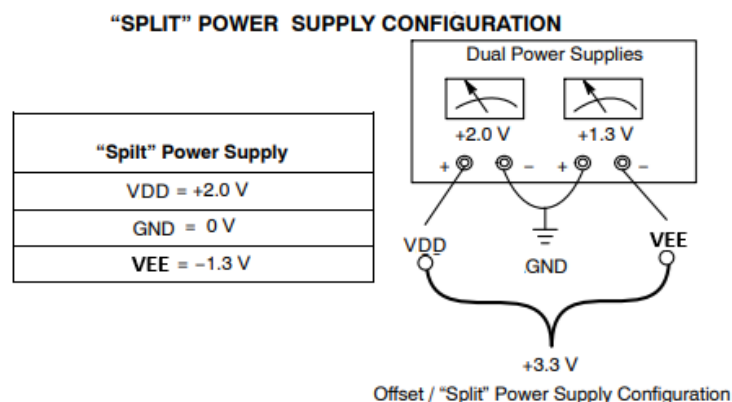
- Proper power delivery and current draw
- Valid output clock presence, frequency, and signal integrity

2. Required Equipment

- Bench power supply – Will require split supply setup
- DMM (voltage and continuity checks)
- Oscilloscope ≥ 500 MHz bandwidth (50 Ω oscilloscope probes and high impedance probes)
- 50 Ω SMA coax cables

3. Power-Up Verification

- Set Jumpers SEL0 (J10), SEL1 (J13) and SEL2 (J14) to Low (Low power Mode)
- Ensure Jumpers on OE1 (J15) and OE2 (J12) are installed
- Ensure 25MHz Crystal is installed.
- Connect CLK2/CLK2B to O-Scope 50 Ω oscilloscope probes (CLK1 will be open and use a high impedance probe for future testing.)
- Apply Power to Connector Jacks
 - GND = 0.0V
 - VEE = -1.3V
 - VDD = 2.0V



4. Current Check and Output Check

- Measure VDD current, should be < 3mA (Part should be in low power mode)
- Remove Jumpers SEL0 (J10), SEL1 (J13), SEL2 (J14) and OE1 (J15) and OE2 (J12) (Multiple by 3.2 Mode)
 - Measure SEL pins, they should measure approx. 1.65V from Vee to Select pin. (Will float to a Mid-level)
 - Measure OE pins, they should measure approx. 3.3V from Vee to OE pin. (Will float to a High-level)
- Measure VDD current, should be in the 80mA range
- Measure output Freq and Amplitude of CLK1 using high impedance probe
 - CLK1 amplitude should be > 2.4V and frequency of 80MHz
- Measure output Freq and Amplitude of CLK2/CLK2B using 50 Ohm Scope probes
 - CLK2/CLK2B amplitude should be roughly 800mV and frequency of 80MHz

5. Enable / Control Pin Check

- Install OE1 (J15) and OE2 (J12)
 - Verify CLK1, CLK2/CLK2B turn off
- Reinstall OE1 (J15) and OE2 (J12)
 - Verify CLK1, CLK2/CLK2B turn back on

6. SEL Pin Verification – Note: By using these various SEL settings, we have verified the L/M/H selections work properly for the 3 select pins

- Set SEL Jumpers – SEL0 (J10) to High, SEL1 (J13) to High, SEL2 (J14) to Low (Multiple by 2.4 Mode)
 - Measure output Freq of CLK1, CLK2/CLK2B, Frequency should be 60MHz
- Set SEL Jumpers – SEL0 (J10) to Low, SEL1 (J13) to Low, SEL2 (J14) to High (Multiply by 6 Mode)
 - Measure output Freq of CLK1, CLK2/CLK2B, Frequency should be 150MHz