bORG v1.2 – Quick Reference (alpha)

Project: Korg Modwave MKI → Arduino Pro Micro (3.3 V) • 2× PCF8574 (CJMCU-2317) • Joystick • Octave shift LEDs

Hardware summary

• Expander #1 (I²C 0x20) – INPUTS: P0 Sustain (CC64), P1 Extra (CC67), P2 Oct UP, P3 Oct DOWN, P4–P7 reserve.

• Expander #2 (I²C 0x21) – OUTPUTS: P0–P2 DOWN RGB (R,G,B), P3–P5 UP RGB (R,G,B), P6–P7 reserve.

• LEDs: common cathode to GND; each anode via 220–330 Ω; ~1–2 mA/channel is fine at 3.3 V.

• Joystick: A0=Pitchbend, A1=Mod Wheel (10 kΩ pots), optional SW to expander input.

• FN button: Arduino D15 (INPUT_PULLUP) – reserved for future hostless config.

Octave shift & LED colors

• Shift range: −3..+3 octaves relative to NOTE_BASE (default 48/C3).

• Only one LED is lit:

– DOWN LED: negative shifts; – UP LED: positive shifts.

– Color map: ±1 → GREEN, ±2 → YELLOW (R+G), ±3 → RED; 0 → both OFF.

SysEx command reference (0x7D non-commercial ID) — format: F0 7D <cmd> [data...] F7

v1.0

01 cc Select velocity curve (cc=0..7) e.g. F0 7D 01 03 F7 → PIANO

02 Calibration start (unlock) F0 7D 02 F7

03 Calibration lock (stop) F0 7D 03 F7

04 Save calibration+settings to EEPROM F0 7D 04 F7

05 Factory reset (defaults) F0 7D 05 F7

06 vv Set fixed velocity (1..127) F0 7D 06 64 F7 → 100

0A STATUS → Serial Monitor F0 7D 0A F7

v1.1

07 cc Set MIDI channel (1..16) F0 7D 07 0A F7 → ch.10

08 pp Send Program Change (0..127) F0 7D 08 14 F7 → PC#20

v1.2 (alpha)

– Octave shift via buttons (no SysEx yet). Future: config dump/load (TBD).

Testing checklist

☐ I²C OK (0x20 inputs, 0x21 outputs) ☐ Sustain CC64 0/127 ☐ Extra CC67 0/127