

Electronics

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Draft content: measurements and settings will be updated as they are verified on the arm.

Kinematics are computed on the PC; the Arduino Mega only generates steps and reads position feedback. Six MKS SERVO42C drivers share a single addressed UART bus through the control board.

CONTROLLER	Arduino Mega 2560 + RB-6 shield v2 (200 × 130 mm, 2 layers)
DRIVERS	6 × MKS SERVO42C, closed-loop
MOTOR	NEMA17 + 33:1 cycloidal reducer
DRIVER BUS	Addressed UART · Mega Serial2 (D16/D17) · addresses 0xE0–0xE5
PC CONNECTION	USB → Mega Serial0
POWER	24 V / 15 A, TVS-protected input
EMERGENCY STOP	Hardware NC relay; cuts power independently of the software

Safety: Connect the emergency stop button and test it before the first power-up. The software rejects out-of-limit motion requests, but the only protection against a mechanical collision is the hardware emergency stop.