

HP Latency Test Results (w/ additional RAM)

| | Max Interval | Max Jitter |
|--------------|--------------|------------|
| Servo Thread | 1,037,141 | 42,581 |
| Base Thread | 49,350 | 24,486 |

Stepper Motor Specs

| | |
|--------------|--|
| Model | Wantai 57HBM20 |
| Size | Nema 23 |
| Torque | 21. N.cm |
| Current | 4.0A/Phase |
| Phase | 2 |
| Step Angle | 1.8° |
| Encoder Res. | 1000 (Encoder signal to stepper driver only) |

Stepper Driver Specs

| | |
|---------------------|--|
| Model | Wantai (Longs?) SS570 |
| Supply | 36vdc |
| Output Current | 4.5A |
| MicroSteps (Max) | 16 |
| Micro Steps/Rev Set | 3200 |
| ENA ahead of DIR | > 5000 ns |
| DIR ahead of PUL | > 6000 ns |
| Pulse Width High | > 2500 ns |
| Pulse Width Low | > 2500 ns |
| Pulse Frequency | 0 ~ 200 KHz |
| Max mm/min | 1 sec ÷ 5000 ns = 200,000 steps/sec 200KHz ÷ 3200 microsteps = 62.5 revs/sec 62.5 x 2.5mm = 156.25 mm/sec = 9,375 mm/min |
| SW1 set to On | Active edge falling (tried both ways, no difference) |

LinuxCNC - Max Velocity @ 50 = max feedrate of 3,000 mm/min

Max Acceleration @ 200 = max speed in 0.25 secs

Control Board

| | |
|-------------|---|
| Model | Pico Systems Universal Stepper Controller |
| Revision | 2.4 : 2007 |
| Pulse_Width | 3000 |
| Pulse_Space | 3000 |
| Setup_Time | 10000 |

| | |
|-----------|-------------------------------------|
| Dip Sw 1 | Off - No encoder count |
| Dip Sw 2 | Off - No encoder count |
| Dip Sw 3 | Off - No encoder count |
| Dip Sw 4 | Off - No encoder count |
| Dip Sw 5 | On - Step & Dir control |
| Dip Sw 6 | On - Step & Dir control |
| Dip Sw 7 | On - Step & Dir control |
| Dip Sw 8 | On - Step & Dir control |
| Dip Sw 9 | On - Dir bit changes with generator |
| Dip Sw 10 | On - IEEE-1284 (0-31) |

Ball Screw Specs

| | |
|----------------------|-------|
| Diameter | 12 mm |
| Pitch/Rev | 5 mm |
| Stepper Pulley Ratio | 15:30 |
| 1 Stepper Rev | 2.5mm |

$$\text{Input Scale} = \frac{16 \text{ steps}}{1.8 \text{ degs}} \times \frac{360 \text{ degs}}{\text{rev}} \times \frac{0.4 \text{ rev}}{\text{mm}} = 1280 \text{ steps/rev}$$