

The PCL61x3 series are motion control ASICs designed to drive servo and stepper motors in general motion control applications. Their super high-speed pulse output rate makes them compatible with high-resolution linear motors.

The advanced functions offered by this ASIC can be controlled with simple commands, easing the motion control burden on both the CPU and the user.

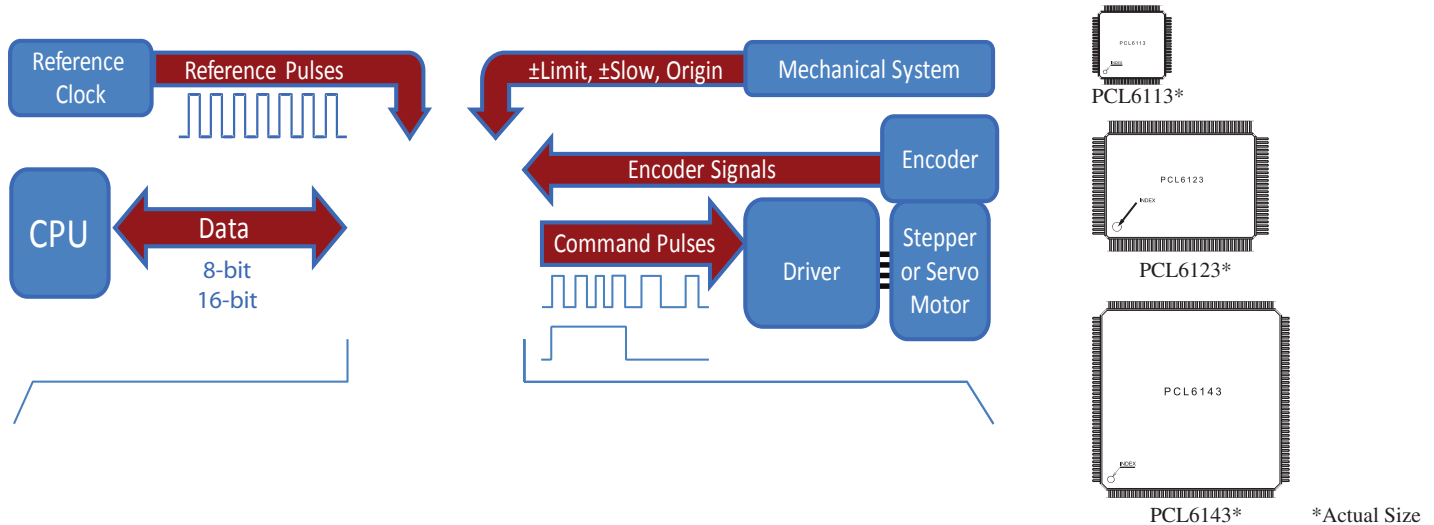
The PCL61x3 Series is the standard in stepper and servo motor control.

Features:

- Linear interpolation for any number of axes
- Pre-buffering for continuous motion
- Fully customizable Linear and S-curve acceleration/deceleration
- Ring count function
- On-the-fly override of speed or target position
- Anti-jerk drive correction
- Built-in homing routines
- Automatic setting for ramping-down point
- Comparator function

Applications:

- Soldering/Welding machine
- Electronic gearing
- Microscope positioning
- Medical
- Fine Metrology/Calibration
- High-speed automation



Constant Speed

Trapezoidal Profile

S-Curve Profile

Anti-Jerk Drive Correction

Linear Interpolation

On-the-Fly Adjustment

General Specifications

Item	Description
Available Configurations	1, 2 or 4 axis
Max Output Speed	15 Mpps (with 30 MHz reference clock)
Position Range per Axis	-134,217,728 to +134,217,727 (28 bits)
Speed Range per Axis	1 to 16,383 (14 bits)
Acceleration Rate Range per Axis	1 to 16,383 (14 bits)
Deceleration Rate Range per Axis	1 to 16,383 (14 bits)
Mechanical Sensor Input per Axis	ORG , +EL , -EL, SD
Servomotor I/F per Axis	INP, ERC, ALM servomotor inputs
Encoder Input Max Frequency	2.5 MHz (with 30 MHz reference clock)
Typical operations	- Continuous operation - Positioning operation - Continuous operation using a $\pm$DR switch - Origin return operation - Timer operation - Continuous operation using a pulsar input
Typical functions	- Immediate stop and decelerating stop - Speed / target position change - External start and external stop function - Idling pulse output function - Auto ramp-down - Triangle drive suppression
Number of Registers for Speed Setting per Axis	2 (FL, FH)
CPU Interface	8-bit, 16-bit
Power Supply	3.0 to 3.6 V
Package	PCL6113: 80-pin QFP (mold section :12.0 $\times$ 12.0 mm) PCL6123: 128-pin QFP (mold section :20.0 $\times$ 14.0 mm) PCL6143: 176-pin QFP (mold section :24.0 $\times$ 24.0 mm)
Chip design	CMOS (Complementary Metal-Oxide Semiconductor)

