

railcore

A) Introduction

This Guide will walk you through building a RailCore® II 300 ZL Kit from Filastruder

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INTRODUCTION

Background

RailCore® II is a [CoreXY-based RepRap](#) 3D printer designed by J. Steve White and Tony Akens and published under the [CC Attribution Only](#) license. The initial collaboration behind the RailCore started in the #reprap IRC channel and centered on some common goals for a new printer design.

These goals were:

- CoreXY motion
- All linear rails for movement
- Space and cost-efficient with an enclosable frame
- Key components being printable or able to be milled
- Flexibility, customizability, and scalability built into the design
- Professional-looking
- Can be self-sourced

History

J. Steve White had previously built the Railcore - the alpha version of this printer. Lessons were learned and the design on the new printer began. All design work was done in Fusion360.

As it progressed, we decided to publish this printer in an open, documented format for others to build as well.

Overview

The frame is designed to use 1515 aluminum extrusions. This was a space-efficient choice, which makes building the printer easier, as standard M3 hardware fits nicely into the extrusion like T-Nuts would. To add rigidity, we use sides made from HDPE to stiffen the frame. (These can alternatively

be cut out of any material you prefer, including melamine, plywood, acrylic and aluminum.) The total cost for the actual frame components (extrusion, corner cubes, and sides) is roughly \$100 USD.

Notable aspects of the design include:

- 3 trapezoidal lead screw Z-axis, stacked idlers, and duo-planar belt path
- The electronics in the design are the Duet (Wifi or Ethernet), Duex2/5, 24v PSU and 0.9 degree steppers
- We use an E3D v6 for the design, as it's the most common hotend at this time
- Support for other hotends such as Volcano, Mosquito, and many others are also available
- Semi-direct drive or full bowden are both supported

The current railcore kit is assembled and sold by Filastruder. This guide should cover the "standard" kit configurations they sell. It may work with other variations including self source builds, and "add-ons", with minor variation.

If you need assistance with your build, a strong community of support is available at our discord channel: <https://discord.gg/sShTCJS>

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