

A Centroid Acorn CNC System on a RF-30 Mill/Drill, Version 1.0

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In 2015 I converted my RF-30 Mill/Drill to CNC². The software was Mach3. Some of the features either did not work at all, were flaky, or required elaborate work arounds³. Yet it worked well enough to make some very complex parts and it certainly taught me a lot about CNC.



I was excited to hear that Centroid was about to come out with the Acorn⁴. The software that runs on a PC with Windows 10 provides the human/machine interface while a custom board called Acorn drives steppers.

I don't have much firsthand experience with this new software and hardware, but so far am impressed.

Numerous YouTube videos from Centroid helped me set up Windows 10 and Centroid software. The library of documents is both large and of high quality. Their forum has many experts that have good accurate answers. These experts do have day jobs so sometimes it takes a while to get an answer but it is worth the wait.

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² <http://rick.sparber.org/CNCHW.pdf>

³ <http://rick.sparber.org/ma.htm#13>

⁴ Google Centroid Acorn for details.

When I ran Mach3, control passed from the Windows XP based software to a Break Out Board (BOB) via a parallel printer port cable. I went with the suggested pinouts in this cable. Sure glad I did. Centroid has an option called "S14834-ACORN TO GECKO G540 WITH STOCK DB25 CONNECTIONS Legacy" that let me plug this cable directly into the Acorn board. All I needed to do was remove one jumper wire from the BOB.



Sitting behind my new touch screen monitor is my new green box. I chose this area because after over 10 years of using my mill, this area was clean. That makes it a good place to put delicate electronics.

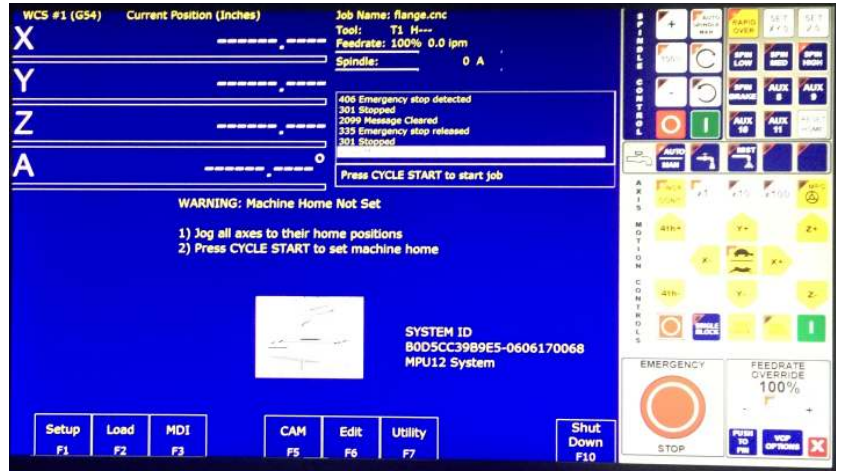


The blue Ethernet cable attached to the left side of the PC runs inside the green box to the Acorn board.

My PC is a Lenovo ThinkCentre M92p Tiny preloaded with Windows 10. It has a solid state drive, 4 GB of RAM, and WiFi. Since I cannot have real time hogs like virus scan on this PC, WiFi is normally turned off.

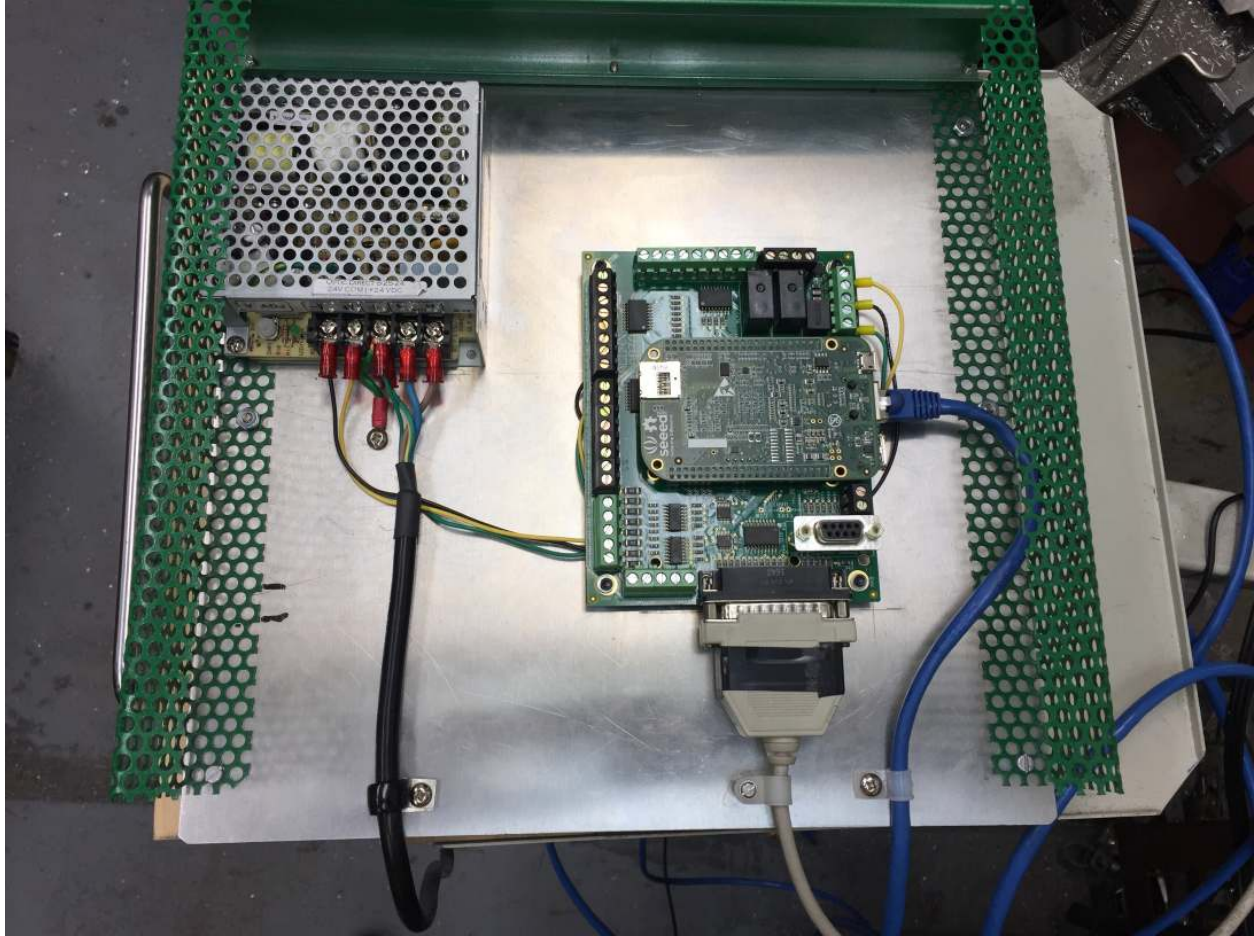


The PC sits on a custom fit shelf and is locked in place with a single screw (red arrow).



The touch screen monitor gives me easy access to "soft" controls displayed by the software. I also have a mouse and keyboard as alternate ways to interface to these functions.

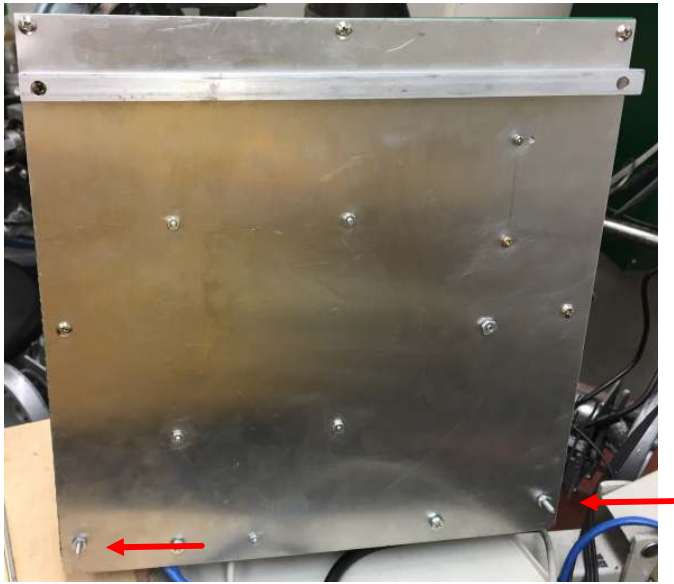
I prefer to manually control both the spindle motor and coolant so they are not connected to the Acorn board. If I change my mind, it will be easy to add this functionality.



The green box is 2" X 12" X 12" and you can see there is plenty of room to add hardware. Shortly after taking this picture I realized that my Ethernet cable was far too long so I coiled up the excess against the right side grill. Still have plenty of room.

You can see the Acorn board on the right and its power supply next to it on the left.

My main control box that contains the BOB and motor drivers uses this same side grill structure and was clean when recently opened. My shop can easily get above 110° if I have not been running my air conditioning and I didn't want to overheat my electronics by limiting air flow.



The box just hangs on the wall by a channel bolted to the back of the box. Long screws (red arrows) at the bottom keep the box parallel to the wall.

Acknowledgments

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I welcome your comments and questions.

If you wish to be contacted each time I publish an article, email me with just "Article Alias" in the subject line.

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