

Thesis Title	Development of Single Board Computer Controller for CNC Milling Machine
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ABSTRACT

The Computer Numerical Control (CNC) machine control system provides digital signals to a stepping motor to control machine table movement. It controls the machine table in X- and Y-axis directions and the machine head in vertical direction by G-code commands and a numerical control (NC) program. The CNC control system was on a single board computer, PC/104 Mity-Mite module. Its construction cost is low and works as easy as a personal computer. The digital signals generated from the computer go to three SILA-Research EXSTEPM stepping motor controller boards, which controls the stepping motor of SHERLINE 5410 table type CNC milling machine. Turbo Pascal is the language used in the controlling program. The advantages of using Pascal are the ease of program development, legal distribution and support the government policy about the open source programs pormotion. It is shown that the CNC system control the table type machine effectively. The test shows an error less then 0.762 mm. of a turning sample, and the resolution in machine is better than 0.005 mm. The error in repeatability is better then 0.009 mm.