

# Reconfigurable NC Systems with PC

Suk-Hwan Suh · Sung-Kee Noh · Yong-Jong Choi

Dept. of Industrial Engineering  
Pohang Institute of Science and Technology

Reconfiguration of a CNC control system is powerful as a means for enhancing controllability and machining performance. Through the reconfiguration, a) an originally 2-axis NC machine can be upgraded for multi-axis machine, b) the accuracy of the path tracking can be improved, and c) On-line monitoring and control scheme (for tool breakage, tool wear, adaptive control) can be implemented. In this paper, we address the concept and importance of such reconfiguration and present our research progress toward the goal.

Specifically, we develop a reconfigurable NC control system consisting of a PC-286, Interface controller, Motor driver, and Easimill 2-axis milling machine. To show the powerfulness of the developed system, various experiments were performed and compared with those of Denford Controller, the original controller for Easimill CNC machine. Future research is to extend the reconfiguration system to on-line monitoring and control of machining.