Crisan, R.; Folea, S.; Nascu, I. & Muresan, B. (2009). LabVIEW Benchmarks for Real Time Embedded Systems (2009). 1715-1717, Annals of DAAAM for 2009 & Proceedings of the 20th International DAAAM Symposium, ISBN 978-3-901509-70-4, ISSN 1726-9679, pp 858, Editor B[ranko] Katalinic, Published by DAAAM International, Vienna, Austria 2009

Abstract: The purpose of this paper is to test and evaluate the performance of Programmable Automation Controllers (PACs) as compared to classical systems (PCs). After performing the experiments we should be able to choose a suitable platform for implementing a Generalized Predictive Control (GPC) algorithm. Two embedded platforms developed by National Instruments (NI) are tested: NI CompactRIO Real-Time Controller and NI PXI Embedded Controller. Further, a comparison between these platforms and a PC is made, from the real time performances point of view, emphasizing a series of statistical parameters regarding these performances: standard deviation, maximum jitter and execution mean time. Because of the high portability of LabVIEW software, it was possible to create benchmarks which, with little modifications, can run on all tested platforms.

Key words: embedded, real-time, benchmark, control.