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Dissertation Report: A review and comparison of the open-source and commercial soft-core processors

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Abstract. As embedded systems become more and more popular and accessible to the large public and the performance increases with every generation, new ideas and projects implying specific implementations are brought out requiring development and support. One such example is represented by the various soft processors already existing or in development in the public space. These processors are implemented using logic synthesis which translates a design described by a hardware description language (HDL) into a logic gate implementation. Both open-source and commercial soft processors have advantages and disadvantages in terms of cost, support, complexity, performance and the use-case for which each processor was designed. A detailed comparison will be made in this report for some of the most known solutions in order to create a general idea about the subject and to highlight the above-mentioned features.