VLIW DSP - A Scalable, High Performance Digital Processing Platform for Printers and Copiers

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Abstract

Because of their high-speed arithmetic computation and memory access facilities, very long instruction word digital signal processors (VLIW DSPs) are extremely well suited for real-time image processing applications. This paper illustrates how PDLs such as Postscript can be ported from a traditional ASIC based controller environment to a VLIW DSP based environment and elements of the page processing pipeline accelerated using high-speed arithmetic operations coupled with VLIW parallel execution capabilities. The paper also compares and contrasts traditional RISC and ASIC architectures with the emerging RISC and DSP architectures. This new more programmable environment can make interfaces of the system components more modular and flexible which helps a controller developer to reduce system development time and cost and have a easily scalable controller architecture.