

In this paper, we extend the ArchC language with new constructs to describe the assembly language syntax and operand encoding of an instruction set architecture. Based on the extended language we have created a tool which can automatically generate assemblers. Our tool uses the GNU Binutils framework in order to produce the assembler, generating the architecture dependent files necessary to retarget the GNU assembler and the Binutils libraries. We have generated assemblers for the MIPS-I and SPARC-V8 architectures based on ArchC models using our tool. The assemblers generated for both architectures were compared with the default gas assemblers for a set of files taken from the MiBench benchmark, and the ELF object files generated by each pair of assemblers were equivalent in both cases.