OpenRISC ISA cheatsheet

The main source of information on OpenRISC is the architecture manual, which can be found here: `https://raw.githubusercontent.com/openrisc/doc/master/openrisc-arch-1.4-rev0.pdf`. In particular, the following sections are of use:

- Chapter 5 describes the instructions in detail.
- Chapter 18 (page 362) presents a table of all instructions including their instruction format.

We will be implementing the *32-bit* OpenRISC instruction set. Below follow the register convention used with OpenRISC and some common instruction formats to give you a start with understanding OpenRISC instruction decoding.

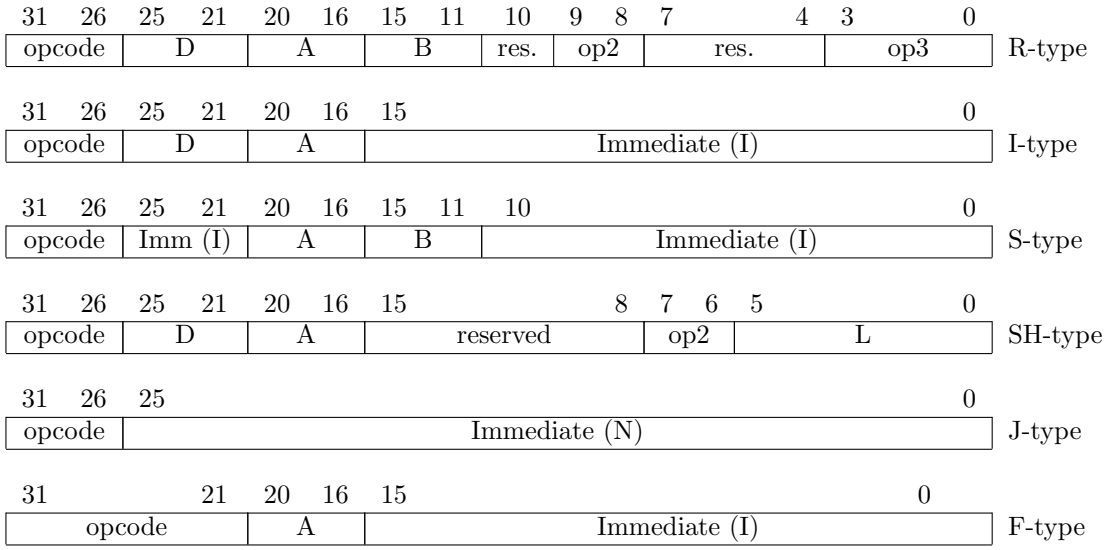
Register convention

In the table below, the commonly used register convention for OpenRISC can be seen.

Register	**Omschrijving**	**Saver**
r0	Hard-wired zero	-
r1	Stack pointer	
r2	Frame pointer	
r3-r8	Function arguments[1] [2]	Caller
r9	Link/return address	Callee
r10	Callee-saved	Callee
r11	Return value	Caller
r12	Return value upper 32-bits	Caller
r13,r15,...,r31	Temporary	Caller
r14,r16,...,r30	Callee-saved	Callee

Instruction Formats

The OpenRISC architecture manual does not explicitly describe instruction formats as is done in the RISC-V manual. However, we can deduce several instruction formats from studying the instruction table in Chapter 18. We list some of these formats (not all) in the table below.



[1] The 7th and further arguments are put on the stack.
[2] Variadic arguments (such as arguments following a `printf` format string) are *always* put on the stack.