Control Structures

Conditionals – IF-ELSE

Assuming the values have already been transferred from memory into registers:

\[
\begin{align*}
\text{Register}_3 &= 1; & \text{else} & \text{Register}_3 &= 0; \\
& \text{end if};
\end{align*}
\]

It seems there are two status flags condition:

- True
- False

We can find the index, the start and end values and the body code.

Loops – FOR

Assuming the values have already been transferred from memory into registers:

\[
\begin{align*}
\text{Register}_3 &= \text{Register}_3 + \text{Register}_1; & \text{end loop;}
\end{align*}
\]

We might need to look in assembly?
Computational complexity: \( \mathcal{O}(n) \).
Control Structures

Conditional — CAM (indexed)

\[
\text{case Register}_1 \text{ is} \\
\quad \text{when Red} \Rightarrow \text{Register}_3 := \text{Register}_2; \\
\quad \text{when Green} \Rightarrow \text{Register}_4 := \text{Register}_2; \\
\quad \text{when Blue} \Rightarrow \text{Register}_5 := \text{Register}_2;
\]

end case;

\[\frac{\text{case_red} - \text{branch_table}}{2}\]

\[\text{ elsif } \text{r1} > \text{r2} \text{ then } \text{r2} \]

\[\text{ elsif } \text{r1} = \text{r2} \text{ then } 0 \]

\[\text{ else Integer'Invalid)\]

\[\text{r2}\]

\[\text{indexed_case}\]

\[\frac{\text{case_green} - \text{branch_table}}{2}\]

\[\text{.hword}\]

\[1\]

\[\text{case_entry}\ id\ case_nr\ case_body\ other_cases:vararg\]

\[\text{end_case}\]

\[\text{break; case}\]

\[\text{end_case}\]

You can form all common sequential control structures (or generate these ones yourself):

1. guards
2. guard conditions
3. guard expression statements

The parts that are actually producing code are highlighted.

... and still more entries to add

Still more involved than the previous

...