Fibonacci Code Verification

Given the Fibonacci sequence, \( f_0 = 0, f_1 = 1 \), and \( f_i = f_{i-1} + f_{i-2} \), prove that the program segment

\[
\begin{align*}
\text{fibm2} &:= 0 \\
\text{fibm1} &:= 1 \\
i &:= 2 \\
\textbf{while } i \leq n \textbf{ do} \\
& \quad \text{fib} := \text{fibm1+fibm2} \\
& \quad \text{fibm2} = \text{fibm1} \\
& \quad \text{fibm1} = \text{fib} \\
& \quad i := i+1 \\
\textbf{end}
\end{align*}
\]

is partially correct with respect to precondition "\( n \geq 2 \)" and postcondition "\( \text{fib} = f_n \)."