The ForSyDEsystem which performs the the Fast Fourier Transform can be defined in terms of atoms as:

$$\texttt{fft}_S\ k\ vs = \texttt{bitrev}_S((stage \diamondsuit_{\cdot} kern) \diamondsuit\!\!\!\!- vs) \tag{1}$$

where the constructors

$$stage\ wdt = \texttt{concat}_S \circ (segment \diamondsuit_{\cdot} twiddles) \circ \texttt{group}_S\ wdt \tag{2}$$

$$segment\ t = \texttt{unduals}_S \circ (butterfly\ t \diamondsuit\!\!\!\!-) \circ \texttt{duals}_S \tag{3}$$

$$butterfly\ w = ((\lambda\ x_0\ x_1 \rightarrow x_0 + wx_1, x_0 - wx_1) \triangle\!\!\!\!+) \oplus\!\!\!\!- \tag{4}$$

are aided by the number generators

$$kern = \texttt{iterate}_S\ (\times 2)\ 2 \tag{5}$$

$$twiddles = (\texttt{reverse}_S \circ \texttt{bitrev}_S \circ \texttt{take}_S\ (\texttt{lgth}_S\ vs/2))(wgen \diamondsuit_{\cdot} \langle 1..\rangle) \tag{6}$$

$$wgen\ x = -\frac{2\pi(x-1)}{\texttt{lgth}_S\ vs} \tag{7}$$